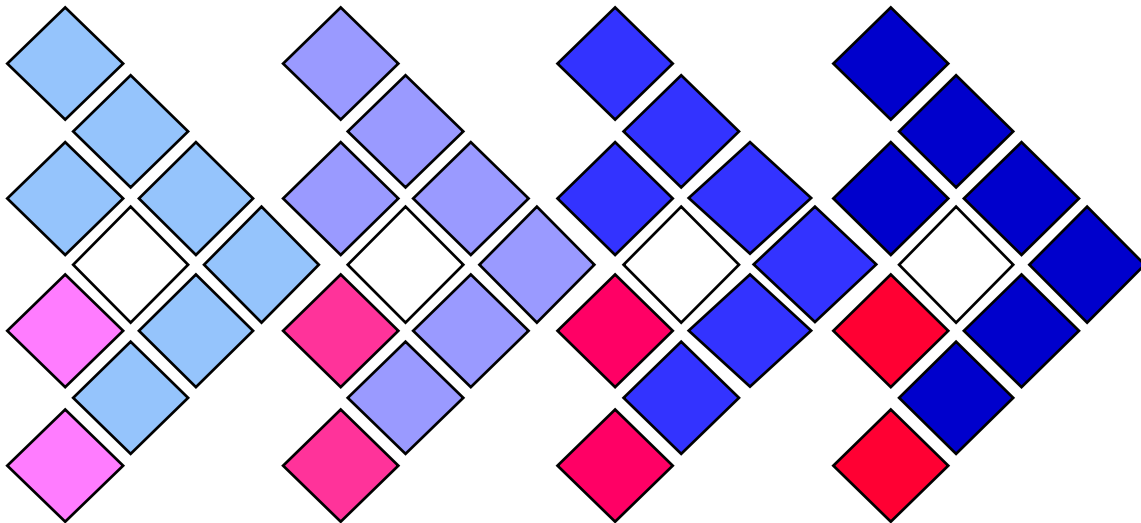


**2006**  
FSD0A\_A

STANDARD CELL

**FSD0A\_A**  
**90 nm Logic SP-RVT (Low-K) Process**



**FARADAY**  
TECHNOLOGY CORPORATION



# REVISION HISTORY

FSD0A\_A Data Book

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Preliminary

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# Chapter 1

## Introduction to Faraday FSD0A\_A Standard Cell

---

This chapter contains the following sections:

- 1.1 General description
- 1.2 Core Cells
- 1.3 I/O Cell
- 1.4 DC Characteristics
- 1.5 AC Characteristics
- 1.6 Power Consumption
- 1.7 Guide to Data Sheet

## 1.1 General description

The FSD0A\_A library is a 90 nm standard cell library tailored for UMC's 90 nm logic SP-RVT (Low-K) process. It is optimized for the applications requiring high performance, low operating power consumption, and ultra high density.

The 10-track (2.8  $\mu\text{m}$ ) cell height has the industry's smallest cell layout area (400k gates/ $\text{mm}^2$ ). The optimized drive strength of this library is based on Faraday's rich experience of over 1,000 successful ASIC projects. It provides an extensive library database that is easy to manage and use. These rich and complex cells allow the users to shorten the design time by employing the most up-to-date synthesis tools to achieve the design goals.

### 1.1.1 Characterization Conditions

Table 1-1. Characterization Conditions

Operating condition		Min	Typ	Max	Unit
VCC	Core cells	0.9	1.0	1.1	V
	2.5 V I/O cells	2.25	2.5	2.75	V
T <sub>J</sub>	Junction operating temperature	-40	25	125	°C

### 1.1.2 Technology and Features

The FSD0A\_A is a 90 nm standard cell library with the following features:

### 1.1.3 General Characteristics

Table 1-2 below lists the general characteristics of the FSD0A\_A library.

Table 1-2. General Characteristics

Characteristic	Description
Technology	UMC's 90 nm logic SP-RVT (Low-K) process.
The length of the minimum drawn channel	0.08 $\mu\text{m}$



Characteristic	Description
Supply voltage	For the core cells: 0.9 V ~ 1.1 V For 32.5 V I/O cells: 2.25 V ~ 2.75 V
Performance	$T_d = 18.2$ ps/stage (measured from the 101-stage NAND ring in the typical process and operating under 1.0 V, 25 °C)
Gate density	400k gates/mm <sup>2</sup>
Power consumption	5.0 nW/MHz/gate (measured from the 2-input NAND, output load = 2 standard loads, in the typical process and operated under 1.0 V, 25 °C)

### 1.1.4 Physical Attributes of the Core Cell

Table 1-3 below lists the physical attributes of the core cell.

**Table 1-3. Physical Attributes of the Core Cell**

Physical Attribute	Description	Characteristics
Core cell height	-	2.8 $\mu$ m
Vertical routing track	-	10 tracks
Vertical routing grid	-	0.28 $\mu$ m
Horizontal routing grid	-	0.28 $\mu$ m
Layout resolution	-	0.005 $\mu$ m
Substrate/Well contact	-	Each cell has at least 1 Sub/well contact
Geometry	Drawn gate length	0.08 $\mu$ m
	Layout grid	0.28 $\mu$ m
	Vertical pin grid	0.28 $\mu$ m
	Horizontal pin grid	0.28 $\mu$ m
	Cell power/ground rail width	0.68 $\mu$ m
	Metal layer usage	M1
Routing track pitch	1x pitch metal layer	0.28 $\mu$ m
	2x pitch metal layer	0.56 $\mu$ m
	4x pitch metal layer	1.12 $\mu$ m
Routing track offset from the cell origin	M1 (horizontal)	0 $\mu$ m
	M2 (vertical)	0.14 $\mu$ m
	M3 (horizontal)	0 $\mu$ m
	M4 (vertical)	0.14 $\mu$ m

Physical Attribute	Description	Characteristics
	M5 (horizontal)	0 $\mu\text{m}$
	M6 (vertical)	0.14 $\mu\text{m}$
	M7 (horizontal)	0 $\mu\text{m}$
	M8 (vertical)	0.28 $\mu\text{m}$
	M9 (horizontal)	0 $\mu\text{m}$

### 1.1.5 Physical Attributes of the I/O Cell

Table 1-4 below lists the physical attributes of the I/O cell.

**Table 1-4. Physical Attributes of the I/O Cell**

Structure	Staggered and Inline
Metal layer	6 (min.) ~ 9 (max.) layers
Gate process	Dual-gate
Metal usage of the cell layout	M1, M2, M3, M4
Metal usage of the power ring	M4, M5, M6, M7, M8, M9
Bonding pad position	Outside cells
Antenna diode	Provided for the input pin of every core

### 1.1.6 Library EDA Deliverable Items

**Table 1-5. Library EDA Deliverable Items**

Deliverable Item	Description
Symbol	<ul style="list-style-type: none"> <li>• Standard EDIF</li> <li>• Synopsys</li> <li>• Composer EDIF</li> </ul>
Simulation model (front-end)	<ul style="list-style-type: none"> <li>• Verilog</li> <li>• VHDL</li> </ul>
Physical layout (back-end)	GDSII
P & R model (back-end)	<ul style="list-style-type: none"> <li>• Milkyway FrameView</li> <li>• LEF</li> </ul>
P & R timing model (back-end)	<ul style="list-style-type: none"> <li>• TLF</li> <li>• CLF</li> </ul>

Deliverable Item	Description
Synthesis model	Synopsys timing model
SPICE netlist	Post-layout netlist
LVS netlist	Post-layout netlist without capacitance
Power model	Synopsys power model
ATPG model	FastScan model

### 1.1.7 Design Rule Manual (DRM) Versions

Faraday constantly reviews and updates its technologies to concur with UMC's most recent Design Rule Manual (DRM) versions.<sup>[1]</sup> However, we recommend that you check the IPs against the most updated DRM versions from the UMC before using any IPs. This is to ensure that the IP you are using are consistent with the latest UMC design rules.

## 1.2 Core Cells

This section describes the features of the core cell. It introduces the cell types, layout architecture, row abutment rules, naming conventions, levels of the drive strength, and the special cells.

### 1.2.1 Cell Types

An extensive family of the logical macro cells is supported as listed in the table below.

**Table 1-6. Cell Types**

AN	AND gates
AO	AND into OR complex gates
AOI	AND into NOR complex gates
DEL	Delay cells
FA/HA	Half and full adders
MAO/MOA	Complex gates

[1] DRM versions are indicated in the release notes.

MUX/MXL	Multiplexers
MULBE/MULPA	Booth encoder/multiplexer
ND	NAND gates
NR	NOR gates
OA	OR into AND complex gates
OAI	OR into NAND complex gates
OR	OR gates
XNR/XOR	Exclusive NOR and OR gates
BUF/BUFT/BUFB	Buffers/Tri-state buffers
INV/INVT/INVB	Inverters/Tri-state inverters
DF/DBF/QDF	D-type flip-flops
DLAH/DBAH/QDLAH/QDBAH	Latches
RAM	RAM bit
GCKES/GCBES	Gated clock latch
TIE	Tie 0/Tie 1

## 1.2.2 Physical Specifications

The following table indicates the physical specifications of the FSD0A\_A core cells:

**Table 1-7. Physical Specifications**

Vertical grid	0.28 $\mu\text{m}$
Horizontal grid	0.28 $\mu\text{m}$
Cell height	2.8 $\mu\text{m}$ (10 vertical grids)
Power/Ground rail width	0.68 $\mu\text{m}$
Layout resolution	0.005 $\mu\text{m}$
Substrate/Well contact	Each cell has at least one substrate/well contact.

The cell structure and grid are defined to meet the following considerations:

- Adherence to UMC's "90 nm logic SP-RVT (Low-K) process topological layout rule"
- Minimum cell area
- Most compact Place and Route (P & R)
- Flexible row abutment
- Easily fixed antenna effect

### 1.2.3 Row Abutment

The FSD0A\_A library provides the maximum flexibility for either the row separation or row abutment. As a result, the minimization efforts of the chip area are drastically reduced and at the same time, the signal integrity is also improved.

In general, there are 3 abutting types:

1. P-P
2. N-N
3. P-N

Figure 1-1 below shows the different layout types of the row abutment.

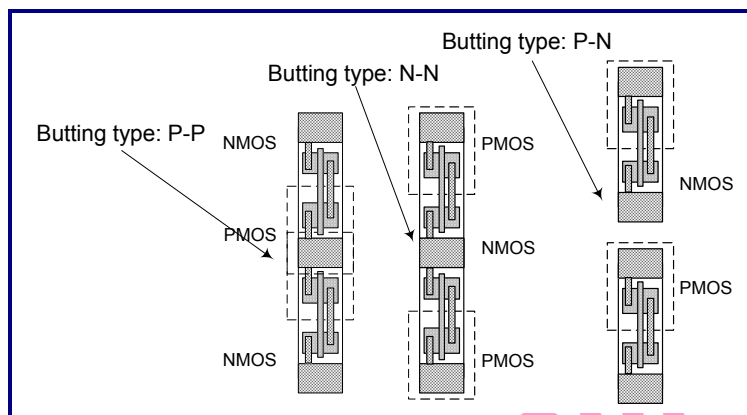


Figure 1-1. 3 Abutting Types

The following table provides the row-to-row spacing rules:

Table 1-8. Row-to-Row Spacing Rules

Row-to-Row Space (Grid)/Row Abutment Type	0	1	2	3	$\geq 4$
P-P	○	△ <sup>[2]</sup>	○	△ <sup>[3]</sup>	○
N-N	○	△ <sup>[4]</sup>	○	○	○
P-N	X	X	○	○	○

<sup>[2]</sup> The DRC violation can be easily fixed by drawing a diffusion layer between two rows.

<sup>[3]</sup> The DRC violation can be easily fixed by drawing an N well layer between two rows.

<sup>[4]</sup> The DRC violation can be easily fixed by drawing a diffusion layer between two rows.

When a P-P or N-N row space equals to 0, the boundaries of the adjacent rows can abut each other and share a common power and ground rail. You can also separate the adjacent rows to increase the routing channel or strengthen the power and ground supply capability.

### 1.2.4 Convention of the Cell Naming

**Table 1-9. Convention of the Cell Naming**

Group Name	Performance Level Keyword "X"	Performance Level (Max. 2 characters)
------------	-------------------------------	---------------------------------------

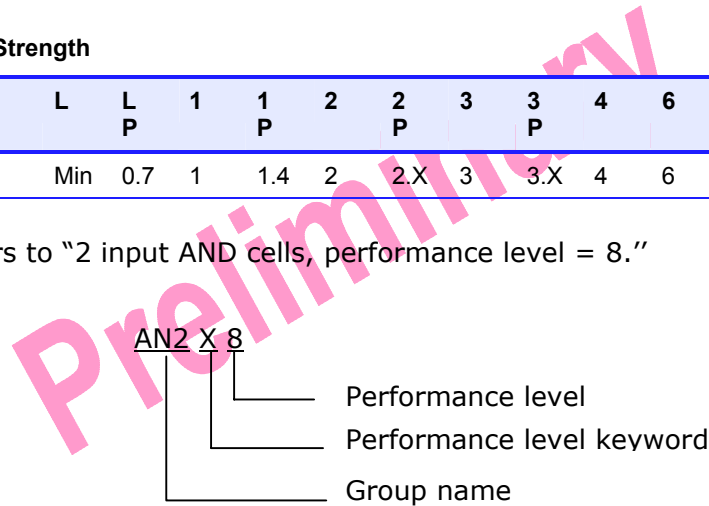
### 1.2.5 Levels of Drive Strengths

Various drive strengths are provided and are identified by the last character of the cell name.

**Table 1-10. Levels of Drive Strength**

Max. Load Cap.	L	L P	1	1 P	2	2 P	3	3 P	4	6	8	12	16	20
Unit Strength	Min	0.7	1	1.4	2	2.X	3	3.X	4	6	8	12	16	20

For example, AN2X8 refers to "2 input AND cells, performance level = 8."



### 1.2.6 Scan Cells

All flip-flops have their corresponding scan cells in the test mode. The following table lists the scan cell of each flip-flop:

**Table 1-11. Scan Cells of Flip-Flops**

Non-Scan Flip-Flop	Corresponding Scan Cell
DBFRB	DBZRB
DBFRSB	DBZRSB

Non-Scan Flip-Flop	Corresponding Scan Cell
DFCLRB	DFZCLRB
DFCRB	DFZCRB
DFF	DFZ
DFE	DFZE
DFERB	DFZERB
DFERSB	DFZERSB
DFFRB	DFZRB
DFFRSB	DFZRSB
DFFSB	DFZSB
QDFCRB	QDFZCRB
QDFCLRB	QDFZCLRB
QDFF	QDFZ
QDFE	QDFZE
QDFERB	QDFZERB
QDFERSB	QDFZERSB
QDFFRB	QDFZRB
QDFFRSB	QDFZRSB
QDFFSB	QDFZSB

### 1.2.7 Cells with Built-in Antenna Diodes

All I/O cells have the built-in antenna diodes to prevent the antenna effect. The input pins with the antenna diodes are labeled with the pin text ":ID." The users can identify these pins by the P & R tools.

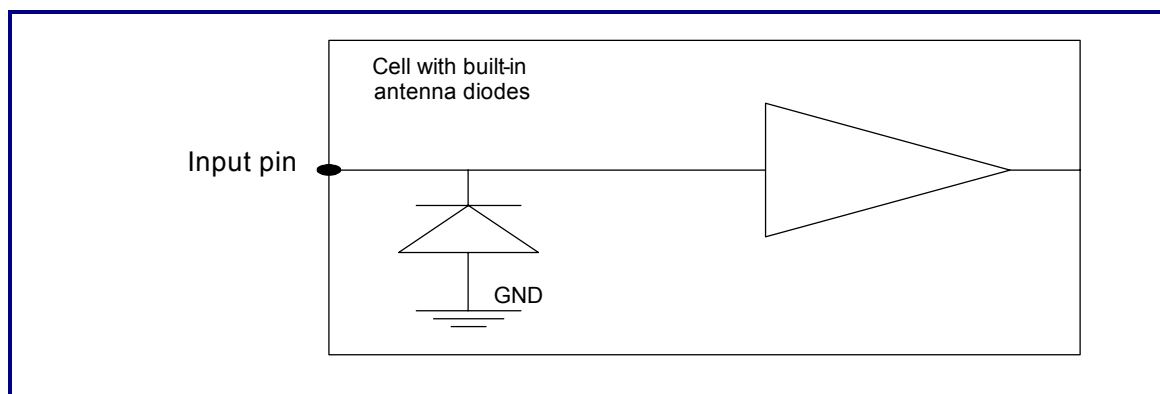


Figure 1-2. Cell with Built-in Antenna Diode for Input Pin

## 1.2.8 Special Cells

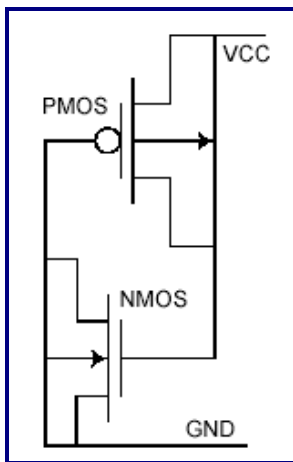
### 1.2.8.1 Filler Cells

The FSD0A\_A provides 8 filler cells as listed in Table 1-12:

**Table 1-12. Filler Cells**

Cell Name	Width (Grid)	Built-in Decoupling Capacitance
FILLER1	1	NO
FILLER2	2	NO
FILLER3	3	NO
FILLER4E	4	YES
FILLER8E	8	YES
FILLER16E	16	YES
FILLER32E	32	YES
FILLER64E	64	YES

The built-in decoupling capacitance is constructed by connecting one PMOS back-to-back with one NMOS, as shown in Figure 1-3.



**Figure 1-3. Filler Circuits of Built-in Decoupling Capacitance**



### 1.2.8.2 Bus Holder Cell

The bus holder cell acts as a latch to prevent the attached net from floating. When it is used with a tri-state buffer, the bus holder cell may introduce an additional delay time. This is because the bus holder cell is constructed by connecting 2 inverters to form a memory element as shown in Figure 1-4 below. Having these 2 sets of inverters in series, it may cause the bus holder cell to conflict with the driving tri-state buffers. Although the inverter element (of the bus holder) is weak by its design, it still introduces considerable excessive delays ranging from 0% to 30% depending on its loading.

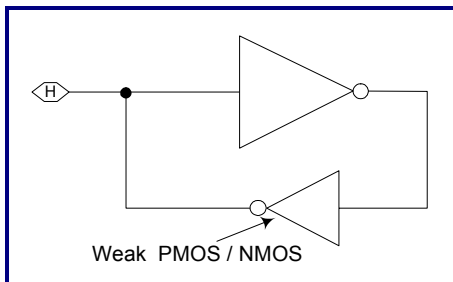


Figure 1-4. Bus Holder Cell

### 1.2.8.3 Antenna Fixed Cell

The antenna fixed cell provides an N+ diffusion on the P-substrate diode. It is designed to fix the antenna rule violation caused by using long wire routings. The antenna fixed cell will introduce an extra capacitive loading to the connected net.

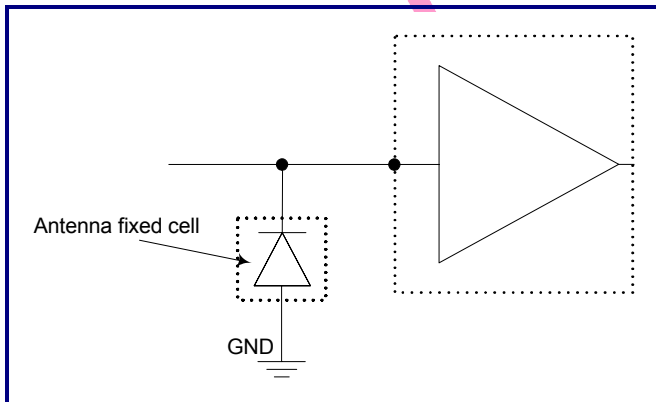


Figure 1-5. Antenna Fixed Cell

#### 1.2.8.4 Tie 1 and Tie 0 Cells

Any net connecting to the antenna diode should not be wired to the power/ground directly with the metal connections. Use of Tie 1/Tie 0 to connect to the power/ground is required in this situation in order to keep the ESD robustness.<sup>[5]</sup>

- Tie 1 cells provide a DC level of logic 1.
- Tie 0 cells provide a DC level of logic 0.

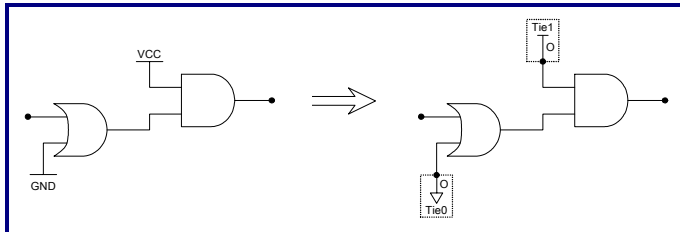


Figure 1-6. Replacement of Input Pins Tied Directly to the Power or Ground Rails with Tie Cells

### 1.3 I/O Cell

#### 1.3.1 I/O Types

True 2.5 V I/O

2.5 V I/O with 3.3 V tolerance

#### 1.3.2 I/O Buffer Dimensions

2 types of the I/O layout structures are provided, targeting both the pad-limited and/or core-limited applications.

[5] This rule doesn't apply to the I/O cells because the potential ESD hazards are prevented in advance. In other word, the input pins of the I/O can be hard-wired to the power/ground directly by the metal wires.

**Table 1-13. Physical Size of the Pad-limited and Core-limited I/Os**

Usage Attribute	High Pin Count Design, Pad-Limited (Staggered I/O)		Low Pin Count Design, Core-Limited (Inline I/O)	
	Height (µm)	Width (µm)	Height (µm)	Width (µm)
2.5 V I/O	227.92	33.6	142.8	60.48
2.5 V with 3.3 V tolerance I/O	227.92	33.6	142.8	60.48
Power and ground pads	227.92	33.6	142.8	60.48
Bonding pad position	Outside I/O cells		Outside I/O cells	

### 1.3.3 Programmable I/O on Silicon

#### 1.3.3.1 PIOS

The Programmable I/O on Silicon (PIOS) is an I/O strategy that allows the users to program the I/O functions even after silicon. PIOS can fit into a variety of the systems. This I/O strategy can solve many of the problems that are generated by:

- Variable loading
- Impedance mismatches
- System variations
- Vendor inconsistencies
- System noise

The I/O cells of the PIOS offer the programmable capabilities that can greatly reduce the number of the I/O cells, including:

- Input pull-up/pull-down/keeper control
- Schmitt trigger control
- Input gated control
- Output slew rate control
- Different output driving controls

### 1.3.3.2 Advantages of PIOS

- Change the I/O configurations, even after silicon
- Reduce the risk of I/O impedance mismatch
- Reduce time to market
- Easy to debug on silicon
- Easy to optimize configuration for a variety of systems
- Output impedance match controls for varying transmission line loading
- Reduce the system noise problems

### 1.3.3.3 PIOS Cell Functions

The I/O cells of FSD0A\_A library are all implemented as PIOS. These cells offer the following functions:

**Table 1-14. I/O Cell Functions**

I/O Cell Type	Input Function	Output Function
2.5 V I/O	Keeper	Enable or disable
2.5 V with 3.3 V tolerant I/O	Pull up	Slew rate control
	Pull down	2 mA ~ 8mA in 2 mA steps/4 mA ~ 16mA driving in 4 mA steps
	Schmitt trigger	
	Gated NAND input	

## 1.3.4 Naming Convention of Programmable I/O Cell

### 1.3.4.1 Naming Convention of 2.5 V I/O Buffer

**Table 1-15. 2.5 V I/O Buffer Naming Convention**

Operating Voltage	+ Input PIOS	+ Output PIOS	+ Min. Driving	+ Max. Driving	+ Slew Control	+ Pad-Limited or Core-Limited
UY: 2.5 V input	N: Programmable input	A: Programmable output	2: 2 mA	8: 8 mA	S: Programmable slew rate	GA: Pad-limited
VY: 2.5 V output			4: 4 mA	G: 16 mA		GB: Core-limited
WY: 2.5 V bi-direct						

**Table 1-16. 2.5 V I/O Buffer Cells**

Cell Name	Description	Feature
UYNGA	Programmable 2.5 V CMOS input buffer	Staggered
UYNGB	Programmable 2.5 V CMOS input buffer	Inline
VYA28SGA	Programmable 2 mA ~ 8 mA 2.5 V CMOS output buffer	Staggered
VYA28SGB	Programmable 2 mA ~ 8 mA 2.5 V CMOS output buffer	Inline
VYA4GSGA	Programmable 4 mA ~ 16 mA 2.5 V CMOS output buffer	Staggered
VYA4GSGB	Programmable 4 mA ~ 16 mA 2.5 V CMOS output buffer	Inline
WYNA28SGA	Programmable 2 mA ~ 8 mA 2.5V CMOS bi-directional buffer	Staggered
WYNA28SGB	Programmable 2 mA ~ 8 mA 2.5 V CMOS bi-directional buffer	Inline
WYNA4GSGA	Programmable 4 mA ~ 16 mA 2.5 V CMOS bi-directional buffer	Staggered
WYNA4GSGB	Programmable 4 mA ~ 16 mA 2.5 V CMOS bi-directional buffer	Inline

### 1.3.4.2 2.5 V with 3.3 V Tolerant I/O Buffer Naming Convention

Table 1-17. 2.5 V with 3.3 V Tolerant I/O Buffer Naming Convention

Operating Voltage/Function	+ Input PIOS	+ Output PIOS	+ Min. Driving	+ Max. Driving	+ Slew Control	+ Pad-Limited or Core-Limited
UYF: 2.5 V input with a 3.3 V tolerance	N: Programmable input	A: Programmable output	2: 2 mA	8: 8 mA	S: Programmable slew rate	GA: Pad-limited
VYF: 2.5 V output with a 3.3 V tolerance			4: 4 mA	G: 16 mA		GB: Core-limited
WYF: 2.5 V bi-direct with a 3.3 V tolerance						

Table 1-18. 2.5 V with 3.3 V Tolerant I/O Buffer Cells

Cell Name	Description	Feature
UYFNGB	2.5 V programmable CMOS input buffer, 3.3 V tolerance	Staggered
UYFNGB	2.5 V programmable CMOS input buffer, 3.3 V tolerance	Inline
VYFA28SGA	2.5 V programmable 2 mA ~ 8 mA CMOS output buffer, 3.3 V tolerance	Staggered
VYFA28SGB	2.5 V programmable 2 mA ~ 8 mA CMOS output buffer, 3.3 V tolerance	Inline
VYFA4GSGA	2.5 V programmable 4 mA ~ 16 mA CMOS output buffer, 3.3 V tolerance	Staggered
VYFA4GSGB	2.5 V programmable 4 mA ~ 16 mA CMOS output buffer, 3.3 V tolerance	Inline
WYFNA28SGA	2.5 V programmable 2 mA ~ 8 mA CMOS bi-directional buffer, 3.3 V tolerance	Staggered
WYFNA28SGB	2.5 V programmable 2 mA ~ 8 mA CMOS bi-directional buffer, 3.3 V tolerance	Inline
WYFNA4GSGA	2.5 V programmable 4 mA ~ 16 mA CMOS bi-directional buffer, 3.3 V tolerance	Staggered
WYFNA4GSGB	2.5 V programmable 4 mA ~ 16 mA CMOS bi-directional buffer, 3.3 V tolerance	Inline

## 1.3.5 Application Usage of the Programmable I/O Cell

### 1.3.5.1 Application Usage of 2.5 V I/O Cell

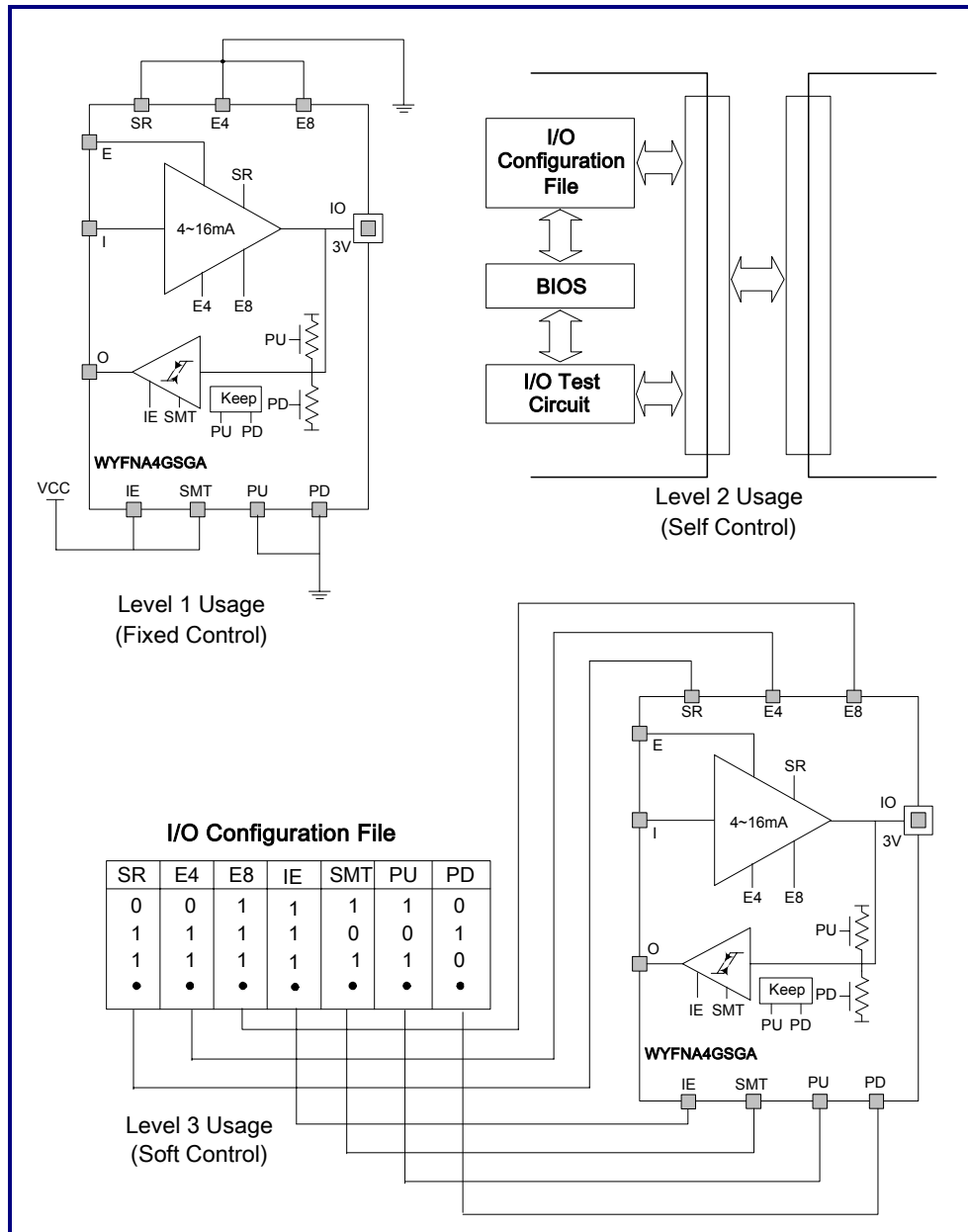


Figure 1-7. Application Usage of the Programmable I/O Cell

#### Note

Level 1 users are supposed to use the hard-wire programming pins, and Level 2 users have the flexibility to change the state of the input pins after fabrication. The same usage applies to 2.5 V with 3.3 V tolerant programmable I/O cells.

## 1.3.6 Power Pads

### 1.3.6.1 Metal Wire Width of Power Pads

The following table indicates the metal wire width of the power pads.

**Table 1-19. Metal Width of Each Power Pad (Unit:  $\mu\text{m}$ )**

Pad Name	Vertical Metal Layer			Horizontal Metal Layer	
	M1	M2	M3	M4	M5 ~ M9
VCCKGA	0	9.6	9.6	10	10
VCCKGB	0	30	30	8.4	8.4
VCC2IOGA	0	18	18	53.8	61.4
VCC2IOGB	0	24	30	30.3	38.34
GNDKGA	0	12	12	10	10
GNDKGB	0	14	14	8.4	8.4
GND2IOGA	24.84	24.84	24.84	46.9	54.9
GND2IOGB	28.84	24.84	20	42	45.18

Note:

The metal width of the power pads is useful when taking the Electro-Migration (EM) effect into consideration. The EM effect on the power pads depends on the current-carrying capability of its metal wire. In general, one power pad can supply several I/O buffers. When the I/O buffers begin to toggle, it sinks the current through the following sequence: power/ground pads -> vertical metal layers -> horizontal metal layers -> I/O buffers.

### 1.3.6.2 Power Pads of I/O Buffers

The following table specifies the required power pads of each I/O cell.

**Table 1-20. Required Power Pads of Each I/O Buffer**

I/O Buffers	Required Power Pads
UYNGA, VYA28SGA, VYA4GSGA, WYNA28SGA, WYNA4GSGA, UYFNGA, VYFA28SGA, VYFA4GSGA, WYFNA28SGA, WYFNA4GSGA	VCCKGA, VCC2IOGA, GNDKGA, GND2IOGA,



I/O Buffers	Required Power Pads
UYNGB, VYA28SGB, VYA4GSGB, WYNA28SGB, WYNA4GSGB, UYFNGB, VYFA28SGB, VYFA4GSGB, WYFNA28SGB, WYFNA4GSGB	VCCKGB, VCC2IOGB, GNDKGB, GND2IOGB

### 1.3.6.3 Power Rings of I/O Buffers and Core Cells

The power rings of the I/O buffers and core cells are illustrated below.

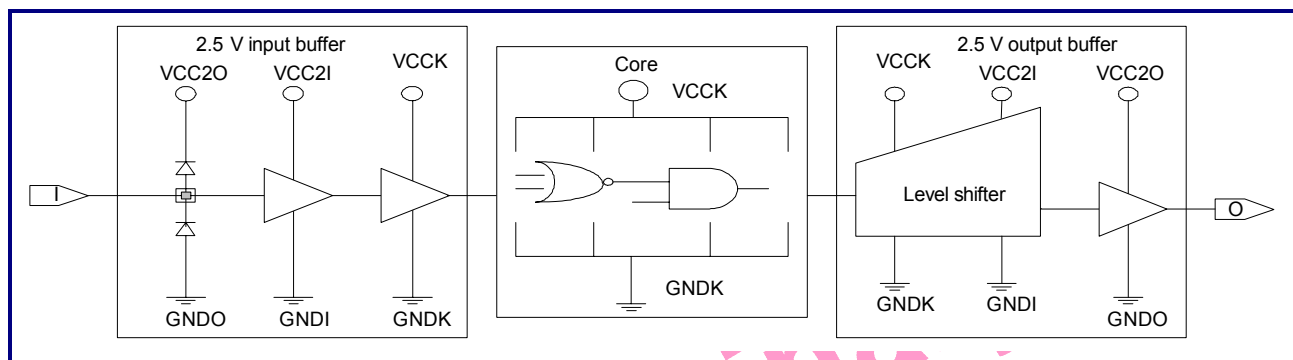


Figure 1-8. Power Rings of I/O Buffers and Core Cells

Table 1-21 illustrates the corresponding power pad and function description of each power ring

Table 1-21. Power Rings of I/O Buffers and Core Cells

Ring	Corresponding Power Pads		Description
	Pad-Limited	Core-Limited	
VCCK	VCCKGA	VCCKGB	Power supply of the internal core cells and I/O to the core interfaces
VCC2I	VCC2IOGA	VCC2IOGB	Power supply of the 2.5 V input buffers and output pre-drivers
VCC2O	VCC2IOGA	VCC2IOGB	Power supply of the 2.5 V output buffers and input ESD protection
GNDK	GNDKGA	GNDKGB	Ground of the internal core cells and I/O to the core interfaces
GNDI	GND2IOGA	GND2IOGB	Ground of the input buffers and output pre-drivers
GND0	GND2IOGA	GND2IOGB	Ground of the output buffers and input ESD protection

For more details, please refer to the document "90 nm (FSD0A\_A) standard cell library ESD application notes."

### 1.3.6.4 Guidelines of Power-Up Sequence

In general, there is no specific power-up sequence for the Faraday's I/O cells. However, if the users follow the sequence as shown below, the short current of the system at the initial stage can be minimized.

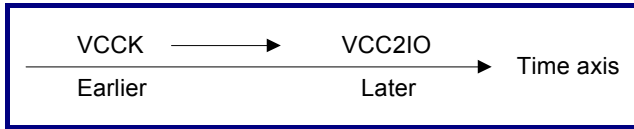


Figure 1-9. Suggested Power-Up Sequence

## 1.3.7 Empty Cells and Corner Cells

### 1.3.7.1 Empty Cells

The FSD0A\_A provides 12 empty cells as listed in the table below.

Table 1-22. Empty Cells

Cell Name	Width (Grid)	Horizontal Guard Ring	Vertical Guard Ring
EMPTY1GA	1	Yes	No
EMPTY2GA	2	Yes	No
EMPTY4GA	4	Yes	No
EMPTY8GA	8	Yes	Yes
EMPTY16GA	16	Yes	Yes
EMPTYGRGA	6	Yes	Yes
EMPTY1GB	1	Yes	No
EMPTY2GB	2	Yes	No
EMPTY4GB	4	Yes	No
EMPTY8GB	8	Yes	Yes
EMPTY16GB	16	Yes	Yes
EMPTYGRGB	6	Yes	Yes

### 1.3.7.2 Corner Cells

The FSD0A\_A provides 3 corner cells: CORNERGA, CORNERGB, and CORNERGAB.

CORNERGA is for the pad-limited I/O cells, and CORNEGB is for the core-limited I/O cells. CORNERGAB is a hybrid corner cell, or a pad format changer. It can change the format of the I/O pad, from the core-limited to the pad-limited. The following figure illustrates how CORNERGAB works.

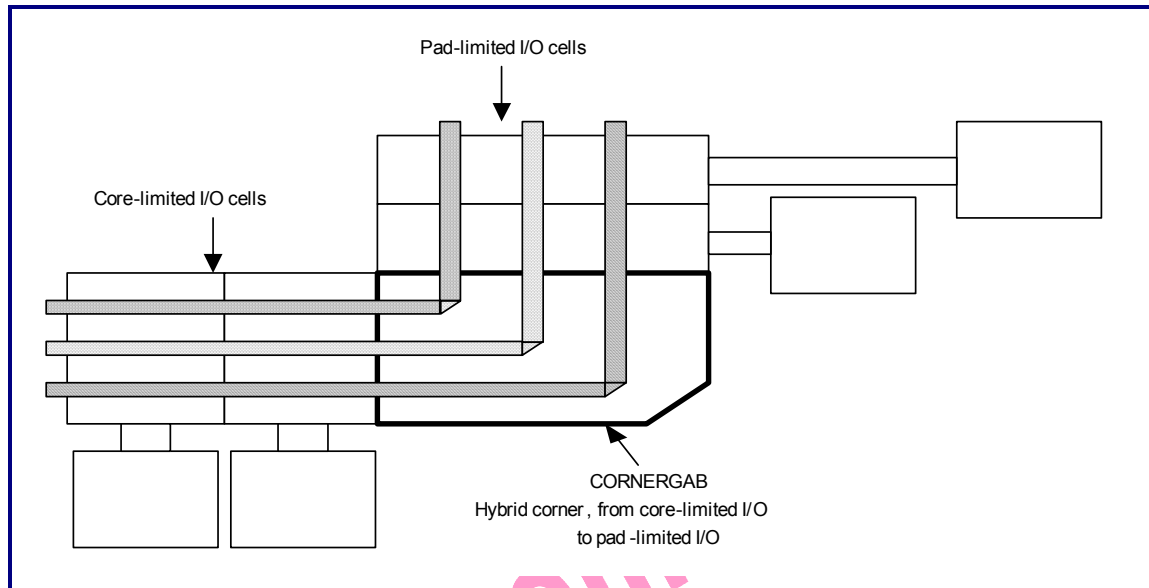


Figure 1-10. CORNERGAB Can Change the Format of the I/O Cell from the Core-Limited to Pad-Limited

## 1.4 DC Characteristics

### 1.4.1 Absolute Maximum Ratings

Table 1-23. Absolute Maximum Ratings

Symbol	Description	Rating	Unit
V <sub>CK</sub>	Core power supply	-0.3 ~ 1.2	V
V <sub>CC2IO</sub>	Power supply of 2.5 V I/O	-0.3 ~ 3.0	V
V <sub>IN3</sub>	Input voltage of 2.5 V I/O	-0.3 ~ 3.0	V
	Input voltage of 2.5 V I/O with 3.3 V tolerance	-0.3 ~ 4.0	V
T <sub>STG</sub>	Storage temperature	-40 ~ 150	°C

Symbol	Description	Rating	Unit
$I_{IN}$	DC input current	20	mA
$I_{OUT}$	DC output short circuit current	20	mA

**Warning!**

Permanent device damage may occur if the absolute maximum ratings are exceeded. These are stress ratings only, and the functional operation should be restricted within the conditions detailed in the Section 1.4.2 of this data book. The Exposure to the absolute maximum rating conditions for the extended periods may affect the reliability of the device.

## 1.4.2 Recommended Operating Conditions

**Table 1-24. Recommended Operating Conditions**

Symbol	Description	Min	Typ	Max	Unit
V <sub>CC</sub> K	Core power supply	0.9	1.0	1.1	V
V <sub>CC</sub> 2IO	Power supply of 2.5 V I/O	2.25	2.5	2.75	V
V <sub>IN</sub> 3	Input voltage of 2.5 V I/O	0	2.5	2.75	V
	Input voltage of 2.5 V I/O with 3.3 V tolerance	0	2.5	3.63	V
T <sub>J</sub>	Junction operating temperature	-40	25	125	°C

## 1.4.3 Leakage Current and Capacitance<sup>[8]</sup>

**Table 1-25. Leakage Current and Capacitance**

Symbol	Parameter	Condition	Min.	Typ.	Max.	Unit
$I_{IN}$	Input current	No pull-up or pull-down	-10	±1	10	μA
$I_{OZ}$	Tri-state leakage current		-10	±1	10	μA
C <sub>IN</sub>	Input capacitance			2.2		pF
C <sub>OUT</sub>	Output capacitance			2.2		pF
C <sub>BID</sub>	Bi-directional buffer capacitance			2.2		pF

<sup>[8]</sup> The capacitance listed in this table does not include the pad capacitance and package capacitance. One can estimate the pin capacitance by adding a pad capacitance of about 0.5 pF and the package capacitance.

## 1.4.4 DC Characteristics of 2.5 V I/O Cells

Table 1-26. DC Characteristics of 2.5 V I/O Cells

Symbol	Description	Condition	Min.	Typ.	Max.	Unit
V <sub>CCK</sub>	Power supply of the internal core cells and I/O to the core interface	1.0 V core power supply	0.9	1.0	1.1	V
V <sub>CC2I</sub>	Power supply of the 2.5 V input buffers and output pre-drivers	2.5 V I/O power supply	2.25	2.5	2.75	V
V <sub>CC2O</sub>	Power supply of the 2.5 V output buffers and input ESD protection		2.25	2.5	2.75	V
T <sub>J</sub>	Junction operating temperature		-40	25	125	°C
V <sub>il</sub>	Low input voltage	CMOS spec.			0.3 * VCC	V
V <sub>ih</sub>	High input voltage		0.7 * VCC			V
V <sub>ol</sub>	Low output voltage	I <sub>ol</sub> = 2 mA ~ 16 mA			0.4	V
V <sub>oh</sub>	High output voltage	I <sub>oh</sub> = -2 mA ~ -16 mA	VCC - 0.4			V
R <sub>pu</sub>	Input pull-up resistance	V <sub>in</sub> = 0	40	75	190	KΩ
R <sub>pd</sub>	Input pull-down resistance	V <sub>in</sub> = VCC2I	40	75	190	KΩ
I <sub>in</sub>	Input leakage current	V <sub>in</sub> = VCC2I or 0	-5	±1	5	μA
	Input leakage current with the pull-up resistance	V <sub>in</sub> = 0	-15	-45	-90	μA
	Input leakage current with the pull-down resistance	V <sub>in</sub> = VCC2I	15	45	90	μA
I <sub>oz</sub>	Tri-state output leakage current		-10	±1	10	μA

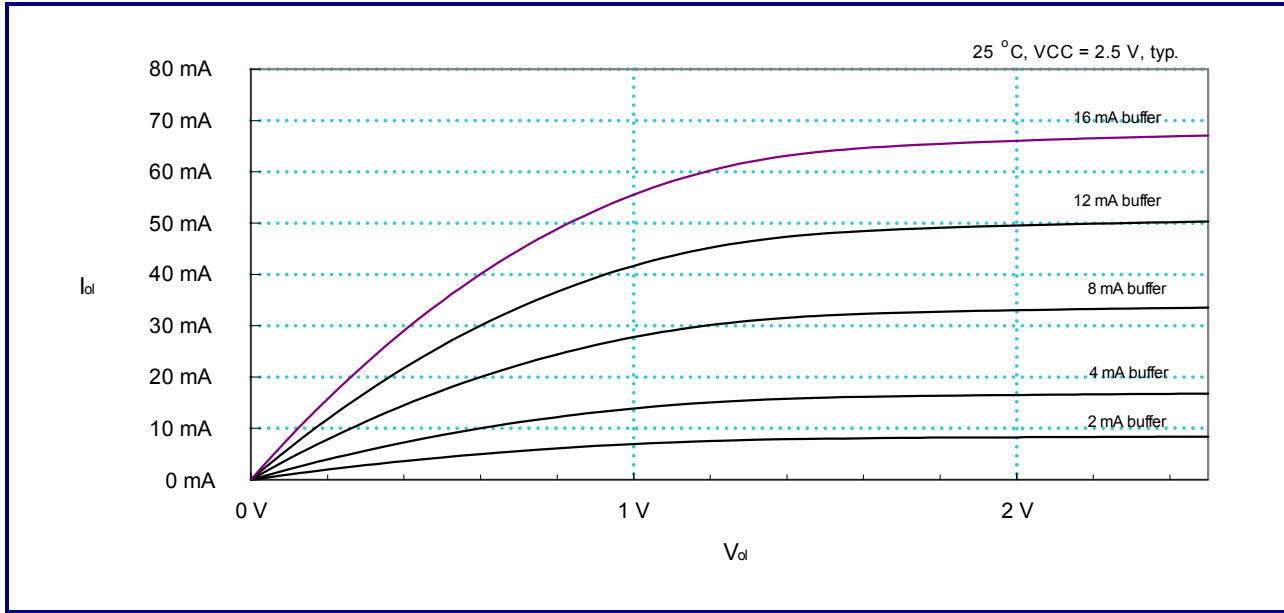


Figure 1-11.  $I_{ol} - V_{ol}$  Characteristics (2.5 V Output Buffer)

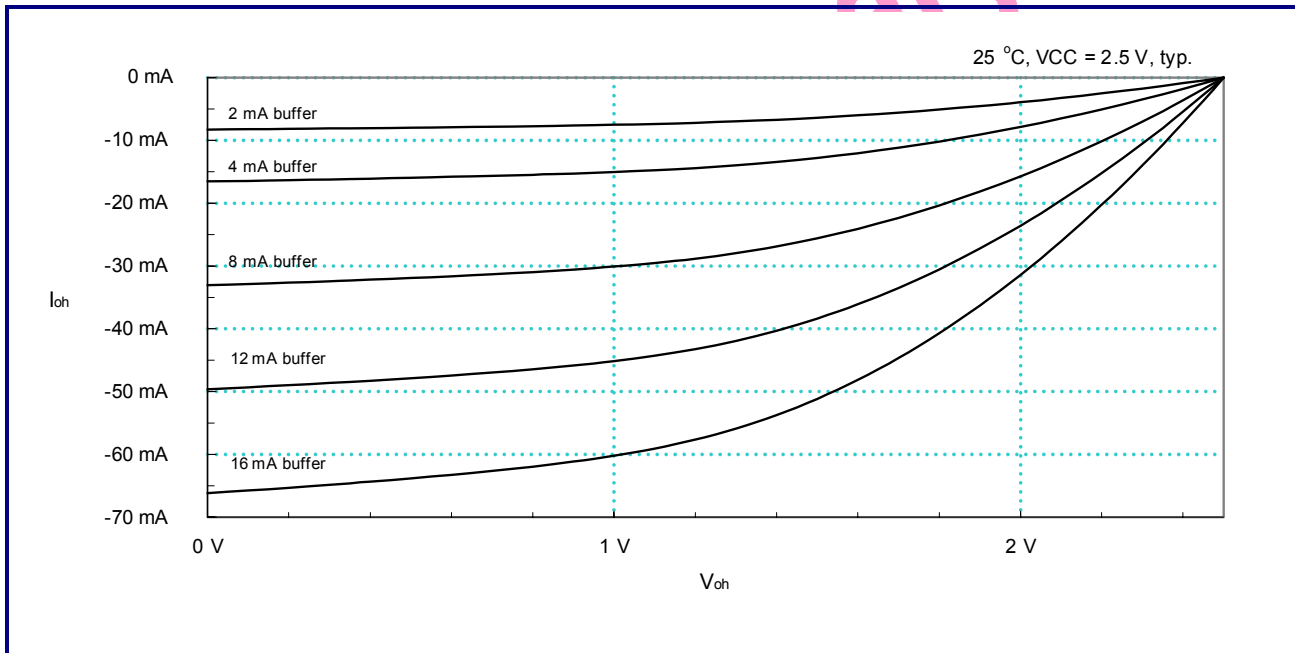


Figure 1-12.  $I_{oh} - V_{oh}$  Characteristics (2.5 V Output Buffer)

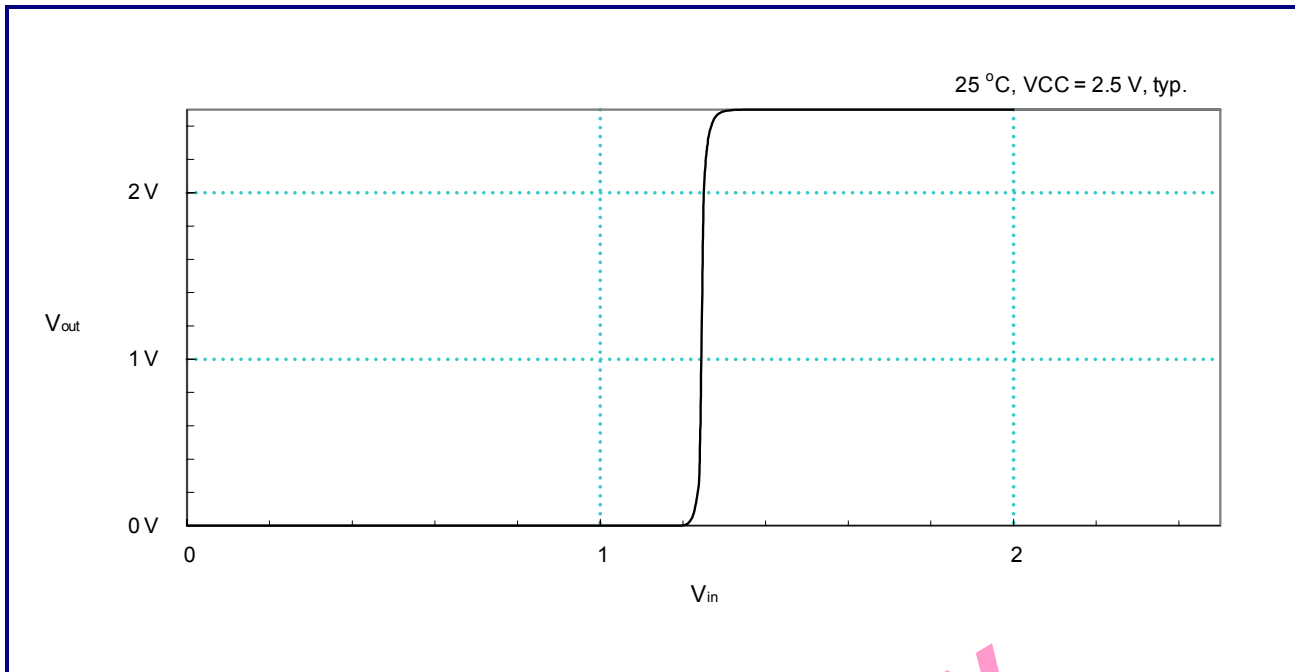


Figure 1-13. 2.5 V CMOS Switching Threshold (2.5 V Input Buffer)

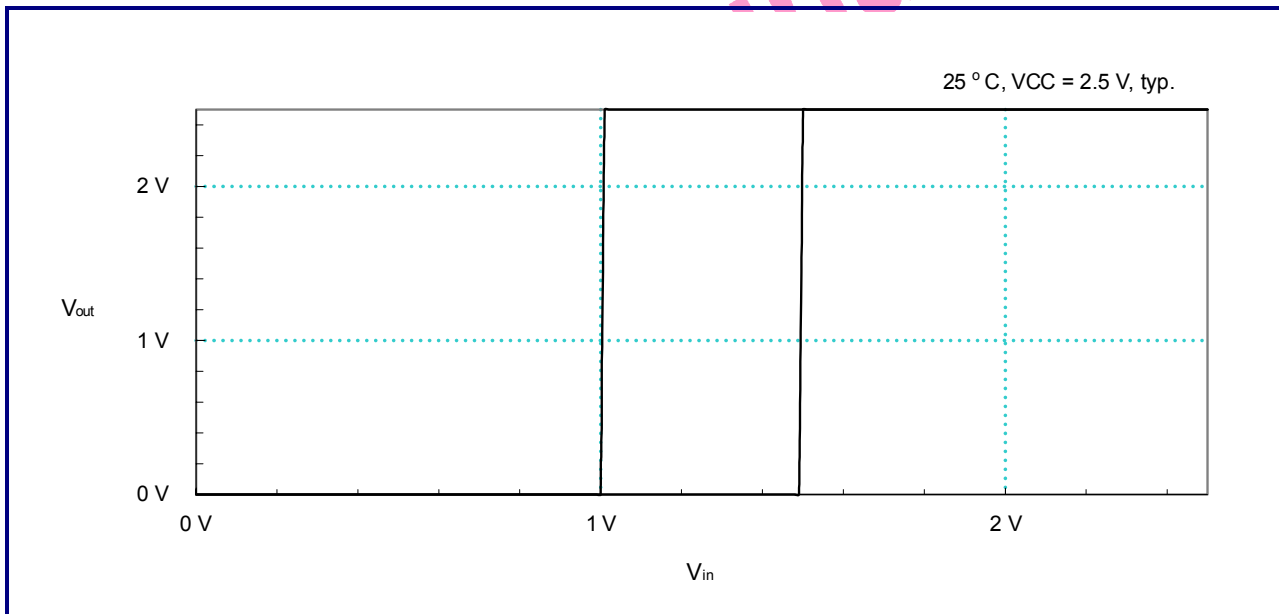


Figure 1-14. 2.5 V CMOS Schmitt Trigger Switching Threshold (2.5 V Input Buffer)

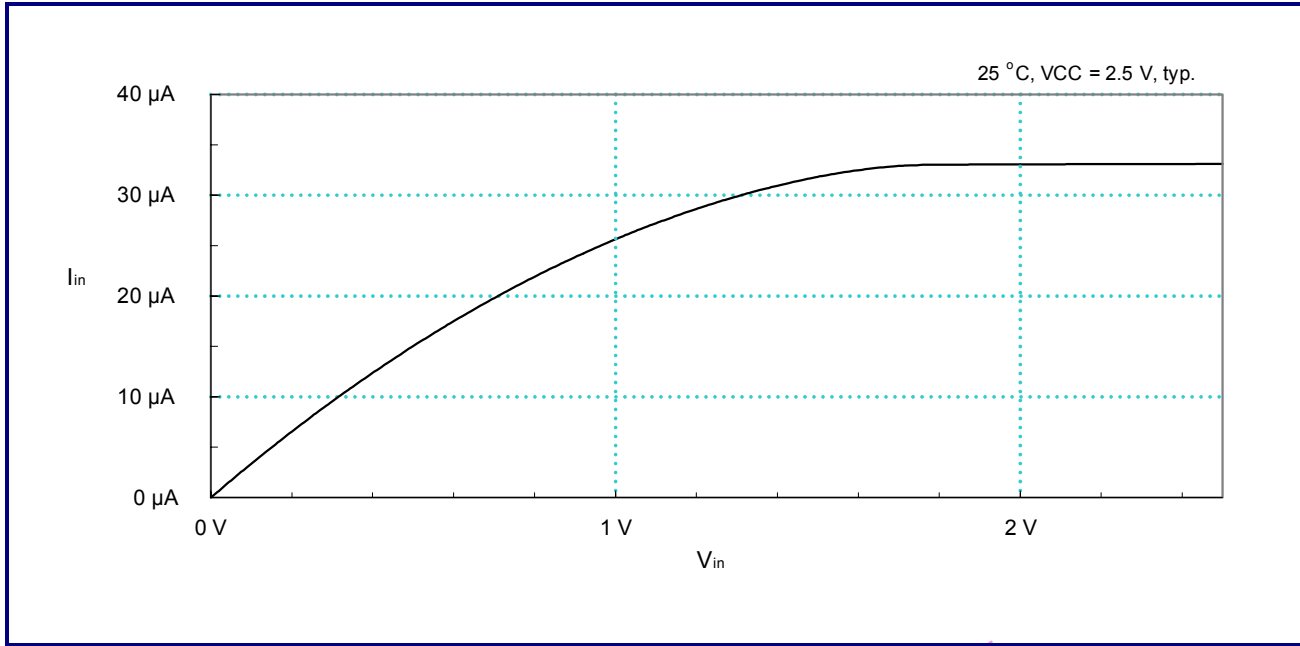


Figure 1-15. DC Characteristics of a Pull-Down Transistor (2.5 V Input Buffer)

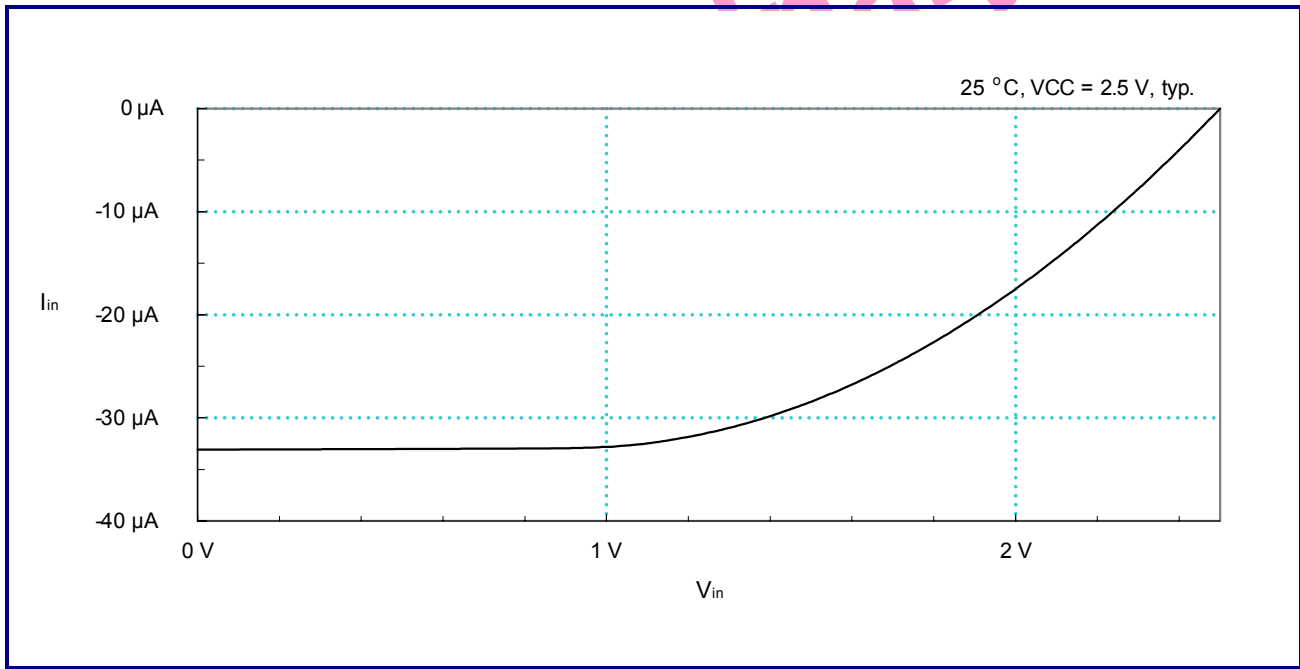


Figure 1-16. DC Characteristics of a Pull-Up Transistor (2.5 V Input Buffer)



## 1.4.5 DC Characteristics of 2.5 V I/O Cells with 3.3 V Tolerance

Table 1-27. DC Characteristics of 2.5 V I/O Cells with 3.3 V Tolerance

Symbol	Description	Condition	Min.	Typ.	Max.	Unit
V <sub>CC</sub>	Power supply of the internal core cells and I/O to the core interface	1.0 V core power supply	0.9	1.0	1.1	V
V <sub>CC2I</sub>	Power supply of the 2.5 V input buffer and output pre-drivers	2.5 V I/O power supply	2.25	2.5	2.75	V
V <sub>CC2O</sub>	Power supply of the 2.5 V output buffers and input ESD protection		2.25	2.5	2.75	V
T <sub>J</sub>	Junction operating temperature		-40	25	125	°C
V <sub>il</sub>	Low input voltage	CMOS spec.			0.3 * V <sub>CC</sub>	V
V <sub>ih</sub>	High input voltage		0.7 * V <sub>CC</sub>			V
V <sub>ol</sub>	Low output voltage	I <sub>ol</sub> = 2 mA ~ 16 mA			0.4	V
V <sub>oh</sub>	High output voltage	I <sub>oh</sub> = -2 mA ~ -16 mA	V <sub>CC</sub> - 0.4			V
R <sub>pu</sub>	Input pull-up resistance	V <sub>in</sub> = 0	40	75	190	kΩ
R <sub>pd</sub>	Input pull-down resistance	V <sub>in</sub> = V <sub>CC2I</sub>	40	75	190	kΩ
I <sub>in</sub>	Input leakage current	V <sub>in</sub> = V <sub>CC2I</sub> or 0	-5	±1	5	μA
	Input leakage current with the pull-up resistance	V <sub>in</sub> = 0	-15	-45	-90	μA
	Input leakage current with the pull-down resistance	V <sub>in</sub> = V <sub>CC2I</sub>	15	45	90	μA
I <sub>oz</sub>	Tri-state output leakage current		-10	±1	10	μA

## 1.5 AC Characteristics

### 1.5.1 Pre-Characterized Timing Models

The FSD0A\_A library is characterized by the following 3 corner conditions:

- Under the best case condition:<sup>[9]</sup>
  - 1.1 V, -40 °C, the fast process
  - The name of the Synopsys library is fsd0a\_a\_bc.db.

<sup>[9]</sup> "Best case" conditions provide the fastest circuit timing.

2. Under the typical case condition:
  - 1.0 V, 25 °C, the typical process
  - The name of the Synopsys library is fsd0a\_a\_tc.db.
3. Under the worst case condition:<sup>[10]</sup>
  - 0.9 V, 125 °C, the slow process
  - The name of the Synopsys library is fsd0a\_a\_wc.db.

## 1.5.2 How to Estimate the User-Specified Conditions

If you conduct the simulations under the conditions other than those listed in Section 1.5.1 above, it is recommended that you use the following 2 conditions instead:

1. For the fast process:
  - Choose the best corner library (e.g. Synopsys fsd0a\_a\_bc.db) as the base to simulate the timing by the de-rating factor as given in Figure 1-17.
2. For the slow process:
  - Choose the worst corner library (e.g. Synopsys fsd0a\_a\_wc.db) as the base to simulate the timing by the de-rating factor as given in Figure 1-19.

<sup>[10]</sup> “Worst case” conditions provide the slowest circuit timing.

### 1.5.3 De-Rating Factors under the Best Case Condition

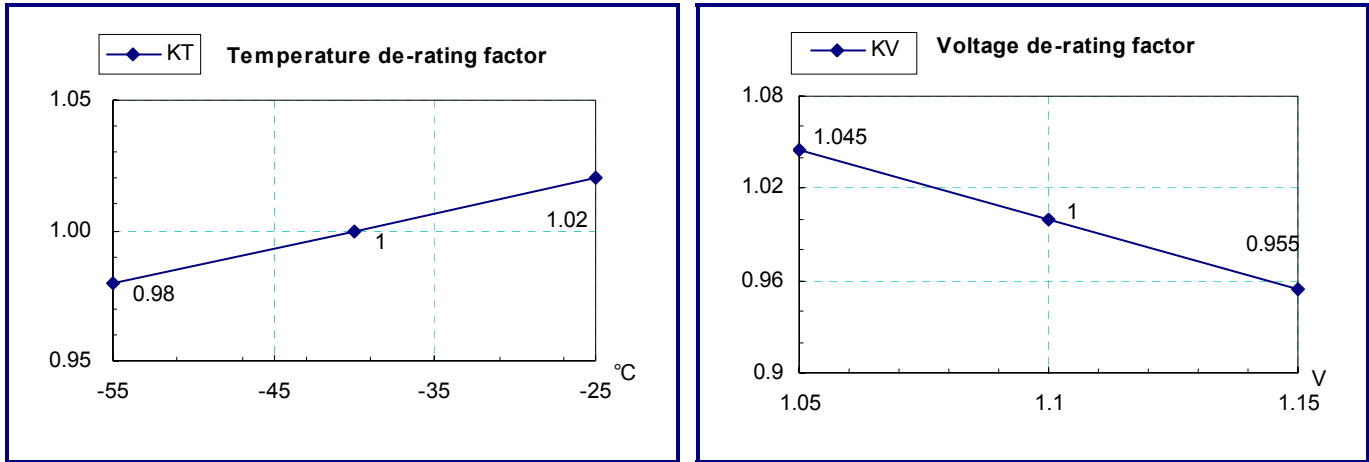
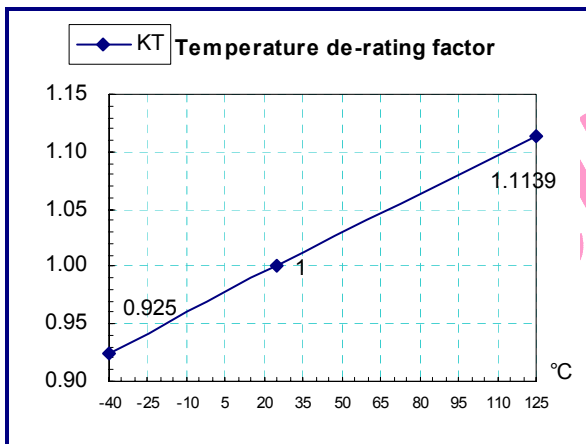


Figure 1-17. De-Rating Factors under the Best Case Condition<sup>[11]</sup>

### 1.5.4 De-Rating Factors under the Typical Case Condition



<sup>[11]</sup> The de-rating factors are consistent with fsd0a\_a\_bc.db.

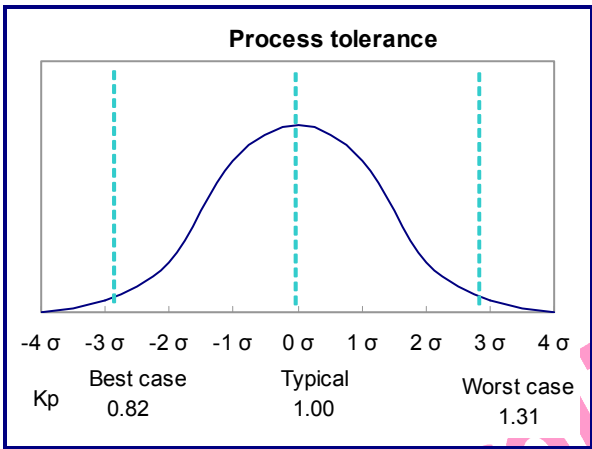
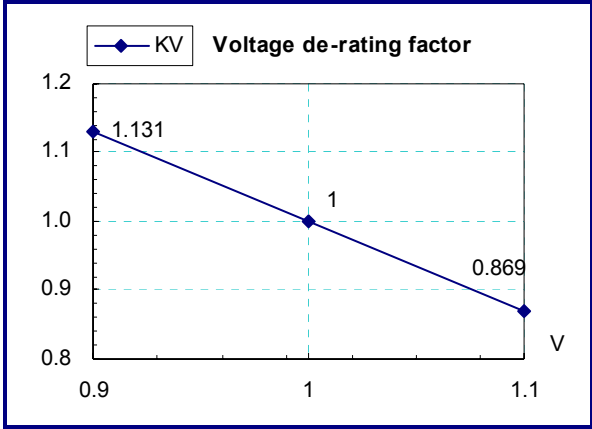


Figure 1-18. De-Rating Factors under the Typical Case Condition<sup>[12]</sup>

<sup>[12]</sup> The de-rating factors are consistent with fsd0a\_a\_tc.db.

## 1.5.5 De-Rating Factors under the Worst Case Condition

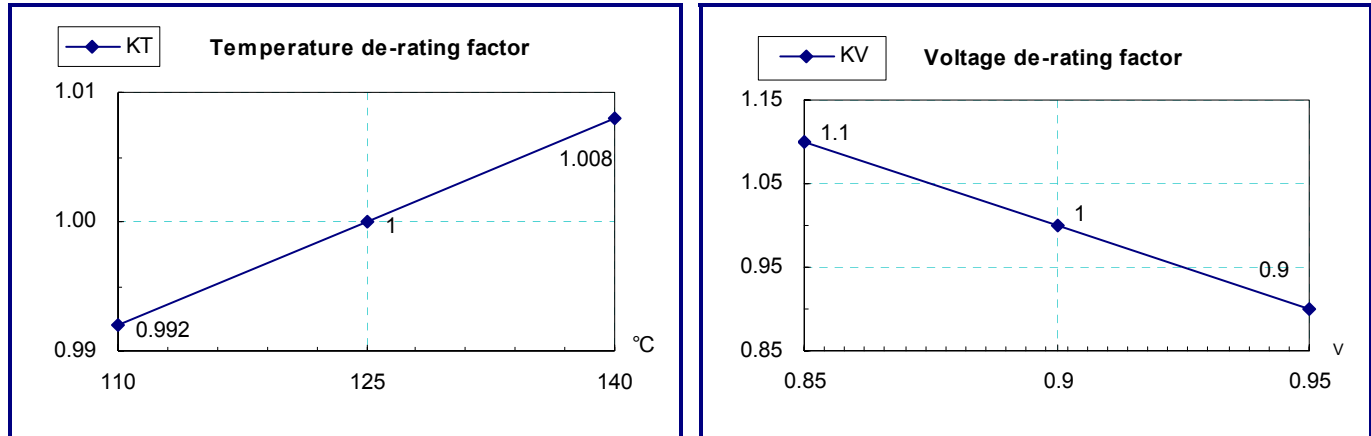


Figure 1-19. De-Rating Factors under the Worst Case Condition<sup>[13]</sup>

## 1.5.6 Performance Calculation

The following equation shows how the overall de-rating factors are determined:

$$K_{TOT} = K_P \times K_V \times K_T$$

Where:

$K_{TOT}$  = The total de-rating factors

$K_P$  = The factors due to the process variations

$K_V$  = The factors due to the operating voltages

$K_T$  = The factors due to the junction temperatures

The precision of the performance calculation is ensured by a well-defined characterization process. The complete performance calculation incorporates the non-linear slope and loading effects with adjustment parameters for the process, temperature, and voltage variations. The rise and fall times are characterized separately. A simplified version of the delay equation is as follows:

$$T_{pd} \text{ (after de-rating)} = K_{TOT} * T_{pd} \text{ (before de-rating)}$$

Where:

<sup>[13]</sup> The de-rating factors are consistent with fsd0a\_a\_wc.db.

$T_{pd}$  (after de-rating) = Propagation delays, after de-rating

$T_{pd}$  (before de-rating) = Propagation delays, before de-rating

$K_{TOT}$  = Process, voltage, and temperature variation factors

For example, if your specified conditions are:

Process: Fast

Voltage: 1.15 V

Temperature: -55 °C

$T_{pd}$  (before de-rating and taking the fast case model):  $T_{fast}$

The best case corner library should be used. The best case de-rating factors for this example are:

$K_P = 1$

$K_V = 0.96$

$K_T = 0.98$

Accordingly,

$$\begin{aligned} T_{pd} \text{ (after de-rating)} &= T_{pd} \text{ (before de-rating)} * K_P * K_V * K_T \\ &= T_{fast} * 1 * 0.96 * 0.98 \\ &= 0.94 * T_{fast} \end{aligned}$$

### 1.5.7 Propagation Delay Calculation

The precision of the propagation delay is ensured by a well-defined characterization process. The complete delay equation incorporates the non-linear slope and loading effects with adjustment parameters for the process, temperature, and voltage variation. The rise and fall times are characterized separately. A simplified version of the delay equation is as follows:

$$T_{pd} = K_{tot} * (T_0 + K * CL + Q * SW)$$

Where:

$K_{tot}$  = Process, temperature, and voltage variation factors

$T_0$  = In reply to the intrinsic delay of the macro cells

$K$  = Marginal delay per pico-farad (pF)

$CL$  = Fan-out and interconnect capacitance

$Q$  = Marginal delay per unit slope

**SW** = Unit slope representing the fan-out and interconnect capacitance

For the pre-route and post-route simulations, a more accurate and complex delay calculation is applied by the central delay calculator software. For the pre-route simulation, the central delay calculator takes the output fan-out, chip dimension, routing area and grouping information into consideration from the empirical statistics. For the post-route simulation, the actual wire delay is extracted by the layout extraction tool and is accompanied by the macro cell delay to reflect the physical timing behavior of the design.

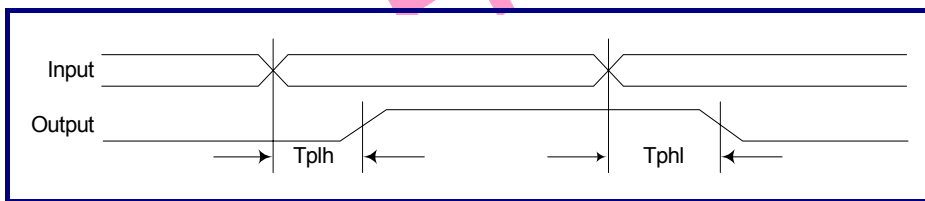
## 1.5.8 Timing Definitions

The timing definitions of the internal core macro cells and the input/output buffers are listed in this section.

### 1.5.8.1 Internal Core Macro Cells

All timing delays of the internal macro cells are characterized at the 50% operating voltage point to the next 50%. The propagation delay definition applies to combinatorial cells as well as the sequential elements<sup>[14]</sup> (setup time, hold time, and recovery/removal time).

1. The propagation delays are the timings between the transitions of an input signal and the resulting output signal.

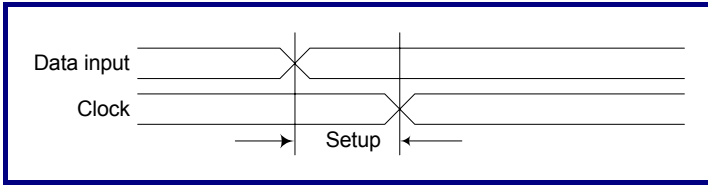


**Figure 1-20. Timing Definitions - Propagation Delay**

2. The setup time is the minimum time within which the input data must remain unchanged prior to an

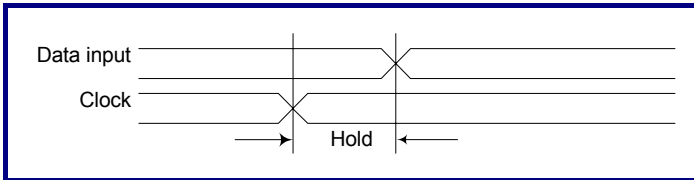
<sup>[14]</sup> The (L =>Z) timing is characterized by terminating a resistor between the output and the VDD, whereas the (H =>Z) timing is characterized by terminating a resistor between the output and the GND.

active clock transition. The setup time is characterized to ensure no more than 10% excess delay of CK  
 → Q timing occurs, if the timing constraint is not violated.



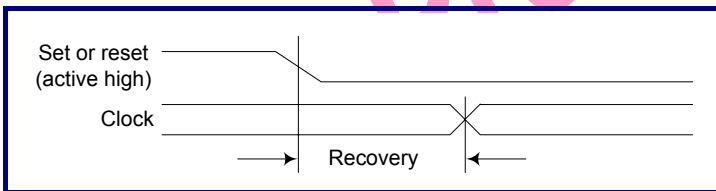
**Figure 1-21. Timing Definitions - Setup Time**

3. The hold time is the minimum time within which the input data must remain unchanged following an active clock transition. The hold time is characterized to ensure no more than 10% excess delay of CK  
 →Q timing occurs, if the timing constraint is not violated.



**Figure 1-22. Timing Definitions - Hold Time**

4. The recovery time is the minimum time within which the set or reset input must remain un-activated prior to an active clock transition.



**Figure 1-23. Timing Definitions - Recovery Time**

5. The removal time is the minimum time within which the set or reset input must remain activated following an active clock transition.



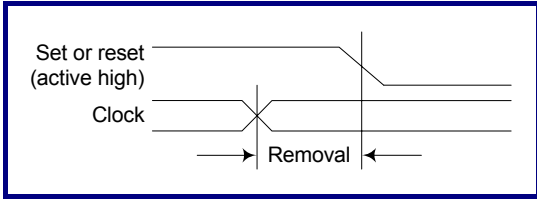


Figure 1-24. Timing Definitions - Removal Time

6. Minimum pulse width is the minimum length of time between the leading and trailing edge of a pulse.

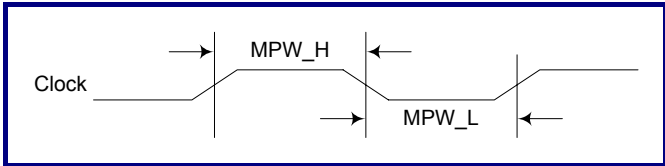


Figure 1-25. Timing Definitions - Minimum Pulse Width

1.5.8.2 Primary Input Buffers

The timing delay is measured at the input trip point. These points are defined by the type of the function being characterized. The output trip points are always measured at the 50% voltage trip point.

Function Type	VCC	Input Trip Point (VI)	Output Trip Point
2.5 V CMOS	2.25 V ~ 2.75 V	50% of VCC	50% of VCC

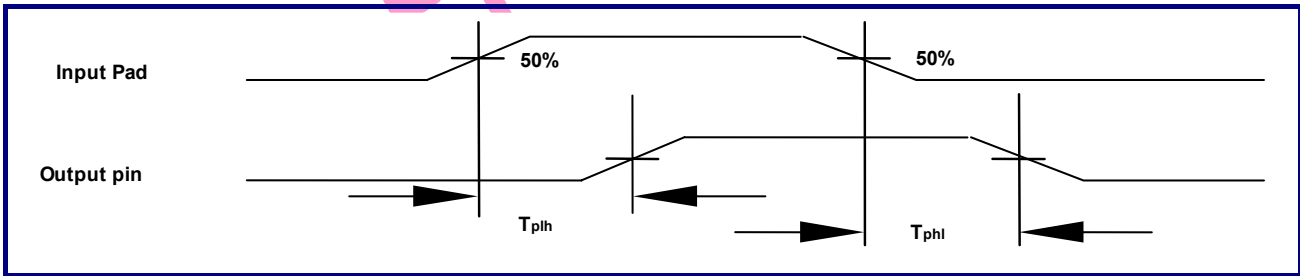


Figure 1-26. Timing Definitions - Primary Input Buffers

### 1.5.8.3 Primary Output Buffers

The timing delay is measured at the 50% input voltage trip point. The output voltage trip points are defined by the type of function being characterized.

Function Type	VCC	Input Trip Point	Output Trip Points (VO)
2.5 V CMOS	2.25 V ~ 2.75 V	50% of VCC	50% of VCC

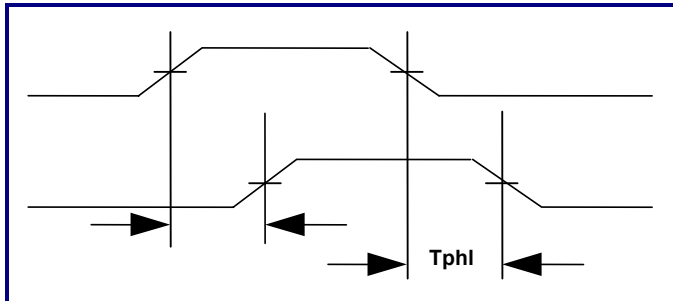


Figure 1-27. Timing Definitions - Primary Output Buffers

## 1.6 Power Consumption

### 1.6.1 Power Estimation of the Chip

The equation used to estimate the power consumption of the chip can be expressed as:

$$P_{\text{total}} = P_{\text{block}} + P_{\text{core}} + P_{\text{clock}} + P_{\text{io}} + P_{\text{dc}} + P_{\text{leakage}}$$

#### Formula 1. Power Consumption of the Estimating Chip

where:

$P_{\text{total}}$  = The total power consumption of the chip ( $\mu\text{W}$ )

$P_{\text{block}}$  = The total power consumption of the full block ( $\mu\text{W}$ )

$P_{\text{core}}$  = The total power consumption of the core cell ( $\mu\text{W}$ )

$P_{\text{clock}}$  = The total power consumption of the clock tree ( $\mu\text{W}$ )

$P_{\text{io}}$  = The total power consumption of the I/O cell ( $\mu\text{W}$ )

$P_{\text{dc}}$  = The total related power consumption of the DC current ( $\mu\text{W}$ )

$P_{\text{leakage}}$  = Leakage power consumption ( $\mu\text{W}$ )

The total power consumption of the full block ( $P_{\text{block}}$ ) is the summation of the individual full blocks, including the memory blocks, analog blocks, PLLs, and IPs. The total power consumption of the core cell ( $P_{\text{core}}$ ) is the summation of the logic gates. This does not include the I/O cells and/or the clock buffer in the clock trees. The total power consumption of the clock tree ( $P_{\text{clock}}$ ) is the summation of the clock buffers in the clock trees. The total power consumption of the I/O cell ( $P_{\text{io}}$ ) is the summation of the I/O cells. The total power consumption of the DC current ( $P_{\text{dc}}$ ) is the summation of the DC current paths. The total leakage power consumption ( $P_{\text{leakage}}$ ) is the summation of the sub-threshold current of each device and the reversed biased current of the junction.

### 1.6.1.1 Early Estimation of the Chip Power

It is important and helpful to obtain a quick and reliable power estimation of the chip at the early design stage. Faradays' early power estimation methodology can help the users choose the package types, estimate the battery requirements, and determine the grid design of the chip at the same time. Should the power estimation be too high, it can also help the users on reducing the power in large power consuming blocks, clock trees, etc.

Faraday's early power estimation methodology is simple and reliable. It can help the users to estimate the power requirement at very early stages. The methodology provides the users with the statistics records Faraday gained over 1,000 successful ASIC projects.

The following estimation items are required, if you use Faraday's methodology for early power estimations:

- Total gate count
- Toggle rate
- Frequency
- Output buffer loading
- Chip size

### 1.6.1.2 Total Power Consumption of the Core Cell

The total power consumption of the core cell ( $P_{\text{Core}}$ ) is the summation of the logic gates, except the I/O cells and the clock buffer in the clock trees. The equation used to calculate the power consumption of the core cell is given by:

$$P_{\text{Core}} = \sum_{\forall \text{net}(i)} \left( \frac{1}{2} \times C_{\text{net}(i)} \times V_{\text{dd}}^2 + E_{\text{internal}(i)} \right) \times F_{\text{toggle}(i)}$$

**Formula 2. The Total Power Consumption of the Core Cell**

where:

$P_{\text{Core}}$  = The power consumption of the core cell ( $\mu\text{W}$ )

$\frac{1}{2} \times C_{\text{net}(i)} \times V_{\text{dd}}^2$  = Switching power associated with the related net (i) ( $\mu\text{W}/\text{MHz}$ )

$C_{\text{net}}$  = Total net capacitance (pF),  $C_{\text{net}} = C_{\text{gate}} + C_{\text{wire}}$

$C_{\text{gate}}$  = Cell input capacitance (pF)

$C_{\text{wire}}$  = Wire load capacitance (pF)

$V_{\text{dd}}$  = Supply voltage

$E_{\text{internal}(i)}$  = Internal power associated with the related net (i) ( $\mu\text{W}/\text{MHz}$ )

$E_{\text{internal}(i)} = E_{\text{inpins}(i)} + E_{\text{outpins}(i)}$ , the internal power means that the power consumption inside the cell when the toggle occurs

$E_{\text{inpins}(i)}$  = The internal power of the input pin associated with the related net (i) ( $\mu\text{W}/\text{MHz}$ )

$E_{\text{outpins}(i)}$  = The internal power of the output pin associated with the related net (i) ( $\mu\text{W} / \text{MHz}$ )

$F_{\text{toggle}(i)}$  = The toggle count associated with the related net (i) within 1  $\mu\text{s}$  (toggle/ $\mu\text{s}$ ) in the normal operation

Table 1-28 below shows the reasonable values of  $F_{\text{toggle}}$ :

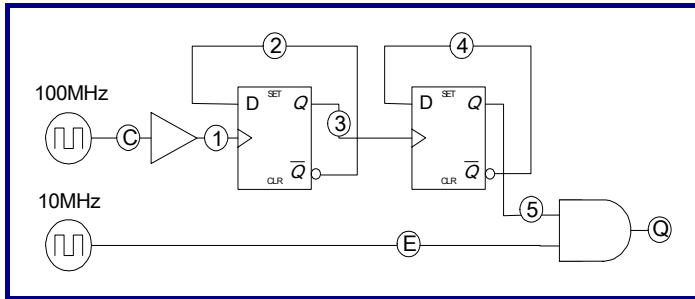
**Table 1-28. Reasonable Values of  $F_{\text{toggle}}$**

Operating Frequency	$F_{\text{toggle}}$ (toggles/ $\mu\text{s}$ ) of Different Net Types			
	Clock	F.F. Output	F.F. Input	Combination Logic
10 MHz	20	$\leq 10$	$\leq 10$	$\leq 10$
50 MHz	100	$\leq 50$	$\leq 50$	$\leq 50$
100 MHz	200	$\leq 100$	$\leq 100$	$\leq 100$

For example, if the operating frequency is 100 MHz:

- The  $F_{toggle}$  of the clock net will be 200.
- The  $F_{toggle}$  value is less than, or equal to, 100, for the input of the flip-flop, the output of the flip-flop, and the combination logic net.

The following figure is an example of how to calculate the total power consumption of the core cell:



**Figure 1-28. The Total Power Consumption of the Core Cell**

From Figure 1-28 above, we can see 8 nets that consume power in the operation. Nets C and E are the input pins. Net Q is an output pin. Nets 1, 2, 3, 4, and 5 are the internal nets.

To calculate the power consumption associated with Net 1, assume the following conditions:

- Input Net C is coupled to a 100 MHz clock signal.
- Input Net E is coupled to a 10 MHz enable signal.

The following equation can be used to calculate the power consumption for Net 1:

$$P_{net(1)} = \left( \frac{1}{2} \times C_{net(1)} \times V_{dd}^2 + E_{internal(1)} \right) \times F_{toggle(1)}$$

### Formula 3. Power Consumption Calculation

By substituting:

$$C_{net} = 0.013548 \text{ (pF)}, C_{net} = C_{gate} + C_{wire}$$

$$C_{gate} = 0.001548 \text{ (pF)}$$

$$C_{wire} = 0.012 \text{ (pF)}$$

$$V_{dd} = 1.0 \text{ (V)}$$

$$E_{inpins(1)} = 0.0047 \text{ (\mu W/MHz)}$$

$$E_{outpins(1)} = 0.0069 \text{ (\mu W/MHz)}$$

$$E_{\text{internal}(1)} = E_{\text{inpins}(1)} + E_{\text{outpins}(1)}$$

$$E_{\text{internal}(1)} = 0.0116 \text{ (}\mu\text{W/MHz)}$$

$$F_{\text{toggle}(1)} = 200 \text{ (toggle}/\mu\text{s)}$$

Then, we can have:

$$P_{\text{net}(1)} = 3.6748 \text{ (}\mu\text{W)}$$

The same power calculation can be applied to the other nets. These calculations are summarized in Table 1-29 below.

**Table 1-29. Summary of the Power Calculation**

Net Name	Power Supply (V)	C <sub>net</sub> (pF)	Switching Power (μW/MHz)	E <sub>inpins</sub> (μW/MHz)	E <sub>outpins</sub> (μW/MHz)	E <sub>internal</sub> (μW/MHz)	F <sub>toggle</sub> (toggle/μs)	P <sub>Core</sub> (μW)
C	1.0	0.001528	0.000764	0	0	0	200	0.1528
E	1.0	0.001355	0.0006775	0	0	0	20	0.01355
Q	1.0	0.012	0.006	0	0.0058	0.0058	20	0.236
1	1.0	0.013548	0.006774	0.0069	0.0047	0.0116	200	3.6748
2	1.0	0.013234	0.006617	0.0023	0	0.0023	100	0.8917
3	1.0	0.013548	0.006774	0.0069	0.0174	0.0243	100	3.1074
4	1.0	0.013234	0.006617	0.0023	0	0.0023	50	0.44585
5	1.0	0.013169	0.0065845	0	0.0174	0.0174	50	1.199225
Sum		0.081616	0.040808	0.0184	0.0453	0.0637		9.721325

In connection with the table above, please note that:

- Switching power equals to  $1/2 * C_{\text{net}} V_{\text{dd}}^2$ .
- The energy (E<sub>inpins</sub> and E<sub>outpins</sub>) shown here is after SDPD (state dependency and path dependency).
- The power calculation summary assumes the internal nets (Nets 1, 2, 3, 4, and 5) and output net (Net Q) to have a wire load of 0.012 pF.

## 1.6.2 Path-Dependent Power Models

With the increasing demand on the power optimization, the conventional approach for averaging the path power ratings is no longer an effective approach in your design. In order to achieve reasonable and reliable accuracy in the power estimations, Faraday supports the path dependent power model for all cells in the library. The path dependent power model is used to specify the power consumption within a logic cell associated with a particular output pin. The level of the power consumption depends on which path is being used. When an input pin transits, it causes a particular output pin to toggle.

Different paths have different levels of the power consumption. It is important for the model to contain an accurate and precise record of the power consumption of each path. Modern power optimization tools can use the path dependent power model to optimize the gate-level power consumption.

## 1.6.3 State-Dependent Power Models

The state dependent power model is used to specify a different set of power tables, depending on the condition of one, or more, input pins within specific cells.

According to our study, there is no significant difference between the state-dependent power model in estimating power consumption of a chip and the average power ratings for the conventional libraries.

You may find that our state dependent power model only exists in the sequential logic gates. This is because, according to our study, the sequential logic gates consume significantly more power. However, since the modern power optimization tools focus more on the sequential logic gates; as a result, we decided to concentrate our efforts on the sequential logic gates also.

## 1.6.4 Power Optimization

The FSD0A\_A has the following features that will help the users to achieve the low power designs:

- Low power core cell
- Ultra high density
- Optimized library for the synthesis and power optimization tools
- Supports a rich set of the integrated clock-gating cells and enabled flip-flops

## 1.7 Guide to Data Sheet

AN2
FARADAY STANDARD CELL LIBRARY FSD0A\_A
AN2

Group Name : AN2

Function : 2 Input AND

Truth Table

I1	I2	O
1	1	1
OTHERS		0

Pin Order : O I1 I2

Symbol

Schematic

**Input Capacitance (ff) & Maximum Loading (ff) & Power Consumption (nW/MHz)**

Version	Input Capacitance		Maximum Loading		Power Consumption	
	I1	I2	O	O	O	O
AN2XLP	1.054	1.282	127.6	2.414		
AN2X1	1.331	1.617	212.7	3.495		
AN2X1P	1.561	1.852	295.5	4.636		
AN2X2	1.754	2.087	425.8	6.145		
AN2X3	1.867	2.269	637.9	9.119		
AN2X4	3.862	4.575	851.8	12.39		
AN2X6	3.781	4.496	1276.4	17.85		

**AC Characteristics (Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ps)**

Version	Cell Unit	Path	Output Load											
			1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
			tpLh	tpHl	tpLh	tpHl	tpLh	tpHl	tpLh	tpHl	tpLh	tpHl	tpLh	tpHl
AN2XLP	5	I1-O	36.11	41.32	44.40	46.13	63.95	55.64	111.8	75.45	230.9	121.0	529.8	234.0
		I2-O	35.47	46.07	43.85	51.10	63.30	60.96	111.1	80.86	230.3	126.7	529.2	239.9
		Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
AN2X1	5	I1-O	33.79	39.63	39.12	43.01	51.22	49.87	80.01	63.34	151.3	92.95	329.8	164.4
		I2-O	33.22	44.26	38.59	47.82	50.70	54.83	79.48	68.63	150.9	98.32	329.3	169.9
		Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
AN2X1P	7	I1-O	34.89	40.20	39.07	42.94	48.32	48.45	69.57	59.21	121.3	81.05	250.4	131.4
		I2-O	34.06	44.51	38.28	47.41	47.59	53.18	68.80	64.17	120.5	86.12	249.6	136.6
		Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	

Figure 1-29. Guide to Data Sheet



Description:

A: Group name

B: Function specification

C: Truth table

D: Pin order

E: Input capacitance

F: Cell name

G: Symbol

H: Schematics

I: The maximum loading, also called the "maximum capacitance," which defines the maximum capacitive loads that an output pin can drive

J: The intrinsic power consumption, also called the "internal power," which includes the power dissipation by a momentary short circuit current between P and N transistors of a gate. It is calculated when the output loading = 0.

K: Cell information (gate unit, delay time, hold time, recovery time, etc.)

In the data sheet, it specifies a propagation delay of 27 ps data slew and 27 ps clock slew. For the setup time, hold time, recovery time, removal time, and minimum pulse width, it also specifies time constraints values of 6 ps data slew and 6 ps clock slew.

Preliminary

# Chapter 2

## Core Cells

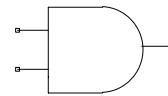
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Preliminary

Group Name : AN2

Symbol

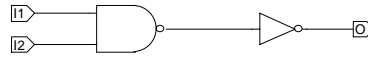
Function : 2 Input AND



Truth Table

I1	I2	O
1	1	1
OTHERS		0

Schematic



Pin Order O I1 I2

**Input Capacitance (ff) & Maximum Loading (ff) & Power Consumption (nW/MHz)**

Version	Input Capacitance		Maximum Loading	Power Consumption
	I1	I2	O	O
AN2XLP	1.054	1.282	127.6	2.414
AN2X1	1.331	1.617	212.7	3.495
AN2X1P	1.561	1.852	295.5	4.636
AN2X2	1.754	2.087	425.8	6.145
AN2X3	1.867	2.269	637.9	9.119
AN2X4	3.862	4.575	851.8	12.39
AN2X6	3.781	4.496	1276.4	17.85

**AC Characteristics ( Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ps)**

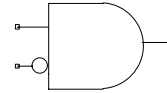
Version	Cell Unit	Path	Output Load											
			1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
AN2XLP	5	I1-O	36.11	41.32	44.40	46.13	63.95	55.64	111.8	75.45	230.9	121.0	529.8	234.0
		I2-O	35.47	46.07	43.85	51.10	63.30	60.96	111.1	80.86	230.3	126.7	529.2	239.9
		Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
AN2X1	5	I1-O	33.79	39.63	39.12	43.01	51.22	49.87	80.01	63.34	151.3	92.95	329.8	164.4
		I2-O	33.22	44.26	38.59	47.82	50.70	54.83	79.48	68.63	150.9	98.32	329.3	169.9
		Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
AN2X1P	7	I1-O	34.89	40.20	39.07	42.94	48.32	48.45	69.57	59.21	121.3	81.05	250.4	131.4
		I2-O	34.06	44.51	38.28	47.41	47.59	53.18	68.80	64.17	120.5	86.12	249.6	136.6
		Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	

AN2X2	7	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		I1-O	35.43	41.33	39.13	43.86	48.10	49.52	70.48	61.50	131.5	88.11	302.0	156.7
		I2-O	34.45	45.52	38.19	48.20	47.22	54.11	69.69	66.36	130.6	93.11	301.2	161.8
AN2X3	8	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		I1-O	40.12	46.38	43.02	48.42	50.69	53.49	70.39	64.82	125.8	90.51	290.9	157.6
		I2-O	38.71	50.29	41.68	52.46	49.38	57.77	69.14	69.50	124.5	95.54	289.7	162.7
AN2X4	13	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		I1-O	33.34	36.17	35.50	37.65	41.26	41.30	56.11	49.61	97.89	68.62	221.7	118.9
		I2-O	32.99	40.62	35.20	42.20	41.01	46.06	55.94	54.63	97.76	73.95	221.6	124.4
AN2X6	16	Path	1.200 ff		3.939 ff		12.93 ff		42.43 ff		139.2 ff		457.0 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		I1-O	39.04	42.06	40.77	43.29	45.93	46.72	60.09	55.15	101.2	75.16	232.8	129.3
		I2-O	38.25	46.31	40.02	47.63	45.21	51.23	59.44	60.02	100.5	80.40	232.2	134.8

Group Name : AN2B1

Symbol

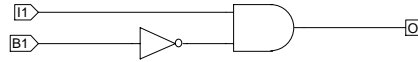
Function : 2 Input AND, One Input Inverted



Truth Table

I1	B1	O
1	0	1
OTHERS		0

Schematic



Pin Order O I1 B1

**Input Capacitance (ff) & Maximum Loading (ff) & Power Consumption (nW/MHz)**

Version	Input Capacitance		Maximum Loading	Power Consumption
	I1	B1	O	O
AN2B1XLP	1.106	1.590	76.60	1.879
AN2B1X1	1.212	2.057	110.4	2.510
AN2B1X1P	1.897	3.162	153.8	3.196
AN2B1X2	2.613	3.871	221.6	4.500
AN2B1X3	2.534	5.928	331.9	6.789

**AC Characteristics ( Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ps)**

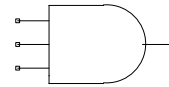
Version	Cell Unit	Path	Output Load													
			1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff			
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl		
AN2B1XLP	5	I1-O	40.13	45.64	53.09	50.76	85.20	61.17	165.0	83.33	364.6	134.9	865.1	263.3		
		B1-O	37.12	14.31	50.74	20.11	83.24	31.79	163.1	55.77	362.8	108.4	863.4	236.9		
		Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff			
AN2B1X1	6	I1-O	37.47	46.41	46.46	50.53	68.63	59.17	124.0	76.90	262.3	117.4	608.8	216.8		
		B1-O	33.53	14.48	43.20	19.07	66.15	28.55	121.7	48.00	260.0	89.65	606.6	189.3		
		Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff			
AN2B1X1P	7	I1-O	32.01	40.59	38.61	43.80	54.77	50.55	95.06	64.25	194.9	95.09	445.2	170.1		
		B1-O	29.50	13.11	36.74	16.83	53.69	24.60	94.25	40.19	194.2	72.98	444.7	148.5		
		Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff			

AN2B1X2	9	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		I1-O	29.08	36.71	33.64	38.94	44.90	43.67	72.85	53.38	142.2	74.34	315.6	124.4
		B1-O	29.07	11.88	34.21	14.57	46.26	20.27	74.69	31.72	144.3	55.19	317.6	106.4
AN2B1X3	11	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		I1-O	33.61	43.59	37.29	45.59	47.50	50.42	75.75	61.24	154.3	85.88	375.2	149.6
		B1-O	28.11	11.39	32.33	13.61	43.32	18.92	72.25	30.75	151.2	57.25	372.1	122.0

Group Name : AN3

Symbol

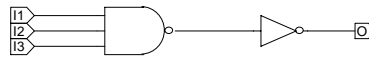
Function : 3 Input AND



Truth Table

I1	I2	I3	O
1	1	1	1
OTHERS			0

Schematic



Pin Order O I1 I2 I3

**Input Capacitance (ff) & Maximum Loading (ff) & Power Consumption (nW/MHz)**

Version	Input Capacitance			Maximum Loading	Power Consumption
	I1	I2	I3	O	O
AN3XLP	1.125	1.237	1.394	127.5	3.029
AN3X1	1.486	1.632	1.842	212.6	4.386
AN3X1P	1.845	1.987	2.240	295.4	5.602
AN3X2	1.827	1.979	2.233	425.4	7.097
AN3X3	1.802	1.969	2.221	637.0	10.23
AN3X4	3.394	3.688	4.110	851.0	14.07
AN3X6	3.345	3.661	4.084	1274.7	20.24

**AC Characteristics ( Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ps)**

Version	Cell Unit	Path	Output Load											
			1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
AN3XLP	7	I1-O	40.56	46.71	49.40	51.89	69.46	62.07	117.4	82.58	236.6	128.4	535.5	241.6
		I2-O	42.54	53.33	51.40	58.83	71.44	69.41	119.3	90.25	238.5	136.5	537.4	249.8
		I3-O	42.08	58.60	50.96	64.42	70.99	75.40	118.8	96.73	238.0	143.3	536.9	256.8
AN3X1	7	I1-O	38.05	44.43	43.80	48.06	56.51	55.27	85.63	69.46	157.1	99.57	335.6	171.1
		I2-O	40.07	50.79	45.86	54.63	58.56	62.16	87.71	76.79	159.1	107.1	337.6	178.8
		I3-O	39.64	55.88	45.43	59.90	58.17	67.75	87.24	82.79	158.7	113.4	337.1	185.4

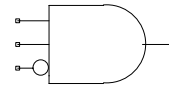
AN3X1P	8	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		I1-O	41.06	40.40	45.60	43.14	55.51	48.71	77.51	59.50	129.5	81.46	258.5	131.8
		I2-O	42.54	45.02	47.14	47.95	57.09	53.76	78.95	64.84	130.9	86.93	260.1	137.4
		I3-O	41.91	48.92	46.49	52.00	56.44	58.04	78.44	69.37	130.4	91.95	259.5	142.6
AN3X2	8	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		I1-O	43.64	43.84	47.68	46.48	57.53	52.33	81.05	64.60	142.3	91.71	312.8	160.5
		I2-O	44.83	48.28	48.94	51.06	58.88	57.19	82.45	69.81	143.6	97.19	314.2	166.1
		I3-O	44.04	52.15	48.13	55.06	58.03	61.42	81.60	74.33	142.9	102.0	313.4	171.2
AN3X3	9	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		I1-O	50.80	50.53	53.95	52.71	62.47	58.08	83.83	70.03	140.0	96.64	305.3	164.2
		I2-O	51.67	54.76	54.86	57.06	63.40	62.69	84.71	74.97	141.1	101.9	306.4	169.8
		I3-O	50.61	58.51	53.78	60.90	62.37	66.71	83.76	79.40	140.0	106.7	305.3	174.8
AN3X4	16	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		I1-O	41.01	41.95	43.38	43.56	49.76	47.49	65.90	56.43	108.4	76.43	232.3	127.4
		I2-O	43.21	47.21	45.60	48.92	52.02	53.14	68.15	62.51	110.7	82.92	234.7	134.0
		I3-O	42.74	51.33	45.13	53.12	51.60	57.55	67.80	67.23	110.3	88.08	234.3	139.5
AN3X6	18	Path	1.200 ff		3.939 ff		12.93 ff		42.43 ff		139.2 ff		457.0 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		I1-O	48.20	48.58	50.05	49.91	55.66	53.61	71.16	62.71	113.6	83.93	245.4	139.1
		I2-O	49.98	53.57	51.85	54.99	57.50	58.93	73.04	68.48	115.6	90.21	247.4	145.6
		I3-O	49.30	57.60	51.18	59.07	56.81	63.16	72.38	73.02	114.9	95.18	246.8	151.1



Group Name : AN3B1

Symbol

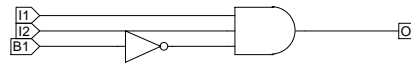
Function : 3 Input AND, One Input Inverted



Truth Table

I1	I2	B1	O
1	1	0	1
OTHERS			0

Schematic



Pin Order O I1 I2 B1

**Input Capacitance (ff) & Maximum Loading (ff) & Power Consumption (nW/MHz)**

Version	Input Capacitance			Maximum Loading		Power Consumption	
	I1	I2	B1	O	O		
AN3B1XLP	1.073	0.9850	1.390	51.06	2.337		
AN3B1X1	1.450	1.384	1.872	73.68	3.128		
AN3B1X1P	1.927	1.995	3.006	102.6	4.199		
AN3B1X2	2.708	2.697	3.465	147.5	6.206		
AN3B1X3	2.587	2.539	5.347	221.3	8.525		

**AC Characteristics ( Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ps)**

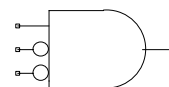
Version	Cell Unit	Path	Output Load											
			1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
AN3B1XLP	8	I1-O	58.52	50.07	77.69	56.02	125.4	68.98	244.0	98.33	541.1	169.4	1286	347.2
		I2-O	45.82	45.87	64.98	51.85	112.7	64.68	231.4	93.81	528.6	164.8	1274	342.5
		B1-O	55.52	20.54	74.89	27.54	122.6	42.20	241.3	73.42	538.6	145.2	1284	323.2
AN3B1X1	8	I1-O	51.86	47.28	65.24	51.76	98.61	61.44	180.8	83.14	386.6	134.7	902.9	263.3
		I2-O	39.63	43.03	53.03	47.55	86.14	57.16	168.5	78.65	374.5	130.0	890.8	258.6
		B1-O	49.55	19.55	63.12	24.90	96.57	36.15	178.8	59.94	384.8	112.7	901.2	241.5
AN3B1X1P	10	I1-O	48.75	45.63	58.56	49.11	82.64	56.63	142.3	73.21	290.9	111.5	663.7	206.2
		I2-O	37.19	42.32	46.78	45.93	71.06	53.59	130.7	70.10	279.4	108.3	652.3	202.9
		B1-O	45.59	18.34	55.63	22.53	80.03	31.39	139.6	50.05	288.4	89.94	661.3	185.1

AN3B1X2	14	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		I1-O	48.18	42.38	55.02	44.78	71.89	50.12	113.4	61.81	216.4	88.44	474.7	152.9
		I2-O	34.11	39.47	40.68	41.99	57.33	47.53	99.00	59.17	202.1	85.64	460.5	149.9
		B1-O	47.76	17.73	54.79	20.72	71.84	27.25	113.3	40.92	216.6	69.83	475.0	135.4
AN3B1X3	17	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		I1-O	49.39	47.61	54.01	49.38	65.36	53.43	93.10	62.17	162.2	80.96	334.5	124.6
		I2-O	35.76	43.57	40.12	45.43	51.12	49.54	79.13	58.34	148.0	76.99	320.5	120.5
		B1-O	44.43	16.60	49.16	18.68	60.75	23.37	88.72	33.23	157.7	53.94	330.2	98.93

Group Name : AN3B2

Symbol

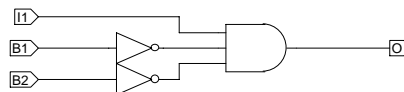
Function : 3 Input AND, Two Input Inverted



Truth Table

I1	B1	B2	O
1	0	0	1
OTHERS			0

Schematic



Pin Order O I1 B1 B2

**Input Capacitance (ff) & Maximum Loading (ff) & Power Consumption (nW/MHz)**

Version	Input Capacitance			Maximum Loading		Power Consumption	
	I1	B1	B2	O		O	
AN3B2XLP	1.042	1.229	1.330	50.99		2.005	
AN3B2X1	1.449	1.544	1.754	73.67		2.602	
AN3B2X1P	1.956	2.445	2.846	102.5		3.434	
AN3B2X2	2.621	2.895	3.312	147.7		4.957	
AN3B2X3	2.577	4.298	5.039	221.4		7.206	

**AC Characteristics ( Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ps)**

Version	Cell Unit	Path	Output Load											
			1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
AN3B2XLP	7	I1-O	49.27	49.70	68.41	56.00	116.1	69.07	234.6	98.50	531.9	169.5	1277	347.3
		B2-O	56.00	20.99	75.44	27.90	123.0	42.50	241.8	73.66	539.0	145.4	1285	323.4
		B1-O	52.09	19.65	71.51	26.53	119.4	41.01	238.1	71.98	535.3	143.5	1281	321.2
AN3B2X1	7	I1-O	40.73	44.60	54.09	49.22	87.03	59.00	169.5	80.62	375.5	132.1	891.8	260.6
		B2-O	49.63	19.74	63.18	25.07	96.67	36.30	178.9	60.07	384.9	112.8	901.3	241.7
		B1-O	45.38	18.29	59.36	23.63	92.82	34.79	175.1	58.40	381.1	110.8	897.5	239.4
AN3B2X1P	9	I1-O	37.92	42.48	47.55	46.04	71.73	53.68	131.3	70.13	280.1	108.3	652.9	202.9
		B2-O	46.01	18.77	55.96	22.90	80.31	31.69	139.9	50.28	288.7	90.13	661.6	185.2
		B1-O	42.03	17.26	52.22	21.40	76.66	30.18	136.4	48.57	285.2	88.26	658.1	183.1

AN3B2X2	13	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		I1-O	32.62	38.05	39.21	40.55	55.87	46.05	97.55	57.60	200.7	83.97	459.0	148.2
		B2-O	46.55	17.47	53.55	20.48	70.64	27.05	112.1	40.74	215.4	69.66	473.8	135.2
		B1-O	40.62	15.96	47.86	18.97	65.16	25.49	106.9	39.01	210.1	67.61	468.6	132.6
AN3B2X3	15	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		I1-O	37.11	45.29	41.55	47.21	52.57	51.43	80.48	60.41	149.3	79.29	321.8	122.9
		B2-O	43.91	16.73	48.60	18.80	60.15	23.48	88.13	33.31	157.2	54.00	329.6	98.97
		B1-O	38.71	15.20	43.57	17.28	55.42	21.94	83.45	31.72	152.7	52.25	325.1	96.85

Group Name : AN4

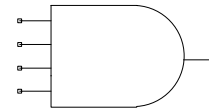
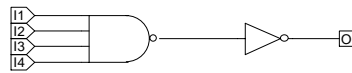
Symbol

Function : 4 Input AND

Truth Table

I1	I2	I3	I4	O
1	1	1	1	1
OTHERS				0

Schematic



Pin Order O I1 I2 I3 I4

**Input Capacitance (ff) & Maximum Loading (ff) & Power Consumption (nW/MHz)**

Version	Input Capacitance				Maximum Loading		Power Consumption
	I1	I2	I3	I4	O	O	
AN4XLP	0.9230	1.144	1.031	1.100	76.48	2.895	
AN4X1	0.9900	1.218	1.114	1.201	110.5	3.522	
AN4X1P	1.293	1.409	1.331	1.385	153.6	4.638	
AN4X2	1.265	1.554	1.315	1.603	221.2	6.275	
AN4X3	1.896	2.291	1.879	2.295	331.2	9.997	

**AC Characteristics ( Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ps)**

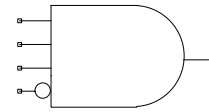
Version	Cell Unit	Path	Output Load											
			1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
AN4XLP	9	I1-O	53.74	50.02	66.93	55.11	99.20	65.59	179.2	88.05	378.8	139.8	879.3	268.4
		I2-O	52.57	54.67	65.88	59.93	98.17	70.68	178.1	93.25	377.6	145.2	878.1	273.8
		I3-O	49.04	49.41	62.13	54.77	94.41	65.59	174.2	88.19	373.8	140.0	874.3	268.4
		I4-O	47.88	53.93	61.04	59.50	93.28	70.61	173.0	93.38	372.7	145.3	873.2	273.8
AN4X1	9	I1-O	50.03	50.36	59.61	54.56	82.34	63.27	137.8	81.42	276.1	122.1	622.6	221.7
		I2-O	48.86	54.95	58.44	59.28	81.19	68.19	136.6	86.59	274.9	127.4	621.4	227.0
		I3-O	44.87	49.30	54.20	53.73	76.76	62.76	132.2	81.07	270.4	121.8	616.9	221.3
		I4-O	43.70	53.74	53.09	58.36	75.72	67.61	131.2	86.28	269.3	127.1	615.9	226.6

AN4X1P	10	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		I1-O	51.65	53.59	58.85	57.07	75.69	64.41	116.1	79.26	216.3	111.2	466.7	186.6
		I2-O	50.23	57.96	57.42	61.56	74.32	69.04	114.8	84.25	214.8	116.2	465.2	191.7
		I3-O	45.11	51.02	52.15	54.69	68.71	62.23	109.1	77.21	209.0	109.1	459.4	184.4
		I4-O	43.77	55.31	50.85	59.11	67.51	66.88	107.9	82.23	207.7	114.2	458.2	189.6
AN4X2	13	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		I1-O	51.02	52.68	56.18	55.24	68.24	60.73	96.73	71.93	166.3	95.18	339.7	147.7
		I2-O	49.67	57.02	54.85	59.67	66.94	65.32	95.43	76.74	165.0	100.2	338.3	152.8
		I3-O	44.12	50.11	49.11	52.79	60.83	58.46	89.01	69.86	158.4	93.08	331.8	145.5
		I4-O	42.88	54.33	47.92	57.16	59.71	63.05	87.93	74.66	157.3	98.14	330.7	150.7
AN4X3	16	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		I1-O	52.63	51.31	56.82	53.33	67.81	58.24	96.65	69.43	175.7	94.83	396.6	159.1
		I2-O	51.48	55.62	55.68	57.70	66.65	62.75	95.57	74.09	174.4	99.78	395.3	164.2
		I3-O	45.89	49.75	49.95	51.90	60.64	57.09	89.19	68.65	167.9	94.23	388.7	158.4
		I4-O	44.71	53.84	48.77	56.12	59.55	61.50	88.15	73.23	166.9	99.19	387.7	163.5

Group Name : AN4B1

Symbol

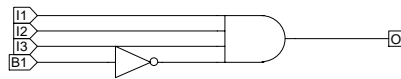
Function : 4 Input AND, One Input Inverted



Truth Table

Schematic

I1	I2	I3	B1	O
1	1	1	0	1
OTHERS				0



Pin Order O I1 I2 I3 B1

**Input Capacitance (ff) & Maximum Loading (ff) & Power Consumption (nW/MHz)**

Version	Input Capacitance				Maximum Loading		Power Consumption
	I1	I2	I3	B1	O	O	
AN4B1XLP	1.468	1.545	1.707	1.736	89.75	3.108	
AN4B1X1	1.568	1.747	1.980	2.398	110.0	4.192	
AN4B1X1P	1.436	1.593	1.807	3.719	153.1	4.956	
AN4B1X2	1.716	1.838	1.935	4.521	220.6	6.564	
AN4B1X3	1.807	2.006	2.220	6.898	330.3	9.608	

**AC Characteristics ( Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ps)**

Version	Cell Unit	Path	Output Load											
			1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
			t <sub>plh</sub>	t <sub>p<sub>hl</sub></sub>	t <sub>plh</sub>	t <sub>p<sub>hl</sub></sub>	t <sub>plh</sub>	t <sub>p<sub>hl</sub></sub>	t <sub>plh</sub>	t <sub>p<sub>hl</sub></sub>	t <sub>plh</sub>	t <sub>p<sub>hl</sub></sub>	t <sub>plh</sub>	t <sub>p<sub>hl</sub></sub>
AN4B1XLP	7	I1-O	46.32	52.10	57.95	58.07	85.68	70.19	153.8	95.94	324.2	155.8	751.7	304.6
		I2-O	48.23	58.81	59.91	65.03	87.46	77.59	155.8	103.5	326.1	163.6	753.6	312.6
		I3-O	47.81	64.42	59.48	70.89	87.05	83.78	155.4	110.2	325.7	170.5	753.2	319.7
		B1-O	33.64	16.95	45.50	23.16	73.49	35.90	141.9	62.74	312.4	123.1	739.9	272.0
AN4B1X1	8	I1-O	50.28	47.08	59.72	50.60	82.22	57.74	137.7	71.93	276.2	102.2	622.9	173.7
		I2-O	52.13	53.17	61.64	56.92	84.19	64.36	139.8	79.00	278.2	109.4	624.8	181.2
		I3-O	51.68	58.22	61.16	62.16	83.75	69.93	139.4	84.94	277.8	115.8	624.4	187.8
		B1-O	35.83	11.28	45.47	15.03	68.50	22.75	124.2	37.93	262.7	69.46	609.4	141.4

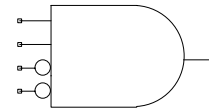
AN4B1X1P	10	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		I1-O	53.98	49.80	61.20	52.71	78.04	58.65	118.3	70.16	218.5	93.18	469.1	144.1
		I2-O	55.16	54.78	62.34	57.89	79.21	64.13	119.8	75.99	219.8	99.25	470.4	150.4
		I3-O	54.19	58.98	61.40	62.24	78.28	68.73	118.7	81.00	219.0	104.7	469.5	156.1
		B1-O	33.04	9.104	40.34	12.04	57.51	18.08	98.25	29.89	198.5	53.55	449.3	104.9
AN4B1X2	12	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		I1-O	50.59	48.48	55.70	50.64	67.73	55.19	96.01	64.16	165.5	81.75	339.1	119.4
		I2-O	52.29	53.86	57.42	56.20	69.36	61.04	97.82	70.37	167.4	88.39	340.9	126.1
		I3-O	51.70	58.47	56.82	60.91	68.89	65.97	97.30	75.67	166.9	94.01	340.5	132.2
		B1-O	31.93	9.025	37.19	11.23	49.44	15.91	78.26	25.21	148.1	43.41	321.8	81.70
AN4B1X3	13	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		I1-O	59.86	52.56	64.16	54.44	75.47	58.94	104.6	68.73	183.4	89.47	404.4	137.4
		I2-O	60.84	56.82	65.15	58.82	76.42	63.58	105.7	73.67	184.6	94.78	405.6	142.9
		I3-O	59.70	60.46	64.04	62.52	75.35	67.43	104.6	77.85	183.5	99.26	404.6	147.7
		B1-O	30.92	8.515	35.30	10.33	46.74	14.71	76.39	24.37	155.8	44.96	377.0	92.85



Group Name : AN4B2

Symbol

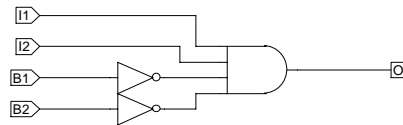
Function : 4 Input AND, Two Input Inverted



Truth Table

Schematic

I1	I2	B1	B2	O
1	1	0	0	1
OTHERS				0



Pin Order O I1 I2 B1 B2

**Input Capacitance (ff) & Maximum Loading (ff) & Power Consumption (nW/MHz)**

Version	Input Capacitance				Maximum Loading		Power Consumption
	I1	I2	B1	B2	O	O	
AN4B2XLP	1.009	1.117	1.350	1.486	50.86	2.311	
AN4B2X1	1.280	1.435	1.755	1.967	73.42	3.041	
AN4B2X1P	1.644	1.834	2.705	2.990	102.0	4.119	
AN4B2X2	2.077	2.377	3.556	4.133	147.2	5.604	
AN4B2X3	2.138	2.513	5.415	6.214	220.2	8.377	

**AC Characteristics ( Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ps)**

Version	Cell Unit	Path	Output Load											
			1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
AN4B2XLP	7	I1-O	60.40	49.62	79.55	55.19	127.2	66.61	245.8	91.37	543.2	149.5	1289	294.5
		I2-O	58.94	53.65	78.24	59.36	125.8	71.08	244.7	95.96	542.0	154.3	1287	299.3
		B2-O	57.39	18.01	76.95	24.13	124.7	36.68	243.5	63.06	540.9	122.2	1286	267.4
		B1-O	53.66	16.91	73.26	23.00	121.1	35.49	239.9	61.72	537.3	120.6	1283	265.6
AN4B2X1	7	I1-O	53.24	45.56	66.63	49.69	99.75	58.36	182.2	76.78	388.2	119.1	904.7	224.0
		I2-O	52.27	49.70	65.70	53.95	99.04	62.84	181.5	81.24	387.5	123.8	903.9	228.7
		B2-O	51.28	17.05	64.98	21.72	98.36	31.48	180.8	51.78	386.9	95.59	903.4	200.8
		B1-O	47.52	15.88	61.45	20.55	94.96	30.27	177.4	50.49	383.5	94.05	900.0	199.1

AN4B2X1P	10	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		I1-O	50.88	43.34	60.57	46.47	84.72	53.19	144.4	67.20	293.3	98.86	666.3	175.8
		I2-O	50.16	47.38	59.93	50.60	83.93	57.42	143.8	71.65	292.8	103.3	665.7	180.4
		B1-O	45.36	14.00	55.45	17.48	79.99	24.88	139.7	39.93	288.7	71.73	661.7	144.9
AN4B2X2	11	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		I1-O	48.08	41.77	54.78	44.08	71.52	49.06	113.0	59.41	216.2	81.79	474.7	134.6
		I2-O	47.39	45.71	54.06	48.11	70.97	53.19	112.3	63.79	215.8	86.11	474.3	139.0
		B1-O	41.56	13.59	48.81	16.22	66.09	21.95	107.8	33.63	211.2	57.92	469.8	111.6
AN4B2X3	15	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		I1-O	53.61	47.86	58.19	49.55	69.39	53.36	97.01	61.30	166.1	77.78	338.6	114.0
		I2-O	52.41	51.57	57.04	53.33	68.29	57.24	95.97	65.37	165.2	82.02	337.6	118.4
		B1-O	41.54	13.42	46.46	15.22	58.25	19.26	86.53	27.74	155.7	45.24	328.3	82.59

Group Name : AO112

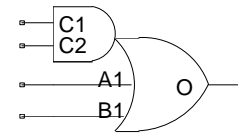
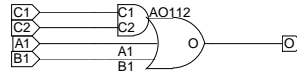
Symbol

Function : AN2 into OR3

Truth Table

A1	B1	C1	C2	O
1	X	X	X	1
X	1	X	X	1
X	X	1	1	1
OTHERS				0

Schematic



Pin Order O A1 B1 C1 C2

Input Capacitance (ff) &amp; Maximum Loading (ff) &amp; Power Consumption (nW/MHz)

Version	Input Capacitance				Maximum Loading	Power Consumption
	A1	B1	C1	C2	O	O
AO112XLP	1.344	1.420	1.403	1.566	127.5	3.534
AO112X1	1.669	1.799	1.838	2.082	212.6	5.017
AO112X1P	1.633	1.839	1.853	1.965	295.6	5.912
AO112X2	1.735	1.896	1.975	2.261	425.5	8.345
AO112X3	1.873	2.040	2.006	2.284	637.5	12.51

## AC Characteristics ( Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ps)

Version : AO112XLP

Cell Unit = 9

State		Output Load											
C1 C2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0	B1-O	39.77	60.17	47.97	66.28	67.26	78.24	115.2	101.6	234.4	150.0	533.4	263.8
0 1	B1-O	39.92	67.85	48.08	74.45	67.38	87.22	115.3	112.1	234.5	162.3	533.5	276.9
1 0	B1-O	42.57	75.93	50.91	82.91	70.35	96.41	118.1	121.9	237.4	172.7	536.4	287.6
0 0	A1-O	36.37	54.84	44.43	60.92	63.72	72.92	111.3	96.27	230.6	144.8	529.5	258.5
0 1	A1-O	36.41	59.64	44.48	66.19	63.79	79.03	111.4	103.8	230.7	154.0	529.6	268.6
1 0	A1-O	39.14	67.54	47.41	74.50	66.80	88.00	114.5	113.5	233.6	164.3	532.5	279.2
	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
	C1-O	49.49	77.47	58.56	84.03	79.05	96.92	127.6	121.7	247.3	171.9	546.6	286.4
	C2-O	47.46	85.04	56.61	92.03	77.20	105.5	125.8	131.0	245.5	181.8	544.8	296.7

Version : AO112X1

Cell Unit = 9

State		Output Load											
C1 C2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0	B1-O	37.82	56.16	43.05	60.35	54.94	68.77	83.72	85.24	155.1	118.0	333.6	190.9
0 1	B1-O	37.95	63.35	43.17	67.88	55.06	76.96	83.85	94.55	155.2	129.0	333.7	203.2
1 0	B1-O	40.68	71.72	46.13	76.60	58.25	86.21	86.99	104.3	158.4	139.4	336.9	214.1
0 0	A1-O	34.09	50.76	39.24	54.97	50.99	63.38	79.64	79.75	151.0	112.5	329.4	185.4
0 1	A1-O	34.16	55.31	39.31	59.81	51.07	68.83	79.70	86.28	151.0	120.7	329.5	194.9
1 0	A1-O	36.96	63.46	42.34	68.29	54.34	77.84	82.96	96.02	154.3	131.0	332.7	205.7
	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
	C1-O	44.48	72.48	50.31	77.00	63.21	86.07	92.82	103.6	164.7	138.0	343.6	212.2
	C2-O	42.76	80.34	48.62	85.20	61.63	94.76	91.36	112.9	163.3	148.0	342.2	222.6

Version : AO112X1P

Cell Unit = 10

State		Output Load											
C1 C2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0	B1-O	37.92	57.25	41.94	60.60	50.90	67.39	71.84	80.54	123.5	106.0	252.4	159.1
0 1	B1-O	38.05	64.80	42.06	68.39	51.02	75.71	71.97	89.87	123.6	116.8	252.6	171.7
1 0	B1-O	40.61	72.70	44.80	76.56	54.01	84.35	75.02	99.04	126.7	126.7	255.6	182.2
0 0	A1-O	34.40	52.28	38.37	55.62	47.21	62.40	68.01	75.55	119.6	101.0	248.5	154.2
0 1	A1-O	34.50	57.22	38.47	60.79	47.31	68.08	68.13	82.03	119.7	109.1	248.6	164.1
1 0	A1-O	37.11	64.94	41.26	68.76	50.37	76.50	71.37	91.19	123.0	118.8	251.7	174.3
	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
	C1-O	44.79	74.00	49.25	77.59	59.09	84.89	81.13	99.03	133.5	126.0	262.8	180.9
	C2-O	42.82	81.39	47.33	85.27	57.27	92.99	79.40	107.7	131.8	135.3	261.1	190.8

Version : AO112X2

Cell Unit = 10

State		Output Load											
C1 C2	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0	B1-O	38.34	68.04	41.93	71.33	50.67	78.76	72.85	94.38	133.6	126.6	304.2	199.4
0 1	B1-O	38.45	77.71	42.04	81.22	50.78	89.23	72.96	105.9	133.7	140.3	304.3	215.6
1 0	B1-O	40.91	87.26	44.66	91.00	53.69	99.54	76.04	117.1	136.9	152.3	307.4	228.5
0 0	A1-O	35.38	62.73	38.93	66.00	47.58	73.42	69.64	88.98	130.3	121.3	300.9	194.1
0 1	A1-O	35.47	69.51	39.01	73.00	47.67	80.94	69.73	97.70	130.4	132.0	301.0	207.3
1 0	A1-O	37.96	78.84	41.69	82.60	50.63	91.09	72.91	108.7	133.7	143.8	304.1	220.0
	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
	C1-O	44.52	86.82	48.44	90.32	57.99	98.29	81.30	115.0	142.8	149.3	313.7	224.7
	C2-O	42.64	95.68	46.66	99.44	56.30	108.0	79.76	125.5	141.2	160.7	312.2	236.9

Version : AO112X3

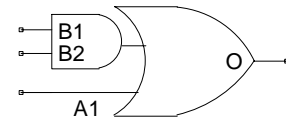
Cell Unit = 11

State	Output Load													
C1 C2	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 0	B1-O	38.43	80.90	41.18	83.58	48.41	90.34	67.37	105.6	122.6	138.3	287.7	212.6	
0 1	B1-O	38.52	93.16	41.27	95.96	48.50	103.2	67.46	119.5	122.7	154.4	287.8	232.0	
1 0	B1-O	40.60	103.0	43.46	106.0	50.91	113.6	70.12	130.9	125.2	166.9	290.4	245.5	
0 0	A1-O	36.08	75.62	38.81	78.26	45.97	85.03	64.87	100.3	120.1	133.0	285.1	207.3	
0 1	A1-O	36.12	84.86	38.85	87.72	46.01	94.87	64.87	111.2	120.1	146.0	285.1	223.6	
1 0	A1-O	38.23	94.57	41.06	97.56	48.46	105.1	67.62	122.3	122.6	158.4	287.8	236.9	
	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
	C1-O	48.69	102.0	51.73	104.8	59.81	112.1	80.41	128.4	136.4	163.3	302.0	240.9	
	C2-O	46.68	111.1	49.75	114.1	57.91	121.8	78.58	138.9	134.8	175.0	300.3	253.5	

Group Name : AO12

Symbol

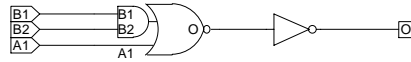
Function : AN2 into OR2



Truth Table

Schematic

A1	B1	B2	O
1	X	X	1
X	1	1	1
OTHERS			0



Pin Order O A1 B1 B2

**Input Capacitance (ff) & Maximum Loading (ff) & Power Consumption (nW/MHz)**

Version	Input Capacitance			Maximum Loading	Power Consumption
	A1	B1	B2	O	O
AO12XLP	1.242	1.095	1.293	127.6	3.188
AO12X1	1.591	1.413	1.680	212.8	4.584
AO12X1P	1.780	1.556	1.826	295.7	5.858
AO12X2	1.891	1.621	1.929	425.8	7.765
AO12X3	2.104	1.702	2.032	637.7	11.27

**AC Characteristics ( Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ps)**

Version : AO12XLP

Cell Unit = 7

State	Path	Output Load											
		1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
B1 B2		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0	A1-O	39.92	56.82	48.11	62.46	67.41	73.73	115.3	95.84	234.7	143.2	533.7	256.6
0 1	A1-O	38.31	63.02	46.51	69.03	65.89	80.74	113.9	103.8	233.1	151.9	532.2	265.5
1 0	A1-O	41.06	70.27	49.39	76.65	68.86	89.02	116.7	112.5	236.1	161.1	535.1	275.0
	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
	B1-O	38.61	55.25	47.03	61.27	66.66	73.00	114.4	96.04	233.6	144.2	532.5	257.8
	B2-O	37.70	61.99	46.18	68.37	65.74	80.70	113.5	104.3	232.7	152.8	531.6	266.7

Version : AO12X1

Cell Unit = 7

State	Output Load													
B1 B2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 0	A1-O	38.48	53.12	43.70	57.00	55.55	64.89	84.36	80.39	155.8	112.1	334.3	184.3	
0 1	A1-O	36.80	58.82	42.03	62.98	53.95	71.29	82.80	87.35	154.2	119.9	332.8	192.6	
1 0	A1-O	39.62	66.27	45.05	70.76	57.17	79.45	85.99	96.13	157.4	129.0	335.9	202.1	
	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
	B1-O	34.80	52.10	40.17	56.26	52.31	64.55	81.17	80.70	152.4	113.2	330.9	185.9	
	B2-O	34.19	59.04	39.57	63.48	51.75	72.24	80.48	88.96	151.9	121.9	330.3	194.9	

Version : AO12X1P

Cell Unit = 8

State	Output Load													
B1 B2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 0	A1-O	39.65	54.43	43.62	57.55	52.53	63.84	73.46	76.11	125.2	100.5	254.2	152.6	
0 1	A1-O	38.00	60.76	41.99	64.07	50.94	70.79	71.96	83.71	123.7	109.0	252.7	161.9	
1 0	A1-O	40.70	67.88	44.86	71.45	54.04	78.58	75.10	92.03	126.7	117.9	255.8	171.3	
	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
	B1-O	36.18	54.04	40.33	57.35	49.55	64.06	70.77	77.02	122.4	102.3	251.2	155.3	
	B2-O	35.28	60.59	39.46	64.15	48.73	71.25	69.94	84.80	121.5	110.5	250.4	164.0	

Version : AO12X2

Cell Unit = 9

State	Output Load													
B1 B2	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 0	A1-O	41.02	57.21	44.64	60.14	53.43	66.73	75.64	80.65	136.5	110.4	307.2	180.9	
0 1	A1-O	39.45	64.53	43.07	67.66	51.88	74.73	74.16	89.55	135.0	120.4	305.7	192.1	
1 0	A1-O	41.96	71.56	45.74	74.92	54.82	82.46	77.22	97.78	138.2	129.5	308.7	201.5	
	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
	B1-O	37.92	58.02	41.67	61.15	50.80	68.19	73.43	82.93	134.4	114.0	304.9	185.6	
	B2-O	36.78	64.42	40.59	67.76	49.77	75.25	72.39	90.70	133.3	122.3	303.9	194.3	



Version : AO12X3

Cell Unit = 11

State	Output Load													
B1 B2	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 0	A1-O	41.23	63.25	43.99	65.57	51.21	71.39	70.21	84.52	125.5	113.5	290.7	183.4	
0 1	A1-O	39.83	72.30	42.58	74.78	49.83	81.04	68.86	95.15	124.2	125.7	289.4	197.3	
1 0	A1-O	41.96	79.12	44.81	81.78	52.27	88.39	71.59	103.0	126.7	134.3	292.0	206.5	
	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
	B1-O	42.71	65.56	45.67	68.06	53.45	74.27	73.30	88.36	128.8	118.9	293.9	190.5	
	B2-O	41.25	71.70	44.21	74.31	52.01	80.91	71.94	95.62	127.4	126.9	292.6	199.0	

Group Name : AO13

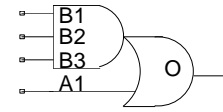
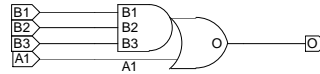
Symbol

Function : AN3 into OR2

Truth Table

A1	B1	B2	B3	O
1	X	X	X	1
X	1	1	1	1
OTHERS				0

Schematic



Pin Order O A1 B1 B2 B3

Input Capacitance (ff) &amp; Maximum Loading (ff) &amp; Power Consumption (nW/MHz)

Version	Input Capacitance				Maximum Loading	Power Consumption
	A1	B1	B2	B3	O	O
AO13XLP	1.344	1.552	1.611	1.737	127.5	3.389
AO13X1	1.540	1.749	1.813	1.964	212.6	4.578
AO13X1P	1.687	1.950	2.043	2.198	295.6	5.601
AO13X2	1.742	1.937	1.990	2.217	425.2	7.494
AO13X3	2.038	2.008	2.054	2.233	636.5	10.97

## AC Characteristics ( Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ps)

Version : AO13XLP

Cell Unit = 9

State		Output Load											
B1 B2 B3	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0	A1-O	35.22	39.62	43.27	44.50	62.56	54.24	110.2	74.26	229.4	120.0	528.3	233.1
0 0 1	A1-O	35.25	41.59	43.30	46.67	62.60	56.71	110.2	77.22	229.5	123.3	528.4	236.4
0 1 0	A1-O	35.25	41.59	43.30	46.67	62.60	56.71	110.2	77.22	229.5	123.3	528.4	236.4
0 1 1	A1-O	35.34	47.12	43.39	52.70	62.70	63.72	110.3	85.79	229.6	133.0	528.5	246.4
1 0 0	A1-O	39.56	48.45	47.91	53.85	67.33	64.31	115.0	85.14	234.1	131.4	533.0	244.7
1 0 1	A1-O	39.40	55.64	47.74	61.71	67.09	73.35	114.8	96.07	234.0	143.8	532.9	257.4
1 1 0	A1-O	41.84	63.12	50.83	69.54	70.71	81.75	118.5	105.0	237.5	153.1	536.4	267.2
	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
	B1-O	46.87	58.43	56.03	64.05	76.53	75.11	124.9	97.06	244.4	144.3	543.6	257.7
	B2-O	48.32	66.81	57.51	72.85	77.95	84.47	126.3	107.1	245.9	154.7	545.1	268.4
	B3-O	47.53	73.88	56.74	80.32	77.26	92.48	125.6	115.7	245.2	163.9	544.3	277.9

Version : AO13X1

Cell Unit = 9

State		Output Load											
B1 B2 B3	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0	A1-O	32.39	40.54	37.47	44.05	49.17	51.09	77.78	65.20	149.1	95.28	327.6	166.7
0 0 1	A1-O	32.42	42.67	37.50	46.31	49.21	53.63	77.81	68.23	149.2	98.76	327.6	170.4
0 1 0	A1-O	32.42	42.67	37.50	46.31	49.21	53.63	77.81	68.23	149.2	98.75	327.6	170.4
0 1 1	A1-O	32.51	48.72	37.59	52.75	49.31	60.85	77.89	76.76	149.3	108.9	327.7	181.4
1 0 0	A1-O	36.09	49.33	41.44	53.25	53.39	60.95	82.06	75.89	153.3	106.7	331.7	178.7
1 0 1	A1-O	35.94	57.09	41.29	61.50	53.29	70.16	81.90	86.55	153.2	119.3	331.6	192.1
1 1 0	A1-O	37.73	64.46	43.56	69.11	56.15	78.21	85.04	95.17	156.2	128.5	334.6	201.8
	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
	B1-O	45.64	59.44	51.65	63.49	64.84	71.60	94.42	87.47	166.3	119.6	345.1	192.2
	B2-O	46.99	67.64	53.08	72.05	66.26	80.63	96.04	97.10	167.6	129.8	346.5	202.6
	B3-O	46.16	74.60	52.23	79.27	65.46	88.37	95.13	105.3	166.9	138.6	345.7	211.9

Version : AO13X1P

Cell Unit = 9

State		Output Load											
B1 B2 B3	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0	A1-O	32.36	41.56	36.28	44.45	45.04	50.23	65.84	61.32	117.3	83.89	246.2	134.7
0 0 1	A1-O	32.40	43.87	36.31	46.86	45.08	52.83	65.88	64.36	117.4	87.52	246.3	138.7
0 1 0	A1-O	32.40	43.87	36.31	46.85	45.08	52.83	65.88	64.35	117.4	87.52	246.3	138.7
0 1 1	A1-O	32.48	50.52	36.40	53.78	45.17	60.39	66.00	73.18	117.5	98.10	246.4	150.8
1 0 0	A1-O	35.75	50.14	39.89	53.34	48.93	59.67	69.93	71.66	121.5	95.29	250.2	146.8
1 0 1	A1-O	35.61	58.44	39.75	62.00	48.82	69.08	69.74	82.43	121.3	107.9	250.1	161.1
1 1 0	A1-O	37.24	65.61	41.76	69.39	51.41	76.87	72.70	90.77	124.3	116.8	253.1	170.4
	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
	B1-O	45.58	60.50	50.20	63.77	60.31	70.41	82.58	83.12	134.8	108.0	263.9	160.6
	B2-O	46.65	68.20	51.34	71.76	61.53	78.84	83.75	92.19	135.9	117.7	265.1	170.8
	B3-O	45.67	74.96	50.36	78.74	60.52	86.22	82.81	100.1	135.0	126.2	264.2	179.8

Version : AO13X2

Cell Unit = 10

State		Output Load											
B1 B2 B3	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0	A1-O	33.54	45.18	37.03	47.90	45.58	53.96	67.55	66.67	128.3	94.49	298.8	163.6
0 0 1	A1-O	33.57	47.85	37.07	50.66	45.62	56.95	67.58	70.19	128.3	98.76	298.9	168.3
0 1 0	A1-O	33.57	47.85	37.07	50.66	45.62	56.95	67.58	70.19	128.3	98.76	298.9	168.3
0 1 1	A1-O	33.65	55.59	37.15	58.67	45.70	65.65	67.67	80.32	128.4	111.0	299.0	182.4
1 0 0	A1-O	36.43	53.67	40.09	56.67	48.96	63.34	71.06	77.02	131.9	106.0	302.3	175.9
1 0 1	A1-O	36.31	63.02	39.98	66.35	48.86	73.76	70.99	89.08	131.8	120.4	302.2	192.3
1 1 0	A1-O	37.56	69.85	41.55	73.34	50.98	81.16	73.67	96.96	134.4	129.0	304.9	201.4
	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
	B1-O	50.78	66.11	54.95	69.21	65.14	76.19	89.24	90.79	151.0	121.6	321.9	193.0
	B2-O	51.71	73.30	55.93	76.64	66.13	84.07	90.33	99.36	152.0	130.7	323.0	202.7
	B3-O	50.60	79.66	54.79	83.17	65.06	90.97	89.20	106.8	151.1	138.8	321.9	211.2

Version : AO13X3

Cell Unit = 12

State	Output Load													
B1 B2 B3	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff		
		tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl	
0 0 0	A1-O	32.81	51.24	35.44	53.44	42.37	58.86	61.15	71.06	116.2	98.12	281.3	166.2	
0 0 1	A1-O	32.83	54.51	35.47	56.77	42.40	62.41	61.18	75.14	116.2	103.0	281.3	171.8	
0 1 0	A1-O	32.83	54.50	35.47	56.77	42.40	62.40	61.18	75.14	116.2	103.0	281.3	171.8	
0 1 1	A1-O	32.90	64.15	35.53	66.61	42.47	72.82	61.25	86.83	116.3	117.3	281.4	188.8	
1 0 0	A1-O	34.96	59.75	37.69	62.17	44.85	68.07	63.74	81.21	118.9	109.6	283.9	178.7	
1 0 1	A1-O	34.88	70.93	37.61	73.53	44.78	80.11	63.72	94.77	118.8	125.9	283.8	198.0	
1 1 0	A1-O	35.77	77.24	38.71	80.01	46.27	86.81	65.64	102.0	120.7	133.7	285.7	206.3	
	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff		
		tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl	
	B1-O	59.49	74.29	62.71	76.79	71.42	83.01	93.29	97.05	150.1	127.5	315.8	199.0	
	B2-O	60.15	80.73	63.38	83.37	72.13	89.97	94.00	104.7	151.1	135.8	316.7	207.8	
	B3-O	58.80	86.57	62.03	89.33	70.78	96.18	92.70	111.4	149.6	143.1	315.4	215.6	

Group Name : AO22

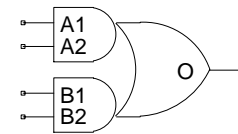
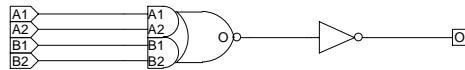
Symbol

Function : 2 AN2 into OR2

Truth Table

A1	A2	B1	B2	O
1	1	X	X	1
X	X	1	1	1
OTHERS				0

Schematic



Pin Order O A1 A2 B1 B2

Input Capacitance (ff) &amp; Maximum Loading (ff) &amp; Power Consumption (nW/MHz)

Version	Input Capacitance				Maximum Loading	Power Consumption
	A1	A2	B1	B2	O	O
AO22XLP	1.243	1.397	1.113	1.173	127.5	3.438
AO22X1	1.616	1.829	1.471	1.580	212.7	4.989
AO22X1P	1.795	1.922	1.619	1.820	295.7	6.165
AO22X2	1.906	2.182	1.690	1.916	425.7	8.135
AO22X3	2.001	2.286	1.778	2.028	637.6	11.71

## AC Characteristics ( Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ps)

Version : AO22XLP

Cell Unit = 9

State	Output Load													
	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 0	B1-O	38.70	48.29	47.16	53.75	66.81	64.57	114.6	85.96	233.8	132.6	532.7	245.9	
0 1	B1-O	38.83	55.01	47.29	61.12	66.94	73.00	114.7	96.31	233.9	144.7	532.8	258.5	
1 0	B1-O	42.32	62.85	51.11	69.36	70.92	81.89	118.7	105.8	237.9	154.7	536.8	268.8	
0 0	B2-O	37.87	53.88	46.39	59.69	65.92	70.82	113.8	92.72	232.9	139.7	531.8	253.1	
0 1	B2-O	37.99	62.02	46.50	68.48	66.06	80.99	113.9	104.8	233.0	153.8	531.9	267.8	
1 0	B2-O	41.09	69.58	49.93	76.55	69.82	89.68	117.6	114.2	236.8	163.7	535.7	278.0	
B1 B2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 0	A1-O	47.73	60.82	56.50	66.58	76.43	78.04	124.6	100.5	244.0	148.3	543.2	261.8	
0 1	A1-O	45.43	67.78	54.25	73.87	74.37	85.81	122.6	109.1	242.1	157.5	541.3	271.3	
1 0	A1-O	48.86	75.47	57.94	81.97	78.23	94.47	126.5	118.3	245.9	167.2	545.1	281.3	
0 0	A2-O	46.12	66.69	54.95	72.76	74.91	84.60	123.1	107.5	242.5	155.6	541.7	269.4	
0 1	A2-O	43.96	75.27	52.86	81.77	73.04	94.29	121.3	118.2	240.8	167.1	539.9	281.1	
1 0	A2-O	47.11	82.69	56.27	89.62	76.60	102.8	124.8	127.3	244.4	176.7	543.5	291.0	

Version : AO22X1

Cell Unit = 9

State		Output Load											
A1 A2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0	B1-O	35.09	45.62	40.49	49.41	52.66	57.00	81.45	71.95	152.8	102.9	331.3	174.8
0 1	B1-O	35.18	52.20	40.59	56.42	52.76	64.80	81.58	81.19	152.9	114.0	331.4	187.0
1 0	B1-O	38.53	60.28	44.21	64.79	56.73	73.69	85.78	90.69	156.9	124.0	335.4	197.3
0 0	B2-O	34.55	51.36	39.97	55.40	52.17	63.41	80.95	78.63	152.3	110.0	330.8	182.1
0 1	B2-O	34.67	59.44	40.09	63.95	52.30	72.83	81.07	89.78	152.5	123.0	330.9	196.4
1 0	B2-O	37.58	67.21	43.30	72.03	55.84	81.48	84.87	99.01	156.2	133.0	334.6	206.6
B1 B2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0	A1-O	43.59	57.09	49.21	61.11	61.69	69.12	90.87	84.93	162.4	117.0	341.1	189.4
0 1	A1-O	41.38	63.68	47.04	67.89	59.58	76.33	88.88	92.70	160.5	125.5	339.2	198.4
1 0	A1-O	44.67	71.55	50.55	76.07	63.42	85.00	92.83	101.9	164.4	135.2	343.1	208.6
0 0	A2-O	42.29	63.13	47.95	67.34	60.46	75.74	89.66	91.95	161.3	124.4	340.0	197.1
0 1	A2-O	40.19	71.38	45.90	75.91	58.55	84.80	87.91	101.8	159.4	135.1	338.2	208.5
1 0	A2-O	43.20	78.97	49.11	83.82	62.05	93.21	91.51	110.8	163.2	144.7	341.9	218.3

Version : AO22X1P

Cell Unit = 10

State		Output Load											
A1 A2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0	B1-O	35.83	46.31	40.01	49.35	49.27	55.47	70.50	67.34	122.1	90.85	250.9	142.4
0 1	B1-O	35.93	53.33	40.11	56.69	49.37	63.47	70.60	76.56	122.2	102.0	251.0	155.2
1 0	B1-O	38.90	60.43	43.26	63.99	52.85	71.18	74.27	84.85	126.0	110.8	254.8	164.4
0 0	B2-O	34.90	51.46	39.12	54.70	48.43	61.15	69.63	73.37	121.2	97.32	250.1	149.0
0 1	B2-O	35.02	59.85	39.24	63.44	48.55	70.63	69.76	84.29	121.3	110.3	250.2	163.9
1 0	B2-O	37.63	66.68	42.04	70.53	51.68	78.14	73.21	92.40	124.9	118.9	253.7	173.0
B1 B2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0	A1-O	44.14	57.34	48.47	60.47	58.00	66.89	79.48	79.36	131.3	104.0	260.5	156.4
0 1	A1-O	41.98	64.34	46.34	67.74	55.91	74.50	77.54	87.59	129.5	113.0	258.7	166.3
1 0	A1-O	45.03	71.53	49.52	75.14	59.38	82.36	81.19	95.98	133.1	122.0	262.3	175.6
0 0	A2-O	42.42	62.56	46.79	65.92	56.40	72.63	77.89	85.47	129.8	110.5	259.0	163.2
0 1	A2-O	40.41	70.99	44.79	74.61	54.45	81.84	76.10	95.45	128.1	121.4	257.3	175.1
1 0	A2-O	43.18	77.95	47.73	81.81	57.68	89.47	79.53	103.6	131.6	130.2	260.8	184.3



Version : AO22X2

Cell Unit = 10

State		Output Load											
A1 A2	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0	B1-O	37.54	49.20	41.31	52.07	50.46	58.49	73.05	71.91	134.0	100.7	304.5	170.5
0 1	B1-O	37.64	57.22	41.42	60.38	50.57	67.51	73.22	82.29	134.2	113.5	304.7	185.3
1 0	B1-O	40.63	64.71	44.58	68.09	54.13	75.65	77.19	91.20	138.2	123.0	308.6	195.2
0 0	B2-O	36.47	54.37	40.31	57.43	49.51	64.19	72.16	78.04	133.1	107.3	303.6	177.4
0 1	B2-O	36.60	63.84	40.43	67.17	49.63	74.71	72.28	90.25	133.2	122.0	303.7	194.2
1 0	B2-O	39.27	71.12	43.28	74.70	52.87	82.72	75.89	98.92	137.0	131.4	307.4	204.2
B1 B2	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0	A1-O	45.65	59.91	49.55	62.90	58.98	69.52	82.00	83.63	143.1	113.6	314.0	184.3
0 1	A1-O	43.61	67.87	47.51	71.04	56.96	78.14	80.06	93.00	141.2	124.2	312.1	195.9
1 0	A1-O	46.57	75.21	50.60	78.60	60.39	86.16	83.83	101.6	145.1	133.4	315.9	205.7
0 0	A2-O	44.09	65.44	48.03	68.59	57.54	75.58	80.57	90.14	141.8	120.6	312.6	191.6
0 1	A2-O	42.12	74.94	46.10	78.33	55.62	85.90	78.80	101.4	140.0	133.2	310.9	205.5
1 0	A2-O	44.89	82.08	48.96	85.68	58.83	93.72	82.32	109.9	143.8	142.3	314.5	215.1

Version : AO22X3

Cell Unit = 12

State		Output Load											
A1 A2	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0	B1-O	42.32	55.05	45.31	57.37	53.12	63.08	73.02	75.88	128.5	104.1	293.6	173.0
0 1	B1-O	42.42	64.79	45.41	67.31	53.22	73.60	73.12	87.78	128.6	118.5	293.7	190.3
1 0	B1-O	45.26	72.01	48.31	74.70	56.46	81.39	76.81	96.21	132.4	127.7	297.6	200.1
0 0	B2-O	40.88	59.92	43.91	62.37	51.74	68.36	71.68	81.63	127.2	110.2	292.4	179.6
0 1	B2-O	41.01	71.10	44.03	73.76	51.87	80.40	71.82	95.25	127.3	126.7	292.5	199.1
1 0	B2-O	43.63	78.17	46.71	81.03	54.87	88.03	75.38	103.5	131.1	135.7	296.1	208.7
B1 B2	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0	A1-O	50.36	65.68	53.39	68.04	61.41	73.95	81.72	87.21	137.5	116.5	302.9	186.6
0 1	A1-O	48.42	75.40	51.44	77.90	59.47	84.20	79.86	98.39	135.7	129.1	301.1	201.0
1 0	A1-O	51.26	82.45	54.41	85.13	62.64	91.80	83.40	106.6	139.4	138.1	304.9	210.5
0 0	A2-O	48.59	70.94	51.64	73.44	59.72	79.62	80.05	93.39	135.9	123.2	301.4	193.7
0 1	A2-O	46.71	82.09	49.77	84.79	57.86	91.48	78.29	106.3	134.3	137.8	299.7	210.2
1 0	A2-O	49.38	88.99	52.51	91.83	60.86	98.88	81.75	114.3	137.8	146.6	303.2	219.6

Group Name : AO222

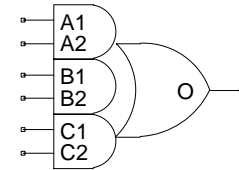
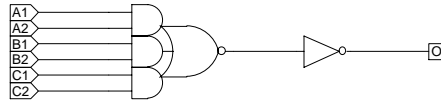
Symbol

Function : 3 AN2 into OR3

Truth Table

A1	A2	B1	B2	C1	C2	O
1	1	X	X	X	X	1
X	X	1	1	X	X	1
X	X	X	X	1	1	1
OTHERS						0

Schematic



Pin Order O A1 A2 B1 B2 C1 C2

**Input Capacitance (ff) & Maximum Loading (ff) & Power Consumption (nW/MHz)**

Version	Input Capacitance						Maximum Loading	Power Consumption
	A1	A2	B1	B2	C1	C2	O	O
AO222XLP	1.457	1.648	1.353	1.548	1.291	1.478	127.2	5.157
AO222X1	1.841	2.094	1.701	1.973	1.621	1.872	212.3	6.976
AO222X1P	1.979	2.213	1.824	1.964	1.751	1.984	295.5	8.113
AO222X2	1.949	2.242	1.796	2.127	1.716	2.018	425.2	10.60
AO222X3	1.979	2.279	1.835	2.172	1.750	2.064	637.1	14.97

## AC Characteristics ( Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ps)

Version : AO222XLP

Cell Unit = 12

State				Output Load											
A1 A2 B1 B2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff			
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl		
0 0 0 0	C1-O	47.24	51.76	56.00	57.66	75.96	69.35	123.8	92.55	242.9	141.1	541.8	254.9		
0 0 0 1	C1-O	47.34	57.64	56.10	64.06	76.06	76.81	123.9	101.5	243.0	151.9	541.9	266.7		
0 0 1 0	C1-O	50.34	63.81	59.45	70.54	79.60	83.69	127.5	109.0	246.7	159.8	545.6	274.8		
0 1 0 0	C1-O	47.32	55.70	56.08	62.10	76.04	74.91	123.9	99.96	243.0	151.0	541.9	266.2		
0 1 0 1	C1-O	47.43	61.41	56.26	68.33	76.15	82.03	124.0	108.5	243.1	161.4	542.0	277.9		
0 1 1 0	C1-O	50.43	68.50	59.54	75.79	79.68	90.06	127.6	117.2	246.8	170.7	545.7	287.7		
1 0 0 0	C1-O	50.32	61.69	59.37	68.46	79.58	81.69	127.5	107.3	246.7	158.7	545.5	274.2		
1 0 0 1	C1-O	50.42	68.49	59.53	75.78	79.68	90.05	127.6	117.2	246.8	170.7	545.7	287.7		
1 0 1 0	C1-O	53.35	75.51	62.70	83.20	83.27	98.09	131.3	126.0	250.3	180.0	549.2	297.5		
0 0 0 0	C2-O	45.68	56.44	54.48	62.61	74.37	74.72	122.3	98.24	241.3	147.1	540.3	261.1		
0 0 0 1	C2-O	45.80	63.31	54.59	70.05	74.48	83.22	122.4	108.6	241.5	159.4	540.4	274.4		
0 0 1 0	C2-O	48.55	69.28	57.62	76.35	77.78	90.08	125.7	115.9	244.9	167.3	543.8	282.6		
0 1 0 0	C2-O	45.77	61.20	54.56	67.96	74.45	81.18	122.3	106.7	241.4	158.3	540.4	273.8		
0 1 0 1	C2-O	45.86	67.92	54.66	75.23	74.54	89.47	122.4	116.7	241.5	170.2	540.4	287.2		
0 1 1 0	C2-O	48.61	74.92	57.68	82.58	77.84	97.44	125.7	125.3	245.0	179.4	543.9	296.9		
1 0 0 0	C2-O	48.52	67.08	57.59	74.17	77.74	87.94	125.6	114.1	244.9	166.1	543.8	281.9		
1 0 0 1	C2-O	48.61	74.91	57.68	82.57	77.83	97.43	125.7	125.3	245.0	179.4	543.9	296.8		
1 0 1 0	C2-O	51.33	81.78	60.65	89.83	81.25	105.4	129.3	133.9	248.4	188.7	547.3	306.5		
A1 A2 C1 C2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff			
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl		
0 0 0 0	B1-O	59.54	69.53	68.66	75.80	89.06	88.41	137.3	112.8	256.8	162.8	556.1	277.2		
0 0 0 1	B1-O	56.67	76.30	65.85	82.78	86.38	95.66	134.8	120.4	254.3	170.9	553.6	285.6		
0 0 1 0	B1-O	59.82	82.72	69.22	89.52	89.99	102.9	138.4	128.2	258.0	179.1	557.3	294.1		
0 1 0 0	B1-O	59.70	79.40	68.82	86.33	89.22	100.2	137.5	126.8	257.0	179.5	556.3	295.8		
0 1 0 1	B1-O	56.86	86.41	66.04	93.46	86.57	107.4	135.0	134.0	254.5	187.0	553.8	303.5		
0 1 1 0	B1-O	60.00	94.03	69.40	101.5	90.17	115.9	138.6	143.2	258.2	196.7	557.5	313.7		
1 0 0 0	B1-O	62.65	85.74	71.99	92.97	92.63	107.3	141.0	134.3	260.6	187.5	559.8	304.2		
1 0 0 1	B1-O	59.94	93.87	69.33	101.3	90.09	115.8	138.5	143.0	258.1	196.5	557.4	313.5		
1 0 1 0	B1-O	62.98	101.4	72.59	109.1	93.69	124.2	142.3	152.1	261.8	206.2	561.0	323.6		
0 0 0 0	B2-O	57.11	74.29	66.28	80.83	86.70	93.74	135.0	118.6	254.5	168.9	553.8	283.5		
0 0 0 1	B2-O	54.36	82.10	63.61	88.88	84.19	102.2	132.6	127.5	252.2	178.4	551.5	293.4		
0 0 1 0	B2-O	57.35	88.36	66.81	95.47	87.64	109.3	136.1	135.1	255.8	186.5	555.0	301.8		
0 1 0 0	B2-O	57.27	85.19	66.44	92.43	86.86	106.8	135.2	133.8	254.7	187.0	554.0	303.7		
0 1 0 1	B2-O	54.52	93.26	63.77	100.7	84.35	115.1	132.8	142.4	252.3	195.9	551.6	312.9		
0 1 1 0	B2-O	57.51	100.7	66.96	108.4	87.79	123.4	136.3	151.4	255.9	205.5	555.2	322.9		
1 0 0 0	B2-O	60.10	91.40	69.49	98.93	90.19	113.7	138.7	141.3	258.1	195.0	557.4	312.0		
1 0 0 1	B2-O	57.44	100.5	66.89	108.3	87.72	123.3	136.2	151.2	255.8	205.3	555.1	322.7		
1 0 1 0	B2-O	60.35	107.8	70.03	115.9	91.19	131.5	139.8	160.1	259.3	214.9	558.6	332.8		

B1 B2 C1 C2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0 0	A1-O	67.10	81.76	76.71	88.13	97.80	100.9	146.8	126.0	267.1	176.8	566.8	291.8
0 0 0 1	A1-O	62.18	89.59	71.92	96.15	93.45	109.0	143.1	134.3	263.6	185.4	563.4	300.7
0 0 1 0	A1-O	65.58	96.01	75.49	102.9	97.25	116.3	147.0	142.1	267.3	193.6	567.1	309.2
0 1 0 0	A1-O	65.43	91.44	75.00	98.36	96.06	112.1	145.1	138.8	265.4	191.5	565.1	307.7
0 1 0 1	A1-O	60.97	98.73	70.65	105.8	92.09	119.6	141.6	146.3	262.1	199.2	561.9	315.7
0 1 1 0	A1-O	64.36	106.3	74.22	113.7	95.90	128.1	145.5	155.4	265.8	209.0	565.6	325.9
1 0 0 0	A1-O	68.58	97.75	78.32	105.0	99.72	119.2	148.9	146.3	269.0	199.5	568.7	316.1
1 0 0 1	A1-O	64.29	106.2	74.14	113.6	95.82	128.0	145.4	155.2	265.8	208.8	565.6	325.7
1 0 1 0	A1-O	67.54	113.6	77.57	121.4	99.43	136.4	149.2	164.3	269.5	218.4	569.3	335.8
0 0 0 0	A2-O	64.31	86.44	73.95	93.08	95.19	106.2	144.4	131.7	264.5	182.8	564.2	298.0
0 0 0 1	A2-O	59.36	95.38	69.22	102.2	90.86	115.7	140.6	141.4	261.1	193.0	560.9	308.5
0 0 1 0	A2-O	62.65	101.6	72.64	108.8	94.52	122.7	144.3	149.0	264.7	201.0	564.5	316.9
0 1 0 0	A2-O	62.67	97.21	72.29	104.4	93.50	118.6	142.7	145.7	262.8	199.0	562.5	315.6
0 1 0 1	A2-O	58.20	105.5	68.00	112.9	89.54	127.3	139.2	154.6	259.7	208.1	559.5	325.1
0 1 1 0	A2-O	61.47	112.9	71.42	120.6	93.21	135.7	142.9	163.6	263.3	217.7	563.1	335.1
1 0 0 0	A2-O	65.73	103.4	75.51	110.9	96.95	125.5	146.1	153.2	266.3	206.9	566.0	323.9
1 0 0 1	A2-O	61.40	112.7	71.35	120.5	93.14	135.5	142.9	163.4	263.2	217.5	563.0	334.9
1 0 1 0	A2-O	64.56	120.0	74.67	128.1	96.63	143.7	146.5	172.3	266.9	227.1	566.6	345.0

Version : AO222X1

Cell Unit = 12

State		Output Load											
A1 A2 B1 B2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0 0	C1-O	40.72	49.20	46.32	53.30	58.71	61.58	87.69	77.93	159.0	110.8	337.4	183.9
0 0 0 1	C1-O	40.82	54.98	46.41	59.48	58.81	68.52	87.78	86.03	159.1	120.7	337.6	195.2
0 0 1 0	C1-O	43.72	61.87	49.56	66.60	62.34	76.05	91.50	94.16	162.8	129.3	341.2	204.2
0 1 0 0	C1-O	40.80	53.16	46.40	57.62	58.79	66.71	87.77	84.44	159.1	119.6	337.5	194.7
0 1 0 1	C1-O	40.88	58.83	46.47	63.65	58.86	73.36	87.84	92.22	159.2	129.0	337.6	205.8
0 1 1 0	C1-O	43.78	66.77	49.62	71.91	62.39	82.12	91.56	101.6	162.9	139.1	341.3	216.4
1 0 0 0	C1-O	43.70	59.83	49.55	64.60	62.32	74.10	91.49	92.34	162.8	128.0	341.2	203.6
1 0 0 1	C1-O	43.78	66.76	49.62	71.91	62.39	82.11	91.56	101.6	162.9	139.1	341.3	216.4
1 0 1 0	C1-O	46.62	74.65	52.66	80.11	65.79	90.85	95.23	111.1	166.4	149.2	344.9	227.2
0 0 0 0	C2-O	39.61	54.44	45.21	58.79	57.66	67.48	86.67	84.13	157.9	117.5	336.4	190.8
0 0 0 1	C2-O	39.72	61.35	45.32	66.12	57.77	75.58	86.78	93.67	158.1	128.9	336.5	203.8
0 0 1 0	C2-O	42.35	68.02	48.19	73.06	60.98	82.95	90.13	101.7	161.5	137.4	340.0	212.7
0 1 0 0	C2-O	39.69	59.34	45.30	64.12	57.74	73.63	86.75	91.87	158.0	127.6	336.5	203.1
0 1 0 1	C2-O	39.78	66.18	45.39	71.32	57.83	81.53	86.84	101.1	158.1	138.5	336.6	215.9
0 1 1 0	C2-O	42.41	73.98	48.25	79.40	61.04	90.18	90.18	110.5	161.6	148.6	340.0	226.5
1 0 0 0	C2-O	42.32	65.93	48.16	70.98	60.96	80.91	90.10	99.72	161.5	136.0	339.9	212.0
1 0 0 1	C2-O	42.41	73.97	48.25	79.39	61.04	90.17	90.18	110.5	161.6	148.6	340.0	226.5
1 0 1 0	C2-O	45.00	81.74	51.05	87.48	64.24	98.83	93.77	119.7	165.0	158.6	343.4	237.1
A1 A2 C1 C2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0 0	B1-O	51.56	65.82	57.39	70.22	70.22	79.11	99.64	96.53	171.2	130.8	350.0	204.9
0 0 0 1	B1-O	48.90	72.32	54.75	76.85	67.69	85.91	97.19	103.7	168.8	138.3	347.7	212.8
0 0 1 0	B1-O	51.98	79.50	58.01	84.28	71.23	93.78	100.9	112.0	172.6	147.2	351.4	222.1
0 1 0 0	B1-O	51.71	75.42	57.54	80.26	70.37	90.07	99.79	109.1	171.3	145.8	350.1	222.3
0 1 0 1	B1-O	49.08	82.17	54.94	87.06	67.87	96.91	97.38	116.0	169.0	152.9	347.8	229.7
0 1 1 0	B1-O	52.16	90.68	58.19	95.86	71.41	106.2	101.1	125.9	172.8	163.5	351.6	240.8
1 0 0 0	B1-O	54.59	82.54	60.62	87.62	73.74	97.84	103.3	117.4	175.0	154.6	353.7	231.5
1 0 0 1	B1-O	52.10	90.52	58.13	95.69	71.34	106.0	101.0	125.7	172.7	163.3	351.5	240.6
1 0 1 0	B1-O	55.05	98.89	61.27	104.4	74.78	115.3	104.7	135.6	176.4	173.7	355.1	251.7
0 0 0 0	B2-O	49.57	71.21	55.44	75.79	68.31	85.00	97.75	102.8	169.4	137.4	348.2	211.8
0 0 0 1	B2-O	47.03	78.84	52.95	83.61	65.92	93.11	95.52	111.3	167.1	146.5	346.0	221.4
0 0 1 0	B2-O	49.91	85.86	56.01	90.85	69.25	100.8	98.96	119.5	170.8	155.3	349.5	230.6
0 1 0 0	B2-O	49.73	82.00	55.59	87.07	68.46	97.25	97.91	116.8	169.5	154.1	348.3	231.0
0 1 0 1	B2-O	47.18	89.90	53.10	95.07	66.08	105.4	95.67	125.1	167.3	162.7	346.1	240.0
0 1 1 0	B2-O	50.06	98.15	56.16	103.6	69.40	114.5	99.10	134.8	170.9	173.0	349.7	250.9
1 0 0 0	B2-O	52.47	88.93	58.52	94.24	71.71	104.8	101.3	124.9	172.9	162.7	351.7	240.1
1 0 0 1	B2-O	50.01	97.99	56.10	103.5	69.33	114.3	99.03	134.6	170.8	172.8	349.6	250.7
1 0 1 0	B2-O	52.81	106.2	59.08	111.9	72.65	123.3	102.7	144.3	174.4	183.2	353.2	261.7

B1 B2 C1 C2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0 0	A1-O	57.79	76.83	63.91	81.26	77.32	90.35	107.3	108.0	179.6	143.1	358.8	217.9
0 0 0 1	A1-O	53.33	84.35	59.52	88.91	73.12	98.12	103.7	116.0	176.3	151.3	355.7	226.4
0 0 1 0	A1-O	56.69	91.52	63.01	96.34	76.85	106.0	107.5	124.4	180.1	160.2	359.4	235.7
0 1 0 0	A1-O	56.34	86.00	62.42	90.84	75.79	100.6	105.8	119.5	178.1	156.3	357.3	232.8
0 1 0 1	A1-O	52.30	93.01	58.45	97.91	71.96	107.7	102.4	126.8	175.0	163.7	354.3	240.4
0 1 1 0	A1-O	55.64	101.5	61.92	106.7	75.70	117.0	106.3	136.7	178.8	174.2	358.1	251.6
1 0 0 0	A1-O	59.42	93.04	65.68	98.11	79.28	108.3	109.6	127.7	181.8	165.0	360.9	242.0
1 0 0 1	A1-O	55.58	101.3	61.86	106.5	75.63	116.8	106.2	136.5	178.7	174.0	358.0	251.4
1 0 1 0	A1-O	58.72	109.7	65.17	115.1	79.21	126.0	110.0	146.3	182.5	184.5	361.8	262.4
0 0 0 0	A2-O	55.41	82.14	61.58	86.76	75.07	96.19	105.2	114.3	177.5	149.7	356.7	224.8
0 0 0 1	A2-O	50.94	90.86	57.20	95.69	70.94	105.3	101.6	123.7	174.3	159.5	353.7	235.0
0 0 1 0	A2-O	54.11	97.87	60.53	102.9	74.48	113.0	105.3	131.9	177.9	168.2	357.3	244.2
0 1 0 0	A2-O	53.99	92.49	60.13	97.57	73.58	107.7	103.7	127.2	176.0	164.5	355.2	241.4
0 1 0 1	A2-O	49.97	100.7	56.19	105.9	69.85	116.2	100.4	135.9	173.1	173.4	352.4	250.7
0 1 1 0	A2-O	53.11	109.0	59.49	114.4	73.38	125.2	104.1	145.6	176.6	183.8	356.0	261.7
1 0 0 0	A2-O	56.97	99.37	63.26	104.7	76.92	115.2	107.3	135.3	179.5	173.1	358.7	250.5
1 0 0 1	A2-O	53.05	108.8	59.43	114.2	73.31	125.1	104.0	145.4	176.5	183.6	355.9	261.5
1 0 1 0	A2-O	56.11	116.9	62.62	122.7	76.75	134.0	107.6	155.1	180.3	193.9	359.6	272.4

Version : AO222X1P

Cell Unit = 13

State		Output Load											
A1 A2 B1 B2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0 0	C1-O	38.84	50.20	43.15	53.55	52.65	60.31	73.93	73.41	125.6	98.93	254.5	152.3
0 0 0 1	C1-O	38.93	56.38	43.24	60.02	52.74	67.40	74.04	81.58	125.7	108.8	254.6	164.1
0 0 1 0	C1-O	42.68	65.89	47.28	69.86	57.19	77.78	78.98	92.80	130.7	120.8	259.5	176.9
0 1 0 0	C1-O	38.91	54.57	43.23	58.19	52.73	65.56	74.02	79.89	125.7	107.4	254.6	163.3
0 1 0 1	C1-O	39.01	60.64	43.33	64.53	52.83	72.46	74.14	87.70	125.9	116.9	254.7	174.7
0 1 1 0	C1-O	42.76	71.74	47.36	76.01	57.28	84.59	79.12	100.8	130.9	131.0	259.7	189.9
1 0 0 0	C1-O	41.76	61.54	46.24	65.43	56.05	73.24	77.65	88.08	129.4	116.2	258.2	172.7
1 0 0 1	C1-O	41.85	68.91	46.34	73.12	56.15	81.54	77.81	97.54	129.5	127.4	258.4	186.0
1 0 1 0	C1-O	45.57	79.98	50.27	84.53	60.48	93.61	82.74	110.6	134.5	141.5	263.3	201.1
0 0 0 0	C2-O	37.61	55.53	41.98	59.08	51.50	66.23	72.83	79.76	124.5	105.7	253.4	159.4
0 0 0 1	C2-O	37.72	62.86	42.08	66.74	51.60	74.54	72.92	89.27	124.6	117.2	253.5	173.1
0 0 1 0	C2-O	41.13	72.17	45.73	76.36	55.72	84.75	77.54	100.4	129.4	129.0	258.2	185.7
0 1 0 0	C2-O	37.70	60.88	42.06	64.79	51.58	72.61	72.90	87.42	124.5	115.6	253.5	172.1
0 1 0 1	C2-O	37.78	68.17	42.14	72.34	51.66	80.78	72.97	96.74	124.6	126.6	253.5	185.3
0 1 1 0	C2-O	41.18	79.08	45.79	83.59	55.78	92.70	77.60	109.7	129.4	140.7	258.2	200.2
1 0 0 0	C2-O	40.25	67.73	44.78	71.86	54.63	80.14	76.34	95.62	128.1	124.4	256.9	181.4
1 0 0 1	C2-O	40.32	76.31	44.86	80.73	54.71	89.67	76.43	106.4	128.2	137.1	257.0	196.4
1 0 1 0	C2-O	43.74	87.23	48.49	92.01	58.75	101.5	80.95	119.2	132.8	151.0	261.6	211.3
A1 A2 C1 C2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0 0	B1-O	48.84	67.12	53.34	70.65	63.18	77.82	85.01	91.83	137.0	118.6	266.2	173.3
0 0 0 1	B1-O	46.33	74.26	50.85	77.92	60.74	85.33	82.71	99.64	134.8	126.9	264.0	182.2
0 0 1 0	B1-O	49.30	81.61	53.96	85.52	64.12	93.33	86.30	108.2	138.4	136.0	267.6	191.9
0 1 0 0	B1-O	48.97	77.36	53.48	81.23	63.32	89.13	85.14	104.5	137.1	133.6	266.3	191.1
0 1 0 1	B1-O	46.50	84.81	51.02	88.76	60.91	96.76	82.88	112.3	135.0	141.5	264.2	199.4
0 1 1 0	B1-O	49.47	93.53	54.13	97.73	64.28	106.3	86.46	122.4	138.5	152.3	267.8	210.9
1 0 0 0	B1-O	51.79	84.79	56.44	88.89	66.56	97.18	88.60	113.1	140.8	142.7	269.9	200.9
1 0 0 1	B1-O	49.45	93.49	54.11	97.70	64.27	106.2	86.45	122.3	138.5	152.3	267.8	210.9
1 0 1 0	B1-O	52.30	102.1	57.07	106.5	67.50	115.5	90.05	132.3	142.3	163.1	271.4	222.3
0 0 0 0	B2-O	47.91	74.70	52.46	78.50	62.36	86.10	84.14	100.6	136.2	128.1	265.4	183.4
0 0 0 1	B2-O	45.53	83.46	50.10	87.43	60.08	95.40	82.04	110.5	134.1	138.5	263.4	194.6
0 0 1 0	B2-O	48.29	90.58	52.98	94.82	63.21	103.2	85.54	118.8	137.7	147.5	266.9	204.1
0 1 0 0	B2-O	48.06	86.71	52.60	90.83	62.50	99.25	84.30	115.3	136.4	145.2	265.6	203.5
0 1 0 1	B2-O	45.67	95.75	50.24	100.0	60.22	108.7	82.18	125.0	134.3	155.3	263.5	214.1
0 1 1 0	B2-O	48.43	104.2	53.12	108.7	63.35	117.8	85.68	134.9	137.9	165.9	267.0	225.5
1 0 0 0	B2-O	50.70	93.92	55.39	98.26	65.54	107.1	87.75	123.7	139.8	154.2	268.9	213.1
1 0 0 1	B2-O	48.41	104.2	53.11	108.7	63.33	117.8	85.67	134.9	137.8	165.9	267.0	225.4
1 0 1 0	B2-O	51.12	112.6	55.92	117.3	66.40	126.9	88.94	144.7	141.4	176.5	270.5	236.8

B1 B2 C1 C2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0 0	A1-O	54.25	77.11	58.93	80.69	69.14	87.98	91.58	102.2	144.2	129.5	273.7	185.1
0 0 0 1	A1-O	50.17	85.30	54.88	89.00	65.23	96.47	87.93	110.9	141.0	138.6	270.8	194.6
0 0 1 0	A1-O	53.39	92.66	58.21	96.57	68.76	104.4	91.75	119.5	144.7	147.7	274.5	204.2
0 1 0 0	A1-O	52.98	86.75	57.64	90.63	67.81	98.54	90.21	113.8	142.8	142.9	272.3	200.5
0 1 0 1	A1-O	49.27	94.44	53.96	98.38	64.24	106.4	86.84	121.8	139.8	151.0	269.6	208.9
0 1 1 0	A1-O	52.45	103.2	57.27	107.4	67.77	115.8	90.67	132.0	143.6	162.0	273.3	220.6
1 0 0 0	A1-O	57.10	96.61	61.91	100.8	72.40	109.2	95.11	125.2	147.7	155.1	277.2	213.4
1 0 0 1	A1-O	53.59	106.1	58.41	110.3	69.01	119.0	92.01	135.3	144.9	165.6	274.6	224.4
1 0 1 0	A1-O	56.60	114.6	61.55	119.1	72.36	128.2	95.61	145.3	148.6	176.3	278.3	235.9
0 0 0 0	A2-O	51.91	82.63	56.63	86.40	66.94	93.99	89.46	108.6	142.1	136.4	271.6	192.4
0 0 0 1	A2-O	47.80	92.05	52.56	96.01	63.04	103.9	85.90	118.9	139.0	147.1	268.8	203.6
0 0 1 0	A2-O	50.85	99.20	55.71	103.4	66.40	111.7	89.52	127.2	142.6	156.1	272.4	213.2
0 1 0 0	A2-O	50.67	93.54	55.37	97.64	65.64	105.9	88.13	121.8	140.7	151.4	270.3	209.6
0 1 0 1	A2-O	46.97	102.5	51.70	106.7	62.12	115.1	84.90	131.3	137.9	161.2	267.7	219.8
0 1 1 0	A2-O	49.98	110.9	54.83	115.4	65.46	124.4	88.49	141.1	141.5	171.9	271.2	231.2
1 0 0 0	A2-O	54.62	103.2	59.47	107.6	70.04	116.3	92.83	132.9	145.5	163.4	275.1	222.3
1 0 0 1	A2-O	51.06	113.8	55.95	118.3	66.66	127.4	89.74	144.4	142.7	175.4	272.5	235.0
1 0 1 0	A2-O	53.99	122.1	58.96	126.9	69.87	136.4	93.26	154.2	146.3	186.0	276.0	246.3



Version : AO222X2

Cell Unit = 13

State		Output Load											
A1 A2 B1 B2	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0 0	C1-O	41.09	58.47	44.98	61.73	54.44	69.03	77.33	84.29	138.2	116.3	308.7	188.9
0 0 0 1	C1-O	41.19	66.62	45.09	70.14	54.54	78.07	77.43	94.73	138.3	128.9	308.8	204.2
0 0 1 0	C1-O	43.87	74.45	47.89	78.17	57.66	86.60	80.95	104.0	142.0	138.9	312.5	214.8
0 1 0 0	C1-O	41.15	64.50	45.05	68.03	54.50	75.99	77.39	92.65	138.2	127.2	308.8	203.2
0 1 0 1	C1-O	41.24	72.68	45.14	76.43	54.59	84.98	77.48	102.8	138.3	139.5	308.9	218.1
0 1 1 0	C1-O	43.92	81.90	47.94	85.92	57.71	94.97	80.99	113.7	142.0	151.2	312.5	230.7
1 0 0 0	C1-O	43.83	72.24	47.85	75.95	57.63	84.40	80.91	101.9	142.0	137.2	312.4	213.9
1 0 0 1	C1-O	43.92	81.90	47.94	85.92	57.71	94.97	80.99	113.7	142.0	151.2	312.5	230.7
1 0 1 0	C1-O	46.58	91.13	50.72	95.34	60.78	104.9	84.49	124.5	145.6	163.0	316.1	243.4
0 0 0 0	C2-O	39.76	64.31	43.69	67.74	53.10	75.44	76.03	91.35	137.0	123.8	307.5	196.9
0 0 0 1	C2-O	39.86	73.81	43.79	77.53	53.20	85.98	76.12	103.3	137.1	138.3	307.6	214.2
0 0 1 0	C2-O	42.29	81.51	46.34	85.44	56.13	94.28	79.40	112.3	140.6	148.1	311.0	224.7
0 1 0 0	C2-O	39.83	71.58	43.76	75.33	53.17	83.74	76.10	101.3	137.0	136.6	307.6	213.3
0 1 0 1	C2-O	39.91	81.11	43.84	85.09	53.25	94.18	76.17	113.0	137.1	150.5	307.7	230.0
0 1 1 0	C2-O	42.34	90.22	46.40	94.44	56.18	104.0	79.45	123.6	140.6	162.1	311.0	242.5
1 0 0 0	C2-O	42.27	79.17	46.32	83.14	56.10	92.02	79.38	110.3	140.5	146.3	311.0	223.7
1 0 0 1	C2-O	42.34	90.22	46.40	94.44	56.18	104.0	79.45	123.6	140.6	162.1	311.0	242.5
1 0 1 0	C2-O	44.80	99.30	48.97	103.8	59.04	113.7	82.86	134.2	144.0	173.8	314.5	255.1
A1 A2 C1 C2	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0 0	B1-O	50.00	75.09	54.00	78.46	63.68	86.10	87.01	102.2	148.2	135.5	319.1	209.7
0 0 0 1	B1-O	47.82	84.07	51.83	87.61	61.56	95.55	84.94	112.2	146.3	146.5	317.1	221.7
0 0 1 0	B1-O	50.69	92.23	54.82	95.97	64.81	104.4	88.59	121.8	150.1	156.8	320.8	232.7
0 1 0 0	B1-O	50.11	87.20	54.11	90.85	63.79	99.23	87.12	117.0	148.3	153.0	319.2	230.9
0 1 0 1	B1-O	47.96	96.51	51.97	100.3	61.70	108.9	85.08	126.9	146.4	163.5	317.3	242.1
0 1 1 0	B1-O	50.82	106.2	54.96	110.2	64.95	119.3	88.73	138.2	150.2	175.8	321.0	255.3
1 0 0 0	B1-O	52.81	95.33	56.94	99.20	66.92	108.0	90.58	126.4	152.0	163.2	322.8	241.7
1 0 0 1	B1-O	50.77	106.1	54.90	110.0	64.89	119.1	88.66	138.0	150.1	175.5	320.9	255.0
1 0 1 0	B1-O	53.54	115.7	57.80	119.8	68.03	129.4	92.19	149.1	153.7	187.7	324.6	268.1
0 0 0 0	B2-O	48.02	81.10	52.05	84.67	61.80	92.64	85.18	109.3	146.5	143.2	317.3	217.9
0 0 0 1	B2-O	45.90	91.38	49.95	95.12	59.75	103.5	83.24	120.9	144.5	155.9	315.5	231.8
0 0 1 0	B2-O	48.59	99.35	52.74	103.3	62.83	112.1	86.62	130.3	148.2	166.0	319.0	242.7
0 1 0 0	B2-O	48.14	94.59	52.18	98.48	61.93	107.3	85.31	125.6	146.6	162.5	317.5	241.0
0 1 0 1	B2-O	46.03	105.2	50.08	109.2	59.88	118.3	83.37	137.2	144.7	174.7	315.6	254.2
0 1 1 0	B2-O	48.72	114.7	52.87	118.9	62.95	128.5	86.74	148.2	148.3	186.7	319.1	267.1
1 0 0 0	B2-O	50.72	102.5	54.86	106.6	64.89	115.8	88.57	134.8	150.0	172.5	320.9	251.7
1 0 0 1	B2-O	48.67	114.5	52.82	118.8	62.90	128.3	86.68	148.0	148.3	186.5	319.0	266.9
1 0 1 0	B2-O	51.33	124.0	55.57	128.4	65.90	138.4	90.17	158.9	151.9	198.5	322.6	279.8

B1 B2 C1 C2	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0 0	A1-O	55.16	85.91	59.31	89.31	69.35	97.04	93.26	113.4	155.3	147.3	326.4	222.5
0 0 0 1	A1-O	51.46	96.10	55.61	99.63	65.77	107.7	90.02	124.5	152.4	159.1	323.8	235.1
0 0 1 0	A1-O	54.58	104.2	58.79	108.0	69.18	116.5	93.77	134.1	156.1	169.4	327.6	246.1
0 1 0 0	A1-O	53.95	97.63	58.08	101.3	68.09	109.7	91.96	127.3	154.0	163.4	325.1	241.2
0 1 0 1	A1-O	50.62	107.3	54.74	111.0	64.85	119.6	89.00	137.7	151.3	174.3	322.7	252.8
0 1 1 0	A1-O	53.67	117.0	57.90	121.0	68.25	130.0	92.76	148.9	155.0	186.5	326.5	266.0
1 0 0 0	A1-O	56.84	105.8	61.07	109.6	71.33	118.4	95.61	136.7	157.6	173.6	328.8	252.1
1 0 0 1	A1-O	53.62	116.8	57.84	120.8	68.19	129.9	92.69	148.7	154.9	186.3	326.4	265.8
1 0 1 0	A1-O	56.58	126.4	60.90	130.6	71.47	140.2	96.27	159.9	158.7	198.4	330.1	278.8
0 0 0 0	A2-O	52.85	91.91	57.01	95.47	67.15	103.6	91.19	120.4	153.1	154.9	324.4	230.6
0 0 0 1	A2-O	49.13	103.4	53.31	107.2	63.57	115.7	87.94	133.2	150.5	168.5	321.9	245.3
0 0 1 0	A2-O	52.07	111.4	56.35	115.3	66.84	124.2	91.58	142.5	154.1	178.6	325.5	256.0
0 1 0 0	A2-O	51.67	105.0	55.82	108.9	65.93	117.7	89.93	136.0	151.9	172.8	323.1	251.4
0 1 0 1	A2-O	48.33	116.0	52.50	120.0	62.70	129.1	86.97	147.9	149.4	185.4	320.8	264.9
0 1 1 0	A2-O	51.24	125.5	55.51	129.7	65.95	139.2	90.61	158.9	153.0	197.5	324.4	277.8
1 0 0 0	A2-O	54.44	112.9	58.69	117.0	69.02	126.2	93.36	145.2	155.5	182.8	326.6	262.1
1 0 0 1	A2-O	51.19	125.3	55.45	129.5	65.89	139.0	90.54	158.7	153.0	197.2	324.4	277.6
1 0 1 0	A2-O	54.05	134.7	58.39	139.1	69.05	149.1	94.04	169.6	156.5	209.2	328.0	290.5

Version : AO222X3

Cell Unit = 15

State A1 A2 B1 B2	Path	Output Load											
		1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0 0	C1-O	45.08	68.09	48.11	70.74	56.10	77.31	76.34	92.14	131.9	124.0	297.0	197.3
0 0 0 1	C1-O	45.17	78.60	48.19	81.42	56.20	88.61	76.43	104.6	132.0	139.0	297.1	215.7
0 0 1 0	C1-O	47.76	86.77	50.90	89.76	59.13	97.33	79.78	114.0	135.5	149.3	300.7	226.9
0 1 0 0	C1-O	45.16	76.37	48.17	79.20	56.18	86.31	76.41	102.5	132.0	137.2	297.1	214.6
0 1 0 1	C1-O	45.21	86.94	48.24	89.96	56.24	97.57	76.47	114.9	132.1	151.6	297.1	232.5
0 1 1 0	C1-O	47.80	96.68	50.94	99.83	59.17	107.9	79.82	125.9	135.6	163.9	300.7	245.8
1 0 0 0	C1-O	47.74	84.45	50.88	87.45	59.11	94.98	79.76	111.9	135.5	147.4	300.7	225.8
1 0 0 1	C1-O	47.80	96.68	50.94	99.83	59.17	107.9	79.82	125.9	135.6	163.9	300.7	245.8
1 0 1 0	C1-O	50.38	106.4	53.56	109.6	62.03	118.0	83.17	137.0	139.2	176.1	304.3	259.0
0 0 0 0	C2-O	43.44	74.10	46.50	76.87	54.55	83.81	74.79	99.23	130.5	131.8	295.6	205.7
0 0 0 1	C2-O	43.52	86.04	46.58	89.00	54.63	96.53	74.87	113.3	130.5	148.6	295.7	226.2
0 0 1 0	C2-O	45.92	94.05	49.05	97.18	57.37	105.0	78.14	122.6	133.9	158.8	299.0	237.2
0 1 0 0	C2-O	43.50	83.66	46.56	86.68	54.61	94.23	74.85	111.2	130.5	146.7	295.7	225.0
0 1 0 1	C2-O	43.57	95.75	46.63	98.91	54.68	106.9	74.92	125.1	130.6	163.0	295.7	244.9
0 1 1 0	C2-O	45.97	105.3	49.10	108.6	57.42	117.0	78.19	135.9	134.0	175.1	299.1	258.0
1 0 0 0	C2-O	45.90	91.66	49.03	94.82	57.35	102.7	78.12	120.3	133.9	156.8	299.0	236.0
1 0 0 1	C2-O	45.97	105.3	49.10	108.6	57.42	117.0	78.19	135.9	134.0	175.1	299.1	258.0
1 0 1 0	C2-O	48.39	114.9	51.60	118.3	60.12	127.1	81.29	146.8	137.4	187.1	302.5	271.1
A1 A2 C1 C2	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl
0 0 0 0	B1-O	53.38	84.91	56.48	87.67	64.69	94.43	85.34	109.9	141.3	143.0	306.7	218.0
0 0 0 1	B1-O	51.41	96.18	54.52	99.01	62.75	106.1	83.46	122.3	139.4	156.6	304.9	233.4
0 0 1 0	B1-O	54.20	104.6	57.33	107.7	65.78	115.1	86.85	132.0	143.1	167.3	308.5	244.9
0 1 0 0	B1-O	53.50	99.52	56.60	102.4	64.81	109.8	85.45	126.7	141.4	162.7	306.8	242.2
0 1 0 1	B1-O	51.53	111.2	54.64	114.1	62.87	121.7	83.58	139.1	139.5	175.9	305.0	256.8
0 1 1 0	B1-O	54.31	121.3	57.45	124.3	65.90	132.4	86.97	150.6	143.2	188.5	308.7	270.5
1 0 0 0	B1-O	56.11	108.0	59.29	111.0	67.72	118.7	88.77	136.3	144.9	173.3	310.3	253.5
1 0 0 1	B1-O	54.26	121.1	57.40	124.1	65.85	132.2	86.91	150.4	143.1	188.3	308.6	270.2
1 0 1 0	B1-O	56.90	131.0	60.15	134.4	68.80	142.8	90.31	161.7	146.9	200.8	312.3	283.8
0 0 0 0	B2-O	51.29	91.06	54.41	93.93	62.66	101.0	83.34	117.0	139.4	150.8	304.8	226.5
0 0 0 1	B2-O	49.35	103.7	52.48	106.7	60.77	114.2	81.54	131.0	137.7	166.3	303.1	243.9
0 0 1 0	B2-O	51.99	112.0	55.16	115.2	63.66	123.1	84.87	140.6	141.1	176.8	306.6	255.3
0 1 0 0	B2-O	51.41	107.1	54.53	110.1	62.78	117.9	83.46	135.4	139.5	172.3	304.9	252.7
0 1 0 1	B2-O	49.47	120.0	52.60	123.2	60.89	131.2	81.66	149.4	137.8	187.3	303.2	269.3
0 1 1 0	B2-O	52.11	129.9	55.28	133.2	63.78	141.7	85.00	160.7	141.2	199.7	306.7	282.7
1 0 0 0	B2-O	53.91	115.3	57.10	118.6	65.57	126.7	86.72	144.9	142.9	182.7	308.3	263.9
1 0 0 1	B2-O	52.06	129.7	55.23	133.0	63.73	141.5	84.93	160.5	141.1	199.5	306.6	282.5
1 0 1 0	B2-O	54.62	139.6	57.87	143.1	66.56	151.9	88.16	171.7	144.7	211.8	310.2	295.9

B1 B2 C1 C2	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0 0	A1-O	58.39	95.64	61.57	98.36	70.02	105.2	91.24	120.8	147.7	154.5	313.6	230.5
0 0 0 1	A1-O	55.00	108.1	58.19	111.0	66.71	118.2	88.14	134.4	145.1	169.1	311.2	246.6
0 0 1 0	A1-O	57.95	116.6	61.19	119.6	69.90	127.2	91.66	144.1	148.9	179.7	314.9	258.1
0 1 0 0	A1-O	57.24	109.8	60.41	112.8	68.85	120.1	90.03	137.0	146.5	173.0	312.4	252.5
0 1 0 1	A1-O	54.24	121.8	57.37	124.8	65.85	132.4	87.21	149.7	144.1	186.6	310.1	267.5
0 1 1 0	A1-O	57.12	131.9	60.36	135.0	69.03	143.1	90.72	161.2	147.9	199.3	313.9	281.2
1 0 0 0	A1-O	60.02	118.3	63.26	121.3	71.87	129.1	93.37	146.6	150.2	183.5	316.0	263.9
1 0 0 1	A1-O	57.07	131.7	60.30	134.8	68.97	142.9	90.67	161.0	147.8	199.0	313.8	280.9
1 0 1 0	A1-O	59.90	141.7	63.21	145.0	72.08	153.4	94.14	172.4	151.5	211.5	317.5	294.5
0 0 0 0	A2-O	56.00	101.7	59.19	104.6	67.69	111.8	88.99	127.9	145.7	162.2	311.5	238.9
0 0 0 1	A2-O	52.60	115.6	55.81	118.6	64.39	126.2	85.98	143.1	143.0	178.7	309.2	257.1
0 0 1 0	A2-O	55.43	123.9	58.69	127.1	67.45	135.0	89.37	152.7	146.6	189.2	312.8	268.4
0 1 0 0	A2-O	54.89	117.4	58.07	120.5	66.56	128.3	87.82	145.7	144.5	182.6	310.3	263.0
0 1 0 1	A2-O	51.85	130.7	55.03	133.9	63.58	141.9	85.08	160.1	142.0	198.0	308.1	279.9
0 1 1 0	A2-O	54.64	140.6	57.89	143.9	66.63	152.4	88.46	171.4	145.7	210.4	311.7	293.4
1 0 0 0	A2-O	57.56	125.7	60.81	128.9	69.47	137.0	91.12	155.2	147.8	193.0	313.8	274.2
1 0 0 1	A2-O	54.59	140.4	57.84	143.8	66.57	152.2	88.40	171.2	145.6	210.2	311.7	293.1
1 0 1 0	A2-O	57.35	150.2	60.65	153.8	69.55	162.6	91.72	182.3	149.2	222.5	315.3	306.6

Group Name : AOI112

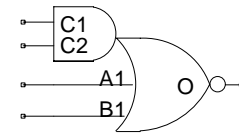
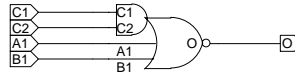
Symbol

Function : AN2 into NR3

Truth Table

A1	B1	C1	C2	O
1	X	X	X	0
X	1	X	X	0
X	X	1	1	0
OTHERS				1

Schematic



Pin Order O A1 B1 C1 C2

Input Capacitance (ff) &amp; Maximum Loading (ff) &amp; Power Consumption (nW/MHz)

Version	Input Capacitance				Maximum Loading	Power Consumption
	A1	B1	C1	C2	O	O
AOI112XLP	1.313	1.512	1.547	1.646	49.90	1.846
AOI112X1	1.671	1.955	2.021	2.196	72.07	2.461
AOI112X1P	2.430	3.003	3.323	3.641	99.58	3.685
AOI112X2	3.102	3.509	3.648	4.072	143.9	4.876
AOI112X3	1.385	1.508	1.508	1.601	212.9	5.773

## AC Characteristics ( Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ps)

Version : AOI112XLP

Cell Unit = 6

State		Output Load											
C1 C2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0	B1-O	46.54	17.29	62.97	23.32	102.8	35.70	201.8	61.87	449.6	120.8	1071	265.7
0 1	B1-O	53.54	17.40	72.85	23.44	120.7	35.81	239.5	61.97	536.8	120.8	1282	265.8
1 0	B1-O	64.25	18.81	83.67	24.68	131.3	36.99	250.1	63.09	547.5	121.9	1293	267.0
0 0	A1-O	41.66	14.68	57.89	20.97	97.45	33.74	196.0	60.08	443.6	119.0	1065	263.9
0 1	A1-O	45.91	14.75	65.09	21.03	112.2	33.79	230.6	60.12	527.7	119.0	1273	264.0
1 0	A1-O	56.47	16.14	75.49	22.26	122.8	34.95	241.2	61.26	538.4	120.1	1284	265.2
	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
	C1-O	63.47	20.74	83.08	27.46	131.2	41.69	250.7	72.35	548.5	143.0	1294	317.8
	C2-O	73.71	19.72	92.96	25.74	140.6	39.18	259.4	69.16	556.7	139.8	1302	314.7

Version : AOI112X1

Cell Unit = 6

State		Output Load											
C1 C2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0	B1-O	41.40	16.27	53.00	20.90	80.96	30.50	149.7	50.63	321.4	94.15	751.7	199.2
0 1	B1-O	47.35	16.38	61.21	21.02	94.60	30.61	177.0	50.74	383.1	94.25	899.5	199.2
1 0	B1-O	58.22	17.81	71.77	22.27	105.1	31.80	187.5	51.87	393.6	95.41	910.1	200.5
0 0	A1-O	36.60	13.46	48.11	18.31	75.68	28.38	144.1	48.69	315.4	92.32	745.7	197.3
0 1	A1-O	40.11	13.55	53.58	18.41	86.44	28.44	168.4	48.74	374.1	92.36	890.5	197.3
1 0	A1-O	50.67	14.94	63.96	19.63	96.86	29.56	178.8	49.82	384.7	93.54	901.1	198.6
	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
	C1-O	56.69	19.49	70.45	24.61	104.2	35.48	187.2	58.67	393.9	110.5	910.7	236.6
	C2-O	67.01	18.80	80.52	23.34	113.7	33.47	196.2	55.86	402.2	107.6	918.7	233.7

Version : AOI112X1P

Cell Unit = 11

State	Output Load													
C1 C2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 0	B1-O	42.10	15.77	50.45	19.07	70.85	26.09	120.7	40.71	244.9	71.89	555.7	143.8	
0 1	B1-O	48.19	15.89	58.16	19.18	82.45	26.20	142.1	40.82	291.1	71.99	664.1	143.9	
1 0	B1-O	59.09	17.37	68.82	20.53	93.08	27.42	152.7	41.99	301.8	73.07	674.8	145.0	
0 0	A1-O	37.03	13.01	45.39	16.47	65.59	23.96	115.1	38.81	238.9	70.16	549.6	142.0	
0 1	A1-O	40.39	13.09	50.20	16.53	74.11	24.01	133.3	38.86	282.0	70.19	654.9	142.1	
1 0	A1-O	51.12	14.55	60.80	17.89	84.65	25.17	144.0	39.97	292.6	71.25	665.6	143.2	
	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
	C1-O	59.02	18.75	68.97	22.42	93.35	30.47	153.6	47.65	303.1	84.94	676.6	173.1	
	C2-O	69.41	17.97	79.16	21.19	103.2	28.51	162.9	44.84	311.8	81.69	684.8	169.9	

Version : AOI112X2

Cell Unit = 13

State	Output Load													
C1 C2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 0	B1-O	38.24	14.51	44.17	17.13	58.65	22.74	93.52	34.25	179.6	58.50	395.0	112.2	
0 1	B1-O	43.79	14.63	50.87	17.25	68.06	22.84	109.8	34.39	213.1	58.61	471.6	112.3	
1 0	B1-O	56.84	16.30	63.75	18.77	80.59	24.17	122.2	35.71	225.7	59.90	484.3	113.8	
0 0	A1-O	30.48	10.83	36.53	13.65	50.83	19.60	85.31	31.65	171.0	56.09	386.1	109.8	
0 1	A1-O	32.96	10.93	39.74	13.74	56.56	19.70	97.71	31.70	200.5	56.13	458.8	109.8	
1 0	A1-O	45.53	12.53	52.36	15.22	68.95	20.98	110.0	32.94	213.1	57.39	471.4	111.3	
	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
	C1-O	52.21	17.22	59.25	20.04	76.39	26.31	118.5	39.52	222.4	67.74	481.5	131.9	
	C2-O	64.70	17.42	71.55	19.89	88.45	25.48	130.1	37.85	233.5	65.22	491.9	129.4	

Version : AOI112X3

Cell Unit = 11

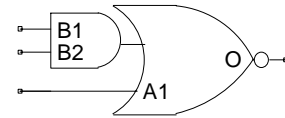
State	Output Load													
C1 C2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 0	B1-O	76.66	49.35	81.57	52.58	93.17	59.08	121.8	72.39	193.1	101.7	371.5	173.1	
0 1	B1-O	84.83	49.45	89.78	52.68	101.4	59.17	130.0	72.45	201.2	101.8	379.7	173.2	
1 0	B1-O	96.84	52.97	101.8	56.21	113.4	62.81	142.0	76.01	213.1	105.4	391.6	176.8	
0 0	A1-O	71.61	46.17	76.51	49.41	88.10	55.90	116.7	69.13	188.0	98.45	366.4	169.9	
0 1	A1-O	76.96	46.23	81.89	49.47	93.46	55.96	122.1	69.19	193.3	98.52	371.8	170.0	
1 0	A1-O	88.68	49.87	93.66	53.11	105.2	59.70	133.8	72.89	205.0	102.3	383.5	173.7	
	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
	C1-O	95.49	55.63	100.4	58.93	112.0	65.53	140.7	78.93	211.9	108.4	390.4	179.8	
	C2-O	107.0	54.61	112.0	57.92	123.6	64.56	152.1	77.95	223.4	107.4	401.9	178.8	



Group Name : AOI12

Symbol

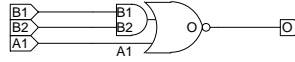
Function : AN2 into NR2



Truth Table

Schematic

A1	B1	B2	O
1	X	X	0
X	1	1	0
OTHERS			1



Pin Order O A1 B1 B2

**Input Capacitance (ff) & Maximum Loading (ff) & Power Consumption (nW/MHz)**

Version	Input Capacitance			Maximum Loading	Power Consumption
	A1	B1	B2	O	O
AOI12XLP	1.293	1.482	1.729	75.17	1.719
AOI12X1	1.665	1.949	2.292	108.6	2.251
AOI12X1P	2.377	3.276	3.543	151.0	3.038
AOI12X2	3.325	3.692	4.080	218.2	3.803
AOI12X3	1.368	1.504	1.729	295.7	6.826

**AC Characteristics ( Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ps)**

Version : AOI12XLP

Cell Unit = 6

State	Path	Output Load											
		1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
B1 B2		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0	A1-O	31.52	14.92	42.07	21.14	66.69	33.85	126.4	60.16	275.9	119.1	651.1	264.0
0 1	A1-O	36.73	15.01	50.08	21.24	82.13	33.95	161.5	60.25	360.9	119.2	861.4	264.1
1 0	A1-O	44.25	16.42	57.35	22.50	89.41	35.14	168.9	61.44	368.2	120.3	868.8	265.4
	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
	B1-O	46.11	20.93	59.59	27.36	92.06	41.29	172.4	71.54	372.3	141.8	873.0	316.3
	B2-O	53.30	20.09	66.51	25.91	98.64	39.00	178.5	68.47	378.1	138.6	878.6	313.3

Version : AOI12X1

Cell Unit = 6

State	Output Load													
B1 B2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 0	A1-O	27.48	13.47	35.18	18.32	52.78	28.33	94.52	48.62	197.8	92.25	457.4	197.3	
0 1	A1-O	31.90	13.57	41.45	18.42	64.09	28.43	119.2	48.73	257.1	92.35	603.6	197.3	
1 0	A1-O	39.50	14.98	48.80	19.65	71.23	29.56	126.3	49.83	264.4	93.56	610.8	198.6	
	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
	B1-O	40.68	19.36	50.15	24.30	73.16	34.89	128.9	57.72	267.6	109.1	614.4	234.8	
	B2-O	47.86	18.88	57.10	23.27	79.73	33.12	135.1	55.05	273.4	106.2	619.9	232.0	

Version : AOI12X1P

Cell Unit = 9

State	Output Load													
B1 B2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 0	A1-O	25.65	12.54	31.46	16.31	44.67	24.29	75.27	40.15	150.2	73.64	337.8	151.0	
0 1	A1-O	29.65	12.63	36.79	16.41	53.51	24.40	93.69	40.26	193.3	73.74	443.6	151.1	
1 0	A1-O	37.41	14.25	44.22	17.86	60.73	25.65	100.8	41.47	200.5	74.88	450.8	152.4	
	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
	B1-O	38.61	17.14	45.60	20.88	62.45	28.79	103.2	45.81	203.5	82.69	454.2	170.3	
	B2-O	45.90	16.77	52.67	19.97	69.20	27.17	109.5	43.17	209.4	79.43	459.8	167.2	

Version : AOI12X2

Cell Unit = 10

State	Output Load													
B1 B2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 0	A1-O	21.53	9.438	25.85	12.40	35.60	18.57	57.45	30.78	109.5	55.37	239.3	109.1	
0 1	A1-O	24.78	9.556	30.00	12.49	42.07	18.67	70.32	30.90	139.4	55.47	312.5	109.2	
1 0	A1-O	33.87	11.17	38.77	14.02	50.46	19.95	78.51	32.13	147.7	56.72	320.9	110.7	
	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
	B1-O	32.86	15.16	37.94	18.05	49.89	24.31	78.61	37.34	148.4	65.25	322.2	128.9	
	B2-O	41.45	15.79	46.25	18.25	57.88	23.78	86.16	35.90	155.6	62.77	329.0	126.4	

Version : AOI12X3

Cell Unit = 11

State	Output Load													
B1 B2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 0	A1-O	60.57	47.14	64.27	49.72	72.88	54.94	93.63	65.15	145.3	86.59	274.5	136.7	
0 1	A1-O	67.76	47.22	71.50	49.80	80.08	55.04	100.9	65.24	152.6	86.67	281.7	136.8	
1 0	A1-O	75.90	50.64	79.67	53.23	88.26	58.46	109.1	68.72	160.7	90.18	289.8	140.4	
	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
	B1-O	76.82	55.64	80.57	58.27	89.16	63.58	110.0	73.88	161.7	95.39	290.7	145.5	
	B2-O	84.64	54.54	88.40	57.17	96.99	62.50	117.8	72.76	169.4	94.29	298.5	144.4	

Group Name : AOI122

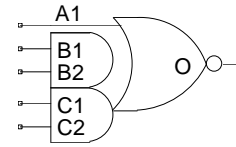
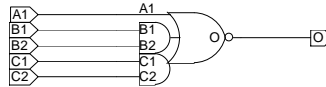
Symbol

Function : 2 AN2 into NR3

Truth Table

A1	B1	B2	C1	C2	O
1	X	X	X	X	0
X	1	1	X	X	0
X	X	X	1	1	0
OTHERS					1

Schematic



Pin Order O A1 B1 B2 C1 C2

Input Capacitance (ff) & Maximum Loading (ff) & Power Consumption (nW/MHz)

Version	Input Capacitance					Maximum Loading	Power Consumption
	A1	B1	B2	C1	C2	O	O
AOI122XLP	1.280	1.476	1.612	1.530	1.633	48.55	2.408
AOI122X1	1.661	1.920	2.138	2.020	2.186	70.22	3.221
AOI122X1P	2.354	2.707	3.036	2.702	2.926	96.56	4.703
AOI122X2	3.173	3.545	4.023	3.646	4.165	139.8	6.362
AOI122X3	1.361	1.477	1.612	1.531	1.633	212.9	6.461

## AC Characteristics ( Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ps)

Version : AOI122XLP

Cell Unit = 9

State				Output Load											
B1 B2 C1 C2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff			
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl		
0 0 0 0	A1-O	36.65	15.24	49.75	21.52	81.39	34.10	159.9	60.37	357.3	119.3	852.6	264.2		
0 0 0 1	A1-O	40.03	15.36	55.55	21.58	94.85	34.15	193.3	60.41	440.5	119.3	1061	264.2		
0 0 1 0	A1-O	48.67	16.75	64.38	22.83	103.7	35.34	202.3	61.59	449.5	120.4	1070	265.5		
0 1 0 0	A1-O	41.84	15.36	57.85	21.59	97.37	34.17	195.9	60.43	443.5	119.3	1065	264.3		
0 1 0 1	A1-O	45.17	15.42	63.83	21.64	110.9	34.21	229.4	60.46	526.6	119.3	1272	264.3		
0 1 1 0	A1-O	55.71	16.80	74.65	22.88	121.8	35.39	240.3	61.64	537.4	120.5	1283	265.5		
1 0 0 0	A1-O	51.20	16.77	67.11	22.85	106.5	35.38	205.2	61.65	452.8	120.5	1074	265.6		
1 0 0 1	A1-O	56.09	16.83	75.04	22.90	122.2	35.42	240.7	61.68	537.9	120.5	1283	265.6		
1 0 1 0	A1-O	66.78	18.47	85.67	24.31	132.9	36.65	251.5	62.84	548.7	121.8	1294	266.8		
B1 B2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff			
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl		
0 0	C1-O	69.01	23.64	85.43	30.25	125.8	44.63	225.2	75.63	473.0	146.9	1094	322.3		
0 1	C1-O	76.22	22.86	95.69	29.51	144.0	43.89	263.4	74.89	561.3	146.1	1307	321.5		
1 0	C1-O	87.69	24.95	107.2	31.38	155.3	45.54	274.7	76.40	572.6	147.8	1318	323.1		
0 0	C2-O	77.72	22.05	93.91	28.15	133.8	41.89	232.7	72.46	480.1	143.8	1100	319.3		
0 1	C2-O	86.61	21.44	105.9	27.51	153.6	41.20	272.5	71.72	569.8	143.0	1315	318.5		
1 0	C2-O	97.90	23.16	117.2	29.09	164.8	42.73	283.7	73.25	581.0	144.7	1327	320.1		
C1 C2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff			
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl		
0 0	B1-O	54.93	21.15	71.48	27.55	111.9	41.40	211.3	71.60	459.5	141.8	1081	316.3		
0 1	B1-O	63.04	21.29	82.78	27.67	131.0	41.53	250.5	71.71	548.4	141.9	1294	316.3		
1 0	B1-O	74.19	22.96	93.81	29.23	142.0	42.98	261.4	73.03	559.3	143.4	1305	317.8		
0 0	B2-O	64.07	20.38	80.22	26.16	120.2	39.20	219.1	68.61	466.9	138.7	1088	313.3		
0 1	B2-O	73.99	20.51	93.33	26.28	141.0	39.32	260.0	68.72	557.3	138.8	1303	313.4		
1 0	B2-O	84.90	21.94	104.3	27.60	152.0	40.64	270.8	70.07	568.1	140.4	1314	315.0		

Version : AOI122X1

Cell Unit = 9

State		Output Load											
B1 B2 C1 C2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0 0	A1-O	32.34	14.04	41.65	18.81	63.93	28.75	118.5	49.00	255.0	92.59	597.8	197.6
0 0 0 1	A1-O	35.17	14.12	46.01	18.89	73.37	28.82	141.5	49.05	312.6	92.64	742.2	197.6
0 0 1 0	A1-O	43.80	15.51	54.76	20.10	82.03	29.95	150.4	50.14	321.6	93.82	751.2	198.9
0 1 0 0	A1-O	36.88	14.12	48.14	18.89	75.67	28.84	144.0	49.07	315.3	92.66	745.6	197.6
0 1 0 1	A1-O	39.60	14.24	52.72	18.98	85.32	28.88	167.3	49.10	373.1	92.68	889.5	197.7
0 1 1 0	A1-O	50.08	15.60	63.09	20.19	96.02	30.01	178.0	50.19	383.9	93.87	900.3	198.9
1 0 0 0	A1-O	46.06	15.52	57.25	20.13	84.78	29.98	153.1	50.18	324.6	93.88	754.8	199.0
1 0 0 1	A1-O	50.42	15.62	63.44	20.21	96.37	30.03	178.4	50.22	384.2	93.91	900.7	199.0
1 0 1 0	A1-O	60.88	17.30	74.15	21.69	106.9	31.27	189.0	51.42	395.0	95.14	911.4	200.3
B1 B2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0	C1-O	62.24	22.37	73.85	27.38	102.0	38.27	171.2	61.71	343.1	114.2	773.1	240.7
0 1	C1-O	68.22	21.56	81.96	26.62	115.7	37.52	198.8	60.96	405.5	113.4	922.3	239.9
1 0	C1-O	79.64	23.63	93.24	28.43	126.9	39.17	209.9	62.47	416.6	114.9	933.5	241.5
0 0	C2-O	71.07	21.09	82.39	25.65	110.2	36.02	178.8	58.86	350.3	111.3	780.0	238.0
0 1	C2-O	78.74	20.46	92.24	25.01	125.5	35.33	207.9	58.12	414.1	110.5	930.5	237.1
1 0	C2-O	89.95	22.17	103.4	26.57	136.5	36.83	219.0	59.59	425.2	112.0	941.7	238.7
C1 C2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0	B1-O	48.97	19.80	60.61	24.68	88.74	35.20	158.1	57.96	330.2	109.3	760.9	235.0
0 1	B1-O	56.03	19.93	69.88	24.81	103.7	35.32	186.8	58.08	393.5	109.4	910.3	235.1
1 0	B1-O	67.16	21.63	80.83	26.30	114.6	36.75	197.5	59.43	404.3	110.8	921.1	236.6
0 0	B2-O	58.07	19.39	69.43	23.73	97.11	33.51	166.0	55.37	337.7	106.5	768.0	232.3
0 1	B2-O	66.94	19.52	80.50	23.86	113.9	33.63	196.3	55.49	402.4	106.6	918.9	232.4
1 0	B2-O	77.87	20.91	91.24	25.14	124.6	34.92	207.1	56.79	413.2	108.0	929.7	233.9

Version : AOI122X1P

Cell Unit = 15

State		Output Load											
B1 B2 C1 C2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0 0	A1-O	30.90	13.62	37.77	17.27	54.11	25.08	93.83	40.82	192.5	74.23	440.1	151.5
0 0 0 1	A1-O	33.39	13.71	41.37	17.34	60.89	25.16	110.2	40.88	233.9	74.27	544.2	151.6
0 0 1 0	A1-O	43.94	15.39	51.93	18.85	71.77	26.51	121.2	42.25	244.9	75.65	555.2	153.3
0 1 0 0	A1-O	34.93	13.70	43.16	17.35	63.29	25.18	112.7	40.90	236.6	74.29	547.3	151.6
0 1 0 1	A1-O	37.36	13.77	46.72	17.41	70.46	25.23	129.6	40.94	278.3	74.32	651.2	151.6
0 1 1 0	A1-O	50.13	15.46	59.53	18.91	83.34	26.57	142.7	42.31	291.4	75.70	664.4	153.3
1 0 0 0	A1-O	46.14	15.40	54.30	18.87	74.30	26.53	123.9	42.29	247.7	75.70	558.5	153.3
1 0 0 1	A1-O	50.36	15.47	59.76	18.92	83.58	26.58	143.0	42.33	291.7	75.73	664.7	153.4
1 0 1 0	A1-O	63.25	17.59	72.89	20.91	96.73	28.15	156.1	43.87	304.9	77.29	677.9	155.0
B1 B2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0	C1-O	61.94	20.61	70.41	24.29	90.88	32.37	141.3	49.73	265.8	87.51	576.5	176.4
0 1	C1-O	67.92	19.85	77.97	23.55	102.4	31.66	162.6	49.04	312.3	86.79	685.8	175.6
1 0	C1-O	81.68	22.31	91.56	25.76	116.0	33.64	176.2	50.90	325.8	88.65	699.3	177.5
0 0	C2-O	72.79	20.03	81.00	23.33	101.3	30.82	151.1	47.47	275.1	85.00	585.5	173.9
0 1	C2-O	80.89	19.46	90.59	22.75	114.8	30.20	174.5	46.79	323.5	84.26	696.6	173.1
1 0	C2-O	94.36	21.42	104.1	24.59	128.3	31.89	188.0	48.55	337.0	86.05	710.0	175.0
C1 C2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0	B1-O	48.61	18.34	57.09	21.90	77.66	29.71	128.0	46.59	252.7	83.43	563.9	171.2
0 1	B1-O	55.47	18.44	65.66	22.03	90.31	29.84	150.7	46.71	300.3	83.53	673.7	171.3
1 0	B1-O	69.18	20.45	79.17	23.86	103.7	31.52	163.9	48.32	313.5	85.24	687.0	173.1
0 0	B2-O	59.71	18.55	67.97	21.68	88.10	28.78	138.0	44.63	262.3	80.93	573.1	168.7
0 1	B2-O	68.89	18.67	78.68	21.81	102.9	28.90	162.7	44.74	311.7	81.04	684.8	168.8
1 0	B2-O	82.22	20.28	91.98	23.35	116.2	30.32	175.9	46.28	325.0	82.69	698.0	170.7

Version : AOI122X2

Cell Unit = 17

State		Output Load												
B1 B2 C1 C2		Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0 0	A1-O	27.98	11.62	32.85	14.33	44.39	20.17	72.18	32.08	140.5	56.44	311.8	110.1	
0 0 0 1	A1-O	30.15	11.70	35.72	14.41	49.33	20.27	83.42	32.13	169.1	56.49	383.9	110.2	
0 0 1 0	A1-O	40.52	13.28	45.95	15.88	59.66	21.55	94.06	33.38	179.7	57.75	394.6	111.6	
0 1 0 0	A1-O	31.62	11.74	37.45	14.41	51.55	20.28	85.89	32.15	171.6	56.51	386.7	110.2	
0 1 0 1	A1-O	33.65	11.82	40.21	14.52	56.58	20.34	97.62	32.20	200.4	56.54	458.7	110.2	
0 1 1 0	A1-O	46.02	13.40	52.69	15.98	69.17	21.61	110.2	33.44	213.2	57.80	471.6	111.7	
1 0 0 0	A1-O	42.48	13.32	48.20	15.89	62.14	21.56	96.62	33.41	182.3	57.77	397.6	111.7	
1 0 0 1	A1-O	46.14	13.40	52.81	15.99	69.32	21.61	110.3	33.45	213.4	57.81	471.7	111.7	
1 0 1 0	A1-O	58.77	15.26	65.41	17.85	81.93	23.22	123.2	34.85	226.3	59.19	484.7	113.2	
B1 B2		Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0	C1-O	57.30	19.93	63.34	22.68	77.84	28.84	113.0	42.10	199.6	70.60	415.1	135.4	
0 1	C1-O	62.55	19.12	69.61	21.89	86.76	28.08	128.9	41.36	232.9	69.87	491.9	134.6	
1 0	C1-O	75.98	21.52	82.88	24.10	99.90	29.98	142.0	43.13	245.9	71.56	505.0	136.5	
0 0	C2-O	68.14	19.54	73.90	22.00	88.07	27.63	122.8	40.22	208.8	68.10	424.0	133.0	
0 1	C2-O	75.30	18.94	82.14	21.39	99.05	27.00	140.7	39.54	244.1	67.36	502.6	132.2	
1 0	C2-O	88.49	20.84	95.27	23.19	112.1	28.57	153.7	41.21	257.2	69.13	515.7	134.1	
C1 C2		Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0	B1-O	44.01	17.43	50.04	20.14	64.55	26.13	99.69	38.96	186.4	66.68	402.2	130.3	
0 1	B1-O	50.16	17.62	57.28	20.28	74.60	26.26	116.9	39.08	220.8	66.80	479.9	130.4	
1 0	B1-O	63.56	19.57	70.54	22.09	87.70	27.85	129.8	40.60	233.7	68.33	492.8	132.2	
0 0	B2-O	54.88	17.93	60.67	20.27	74.89	25.62	109.7	37.54	195.8	64.30	411.2	127.9	
0 1	B2-O	63.20	18.06	70.07	20.40	86.99	25.74	128.8	37.66	232.1	64.41	490.6	128.0	
1 0	B2-O	76.33	19.61	83.11	21.88	99.95	27.04	141.5	39.11	245.1	66.01	503.6	129.8	



Version : AOI122X3

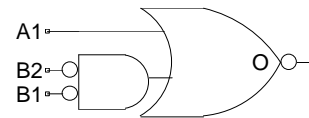
Cell Unit = 13

State		Output Load													
B1 B2 C1 C2		Path		1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl	
0 0 0 0	A1-O	65.30	45.85	70.17	49.00	81.74	55.36	110.5	68.47	181.7	97.68	360.1	169.0		
0 0 0 1	A1-O	69.98	45.96	74.88	49.11	86.48	55.46	115.2	68.56	186.3	97.75	364.8	169.1		
0 0 1 0	A1-O	79.29	49.32	84.21	52.49	95.79	58.91	124.4	71.94	195.6	101.2	374.1	172.6		
0 1 0 0	A1-O	71.94	45.96	76.81	49.11	88.40	55.46	117.1	68.56	188.3	97.76	366.7	169.1		
0 1 0 1	A1-O	76.52	46.01	81.46	49.16	93.08	55.53	121.7	68.61	192.8	97.81	371.4	169.2		
0 1 1 0	A1-O	87.53	49.37	92.51	52.54	104.1	58.97	132.7	71.99	203.8	101.2	382.3	172.6		
1 0 0 0	A1-O	81.77	49.45	86.69	52.61	98.27	59.02	126.9	72.07	198.0	101.3	376.5	172.7		
1 0 0 1	A1-O	87.94	49.49	92.92	52.66	104.5	59.08	133.1	72.11	204.2	101.4	382.7	172.7		
1 0 1 0	A1-O	98.87	52.70	103.9	55.89	115.5	62.29	144.0	75.41	215.2	104.7	393.6	176.0		
B1 B2		Path		1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl	
0 0	C1-O	99.24	58.47	104.1	61.74	115.7	68.34	144.4	81.51	215.6	110.9	394.1	182.3		
0 1	C1-O	107.6	57.46	112.5	60.72	124.1	67.29	152.7	80.51	223.9	109.9	402.4	181.2		
1 0	C1-O	119.5	61.47	124.5	64.76	136.0	71.38	164.6	84.58	235.9	114.0	414.3	185.4		
0 0	C2-O	108.5	56.79	113.4	60.08	125.0	66.64	153.6	79.89	224.8	109.3	403.3	180.6		
0 1	C2-O	118.4	55.87	123.4	59.16	135.0	65.71	163.5	78.94	234.7	108.3	413.2	179.7		
1 0	C2-O	130.0	59.53	135.1	62.85	146.6	69.42	175.1	82.71	246.4	112.1	424.8	183.4		
C1 C2		Path		1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl	
0 0	B1-O	85.07	54.13	89.96	57.32	101.5	63.77	130.2	76.99	201.4	106.2	379.9	177.6		
0 1	B1-O	94.52	54.25	99.44	57.44	111.1	63.89	139.7	77.10	210.9	106.3	389.4	177.7		
1 0	B1-O	106.1	57.88	111.1	61.14	122.6	67.64	151.2	80.81	222.4	110.1	400.9	181.5		
0 0	B2-O	94.70	53.14	99.61	56.35	111.2	62.78	139.8	75.95	211.0	105.3	389.5	176.6		
0 1	B2-O	105.9	53.26	110.8	56.46	122.4	62.90	151.0	76.06	222.2	105.3	400.7	176.7		
1 0	B2-O	117.0	56.58	122.1	59.80	133.6	66.27	162.2	79.48	233.4	108.8	411.9	180.1		

Group Name : AOI12B2

Symbol

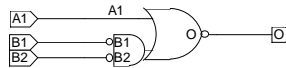
Function : AN2 into NR2, Two Input Inverted



Truth Table

A1	B1	B2	O
1	X	X	0
X	0	0	0
OTHERS			1

Schematic



Pin Order O A1 B1 B2

**Input Capacitance (ff) & Maximum Loading (ff) & Power Consumption (nW/MHz)**

Version	Input Capacitance			Maximum Loading	Power Consumption
	A1	B1	B2	O	O
AOI12B2XLP	1.287	1.039	1.005	75.35	2.221
AOI12B2X1	1.655	1.415	1.366	108.8	2.912
AOI12B2X1P	2.401	1.840	1.853	150.9	4.234
AOI12B2X2	3.324	2.583	2.637	218.1	5.297
AOI12B2X3	1.400	1.040	1.005	295.7	7.311

**AC Characteristics (Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ps)**

Version : AOI12B2XLP

Cell Unit = 9

State	Path	Output Load											
		1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
	B2-O	59.44	56.41	72.49	62.24	104.9	75.15	184.6	104.3	384.1	174.5	884.6	349.2
	B1-O	50.95	51.69	64.14	57.40	96.76	70.12	176.7	98.81	376.4	168.8	876.9	343.4
B1 B2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 1	A1-O	42.71	15.29	55.96	21.55	88.17	34.40	167.7	60.85	367.2	119.9	867.7	265.0
1 0	A1-O	35.45	14.30	48.92	20.66	81.03	33.47	160.4	59.86	359.8	118.8	860.3	263.7
1 1	A1-O	30.37	14.21	41.04	20.53	65.74	33.36	125.5	59.76	274.9	118.7	650.2	263.7

Version : AOI12B2X1

Cell Unit = 9

State	Output Load													
	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
	B2-O	53.72	52.19	62.87	56.51	85.45	66.13	140.9	87.63	279.1	138.5	625.6	264.4	
	B1-O	45.80	47.90	55.03	52.16	77.86	61.55	133.5	82.78	271.8	133.4	618.4	259.1	
B1 B2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
0 1	A1-O	38.27	13.92	47.68	18.73	70.26	28.84	125.5	49.28	263.6	93.15	610.1	198.3	
1 0	A1-O	30.86	12.95	40.53	17.89	63.25	27.99	118.4	48.37	256.3	92.03	602.8	197.0	
1 1	A1-O	26.52	12.85	34.32	17.79	52.02	27.89	93.79	48.26	197.1	91.94	456.7	196.9	

Version : AOI12B2X1P

Cell Unit = 13

State	Output Load													
	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
	B2-O	55.19	51.21	61.87	54.35	78.20	61.46	118.6	77.14	218.5	113.3	468.9	200.9	
	B1-O	48.25	48.70	55.00	51.92	71.59	58.97	112.1	74.56	212.3	110.2	462.8	197.9	
B1 B2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
0 1	A1-O	36.98	13.76	43.83	17.43	60.44	25.30	100.6	41.24	200.5	74.74	450.8	152.4	
1 0	A1-O	29.61	12.65	36.76	16.42	53.49	24.39	93.71	40.25	193.4	73.74	443.6	151.1	
1 1	A1-O	25.63	12.55	31.44	16.30	44.65	24.29	75.26	40.14	150.2	73.64	337.8	151.0	

Version : AOI12B2X2

Cell Unit = 14

State	Output Load													
	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
	B2-O	48.47	45.26	53.17	47.60	64.65	52.88	92.94	64.52	162.2	90.91	335.7	154.3	
	B1-O	41.87	43.95	46.67	46.35	58.28	51.72	86.74	63.24	156.3	89.42	329.8	152.8	
B1 B2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
0 1	A1-O	33.49	10.60	38.44	13.55	50.21	19.59	78.34	31.83	147.6	56.47	320.9	110.6	
1 0	A1-O	24.77	9.538	30.00	12.51	42.08	18.69	70.34	30.90	139.4	55.47	312.5	109.2	
1 1	A1-O	21.52	9.464	25.84	12.42	35.60	18.57	57.45	30.78	109.5	55.37	239.3	109.1	

Version : AOI12B2X3

Cell Unit = 14

State	Output Load													
	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tph	tphl	tph	tphl	tph	tphl	tph	tphl	tph	tphl	tph	tphl	
	B2-O	91.01	90.59	94.73	93.21	103.3	98.49	124.1	108.9	175.7	130.4	304.9	180.5	
	B1-O	81.58	85.71	85.33	88.33	93.90	93.64	114.7	103.9	166.4	125.4	295.5	175.6	
B1 B2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tph	tphl	tph	tphl	tph	tphl	tph	tphl	tph	tphl	tph	tphl	
0 1	A1-O	74.47	49.56	78.24	52.16	86.83	57.42	107.6	67.62	159.3	89.11	288.3	139.3	
1 0	A1-O	66.42	46.39	70.15	48.96	78.72	54.15	99.53	64.43	151.2	85.84	280.3	136.0	
1 1	A1-O	59.38	46.31	63.08	48.88	71.69	54.07	92.47	64.34	144.1	85.75	273.3	135.9	

Group Name : AOI13

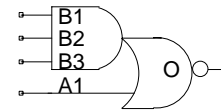
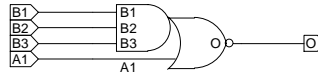
Symbol

Function : AN3 into NR2

Truth Table

A1	B1	B2	B3	O
1	X	X	X	0
X	1	1	1	0
OTHERS				1

Schematic



Pin Order O A1 B1 B2 B3

Input Capacitance (ff) &amp; Maximum Loading (ff) &amp; Power Consumption (nW/MHz)

Version	Input Capacitance				Maximum Loading	Power Consumption
	A1	B1	B2	B3	O	O
AOI13XLP	1.380	1.532	1.596	1.628	74.54	1.631
AOI13X1	1.814	2.010	2.084	2.177	107.6	2.167
AOI13X1P	2.414	2.825	2.903	3.039	149.1	3.017
AOI13X2	3.450	3.636	3.863	4.163	215.0	4.321
AOI13X3	1.413	1.525	1.590	1.625	295.7	6.698

## AC Characteristics ( Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ps)

Version : AOI13XLP

Cell Unit = 7

State		Output Load											
B1 B2 B3	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0	A1-O	28.10	13.88	37.96	20.27	60.34	33.15	113.9	59.58	247.3	118.5	582.5	263.5
0 0 1	A1-O	29.77	13.91	40.48	20.31	65.19	33.19	124.9	59.62	274.3	118.6	649.6	263.5
0 1 0	A1-O	29.77	13.91	40.48	20.31	65.19	33.19	124.9	59.62	274.3	118.6	649.6	263.5
0 1 1	A1-O	34.48	14.01	47.94	20.41	80.02	33.30	159.4	59.71	358.8	118.6	859.3	263.6
1 0 0	A1-O	35.91	15.44	46.27	21.63	70.74	34.48	130.4	60.90	280.0	119.8	655.3	265.0
1 0 1	A1-O	42.21	15.46	55.37	21.67	87.45	34.48	166.9	60.88	366.3	119.8	866.8	264.9
1 1 0	A1-O	48.89	15.59	62.12	21.84	94.35	34.67	174.1	61.14	373.6	120.4	874.2	266.0
	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
	B1-O	44.50	25.84	58.17	34.12	90.86	52.36	171.2	93.64	371.1	193.2	871.8	442.4
	B2-O	52.03	27.00	65.35	34.88	97.69	52.84	177.8	93.96	377.5	193.6	878.0	442.8
	B3-O	58.27	26.22	71.62	33.74	103.9	51.08	184.0	91.96	383.6	191.6	884.1	440.7

Version : AOI13X1

Cell Unit = 7

State		Output Load											
B1 B2 B3	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0	A1-O	24.52	12.54	31.75	17.52	47.95	27.68	85.43	48.07	177.7	91.77	409.5	196.8
0 0 1	A1-O	25.96	12.57	33.78	17.56	51.52	27.72	93.29	48.12	196.6	91.81	456.2	196.8
0 1 0	A1-O	25.96	12.57	33.78	17.56	51.52	27.72	93.28	48.12	196.6	91.81	456.2	196.8
0 1 1	A1-O	29.98	12.66	39.65	17.66	62.33	27.82	117.5	48.22	255.4	91.90	601.8	196.9
1 0 0	A1-O	32.24	14.12	39.67	18.88	57.03	28.96	98.71	49.32	202.1	93.17	461.8	198.3
1 0 1	A1-O	37.81	14.12	47.15	18.90	69.63	28.97	124.8	49.35	262.8	93.14	609.2	198.2
1 1 0	A1-O	44.39	14.24	53.72	19.06	76.33	29.03	131.7	49.55	270.0	93.53	616.5	199.2
	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
	B1-O	39.55	24.08	49.21	30.33	72.32	44.07	128.4	74.84	266.9	147.1	613.6	326.6
	B2-O	47.08	25.56	56.46	31.44	79.25	44.89	134.9	75.38	273.3	147.6	619.9	327.3
	B3-O	53.23	24.96	62.61	30.52	85.38	43.47	140.9	73.51	279.4	145.6	625.9	325.3

Version : AOI13X1P

Cell Unit = 12

State		Output Load											
B1 B2 B3	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0	A1-O	22.02	10.98	27.60	14.97	39.95	23.21	67.74	39.26	134.7	72.87	302.3	150.2
0 0 1	A1-O	23.24	11.01	29.23	15.01	42.64	23.25	73.39	39.31	148.3	72.92	335.9	150.3
0 1 0	A1-O	23.23	11.01	29.23	15.01	42.64	23.25	73.38	39.31	148.3	72.92	335.9	150.3
0 1 1	A1-O	26.48	11.11	33.74	15.11	50.61	23.36	90.82	39.41	190.5	73.01	440.7	150.4
1 0 0	A1-O	30.65	12.91	36.21	16.73	49.17	24.71	79.72	40.75	154.6	74.43	342.3	152.1
1 0 1	A1-O	35.61	12.90	42.49	16.72	59.03	24.72	99.20	40.77	199.0	74.36	449.2	152.0
1 1 0	A1-O	43.36	12.90	50.26	16.88	66.91	24.90	107.3	40.99	207.4	74.72	457.9	152.9
	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
	B1-O	38.36	21.25	45.59	25.95	62.60	36.23	103.4	58.73	203.9	109.9	454.6	234.7
	B2-O	47.18	23.37	54.07	27.73	70.75	37.52	111.3	59.72	211.5	110.7	462.0	235.6
	B3-O	54.48	23.50	61.39	27.57	78.11	37.04	118.8	58.61	219.0	109.4	469.4	234.3

Version : AOI13X2

Cell Unit = 13

State		Output Load											
B1 B2 B3	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0	A1-O	20.68	9.715	24.67	12.63	33.61	18.74	53.48	30.90	100.2	55.46	216.0	109.2
0 0 1	A1-O	21.82	9.736	26.09	12.66	35.77	18.78	57.57	30.94	109.6	55.50	239.4	109.3
0 1 0	A1-O	21.81	9.736	26.08	12.66	35.77	18.78	57.57	30.94	109.6	55.50	239.4	109.3
0 1 1	A1-O	24.83	9.869	29.96	12.75	41.92	18.88	70.09	31.05	139.1	55.60	312.3	109.3
1 0 0	A1-O	29.39	11.44	33.31	14.31	42.51	20.17	64.07	32.29	116.1	56.89	245.9	110.9
1 0 1	A1-O	34.13	11.49	38.97	14.29	50.60	20.18	78.59	32.31	147.8	56.88	321.0	110.8
1 1 0	A1-O	41.26	11.56	46.10	14.38	57.77	20.32	86.03	32.39	155.4	56.95	328.9	111.2
	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
	B1-O	36.39	21.23	41.51	24.70	53.64	32.47	82.36	49.35	152.3	87.27	326.0	177.6
	B2-O	45.45	23.75	50.30	26.94	62.05	34.25	90.40	50.91	160.1	88.39	333.6	178.9
	B3-O	52.18	23.65	57.02	26.65	68.78	33.68	97.19	49.68	166.9	87.03	340.5	177.3

Version : AOI13X3

Cell Unit = 12

State	Output Load													
B1 B2 B3	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 0 0	A1-O	55.82	45.48	59.51	48.06	68.10	53.24	88.99	63.55	140.6	84.94	269.7	135.1	
0 0 1	A1-O	58.11	45.51	61.81	48.09	70.43	53.27	91.26	63.57	142.8	84.97	272.0	135.2	
0 1 0	A1-O	58.11	45.51	61.81	48.09	70.43	53.27	91.26	63.57	142.8	84.97	272.0	135.2	
0 1 1	A1-O	64.66	45.60	68.39	48.17	76.95	53.36	97.76	63.65	149.5	85.06	278.6	135.2	
1 0 0	A1-O	64.77	49.31	68.47	51.90	77.06	57.14	97.82	67.35	149.4	88.84	278.6	138.9	
1 0 1	A1-O	73.07	49.18	76.82	51.78	85.41	57.01	106.2	67.24	157.9	88.68	286.9	138.9	
1 1 0	A1-O	80.35	51.63	84.11	54.25	92.70	59.54	113.5	69.80	165.1	91.31	294.2	141.4	
	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
	B1-O	74.65	63.28	78.38	65.96	86.98	71.36	107.8	81.78	159.5	103.4	288.5	153.6	
	B2-O	82.83	64.58	86.58	67.24	95.15	72.62	115.9	83.12	167.6	104.7	296.7	154.9	
	B3-O	89.73	63.62	93.50	66.30	102.1	71.70	122.8	82.11	174.5	103.8	303.6	153.9	



Group Name : AOI22

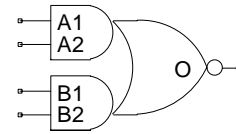
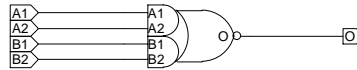
Symbol

Function : 2 AN2 into NR2

Truth Table

A1	A2	B1	B2	O
1	1	X	X	0
X	X	1	1	0
OTHERS				1

Schematic



Pin Order O A1 A2 B1 B2

**Input Capacitance (ff) & Maximum Loading (ff) & Power Consumption (nW/MHz)**

Version	Input Capacitance				Maximum Loading	Power Consumption
	A1	A2	B1	B2	O	O
AOI22XLP	1.460	1.636	1.423	1.599	73.53	2.285
AOI22X1	1.921	2.187	1.817	2.081	106.4	3.043
AOI22X1P	3.320	3.780	2.924	2.991	148.0	4.412
AOI22X2	3.694	4.091	3.252	3.857	213.3	5.865
AOI22X3	1.462	1.656	1.427	1.601	295.7	7.562

## AC Characteristics ( Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ps)

Version : AOI22XLP

Cell Unit = 7

State	Output Load													
	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 0	B1-O	33.27	17.20	43.85	23.92	68.55	37.84	128.4	68.13	278.2	138.1	653.6	312.4	
0 1	B1-O	38.79	17.31	52.16	24.03	84.46	37.99	164.2	68.23	363.9	138.2	864.6	312.5	
1 0	B1-O	49.90	19.09	63.09	25.67	95.33	39.64	175.2	70.08	374.9	140.5	875.6	315.0	
0 0	B2-O	38.84	17.11	49.03	22.91	73.32	35.81	133.0	65.04	282.5	135.0	657.8	309.3	
0 1	B2-O	45.89	17.24	58.93	23.04	90.91	35.93	170.3	65.15	369.7	135.1	870.1	309.4	
1 0	B2-O	56.75	18.58	69.73	24.45	101.6	37.47	181.2	67.01	380.7	137.3	881.2	311.9	
B1 B2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 0	A1-O	43.39	24.28	53.96	30.28	79.03	43.74	140.5	73.60	292.9	143.7	674.8	318.2	
0 1	A1-O	48.49	22.06	61.91	28.35	94.36	42.18	174.6	72.37	374.5	142.6	875.3	317.2	
1 0	A1-O	56.08	23.81	69.37	29.97	101.9	43.67	182.0	73.74	381.9	144.1	882.6	318.7	
0 0	A2-O	51.66	24.66	61.96	30.19	86.70	42.78	147.9	71.91	300.1	142.0	681.9	316.5	
0 1	A2-O	59.15	22.69	72.31	28.42	104.6	41.28	184.4	70.64	384.0	140.9	884.6	315.5	
1 0	A2-O	66.63	24.07	79.68	29.79	112.0	42.67	191.7	72.13	391.4	142.5	892.0	317.1	

Version : AOI22X1

Cell Unit = 7

State		Output Load											
A1 A2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0	B1-O	29.47	15.67	37.11	20.74	54.68	31.56	96.60	54.36	200.2	105.6	460.0	231.1
0 1	B1-O	34.25	15.79	43.76	20.86	66.48	31.67	121.9	54.48	260.2	105.7	606.8	231.2
1 0	B1-O	44.70	17.49	53.94	22.45	76.55	33.20	131.9	56.18	270.4	107.8	617.1	233.6
0 0	B2-O	35.14	16.00	42.38	20.38	59.62	30.11	101.1	51.80	204.5	102.7	464.1	228.3
0 1	B2-O	41.38	16.14	50.60	20.52	72.93	30.24	128.0	51.92	266.0	102.8	612.4	228.4
1 0	B2-O	51.55	17.40	60.64	21.83	82.94	31.52	138.1	53.49	276.2	104.8	622.6	230.8
B1 B2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0	A1-O	38.98	22.97	46.50	27.48	64.50	37.62	107.4	60.01	213.2	111.2	477.8	236.8
0 1	A1-O	43.17	20.68	52.64	25.46	75.55	35.94	131.3	58.67	269.9	110.1	616.7	235.8
1 0	A1-O	50.76	22.39	60.08	27.00	82.80	37.40	138.6	60.05	277.2	111.5	624.0	237.3
0 0	A2-O	46.80	23.40	54.09	27.50	71.69	36.91	114.3	58.44	219.9	109.4	484.4	235.1
0 1	A2-O	53.13	21.38	62.36	25.65	84.92	35.33	140.4	57.13	278.7	108.3	625.3	234.1
1 0	A2-O	60.56	22.73	69.72	26.96	92.15	36.65	147.7	58.49	286.0	109.7	632.6	235.7

Version : AOI22X1P

Cell Unit = 12

State		Output Load											
A1 A2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0	B1-O	29.89	15.00	35.44	18.63	48.43	26.65	79.05	43.48	154.0	80.30	341.9	167.6
0 1	B1-O	34.49	15.11	41.36	18.74	57.96	26.76	98.19	43.60	198.2	80.40	448.7	167.7
1 0	B1-O	41.97	16.70	48.72	20.23	65.11	28.15	105.3	44.94	205.3	81.76	455.9	169.3
0 0	B2-O	35.48	15.14	40.73	18.26	53.31	25.29	83.62	41.04	158.3	77.02	346.0	164.4
0 1	B2-O	41.50	15.27	48.19	18.39	64.42	25.41	104.3	41.15	204.0	77.13	454.2	164.5
1 0	B2-O	48.79	16.43	55.31	19.58	71.49	26.54	111.4	42.33	211.1	78.50	461.4	166.1
B1 B2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0	A1-O	40.99	22.84	46.47	26.07	59.55	33.42	90.81	49.74	167.5	86.28	358.7	173.9
0 1	A1-O	45.43	20.40	52.27	23.85	68.95	31.49	109.6	48.25	210.0	85.06	460.6	172.9
1 0	A1-O	52.90	22.23	59.66	25.53	76.14	33.08	116.8	49.68	217.1	86.49	467.8	174.4
0 0	A2-O	46.58	21.66	51.83	24.60	64.60	31.44	95.55	47.03	171.9	83.15	362.9	170.8
0 1	A2-O	52.51	19.45	59.19	22.54	75.55	29.61	115.8	45.52	215.8	81.88	466.2	169.7
1 0	A2-O	59.83	20.97	66.43	23.99	82.68	30.96	123.0	46.88	222.9	83.32	473.3	171.2

Version : AOI22X2

Cell Unit = 13

State		Output Load											
A1 A2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0	B1-O	25.84	13.14	29.90	15.95	39.35	22.17	61.16	35.18	113.4	63.00	243.3	126.4
0 1	B1-O	29.71	13.24	34.71	16.07	46.57	22.29	74.73	35.31	144.2	63.11	317.6	126.5
1 0	B1-O	38.65	14.93	43.43	17.63	54.98	23.74	83.16	36.74	152.5	64.58	326.1	128.3
0 0	B2-O	32.75	14.46	36.52	16.84	45.53	22.21	66.88	34.08	118.9	60.65	248.6	124.0
0 1	B2-O	38.34	14.60	43.03	16.98	54.50	22.35	82.44	34.21	151.5	60.77	324.7	124.1
1 0	B2-O	46.95	15.84	51.55	18.20	62.92	23.54	90.79	35.49	159.8	62.22	333.1	125.9
B1 B2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0	A1-O	36.24	21.22	40.20	23.66	49.64	29.25	71.87	41.67	125.3	69.03	258.0	132.6
0 1	A1-O	39.76	18.71	44.64	21.32	56.49	27.20	84.94	40.02	154.8	67.75	328.5	131.5
1 0	A1-O	48.77	20.66	53.52	23.15	65.17	28.85	93.47	41.56	163.3	69.30	337.2	133.3
0 0	A2-O	43.01	21.04	46.77	23.23	55.85	28.34	77.69	39.99	130.8	66.57	263.3	130.1
0 1	A2-O	48.27	18.76	52.98	21.09	64.49	26.42	92.58	38.39	162.1	65.25	335.5	129.0
1 0	A2-O	57.02	20.36	61.66	22.63	73.12	27.78	101.1	39.88	170.6	66.87	344.1	130.8

Version : AOI22X3

Cell Unit = 12

State		Output Load											
A1 A2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0	B1-O	62.64	50.09	66.31	52.63	74.90	57.76	95.73	67.93	147.4	89.20	276.5	139.3
0 1	B1-O	70.32	50.20	74.03	52.74	82.61	57.86	103.4	68.02	155.1	89.30	284.1	139.4
1 0	B1-O	82.23	55.52	85.98	58.11	94.53	63.34	115.3	73.53	166.9	94.93	296.0	145.0
0 0	B2-O	68.63	49.48	72.32	52.03	80.86	57.18	101.7	67.25	153.4	88.54	282.4	138.6
0 1	B2-O	77.90	49.62	81.64	52.15	90.20	57.30	111.0	67.38	162.6	88.66	291.7	138.7
1 0	B2-O	89.55	54.38	93.34	56.97	101.9	62.17	122.6	72.36	174.3	93.69	303.3	143.8
B1 B2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0	A1-O	73.17	58.46	76.89	61.03	85.43	66.22	106.2	76.34	157.9	97.72	287.0	147.7
0 1	A1-O	79.90	56.39	83.63	58.97	92.18	64.19	113.0	74.31	164.7	95.65	293.8	145.7
1 0	A1-O	88.09	59.98	91.84	62.58	100.4	67.81	121.2	77.99	172.8	99.39	301.9	149.5
0 0	A2-O	82.10	58.63	85.82	61.20	94.36	66.37	115.1	76.56	166.8	97.91	295.9	148.0
0 1	A2-O	91.48	56.77	95.24	59.34	103.8	64.52	124.6	74.74	176.2	96.06	305.3	146.2
1 0	A2-O	99.41	60.03	103.2	62.62	111.8	67.84	132.5	78.11	184.1	99.46	313.2	149.6

Group Name : AOI222

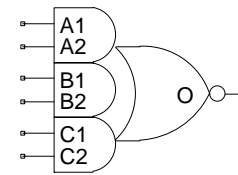
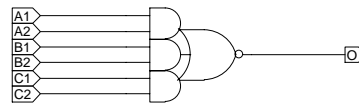
Symbol

Function : 3 AN2 into NR3

Truth Table

A1	A2	B1	B2	C1	C2	O
1	1	X	X	X	X	0
X	X	1	1	X	X	0
X	X	X	X	1	1	0
OTHERS						1

Schematic



Pin Order O A1 A2 B1 B2 C1 C2

Input Capacitance (ff) & Maximum Loading (ff) & Power Consumption (nW/MHz)

Version	Input Capacitance						Maximum Loading	Power Consumption
	A1	A2	B1	B2	C1	C2	O	O
AOI222XLP	1.379	1.537	1.342	1.530	1.271	1.416	47.51	3.064
AOI222X1	1.796	2.022	1.760	1.990	1.613	1.829	68.90	4.070
AOI222X1P	2.531	2.790	2.443	2.730	2.261	2.634	95.52	5.738
AOI222X2	3.361	3.729	3.229	3.640	2.963	3.443	137.0	7.964
AOI222X3	1.362	1.520	1.375	1.534	1.296	1.472	212.9	7.113

## AC Characteristics ( Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ps)

Version : AOI222XLP

Cell Unit = 10

State				Output Load											
A1 A2 B1 B2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff			
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl		
0 0 0 0	C1-O	40.46	22.30	53.46	29.68	85.25	45.89	164.1	81.78	361.6	167.6	856.9	382.6		
0 0 0 1	C1-O	46.00	22.40	61.90	29.80	101.6	45.98	200.5	81.86	448.3	167.7	1070	382.7		
0 0 1 0	C1-O	53.01	23.87	68.99	31.22	108.5	47.33	207.5	83.24	455.3	169.2	1077	384.2		
0 1 0 0	C1-O	44.18	22.38	59.77	29.77	99.26	45.96	198.0	81.84	445.4	167.7	1066	382.7		
0 1 0 1	C1-O	49.66	22.50	68.45	29.85	115.7	46.03	234.5	81.90	531.9	167.7	1278	382.7		
0 1 1 0	C1-O	57.75	23.96	76.86	31.28	124.3	47.38	243.1	83.28	540.4	169.3	1286	384.2		
1 0 0 0	C1-O	51.00	23.85	66.78	31.20	106.2	47.31	205.0	83.21	452.5	169.2	1073	384.1		
1 0 0 1	C1-O	57.75	23.96	76.86	31.28	124.3	47.38	243.1	83.28	540.4	169.3	1286	384.2		
1 0 1 0	C1-O	66.34	25.63	85.24	32.88	132.7	48.86	251.5	84.72	548.9	170.8	1295	385.7		
0 0 0 0	C2-O	45.86	21.39	58.59	28.00	90.24	43.23	168.8	78.44	366.1	164.3	861.3	379.4		
0 0 0 1	C2-O	52.64	21.50	68.45	28.10	107.7	43.35	206.4	78.52	453.9	164.4	1075	379.5		
0 0 1 0	C2-O	59.53	22.72	75.45	29.31	114.8	44.58	213.4	79.96	461.0	166.0	1082	381.0		
0 1 0 0	C2-O	50.50	21.47	66.21	28.07	105.4	43.30	203.9	78.49	451.0	164.4	1071	379.5		
0 1 0 1	C2-O	57.31	21.56	76.25	28.16	123.3	43.39	241.7	78.56	538.7	164.4	1284	379.5		
0 1 1 0	C2-O	65.76	22.80	84.45	29.36	131.7	44.63	250.1	79.99	547.2	166.0	1293	381.0		
1 0 0 0	C2-O	57.36	22.70	73.19	29.28	112.3	44.53	210.9	79.93	458.1	166.0	1078	381.0		
1 0 0 1	C2-O	65.76	22.80	84.45	29.36	131.7	44.63	250.1	79.99	547.2	166.0	1293	381.0		
1 0 1 0	C2-O	74.17	24.18	92.91	30.71	140.1	46.02	258.7	81.45	555.7	167.5	1301	382.5		
A1 A2 C1 C2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff			
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl		
0 0 0 0	B1-O	57.85	31.57	71.25	38.46	104.1	54.10	184.6	89.94	385.6	176.1	889.3	391.3		
0 0 0 1	B1-O	64.33	28.94	80.66	36.12	120.9	52.18	220.2	88.33	468.2	174.7	1090	390.0		
0 0 1 0	B1-O	71.83	30.74	88.12	37.79	128.2	53.76	227.5	89.81	475.5	176.3	1097	391.6		
0 1 0 0	B1-O	67.54	31.72	84.39	38.60	125.1	54.23	225.9	90.07	477.3	176.2	1107	391.4		
0 1 0 1	B1-O	74.46	29.12	94.05	36.29	142.0	52.33	261.2	88.47	558.9	174.8	1305	390.1		
0 1 1 0	B1-O	83.54	30.92	102.9	37.96	150.9	53.90	270.1	89.94	567.7	176.4	1313	391.7		
1 0 0 0	B1-O	75.13	33.39	91.67	40.16	132.3	55.73	233.0	91.46	484.6	177.7	1115	392.9		
1 0 0 1	B1-O	83.25	30.89	102.6	37.92	150.6	53.86	269.8	89.89	567.4	176.3	1313	391.6		
1 0 1 0	B1-O	92.18	32.88	111.6	39.70	159.5	55.49	278.6	91.46	576.2	177.9	1322	393.2		
0 0 0 0	B2-O	63.40	29.49	76.51	36.03	109.0	51.15	189.3	86.62	390.0	172.8	893.6	388.1		
0 0 0 1	B2-O	71.08	27.00	87.10	33.77	127.0	49.24	225.9	85.01	473.6	171.4	1095	386.8		
0 0 1 0	B2-O	78.46	28.54	94.48	35.27	134.3	50.73	233.2	86.46	480.9	173.0	1102	388.4		
0 1 0 0	B2-O	74.40	29.64	90.89	36.17	131.3	51.29	231.6	86.75	482.8	172.9	1113	388.2		
0 1 0 1	B2-O	82.55	27.15	101.8	33.92	149.4	49.38	268.2	85.15	565.4	171.5	1311	386.9		
0 1 1 0	B2-O	91.42	28.69	110.6	35.41	158.3	50.88	277.0	86.59	574.2	173.1	1320	388.5		
1 0 0 0	B2-O	81.77	31.11	98.13	37.61	138.3	52.73	238.7	88.11	490.0	174.4	1120	389.7		
1 0 0 1	B2-O	91.13	28.66	110.3	35.38	158.0	50.83	276.7	86.54	573.9	173.1	1319	388.4		
1 0 1 0	B2-O	100.0	30.38	119.2	36.99	166.8	52.41	285.5	88.12	582.7	174.6	1328	390.0		

B1 B2 C1 C2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0 0	A1-O	68.82	36.08	82.11	43.13	114.9	59.09	194.9	95.62	395.2	182.5	897.0	398.4
0 0 0 1	A1-O	76.44	31.74	92.67	39.18	132.8	55.77	232.0	93.05	479.7	180.6	1100	396.8
0 0 1 0	A1-O	83.93	33.89	100.1	41.09	140.2	57.51	239.3	94.55	487.0	182.2	1107	398.4
0 1 0 0	A1-O	78.14	34.89	94.76	41.97	135.4	58.00	236.1	94.57	487.7	181.5	1118	397.3
0 1 0 1	A1-O	85.30	30.95	104.7	38.39	152.7	54.98	271.9	92.20	569.5	179.7	1315	395.8
0 1 1 0	A1-O	94.18	33.05	113.7	40.28	161.5	56.70	280.7	93.70	578.3	181.3	1324	397.4
1 0 0 0	A1-O	85.51	36.80	102.0	43.73	142.6	59.62	243.3	96.00	494.8	183.0	1125	398.8
1 0 0 1	A1-O	93.88	33.01	113.4	40.23	161.2	56.66	280.4	93.64	578.0	181.2	1324	397.3
1 0 1 0	A1-O	102.9	35.28	122.3	42.21	170.1	58.40	289.3	95.31	586.9	182.8	1333	398.9
0 0 0 0	A2-O	74.21	33.44	87.37	40.27	119.8	55.98	199.6	92.32	399.6	179.3	901.2	395.2
0 0 0 1	A2-O	83.08	29.15	99.21	36.35	138.9	52.59	237.7	89.69	485.1	177.3	1105	393.6
0 0 1 0	A2-O	90.50	31.02	106.5	38.08	146.3	54.27	245.1	91.21	492.4	178.9	1113	395.2
0 1 0 0	A2-O	84.98	32.31	101.3	39.16	141.6	54.88	241.9	91.24	493.1	178.2	1123	394.1
0 1 0 1	A2-O	93.20	28.47	112.5	35.62	160.1	51.81	278.8	88.83	576.0	176.4	1321	392.6
0 1 1 0	A2-O	102.1	30.29	121.4	37.33	168.9	53.47	287.6	90.35	584.8	178.0	1330	394.2
1 0 0 0	A2-O	92.26	34.05	108.5	40.82	148.7	56.45	249.1	92.69	500.3	179.7	1130	395.6
1 0 0 1	A2-O	101.8	30.25	121.1	37.29	168.6	53.43	287.3	90.29	584.5	177.9	1330	394.1
1 0 1 0	A2-O	110.7	32.23	129.9	39.11	177.4	55.15	296.1	91.96	593.4	179.5	1339	395.7

Version : AOI222X1

Cell Unit = 10

State		Output Load											
A1 A2 B1 B2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0 0	C1-O	35.65	20.55	44.76	26.21	67.11	38.51	121.9	65.65	258.6	128.3	601.4	284.1
0 0 0 1	C1-O	40.39	20.66	51.51	26.31	79.06	38.63	147.7	65.75	319.3	128.4	749.6	284.2
0 0 1 0	C1-O	47.28	22.03	58.40	27.65	86.06	39.94	154.6	67.00	326.3	129.9	756.6	285.6
0 1 0 0	C1-O	38.80	20.65	49.57	26.30	76.94	38.60	145.4	65.72	316.8	128.4	746.4	284.1
0 1 0 1	C1-O	43.43	20.73	56.17	26.40	89.13	38.68	171.5	65.79	377.5	128.4	894.1	284.2
0 1 1 0	C1-O	51.46	22.10	64.49	27.74	97.49	39.99	179.8	67.05	385.9	129.9	902.4	285.6
1 0 0 0	C1-O	45.43	22.02	56.24	27.63	83.76	39.92	152.3	66.98	323.7	129.9	753.4	285.6
1 0 0 1	C1-O	51.47	22.10	64.49	27.74	97.50	40.00	179.8	67.05	385.9	129.9	902.4	285.7
1 0 1 0	C1-O	59.50	23.76	72.85	29.25	105.7	41.43	188.1	68.45	394.3	131.4	910.8	287.2
0 0 0 0	C2-O	41.05	20.07	50.07	25.05	72.08	36.52	126.6	62.74	263.1	125.3	605.8	281.2
0 0 0 1	C2-O	46.89	20.19	57.99	25.16	85.37	36.63	153.6	62.84	325.0	125.4	755.1	281.3
0 0 1 0	C2-O	53.87	21.36	64.86	26.26	92.25	37.81	160.5	64.05	331.9	126.9	762.1	282.8
0 1 0 0	C2-O	45.09	20.17	55.92	25.13	83.05	36.60	151.3	62.81	322.4	125.4	751.9	281.2
0 1 0 1	C2-O	51.07	20.26	63.85	25.22	96.66	36.68	178.6	62.88	384.4	125.4	900.6	281.3
0 1 1 0	C2-O	59.10	21.43	72.20	26.32	104.9	37.87	186.9	64.10	392.7	126.9	909.0	282.8
1 0 0 0	C2-O	51.87	21.33	62.67	26.23	89.96	37.78	158.2	64.02	329.4	126.8	758.9	282.7
1 0 0 1	C2-O	59.10	21.43	72.21	26.32	104.9	37.87	186.9	64.10	392.7	126.9	909.0	282.8
1 0 1 0	C2-O	67.37	22.79	80.45	27.60	113.1	39.18	195.3	65.52	401.1	128.4	917.4	284.3
A1 A2 C1 C2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0 0	B1-O	51.81	30.05	61.35	35.19	84.23	47.03	140.4	73.71	280.0	136.6	629.1	292.6
0 0 0 1	B1-O	57.18	27.35	68.64	32.74	96.72	44.97	165.8	72.04	337.7	135.2	768.2	291.3
0 0 1 0	B1-O	64.57	29.05	75.98	34.36	104.0	46.47	172.9	73.45	345.0	136.6	775.4	292.8
0 1 0 0	B1-O	60.23	30.21	72.05	35.35	100.7	47.18	170.8	73.86	345.4	136.7	782.3	292.7
0 1 0 1	B1-O	65.85	27.54	79.64	32.93	113.3	45.13	196.2	72.17	402.6	135.3	919.2	291.4
0 1 1 0	B1-O	74.84	29.25	88.56	34.54	122.1	46.64	204.9	73.58	411.3	136.8	927.9	292.9
1 0 0 0	B1-O	67.68	31.81	79.32	36.85	107.8	48.63	177.8	75.23	352.5	138.1	789.3	294.2
1 0 0 1	B1-O	74.53	29.22	88.27	34.51	121.8	46.60	204.6	73.54	411.0	136.7	927.6	292.9
1 0 1 0	B1-O	83.50	31.16	97.05	36.31	130.5	48.24	213.2	75.09	419.6	138.3	936.3	294.5
0 0 0 0	B2-O	57.34	28.30	66.68	33.16	89.21	44.46	145.1	70.70	284.4	133.6	633.3	289.7
0 0 0 1	B2-O	63.89	25.75	75.16	30.80	102.9	42.43	171.5	69.00	343.2	132.1	773.4	288.3
0 0 1 0	B2-O	71.16	27.19	82.39	32.23	110.0	43.85	178.7	70.44	350.4	133.6	780.6	289.9
0 1 0 0	B2-O	67.20	28.46	78.68	33.32	106.9	44.61	176.6	70.84	350.9	133.7	787.5	289.8
0 1 0 1	B2-O	74.00	25.91	87.44	30.96	120.8	42.58	203.1	69.15	409.1	132.3	925.5	288.5
0 1 1 0	B2-O	82.75	27.34	96.20	32.39	129.4	44.00	211.7	70.59	417.8	133.7	934.2	290.0
1 0 0 0	B2-O	74.40	29.86	85.75	34.71	114.0	45.99	183.7	72.24	357.9	135.2	794.6	291.3
1 0 0 1	B2-O	82.47	27.32	95.91	32.37	129.1	43.96	211.4	70.54	417.5	133.7	933.9	290.0
1 0 1 0	B2-O	91.23	28.98	104.6	33.93	137.7	45.51	220.1	72.09	426.2	135.3	942.6	291.6



B1 B2 C1 C2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0 0	A1-O	62.13	34.66	71.46	39.89	94.38	51.90	150.4	79.13	289.3	142.8	637.1	299.5
0 0 0 1	A1-O	68.50	30.22	80.00	35.81	108.0	48.43	176.9	76.36	348.7	140.7	778.5	297.8
0 0 1 0	A1-O	75.92	32.31	87.29	37.71	115.3	50.16	184.2	77.92	356.0	142.3	785.7	299.4
0 1 0 0	A1-O	70.23	33.43	81.76	38.69	110.1	50.77	180.2	78.06	354.8	141.7	791.7	298.4
0 1 0 1	A1-O	76.00	29.40	89.58	35.00	123.1	47.62	206.0	75.51	412.4	139.8	929.1	296.8
0 1 1 0	A1-O	84.86	31.44	98.36	36.87	131.9	49.32	214.6	77.05	421.1	141.3	937.8	298.4
1 0 0 0	A1-O	77.47	35.28	88.89	40.43	117.2	52.43	187.4	79.54	361.9	143.2	798.8	299.9
1 0 0 1	A1-O	84.57	31.40	98.06	36.83	131.6	49.27	214.3	77.00	420.8	141.3	937.5	298.3
1 0 1 0	A1-O	93.36	33.66	106.8	38.85	140.3	51.10	223.0	78.67	429.5	142.9	946.1	299.9
0 0 0 0	A2-O	67.58	32.32	76.79	37.39	99.42	49.13	155.0	76.11	293.7	139.8	641.3	296.6
0 0 0 1	A2-O	75.25	27.94	86.52	33.31	114.3	45.55	182.8	73.26	354.2	137.7	783.8	294.9
0 0 1 0	A2-O	82.54	29.73	93.76	35.03	121.5	47.20	190.0	74.84	361.4	139.3	791.0	296.5
0 1 0 0	A2-O	76.89	31.15	88.23	36.25	116.4	48.00	186.1	75.02	360.3	138.7	797.0	295.5
0 1 0 1	A2-O	83.91	27.24	97.39	32.58	130.6	44.78	212.9	72.40	419.0	136.8	935.4	293.9
0 1 1 0	A2-O	92.69	28.97	106.1	34.25	139.2	46.39	221.5	73.97	427.6	138.3	944.0	295.5
1 0 0 0	A2-O	83.96	32.85	95.38	37.88	123.4	49.58	193.2	76.53	367.4	140.3	804.0	297.0
1 0 0 1	A2-O	92.40	28.94	105.8	34.22	138.9	46.35	221.2	73.92	427.3	138.3	943.7	295.4
1 0 1 0	A2-O	101.1	30.90	114.5	36.02	147.6	48.09	230.0	75.57	436.0	139.9	952.4	297.0

Version : AOI222X1P

Cell Unit = 18

State		Output Load											
A1 A2 B1 B2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0 0	C1-O	35.31	20.70	42.00	24.95	58.27	34.23	98.13	54.87	197.0	101.8	444.8	216.2
0 0 0 1	C1-O	40.04	20.81	48.12	25.06	68.23	34.35	117.9	54.97	242.0	101.9	552.8	216.3
0 0 1 0	C1-O	47.04	22.11	55.07	26.33	75.18	35.64	124.9	56.32	249.0	103.2	559.9	217.8
0 1 0 0	C1-O	38.33	20.79	46.08	25.04	65.93	34.31	115.4	54.94	239.4	101.9	549.7	216.2
0 1 0 1	C1-O	42.96	20.88	52.15	25.12	76.10	34.41	135.4	55.02	284.5	101.9	657.6	216.3
0 1 1 0	C1-O	50.95	22.18	60.47	26.39	84.37	35.70	144.0	56.36	292.9	103.3	666.0	217.8
1 0 0 0	C1-O	45.02	22.10	52.85	26.31	72.83	35.60	122.4	56.28	246.3	103.2	556.7	217.7
1 0 0 1	C1-O	50.92	22.18	60.43	26.39	84.34	35.70	144.0	56.36	292.9	103.2	666.0	217.8
1 0 1 0	C1-O	59.22	23.77	68.89	27.85	92.75	37.12	152.4	57.73	301.4	104.7	674.4	219.3
0 0 0 0	C2-O	40.60	20.26	47.16	23.97	63.23	32.60	102.7	52.30	201.4	98.79	449.0	213.4
0 0 0 1	C2-O	46.41	20.39	54.52	24.09	74.39	32.72	123.8	52.41	247.5	98.88	558.2	213.5
0 0 1 0	C2-O	53.41	21.50	61.37	25.14	81.26	33.86	130.7	53.64	254.5	100.3	565.2	215.0
0 1 0 0	C2-O	44.50	20.36	52.35	24.06	72.03	32.68	121.3	52.37	244.9	98.85	555.1	213.4
0 1 0 1	C2-O	50.42	20.47	59.61	24.16	83.32	32.78	142.6	52.46	291.1	98.92	664.0	213.5
0 1 1 0	C2-O	58.45	21.57	68.06	25.21	91.69	33.92	151.0	53.69	299.6	100.3	672.4	215.0
1 0 0 0	C2-O	51.28	21.47	58.99	25.11	78.85	33.82	128.2	53.60	251.8	100.3	562.1	215.0
1 0 0 1	C2-O	58.42	21.57	68.03	25.20	91.66	33.92	151.0	53.69	299.6	100.3	672.3	215.0
1 0 1 0	C2-O	66.85	22.90	76.35	26.44	100.1	35.18	159.3	54.99	308.0	101.8	680.8	216.5
A1 A2 C1 C2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0 0	B1-O	50.87	30.01	57.79	33.84	74.45	42.74	115.4	62.93	216.2	109.7	468.3	224.3
0 0 0 1	B1-O	55.94	27.38	64.33	31.39	84.67	40.60	134.8	61.15	259.2	108.1	570.2	223.0
0 0 1 0	B1-O	63.22	29.01	71.47	32.95	91.79	42.03	141.8	62.52	266.3	109.6	577.3	224.5
0 1 0 0	B1-O	58.88	30.18	67.42	34.00	88.27	42.90	139.0	63.07	265.3	109.8	580.7	224.5
0 1 0 1	B1-O	64.28	27.55	74.27	31.55	98.80	40.75	158.9	61.30	308.1	108.3	681.3	223.1
0 1 1 0	B1-O	73.00	29.17	82.94	33.10	107.2	42.18	167.3	62.66	316.5	109.7	689.8	224.6
1 0 0 0	B1-O	66.28	31.70	74.77	35.44	95.41	44.31	146.2	64.42	272.4	111.2	587.8	225.9
1 0 0 1	B1-O	72.97	29.17	82.90	33.10	107.2	42.18	167.2	62.66	316.5	109.7	689.7	224.6
1 0 1 0	B1-O	81.67	31.00	91.46	34.86	115.8	43.78	175.6	64.14	325.0	111.2	698.1	226.1
0 0 0 0	B2-O	56.45	28.47	63.19	32.06	79.56	40.53	120.2	60.20	220.7	106.9	472.6	221.6
0 0 0 1	B2-O	62.75	25.98	70.93	29.71	90.98	38.45	140.7	58.43	264.8	105.3	575.6	220.2
0 0 1 0	B2-O	69.86	27.32	77.96	31.07	98.02	39.80	147.8	59.75	271.8	106.7	582.6	221.7
0 1 0 0	B2-O	65.87	28.63	74.13	32.22	94.63	40.68	145.1	60.35	270.9	107.0	586.1	221.7
0 1 0 1	B2-O	72.47	26.13	82.18	29.87	106.3	38.60	166.0	58.58	314.8	105.5	687.7	220.3
0 1 1 0	B2-O	80.97	27.48	90.67	31.23	114.8	39.95	174.3	59.90	323.3	106.9	696.1	221.9
1 0 0 0	B2-O	73.06	29.98	81.27	33.57	101.7	42.02	152.3	61.67	278.0	108.4	593.2	223.2
1 0 0 1	B2-O	80.94	27.48	90.64	31.22	114.8	39.95	174.3	59.90	323.2	106.9	696.1	221.9
1 0 1 0	B2-O	89.45	29.01	99.15	32.71	123.2	41.44	182.7	61.38	331.7	108.4	704.6	223.4

B1 B2 C1 C2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0 0	A1-O	62.71	35.20	69.54	39.08	86.14	48.16	126.8	68.80	227.2	116.4	478.3	231.9
0 0 0 1	A1-O	68.99	30.64	77.32	34.80	97.65	44.39	147.8	65.69	272.0	114.0	582.5	230.1
0 0 1 0	A1-O	76.22	32.65	84.44	36.66	104.7	46.05	154.7	67.21	279.0	115.5	589.5	231.6
0 1 0 0	A1-O	70.56	33.85	78.96	37.75	99.68	46.92	150.3	67.62	276.5	115.3	591.9	230.7
0 1 0 1	A1-O	76.33	29.73	86.24	33.91	110.6	43.47	170.5	64.78	319.8	113.0	693.0	229.0
0 1 1 0	A1-O	84.96	31.69	94.70	35.73	119.1	45.13	179.0	66.29	328.2	114.5	701.4	230.6
1 0 0 0	A1-O	77.87	35.65	86.24	39.48	106.8	48.56	157.5	69.12	283.7	116.7	599.1	232.3
1 0 0 1	A1-O	84.96	31.69	94.70	35.73	119.1	45.13	179.0	66.29	328.2	114.5	701.4	230.6
1 0 1 0	A1-O	93.46	33.90	103.3	37.75	127.5	46.96	187.4	67.92	336.7	116.1	709.9	232.1
0 0 0 0	A2-O	68.18	32.96	74.75	36.73	91.22	45.57	131.6	65.96	231.7	113.6	482.6	229.2
0 0 0 1	A2-O	75.68	28.46	83.81	32.46	103.9	41.72	153.6	62.75	277.5	111.1	587.8	227.3
0 0 1 0	A2-O	82.75	30.17	90.88	34.13	110.9	43.33	160.6	64.28	284.5	112.6	594.8	228.9
0 1 0 0	A2-O	77.31	31.66	85.62	35.45	106.0	44.32	156.3	64.76	282.2	112.4	597.3	228.1
0 1 0 1	A2-O	84.32	27.67	93.98	31.65	118.1	40.88	177.7	61.85	326.5	110.2	699.4	226.3
0 1 1 0	A2-O	92.77	29.33	102.4	33.27	126.5	42.46	186.0	63.35	334.9	111.6	707.8	227.9
1 0 0 0	A2-O	84.56	33.35	92.79	37.10	113.1	45.90	163.4	66.27	289.3	113.9	604.4	229.6
1 0 0 1	A2-O	92.77	29.33	102.4	33.27	126.5	42.46	186.0	63.35	334.9	111.6	707.8	227.9
1 0 1 0	A2-O	101.2	31.19	110.9	35.04	134.9	44.19	194.5	65.00	343.4	113.3	716.3	229.4

Version : AOI222X2

Cell Unit = 20

State	Output Load													
A1 A2 B1 B2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 0 0 0	C1-O	30.47	17.27	35.25	20.36	46.73	27.37	74.53	42.47	143.1	75.66	314.6	153.9	
0 0 0 1	C1-O	34.18	17.38	39.89	20.47	53.79	27.47	88.38	42.57	174.3	75.75	389.6	154.0	
0 0 1 0	C1-O	42.92	18.96	48.58	21.99	62.53	28.93	97.17	44.07	183.1	77.37	398.5	155.9	
0 1 0 0	C1-O	32.80	17.37	38.31	20.45	51.87	27.45	86.08	42.55	172.0	75.72	387.0	154.0	
0 1 0 1	C1-O	36.40	17.45	42.83	20.54	58.81	27.56	100.2	42.63	203.4	75.79	461.9	154.0	
0 1 1 0	C1-O	46.28	19.03	52.81	22.05	69.45	29.02	110.6	44.12	214.0	77.41	472.6	155.9	
1 0 0 0	C1-O	41.00	18.93	46.45	21.95	60.04	28.90	94.60	44.01	180.5	77.29	395.5	155.8	
1 0 0 1	C1-O	45.96	19.01	52.48	22.03	69.13	29.01	110.3	44.09	213.6	77.36	472.2	155.8	
1 0 1 0	C1-O	56.27	21.09	62.96	23.96	79.57	30.70	121.0	45.83	224.3	79.16	482.9	157.7	
0 0 0 0	C2-O	37.20	17.89	41.76	20.57	53.06	26.75	80.58	40.81	149.0	73.08	320.3	151.4	
0 0 0 1	C2-O	42.27	18.01	47.83	20.69	61.66	26.86	96.08	40.91	181.7	73.17	396.8	151.5	
0 0 1 0	C2-O	50.99	19.28	56.56	21.94	70.40	28.03	104.7	42.31	190.5	74.88	405.7	153.4	
0 1 0 0	C2-O	40.64	17.99	45.94	20.66	59.52	26.83	93.73	40.88	179.3	73.14	394.1	151.5	
0 1 0 1	C2-O	45.59	18.09	52.12	20.76	68.41	26.93	109.3	40.96	212.2	73.21	470.5	151.5	
0 1 1 0	C2-O	55.72	19.36	62.27	22.01	78.83	28.10	119.9	42.36	222.9	74.93	481.2	153.4	
1 0 0 0	C2-O	48.79	19.24	54.26	21.90	67.97	28.00	102.2	42.25	187.8	74.81	402.7	153.3	
1 0 0 1	C2-O	55.40	19.34	61.95	21.99	78.50	28.09	119.5	42.33	222.6	74.88	480.8	153.3	
1 0 1 0	C2-O	65.82	20.92	72.49	23.55	88.91	29.46	130.1	43.93	233.1	76.65	491.5	155.4	
A1 A2 C1 C2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 0 0 0	B1-O	46.80	27.24	51.70	29.96	63.65	36.37	92.26	50.89	162.5	83.73	337.4	162.2	
0 0 0 1	B1-O	51.15	24.36	57.05	27.21	71.42	33.93	106.5	48.90	193.0	82.12	408.5	160.8	
0 0 1 0	B1-O	60.13	26.23	65.94	29.05	80.21	35.69	115.3	50.63	201.7	83.90	417.2	162.7	
0 1 0 0	B1-O	54.08	27.40	60.10	30.12	74.86	36.52	110.6	51.03	198.4	83.88	417.2	162.4	
0 1 0 1	B1-O	58.65	24.51	65.69	27.41	83.05	34.12	125.1	49.06	228.8	82.25	487.6	161.0	
0 1 1 0	B1-O	69.56	26.38	76.55	29.25	93.67	35.86	135.5	50.79	239.3	84.03	498.1	162.9	
1 0 0 0	B1-O	63.20	29.17	69.18	31.86	83.80	38.19	119.4	52.72	207.1	85.62	426.0	164.3	
1 0 0 1	B1-O	69.37	26.37	76.36	29.24	93.48	35.85	135.3	50.77	239.1	84.00	497.9	162.8	
1 0 1 0	B1-O	80.22	28.67	87.09	31.43	104.1	37.90	145.8	52.70	249.6	85.85	508.4	164.8	
0 0 0 0	B2-O	54.00	26.50	58.75	29.03	70.42	35.07	98.66	48.99	168.6	81.47	343.3	159.9	
0 0 0 1	B2-O	59.86	23.78	65.60	26.45	79.74	32.74	114.4	46.97	200.5	79.81	415.8	158.4	
0 0 1 0	B2-O	68.70	25.41	74.39	27.97	88.41	34.35	123.2	48.59	209.2	81.51	424.6	160.5	
0 1 0 0	B2-O	63.06	26.66	68.99	29.19	83.32	35.23	118.8	49.14	206.1	81.62	424.7	160.1	
0 1 0 1	B2-O	69.23	23.93	76.08	26.61	93.02	32.90	134.6	47.13	237.9	79.95	496.4	158.6	
0 1 1 0	B2-O	79.87	25.56	86.67	28.13	103.5	34.51	145.0	48.74	248.4	81.66	506.9	160.6	
1 0 0 0	B2-O	72.02	28.17	77.80	30.75	92.08	36.81	127.4	50.71	214.8	83.28	433.4	162.0	
1 0 0 1	B2-O	79.68	25.55	86.48	28.12	103.4	34.50	144.8	48.73	248.2	81.63	506.7	160.6	
1 0 1 0	B2-O	90.30	27.53	97.06	29.94	113.8	36.31	155.3	50.48	258.7	83.53	517.2	162.6	

B1 B2 C1 C2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0 0	A1-O	57.11	31.73	61.99	34.55	73.68	41.08	102.3	55.85	172.1	89.36	346.5	168.6
0 0 0 1	A1-O	62.34	27.08	68.27	30.06	82.68	37.01	117.7	52.46	204.0	86.67	419.4	166.6
0 0 1 0	A1-O	71.38	29.43	77.19	32.35	91.47	39.11	126.4	54.44	212.7	88.59	428.1	168.7
0 1 0 0	A1-O	64.09	30.48	70.04	33.32	84.48	39.89	120.0	54.73	207.7	88.26	426.6	167.5
0 1 0 1	A1-O	68.80	26.27	75.77	29.25	92.81	36.21	134.8	51.65	238.5	85.80	497.3	165.7
0 1 1 0	A1-O	79.56	28.54	86.44	31.47	103.4	38.26	145.3	53.61	249.0	87.71	507.8	167.7
1 0 0 0	A1-O	73.32	32.71	79.17	35.43	93.47	41.87	129.0	56.64	216.8	90.14	435.7	169.6
1 0 0 1	A1-O	79.71	28.55	86.59	31.48	103.5	38.27	145.5	53.63	249.2	87.74	508.0	167.7
1 0 1 0	A1-O	90.38	31.30	97.18	34.12	114.1	40.64	156.0	55.68	259.7	89.73	518.5	169.8
0 0 0 0	A2-O	63.97	30.21	68.68	32.88	80.24	39.17	108.5	53.65	178.1	86.96	352.1	166.3
0 0 0 1	A2-O	70.85	25.64	76.61	28.47	90.76	35.16	125.4	50.17	211.3	84.25	426.3	164.3
0 0 1 0	A2-O	79.70	27.70	85.38	30.41	99.45	37.10	134.0	52.03	220.0	86.11	435.1	166.3
0 1 0 0	A2-O	72.58	29.04	78.31	31.73	92.55	38.04	127.8	52.54	215.1	85.87	433.7	165.2
0 1 0 1	A2-O	78.78	24.97	85.58	27.78	102.5	34.44	144.1	49.37	247.3	83.38	505.7	163.3
0 1 1 0	A2-O	89.39	26.97	96.16	29.64	113.0	36.31	154.5	51.21	257.8	85.23	516.3	165.3
1 0 0 0	A2-O	81.54	31.00	87.27	33.67	101.6	39.97	136.7	54.37	224.2	87.73	442.7	167.2
1 0 0 1	A2-O	89.54	26.99	96.31	29.65	113.1	36.33	154.6	51.23	258.0	85.25	516.4	165.4
1 0 1 0	A2-O	100.1	29.40	106.9	31.90	123.6	38.47	165.1	53.23	268.4	87.30	526.9	167.4

Version : AOI222X3

Cell Unit = 15

State		Output Load											
A1 A2 B1 B2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0 0	C1-O	69.49	57.03	74.38	60.31	85.99	66.89	114.7	80.23	185.9	109.7	364.3	181.0
0 0 0 1	C1-O	76.27	57.12	81.19	60.40	92.76	66.98	121.4	80.32	192.7	109.7	371.1	181.1
0 0 1 0	C1-O	83.80	60.54	88.75	63.88	100.4	70.52	129.0	83.90	200.1	113.3	378.6	184.7
0 1 0 0	C1-O	74.40	57.10	79.33	60.38	90.95	66.96	119.6	80.30	190.8	109.7	369.3	181.1
0 1 0 1	C1-O	80.97	57.21	85.94	60.49	97.56	67.07	126.1	80.41	197.4	109.8	375.8	181.2
0 1 1 0	C1-O	89.71	60.60	94.74	63.94	106.3	70.58	134.9	83.97	206.1	113.4	384.6	184.8
1 0 0 0	C1-O	81.90	60.52	86.84	63.86	98.40	70.50	126.9	83.88	198.3	113.3	376.7	184.7
1 0 0 1	C1-O	89.77	60.62	94.79	63.96	106.4	70.60	134.9	83.99	206.2	113.4	384.6	184.8
1 0 1 0	C1-O	98.48	63.89	103.5	67.23	115.1	74.02	143.7	87.33	214.8	116.9	393.3	188.3
0 0 0 0	C2-O	75.53	55.89	80.44	59.17	92.03	65.75	120.6	79.11	191.9	108.5	370.4	179.9
0 0 0 1	C2-O	83.54	55.99	88.51	59.27	100.1	65.85	128.7	79.21	199.8	108.6	378.4	180.0
0 0 1 0	C2-O	90.92	59.09	95.90	62.40	107.5	69.02	136.1	82.41	207.2	111.9	385.7	183.2
0 1 0 0	C2-O	81.56	55.97	86.50	59.25	98.09	65.83	126.7	79.18	197.9	108.6	376.4	180.0
0 1 0 1	C2-O	89.39	56.05	94.42	59.33	106.0	65.91	134.5	79.26	205.8	108.7	384.3	180.1
0 1 1 0	C2-O	97.96	59.15	103.0	62.45	114.6	69.08	143.1	82.47	214.4	111.9	392.8	183.3
1 0 0 0	C2-O	88.85	59.09	93.84	62.39	105.4	69.02	134.0	82.41	205.2	111.9	383.7	183.2
1 0 0 1	C2-O	98.02	59.17	103.1	62.47	114.7	69.10	143.1	82.49	214.4	112.0	392.9	183.3
1 0 1 0	C2-O	106.6	62.18	111.7	65.54	123.3	72.21	151.8	85.67	223.0	115.1	401.5	186.5
A1 A2 C1 C2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0 0	B1-O	87.93	68.49	92.86	71.81	104.5	78.45	133.1	91.86	204.3	121.4	382.8	192.7
0 0 0 1	B1-O	95.12	65.85	100.0	69.22	111.6	75.88	140.3	89.29	211.5	118.8	390.0	190.1
0 0 1 0	B1-O	103.2	69.46	108.2	72.79	119.8	79.49	148.3	92.98	219.5	122.5	398.0	193.8
0 1 0 0	B1-O	99.10	68.63	104.1	71.95	115.7	78.59	144.3	92.00	215.5	121.5	394.0	192.8
0 1 0 1	B1-O	106.4	66.03	111.4	69.38	123.0	76.05	151.5	89.47	222.8	118.9	401.2	190.3
0 1 1 0	B1-O	116.0	69.63	121.0	72.96	132.6	79.66	161.1	93.15	232.4	122.7	410.8	194.0
1 0 0 0	B1-O	106.9	71.94	111.9	75.29	123.5	81.98	152.1	95.42	223.3	124.8	401.7	196.3
1 0 0 1	B1-O	115.6	69.48	120.6	72.81	132.2	79.51	160.7	92.99	232.0	122.5	410.4	193.9
1 0 1 0	B1-O	125.0	72.90	130.1	76.30	141.7	83.03	170.2	96.59	241.4	126.1	419.9	197.4
0 0 0 0	B2-O	93.79	66.33	98.74	69.65	110.3	76.35	138.9	89.69	210.2	119.1	388.6	190.6
0 0 0 1	B2-O	102.3	63.86	107.2	67.19	118.8	73.84	147.5	87.27	218.6	116.7	397.1	188.1
0 0 1 0	B2-O	110.2	67.24	115.2	70.59	126.8	77.29	155.4	90.75	226.5	120.3	405.0	191.6
0 1 0 0	B2-O	106.3	66.47	111.3	69.79	122.9	76.49	151.5	89.84	222.7	119.3	401.1	190.7
0 1 0 1	B2-O	114.9	64.01	119.9	67.33	131.5	73.99	160.1	87.41	231.2	116.9	409.7	188.2
0 1 1 0	B2-O	124.2	67.38	129.3	70.73	140.8	77.43	169.4	90.89	240.5	120.3	419.0	191.7
1 0 0 0	B2-O	113.9	69.62	118.9	72.97	130.5	79.72	159.1	93.10	230.3	122.6	408.7	194.0
1 0 0 1	B2-O	123.8	67.24	128.9	70.59	140.5	77.29	169.0	90.74	240.1	120.2	418.6	191.6
1 0 1 0	B2-O	133.1	70.52	138.2	73.90	149.8	80.64	178.3	94.15	249.4	123.7	427.9	195.0

B1 B2 C1 C2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0 0	A1-O	99.01	74.94	103.9	78.35	115.5	85.07	144.2	98.59	215.4	128.1	393.9	199.5
0 0 0 1	A1-O	107.2	70.62	112.2	74.02	123.7	80.87	152.3	94.30	223.6	123.9	402.1	195.3
0 0 1 0	A1-O	115.3	74.41	120.3	77.82	131.8	84.61	160.4	98.21	231.7	127.8	410.1	199.1
0 1 0 0	A1-O	109.5	73.50	114.5	76.91	126.1	83.62	154.7	97.12	226.0	126.6	404.4	198.0
0 1 0 1	A1-O	117.1	69.56	122.1	72.96	133.7	79.76	162.2	93.22	233.5	122.8	412.0	194.2
0 1 1 0	A1-O	126.6	73.34	131.7	76.76	143.2	83.53	171.8	97.14	243.0	126.7	421.5	198.0
1 0 0 0	A1-O	117.2	76.92	122.3	80.31	133.8	87.09	162.4	100.6	233.6	130.1	412.1	201.5
1 0 0 1	A1-O	126.2	73.16	131.2	76.57	142.8	83.34	171.3	96.94	242.5	126.5	421.0	197.9
1 0 1 0	A1-O	135.6	76.76	140.7	80.23	152.2	87.03	180.8	100.7	251.9	130.2	430.4	201.6
0 0 0 0	A2-O	104.9	72.43	109.8	75.80	121.4	82.61	150.0	96.04	221.3	125.6	399.7	197.0
0 0 0 1	A2-O	114.4	68.19	119.4	71.58	131.0	78.34	159.6	91.89	230.7	121.5	409.2	192.8
0 0 1 0	A2-O	122.3	71.80	127.3	75.20	138.9	82.01	167.4	95.59	238.6	125.2	417.1	196.5
0 1 0 0	A2-O	116.7	71.03	121.7	74.40	133.3	81.18	161.9	94.62	233.2	124.1	411.6	195.5
0 1 0 1	A2-O	125.6	67.21	130.6	70.58	142.2	77.33	170.7	90.87	242.0	120.4	420.4	191.8
0 1 1 0	A2-O	134.9	70.79	140.0	74.19	151.6	80.98	180.0	94.55	251.3	124.2	429.7	195.4
1 0 0 0	A2-O	124.3	74.33	129.3	77.73	140.9	84.55	169.4	98.03	240.7	127.6	419.1	199.0
1 0 0 1	A2-O	134.4	70.61	139.5	74.01	151.1	80.80	179.6	94.37	250.8	124.0	429.3	195.3
1 0 1 0	A2-O	143.7	74.09	148.8	77.51	160.4	84.33	188.8	97.94	260.1	127.5	438.5	198.9

Group Name : AOI23

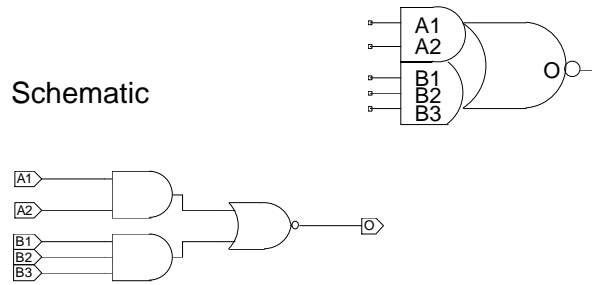
Symbol

Function : AN2, AN3 into NR2

Truth Table

A1	A2	B1	B2	B3	O
1	1	X	X	X	0
X	X	1	1	1	0
OTHERS					1

Schematic



Pin Order O A1 A2 B1 B2 B3

**Input Capacitance (ff) & Maximum Loading (ff) & Power Consumption (nW/MHz)**

Version	Input Capacitance					Maximum Loading	Power Consumption
	A1	A2	B1	B2	B3	O	O
AOI23XLP	1.387	1.548	1.534	1.589	1.603	73.17	2.272
AOI23X1	1.787	2.033	2.009	2.078	2.150	105.7	3.099
AOI23X1P	2.545	3.223	2.827	3.337	3.569	146.5	4.442
AOI23X2	3.287	3.887	3.626	3.832	4.063	210.2	6.299
AOI23X3	1.392	1.571	1.535	1.589	1.603	295.7	7.577



## AC Characteristics ( Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ps)

Version : AOI23XLP

Cell Unit = 8

State		Output Load											
A1 A2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0	B1-O	45.55	32.39	56.23	40.05	81.61	57.88	142.9	98.96	295.4	198.5	677.2	447.6
0 1	B1-O	51.00	29.23	64.53	37.35	97.31	55.70	177.5	97.09	377.4	196.9	878.1	446.2
1 0	B1-O	58.80	31.86	72.21	39.73	104.8	57.86	185.0	99.20	384.9	199.2	885.6	448.4
0 0	B2-O	51.22	33.04	61.63	40.52	86.63	58.23	147.7	98.97	300.1	198.7	681.8	448.0
0 1	B2-O	58.23	29.98	71.52	37.82	103.9	55.90	183.9	97.13	383.6	197.1	884.1	446.5
1 0	B2-O	65.86	32.32	79.06	40.05	111.4	58.03	191.3	99.36	391.1	199.4	891.6	448.8
0 0	B3-O	56.07	32.04	66.44	39.37	91.33	56.44	152.4	97.23	304.8	196.9	686.5	446.0
0 1	B3-O	64.63	29.04	77.91	36.66	110.2	54.15	190.2	95.38	389.8	195.2	890.3	444.5
1 0	B3-O	72.29	31.23	85.45	38.80	117.7	56.34	197.6	97.45	397.3	197.5	897.8	446.8
B1 B2 B3	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0	A1-O	30.62	16.68	40.33	23.47	62.73	37.45	116.5	67.76	250.1	137.8	585.4	312.1
0 0 1	A1-O	32.41	16.73	43.01	23.51	67.76	37.50	127.7	67.82	277.4	137.8	652.8	312.1
0 1 0	A1-O	32.41	16.73	43.01	23.51	67.76	37.50	127.7	67.82	277.4	137.8	652.8	312.1
0 1 1	A1-O	37.34	16.84	50.70	23.62	82.97	37.62	162.7	67.92	362.4	137.9	863.1	312.2
1 0 0	A1-O	38.34	18.36	48.65	25.00	73.17	39.01	133.1	69.25	282.9	139.5	658.3	313.8
1 0 1	A1-O	44.85	18.38	58.02	25.03	90.25	39.01	170.0	69.19	369.7	139.3	870.4	313.7
1 1 0	A1-O	51.66	18.58	64.93	25.22	97.26	39.16	177.3	69.63	377.1	140.3	877.9	315.1
0 0 0	A2-O	35.80	16.69	45.12	22.54	67.11	35.47	120.6	64.73	254.0	134.7	589.2	309.0
0 0 1	A2-O	38.07	16.74	48.28	22.59	72.60	35.52	132.3	64.77	281.8	134.7	657.1	309.1
0 1 0	A2-O	38.07	16.74	48.28	22.59	72.60	35.52	132.3	64.77	281.8	134.7	657.1	309.1
0 1 1	A2-O	44.47	16.87	57.47	22.71	89.49	35.63	168.9	64.88	368.3	134.8	868.7	309.2
1 0 0	A2-O	43.79	18.00	53.78	23.82	78.06	36.83	137.8	66.18	287.3	136.3	662.6	310.8
1 0 1	A2-O	51.81	18.06	64.76	23.89	96.71	36.84	176.2	66.13	375.6	136.2	876.0	310.7
1 1 0	A2-O	58.63	18.14	71.65	24.08	103.7	37.07	183.4	66.55	383.0	137.2	883.5	312.1

Version : AOI23X1

Cell Unit = 8

State		Output Load											
A1 A2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0	B1-O	41.36	30.94	49.00	36.63	67.03	49.88	109.9	80.23	215.8	152.3	480.5	331.9
0 1	B1-O	46.05	27.72	55.62	33.82	78.57	47.44	134.6	78.28	273.1	150.7	619.9	330.4
1 0	B1-O	53.79	30.29	63.16	36.10	85.97	49.68	141.8	80.33	280.5	152.9	627.3	332.7
0 0	B2-O	47.13	31.86	54.49	37.40	72.18	50.53	114.8	80.69	220.5	152.8	485.1	332.6
0 1	B2-O	53.31	28.77	62.62	34.56	85.27	48.06	140.9	78.68	279.3	151.1	625.9	331.0
1 0	B2-O	60.87	31.03	70.07	36.70	92.61	50.17	148.2	80.74	286.7	153.4	633.3	333.3
0 0	B3-O	51.92	31.02	59.24	36.41	76.89	48.97	119.5	78.84	225.2	151.0	489.7	330.7
0 1	B3-O	59.60	27.98	68.88	33.60	91.51	46.59	147.1	76.87	285.5	149.2	632.1	329.1
1 0	B3-O	67.17	30.06	76.36	35.67	98.89	48.69	154.5	78.96	292.9	151.6	639.4	331.4
B1 B2 B3	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0	A1-O	27.39	15.39	34.44	20.47	50.50	31.33	88.13	54.15	180.6	105.4	412.5	230.9
0 0 1	A1-O	28.98	15.43	36.63	20.52	54.22	31.37	96.15	54.20	199.7	105.5	459.5	231.0
0 1 0	A1-O	28.98	15.43	36.63	20.52	54.22	31.37	96.15	54.20	199.7	105.5	459.5	231.0
0 1 1	A1-O	33.30	15.54	42.74	20.64	65.47	31.48	120.9	54.31	259.2	105.6	605.8	231.1
1 0 0	A1-O	35.00	17.04	42.33	21.98	59.72	32.80	101.4	55.72	205.1	107.1	464.9	232.8
1 0 1	A1-O	40.81	17.06	50.11	22.03	72.62	32.83	128.0	55.70	266.4	107.1	613.0	232.7
1 1 0	A1-O	47.58	17.22	56.89	22.23	79.56	32.94	135.2	55.93	273.7	107.7	620.4	233.9
0 0 0	A2-O	32.68	15.77	39.33	20.17	54.92	29.91	92.28	51.62	184.5	102.5	416.4	228.2
0 0 1	A2-O	34.73	15.82	41.98	20.22	59.21	29.97	100.8	51.67	204.1	102.5	463.7	228.2
0 1 0	A2-O	34.73	15.82	41.97	20.22	59.21	29.97	100.8	51.67	204.1	102.5	463.7	228.2
0 1 1	A2-O	40.48	15.96	49.68	20.36	71.99	30.09	127.1	51.79	265.1	102.6	611.4	228.3
1 0 0	A2-O	40.47	17.04	47.55	21.42	64.60	31.18	106.0	53.06	209.5	104.2	469.2	230.0
1 0 1	A2-O	47.81	17.12	56.84	21.50	79.11	31.21	134.2	53.06	272.2	104.1	618.7	229.9
1 1 0	A2-O	54.51	17.20	63.64	21.66	86.02	31.28	141.4	53.29	279.6	104.8	626.1	231.1

Version : AOI23X1P

Cell Unit = 14

State		Output Load											
A1 A2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0	B1-O	41.86	29.74	47.42	33.82	60.67	43.30	91.99	65.06	168.7	115.9	359.9	240.7
0 1	B1-O	46.40	26.45	53.36	30.81	70.23	40.68	110.9	62.95	211.4	114.1	462.1	239.2
1 0	B1-O	54.01	29.10	60.82	33.28	77.53	42.97	118.1	65.12	218.5	116.2	469.2	241.3
0 0	B2-O	47.58	30.44	52.93	34.36	65.87	43.59	96.85	65.26	173.4	115.9	364.5	240.8
0 1	B2-O	53.66	27.25	60.40	31.44	76.98	41.03	117.3	63.18	217.5	114.2	468.0	239.3
1 0	B2-O	61.06	29.56	67.71	33.68	84.20	43.16	124.5	65.24	224.7	116.4	475.2	241.5
0 0	B3-O	52.24	29.32	57.53	33.13	70.41	42.16	101.3	63.31	177.9	113.9	368.9	238.8
0 1	B3-O	59.76	26.24	66.48	30.20	83.03	39.59	123.3	61.15	223.4	112.1	473.9	237.2
1 0	B3-O	67.15	28.49	73.81	32.33	90.22	41.65	130.5	63.20	230.6	114.2	481.1	239.3
B1 B2 B3	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0	A1-O	27.27	14.30	32.44	18.00	44.38	26.12	71.95	43.02	139.1	79.88	306.8	167.2
0 0 1	A1-O	28.80	14.34	34.40	18.04	47.46	26.16	78.10	43.06	153.1	79.93	340.9	167.3
0 1 0	A1-O	28.80	14.34	34.40	18.04	47.46	26.16	78.10	43.06	153.1	79.93	340.9	167.3
0 1 1	A1-O	32.90	14.45	39.80	18.16	56.30	26.27	96.65	43.18	196.6	80.03	447.1	167.3
1 0 0	A1-O	34.80	16.05	40.14	19.63	52.86	27.64	83.42	44.52	158.4	81.42	346.3	169.0
1 0 1	A1-O	40.37	16.07	47.14	19.66	63.54	27.65	103.7	44.51	203.8	81.36	454.3	168.9
1 1 0	A1-O	46.93	16.24	53.64	19.84	70.13	27.78	110.5	44.78	210.7	81.86	461.4	170.0
0 0 0	A2-O	32.46	14.53	37.33	17.69	48.83	24.78	76.08	40.58	143.0	76.59	310.5	164.0
0 0 1	A2-O	34.43	14.58	39.72	17.74	52.35	24.83	82.67	40.63	157.4	76.64	345.0	164.0
0 1 0	A2-O	34.43	14.58	39.72	17.74	52.34	24.83	82.67	40.63	157.4	76.64	345.0	164.0
0 1 1	A2-O	39.92	14.71	46.59	17.87	62.84	24.95	102.7	40.73	202.4	76.74	452.6	164.1
1 0 0	A2-O	40.15	15.80	45.30	19.00	57.75	26.03	88.01	41.91	162.8	78.15	350.4	165.8
1 0 1	A2-O	47.20	15.86	53.74	19.06	69.93	26.09	109.8	41.92	209.5	78.11	459.8	165.7
1 1 0	A2-O	53.66	15.90	60.27	19.18	76.49	26.28	116.6	42.24	216.5	78.61	466.9	166.8

Version : AOI23X2

Cell Unit = 17

State		Output Load											
A1 A2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0	B1-O	38.46	28.54	42.45	31.59	51.93	38.60	74.27	54.91	127.8	92.22	260.4	182.4
0 1	B1-O	42.40	25.16	47.34	28.39	59.19	35.84	87.91	52.55	157.7	90.37	331.4	180.8
1 0	B1-O	51.46	27.96	56.24	31.10	67.94	38.37	96.46	55.01	166.3	92.83	340.1	183.5
0 0	B2-O	45.38	30.41	49.14	33.30	58.30	40.22	80.30	56.22	133.5	93.39	266.0	183.7
0 1	B2-O	51.09	27.18	55.82	30.23	67.40	37.40	95.78	53.90	165.3	91.42	338.9	182.1
1 0	B2-O	59.91	29.68	64.56	32.59	76.06	39.87	104.3	56.28	173.9	93.97	347.5	184.8
0 0	B3-O	50.78	30.23	54.54	33.02	63.64	39.62	85.63	55.24	139.0	92.22	271.5	182.4
0 1	B3-O	58.20	27.06	62.93	29.97	74.57	36.93	103.0	52.92	172.6	90.32	346.1	180.7
1 0	B3-O	67.09	29.35	71.75	32.20	83.28	39.28	111.5	55.24	181.1	92.76	354.8	183.5
B1 B2 B3	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0	A1-O	24.53	13.23	28.29	16.02	36.97	22.22	56.70	35.21	103.4	63.01	219.5	126.4
0 0 1	A1-O	25.89	13.26	29.94	16.06	39.36	22.26	61.15	35.26	113.4	63.06	243.3	126.5
0 1 0	A1-O	25.89	13.26	29.94	16.06	39.36	22.26	61.15	35.26	113.4	63.06	243.3	126.5
0 1 1	A1-O	29.53	13.37	34.47	16.18	46.26	22.38	74.40	35.38	143.8	63.17	317.3	126.6
1 0 0	A1-O	33.08	15.07	36.88	17.76	45.97	23.81	67.46	36.80	119.7	64.71	249.6	128.5
1 0 1	A1-O	38.46	15.06	43.19	17.75	54.71	23.84	82.88	36.82	152.3	64.66	325.8	128.4
1 1 0	A1-O	46.03	15.19	50.79	17.94	62.44	24.06	90.78	36.95	160.4	64.98	334.2	129.1
0 0 0	A2-O	30.86	14.51	34.33	16.88	42.53	22.24	61.86	34.09	108.3	60.66	224.3	124.0
0 0 1	A2-O	32.76	14.56	36.53	16.93	45.52	22.29	66.86	34.15	118.9	60.71	248.6	124.1
0 1 0	A2-O	32.76	14.56	36.53	16.93	45.52	22.29	66.85	34.15	118.9	60.71	248.6	124.1
0 1 1	A2-O	38.06	14.69	42.73	17.06	54.17	22.42	82.07	34.27	151.1	60.82	324.3	124.2
1 0 0	A2-O	39.56	15.87	43.18	18.23	51.95	23.56	73.13	35.51	125.1	62.34	254.9	126.0
1 0 1	A2-O	46.69	15.93	51.29	18.29	62.63	23.61	90.49	35.55	159.5	62.29	332.8	125.9
1 1 0	A2-O	54.26	16.01	58.89	18.41	70.31	23.80	98.36	35.74	167.8	62.53	341.3	126.6

Version : AOI23X3

Cell Unit = 13

State		Output Load											
A1 A2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0	B1-O	75.43	70.54	79.15	73.22	87.70	78.53	108.5	88.81	160.2	110.3	289.3	160.3
0 1	B1-O	82.44	67.50	86.16	70.15	94.74	75.49	115.5	85.79	167.2	107.3	296.3	157.4
1 0	B1-O	90.78	72.20	94.52	74.92	103.1	80.29	123.9	90.66	175.5	112.2	304.6	162.3
0 0	B2-O	81.49	71.21	85.21	73.85	93.75	79.15	114.6	89.50	166.3	111.0	295.3	161.1
0 1	B2-O	90.21	68.31	93.95	70.98	102.5	76.30	123.3	86.63	174.9	108.1	304.0	158.2
1 0	B2-O	98.33	72.77	102.1	75.43	110.7	80.80	131.4	91.26	183.1	112.8	312.1	163.0
0 0	B3-O	86.82	70.12	90.56	72.76	99.11	78.07	119.9	88.41	171.6	109.8	300.6	159.9
0 1	B3-O	97.17	67.27	100.9	69.94	109.5	75.26	130.3	85.56	181.9	107.1	311.0	157.1
1 0	B3-O	105.2	71.65	109.0	74.36	117.6	79.76	138.3	90.10	189.9	111.7	319.0	161.7
B1 B2 B3	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0	A1-O	59.19	49.46	62.86	51.99	71.42	57.11	92.30	67.27	144.0	88.54	273.0	138.6
0 0 1	A1-O	61.71	49.50	65.39	52.03	73.98	57.15	94.81	67.31	146.4	88.58	275.5	138.7
0 1 0	A1-O	61.71	49.50	65.38	52.03	73.97	57.15	94.81	67.31	146.4	88.58	275.5	138.7
0 1 1	A1-O	68.79	49.60	72.49	52.13	81.06	57.25	101.8	67.40	153.5	88.68	282.6	138.8
1 0 0	A1-O	68.09	53.33	71.78	55.89	80.32	61.05	101.1	71.23	152.8	92.57	281.9	142.7
1 0 1	A1-O	76.83	53.24	80.57	55.78	89.13	60.96	109.9	71.10	161.5	92.40	290.7	142.5
1 1 0	A1-O	84.26	55.79	88.02	58.39	96.58	63.64	117.3	73.87	169.0	95.25	298.1	145.4
0 0 0	A2-O	64.75	48.95	68.42	51.48	77.00	56.62	97.80	66.69	149.4	87.96	278.5	138.0
0 0 1	A2-O	67.81	49.00	71.50	51.53	80.05	56.67	100.9	66.74	152.5	88.01	281.6	138.0
0 1 0	A2-O	67.81	49.00	71.49	51.53	80.04	56.67	100.8	66.74	152.5	88.01	281.6	138.0
0 1 1	A2-O	76.47	49.10	80.23	51.64	88.79	56.78	109.6	66.86	161.2	88.13	290.3	138.2
1 0 0	A2-O	73.97	52.39	77.67	54.93	86.17	60.10	106.9	70.26	158.6	91.58	287.8	141.6
1 0 1	A2-O	84.28	52.31	88.04	54.90	96.62	60.09	117.4	70.15	169.0	91.48	298.1	141.5
1 1 0	A2-O	91.63	54.71	95.43	57.31	104.0	62.54	124.7	72.79	176.4	94.21	305.4	144.3

Group Name : AOI33

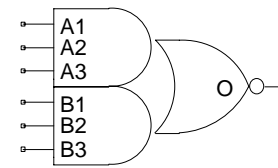
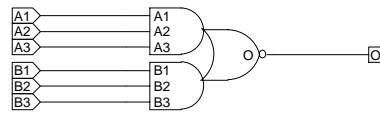
Symbol

Function : 2 AN3 into NR2

Truth Table

A1	A2	A3	B1	B2	B3	O
1	1	1	X	X	X	0
X	X	X	1	1	1	0
OTHERS						1

Schematic



Pin Order O A1 A2 A3 B1 B2 B3

Input Capacitance (ff) &amp; Maximum Loading (ff) &amp; Power Consumption (nW/MHz)

Version	Input Capacitance						Maximum Loading	Power Consumption
	A1	A2	A3	B1	B2	B3	O	O
AOI33XLP	1.529	1.584	1.610	1.407	1.482	1.531	71.62	2.989
AOI33X1	2.004	2.073	2.161	1.807	1.904	2.006	103.6	4.073
AOI33X1P	2.830	3.340	3.550	2.574	3.100	3.251	143.8	5.776
AOI33X2	3.631	3.857	4.153	3.355	3.491	3.871	205.9	8.510
AOI33X3	1.530	1.584	1.610	1.410	1.484	1.559	295.7	8.401

## AC Characteristics ( Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ps)

Version : AOI33XLP

Cell Unit = 9

State			Output Load											
A1 A2 A3	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 0 0	B1-O	34.02	24.33	43.55	32.29	65.80	50.11	119.5	91.05	253.1	190.2	588.4	439.1	
0 0 1	B1-O	36.07	24.40	46.50	32.36	71.10	50.18	131.0	91.11	280.8	190.3	656.2	439.2	
0 1 0	B1-O	36.07	24.40	46.50	32.36	71.10	50.18	131.0	91.11	280.8	190.3	656.1	439.2	
0 1 1	B1-O	41.74	24.55	54.89	32.52	87.23	50.32	167.1	91.25	366.7	190.4	867.3	439.3	
1 0 0	B1-O	41.88	26.53	52.03	34.46	76.57	52.35	136.5	93.32	286.2	192.7	661.6	441.6	
1 0 1	B1-O	49.15	26.53	62.28	34.45	94.49	52.31	174.3	93.23	374.0	192.5	874.6	441.4	
1 1 0	B1-O	56.05	26.68	69.20	34.67	101.5	52.68	181.5	94.15	381.4	194.3	882.1	443.5	
0 0 0	B2-O	39.03	25.71	48.26	33.24	70.21	50.61	123.7	91.34	257.3	190.6	592.5	439.5	
0 0 1	B2-O	41.56	25.78	51.69	33.31	76.08	50.68	135.9	91.41	285.5	190.7	660.8	439.6	
0 1 0	B2-O	41.56	25.78	51.68	33.31	76.08	50.68	135.9	91.41	285.5	190.7	660.8	439.6	
0 1 1	B2-O	48.79	25.95	61.82	33.47	93.88	50.83	173.5	91.54	372.9	190.8	873.4	439.7	
1 0 0	B2-O	47.27	27.62	57.25	35.18	81.53	52.66	141.4	93.55	290.9	193.0	666.2	442.0	
1 0 1	B2-O	56.08	27.66	69.07	35.21	101.1	52.63	180.7	93.45	380.3	192.9	880.8	441.9	
1 1 0	B2-O	63.04	27.77	76.04	35.46	108.1	53.17	188.0	94.34	387.7	194.7	888.3	444.0	
0 0 0	B3-O	43.29	25.24	52.39	32.24	74.33	48.99	127.8	89.23	261.5	188.5	596.7	437.5	
0 0 1	B3-O	46.31	25.30	56.36	32.31	80.72	49.06	140.6	89.30	290.1	188.5	665.4	437.6	
0 1 0	B3-O	46.30	25.30	56.35	32.31	80.72	49.06	140.6	89.30	290.1	188.5	665.4	437.6	
0 1 1	B3-O	55.00	25.45	68.05	32.46	100.1	49.20	179.7	89.44	379.2	188.7	879.7	437.7	
1 0 0	B3-O	51.94	27.00	61.89	34.09	86.17	51.08	146.0	91.55	295.6	191.1	670.9	440.0	
1 0 1	B3-O	62.40	27.04	75.31	34.11	107.3	51.05	187.0	91.49	386.5	190.9	887.0	439.9	
1 1 0	B3-O	69.38	27.28	82.38	34.25	114.5	51.38	194.4	92.39	394.0	192.7	894.5	442.0	
B1 B2 B3	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 0 0	A1-O	48.39	38.12	58.06	45.55	80.96	62.87	136.4	103.7	274.2	203.2	619.2	452.2	
0 0 1	A1-O	50.13	36.07	60.69	43.62	85.88	61.20	147.1	102.2	299.6	201.8	681.4	450.9	
0 1 0	A1-O	50.12	36.07	60.69	43.62	85.87	61.20	147.1	102.2	299.6	201.8	681.4	451.0	
0 1 1	A1-O	56.76	32.93	70.21	40.73	102.8	58.80	183.0	100.2	382.9	200.1	883.6	449.4	
1 0 0	A1-O	56.19	38.74	66.56	46.22	91.55	63.70	152.8	104.6	305.3	204.3	687.1	453.5	
1 0 1	A1-O	64.51	35.42	77.83	43.16	110.2	61.09	190.4	102.3	390.4	202.4	891.0	451.7	
1 1 0	A1-O	71.55	35.74	84.87	43.55	117.5	61.70	197.8	103.4	397.9	204.2	898.6	453.8	
0 0 0	A2-O	53.46	38.63	62.90	45.88	85.49	63.16	140.8	103.8	278.4	203.4	623.3	452.6	
0 0 1	A2-O	55.68	36.60	66.01	43.98	90.92	61.50	152.0	102.3	304.3	202.0	686.0	451.3	
0 1 0	A2-O	55.68	36.60	66.01	43.98	90.91	61.51	152.0	102.3	304.3	202.0	686.0	451.3	
0 1 1	A2-O	63.90	33.49	77.13	41.12	109.4	59.13	189.3	100.3	389.0	200.3	889.6	449.8	
1 0 0	A2-O	61.62	39.06	71.81	46.35	96.57	63.87	157.6	104.7	310.0	204.6	691.7	453.8	
1 0 1	A2-O	71.53	35.83	84.63	43.36	116.9	61.28	196.8	102.5	396.5	202.6	897.1	452.0	
1 1 0	A2-O	78.54	36.17	91.70	43.68	124.1	61.93	204.2	103.6	404.0	204.5	904.6	454.2	
0 0 0	A3-O	57.85	37.51	67.21	44.52	89.72	61.38	145.0	101.9	282.6	201.5	627.5	450.6	

0 0 1	A3-O	60.55 35.52	70.82 42.70	95.63 59.73	156.6 100.4	309.0 200.1	690.7 449.3
0 1 0	A3-O	60.55 35.52	70.81 42.70	95.62 59.73	156.6 100.4	309.0 200.1	690.7 449.3
0 1 1	A3-O	70.34 32.38	83.50 39.91	115.7 57.32	195.6 98.52	395.3 198.5	895.8 447.8
1 0 0	A3-O	66.45 37.88	76.58 45.04	101.3 62.06	162.3 102.8	314.7 202.6	696.4 451.9
1 0 1	A3-O	77.93 34.61	91.01 42.08	123.2 59.50	203.1 100.6	402.8 200.7	903.3 450.1
1 1 0	A3-O	84.98 34.82	98.13 42.59	130.4 60.12	210.5 101.7	410.2 202.6	910.8 452.2



Version : AOI33X1

Cell Unit = 9

State			Output Load											
A1 A2 A3	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 0 0	B1-O	30.52	22.64	37.40	28.57	53.24	41.96	90.87	72.35	183.3	144.2	415.3	323.5	
0 0 1	B1-O	32.33	22.70	39.83	28.64	57.32	42.03	99.11	72.42	202.8	144.3	462.5	323.6	
0 1 0	B1-O	32.33	22.70	39.82	28.64	57.32	42.03	99.11	72.42	202.7	144.3	462.5	323.6	
0 1 1	B1-O	37.29	22.86	46.61	28.81	69.24	42.18	124.7	72.57	263.0	144.4	609.6	323.7	
1 0 0	B1-O	38.26	24.70	45.48	30.65	62.75	44.11	104.5	74.53	208.1	146.6	467.9	326.0	
1 0 1	B1-O	44.75	24.73	53.92	30.70	76.46	44.13	131.8	74.46	270.2	146.5	616.9	325.9	
1 1 0	B1-O	51.49	24.97	60.77	30.89	83.38	44.30	139.0	75.01	277.5	147.8	624.2	327.9	
0 0 0	B2-O	35.64	24.34	42.20	29.92	57.78	42.77	95.12	72.83	187.5	144.7	419.4	324.1	
0 0 1	B2-O	37.93	24.41	45.12	29.99	62.31	42.91	103.9	72.91	207.4	144.8	467.1	324.2	
0 1 0	B2-O	37.92	24.41	45.11	29.99	62.31	42.91	103.9	72.91	207.4	144.8	467.1	324.2	
0 1 1	B2-O	44.34	24.59	53.48	30.16	75.82	43.07	131.0	73.06	269.2	144.9	615.7	324.3	
1 0 0	B2-O	43.64	26.14	50.66	31.76	67.71	44.80	109.3	75.00	212.8	147.2	472.5	326.7	
1 0 1	B2-O	51.67	26.19	60.74	31.81	83.07	44.82	138.3	74.97	276.5	147.0	623.0	326.6	
1 1 0	B2-O	58.46	26.25	67.56	31.97	90.02	45.24	145.5	75.58	283.8	148.4	630.4	328.6	
0 0 0	B3-O	39.84	24.07	46.32	29.18	61.81	41.58	99.12	71.05	191.6	142.7	423.5	322.2	
0 0 1	B3-O	42.60	24.13	49.70	29.25	66.84	41.66	108.5	71.12	212.0	142.8	471.7	322.2	
0 1 0	B3-O	42.60	24.13	49.70	29.25	66.83	41.66	108.4	71.12	212.0	142.8	471.7	322.2	
0 1 1	B3-O	50.52	24.29	59.64	29.41	82.04	41.81	137.3	71.27	275.4	143.0	621.9	322.4	
1 0 0	B3-O	48.24	25.74	55.22	30.87	72.21	43.44	113.9	73.20	217.5	145.3	477.1	324.7	
1 0 1	B3-O	57.83	25.80	66.90	30.91	89.24	43.50	144.5	73.11	282.7	145.1	629.1	324.6	
1 1 0	B3-O	64.71	26.00	73.78	31.05	96.25	43.91	151.7	73.72	290.0	146.4	636.6	326.7	
B1 B2 B3	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 0 0	A1-O	44.23	36.65	51.10	42.08	67.45	55.00	106.2	84.92	202.0	156.9	441.2	336.5	
0 0 1	A1-O	45.66	34.55	53.10	40.07	71.02	53.21	113.8	83.36	219.7	155.5	484.3	335.1	
0 1 0	A1-O	45.66	34.55	53.10	40.07	71.01	53.21	113.8	83.36	219.7	155.5	484.3	335.1	
0 1 1	A1-O	51.32	31.32	60.71	37.13	83.69	50.58	139.5	81.28	278.1	153.7	624.8	333.5	
1 0 0	A1-O	51.73	37.12	59.04	42.57	76.74	55.60	119.4	85.71	225.3	158.0	490.0	337.7	
1 0 1	A1-O	59.00	33.79	68.29	39.50	91.11	52.84	146.8	83.37	285.5	156.0	632.2	335.8	
1 1 0	A1-O	65.87	34.07	75.25	39.78	98.09	53.20	154.1	84.11	292.8	157.4	639.7	338.0	
0 0 0	A2-O	49.36	37.46	56.04	42.79	72.10	55.64	110.6	85.37	206.2	157.4	445.3	337.1	
0 0 1	A2-O	51.29	35.36	58.53	40.81	76.13	53.82	118.7	83.83	224.4	156.0	488.9	335.8	
0 1 0	A2-O	51.29	35.36	58.53	40.81	76.13	53.82	118.6	83.83	224.4	156.0	488.9	335.8	
0 1 1	A2-O	58.48	32.17	67.67	37.82	90.36	51.22	145.9	81.73	284.3	154.2	630.8	334.2	
1 0 0	A2-O	57.17	37.67	64.29	43.21	81.79	56.12	124.3	86.15	230.0	158.6	494.5	338.3	
1 0 1	A2-O	66.00	34.45	75.15	39.98	97.72	53.36	153.3	83.81	291.6	156.5	638.2	336.5	
1 1 0	A2-O	72.88	34.69	82.08	40.38	104.7	53.89	160.4	84.55	299.0	157.9	645.7	338.6	
0 0 0	A3-O	53.72	36.43	60.29	41.56	76.31	53.90	114.8	83.46	210.4	155.6	449.5	335.2	
0 0 1	A3-O	56.05	34.40	63.26	39.66	80.82	52.15	123.3	81.93	229.0	154.1	493.6	333.9	

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0 1 0	A3-O	56.05 34.40	63.26 39.66	80.82 52.15	123.3 81.93	229.0 154.1	493.6 333.9
0 1 1	A3-O	64.77 31.21	73.98 36.76	96.61 49.61	152.1 79.87	290.5 152.4	637.0 332.3
1 0 0	A3-O	61.92 36.70	69.04 41.93	86.47 54.43	129.0 84.31	234.7 156.7	499.2 336.4
1 0 1	A3-O	72.32 33.35	81.45 38.89	104.0 51.76	159.5 82.02	297.8 154.7	644.4 334.6
1 1 0	A3-O	79.25 33.47	88.42 39.24	111.0 52.08	166.7 82.70	305.2 156.1	651.9 336.7

Version : AOI33X1P

Cell Unit = 17

State			Output Load											
A1 A2 A3	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 0 0	B1-O	29.83	20.87	34.90	25.14	46.70	34.95	74.26	56.86	141.4	107.5	309.1	231.8	
0 0 1	B1-O	31.52	20.93	37.01	25.21	49.91	35.02	80.56	56.93	155.5	107.5	343.4	231.8	
0 1 0	B1-O	31.51	20.93	37.01	25.21	49.90	35.02	80.56	56.93	155.5	107.5	343.4	231.8	
0 1 1	B1-O	35.98	21.09	42.80	25.36	59.29	35.17	99.56	57.07	199.6	107.7	450.1	232.0	
1 0 0	B1-O	37.44	23.03	42.71	27.34	55.39	37.07	85.92	59.07	160.9	109.7	348.7	234.2	
1 0 1	B1-O	43.39	23.05	50.06	27.34	66.43	37.06	106.6	59.00	206.7	109.7	457.3	234.1	
1 1 0	B1-O	49.90	23.38	56.62	27.45	73.03	37.37	113.5	59.53	213.7	110.7	464.3	236.0	
0 0 0	B2-O	34.89	22.33	39.69	26.32	51.14	35.64	78.48	57.12	145.5	107.6	313.0	232.1	
0 0 1	B2-O	37.01	22.40	42.25	26.39	54.84	35.71	85.26	57.19	160.1	107.7	347.8	232.1	
0 1 0	B2-O	37.01	22.40	42.25	26.39	54.84	35.71	85.25	57.19	160.1	107.7	347.8	232.1	
0 1 1	B2-O	42.84	22.56	49.52	26.56	65.77	35.86	105.7	57.33	205.7	107.8	456.0	232.2	
1 0 0	B2-O	42.72	24.18	47.84	28.22	60.30	37.57	90.61	59.18	165.5	109.8	353.2	234.5	
1 0 1	B2-O	50.14	24.23	56.66	28.25	72.88	37.59	112.9	59.12	212.8	109.7	463.2	234.4	
1 1 0	B2-O	56.67	24.39	63.28	28.38	79.56	37.85	119.8	59.69	219.8	110.8	470.2	236.2	
0 0 0	B3-O	38.96	21.89	43.70	25.56	55.04	34.30	82.32	55.03	149.3	105.2	316.9	229.7	
0 0 1	B3-O	41.54	21.96	46.72	25.62	59.25	34.37	89.63	55.10	164.5	105.3	352.2	229.8	
0 1 0	B3-O	41.54	21.96	46.72	25.62	59.25	34.37	89.62	55.10	164.5	105.3	352.1	229.8	
0 1 1	B3-O	48.81	22.11	55.36	25.77	71.64	34.52	111.7	55.25	211.5	105.4	461.8	229.9	
1 0 0	B3-O	47.17	23.55	52.23	27.31	64.65	36.17	94.93	57.19	169.9	107.6	357.6	232.2	
1 0 1	B3-O	56.02	23.60	62.61	27.35	78.78	36.17	118.9	57.16	218.7	107.6	469.0	232.1	
1 1 0	B3-O	62.67	23.69	69.24	27.60	85.49	36.41	125.7	57.64	225.7	108.6	476.1	234.0	
B1 B2 B3	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 0 0	A1-O	45.07	35.59	50.09	39.42	62.12	48.65	90.55	70.06	159.8	120.7	332.6	245.5	
0 0 1	A1-O	46.58	33.38	52.03	37.31	65.18	46.71	96.48	68.37	173.1	119.2	364.4	244.1	
0 1 0	A1-O	46.58	33.38	52.02	37.31	65.18	46.71	96.48	68.37	173.1	119.2	364.3	244.1	
0 1 1	A1-O	52.27	29.84	59.14	34.06	75.92	43.79	116.5	65.95	217.0	117.3	467.6	242.5	
1 0 0	A1-O	52.53	36.06	57.85	39.94	70.80	49.21	101.9	70.77	178.6	121.6	369.8	246.5	
1 0 1	A1-O	59.79	32.49	66.58	36.48	83.17	46.18	123.7	68.17	224.1	119.4	474.8	244.6	
1 1 0	A1-O	66.43	32.85	73.23	36.90	89.86	46.54	130.6	68.85	231.1	120.7	481.9	246.5	
0 0 0	A2-O	50.19	36.08	54.99	39.82	66.81	48.85	94.95	70.16	164.0	120.7	336.7	245.7	
0 0 1	A2-O	52.17	33.89	57.43	37.73	70.35	46.94	101.4	68.50	177.8	119.2	368.9	244.3	
0 1 0	A2-O	52.17	33.89	57.43	37.73	70.35	46.94	101.3	68.50	177.8	119.2	368.9	244.3	
0 1 1	A2-O	59.42	30.42	66.12	34.50	82.62	44.00	122.9	66.14	223.1	117.3	473.6	242.7	
1 0 0	A2-O	57.94	36.41	63.16	40.16	75.89	49.34	106.8	70.83	183.3	121.6	374.3	246.7	
1 0 1	A2-O	66.79	32.80	73.44	36.81	89.83	46.20	130.1	68.27	230.3	119.5	480.8	244.8	
1 1 0	A2-O	73.41	33.09	80.08	37.18	96.51	46.75	137.0	68.93	237.3	120.7	487.9	246.7	
0 0 0	A3-O	54.34	34.82	59.21	38.49	70.90	47.23	98.94	68.23	168.0	118.7	340.7	243.5	
0 0 1	A3-O	56.80	32.67	62.08	36.43	74.88	45.38	105.8	66.59	182.3	117.3	373.3	242.2	

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0 1 0	A3-O	56.80	32.67	62.07	36.43	74.88	45.38	105.8	66.59	182.3	117.3	373.3	242.2
0 1 1	A3-O	65.54	29.21	72.23	33.15	88.67	42.52	128.9	64.18	229.0	115.3	479.5	240.5
1 0 0	A3-O	62.57	35.04	67.73	38.78	80.40	47.67	111.3	68.85	187.8	119.6	378.8	244.6
1 0 1	A3-O	72.90	31.48	79.51	35.36	95.86	44.66	136.1	66.25	236.2	117.4	486.6	242.7
1 1 0	A3-O	79.55	31.79	86.17	35.65	102.6	45.22	143.0	66.98	243.2	118.7	493.7	244.6

Version : AOI33X2

Cell Unit = 19

State			Output Load											
A1 A2 A3	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 0 0	B1-O	27.67	20.06	31.30	23.22	39.75	30.53	59.40	46.90	106.1	84.32	222.2	174.0	
0 0 1	B1-O	29.20	20.12	33.12	23.28	42.31	30.60	64.00	46.97	116.2	84.38	246.2	174.1	
0 1 0	B1-O	29.20	20.12	33.11	23.28	42.31	30.60	64.00	46.97	116.2	84.38	246.1	174.1	
0 1 1	B1-O	33.20	20.29	37.99	23.44	49.60	30.76	77.67	47.11	147.1	84.52	320.6	174.2	
1 0 0	B1-O	36.34	22.41	40.02	25.39	48.99	32.76	70.40	49.29	122.6	86.94	252.6	177.2	
1 0 1	B1-O	42.10	22.39	46.76	25.40	58.21	32.77	86.28	49.26	155.7	86.78	329.2	176.9	
1 1 0	B1-O	49.25	22.71	53.92	25.68	65.50	32.97	93.79	49.42	163.5	87.37	337.2	178.4	
0 0 0	B2-O	33.69	22.65	37.08	25.57	45.22	32.36	64.48	48.39	111.1	85.28	227.0	175.2	
0 0 1	B2-O	35.75	22.72	39.43	25.64	48.36	32.44	69.68	48.47	121.8	85.35	251.5	175.2	
0 1 0	B2-O	35.75	22.72	39.43	25.64	48.35	32.44	69.68	48.47	121.8	85.35	251.5	175.3	
0 1 1	B2-O	41.34	22.89	45.99	25.81	57.32	32.60	85.33	48.62	154.5	85.49	327.9	175.4	
1 0 0	B2-O	42.58	24.53	46.15	27.49	54.87	34.25	76.09	50.68	128.1	87.97	258.1	178.3	
1 0 1	B2-O	50.07	24.57	54.62	27.53	65.96	34.30	93.92	50.71	163.1	87.85	336.5	178.1	
1 1 0	B2-O	57.30	25.01	61.92	27.59	73.29	34.57	101.4	51.07	170.9	88.41	344.5	179.6	
0 0 0	B3-O	38.11	22.80	41.45	25.46	49.49	31.87	68.72	47.07	115.4	83.65	231.4	173.6	
0 0 1	B3-O	40.66	22.87	44.31	25.52	53.14	31.94	74.47	47.14	126.6	83.72	256.5	173.7	
0 1 0	B3-O	40.66	22.87	44.31	25.52	53.14	31.94	74.47	47.14	126.6	83.72	256.5	173.7	
0 1 1	B3-O	47.83	23.01	52.45	25.67	63.87	32.09	91.90	47.28	161.1	83.86	334.5	173.8	
1 0 0	B3-O	47.43	24.55	50.98	27.21	59.70	33.78	80.93	49.31	133.0	86.38	263.0	176.6	
1 0 1	B3-O	56.56	24.60	61.15	27.26	72.47	33.79	100.4	49.27	169.8	86.24	343.2	176.5	
1 1 0	B3-O	63.94	24.74	68.54	27.48	79.92	33.85	108.0	49.40	177.6	86.86	351.1	178.0	
B1 B2 B3	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 0 0	A1-O	43.19	35.66	46.79	38.44	55.26	45.24	75.64	61.06	123.9	98.22	243.9	188.4	
0 0 1	A1-O	44.65	33.33	48.55	36.19	57.77	43.10	80.06	59.22	133.5	96.58	266.1	186.9	
0 1 0	A1-O	44.65	33.33	48.55	36.19	57.77	43.10	80.06	59.22	133.5	96.58	266.1	186.9	
0 1 1	A1-O	49.96	29.55	54.80	32.68	66.56	39.87	95.12	56.53	164.9	94.34	338.7	185.1	
1 0 0	A1-O	51.68	36.24	55.39	39.08	64.51	45.91	86.49	62.05	139.9	99.39	272.5	189.9	
1 0 1	A1-O	58.80	32.41	63.52	35.36	75.17	42.47	103.5	59.06	173.3	96.89	347.1	187.8	
1 1 0	A1-O	65.99	32.63	70.76	35.57	82.45	42.72	110.9	59.47	181.0	97.70	355.0	189.4	
0 0 0	A2-O	49.48	37.43	52.85	40.19	61.14	46.92	81.13	62.48	129.2	99.53	249.0	189.7	
0 0 1	A2-O	51.50	35.07	55.19	37.92	64.22	44.81	86.13	60.65	139.4	97.94	271.8	188.3	
0 1 0	A2-O	51.50	35.07	55.19	37.92	64.21	44.81	86.13	60.65	139.4	97.94	271.8	188.3	
0 1 1	A2-O	58.65	31.33	63.33	34.32	74.88	41.53	103.1	57.87	172.7	95.71	346.2	186.5	
1 0 0	A2-O	58.24	37.87	61.86	40.66	70.81	47.43	92.55	63.28	145.7	100.7	278.3	191.4	
1 0 1	A2-O	67.27	33.82	71.91	36.94	83.36	44.04	111.5	60.34	181.1	98.18	354.7	189.2	
1 1 0	A2-O	74.50	34.05	79.16	37.21	90.69	44.46	118.9	60.74	188.7	98.97	362.5	190.9	
0 0 0	A3-O	54.12	36.68	57.46	39.32	65.75	45.74	85.64	61.16	133.8	97.99	253.7	188.3	
0 0 1	A3-O	56.63	34.43	60.27	37.15	69.33	43.72	91.19	59.37	144.4	96.43	277.0	186.8	

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0 1 0	A3-O	56.63	34.43	60.26	37.15	69.32	43.72	91.18	59.37	144.4	96.43	277.0	186.8
0 1 1	A3-O	65.41	30.71	70.10	33.63	81.65	40.53	109.9	56.63	179.5	94.28	353.0	185.0
1 0 0	A3-O	63.35	37.09	66.97	39.78	75.89	46.23	97.61	62.00	150.9	99.19	283.5	189.9
1 0 1	A3-O	74.07	33.14	78.69	36.09	90.16	42.99	118.3	59.04	187.9	96.73	361.5	187.7
1 1 0	A3-O	81.38	33.24	86.02	36.28	97.55	43.33	125.8	59.52	195.6	97.47	369.3	189.3

Version : AOI33X3

Cell Unit = 14

State			Output Load											
A1 A2 A3	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 0 0	B1-O	63.07	60.94	66.73	63.55	75.32	68.82	96.09	79.02	147.7	100.5	276.9	150.6	
0 0 1	B1-O	65.88	61.00	69.55	63.61	78.11	68.88	98.83	79.08	150.5	100.5	279.7	150.6	
0 1 0	B1-O	65.87	61.00	69.55	63.61	78.11	68.88	98.83	79.08	150.5	100.5	279.7	150.6	
0 1 1	B1-O	73.72	61.14	77.46	63.76	86.03	69.03	106.8	79.22	158.5	100.7	287.6	150.7	
1 0 0	B1-O	72.12	65.59	75.82	68.26	84.35	73.58	105.1	83.86	156.8	105.3	285.9	155.4	
1 0 1	B1-O	81.63	65.47	85.39	68.13	93.97	73.47	114.7	83.73	166.3	105.2	295.5	155.3	
1 1 0	B1-O	89.07	68.76	92.87	71.48	101.5	76.89	122.2	87.27	173.8	108.8	302.9	158.9	
0 0 0	B2-O	68.49	62.21	72.18	64.81	80.70	70.05	101.5	80.35	153.2	101.7	282.3	151.8	
0 0 1	B2-O	71.80	62.27	75.52	64.88	84.02	70.11	104.8	80.41	156.5	101.8	285.6	151.9	
0 1 0	B2-O	71.80	62.27	75.51	64.88	84.02	70.11	104.8	80.41	156.5	101.8	285.6	151.9	
0 1 1	B2-O	81.25	62.43	85.01	65.02	93.60	70.26	114.3	80.56	166.0	101.9	295.1	152.0	
1 0 0	B2-O	77.87	66.53	81.57	69.18	90.10	74.51	110.8	84.79	162.5	106.3	291.7	156.4	
1 0 1	B2-O	89.04	66.46	92.83	69.10	101.4	74.40	122.1	84.75	173.7	106.3	302.8	156.4	
1 1 0	B2-O	96.36	69.63	100.2	72.34	108.8	77.77	129.5	88.13	181.1	109.7	310.2	159.8	
0 0 0	B3-O	73.16	61.38	76.86	64.00	85.37	69.27	106.1	79.45	157.8	100.9	286.9	150.9	
0 0 1	B3-O	76.97	61.45	80.68	64.06	89.20	69.33	110.0	79.51	161.6	100.9	290.8	151.0	
0 1 0	B3-O	76.97	61.45	80.68	64.06	89.20	69.33	110.0	79.51	161.6	100.9	290.7	151.0	
0 1 1	B3-O	88.02	61.60	91.82	64.21	100.4	69.48	121.1	79.66	172.7	101.1	301.8	151.1	
1 0 0	B3-O	82.98	65.62	86.71	68.29	95.25	73.64	116.0	83.88	167.7	105.4	296.7	155.4	
1 0 1	B3-O	95.73	65.53	99.56	68.19	108.1	73.51	128.9	83.78	180.5	105.3	309.5	155.3	
1 1 0	B3-O	103.0	68.63	106.9	71.33	115.5	76.73	136.2	87.16	187.7	108.7	316.8	158.8	
B1 B2 B3	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 0 0	A1-O	78.52	77.61	82.25	80.26	90.78	85.59	111.6	95.95	163.3	117.5	292.4	167.6	
0 0 1	A1-O	80.61	75.43	84.34	78.08	92.89	83.45	113.7	93.84	165.4	115.3	294.5	165.4	
0 1 0	A1-O	80.60	75.43	84.33	78.08	92.88	83.45	113.7	93.84	165.4	115.3	294.5	165.4	
0 1 1	A1-O	88.91	72.29	92.65	74.98	101.2	80.34	122.0	90.63	173.7	112.2	302.7	162.2	
1 0 0	A1-O	86.97	80.06	90.72	82.77	99.27	88.17	120.1	98.53	171.7	120.1	300.8	170.2	
1 0 1	A1-O	97.10	76.82	100.9	79.52	109.4	84.91	130.2	95.39	181.9	117.0	310.9	167.1	
1 1 0	A1-O	104.6	80.44	108.4	83.19	117.0	88.69	137.8	99.18	189.4	120.8	318.4	170.9	
0 0 0	A2-O	83.89	78.04	87.62	80.70	96.17	86.04	117.0	96.33	168.7	117.9	297.7	167.9	
0 0 1	A2-O	86.52	75.92	90.26	78.58	98.82	83.92	119.6	94.24	171.3	115.8	300.4	165.9	
0 1 0	A2-O	86.53	75.92	90.26	78.58	98.82	83.92	119.6	94.24	171.3	115.8	300.4	165.9	
0 1 1	A2-O	96.49	72.91	100.3	75.57	108.8	80.91	129.6	91.32	181.3	112.8	310.3	163.0	
1 0 0	A2-O	92.78	80.45	96.54	83.17	105.1	88.57	125.9	98.94	177.5	120.5	306.6	170.6	
1 0 1	A2-O	104.5	77.24	108.3	79.94	116.9	85.35	137.6	95.77	189.3	117.4	318.3	167.6	
1 1 0	A2-O	111.9	80.82	115.8	83.53	124.3	89.00	145.1	99.59	196.7	121.2	325.7	171.3	
0 0 0	A3-O	88.63	76.78	92.38	79.43	100.9	84.75	121.7	95.13	173.4	116.7	302.4	166.8	
0 0 1	A3-O	91.76	74.72	95.51	77.37	104.1	82.68	124.9	93.08	176.5	114.6	305.6	164.7	

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0 1 0	A3-O	91.76 74.72	95.51 77.37	104.1 82.68	124.9 93.08	176.5 114.6	305.6 164.7
0 1 1	A3-O	103.4 71.75	107.2 74.45	115.7 79.79	136.5 90.14	188.1 111.6	317.2 161.7
1 0 0	A3-O	97.95 79.16	101.7 81.85	110.3 87.23	131.0 97.67	182.7 119.3	311.7 169.4
1 0 1	A3-O	111.3 76.04	115.2 78.76	123.7 84.18	144.4 94.58	196.0 116.1	325.1 166.2
1 1 0	A3-O	118.7 79.54	122.6 82.29	131.2 87.80	151.8 98.29	203.4 119.9	332.5 170.0

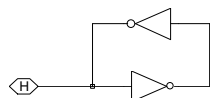
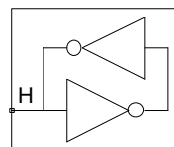


Group Name : BHD1

Symbol

Function : Bus Holder Cell

Schematic



Pin Order H

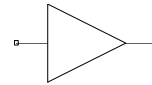
**Input Capacitance (ff) & Maximum Loading (ff) & Power Consumption (nW/MHz)**

Version	Input Capacitance	Maximum Loading	Power Consumption
	H	H	
BHD1	17.45	3000.0	

Group Name : BUF

Symbol

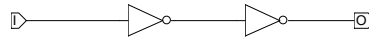
Function : Buffer



Truth Table

I	O
0	0
1	1

Schematic



Pin Order O I

**Input Capacitance (ff) & Maximum Loading (ff) & Power Consumption (nW/MHz)**

Version	Input Capacitance	Maximum Loading	Power Consumption
	I	O	O
BUF <sub>XL</sub> P	1.059	147.6	2.237
BUF <sub>X</sub> 1	1.389	212.8	3.003
BUF <sub>X</sub> 1P	1.903	295.7	4.127
BUF <sub>X</sub> 2	2.597	426.3	5.595
BUF <sub>X</sub> 3	3.867	639.1	8.072
BUF <sub>X</sub> 4	4.982	852.7	10.37
BUF <sub>X</sub> 5	6.363	1065.4	13.54
BUF <sub>X</sub> 6	7.427	1279.0	15.87
BUF <sub>X</sub> 8	9.851	1705.0	21.04
BUF <sub>X</sub> 12	14.72	2556.9	32.02
BUF <sub>X</sub> 16	19.58	3409.3	42.69
BUF <sub>X</sub> 20	24.47	4261.6	53.45

**AC Characteristics ( Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ps)**

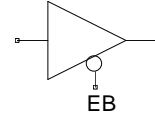
Version	Cell Unit	Path	Output Load											
			1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
BUF <sub>XL</sub> P	4	Path	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		I-O	29.80	42.98	36.69	47.43	53.27	56.32	94.54	74.18	197.5	114.6	455.5	214.0
BUF <sub>X</sub> 1	4	Path	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		I-O	27.18	39.75	32.04	43.10	43.67	49.88	72.33	63.31	143.6	92.84	322.0	164.2
BUF <sub>X</sub> 1P	6	Path	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		I-O	26.95	38.33	30.66	40.97	39.21	46.30	60.04	56.75	111.8	78.28	240.8	128.4

BUF2	6	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		I-O	25.49	36.20	28.66	38.55	36.76	43.80	58.59	54.99	119.2	80.60	289.8	148.9
BUF3	8	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		I-O	23.62	34.85	25.99	36.61	32.43	40.91	51.02	50.77	106.1	74.34	271.2	140.6
BUF4	9	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		I-O	23.17	33.78	25.03	35.17	30.04	38.66	44.04	46.62	85.40	65.09	209.4	115.1
BUF5	12	Path	1.200 ff		3.795 ff		12.00 ff		37.95 ff		120.0 ff		379.5 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		I-O	23.33	34.64	24.94	35.85	29.50	39.09	42.80	46.85	83.85	65.41	212.8	117.5
BUF6	13	Path	1.200 ff		3.939 ff		12.93 ff		42.43 ff		139.2 ff		457.0 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		I-O	23.19	33.96	24.65	35.04	28.89	38.09	41.55	45.59	81.97	64.01	213.6	117.2
BUF8	17	Path	1.200 ff		4.060 ff		13.74 ff		46.48 ff		157.2 ff		532.0 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		I-O	22.92	33.63	24.06	34.49	27.55	37.03	38.13	43.57	73.02	59.89	189.4	107.3
BUF12	25	Path	1.200 ff		4.344 ff		15.72 ff		56.92 ff		206.0 ff		745.9 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		I-O	23.01	33.77	23.87	34.41	26.68	36.48	35.72	42.29	66.99	57.47	178.8	103.3
BUF16	33	Path	2.400 ff		8.120 ff		27.47 ff		92.95 ff		314.5 ff		1064 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		I-O	23.19	33.90	24.33	34.75	27.81	37.28	38.38	43.82	73.27	60.15	189.7	107.5
BUF20	40	Path	2.400 ff		8.519 ff		30.24 ff		107.3 ff		381.0 ff		1352 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		I-O	23.11	33.85	24.10	34.58	27.27	36.90	37.30	43.21	71.78	59.51	192.4	108.6

Group Name : BUFB

Symbol

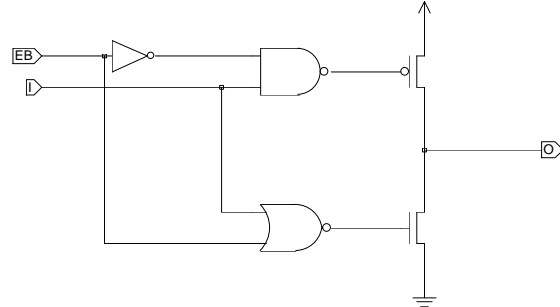
Function : 3 State BUFFER, EB



Truth Table

I	EB	O
X	1	Z
0	0	0
1	0	1

Schematic



Pin Order O I EB

**Input Capacitance (ff) & Maximum Loading (ff) & Power Consumption (nW/MHz)**

Version	Input Capacitance			Maximum Loading	Power Consumption
	O	I	EB	O	O
BUFBX1	1.479	1.498	2.331	108.2	4.048
BUFBX2	2.289	2.587	4.633	218.0	7.897
BUFBX3	3.809	3.957	6.894	326.9	11.22
BUFBX4	4.587	5.056	9.121	435.8	14.91
BUFBX6	7.239	7.543	13.54	653.5	22.71
BUFBX8	9.811	9.914	18.13	871.3	30.00
BUFBX12	14.70	14.82	27.09	1307.0	44.84

**AC Characteristics ( Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ps)**

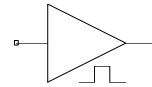
Version	Cell Unit	Path	Output Load											
			2.679 ff		4.491 ff		9.039 ff		20.45 ff		49.10 ff		121.0 ff	
		t <sub>plh</sub> t <sub>p<sub>hl</sub></sub>		t <sub>plh</sub> t <sub>p<sub>hl</sub></sub>		t <sub>plh</sub> t <sub>p<sub>hl</sub></sub>		t <sub>plh</sub> t <sub>p<sub>hl</sub></sub>		t <sub>plh</sub> t <sub>p<sub>hl</sub></sub>		t <sub>plh</sub> t <sub>p<sub>hl</sub></sub>		
BUFBX1	8	EB-O	23.14	33.39	34.89	37.91	58.25	47.31	114.5	68.30	254.3	119.2	604.8	246.3
		EB-O	L>>Z 51.91						H>>Z 41.13					
		I-O	46.46	48.39	55.75	52.74	78.51	62.29	134.7	83.67	274.5	134.8	625.1	262.0
		Path	3.489 ff		5.301 ff		9.849 ff		21.26 ff		49.91 ff		121.8 ff	
BUFBX2	11	EB-O	16.33	28.73	23.21	31.38	38.08	36.79	66.83	48.10	136.8	73.92	311.1	137.4
		EB-O	L>>Z 67.70						H>>Z 51.66					
		I-O	44.55	44.71	49.30	47.14	60.90	52.50	89.26	64.10	159.0	90.33	333.5	153.9
		Path	3.489 ff		5.301 ff		9.849 ff		21.26 ff		49.91 ff		121.8 ff	

BUFBX3	16	Path	5.009 ff		7.190 ff		13.33 ff		30.64 ff		79.40 ff		216.8 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		EB-O	15.79	26.87	21.41	29.01	35.02	33.87	64.51	45.21	143.8	74.37	365.8	155.0
		EB-O	L>>Z 83.70						H>>Z 64.25					
I-O	40.79	41.99	44.63	43.93	55.14	48.75	83.71	60.40	163.0	89.96	385.1	170.7		
BUFBX4	19	Path	5.787 ff		7.968 ff		14.11 ff		31.42 ff		80.18 ff		217.6 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		EB-O	13.99	25.73	18.33	27.40	30.24	31.33	53.08	40.26	113.0	62.47	279.6	123.2
		EB-O	L>>Z 97.45						H>>Z 73.16					
I-O	40.93	41.21	43.84	42.72	51.82	46.53	73.47	55.69	133.2	78.33	299.8	139.2		
BUFBX6	26	Path	8.439 ff		10.86 ff		18.14 ff		40.10 ff		106.3 ff		305.8 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		EB-O	13.70	26.18	16.87	27.49	26.58	30.81	47.06	38.71	101.7	59.13	263.0	117.9
		EB-O	L>>Z 126.3						H>>Z 93.64					
I-O	40.92	41.47	43.08	42.60	49.42	45.72	67.88	53.75	122.0	74.59	283.4	133.6		
BUFBX8	34	Path	11.01 ff		13.43 ff		20.71 ff		42.67 ff		108.9 ff		308.4 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		EB-O	13.52	25.72	15.83	26.73	23.19	29.33	40.07	35.55	81.57	51.24	202.7	95.59
		EB-O	L>>Z 153.4						H>>Z 112.5					
I-O	40.28	40.85	41.91	41.71	46.70	44.10	60.71	50.36	101.6	66.45	222.7	111.1		
BUFBX12	49	Path	15.90 ff		18.64 ff		27.62 ff		57.12 ff		153.9 ff		471.7 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		EB-O	13.10	25.48	14.85	26.25	20.82	28.48	37.03	34.28	77.77	49.75	206.4	96.83
		EB-O	L>>Z 204.3						H>>Z 147.0					
I-O	39.88	40.64	41.12	41.30	45.09	43.31	57.70	49.06	97.67	64.93	226.3	112.4		

Group Name : BUFCK

Symbol

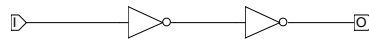
Function : Clock Tree Buffer



Truth Table

Schematic

I	O
0	0
1	1



Pin Order O I

**Input Capacitance (ff) & Maximum Loading (ff) & Power Consumption (nW/MHz)**

Version	Input Capacitance	Maximum Loading	Power Consumption
	I	O	O
BUFCKX1	1.400	213.1	2.347
BUFCKX1P	1.398	295.9	3.081
BUFCKX2	1.835	426.5	4.121
BUFCKX3	2.757	639.6	5.990
BUFCKX4	3.489	853.1	7.562
BUFCKX6	5.213	1279.6	11.56
BUFCKX8	6.887	1705.9	15.36
BUFCKX12	10.27	2558.5	23.38
BUFCKX16	13.65	3411.2	31.21
BUFCKX20	17.04	4263.8	39.06

**AC Characteristics ( Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ps)**

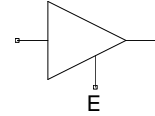
Version	Cell Unit	Path	Output Load											
			1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
BUFCKX1	4	I-O	31.92	35.61	37.26	41.17	49.22	53.41	77.82	82.09	148.8	153.1	327.2	330.9
		Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
BUFCKX1P	6	I-O	36.02	38.33	40.40	42.75	49.75	52.10	70.82	72.56	122.4	121.5	251.3	243.6
		Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
BUFCKX2	6	I-O	33.83	35.35	37.65	39.29	46.63	48.57	68.78	71.05	129.4	131.5	299.7	301.5
		Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff	

BUFCKX3	8	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		I-O	30.97	33.77	33.84	36.73	41.13	44.28	60.07	63.54	115.1	118.5	280.0	282.9
BUFCKX4	9	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		I-O	30.35	32.16	32.60	34.49	38.40	40.44	52.99	55.39	94.32	96.85	218.1	220.2
BUFCKX6	13	Path	1.200 ff		3.939 ff		12.93 ff		42.43 ff		139.2 ff		457.0 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		I-O	30.50	32.22	32.27	34.05	37.27	39.19	50.72	52.97	91.14	93.56	222.5	224.6
BUFCKX8	17	Path	1.200 ff		4.060 ff		13.74 ff		46.48 ff		157.2 ff		532.0 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		I-O	30.05	31.83	31.45	33.28	35.60	37.53	47.08	49.34	81.92	84.38	198.1	200.3
BUFCKX12	25	Path	1.200 ff		4.344 ff		15.72 ff		56.92 ff		206.0 ff		745.9 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		I-O	30.18	31.93	31.23	33.01	34.60	36.48	44.56	46.78	75.98	78.47	187.7	189.9
BUFCKX16	33	Path	2.400 ff		8.120 ff		27.47 ff		92.95 ff		314.5 ff		1064 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		I-O	30.39	32.15	31.78	33.59	35.92	37.83	47.41	49.64	82.24	84.68	198.5	200.6
BUFCKX20	40	Path	2.400 ff		8.519 ff		30.24 ff		107.3 ff		381.0 ff		1352 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		I-O	30.29	32.04	31.50	33.29	35.29	37.18	46.24	48.47	80.71	83.18	201.2	203.4

Group Name : BUFT

Symbol

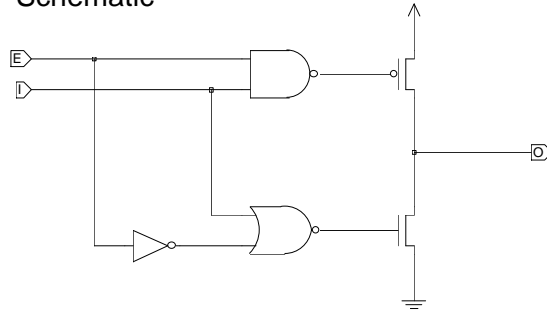
Function : 3-State Buffer, E



Truth Table

I	E	O
X	0	Z
0	1	0
1	1	1

Schematic



Pin Order O I E

**Input Capacitance (ff) & Maximum Loading (ff) & Power Consumption (nW/MHz)**

Version	Input Capacitance			Maximum Loading		Power Consumption
	O	I	E	O	O	
BUFTX1	1.466	1.499	2.393	108.8	3.063	
BUFTX1P	1.739	1.864	3.447	152.3	4.226	
BUFTX2	2.291	2.584	4.675	217.9	6.075	
BUFTX3	3.810	3.960	6.903	326.7	8.528	
BUFTX4	4.584	5.055	9.074	435.7	11.37	
BUFTX6	7.233	7.542	13.54	653.2	17.32	
BUFTX8	9.794	9.913	18.05	870.9	22.80	
BUFTX12	14.68	14.81	26.94	1306.4	33.94	

**AC Characteristics ( Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ps)**

Version	Cell Unit	Path	Output Load											
			2.666 ff		4.478 ff		9.026 ff		20.44 ff		49.09 ff		121.0 ff	
BUFTX1	8		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		E-O	27.80	7.961	36.75	14.24	58.83	26.42	114.0	50.13	252.8	102.3	601.3	228.7
		E-O	L>>Z 36.93						H>>Z 62.21					
		I-O	47.57	47.74	56.71	51.92	79.30	61.21	135.0	82.27	273.9	133.0	622.5	259.3
BUFTX1P	10		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		E-O	25.60	5.197	32.14	9.964	48.07	19.73	87.61	37.75	187.2	75.30	437.5	163.0
		E-O	L>>Z 38.74						H>>Z 68.72					
		I-O	46.92	46.57	53.59	49.71	69.81	56.56	110.1	71.75	210.0	107.2	460.3	194.6

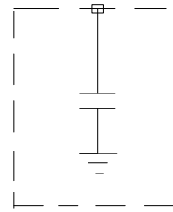


BUFTX2	11	Path	3.491 ff		5.303 ff		9.851 ff		21.27 ff		49.91 ff		121.8 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		E-O	24.01	4.188	28.71	7.938	40.06	15.87	67.62	30.50	137.1	59.06	311.3	123.5
		E-O	L>>Z 40.46						H>>Z 78.31					
I-O	45.58	44.16	50.29	46.49	61.75	51.65	90.08	63.05	159.8	89.05	334.2	152.6		
BUFTX3	16	Path	5.010 ff		7.191 ff		13.33 ff		30.64 ff		79.41 ff		216.8 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		E-O	21.63	3.755	25.44	6.862	35.71	14.30	63.52	29.34	142.3	61.69	364.2	143.2
		E-O	L>>Z 44.37						H>>Z 96.26					
I-O	41.82	41.36	45.61	43.23	56.01	47.86	84.59	59.32	163.7	88.66	385.7	169.3		
BUFTX4	19	Path	5.784 ff		7.965 ff		14.11 ff		31.42 ff		80.18 ff		217.6 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		E-O	20.80	2.709	23.75	5.214	31.55	11.19	52.64	23.99	111.8	49.76	278.2	111.9
		E-O	L>>Z 44.57						H>>Z 112.0					
I-O	41.96	40.57	44.83	42.03	52.72	45.68	74.21	54.63	133.9	77.06	300.5	137.8		
BUFTX6	26	Path	8.433 ff		10.85 ff		18.14 ff		40.10 ff		106.3 ff		305.8 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		E-O	21.07	2.537	23.25	4.439	29.55	9.320	47.57	20.99	100.9	45.16	262.1	105.9
		E-O	L>>Z 47.56						H>>Z 147.2					
I-O	41.96	40.86	44.09	41.96	50.37	44.94	68.66	52.73	122.7	73.35	284.1	132.2		
BUFTX8	34	Path	10.99 ff		13.41 ff		20.70 ff		42.66 ff		108.9 ff		308.4 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		E-O	20.64	2.355	22.25	3.818	26.98	7.649	40.60	17.20	80.82	36.82	201.5	83.83
		E-O	L>>Z 49.34						H>>Z 180.0					
I-O	41.32	40.22	42.92	41.06	47.66	43.35	61.52	49.39	102.3	65.26	223.4	109.7		
BUFTX12	49	Path	15.88 ff		18.61 ff		27.60 ff		57.10 ff		153.9 ff		471.7 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		E-O	20.31	2.088	21.51	3.225	25.47	6.506	37.80	15.41	76.94	35.16	205.2	85.16
		E-O	L>>Z 51.20						H>>Z 242.8					
I-O	40.92	40.02	42.14	40.65	46.06	42.59	58.54	48.13	98.39	63.75	227.0	111.0		

Group Name : CKLD

Symbol

Function : Clock Load Cell



Pin Order |

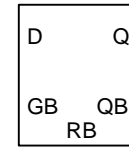
**Input Capacitance (ff) & Maximum Loading (ff) & Power Consumption (nW/MHz)**

Version	Input Capacitance	Maximum Loading	Power Consumption
CKLD	2.025		

Group Name : DBAHRB

Symbol

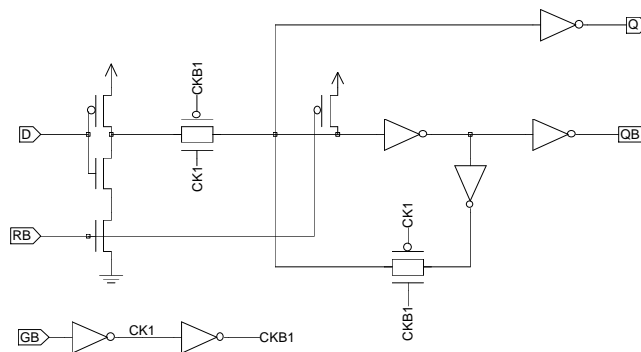
Function : D Latch with Claer, Active Low



Truth Table

GB	D	RB	Q	QB
0	0	1	0	1
0	1	1	1	0
X	X	0	0	1
1	X	1	Q	QB

Schematic



Pin Order Q QB D GB RB

Input Capacitance (ff) &amp; Maximum Loading (ff) &amp; Power Consumption (nW/MHz)

Version	Input Capacitance			Maximum Loading		Power Consumption		
	D	GB	RB	Q	QB	Q	D	GB
DBAHRBX1	1.472	1.367	2.204	212.5	212.8	11.05	0.516	3.471
DBAHRBX2	1.742	1.703	2.469	424.8	426.3	18.65	0.727	4.266
DBAHRBX3	1.737	2.053	2.512	635.5	638.9	26.95	0.869	4.934

## AC Characteristics ( Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ps)

Version	Cell Unit	Output Load												
		Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
DBAHRBX1	17	RB-Q	63.82	50.52	70.69	55.02	85.46	63.83	117.0	80.21	189.5	112.3	368.3	184.7
		D-Q	64.88	71.25	71.73	76.39	86.51	86.47	118.1	105.3	190.6	140.7	369.3	215.4
		GB-Q	88.36	98.71	95.19	103.9	109.9	113.9	141.5	132.7	214.0	168.0	392.8	242.7
		RB-QB	79.06	96.39	83.66	99.65	94.61	106.6	122.6	120.9	193.5	151.2	371.8	222.9
		D-QB	103.6	97.41	107.9	100.7	118.2	107.6	145.6	121.9	216.3	152.3	394.5	223.9
		GB-QB	131.2	121.2	135.5	124.5	145.9	131.4	173.3	145.7	243.9	175.9	422.1	247.5
		Path	1.200 ff	3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff		
DBAHRBX2	19	RB-Q	69.50	52.54	74.19	55.95	85.80	63.47	112.7	78.68	176.7	108.8	347.7	179.2
		D-Q	70.61	76.81	75.30	80.69	86.91	89.45	113.8	107.4	177.8	142.3	348.7	216.9
		GB-Q	89.81	99.72	94.49	103.6	106.1	112.3	133.0	130.3	196.9	165.1	368.0	239.8
		RB-QB	81.13	98.32	83.85	100.0	90.68	104.5	111.0	115.5	171.0	141.4	341.2	209.8
		D-QB	111.3	99.43	113.7	101.2	119.7	105.6	138.7	116.6	197.9	142.5	367.8	210.8
		GB-QB	134.2	118.8	136.7	120.6	142.7	125.0	161.7	135.9	220.8	161.7	390.8	230.0
		Path	1.200 ff	3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff		
DBAHRBX3	22	RB-Q	79.66	58.77	83.24	61.50	92.96	68.11	117.5	82.53	177.9	112.5	344.3	182.4
		D-Q	80.92	88.35	84.49	91.47	94.20	99.08	118.7	116.3	179.1	151.9	345.4	228.3
		GB-Q	97.17	107.5	100.7	110.5	110.4	118.2	135.0	135.4	195.4	171.0	361.7	247.3
		RB-QB	95.00	118.6	97.20	119.9	102.6	123.3	118.6	132.7	171.9	157.2	336.4	223.8
		D-QB	133.4	119.9	135.4	121.2	139.9	124.5	153.8	133.9	205.2	158.4	369.1	224.9
		GB-QB	152.6	136.3	154.5	137.6	159.1	141.0	173.0	150.4	224.5	174.8	388.3	241.3
		Path	1.200 ff	3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff		

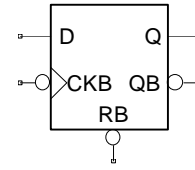
## Timing Constraint (ps)

Item	Version		
	DBAHRBX1	DBAHRBX2	DBAHRBX3
Setup Timing D / GB /	53.45	55.92	65.78
Setup Timing D \ GB /	46.05	50.99	63.32
Hold Timing D / GB /	-32.19	-37.12	-44.52
Hold Timing D \ GB /	-22.33	-27.26	-37.12
Minimum L-pulse Width GB	105.6	105.6	120.4
Minimum L-pulse Width RB	69.89	68.66	80.98
Recovery Timing RB / GB /	55.71	60.64	68.04
Removal Timing RB / GB /	-34.45	-39.38	-46.78

Group Name : DBFRB

Symbol

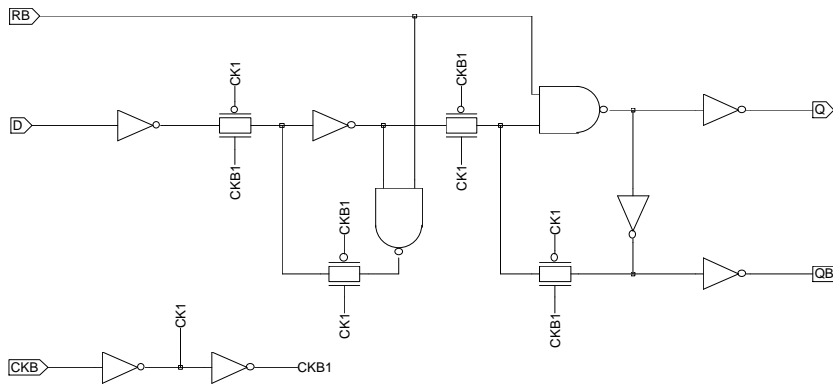
Function : D Flip-Flop with CKB and RB



Truth Table

CK	D	RB	Q	QB
	0	1	0	1
	1	1	1	0
	X	1	Q	QB
X	X	0	0	1

Schematic



Pin Order Q QB D CKB RB

**Input Capacitance (ff) & Maximum Loading (ff) & Power Consumption (nW/MHz)**

Version	Input Capacitance			Maximum Loading		Power Consumption		
	D	CKB	RB	Q	QB	Q	D	CKB
DBFRBX1	0.8920	1.409	1.544	212.3	212.6	13.40	2.495	3.821
DBFRBX2	0.8760	1.751	2.927	425.9	426.2	21.45	2.753	4.582
DBFRBX3	0.8840	2.026	2.908	637.9	638.8	27.97	2.974	5.227

## AC Characteristics ( Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ps)

Version	Cell Unit	Output Load												
		Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
DBFRBX1	20	RB-Q	-	55.54	-	59.84	-	68.24	-	84.22	-	116.3	-	188.3
		CKB-Q	116.2	96.52	122.5	100.6	136.3	108.7	166.5	124.3	238.4	155.8	417.0	228.0
		RB-QB	96.38	-	101.3	-	112.3	-	139.7	-	210.1	-	388.2	-
		CKB-QB	136.5	157.4	141.4	160.9	152.5	168.3	180.0	183.4	250.4	214.8	428.5	287.0
		Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff	
DBFRBX2	24	RB-Q	-	45.41	-	48.29	-	54.73	-	67.85	-	95.59	-	165.1
		CKB-Q	105.7	90.44	109.7	93.21	119.3	99.38	142.5	112.1	203.7	139.4	374.4	208.3
		RB-QB	71.66	-	74.32	-	81.32	-	101.9	-	162.0	-	332.4	-
		CKB-QB	116.1	130.6	118.7	132.5	125.7	137.3	146.3	148.3	206.6	174.3	376.8	242.8
		Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff	
DBFRBX3	27	RB-Q	-	51.03	-	53.37	-	59.07	-	71.69	-	98.87	-	166.9
		CKB-Q	109.2	94.67	112.3	96.91	120.4	102.4	141.1	114.6	197.1	141.3	362.3	209.0
		RB-QB	83.90	-	86.02	-	91.49	-	107.9	-	161.5	-	326.2	-
		CKB-QB	126.8	141.7	128.9	143.2	134.4	147.2	150.9	157.3	204.6	182.0	369.2	249.0
		Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff	

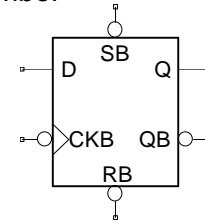
## Timing Constraint (ps)

Item	Version		
	DBFRBX1	DBFRBX2	DBFRBX3
Setup Timing D / CKB \	22.26	27.19	29.66
Setup Timing D \ CKB \	66.65	69.11	71.58
Hold Timing D / CKB \	13.80	11.33	8.863
Hold Timing D \ CKB \	-20.04	-24.47	-26.69
Minimum H-pulse Width CKB	69.89	69.89	80.98
Minimum L-pulse Width CKB	89.60	88.36	100.68
Minimum L-pulse Width RB	85.90	61.27	66.19
Recovery Timing RB / CKB \	-31.99	-27.05	-24.59
Removal Timing RB / CKB \	55.71	50.78	48.32

Group Name : DBFRSB

Symbol

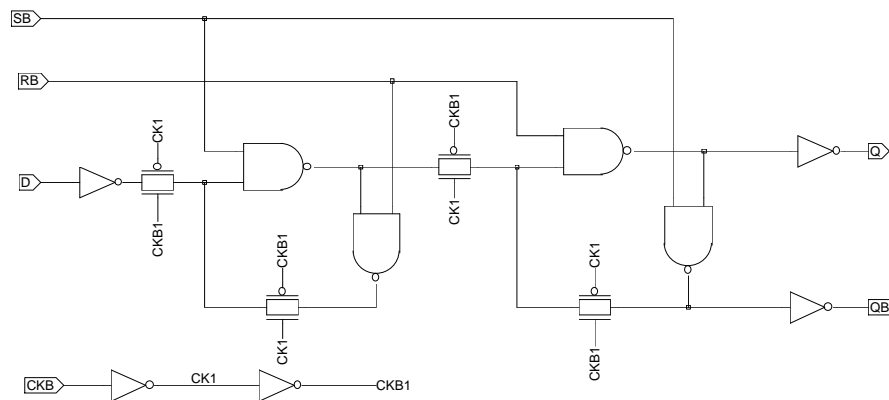
Function : D Flip-Flop with CKB, Clear/Set



Truth Table

CKB	D	RB	SB	Q	QB
	0	1	1	0	1
	1	1	1	1	0
X	X	1	0	1	0
X	X	0	1	0	1
X	X	0	0	0	0

Schematic



Pin Order Q QB D CKB RB SB

Input Capacitance (ff) & Maximum Loading (ff) & Power Consumption (nW/MHz)

Version	Input Capacitance				Maximum Loading		Power Consumption		
	D	CKB	RB	SB	Q	QB	Q	D	CKB
DBFRSBX1	0.9050	1.412	1.904	3.004	212.5	212.5	15.05	2.654	3.814
DBFRSBX2	0.8700	1.757	3.095	4.201	425.9	425.8	23.34	2.974	4.670
DBFRSBX3	0.8670	2.026	3.090	4.085	638.0	637.9	29.79	3.200	5.265

## AC Characteristics ( Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ps)

Version	Cell Unit	Output Load												
		Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
DBFRSBX1	23	RB-Q	-	49.34	-	53.32	-	61.20	-	76.27	-	107.5	-	180.2
		SB-Q	110.1	-	116.1	-	129.4	-	158.9	-	230.3	-	408.8	-
		CKB-Q	115.9	101.0	122.1	104.9	135.6	112.8	165.6	127.8	237.4	158.8	415.9	230.9
		RB-QB	95.41	-	101.1	-	113.6	-	142.2	-	213.0	-	391.2	-
		SB-QB	-	51.46	-	55.54	-	63.50	-	78.84	-	109.7	-	181.3
		CKB-QB	147.1	146.5	152.7	149.7	165.1	156.6	193.9	170.9	264.4	201.3	442.7	273.0
				Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff	
DBFRSBX2	27	RB-Q	-	46.96	-	49.86	-	56.27	-	69.42	-	97.59	-	167.6
		SB-Q	110.5	-	114.5	-	124.0	-	146.9	-	207.9	-	378.3	-
		CKB-Q	110.7	102.8	114.7	105.7	124.4	112.1	147.8	125.4	209.1	153.5	379.8	222.9
		RB-QB	84.62	-	88.04	-	96.38	-	117.8	-	177.8	-	348.0	-
		SB-QB	-	45.87	-	48.67	-	54.82	-	67.43	-	94.77	-	163.7
		CKB-QB	141.0	137.9	144.3	140.1	152.5	145.0	173.8	156.5	233.8	182.9	403.9	251.6
				Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff	
DBFRSBX3	30	RB-Q	-	51.46	-	53.80	-	59.46	-	71.97	-	99.11	-	167.9
		SB-Q	115.8	-	118.9	-	127.0	-	147.3	-	202.9	-	367.9	-
		CKB-Q	112.7	106.1	115.8	108.4	124.1	114.1	144.7	126.6	200.8	153.7	366.1	222.0
		RB-QB	97.38	-	100.0	-	106.9	-	125.0	-	178.7	-	343.1	-
		SB-QB	-	50.96	-	53.25	-	58.76	-	70.84	-	97.35	-	164.6
		CKB-QB	152.5	147.4	155.1	149.0	161.8	153.2	179.7	163.5	233.3	188.6	397.6	255.8
				Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff	

## Timing Constraint (ps)

Item \ Version	DBFRSBX1	DBFRSBX2	DBFRSBX3
Setup Timing D / CKB \	32.12	34.59	39.52
Setup Timing D \ CKB \	74.04	78.98	81.44
Hold Timing D / CKB \	13.80	11.33	8.863
Hold Timing D \ CKB \	-28.91	-33.06	-33.06
Minimum H-pulse Width CKB	80.98	80.98	85.90
Minimum L-pulse Width CKB	100.68	100.68	100.68
Minimum L-pulse Width RB	68.66	61.27	66.19
Minimum L-pulse Width SB	100.68	105.6	105.6
Recovery Timing RB / CKB \	-29.52	-24.59	-22.12
Recovery Timing SB / CKB \	9.932	12.40	14.86
Removal Timing RB / CKB \	58.18	53.25	50.78
Removal Timing SB / CKB \	8.863	6.397	3.931



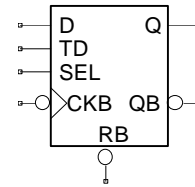
Group Name : DBZRB

Symbol

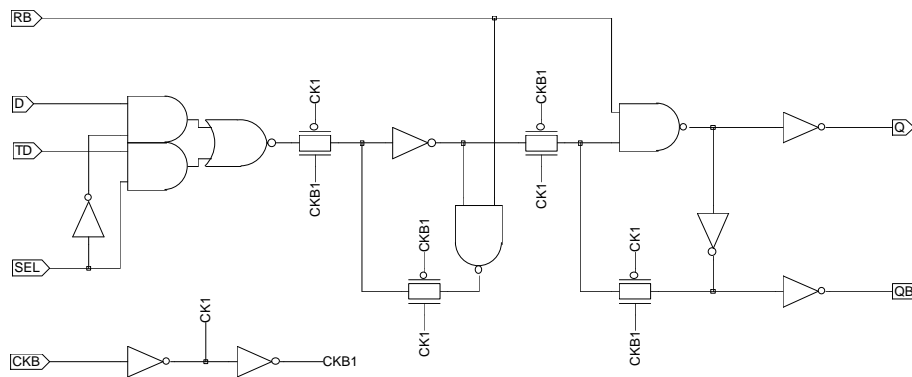
Function : D Flip-Flop with CKB, Scan and RB

Truth Table

CKB	D	RB	TD	SEL	Q	QB
	0	1	X	0	0	1
	1	1	X	0	1	0
	X	1	0	1	0	1
	X	1	1	1	1	0
	X	1	X	X	Q	QB
X	X	0	X	X	0	1



Schematic



Pin Order Q QB D TD CKB SEL RB

**Input Capacitance (ff) & Maximum Loading (ff) & Power Consumption (nW/MHz)**

Version	Input Capacitance					Maximum Loading		Power Consumption				
	D	TD	CKB	SEL	RB	Q	QB	Q	D	TD	CKB	SEL
DBZRBX1	1.817	0.8980	1.328	2.895	1.543	212.3	212.6	13.61	4.127	5.341	3.775	6.023
DBZRBX2	1.848	0.9510	1.662	2.933	2.926	426.0	426.2	21.60	4.441	5.664	4.584	6.347
DBZRBX3	1.811	0.8610	2.016	2.893	2.914	637.9	638.8	28.06	4.646	5.871	5.258	6.560

## AC Characteristics ( Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ps)

Version	Cell Unit	Output Load												
		Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
DBZRBX1	25	RB-Q	-	55.53	-	59.83	-	68.23	-	84.20	-	116.3	-	188.2
		CKB-Q	115.7	97.16	122.0	101.3	135.8	109.4	166.1	124.9	237.9	156.4	416.5	228.7
		RB-QB	97.01	-	102.0	-	113.1	-	140.4	-	210.9	-	388.9	-
		CKB-QB	137.8	157.8	142.7	161.3	153.9	168.8	181.4	184.0	251.8	215.6	429.9	287.8
DBZRBX2	29	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		RB-Q	-	45.35	-	48.24	-	54.67	-	67.80	-	95.53	-	165.1
		CKB-Q	105.2	90.71	109.2	93.50	118.8	99.69	142.1	112.4	203.3	139.7	374.0	208.6
		RB-QB	71.74	-	74.43	-	81.45	-	102.0	-	162.1	-	332.5	-
CKB-QB	116.5	130.4	119.2	132.4	126.1	137.2	146.9	148.3	206.9	174.2	377.2	242.8		
DBZRBX3	33	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		RB-Q	-	51.02	-	53.36	-	59.06	-	71.68	-	98.86	-	166.9
		CKB-Q	108.3	93.78	111.4	96.02	119.5	101.5	140.2	113.7	196.1	140.4	361.4	208.1
		RB-QB	84.11	-	86.23	-	91.72	-	108.2	-	161.8	-	326.4	-
CKB-QB	126.1	141.0	128.2	142.6	133.7	146.6	150.3	156.7	204.0	181.5	368.5	248.5		

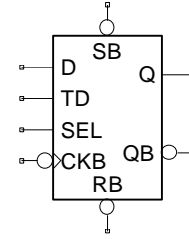
## Timing Constraint (ps)

Item	Version		
	DBZRBX1	DBZRBX2	DBZRBX3
Setup Timing D / CKB \	29.66	34.59	37.06
Setup Timing D \ CKB \	46.92	51.85	51.85
Setup Timing TD / CKB \	74.04	78.98	81.44
Setup Timing TD \ CKB \	192.4	197.3	199.8
Setup Timing SEL / CKB \	189.9	197.3	199.8
Setup Timing SEL \ CKB \	51.85	54.32	56.78
Hold Timing D / CKB \	3.931	1.466	-1.000
Hold Timing D \ CKB \	-13.33	-13.33	-13.33
Hold Timing TD / CKB \	-25.66	-28.12	-30.59
Hold Timing TD \ CKB \	-66.64	-71.08	-73.30
Hold Timing SEL / CKB \	-23.19	-25.66	-25.66
Hold Timing SEL \ CKB \	-13.33	-15.80	-15.80
Minimum H-pulse Width CKB	66.19	61.27	61.27
Minimum L-pulse Width CKB	90.21	88.36	100.68
Minimum L-pulse Width RB	85.90	61.27	66.19
Recovery Timing RB / CKB \	-31.99	-27.05	-22.12
Removal Timing RB / CKB \	58.18	50.78	48.32

Group Name : DBZRSB

Symbol

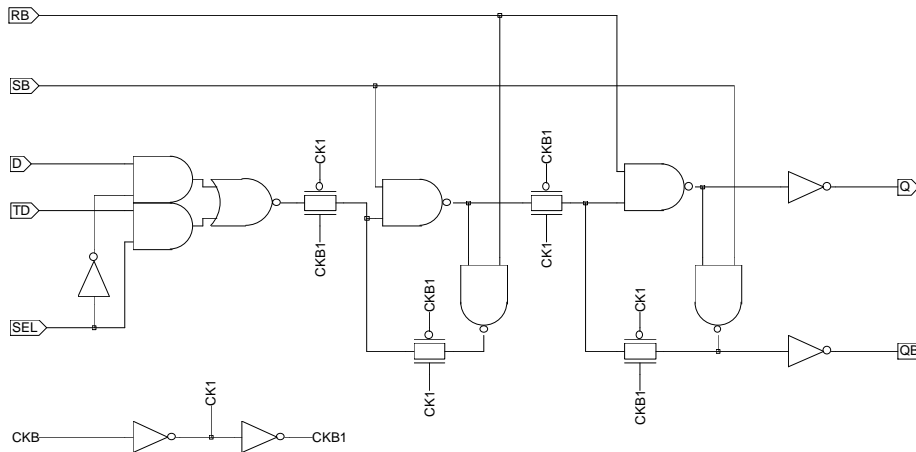
Function : D Flip-Flop with CKB, Clear/Set and Scan



Truth Table

CKB	D	RB	SB	TD	SEL	Q	QB
	0	1	1	X	0	0	1
	1	1	1	X	0	1	0
	X	1	1	0	1	0	1
	X	1	1	1	1	1	0
	X	1	1	X	X	Q	QB
X	X	0	1	X	X	0	1
X	X	1	0	X	X	1	0
X	X	0	0	X	X	0	0

Schematic



Pin Order Q QB D TD CKB SEL RB SB

Input Capacitance (ff) & Maximum Loading (ff)

Version	Input Capacitance						Maximum Loading	
	D	TD	CKB	SEL	RB	SB	Q	QB
DBZRSBX1	1.814	0.8980	1.330	2.895	1.914	3.003	212.5	212.5
DBZRSBX2	1.811	0.8630	1.660	2.893	3.095	4.200	425.9	425.9
DBZRSBX3	1.810	0.8600	2.016	2.893	3.116	4.085	638.0	637.9

## Power Consumption (nW/MHz)

Version	Power Consumption				
	Q	D	TD	CKB	SEL
DBZRSBX1	15.30	4.306	5.371	3.801	6.131
DBZRSBX2	23.62	4.672	5.731	4.614	6.489
DBZRSBX3	29.95	4.877	5.935	5.251	6.694

## AC Characteristics ( Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ps)

Version	Cell Unit	Output Load													
		Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
DBZRSBX1	28	RB-Q	-	49.34	-	53.31	-	61.20	-	76.26	-	107.5	-	180.2	
		SB-Q	110.1	-	116.2	-	129.4	-	159.0	-	230.4	-	408.8	-	
		CKB-Q	115.6	101.6	121.8	105.6	135.3	113.4	165.3	128.5	237.1	159.5	415.6	231.7	
		RB-QB	96.01	-	101.7	-	114.2	-	142.9	-	213.8	-	391.9	-	
		SB-QB	-	51.98	-	56.08	-	64.10	-	79.52	-	110.4	-	182.1	
		CKB-QB	148.3	146.7	154.0	150.0	166.5	157.0	195.3	171.3	266.0	201.8	444.1	273.5	
				Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff
DBZRSBX2	32	RB-Q	-	46.96	-	49.86	-	56.26	-	69.41	-	97.58	-	167.6	
		SB-Q	110.6	-	114.5	-	124.0	-	147.0	-	207.9	-	378.4	-	
		CKB-Q	110.0	102.8	114.1	105.7	123.8	112.1	147.2	125.5	208.5	153.6	379.1	222.9	
		RB-QB	84.95	-	88.39	-	96.76	-	118.2	-	178.2	-	348.5	-	
		SB-QB	-	46.19	-	49.02	-	55.19	-	67.86	-	95.25	-	164.2	
		CKB-QB	141.4	137.7	144.7	139.8	152.9	144.8	174.3	156.3	234.3	182.7	404.4	251.5	
				Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff
DBZRSBX3	36	RB-Q	-	51.46	-	53.80	-	59.46	-	71.97	-	99.10	-	167.9	
		SB-Q	116.0	-	119.0	-	127.1	-	147.4	-	203.0	-	368.1	-	
		CKB-Q	111.7	105.1	114.8	107.5	123.0	113.1	143.8	125.6	199.8	152.8	365.1	221.1	
		RB-QB	97.69	-	100.3	-	107.3	-	125.4	-	179.1	-	343.5	-	
		SB-QB	-	51.26	-	53.56	-	59.09	-	71.22	-	97.80	-	165.1	
		CKB-QB	151.9	146.7	154.5	148.4	161.2	152.6	179.2	162.9	232.8	188.1	397.1	255.2	
				Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff

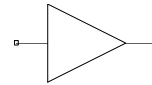
## Timing Constraint (ps)

Item \ Version	DBZRSBX1	DBZRSBX2	DBZRSBX3
Setup Timing D / CKB \	37.06	41.99	44.45
Setup Timing D \ CKB \	59.25	66.65	69.11
Setup Timing TD / CKB \	81.44	86.37	88.84
Setup Timing TD \ CKB \	214.6	222.0	224.5
Setup Timing SEL / CKB \	212.1	222.0	224.5
Setup Timing SEL \ CKB \	64.18	69.11	71.58
Hold Timing D / CKB \	3.931	1.466	-1.000
Hold Timing D \ CKB \	-15.80	-15.80	-15.80
Hold Timing TD / CKB \	-25.66	-28.12	-28.12
Hold Timing TD \ CKB \	-73.30	-77.73	-79.95
Hold Timing SEL / CKB \	-23.19	-25.66	-25.66
Hold Timing SEL \ CKB \	-13.33	-15.80	-18.26
Minimum H-pulse Width CKB	80.98	80.98	80.98
Minimum L-pulse Width CKB	100.68	100.68	100.68
Minimum L-pulse Width RB	68.66	61.27	66.19
Minimum L-pulse Width SB	100.68	105.6	105.6
Recovery Timing RB / CKB \	-29.52	-24.59	-19.66
Recovery Timing SB / CKB \	7.466	12.40	14.86
Removal Timing RB / CKB \	58.18	53.25	50.78
Removal Timing SB / CKB \	11.33	6.397	3.931

Group Name : DEL

Symbol

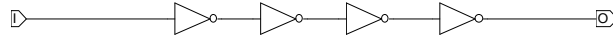
Function : Delay Cell



Truth Table

I	O
1	1
0	0

Schematic



Pin Order O I

**Input Capacitance (ff) & Maximum Loading (ff) & Power Consumption (nW/MHz)**

Version	Input Capacitance	Maximum Loading	Power Consumption
	I	O	O
DELAX3	1.930	639.0	10.21
DELBX3	1.920	637.6	13.20
DELCX3	1.912	635.7	17.10
DELDX3	1.902	633.9	21.20

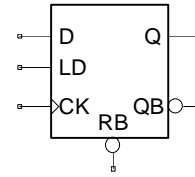
**AC Characteristics ( Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ps)**

Version	Cell Unit	Output Load												
		1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff		
DELAX3	15	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		I-O	127.5	127.3	130.6	130.5	138.6	138.5	158.4	158.2	213.4	211.7	378.3	371.0
DELBX3	15	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		I-O	192.7	194.1	196.3	197.8	205.6	207.4	228.1	230.8	285.0	288.2	450.2	448.4
DELCX3	15	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		I-O	279.6	281.3	283.6	285.5	293.8	296.1	319.0	322.3	379.7	385.1	546.1	549.3
DELDX3	15	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		I-O	383.1	396.1	387.4	400.5	398.2	411.9	424.9	439.5	489.0	506.3	657.4	675.7

Group Name : DFCLRB

Symbol

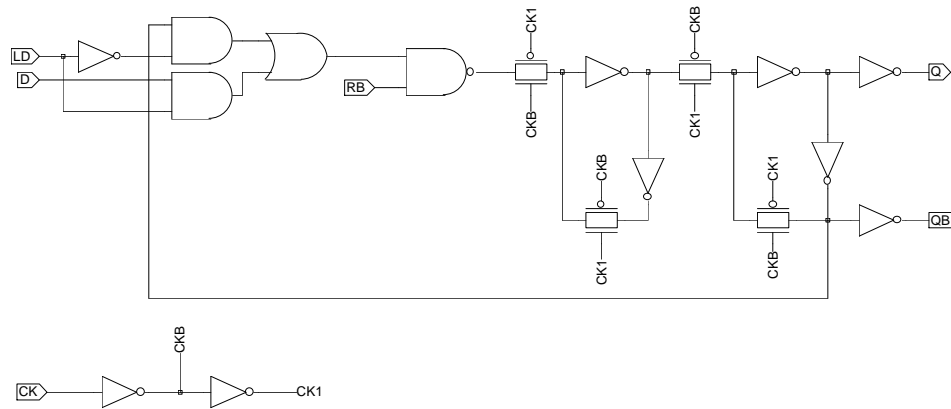
Function : D Flip-Flop with Synchronous Clear and Load



Truth Table

CK	D	RB	LD	Q	QB
	X	0	X	0	1
	0	X	1	0	1
	1	1	1	1	0
	X	1	0	Q	QB

Schematic



Pin Order Q QB D CK RB LD

**Input Capacitance (ff) & Maximum Loading (ff) & Power Consumption (nW/MHz)**

Version	Input Capacitance				Maximum Loading		Power Consumption			
	D	CK	RB	LD	Q	QB	Q	D	CK	RB
DFCLRBX1	1.500	1.296	1.572	2.826	212.6	212.6	13.24	4.465	3.603	5.232
DFCLRBX2	1.493	1.679	1.600	2.834	426.3	426.2	20.50	4.720	4.354	5.487
DFCLRBX3	1.486	2.023	1.574	2.779	638.9	638.9	26.68	4.909	4.986	5.678

**AC Characteristics (Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ps)**

Version	Cell Unit	Path	Output Load														
			1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff				
		t <sub>plh</sub>		t <sub>p<sub>hl</sub></sub>		t <sub>plh</sub>		t <sub>p<sub>hl</sub></sub>		t <sub>plh</sub>		t <sub>p<sub>hl</sub></sub>		t <sub>plh</sub>		t <sub>p<sub>hl</sub></sub>	
DFCLRBX1	27	CK-Q	86.65	88.91	92.03	92.59	104.1	100.0	133.0	114.5	204.4	144.9	383.0	216.8			
		CK-QB	135.9	124.0	141.6	128.1	153.9	136.2	182.3	152.2	252.7	184.4	430.8	257.1			

DFCLRBX2	29	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		CK-Q	83.48	86.86	87.02	89.58	95.53	95.62	117.6	108.2	178.5	135.3	349.1	204.0
		CK-QB	115.6	109.6	118.5	111.9	125.7	117.3	146.3	129.1	206.4	155.9	376.6	224.7
DFCLRBX3	33	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		CK-Q	85.30	89.76	88.09	91.97	95.30	97.37	114.3	109.4	169.5	135.8	334.7	203.4
		CK-QB	125.1	118.1	127.4	120.0	133.2	124.7	149.9	135.7	203.4	161.5	367.8	229.0

## Timing Constraint (ps)

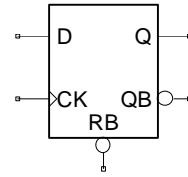
Item	Version		
	DFCLRBX1	DFCLRBX2	DFCLRBX3
Setup Timing D / CK /	74.04	69.11	71.58
Setup Timing D \ CK /	69.11	74.04	74.04
Setup Timing RB / CK /	78.98	76.51	76.51
Setup Timing RB \ CK /	49.38	54.32	56.78
Setup Timing LD / CK /	86.37	88.84	91.30
Setup Timing LD \ CK /	74.04	71.58	74.04
Hold Timing D / CK /	-33.06	-30.59	-28.12
Hold Timing D \ CK /	-28.12	-33.06	-33.06
Hold Timing RB / CK /	-42.92	-37.99	-37.99
Hold Timing RB \ CK /	-13.33	-20.73	-20.73
Hold Timing LD / CK /	-52.78	-55.25	-55.25
Hold Timing LD \ CK /	-30.59	-35.52	-35.52
Minimum H-pulse Width CK	61.27	61.27	61.27
Minimum L-pulse Width CK	88.36	85.90	80.98



Group Name : DFCRB

Symbol

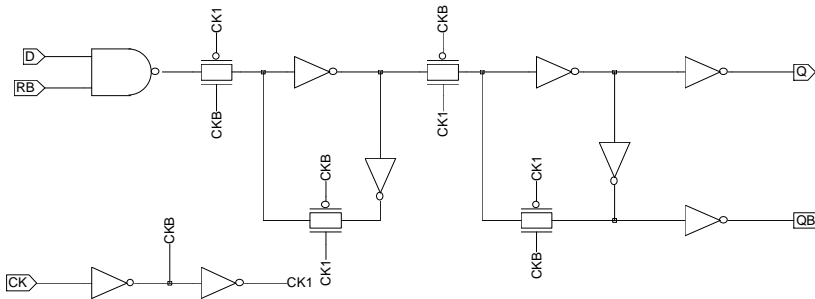
Function : D Flip-Flop with Synchronous Clear



Truth Table

CK	D	RB	Q	QB
	X	0	0	1
	0	X	0	1
	1	1	1	0
	X	X	Q	QB

Schematic



Pin Order Q QB D CK RB

**Input Capacitance (ff) & Maximum Loading (ff) & Power Consumption (nW/MHz)**

Version	Input Capacitance			Maximum Loading		Power Consumption			
	D	CK	RB	Q	QB	Q	D	CK	RB
DFCRBX1	1.746	1.293	1.899	212.6	212.6	12.12	3.457	3.623	3.806
DFCRBX2	1.747	1.653	1.900	426.4	426.2	19.34	3.708	4.350	4.043
DFCRBX3	1.753	2.027	1.900	638.9	638.9	25.47	3.887	4.953	4.216

**AC Characteristics ( Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ps)**

Version	Cell Unit	Path	Output Load														
			1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff				
		t <sub>plh</sub>		t <sub>p<sub>hl</sub></sub>		t <sub>plh</sub>		t <sub>p<sub>hl</sub></sub>		t <sub>plh</sub>		t <sub>p<sub>hl</sub></sub>		t <sub>plh</sub>		t <sub>p<sub>hl</sub></sub>	
DFCRBX1	22	CK-Q	86.85	89.15	92.25	92.85	104.4	100.3	133.3	114.8	204.6	145.3	383.2	217.0			
		CK-QB	127.4	116.0	132.4	119.5	143.8	126.7	171.6	141.1	242.2	171.8	420.3	243.7			

DFCRBX2	25	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		CK-Q	83.45	86.82	87.00	89.56	95.55	95.64	117.6	108.2	178.5	135.2	349.0	204.0
		CK-QB	112.4	106.0	115.0	108.1	121.9	113.0	142.5	124.2	202.7	150.2	372.9	218.9
DFCRBX3	28	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		CK-Q	85.35	89.79	88.16	92.01	95.38	97.44	114.4	109.5	169.5	135.9	334.7	203.5
		CK-QB	122.0	114.6	124.1	116.4	129.5	120.7	146.0	131.1	199.7	156.0	364.2	223.0

## Timing Constraint (ps)

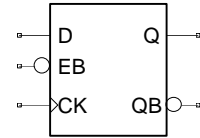
Item	Version		
	DFCRBX1	DFCRBX2	DFCRBX3
Setup Timing D / CK /	41.99	39.52	39.52
Setup Timing D \ CK /	29.66	32.12	34.59
Setup Timing RB / CK /	44.45	39.52	41.99
Setup Timing RB \ CK /	34.59	37.06	37.06
Hold Timing D / CK /	-13.33	-13.33	-13.33
Hold Timing D \ CK /	-3.466	-5.932	-5.932
Hold Timing RB / CK /	-18.26	-18.26	-13.33
Hold Timing RB \ CK /	-5.932	-8.398	-8.398
Minimum H-pulse Width CK	61.27	61.27	61.27
Minimum L-pulse Width CK	80.98	80.98	68.66

Group Name : DFE

Symbol

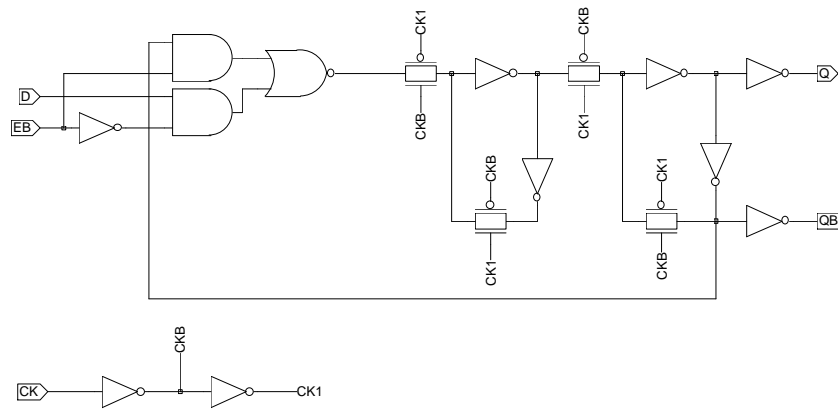
Function : Enabled Flip-Flops, Enabled Low, Dual Outputs

Truth Table



CK	D	EB	Q	QB
	0	0	0	1
	1	0	1	0
	X	1	Q	QB
	X	X	Q	QB

Schematic



Pin Order Q QB D CK EB

Input Capacitance (ff) &amp; Maximum Loading (ff) &amp; Power Consumption (nW/MHz)

Version	Input Capacitance			Maximum Loading		Power Consumption		
	D	CK	EB	Q	QB	Q	D	CK
DFEX1	1.524	1.289	2.541	212.6	212.6	13.32	3.711	3.693
DFEX2	1.524	1.652	2.555	426.3	426.2	20.54	3.957	4.392
DFEX3	1.523	1.988	2.457	638.9	638.9	26.81	4.159	5.056

AC Characteristics ( Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ps)

Version	Cell Unit	Path	Output Load											
			1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
DFEX1	25	CK-Q	86.43	88.53	91.78	92.18	103.8	99.56	132.6	114.0	204.1	144.3	382.7	216.1
		CK-QB	135.4	135.8	141.1	140.5	153.4	149.7	181.8	167.4	252.1	201.7	430.1	275.6

DFEX2	28	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		CK-Q	83.39	86.72	86.93	89.45	95.43	95.49	117.5	108.0	178.4	135.1	349.0	203.8
		CK-QB	115.8	110.7	118.7	113.0	125.9	118.5	146.5	130.5	206.5	157.4	376.7	226.4
DFEX3	32	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		CK-Q	85.38	89.82	88.17	92.03	95.38	97.43	114.4	109.5	169.5	135.9	334.7	203.5
		CK-QB	125.5	119.2	127.7	121.1	133.6	125.9	150.3	137.1	203.7	163.1	368.1	230.7

## Timing Constraint (ps)

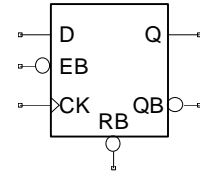
Item \ Version	DFEX1	DFEX2	DFEX3
Setup Timing D / CK /	41.99	41.99	41.99
Setup Timing D \ CK /	59.25	64.18	66.65
Setup Timing EB / CK /	61.71	64.18	64.18
Setup Timing EB \ CK /	88.84	86.37	86.37
Hold Timing D / CK /	-18.26	-18.26	-18.26
Hold Timing D \ CK /	-23.19	-28.12	-25.66
Hold Timing EB / CK /	-20.73	-20.73	-20.73
Hold Timing EB \ CK /	-55.25	-57.71	-60.18
Minimum H-pulse Width CK	61.27	61.27	61.27
Minimum L-pulse Width CK	88.36	85.90	80.98

Group Name : DFERB

Symbol

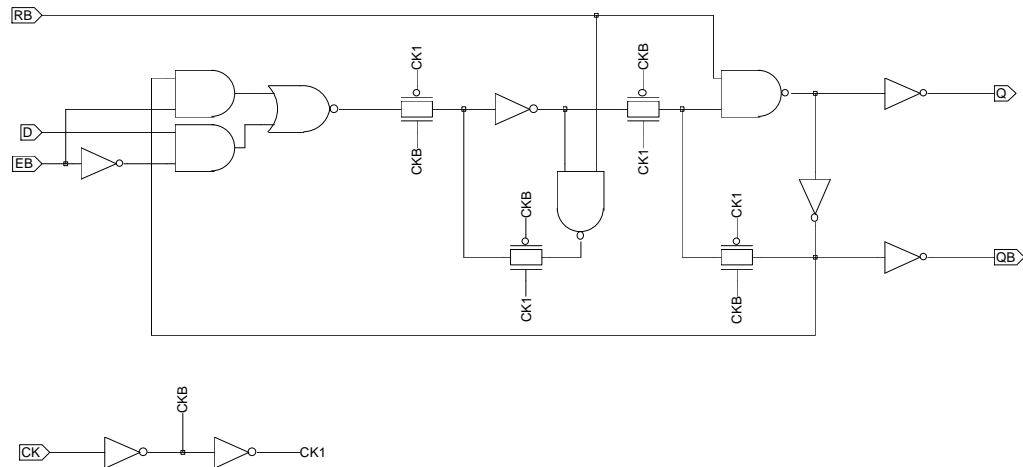
Function : Enabled Flip-Flops, Enabled Low, RB, Dual Outputs

Truth Table



CK	D	EB	RB	Q	QB
	0	0	1	0	1
	1	0	1	1	0
	X	1	1	Q	QB
X	X	X	0	0	1

Schematic



Pin Order Q QB D CK EB RB

Input Capacitance (ff) &amp; Maximum Loading (ff) &amp; Power Consumption (nW/MHz)

Version	Input Capacitance				Maximum Loading		Power Consumption		
	D	CK	EB	RB	Q	QB	Q	D	CK
DFERBX1	1.524	1.298	2.464	1.502	212.3	212.6	13.69	4.245	3.800
DFERBX2	1.519	1.642	2.532	2.880	426.0	426.2	21.39	4.508	4.554
DFERBX3	1.519	2.018	2.532	2.868	637.9	638.8	27.75	4.724	5.236

## AC Characteristics ( Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ps)

Version	Cell Unit	Output Load												
		Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
DFERBX1	26	RB-Q	-	55.48	-	59.73	-	68.11	-	84.04	-	116.1	-	188.1
		CK-Q	100.1	93.13	106.4	97.17	120.1	105.2	150.3	120.8	222.4	152.3	401.0	224.6
		RB-QB	107.4	-	113.0	-	125.1	-	153.1	-	223.0	-	400.9	-
		CK-QB	143.7	155.9	149.3	160.4	161.5	169.1	189.5	186.4	259.6	220.4	437.5	294.2
DFERBX2	30	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		RB-Q	-	45.29	-	48.16	-	54.58	-	67.61	-	95.43	-	165.0
		CK-Q	92.88	85.21	96.85	87.98	106.4	94.09	129.7	106.7	191.0	134.2	361.6	203.0
		RB-QB	75.36	-	78.29	-	85.62	-	106.1	-	166.1	-	336.4	-
CK-QB	114.5	123.0	117.4	125.3	124.7	130.5	145.3	142.4	205.4	169.3	375.7	238.2		
DFERBX3	33	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		RB-Q	-	50.98	-	53.31	-	59.00	-	71.57	-	98.77	-	166.8
		CK-Q	96.75	88.25	99.85	90.48	108.0	95.94	128.6	108.1	184.6	134.8	350.0	202.6
		RB-QB	87.63	-	89.95	-	95.84	-	112.5	-	165.8	-	330.4	-
CK-QB	124.0	134.3	126.3	136.2	132.2	140.7	149.0	151.4	202.5	177.2	367.0	244.6		

## Timing Constraint (ps)

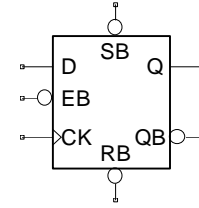
Item	Version		
	DFERBX1	DFERBX2	DFERBX3
Setup Timing D / CK /	44.45	44.45	44.45
Setup Timing D \ CK /	61.71	64.18	66.65
Setup Timing EB / CK /	69.11	69.11	69.11
Setup Timing EB \ CK /	88.84	86.37	88.84
Hold Timing D / CK /	-20.73	-20.73	-20.73
Hold Timing D \ CK /	-23.19	-30.59	-30.59
Hold Timing EB / CK /	-23.19	-20.73	-23.19
Hold Timing EB \ CK /	-52.78	-55.25	-57.71
Minimum H-pulse Width CK	66.19	66.19	70.50
Minimum L-pulse Width CK	85.90	80.98	80.98
Minimum L-pulse Width RB	80.98	61.27	66.19
Recovery Timing RB / CK /	-24.59	-22.12	-19.66
Removal Timing RB / CK /	48.32	43.38	40.92

Group Name : DFERSB

Symbol

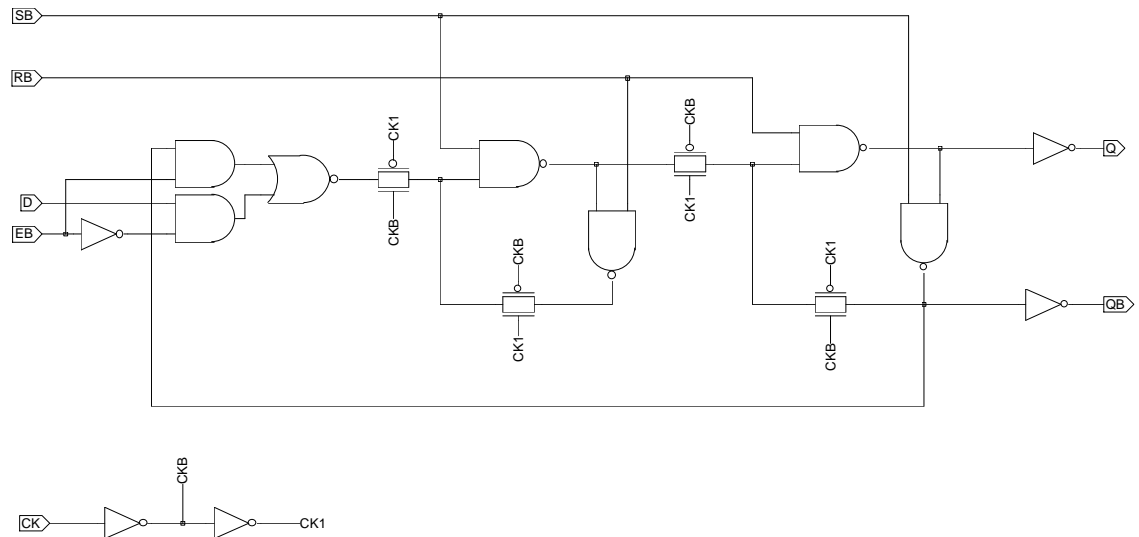
Function : Enabled Flip-Flops, Enabled Low, RB, SB, Dual Outputs

Truth Table



CK	D	EB	RB	SB	Q	QB
	0	0	1	1	0	1
	1	0	1	1	1	0
	X	1	1	1	Q	QB
X	X	X	0	1	0	1
X	X	X	1	0	1	0
X	X	X	0	0	0	0

Schematic



Pin Order Q QB D CK EB RB SB

Input Capacitance (ff) &amp; Maximum Loading (ff) &amp; Power Consumption (nW/MHz)

Version	Input Capacitance					Maximum Loading		Power Consumption		
	D	CK	EB	RB	SB	Q	QB	Q	D	CK
DFERSBX1	1.517	1.290	2.756	1.875	3.020	212.5	212.5	15.76	4.387	3.811
DFERSBX2	1.512	1.655	2.754	3.091	4.387	425.9	425.8	24.31	4.840	4.686
DFERSBX3	1.524	2.017	2.688	3.060	4.281	638.0	637.9	30.50	5.066	5.322

## AC Characteristics ( Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ps)

Version	Cell Unit	Output Load														
		Path		1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
				tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
DFERSBX1	29	RB-Q	-	49.30	-	53.26	-	61.11	-	76.12	-	107.2	-	180.2		
		SB-Q	110.1	-	116.2	-	129.5	-	159.0	-	230.4	-	408.9	-		
		CK-Q	101.2	96.82	107.3	100.7	120.8	108.5	150.7	123.5	222.6	154.4	401.2	226.8		
		RB-QB	106.7	-	112.9	-	126.5	-	156.2	-	227.2	-	405.2	-		
		SB-QB	-	61.24	-	65.87	-	74.84	-	91.59	-	123.2	-	194.8		
		CK-QB	154.0	141.9	160.2	145.9	173.8	153.8	203.6	169.5	274.5	201.5	452.5	273.9		
DFERSBX2	32	RB-Q	-	46.96	-	49.87	-	56.23	-	69.33	-	97.39	-	167.6		
		SB-Q	108.2	-	112.1	-	121.6	-	144.6	-	205.5	-	376.0	-		
		CK-Q	95.41	92.46	99.42	95.29	109.1	101.6	132.5	114.6	193.9	142.4	364.5	212.0		
		RB-QB	89.87	-	93.52	-	102.4	-	124.4	-	184.4	-	354.5	-		
		SB-QB	-	50.94	-	54.00	-	60.62	-	74.17	-	102.4	-	171.3		
		CK-QB	135.3	127.9	138.9	130.3	147.7	135.8	169.7	148.1	229.5	175.4	399.6	244.6		
DFERSBX3	36	RB-Q	-	51.47	-	53.80	-	59.45	-	71.91	-	98.97	-	167.9		
		SB-Q	113.3	-	116.3	-	124.4	-	144.8	-	200.3	-	365.4	-		
		CK-Q	97.74	94.59	100.8	96.86	109.1	102.4	129.8	114.8	185.8	141.6	351.1	210.0		
		RB-QB	102.5	-	105.3	-	112.6	-	131.5	-	185.4	-	349.6	-		
		SB-QB	-	55.86	-	58.33	-	64.19	-	77.05	-	104.5	-	171.7		
		CK-QB	145.5	137.4	148.2	139.3	155.5	144.0	174.1	155.1	228.0	181.2	392.2	248.9		



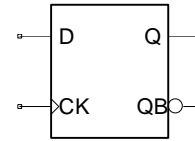
## Timing Constraint (ps)

Item \ Version	DFERSBX1	DFERSBX2	DFERSBX3
Setup Timing D / CK /	49.38	51.85	51.85
Setup Timing D \ CK /	76.51	76.51	78.98
Setup Timing EB / CK /	74.04	74.04	76.51
Setup Timing EB \ CK /	93.77	96.24	96.24
Hold Timing D / CK /	-20.73	-20.73	-20.73
Hold Timing D \ CK /	-28.12	-30.59	-30.59
Hold Timing EB / CK /	-20.73	-23.19	-23.19
Hold Timing EB \ CK /	-62.65	-65.11	-67.58
Minimum H-pulse Width CK	68.66	68.66	80.98
Minimum L-pulse Width CK	100.68	100.68	88.36
Minimum L-pulse Width RB	68.66	61.27	66.19
Minimum L-pulse Width SB	100.68	105.6	105.6
Recovery Timing RB / CK /	-22.12	-22.12	-19.66
Recovery Timing SB / CK /	7.466	7.466	9.932
Removal Timing RB / CK /	50.78	48.32	45.85
Removal Timing SB / CK /	8.863	6.397	3.931

Group Name : DFF

Symbol

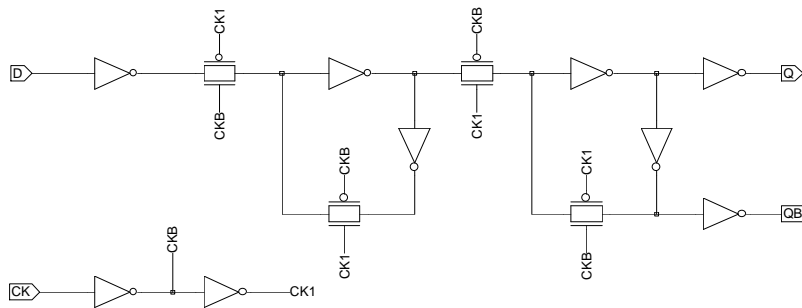
Function : D Flip-Flop



Truth Table

CK	D	Q	QB
	0	0	1
	1	1	0
	X	Q	QB

Schematic



Pin Order Q QB D CK

**Input Capacitance (ff) & Maximum Loading (ff) & Power Consumption (nW/MHz)**

Version	Input Capacitance		Maximum Loading		Power Consumption		
	D	CK	Q	QB	Q	D	CK
DFFX1	0.9810	1.392	212.6	212.6	12.09	1.967	3.700
DFFX2	0.9660	1.739	426.4	426.2	19.17	2.232	4.342
DFFX3	0.9780	2.002	638.8	638.8	25.43	2.425	4.986

**AC Characteristics ( Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ps)**

Version	Cell Unit	Path	Output Load											
			1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
DFFX1	18	CK-Q	86.83	89.78	92.22	93.50	104.3	100.9	133.2	115.4	204.6	145.9	383.1	217.6
		CK-QB	127.7	115.7	132.7	119.1	144.1	126.3	171.9	140.7	242.6	171.4	420.7	243.2

DFFX2	21	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		CK-Q	83.17	86.55	86.72	89.29	95.26	95.38	117.4	107.9	178.2	135.0	348.8	203.7
		CK-QB	112.0	105.6	114.6	107.7	121.5	112.6	142.2	123.7	202.1	149.8	372.5	218.4
DFFX3	25	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		CK-Q	85.17	89.62	87.95	91.82	95.15	97.22	114.2	109.3	169.3	135.6	334.4	203.1
		CK-QB	121.6	114.2	123.6	115.9	129.1	120.2	145.5	130.6	199.2	155.4	363.8	222.3

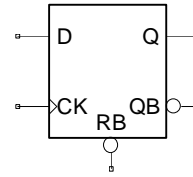
Timing Constraint (ps)

Item \ Version	DFFX1	DFFX2	DFFX3
Setup Timing D / CK /	32.12	29.66	29.66
Setup Timing D \ CK /	64.18	69.11	71.58
Hold Timing D / CK /	-5.932	-5.932	-5.932
Hold Timing D \ CK /	-10.864	-20.73	-23.19
Minimum H-pulse Width CK	48.95	61.27	61.27
Minimum L-pulse Width CK	129.0	125.3	120.4

Group Name : DFFRB

Symbol

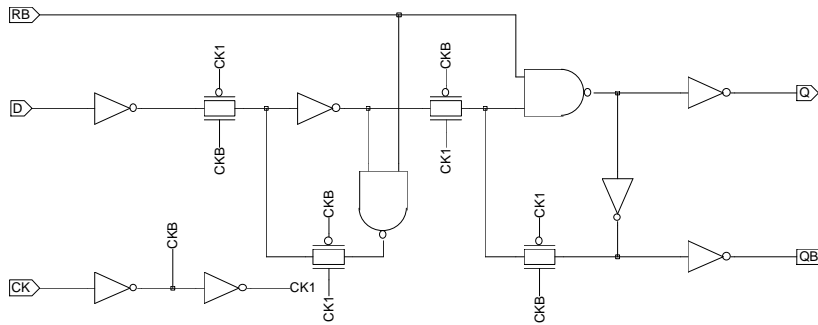
Function : D Flip-Flop with Clear



Truth Table

CK	D	RB	Q	QB
	0	1	0	1
	1	1	1	0
X	X	0	0	1

Schematic



Pin Order Q QB D CK RB

**Input Capacitance (ff) & Maximum Loading (ff) & Power Consumption (nW/MHz)**

Version	Input Capacitance			Maximum Loading		Power Consumption		
	D	CK	RB	Q	QB	Q	D	CK
DFFRBX1	1.097	1.320	1.503	212.3	212.6	12.68	2.514	3.762
DFFRBX2	0.9640	1.743	2.846	425.9	426.2	20.53	2.759	4.555
DFFRBX3	1.025	2.005	2.863	637.9	638.8	26.68	3.003	5.207

**AC Characteristics ( Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ps)**

Version	Cell Unit	Path	Output Load											
			1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
DFFRBX1	19	RB-Q	-	55.54	-	59.84	-	68.24	-	84.22	-	116.3	-	188.3
		CK-Q	100.7	96.84	107.1	100.9	120.8	109.1	151.1	124.6	223.0	156.2	401.6	228.4
		RB-QB	96.61	-	101.6	-	112.6	-	139.9	-	210.4	-	388.4	-
		CK-QB	137.0	142.2	141.9	145.8	153.0	153.2	180.6	168.3	250.8	199.8	428.9	272.1

DFFRBX2	23	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		RB-Q	-	45.41	-	48.29	-	54.73	-	67.84	-	95.59	-	165.1
		CK-Q	93.93	86.37	97.92	89.15	107.5	95.30	130.7	108.0	192.0	135.3	362.6	204.2
		RB-QB	71.75	-	74.42	-	81.43	-	102.0	-	162.1	-	332.5	-
CK-QB	112.1	119.0	114.7	120.9	121.7	125.6	142.4	136.7	202.4	162.6	372.8	231.1		
DFFRBX3	27	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		RB-Q	-	51.03	-	53.36	-	59.07	-	71.69	-	98.89	-	166.8
		CK-Q	97.41	88.92	100.5	91.15	108.7	96.64	129.3	108.9	185.3	135.5	350.6	203.2
		RB-QB	83.87	-	85.98	-	91.45	-	107.9	-	161.5	-	326.1	-
CK-QB	121.0	129.8	123.1	131.4	128.5	135.4	145.1	145.5	198.8	170.2	363.4	237.1		

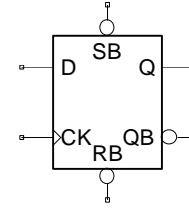
## Timing Constraint (ps)

Item	Version		
	DFFRBX1	DFFRBX2	DFFRBX3
Setup Timing D / CK /	34.59	34.59	32.12
Setup Timing D \ CK /	56.78	59.25	64.18
Hold Timing D / CK /	-10.864	-10.864	-8.398
Hold Timing D \ CK /	-15.80	-20.73	-23.19
Minimum H-pulse Width CK	61.27	66.19	69.89
Minimum L-pulse Width CK	125.3	120.4	108.1
Minimum L-pulse Width RB	85.90	61.27	66.19
Recovery Timing RB / CK /	-29.52	-22.12	-19.66
Removal Timing RB / CK /	53.25	45.85	40.92

Group Name : DFFRSB

Symbol

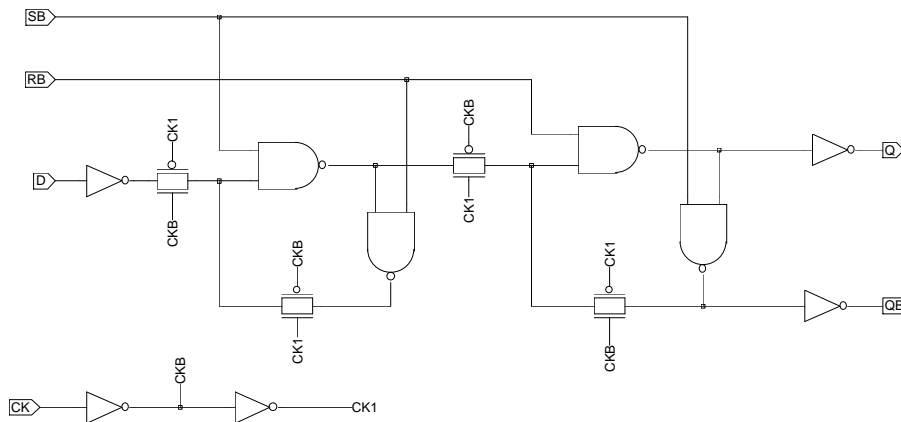
Function : D FLIP-FLOP With Clear/Set



Truth Table

CK	D	RB	SB	Q	QB
	0	1	1	0	1
	1	1	1	1	0
X	X	1	0	1	0
X	X	0	1	0	1
X	X	0	0	0	0

Schematic



Pin Order Q QB D CK RB SB

**Input Capacitance (ff) & Maximum Loading (ff) & Power Consumption (nW/MHz)**

Version	Input Capacitance				Maximum Loading		Power Consumption		
	D	CK	RB	SB	Q	QB	Q	D	CK
DFFRSBX1	1.097	1.320	1.875	3.030	212.5	212.5	14.57	2.665	3.782
DFFRSBX2	0.9670	1.739	3.097	4.388	425.9	425.9	23.02	3.123	4.703
DFFRSBX3	1.024	2.001	3.087	4.294	638.0	637.9	29.09	3.352	5.323

AC Characteristics ( Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ps)

Version	Cell Unit	Output Load												
		Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
DFFRSBX1	22	RB-Q	-	49.34	-	53.31	-	61.20	-	76.27	-	107.5	-	180.2
		SB-Q	109.9	-	116.0	-	129.2	-	158.8	-	230.1	-	408.6	-
		CK-Q	102.4	100.6	108.6	104.5	122.1	112.3	152.1	127.4	223.8	158.4	402.4	230.6
		RB-QB	95.59	-	101.3	-	113.8	-	142.4	-	213.2	-	391.4	-
		SB-QB	-	51.62	-	55.70	-	63.68	-	79.04	-	109.9	-	181.5
		CK-QB	146.8	133.1	152.5	136.4	164.9	143.4	193.6	157.6	264.4	188.1	442.5	259.8
					tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
DFFRSBX2	26	RB-Q	-	46.99	-	49.89	-	56.29	-	69.44	-	97.62	-	167.7
		SB-Q	107.9	-	111.8	-	121.3	-	144.2	-	205.2	-	375.7	-
		CK-Q	96.61	93.73	100.6	96.57	110.3	102.9	133.7	116.0	195.1	143.9	365.7	213.3
		RB-QB	84.71	-	88.14	-	96.48	-	117.9	-	178.0	-	348.2	-
		SB-QB	-	45.95	-	48.75	-	54.91	-	67.56	-	94.93	-	163.9
		CK-QB	131.4	123.9	134.8	126.0	143.1	131.1	164.5	142.5	224.6	168.9	394.7	237.7
					tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
DFFRSBX3	30	RB-Q	-	51.49	-	53.83	-	59.49	-	72.00	-	99.15	-	167.9
		SB-Q	113.2	-	116.3	-	124.3	-	144.7	-	200.3	-	365.3	-
		CK-Q	98.68	95.49	101.8	97.75	110.0	103.3	130.7	115.7	186.8	142.6	352.0	210.9
		RB-QB	97.37	-	100.00	-	106.9	-	125.0	-	178.7	-	343.1	-
		SB-QB	-	50.95	-	53.23	-	58.75	-	70.83	-	97.35	-	164.5
		CK-QB	141.3	133.3	143.8	134.9	150.6	139.1	168.6	149.5	222.5	174.6	386.7	241.7
					tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl

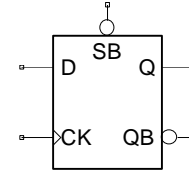
Timing Constraint (ps)

Item \ Version	DFFRSBX1	DFFRSBX2	DFFRSBX3
Setup Timing D / CK /	41.99	41.99	39.52
Setup Timing D \ CK /	69.11	74.04	78.98
Hold Timing D / CK /	-8.398	-10.864	-8.398
Hold Timing D \ CK /	-10.864	-20.73	-25.66
Minimum H-pulse Width CK	66.19	68.66	80.98
Minimum L-pulse Width CK	140.1	125.3	125.3
Minimum L-pulse Width RB	68.66	61.27	66.19
Minimum L-pulse Width SB	100.68	105.6	105.6
Recovery Timing RB / CK /	-24.59	-22.12	-19.66
Recovery Timing SB / CK /	5.000	7.466	9.932
Removal Timing RB / CK /	55.71	48.32	45.85
Removal Timing SB / CK /	8.863	8.863	6.397

Group Name : DFFSB

Symbol

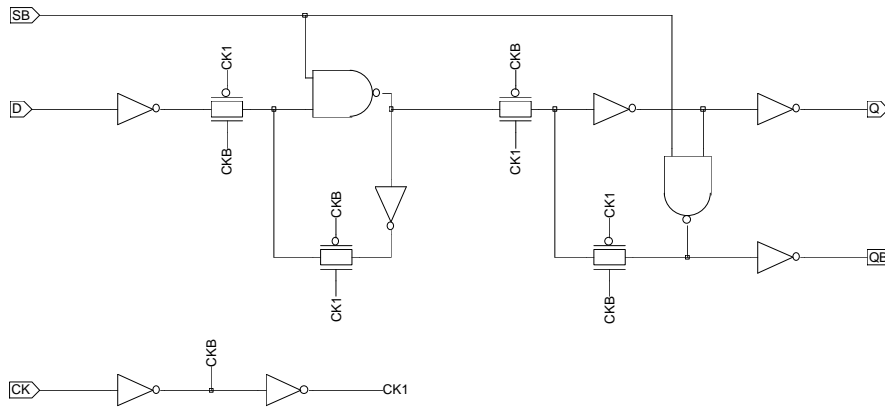
Function : D Flip-Flop with Set



Truth Table

CK	D	SB	Q	QB
	0	1	0	1
	1	1	1	0
X	X	0	1	0

Schematic



Pin Order Q QB D CK SB

**Input Capacitance (ff) & Maximum Loading (ff) & Power Consumption (nW/MHz)**

Version	Input Capacitance			Maximum Loading		Power Consumption		
	D	CK	SB	Q	QB	Q	D	CK
DFFSBX1	1.108	1.337	2.979	212.8	212.6	14.16	2.562	3.747
DFFSBX2	0.9550	1.741	4.163	426.3	425.8	22.17	2.974	4.620
DFFSBX3	1.026	2.002	3.996	638.9	637.9	28.19	3.205	5.292



## AC Characteristics ( Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ps)

Version	Cell Unit	Output Load												
		Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
DFFSBX1	21	SB-Q	90.52	-	95.71	-	107.5	-	136.1	-	207.4	-	385.8	-
		CK-Q	83.00	100.5	88.18	104.5	100.1	112.5	128.9	127.8	200.3	159.1	378.8	231.2
		SB-QB	-	55.51	-	59.66	-	67.95	-	83.32	-	113.4	-	184.7
		CK-QB	140.6	112.5	145.8	116.1	157.5	123.6	185.8	138.3	256.4	169.1	434.6	241.1
		Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff	
DFFSBX2	24	SB-Q	93.87	-	97.46	-	105.9	-	127.8	-	188.5	-	359.0	-
		CK-Q	84.28	94.07	87.88	96.92	96.55	103.2	118.7	116.2	179.5	144.1	350.1	213.3
		SB-QB	-	45.66	-	48.44	-	54.57	-	67.14	-	94.25	-	162.7
		CK-QB	131.5	108.9	134.9	111.1	143.0	116.2	164.4	127.7	224.3	154.1	394.4	222.9
		Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff	
DFFSBX3	28	SB-Q	97.47	-	100.3	-	107.4	-	126.2	-	181.1	-	346.2	-
		CK-Q	84.81	95.90	87.63	98.15	94.90	103.6	113.9	115.9	169.1	142.7	334.3	210.9
		SB-QB	-	51.01	-	53.29	-	58.78	-	70.86	-	96.97	-	163.5
		CK-QB	141.5	115.8	144.1	117.6	150.9	122.1	168.8	132.7	222.6	158.0	386.9	225.3
		Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff	

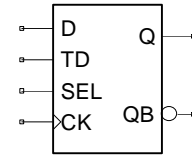
## Timing Constraint (ps)

Item	Version		
	DFFSBX1	DFFSBX2	DFFSBX3
Setup Timing D / CK /	41.99	38.29	37.06
Setup Timing D \ CK /	69.11	74.04	78.98
Hold Timing D / CK /	-8.398	-10.864	-8.398
Hold Timing D \ CK /	-15.80	-23.19	-25.66
Minimum H-pulse Width CK	61.27	61.27	66.19
Minimum L-pulse Width CK	140.1	127.8	125.3
Minimum L-pulse Width SB	80.98	85.90	85.90
Recovery Timing SB / CK /	5.000	9.932	9.932
Removal Timing SB / CK /	8.863	3.931	1.466

Group Name : DFZ

Symbol

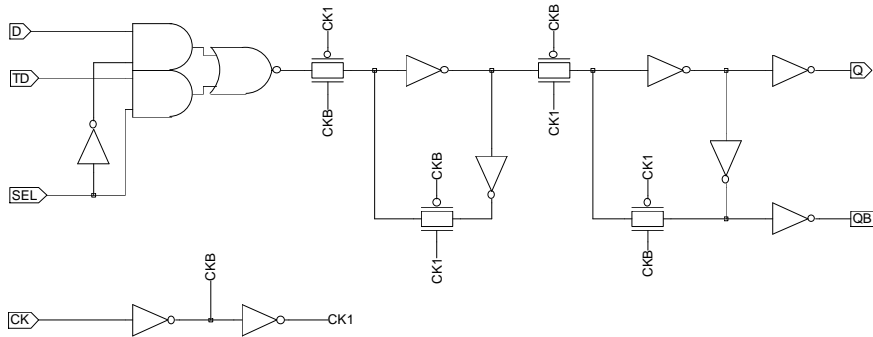
Function : D Flip-Flop with Scan



Truth Table

CK	D	TD	SEL	Q	QB
	0	X	0	0	1
	1	X	0	1	0
	X	0	1	0	1
	X	1	1	1	0
	X	X	X	Q	QB

Schematic



Pin Order Q QB D TD CK SEL

**Input Capacitance (ff) & Maximum Loading (ff) & Power Consumption (nW/MHz)**

Version	Input Capacitance				Maximum Loading		Power Consumption				
	D	TD	CK	SEL	Q	QB	Q	D	TD	CK	SEL
DFZX1	1.777	0.9500	1.310	2.900	212.6	212.6	12.16	3.624	4.801	3.668	5.501
DFZX2	1.752	0.8690	1.645	2.895	426.4	426.2	19.40	3.942	5.120	4.422	5.801
DFZX3	1.780	0.9130	2.008	2.919	638.9	638.9	25.55	4.107	5.268	5.032	5.989

## AC Characteristics ( Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ps)

Version	Cell Unit	Output Load												
		1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
DFZX1	24	Path	tph	tphl	tph	tphl	tph	tphl	tph	tphl	tph	tphl	tph	tphl
			86.71	88.93	92.10	92.63	104.3	100.1	133.1	114.6	204.5	145.1	383.0	216.8
		CK-Q	127.2	116.0	132.3	119.4	143.7	126.6	171.5	141.2	242.1	171.8	420.2	243.7
DFZX2	28	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff	
			tph	tphl	tph	tphl	tph	tphl	tph	tphl	tph	tphl	tph	tphl
		CK-Q	83.41	86.77	86.96	89.51	95.50	95.59	117.6	108.2	178.4	135.2	349.0	204.0
CK-QB	112.4	106.1	115.0	108.1	121.9	113.1	142.5	124.2	202.5	150.3	372.9	218.9		
DFZX3	31	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff	
			tph	tphl	tph	tphl	tph	tphl	tph	tphl	tph	tphl	tph	tphl
		CK-Q	85.29	89.74	88.09	91.95	95.31	97.38	114.4	109.5	169.5	135.9	334.6	203.4
CK-QB	122.0	114.7	124.1	116.4	129.6	120.7	146.0	131.2	199.7	156.1	364.3	223.1		

## Timing Constraint (ps)

Item	Version		
	DFZX1	DFZX2	DFZX3
Setup Timing D / CK /	41.99	39.52	41.99
Setup Timing D \ CK /	46.92	51.85	51.85
Setup Timing TD / CK /	83.91	83.91	86.37
Setup Timing TD \ CK /	189.9	202.3	204.7
Setup Timing SEL / CK /	189.9	199.8	204.7
Setup Timing SEL \ CK /	59.25	56.78	59.25
Hold Timing D / CK /	-18.26	-13.33	-13.33
Hold Timing D \ CK /	-15.80	-15.80	-20.73
Hold Timing TD / CK /	-47.85	-45.39	-42.92
Hold Timing TD \ CK /	-75.52	-75.52	-77.73
Hold Timing SEL / CK /	-47.85	-42.92	-40.45
Hold Timing SEL \ CK /	-17.03	-18.26	-23.19
Minimum H-pulse Width CK	61.27	61.27	61.27
Minimum L-pulse Width CK	109.3	105.6	100.68

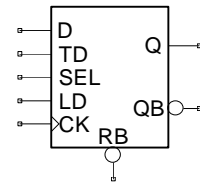
Group Name : DFZCLRB

Symbol

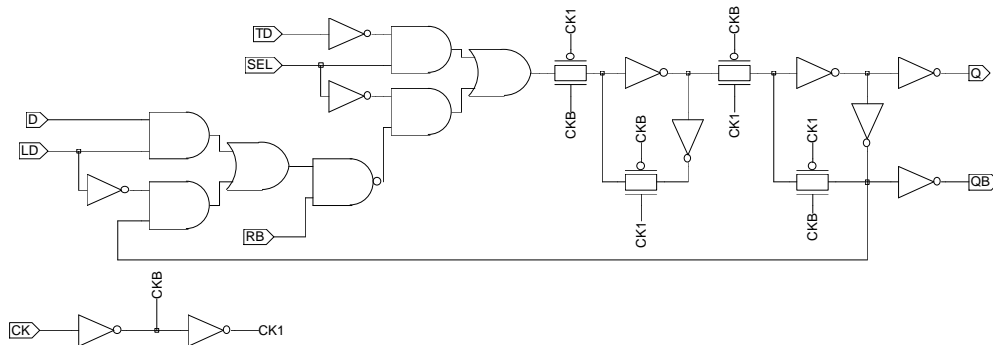
Function : D Flip-Flop with Synchronous Clear , Scan and Load

Truth Table

CK	D	LD	RB	TD	SEL	Q	QB
	X	X	X	0	1	0	1
	X	X	X	1	1	1	0
	X	X	0	X	0	0	1
	X	0	1	X	0	Q	QB
	0	1	1	X	0	0	1
	1	1	1	X	0	1	0
	X	X	X	X	X	Q	QB



Schematic



Pin Order Q QB D TD CK RB SEL LD

Input Capacitance (ff) &amp; Maximum Loading (ff)

Version	Input Capacitance						Maximum Loading	
	D	TD	CK	RB	SEL	LD	Q	QB
DFZCLRBX1	1.480	0.8830	1.289	1.603	2.268	2.802	212.6	212.6
DFZCLRBX2	1.492	0.8830	1.652	1.619	2.267	2.792	426.4	426.2
DFZCLRBX3	1.492	0.8830	1.988	1.603	2.266	2.736	638.9	638.9

Power Consumption (nW/MHz)

Version	Power Consumption					
	Q	D	TD	CK	RB	SEL
DFZCLRBX1	13.80	9.103	5.156	3.706	9.824	5.737
DFZCLRBX2	20.96	9.368	5.413	4.433	10.07	5.994
DFZCLRBX3	27.29	9.557	5.608	5.097	10.26	6.181

## AC Characteristics ( Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ps)

Version	Cell Unit	Output Load												
		1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
DFZCLRBX1	36	Path	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
			86.65	88.99	92.02	92.66	104.1	100.1	133.0	114.6	204.4	144.9	383.0	216.8
		CK-Q	137.9	128.8	143.7	133.2	156.3	141.7	185.0	158.2	255.2	190.9	433.3	263.7
DFZCLRBX2	39	Path	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
			83.36	86.76	86.90	89.48	95.41	95.51	117.5	108.0	178.4	135.1	349.0	203.9
		CK-QB	116.3	111.6	119.3	114.1	126.6	119.6	147.1	131.7	207.2	158.6	377.3	227.4
DFZCLRBX3	43	Path	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
			85.32	89.81	88.11	92.02	95.31	97.42	114.3	109.5	169.5	135.9	334.6	203.4
		CK-QB	125.9	120.1	128.2	122.1	134.2	127.0	150.9	138.3	204.3	164.4	368.8	231.9

## Timing Constraint (ps)

Item	Version		
	DFZCLRBX1	DFZCLRBX2	DFZCLRBX3
Setup Timing D / CK /	98.70	96.24	96.24
Setup Timing D \ CK /	106.1	108.6	111.0
Setup Timing TD / CK /	86.37	86.37	88.84
Setup Timing TD \ CK /	199.8	207.2	214.6
Setup Timing RB / CK /	104.9	101.2	103.6
Setup Timing RB \ CK /	98.70	98.70	101.2
Setup Timing SEL / CK /	207.2	214.6	219.5
Setup Timing SEL \ CK /	69.11	66.65	66.65
Setup Timing LD / CK /	120.9	125.8	128.3
Setup Timing LD \ CK /	108.6	108.6	106.1
Hold Timing D / CK /	-67.58	-67.58	-65.11
Hold Timing D \ CK /	-74.97	-77.44	-77.44
Hold Timing TD / CK /	-52.78	-45.39	-45.39
Hold Timing TD \ CK /	-77.73	-77.73	-79.95
Hold Timing RB / CK /	-74.97	-72.51	-72.51
Hold Timing RB \ CK /	-60.18	-65.11	-65.11
Hold Timing SEL / CK /	-45.39	-40.45	-40.45
Hold Timing SEL \ CK /	-23.19	-25.66	-25.66
Hold Timing LD / CK /	-82.37	-84.84	-84.84
Hold Timing LD \ CK /	-77.44	-77.44	-82.37
Minimum H-pulse Width CK	61.27	61.27	61.27
Minimum L-pulse Width CK	109.3	105.6	100.68

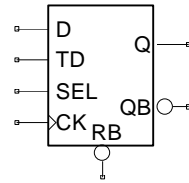
Group Name : DFZCRB

Symbol

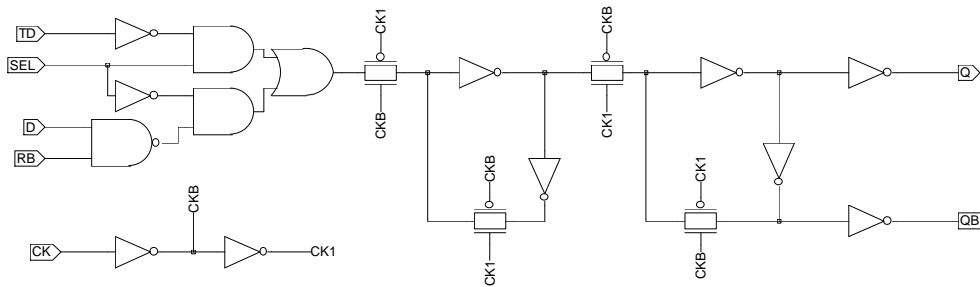
Function : D Flip-Flop with Synchronous Clear and Scan

Truth Table

CK	D	RB	TD	SEL	Q	QB
	X	X	0	1	0	1
	X	X	1	1	1	0
	X	0	X	0	0	1
	0	1	X	0	0	1
	1	1	X	0	1	0
	X	X	X	X	Q	QB



Schematic



Pin Order Q QB D TD CK SEL RB

**Input Capacitance (ff) & Maximum Loading (ff)**

Version	Input Capacitance					Maximum Loading	
	D	TD	CK	SEL	RB	Q	QB
DFZCRBX1	1.687	0.7820	1.282	2.363	1.805	212.6	212.6
DFZCRBX2	1.686	0.7820	1.642	2.363	1.805	426.4	426.2
DFZCRBX3	1.682	0.7830	1.995	2.368	1.825	638.9	638.9

**Power Consumption (nW/MHz)**

Version	Power Consumption					
	Q	D	TD	CK	SEL	RB
DFZCRBX1	12.11	5.159	3.768	3.603	4.881	5.521
DFZCRBX2	19.35	5.455	4.063	4.352	5.172	5.806
DFZCRBX3	25.50	5.626	4.260	4.976	5.354	6.000

## AC Characteristics ( Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ps)

Version	Cell Unit	Output Load												
		1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
DFZCRBX1	27	Path	tph	tphl	tph	tphl	tph	tphl	tph	tphl	tph	tphl	tph	tphl
			86.71	89.00	92.10	92.70	104.3	100.2	133.1	114.7	204.5	145.1	383.0	216.8
		CK-Q	127.3	115.9	132.3	119.4	143.7	126.6	171.6	141.1	242.1	171.7	420.3	243.7
DFZCRBX2	30	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff	
			tph	tphl	tph	tphl	tph	tphl	tph	tphl	tph	tphl	tph	tphl
		CK-Q	83.37	86.79	86.92	89.53	95.46	95.62	117.5	108.2	178.4	135.2	348.9	204.0
CK-QB	112.4	106.0	115.0	108.1	121.9	113.0	142.5	124.1	202.5	150.2	372.9	218.8		
DFZCRBX3	33	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff	
			tph	tphl	tph	tphl	tph	tphl	tph	tphl	tph	tphl	tph	tphl
		CK-Q	85.38	89.90	88.18	92.12	95.40	97.55	114.5	109.6	169.5	136.0	334.7	203.6
CK-QB	122.2	114.7	124.3	116.5	129.7	120.8	146.2	131.3	199.8	156.2	364.4	223.2		

## Timing Constraint (ps)

Item	Version		
	DFZCRBX1	DFZCRBX2	DFZCRBX3
Setup Timing D / CK /	69.11	66.65	69.11
Setup Timing D \ CK /	69.11	74.04	74.04
Setup Timing TD / CK /	69.11	69.11	71.58
Setup Timing TD \ CK /	160.3	167.7	170.2
Setup Timing SEL / CK /	182.5	185.0	189.9
Setup Timing SEL \ CK /	83.91	78.98	81.44
Setup Timing RB / CK /	71.58	69.11	69.11
Setup Timing RB \ CK /	74.04	78.98	78.98
Hold Timing D / CK /	-37.99	-35.52	-33.06
Hold Timing D \ CK /	-30.59	-35.52	-33.06
Hold Timing TD / CK /	-33.06	-33.06	-33.06
Hold Timing TD \ CK /	-62.20	-62.20	-64.42
Hold Timing SEL / CK /	-35.52	-35.52	-35.52
Hold Timing SEL \ CK /	-10.864	-13.33	-13.33
Hold Timing RB / CK /	-40.45	-37.99	-35.52
Hold Timing RB \ CK /	-28.12	-37.99	-37.99
Minimum H-pulse Width CK	48.95	61.27	61.27
Minimum L-pulse Width CK	120.4	105.6	100.68

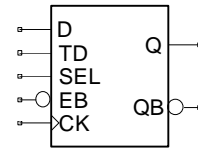
Group Name : DFZE

Symbol

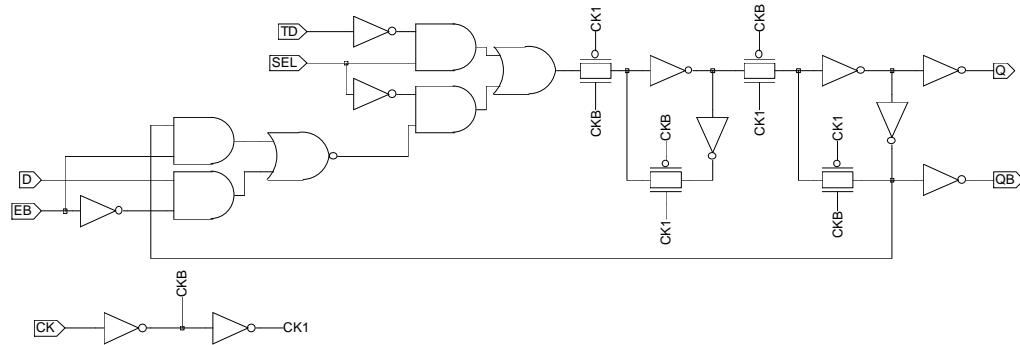
Function : Enabled Flip-Flops, Enabled Low, Scan, Dual Outputs

Truth Table

CK	D	TD	SEL	EB	Q	QB
	X	0	1	X	0	1
	X	1	1	X	1	0
	0	X	0	0	0	1
	1	X	0	0	1	0
	X	X	0	1	Q	QB
	X	X	X	X	Q	QB



Schematic



Pin Order Q QB D TD CK SEL EB

**Input Capacitance (ff) & Maximum Loading (ff) & Power Consumption (nW/MHz)**

Version	Input Capacitance					Maximum Loading		Power Consumption				
	D	TD	CK	SEL	EB	Q	QB	Q	D	TD	CK	SEL
DFZEX1	1.530	0.7720	1.301	2.589	2.579	212.6	212.6	13.51	5.441	7.005	3.642	7.872
DFZEX2	1.536	0.7710	1.666	2.589	2.577	426.3	426.2	20.75	5.697	7.257	4.375	8.120
DFZEX3	1.611	0.7720	1.996	2.551	2.576	638.9	638.9	27.03	5.904	7.457	5.026	8.303



## AC Characteristics ( Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ps)

Version	Cell Unit	Output Load												
		1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
DFZEX1	31	Path	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
			86.45	88.59	91.80	92.25	103.9	99.62	132.6	114.0	204.1	144.3	382.6	216.2
		CK-Q	136.3	134.9	142.1	139.5	154.6	148.6	183.1	166.1	253.6	200.4	431.7	274.2
DFZEX2	34	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		CK-Q	83.40	86.76	86.94	89.48	95.46	95.49	117.5	108.0	178.4	135.1	349.0	203.9
		CK-QB	116.1	110.4	119.1	112.7	126.3	118.1	146.9	130.0	207.0	156.9	377.2	225.8
DFZEX3	38	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		CK-Q	85.26	89.73	88.05	91.94	95.26	97.34	114.3	109.4	169.4	135.8	334.6	203.4
		CK-QB	125.7	118.8	128.0	120.8	133.9	125.5	150.7	136.6	204.2	162.5	368.6	230.3

## Timing Constraint (ps)

Item	Version		
	DFZEX1	DFZEX2	DFZEX3
Setup Timing D / CK /	76.51	74.04	74.04
Setup Timing D \ CK /	120.9	123.4	125.8
Setup Timing TD / CK /	113.5	113.5	116.0
Setup Timing TD \ CK /	244.2	244.2	256.5
Setup Timing SEL / CK /	305.8	308.3	313.2
Setup Timing SEL \ CK /	128.3	130.8	133.2
Setup Timing EB / CK /	86.37	83.91	86.37
Setup Timing EB \ CK /	113.5	111.0	111.0
Hold Timing D / CK /	-37.99	-37.99	-37.99
Hold Timing D \ CK /	-57.71	-60.18	-60.18
Hold Timing TD / CK /	-60.18	-57.71	-55.25
Hold Timing TD \ CK /	-112.0	-102.2	-114.4
Hold Timing SEL / CK /	-62.65	-60.18	-57.71
Hold Timing SEL \ CK /	-70.04	-74.97	-72.51
Hold Timing EB / CK /	-30.59	-28.12	-28.12
Hold Timing EB \ CK /	-77.73	-75.52	-77.73
Minimum H-pulse Width CK	61.27	61.27	61.27
Minimum L-pulse Width CK	100.68	90.21	85.90

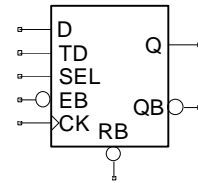
Group Name : DFZERB

Symbol

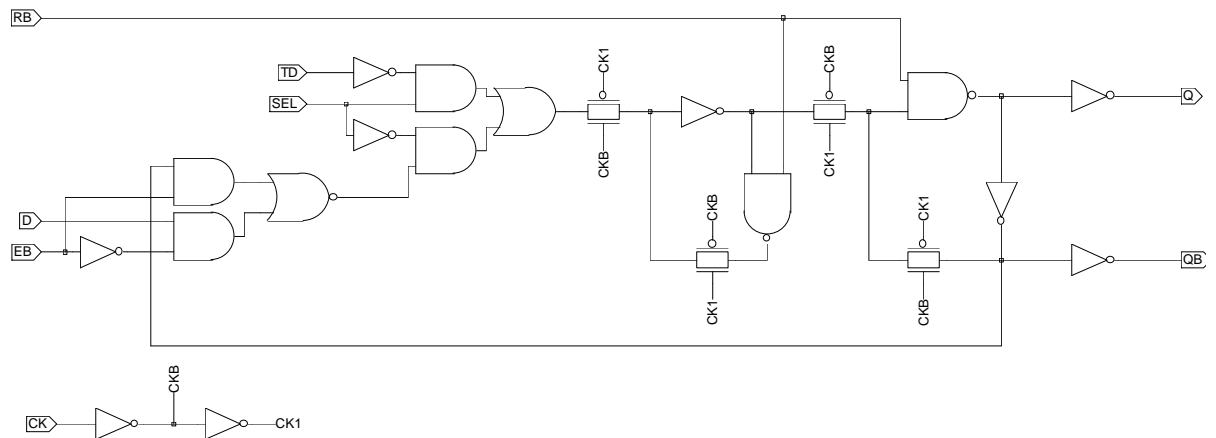
Function : Enabled Flip-Flops, Enabled Low, RB, Scan, Dual Outputs

Truth Table

CK	D	TD	SEL	EB	RB	Q	QB
	X	0	1	X	1	0	1
	X	1	1	X	1	1	0
	0	X	0	0	1	0	1
	1	X	0	0	1	1	0
	X	X	0	1	1	Q	QB
X	X	X	X	X	0	0	1



Schematic



Pin Order Q QB D TD CK SEL EB RB

**Input Capacitance (ff) & Maximum Loading (ff)**

Version	Input Capacitance						Maximum Loading	
	D	TD	CK	SEL	EB	RB	Q	QB
DFZERBX1	1.641	0.7730	1.312	2.561	2.542	1.502	212.3	212.6
DFZERBX2	1.641	0.7730	1.644	2.564	2.542	2.845	426.0	426.2
DFZERBX3	1.641	0.7730	2.034	2.568	2.542	2.840	637.9	638.8

**Power Consumption (nW/MHz)**

Version	Power Consumption				
	Q	D	TD	CK	SEL
DFZERBX1	13.58	6.002	7.596	3.778	8.447
DFZERBX2	21.41	6.263	7.850	4.552	8.721
DFZERBX3	27.57	6.483	8.064	5.222	8.945

## AC Characteristics (Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ps)

Version	Cell Unit	Output Load												
		Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
DFZERBX1	32	CK-Q	100.1	93.15	106.4	97.19	120.1	105.3	150.3	120.8	222.4	152.3	401.0	224.7
		RB-Q	-	55.47	-	59.73	-	68.10	-	84.07	-	116.1	-	188.2
		CK-QB	144.6	154.9	150.3	159.4	162.6	168.1	190.8	185.2	261.1	219.2	439.0	292.9
		RB-QB	106.9	-	112.5	-	124.5	-	152.4	-	222.4	-	400.3	-
		Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff	
DFZERBX2	36	CK-Q	92.88	85.23	96.85	88.00	106.4	94.10	129.7	106.8	191.0	134.1	361.6	203.0
		RB-Q	-	45.29	-	48.16	-	54.57	-	67.61	-	95.46	-	165.1
		CK-QB	114.8	122.7	117.8	125.0	125.2	130.2	145.7	142.1	205.9	169.0	376.2	237.9
		RB-QB	75.30	-	78.23	-	85.54	-	106.0	-	166.1	-	336.3	-
		Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff	
DFZERBX3	39	CK-Q	96.76	88.28	99.86	90.51	108.0	95.97	128.7	108.2	184.7	134.9	349.9	202.6
		RB-Q	-	50.98	-	53.31	-	59.00	-	71.58	-	98.77	-	166.8
		CK-QB	124.3	134.0	126.6	135.8	132.6	140.3	149.4	151.0	202.9	176.8	367.4	244.3
		RB-QB	87.52	-	89.84	-	95.72	-	112.3	-	165.8	-	330.2	-
		Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff	

## Timing Constraint (ps)

Item \ Version	DFZERBX1	DFZERBX2	DFZERBX3
Setup Timing D / CK /	78.98	74.04	76.51
Setup Timing D \ CK /	118.4	123.4	123.4
Setup Timing TD / CK /	113.5	113.5	113.5
Setup Timing TD \ CK /	226.9	229.4	231.9
Setup Timing SEL / CK /	293.5	296.0	298.4
Setup Timing SEL \ CK /	125.8	130.8	130.8
Setup Timing EB / CK /	93.77	93.77	93.77
Setup Timing EB \ CK /	113.5	111.0	113.5
Hold Timing D / CK /	-45.39	-45.39	-42.92
Hold Timing D \ CK /	-65.11	-65.11	-65.11
Hold Timing TD / CK /	-72.51	-67.58	-65.11
Hold Timing TD \ CK /	-102.2	-102.2	-102.2
Hold Timing SEL / CK /	-72.51	-70.04	-67.58
Hold Timing SEL \ CK /	-77.44	-79.91	-79.91
Hold Timing EB / CK /	-35.52	-35.52	-35.52
Hold Timing EB \ CK /	-84.84	-89.77	-89.77
Minimum H-pulse Width CK	66.19	66.19	70.50
Minimum L-pulse Width CK	100.68	85.90	80.98
Minimum L-pulse Width RB	80.98	61.27	66.19
Recovery Timing RB / CK /	-27.05	-22.12	-19.66
Removal Timing RB / CK /	48.32	43.38	40.92

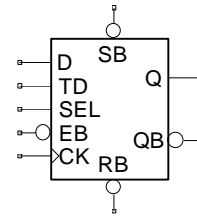
Group Name : DFZERSB

Symbol

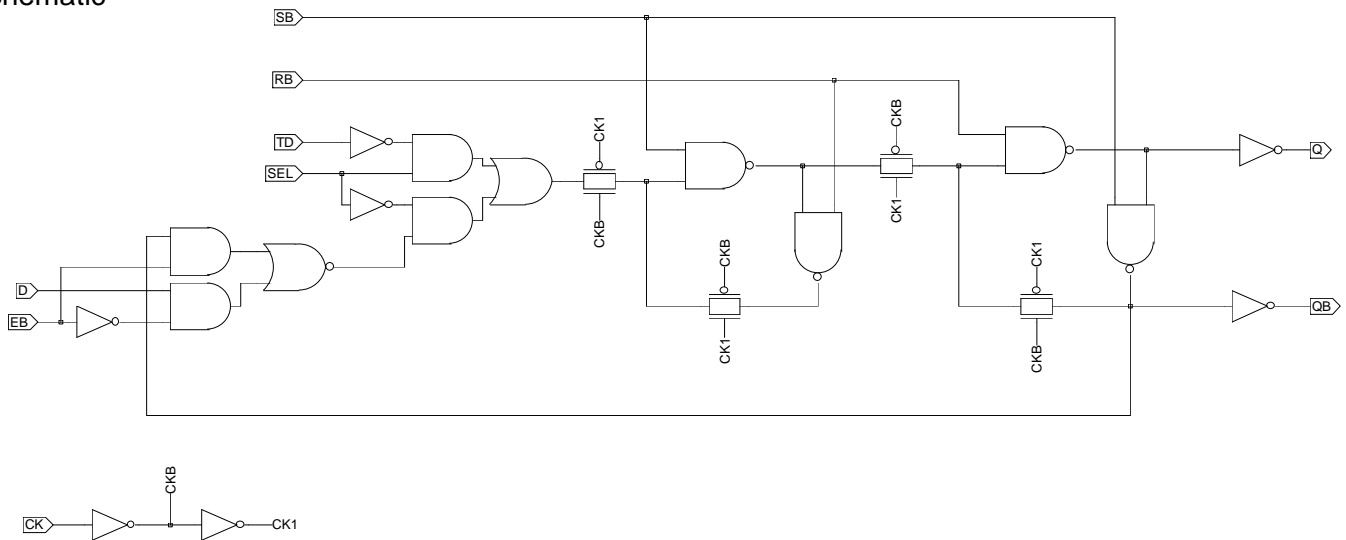
Function : Enabled Flip-Flops, Enabled Low, RB, SB,  
Scan, Dual Outputs

Truth Table

CK	D	TD	SEL	EB	RB	SB	Q	QB
	X	0	1	X	1	1	0	1
	X	1	1	X	1	1	1	0
	0	X	0	0	1	1	0	1
	1	X	0	0	1	1	1	0
	X	X	0	1	1	1	Q	QB
X	X	X	X	X	0	1	0	1
X	X	X	X	X	1	0	1	0
X	X	X	X	X	0	0	0	0



Schematic



Pin Order Q QB D TD CK SEL EB RB SB

Input Capacitance (ff) & Maximum Loading (ff)

Version	Input Capacitance							Maximum Loading	
	D	TD	CK	SEL	EB	RB	SB	Q	QB
DFZERSBX1	1.563	0.7720	1.302	2.596	2.648	1.887	3.019	212.5	212.5
DFZERSBX2	1.609	0.7710	1.667	2.597	2.647	3.085	4.351	425.9	425.8
DFZERSBX3	1.582	0.7710	2.029	2.561	2.646	3.087	4.279	638.0	637.8

## Power Consumption (nW/MHz)

Version	Power Consumption				
	Q	D	TD	CK	SEL
DFZERSBX1	15.76	6.089	7.523	3.796	8.446
DFZERSBX2	24.27	6.578	8.128	4.669	8.983
DFZERSBX3	30.47	6.796	8.329	5.309	9.189

## AC Characteristics ( Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ps)

Version	Cell Unit	Output Load													
		Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
DFZERSBX1	35	CK-Q	101.2	96.87	107.4	100.8	120.8	108.6	150.8	123.6	222.7	154.4	401.2	226.8	
		RB-Q	-	49.30	-	53.26	-	61.11	-	76.14	-	107.2	-	180.2	
		SB-Q	110.1	-	116.3	-	129.5	-	159.1	-	230.5	-	408.9	-	
		CK-QB	155.1	141.3	161.4	145.2	175.2	153.1	205.3	168.8	276.3	200.7	454.5	273.2	
		RB-QB	106.2	-	112.5	-	126.0	-	155.7	-	226.7	-	404.7	-	
		SB-QB	-	61.98	-	66.64	-	75.68	-	92.56	-	124.2	-	195.8	
		Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
DFZERSBX2	38	CK-Q	95.42	92.50	99.43	95.33	109.1	101.6	132.5	114.6	193.9	142.4	364.5	212.0	
		RB-Q	-	46.96	-	49.87	-	56.22	-	69.34	-	97.40	-	167.6	
		SB-Q	108.2	-	112.1	-	121.6	-	144.5	-	205.6	-	376.0	-	
		CK-QB	135.7	127.6	139.4	130.0	148.3	135.5	170.3	147.7	230.4	175.1	400.5	244.2	
		RB-QB	89.68	-	93.33	-	102.2	-	124.1	-	184.2	-	354.3	-	
		SB-QB	-	51.34	-	54.41	-	61.07	-	74.66	-	103.0	-	172.0	
		Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff		
DFZERSBX3	42	CK-Q	97.75	94.62	100.9	96.88	109.1	102.4	129.8	114.8	185.8	141.6	351.1	209.9	
		RB-Q	-	51.46	-	53.80	-	59.45	-	71.91	-	98.97	-	167.9	
		SB-Q	113.3	-	116.3	-	124.4	-	144.8	-	200.4	-	365.4	-	
		CK-QB	145.9	137.1	148.7	139.0	156.1	143.6	174.9	154.7	228.8	180.8	393.1	248.6	
		RB-QB	102.3	-	105.1	-	112.4	-	131.2	-	185.1	-	349.3	-	
		SB-QB	-	56.23	-	58.70	-	64.60	-	77.53	-	105.1	-	172.4	
		Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff		

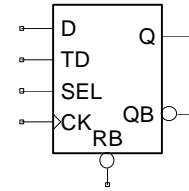
## Timing Constraint (ps)

Item	Version		
	DFZERSBX1	DFZERSBX2	DFZERSBX3
Setup Timing D / CK /	81.44	83.91	83.91
Setup Timing D \ CK /	135.7	138.2	140.6
Setup Timing TD / CK /	120.9	123.4	123.4
Setup Timing TD \ CK /	259.0	261.4	263.9
Setup Timing SEL / CK /	323.1	323.1	325.6
Setup Timing SEL \ CK /	145.6	148.0	148.0
Setup Timing EB / CK /	101.2	101.2	103.6
Setup Timing EB \ CK /	118.4	118.4	120.9
Hold Timing D / CK /	-42.92	-45.39	-42.92
Hold Timing D \ CK /	-65.11	-70.04	-70.04
Hold Timing TD / CK /	-65.11	-65.11	-65.11
Hold Timing TD \ CK /	-108.8	-111.0	-111.0
Hold Timing SEL / CK /	-70.04	-67.58	-67.58
Hold Timing SEL \ CK /	-79.91	-79.91	-79.91
Hold Timing EB / CK /	-33.06	-35.52	-35.52
Hold Timing EB \ CK /	-97.17	-91.05	-102.1
Minimum H-pulse Width CK	68.66	68.66	80.98
Minimum L-pulse Width CK	120.4	105.6	100.68
Minimum L-pulse Width RB	68.66	61.27	66.19
Minimum L-pulse Width SB	100.68	105.6	105.6
Recovery Timing RB / CK /	-22.12	-22.12	-19.66
Recovery Timing SB / CK /	7.466	7.466	9.932
Removal Timing RB / CK /	50.78	48.32	45.85
Removal Timing SB / CK /	8.863	6.397	3.931

Group Name : DFZRB

Symbol

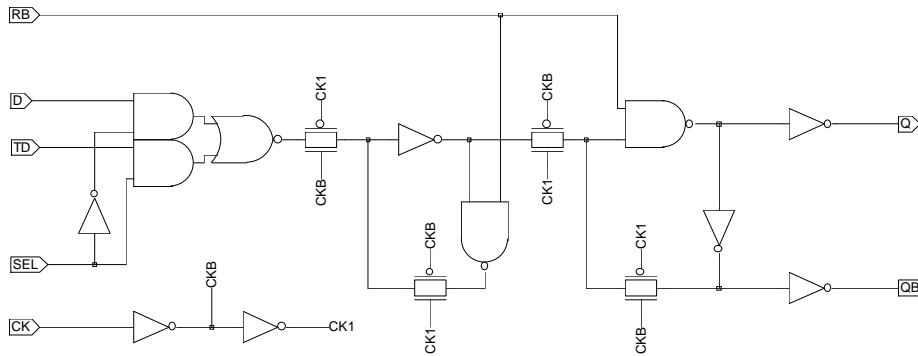
Function : D Flip-Flop with Clear and Scan



Truth Table

CK	D	RB	TD	SEL	Q	QB
	0	1	X	0	0	1
	1	1	X	0	1	0
	X	1	0	1	0	1
	X	1	1	1	1	0
	X	1	X	X	Q	QB
X	X	0	X	X	0	1

Schematic



Pin Order Q QB D TD CK SEL RB

**Input Capacitance (ff) & Maximum Loading (ff) & Power Consumption (nW/MHz)**

Version	Input Capacitance					Maximum Loading		Power Consumption				
	D	TD	CK	SEL	RB	Q	QB	Q	D	TD	CK	SEL
DFZRBX1	1.756	0.9000	1.323	2.896	1.502	212.3	212.6	12.72	4.155	5.367	3.803	6.049
DFZRBX2	1.790	0.9530	1.657	2.933	2.881	426.0	426.3	20.51	4.465	5.681	4.567	6.341
DFZRBX3	1.753	0.8630	2.012	2.894	2.842	637.9	638.8	26.83	4.675	5.917	5.237	6.592



## AC Characteristics ( Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ps)

Version	Cell Unit	Output Load												
		Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
DFZRBX1	25	RB-Q	-	55.53	-	59.83	-	68.23	-	84.21	-	116.3	-	188.3
		CK-Q	100.1	92.99	106.4	97.06	120.2	105.2	150.5	120.8	222.4	152.4	401.0	224.5
		RB-QB	96.96	-	101.9	-	113.0	-	140.4	-	210.8	-	388.8	-
		CK-QB	133.4	142.1	138.4	145.7	149.5	153.2	177.1	168.3	247.5	199.9	425.5	272.1
DFZRBX2	29	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		RB-Q	-	45.35	-	48.23	-	54.68	-	67.80	-	95.55	-	165.1
		CK-Q	92.90	85.22	96.88	88.01	106.5	94.18	129.7	106.9	191.0	134.2	361.6	203.1
		RB-QB	71.72	-	74.41	-	81.43	-	102.0	-	162.1	-	332.4	-
CK-QB	110.9	118.0	113.6	120.0	120.6	124.8	141.2	135.8	201.4	161.8	371.7	230.4		
DFZRBX3	33	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		RB-Q	-	51.02	-	53.35	-	59.07	-	71.68	-	98.88	-	166.8
		CK-Q	96.75	88.26	99.86	90.50	108.0	95.98	128.6	108.2	184.7	134.9	349.9	202.6
		RB-QB	84.10	-	86.22	-	91.71	-	108.2	-	161.7	-	326.4	-
CK-QB	120.6	129.5	122.7	131.1	128.2	135.1	144.7	145.2	198.4	170.0	363.0	237.0		

## Timing Constraint (ps)

Item	Version		
	DFZRBX1	DFZRBX2	DFZRBX3
Setup Timing D / CK /	44.45	41.99	44.45
Setup Timing D \ CK /	46.92	51.85	51.85
Setup Timing TD / CK /	83.91	83.91	86.37
Setup Timing TD \ CK /	189.9	194.9	197.3
Setup Timing SEL / CK /	192.4	197.3	199.8
Setup Timing SEL \ CK /	61.71	59.25	61.71
Hold Timing D / CK /	-20.73	-18.26	-18.26
Hold Timing D \ CK /	-15.80	-20.73	-20.73
Hold Timing TD / CK /	-52.78	-50.32	-50.32
Hold Timing TD \ CK /	-75.52	-75.52	-77.73
Hold Timing SEL / CK /	-50.32	-47.85	-47.85
Hold Timing SEL \ CK /	-18.26	-23.19	-23.19
Minimum H-pulse Width CK	66.19	66.19	69.89
Minimum L-pulse Width CK	105.6	100.68	90.21
Minimum L-pulse Width RB	85.90	61.27	66.19
Recovery Timing RB / CK /	-24.59	-22.12	-19.66
Removal Timing RB / CK /	48.32	43.38	40.92

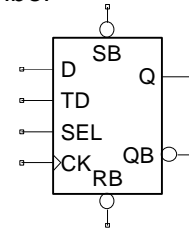
Group Name : DFZRSB

Symbol

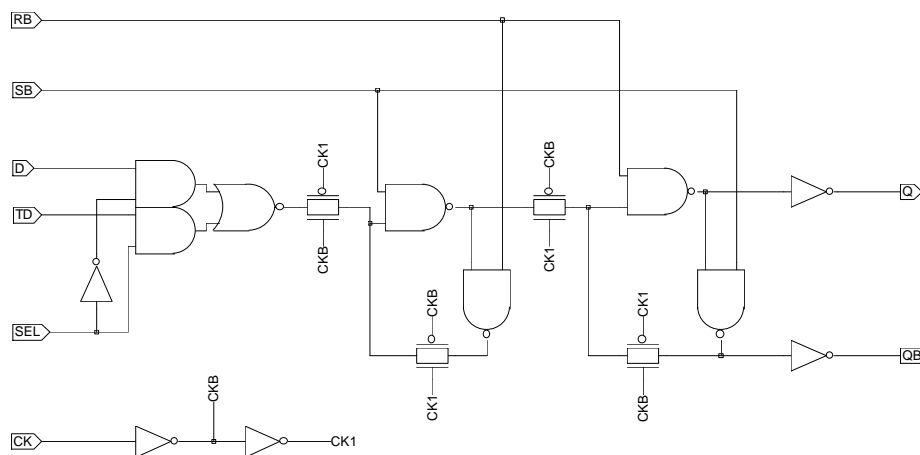
Function : D Flip-Flop with Clear/Set and Scan

Truth Table

CK	D	RB	SB	TD	SEL	Q	QB
	0	1	1	X	0	0	1
	1	1	1	X	0	1	0
	X	1	1	0	1	0	1
	X	1	1	1	1	1	0
	X	1	1	X	X	Q	QB
X	X	0	1	X	X	0	1
X	X	1	0	X	X	1	0
X	X	0	0	X	X	0	0



Schematic



Pin Order Q QB D TD CK SEL RB SB

Input Capacitance (ff) & Maximum Loading (ff)

Version	Input Capacitance						Maximum Loading	
	D	TD	CK	SEL	RB	SB	Q	QB
DFZRSBX1	1.756	0.9000	1.323	2.895	1.875	3.030	212.5	212.5
DFZRSBX2	1.753	0.8630	1.641	2.894	3.065	4.387	425.9	425.9
DFZRSBX3	1.752	0.8610	2.008	2.893	3.087	4.260	638.0	637.9

## Power Consumption (nW/MHz)

Version	Power Consumption				
	Q	D	TD	CK	SEL
DFZRSBX1	14.66	4.318	5.370	3.807	6.132
DFZRSBX2	23.13	4.809	5.970	4.699	6.667
DFZRSBX3	29.25	5.051	6.183	5.368	6.899

## AC Characteristics ( Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ps)

Version	Cell Unit	Output Load													
		Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
DFZRSBX1	28	RB-Q	-	49.34	-	53.31	-	61.20	-	76.27	-	107.5	-	180.2	
		SB-Q	109.9	-	116.0	-	129.3	-	158.8	-	230.2	-	408.6	-	
		CK-Q	101.3	96.86	107.5	100.8	121.0	108.6	151.0	123.7	222.7	154.7	401.3	226.8	
		RB-QB	95.95	-	101.6	-	114.2	-	142.8	-	213.7	-	391.8	-	
		SB-QB	-	51.93	-	56.03	-	64.04	-	79.45	-	110.3	-	182.0	
		CK-QB	143.5	132.3	149.1	135.7	161.6	142.7	190.4	157.0	261.1	187.5	439.2	259.2	
		Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff		
DFZRSBX2	32	RB-Q	-	46.99	-	49.89	-	56.29	-	69.43	-	97.61	-	167.7	
		SB-Q	107.8	-	111.8	-	121.3	-	144.2	-	205.2	-	375.6	-	
		CK-Q	95.48	92.51	99.49	95.35	109.2	101.7	132.6	114.7	193.9	142.7	364.5	212.0	
		RB-QB	84.96	-	88.39	-	96.76	-	118.2	-	178.3	-	348.5	-	
		SB-QB	-	46.18	-	48.99	-	55.18	-	67.86	-	95.28	-	164.2	
		CK-QB	130.4	123.0	133.8	125.2	142.1	130.2	163.5	141.7	223.6	168.1	393.7	236.9	
		Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff		
DFZRSBX3	36	RB-Q	-	51.49	-	53.83	-	59.49	-	71.99	-	99.14	-	167.9	
		SB-Q	113.2	-	116.2	-	124.3	-	144.6	-	200.2	-	365.3	-	
		CK-Q	97.77	94.61	100.9	96.89	109.1	102.4	129.8	114.8	185.9	141.7	351.1	210.0	
		RB-QB	97.67	-	100.3	-	107.2	-	125.3	-	179.1	-	343.5	-	
		SB-QB	-	51.23	-	53.52	-	59.06	-	71.18	-	97.76	-	164.9	
		CK-QB	140.7	132.7	143.3	134.4	150.1	138.5	168.1	148.9	221.9	174.1	386.2	241.3	
		Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff		

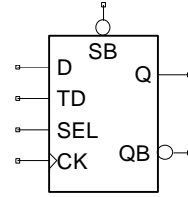
## Timing Constraint (ps)

Item \ Version	DFZRSBX1	DFZRSBX2	DFZRSBX3
Setup Timing D / CK /	46.92	49.38	49.38
Setup Timing D \ CK /	59.25	64.18	64.18
Setup Timing TD / CK /	91.30	93.77	93.77
Setup Timing TD \ CK /	214.6	219.5	222.0
Setup Timing SEL / CK /	214.6	219.5	222.0
Setup Timing SEL \ CK /	64.18	66.65	69.11
Hold Timing D / CK /	-18.26	-18.26	-20.73
Hold Timing D \ CK /	-18.26	-20.73	-20.73
Hold Timing TD / CK /	-50.32	-50.32	-50.32
Hold Timing TD \ CK /	-82.17	-84.39	-84.39
Hold Timing SEL / CK /	-47.85	-47.85	-47.85
Hold Timing SEL \ CK /	-20.73	-25.66	-23.19
Minimum H-pulse Width CK	66.19	68.66	80.98
Minimum L-pulse Width CK	127.8	120.4	120.4
Minimum L-pulse Width RB	68.66	61.27	66.19
Minimum L-pulse Width SB	100.68	105.6	105.6
Recovery Timing RB / CK /	-24.59	-22.12	-19.66
Recovery Timing SB / CK /	7.466	7.466	9.932
Removal Timing RB / CK /	50.78	48.32	45.85
Removal Timing SB / CK /	8.863	6.397	3.931

Group Name : DFZSB

Symbol

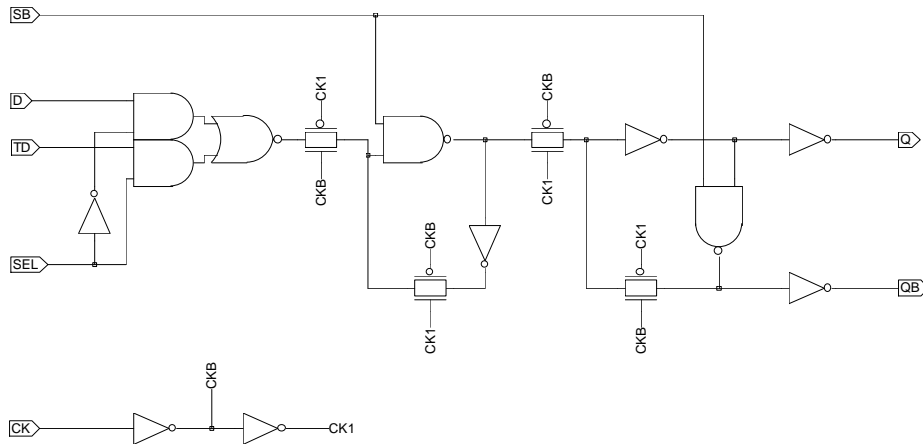
Function : D Flip-Flop with Set and Scan



Truth Table

CK	D	SB	TD	SEL	Q	QB
	0	1	X	0	0	1
	1	1	X	0	1	0
	X	1	0	1	0	1
	X	1	1	1	1	0
	X	1	X	X	Q	QB
X	X	0	X	X	1	0

Schematic



Pin Order Q QB D TD CK SEL SB

**Input Capacitance (ff) & Maximum Loading (ff) & Power Consumption (nW/MHz)**

Version	Input Capacitance					Maximum Loading		Power Consumption				
	D	TD	CK	SEL	SB	Q	QB	Q	D	TD	CK	SEL
DFZSBX1	1.792	0.9750	1.314	2.936	2.961	212.8	212.6	14.23	4.212	5.273	3.794	6.016
DFZSBX2	1.754	0.8610	1.646	2.894	4.163	426.3	425.8	22.27	4.665	5.776	4.647	6.470
DFZSBX3	1.754	0.8620	2.003	2.894	4.005	638.9	637.9	28.33	4.865	6.000	5.334	6.694

## AC Characteristics ( Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ps)

Version	Cell Unit	Output Load													
		Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
DFZSBX1	27	SB-Q	90.50	-	95.69	-	107.5	-	136.1	-	207.3	-	385.8	-	
		CK-Q	82.20	97.03	87.39	101.0	99.34	109.0	128.1	124.3	199.5	155.6	378.0	227.7	
		SB-QB	-	55.82	-	59.99	-	68.31	-	83.71	-	113.8	-	185.1	-
		CK-QB	137.4	112.1	142.7	115.7	154.4	123.2	182.6	137.9	253.2	168.8	431.4	240.8	
		Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff		
DFZSBX2	30	SB-Q	93.81	-	97.41	-	105.9	-	127.8	-	188.4	-	358.9	-	
		CK-Q	83.15	92.90	86.77	95.74	95.41	102.0	117.5	115.1	178.4	142.9	349.0	212.2	
		SB-QB	-	45.91	-	48.70	-	54.84	-	67.46	-	94.60	-	163.1	-
		CK-QB	130.6	108.0	133.9	110.2	142.1	115.4	163.5	126.9	223.5	153.4	393.6	222.2	
		Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff		
DFZSBX3	34	SB-Q	97.42	-	100.2	-	107.4	-	126.2	-	181.0	-	346.2	-	
		CK-Q	84.02	95.11	86.85	97.38	94.12	102.9	113.1	115.2	168.3	142.0	333.5	210.1	
		SB-QB	-	51.29	-	53.57	-	59.09	-	71.20	-	97.36	-	163.8	-
		CK-QB	141.1	115.3	143.6	117.1	150.4	121.6	168.4	132.3	222.2	157.6	386.4	224.9	
		Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff		

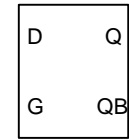
## Timing Constraint (ps)

Item	Version	DFZSBX1	DFZSBX2	DFZSBX3
Setup Timing D / CK /		46.92	44.45	46.92
Setup Timing D \ CK /		59.25	64.18	66.65
Setup Timing TD / CK /		86.37	88.84	88.84
Setup Timing TD \ CK /		209.7	219.5	222.0
Setup Timing SEL / CK /		209.7	219.5	222.0
Setup Timing SEL \ CK /		64.18	66.65	69.11
Hold Timing D / CK /		-18.26	-18.26	-18.26
Hold Timing D \ CK /		-18.26	-20.73	-20.73
Hold Timing TD / CK /		-50.32	-47.85	-47.85
Hold Timing TD \ CK /		-77.73	-79.95	-79.95
Hold Timing SEL / CK /		-47.85	-45.39	-45.39
Hold Timing SEL \ CK /		-23.19	-25.66	-25.66
Minimum H-pulse Width CK		61.27	61.27	66.19
Minimum L-pulse Width CK		127.8	125.3	120.4
Minimum L-pulse Width SB		80.98	80.98	85.90
Recovery Timing SB / CK /		5.000	9.932	9.932
Removal Timing SB / CK /		8.863	3.931	1.466

Group Name : DLAH

Symbol

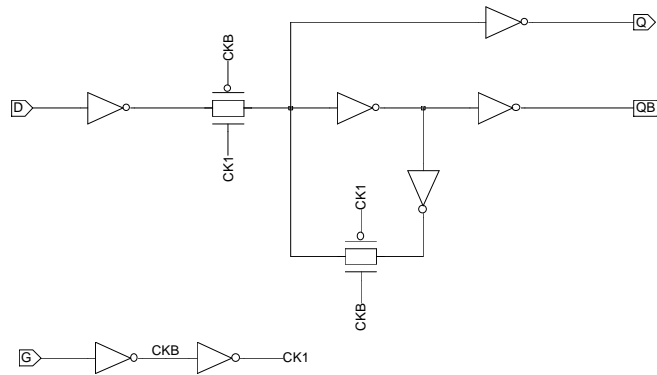
Function : D Latch



Truth Table

G	D	Q	QB
1	0	0	1
1	1	1	0
0	X	Q	QB

Schematic



Pin Order Q QB D G

Input Capacitance (ff) &amp; Maximum Loading (ff) &amp; Power Consumption (nW/MHz)

Version	Input Capacitance		Maximum Loading		Power Consumption		
	D	G	Q	QB	Q	D	G
DLAHX1	1.697	1.363	212.7	212.8	10.05	0.482	3.376
DLAHX2	2.025	1.693	425.5	426.2	17.31	0.672	4.169
DLAHX3	2.024	2.032	637.0	638.8	25.10	0.766	4.798

## AC Characteristics ( Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ps)

Version	Cell Unit	Output Load												
DLAHX1	15	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		D-Q	47.05	66.16	53.13	71.06	66.33	80.68	96.07	98.72	167.8	133.0	346.5	206.8
		G-Q	74.96	68.02	80.97	72.85	94.04	82.41	123.8	100.3	195.5	134.5	374.1	208.2
		D-QB	97.09	75.57	101.3	78.88	111.6	85.82	139.0	99.91	209.7	130.1	387.9	201.8
		G-QB	98.93	103.6	103.2	107.0	113.5	113.8	141.0	127.9	211.6	158.1	389.8	229.7
DLAHX2	17	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		D-Q	51.20	72.82	55.47	76.54	65.90	84.99	90.34	102.4	152.2	136.4	323.0	210.0
		G-Q	74.44	73.05	78.70	76.82	89.03	85.31	113.5	102.7	175.3	136.6	346.1	210.1
		D-QB	106.6	77.17	109.0	79.02	114.9	83.62	133.9	94.50	193.1	120.3	363.1	188.9
		G-QB	106.9	100.5	109.3	102.4	115.3	106.9	134.2	117.8	193.4	143.6	363.4	211.9
DLAHX3	20	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		D-Q	58.26	83.94	61.54	86.89	70.41	94.29	92.46	111.0	149.7	145.7	315.2	220.8
		G-Q	78.03	82.92	81.29	85.88	90.12	93.31	112.1	110.0	169.4	144.7	335.0	219.7
		D-QB	128.2	92.93	130.0	94.41	134.5	98.08	148.3	107.8	199.7	132.2	363.6	199.0
		G-QB	127.2	112.8	129.1	114.3	133.6	118.0	147.3	127.6	198.8	152.1	362.6	218.8

## Timing Constraint (ps)

Item	Version		
	DLAHX1	DLAHX2	DLAHX3
Setup Timing D / G \	9.068	16.46	26.33
Setup Timing D \ G \	48.52	53.45	63.32
Hold Timing D / G \	4.795	-0.136	-7.534
Hold Timing D \ G \	-8.161	-14.82	-23.70
Minimum H-pulse Width G	61.27	66.19	80.98



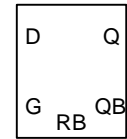
Group Name : DLAHRB

Symbol

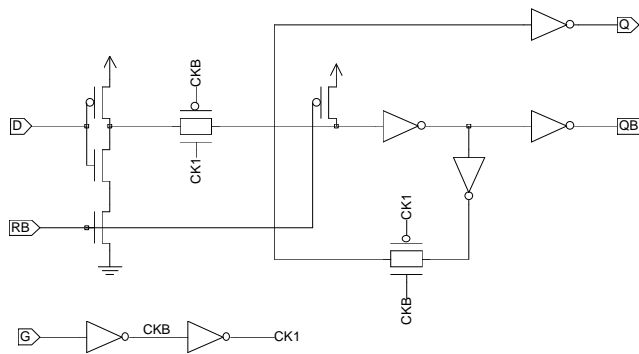
Function : D Latch with Clear

Truth Table

G	D	RB	Q	QB
1	0	1	0	1
1	1	1	1	0
X	X	0	0	1
0	X	1	Q	QB



Schematic



Pin Order Q QB D G RB

Input Capacitance (ff) &amp; Maximum Loading (ff) &amp; Power Consumption (nW/MHz)

Version	Input Capacitance			Maximum Loading		Power Consumption		
	D	G	RB	Q	QB	Q	D	G
DLAHRBX1	1.591	1.361	2.234	212.5	212.8	10.48	0.494	3.426
DLAHRBX2	1.884	1.694	2.529	424.8	426.3	17.98	0.687	4.219
DLAHRBX3	1.889	2.040	2.564	635.5	638.9	26.20	0.774	4.844

## AC Characteristics ( Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ps)

Version	Cell Unit	Output Load												
		Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
DLAHRBX1	17	RB-Q	63.31	50.19	70.16	54.67	84.89	63.45	116.4	79.77	188.9	111.8	367.6	184.2
		D-Q	64.35	70.68	71.18	75.80	85.93	85.83	117.4	104.6	189.9	139.9	368.6	214.4
		G-Q	88.43	72.38	95.22	77.44	109.9	87.44	141.4	106.2	213.8	141.4	392.6	215.9
		RB-QB	78.65	95.79	83.26	99.07	94.20	106.0	122.2	120.2	193.1	150.6	371.4	222.2
		D-QB	102.9	96.78	107.2	100.1	117.6	107.0	144.9	121.3	215.6	151.6	393.8	223.2
		G-QB	104.7	121.2	109.0	124.4	119.4	131.3	146.7	145.6	217.4	175.8	395.6	247.4
				Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff	
DLAHRBX2	19	RB-Q	69.39	52.48	74.08	55.89	85.68	63.40	112.6	78.58	176.5	108.7	347.5	179.1
		D-Q	70.50	76.72	75.21	80.60	86.79	89.35	113.7	107.3	177.6	142.1	348.6	216.7
		G-Q	89.79	76.81	94.48	80.68	106.1	89.47	133.0	107.4	196.9	142.2	367.9	216.8
		RB-QB	81.07	98.21	83.79	99.99	90.62	104.4	111.0	115.3	170.9	141.3	341.2	209.7
		D-QB	111.2	99.32	113.6	101.1	119.6	105.5	138.6	116.5	197.8	142.4	367.7	210.8
		G-QB	111.3	118.8	113.8	120.6	119.8	125.0	138.8	135.9	198.0	161.8	368.0	230.0
				Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff	
DLAHRBX3	22	RB-Q	79.59	58.74	83.17	61.43	92.89	68.08	117.4	82.49	177.8	112.4	344.2	182.4
		D-Q	80.86	88.30	84.43	91.42	94.13	99.09	118.7	116.2	179.0	151.8	345.3	228.2
		G-Q	96.60	87.05	100.2	90.10	109.9	97.75	134.4	115.0	194.8	150.5	361.1	226.8
		RB-QB	94.96	118.5	97.12	119.9	102.5	123.2	118.5	132.6	171.9	157.1	336.3	223.7
		D-QB	133.3	119.8	135.3	121.1	139.9	124.4	153.7	133.9	205.2	158.3	369.1	224.9
		G-QB	132.2	135.8	134.1	137.1	138.7	140.4	152.6	149.8	204.0	174.3	367.8	240.7
				Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff	

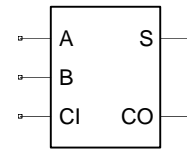
## Timing Constraint (ps)

Item	Version		
	DLAHRBX1	DLAHRBX2	DLAHRBX3
Setup Timing D / G \	31.26	36.19	48.52
Setup Timing D \ G \	53.45	58.38	68.25
Hold Timing D / G \	-7.534	-14.93	-24.79
Hold Timing D \ G \	-29.73	-34.66	-42.05
Minimum H-pulse Width G	66.19	69.89	80.98
Minimum L-pulse Width RB	68.66	68.66	80.98
Recovery Timing RB / G \	33.52	38.45	50.78
Removal Timing RB / G \	-9.794	-17.19	-29.52

Group Name : FA1

Symbol

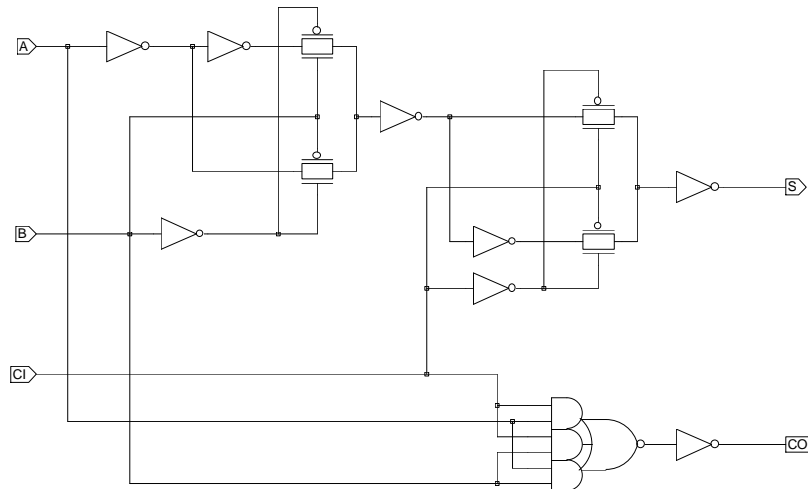
Function : 1 Bit Full Adder



Truth Table

A	B	CI	S	CO
0	0	0	0	0
0	0	1	1	0
1	0	0	1	0
1	0	1	0	1
0	1	0	1	0
0	1	1	0	1
1	1	0	0	1
1	1	1	1	1

Schematic



Pin Order S CO A B CI

Input Capacitance (ff) & Maximum Loading (ff) & Power Consumption (nW/MHz)

Version	Input Capacitance			Maximum Loading		Power Consumption
	A	B	CI	S	CO	S
FA1X1	4.774	6.161	5.864	212.6	212.6	11.56
FA1X2	5.747	7.260	7.105	425.6	425.7	17.38
FA1X3	5.774	7.238	7.049	637.4	637.5	22.76

## AC Characteristics ( Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ps)

Version : FA1X1

Cell Unit = 33

State	Output Load													
	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
A CI	B-S	83.61	74.73	89.47	79.62	102.2	89.09	131.3	106.7	202.7	140.6	381.2	214.2	
0 1	B-S	109.8	120.5	115.5	124.9	128.1	133.8	157.3	150.4	228.7	183.3	407.3	256.3	
1 0	B-S	83.70	105.1	89.38	109.5	102.0	118.3	131.2	134.9	202.5	167.9	381.1	240.8	
0 0	B-S	99.24	100.9	105.1	105.7	117.8	115.3	147.0	132.9	218.4	166.8	396.8	240.4	
B CI	A-S	103.3	88.15	109.2	93.02	122.0	102.6	151.2	120.1	222.5	154.0	401.0	227.6	
0 1	A-S	116.7	132.1	122.3	136.6	134.8	145.4	164.1	162.0	235.5	194.9	414.1	267.9	
1 0	A-S	97.10	123.4	102.8	127.9	115.4	136.6	144.5	153.2	215.9	186.2	394.5	259.1	
0 0	A-S	110.9	107.7	116.8	112.6	129.6	122.1	158.8	139.6	229.9	173.6	408.5	247.1	
B CI	CI-S	71.86	43.65	77.48	48.00	89.96	56.60	119.0	73.17	190.5	106.4	369.1	179.8	
0 1	CI-S	71.93	43.65	77.59	47.99	90.05	56.60	119.1	73.17	190.5	106.4	369.1	179.8	
1 0	CI-S	35.48	51.71	41.21	56.01	53.95	64.62	83.24	81.09	154.6	113.9	333.0	186.8	
0 0	CI-S	35.43	51.71	41.18	56.01	53.91	64.62	83.06	81.09	154.5	113.9	333.0	186.8	
A CI	B-CO	42.86	65.95	48.56	70.51	61.17	79.40	90.26	96.04	161.7	128.9	340.4	202.2	
0 1	B-CO	42.77	66.48	48.56	70.88	61.26	79.52	90.53	95.97	162.2	128.7	341.1	201.9	
B CI	A-CO	40.46	66.12	46.41	70.69	59.34	79.62	88.74	96.29	160.0	129.1	338.5	202.4	
0 1	A-CO	47.00	60.27	52.74	64.74	65.44	73.74	94.65	91.10	166.5	125.2	345.2	199.5	
B CI	CI-CO	42.45	53.71	48.11	58.56	60.60	68.15	89.64	85.98	161.2	120.4	339.8	194.6	
0 1	CI-CO	41.07	57.93	46.86	62.32	59.57	70.95	88.66	87.39	160.0	120.2	338.6	193.4	
1 0	CI-CO													

Version : FA1X2

Cell Unit = 36

State	Output Load													
A CI	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 1	B-S	89.83	76.84	93.94	80.36	103.8	88.16	127.2	103.9	188.3	135.5	358.8	207.6	
1 0	B-S	112.0	126.2	115.9	129.5	125.6	136.7	148.9	151.7	210.0	182.5	380.6	253.7	
0 0	B-S	87.09	110.8	91.09	114.1	100.7	121.3	123.9	136.2	185.0	167.0	355.7	238.3	
1 1	B-S	105.4	101.9	109.5	105.4	119.3	113.2	142.7	128.9	203.8	160.6	374.3	232.6	
B CI	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 1	A-S	108.5	89.60	112.6	93.11	122.5	100.9	146.0	116.7	207.0	148.3	377.5	220.4	
1 0	A-S	119.6	138.2	123.5	141.5	133.1	148.7	156.3	163.7	217.5	194.4	388.1	265.7	
0 0	A-S	99.74	128.2	103.7	131.4	113.3	138.7	136.5	153.6	197.6	184.4	368.3	255.7	
1 1	A-S	117.5	109.3	121.6	112.8	131.4	120.6	154.8	136.3	215.7	167.9	386.4	240.0	
A B	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 1	CI-S	79.72	45.99	83.70	49.25	93.26	56.46	116.3	71.28	177.4	102.2	348.1	174.1	
1 0	CI-S	79.81	46.00	83.89	49.25	93.43	56.46	116.5	71.29	177.6	102.2	348.2	174.1	
0 0	CI-S	37.57	53.18	41.56	56.35	51.28	63.40	74.63	78.15	135.8	108.7	306.4	180.0	
1 1	CI-S	37.55	53.18	41.54	56.35	51.26	63.40	74.64	78.15	135.8	108.7	306.3	180.0	
A CI	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 1	B-CO	41.38	67.22	45.29	70.62	54.69	78.07	77.64	93.10	138.6	123.8	309.3	195.5	
1 0	B-CO	41.39	67.65	45.33	70.92	54.84	78.15	77.80	92.95	139.2	123.5	310.0	195.1	
B CI	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 1	A-CO	39.03	67.75	43.13	71.12	52.89	78.60	76.17	93.66	137.2	124.3	307.9	195.9	
1 0	A-CO	45.42	61.23	49.33	64.50	58.78	71.89	81.68	87.33	142.9	119.2	313.8	192.2	
A B	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 1	CI-CO	41.33	55.38	45.20	58.88	54.51	66.78	77.27	82.78	138.3	115.1	309.1	188.1	
1 0	CI-CO	40.10	60.08	44.05	63.35	53.61	70.61	76.61	85.43	137.6	116.0	308.2	187.5	

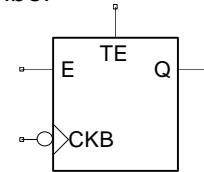
Version : FA1X3

Cell Unit = 38

State	Output Load													
A CI	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 1	B-S	95.02	82.87	98.19	85.68	106.6	92.59	127.6	107.8	183.5	139.5	348.8	212.2	
1 0	B-S	117.6	135.5	120.7	138.1	129.0	144.6	149.7	159.2	205.7	190.1	371.0	261.7	
0 0	B-S	92.69	120.0	95.80	122.7	104.1	129.2	124.8	143.7	180.6	174.6	346.0	246.3	
1 1	B-S	110.6	107.9	113.7	110.7	122.2	117.6	143.2	132.9	199.0	164.5	364.2	237.1	
B CI	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 1	A-S	113.9	95.66	117.0	98.44	125.5	105.3	146.5	120.6	202.5	152.3	367.6	224.9	
1 0	A-S	125.1	147.5	128.2	150.1	136.4	156.6	157.2	171.1	213.1	202.0	378.5	273.7	
0 0	A-S	105.3	137.4	108.4	140.1	116.7	146.5	137.4	161.1	193.3	192.0	358.6	263.7	
1 1	A-S	122.6	115.3	125.8	118.1	134.2	125.0	155.2	140.2	211.2	171.9	376.3	244.5	
A B	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 1	CI-S	85.50	50.72	88.57	53.39	96.76	60.03	117.3	74.61	173.1	105.6	338.5	178.0	
1 0	CI-S	85.47	50.72	88.60	53.40	96.81	60.03	117.4	74.60	173.2	105.7	338.5	178.1	
0 0	CI-S	43.32	62.26	46.44	64.84	54.77	71.29	75.73	85.70	131.6	116.5	296.9	188.1	
1 1	CI-S	43.30	62.26	46.42	64.84	54.76	71.29	75.68	85.70	131.7	116.5	297.0	188.1	
A CI	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 1	B-CO	46.65	76.87	49.70	79.60	57.76	86.31	78.08	101.1	133.7	132.0	299.1	204.0	
1 0	B-CO	46.80	77.27	49.86	79.90	57.98	86.48	78.37	101.0	134.3	131.6	299.8	203.6	
B CI	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 1	A-CO	44.40	77.51	47.55	80.21	55.89	86.93	76.67	101.7	132.6	132.6	297.8	204.6	
1 0	A-CO	51.17	70.97	54.21	73.61	62.30	80.25	82.61	95.14	138.5	127.0	304.0	200.5	
A B	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 1	CI-CO	47.04	65.25	50.06	68.03	58.06	75.05	78.27	90.52	133.9	122.7	299.3	196.4	
1 0	CI-CO	45.80	69.82	48.87	72.42	57.05	78.94	77.53	93.38	133.2	124.1	298.5	196.1	

Group Name : GCBES  
 Function : Gated Falling Edge Clock , Enable,  
 Synchronous Test Control

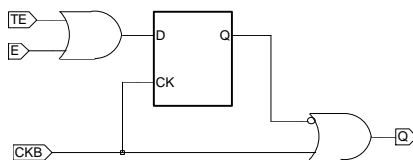
Symbol



Truth Table

TE	E	CKB	Q
0	0		1
0	0	1	1
1	X		0
1	X	1	1
X	1		0
X	1	1	1

Schematic



Pin Order Q E TE CKB

**Input Capacitance (ff) & Maximum Loading (ff) & Power Consumption (nW/MHz)**

Version	Input Capacitance			Maximum Loading	Power Consumption			
	E	TE	CKB	Q	Q	E	TE	CKB
GCBESX1	1.867	1.981	2.741	213.1	6.673	3.041	3.281	4.467
GCBESX1P	1.859	1.997	2.934	296.0	7.293	3.059	3.300	4.437
GCBESX2	1.859	1.981	2.919	426.3	8.319	3.087	3.327	4.472
GCBESX3	1.859	1.981	3.535	639.0	10.55	3.336	3.571	4.748
GCBESX4	1.859	1.991	4.412	852.5	12.39	3.602	3.840	4.932
GCBESX6	1.859	1.981	5.278	1278.8	16.85	4.138	4.372	5.204
GCBESX8	1.859	1.987	7.147	1704.9	21.16	4.651	4.902	5.722
GCBESX12	1.866	1.981	8.865	2557.2	29.97	5.772	6.026	6.485

## AC Characteristics ( Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ps)

Version	Cell Unit	Output Load													
		Path		1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
GCBESX1	17	Path		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		CKB-Q	36.39	42.01	41.93	47.99	54.09	60.69	82.77	88.74	153.8	155.7	332.2	322.6	
GCBESX1P	18	Path		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		CKB-Q	38.54	43.74	43.04	48.48	52.58	58.40	73.85	79.31	125.4	126.9	254.3	243.3	
GCBESX2	18	Path		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		CKB-Q	40.83	47.76	44.97	52.18	54.60	62.42	77.41	85.81	138.0	143.9	308.5	303.5	
GCBESX3	23	Path		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		CKB-Q	41.88	48.17	45.02	51.57	53.06	60.16	72.88	80.92	128.0	134.3	293.0	289.0	
GCBESX4	24	Path		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		CKB-Q	38.38	44.85	40.81	47.48	47.11	54.22	62.50	70.51	104.2	111.4	228.0	227.7	
GCBESX6	29	Path		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		CKB-Q	38.17	44.72	40.07	46.80	45.51	52.60	59.77	67.74	100.7	108.1	232.0	231.6	
GCBESX8	35	Path		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		CKB-Q	37.72	44.17	39.23	45.82	43.76	50.67	56.08	63.79	91.40	99.24	207.7	208.7	
GCBESX12	45	Path		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		CKB-Q	37.60	44.03	38.73	45.27	42.41	49.23	53.19	60.74	85.31	93.33	197.0	198.7	

## Timing Constraint (ps)

Item	Version				
	GCBESX1	GCBESX1P	GCBESX2	GCBESX3	GCBESX4
Setup Timing E / CKB \	19.71	19.71	22.42	22.42	25.13
Setup Timing E \ CKB \	60.36	60.36	60.36	65.78	71.20
Setup Timing TE / CKB \	22.42	22.42	22.42	25.13	27.84
Setup Timing TE \ CKB \	63.07	63.07	63.07	68.49	76.62
Hold Timing E / CKB \	-15.71	-15.71	-18.42	-18.42	-21.13
Hold Timing E \ CKB \	-17.74	-17.74	-20.18	-20.18	-22.62
Hold Timing TE / CKB \	-18.42	-18.42	-18.42	-21.13	-23.84
Hold Timing TE \ CKB \	-20.18	-20.18	-20.18	-22.62	-25.06
Minimum H-pulse Width CKB	31.09	31.09	31.09	41.56	41.56



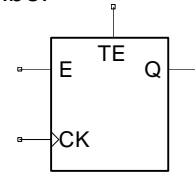
## Timing Constraint (ps)

Item \ Version	GCBESX6	GCBESX8	GCBESX12
Setup Timing E / CKB \	30.55	33.26	41.39
Setup Timing E \ CKB \	84.75	95.59	117.3
Setup Timing TE / CKB \	30.55	35.97	44.10
Setup Timing TE \ CKB \	87.46	98.30	120.0
Hold Timing E / CKB \	-26.55	-29.26	-37.39
Hold Timing E \ CKB \	-27.50	-29.94	-37.25
Hold Timing TE / CKB \	-26.55	-31.97	-40.10
Hold Timing TE \ CKB \	-27.50	-32.38	-39.69
Minimum H-pulse Width CKB	41.56	41.56	61.27

Group Name : GCKES

Function : Gated Rising Edge Clock , Enable,  
Synchronous Test Control

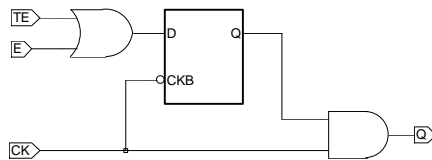
Symbol



Truth Table

TE	E	CK	Q
0	0		0
0	0	0	0
1	X		1
1	X	0	0
X	1		1
X	1	0	0

Schematic



Pin Order Q E TE CK

Input Capacitance (ff) &amp; Maximum Loading (ff) &amp; Power Consumption (nW/MHz)

Version	Input Capacitance			Maximum Loading	Power Consumption			
	E	TE	CK	Q	Q	E	TE	CK
GCKESX1	1.628	1.626	2.934	213.0	6.439	2.584	2.763	4.144
GCKESX1P	1.624	1.626	2.944	295.7	7.042	2.567	2.742	4.120
GCKESX2	1.987	2.034	3.360	426.2	8.287	3.266	3.498	4.390
GCKESX3	1.998	2.030	4.103	639.1	10.52	3.490	3.726	4.724
GCKESX4	1.993	2.030	4.958	852.5	12.41	3.706	3.938	4.826
GCKESX6	1.993	2.030	6.648	1278.8	16.72	4.152	4.383	5.250
GCKESX8	1.991	2.034	7.623	1704.9	21.12	4.668	4.920	5.536
GCKESX12	1.987	2.030	11.21	2557.1	29.30	5.465	5.714	6.271

## AC Characteristics ( Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ps)

Version	Cell Unit	Output Load													
		Path		1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
GCKESX1	17	Path		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		CK-Q	36.90	38.07	42.75	43.68	55.41	55.97	84.43	84.79	155.5	155.7	333.9	333.6	
GCKESX1P	18	Path		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		CK-Q	39.89	39.42	44.61	43.86	54.66	53.13	76.43	73.64	128.2	122.7	257.2	244.8	
GCKESX2	18	Path		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		CK-Q	38.59	37.92	42.77	41.98	52.55	51.29	75.70	73.93	136.5	134.6	307.0	304.5	
GCKESX3	23	Path		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		CK-Q	36.43	37.46	39.60	40.56	47.66	48.23	67.72	67.69	123.0	122.8	288.0	287.3	
GCKESX4	24	Path		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		CK-Q	36.39	35.94	38.89	38.40	45.33	44.57	61.14	59.74	103.1	101.4	226.9	224.8	
GCKESX6	32	Path		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		CK-Q	35.18	36.17	37.12	38.09	42.64	43.42	57.23	57.39	98.50	98.20	229.9	229.2	
GCKESX8	35	Path		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		CK-Q	35.89	35.38	37.46	36.93	42.08	41.42	54.72	53.43	90.59	88.78	206.9	204.8	
GCKESX12	45	Path		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		CK-Q	35.26	34.90	36.41	36.04	40.16	39.71	51.21	50.17	83.75	82.11	195.6	193.6	

## Timing Constraint (ps)

Item	Version				
	GCKESX1	GCKESX1P	GCKESX2	GCKESX3	GCKESX4
Setup Timing E / CK /	44.10	44.10	38.68	41.39	46.81
Setup Timing E \ CK /	54.94	54.94	49.52	54.94	54.94
Setup Timing TE / CK /	46.81	46.81	41.39	44.10	46.81
Setup Timing TE \ CK /	60.36	57.65	52.23	57.65	60.36
Hold Timing E / CK /	-40.10	-40.10	-34.68	-37.39	-42.81
Hold Timing E \ CK /	-39.69	-39.69	-34.81	-37.25	-42.13
Hold Timing TE / CK /	-42.81	-42.81	-37.39	-40.10	-42.81
Hold Timing TE \ CK /	-42.13	-42.13	-37.25	-39.69	-42.13
Minimum L-pulse Width CK	61.27	61.27	61.27	61.27	61.27

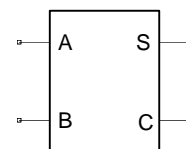
## Timing Constraint (ps)

Item \ Version	GCKESX6	GCKESX8	GCKESX12
Setup Timing E / CK /	52.23	60.36	68.49
Setup Timing E \ CK /	60.36	63.07	68.49
Setup Timing TE / CK /	52.23	63.07	71.20
Setup Timing TE \ CK /	63.07	65.78	71.20
Hold Timing E / CK /	-48.23	-56.36	-64.49
Hold Timing E \ CK /	-47.01	-59.07	-64.49
Hold Timing TE / CK /	-48.23	-59.07	-67.20
Hold Timing TE \ CK /	-47.01	-61.78	-67.20
Minimum L-pulse Width CK	66.19	66.19	68.66

Group Name : HA1

Symbol

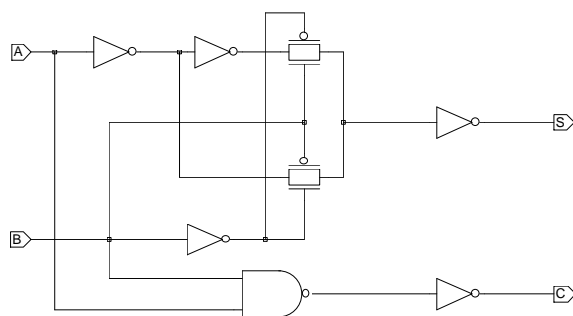
Function : 1 Bit Half Adder



Truth Table

A	B	S	C
0	0	0	0
0	1	1	0
1	0	1	0
1	1	0	1

Schematic



Pin Order S C A B

Input Capacitance (ff) &amp; Maximum Loading (ff) &amp; Power Consumption (nW/MHz)

Version	Input Capacitance		Maximum Loading		Power Consumption
	A	B	S	C	S
HA1X1	3.659	4.418	212.6	212.7	7.913
HA1X2	4.345	5.135	425.3	425.8	12.65
HA1X3	4.808	5.421	637.2	637.8	18.00

## AC Characteristics ( Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ps)

Version : HA1X1

Cell Unit = 18

State	Output Load													
B	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
1	A-S	68.28	72.40	74.03	76.82	86.67	85.67	115.7	102.4	187.3	135.5	365.9	208.6	
0	A-S	49.13	59.55	54.92	64.30	67.68	73.70	96.87	91.25	168.1	125.1	346.7	198.7	
A	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
1	B-S	65.13	63.04	70.85	67.43	83.46	76.19	112.4	92.78	183.8	125.7	362.3	199.0	
0	B-S	39.44	48.07	45.20	52.19	57.91	60.53	87.16	76.86	158.5	110.0	337.2	183.3	
	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
	A-C	31.51	49.38	36.79	53.14	48.76	60.46	77.66	74.55	148.8	104.6	327.4	176.3	
	B-C	31.66	43.44	36.89	46.98	48.85	54.05	77.56	67.74	148.9	97.48	327.4	169.0	

Version : HA1X2

Cell Unit = 20

State	Output Load													
B	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
1	A-S	70.32	78.68	74.35	82.04	84.01	89.58	107.3	105.1	168.5	136.9	339.2	209.3	
0	A-S	51.34	62.63	55.37	66.10	65.14	73.99	88.56	90.19	149.6	122.8	320.2	195.7	
A	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
1	B-S	63.18	69.07	67.16	72.42	76.87	79.88	100.1	95.37	161.2	127.0	331.7	199.4	
0	B-S	43.20	52.04	47.17	55.22	56.82	62.47	80.13	77.78	141.2	109.7	312.0	182.4	
	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
	A-C	34.29	50.15	38.01	52.97	47.06	59.18	69.55	71.83	130.3	99.05	301.0	168.2	
	B-C	35.21	45.38	38.90	48.03	47.85	53.93	70.28	66.20	131.1	93.12	301.7	162.0	

Version : HA1X3

Cell Unit = 24

State	Output Load													
B	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
1	A-S	73.47	82.67	76.56	85.28	84.81	91.79	105.5	106.4	161.4	137.2	326.8	209.1	
0	A-S	55.63	64.38	58.75	67.07	67.09	73.80	87.92	88.78	143.9	120.3	309.1	192.7	
A	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
1	B-S	68.33	74.10	71.45	76.71	79.76	83.28	100.5	97.73	156.3	128.4	321.4	200.3	
0	B-S	48.44	55.75	51.52	58.28	59.75	64.61	80.41	78.89	136.4	109.8	301.7	182.0	
	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
	A-C	38.77	53.28	41.70	55.51	49.41	60.97	69.24	72.89	124.6	99.06	289.8	166.6	
	B-C	40.20	49.03	43.10	51.14	50.75	56.33	70.45	67.91	125.8	93.75	291.0	161.1	

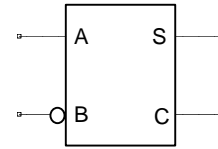
Group Name : HA2

Symbol

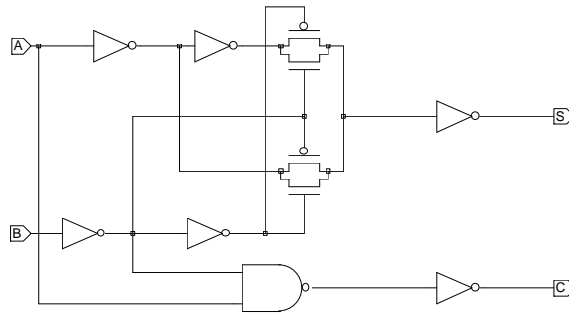
Function : 1 Bit Half Adder, Inverted Carry-In

Truth Table

A	B	S	C
0	0	1	0
0	1	0	0
1	0	0	1
1	1	1	0



Schematic



Pin Order S C A B

Input Capacitance (ff) &amp; Maximum Loading (ff) &amp; Power Consumption (nW/MHz)

Version	Input Capacitance		Maximum Loading		Power Consumption
	A	B	S	C	S
HA2X1	1.360	6.995	212.6	221.0	8.511
HA2X2	2.346	12.82	425.7	441.7	16.38
HA2X3	2.309	16.76	637.6	662.6	23.10



## AC Characteristics ( Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ps)

Version : HA2X1

Cell Unit = 15

State	Output Load													
B	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0	A-S	99.62	92.19	104.8	96.78	116.5	106.0	144.4	123.4	214.8	157.2	392.9	230.9	
1	A-S	60.90	87.02	67.02	92.91	80.28	104.7	109.9	126.3	181.1	164.8	359.6	241.9	
A	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
1	B-S	32.66	57.82	38.50	62.49	51.50	71.78	81.12	89.20	152.7	123.1	331.3	196.9	
0	B-S	63.82	41.21	69.44	45.79	81.93	54.96	111.0	72.79	182.3	108.4	360.9	184.1	
	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
	A-C	54.77	64.98	59.55	67.43	71.16	72.69	99.16	83.11	168.7	102.9	342.4	142.7	
	B-C	26.71	6.659	31.88	9.037	43.96	14.01	72.19	23.50	141.3	41.65	314.7	79.73	

Version : HA2X2

Cell Unit = 22

State	Output Load													
B	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0	A-S	97.35	90.55	101.0	93.73	109.7	100.9	131.3	115.9	191.0	146.6	360.8	218.1	
1	A-S	61.54	80.44	65.70	84.52	75.73	93.80	99.46	112.4	160.6	147.8	331.2	222.9	
A	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
1	B-S	32.24	53.28	36.14	56.56	45.86	63.94	69.50	78.95	130.9	109.8	301.5	181.5	
0	B-S	59.54	39.37	63.40	42.58	72.73	49.76	95.63	64.89	156.6	97.01	327.3	170.7	
	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
	A-C	55.28	60.23	58.22	61.73	66.18	65.46	87.63	73.97	147.0	91.71	313.1	130.3	
	B-C	25.43	5.987	28.65	7.553	37.17	11.25	59.12	19.33	118.1	35.95	283.7	73.13	

Version : HA2X3

Cell Unit = 29

State	Output Load													
B	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0	A-S	117.5	107.7	120.3	110.3	127.6	116.6	146.0	131.0	199.1	161.7	362.6	233.6	
1	A-S	72.59	95.98	75.80	99.30	84.46	107.7	106.0	126.4	162.4	163.6	327.6	241.5	
A	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
1	B-S	36.16	62.88	39.22	65.51	47.44	72.11	68.63	86.73	125.1	117.7	290.6	189.6	
0	B-S	64.25	42.66	67.29	45.32	75.29	51.88	95.61	66.55	151.3	98.88	316.6	174.0	
	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
	A-C	61.24	70.13	63.52	71.38	70.08	74.78	88.75	83.12	142.6	101.6	303.4	141.9	
	B-C	24.61	5.568	27.07	6.754	33.97	9.874	52.88	17.20	106.5	33.00	266.9	69.53	

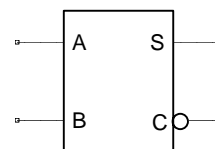
Group Name : HA3

Symbol

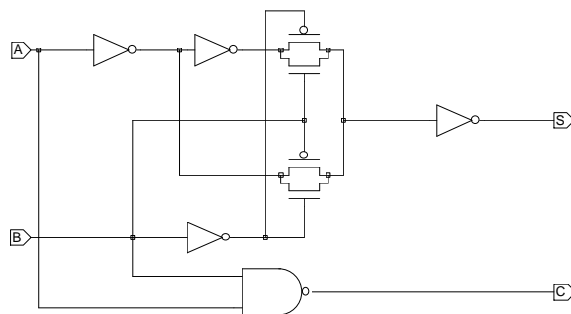
Function : 1 Bit Half Adder, Inverted Carry-Out

Truth Table

A	B	S	C
0	0	0	1
0	1	1	1
1	0	1	1
1	1	0	0



Schematic



Pin Order S C A B

Input Capacitance (ff) &amp; Maximum Loading (ff) &amp; Power Consumption (nW/MHz)

Version	Input Capacitance		Maximum Loading		Power Consumption
	A	B	S	C	S
HA3X1	4.033	4.965	212.6	211.2	6.178
HA3X2	7.282	8.819	425.7	422.2	11.73
HA3X3	9.521	10.62	637.7	633.2	16.30

## AC Characteristics ( Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ps)

Version : HA3X1

Cell Unit = 13

State	Output Load													
B	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
1	A-S	68.23	75.29	73.88	79.98	86.38	89.34	115.4	106.6	186.9	140.8	365.4	214.4	
0	A-S	46.71	64.35	52.48	69.34	65.17	79.28	94.25	97.67	165.6	132.6	344.1	206.8	
A	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
1	B-S	56.54	63.65	62.22	68.35	74.72	77.53	103.8	94.73	175.1	128.8	353.6	202.4	
0	B-S	37.41	49.54	43.08	53.99	55.64	62.97	84.77	80.31	156.1	114.6	334.7	188.6	
	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
	A-C	26.44	14.40	32.07	18.86	44.77	28.60	73.92	50.19	145.2	101.1	323.5	226.8	
	B-C	21.80	13.76	27.90	18.97	41.14	29.90	70.65	52.74	142.0	104.2	320.5	229.6	

Version : HA3X2

Cell Unit = 17

State	Output Load													
B	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
1	A-S	65.17	72.29	69.06	75.52	78.43	82.89	101.3	97.89	162.4	128.8	333.1	200.4	
0	A-S	46.41	58.90	50.35	62.37	59.86	70.16	82.76	85.92	143.9	117.6	314.4	189.7	
A	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
1	B-S	51.26	59.16	55.13	62.40	64.48	69.67	87.28	84.50	148.2	115.5	318.8	186.9	
0	B-S	38.37	44.52	42.25	47.70	51.64	54.86	74.57	69.80	135.6	101.0	306.2	172.9	
	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
	A-C	24.53	12.83	28.14	15.77	37.25	22.89	60.07	40.04	121.0	84.05	291.3	204.1	
	B-C	19.03	11.36	23.05	14.84	32.84	23.07	56.20	41.75	117.4	86.49	287.8	206.6	

Version : HA3X3

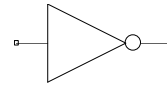
Cell Unit = 22

State	Output Load													
B	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
1	A-S	70.27	81.74	73.32	84.36	81.38	90.94	101.7	105.7	157.4	136.6	322.7	208.8	
0	A-S	51.16	65.21	54.24	67.99	62.39	74.89	82.91	90.12	138.5	122.0	303.7	194.6	
A	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
1	B-S	55.47	68.48	58.53	71.13	66.52	77.71	86.90	92.26	142.6	123.2	307.8	195.2	
0	B-S	44.17	49.88	47.20	52.53	55.23	59.07	75.50	73.81	131.2	105.2	296.5	177.6	
	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
	A-C	24.11	12.45	26.81	14.72	34.22	20.57	53.96	35.50	109.2	75.67	274.2	192.1	
	B-C	18.86	11.24	21.88	13.86	29.91	20.66	50.24	37.13	105.8	78.40	270.9	194.7	

Group Name : INV

Symbol

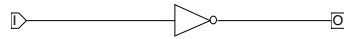
Function : Inverter



Truth Table

I	O
0	1
1	0

Schematic



Pin Order O I

**Input Capacitance (ff) & Maximum Loading (ff) & Power Consumption (nW/MHz)**

Version	Input Capacitance		Maximum Loading		Power Consumption	
	I	O	O	O	O	O
INVXLP	1.694	147.8	147.8	147.8	0.785	0.785
INVX1	2.298	213.1	213.1	213.1	1.039	1.039
INVX1P	3.349	296.1	296.1	296.1	1.416	1.416
INVX2	4.599	426.7	426.7	426.7	1.975	1.975
INVX3	6.832	639.7	639.7	639.7	3.068	3.068
INVX4	9.003	853.5	853.5	853.5	3.890	3.890
INVX5	11.30	1066.4	1066.4	1066.4	4.970	4.970
INVX6	13.55	1280.0	1280.0	1280.0	5.912	5.912
INVX8	17.99	1707.0	1707.0	1707.0	7.790	7.790
INVX12	27.17	2560.3	2560.3	2560.3	11.78	11.78
INVX16	36.33	3413.6	3413.6	3413.6	15.73	15.73
INVX20	45.42	4266.8	4266.8	4266.8	19.69	19.69

**AC Characteristics (Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ps)**

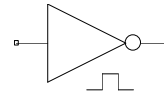
Version	Cell Unit	Path	Output Load											
			1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
INVXLP	3	I-O	tph	tphl	tph	tphl	tph	tphl	tph	tphl	tph	tphl	tph	tphl
			22.89	8.622	31.30	13.98	49.45	24.47	91.17	44.39	193.9	86.37	451.9	185.9
INVX1	3	I-O	tph	tphl	tph	tphl	tph	tphl	tph	tphl	tph	tphl	tph	tphl
			19.98	7.472	26.25	11.66	39.64	19.96	69.23	35.62	140.5	67.38	318.8	139.4

INVX1P	4	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		I-O	18.26	5.427	23.10	8.758	33.46	15.30	55.64	27.68	107.5	51.62	236.5	103.0
INVX2	4	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		I-O	16.44	4.957	20.71	8.003	30.79	14.59	54.34	28.14	115.4	56.74	285.7	126.1
INVX3	6	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		I-O	16.18	4.764	19.41	7.079	27.74	12.64	48.35	24.94	103.8	51.78	268.8	119.4
INVX4	7	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		I-O	15.18	4.027	17.73	5.890	24.37	10.41	40.65	20.55	83.00	42.21	206.7	94.43
INVX5	8	Path	1.200 ff		3.795 ff		12.00 ff		37.95 ff		120.0 ff		379.5 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		I-O	15.26	4.084	17.45	5.693	23.52	9.838	39.15	19.67	81.29	41.40	210.0	95.79
INVX6	9	Path	1.200 ff		3.939 ff		12.93 ff		42.43 ff		139.2 ff		457.0 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		I-O	14.85	3.777	16.82	5.235	22.50	9.144	37.58	18.73	79.18	40.41	210.6	96.01
INVX8	12	Path	1.200 ff		4.060 ff		13.74 ff		46.48 ff		157.2 ff		532.0 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		I-O	14.53	3.538	16.11	4.717	20.86	8.104	33.93	16.53	70.24	36.10	186.6	86.28
INVX12	17	Path	1.200 ff		4.344 ff		15.72 ff		56.92 ff		206.0 ff		745.9 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		I-O	14.38	3.418	15.55	4.303	19.40	7.072	30.83	14.60	64.03	33.05	175.8	81.96
INVX16	22	Path	2.400 ff		8.120 ff		27.47 ff		92.95 ff		314.5 ff		1064 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		I-O	14.62	3.602	16.19	4.776	20.93	8.100	33.98	16.56	70.29	36.12	186.6	86.30
INVX20	27	Path	2.400 ff		8.519 ff		30.24 ff		107.3 ff		381.0 ff		1352 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		I-O	14.49	3.503	15.85	4.523	20.18	7.610	32.69	15.77	68.78	35.38	189.4	87.41

Group Name : INVCK

Symbol

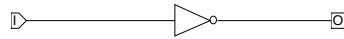
Function : Clock Tree Inverter



Truth Table

Schematic

I	O
0	1
1	0



Pin Order O I

**Input Capacitance (ff) & Maximum Loading (ff) & Power Consumption (nW/MHz)**

Version	Input Capacitance		Maximum Loading		Power Consumption	
	I	O	O	O	O	O
INVCKXLP	1.276	170.7	0.680			
INVCKX1	1.559	213.4	0.804			
INVCKX1P	2.630	341.6	1.296			
INVCKX2	3.158	427.2	1.562			
INVCKX3	4.687	640.6	2.366			
INVCKX4	6.193	854.6	3.058			
INVCKX6	9.340	1281.7	4.665			
INVCKX8	12.37	1709.2	6.123			
INVCKX12	18.75	2563.7	9.378			
INVCKX16	25.00	3418.1	12.43			
INVCKX20	31.33	4272.4	15.55			

**AC Characteristics ( Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ps)**

Version	Cell Unit	Path	Output Load													
			1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff			
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl		
INVCKXLP	3	I-O	18.88	16.72	26.83	25.44	43.29	43.02	79.78	80.48	168.8	169.6	392.3	392.4		
		Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff			
INVCKX1	3	I-O	17.17	15.51	23.90	22.80	37.71	37.67	67.49	68.99	138.7	140.5	316.9	318.3		
		Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff			
INVCKX1P	4	I-O	14.91	12.38	20.49	18.42	32.95	32.01	61.90	62.64	137.9	139.2	351.3	351.9		
		Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff			

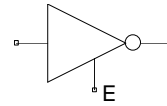


INVCKX2	4	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		I-O	13.62	11.63	18.33	16.69	28.90	28.20	52.83	53.80	113.9	115.6	284.1	285.5
INVCKX3	6	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		I-O	13.02	10.99	16.65	14.91	25.55	24.63	46.56	47.19	102.2	104.0	267.0	268.5
INVCKX4	7	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		I-O	11.96	9.820	14.86	12.97	22.07	20.76	38.86	38.92	81.38	83.11	205.0	206.7
INVCKX6	9	Path	1.200 ff		3.939 ff		12.93 ff		42.43 ff		139.2 ff		457.0 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		I-O	11.55	9.368	13.82	11.85	20.06	18.58	35.69	35.51	77.50	79.24	208.8	210.5
INVCKX8	12	Path	1.200 ff		4.060 ff		13.74 ff		46.48 ff		157.2 ff		532.0 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		I-O	11.18	9.025	13.01	10.98	18.30	16.67	31.96	31.53	68.61	70.13	184.8	186.6
INVCKX12	17	Path	1.200 ff		4.344 ff		15.72 ff		56.92 ff		206.0 ff		745.9 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		I-O	11.01	8.856	12.39	10.29	16.71	14.97	28.79	28.11	62.39	63.71	174.2	175.8
INVCKX16	22	Path	2.400 ff		8.120 ff		27.47 ff		92.95 ff		314.5 ff		1064 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		I-O	11.30	9.146	13.12	11.10	18.39	16.77	32.02	31.60	68.67	70.19	184.9	186.6
INVCKX20	27	Path	2.400 ff		8.519 ff		30.24 ff		107.3 ff		381.0 ff		1352 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		I-O	11.14	8.989	12.73	10.66	17.56	15.89	30.70	30.17	67.14	68.62	187.7	189.3

Group Name : INVT

Symbol

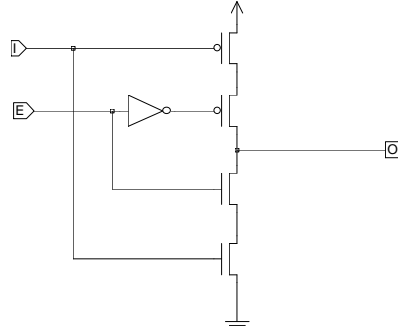
Function : 3-State Inverter



Truth Table

I	E	O
1	1	0
0	1	1
X	0	Z

Schematic



Pin Order O I E

**Input Capacitance (ff) & Maximum Loading (ff) & Power Consumption (nW/MHz)**

Version	Input Capacitance			Maximum Loading		Power Consumption
	O	I	E	O		O
INVTX1	1.548	2.294	2.580	98.97		1.960
INVTX1P	1.790	3.863	3.466	152.3		2.676
INVTX2	2.523	4.745	4.603	198.6		3.534
INVTX3	3.773	6.802	7.192	326.5		6.157
INVTX4	4.591	9.044	9.337	435.7		7.866
INVTX6	7.228	13.50	13.97	653.4		11.96
INVTX8	9.645	17.95	18.49	871.2		15.69
INVTX12	14.48	26.83	27.70	1306.9		23.24

**AC Characteristics ( Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ps)**

Version	Cell Unit	Output Load													
		Path		2.748 ff		4.560 ff		9.108 ff		20.52 ff		49.17 ff		121.1 ff	
		t <sub>plh</sub> t <sub>p<sub>hl</sub></sub>		t <sub>plh</sub> t <sub>p<sub>hl</sub></sub>		t <sub>plh</sub> t <sub>p<sub>hl</sub></sub>		t <sub>plh</sub> t <sub>p<sub>hl</sub></sub>		t <sub>plh</sub> t <sub>p<sub>hl</sub></sub>		t <sub>plh</sub> t <sub>p<sub>hl</sub></sub>			
INVTX1	5	E-O		29.84	8.973	39.62	15.44	63.74	27.97	124.4	52.94	276.9	108.4	659.5	243.8
		E-O		L>>Z 37.24						H>>Z 61.30					
		I-O		41.21	16.05	51.56	20.87	76.47	31.41	137.8	54.80	290.5	109.7	673.3	245.1
		Path		2.990 ff		4.802 ff		9.350 ff		20.76 ff		49.41 ff		121.3 ff	
INVTX1P	7	E-O		25.78	5.367	32.28	10.09	48.11	19.74	87.66	37.69	187.2	75.21	437.5	162.9
		E-O		L>>Z 38.93						H>>Z 69.08					
		I-O		36.61	13.15	43.59	16.59	60.32	23.99	100.7	40.05	200.7	76.26	451.1	163.7
		Path		2.990 ff		4.802 ff		9.350 ff		20.76 ff		49.41 ff		121.3 ff	

INVTX2	7	Path	3.723 ff		5.535 ff		10.08 ff		21.50 ff		50.15 ff		122.1 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		E-O	25.05	5.263	30.09	9.034	42.28	16.96	72.51	31.87	148.6	62.04	340.0	130.7
		E-O	L>>Z 41.80						H>>Z 76.47					
I-O	35.74	13.30	41.13	16.02	54.10	21.98	85.30	34.89	161.9	63.63	353.5	132.0		
INVTX3	13	Path	4.973 ff		7.154 ff		13.30 ff		30.61 ff		79.37 ff		216.7 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		E-O	22.31	3.743	26.13	6.870	36.42	14.38	64.28	29.53	143.1	61.81	365.0	143.4
		E-O	L>>Z 44.21						H>>Z 96.48					
I-O	35.85	13.32	39.87	15.46	50.65	20.71	79.63	33.22	158.8	63.77	381.1	144.9		
INVTX4	16	Path	5.791 ff		7.972 ff		14.12 ff		31.42 ff		80.19 ff		217.6 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		E-O	21.40	2.766	24.35	5.266	32.15	11.19	53.19	23.98	112.3	49.72	278.7	111.8
		E-O	L>>Z 44.62						H>>Z 112.6					
I-O	34.64	12.67	37.70	14.34	45.95	18.49	67.95	28.34	127.7	52.08	294.5	113.4		
INVTX6	22	Path	8.428 ff		10.85 ff		18.13 ff		40.09 ff		106.3 ff		305.8 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		E-O	21.57	2.572	23.70	4.473	29.99	9.336	47.97	20.97	101.2	45.11	262.5	105.8
		E-O	L>>Z 47.54						H>>Z 147.6					
I-O	34.17	12.45	36.44	13.71	43.05	17.11	61.85	25.74	116.2	47.62	277.6	107.4		
INVTX8	29	Path	10.85 ff		13.26 ff		20.55 ff		42.51 ff		108.7 ff		308.2 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		E-O	20.84	2.289	22.46	3.761	27.19	7.599	40.79	17.13	80.96	36.73	201.7	83.73
		E-O	L>>Z 48.76						H>>Z 179.7					
I-O	33.78	12.26	35.49	13.22	40.51	15.86	54.80	22.66	95.81	39.78	217.2	85.37		
INVTX12	42	Path	15.68 ff		18.42 ff		27.41 ff		56.91 ff		153.7 ff		471.5 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		E-O	20.55	2.036	21.77	3.180	25.74	6.469	38.04	15.33	77.12	35.07	205.4	85.06
		E-O	L>>Z 50.15						H>>Z 242.0					
I-O	33.38	12.06	34.69	12.80	38.85	15.03	51.80	21.30	91.98	38.24	220.8	86.69		

Group Name : MAO222

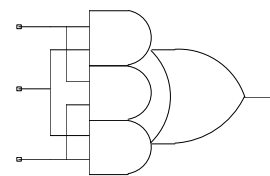
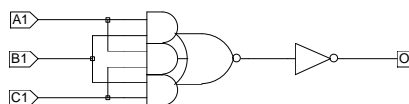
Symbol

Function : 2 of 3 Majority

Truth Table

A1	B1	C1	O
1	1	X	1
1	X	1	1
X	1	1	1
0	0	X	0
0	X	0	0
X	0	0	0

Schematic



Pin Order O A1 B1 C1

Input Capacitance (ff) &amp; Maximum Loading (ff) &amp; Power Consumption (nW/MHz)

Version	Input Capacitance			Maximum Loading	Power Consumption
	A1	B1	C1	O	O
MAO222XLP	1.209	2.796	3.179	127.4	3.526
MAO222X1	1.580	3.643	4.150	212.6	5.099
MAO222X1P	1.712	3.905	4.438	295.2	6.457
MAO222X2	1.754	4.136	4.793	425.5	8.476
MAO222X3	1.752	4.134	4.801	637.6	12.07

## AC Characteristics ( Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ps)

Version : MAO222XLP

Cell Unit = 9

State	Output Load													
A1 C1	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 1	B1-O	47.94	61.16	56.65	67.48	76.51	79.93	124.6	104.1	244.1	153.6	543.3	267.7	
1 0	B1-O	41.80	67.00	50.73	73.35	70.84	85.58	118.8	108.8	237.9	157.0	536.8	270.9	
B1 C1	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 1	A1-O	43.75	55.04	52.34	61.83	72.16	74.84	120.0	99.29	239.3	148.9	538.4	263.1	
1 0	A1-O	42.81	59.46	51.56	65.64	71.46	77.54	119.3	100.7	238.4	148.8	537.3	262.6	
A1 B1	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 1	C1-O	43.95	67.41	52.71	73.59	72.64	85.54	120.8	108.7	240.2	156.9	539.3	270.6	
1 0	C1-O	43.73	66.45	52.33	72.78	72.17	84.95	120.1	108.2	239.3	156.4	538.3	270.3	

Version : MAO222X1

Cell Unit = 9

State	Output Load													
A1 C1	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 1	B1-O	44.01	56.26	49.59	60.61	62.03	69.39	91.22	86.40	162.8	120.1	341.5	193.7	
1 0	B1-O	37.80	62.23	43.63	66.59	56.39	75.16	85.64	91.53	156.9	124.0	335.3	196.7	
B1 C1	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 1	A1-O	39.97	50.86	45.48	55.57	57.79	64.83	86.72	82.24	158.2	116.2	336.8	189.8	
1 0	A1-O	38.83	55.29	44.51	59.58	57.05	67.99	86.10	84.19	157.2	116.6	335.8	189.2	
A1 B1	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 1	C1-O	40.19	62.35	45.82	66.61	58.33	75.04	87.54	91.23	159.1	123.6	337.8	196.4	
1 0	C1-O	39.98	61.59	45.55	65.99	57.94	74.62	86.99	90.84	158.3	123.3	336.9	196.0	

Version : MAO222X1P

Cell Unit = 10

State	Output Load													
A1 C1	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 1	B1-O	43.56	58.85	47.84	62.33	57.33	69.45	78.82	83.18	130.8	109.6	260.1	163.7	
1 0	B1-O	37.85	65.94	42.35	69.48	52.15	76.61	73.92	90.11	125.8	115.6	254.9	168.5	
B1 C1	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 1	A1-O	39.91	53.71	44.13	57.44	53.52	65.02	74.98	79.28	126.8	105.9	256.0	160.2	
1 0	A1-O	39.08	58.79	43.44	62.23	53.04	69.18	74.60	82.44	126.3	107.8	255.4	160.6	
A1 B1	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 1	C1-O	39.91	65.39	44.22	68.85	53.75	75.83	75.21	89.12	127.2	114.4	256.6	167.2	
1 0	C1-O	39.83	64.97	44.12	68.56	53.56	75.70	74.92	89.07	126.8	114.6	256.0	167.5	

Version : MAO222X2

Cell Unit = 12

State	Output Load													
A1 C1	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 1	B1-O	44.70	62.76	48.53	66.04	57.86	73.50	80.78	89.22	142.0	121.8	312.7	195.0	
1 0	B1-O	38.64	70.27	42.68	73.63	52.38	81.17	75.69	96.59	136.7	127.9	307.3	199.7	
B1 C1	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 1	A1-O	41.19	57.74	45.00	61.24	54.28	69.22	77.05	85.57	138.0	118.4	308.7	191.8	
1 0	A1-O	40.20	63.21	44.12	66.50	53.62	73.86	76.59	89.06	137.6	120.3	308.0	192.0	
A1 B1	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 1	C1-O	41.14	70.35	45.01	73.63	54.37	80.99	77.34	96.23	138.5	127.4	309.3	199.1	
1 0	C1-O	41.00	69.97	44.86	73.34	54.17	80.85	77.05	96.31	138.0	127.6	308.6	199.4	

Version : MAO222X3

Cell Unit = 13

State	Output Load													
	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff		
		tph	tphl	tph	tphl	tph	tphl	tph	tphl	tph	tphl	tph	tphl	
A1 C1	B1-O	49.78	72.25	52.79	74.92	60.79	81.65	81.04	96.79	136.9	129.3	302.2	203.3	
0 1	B1-O	43.36	79.75	46.51	82.49	54.81	89.32	75.55	104.4	131.4	135.9	296.5	208.2	
1 0	B1-O	43.36	79.75	46.51	82.49	54.81	89.32	75.55	104.4	131.4	135.9	296.5	208.2	
B1 C1	A1-O	46.27	67.27	49.27	70.09	57.20	77.20	77.35	92.99	133.0	125.9	298.2	200.0	
0 1	A1-O	45.22	72.62	48.28	75.31	56.46	81.99	76.87	96.74	132.5	128.1	297.7	200.5	
1 0	A1-O	45.22	72.62	48.28	75.31	56.46	81.99	76.87	96.74	132.5	128.1	297.7	200.5	
A1 B1	C1-O	45.91	79.76	48.95	82.39	56.99	89.06	77.29	103.9	133.2	135.3	298.6	207.5	
0 1	C1-O	45.91	79.76	48.95	82.39	56.99	89.06	77.29	103.9	133.2	135.3	298.6	207.5	
1 0	C1-O	45.65	79.36	48.70	82.07	56.68	88.88	76.92	104.0	132.6	135.5	297.8	207.8	

Group Name : MAOI1

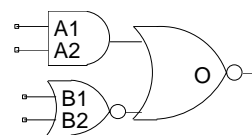
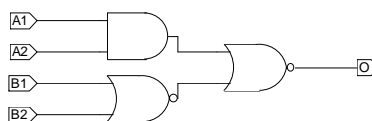
Symbol

Function : AN2, NR2 into NR2

Truth Table

A1	A2	B1	B2	O
X	X	0	0	0
1	1	X	X	0
OTHERS				1

Schematic



Pin Order O A1 A2 B1 B2

**Input Capacitance (ff) & Maximum Loading (ff) & Power Consumption (nW/MHz)**

Version	Input Capacitance				Maximum Loading	Power Consumption
	A1	A2	B1	B2	O	O
MAOI1XLP	1.684	1.781	1.070	0.9270	75.38	2.472
MAOI1X1	2.309	2.437	1.484	1.245	108.8	3.317
MAOI1X1P	3.452	3.264	1.830	1.625	151.2	4.314
MAOI1X2	4.376	4.516	2.427	2.070	218.1	5.950
MAOI1X3	1.681	1.773	1.088	1.023	295.7	7.668



## AC Characteristics ( Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ps)

Version : MAOI1XLP

Cell Unit = 9

State	Output Load													
	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 0	B2-O	36.45	71.40	46.22	79.16	70.19	95.20	129.9	127.9	279.5	200.6	654.8	378.7	
0 1	B2-O	40.76	71.46	53.56	79.24	85.69	95.30	165.3	128.0	364.8	200.7	865.2	378.8	
1 0	B2-O	48.13	73.71	61.09	81.23	93.07	97.00	172.8	129.6	372.3	202.3	872.7	380.5	
0 0	B1-O	38.54	73.83	48.29	81.60	72.37	97.65	132.1	130.4	281.7	203.1	657.1	381.1	
0 1	B1-O	42.85	73.91	55.68	81.68	87.79	97.76	167.4	130.5	367.0	203.1	867.4	381.2	
1 0	B1-O	50.21	76.10	63.17	83.64	95.23	99.49	175.0	132.0	374.5	204.8	875.0	382.8	
B1 B2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 1	A1-O	43.72	19.64	57.32	26.24	89.92	40.27	170.3	70.61	370.2	140.8	870.9	315.3	
1 0	A1-O	43.72	19.64	57.32	26.24	89.92	40.27	170.3	70.61	370.2	140.8	870.9	315.3	
1 1	A1-O	43.43	19.64	57.02	26.26	89.58	40.28	169.9	70.62	369.9	140.8	870.6	315.3	
0 1	A2-O	51.18	19.05	64.47	24.95	96.71	38.11	176.6	67.60	376.2	137.8	876.7	312.4	
1 0	A2-O	51.18	19.05	64.48	24.95	96.71	38.11	176.6	67.60	376.2	137.8	876.7	312.4	
1 1	A2-O	50.89	19.05	64.17	24.96	96.34	38.11	176.3	67.61	375.8	137.8	876.3	312.4	

Version : MAOI1X1

Cell Unit = 9

State		Output Load											
A1 A2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0	B2-O	36.64	53.71	43.47	58.96	60.14	70.22	101.6	93.60	205.1	146.1	464.8	274.6
0 1	B2-O	40.05	53.78	49.06	59.06	71.28	70.33	126.5	93.69	264.7	146.2	611.1	274.7
1 0	B2-O	47.34	55.41	56.29	60.67	78.61	71.79	133.9	95.10	272.1	147.7	618.5	276.3
0 0	B1-O	40.07	56.41	46.98	61.69	63.74	72.76	105.3	96.26	208.9	148.6	468.6	277.3
0 1	B1-O	43.55	56.47	52.50	61.81	74.89	72.85	130.2	96.32	268.3	148.7	614.8	277.3
1 0	B1-O	50.78	58.15	59.86	63.30	82.14	74.32	137.5	97.75	275.8	150.3	622.3	279.0
B1 B2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 1	A1-O	39.06	18.28	48.65	23.33	71.79	34.07	127.6	56.94	266.3	108.4	613.1	234.1
1 0	A1-O	39.06	18.28	48.65	23.33	71.79	34.07	127.6	56.94	266.3	108.4	613.1	234.1
1 1	A1-O	38.76	18.29	48.33	23.34	71.42	34.08	127.2	56.95	265.9	108.4	612.7	234.1
0 1	A2-O	46.53	18.06	55.86	22.52	78.56	32.41	134.0	54.37	272.3	105.5	618.9	231.3
1 0	A2-O	46.53	18.06	55.86	22.52	78.56	32.41	134.0	54.37	272.3	105.5	618.9	231.3
1 1	A2-O	46.20	18.07	55.50	22.53	78.18	32.42	133.6	54.38	271.9	105.5	618.4	231.3

Version : MAOI1X1P

Cell Unit = 11

State		Output Load											
A1 A2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0	B2-O	30.68	61.14	35.66	65.40	47.80	74.46	77.99	93.06	152.8	131.6	340.5	221.1
0 1	B2-O	33.51	61.20	40.00	65.48	56.26	74.55	96.34	93.16	196.2	131.7	446.5	221.2
1 0	B2-O	41.77	63.67	48.28	67.57	64.49	76.52	104.8	94.90	204.6	133.4	455.0	223.0
0 0	B1-O	32.74	63.09	37.73	67.40	49.93	76.53	80.15	95.01	155.0	133.6	342.8	223.0
0 1	B1-O	35.60	63.15	42.09	67.47	58.37	76.61	98.38	95.10	198.4	133.7	448.7	223.1
1 0	B1-O	43.85	65.52	50.39	69.61	66.62	78.51	107.0	96.83	206.8	135.4	457.2	225.0
B1 B2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 1	A1-O	35.48	15.44	42.61	19.24	59.64	27.42	100.5	44.55	200.9	81.53	451.6	169.1
1 0	A1-O	35.48	15.44	42.61	19.24	59.64	27.42	100.5	44.55	200.9	81.53	451.6	169.1
1 1	A1-O	35.24	15.45	42.36	19.29	59.31	27.46	100.1	44.56	200.5	81.53	451.2	169.1
0 1	A2-O	44.15	15.90	51.00	19.20	67.64	26.48	108.1	42.53	208.0	78.75	458.5	166.5
1 0	A2-O	44.15	15.90	51.00	19.20	67.64	26.48	108.1	42.53	208.0	78.75	458.5	166.5
1 1	A2-O	43.88	15.92	50.70	19.21	67.33	26.50	107.7	42.54	207.7	78.76	458.1	166.5

Version : MAOI1X2

Cell Unit = 14

State		Output Load											
A1 A2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0	B2-O	28.37	56.95	31.88	60.17	40.33	67.08	61.24	81.27	113.2	110.5	243.1	176.0
0 1	B2-O	30.69	56.99	35.19	60.22	46.37	67.15	74.34	81.37	143.5	110.6	316.8	176.1
1 0	B2-O	38.65	59.36	43.23	62.33	54.57	68.95	82.49	83.06	151.8	112.3	325.2	178.0
0 0	B1-O	30.69	59.61	34.23	62.82	42.69	69.74	63.69	83.92	115.7	113.2	245.6	178.7
0 1	B1-O	33.01	59.65	37.51	62.89	48.74	69.85	76.71	84.00	145.9	113.3	319.3	178.8
1 0	B1-O	41.00	61.96	45.59	65.00	56.95	71.61	84.91	85.67	154.2	114.9	327.7	180.6
B1 B2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 1	A1-O	33.08	14.98	38.22	17.85	50.25	24.15	79.01	37.24	148.9	65.19	322.7	128.8
1 0	A1-O	33.08	14.98	38.22	17.85	50.25	24.15	79.01	37.24	148.9	65.19	322.7	128.8
1 1	A1-O	32.85	14.99	37.97	17.85	49.95	24.19	78.71	37.25	148.6	65.19	322.3	128.9
0 1	A2-O	41.78	15.63	46.60	18.12	58.31	23.67	86.59	35.81	156.1	62.71	329.5	126.4
1 0	A2-O	41.78	15.63	46.60	18.12	58.30	23.67	86.59	35.81	156.1	62.71	329.5	126.4
1 1	A2-O	41.51	15.64	46.33	18.13	58.00	23.68	86.28	35.82	155.8	62.71	329.2	126.4

Version : MAOI1X3

Cell Unit = 13

State		Output Load											
A1 A2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0	B2-O	65.26	104.2	68.95	106.8	77.52	112.0	98.42	122.1	150.1	143.6	279.1	193.7
0 1	B2-O	72.27	104.3	76.00	106.8	84.55	112.0	105.4	122.2	157.1	143.7	286.2	193.7
1 0	B2-O	80.44	108.7	84.16	111.3	92.75	116.5	113.6	126.7	165.2	148.2	294.2	198.3
0 0	B1-O	67.31	106.1	70.99	108.7	79.60	113.9	100.4	124.1	152.0	145.5	281.1	195.7
0 1	B1-O	74.32	106.2	78.05	108.8	86.61	113.9	107.4	124.2	159.1	145.6	288.2	195.8
1 0	B1-O	82.48	110.6	86.18	113.2	94.76	118.4	115.5	128.7	167.2	150.1	296.3	200.2
B1 B2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 1	A1-O	76.48	55.18	80.21	57.77	88.77	63.02	109.6	73.25	161.3	94.70	290.3	144.8
1 0	A1-O	76.48	55.18	80.21	57.77	88.77	63.02	109.6	73.25	161.3	94.70	290.3	144.8
1 1	A1-O	76.19	55.15	79.92	57.74	88.49	62.99	109.3	73.23	161.0	94.67	290.1	144.8
0 1	A2-O	84.47	54.23	88.21	56.82	96.78	62.09	117.6	72.28	169.2	93.75	298.3	143.8
1 0	A2-O	84.47	54.23	88.21	56.82	96.78	62.09	117.6	72.28	169.2	93.75	298.3	143.8
1 1	A2-O	84.16	54.20	87.89	56.82	96.47	62.06	117.3	72.25	168.9	93.72	298.0	143.8

Group Name : MAOI222

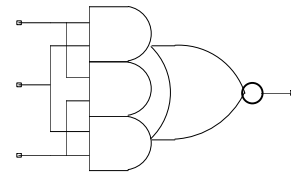
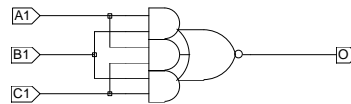
Symbol

Function : 2 of 3 Majority, inverted output

Truth Table

A1	B1	C1	O
1	1	X	0
1	X	1	0
X	1	1	0
0	0	X	1
0	X	0	1
X	0	0	1

Schematic



Pin Order O A1 B1 C1

**Input Capacitance (ff) & Maximum Loading (ff) & Power Consumption (nW/MHz)**

Version	Input Capacitance			Maximum Loading	Power Consumption
	A1	B1	C1	O	O
MAOI222X1	1.661	3.883	4.440	99.88	2.946
MAOI222X2	3.187	7.599	8.612	200.3	5.497

**AC Characteristics ( Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ps)**

Version : MAOI222X1

Cell Unit = 8

State	Output Load													
A1 C1	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 1	B1-O	42.97	23.37	53.08	28.37	77.79	39.44	138.1	63.59	287.8	118.7	661.5	254.2	
1 0	B1-O	50.46	18.33	60.51	22.90	85.01	33.07	145.2	56.24	294.6	111.2	668.2	246.7	
B1 C1	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 1	A1-O	37.49	20.04	47.72	25.13	72.40	36.11	133.1	60.16	283.1	115.2	656.6	250.5	
1 0	A1-O	43.27	17.79	53.20	23.04	77.47	34.40	137.0	58.69	285.9	113.8	659.1	249.2	
A1 B1	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 1	C1-O	50.26	20.30	60.12	24.86	84.33	35.25	143.9	58.60	292.7	113.6	665.8	249.1	
1 0	C1-O	49.82	20.69	59.76	25.16	83.94	35.28	143.7	58.30	292.6	113.0	665.7	248.4	

Version : MAOI222X2

Cell Unit = 15

State	Output Load													
A1 C1	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 1	B1-O	37.93	20.54	43.09	23.37	55.78	29.58	86.48	43.13	162.0	72.61	349.6	141.1	
1 0	B1-O	45.68	16.02	50.87	18.51	63.50	24.16	94.14	36.64	169.4	65.38	356.7	133.7	
B1 C1	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 1	A1-O	32.02	17.14	37.40	19.93	50.21	26.22	80.99	39.66	156.8	69.07	344.6	137.4	
1 0	A1-O	37.93	14.83	43.09	17.72	55.55	24.31	85.79	38.03	160.4	67.62	347.2	136.0	
A1 B1	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 1	C1-O	45.11	17.76	50.15	20.24	62.49	25.92	92.76	38.68	167.4	67.42	354.0	135.9	
1 0	C1-O	44.93	18.39	50.01	20.80	62.46	26.32	92.78	38.82	167.5	67.26	354.3	135.4	

Group Name : MAOI2223

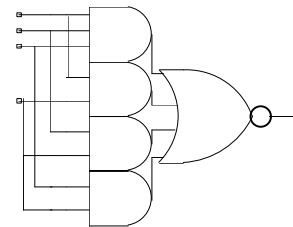
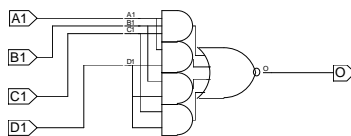
Symbol

Function : Majority Cell of Mirror Adder

Truth Table

A1	B1	C1	D1	O
1	X	X	1	0
X	1	X	1	0
X	X	1	1	0
1	1	1	X	0
0	X	X	0	1
X	0	X	0	1
X	X	0	0	1
0	0	0	X	1

Schematic



Pin Order O A1 B1 C1 D1

Input Capacitance (ff) & Maximum Loading (ff) & Power Consumption (nW/MHz)

Version	Input Capacitance				Maximum Loading	Power Consumption
	A1	B1	C1	D1	O	O
MAOI2223X1	3.971	4.221	4.383	1.726	65.17	3.165
MAOI2223X2	7.143	8.185	8.842	3.248	130.4	6.024

## AC Characteristics ( Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ps)

Version : MAOI2223X1

Cell Unit = 10

State	Output Load													
	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
A1 B1 D1		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 0 1	C1-O	78.15	23.14	92.69	27.66	128.4	37.94	217.3	61.27	439.1	116.2	995.1	252.0	
1 1 0	C1-O	58.68	28.28	68.63	34.12	92.91	47.74	152.6	79.86	301.5	157.5	674.6	351.2	
A1 C1 D1	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
0 0 1		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 0 1	B1-O	74.88	22.23	89.51	26.63	125.5	36.70	214.6	59.66	436.8	114.3	993.2	249.8	
1 1 0	B1-O	52.57	29.13	62.53	35.18	86.83	49.37	146.6	81.96	295.5	159.8	668.6	353.7	
B1 C1 D1	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
0 0 1		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 0 1	A1-O	70.85	19.86	85.45	24.33	121.6	34.43	211.3	57.52	434.3	112.4	991.1	247.9	
1 1 0	A1-O	45.40	31.00	55.68	37.32	80.44	51.73	140.8	84.49	290.5	162.3	664.2	355.9	
A1 B1 C1	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
0 0 1		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 0 1	D1-O	32.44	22.11	40.51	27.13	59.39	38.10	104.9	62.29	217.8	117.5	499.3	253.1	
0 1 0	D1-O	32.42	20.20	40.47	25.23	59.37	36.14	104.9	60.17	217.5	115.2	497.6	250.5	
0 1 1	D1-O	37.96	17.24	48.09	21.57	72.70	30.83	133.3	50.50	283.6	93.55	657.2	197.5	
1 0 0	D1-O	37.01	18.08	44.82	23.23	63.35	34.56	108.2	58.81	219.8	113.9	499.5	249.4	
1 0 1	D1-O	43.62	15.33	53.48	19.79	77.61	29.40	137.1	49.26	285.9	92.52	659.1	196.5	
1 1 0	D1-O	50.19	15.46	60.13	19.93	84.34	29.48	144.1	49.48	293.0	92.91	666.3	197.4	

Version : MAOI2223X2

Cell Unit = 20

State	Output Load													
A1 B1 D1	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 0 1	C1-O	73.23	21.44	80.60	23.86	98.81	29.47	143.7	42.06	255.1	70.79	533.4	139.3	
1 1 0	C1-O	55.18	25.55	60.25	28.64	72.70	36.03	103.1	52.99	177.8	93.07	364.6	190.3	
A1 C1 D1	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 0 1	B1-O	70.11	20.59	77.56	22.96	95.83	28.42	140.9	40.77	252.6	69.04	531.4	137.2	
1 1 0	B1-O	49.16	26.38	54.26	29.65	66.70	37.26	97.01	55.01	171.9	95.14	358.7	192.7	
B1 C1 D1	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 0 1	A1-O	65.77	18.05	73.23	20.50	91.66	26.02	137.1	38.42	249.3	67.03	528.7	135.3	
1 1 0	A1-O	41.55	28.05	46.85	31.51	59.62	39.40	90.45	57.28	166.1	97.72	353.6	195.1	
A1 B1 C1	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 0 1	D1-O	27.80	19.15	32.11	21.90	42.17	28.13	65.63	41.60	122.5	71.15	263.9	139.7	
0 1 0	D1-O	27.79	17.27	32.09	20.03	42.14	26.26	65.60	39.63	122.5	69.03	263.5	137.3	
0 1 1	D1-O	32.08	14.72	37.37	17.13	50.02	22.59	80.72	33.74	156.6	57.56	344.8	110.7	
1 0 0	D1-O	32.70	15.00	36.79	17.86	46.55	24.26	69.58	38.07	125.7	67.64	265.6	136.1	
1 0 1	D1-O	38.06	12.64	43.12	15.18	55.45	20.73	85.60	32.35	160.1	56.42	346.9	109.7	
1 1 0	D1-O	44.51	12.69	49.59	15.30	62.01	20.84	92.28	32.47	167.1	56.54	353.9	110.1	



Group Name : MOAI1

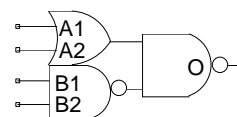
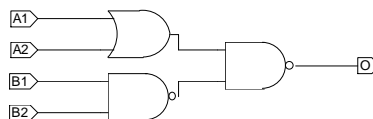
Symbol

Function : ND2, OR2 into ND2

Truth Table

A1	A2	B1	B2	O
0	0	X	X	1
X	X	1	1	1
OTHERS				0

Schematic



Pin Order O A1 A2 B1 B2

Input Capacitance (ff) &amp; Maximum Loading (ff) &amp; Power Consumption (nW/MHz)

Version	Input Capacitance				Maximum Loading	Power Consumption
	A1	A2	B1	B2	O	O
MOAI1XLP	1.525	1.535	0.9310	1.027	76.06	2.653
MOAI1X1	1.985	2.033	1.093	1.231	109.8	3.437
MOAI1X1P	3.404	3.245	1.590	1.806	150.6	4.321
MOAI1X2	3.827	3.902	2.088	2.327	219.9	6.566
MOAI1X3	1.611	1.580	0.9300	1.027	295.6	7.884

## AC Characteristics ( Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ps)

Version : MOAI1XLP

Cell Unit = 9

State		Output Load											
B1 B2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0	A2-O	41.71	19.59	55.11	25.98	87.66	39.73	167.9	69.84	367.7	139.9	868.4	314.2
0 1	A2-O	41.70	19.59	55.10	25.98	87.66	39.73	167.9	69.84	367.7	139.9	868.4	314.3
1 0	A2-O	41.70	19.59	55.10	25.98	87.66	39.73	167.9	69.84	367.7	139.9	868.4	314.3
0 0	A1-O	39.14	16.68	52.60	23.47	85.00	37.45	164.8	67.76	364.4	137.8	865.1	312.1
0 1	A1-O	39.14	16.68	52.59	23.47	85.00	37.46	164.8	67.77	364.4	137.8	865.1	312.1
1 0	A1-O	39.14	16.68	52.59	23.47	85.00	37.46	164.8	67.77	364.4	137.8	865.1	312.1
A1 A2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 1	B1-O	58.77	63.09	69.14	68.58	94.65	81.08	158.0	109.9	315.1	179.7	706.8	354.1
1 0	B1-O	57.37	60.21	67.69	65.85	92.97	78.37	155.4	107.2	311.5	176.9	702.9	351.2
1 1	B1-O	59.62	59.04	69.83	64.04	95.03	74.63	157.5	97.72	313.6	151.4	705.0	284.2
0 1	B2-O	57.66	68.85	68.04	74.47	93.60	87.11	156.9	116.1	314.0	186.0	705.7	360.4
1 0	B2-O	56.29	65.84	66.60	71.65	91.86	84.41	154.3	113.4	310.3	183.2	701.8	357.6
1 1	B2-O	58.53	64.69	68.75	69.90	93.95	80.81	156.4	104.2	312.4	158.1	703.9	290.9

Version : MOAII1X1

Cell Unit = 9

State		Output Load											
B1 B2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0	A2-O	37.03	18.16	46.50	23.07	69.44	33.56	125.2	56.24	263.8	107.4	610.5	233.0
0 1	A2-O	37.02	18.16	46.49	23.07	69.44	33.56	125.2	56.24	263.8	107.4	610.5	233.1
1 0	A2-O	37.02	18.16	46.49	23.07	69.44	33.56	125.2	56.24	263.8	107.4	610.5	233.1
0 0	A1-O	34.46	15.11	44.14	20.24	66.89	31.11	122.4	53.99	260.6	105.3	607.2	230.8
0 1	A1-O	34.45	15.10	44.13	20.24	66.88	31.14	122.4	53.99	260.6	105.3	607.2	230.8
1 0	A1-O	34.45	15.10	44.13	20.24	66.88	31.14	122.4	53.99	260.6	105.3	607.2	230.8
A1 A2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 1	B1-O	56.44	60.71	64.42	64.80	84.07	74.09	132.7	95.30	253.0	145.9	552.4	271.5
1 0	B1-O	54.87	57.70	62.80	61.96	82.21	71.36	130.0	92.57	249.3	143.1	548.3	268.6
1 1	B1-O	57.33	56.68	65.14	60.48	84.48	68.58	132.2	85.96	251.6	125.3	550.6	221.1
0 1	B2-O	55.73	66.84	63.70	71.04	83.40	80.49	132.0	101.9	252.3	152.6	551.7	278.2
1 0	B2-O	54.20	63.68	62.11	68.10	81.46	77.75	129.4	99.23	248.6	149.8	547.6	275.3
1 1	B2-O	56.65	62.68	64.47	66.65	83.75	75.05	131.7	92.77	250.9	132.2	549.8	228.2

Version : MOAII1X1P

Cell Unit = 11

State		Output Load											
B1 B2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0	A2-O	43.96	17.04	50.78	20.29	67.44	27.54	107.9	43.43	208.0	79.73	458.4	167.3
0 1	A2-O	43.75	17.29	50.59	20.58	67.30	27.96	107.8	44.04	207.9	80.51	458.4	168.2
1 0	A2-O	43.75	17.28	50.59	20.58	67.30	27.96	107.8	44.04	207.9	80.51	458.4	168.2
0 0	A1-O	40.01	14.14	46.89	17.54	63.41	24.94	103.5	40.88	203.3	77.17	453.6	164.7
0 1	A1-O	39.82	14.32	46.73	17.77	63.28	25.29	103.4	41.48	203.3	77.96	453.6	165.6
1 0	A1-O	39.82	14.32	46.73	17.77	63.28	25.29	103.4	41.48	203.3	77.96	453.6	165.6
A1 A2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 1	B1-O	42.88	44.83	48.36	47.98	61.43	54.87	93.02	70.12	171.1	105.5	364.9	192.8
1 0	B1-O	41.67	41.33	47.21	44.64	60.11	51.83	91.37	67.15	168.2	102.4	360.6	189.6
1 1	B1-O	41.58	39.98	47.08	42.90	59.91	49.02	91.11	61.60	167.9	89.41	360.3	156.4
0 1	B2-O	41.92	49.01	47.48	52.16	60.54	59.26	92.14	74.49	170.2	110.0	364.0	197.5
1 0	B2-O	40.71	45.36	46.28	48.79	59.25	56.10	90.49	71.51	167.3	106.9	359.7	194.2
1 1	B2-O	40.63	43.95	46.15	47.00	59.05	53.23	90.20	66.03	167.0	93.89	359.4	161.0

Version : MOAII1X2

Cell Unit = 14

State		Output Load											
B1 B2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0	A2-O	34.50	16.51	39.42	19.21	51.19	25.11	79.73	37.87	149.5	65.52	323.2	129.0
0 1	A2-O	34.49	16.51	39.41	19.21	51.19	25.11	79.73	37.88	149.5	65.52	323.2	129.0
1 0	A2-O	34.49	16.51	39.41	19.21	51.19	25.11	79.73	37.88	149.5	65.52	323.2	129.0
0 0	A1-O	30.08	12.71	35.15	15.57	47.14	21.85	75.43	34.94	144.8	62.79	318.3	126.2
0 1	A1-O	30.07	12.70	35.14	15.57	47.13	21.85	75.42	34.95	144.8	62.79	318.3	126.3
1 0	A1-O	30.07	12.70	35.14	15.57	47.13	21.85	75.42	34.95	144.8	62.79	318.3	126.2
A1 A2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 1	B1-O	53.59	45.73	57.71	47.76	67.68	52.49	92.25	63.39	153.1	89.08	304.3	152.1
1 0	B1-O	52.07	42.73	56.10	44.80	65.97	49.55	90.18	60.36	150.1	85.88	299.7	148.7
1 1	B1-O	54.56	41.88	58.50	43.69	68.27	47.77	92.40	56.66	152.3	76.76	301.9	125.0
0 1	B2-O	53.24	50.23	57.34	52.28	67.30	57.05	91.92	68.03	152.8	93.74	303.9	156.9
1 0	B2-O	51.70	47.12	55.74	49.24	65.64	54.07	89.88	65.00	149.8	90.55	299.3	153.5
1 1	B2-O	54.17	46.28	58.13	48.16	67.93	52.35	92.13	61.39	152.0	81.65	301.6	129.9

Version : MOAII1X3

Cell Unit = 13

State		Output Load											
B1 B2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0	A2-O	73.85	54.62	77.57	57.17	86.11	62.42	106.9	72.67	158.6	94.13	287.7	144.2
0 1	A2-O	73.85	54.60	77.56	57.18	86.10	62.43	106.9	72.68	158.6	94.14	287.7	144.3
1 0	A2-O	73.85	54.60	77.56	57.18	86.10	62.43	106.9	72.68	158.6	94.14	287.7	144.3
0 0	A1-O	71.47	51.11	75.19	53.69	83.75	58.94	104.6	69.14	156.2	90.59	285.3	140.7
0 1	A1-O	71.46	51.12	75.19	53.70	83.74	58.95	104.5	69.15	156.2	90.60	285.3	140.7
1 0	A1-O	71.46	51.12	75.19	53.70	83.74	58.95	104.5	69.15	156.2	90.60	285.3	140.7
A1 A2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 1	B1-O	92.16	98.25	95.89	100.8	104.4	106.1	125.2	116.3	176.8	137.8	305.9	187.9
1 0	B1-O	88.75	94.77	92.43	97.34	101.0	102.6	121.7	112.8	173.4	134.2	302.6	184.4
1 1	B1-O	91.14	93.09	94.83	95.66	103.4	100.9	124.1	111.1	175.8	132.5	304.9	182.6
0 1	B2-O	91.02	104.2	94.77	106.7	103.4	112.0	124.1	122.2	175.8	143.7	304.8	193.8
1 0	B2-O	87.64	100.6	91.32	103.2	99.92	108.4	120.7	118.6	172.3	140.1	301.4	190.2
1 1	B2-O	90.06	99.04	93.73	101.6	102.3	106.8	123.1	117.0	174.8	138.5	303.8	188.6

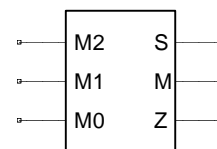
Group Name : MULBE

Symbol

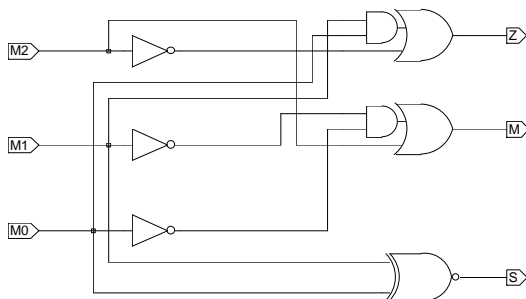
Function : Booth Encoder

Truth Table

M2	M1	M0	S	M	Z
0	0	0	1	1	1
0	0	1	0	0	1
0	1	0	0	0	1
0	1	1	1	0	1
1	0	0	1	1	0
1	0	1	0	1	0
1	1	0	0	1	0
1	1	1	1	1	1



Schematic



Pin Order S M Z M0 M1 M2

Input Capacitance (ff) &amp; Maximum Loading (ff) &amp; Power Consumption (nW/MHz)

Version	Input Capacitance			Maximum Loading			Power Consumption		
	M0	M1	M2	S	M	Z	S	M	Z
MULBEX1	2.760	2.551	3.756	211.0	211.1	211.3	7.068	6.519	6.441
MULBEX2	4.343	4.184	6.472	391.7	392.3	392.6	12.63	11.55	11.58
MULBEX3	4.320	4.163	8.338	587.2	588.2	589.0	18.05	16.59	17.37

## AC Characteristics ( Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ps)

Version : MULBEX1

Cell Unit = 19

State	Output Load													
	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
M0		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0	M1-S	81.30	60.97	86.90	66.78	99.26	78.49	128.1	101.7	199.3	153.0	377.8	278.5	
1	M1-S	53.32	66.04	59.08	70.98	71.99	81.51	101.4	104.1	172.7	155.6	351.2	281.3	
M1	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
0		M0-S	83.20	63.27	88.82	69.07	101.2	80.79	130.0	104.0	201.2	155.4	379.7	280.9
1	M0-S	55.58	62.62	61.30	67.46	74.19	77.84	103.6	100.3	175.0	151.6	353.4	277.4	
M0 M1	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
0 1		M2-M	32.34	47.19	37.09	51.44	48.72	60.95	77.37	82.31	148.7	133.1	327.1	258.8
1 0	M2-M	32.34	47.19	37.09	51.44	48.72	60.95	77.37	82.31	148.7	133.1	327.1	258.8	
1 1	M2-M	32.35	47.19	37.14	51.46	48.78	60.98	77.42	82.33	148.8	133.1	327.2	258.7	
	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		M1-M	81.41	61.13	87.01	66.94	99.36	78.63	128.2	101.8	199.4	153.2	377.9	278.7
	M0-M	83.31	63.41	88.91	69.20	101.3	80.90	130.1	104.1	201.3	155.4	379.8	280.9	
M0 M1	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
0 1		M2-Z	25.74	14.29	31.43	18.93	44.22	29.00	73.49	51.24	144.8	102.6	323.1	228.6
1 0	M2-Z	25.74	14.28	31.43	18.92	44.22	29.00	73.49	51.24	144.8	102.6	323.1	228.6	
0 0	M2-Z	25.85	14.22	31.54	18.80	44.33	28.74	73.68	50.74	144.8	101.8	323.1	227.5	
	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		M0-Z	54.69	65.05	61.18	70.91	75.24	82.80	105.4	106.4	176.8	158.1	355.3	283.7
	M1-Z	52.29	68.54	58.81	74.54	72.90	86.63	103.1	110.5	174.5	162.3	353.0	288.0	

Version : MULBEX2

Cell Unit = 29

State	Output Load													
M0	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0	M1-S	74.01	55.43	77.91	59.47	87.43	68.80	111.3	88.77	176.7	136.4	360.3	265.7	
1	M1-S	52.74	61.25	56.61	64.64	66.43	72.74	91.05	91.89	156.7	139.6	340.3	269.1	
M1	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0	M0-S	75.98	57.84	79.87	61.89	89.39	71.23	113.2	91.24	178.7	138.9	362.2	268.2	
1	M0-S	54.62	57.92	58.46	61.24	68.24	69.22	92.90	88.21	158.4	135.8	342.0	265.3	
M0 M1	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 1	M2-M	30.51	42.29	33.67	45.20	42.25	52.41	65.75	70.29	131.2	117.1	314.9	246.6	
1 0	M2-M	30.51	42.29	33.67	45.20	42.25	52.41	65.75	70.29	131.2	117.1	314.9	246.6	
1 1	M2-M	30.49	42.30	33.67	45.22	42.27	52.46	65.85	70.32	131.3	117.2	314.9	246.6	
	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
	M1-M	73.80	55.23	77.71	59.29	87.28	68.68	111.2	88.72	176.6	136.4	360.1	265.7	
	M0-M	75.77	57.62	79.68	61.69	89.24	71.08	113.1	91.14	178.6	138.8	362.1	268.1	
M0 M1	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 1	M2-Z	24.04	12.76	27.94	16.04	37.75	23.92	62.33	42.84	127.9	90.70	311.3	220.5	
1 0	M2-Z	24.05	12.76	27.94	16.04	37.75	23.92	62.33	42.84	127.9	90.70	311.3	220.5	
0 0	M2-Z	24.15	12.70	28.04	15.95	37.88	23.71	62.41	42.37	127.9	89.87	311.4	219.4	
	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
	M0-Z	52.13	58.61	56.65	62.71	67.73	72.25	93.55	92.80	159.4	140.9	343.1	270.2	
	M1-Z	50.14	61.98	54.64	66.19	65.76	75.90	91.64	96.66	157.5	144.9	341.2	274.4	

Version : MULBEX3

Cell Unit = 36

State	Output Load													
M0	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0	M1-S	80.61	66.12	83.54	69.37	90.84	77.25	107.9	93.78	151.8	128.9	274.3	216.2	
1	M1-S	61.47	71.03	64.30	73.67	71.61	80.03	89.60	94.64	134.7	128.9	257.2	216.6	
M1	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0	M0-S	82.54	68.53	85.47	71.78	92.77	79.64	109.8	96.22	153.8	131.4	276.2	218.6	
1	M0-S	63.76	67.95	66.57	70.53	73.85	76.77	91.82	91.22	136.9	125.3	259.3	212.9	
M0 M1	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 1	M2-M	34.33	48.22	36.53	50.38	42.41	55.78	58.24	68.89	102.0	101.4	224.6	188.4	
1 0	M2-M	34.33	48.22	36.53	50.38	42.41	55.78	58.24	68.89	102.0	101.4	224.6	188.4	
1 1	M2-M	34.30	48.22	36.49	50.38	42.37	55.78	58.28	68.93	102.2	101.4	224.6	188.3	
	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
	M1-M	80.52	66.07	83.45	69.33	90.76	77.23	107.9	93.79	151.7	129.0	274.2	216.3	
	M0-M	82.45	68.45	85.38	71.71	92.69	79.59	109.8	96.20	153.7	131.4	276.2	218.6	
M0 M1	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 1	M2-Z	23.03	12.03	25.71	14.34	32.60	20.04	49.71	33.60	93.98	66.89	216.4	154.5	
1 0	M2-Z	23.03	12.03	25.71	14.33	32.60	20.04	49.71	33.59	93.98	66.89	216.4	154.5	
0 0	M2-Z	23.20	11.96	25.85	14.25	32.72	19.87	49.80	33.15	93.99	65.89	216.4	152.8	
	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
	M0-Z	62.57	70.32	65.92	73.57	74.44	81.44	94.38	98.22	140.4	134.0	263.0	221.7	
	M1-Z	60.13	73.46	63.50	76.79	72.05	84.81	92.04	101.8	138.0	137.8	260.7	225.7	



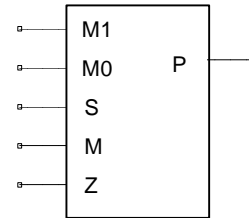
Group Name : MULPA

Function : Booth Partial Product Generator

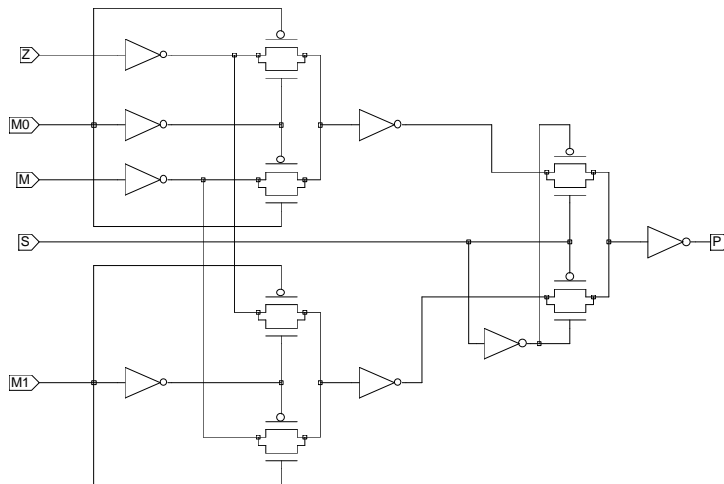
Truth Table

S	M	Z	M1	M0	P
0	0	0	X	X	1
0	0	1	0	X	0
0	0	1	1	X	1
0	1	0	0	X	1
0	1	0	1	X	0
0	1	1	X	X	0
1	0	0	X	X	1
1	0	1	X	0	0
1	0	1	X	1	1
1	1	0	X	0	1
1	1	0	X	1	0
1	1	1	X	X	0

Symbol



Schematic



Pin Order P S M Z M0 M1

Input Capacitance (ff) & Maximum Loading (ff) & Power Consumption (nW/MHz)

Version	Input Capacitance					Maximum Loading	Power Consumption
	S	M	Z	M0	M1	P	P
MULPAX1	2.329	1.071	0.9770	2.003	2.006	212.6	7.877
MULPAX2	3.277	1.357	1.248	2.683	2.586	395.6	12.21
MULPAX3	3.252	1.357	1.248	2.683	2.586	592.6	15.61

## AC Characteristics ( Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ps)

Version : MULPAX1

Cell Unit = 24

State	Output Load													
	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
S M M0 M1														
0 0 0 0	Z-P	132.3	114.2	138.2	119.0	151.1	128.5	180.4	146.3	251.8	180.7	430.4	254.6	
0 0 1 0	Z-P	110.4	102.7	116.3	107.4	129.0	116.9	158.2	134.7	229.6	169.0	408.2	242.8	
0 1 0 0	Z-P	132.3	114.2	138.3	119.0	151.1	128.5	180.4	146.3	251.9	180.7	430.4	254.6	
0 1 1 0	Z-P	110.4	102.7	116.3	107.4	129.0	116.9	158.2	134.7	229.6	169.0	408.2	242.8	
1 0 0 0	Z-P	135.6	103.9	141.6	108.9	154.5	118.7	183.7	136.9	254.9	171.8	433.4	246.1	
1 0 0 1	Z-P	110.0	89.06	115.9	94.03	128.7	103.8	157.8	121.9	229.1	156.6	407.6	230.8	
1 1 0 0	Z-P	135.6	103.9	141.6	108.9	154.5	118.7	183.7	136.9	254.9	171.8	433.4	246.1	
1 1 0 1	Z-P	110.0	89.07	115.9	94.03	128.7	103.8	157.8	121.9	229.1	156.6	407.6	230.8	
S Z M0 M1														
0 0 0 1	M-P	108.7	100.8	114.6	105.5	127.3	114.9	156.5	132.8	227.9	167.1	406.5	241.0	
0 0 1 1	M-P	130.6	112.7	136.5	117.5	149.4	127.0	178.6	144.9	250.1	179.2	428.6	253.1	
0 1 0 1	M-P	108.7	100.8	114.6	105.5	127.3	114.9	156.5	132.8	227.9	167.1	406.5	241.0	
0 1 1 1	M-P	130.6	112.7	136.5	117.5	149.4	127.0	178.6	144.9	250.1	179.2	428.7	253.1	
1 0 1 0	M-P	108.2	87.14	114.1	92.07	126.9	101.8	156.0	120.0	227.3	154.6	405.8	228.9	
1 0 1 1	M-P	133.7	102.4	139.7	107.3	152.6	117.2	181.8	135.4	253.0	170.3	431.5	244.6	
1 1 1 0	M-P	108.2	87.14	114.1	92.07	126.9	101.8	156.0	120.0	227.3	154.6	405.8	228.9	
1 1 1 1	M-P	133.7	102.3	139.7	107.3	152.6	117.2	181.8	135.4	253.0	170.3	431.5	244.6	
M Z M0														
0 1 0	M1-P	84.11	111.2	89.93	116.0	102.7	125.4	131.9	143.3	203.3	177.6	381.9	251.4	
0 1 1	M1-P	81.07	111.8	86.87	116.6	99.65	126.0	128.9	143.8	200.2	178.1	378.8	252.0	
1 0 0	M1-P	88.90	90.53	94.72	95.21	107.5	104.6	136.7	122.5	208.1	156.8	386.7	230.7	
1 0 1	M1-P	91.25	89.70	97.08	94.50	109.8	104.0	139.1	121.7	210.5	156.1	389.1	229.9	
M Z M0 M1														
0 1 0 1	S-P	68.96	45.97	74.62	50.66	87.16	59.90	116.3	77.39	187.6	111.8	366.2	185.8	
0 1 1 0	S-P	36.23	59.30	41.97	64.01	54.64	73.37	83.85	91.03	155.1	125.4	333.6	199.2	
1 0 0 1	S-P	36.23	59.30	41.97	64.01	54.64	73.37	83.85	91.03	155.1	125.4	333.6	199.2	
1 0 1 0	S-P	68.96	45.97	74.62	50.66	87.16	59.90	116.3	77.39	187.6	111.8	366.2	185.8	
M Z M1														
0 1 0	M0-P	83.82	97.57	89.68	102.6	102.4	112.3	131.6	130.5	202.9	165.2	381.4	239.5	
0 1 1	M0-P	80.42	98.05	86.28	103.0	99.06	112.7	128.3	130.9	199.5	165.5	378.0	239.8	
1 0 0	M0-P	87.61	75.95	93.45	80.90	106.2	90.66	135.4	108.8	206.7	143.5	385.2	217.7	
1 0 1	M0-P	90.22	75.24	96.08	80.22	108.9	90.01	138.0	108.2	209.3	142.9	387.8	217.2	

Version : MULPAX2

Cell Unit = 26

State		Output Load											
S M M0 M1	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff	
		tph	tphl	tph	tphl	tph	tphl	tph	tphl	tph	tphl	tph	tphl
0 0 0 0	Z-P	130.9	112.0	135.2	115.6	145.5	123.6	170.3	140.0	235.9	173.3	419.7	250.3
0 0 1 0	Z-P	107.8	99.92	112.0	103.5	122.2	111.5	146.8	127.7	212.4	161.1	396.1	238.0
0 1 0 0	Z-P	131.0	112.0	135.2	115.6	145.5	123.6	170.3	140.0	235.9	173.3	419.7	250.3
0 1 1 0	Z-P	107.8	99.91	112.0	103.5	122.2	111.5	146.8	127.7	212.4	161.1	396.2	238.0
1 0 0 0	Z-P	131.3	98.75	135.7	102.5	146.0	110.8	170.6	127.4	236.0	161.0	419.6	238.2
1 0 0 1	Z-P	105.6	84.17	109.9	87.81	120.0	95.99	144.5	112.5	209.9	145.9	393.6	223.1
1 1 0 0	Z-P	131.4	98.75	135.7	102.5	146.0	110.8	170.6	127.4	236.0	161.0	419.6	238.2
1 1 0 1	Z-P	105.6	84.17	109.9	87.82	120.0	95.99	144.5	112.5	209.9	145.9	393.6	223.1
S Z M0 M1	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff	
		tph	tphl	tph	tphl	tph	tphl	tph	tphl	tph	tphl	tph	tphl
0 0 0 1	M-P	106.9	98.44	111.1	102.0	121.3	110.0	145.9	126.3	211.5	159.7	395.3	236.5
0 0 1 1	M-P	129.9	110.8	134.2	114.4	144.5	122.4	169.2	138.8	234.9	172.1	418.6	249.1
0 1 0 1	M-P	106.9	98.43	111.2	102.0	121.3	110.0	145.9	126.2	211.5	159.6	395.3	236.5
0 1 1 1	M-P	130.0	110.8	134.2	114.4	144.5	122.4	169.3	138.8	234.9	172.1	418.6	249.1
1 0 1 0	M-P	104.7	82.67	108.9	86.38	119.0	94.51	143.6	111.0	209.0	144.4	392.6	221.5
1 0 1 1	M-P	130.3	97.65	134.6	101.4	144.9	109.6	169.5	126.2	235.0	159.8	418.6	237.0
1 1 1 0	M-P	104.7	82.67	108.9	86.37	119.1	94.51	143.6	111.0	209.0	144.4	392.6	221.5
1 1 1 1	M-P	130.3	97.65	134.6	101.4	144.9	109.6	169.5	126.2	235.0	159.8	418.6	237.0
M Z M0	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff	
		tph	tphl	tph	tphl	tph	tphl	tph	tphl	tph	tphl	tph	tphl
0 1 0	M1-P	84.69	107.9	88.92	111.5	99.04	119.5	123.7	135.8	189.3	169.2	373.1	246.1
0 1 1	M1-P	81.58	108.5	85.82	112.1	95.95	120.1	120.6	136.4	186.2	169.7	370.0	246.6
1 0 0	M1-P	88.02	88.91	92.24	92.43	102.4	100.4	127.0	116.8	192.7	150.1	376.4	227.0
1 0 1	M1-P	90.56	88.11	94.81	91.74	104.9	99.70	129.5	116.0	195.2	149.3	378.9	226.3
M Z M0 M1	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff	
		tph	tphl	tph	tphl	tph	tphl	tph	tphl	tph	tphl	tph	tphl
0 1 0 1	S-P	67.64	44.68	71.78	48.22	81.65	56.00	106.0	71.84	171.6	105.0	355.4	182.0
0 1 1 0	S-P	34.50	56.38	38.62	59.95	48.59	67.86	72.98	84.00	138.7	117.4	322.3	194.3
1 0 0 1	S-P	34.50	56.38	38.62	59.95	48.59	67.86	72.98	84.00	138.7	117.4	322.3	194.3
1 0 1 0	S-P	67.64	44.68	71.78	48.22	81.65	55.99	106.0	71.84	171.6	105.0	355.4	182.0
M Z M1	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff	
		tph	tphl	tph	tphl	tph	tphl	tph	tphl	tph	tphl	tph	tphl
0 1 0	M0-P	82.60	92.09	86.82	95.78	96.93	104.0	121.5	120.5	186.9	154.0	370.5	231.2
0 1 1	M0-P	79.05	92.61	83.29	96.29	93.42	104.5	117.9	120.9	183.5	154.4	367.1	231.5
1 0 0	M0-P	85.10	72.36	89.32	76.08	99.45	84.26	123.9	100.7	189.5	134.2	373.1	211.4
1 0 1	M0-P	87.90	71.61	92.13	75.34	102.2	83.56	126.8	100.1	192.3	133.6	375.9	210.8

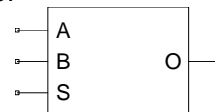
Version : MULPAX3

Cell Unit = 27

State		Output Load											
S M M0 M1	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff	
		tph	tphl	tph	tphl	tph	tphl	tph	tphl	tph	tphl	tph	tphl
0 0 0 0	Z-P	138.0	122.8	141.0	125.4	148.5	131.7	166.3	145.0	210.9	171.8	333.5	228.3
0 0 1 0	Z-P	114.1	110.6	117.1	113.2	124.5	119.4	142.2	132.7	186.7	159.5	309.3	216.1
0 1 0 0	Z-P	138.0	122.8	141.0	125.4	148.6	131.7	166.4	145.0	210.9	171.8	333.5	228.3
0 1 1 0	Z-P	114.1	110.6	117.1	113.2	124.5	119.4	142.2	132.7	186.7	159.5	309.4	216.0
1 0 0 0	Z-P	137.7	105.8	140.7	108.5	148.2	114.9	166.0	128.5	210.5	155.5	332.9	212.3
1 0 0 1	Z-P	111.2	90.83	114.2	93.53	121.7	99.92	139.3	113.4	183.8	140.3	306.3	197.0
1 1 0 0	Z-P	137.7	105.8	140.7	108.5	148.2	114.9	166.1	128.5	210.5	155.5	332.9	212.3
1 1 0 1	Z-P	111.2	90.84	114.2	93.53	121.7	99.93	139.4	113.5	183.8	140.3	306.3	197.0
S Z M0 M1	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff	
		tph	tphl	tph	tphl	tph	tphl	tph	tphl	tph	tphl	tph	tphl
0 0 0 1	M-P	113.2	109.1	116.2	111.7	123.6	118.0	141.3	131.2	185.8	158.0	308.4	214.6
0 0 1 1	M-P	137.0	121.6	140.0	124.2	147.5	130.5	165.3	143.8	209.9	170.6	332.4	227.1
0 1 0 1	M-P	113.2	109.1	116.2	111.7	123.7	118.0	141.3	131.2	185.8	158.0	308.5	214.6
0 1 1 1	M-P	137.0	121.6	140.0	124.2	147.5	130.5	165.3	143.8	209.9	170.6	332.5	227.1
1 0 1 0	M-P	110.3	89.35	113.2	92.04	120.7	98.39	138.4	111.9	182.8	138.7	305.3	195.5
1 0 1 1	M-P	136.6	104.6	139.6	107.3	147.1	113.7	164.9	127.3	209.4	154.3	331.8	211.1
1 1 1 0	M-P	110.3	89.35	113.3	92.04	120.7	98.39	138.4	111.9	182.8	138.7	305.3	195.5
1 1 1 1	M-P	136.6	104.6	139.6	107.3	147.2	113.7	165.0	127.3	209.4	154.3	331.8	211.1
M Z M0	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff	
		tph	tphl	tph	tphl	tph	tphl	tph	tphl	tph	tphl	tph	tphl
0 1 0	M1-P	90.87	118.6	93.86	121.2	101.3	127.4	119.0	140.8	163.5	167.6	286.1	224.0
0 1 1	M1-P	87.78	119.1	90.76	121.8	98.22	128.0	115.9	141.2	160.5	168.1	283.1	224.6
1 0 0	M1-P	94.14	99.51	97.15	102.1	104.6	108.3	122.3	121.7	166.8	148.5	289.5	205.0
1 0 1	M1-P	96.75	98.84	99.72	101.5	107.2	107.7	124.8	120.9	169.4	147.8	292.0	204.3
M Z M0 M1	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff	
		tph	tphl	tph	tphl	tph	tphl	tph	tphl	tph	tphl	tph	tphl
0 1 0 1	S-P	72.72	50.10	75.65	52.77	82.95	58.99	100.4	72.15	144.8	98.65	267.5	155.1
0 1 1 0	S-P	40.13	67.17	43.07	69.79	50.40	76.02	67.95	89.33	112.4	116.1	235.0	172.6
1 0 0 1	S-P	40.13	67.17	43.07	69.79	50.40	76.02	67.95	89.33	112.4	116.1	235.0	172.6
1 0 1 0	S-P	72.72	50.10	75.65	52.77	82.95	58.99	100.4	72.15	144.8	98.65	267.5	155.1
M Z M1	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff	
		tph	tphl	tph	tphl	tph	tphl	tph	tphl	tph	tphl	tph	tphl
0 1 0	M0-P	88.03	98.87	91.02	101.6	98.48	108.0	116.1	121.6	160.6	148.4	283.1	205.2
0 1 1	M0-P	84.48	99.29	87.47	102.0	94.94	108.4	112.6	121.9	157.2	148.7	279.6	205.4
1 0 0	M0-P	90.48	79.12	93.47	81.82	100.9	88.18	118.6	101.6	163.2	128.5	285.6	185.2
1 0 1	M0-P	93.33	78.43	96.32	81.17	103.8	87.56	121.5	101.1	165.9	128.0	288.4	184.7

Group Name : MUX2  
 Function : 2 Bit MUX

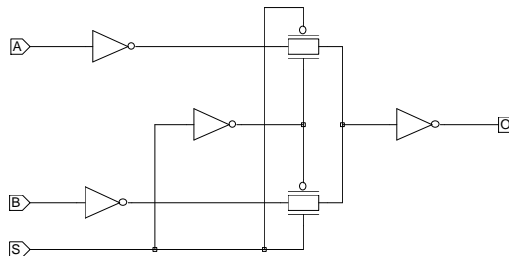
Symbol



Truth Table

A	B	S	O
0	X	0	0
1	X	0	1
X	0	1	0
X	1	1	1

Schematic



Pin Order O S A B

**Input Capacitance (ff) & Maximum Loading (ff) & Power Consumption (nW/MHz)**

Version	Input Capacitance			Maximum Loading	Power Consumption
	S	A	B	O	O
MUX2XLP	2.107	1.281	1.294	147.5	3.633
MUX2X1	2.517	1.642	1.654	212.6	4.779
MUX2X1P	2.513	1.638	1.649	295.2	5.980
MUX2X2	3.049	2.184	2.199	425.4	8.473
MUX2X3	3.078	2.366	2.353	637.6	12.24
MUX2X3P	5.915	4.393	4.371	851.4	18.00
MUX2X6	5.884	4.394	4.363	1275.9	25.14

## AC Characteristics ( Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ps)

Version : MUX2XLP

Cell Unit = 9

State	Output Load													
B	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0	A-O	44.69	66.78	52.57	72.72	70.14	84.19	111.8	106.0	214.8	149.8	472.9	250.3	
1	A-O	44.69	66.78	52.58	72.72	70.14	84.19	111.8	106.0	214.8	149.8	472.9	250.4	
A B	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 1	S-O	41.53	56.84	49.40	62.54	66.95	73.65	108.6	95.16	211.6	138.8	469.8	239.3	
1 0	S-O	80.72	68.58	88.54	74.45	106.0	85.77	147.5	107.4	250.6	151.1	508.8	251.6	
A	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0	B-O	43.90	67.25	51.72	73.14	69.26	84.65	110.8	106.3	213.8	150.1	472.0	250.6	
1	B-O	43.90	67.26	51.72	73.14	69.26	84.65	110.8	106.3	213.8	150.1	472.0	250.6	

Version : MUX2X1

Cell Unit = 9

State	Output Load													
B	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0	A-O	43.63	59.74	49.43	64.09	62.10	72.72	91.34	89.15	162.8	121.8	341.4	194.6	
1	A-O	43.63	59.74	49.43	64.09	62.11	72.72	91.34	89.15	162.8	121.8	341.4	194.6	
A B	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 1	S-O	39.70	50.23	45.45	54.42	58.16	62.74	87.36	78.96	158.8	111.5	337.4	184.3	
1 0	S-O	77.18	61.56	82.93	65.84	95.53	74.37	124.6	90.54	196.1	123.2	374.7	195.9	
A	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0	B-O	42.73	60.35	48.48	64.70	61.16	73.27	90.35	89.69	161.7	122.3	340.3	195.1	
1	B-O	42.73	60.36	48.48	64.71	61.16	73.27	90.35	89.69	161.7	122.3	340.3	195.1	

Version : MUX2X1P

Cell Unit = 10

State	Output Load													
B	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0	A-O	46.77	64.65	51.38	68.28	61.43	75.57	83.42	89.36	135.4	115.4	264.7	168.8	
1	A-O	46.78	64.65	51.39	68.28	61.43	75.57	83.42	89.36	135.4	115.4	264.7	168.9	
A B	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 1	S-O	43.35	55.22	47.91	58.75	57.91	65.84	79.80	79.45	131.8	105.2	261.1	158.6	
1 0	S-O	80.10	66.08	84.65	69.70	94.60	76.90	116.5	90.50	168.5	116.5	297.7	169.9	
A	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0	B-O	45.76	65.20	50.33	68.85	60.34	76.14	82.31	89.89	134.3	115.9	263.5	169.4	
1	B-O	45.76	65.20	50.33	68.85	60.33	76.14	82.31	89.89	134.3	115.9	263.5	169.4	

Version : MUX2X2

Cell Unit = 11

State	Output Load													
B	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0	A-O	44.81	66.23	48.76	69.50	58.36	76.89	81.50	92.23	142.7	123.5	313.3	195.3	
1	A-O	44.81	66.23	48.77	69.51	58.37	76.89	81.50	92.23	142.7	123.5	313.3	195.3	
A B	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 1	S-O	41.09	55.93	45.03	59.18	54.57	66.45	77.60	81.60	138.8	112.8	309.4	184.5	
1 0	S-O	74.38	68.45	78.30	71.74	87.80	79.07	110.9	94.16	171.9	125.4	342.6	197.2	
A	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0	B-O	43.85	67.21	47.80	70.51	57.34	77.93	80.46	93.24	141.5	124.5	312.2	196.3	
1	B-O	43.85	67.22	47.80	70.51	57.34	77.94	80.46	93.25	141.5	124.5	312.2	196.3	

Version : MUX2X3

Cell Unit = 13

State	Output Load													
B	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0	A-O	47.52	74.73	50.57	77.37	58.66	83.96	79.06	98.62	134.8	129.8	300.1	201.8	
1	A-O	47.52	74.73	50.58	77.37	58.66	83.96	79.06	98.62	134.8	129.8	300.1	201.8	
A B	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 1	S-O	43.82	63.15	46.83	65.77	54.86	72.30	75.21	86.93	130.9	118.0	296.2	189.9	
1 0	S-O	77.99	77.04	81.02	79.70	89.06	86.29	109.4	100.9	164.9	132.0	330.2	204.0	
A	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0	B-O	46.28	75.66	49.32	78.30	57.36	84.97	77.67	99.70	133.4	130.8	298.7	202.8	
1	B-O	46.27	75.66	49.32	78.30	57.36	84.97	77.67	99.70	133.4	130.9	298.7	202.8	

Version : MUX2X3P

Cell Unit = 23

State	Output Load													
B	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0	A-O	42.37	67.30	44.70	69.36	50.91	74.53	66.54	86.10	108.8	110.6	232.8	166.0	
1	A-O	42.37	67.30	44.70	69.36	50.91	74.53	66.55	86.10	108.8	110.6	232.8	166.0	
A B	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 1	S-O	38.01	55.29	40.33	57.32	46.52	62.41	62.15	73.86	104.3	98.22	228.4	153.6	
1 0	S-O	70.45	70.30	72.76	72.36	78.91	77.52	94.48	88.95	136.6	113.4	260.6	168.6	
A	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0	B-O	41.32	68.50	43.64	70.57	49.83	75.75	65.44	87.31	107.4	111.8	231.7	167.2	
1	B-O	41.32	68.50	43.64	70.57	49.83	75.75	65.44	87.31	107.4	111.8	231.6	167.2	



Version : MUX2X6

Cell Unit = 25

State	Output Load													
B	Path	1.200 ff		3.939 ff		12.93 ff		42.43 ff		139.2 ff		457.0 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0	A-O	47.55	76.68	49.39	78.34	54.86	83.03	69.76	94.71	111.5	121.1	243.3	182.2	
1	A-O	47.56	76.68	49.39	78.34	54.86	83.03	69.77	94.71	111.5	121.1	243.3	182.2	
A B	Path	1.200 ff		3.939 ff		12.93 ff		42.43 ff		139.2 ff		457.0 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 1	S-O	43.74	64.46	45.56	66.11	50.99	70.78	65.85	82.44	107.6	108.7	239.4	169.9	
1 0	S-O	75.12	79.17	76.94	80.84	82.38	85.56	97.22	97.17	138.8	123.4	270.7	184.7	
A	Path	1.200 ff		3.939 ff		12.93 ff		42.43 ff		139.2 ff		457.0 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0	B-O	46.34	77.80	48.16	79.45	53.62	84.18	68.53	95.89	110.2	122.2	242.1	183.4	
1	B-O	46.34	77.80	48.16	79.45	53.62	84.18	68.53	95.90	110.2	122.2	242.1	183.4	

Group Name : MUX3

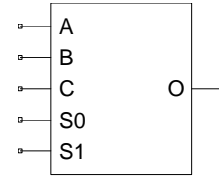
Function : 3 Bit MUX

Truth Table

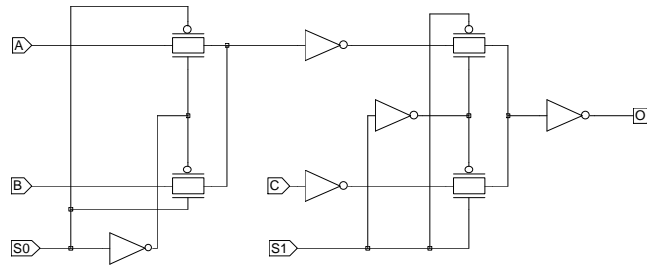
S1	S0	O
0	0	A
0	1	B
1	X	C

Pin Order O S0 S1 A B C

Symbol



Schematic



**Input Capacitance (ff) & Maximum Loading (ff) & Power Consumption (nW/MHz)**

Version	Input Capacitance					Maximum Loading	Power Consumption
	S0	S1	A	B	C	O	O
MUX3XLP	2.278	2.146	1.542	1.565	1.601	147.5	4.786
MUX3X1	2.510	2.418	1.655	1.679	1.717	212.4	5.830
MUX3X1P	2.743	2.622	1.921	1.932	1.910	295.3	7.343
MUX3X2	3.029	3.110	2.186	2.125	2.115	425.1	10.48
MUX3X3	3.035	2.933	2.185	2.132	2.110	636.2	14.70

## AC Characteristics ( Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ps)

Version : MUX3XLP

Cell Unit = 14

State	Path	Output Load											
		1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
B C		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0	A-O	63.41	91.45	72.10	99.04	90.94	113.7	133.4	140.7	236.4	190.7	494.6	295.4
0 1	A-O	63.41	91.45	72.11	99.04	90.94	113.7	133.4	140.7	236.4	190.7	494.6	295.4
1 0	A-O	63.41	91.45	72.11	99.04	90.94	113.7	133.4	140.7	236.4	190.7	494.6	295.4
1 1	A-O	63.42	91.45	72.11	99.05	90.95	113.7	133.4	140.7	236.4	190.7	494.6	295.4
S0 A B C	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0 1	S1-O	37.95	53.82	45.61	59.81	63.00	71.86	104.6	95.69	207.5	143.5	465.7	247.3
0 0 1 1	S1-O	37.95	53.82	45.61	59.81	63.00	71.86	104.6	95.69	207.5	143.5	465.7	247.3
0 1 0 0	S1-O	72.67	64.02	81.14	69.62	99.66	80.55	141.9	101.4	244.9	144.3	503.0	244.5
0 1 1 0	S1-O	72.67	64.02	81.14	69.62	99.66	80.55	141.9	101.4	244.9	144.3	503.0	244.5
1 0 0 1	S1-O	37.95	53.79	45.61	59.77	63.00	71.82	104.6	95.65	207.5	143.5	465.7	247.3
1 0 1 0	S1-O	72.71	64.01	81.18	69.62	99.71	80.54	141.9	101.4	244.9	144.3	503.0	244.5
1 1 0 1	S1-O	37.95	53.79	45.61	59.77	63.00	71.82	104.6	95.65	207.5	143.5	465.7	247.3
1 1 1 0	S1-O	72.71	64.01	81.18	69.62	99.71	80.54	141.9	101.4	244.9	144.3	503.0	244.5
A B C	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 1 0	S0-O	60.64	80.93	69.31	88.45	88.12	103.0	130.6	129.8	233.6	179.7	491.8	284.4
0 1 1	S0-O	60.64	80.94	69.31	88.46	88.13	103.1	130.6	129.9	233.6	179.7	491.8	284.4
1 0 0	S0-O	100.9	94.05	109.6	101.6	128.4	116.4	170.8	143.2	273.8	193.1	532.0	297.8
1 0 1	S0-O	100.9	94.05	109.6	101.6	128.4	116.4	170.8	143.2	273.8	193.1	532.0	297.8
S0 A B	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0	C-O	40.86	63.06	48.49	68.75	65.81	79.80	107.3	100.8	210.3	143.8	468.5	244.0
0 0 1	C-O	40.86	63.06	48.49	68.75	65.81	79.80	107.3	100.8	210.3	143.8	468.5	244.0
0 1 0	C-O	40.86	63.07	48.49	68.76	65.81	79.81	107.3	100.8	210.3	143.8	468.5	244.0
0 1 1	C-O	40.86	63.07	48.49	68.76	65.81	79.81	107.3	100.8	210.3	143.8	468.5	244.0
1 0 0	C-O	40.86	63.06	48.49	68.75	65.81	79.80	107.3	100.8	210.3	143.8	468.5	244.0
1 0 1	C-O	40.86	63.07	48.49	68.76	65.81	79.81	107.3	100.8	210.3	143.8	468.5	244.0
1 1 0	C-O	40.86	63.06	48.49	68.75	65.81	79.80	107.3	100.8	210.3	143.8	468.5	244.0
1 1 1	C-O	40.86	63.07	48.49	68.76	65.81	79.81	107.3	100.8	210.3	143.8	468.5	244.0
A C	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0	B-O	62.28	92.31	70.89	99.88	89.61	114.7	131.9	141.5	235.1	191.5	493.3	296.2
0 1	B-O	62.28	92.31	70.89	99.88	89.61	114.7	132.0	141.5	235.1	191.5	493.3	296.2
1 0	B-O	62.28	92.31	70.89	99.88	89.61	114.7	131.9	141.5	235.1	191.5	493.3	296.2
1 1	B-O	62.28	92.31	70.89	99.88	89.61	114.7	132.0	141.5	235.1	191.5	493.3	296.2

Version : MUX3X1

Cell Unit = 14

State		Output Load													
B C	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff			
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl		
0 0	A-O	66.37	87.12	72.96	92.82	87.20	104.2	118.0	125.5	190.0	164.4	368.6	242.6		
0 1	A-O	66.37	87.12	72.96	92.83	87.20	104.2	118.0	125.5	190.0	164.4	368.6	242.6		
1 0	A-O	66.37	87.12	72.96	92.83	87.20	104.2	118.0	125.5	190.0	164.4	368.6	242.6		
1 1	A-O	66.37	87.12	72.96	92.83	87.20	104.2	118.0	125.5	190.0	164.3	368.6	242.6		
S0 A B C	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff			
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl		
0 0 0 1	S1-O	40.06	52.68	45.85	57.38	58.56	66.94	87.82	85.76	159.2	122.9	337.8	200.2		
0 0 1 1	S1-O	40.06	52.68	45.85	57.38	58.56	66.94	87.82	85.76	159.2	122.9	337.8	200.2		
0 1 0 0	S1-O	69.83	60.06	76.28	64.38	90.32	72.96	120.9	89.20	192.7	121.9	371.2	194.7		
0 1 1 0	S1-O	69.83	60.06	76.28	64.38	90.32	72.96	120.9	89.20	192.7	121.9	371.2	194.7		
1 0 0 1	S1-O	40.06	52.65	45.85	57.35	58.56	66.92	87.82	85.72	159.2	122.8	337.8	200.1		
1 0 1 0	S1-O	69.87	60.05	76.33	64.38	90.38	72.96	120.9	89.20	192.7	121.9	371.2	194.7		
1 1 0 1	S1-O	40.06	52.65	45.85	57.35	58.56	66.92	87.82	85.72	159.2	122.8	337.8	200.1		
1 1 1 0	S1-O	69.87	60.05	76.33	64.38	90.38	72.96	120.9	89.20	192.7	121.9	371.2	194.7		
A B C	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff			
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl		
0 1 0	S0-O	63.45	77.50	70.04	83.18	84.24	94.49	115.0	115.6	186.9	154.5	365.6	232.7		
0 1 1	S0-O	63.45	77.50	70.04	83.19	84.24	94.49	115.0	115.6	186.9	154.5	365.6	232.7		
1 0 0	S0-O	98.97	87.99	105.5	93.70	119.8	105.1	150.5	126.1	222.4	165.0	401.1	243.2		
1 0 1	S0-O	98.97	87.99	105.5	93.71	119.8	105.1	150.5	126.1	222.5	165.0	401.1	243.2		
S0 A B	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff			
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl		
0 0 0	C-O	42.92	60.62	48.67	65.01	61.38	73.64	90.59	90.13	161.9	122.9	340.5	195.7		
0 0 1	C-O	42.92	60.62	48.67	65.01	61.38	73.64	90.59	90.13	161.9	122.9	340.5	195.7		
0 1 0	C-O	42.92	60.63	48.67	65.02	61.38	73.65	90.59	90.14	161.9	122.9	340.5	195.7		
0 1 1	C-O	42.92	60.63	48.67	65.02	61.38	73.65	90.59	90.14	161.9	122.9	340.5	195.7		
1 0 0	C-O	42.92	60.62	48.67	65.01	61.38	73.64	90.59	90.13	161.9	122.9	340.5	195.7		
1 0 1	C-O	42.92	60.63	48.67	65.02	61.38	73.65	90.59	90.14	161.9	122.9	340.5	195.7		
1 1 0	C-O	42.92	60.62	48.67	65.01	61.38	73.64	90.59	90.13	161.9	122.9	340.5	195.7		
1 1 1	C-O	42.92	60.63	48.67	65.02	61.38	73.65	90.59	90.14	161.9	122.9	340.5	195.7		
A C	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff			
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl		
0 0	B-O	65.25	87.86	71.83	93.57	86.06	105.0	116.8	126.2	188.8	165.1	367.4	243.3		
0 1	B-O	65.25	87.86	71.83	93.57	86.06	105.0	116.8	126.2	188.8	165.1	367.4	243.3		
1 0	B-O	65.25	87.86	71.83	93.57	86.05	105.0	116.8	126.2	188.8	165.1	367.4	243.3		
1 1	B-O	65.25	87.86	71.83	93.57	86.06	105.0	116.8	126.2	188.8	165.1	367.4	243.3		

Version : MUX3X1P

Cell Unit = 15

State	Output Load													
B C	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 0	A-O	68.21	86.29	73.28	90.73	84.40	99.85	108.1	117.2	161.1	148.4	290.1	207.7	
0 1	A-O	68.21	86.29	73.28	90.73	84.40	99.85	108.1	117.2	161.1	148.4	290.1	207.7	
1 0	A-O	68.22	86.29	73.28	90.73	84.40	99.85	108.1	117.2	161.1	148.4	290.1	207.7	
1 1	A-O	68.22	86.29	73.29	90.74	84.40	99.85	108.1	117.2	161.1	148.4	290.1	207.7	
S0 A B C	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 0 0 1	S1-O	40.86	52.94	45.35	56.65	55.15	64.30	76.81	79.27	128.7	108.4	257.7	166.5	
0 0 1 1	S1-O	40.86	52.94	45.35	56.65	55.15	64.30	76.81	79.28	128.7	108.4	257.7	166.5	
0 1 0 0	S1-O	71.67	60.93	76.63	64.37	87.56	71.27	110.9	84.40	163.7	109.6	292.7	162.5	
0 1 1 0	S1-O	71.67	60.93	76.63	64.37	87.56	71.27	110.9	84.40	163.7	109.6	292.7	162.5	
1 0 0 1	S1-O	40.86	52.89	45.35	56.59	55.15	64.24	76.81	79.21	128.7	108.3	257.7	166.5	
1 0 1 0	S1-O	71.72	60.93	76.68	64.37	87.62	71.27	111.0	84.40	163.7	109.6	292.8	162.5	
1 1 0 1	S1-O	40.85	52.89	45.35	56.59	55.15	64.24	76.81	79.21	128.7	108.3	257.7	166.5	
1 1 1 0	S1-O	71.72	60.93	76.68	64.37	87.62	71.27	111.0	84.40	163.7	109.6	292.8	162.5	
A B C	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 1 0	S0-O	65.19	76.92	70.23	81.38	81.31	90.44	105.0	107.6	157.9	138.7	287.0	198.1	
0 1 1	S0-O	65.19	76.93	70.23	81.38	81.31	90.44	105.0	107.6	157.9	138.7	287.0	198.1	
1 0 0	S0-O	102.2	88.21	107.2	92.70	118.3	101.8	141.9	119.0	194.9	150.1	324.0	209.5	
1 0 1	S0-O	102.2	88.22	107.2	92.70	118.3	101.8	141.9	119.0	194.9	150.1	324.0	209.5	
S0 A B	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 0 0	C-O	43.62	60.49	48.10	63.99	57.91	70.99	79.62	84.19	131.4	109.5	260.4	162.5	
0 0 1	C-O	43.62	60.49	48.10	63.99	57.91	70.99	79.62	84.19	131.4	109.5	260.4	162.5	
0 1 0	C-O	43.62	60.50	48.10	64.00	57.91	71.00	79.62	84.20	131.4	109.6	260.4	162.5	
0 1 1	C-O	43.62	60.50	48.10	64.00	57.91	71.00	79.62	84.20	131.4	109.6	260.4	162.5	
1 0 0	C-O	43.62	60.49	48.10	63.99	57.91	70.99	79.62	84.19	131.4	109.5	260.4	162.5	
1 0 1	C-O	43.62	60.50	48.10	64.00	57.91	71.00	79.62	84.20	131.4	109.6	260.4	162.5	
1 1 0	C-O	43.62	60.49	48.10	63.99	57.91	70.99	79.62	84.19	131.4	109.5	260.4	162.5	
1 1 1	C-O	43.62	60.50	48.10	64.00	57.91	71.00	79.62	84.20	131.4	109.6	260.4	162.5	
A C	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 0	B-O	67.05	87.44	72.11	91.88	83.19	101.0	106.8	118.3	159.8	149.5	288.9	208.9	
0 1	B-O	67.06	87.44	72.11	91.88	83.19	101.0	106.8	118.3	159.8	149.5	288.9	208.9	
1 0	B-O	67.05	87.44	72.11	91.88	83.19	101.0	106.8	118.3	159.8	149.5	288.9	208.9	
1 1	B-O	67.06	87.45	72.11	91.89	83.19	101.0	106.8	118.3	159.8	149.5	288.9	208.9	

Version : MUX3X2

Cell Unit = 21

State		Output Load											
B C	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0	A-O	69.74	97.17	74.18	101.4	85.13	111.1	110.6	131.4	173.1	170.4	343.9	250.9
0 1	A-O	69.74	97.17	74.18	101.4	85.13	111.1	110.6	131.4	173.1	170.4	343.9	250.9
1 0	A-O	69.74	97.17	74.18	101.4	85.13	111.1	110.6	131.4	173.1	170.4	343.9	250.9
1 1	A-O	69.74	97.17	74.18	101.4	85.13	111.1	110.6	131.4	173.1	170.4	343.9	250.9
S0 A B C	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0 1	S1-O	41.29	57.34	45.28	60.91	54.90	69.14	78.03	86.73	139.3	123.3	309.9	202.2
0 0 1 1	S1-O	41.29	57.34	45.28	60.91	54.90	69.14	78.03	86.74	139.3	123.3	309.9	202.2
0 1 0 0	S1-O	72.05	69.06	76.39	72.41	87.13	79.91	112.3	95.19	174.7	126.8	345.3	198.7
0 1 1 0	S1-O	72.05	69.06	76.39	72.41	87.13	79.91	112.3	95.19	174.7	126.8	345.3	198.7
1 0 0 1	S1-O	41.29	57.30	45.28	60.86	54.90	69.10	78.03	86.69	139.3	123.3	309.9	202.2
1 0 1 0	S1-O	72.08	69.05	76.43	72.41	87.18	79.90	112.4	95.19	174.7	126.8	345.4	198.7
1 1 0 1	S1-O	41.29	57.30	45.28	60.86	54.90	69.10	78.03	86.69	139.3	123.3	309.9	202.2
1 1 1 0	S1-O	72.08	69.05	76.43	72.41	87.18	79.90	112.4	95.20	174.7	126.8	345.4	198.7
A B C	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 1 0	S0-O	66.50	86.50	70.93	90.75	81.85	100.4	107.3	120.6	169.8	159.7	340.6	240.1
0 1 1	S0-O	66.51	86.50	70.93	90.75	81.85	100.4	107.3	120.6	169.8	159.7	340.6	240.1
1 0 0	S0-O	101.3	98.97	105.8	103.2	116.7	112.9	142.1	133.2	204.6	172.3	375.4	252.9
1 0 1	S0-O	101.3	98.97	105.8	103.2	116.7	112.9	142.1	133.2	204.6	172.3	375.4	252.9
S0 A B	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0	C-O	44.56	68.88	48.55	72.25	58.21	79.77	81.39	95.31	142.5	126.9	313.2	198.8
0 0 1	C-O	44.56	68.88	48.55	72.25	58.21	79.77	81.39	95.31	142.5	126.9	313.2	198.8
0 1 0	C-O	44.56	68.89	48.55	72.26	58.21	79.78	81.40	95.32	142.5	126.9	313.2	198.8
0 1 1	C-O	44.56	68.89	48.55	72.26	58.21	79.78	81.40	95.32	142.5	126.9	313.2	198.8
1 0 0	C-O	44.56	68.88	48.55	72.25	58.21	79.77	81.39	95.31	142.5	126.9	313.2	198.8
1 0 1	C-O	44.56	68.89	48.55	72.26	58.21	79.78	81.40	95.32	142.5	126.9	313.2	198.8
1 1 0	C-O	44.56	68.88	48.55	72.25	58.21	79.77	81.39	95.31	142.5	126.9	313.2	198.8
1 1 1	C-O	44.56	68.89	48.55	72.26	58.21	79.78	81.40	95.32	142.5	126.9	313.2	198.8
A C	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0	B-O	68.83	99.13	73.26	103.4	84.18	113.2	109.6	133.4	172.1	172.6	342.9	253.1
0 1	B-O	68.84	99.14	73.27	103.4	84.18	113.2	109.6	133.4	172.2	172.6	342.9	253.1
1 0	B-O	68.83	99.14	73.26	103.4	84.17	113.2	109.6	133.4	172.1	172.6	342.9	253.1
1 1	B-O	68.83	99.14	73.26	103.4	84.18	113.2	109.6	133.4	172.2	172.6	342.9	253.1

Version : MUX3X3

Cell Unit = 22

State		Output Load											
B C	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0	A-O	77.74	109.3	81.13	112.5	90.33	121.0	113.5	140.3	171.9	180.0	337.5	263.1
0 1	A-O	77.74	109.3	81.13	112.5	90.34	121.0	113.5	140.3	171.9	180.0	337.5	263.1
1 0	A-O	77.74	109.3	81.13	112.5	90.34	121.0	113.5	140.3	171.9	180.0	337.5	263.1
1 1	A-O	77.74	109.3	81.13	112.5	90.34	121.0	113.5	140.3	171.9	180.0	337.5	263.1
S0 A B C	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0 1	S1-O	47.43	65.05	50.51	68.01	58.71	75.54	79.40	92.99	135.3	130.5	300.6	212.1
0 0 1 1	S1-O	47.43	65.05	50.51	68.01	58.71	75.54	79.40	92.99	135.3	130.5	300.6	212.1
0 1 0 0	S1-O	77.67	77.35	81.01	80.03	90.18	86.70	113.2	101.5	171.3	133.1	336.9	205.6
0 1 1 0	S1-O	77.67	77.35	81.01	80.03	90.18	86.70	113.2	101.5	171.3	133.1	336.9	205.6
1 0 0 1	S1-O	47.43	64.99	50.51	67.95	58.71	75.48	79.40	92.93	135.3	130.5	300.6	212.0
1 0 1 0	S1-O	77.72	77.34	81.07	80.02	90.24	86.69	113.2	101.5	171.4	133.1	336.9	205.6
1 1 0 1	S1-O	47.43	64.99	50.51	67.95	58.71	75.48	79.39	92.93	135.3	130.5	300.6	212.1
1 1 1 0	S1-O	77.72	77.34	81.07	80.02	90.24	86.69	113.2	101.5	171.4	133.1	336.9	205.6
A B C	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 1 0	S0-O	74.57	98.49	77.95	101.8	87.15	110.3	110.3	129.6	168.6	169.3	334.3	252.4
0 1 1	S0-O	74.58	98.50	77.95	101.8	87.15	110.3	110.3	129.6	168.6	169.3	334.3	252.4
1 0 0	S0-O	109.1	110.8	112.5	114.1	121.7	122.6	144.8	142.0	203.1	181.8	368.8	264.9
1 0 1	S0-O	109.1	110.8	112.5	114.1	121.7	122.6	144.8	142.0	203.1	181.8	368.8	264.9
S0 A B	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0	C-O	49.69	77.75	52.78	80.43	61.02	87.11	81.72	102.1	137.6	133.7	302.9	206.1
0 0 1	C-O	49.69	77.75	52.78	80.43	61.02	87.11	81.72	102.1	137.6	133.7	302.9	206.1
0 1 0	C-O	49.69	77.76	52.78	80.44	61.02	87.12	81.71	102.1	137.6	133.7	302.9	206.1
0 1 1	C-O	49.69	77.76	52.78	80.44	61.02	87.12	81.71	102.1	137.6	133.7	302.9	206.1
1 0 0	C-O	49.69	77.75	52.78	80.43	61.02	87.11	81.72	102.1	137.6	133.7	302.9	206.1
1 0 1	C-O	49.69	77.76	52.78	80.44	61.02	87.12	81.71	102.1	137.6	133.7	302.9	206.1
1 1 0	C-O	49.69	77.75	52.78	80.43	61.02	87.11	81.72	102.1	137.6	133.7	302.9	206.1
1 1 1	C-O	49.69	77.76	52.78	80.44	61.02	87.12	81.71	102.1	137.6	133.7	302.9	206.1
A C	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0	B-O	76.73	111.2	80.10	114.5	89.33	123.0	112.4	142.4	170.7	182.2	336.5	265.3
0 1	B-O	76.73	111.2	80.10	114.5	89.33	123.0	112.4	142.4	170.7	182.2	336.5	265.3
1 0	B-O	76.73	111.2	80.10	114.5	89.33	123.0	112.4	142.4	170.7	182.2	336.5	265.3
1 1	B-O	76.73	111.2	80.10	114.5	89.33	123.0	112.4	142.4	170.7	182.2	336.5	265.3

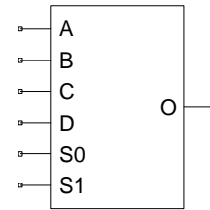
Group Name : MUX4

Symbol

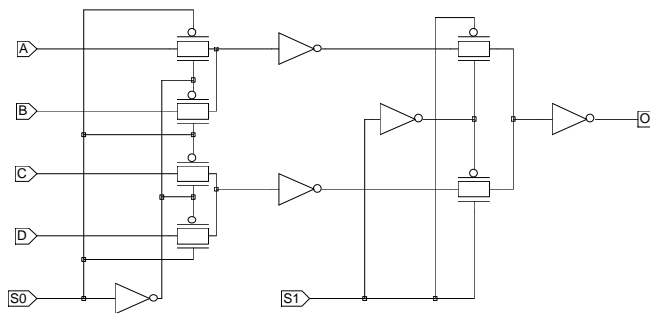
Function : 4 Bit MUX

Truth Table

S1	S0	O
0	0	A
0	1	B
1	0	C
1	1	D



Schematic



Pin Order O S0 S1 A B C D

Input Capacitance (ff) & Maximum Loading (ff) & Power Consumption (nW/MHz)

Version	Input Capacitance						Maximum Loading	Power Consumption
	S0	S1	A	B	C	D	O	O
MUX4XLP	3.724	2.244	1.530	1.561	1.526	1.522	147.5	5.937
MUX4X1	4.026	2.526	1.644	1.674	1.642	1.634	212.5	7.230
MUX4X1P	4.496	2.819	2.097	2.025	2.120	2.019	295.4	9.395
MUX4X2	4.611	2.933	2.231	2.154	2.258	2.239	424.9	11.78
MUX4X3	4.610	2.925	2.230	2.154	2.258	2.238	635.8	16.61



## AC Characteristics ( Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ps)

Version : MUX4XLP

Cell Unit = 19

State	Output Load													
	B C D	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0	A-O	64.85	94.38	73.64	102.1	92.59	117.2	135.1	144.6	238.2	195.1	496.5	300.3	
0 0 1	A-O	64.85	94.38	73.64	102.1	92.60	117.2	135.1	144.6	238.2	195.1	496.5	300.3	
0 1 0	A-O	64.83	94.39	73.62	102.2	92.57	117.2	135.0	144.6	238.2	195.2	496.4	300.3	
0 1 1	A-O	64.83	94.39	73.62	102.2	92.58	117.2	135.0	144.6	238.2	195.2	496.4	300.3	
1 0 0	A-O	64.85	94.38	73.64	102.1	92.60	117.2	135.1	144.6	238.2	195.1	496.5	300.3	
1 0 1	A-O	64.86	94.38	73.65	102.1	92.60	117.2	135.1	144.6	238.2	195.1	496.5	300.3	
1 1 0	A-O	64.83	94.39	73.62	102.2	92.58	117.2	135.0	144.6	238.2	195.2	496.4	300.3	
1 1 1	A-O	64.84	94.39	73.63	102.2	92.58	117.2	135.0	144.6	238.2	195.2	496.4	300.3	
S0 A B C D	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 0 0 1 0	S1-O	40.45	52.11	49.00	58.09	67.72	70.07	110.0	93.97	213.1	142.1	471.2	246.3	
0 0 0 1 1	S1-O	40.45	52.11	49.00	58.09	67.72	70.07	110.0	93.97	213.1	142.1	471.2	246.3	
0 0 1 1 0	S1-O	40.45	52.11	49.00	58.10	67.72	70.07	110.0	93.97	213.1	142.2	471.2	246.3	
0 0 1 1 1	S1-O	40.45	52.11	49.00	58.10	67.72	70.07	110.0	93.97	213.1	142.2	471.2	246.3	
0 1 0 0 0	S1-O	69.21	48.94	77.73	55.66	96.39	68.81	138.7	93.66	241.7	141.9	499.8	245.8	
0 1 0 0 1	S1-O	69.21	48.94	77.73	55.66	96.39	68.81	138.7	93.66	241.7	142.0	499.8	245.8	
0 1 1 0 0	S1-O	69.21	48.94	77.73	55.66	96.39	68.81	138.7	93.66	241.7	141.9	499.8	245.8	
0 1 1 0 1	S1-O	69.21	48.94	77.73	55.66	96.39	68.81	138.7	93.66	241.7	142.0	499.8	245.8	
1 0 0 0 1	S1-O	40.47	52.08	49.03	58.07	67.76	70.03	110.1	93.93	213.1	142.1	471.2	246.2	
1 0 0 1 1	S1-O	40.47	52.08	49.03	58.07	67.76	70.03	110.1	93.93	213.1	142.1	471.2	246.2	
1 0 1 0 0	S1-O	69.23	48.77	77.77	55.48	96.44	68.61	138.7	93.45	241.8	141.8	499.9	245.6	
1 0 1 1 0	S1-O	69.23	48.77	77.77	55.48	96.44	68.61	138.7	93.45	241.8	141.8	499.9	245.6	
1 1 0 0 1	S1-O	40.47	52.09	49.03	58.07	67.76	70.04	110.1	93.94	213.1	142.1	471.2	246.2	
1 1 0 1 1	S1-O	40.47	52.09	49.03	58.07	67.76	70.04	110.1	93.94	213.1	142.1	471.2	246.2	
1 1 1 0 0	S1-O	69.23	48.77	77.77	55.48	96.44	68.61	138.7	93.45	241.8	141.8	499.9	245.6	
1 1 1 1 0	S1-O	69.23	48.77	77.77	55.48	96.44	68.61	138.7	93.45	241.8	141.8	499.9	245.6	
S1 A B C D	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 0 1 0 0	S0-O	62.23	84.68	71.04	92.28	90.01	107.0	132.6	134.1	235.7	184.4	493.9	289.5	
0 0 1 0 1	S0-O	62.48	84.40	71.26	92.00	90.23	106.8	132.8	133.9	235.9	184.3	494.1	289.4	
0 0 1 1 0	S0-O	62.15	85.21	70.96	92.77	89.96	107.4	132.5	134.3	235.5	184.5	493.8	289.6	
0 0 1 1 1	S0-O	62.15	84.73	70.95	92.34	89.97	107.0	132.5	134.1	235.6	184.4	493.8	289.5	
0 1 0 0 0	S0-O	121.1	107.7	129.9	115.4	148.9	130.4	191.4	157.8	294.5	208.4	552.6	313.6	
0 1 0 0 1	S0-O	113.6	103.9	122.4	111.6	141.4	126.7	183.9	154.0	286.9	204.6	545.1	309.7	
0 1 0 1 0	S0-O	125.5	109.5	134.4	117.3	153.4	132.3	196.0	159.8	299.0	210.4	557.1	315.6	
0 1 0 1 1	S0-O	120.2	108.0	129.1	115.7	148.0	130.7	190.5	158.1	293.5	208.6	551.8	313.8	
1 0 0 0 1	S0-O	58.53	80.67	67.25	88.13	86.08	102.5	128.4	128.8	231.5	178.2	489.7	282.6	
1 0 0 1 0	S0-O	117.6	103.9	126.3	111.5	145.1	126.2	187.5	152.8	290.4	202.4	548.6	306.8	

1 0 1 0 1	S0-O	58.53	80.65	67.25	88.13	86.05	102.5	128.4	128.9	231.5	178.3	489.7	282.7
1 0 1 1 0	S0-O	110.7	100.4	119.3	107.9	138.1	122.6	180.4	149.2	283.4	198.8	541.6	303.3
1 1 0 0 1	S0-O	58.58	80.75	67.30	88.16	86.13	102.5	128.5	128.7	231.5	178.1	489.7	282.5
1 1 0 1 0	S0-O	121.4	105.7	130.2	113.3	149.1	128.0	191.4	154.7	294.4	204.3	552.6	308.8
1 1 1 0 1	S0-O	58.47	80.71	67.21	88.18	86.00	102.6	128.3	128.8	231.5	178.2	489.7	282.6
1 1 1 1 0	S0-O	116.7	104.2	125.4	111.7	144.2	126.4	186.4	153.0	289.5	202.7	547.7	307.1
A B D	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl
0 0 0	C-O	61.31	90.42	70.03	98.05	88.77	112.8	131.1	139.4	234.2	189.0	492.4	293.5
0 0 1	C-O	61.31	90.42	70.03	98.05	88.77	112.8	131.1	139.4	234.2	189.0	492.4	293.5
0 1 0	C-O	61.32	90.41	70.03	98.05	88.77	112.8	131.1	139.4	234.2	189.0	492.4	293.5
0 1 1	C-O	61.32	90.42	70.04	98.05	88.77	112.8	131.1	139.4	234.2	189.0	492.4	293.5
1 0 0	C-O	61.28	90.43	70.00	98.06	88.74	112.8	131.0	139.5	234.2	189.0	492.4	293.5
1 0 1	C-O	61.29	90.43	70.00	98.06	88.74	112.8	131.1	139.5	234.2	189.0	492.4	293.5
1 1 0	C-O	61.29	90.43	70.01	98.06	88.74	112.8	131.1	139.5	234.2	189.0	492.4	293.5
1 1 1	C-O	61.29	90.43	70.01	98.06	88.75	112.8	131.1	139.5	234.2	189.0	492.4	293.5
A C D	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl
0 0 0	B-O	63.78	95.25	72.56	103.0	91.42	118.1	133.9	145.5	237.1	196.0	495.3	301.1
0 0 1	B-O	63.79	95.25	72.56	103.0	91.43	118.1	133.9	145.5	237.1	196.0	495.2	301.1
0 1 0	B-O	63.78	95.25	72.56	103.0	91.42	118.1	133.9	145.5	237.1	196.0	495.3	301.1
0 1 1	B-O	63.79	95.25	72.56	103.0	91.43	118.1	133.9	145.5	237.1	196.0	495.2	301.1
1 0 0	B-O	63.78	95.25	72.56	103.0	91.42	118.1	133.9	145.5	237.1	196.0	495.3	301.1
1 0 1	B-O	63.79	95.26	72.56	103.0	91.43	118.1	133.9	145.5	237.1	196.0	495.2	301.2
1 1 0	B-O	63.78	95.25	72.56	103.0	91.42	118.1	133.9	145.5	237.1	196.0	495.3	301.1
1 1 1	B-O	63.79	95.26	72.56	103.0	91.43	118.1	133.9	145.5	237.1	196.0	495.2	301.2
A B C	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl
0 0 0	D-O	60.35	91.37	69.04	99.02	87.75	113.7	130.0	140.4	233.2	189.9	491.3	294.4
0 0 1	D-O	60.35	91.37	69.04	99.02	87.74	113.7	130.0	140.4	233.2	189.9	491.3	294.4
0 1 0	D-O	60.35	91.38	69.04	99.02	87.74	113.7	130.0	140.4	233.2	190.0	491.3	294.4
0 1 1	D-O	60.35	91.38	69.04	99.03	87.74	113.7	130.0	140.4	233.2	190.0	491.3	294.4
1 0 0	D-O	60.35	91.37	69.04	99.02	87.75	113.7	130.0	140.4	233.2	189.9	491.3	294.4
1 0 1	D-O	60.35	91.37	69.04	99.02	87.74	113.7	130.0	140.4	233.2	189.9	491.3	294.4
1 1 0	D-O	60.35	91.38	69.04	99.02	87.74	113.7	130.0	140.4	233.2	190.0	491.3	294.4
1 1 1	D-O	60.35	91.38	69.04	99.03	87.74	113.7	130.0	140.4	233.2	190.0	491.3	294.4

Version : MUX4X1

Cell Unit = 19

State		Output Load											
B C D	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0	A-O	68.24	90.49	74.91	96.37	89.31	108.1	120.3	129.9	192.4	169.6	371.0	248.4
0 0 1	A-O	68.24	90.49	74.91	96.37	89.31	108.1	120.3	129.9	192.4	169.6	371.0	248.4
0 1 0	A-O	68.22	90.50	74.89	96.38	89.29	108.1	120.3	129.9	192.4	169.6	370.9	248.5
0 1 1	A-O	68.23	90.50	74.90	96.38	89.30	108.1	120.3	129.9	192.4	169.6	371.0	248.5
1 0 0	A-O	68.24	90.49	74.91	96.37	89.31	108.1	120.3	129.9	192.4	169.6	371.0	248.4
1 0 1	A-O	68.24	90.49	74.91	96.37	89.31	108.1	120.3	129.9	192.4	169.6	371.0	248.4
1 1 0	A-O	68.22	90.50	74.90	96.38	89.30	108.1	120.3	129.9	192.4	169.6	371.0	248.5
1 1 1	A-O	68.23	90.50	74.90	96.38	89.30	108.1	120.3	129.9	192.4	169.6	371.0	248.5
S0 A B C D	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0 1 0	S1-O	41.73	52.10	48.28	56.81	62.47	66.48	93.23	85.57	165.1	122.9	343.6	200.7
0 0 0 1 1	S1-O	41.73	52.10	48.28	56.81	62.47	66.48	93.23	85.57	165.1	122.9	343.6	200.7
0 0 1 1 0	S1-O	41.73	52.10	48.28	56.81	62.47	66.48	93.23	85.57	165.1	122.9	343.6	200.7
0 0 1 1 1	S1-O	41.73	52.10	48.28	56.81	62.47	66.48	93.23	85.57	165.1	122.9	343.6	200.7
0 1 0 0 0	S1-O	67.65	48.82	74.15	54.07	88.32	64.47	119.1	84.23	190.9	121.9	369.4	199.4
0 1 0 0 1	S1-O	67.65	48.82	74.14	54.07	88.32	64.47	119.1	84.23	190.9	121.9	369.4	199.4
0 1 1 0 0	S1-O	67.65	48.82	74.14	54.07	88.32	64.47	119.1	84.23	190.9	121.9	369.4	199.4
0 1 1 0 1	S1-O	67.65	48.82	74.14	54.08	88.32	64.47	119.1	84.23	190.9	121.9	369.4	199.4
1 0 0 0 1	S1-O	41.76	52.08	48.32	56.78	62.51	66.44	93.28	85.53	165.2	122.9	343.7	200.7
1 0 0 1 1	S1-O	41.76	52.08	48.31	56.78	62.51	66.44	93.28	85.53	165.2	122.9	343.7	200.7
1 0 1 0 0	S1-O	67.68	48.66	74.19	53.91	88.37	64.30	119.1	84.05	191.0	121.7	369.5	199.3
1 0 1 1 0	S1-O	67.68	48.66	74.19	53.91	88.37	64.30	119.1	84.05	191.0	121.7	369.5	199.3
1 1 0 0 1	S1-O	41.76	52.08	48.31	56.78	62.51	66.45	93.28	85.53	165.2	122.9	343.7	200.7
1 1 0 1 1	S1-O	41.76	52.08	48.31	56.78	62.51	66.45	93.28	85.53	165.2	122.9	343.7	200.7
1 1 1 0 0	S1-O	67.68	48.66	74.19	53.91	88.37	64.30	119.1	84.05	191.0	121.7	369.5	199.3
1 1 1 1 0	S1-O	67.68	48.66	74.19	53.91	88.37	64.30	119.1	84.05	191.0	121.7	369.5	199.3
S1 A B C D	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 1 0 0	S0-O	65.46	81.60	72.15	87.39	86.54	98.89	117.6	120.4	189.6	159.9	368.2	238.7
0 0 1 0 1	S0-O	65.74	81.22	72.40	87.03	86.76	98.59	117.7	120.2	189.8	159.7	368.4	238.6
0 0 1 1 0	S0-O	65.33	82.18	72.01	87.94	86.41	99.39	117.4	120.7	189.4	160.1	368.1	238.9
0 0 1 1 1	S0-O	65.43	81.63	72.12	87.42	86.55	98.92	117.6	120.4	189.5	159.9	368.1	238.7
0 1 0 0 0	S0-O	117.6	100.8	124.3	106.6	138.7	118.3	169.7	140.1	241.7	179.8	420.2	258.7
0 1 0 0 1	S0-O	110.6	97.45	117.3	103.3	131.6	115.0	162.6	136.7	234.6	176.3	413.2	255.3
0 1 0 1 0	S0-O	121.5	102.3	128.2	108.2	142.6	119.9	173.6	141.8	245.6	181.4	424.1	260.4
0 1 0 1 1	S0-O	116.5	100.8	123.1	106.6	137.5	118.4	168.5	140.1	240.5	179.7	419.1	258.7
1 0 0 0 1	S0-O	61.98	78.30	68.60	84.03	82.84	95.36	113.7	116.3	185.5	155.0	364.2	233.1
1 0 0 1 0	S0-O	114.4	97.64	121.0	103.4	135.2	114.9	166.0	136.1	237.8	175.0	416.4	253.1
1 0 1 0 1	S0-O	62.00	78.18	68.63	83.90	82.87	95.26	113.7	116.3	185.5	155.1	364.2	233.2

1 0 1 1 0	S0-O	107.7	94.49	114.3	100.2	128.5	111.8	159.3	133.0	231.1	171.9	409.7	250.1
1 1 0 0 1	S0-O	62.01	78.39	68.65	84.06	82.89	95.32	113.7	116.2	185.6	154.9	364.2	233.1
1 1 0 1 0	S0-O	117.7	99.14	124.3	105.0	138.6	116.5	169.4	137.7	241.3	176.6	419.9	254.8
1 1 1 0 1	S0-O	61.96	78.32	68.59	84.03	82.84	95.37	113.6	116.3	185.6	155.1	364.2	233.2
1 1 1 1 0	S0-O	113.2	97.63	119.8	103.4	134.0	114.9	164.8	136.1	236.6	175.0	415.2	253.2
A B D	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0	C-O	64.88	87.20	71.50	93.00	85.78	104.5	116.6	125.8	188.5	164.8	367.1	242.9
0 0 1	C-O	64.88	87.20	71.50	93.00	85.78	104.5	116.6	125.8	188.5	164.8	367.1	242.9
0 1 0	C-O	64.88	87.20	71.50	93.00	85.78	104.5	116.6	125.8	188.5	164.8	367.1	242.9
0 1 1	C-O	64.88	87.20	71.50	93.00	85.78	104.5	116.6	125.8	188.5	164.8	367.1	242.9
1 0 0	C-O	64.86	87.21	71.48	93.01	85.76	104.5	116.6	125.9	188.5	164.8	367.1	242.9
1 0 1	C-O	64.86	87.21	71.48	93.01	85.76	104.5	116.6	125.9	188.5	164.8	367.1	242.9
1 1 0	C-O	64.86	87.21	71.48	93.01	85.76	104.5	116.6	125.9	188.5	164.8	367.1	242.9
1 1 1	C-O	64.86	87.21	71.49	93.01	85.76	104.5	116.6	125.9	188.5	164.8	367.1	242.9
A C D	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0	B-O	67.20	91.23	73.85	97.12	88.23	108.8	119.2	130.6	191.2	170.3	369.8	249.2
0 0 1	B-O	67.20	91.24	73.86	97.13	88.24	108.9	119.2	130.7	191.2	170.3	369.8	249.2
0 1 0	B-O	67.20	91.24	73.85	97.12	88.23	108.8	119.2	130.6	191.2	170.3	369.8	249.2
0 1 1	B-O	67.20	91.24	73.86	97.13	88.24	108.9	119.2	130.7	191.2	170.3	369.8	249.2
1 0 0	B-O	67.20	91.24	73.85	97.12	88.23	108.9	119.2	130.6	191.2	170.3	369.8	249.2
1 0 1	B-O	67.20	91.24	73.85	97.13	88.24	108.9	119.2	130.7	191.2	170.3	369.8	249.2
1 1 0	B-O	67.20	91.24	73.85	97.13	88.23	108.9	119.2	130.6	191.2	170.3	369.8	249.2
1 1 1	B-O	67.20	91.25	73.85	97.13	88.24	108.9	119.2	130.7	191.2	170.3	369.8	249.2
A B C	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0	D-O	63.89	88.02	70.53	93.81	84.77	105.4	115.6	126.6	187.4	165.5	366.0	243.7
0 0 1	D-O	63.89	88.02	70.53	93.81	84.77	105.4	115.6	126.6	187.4	165.5	366.0	243.7
0 1 0	D-O	63.89	88.02	70.53	93.81	84.77	105.4	115.6	126.6	187.4	165.6	366.0	243.7
0 1 1	D-O	63.89	88.03	70.53	93.82	84.77	105.4	115.6	126.7	187.4	165.6	366.0	243.7
1 0 0	D-O	63.89	88.02	70.53	93.81	84.77	105.4	115.6	126.6	187.4	165.5	366.0	243.7
1 0 1	D-O	63.89	88.02	70.53	93.81	84.77	105.4	115.6	126.6	187.4	165.5	366.0	243.7
1 1 0	D-O	63.89	88.02	70.53	93.82	84.77	105.4	115.6	126.6	187.4	165.6	366.0	243.7
1 1 1	D-O	63.89	88.03	70.53	93.82	84.77	105.4	115.6	126.7	187.4	165.6	366.0	243.7

Version : MUX4X1P

Cell Unit = 21

State		Output Load											
B C D	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl
0 0 0	A-O	69.46	88.24	74.54	92.76	85.67	102.0	109.4	119.5	162.4	151.1	291.5	210.7
0 0 1	A-O	69.47	88.24	74.54	92.76	85.68	102.0	109.4	119.5	162.4	151.1	291.5	210.7
0 1 0	A-O	69.44	88.25	74.51	92.77	85.65	102.0	109.4	119.6	162.4	151.1	291.4	210.7
0 1 1	A-O	69.45	88.25	74.52	92.77	85.66	102.0	109.4	119.6	162.4	151.1	291.5	210.7
1 0 0	A-O	69.47	88.24	74.54	92.76	85.68	102.0	109.4	119.5	162.4	151.1	291.5	210.7
1 0 1	A-O	69.47	88.24	74.55	92.76	85.68	102.0	109.4	119.5	162.4	151.1	291.5	210.7
1 1 0	A-O	69.44	88.25	74.52	92.77	85.66	102.0	109.4	119.6	162.4	151.1	291.5	210.7
1 1 1	A-O	69.45	88.25	74.53	92.77	85.66	102.0	109.4	119.6	162.4	151.1	291.5	210.7
S0 A B C D	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl
0 0 0 1 0	S1-O	41.92	50.51	46.91	54.14	57.91	61.62	81.49	76.43	134.4	105.3	263.4	163.5
0 0 0 1 1	S1-O	41.92	50.51	46.91	54.14	57.91	61.62	81.49	76.43	134.4	105.3	263.4	163.5
0 0 1 1 0	S1-O	41.92	50.51	46.91	54.14	57.91	61.62	81.49	76.43	134.4	105.3	263.4	163.5
0 0 1 1 1	S1-O	41.92	50.51	46.91	54.14	57.91	61.62	81.49	76.43	134.4	105.3	263.4	163.5
0 1 0 0 0	S1-O	69.22	47.31	74.15	51.40	85.04	59.66	108.4	75.37	161.2	104.9	290.2	163.3
0 1 0 0 1	S1-O	69.22	47.32	74.15	51.41	85.04	59.66	108.4	75.37	161.2	104.9	290.2	163.3
0 1 1 0 0	S1-O	69.22	47.31	74.15	51.41	85.04	59.66	108.4	75.37	161.2	104.9	290.2	163.3
0 1 1 0 1	S1-O	69.22	47.32	74.15	51.41	85.04	59.66	108.4	75.37	161.2	104.9	290.2	163.3
1 0 0 0 1	S1-O	41.95	50.45	46.94	54.08	57.95	61.56	81.55	76.35	134.4	105.2	263.5	163.4
1 0 0 1 1	S1-O	41.95	50.45	46.94	54.08	57.95	61.56	81.55	76.35	134.4	105.2	263.5	163.4
1 0 1 0 0	S1-O	69.25	47.18	74.19	51.26	85.09	59.50	108.5	75.20	161.2	104.8	290.2	163.1
1 0 1 1 0	S1-O	69.25	47.18	74.19	51.26	85.09	59.50	108.5	75.20	161.2	104.8	290.2	163.1
1 1 0 0 1	S1-O	41.95	50.45	46.94	54.08	57.95	61.56	81.55	76.35	134.4	105.2	263.5	163.4
1 1 0 1 1	S1-O	41.95	50.45	46.94	54.08	57.95	61.56	81.55	76.35	134.4	105.2	263.5	163.4
1 1 1 0 0	S1-O	69.25	47.18	74.19	51.26	85.09	59.50	108.5	75.20	161.2	104.8	290.2	163.1
1 1 1 1 0	S1-O	69.25	47.18	74.19	51.26	85.09	59.50	108.5	75.20	161.2	104.8	290.2	163.1
S1 A B C D	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl
0 0 1 0 0	S0-O	66.46	79.61	71.53	84.07	82.66	93.17	106.3	110.3	159.3	141.6	288.5	201.1
0 0 1 0 1	S0-O	66.82	79.22	71.88	83.68	82.99	92.80	106.7	110.1	159.6	141.4	288.7	201.0
0 0 1 1 0	S0-O	66.23	80.17	71.30	84.68	82.47	93.78	106.1	110.9	159.1	141.9	288.2	201.4
0 0 1 1 1	S0-O	66.40	79.64	71.47	84.11	82.58	93.22	106.3	110.4	159.3	141.6	288.3	201.1
0 1 0 0 0	S0-O	123.6	101.4	128.6	105.9	139.8	115.1	163.4	132.5	216.3	164.0	345.4	223.7
0 1 0 0 1	S0-O	114.9	97.40	120.0	101.9	131.1	111.1	154.8	128.7	207.7	160.1	336.7	219.7
0 1 0 1 0	S0-O	128.3	103.0	133.3	107.6	144.5	116.8	168.2	134.3	221.2	165.9	350.2	225.7
0 1 0 1 1	S0-O	122.1	101.4	127.2	105.8	138.4	115.0	162.0	132.5	214.9	163.9	344.0	223.7
1 0 0 0 1	S0-O	64.51	79.10	69.58	83.59	80.67	92.72	104.3	109.8	157.2	140.8	286.3	200.0
1 0 0 1 0	S0-O	121.9	101.0	126.9	105.6	138.1	114.8	161.7	132.1	214.5	163.3	343.6	222.7
1 0 1 0 1	S0-O	64.52	79.00	69.59	83.48	80.68	92.61	104.3	109.8	157.2	140.8	286.3	200.1

1 0 1 1 0	S0-O	113.4	97.18	118.5	101.7	129.6	110.9	153.2	128.3	206.1	159.5	335.1	218.9
1 1 0 0 1	S0-O	64.50	79.21	69.58	83.67	80.67	92.73	104.4	109.8	157.3	140.6	286.3	199.9
1 1 0 1 0	S0-O	126.2	102.8	131.3	107.4	142.4	116.7	166.1	134.1	219.0	165.3	348.0	224.7
1 1 1 0 1	S0-O	64.46	79.13	69.53	83.61	80.63	92.76	104.3	109.8	157.2	140.8	286.3	200.0
1 1 1 1 0	S0-O	120.4	100.9	125.5	105.5	136.7	114.7	160.3	132.1	213.2	163.2	342.2	222.7
A B D	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0	C-O	67.64	87.76	72.74	92.31	83.86	101.6	107.5	119.1	160.5	150.3	289.5	209.6
0 0 1	C-O	67.65	87.77	72.74	92.31	83.86	101.6	107.5	119.1	160.5	150.3	289.5	209.6
0 1 0	C-O	67.65	87.76	72.74	92.31	83.86	101.6	107.5	119.1	160.5	150.3	289.5	209.6
0 1 1	C-O	67.65	87.76	72.75	92.31	83.87	101.6	107.5	119.1	160.5	150.3	289.5	209.6
1 0 0	C-O	67.62	87.77	72.71	92.32	83.83	101.6	107.5	119.1	160.4	150.3	289.5	209.6
1 0 1	C-O	67.62	87.78	72.71	92.32	83.83	101.6	107.5	119.1	160.4	150.3	289.5	209.6
1 1 0	C-O	67.62	87.77	72.72	92.32	83.84	101.6	107.5	119.1	160.4	150.3	289.5	209.6
1 1 1	C-O	67.63	87.78	72.72	92.32	83.84	101.6	107.5	119.1	160.5	150.3	289.5	209.6
A C D	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0	B-O	68.41	89.62	73.47	94.14	84.57	103.4	108.2	120.9	161.3	152.4	290.3	212.1
0 0 1	B-O	68.42	89.63	73.48	94.18	84.58	103.4	108.2	120.9	161.3	152.4	290.3	212.1
0 1 0	B-O	68.41	89.62	73.47	94.14	84.57	103.4	108.2	120.9	161.3	152.4	290.3	212.1
0 1 1	B-O	68.42	89.63	73.48	94.18	84.58	103.4	108.2	120.9	161.3	152.4	290.3	212.1
1 0 0	B-O	68.41	89.62	73.47	94.14	84.57	103.4	108.2	120.9	161.3	152.4	290.3	212.1
1 0 1	B-O	68.41	89.63	73.48	94.19	84.58	103.4	108.2	120.9	161.3	152.4	290.3	212.1
1 1 0	B-O	68.41	89.62	73.47	94.14	84.57	103.4	108.2	120.9	161.3	152.4	290.3	212.1
1 1 1	B-O	68.41	89.63	73.48	94.19	84.58	103.4	108.2	121.0	161.3	152.4	290.3	212.1
A B C	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0	D-O	66.53	89.00	71.58	93.55	82.69	102.8	106.3	120.3	159.1	151.5	288.2	210.9
0 0 1	D-O	66.53	89.00	71.58	93.55	82.69	102.8	106.2	120.3	159.1	151.5	288.2	210.9
0 1 0	D-O	66.53	89.01	71.58	93.55	82.69	102.9	106.2	120.3	159.1	151.5	288.2	210.9
0 1 1	D-O	66.53	89.01	71.58	93.56	82.68	102.9	106.2	120.3	159.1	151.5	288.2	210.9
1 0 0	D-O	66.53	89.00	71.58	93.55	82.69	102.8	106.3	120.3	159.1	151.5	288.2	210.9
1 0 1	D-O	66.53	89.00	71.58	93.55	82.69	102.8	106.2	120.3	159.1	151.5	288.2	210.9
1 1 0	D-O	66.53	89.01	71.58	93.55	82.69	102.9	106.2	120.3	159.1	151.5	288.2	210.9
1 1 1	D-O	66.53	89.01	71.58	93.56	82.68	102.9	106.2	120.3	159.1	151.5	288.2	210.9

Version : MUX4X2

Cell Unit = 29

State		Output Load											
B C D	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0	A-O	66.11	97.33	70.47	101.5	81.27	111.1	106.5	131.1	168.8	169.9	339.6	250.1
0 0 1	A-O	66.11	97.33	70.48	101.5	81.27	111.1	106.5	131.1	168.8	169.9	339.6	250.1
0 1 0	A-O	66.09	97.34	70.46	101.5	81.25	111.1	106.5	131.1	168.8	170.0	339.6	250.1
0 1 1	A-O	66.09	97.34	70.46	101.5	81.25	111.1	106.5	131.1	168.8	170.0	339.6	250.1
1 0 0	A-O	66.11	97.33	70.48	101.5	81.27	111.1	106.5	131.1	168.8	169.9	339.6	250.1
1 0 1	A-O	66.11	97.33	70.48	101.5	81.27	111.1	106.5	131.1	168.8	169.9	339.6	250.1
1 1 0	A-O	66.09	97.34	70.46	101.5	81.25	111.1	106.5	131.1	168.8	170.0	339.6	250.1
1 1 1	A-O	66.09	97.34	70.46	101.5	81.26	111.1	106.5	131.1	168.8	170.0	339.6	250.1
S0 A B C D	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0 1 0	S1-O	44.30	55.92	48.61	59.50	59.24	67.82	84.34	85.68	146.5	122.3	317.2	201.1
0 0 0 1 1	S1-O	44.30	55.92	48.60	59.50	59.24	67.82	84.34	85.68	146.5	122.3	317.2	201.1
0 0 1 1 0	S1-O	44.30	55.92	48.60	59.50	59.24	67.82	84.34	85.68	146.5	122.3	317.2	201.1
0 0 1 1 1	S1-O	44.30	55.93	48.60	59.50	59.24	67.82	84.34	85.68	146.5	122.3	317.2	201.1
0 1 0 0 0	S1-O	67.13	51.67	71.44	55.56	82.08	64.45	107.0	82.91	169.2	119.7	339.8	198.3
0 1 0 0 1	S1-O	67.13	51.67	71.44	55.57	82.08	64.45	107.0	82.91	169.2	119.7	339.8	198.3
0 1 1 0 0	S1-O	67.13	51.67	71.44	55.56	82.08	64.45	107.0	82.91	169.2	119.7	339.8	198.3
0 1 1 0 1	S1-O	67.13	51.67	71.44	55.57	82.08	64.45	107.0	82.91	169.2	119.7	339.8	198.3
1 0 0 0 1	S1-O	44.32	55.89	48.63	59.47	59.27	67.78	84.39	85.64	146.5	122.3	317.2	201.1
1 0 0 1 1	S1-O	44.32	55.89	48.63	59.47	59.27	67.78	84.39	85.64	146.5	122.3	317.2	201.1
1 0 1 0 0	S1-O	67.17	51.46	71.48	55.35	82.13	64.22	107.1	82.68	169.3	119.5	339.9	198.2
1 0 1 1 0	S1-O	67.17	51.46	71.48	55.35	82.13	64.23	107.1	82.68	169.3	119.5	339.9	198.2
1 1 0 0 1	S1-O	44.32	55.90	48.63	59.47	59.27	67.78	84.39	85.64	146.5	122.3	317.2	201.1
1 1 0 1 1	S1-O	44.32	55.90	48.63	59.47	59.27	67.78	84.39	85.64	146.5	122.3	317.2	201.1
1 1 1 0 0	S1-O	67.17	51.46	71.48	55.35	82.13	64.23	107.1	82.68	169.3	119.5	339.9	198.2
1 1 1 1 0	S1-O	67.17	51.46	71.48	55.35	82.13	64.23	107.1	82.68	169.3	119.5	339.9	198.2
S1 A B C D	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 1 0 0	S0-O	65.14	87.85	69.52	91.97	80.29	101.5	105.5	121.3	167.8	160.0	338.6	240.0
0 0 1 0 1	S0-O	65.46	87.48	69.83	91.62	80.61	101.2	105.8	121.1	168.1	159.9	338.9	239.9
0 0 1 1 0	S0-O	64.93	88.44	69.29	92.56	80.08	102.0	105.2	121.6	167.7	160.1	338.4	240.1
0 0 1 1 1	S0-O	65.11	87.87	69.48	91.99	80.28	101.5	105.5	121.3	167.9	160.0	338.6	240.0
0 1 0 0 0	S0-O	116.1	107.9	120.5	112.1	131.3	121.7	156.5	141.7	218.8	180.5	389.5	260.7
0 1 0 0 1	S0-O	109.4	104.6	113.8	108.8	124.6	118.4	149.7	138.4	212.1	177.3	382.7	257.4
0 1 0 1 0	S0-O	120.2	109.5	124.6	113.7	135.4	123.3	160.5	143.4	222.9	182.4	393.6	262.5
0 1 0 1 1	S0-O	115.2	108.0	119.6	112.2	130.4	121.8	155.6	141.8	217.8	180.7	388.6	260.9
1 0 0 0 1	S0-O	62.72	85.67	67.09	89.77	77.84	99.22	102.9	118.8	165.3	157.0	336.0	236.4
1 0 0 1 0	S0-O	113.5	106.2	117.9	110.4	128.6	120.0	153.7	139.9	215.9	178.2	386.6	257.9
1 0 1 0 1	S0-O	62.82	85.54	67.18	89.64	77.92	99.11	103.1	118.8	165.2	156.9	336.0	236.4

1 0 1 1 0	S0-O	107.1	103.1	111.4	107.3	122.2	116.8	147.2	136.6	209.4	175.0	380.1	254.7
1 1 0 0 1	S0-O	62.70	85.69	67.06	89.81	77.82	99.19	103.0	118.7	165.2	156.8	336.0	236.3
1 1 0 1 0	S0-O	117.2	107.9	121.5	112.1	132.3	121.7	157.4	141.6	219.5	180.0	390.3	259.7
1 1 1 0 1	S0-O	62.72	85.68	67.09	89.79	77.83	99.25	103.0	118.9	165.2	157.0	336.0	236.4
1 1 1 1 0	S0-O	112.5	106.3	116.9	110.5	127.6	120.1	152.7	139.9	214.8	178.4	385.6	258.0
A B D	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0	C-O	63.18	94.61	67.54	98.78	78.29	108.3	103.4	128.2	165.7	166.4	336.4	246.0
0 0 1	C-O	63.19	94.61	67.55	98.78	78.30	108.3	103.4	128.2	165.7	166.4	336.4	246.0
0 1 0	C-O	63.19	94.61	67.55	98.78	78.30	108.3	103.4	128.2	165.7	166.4	336.4	246.0
0 1 1	C-O	63.19	94.61	67.55	98.78	78.30	108.3	103.4	128.2	165.7	166.4	336.4	246.0
1 0 0	C-O	63.16	94.62	67.52	98.79	78.27	108.3	103.3	128.2	165.7	166.5	336.3	246.0
1 0 1	C-O	63.16	94.62	67.52	98.79	78.27	108.3	103.3	128.2	165.7	166.5	336.3	246.0
1 1 0	C-O	63.16	94.62	67.52	98.79	78.28	108.3	103.3	128.2	165.7	166.5	336.3	246.0
1 1 1	C-O	63.17	94.62	67.53	98.79	78.28	108.3	103.3	128.2	165.7	166.5	336.3	246.0
A C D	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0	B-O	65.07	98.70	69.43	102.9	80.20	112.5	105.4	132.6	167.8	171.4	338.5	251.6
0 0 1	B-O	65.08	98.71	69.43	102.9	80.20	112.5	105.4	132.6	167.8	171.4	338.5	251.6
0 1 0	B-O	65.07	98.70	69.43	102.9	80.20	112.5	105.4	132.6	167.8	171.4	338.5	251.6
0 1 1	B-O	65.08	98.71	69.43	102.9	80.20	112.5	105.4	132.6	167.8	171.4	338.5	251.6
1 0 0	B-O	65.07	98.71	69.43	102.9	80.20	112.5	105.4	132.6	167.8	171.4	338.5	251.6
1 0 1	B-O	65.08	98.71	69.43	102.9	80.20	112.5	105.4	132.6	167.8	171.4	338.5	251.6
1 1 0	B-O	65.07	98.71	69.43	102.9	80.20	112.5	105.4	132.6	167.8	171.4	338.5	251.6
1 1 1	B-O	65.08	98.71	69.43	102.9	80.20	112.5	105.4	132.6	167.8	171.4	338.5	251.6
A B C	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0	D-O	62.76	97.31	67.13	101.5	77.88	111.1	103.0	131.0	165.2	169.3	336.0	249.0
0 0 1	D-O	62.76	97.31	67.13	101.5	77.88	111.1	103.0	131.0	165.2	169.3	336.0	249.0
0 1 0	D-O	62.76	97.32	67.13	101.5	77.88	111.1	103.0	131.0	165.2	169.3	336.0	249.0
0 1 1	D-O	62.76	97.32	67.13	101.5	77.87	111.1	103.0	131.0	165.2	169.4	336.0	249.0
1 0 0	D-O	62.76	97.31	67.13	101.5	77.88	111.1	103.0	131.0	165.2	169.3	336.0	249.0
1 0 1	D-O	62.76	97.31	67.13	101.5	77.88	111.1	103.0	131.0	165.2	169.3	336.0	249.0
1 1 0	D-O	62.76	97.32	67.13	101.5	77.88	111.1	103.0	131.0	165.2	169.3	336.0	249.0
1 1 1	D-O	62.76	97.32	67.13	101.5	77.87	111.1	103.0	131.0	165.2	169.4	336.0	249.0



Version : MUX4X3

Cell Unit = 30

State		Output Load											
B C D	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0	A-O	74.43	109.7	77.78	113.0	86.91	121.3	109.9	140.5	168.1	180.1	333.8	263.2
0 0 1	A-O	74.44	109.7	77.78	113.0	86.92	121.3	109.9	140.5	168.1	180.1	333.8	263.2
0 1 0	A-O	74.41	109.7	77.76	113.0	86.89	121.4	109.9	140.5	168.0	180.1	333.8	263.2
0 1 1	A-O	74.42	109.7	77.76	113.0	86.90	121.4	109.9	140.5	168.1	180.1	333.8	263.2
1 0 0	A-O	74.43	109.7	77.78	113.0	86.92	121.3	109.9	140.5	168.1	180.1	333.8	263.2
1 0 1	A-O	74.44	109.7	77.78	113.0	86.92	121.3	109.9	140.5	168.1	180.1	333.8	263.2
1 1 0	A-O	74.41	109.7	77.76	113.0	86.90	121.4	109.9	140.5	168.0	180.1	333.8	263.2
1 1 1	A-O	74.42	109.7	77.76	113.0	86.90	121.4	109.9	140.5	168.1	180.1	333.8	263.2
S0 A B C D	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0 1 0	S1-O	53.06	64.79	56.34	67.86	65.38	75.68	88.24	93.65	146.2	131.7	311.8	213.6
0 0 0 1 1	S1-O	53.06	64.79	56.34	67.86	65.38	75.68	88.24	93.65	146.2	131.7	311.8	213.6
0 0 1 1 0	S1-O	53.06	64.79	56.34	67.86	65.38	75.68	88.24	93.65	146.2	131.7	311.8	213.6
0 0 1 1 1	S1-O	53.06	64.79	56.34	67.86	65.38	75.68	88.24	93.65	146.2	131.7	311.8	213.6
0 1 0 0 0	S1-O	74.28	60.11	77.59	63.31	86.65	71.41	109.5	89.65	167.4	127.7	333.0	209.4
0 1 0 0 1	S1-O	74.28	60.11	77.59	63.31	86.65	71.41	109.5	89.65	167.4	127.7	333.0	209.4
0 1 1 0 0	S1-O	74.28	60.11	77.59	63.31	86.65	71.41	109.5	89.65	167.4	127.7	333.0	209.4
0 1 1 0 1	S1-O	74.28	60.11	77.59	63.31	86.65	71.41	109.5	89.65	167.4	127.7	333.0	209.4
1 0 0 0 1	S1-O	53.11	64.71	56.39	67.79	65.44	75.59	88.30	93.55	146.3	131.6	311.8	213.5
1 0 0 1 1	S1-O	53.11	64.71	56.39	67.79	65.44	75.60	88.30	93.55	146.3	131.6	311.8	213.5
1 0 1 0 0	S1-O	74.35	59.74	77.66	62.95	86.73	71.05	109.6	89.29	167.5	127.4	333.1	209.1
1 0 1 1 0	S1-O	74.35	59.74	77.66	62.95	86.72	71.05	109.6	89.29	167.5	127.4	333.1	209.1
1 1 0 0 1	S1-O	53.11	64.72	56.39	67.79	65.43	75.60	88.30	93.55	146.3	131.6	311.8	213.5
1 1 0 1 1	S1-O	53.11	64.72	56.39	67.79	65.43	75.60	88.30	93.55	146.3	131.6	311.8	213.5
1 1 1 0 0	S1-O	74.35	59.74	77.66	62.95	86.72	71.05	109.6	89.29	167.5	127.4	333.1	209.1
1 1 1 1 0	S1-O	74.35	59.74	77.66	62.95	86.72	71.05	109.6	89.29	167.5	127.4	333.1	209.1
S1 A B C D	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 1 0 0	S0-O	73.61	100.0	76.94	103.3	86.08	111.6	109.1	130.6	167.2	170.1	332.9	253.1
0 0 1 0 1	S0-O	73.93	99.73	77.26	103.0	86.38	111.3	109.3	130.4	167.5	169.9	333.1	253.0
0 0 1 1 0	S0-O	73.33	100.7	76.66	103.9	85.80	112.1	108.8	131.0	167.0	170.3	332.6	253.3
0 0 1 1 1	S0-O	73.65	100.1	76.96	103.3	86.06	111.6	109.0	130.7	167.2	170.1	332.9	253.1
0 1 0 0 0	S0-O	124.5	120.1	127.8	123.3	136.9	131.7	159.9	150.9	218.0	190.5	383.6	273.6
0 1 0 0 1	S0-O	117.7	116.8	121.0	120.1	130.2	128.4	153.1	147.6	211.2	187.2	376.8	270.3
0 1 0 1 0	S0-O	128.7	121.9	132.0	125.2	141.1	133.5	164.1	152.7	222.2	192.3	387.9	275.5
0 1 0 1 1	S0-O	123.6	120.2	127.0	123.5	136.1	131.9	159.1	151.0	217.2	190.6	382.8	273.7
1 0 0 0 1	S0-O	71.15	97.80	74.47	101.0	83.57	109.3	106.5	128.2	164.6	167.3	330.2	249.7
1 0 0 1 0	S0-O	121.8	118.3	125.1	121.6	134.2	129.9	157.1	149.1	215.0	188.3	380.7	270.9
1 0 1 0 1	S0-O	71.21	97.58	74.53	100.8	83.65	109.2	106.6	128.2	164.6	167.2	330.2	249.7

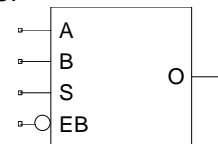
1 0 1 1 0	S0-O	115.2	115.2	118.6	118.4	127.7	126.8	150.6	145.9	208.5	185.1	374.2	267.8
1 1 0 0 1	S0-O	71.14	97.99	74.46	101.2	83.54	109.5	106.5	128.3	164.6	167.2	330.2	249.6
1 1 0 1 0	S0-O	125.6	120.1	128.9	123.4	138.0	131.8	160.9	150.9	218.9	190.2	384.5	272.8
1 1 1 0 1	S0-O	71.16	97.83	74.48	101.1	83.61	109.4	106.4	128.3	164.5	167.3	330.2	249.7
1 1 1 1 0	S0-O	120.8	118.4	124.1	121.7	133.2	130.1	156.1	149.1	214.1	188.4	379.7	271.0
A B D	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0	C-O	71.41	106.9	74.73	110.2	83.85	118.6	106.7	137.6	164.7	176.8	330.4	259.2
0 0 1	C-O	71.41	106.9	74.73	110.2	83.85	118.6	106.7	137.6	164.7	176.8	330.4	259.2
0 1 0	C-O	71.41	106.9	74.73	110.2	83.85	118.6	106.8	137.6	164.7	176.8	330.4	259.2
0 1 1	C-O	71.42	106.9	74.74	110.2	83.86	118.6	106.8	137.6	164.7	176.8	330.4	259.2
1 0 0	C-O	71.38	106.9	74.71	110.2	83.83	118.6	106.7	137.6	164.7	176.8	330.4	259.2
1 0 1	C-O	71.39	106.9	74.71	110.2	83.83	118.6	106.7	137.6	164.7	176.8	330.4	259.2
1 1 0	C-O	71.39	106.9	74.71	110.2	83.83	118.6	106.7	137.6	164.7	176.8	330.4	259.2
1 1 1	C-O	71.39	106.9	74.72	110.2	83.83	118.6	106.7	137.6	164.7	176.8	330.4	259.2
A C D	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0	B-O	73.30	111.1	76.64	114.4	85.75	122.7	108.7	142.0	166.9	181.5	332.5	264.7
0 0 1	B-O	73.30	111.2	76.64	114.4	85.75	122.8	108.7	142.0	166.9	181.6	332.5	264.7
0 1 0	B-O	73.30	111.1	76.64	114.4	85.75	122.7	108.7	142.0	166.9	181.5	332.5	264.7
0 1 1	B-O	73.30	111.2	76.64	114.4	85.75	122.8	108.7	142.0	166.9	181.6	332.5	264.7
1 0 0	B-O	73.30	111.1	76.64	114.4	85.75	122.7	108.7	142.0	166.9	181.5	332.5	264.7
1 0 1	B-O	73.30	111.2	76.64	114.4	85.75	122.8	108.7	142.0	166.9	181.6	332.5	264.7
1 1 0	B-O	73.30	111.1	76.64	114.4	85.75	122.7	108.7	142.0	166.9	181.5	332.5	264.7
1 1 1	B-O	73.30	111.2	76.64	114.4	85.75	122.8	108.7	142.0	166.9	181.6	332.5	264.7
A B C	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0	D-O	70.91	109.6	74.23	112.9	83.32	121.3	106.2	140.4	164.3	179.6	329.9	262.2
0 0 1	D-O	70.91	109.7	74.23	112.9	83.32	121.3	106.2	140.4	164.3	179.6	329.9	262.2
0 1 0	D-O	70.91	109.7	74.23	112.9	83.32	121.3	106.2	140.4	164.3	179.7	329.9	262.3
0 1 1	D-O	70.90	109.7	74.22	112.9	83.32	121.3	106.2	140.4	164.3	179.7	329.9	262.3
1 0 0	D-O	70.91	109.6	74.23	112.9	83.32	121.3	106.2	140.4	164.3	179.6	329.9	262.2
1 0 1	D-O	70.91	109.7	74.23	112.9	83.32	121.3	106.2	140.4	164.3	179.6	329.9	262.2
1 1 0	D-O	70.91	109.7	74.23	112.9	83.32	121.3	106.2	140.4	164.3	179.7	329.9	262.3
1 1 1	D-O	70.90	109.7	74.22	112.9	83.32	121.3	106.2	140.4	164.3	179.7	329.9	262.3

Group Name : MUXB2  
 Function : 2 Bit MUX, Active Low

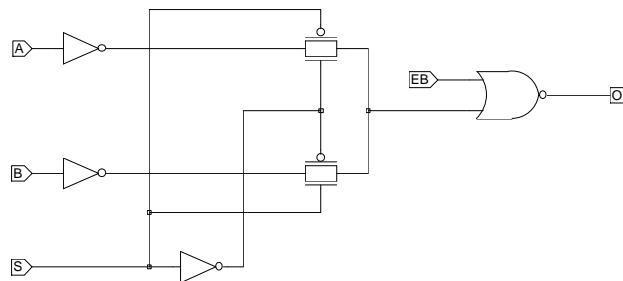
Truth Table

A	B	S	EB	O
A	X	0	0	A
X	B	1	0	B
X	X	X	1	0

Symbol



Schematic



Pin Order O S A B EB

**Input Capacitance (ff) & Maximum Loading (ff) & Power Consumption (nW/MHz)**

Version	Input Capacitance				Maximum Loading	Power Consumption
	S	A	B	EB	O	O
MUXB2XLP	2.301	1.524	1.544	1.453	76.69	2.807
MUXB2X1	2.520	1.639	1.656	1.996	110.5	3.520
MUXB2X1P	2.741	1.918	1.968	3.441	153.6	4.418
MUXB2X2	2.992	2.127	2.143	3.883	221.3	6.193
MUXB2X3	3.037	2.366	2.354	5.720	331.7	8.568

## AC Characteristics ( Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ps)

Version : MUXB2XLP

Cell Unit = 10

State	Output Load													
	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
B		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0	A-O	48.88	66.30	62.12	73.80	94.43	88.80	174.1	119.1	373.7	187.0	874.3	354.2	
1	A-O	48.89	66.30	62.12	73.80	94.44	88.80	174.1	119.1	373.7	187.0	874.3	354.2	
A B	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
0 1		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 1	S-O	44.65	55.53	57.98	62.76	90.22	77.40	170.1	107.6	369.6	175.6	870.1	342.7	
1 0	S-O	85.80	70.09	98.98	77.46	131.2	92.19	210.9	122.4	410.5	190.3	911.1	357.5	
S A B	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
0 1 0		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 1 0	EB-O	36.31	17.46	49.93	24.27	82.45	38.23	162.2	67.77	361.8	135.0	862.4	302.0	
0 1 1	EB-O	36.31	17.46	49.93	24.27	82.45	38.23	162.2	67.77	361.8	135.0	862.4	302.0	
1 0 1	EB-O	36.31	17.46	49.93	24.27	82.45	38.23	162.2	67.77	361.8	135.0	862.4	302.0	
1 1 1	EB-O	36.31	17.46	49.93	24.27	82.45	38.23	162.2	67.77	361.8	135.0	862.4	302.0	
A	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
0		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0	B-O	48.05	67.03	61.30	74.48	93.37	89.40	173.2	119.7	372.8	187.5	873.3	354.7	
1	B-O	48.05	67.03	61.30	74.48	93.37	89.40	173.2	119.7	372.8	187.5	873.3	354.7	

Version : MUXB2X1

Cell Unit = 10

State	Output Load													
B	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0	A-O	49.69	62.24	59.14	67.54	81.85	78.20	137.3	99.35	275.6	143.8	622.1	249.2	
1	A-O	49.70	62.24	59.15	67.54	81.86	78.20	137.3	99.36	275.6	143.8	622.2	249.2	
A B	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 1	S-O	45.48	52.56	54.91	57.65	77.61	68.04	133.1	88.93	271.4	133.4	618.0	238.8	
1 0	S-O	83.26	64.08	92.71	69.30	115.2	79.79	170.6	100.7	309.0	145.1	655.6	250.6	
S A B	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 1 0	EB-O	32.72	14.61	42.53	19.42	65.59	29.31	121.3	49.65	259.5	93.32	606.1	198.4	
0 1 1	EB-O	32.72	14.61	42.53	19.42	65.59	29.31	121.3	49.65	259.5	93.32	606.1	198.4	
1 0 1	EB-O	32.72	14.61	42.52	19.42	65.60	29.31	121.3	49.65	259.5	93.32	606.1	198.4	
1 1 1	EB-O	32.72	14.61	42.52	19.42	65.60	29.31	121.3	49.65	259.5	93.32	606.1	198.4	
A	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0	B-O	48.79	62.84	58.31	68.13	80.90	78.76	136.4	99.82	274.6	144.3	621.2	249.6	
1	B-O	48.79	62.84	58.30	68.13	80.90	78.76	136.4	99.82	274.6	144.3	621.2	249.7	

Version : MUXB2X1P

Cell Unit = 11

State	Output Load													
	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
B		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0	A-O	50.33	63.72	57.54	68.04	74.27	76.85	114.7	94.07	214.7	128.8	465.1	207.1	
1	A-O	50.33	63.72	57.55	68.04	74.27	76.85	114.7	94.07	214.7	128.8	465.2	207.1	
A B	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
0 1		S-O	46.27	54.66	53.47	58.82	70.26	67.42	110.7	84.43	210.6	119.0	461.1	197.3
1 0	S-O	84.13	66.14	91.32	70.41	108.0	79.12	148.3	96.12	248.3	130.9	498.7	209.2	
S A B	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
0 1 0		EB-O	29.96	13.40	37.35	17.17	54.51	25.06	95.19	40.96	195.2	74.47	445.7	151.9
0 1 1	EB-O	29.96	13.40	37.35	17.17	54.51	25.06	95.19	40.96	195.2	74.47	445.7	151.9	
1 0 1	EB-O	29.96	13.40	37.36	17.17	54.51	25.06	95.19	40.96	195.2	74.47	445.7	151.9	
1 1 1	EB-O	29.96	13.40	37.36	17.17	54.51	25.06	95.19	40.96	195.2	74.47	445.7	151.9	
A	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
0		B-O	49.41	64.78	56.59	69.07	73.35	77.87	113.8	95.11	213.6	129.8	464.2	208.1
1	B-O	49.41	64.79	56.59	69.08	73.35	77.87	113.8	95.11	213.6	129.8	464.2	208.1	

Version : MUXB2X2

Cell Unit = 15

State	Output Load													
B	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0	A-O	48.52	67.80	53.67	71.15	65.53	78.14	93.80	91.82	163.2	118.4	336.6	174.0	
1	A-O	48.53	67.80	53.67	71.15	65.53	78.14	93.81	91.82	163.2	118.4	336.6	174.0	
A B	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 1	S-O	44.60	57.81	49.70	61.10	61.62	67.96	89.91	81.45	159.2	107.8	332.7	163.5	
1 0	S-O	78.63	71.44	83.72	74.75	95.57	81.71	123.7	95.31	193.1	121.8	366.5	177.5	
S A B	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 1 0	EB-O	29.60	12.44	34.89	15.21	47.12	21.09	75.77	32.96	145.4	57.41	318.8	111.2	
0 1 1	EB-O	29.60	12.44	34.89	15.21	47.12	21.09	75.77	32.96	145.4	57.41	318.8	111.2	
1 0 1	EB-O	29.60	12.44	34.89	15.21	47.12	21.09	75.77	32.96	145.4	57.41	318.9	111.2	
1 1 1	EB-O	29.60	12.44	34.89	15.21	47.12	21.09	75.77	32.96	145.4	57.41	318.8	111.2	
A	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0	B-O	48.09	69.79	53.20	73.19	65.10	80.17	93.36	93.87	162.7	120.5	336.2	176.2	
1	B-O	48.09	69.79	53.20	73.19	65.10	80.17	93.36	93.87	162.7	120.5	336.2	176.2	

Version : MUXB2X3

Cell Unit = 17

State	Output Load													
B	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0	A-O	50.00	76.11	54.27	79.01	65.29	85.91	94.09	100.9	172.9	132.3	393.7	204.5	
1	A-O	50.01	76.11	54.27	79.01	65.30	85.91	94.09	100.9	172.9	132.3	393.7	204.5	
A B	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 1	S-O	45.47	63.90	49.70	66.80	60.68	73.61	89.45	88.43	168.2	119.8	389.1	191.9	
1 0	S-O	81.12	78.82	85.39	81.72	96.28	88.56	125.0	103.5	203.8	134.8	424.6	206.9	
S A B	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 1 0	EB-O	27.92	12.11	32.31	14.43	43.61	20.01	72.89	32.45	152.0	60.52	372.9	129.8	
0 1 1	EB-O	27.92	12.11	32.31	14.43	43.61	20.01	72.89	32.45	152.0	60.52	372.9	129.8	
1 0 1	EB-O	27.92	12.12	32.31	14.44	43.62	20.01	72.89	32.45	152.0	60.52	372.9	129.8	
1 1 1	EB-O	27.92	12.12	32.31	14.44	43.62	20.01	72.89	32.45	152.0	60.52	372.9	129.8	
A	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0	B-O	48.64	76.68	52.90	79.64	63.89	86.51	92.63	101.5	171.4	132.9	392.3	205.0	
1	B-O	48.64	76.69	52.90	79.64	63.89	86.51	92.63	101.5	171.4	132.9	392.3	205.0	



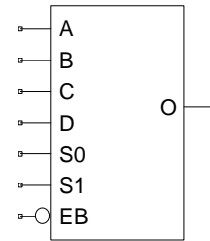
Group Name : MUXB4

Symbol

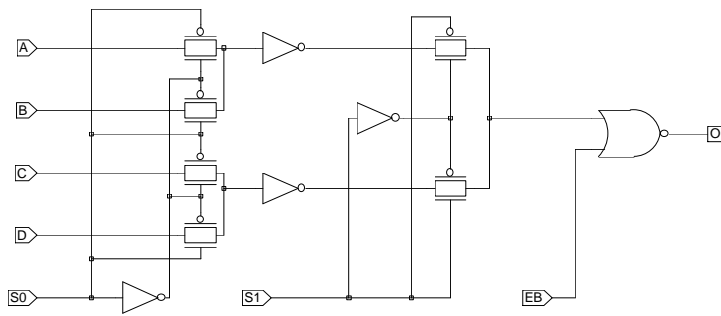
Function : 4 Bit MUX, Active Low

Truth Table

S1	S0	EB	O
0	0	0	A
0	1	0	B
1	0	0	C
1	1	0	D
X	X	1	0



Schematic



Pin Order O S0 S1 A B C D EB

**Input Capacitance (ff) & Maximum Loading (ff)**

Version	Input Capacitance							Maximum Loading
	S0	S1	A	B	C	D	EB	O
MUXB4XLP	3.707	2.251	1.525	1.558	1.509	1.551	1.487	76.66
MUXB4X1	4.012	2.551	1.638	1.675	1.625	1.663	2.066	110.4
MUXB4X1P	4.499	2.868	2.098	2.025	2.121	2.024	3.412	153.5
MUXB4X2	4.618	2.893	2.231	2.154	2.258	2.239	3.886	221.0
MUXB4X3	4.610	2.939	2.238	2.154	2.283	2.254	5.723	331.0

**Power Consumption (nW/MHz)**

Version	Power Consumption
	O
MUXB4XLP	4.435
MUXB4X1	5.365
MUXB4X1P	6.776
MUXB4X2	8.436
MUXB4X3	11.23

## AC Characteristics (Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ps)

Version : MUXB4XLP

Cell Unit = 21

State	Output Load													
	B C D	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0	A-O	72.81	100.6	86.96	110.9	120.0	130.9	199.8	168.0	399.3	242.1	899.8	411.3	
0 0 1	A-O	72.82	100.6	86.96	110.9	120.0	130.9	199.8	168.0	399.3	242.1	899.8	411.3	
0 1 0	A-O	72.79	100.6	86.94	110.9	119.9	130.9	199.7	168.0	399.3	242.2	899.8	411.3	
0 1 1	A-O	72.80	100.6	86.95	110.9	119.9	130.9	199.8	168.0	399.3	242.2	899.8	411.3	
1 0 0	A-O	72.82	100.6	86.96	110.9	120.0	130.9	199.8	168.0	399.3	242.1	899.8	411.3	
1 0 1	A-O	72.82	100.6	86.97	110.9	120.0	130.9	199.8	168.0	399.3	242.1	899.8	411.3	
1 1 0	A-O	72.80	100.6	86.94	110.9	119.9	130.9	199.8	168.0	399.3	242.2	899.8	411.3	
1 1 1	A-O	72.80	100.6	86.95	110.9	119.9	130.9	199.8	168.0	399.3	242.2	899.8	411.3	
S0 A B C D	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 0 0 1 0	S1-O	48.74	58.30	62.84	66.52	95.95	83.55	175.7	118.1	375.3	190.7	875.7	359.5	
0 0 0 1 1	S1-O	48.74	58.30	62.84	66.52	95.95	83.55	175.7	118.1	375.3	190.7	875.7	359.5	
0 0 1 1 0	S1-O	48.74	58.30	62.84	66.52	95.95	83.56	175.7	118.1	375.3	190.7	875.7	359.5	
0 0 1 1 1	S1-O	48.74	58.30	62.84	66.52	95.94	83.56	175.7	118.1	375.3	190.7	875.7	359.5	
0 1 0 0 0	S1-O	78.37	55.13	92.34	64.16	125.1	82.11	204.8	117.5	404.3	190.5	904.8	359.4	
0 1 0 0 1	S1-O	78.37	55.13	92.34	64.16	125.1	82.12	204.8	117.5	404.3	190.5	904.8	359.4	
0 1 1 0 0	S1-O	78.37	55.13	92.34	64.16	125.1	82.12	204.8	117.5	404.3	190.5	904.8	359.4	
0 1 1 0 1	S1-O	78.37	55.13	92.34	64.16	125.1	82.12	204.8	117.5	404.3	190.5	904.8	359.4	
1 0 0 0 1	S1-O	48.76	58.27	62.88	66.48	95.98	83.48	175.8	118.0	375.3	190.7	875.8	359.5	
1 0 0 1 1	S1-O	48.76	58.27	62.87	66.48	95.98	83.48	175.8	118.0	375.3	190.7	875.8	359.5	
1 0 1 0 0	S1-O	78.40	54.99	92.37	64.01	125.1	81.95	204.8	117.3	404.3	190.4	904.8	359.3	
1 0 1 1 0	S1-O	78.40	54.99	92.37	64.01	125.1	81.95	204.8	117.3	404.3	190.4	904.8	359.3	
1 1 0 0 1	S1-O	48.76	58.27	62.87	66.49	95.98	83.48	175.8	118.0	375.3	190.7	875.8	359.5	
1 1 0 1 1	S1-O	48.76	58.27	62.87	66.49	95.98	83.48	175.8	118.0	375.3	190.7	875.8	359.5	
1 1 1 0 0	S1-O	78.40	54.99	92.37	64.01	125.1	81.95	204.8	117.3	404.3	190.4	904.8	359.3	
1 1 1 1 0	S1-O	78.40	54.99	92.37	64.01	125.1	81.95	204.8	117.3	404.3	190.4	904.8	359.3	
S1 A B C D	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 0 1 0 0	S0-O	70.13	90.75	84.40	100.8	117.2	120.4	197.1	157.3	396.7	231.3	897.3	400.5	
0 0 1 0 1	S0-O	70.42	90.47	84.56	100.6	117.6	120.2	197.4	157.2	396.9	231.3	897.5	400.4	
0 0 1 1 0	S0-O	70.08	91.23	84.31	101.3	117.3	120.7	197.0	157.5	396.6	231.5	897.2	400.7	
0 0 1 1 1	S0-O	70.09	90.78	84.25	100.8	117.3	120.4	197.1	157.3	396.6	231.4	897.2	400.5	
0 1 0 0 0	S0-O	129.0	113.9	143.2	124.2	175.9	144.1	255.6	181.2	455.2	255.4	955.8	424.5	
0 1 0 0 1	S0-O	121.8	110.3	135.9	120.6	168.8	140.4	248.5	177.5	448.1	251.7	948.6	420.8	
0 1 0 1 0	S0-O	133.1	115.6	147.3	125.9	180.1	145.9	259.8	183.1	459.4	257.3	960.0	426.5	
0 1 0 1 1	S0-O	128.1	114.2	142.2	124.4	175.1	144.3	254.8	181.5	454.3	255.6	954.9	424.8	
1 0 0 0 1	S0-O	69.40	91.51	83.62	101.6	116.5	121.2	196.3	158.0	395.9	232.0	896.4	401.1	
1 0 0 1 0	S0-O	128.3	114.6	142.5	124.9	175.3	144.9	255.0	181.9	454.5	256.0	955.1	425.1	

1 0 1 0 1	S0-O	69.43	91.43	83.58	101.6	116.6	121.2	196.3	158.1	395.9	232.1	896.4	401.2
1 0 1 1 0	S0-O	121.2	111.1	135.4	121.5	168.1	141.3	247.8	178.3	447.4	252.4	948.0	421.5
1 1 0 0 1	S0-O	69.43	91.58	83.69	101.6	116.6	121.1	196.3	157.9	395.9	231.9	896.5	401.1
1 1 0 1 0	S0-O	132.3	116.5	146.5	126.9	179.2	146.8	259.0	183.9	458.5	258.0	959.1	427.2
1 1 1 0 1	S0-O	69.38	91.57	83.57	101.6	116.5	121.2	196.3	158.0	395.9	232.0	896.4	401.1
1 1 1 1 0	S0-O	127.5	114.9	141.6	125.2	174.5	145.0	254.2	182.1	453.7	256.2	954.2	425.4
S0 S1 A B C D	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 1 0 0 0	EB-O	36.29	17.39	50.07	24.20	82.78	38.17	162.6	67.70	362.3	135.0	862.8	301.9
0 0 1 0 0 1	EB-O	36.29	17.39	50.07	24.20	82.78	38.17	162.6	67.70	362.3	135.0	862.8	301.9
0 0 1 0 1 0	EB-O	36.29	17.39	50.07	24.20	82.78	38.17	162.6	67.70	362.2	135.0	862.8	301.9
0 0 1 0 1 1	EB-O	36.29	17.39	50.07	24.20	82.78	38.17	162.6	67.70	362.2	135.0	862.8	301.9
0 0 1 1 0 0	EB-O	36.29	17.39	50.07	24.20	82.78	38.17	162.6	67.70	362.3	135.0	862.8	301.9
0 0 1 1 0 1	EB-O	36.29	17.39	50.07	24.20	82.78	38.17	162.6	67.70	362.3	135.0	862.8	301.9
0 0 1 1 1 0	EB-O	36.29	17.39	50.07	24.20	82.78	38.17	162.6	67.70	362.2	135.0	862.8	301.9
0 0 1 1 1 1	EB-O	36.29	17.39	50.07	24.20	82.78	38.17	162.6	67.70	362.2	135.0	862.8	301.9
0 1 0 0 1 0	EB-O	36.28	17.39	50.07	24.20	82.78	38.17	162.6	67.70	362.3	135.0	862.8	301.9
0 1 0 0 1 1	EB-O	36.28	17.39	50.07	24.20	82.78	38.17	162.6	67.70	362.3	135.0	862.8	301.9
0 1 0 1 1 0	EB-O	36.28	17.39	50.07	24.20	82.78	38.17	162.6	67.70	362.3	135.0	862.8	301.9
0 1 0 1 1 1	EB-O	36.28	17.39	50.07	24.20	82.78	38.17	162.6	67.70	362.3	135.0	862.8	301.9
0 1 1 0 1 0	EB-O	36.28	17.39	50.07	24.20	82.78	38.17	162.6	67.70	362.2	135.0	862.8	301.9
0 1 1 0 1 1	EB-O	36.28	17.39	50.07	24.20	82.78	38.17	162.6	67.70	362.2	135.0	862.8	301.9
0 1 1 1 1 0	EB-O	36.28	17.39	50.07	24.20	82.78	38.17	162.6	67.70	362.2	135.0	862.8	301.9
0 1 1 1 1 1	EB-O	36.28	17.39	50.07	24.20	82.78	38.17	162.6	67.70	362.2	135.0	862.8	301.9
1 0 0 1 0 0	EB-O	36.28	17.39	50.07	24.20	82.78	38.17	162.6	67.70	362.3	135.0	862.8	301.9
1 0 0 1 0 1	EB-O	36.28	17.39	50.07	24.20	82.78	38.17	162.6	67.70	362.2	135.0	862.8	301.9
1 0 0 1 1 0	EB-O	36.28	17.39	50.07	24.20	82.78	38.17	162.6	67.70	362.3	135.0	862.8	301.9
1 0 0 1 1 1	EB-O	36.28	17.39	50.07	24.20	82.78	38.17	162.6	67.70	362.2	135.0	862.8	301.9
1 0 1 1 0 0	EB-O	36.28	17.39	50.07	24.20	82.78	38.17	162.6	67.70	362.3	135.0	862.8	301.9
1 0 1 1 0 1	EB-O	36.28	17.39	50.07	24.20	82.78	38.17	162.6	67.70	362.2	135.0	862.8	301.9
1 0 1 1 1 0	EB-O	36.28	17.39	50.07	24.20	82.78	38.17	162.6	67.70	362.3	135.0	862.8	301.9
1 0 1 1 1 1	EB-O	36.28	17.39	50.07	24.20	82.78	38.17	162.6	67.70	362.2	135.0	862.8	301.9
1 1 0 0 0 1	EB-O	36.28	17.39	50.07	24.20	82.78	38.17	162.6	67.70	362.3	135.0	862.8	301.9
1 1 0 0 1 1	EB-O	36.28	17.39	50.07	24.20	82.78	38.17	162.6	67.70	362.3	135.0	862.8	301.9
1 1 0 1 0 1	EB-O	36.28	17.39	50.07	24.20	82.78	38.17	162.6	67.70	362.2	135.0	862.8	301.9
1 1 0 1 1 1	EB-O	36.28	17.39	50.07	24.20	82.78	38.17	162.6	67.70	362.2	135.0	862.8	301.9
1 1 1 0 0 1	EB-O	36.28	17.39	50.07	24.20	82.78	38.17	162.6	67.70	362.3	135.0	862.8	301.9
1 1 1 0 1 1	EB-O	36.28	17.39	50.07	24.20	82.78	38.17	162.6	67.70	362.3	135.0	862.8	301.9
1 1 1 1 0 1	EB-O	36.28	17.39	50.07	24.20	82.78	38.17	162.6	67.70	362.2	135.0	862.8	301.9
1 1 1 1 1 1	EB-O	36.28	17.39	50.07	24.20	82.78	38.17	162.6	67.70	362.2	135.0	862.8	301.9
A B D	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0	C-O	72.13	101.3	86.30	111.7	119.2	131.7	199.0	168.7	398.5	242.8	899.1	411.9

0 0 1	C-O	72.13	101.3	86.30	111.7	119.2	131.7	199.0	168.7	398.5	242.8	899.1	411.9
0 1 0	C-O	72.13	101.3	86.31	111.7	119.2	131.7	199.0	168.7	398.5	242.8	899.1	411.9
0 1 1	C-O	72.14	101.3	86.31	111.7	119.2	131.7	199.0	168.7	398.5	242.8	899.1	411.9
1 0 0	C-O	72.10	101.3	86.27	111.7	119.2	131.7	199.0	168.7	398.5	242.8	899.0	411.9
1 0 1	C-O	72.11	101.3	86.28	111.7	119.2	131.7	199.0	168.7	398.5	242.8	899.0	412.0
1 1 0	C-O	72.11	101.3	86.28	111.7	119.2	131.7	199.0	168.7	398.5	242.8	899.0	411.9
1 1 1	C-O	72.11	101.3	86.28	111.7	119.2	131.7	199.0	168.7	398.5	242.8	899.0	411.9
A C D	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0	B-O	71.87	101.5	85.93	111.7	118.9	131.6	198.7	168.8	398.2	242.9	898.7	412.1
0 0 1	B-O	71.88	101.5	85.93	111.7	118.9	131.6	198.7	168.8	398.2	243.0	898.7	412.1
0 1 0	B-O	71.87	101.5	85.93	111.7	118.9	131.6	198.7	168.8	398.2	242.9	898.7	412.1
0 1 1	B-O	71.88	101.5	85.93	111.7	118.9	131.6	198.7	168.8	398.2	243.0	898.7	412.1
1 0 0	B-O	71.87	101.5	85.92	111.7	118.9	131.6	198.7	168.8	398.2	242.9	898.7	412.1
1 0 1	B-O	71.87	101.5	85.93	111.7	118.9	131.6	198.7	168.8	398.2	243.0	898.7	412.1
1 1 0	B-O	71.87	101.5	85.92	111.7	118.9	131.6	198.7	168.8	398.2	242.9	898.7	412.1
1 1 1	B-O	71.87	101.5	85.93	111.7	118.9	131.6	198.7	168.8	398.2	243.0	898.7	412.1
A B C	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0	D-O	71.07	102.2	85.24	112.5	118.1	132.4	197.8	169.5	397.4	243.6	897.9	412.7
0 0 1	D-O	71.07	102.2	85.23	112.5	118.1	132.4	197.8	169.5	397.4	243.6	897.9	412.7
0 1 0	D-O	71.07	102.2	85.23	112.5	118.1	132.4	197.8	169.5	397.4	243.6	897.9	412.7
0 1 1	D-O	71.07	102.2	85.23	112.5	118.1	132.4	197.8	169.5	397.4	243.6	897.9	412.7
1 0 0	D-O	71.07	102.2	85.24	112.5	118.1	132.4	197.8	169.5	397.4	243.6	897.9	412.7
1 0 1	D-O	71.07	102.2	85.23	112.5	118.1	132.4	197.8	169.5	397.4	243.6	897.9	412.7
1 1 0	D-O	71.07	102.2	85.23	112.5	118.1	132.4	197.8	169.5	397.4	243.6	897.9	412.7
1 1 1	D-O	71.07	102.2	85.23	112.5	118.1	132.4	197.8	169.5	397.4	243.6	897.9	412.7

Version : MUXB4X1

Cell Unit = 21

State		Output Load											
B C D	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0	A-O	74.86	94.04	85.29	101.3	109.1	115.7	164.9	142.6	303.2	193.7	649.7	303.1
0 0 1	A-O	74.87	94.04	85.29	101.3	109.1	115.7	164.9	142.6	303.2	193.7	649.7	303.1
0 1 0	A-O	74.85	94.05	85.28	101.3	109.1	115.7	164.9	142.6	303.1	193.8	649.7	303.1
0 1 1	A-O	74.85	94.05	85.28	101.3	109.1	115.7	164.9	142.6	303.1	193.8	649.7	303.1
1 0 0	A-O	74.87	94.04	85.29	101.3	109.1	115.7	164.9	142.6	303.2	193.7	649.7	303.1
1 0 1	A-O	74.87	94.04	85.29	101.3	109.1	115.7	164.9	142.6	303.2	193.7	649.7	303.1
1 1 0	A-O	74.85	94.05	85.28	101.3	109.1	115.7	164.9	142.6	303.1	193.8	649.7	303.1
1 1 1	A-O	74.86	94.05	85.28	101.3	109.1	115.7	164.9	142.6	303.2	193.8	649.7	303.1
S0 A B C D	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0 1 0	S1-O	48.56	56.06	58.93	61.97	82.80	74.21	138.8	98.65	277.1	148.2	623.6	256.9
0 0 0 1 1	S1-O	48.56	56.06	58.93	61.97	82.80	74.21	138.8	98.65	277.1	148.2	623.6	256.9
0 0 1 1 0	S1-O	48.56	56.06	58.93	61.98	82.80	74.21	138.8	98.65	277.1	148.2	623.6	257.0
0 0 1 1 1	S1-O	48.56	56.07	58.93	61.98	82.80	74.21	138.8	98.65	277.1	148.2	623.6	257.0
0 1 0 0 0	S1-O	75.20	52.67	85.46	59.07	109.1	72.03	164.8	97.20	302.9	147.1	649.5	256.0
0 1 0 0 1	S1-O	75.20	52.67	85.46	59.07	109.1	72.03	164.8	97.20	302.9	147.1	649.5	256.0
0 1 1 0 0	S1-O	75.20	52.67	85.46	59.07	109.1	72.03	164.8	97.20	302.9	147.1	649.5	256.0
0 1 1 0 1	S1-O	75.19	52.67	85.46	59.07	109.1	72.03	164.8	97.20	302.9	147.1	649.5	256.0
1 0 0 0 1	S1-O	48.58	56.04	58.97	61.93	82.79	74.15	138.9	98.60	277.1	148.1	623.6	256.9
1 0 0 1 1	S1-O	48.58	56.04	58.97	61.93	82.79	74.15	138.9	98.60	277.1	148.1	623.6	256.9
1 0 1 0 0	S1-O	75.23	52.54	85.50	58.94	109.1	71.82	164.8	97.06	302.9	147.0	649.5	255.9
1 0 1 1 0	S1-O	75.23	52.54	85.50	58.94	109.1	71.82	164.8	97.06	302.9	147.0	649.5	255.9
1 1 0 0 1	S1-O	48.58	56.04	58.97	61.93	82.79	74.16	138.9	98.60	277.1	148.1	623.6	256.9
1 1 0 1 1	S1-O	48.58	56.04	58.96	61.93	82.79	74.16	138.9	98.60	277.1	148.1	623.6	256.9
1 1 1 0 0	S1-O	75.23	52.54	85.50	58.94	109.1	71.82	164.8	97.06	302.9	147.0	649.5	255.9
1 1 1 1 0	S1-O	75.23	52.54	85.50	58.94	109.1	71.82	164.8	97.06	302.9	147.0	649.5	255.9
S1 A B C D	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 1 0 0	S0-O	72.05	85.10	82.46	92.18	106.1	106.4	162.1	133.0	300.3	184.1	646.9	293.4
0 0 1 0 1	S0-O	72.30	84.71	82.67	91.89	106.4	106.1	162.2	132.8	300.6	183.9	647.2	293.3
0 0 1 1 0	S0-O	71.92	85.62	82.32	92.74	106.1	106.8	162.0	133.3	300.2	184.2	646.8	293.6
0 0 1 1 1	S0-O	72.00	85.13	82.38	92.22	106.2	106.4	162.0	133.1	300.3	184.1	646.9	293.4
0 1 0 0 0	S0-O	124.3	104.4	134.6	111.6	158.3	126.0	214.1	152.8	352.3	204.0	698.9	313.4
0 1 0 0 1	S0-O	117.4	101.2	127.8	108.4	151.5	122.9	207.3	149.6	345.5	200.7	692.1	310.2
0 1 0 1 0	S0-O	127.9	105.8	138.3	113.0	162.0	127.5	217.7	154.4	356.0	205.6	702.5	315.0
0 1 0 1 1	S0-O	123.1	104.4	133.5	111.6	157.1	126.0	212.9	152.8	351.1	204.0	697.7	313.4
1 0 0 0 1	S0-O	71.40	85.86	81.79	93.05	105.5	107.3	161.4	133.8	299.6	184.8	646.3	294.1
1 0 0 1 0	S0-O	123.7	105.1	134.1	112.4	157.8	126.8	213.5	153.6	351.7	204.7	698.3	314.0
1 0 1 0 1	S0-O	71.43	85.67	81.83	92.93	105.6	107.2	161.3	133.8	299.7	184.8	646.2	294.2

1 0 1 1 0	S0-O	116.9	101.9	127.3	109.2	151.0	123.8	206.8	150.4	345.0	201.5	691.6	310.9
1 1 0 0 1	S0-O	71.43	85.97	81.83	93.11	105.6	107.2	161.4	133.8	299.7	184.7	646.3	294.1
1 1 0 1 0	S0-O	127.1	106.7	137.5	114.0	161.2	128.5	217.0	155.3	355.2	206.4	701.8	315.8
1 1 1 0 1	S0-O	71.38	85.89	81.77	93.05	105.6	107.3	161.3	133.9	299.7	184.8	646.2	294.2
1 1 1 1 0	S0-O	122.5	105.1	132.9	112.4	156.7	126.8	212.3	153.6	350.6	204.7	697.1	314.0
S0 S1 A B C D	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 1 0 0 0	EB-O	32.77	14.62	42.71	19.42	66.04	29.30	121.9	49.62	260.2	93.30	606.9	198.4
0 0 1 0 0 1	EB-O	32.77	14.62	42.71	19.42	66.04	29.30	121.9	49.62	260.2	93.30	606.9	198.4
0 0 1 0 1 0	EB-O	32.77	14.62	42.71	19.42	66.04	29.30	121.9	49.62	260.2	93.30	606.9	198.4
0 0 1 0 1 1	EB-O	32.77	14.62	42.71	19.42	66.04	29.30	121.9	49.62	260.2	93.30	606.9	198.4
0 0 1 1 0 0	EB-O	32.77	14.62	42.71	19.42	66.04	29.30	121.9	49.62	260.2	93.30	606.9	198.4
0 0 1 1 0 1	EB-O	32.77	14.62	42.71	19.42	66.04	29.30	121.9	49.62	260.2	93.30	606.9	198.4
0 0 1 1 1 0	EB-O	32.77	14.62	42.71	19.42	66.03	29.30	121.9	49.62	260.2	93.30	606.9	198.4
0 0 1 1 1 1	EB-O	32.77	14.62	42.71	19.42	66.03	29.30	121.9	49.62	260.2	93.30	606.9	198.4
0 1 0 0 1 0	EB-O	32.77	14.62	42.71	19.42	66.04	29.30	121.9	49.62	260.2	93.30	606.9	198.4
0 1 0 0 1 1	EB-O	32.77	14.62	42.71	19.42	66.04	29.30	121.9	49.62	260.2	93.30	606.9	198.4
0 1 0 1 1 0	EB-O	32.77	14.62	42.71	19.42	66.04	29.30	121.9	49.62	260.2	93.30	606.9	198.4
0 1 0 1 1 1	EB-O	32.77	14.62	42.71	19.42	66.04	29.30	121.9	49.62	260.2	93.30	606.9	198.4
0 1 1 0 1 0	EB-O	32.77	14.62	42.71	19.42	66.04	29.30	121.9	49.62	260.2	93.30	606.9	198.4
0 1 1 0 1 1	EB-O	32.77	14.62	42.71	19.42	66.04	29.30	121.9	49.62	260.2	93.30	606.9	198.4
0 1 1 1 1 0	EB-O	32.77	14.62	42.71	19.42	66.04	29.30	121.9	49.62	260.2	93.30	606.9	198.4
0 1 1 1 1 1	EB-O	32.77	14.62	42.71	19.42	66.04	29.30	121.9	49.62	260.2	93.30	606.9	198.4
1 0 0 1 0 0	EB-O	32.77	14.62	42.71	19.42	66.04	29.30	121.9	49.62	260.2	93.30	606.9	198.4
1 0 0 1 0 1	EB-O	32.77	14.62	42.71	19.42	66.04	29.30	121.9	49.62	260.2	93.30	606.9	198.4
1 0 0 1 1 0	EB-O	32.77	14.62	42.71	19.42	66.04	29.30	121.9	49.62	260.2	93.30	606.9	198.4
1 0 0 1 1 1	EB-O	32.77	14.62	42.71	19.42	66.04	29.30	121.9	49.62	260.2	93.30	606.9	198.4
1 0 1 1 0 0	EB-O	32.77	14.62	42.71	19.42	66.04	29.30	121.9	49.62	260.2	93.30	606.9	198.4
1 0 1 1 0 1	EB-O	32.77	14.62	42.71	19.42	66.04	29.30	121.9	49.62	260.2	93.30	606.9	198.4
1 0 1 1 1 0	EB-O	32.77	14.62	42.71	19.42	66.04	29.30	121.9	49.62	260.2	93.30	606.9	198.4
1 0 1 1 1 1	EB-O	32.77	14.62	42.71	19.42	66.04	29.30	121.9	49.62	260.2	93.30	606.9	198.4
1 1 0 0 0 1	EB-O	32.77	14.62	42.71	19.42	66.04	29.30	121.9	49.62	260.2	93.30	606.9	198.4
1 1 0 0 1 1	EB-O	32.77	14.62	42.71	19.42	66.04	29.30	121.9	49.62	260.2	93.30	606.9	198.4
1 1 0 1 0 1	EB-O	32.77	14.62	42.71	19.42	66.04	29.30	121.9	49.62	260.2	93.30	606.9	198.4
1 1 0 1 1 1	EB-O	32.77	14.62	42.71	19.42	66.04	29.30	121.9	49.62	260.2	93.30	606.9	198.4
1 1 1 0 0 1	EB-O	32.77	14.62	42.71	19.42	66.04	29.30	121.9	49.62	260.2	93.30	606.9	198.4
1 1 1 0 1 1	EB-O	32.77	14.62	42.71	19.42	66.04	29.30	121.9	49.62	260.2	93.30	606.9	198.4
1 1 1 1 0 1	EB-O	32.77	14.62	42.71	19.42	66.04	29.30	121.9	49.62	260.2	93.30	606.9	198.4
1 1 1 1 1 1	EB-O	32.77	14.62	42.71	19.42	66.04	29.30	121.9	49.62	260.2	93.30	606.9	198.4
A B D	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0	C-O	74.26	94.79	84.71	102.1	108.4	116.6	164.3	143.4	302.5	194.5	649.1	303.8
0 0 1	C-O	74.26	94.79	84.71	102.1	108.4	116.6	164.3	143.4	302.5	194.5	649.1	303.8

0 1 0	C-O	74.27	94.79	84.71	102.1	108.4	116.6	164.3	143.4	302.5	194.5	649.1	303.8
0 1 1	C-O	74.27	94.79	84.71	102.1	108.4	116.6	164.3	143.4	302.5	194.5	649.1	303.8
1 0 0	C-O	74.24	94.80	84.69	102.1	108.4	116.6	164.3	143.4	302.5	194.5	649.1	303.9
1 0 1	C-O	74.25	94.80	84.69	102.1	108.4	116.6	164.3	143.4	302.5	194.5	649.1	303.9
1 1 0	C-O	74.25	94.80	84.70	102.1	108.4	116.6	164.3	143.4	302.5	194.5	649.1	303.9
1 1 1	C-O	74.25	94.80	84.70	102.1	108.4	116.6	164.3	143.4	302.5	194.5	649.1	303.9
A C D	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0	B-O	73.85	94.81	84.27	102.1	108.0	116.5	163.9	143.3	302.1	194.5	648.7	303.9
0 0 1	B-O	73.85	94.82	84.28	102.1	108.0	116.5	163.9	143.3	302.1	194.5	648.7	303.9
0 1 0	B-O	73.85	94.81	84.27	102.1	108.0	116.5	163.9	143.3	302.1	194.5	648.7	303.9
0 1 1	B-O	73.85	94.82	84.28	102.1	108.0	116.5	163.9	143.3	302.1	194.5	648.7	303.9
1 0 0	B-O	73.85	94.81	84.27	102.1	108.0	116.5	163.9	143.3	302.1	194.5	648.7	303.9
1 0 1	B-O	73.85	94.82	84.27	102.1	108.0	116.5	163.9	143.3	302.1	194.5	648.6	303.9
1 1 0	B-O	73.85	94.81	84.27	102.1	108.0	116.5	163.9	143.3	302.1	194.5	648.7	303.9
1 1 1	B-O	73.85	94.82	84.27	102.1	108.0	116.5	163.9	143.3	302.1	194.5	648.6	303.9
A B C	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0	D-O	73.24	95.51	83.65	102.8	107.3	117.3	163.2	144.1	301.4	195.1	648.0	304.5
0 0 1	D-O	73.24	95.51	83.65	102.8	107.3	117.3	163.2	144.1	301.4	195.1	648.0	304.5
0 1 0	D-O	73.24	95.52	83.65	102.8	107.3	117.3	163.2	144.1	301.4	195.2	648.0	304.5
0 1 1	D-O	73.24	95.52	83.65	102.8	107.3	117.3	163.2	144.1	301.4	195.2	648.0	304.6
1 0 0	D-O	73.24	95.51	83.65	102.8	107.3	117.3	163.2	144.1	301.4	195.1	648.0	304.5
1 0 1	D-O	73.24	95.51	83.65	102.8	107.3	117.3	163.2	144.1	301.4	195.1	648.0	304.5
1 1 0	D-O	73.24	95.52	83.65	102.8	107.3	117.3	163.2	144.1	301.4	195.2	648.0	304.5
1 1 1	D-O	73.24	95.52	83.65	102.8	107.3	117.3	163.2	144.1	301.4	195.2	648.0	304.6

Version : MUXB4X1P

Cell Unit = 23

State		Output Load											
B C D	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0	A-O	75.86	94.76	83.81	100.6	101.8	112.3	143.1	134.5	243.2	175.8	493.7	259.6
0 0 1	A-O	75.87	94.76	83.81	100.6	101.8	112.3	143.1	134.5	243.2	175.8	493.7	259.6
0 1 0	A-O	75.84	94.77	83.78	100.6	101.8	112.3	143.0	134.5	243.2	175.8	493.6	259.6
0 1 1	A-O	75.85	94.77	83.79	100.6	101.8	112.3	143.1	134.5	243.2	175.8	493.6	259.6
1 0 0	A-O	75.87	94.76	83.81	100.6	101.8	112.3	143.1	134.5	243.2	175.8	493.7	259.6
1 0 1	A-O	75.87	94.76	83.82	100.6	101.8	112.3	143.1	134.5	243.3	175.8	493.7	259.6
1 1 0	A-O	75.85	94.77	83.79	100.6	101.8	112.4	143.1	134.5	243.2	175.8	493.6	259.6
1 1 1	A-O	75.85	94.77	83.80	100.6	101.8	112.4	143.1	134.5	243.2	175.8	493.6	259.6
S0 A B C D	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0 1 0	S1-O	48.40	55.61	56.30	60.31	74.31	70.12	115.8	89.82	215.8	129.1	466.2	212.0
0 0 0 1 1	S1-O	48.40	55.62	56.30	60.31	74.31	70.13	115.8	89.82	215.8	129.1	466.2	212.0
0 0 1 1 0	S1-O	48.40	55.62	56.30	60.31	74.31	70.13	115.8	89.82	215.8	129.1	466.2	212.0
0 0 1 1 1	S1-O	48.40	55.62	56.30	60.31	74.31	70.13	115.8	89.82	215.8	129.1	466.2	212.0
0 1 0 0 0	S1-O	75.55	53.03	83.38	58.20	101.2	68.71	142.4	89.08	242.2	128.8	492.7	211.7
0 1 0 0 1	S1-O	75.55	53.03	83.38	58.20	101.2	68.71	142.4	89.08	242.2	128.8	492.7	211.7
0 1 1 0 0	S1-O	75.55	53.03	83.38	58.20	101.2	68.71	142.4	89.08	242.2	128.8	492.7	211.7
0 1 1 0 1	S1-O	75.55	53.04	83.38	58.20	101.2	68.71	142.4	89.08	242.2	128.8	492.7	211.7
1 0 0 0 1	S1-O	48.43	55.55	56.34	60.25	74.36	70.05	115.8	89.74	215.8	129.1	466.2	211.9
1 0 0 1 1	S1-O	48.43	55.55	56.34	60.25	74.36	70.05	115.8	89.74	215.8	129.1	466.2	211.9
1 0 1 0 0	S1-O	75.59	52.88	83.42	58.04	101.3	68.53	142.4	88.91	242.3	128.7	492.7	211.6
1 0 1 1 0	S1-O	75.59	52.88	83.42	58.04	101.3	68.53	142.4	88.91	242.3	128.7	492.7	211.6
1 1 0 0 1	S1-O	48.43	55.55	56.34	60.25	74.36	70.05	115.8	89.74	215.8	129.1	466.2	211.9
1 1 0 1 1	S1-O	48.43	55.55	56.34	60.25	74.36	70.05	115.8	89.74	215.8	129.1	466.2	211.9
1 1 1 0 0	S1-O	75.59	52.88	83.42	58.04	101.3	68.53	142.4	88.91	242.3	128.7	492.7	211.6
1 1 1 1 0	S1-O	75.59	52.88	83.42	58.04	101.3	68.53	142.4	88.91	242.3	128.7	492.7	211.6
S1 A B C D	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 1 0 0	S0-O	72.83	85.97	80.80	91.68	98.84	103.2	140.2	125.2	240.2	166.2	490.7	250.0
0 0 1 0 1	S0-O	73.19	85.61	81.11	91.34	99.17	103.0	140.3	124.9	240.5	166.1	491.0	249.9
0 0 1 1 0	S0-O	72.60	86.61	80.57	92.31	98.67	103.8	139.9	125.6	240.0	166.5	490.5	250.3
0 0 1 1 1	S0-O	72.77	86.01	80.70	91.70	98.81	103.3	140.0	125.2	240.1	166.3	490.6	250.1
0 1 0 0 0	S0-O	129.9	107.8	137.8	113.6	155.8	125.3	197.1	147.5	297.0	188.8	547.5	272.6
0 1 0 0 1	S0-O	121.3	103.8	129.2	109.6	147.2	121.4	188.4	143.5	288.4	184.8	538.9	268.6
0 1 0 1 0	S0-O	134.5	109.5	142.5	115.3	160.5	127.1	201.6	149.4	301.7	190.7	552.1	274.6
0 1 0 1 1	S0-O	128.5	107.8	136.4	113.5	154.4	125.3	195.6	147.4	295.6	188.7	546.0	272.5
1 0 0 0 1	S0-O	70.95	85.58	78.88	91.31	96.94	102.8	138.1	124.6	238.2	165.4	488.7	248.9
1 0 0 1 0	S0-O	128.3	107.5	136.2	113.3	154.2	125.0	195.3	147.0	295.3	187.9	545.8	271.5
1 0 1 0 1	S0-O	70.96	85.46	78.90	91.21	96.93	102.9	138.0	124.6	238.2	165.4	488.7	249.0



1 0 1 1 0	S0-O	119.8	103.6	127.8	109.4	145.7	121.2	186.9	143.1	287.0	184.1	537.4	267.6
1 1 0 0 1	S0-O	70.96	85.69	78.91	91.34	96.90	102.9	138.1	124.5	238.3	165.3	488.7	248.8
1 1 0 1 0	S0-O	132.5	109.4	140.5	115.2	158.5	126.9	199.7	148.9	299.6	190.0	550.1	273.6
1 1 1 0 1	S0-O	70.90	85.62	78.85	91.35	96.81	102.9	138.1	124.6	238.2	165.4	488.7	249.0
1 1 1 1 0	S0-O	126.8	107.4	134.8	113.2	152.7	125.0	193.8	146.9	293.9	187.8	544.3	271.4
S0 S1 A B C D	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 1 0 0 0	EB-O	29.97	13.39	37.45	17.16	54.84	25.04	95.81	40.93	196.0	74.45	446.5	151.8
0 0 1 0 0 1	EB-O	29.97	13.39	37.45	17.16	54.84	25.04	95.81	40.93	196.0	74.45	446.5	151.8
0 0 1 0 1 0	EB-O	29.97	13.39	37.45	17.16	54.84	25.04	95.81	40.93	196.0	74.45	446.5	151.8
0 0 1 0 1 1	EB-O	29.97	13.39	37.45	17.16	54.84	25.04	95.81	40.93	196.0	74.45	446.5	151.8
0 0 1 1 0 0	EB-O	29.97	13.39	37.45	17.16	54.84	25.04	95.81	40.93	196.0	74.45	446.5	151.8
0 0 1 1 0 1	EB-O	29.97	13.39	37.45	17.16	54.84	25.04	95.81	40.93	196.0	74.45	446.5	151.8
0 0 1 1 1 0	EB-O	29.97	13.39	37.45	17.16	54.84	25.04	95.81	40.93	196.0	74.45	446.5	151.8
0 0 1 1 1 1	EB-O	29.97	13.39	37.45	17.16	54.84	25.04	95.81	40.93	196.0	74.45	446.5	151.8
0 1 0 0 1 0	EB-O	29.97	13.39	37.46	17.16	54.85	25.04	95.82	40.93	196.0	74.45	446.5	151.8
0 1 0 0 1 1	EB-O	29.97	13.39	37.46	17.16	54.85	25.04	95.82	40.93	196.0	74.45	446.5	151.8
0 1 0 1 1 0	EB-O	29.97	13.39	37.46	17.16	54.85	25.04	95.82	40.93	196.0	74.45	446.5	151.8
0 1 0 1 1 1	EB-O	29.97	13.39	37.46	17.16	54.85	25.04	95.82	40.93	196.0	74.45	446.5	151.8
0 1 1 0 1 0	EB-O	29.97	13.39	37.46	17.16	54.85	25.04	95.82	40.93	196.0	74.45	446.5	151.8
0 1 1 0 1 1	EB-O	29.97	13.39	37.46	17.16	54.85	25.04	95.82	40.93	196.0	74.45	446.5	151.8
0 1 1 1 1 0	EB-O	29.97	13.39	37.46	17.16	54.85	25.04	95.82	40.93	196.0	74.45	446.5	151.8
0 1 1 1 1 1	EB-O	29.97	13.39	37.46	17.16	54.85	25.04	95.82	40.93	196.0	74.45	446.5	151.8
1 0 0 1 0 0	EB-O	29.97	13.39	37.45	17.16	54.84	25.04	95.81	40.93	196.0	74.45	446.5	151.8
1 0 0 1 0 1	EB-O	29.97	13.39	37.45	17.16	54.84	25.04	95.81	40.93	196.0	74.45	446.5	151.8
1 0 0 1 1 0	EB-O	29.97	13.39	37.45	17.16	54.84	25.04	95.81	40.93	196.0	74.45	446.5	151.8
1 0 0 1 1 1	EB-O	29.97	13.39	37.45	17.16	54.84	25.04	95.81	40.93	196.0	74.45	446.5	151.8
1 0 1 1 0 0	EB-O	29.97	13.39	37.45	17.16	54.84	25.04	95.81	40.93	196.0	74.45	446.5	151.8
1 0 1 1 0 1	EB-O	29.97	13.39	37.45	17.16	54.84	25.04	95.81	40.93	196.0	74.45	446.5	151.8
1 0 1 1 1 0	EB-O	29.97	13.39	37.45	17.16	54.84	25.04	95.81	40.93	196.0	74.45	446.5	151.8
1 0 1 1 1 1	EB-O	29.97	13.39	37.45	17.16	54.84	25.04	95.81	40.93	196.0	74.45	446.5	151.8
1 1 0 0 0 1	EB-O	29.97	13.39	37.46	17.16	54.85	25.04	95.82	40.93	196.0	74.45	446.5	151.8
1 1 0 0 1 1	EB-O	29.97	13.39	37.46	17.16	54.85	25.04	95.82	40.93	196.0	74.45	446.5	151.8
1 1 0 1 0 1	EB-O	29.97	13.39	37.46	17.16	54.85	25.04	95.82	40.93	196.0	74.45	446.5	151.8
1 1 0 1 1 1	EB-O	29.97	13.39	37.46	17.16	54.85	25.04	95.82	40.93	196.0	74.45	446.5	151.8
1 1 1 0 0 1	EB-O	29.97	13.39	37.46	17.16	54.85	25.04	95.82	40.93	196.0	74.45	446.5	151.8
1 1 1 0 1 1	EB-O	29.97	13.39	37.46	17.16	54.85	25.04	95.82	40.93	196.0	74.45	446.5	151.8
1 1 1 1 0 1	EB-O	29.97	13.39	37.46	17.16	54.85	25.04	95.82	40.93	196.0	74.45	446.5	151.8
1 1 1 1 1 1	EB-O	29.97	13.39	37.46	17.16	54.85	25.04	95.82	40.93	196.0	74.45	446.5	151.8
A B D	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0	C-O	74.12	94.38	82.09	100.2	100.1	112.0	141.3	134.0	241.4	174.9	491.8	258.5
0 0 1	C-O	74.13	94.39	82.09	100.2	100.1	112.0	141.4	134.0	241.4	174.9	491.8	258.5

0 1 0	C-O	74.13 94.38	82.09 100.2	100.1 112.0	141.4 134.0	241.4 174.9	491.8 258.5						
0 1 1	C-O	74.14 94.38	82.10 100.2	100.1 112.0	141.4 134.0	241.4 174.9	491.9 258.5						
1 0 0	C-O	74.10 94.40	82.06 100.2	100.0 112.0	141.3 134.0	241.4 174.9	491.8 258.5						
1 0 1	C-O	74.10 94.40	82.06 100.2	100.0 112.0	141.3 134.0	241.4 174.9	491.8 258.5						
1 1 0	C-O	74.10 94.40	82.06 100.2	100.0 112.0	141.3 134.0	241.4 174.9	491.8 258.5						
1 1 1	C-O	74.11 94.40	82.07 100.2	100.0 112.0	141.3 134.0	241.4 174.9	491.8 258.5						
A C D	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0	B-O	74.80 96.11	82.75 101.9	100.7 113.7	142.0 135.9	242.2 177.1	492.6 261.0						
0 0 1	B-O	74.81 96.13	82.75 101.9	100.7 113.7	142.0 135.9	242.2 177.1	492.6 261.0						
0 1 0	B-O	74.80 96.11	82.75 101.9	100.7 113.7	142.0 135.9	242.2 177.1	492.6 261.0						
0 1 1	B-O	74.81 96.13	82.75 101.9	100.7 113.7	142.0 135.9	242.2 177.1	492.6 261.0						
1 0 0	B-O	74.80 96.11	82.75 101.9	100.7 113.7	142.0 135.9	242.2 177.1	492.6 261.0						
1 0 1	B-O	74.81 96.13	82.75 101.9	100.7 113.7	142.0 135.9	242.2 177.1	492.6 261.0						
1 1 0	B-O	74.80 96.11	82.75 101.9	100.7 113.7	142.0 135.9	242.2 177.1	492.6 261.0						
1 1 1	B-O	74.81 96.13	82.75 101.9	100.7 113.7	142.0 135.9	242.2 177.1	492.6 261.0						
A B C	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0	D-O	72.97 95.57	80.94 101.4	98.92 113.2	140.2 135.1	240.2 176.1	490.7 259.7						
0 0 1	D-O	72.97 95.57	80.94 101.4	98.92 113.2	140.2 135.1	240.2 176.1	490.7 259.7						
0 1 0	D-O	72.97 95.58	80.94 101.4	98.92 113.2	140.2 135.1	240.2 176.1	490.6 259.7						
0 1 1	D-O	72.97 95.58	80.94 101.4	98.92 113.2	140.2 135.2	240.2 176.1	490.6 259.7						
1 0 0	D-O	72.97 95.57	80.94 101.4	98.92 113.2	140.2 135.1	240.2 176.1	490.7 259.7						
1 0 1	D-O	72.97 95.57	80.94 101.4	98.92 113.2	140.2 135.1	240.2 176.1	490.7 259.7						
1 1 0	D-O	72.97 95.58	80.94 101.4	98.92 113.2	140.2 135.1	240.2 176.1	490.6 259.7						
1 1 1	D-O	72.97 95.58	80.94 101.4	98.92 113.2	140.2 135.2	240.2 176.1	490.6 259.7						

Version : MUXB4X2

Cell Unit = 32

State		Output Load											
B C D	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0	A-O	70.27	100.3	75.84	104.7	88.67	113.9	117.9	131.9	187.6	164.6	361.1	227.4
0 0 1	A-O	70.28	100.3	75.84	104.7	88.67	113.9	117.9	131.9	187.6	164.6	361.1	227.4
0 1 0	A-O	70.25	100.3	75.82	104.7	88.65	113.9	117.9	131.9	187.6	164.6	361.1	227.4
0 1 1	A-O	70.26	100.3	75.83	104.7	88.66	113.9	117.9	131.9	187.6	164.6	361.1	227.4
1 0 0	A-O	70.28	100.3	75.84	104.7	88.67	113.9	117.9	131.9	187.6	164.6	361.1	227.4
1 0 1	A-O	70.28	100.3	75.85	104.7	88.67	113.9	117.9	131.9	187.7	164.6	361.1	227.4
1 1 0	A-O	70.26	100.3	75.82	104.7	88.65	113.9	117.9	131.9	187.6	164.6	361.1	227.4
1 1 1	A-O	70.26	100.3	75.83	104.7	88.66	113.9	117.9	131.9	187.6	164.6	361.1	227.4
S0 A B C D	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0 1 0	S1-O	48.16	58.77	53.70	62.47	66.47	70.39	95.74	86.35	165.4	117.2	338.9	178.7
0 0 0 1 1	S1-O	48.16	58.77	53.70	62.47	66.47	70.39	95.74	86.35	165.4	117.2	338.9	178.7
0 0 1 1 0	S1-O	48.16	58.77	53.70	62.47	66.47	70.39	95.74	86.35	165.4	117.2	338.9	178.7
0 0 1 1 1	S1-O	48.16	58.77	53.70	62.47	66.47	70.39	95.74	86.35	165.4	117.2	338.9	178.7
0 1 0 0 0	S1-O	71.50	55.06	77.01	59.02	89.78	67.40	118.8	83.78	188.4	114.8	361.7	176.2
0 1 0 0 1	S1-O	71.50	55.06	77.01	59.02	89.78	67.40	118.8	83.78	188.4	114.8	361.7	176.2
0 1 1 0 0	S1-O	71.50	55.06	77.01	59.02	89.78	67.40	118.8	83.78	188.4	114.8	361.7	176.2
0 1 1 0 1	S1-O	71.50	55.06	77.01	59.02	89.78	67.40	118.8	83.79	188.4	114.8	361.7	176.2
1 0 0 0 1	S1-O	48.17	58.74	53.72	62.44	66.50	70.35	95.77	86.31	165.5	117.2	338.9	178.7
1 0 0 1 1	S1-O	48.17	58.74	53.72	62.44	66.50	70.35	95.77	86.31	165.5	117.2	338.9	178.7
1 0 1 0 0	S1-O	71.54	54.86	77.05	58.82	89.82	67.19	118.8	83.58	188.4	114.6	361.8	176.0
1 0 1 1 0	S1-O	71.54	54.87	77.05	58.82	89.82	67.19	118.8	83.58	188.4	114.6	361.8	176.0
1 1 0 0 1	S1-O	48.17	58.74	53.72	62.44	66.50	70.36	95.77	86.31	165.5	117.2	338.9	178.7
1 1 0 1 1	S1-O	48.17	58.74	53.72	62.44	66.50	70.36	95.77	86.31	165.5	117.2	338.9	178.7
1 1 1 0 0	S1-O	71.54	54.86	77.05	58.82	89.82	67.19	118.8	83.58	188.4	114.6	361.8	176.0
1 1 1 1 0	S1-O	71.54	54.87	77.05	58.82	89.82	67.19	118.8	83.58	188.4	114.6	361.8	176.0
S1 A B C D	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 1 0 0	S0-O	69.23	90.82	74.80	95.12	87.63	104.2	116.9	121.9	186.6	154.6	360.0	217.3
0 0 1 0 1	S0-O	69.57	90.48	75.12	94.79	87.91	104.0	117.1	121.8	186.8	154.5	360.3	217.3
0 0 1 1 0	S0-O	69.03	91.37	74.61	95.64	87.47	104.7	116.8	122.3	186.4	154.8	359.8	217.5
0 0 1 1 1	S0-O	69.21	90.84	74.79	95.16	87.67	104.3	116.9	122.0	186.5	154.7	359.9	217.3
0 1 0 0 0	S0-O	120.3	111.0	125.9	115.4	138.7	124.5	168.0	142.5	237.5	175.3	410.9	238.1
0 1 0 0 1	S0-O	113.6	107.7	119.2	112.1	132.0	121.2	161.2	139.1	230.8	172.0	404.2	234.8
0 1 0 1 0	S0-O	124.3	112.6	129.9	116.9	142.7	126.2	172.0	144.2	241.5	177.1	414.8	239.9
0 1 0 1 1	S0-O	119.4	111.1	125.0	115.5	137.8	124.7	167.0	142.6	236.5	175.4	409.9	238.2
1 0 0 0 1	S0-O	66.83	88.63	72.41	92.92	85.22	102.0	114.4	119.4	184.1	151.6	357.5	213.8
1 0 0 1 0	S0-O	117.8	109.3	123.4	113.7	136.1	122.8	165.2	140.6	234.7	172.9	408.1	235.3
1 0 1 0 1	S0-O	66.93	88.52	72.50	92.83	85.29	101.9	114.4	119.4	184.1	151.6	357.6	213.9

1 0 1 1 0	S0-O	111.3	106.1	116.9	110.5	129.7	119.7	158.8	137.3	228.3	169.7	401.7	232.1
1 1 0 0 1	S0-O	66.82	88.65	72.39	92.90	85.18	101.9	114.3	119.3	184.0	151.5	357.5	213.7
1 1 0 1 0	S0-O	121.3	111.0	126.9	115.3	139.7	124.5	168.8	142.3	238.3	174.7	411.7	237.1
1 1 1 0 1	S0-O	66.82	88.65	72.38	92.93	85.16	102.0	114.3	119.5	184.0	151.7	357.5	213.8
1 1 1 1 0	S0-O	116.7	109.4	122.3	113.7	135.0	122.9	164.2	140.6	233.6	173.0	407.1	235.4
S0 S1 A B C D	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 1 0 0 0	EB-O	30.01	12.48	35.41	15.24	47.89	21.12	76.92	32.98	146.8	57.43	320.4	111.2
0 0 1 0 0 1	EB-O	30.01	12.48	35.41	15.24	47.89	21.12	76.92	32.98	146.8	57.43	320.4	111.2
0 0 1 0 1 0	EB-O	30.01	12.48	35.41	15.24	47.89	21.12	76.92	32.98	146.8	57.43	320.4	111.2
0 0 1 0 1 1	EB-O	30.01	12.48	35.41	15.24	47.89	21.12	76.92	32.98	146.8	57.43	320.4	111.2
0 0 1 1 0 0	EB-O	30.01	12.48	35.41	15.24	47.89	21.12	76.92	32.98	146.8	57.43	320.4	111.2
0 0 1 1 0 1	EB-O	30.01	12.48	35.41	15.24	47.89	21.12	76.92	32.98	146.8	57.43	320.4	111.2
0 0 1 1 1 0	EB-O	30.01	12.48	35.41	15.24	47.89	21.12	76.92	32.98	146.8	57.43	320.4	111.2
0 0 1 1 1 1	EB-O	30.01	12.48	35.41	15.24	47.89	21.12	76.92	32.98	146.8	57.43	320.4	111.2
0 1 0 0 1 0	EB-O	30.02	12.48	35.43	15.24	47.91	21.12	76.94	32.97	146.8	57.43	320.4	111.2
0 1 0 0 1 1	EB-O	30.02	12.48	35.42	15.24	47.91	21.12	76.94	32.97	146.8	57.43	320.4	111.2
0 1 0 1 1 0	EB-O	30.02	12.48	35.43	15.24	47.91	21.12	76.94	32.97	146.8	57.43	320.4	111.2
0 1 0 1 1 1	EB-O	30.02	12.48	35.42	15.24	47.91	21.12	76.94	32.97	146.8	57.43	320.4	111.2
0 1 1 0 1 0	EB-O	30.02	12.48	35.42	15.24	47.91	21.11	76.93	32.97	146.8	57.43	320.4	111.2
0 1 1 0 1 1	EB-O	30.02	12.48	35.42	15.24	47.91	21.11	76.93	32.97	146.8	57.43	320.4	111.2
0 1 1 1 1 0	EB-O	30.02	12.48	35.42	15.24	47.91	21.11	76.93	32.97	146.8	57.43	320.4	111.2
0 1 1 1 1 1	EB-O	30.02	12.48	35.42	15.24	47.91	21.11	76.93	32.97	146.8	57.43	320.4	111.2
1 0 0 1 0 0	EB-O	30.01	12.48	35.41	15.24	47.89	21.12	76.92	32.98	146.8	57.43	320.4	111.2
1 0 0 1 0 1	EB-O	30.01	12.48	35.41	15.24	47.89	21.12	76.92	32.98	146.8	57.43	320.4	111.2
1 0 0 1 1 0	EB-O	30.01	12.48	35.41	15.24	47.89	21.12	76.92	32.98	146.8	57.43	320.4	111.2
1 0 0 1 1 1	EB-O	30.01	12.48	35.41	15.24	47.89	21.12	76.92	32.98	146.8	57.43	320.4	111.2
1 0 1 1 0 0	EB-O	30.01	12.48	35.41	15.24	47.89	21.12	76.92	32.98	146.8	57.43	320.4	111.2
1 0 1 1 0 1	EB-O	30.01	12.48	35.41	15.24	47.89	21.12	76.92	32.98	146.8	57.43	320.4	111.2
1 0 1 1 1 0	EB-O	30.01	12.48	35.41	15.24	47.89	21.12	76.92	32.98	146.8	57.43	320.4	111.2
1 0 1 1 1 1	EB-O	30.01	12.48	35.41	15.24	47.89	21.12	76.92	32.98	146.8	57.43	320.4	111.2
1 1 0 0 0 1	EB-O	30.02	12.48	35.42	15.24	47.91	21.12	76.94	32.97	146.8	57.43	320.4	111.2
1 1 0 0 1 1	EB-O	30.02	12.48	35.42	15.24	47.91	21.12	76.94	32.97	146.8	57.43	320.4	111.2
1 1 0 1 0 1	EB-O	30.02	12.48	35.42	15.24	47.91	21.12	76.94	32.97	146.8	57.43	320.4	111.2
1 1 0 1 1 1	EB-O	30.02	12.48	35.42	15.24	47.91	21.12	76.93	32.97	146.8	57.43	320.4	111.2
1 1 1 0 0 1	EB-O	30.02	12.48	35.42	15.24	47.91	21.12	76.94	32.97	146.8	57.43	320.4	111.2
1 1 1 0 1 1	EB-O	30.02	12.48	35.42	15.24	47.91	21.12	76.94	32.97	146.8	57.43	320.4	111.2
1 1 1 1 0 1	EB-O	30.02	12.48	35.42	15.24	47.91	21.12	76.94	32.97	146.8	57.43	320.4	111.2
1 1 1 1 1 1	EB-O	30.02	12.48	35.42	15.24	47.91	21.12	76.93	32.97	146.8	57.43	320.4	111.2
A B D	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0	C-O	67.37	97.62	72.94	102.0	85.76	111.1	114.9	128.8	184.6	161.1	358.0	223.4
0 0 1	C-O	67.37	97.62	72.94	102.0	85.76	111.1	114.9	128.8	184.6	161.1	358.0	223.4

0 1 0	C-O	67.37	97.62	72.94	102.0	85.76	111.1	114.9	128.8	184.6	161.1	358.0	223.4
0 1 1	C-O	67.38	97.62	72.95	102.0	85.77	111.1	114.9	128.8	184.6	161.1	358.0	223.4
1 0 0	C-O	67.35	97.62	72.92	102.0	85.74	111.2	114.9	128.8	184.6	161.2	358.0	223.4
1 0 1	C-O	67.35	97.63	72.92	102.0	85.74	111.2	114.9	128.8	184.6	161.2	358.0	223.4
1 1 0	C-O	67.35	97.62	72.92	102.0	85.74	111.2	114.9	128.8	184.6	161.2	358.0	223.4
1 1 1	C-O	67.35	97.63	72.92	102.0	85.75	111.2	114.9	128.8	184.6	161.2	358.0	223.4
A C D	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0	B-O	69.24	101.7	74.82	106.1	87.67	115.3	116.9	133.3	186.6	166.1	360.0	228.9
0 0 1	B-O	69.25	101.7	74.82	106.1	87.67	115.3	116.9	133.3	186.6	166.1	360.0	228.9
0 1 0	B-O	69.24	101.7	74.82	106.1	87.67	115.3	116.9	133.3	186.6	166.1	360.0	228.9
0 1 1	B-O	69.25	101.7	74.82	106.1	87.67	115.3	116.9	133.3	186.6	166.1	360.0	228.9
1 0 0	B-O	69.24	101.7	74.82	106.1	87.67	115.3	116.9	133.3	186.6	166.1	360.0	228.9
1 0 1	B-O	69.25	101.7	74.82	106.1	87.67	115.3	116.9	133.3	186.6	166.1	360.0	228.9
1 1 0	B-O	69.24	101.7	74.82	106.1	87.67	115.3	116.9	133.3	186.6	166.1	360.0	228.9
1 1 1	B-O	69.25	101.7	74.82	106.1	87.67	115.3	116.9	133.3	186.6	166.1	360.0	228.9
A B C	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0	D-O	67.00	100.3	72.57	104.7	85.36	113.9	114.6	131.6	184.2	164.0	357.6	226.4
0 0 1	D-O	67.00	100.3	72.57	104.7	85.36	113.9	114.6	131.6	184.2	164.0	357.6	226.4
0 1 0	D-O	67.00	100.3	72.57	104.7	85.36	113.9	114.6	131.6	184.2	164.0	357.6	226.4
0 1 1	D-O	67.00	100.3	72.57	104.7	85.36	113.9	114.6	131.6	184.2	164.0	357.6	226.4
1 0 0	D-O	67.00	100.3	72.57	104.7	85.36	113.9	114.6	131.6	184.2	164.0	357.6	226.4
1 0 1	D-O	67.00	100.3	72.57	104.7	85.36	113.9	114.6	131.6	184.2	164.0	357.6	226.4
1 1 0	D-O	67.00	100.3	72.57	104.7	85.36	113.9	114.6	131.6	184.2	164.0	357.6	226.4
1 1 1	D-O	67.00	100.3	72.57	104.7	85.36	113.9	114.6	131.6	184.2	164.0	357.6	226.4

Version : MUXB4X3

Cell Unit = 33

State		Output Load											
B C D	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0	A-O	75.89	111.8	80.58	115.6	92.68	124.6	123.1	144.3	202.4	183.7	423.4	265.4
0 0 1	A-O	75.89	111.8	80.58	115.6	92.68	124.6	123.1	144.3	202.4	183.7	423.4	265.4
0 1 0	A-O	75.87	111.8	80.56	115.6	92.66	124.6	123.1	144.4	202.4	183.8	423.3	265.4
0 1 1	A-O	75.87	111.8	80.56	115.6	92.66	124.6	123.1	144.4	202.4	183.8	423.4	265.4
1 0 0	A-O	75.89	111.8	80.58	115.6	92.68	124.6	123.1	144.3	202.4	183.7	423.4	265.4
1 0 1	A-O	75.90	111.8	80.58	115.6	92.68	124.6	123.1	144.3	202.4	183.7	423.4	265.4
1 1 0	A-O	75.87	111.8	80.56	115.6	92.66	124.6	123.1	144.4	202.4	183.8	423.4	265.4
1 1 1	A-O	75.88	111.8	80.57	115.6	92.67	124.6	123.1	144.4	202.4	183.8	423.4	265.4
S0 A B C D	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0 1 0	S1-O	54.33	67.45	58.97	70.94	71.07	79.32	101.4	97.64	180.8	135.6	401.6	216.2
0 0 0 1 1	S1-O	54.33	67.45	58.97	70.94	71.07	79.32	101.4	97.64	180.8	135.6	401.6	216.2
0 0 1 1 0	S1-O	54.33	67.45	58.97	70.94	71.07	79.32	101.4	97.64	180.8	135.6	401.6	216.2
0 0 1 1 1	S1-O	54.33	67.46	58.97	70.94	71.07	79.32	101.4	97.64	180.8	135.6	401.6	216.2
0 1 0 0 0	S1-O	76.34	63.26	80.99	66.83	93.03	75.43	123.3	93.94	202.5	131.8	423.3	212.2
0 1 0 0 1	S1-O	76.34	63.26	80.99	66.84	93.03	75.43	123.3	93.94	202.5	131.8	423.3	212.2
0 1 1 0 0	S1-O	76.34	63.26	80.99	66.84	93.03	75.43	123.3	93.94	202.5	131.8	423.3	212.2
0 1 1 0 1	S1-O	76.34	63.26	80.99	66.84	93.03	75.43	123.3	93.94	202.5	131.8	423.3	212.2
1 0 0 0 1	S1-O	54.36	67.41	59.01	70.88	71.11	79.25	101.5	97.57	180.8	135.5	401.7	216.1
1 0 0 1 1	S1-O	54.36	67.41	59.01	70.88	71.11	79.25	101.5	97.57	180.8	135.5	401.7	216.1
1 0 1 0 0	S1-O	76.40	62.94	81.05	66.52	93.09	75.12	123.4	93.64	202.6	131.5	423.4	212.0
1 0 1 1 0	S1-O	76.40	62.94	81.05	66.52	93.09	75.12	123.4	93.64	202.6	131.5	423.4	212.0
1 1 0 0 1	S1-O	54.36	67.41	59.01	70.88	71.11	79.25	101.5	97.57	180.8	135.5	401.7	216.2
1 1 0 1 1	S1-O	54.36	67.41	59.01	70.88	71.11	79.25	101.5	97.57	180.8	135.5	401.7	216.2
1 1 1 0 0	S1-O	76.40	62.94	81.05	66.52	93.09	75.12	123.4	93.64	202.6	131.5	423.4	212.0
1 1 1 1 0	S1-O	76.40	62.94	81.05	66.52	93.09	75.12	123.4	93.64	202.6	131.5	423.4	212.0
S1 A B C D	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 1 0 0	S0-O	74.99	102.1	79.67	105.8	91.79	114.8	122.1	134.5	201.5	173.7	422.4	255.3
0 0 1 0 1	S0-O	75.30	101.8	79.98	105.6	92.11	114.6	122.4	134.2	201.8	173.6	422.7	255.2
0 0 1 1 0	S0-O	74.73	102.8	79.40	106.4	91.55	115.3	121.9	134.8	201.2	173.9	422.2	255.5
0 0 1 1 1	S0-O	75.03	102.2	79.67	105.9	91.76	114.9	122.2	134.5	201.5	173.7	422.4	255.3
0 1 0 0 0	S0-O	126.0	122.2	130.6	126.0	142.8	135.1	173.0	154.8	252.4	194.2	473.2	275.9
0 1 0 0 1	S0-O	119.2	119.0	123.9	122.7	136.0	131.8	166.4	151.5	245.6	190.9	466.5	272.6
0 1 0 1 0	S0-O	130.1	124.0	134.8	127.8	146.8	136.9	177.2	156.6	256.5	196.0	477.3	277.8
0 1 0 1 1	S0-O	125.1	122.4	129.7	126.2	141.9	135.2	172.1	155.0	251.4	194.4	472.3	276.0
1 0 0 0 1	S0-O	72.62	100.0	77.27	103.7	89.34	112.6	119.7	132.1	198.9	170.9	419.9	251.9
1 0 0 1 0	S0-O	123.4	120.6	128.1	124.4	140.1	133.5	170.4	153.0	249.6	192.1	470.5	273.2
1 0 1 0 1	S0-O	72.69	99.77	77.36	103.5	89.41	112.5	119.7	132.0	199.0	170.9	420.0	251.9

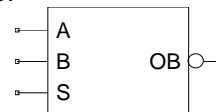
1 0 1 1 0	S0-O	116.9	117.4	121.6	121.2	133.6	130.3	163.9	149.9	243.1	188.8	464.0	270.1
1 1 0 0 1	S0-O	72.60	100.1	77.27	103.9	89.36	112.7	119.7	132.0	199.0	170.8	419.9	251.9
1 1 0 1 0	S0-O	127.1	122.4	131.8	126.2	143.8	135.3	174.1	154.8	253.3	193.8	474.1	275.1
1 1 1 0 1	S0-O	72.61	100.0	77.28	103.7	89.43	112.7	119.6	132.1	199.0	170.9	419.9	252.0
1 1 1 1 0	S0-O	122.3	120.7	127.0	124.5	139.1	133.5	169.3	153.1	248.6	192.1	469.4	273.3
S0 S1 A B C D	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 1 0 0 0	EB-O	28.41	12.09	32.97	14.41	44.69	19.97	74.78	32.41	154.4	60.48	375.5	129.8
0 0 1 0 0 1	EB-O	28.41	12.09	32.97	14.41	44.69	19.97	74.78	32.41	154.4	60.48	375.5	129.8
0 0 1 0 1 0	EB-O	28.41	12.09	32.96	14.41	44.69	19.97	74.78	32.41	154.4	60.48	375.5	129.8
0 0 1 0 1 1	EB-O	28.41	12.09	32.96	14.41	44.69	19.97	74.78	32.41	154.4	60.48	375.5	129.8
0 0 1 1 0 0	EB-O	28.41	12.09	32.97	14.41	44.69	19.97	74.78	32.41	154.4	60.48	375.5	129.8
0 0 1 1 0 1	EB-O	28.41	12.09	32.97	14.41	44.69	19.97	74.78	32.41	154.4	60.48	375.5	129.8
0 0 1 1 1 0	EB-O	28.41	12.09	32.96	14.41	44.69	19.97	74.78	32.41	154.4	60.48	375.5	129.8
0 0 1 1 1 1	EB-O	28.41	12.09	32.96	14.41	44.69	19.97	74.78	32.41	154.4	60.48	375.5	129.8
0 1 0 0 1 0	EB-O	28.43	12.09	32.99	14.40	44.72	19.97	74.80	32.41	154.4	60.48	375.5	129.8
0 1 0 0 1 1	EB-O	28.43	12.09	32.99	14.40	44.72	19.97	74.80	32.41	154.4	60.48	375.5	129.8
0 1 0 1 1 0	EB-O	28.43	12.09	32.99	14.40	44.72	19.97	74.80	32.41	154.4	60.48	375.5	129.8
0 1 0 1 1 1	EB-O	28.43	12.09	32.99	14.40	44.72	19.97	74.80	32.41	154.4	60.48	375.5	129.8
0 1 1 0 1 0	EB-O	28.43	12.09	32.99	14.40	44.72	19.97	74.80	32.41	154.4	60.48	375.5	129.8
0 1 1 0 1 1	EB-O	28.43	12.09	32.99	14.40	44.72	19.97	74.80	32.41	154.4	60.48	375.5	129.8
0 1 1 1 1 0	EB-O	28.43	12.09	32.99	14.40	44.72	19.97	74.80	32.41	154.4	60.48	375.5	129.8
0 1 1 1 1 1	EB-O	28.43	12.09	32.99	14.40	44.72	19.97	74.80	32.41	154.4	60.48	375.5	129.8
1 0 0 1 0 0	EB-O	28.41	12.09	32.96	14.41	44.69	19.98	74.78	32.41	154.4	60.48	375.5	129.8
1 0 0 1 0 1	EB-O	28.41	12.09	32.96	14.41	44.69	19.97	74.78	32.41	154.4	60.48	375.5	129.8
1 0 0 1 1 0	EB-O	28.41	12.09	32.96	14.41	44.69	19.98	74.78	32.41	154.4	60.48	375.5	129.8
1 0 0 1 1 1	EB-O	28.41	12.09	32.96	14.41	44.69	19.97	74.78	32.41	154.4	60.48	375.5	129.8
1 0 1 1 0 0	EB-O	28.41	12.09	32.96	14.41	44.69	19.98	74.78	32.41	154.4	60.48	375.5	129.8
1 0 1 1 0 1	EB-O	28.41	12.09	32.96	14.41	44.69	19.97	74.78	32.41	154.4	60.48	375.5	129.8
1 0 1 1 1 0	EB-O	28.41	12.09	32.96	14.41	44.69	19.98	74.78	32.41	154.4	60.48	375.5	129.8
1 0 1 1 1 1	EB-O	28.41	12.09	32.96	14.41	44.69	19.97	74.78	32.41	154.4	60.48	375.5	129.8
1 1 0 0 0 1	EB-O	28.42	12.09	32.98	14.41	44.72	19.97	74.80	32.41	154.4	60.48	375.5	129.8
1 1 0 0 1 1	EB-O	28.42	12.09	32.98	14.41	44.72	19.97	74.80	32.41	154.4	60.48	375.5	129.8
1 1 0 1 0 1	EB-O	28.42	12.09	32.98	14.41	44.72	19.97	74.80	32.41	154.4	60.48	375.5	129.8
1 1 0 1 1 1	EB-O	28.42	12.09	32.98	14.41	44.72	19.97	74.80	32.41	154.4	60.48	375.5	129.8
1 1 1 0 0 1	EB-O	28.42	12.09	32.98	14.41	44.72	19.97	74.80	32.41	154.4	60.48	375.5	129.8
1 1 1 0 1 1	EB-O	28.42	12.09	32.98	14.41	44.72	19.97	74.80	32.41	154.4	60.48	375.5	129.8
1 1 1 1 0 1	EB-O	28.42	12.09	32.98	14.41	44.72	19.97	74.80	32.41	154.4	60.48	375.5	129.8
1 1 1 1 1 1	EB-O	28.42	12.09	32.98	14.41	44.72	19.97	74.80	32.41	154.4	60.48	375.5	129.8
A B D	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0	C-O	72.98	109.1	77.64	112.9	89.74	121.9	120.1	141.5	199.4	180.4	420.3	261.5
0 0 1	C-O	72.98	109.1	77.64	112.9	89.74	121.9	120.1	141.5	199.4	180.4	420.3	261.5

0 1 0	C-O	72.98	109.1	77.64	112.9	89.74	121.9	120.1	141.5	199.4	180.4	420.3	261.5
0 1 1	C-O	72.98	109.1	77.64	112.9	89.74	121.9	120.1	141.5	199.4	180.4	420.3	261.5
1 0 0	C-O	72.95	109.1	77.61	112.9	89.72	121.9	120.1	141.5	199.4	180.4	420.2	261.5
1 0 1	C-O	72.95	109.1	77.62	112.9	89.72	121.9	120.1	141.5	199.4	180.4	420.2	261.5
1 1 0	C-O	72.96	109.1	77.62	112.9	89.72	121.9	120.1	141.5	199.4	180.4	420.2	261.5
1 1 1	C-O	72.96	109.1	77.62	112.9	89.72	121.9	120.1	141.5	199.4	180.4	420.2	261.5
A C D	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0	B-O	74.81	113.2	79.47	117.0	91.61	126.0	122.0	145.8	201.4	185.2	422.2	266.9
0 0 1	B-O	74.81	113.2	79.47	117.0	91.61	126.0	122.0	145.8	201.4	185.2	422.2	266.9
0 1 0	B-O	74.81	113.2	79.47	117.0	91.61	126.0	122.0	145.8	201.4	185.2	422.2	266.9
0 1 1	B-O	74.81	113.2	79.47	117.0	91.61	126.0	122.0	145.8	201.4	185.2	422.2	266.9
1 0 0	B-O	74.81	113.2	79.47	117.0	91.61	126.0	122.0	145.8	201.4	185.2	422.2	266.9
1 0 1	B-O	74.81	113.2	79.47	117.0	91.61	126.0	122.0	145.8	201.4	185.2	422.2	266.9
1 1 0	B-O	74.81	113.2	79.47	117.0	91.61	126.0	122.0	145.8	201.4	185.2	422.2	266.9
1 1 1	B-O	74.81	113.2	79.47	117.0	91.61	126.1	122.0	145.8	201.4	185.2	422.2	266.9
A B C	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0	D-O	72.51	111.8	77.18	115.6	89.30	124.7	119.5	144.3	199.0	183.3	419.8	264.5
0 0 1	D-O	72.51	111.8	77.18	115.6	89.30	124.7	119.5	144.3	198.9	183.3	419.8	264.5
0 1 0	D-O	72.51	111.8	77.18	115.6	89.30	124.7	119.5	144.3	198.9	183.3	419.8	264.5
0 1 1	D-O	72.50	111.8	77.18	115.6	89.30	124.7	119.5	144.3	198.9	183.3	419.8	264.5
1 0 0	D-O	72.51	111.8	77.18	115.6	89.30	124.7	119.5	144.3	199.0	183.3	419.8	264.5
1 0 1	D-O	72.51	111.8	77.18	115.6	89.30	124.7	119.5	144.3	198.9	183.3	419.8	264.5
1 1 0	D-O	72.51	111.8	77.18	115.6	89.30	124.7	119.5	144.3	198.9	183.3	419.8	264.5
1 1 1	D-O	72.50	111.8	77.18	115.6	89.30	124.7	119.5	144.3	198.9	183.3	419.8	264.5



Group Name : MXL2

Symbol

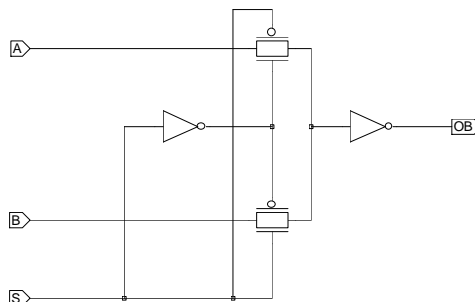


Function : 2 Bit MUX, Inverted Output

Truth Table

A	B	S	OB
0	X	0	1
1	X	0	0
X	0	1	1
X	1	1	0

Schematic



Pin Order OB S A B

**Input Capacitance (ff) & Maximum Loading (ff) & Power Consumption (nW/MHz)**

Version	Input Capacitance			Maximum Loading	Power Consumption
	S	A	B	OB	OB
MXL2XLP	2.744	1.889	1.885	74.96	2.502
MXL2X1	3.254	2.378	2.422	108.0	3.486
MXL2X1P	4.795	3.343	3.203	149.0	5.344
MXL2X2	6.102	4.548	4.384	207.6	6.803
MXL2X3	7.649	6.895	6.675	312.8	9.291
MXL2X3P	10.48	9.056	8.808	416.7	12.54
MXL2X6	15.06	13.53	13.21	625.2	18.56

## AC Characteristics ( Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ps)

Version : MXL2XLP

Cell Unit = 7

State	Output Load													
B	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0	A-OB	49.02	20.19	62.30	26.06	94.63	39.17	174.5	68.71	374.1	138.9	874.6	313.6	
1	A-OB	49.02	20.19	62.30	26.06	94.63	39.17	174.5	68.70	374.1	138.9	874.6	313.6	
A B	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 1	S-OB	37.90	15.85	51.35	22.50	83.07	36.59	163.0	66.95	362.9	137.2	863.6	311.6	
1 0	S-OB	51.68	54.61	64.11	60.16	95.17	72.49	173.9	100.8	372.4	170.1	872.3	344.3	
A	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0	B-OB	50.06	19.52	63.26	25.18	95.51	38.01	175.2	67.20	374.8	137.1	875.3	311.6	
1	B-OB	50.06	19.52	63.27	25.17	95.51	38.01	175.2	67.20	374.8	137.1	875.4	311.6	

Version : MXL2X1

Cell Unit = 9

State	Output Load													
B	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0	A-OB	46.03	19.77	55.32	24.16	78.05	34.04	133.5	56.02	271.9	107.3	618.4	233.1	
1	A-OB	46.03	19.77	55.32	24.17	78.05	34.04	133.5	56.02	271.9	107.3	618.4	233.1	
A B	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 1	S-OB	33.09	14.28	42.97	19.34	65.04	30.27	120.6	53.29	259.2	104.8	606.0	230.4	
1 0	S-OB	47.09	50.87	55.77	54.96	77.39	63.93	131.7	84.67	268.8	134.7	614.7	260.1	
A	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0	B-OB	46.98	19.18	56.26	23.40	78.74	32.99	134.3	54.60	272.5	105.5	619.1	231.1	
1	B-OB	46.98	19.18	56.26	23.40	78.74	32.99	134.3	54.60	272.5	105.5	619.1	231.1	

Version : MXL2X1P

Cell Unit = 16

State	Output Load													
B	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0	A-OB	49.01	20.01	55.72	23.07	72.22	30.13	112.6	45.96	212.6	82.32	463.0	170.0	
1	A-OB	49.01	20.01	55.72	23.07	72.22	30.14	112.6	45.96	212.6	82.32	463.1	170.0	
A B	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 1	S-OB	36.01	14.51	43.26	18.11	59.33	26.25	99.56	43.11	199.8	80.16	450.5	167.7	
1 0	S-OB	48.83	49.28	55.05	52.12	70.72	58.53	109.8	73.34	208.7	108.2	458.1	195.3	
A	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0	B-OB	49.86	19.23	56.55	22.19	72.97	29.02	113.2	44.62	213.2	80.54	463.6	168.1	
1	B-OB	49.86	19.23	56.56	22.19	72.97	29.02	113.2	44.62	213.2	80.54	463.6	168.1	

Version : MXL2X2

Cell Unit = 16

State	Output Load													
B	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0	A-OB	44.32	18.80	49.23	21.15	61.23	26.61	90.48	38.86	162.6	66.63	342.6	132.6	
1	A-OB	44.32	18.80	49.23	21.15	61.23	26.61	90.48	38.86	162.6	66.62	342.6	132.6	
A B	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 1	S-OB	32.12	13.36	37.63	16.18	49.59	22.71	78.60	36.18	150.9	64.92	331.1	131.0	
1 0	S-OB	44.05	45.10	48.58	47.26	59.81	52.17	87.83	63.32	158.9	89.68	337.9	154.9	
A	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0	B-OB	45.20	18.05	50.07	20.32	61.94	25.60	91.13	37.64	163.1	65.05	343.1	130.9	
1	B-OB	45.20	18.05	50.07	20.32	61.94	25.60	91.13	37.64	163.1	65.05	343.1	130.9	

Version : MXL2X3

Cell Unit = 19

State	Output Load													
B	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0	A-OB	40.20	17.13	44.20	19.16	55.23	24.38	85.05	37.25	166.9	69.09	396.2	153.0	
1	A-OB	40.20	17.14	44.20	19.17	55.23	24.39	85.05	37.26	166.9	69.09	396.2	153.0	
A B	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 1	S-OB	27.75	11.35	32.20	13.68	44.10	19.69	73.37	33.88	155.3	66.54	384.8	150.6	
1 0	S-OB	45.20	50.11	48.87	51.96	59.03	56.87	87.45	68.89	167.8	99.24	395.9	182.2	
A	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0	B-OB	41.56	16.12	45.54	18.05	56.41	23.03	86.04	35.49	167.8	66.68	397.1	150.4	
1	B-OB	41.55	16.12	45.54	18.05	56.41	23.03	86.05	35.49	167.8	66.68	397.1	150.4	

Version : MXL2X3P

Cell Unit = 28

State	Output Load													
B	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0	A-OB	40.34	17.14	43.34	18.67	51.66	22.69	74.18	32.66	135.9	57.18	308.0	120.9	
1	A-OB	40.33	17.15	43.34	18.68	51.66	22.70	74.18	32.67	135.9	57.18	308.0	120.8	
A B	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 1	S-OB	27.56	11.13	30.96	12.90	40.24	17.61	62.52	28.96	124.1	54.66	296.4	118.5	
1 0	S-OB	43.03	48.68	45.77	50.09	53.42	53.81	74.80	63.02	134.9	86.19	305.8	148.5	
A	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0	B-OB	41.55	16.13	44.55	17.60	52.78	21.43	75.24	31.08	136.7	55.11	308.8	118.3	
1	B-OB	41.55	16.13	44.55	17.60	52.78	21.43	75.24	31.07	136.7	55.11	308.8	118.3	

Version : MXL2X6

Cell Unit = 38

State	Output Load													
	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff		
B		tph	tphl	tph	tphl	tph	tphl	tph	tphl	tph	tphl	tph	tphl	
0	A-OB	39.46	16.75	41.70	17.90	48.31	21.18	67.55	29.90	123.6	52.54	290.3	114.5	
1	A-OB	39.46	16.76	41.70	17.92	48.31	21.19	67.55	29.91	123.6	52.54	290.3	114.5	
A B	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff		
0 1		S-OB	26.67	10.67	29.21	12.03	36.72	15.81	56.06	25.89	111.8	49.80	278.8	112.0
1 0	S-OB	43.47	48.36	45.51	49.40	51.51	52.40	69.59	60.55	124.0	81.81	289.4	142.2	
A	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff		
0		B-OB	40.85	15.74	43.08	16.84	49.66	19.96	68.78	28.35	124.7	50.49	291.3	111.9
1	B-OB	40.85	15.74	43.09	16.84	49.67	19.96	68.78	28.35	124.7	50.48	291.3	111.9	

Group Name : MXL3

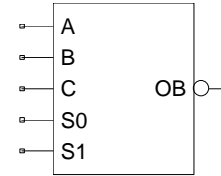
Function : 3 Bit MUX with Inverted Output

Truth Table

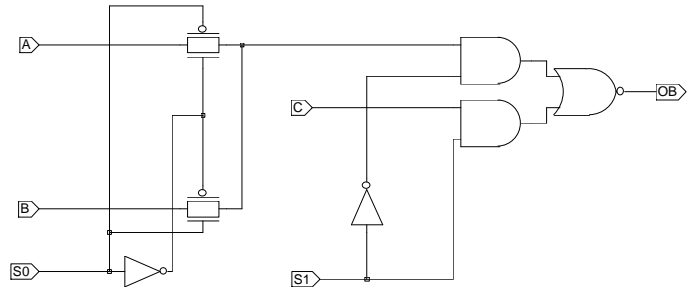
S1	S0	A	B	C	OB
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0	0	1	X	X	0
0	1	X	0	X	1
0	1	X	1	X	0
1	X	X	X	0	1
1	X	X	X	1	0

Pin Order OB S0 S1 A B C

Symbol



Schematic



**Input Capacitance (ff) & Maximum Loading (ff) & Power Consumption (nW/MHz)**

Version	Input Capacitance					Maximum Loading	Power Consumption
	S0	S1	A	B	C	OB	OB
MXL3XLP	2.013	1.857	1.122	1.143	1.162	147.7	4.800
MXL3X1	2.288	2.141	1.557	1.547	1.632	212.9	6.512
MXL3X1P	2.191	2.226	1.546	1.609	1.620	295.7	8.206
MXL3X2	2.541	2.473	1.508	1.572	1.556	426.2	10.92
MXL3X3	3.037	3.116	2.186	2.134	2.116	638.8	14.62

AC Characteristics ( Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ps)

Version : MXL3XLP

Cell Unit = 15

State	Output Load													
	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
<b>B C</b>														
0 0	A-OB	124.8	80.67	131.9	85.20	148.5	94.16	189.6	112.1	292.4	152.5	550.5	252.0	
0 1	A-OB	124.8	80.67	131.9	85.20	148.5	94.16	189.6	112.1	292.4	152.5	550.5	251.9	
1 0	A-OB	124.8	80.67	131.9	85.20	148.5	94.16	189.6	112.1	292.4	152.5	550.5	252.0	
1 1	A-OB	124.8	80.67	131.9	85.20	148.5	94.16	189.6	112.1	292.4	152.5	550.5	251.9	
<b>S0 A B C</b>														
	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 0 0 1	S1-OB	75.12	54.03	82.12	58.42	98.79	67.14	140.0	84.90	242.9	125.2	501.0	224.6	
0 0 1 1	S1-OB	75.12	54.03	82.12	58.42	98.79	67.13	140.0	84.90	242.9	125.2	501.0	224.6	
0 1 0 0	S1-OB	83.23	83.91	90.16	88.42	106.8	97.28	147.9	115.2	250.9	155.7	509.0	255.1	
0 1 1 0	S1-OB	83.23	83.91	90.16	88.42	106.8	97.28	147.9	115.2	250.9	155.7	509.0	255.1	
1 0 0 1	S1-OB	75.10	54.03	82.10	58.42	98.77	67.14	140.0	84.90	242.9	125.2	501.0	224.6	
1 0 1 0	S1-OB	83.22	83.95	90.16	88.46	106.8	97.32	147.9	115.2	250.9	155.7	509.0	255.1	
1 1 0 1	S1-OB	75.10	54.03	82.10	58.42	98.77	67.13	140.0	84.90	242.9	125.2	501.0	224.6	
1 1 1 0	S1-OB	83.22	83.95	90.16	88.46	106.8	97.31	147.9	115.2	250.9	155.7	509.0	255.1	
<b>A B C</b>														
	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 1 0	S0-OB	113.1	78.97	120.3	83.49	136.8	92.34	177.9	110.3	280.8	150.8	538.9	250.2	
0 1 1	S0-OB	113.1	78.97	120.3	83.48	136.8	92.34	177.9	110.3	280.8	150.8	538.9	250.2	
1 0 0	S0-OB	123.8	114.2	130.9	118.7	147.5	127.6	188.6	145.6	291.5	186.0	549.5	285.4	
1 0 1	S0-OB	123.8	114.2	130.9	118.7	147.5	127.6	188.6	145.6	291.5	186.0	549.5	285.4	
<b>S0 A B</b>														
	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 0 0	C-OB	87.82	56.43	94.75	60.80	111.4	69.43	152.6	87.22	255.5	127.6	513.6	227.0	
0 0 1	C-OB	87.82	56.43	94.75	60.80	111.4	69.43	152.6	87.22	255.5	127.6	513.6	227.0	
0 1 0	C-OB	87.84	56.43	94.76	60.80	111.4	69.43	152.6	87.22	255.5	127.6	513.6	227.0	
0 1 1	C-OB	87.84	56.43	94.76	60.80	111.4	69.43	152.6	87.22	255.5	127.6	513.6	227.0	
1 0 0	C-OB	87.82	56.43	94.75	60.80	111.4	69.43	152.6	87.22	255.5	127.6	513.6	227.0	
1 0 1	C-OB	87.84	56.43	94.76	60.80	111.4	69.43	152.6	87.22	255.5	127.6	513.6	227.0	
1 1 0	C-OB	87.82	56.43	94.75	60.80	111.4	69.43	152.6	87.22	255.5	127.6	513.6	227.0	
1 1 1	C-OB	87.84	56.43	94.76	60.80	111.4	69.43	152.6	87.22	255.5	127.6	513.6	227.0	
<b>A C</b>														
	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 0	B-OB	125.2	79.90	132.3	84.42	148.9	93.34	190.0	111.2	292.8	151.8	550.9	251.2	
0 1	B-OB	125.2	79.90	132.3	84.42	148.9	93.34	190.0	111.2	292.8	151.8	550.9	251.2	
1 0	B-OB	125.2	79.90	132.3	84.42	148.9	93.34	190.0	111.2	292.8	151.8	550.9	251.2	
1 1	B-OB	125.2	79.90	132.3	84.42	148.9	93.34	190.0	111.2	292.8	151.8	550.9	251.2	

Version : MXL3X1

Cell Unit = 16

State	Output Load													
B C	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 0	A-OB	109.7	77.21	114.9	80.61	126.5	87.48	155.0	100.9	226.2	130.5	404.6	201.9	
0 1	A-OB	109.8	77.21	114.9	80.61	126.5	87.48	155.0	100.9	226.2	130.5	404.6	201.9	
1 0	A-OB	109.8	77.21	114.9	80.61	126.5	87.48	155.0	100.9	226.2	130.5	404.6	201.9	
1 1	A-OB	109.8	77.21	114.9	80.61	126.5	87.48	155.0	100.9	226.2	130.5	404.6	201.9	
S0 A B C	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 0 0 1	S1-OB	68.28	50.32	73.23	53.61	84.83	60.23	113.4	73.55	184.8	102.9	363.2	174.4	
0 0 1 1	S1-OB	68.28	50.31	73.23	53.61	84.83	60.23	113.4	73.55	184.8	102.9	363.2	174.4	
0 1 0 0	S1-OB	78.40	85.91	83.29	89.29	94.88	96.11	123.6	109.5	194.8	139.1	373.2	210.5	
0 1 1 0	S1-OB	78.40	85.91	83.29	89.29	94.88	96.11	123.6	109.5	194.8	139.1	373.2	210.5	
1 0 0 1	S1-OB	68.24	50.32	73.19	53.61	84.79	60.23	113.4	73.55	184.7	102.9	363.2	174.4	
1 0 1 0	S1-OB	78.40	85.95	83.29	89.33	94.87	96.16	123.6	109.6	194.8	139.2	373.2	210.6	
1 1 0 1	S1-OB	68.24	50.31	73.19	53.61	84.79	60.23	113.4	73.55	184.7	102.9	363.2	174.4	
1 1 1 0	S1-OB	78.40	85.95	83.29	89.33	94.88	96.15	123.6	109.6	194.8	139.2	373.2	210.6	
A B C	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 1 0	S0-OB	99.16	74.40	104.2	77.79	115.9	84.56	144.4	98.14	215.6	127.7	394.0	199.0	
0 1 1	S0-OB	99.16	74.41	104.3	77.80	115.9	84.56	144.4	98.14	215.6	127.7	394.0	199.0	
1 0 0	S0-OB	111.3	112.9	116.4	116.3	128.0	123.1	156.6	136.6	227.7	166.1	406.1	237.5	
1 0 1	S0-OB	111.3	112.9	116.4	116.3	128.0	123.1	156.6	136.6	227.7	166.1	406.1	237.5	
S0 A B	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 0 0	C-OB	77.77	53.62	82.67	56.90	94.26	63.48	122.9	76.83	194.1	106.3	372.6	177.6	
0 0 1	C-OB	77.77	53.62	82.67	56.90	94.26	63.48	122.9	76.83	194.1	106.3	372.6	177.6	
0 1 0	C-OB	77.79	53.62	82.68	56.90	94.27	63.48	122.9	76.83	194.2	106.3	372.6	177.6	
0 1 1	C-OB	77.79	53.62	82.68	56.90	94.27	63.48	122.9	76.83	194.2	106.3	372.6	177.6	
1 0 0	C-OB	77.77	53.62	82.67	56.90	94.26	63.48	122.9	76.83	194.1	106.3	372.6	177.6	
1 0 1	C-OB	77.79	53.62	82.68	56.90	94.27	63.48	122.9	76.83	194.2	106.3	372.6	177.6	
1 1 0	C-OB	77.77	53.62	82.67	56.90	94.26	63.48	122.9	76.83	194.1	106.3	372.6	177.6	
1 1 1	C-OB	77.79	53.62	82.68	56.90	94.27	63.48	122.9	76.83	194.2	106.3	372.6	177.6	
A C	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 0	B-OB	110.6	76.01	115.7	79.40	127.3	86.22	155.8	99.69	227.0	129.3	405.5	200.7	
0 1	B-OB	110.6	76.01	115.7	79.40	127.3	86.23	155.8	99.69	227.0	129.3	405.5	200.7	
1 0	B-OB	110.6	76.01	115.7	79.40	127.3	86.22	155.8	99.69	227.0	129.3	405.5	200.7	
1 1	B-OB	110.6	76.01	115.7	79.40	127.3	86.23	155.8	99.69	227.0	129.3	405.5	200.7	



Version : MXL3X1P

Cell Unit = 17

State	Output Load													
B C	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 0	A-OB	118.1	80.68	122.2	83.39	131.0	88.82	151.7	99.28	203.1	121.0	332.2	171.1	
0 1	A-OB	118.1	80.68	122.2	83.39	131.0	88.83	151.7	99.29	203.1	121.0	332.2	171.1	
1 0	A-OB	118.1	80.68	122.2	83.39	131.0	88.83	151.7	99.29	203.1	121.0	332.2	171.1	
1 1	A-OB	118.1	80.69	122.2	83.39	131.0	88.83	151.7	99.29	203.1	121.0	332.2	171.1	
S0 A B C	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 0 0 1	S1-OB	76.12	53.52	79.97	56.13	88.64	61.38	109.5	71.58	161.1	92.99	290.2	143.1	
0 0 1 1	S1-OB	76.12	53.51	79.98	56.13	88.64	61.38	109.5	71.58	161.1	92.99	290.2	143.1	
0 1 0 0	S1-OB	85.05	88.74	88.82	91.44	97.40	96.86	118.2	107.3	169.9	128.9	298.9	179.1	
0 1 1 0	S1-OB	85.05	88.74	88.82	91.44	97.40	96.86	118.2	107.3	169.9	128.9	298.9	179.1	
1 0 0 1	S1-OB	76.07	53.52	79.92	56.13	88.59	61.38	109.4	71.58	161.1	92.99	290.1	143.1	
1 0 1 0	S1-OB	85.04	88.79	88.81	91.48	97.39	96.90	118.2	107.3	169.9	129.0	298.9	179.1	
1 1 0 1	S1-OB	76.07	53.51	79.93	56.12	88.59	61.38	109.4	71.58	161.1	92.99	290.1	143.1	
1 1 1 0	S1-OB	85.04	88.79	88.81	91.48	97.39	96.90	118.2	107.3	169.9	129.0	298.9	179.1	
A B C	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 1 0	S0-OB	107.5	78.03	111.6	80.74	120.3	86.15	141.1	96.64	192.6	118.2	321.6	168.4	
0 1 1	S0-OB	107.5	78.04	111.6	80.74	120.3	86.16	141.1	96.64	192.6	118.2	321.6	168.4	
1 0 0	S0-OB	120.2	117.3	124.3	119.9	133.1	125.4	153.8	135.8	205.3	157.5	334.3	207.6	
1 0 1	S0-OB	120.2	117.3	124.3	119.9	133.1	125.4	153.8	135.8	205.3	157.5	334.3	207.6	
S0 A B	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 0 0	C-OB	84.59	56.18	88.34	58.78	96.90	64.01	117.7	74.20	169.3	95.63	298.4	145.7	
0 0 1	C-OB	84.59	56.18	88.34	58.78	96.90	64.01	117.7	74.20	169.3	95.63	298.4	145.7	
0 1 0	C-OB	84.60	56.18	88.35	58.78	96.91	64.01	117.7	74.20	169.3	95.63	298.4	145.7	
0 1 1	C-OB	84.60	56.18	88.35	58.78	96.91	64.01	117.7	74.20	169.3	95.63	298.4	145.7	
1 0 0	C-OB	84.59	56.18	88.34	58.78	96.90	64.01	117.7	74.20	169.3	95.63	298.4	145.7	
1 0 1	C-OB	84.60	56.18	88.35	58.78	96.91	64.01	117.7	74.20	169.3	95.63	298.4	145.7	
1 1 0	C-OB	84.59	56.18	88.34	58.78	96.90	64.01	117.7	74.20	169.3	95.63	298.4	145.7	
1 1 1	C-OB	84.60	56.18	88.35	58.78	96.91	64.01	117.7	74.20	169.3	95.63	298.4	145.7	
A C	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 0	B-OB	119.1	79.48	123.2	82.18	132.0	87.60	152.7	98.08	204.2	119.8	333.2	170.0	
0 1	B-OB	119.2	79.49	123.2	82.18	132.0	87.60	152.7	98.09	204.2	119.8	333.2	170.0	
1 0	B-OB	119.2	79.48	123.2	82.18	132.0	87.59	152.7	98.08	204.2	119.8	333.2	170.0	
1 1	B-OB	119.2	79.48	123.2	82.18	132.0	87.60	152.7	98.09	204.2	119.8	333.2	170.0	

Version : MXL3X2

Cell Unit = 23

State		Output Load											
B C	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0	A-OB	117.8	88.05	121.4	90.52	129.9	96.02	151.7	107.5	212.2	133.7	382.7	202.0
0 1	A-OB	117.8	88.06	121.4	90.52	129.9	96.02	151.7	107.5	212.2	133.7	382.7	202.0
1 0	A-OB	117.8	88.06	121.4	90.52	129.9	96.02	151.7	107.5	212.2	133.7	382.7	202.0
1 1	A-OB	117.8	88.06	121.4	90.52	129.9	96.02	151.7	107.5	212.2	133.7	382.7	202.0
S0 A B C	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0 1	S1-OB	74.91	57.56	78.32	59.91	86.61	65.16	108.5	76.32	169.1	102.2	339.6	170.5
0 0 1 1	S1-OB	74.91	57.56	78.32	59.91	86.61	65.16	108.5	76.32	169.1	102.2	339.6	170.5
0 1 0 0	S1-OB	83.81	88.92	87.11	91.37	95.24	96.82	117.1	108.3	177.8	134.4	348.3	202.8
0 1 1 0	S1-OB	83.81	88.92	87.11	91.37	95.24	96.82	117.1	108.3	177.8	134.4	348.3	202.8
1 0 0 1	S1-OB	74.84	57.56	78.25	59.91	86.54	65.16	108.4	76.32	169.1	102.2	339.6	170.5
1 0 1 0	S1-OB	83.81	88.95	87.11	91.41	95.24	96.85	117.1	108.3	177.8	134.4	348.2	202.9
1 1 0 1	S1-OB	74.84	57.56	78.25	59.91	86.55	65.16	108.4	76.32	169.1	102.2	339.6	170.5
1 1 1 0	S1-OB	83.81	88.95	87.11	91.41	95.24	96.85	117.1	108.3	177.8	134.4	348.2	202.9
A B C	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 1 0	S0-OB	107.7	85.42	111.3	87.90	119.8	93.37	141.6	104.9	202.1	131.0	372.6	199.4
0 1 1	S0-OB	107.7	85.42	111.3	87.90	119.8	93.37	141.6	104.9	202.1	131.0	372.6	199.4
1 0 0	S0-OB	119.1	120.2	122.7	122.6	131.2	128.1	153.0	139.6	213.5	165.8	384.0	234.1
1 0 1	S0-OB	119.1	120.2	122.7	122.6	131.2	128.1	153.0	139.6	213.5	165.8	384.0	234.1
S0 A B	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0	C-OB	84.89	61.20	88.19	63.55	96.35	68.82	118.1	79.96	178.9	105.8	349.3	174.2
0 0 1	C-OB	84.89	61.20	88.19	63.55	96.35	68.82	118.1	79.96	178.9	105.8	349.3	174.2
0 1 0	C-OB	84.90	61.20	88.20	63.55	96.36	68.82	118.1	79.96	178.9	105.8	349.3	174.2
0 1 1	C-OB	84.90	61.20	88.20	63.55	96.36	68.82	118.1	79.96	178.9	105.8	349.3	174.2
1 0 0	C-OB	84.89	61.20	88.19	63.55	96.35	68.82	118.1	79.96	178.9	105.8	349.3	174.2
1 0 1	C-OB	84.90	61.20	88.20	63.55	96.36	68.82	118.1	79.96	178.9	105.8	349.3	174.2
1 1 0	C-OB	84.89	61.20	88.19	63.55	96.35	68.82	118.1	79.96	178.9	105.8	349.3	174.2
1 1 1	C-OB	84.90	61.20	88.20	63.55	96.36	68.82	118.1	79.96	178.9	105.8	349.3	174.2
A C	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0	B-OB	120.2	87.71	123.8	90.17	132.3	95.66	154.0	107.2	214.6	133.3	385.1	201.7
0 1	B-OB	120.2	87.71	123.8	90.18	132.3	95.66	154.0	107.2	214.6	133.3	385.1	201.7
1 0	B-OB	120.2	87.71	123.8	90.17	132.3	95.65	154.0	107.2	214.6	133.3	385.1	201.7
1 1	B-OB	120.2	87.71	123.8	90.17	132.3	95.65	154.1	107.2	214.6	133.3	385.1	201.7

Version : MXL3X3

Cell Unit = 24

State	Output Load													
B C	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 0	A-OB	118.6	88.23	121.4	90.24	128.6	95.15	147.2	106.2	202.0	131.4	367.0	198.0	
0 1	A-OB	118.6	88.23	121.4	90.24	128.6	95.15	147.2	106.2	202.0	131.4	367.0	198.0	
1 0	A-OB	118.6	88.23	121.4	90.24	128.6	95.15	147.2	106.2	202.0	131.4	367.0	198.0	
1 1	A-OB	118.6	88.24	121.4	90.24	128.6	95.16	147.2	106.2	202.0	131.4	367.0	198.0	
S0 A B C	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 0 0 1	S1-OB	73.19	57.69	75.87	59.63	82.80	64.39	101.5	75.14	156.5	99.97	321.6	166.7	
0 0 1 1	S1-OB	73.19	57.69	75.87	59.62	82.81	64.39	101.5	75.14	156.5	99.97	321.6	166.7	
0 1 0 0	S1-OB	84.79	91.37	87.40	93.39	94.18	98.25	112.9	109.2	167.8	134.2	332.9	200.9	
0 1 1 0	S1-OB	84.80	91.37	87.40	93.39	94.18	98.25	112.9	109.2	167.8	134.2	332.9	200.9	
1 0 0 1	S1-OB	73.15	57.69	75.83	59.62	82.76	64.39	101.4	75.14	156.5	99.97	321.5	166.7	
1 0 1 0	S1-OB	84.79	91.41	87.40	93.44	94.18	98.29	112.9	109.2	167.8	134.2	332.9	201.0	
1 1 0 1	S1-OB	73.15	57.69	75.83	59.62	82.77	64.39	101.4	75.14	156.5	99.97	321.5	166.7	
1 1 1 0	S1-OB	84.79	91.41	87.40	93.44	94.18	98.29	112.9	109.2	167.8	134.2	332.9	201.0	
A B C	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 1 0	S0-OB	107.9	84.84	110.8	86.84	117.9	91.76	136.5	102.8	191.4	127.9	356.3	194.6	
0 1 1	S0-OB	108.0	84.84	110.8	86.84	117.9	91.76	136.5	102.8	191.4	127.9	356.3	194.6	
1 0 0	S0-OB	120.8	120.1	123.6	122.1	130.7	127.0	149.4	138.0	204.2	163.0	369.1	229.8	
1 0 1	S0-OB	120.8	120.1	123.6	122.1	130.8	127.0	149.4	138.0	204.2	163.1	369.1	229.8	
S0 A B	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 0 0	C-OB	84.20	61.88	86.81	63.83	93.62	68.58	112.3	79.29	167.2	104.1	332.3	170.8	
0 0 1	C-OB	84.20	61.88	86.81	63.83	93.62	68.58	112.3	79.29	167.2	104.1	332.3	170.8	
0 1 0	C-OB	84.21	61.88	86.82	63.83	93.63	68.58	112.3	79.29	167.2	104.1	332.3	170.8	
0 1 1	C-OB	84.21	61.88	86.82	63.83	93.63	68.58	112.3	79.29	167.2	104.1	332.3	170.8	
1 0 0	C-OB	84.20	61.88	86.81	63.83	93.62	68.58	112.3	79.29	167.2	104.1	332.3	170.8	
1 0 1	C-OB	84.21	61.88	86.82	63.83	93.63	68.58	112.3	79.29	167.2	104.1	332.3	170.8	
1 1 0	C-OB	84.20	61.88	86.81	63.83	93.62	68.58	112.3	79.29	167.2	104.1	332.3	170.8	
1 1 1	C-OB	84.21	61.88	86.82	63.83	93.63	68.58	112.3	79.29	167.2	104.1	332.3	170.8	
A C	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 0	B-OB	120.7	87.38	123.5	89.37	130.7	94.29	149.3	105.3	204.0	130.4	369.0	197.1	
0 1	B-OB	120.7	87.39	123.5	89.38	130.7	94.29	149.3	105.3	204.1	130.4	369.0	197.1	
1 0	B-OB	120.7	87.38	123.5	89.37	130.7	94.29	149.3	105.3	204.1	130.4	369.0	197.1	
1 1	B-OB	120.7	87.38	123.5	89.37	130.7	94.29	149.3	105.3	204.1	130.4	369.0	197.1	

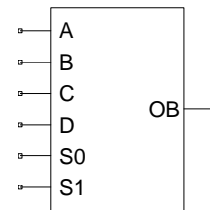
Group Name : MXL4

Symbol

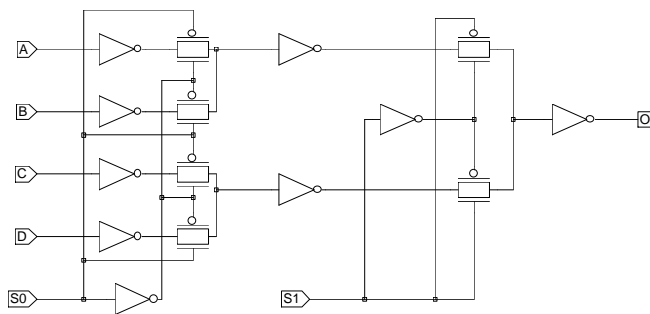
Function : 4 Bit MUX with Inverted Output

Truth Table

S1	S0	A	B	C	D	OB
0	0	0	X	X	X	0
0	0	1	X	X	X	1
0	1	X	0	X	X	0
0	1	X	1	X	X	1
1	0	X	X	0	X	0
1	0	X	X	1	X	1
1	1	X	X	X	0	0
1	1	X	X	X	1	1



Schematic



Pin Order OB S0 S1 A B C D

**Input Capacitance (ff) & Maximum Loading (ff) & Power Consumption (nW/MHz)**

Version	Input Capacitance						Maximum Loading	Power Consumption
	S0	S1	A	B	C	D	OB	OB
MXL4XLP	3.146	1.849	1.116	1.144	1.085	1.098	147.7	5.858
MXL4X1	3.724	2.249	1.530	1.560	1.526	1.522	212.9	7.686
MXL4X1P	4.196	2.432	1.983	1.927	2.027	1.898	295.8	9.897
MXL4X2	4.189	2.599	1.866	1.788	1.884	1.899	426.3	12.31
MXL4X3	4.618	2.939	2.232	2.154	2.258	2.240	638.8	15.56

## AC Characteristics ( Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ps)

Version : MXL4XLP

Cell Unit = 20

State	Output Load													
	B C D	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0	A-OB	134.3	85.96	141.5	90.52	158.1	99.50	199.2	117.5	302.0	157.9	560.1	257.4	
0 0 1	A-OB	134.3	85.96	141.5	90.52	158.1	99.51	199.2	117.5	302.0	157.9	560.1	257.4	
0 1 0	A-OB	134.3	85.95	141.5	90.51	158.1	99.50	199.2	117.5	302.0	157.9	560.1	257.3	
0 1 1	A-OB	134.3	85.95	141.5	90.51	158.1	99.50	199.2	117.5	302.0	157.9	560.1	257.3	
1 0 0	A-OB	134.3	85.96	141.5	90.52	158.1	99.50	199.2	117.5	302.0	157.9	560.1	257.4	
1 0 1	A-OB	134.3	85.96	141.5	90.52	158.1	99.51	199.2	117.5	302.0	157.9	560.1	257.4	
1 1 0	A-OB	134.3	85.95	141.5	90.51	158.1	99.49	199.2	117.5	302.0	157.9	560.1	257.3	
1 1 1	A-OB	134.3	85.95	141.5	90.51	158.1	99.50	199.2	117.5	302.0	157.9	560.1	257.3	
S0 A B C D	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 0 0 1 0	S1-OB	76.83	60.09	83.84	64.62	100.5	73.51	141.7	91.56	244.7	131.8	502.7	231.2	
0 0 0 1 1	S1-OB	76.83	60.09	83.84	64.62	100.5	73.51	141.7	91.56	244.7	131.8	502.7	231.2	
0 0 1 1 0	S1-OB	76.83	60.09	83.84	64.62	100.5	73.51	141.7	91.56	244.7	131.8	502.7	231.2	
0 0 1 1 1	S1-OB	76.83	60.09	83.84	64.62	100.5	73.51	141.7	91.56	244.7	131.8	502.7	231.2	
0 1 0 0 0	S1-OB	71.69	85.29	78.76	89.82	95.38	98.70	136.6	116.7	239.5	157.2	497.5	256.5	
0 1 0 0 1	S1-OB	71.70	85.29	78.76	89.82	95.38	98.70	136.6	116.7	239.5	157.2	497.5	256.5	
0 1 1 0 0	S1-OB	71.69	85.29	78.76	89.82	95.38	98.70	136.6	116.7	239.5	157.2	497.5	256.5	
0 1 1 0 1	S1-OB	71.70	85.29	78.76	89.82	95.38	98.70	136.6	116.7	239.5	157.2	497.5	256.5	
1 0 0 0 1	S1-OB	76.82	60.12	83.83	64.65	100.5	73.54	141.7	91.59	244.7	131.8	502.7	231.3	
1 0 0 1 1	S1-OB	76.82	60.11	83.83	64.65	100.5	73.54	141.7	91.59	244.7	131.8	502.7	231.3	
1 0 1 0 0	S1-OB	71.54	85.32	78.61	89.85	95.26	98.73	136.5	116.7	239.4	157.2	497.4	256.6	
1 0 1 1 0	S1-OB	71.55	85.32	78.61	89.85	95.26	98.73	136.5	116.7	239.4	157.2	497.4	256.6	
1 1 0 0 1	S1-OB	76.82	60.11	83.83	64.65	100.5	73.54	141.7	91.59	244.7	131.8	502.7	231.3	
1 1 0 1 1	S1-OB	76.82	60.11	83.83	64.64	100.5	73.54	141.7	91.59	244.7	131.8	502.7	231.3	
1 1 1 0 0	S1-OB	71.54	85.32	78.61	89.85	95.26	98.73	136.5	116.7	239.4	157.2	497.4	256.6	
1 1 1 1 0	S1-OB	71.55	85.32	78.61	89.85	95.26	98.73	136.5	116.7	239.4	157.2	497.4	256.6	
S1 A B C D	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 0 1 0 0	S0-OB	123.2	84.50	130.4	89.04	146.9	97.95	188.1	116.0	290.9	156.4	549.0	255.8	
0 0 1 0 1	S0-OB	122.9	84.68	130.1	89.24	146.7	98.13	187.8	116.1	290.6	156.6	548.7	256.0	
0 0 1 1 0	S0-OB	123.7	84.38	130.9	88.94	147.5	97.92	188.7	116.0	291.4	156.3	549.5	255.7	
0 0 1 1 1	S0-OB	123.3	84.45	130.4	89.02	147.0	97.96	188.2	116.0	291.0	156.3	549.0	255.7	
0 1 0 0 0	S0-OB	141.8	133.5	149.0	138.1	165.6	147.0	206.6	165.0	309.5	205.5	567.6	304.9	
0 1 0 0 1	S0-OB	139.5	129.5	146.6	134.0	163.2	142.9	204.3	160.9	307.1	201.4	565.2	300.8	
0 1 0 1 0	S0-OB	143.1	136.3	150.3	140.9	166.9	149.8	207.9	167.8	310.8	208.2	568.8	307.6	
0 1 0 1 1	S0-OB	142.1	133.3	149.2	137.9	165.9	146.8	206.8	164.8	309.8	205.3	567.8	304.7	
1 0 0 0 1	S0-OB	117.7	80.61	124.9	85.16	141.5	94.09	182.7	112.1	285.4	152.5	543.5	251.9	
1 0 0 1 0	S0-OB	136.2	129.8	143.4	134.4	160.0	143.3	201.1	161.2	303.9	201.7	562.0	301.1	

1 0 1 0 1	S0-OB	117.5	80.69	124.7	85.22	141.2	94.08	182.4	112.0	285.2	152.5	543.3	251.9
1 0 1 1 0	S0-OB	134.0	126.1	141.2	130.6	157.7	139.5	198.9	157.5	301.7	197.9	559.8	297.3
1 1 0 0 1	S0-OB	118.0	80.60	125.2	85.15	141.8	94.06	183.0	112.1	285.8	152.4	543.8	251.8
1 1 0 1 0	S0-OB	137.5	132.2	144.7	136.7	161.3	145.7	202.5	163.6	305.2	204.1	563.2	303.5
1 1 1 0 1	S0-OB	117.8	80.64	124.9	85.19	141.5	94.08	182.7	112.0	285.5	152.6	543.5	251.9
1 1 1 1 0	S0-OB	136.6	129.6	143.7	134.1	160.3	143.0	201.3	161.0	304.2	201.4	562.3	300.8
A B D	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl
0 0 0	C-OB	128.5	82.18	135.6	86.71	152.2	95.69	193.3	113.6	296.1	154.1	554.2	253.5
0 0 1	C-OB	128.5	82.18	135.6	86.71	152.2	95.69	193.3	113.6	296.1	154.1	554.2	253.5
0 1 0	C-OB	128.5	82.19	135.6	86.71	152.2	95.69	193.3	113.6	296.1	154.1	554.2	253.5
0 1 1	C-OB	128.5	82.19	135.6	86.71	152.2	95.69	193.3	113.6	296.1	154.1	554.2	253.5
1 0 0	C-OB	128.5	82.17	135.6	86.70	152.2	95.67	193.3	113.6	296.1	154.1	554.2	253.4
1 0 1	C-OB	128.5	82.17	135.6	86.69	152.2	95.67	193.3	113.6	296.1	154.1	554.2	253.4
1 1 0	C-OB	128.5	82.17	135.6	86.70	152.2	95.68	193.3	113.6	296.1	154.1	554.2	253.4
1 1 1	C-OB	128.5	82.17	135.6	86.70	152.2	95.68	193.3	113.6	296.1	154.1	554.2	253.4
A C D	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl
0 0 0	B-OB	134.7	85.20	141.9	89.74	158.5	98.75	199.6	116.7	302.4	157.2	560.5	256.6
0 0 1	B-OB	134.8	85.20	141.9	89.74	158.5	98.75	199.6	116.7	302.4	157.2	560.5	256.6
0 1 0	B-OB	134.7	85.20	141.9	89.74	158.5	98.75	199.6	116.7	302.4	157.2	560.5	256.6
0 1 1	B-OB	134.8	85.20	141.9	89.74	158.5	98.75	199.6	116.7	302.4	157.2	560.5	256.6
1 0 0	B-OB	134.7	85.19	141.9	89.74	158.5	98.75	199.6	116.7	302.4	157.2	560.5	256.6
1 0 1	B-OB	134.8	85.19	141.9	89.74	158.5	98.75	199.6	116.7	302.4	157.2	560.5	256.6
1 1 0	B-OB	134.7	85.19	141.9	89.74	158.5	98.75	199.6	116.7	302.4	157.2	560.5	256.6
1 1 1	B-OB	134.8	85.19	141.9	89.74	158.5	98.75	199.6	116.7	302.4	157.2	560.5	256.6
A B C	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl
0 0 0	D-OB	129.1	81.55	136.2	86.09	152.8	94.99	193.9	112.9	296.8	153.5	554.9	252.8
0 0 1	D-OB	129.1	81.55	136.2	86.09	152.8	94.98	193.9	112.9	296.8	153.5	554.9	252.8
0 1 0	D-OB	129.1	81.55	136.3	86.09	152.8	94.98	193.9	112.9	296.8	153.5	554.9	252.8
0 1 1	D-OB	129.1	81.55	136.3	86.09	152.8	94.98	193.9	112.9	296.8	153.5	554.9	252.8
1 0 0	D-OB	129.1	81.55	136.2	86.09	152.8	94.99	193.9	112.9	296.8	153.5	554.9	252.8
1 0 1	D-OB	129.1	81.55	136.2	86.09	152.8	94.98	193.9	112.9	296.8	153.5	554.9	252.8
1 1 0	D-OB	129.1	81.55	136.3	86.09	152.8	94.98	193.9	112.9	296.8	153.5	554.9	252.8
1 1 1	D-OB	129.1	81.55	136.3	86.09	152.8	94.98	193.9	112.9	296.8	153.5	554.9	252.8

Version : MXL4X1

Cell Unit = 21

State		Output Load											
B C D	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl
0 0 0	A-OB	113.8	79.25	119.0	82.65	130.6	89.50	159.1	102.9	230.3	132.5	408.7	203.9
0 0 1	A-OB	113.8	79.25	119.0	82.65	130.6	89.51	159.1	102.9	230.3	132.5	408.7	203.9
0 1 0	A-OB	113.9	79.23	119.0	82.62	130.6	89.48	159.1	102.9	230.3	132.5	408.7	203.8
0 1 1	A-OB	113.9	79.23	119.0	82.63	130.6	89.49	159.1	102.9	230.3	132.5	408.7	203.8
1 0 0	A-OB	113.8	79.25	119.0	82.65	130.6	89.51	159.1	102.9	230.3	132.5	408.7	203.9
1 0 1	A-OB	113.8	79.26	119.0	82.65	130.6	89.51	159.1	102.9	230.3	132.5	408.7	203.9
1 1 0	A-OB	113.9	79.23	119.0	82.63	130.6	89.48	159.1	102.9	230.3	132.5	408.7	203.8
1 1 1	A-OB	113.9	79.24	119.0	82.63	130.6	89.49	159.1	102.9	230.3	132.5	408.7	203.8
S0 A B C D	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl
0 0 0 1 0	S1-OB	67.32	53.68	72.27	57.04	83.91	63.73	112.6	77.21	183.8	106.7	362.2	178.0
0 0 0 1 1	S1-OB	67.32	53.68	72.27	57.04	83.91	63.73	112.6	77.21	183.8	106.7	362.2	178.0
0 0 1 1 0	S1-OB	67.33	53.68	72.27	57.03	83.91	63.73	112.6	77.21	183.8	106.7	362.3	178.0
0 0 1 1 1	S1-OB	67.33	53.68	72.27	57.03	83.91	63.73	112.6	77.21	183.8	106.7	362.3	178.0
0 1 0 0 0	S1-OB	66.99	83.25	71.97	86.62	83.62	93.42	112.2	106.8	183.4	136.3	361.8	207.7
0 1 0 0 1	S1-OB	66.99	83.25	71.97	86.62	83.62	93.42	112.2	106.8	183.4	136.3	361.8	207.7
0 1 1 0 0	S1-OB	66.99	83.25	71.97	86.62	83.62	93.42	112.2	106.8	183.4	136.3	361.8	207.7
0 1 1 0 1	S1-OB	66.99	83.25	71.97	86.62	83.62	93.42	112.2	106.8	183.4	136.3	361.8	207.7
1 0 0 0 1	S1-OB	67.30	53.71	72.25	57.06	83.88	63.76	112.5	77.24	183.8	106.7	362.2	178.1
1 0 0 1 1	S1-OB	67.30	53.71	72.25	57.06	83.88	63.76	112.5	77.24	183.8	106.7	362.2	178.1
1 0 1 0 0	S1-OB	66.82	83.28	71.81	86.65	83.45	93.45	112.1	106.8	183.2	136.4	361.7	207.8
1 0 1 1 0	S1-OB	66.83	83.28	71.81	86.65	83.45	93.45	112.1	106.8	183.2	136.4	361.7	207.8
1 1 0 0 1	S1-OB	67.30	53.70	72.25	57.06	83.88	63.76	112.5	77.24	183.8	106.7	362.2	178.1
1 1 0 1 1	S1-OB	67.30	53.70	72.25	57.06	83.88	63.76	112.5	77.24	183.8	106.7	362.2	178.1
1 1 1 0 0	S1-OB	66.83	83.28	71.81	86.65	83.45	93.45	112.1	106.8	183.2	136.4	361.7	207.8
1 1 1 1 0	S1-OB	66.83	83.28	71.81	86.65	83.45	93.45	112.1	106.8	183.2	136.4	361.7	207.8
S1 A B C D	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl
0 0 1 0 0	S0-OB	103.8	76.60	109.0	80.01	120.6	86.82	149.1	100.3	220.3	129.8	398.7	201.2
0 0 1 0 1	S0-OB	103.6	76.84	108.7	80.24	120.3	87.04	148.8	100.5	220.0	130.0	398.5	201.4
0 0 1 1 0	S0-OB	104.4	76.56	109.5	79.98	121.0	86.73	149.5	100.3	220.8	129.7	399.3	201.1
0 0 1 1 1	S0-OB	103.9	76.54	109.0	79.93	120.6	86.73	149.2	100.2	220.3	129.7	398.7	201.2
0 1 0 0 0	S0-OB	127.2	135.6	132.4	138.9	144.0	145.7	172.5	159.2	243.7	188.7	422.1	260.1
0 1 0 0 1	S0-OB	123.4	128.0	128.6	131.4	140.2	138.2	168.7	151.7	239.9	181.2	418.3	252.6
0 1 0 1 0	S0-OB	129.1	140.0	134.2	143.4	145.8	150.2	174.4	163.7	245.5	193.2	423.9	264.6
0 1 0 1 1	S0-OB	127.5	134.7	132.6	138.1	144.3	144.9	172.7	158.4	243.9	187.9	422.4	259.3
1 0 0 0 1	S0-OB	98.94	72.49	104.0	75.84	115.6	82.56	144.1	96.05	215.3	125.6	393.8	196.9
1 0 0 1 0	S0-OB	122.6	131.6	127.7	135.0	139.3	141.7	167.8	155.2	239.0	184.7	417.4	256.1
1 0 1 0 1	S0-OB	98.94	72.45	104.0	75.82	115.6	82.62	144.1	96.02	215.4	125.6	393.8	196.9

1 0 1 1 0	S0-OB	119.0 124.7	124.1 128.1	135.7 134.8	164.2 148.3	235.4 177.8	413.9 249.2						
1 1 0 0 1	S0-OB	98.99 72.50	104.0 75.89	115.6 82.64	144.1 96.12	215.4 125.6	393.8 197.0						
1 1 0 1 0	S0-OB	124.3 135.4	129.4 138.8	141.0 145.5	169.4 159.0	240.7 188.5	419.1 259.9						
1 1 1 0 1	S0-OB	98.97 72.40	104.0 75.78	115.6 82.62	144.1 95.97	215.4 125.5	393.8 196.9						
1 1 1 1 0	S0-OB	122.8 130.7	127.9 134.1	139.5 140.9	168.0 154.3	239.2 183.8	417.6 255.2						
A B D	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0	C-OB	109.0 75.29	114.1 78.66	125.7 85.45	154.2 98.86	225.4 128.4	403.8 199.8						
0 0 1	C-OB	109.0 75.29	114.1 78.66	125.7 85.45	154.2 98.86	225.4 128.4	403.8 199.8						
0 1 0	C-OB	109.0 75.29	114.1 78.66	125.7 85.45	154.2 98.86	225.4 128.4	403.8 199.8						
0 1 1	C-OB	109.0 75.30	114.1 78.67	125.7 85.45	154.2 98.87	225.4 128.4	403.8 199.8						
1 0 0	C-OB	109.0 75.26	114.1 78.63	125.7 85.42	154.2 98.83	225.4 128.4	403.9 199.8						
1 0 1	C-OB	109.0 75.26	114.1 78.63	125.7 85.42	154.2 98.84	225.4 128.4	403.9 199.8						
1 1 0	C-OB	109.0 75.27	114.1 78.64	125.7 85.42	154.2 98.84	225.4 128.4	403.9 199.8						
1 1 1	C-OB	109.0 75.27	114.1 78.64	125.7 85.43	154.2 98.84	225.4 128.4	403.9 199.8						
A C D	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0	B-OB	114.7 78.18	119.9 81.56	131.5 88.39	160.0 101.8	231.1 131.4	409.6 202.7						
0 0 1	B-OB	114.7 78.19	119.9 81.57	131.5 88.39	160.0 101.8	231.2 131.4	409.6 202.7						
0 1 0	B-OB	114.7 78.18	119.9 81.56	131.5 88.39	160.0 101.8	231.1 131.4	409.6 202.7						
0 1 1	B-OB	114.7 78.19	119.9 81.57	131.5 88.39	160.0 101.8	231.2 131.4	409.6 202.7						
1 0 0	B-OB	114.7 78.18	119.9 81.56	131.5 88.38	160.0 101.8	231.1 131.4	409.6 202.7						
1 0 1	B-OB	114.7 78.18	119.9 81.57	131.5 88.39	160.0 101.8	231.2 131.4	409.6 202.7						
1 1 0	B-OB	114.7 78.18	119.9 81.56	131.5 88.38	160.0 101.8	231.1 131.4	409.6 202.7						
1 1 1	B-OB	114.7 78.18	119.9 81.57	131.5 88.39	160.0 101.8	231.2 131.4	409.6 202.7						
A B C	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0	D-OB	110.0 74.34	115.1 77.70	126.7 84.42	155.2 97.88	226.4 127.3	404.8 198.7						
0 0 1	D-OB	110.0 74.34	115.1 77.70	126.7 84.42	155.2 97.88	226.4 127.3	404.8 198.7						
0 1 0	D-OB	110.0 74.34	115.1 77.70	126.7 84.42	155.2 97.88	226.4 127.3	404.8 198.7						
0 1 1	D-OB	110.0 74.33	115.1 77.70	126.7 84.42	155.2 97.88	226.4 127.3	404.8 198.7						
1 0 0	D-OB	110.0 74.34	115.1 77.70	126.7 84.42	155.2 97.88	226.4 127.3	404.8 198.7						
1 0 1	D-OB	110.0 74.34	115.1 77.70	126.7 84.42	155.2 97.88	226.4 127.3	404.8 198.7						
1 1 0	D-OB	110.0 74.34	115.1 77.70	126.7 84.42	155.2 97.88	226.4 127.3	404.8 198.7						
1 1 1	D-OB	110.0 74.33	115.1 77.70	126.7 84.42	155.2 97.88	226.4 127.3	404.8 198.7						



Version : MXL4X1P

Cell Unit = 22

State		Output Load											
B C D	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl
0 0 0	A-OB	105.5	82.46	109.4	85.18	118.1	90.62	138.9	101.0	190.5	122.7	319.5	172.8
0 0 1	A-OB	105.5	82.47	109.4	85.19	118.1	90.63	138.9	101.0	190.5	122.7	319.5	172.8
0 1 0	A-OB	105.5	82.43	109.5	85.15	118.1	90.59	138.9	101.0	190.5	122.6	319.5	172.8
0 1 1	A-OB	105.5	82.44	109.4	85.16	118.1	90.60	138.9	101.0	190.5	122.7	319.5	172.8
1 0 0	A-OB	105.5	82.47	109.4	85.19	118.1	90.63	138.9	101.0	190.5	122.7	319.5	172.8
1 0 1	A-OB	105.5	82.48	109.4	85.20	118.1	90.64	138.9	101.0	190.5	122.7	319.5	172.8
1 1 0	A-OB	105.5	82.44	109.5	85.16	118.1	90.60	138.9	101.0	190.5	122.7	319.5	172.8
1 1 1	A-OB	105.5	82.45	109.5	85.17	118.1	90.61	138.9	101.0	190.5	122.7	319.5	172.8
S0 A B C D	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl
0 0 0 1 0	S1-OB	67.97	54.03	71.78	56.73	80.41	62.14	101.2	72.47	152.9	94.02	282.0	144.1
0 0 0 1 1	S1-OB	67.97	54.03	71.78	56.73	80.41	62.13	101.2	72.47	152.9	94.02	282.0	144.1
0 0 1 1 0	S1-OB	67.97	54.03	71.78	56.73	80.41	62.13	101.2	72.47	152.9	94.01	282.0	144.1
0 0 1 1 1	S1-OB	67.97	54.03	71.78	56.73	80.41	62.13	101.2	72.47	152.9	94.01	282.0	144.1
0 1 0 0 0	S1-OB	65.51	83.93	69.34	86.62	77.99	92.00	98.76	102.4	150.4	124.0	279.5	174.2
0 1 0 0 1	S1-OB	65.51	83.93	69.34	86.62	77.99	92.00	98.76	102.4	150.4	124.0	279.5	174.2
0 1 1 0 0	S1-OB	65.51	83.93	69.34	86.62	77.99	92.00	98.76	102.4	150.4	124.0	279.5	174.2
0 1 1 0 1	S1-OB	65.51	83.93	69.34	86.62	77.99	92.00	98.76	102.4	150.4	124.0	279.5	174.2
1 0 0 0 1	S1-OB	67.92	54.05	71.73	56.75	80.36	62.16	101.2	72.49	152.9	94.04	281.9	144.1
1 0 0 1 1	S1-OB	67.92	54.05	71.73	56.75	80.36	62.16	101.2	72.49	152.9	94.04	281.9	144.1
1 0 1 0 0	S1-OB	65.42	83.96	69.25	86.65	77.89	92.03	98.66	102.5	150.3	124.1	279.4	174.2
1 0 1 1 0	S1-OB	65.42	83.96	69.25	86.65	77.89	92.03	98.67	102.5	150.3	124.1	279.4	174.2
1 1 0 0 1	S1-OB	67.92	54.05	71.73	56.75	80.36	62.16	101.2	72.49	152.9	94.04	281.9	144.1
1 1 0 1 1	S1-OB	67.92	54.05	71.73	56.75	80.36	62.16	101.2	72.49	152.9	94.04	281.9	144.1
1 1 1 0 0	S1-OB	65.42	83.96	69.25	86.65	77.89	92.03	98.66	102.5	150.3	124.1	279.4	174.2
1 1 1 1 0	S1-OB	65.42	83.96	69.25	86.65	77.89	92.03	98.67	102.5	150.3	124.1	279.4	174.2
S1 A B C D	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl
0 0 1 0 0	S0-OB	96.55	79.06	100.5	81.78	109.2	87.22	129.9	97.67	181.5	119.3	310.6	169.5
0 0 1 0 1	S0-OB	96.28	79.40	100.3	82.12	109.0	87.54	129.7	98.01	181.2	119.7	310.3	169.8
0 0 1 1 0	S0-OB	97.00	79.00	101.0	81.73	109.7	87.17	130.4	97.58	182.0	119.2	311.0	169.3
0 0 1 1 1	S0-OB	96.57	79.05	100.5	81.76	109.2	87.18	129.9	97.68	181.5	119.4	310.6	169.5
0 1 0 0 0	S0-OB	122.7	145.4	126.7	148.1	135.4	153.6	156.2	164.0	207.7	185.6	336.7	235.7
0 1 0 0 1	S0-OB	118.2	135.2	122.2	138.0	130.9	143.4	151.6	153.8	203.1	175.5	332.2	225.5
0 1 0 1 0	S0-OB	124.6	150.4	128.6	153.1	137.3	158.6	157.9	169.0	209.5	190.7	338.6	240.8
0 1 0 1 1	S0-OB	122.6	143.6	126.6	146.4	135.3	151.8	155.9	162.2	207.5	183.9	336.6	234.0
1 0 0 0 1	S0-OB	96.71	77.49	100.7	80.20	109.3	85.61	130.1	96.11	181.7	117.8	310.7	167.9
1 0 0 1 0	S0-OB	122.9	144.1	126.9	146.8	135.6	152.2	156.4	162.6	207.8	184.3	336.9	234.4
1 0 1 0 1	S0-OB	96.69	77.55	100.7	80.29	109.4	85.70	130.1	96.14	181.6	117.7	310.6	167.9

1 0 1 1 0	S0-OB	118.5	134.1	122.5	136.8	131.2	142.2	151.9	152.7	203.4	174.4	332.5	224.6
1 1 0 0 1	S0-OB	96.75	77.52	100.7	80.23	109.4	85.66	130.1	96.12	181.7	117.8	310.8	168.0
1 1 0 1 0	S0-OB	124.9	148.8	128.9	151.6	137.6	157.0	158.2	167.5	209.9	189.2	338.9	239.4
1 1 1 0 1	S0-OB	96.72	77.46	100.7	80.19	109.4	85.60	130.1	96.05	181.7	117.6	310.7	167.8
1 1 1 1 0	S0-OB	122.8	142.3	126.8	145.0	135.5	150.5	156.1	160.9	207.7	182.5	336.8	232.6
A B D	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0	C-OB	105.6	81.03	109.6	83.74	118.3	89.18	139.0	99.63	190.6	121.3	319.6	171.4
0 0 1	C-OB	105.6	81.04	109.6	83.75	118.3	89.18	139.0	99.64	190.6	121.3	319.6	171.5
0 1 0	C-OB	105.6	81.04	109.6	83.75	118.3	89.19	139.0	99.64	190.6	121.3	319.6	171.5
0 1 1	C-OB	105.6	81.04	109.6	83.76	118.3	89.19	139.0	99.64	190.6	121.3	319.6	171.5
1 0 0	C-OB	105.6	80.99	109.6	83.71	118.3	89.14	139.0	99.60	190.6	121.2	319.6	171.4
1 0 1	C-OB	105.6	81.00	109.6	83.72	118.3	89.15	139.0	99.60	190.6	121.3	319.6	171.4
1 1 0	C-OB	105.6	81.00	109.6	83.72	118.3	89.15	139.0	99.61	190.6	121.3	319.6	171.4
1 1 1	C-OB	105.6	81.01	109.6	83.72	118.3	89.16	139.0	99.61	190.6	121.3	319.6	171.4
A C D	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0	B-OB	107.0	81.36	111.0	84.07	119.7	89.50	140.4	99.96	192.0	121.6	321.0	171.8
0 0 1	B-OB	107.0	81.37	111.0	84.08	119.7	89.51	140.4	99.96	192.0	121.6	321.1	171.8
0 1 0	B-OB	107.0	81.36	111.0	84.07	119.7	89.50	140.4	99.96	192.0	121.6	321.0	171.8
0 1 1	B-OB	107.0	81.37	111.0	84.08	119.7	89.51	140.4	99.96	192.0	121.6	321.1	171.8
1 0 0	B-OB	107.0	81.36	111.0	84.07	119.7	89.50	140.4	99.96	192.0	121.6	321.0	171.8
1 0 1	B-OB	107.0	81.37	111.0	84.08	119.7	89.51	140.4	99.96	192.0	121.6	321.1	171.8
1 1 0	B-OB	107.0	81.36	111.0	84.07	119.7	89.50	140.4	99.96	192.0	121.6	321.0	171.8
1 1 1	B-OB	107.0	81.37	111.0	84.08	119.7	89.51	140.4	99.96	192.0	121.6	321.1	171.8
A B C	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0	D-OB	107.0	79.84	111.0	82.55	119.7	87.95	140.4	98.44	192.0	120.1	321.0	170.2
0 0 1	D-OB	107.0	79.84	111.0	82.54	119.7	87.94	140.4	98.44	192.0	120.1	321.0	170.2
0 1 0	D-OB	107.0	79.84	111.0	82.54	119.7	87.95	140.4	98.44	192.0	120.1	321.0	170.2
0 1 1	D-OB	107.0	79.84	111.0	82.54	119.7	87.94	140.4	98.44	192.0	120.1	321.0	170.2
1 0 0	D-OB	107.0	79.84	111.0	82.55	119.7	87.95	140.4	98.44	192.0	120.1	321.0	170.2
1 0 1	D-OB	107.0	79.84	111.0	82.54	119.7	87.94	140.4	98.44	192.0	120.1	321.0	170.2
1 1 0	D-OB	107.0	79.84	111.0	82.54	119.7	87.95	140.4	98.44	192.0	120.1	321.0	170.2
1 1 1	D-OB	107.0	79.84	111.0	82.54	119.7	87.94	140.4	98.44	192.0	120.1	321.0	170.2

Version : MXL4X2

Cell Unit = 31

State		Output Load											
B C D	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0	A-OB	112.7	82.50	116.3	84.93	124.8	90.36	146.5	101.6	207.1	127.7	377.6	196.0
0 0 1	A-OB	112.7	82.50	116.3	84.93	124.8	90.37	146.5	101.6	207.1	127.7	377.6	196.0
0 1 0	A-OB	112.7	82.48	116.3	84.91	124.8	90.35	146.5	101.6	207.1	127.7	377.6	196.0
0 1 1	A-OB	112.7	82.48	116.3	84.91	124.8	90.35	146.5	101.6	207.1	127.7	377.6	196.0
1 0 0	A-OB	112.7	82.50	116.3	84.93	124.8	90.36	146.5	101.6	207.1	127.7	377.6	196.0
1 0 1	A-OB	112.7	82.50	116.3	84.93	124.8	90.37	146.5	101.7	207.1	127.7	377.6	196.0
1 1 0	A-OB	112.7	82.48	116.3	84.91	124.8	90.35	146.5	101.6	207.1	127.7	377.6	196.0
1 1 1	A-OB	112.7	82.49	116.3	84.91	124.8	90.35	146.5	101.6	207.1	127.7	377.6	196.0
S0 A B C D	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0 1 0	S1-OB	70.77	56.14	74.15	58.56	82.39	63.89	104.2	75.18	164.9	101.1	335.4	169.5
0 0 0 1 1	S1-OB	70.77	56.14	74.15	58.56	82.39	63.89	104.2	75.18	164.9	101.1	335.4	169.5
0 0 1 1 0	S1-OB	70.77	56.14	74.15	58.55	82.39	63.89	104.2	75.18	164.9	101.1	335.4	169.5
0 0 1 1 1	S1-OB	70.77	56.14	74.15	58.55	82.39	63.89	104.2	75.18	164.9	101.1	335.4	169.5
0 1 0 0 0	S1-OB	68.69	82.35	72.12	84.75	80.42	90.10	102.1	101.4	162.9	127.4	333.4	195.8
0 1 0 0 1	S1-OB	68.69	82.35	72.12	84.75	80.42	90.10	102.1	101.4	162.9	127.4	333.4	195.8
0 1 1 0 0	S1-OB	68.69	82.35	72.12	84.75	80.42	90.10	102.1	101.4	162.9	127.4	333.4	195.8
0 1 1 0 1	S1-OB	68.69	82.35	72.12	84.75	80.42	90.10	102.1	101.4	162.9	127.4	333.4	195.8
1 0 0 0 1	S1-OB	70.74	56.14	74.12	58.55	82.36	63.90	104.2	75.19	164.9	101.1	335.4	169.5
1 0 0 1 1	S1-OB	70.74	56.14	74.12	58.55	82.36	63.90	104.2	75.18	164.9	101.1	335.4	169.5
1 0 1 0 0	S1-OB	68.52	82.38	71.96	84.78	80.24	90.13	102.0	101.5	162.8	127.4	333.2	195.8
1 0 1 1 0	S1-OB	68.52	82.38	71.96	84.78	80.25	90.13	102.0	101.4	162.8	127.4	333.2	195.8
1 1 0 0 1	S1-OB	70.74	56.14	74.12	58.55	82.36	63.89	104.2	75.18	164.9	101.1	335.4	169.5
1 1 0 1 1	S1-OB	70.74	56.14	74.12	58.55	82.36	63.89	104.2	75.18	164.9	101.1	335.4	169.5
1 1 1 0 0	S1-OB	68.52	82.38	71.96	84.78	80.24	90.13	102.0	101.5	162.8	127.4	333.2	195.8
1 1 1 1 0	S1-OB	68.52	82.38	71.96	84.78	80.25	90.13	102.0	101.4	162.8	127.4	333.2	195.8
S1 A B C D	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 1 0 0	S0-OB	104.0	79.76	107.5	82.19	116.0	87.63	137.8	98.91	198.3	124.9	368.8	193.2
0 0 1 0 1	S0-OB	103.9	80.11	107.4	82.55	115.8	87.96	137.6	99.29	198.2	125.3	368.7	193.7
0 0 1 1 0	S0-OB	104.5	79.61	108.0	82.05	116.5	87.44	138.1	98.77	198.8	124.8	369.3	193.2
0 0 1 1 1	S0-OB	104.0	79.78	107.6	82.19	116.0	87.58	137.8	99.02	198.4	125.0	368.9	193.3
0 1 0 0 0	S0-OB	126.1	134.9	129.6	137.4	138.1	142.8	159.7	154.1	220.4	180.1	390.8	248.5
0 1 0 0 1	S0-OB	122.7	127.9	126.3	130.3	134.7	135.7	156.4	147.1	217.1	173.1	387.5	241.5
0 1 0 1 0	S0-OB	127.8	139.0	131.4	141.4	139.8	146.8	161.6	158.2	222.1	184.2	392.6	252.5
0 1 0 1 1	S0-OB	126.3	134.1	129.9	136.6	138.3	142.0	160.0	153.3	220.7	179.3	391.1	247.7
1 0 0 0 1	S0-OB	101.6	77.15	105.2	79.57	113.5	84.94	135.3	96.33	195.9	122.3	366.4	190.7
1 0 0 1 0	S0-OB	124.3	132.2	127.9	134.6	136.3	140.0	158.0	151.3	218.7	177.3	389.1	245.7
1 0 1 0 1	S0-OB	101.7	77.23	105.2	79.65	113.6	85.05	135.3	96.35	196.0	122.4	366.4	190.7

1 0 1 1 0	S0-OB	121.1	125.5	124.7	127.9	133.1	133.3	154.8	144.6	215.5	170.6	385.9	238.9
1 1 0 0 1	S0-OB	101.6	77.17	105.1	79.58	113.5	84.94	135.2	96.36	195.9	122.4	366.4	190.7
1 1 0 1 0	S0-OB	126.2	135.8	129.8	138.2	138.2	143.6	159.8	155.0	220.5	180.9	390.9	249.3
1 1 1 0 1	S0-OB	101.6	77.13	105.2	79.55	113.6	84.95	135.4	96.26	195.9	122.3	366.4	190.6
1 1 1 1 0	S0-OB	124.5	131.3	128.1	133.7	136.5	139.1	158.2	150.4	218.9	176.5	389.3	244.7
A B D	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0	C-OB	109.8	79.44	113.4	81.86	121.8	87.25	143.5	98.55	204.2	124.6	374.6	192.9
0 0 1	C-OB	109.8	79.44	113.4	81.86	121.8	87.25	143.5	98.56	204.2	124.6	374.6	192.9
0 1 0	C-OB	109.8	79.44	113.4	81.86	121.8	87.25	143.5	98.56	204.2	124.6	374.6	192.9
0 1 1	C-OB	109.8	79.44	113.4	81.86	121.8	87.25	143.5	98.56	204.2	124.6	374.6	192.9
1 0 0	C-OB	109.8	79.41	113.4	81.83	121.8	87.22	143.5	98.53	204.2	124.6	374.6	192.9
1 0 1	C-OB	109.8	79.42	113.4	81.84	121.8	87.22	143.5	98.53	204.2	124.6	374.6	192.9
1 1 0	C-OB	109.8	79.42	113.4	81.84	121.8	87.23	143.5	98.54	204.2	124.6	374.6	192.9
1 1 1	C-OB	109.8	79.42	113.4	81.84	121.8	87.23	143.5	98.54	204.2	124.6	374.6	192.9
A C D	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0	B-OB	114.4	81.69	118.0	84.12	126.5	89.52	148.2	100.8	208.8	126.9	379.2	195.2
0 0 1	B-OB	114.4	81.70	118.0	84.12	126.5	89.52	148.2	100.8	208.8	126.9	379.2	195.2
0 1 0	B-OB	114.4	81.69	118.0	84.12	126.5	89.52	148.2	100.8	208.8	126.9	379.2	195.2
0 1 1	B-OB	114.4	81.70	118.0	84.12	126.5	89.52	148.2	100.8	208.8	126.9	379.2	195.2
1 0 0	B-OB	114.4	81.69	118.0	84.12	126.5	89.52	148.2	100.8	208.8	126.9	379.2	195.2
1 0 1	B-OB	114.4	81.70	118.0	84.12	126.5	89.52	148.2	100.8	208.8	126.9	379.2	195.2
1 1 0	B-OB	114.4	81.69	118.0	84.12	126.5	89.52	148.2	100.8	208.8	126.9	379.2	195.2
1 1 1	B-OB	114.4	81.70	118.0	84.12	126.5	89.52	148.2	100.8	208.8	126.9	379.2	195.2
A B C	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0	D-OB	112.8	79.29	116.4	81.71	124.8	87.08	146.5	98.43	207.1	124.4	377.6	192.8
0 0 1	D-OB	112.8	79.29	116.4	81.71	124.8	87.08	146.5	98.42	207.1	124.4	377.6	192.8
0 1 0	D-OB	112.8	79.29	116.4	81.71	124.8	87.08	146.5	98.42	207.1	124.4	377.6	192.8
0 1 1	D-OB	112.8	79.29	116.4	81.71	124.8	87.08	146.5	98.42	207.1	124.4	377.6	192.8
1 0 0	D-OB	112.8	79.29	116.4	81.71	124.8	87.08	146.5	98.43	207.1	124.4	377.6	192.8
1 0 1	D-OB	112.8	79.29	116.4	81.71	124.8	87.08	146.5	98.42	207.1	124.4	377.6	192.8
1 1 0	D-OB	112.8	79.29	116.4	81.71	124.8	87.08	146.5	98.42	207.1	124.4	377.6	192.8
1 1 1	D-OB	112.8	79.29	116.4	81.71	124.8	87.08	146.5	98.42	207.1	124.4	377.6	192.8

Version : MXL4X3

Cell Unit = 32

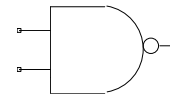
State		Output Load											
B C D	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff	
		tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl
0 0 0	A-OB	116.8	83.05	119.5	85.03	126.7	89.87	145.3	100.8	200.1	125.6	365.1	192.4
0 0 1	A-OB	116.8	83.05	119.5	85.03	126.7	89.88	145.3	100.8	200.1	125.6	365.1	192.4
0 1 0	A-OB	116.8	83.03	119.5	85.02	126.7	89.85	145.3	100.7	200.1	125.6	365.1	192.3
0 1 1	A-OB	116.8	83.03	119.5	85.02	126.7	89.87	145.3	100.7	200.1	125.6	365.1	192.3
1 0 0	A-OB	116.8	83.05	119.5	85.03	126.7	89.88	145.3	100.8	200.1	125.6	365.1	192.4
1 0 1	A-OB	116.8	83.05	119.5	85.03	126.7	89.88	145.3	100.8	200.1	125.6	365.1	192.4
1 1 0	A-OB	116.8	83.03	119.5	85.02	126.7	89.87	145.3	100.7	200.1	125.6	365.1	192.3
1 1 1	A-OB	116.8	83.04	119.5	85.02	126.7	89.87	145.3	100.7	200.1	125.6	365.1	192.3
S0 A B C D	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff	
		tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl
0 0 0 1 0	S1-OB	71.93	59.94	74.61	61.91	81.52	66.74	100.2	77.57	155.2	102.5	320.2	169.1
0 0 0 1 1	S1-OB	71.93	59.94	74.61	61.91	81.52	66.74	100.2	77.57	155.2	102.5	320.2	169.1
0 0 1 1 0	S1-OB	71.94	59.94	74.62	61.91	81.52	66.74	100.2	77.57	155.2	102.5	320.2	169.1
0 0 1 1 1	S1-OB	71.94	59.94	74.62	61.91	81.52	66.74	100.2	77.57	155.2	102.5	320.2	169.1
0 1 0 0 0	S1-OB	71.43	84.81	74.12	86.77	81.07	91.60	99.65	102.5	154.7	127.4	319.7	194.1
0 1 0 0 1	S1-OB	71.43	84.81	74.12	86.77	81.07	91.60	99.65	102.5	154.7	127.4	319.7	194.1
0 1 1 0 0	S1-OB	71.43	84.81	74.12	86.77	81.07	91.60	99.65	102.5	154.7	127.4	319.7	194.1
0 1 1 0 1	S1-OB	71.43	84.81	74.12	86.77	81.07	91.60	99.65	102.5	154.7	127.4	319.7	194.1
1 0 0 0 1	S1-OB	71.91	59.96	74.59	61.92	81.49	66.76	100.2	77.59	155.1	102.5	320.2	169.2
1 0 0 1 1	S1-OB	71.91	59.96	74.59	61.92	81.50	66.76	100.2	77.59	155.1	102.5	320.2	169.2
1 0 1 0 0	S1-OB	71.31	84.84	74.00	86.81	80.95	91.63	99.53	102.5	154.6	127.5	319.6	194.1
1 0 1 1 0	S1-OB	71.31	84.84	74.00	86.81	80.95	91.63	99.53	102.5	154.6	127.5	319.6	194.1
1 1 0 0 1	S1-OB	71.91	59.96	74.59	61.92	81.50	66.76	100.2	77.59	155.1	102.5	320.2	169.2
1 1 0 1 1	S1-OB	71.91	59.96	74.59	61.92	81.50	66.76	100.2	77.59	155.1	102.5	320.2	169.2
1 1 1 0 0	S1-OB	71.31	84.84	74.00	86.81	80.95	91.63	99.53	102.5	154.6	127.5	319.6	194.1
1 1 1 1 0	S1-OB	71.31	84.84	74.00	86.81	80.95	91.63	99.53	102.5	154.6	127.5	319.6	194.1
S1 A B C D	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff	
		tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl
0 0 1 0 0	S0-OB	106.9	81.84	109.6	83.82	116.7	88.69	135.3	99.52	190.1	124.5	355.1	191.1
0 0 1 0 1	S0-OB	106.7	82.17	109.5	84.15	116.6	88.99	135.2	99.85	190.1	124.7	355.1	191.4
0 0 1 1 0	S0-OB	107.2	81.71	110.0	83.69	117.1	88.56	135.7	99.38	190.6	124.3	355.5	191.0
0 0 1 1 1	S0-OB	106.9	81.88	109.7	83.80	116.8	88.66	135.4	99.56	190.2	124.5	355.2	191.2
0 1 0 0 0	S0-OB	127.6	133.1	130.4	135.1	137.5	139.9	156.1	150.8	210.9	175.7	375.9	242.4
0 1 0 0 1	S0-OB	124.3	126.4	127.1	128.4	134.2	133.2	152.8	144.1	207.6	169.0	372.5	235.6
0 1 0 1 0	S0-OB	129.2	137.0	132.0	139.0	139.1	143.8	157.7	154.8	212.6	179.8	377.5	246.4
0 1 0 1 1	S0-OB	127.7	132.1	130.6	134.1	137.6	138.9	156.2	149.8	211.0	174.8	376.0	241.5
1 0 0 0 1	S0-OB	104.4	79.45	107.2	81.42	114.2	86.26	132.7	97.18	187.6	122.1	352.7	188.8
1 0 0 1 0	S0-OB	125.8	130.5	128.6	132.5	135.6	137.3	154.2	148.3	209.0	173.2	374.0	239.9
1 0 1 0 1	S0-OB	104.5	79.53	107.3	81.50	114.3	86.35	133.0	97.24	187.8	122.1	352.7	188.8

1 0 1 1 0	S0-OB	122.6	124.1	125.4	126.1	132.5	130.9	151.1	141.8	205.9	166.7	370.9	233.4
1 1 0 0 1	S0-OB	104.3	79.44	107.1	81.41	114.1	86.25	132.7	97.17	187.6	122.1	352.6	188.8
1 1 0 1 0	S0-OB	127.5	134.0	130.3	135.9	137.3	140.8	155.9	151.8	210.8	176.7	375.7	243.4
1 1 1 0 1	S0-OB	104.5	79.45	107.2	81.42	114.3	86.28	132.9	97.11	187.7	122.0	352.7	188.7
1 1 1 1 0	S0-OB	125.9	129.5	128.6	131.4	135.7	136.3	154.3	147.2	209.1	172.2	374.1	238.8
A B D	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0	C-OB	113.9	80.17	116.6	82.15	123.7	87.00	142.2	97.81	197.0	122.7	362.0	189.4
0 0 1	C-OB	113.9	80.18	116.6	82.15	123.7	87.00	142.2	97.81	197.0	122.7	362.0	189.4
0 1 0	C-OB	113.9	80.18	116.6	82.15	123.7	87.00	142.2	97.81	197.0	122.7	362.0	189.4
0 1 1	C-OB	113.8	80.18	116.6	82.16	123.7	87.01	142.2	97.82	197.0	122.7	362.0	189.4
1 0 0	C-OB	113.9	80.15	116.6	82.12	123.7	86.98	142.2	97.78	197.0	122.7	362.1	189.4
1 0 1	C-OB	113.9	80.15	116.6	82.13	123.7	86.98	142.2	97.79	197.0	122.7	362.1	189.4
1 1 0	C-OB	113.9	80.15	116.6	82.13	123.7	86.99	142.2	97.79	197.0	122.7	362.1	189.4
1 1 1	C-OB	113.9	80.16	116.6	82.13	123.7	86.99	142.2	97.79	197.0	122.7	362.1	189.4
A C D	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0	B-OB	118.2	82.04	121.0	84.02	128.1	88.88	146.7	99.71	201.5	124.6	366.4	191.3
0 0 1	B-OB	118.2	82.05	121.0	84.03	128.1	88.89	146.7	99.71	201.5	124.7	366.5	191.3
0 1 0	B-OB	118.2	82.04	121.0	84.02	128.1	88.88	146.7	99.71	201.5	124.6	366.4	191.3
0 1 1	B-OB	118.2	82.05	121.0	84.03	128.1	88.89	146.7	99.71	201.5	124.7	366.5	191.3
1 0 0	B-OB	118.2	82.04	121.0	84.02	128.1	88.88	146.7	99.71	201.5	124.6	366.4	191.3
1 0 1	B-OB	118.2	82.05	121.0	84.03	128.1	88.89	146.7	99.71	201.5	124.7	366.5	191.3
1 1 0	B-OB	118.2	82.04	121.0	84.02	128.1	88.88	146.7	99.71	201.5	124.6	366.5	191.3
1 1 1	B-OB	118.2	82.05	121.0	84.03	128.1	88.89	146.7	99.71	201.5	124.7	366.5	191.3
A B C	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0	D-OB	116.7	79.82	119.4	81.79	126.5	86.64	145.1	97.48	199.9	122.4	364.9	189.1
0 0 1	D-OB	116.7	79.82	119.4	81.79	126.5	86.64	145.1	97.48	199.9	122.4	364.9	189.1
0 1 0	D-OB	116.7	79.82	119.4	81.79	126.5	86.64	145.1	97.48	200.0	122.4	364.9	189.1
0 1 1	D-OB	116.7	79.82	119.4	81.79	126.5	86.64	145.1	97.48	200.0	122.4	364.9	189.1
1 0 0	D-OB	116.7	79.82	119.4	81.79	126.5	86.64	145.1	97.48	199.9	122.4	364.9	189.1
1 0 1	D-OB	116.7	79.82	119.4	81.79	126.5	86.64	145.1	97.48	199.9	122.4	364.9	189.1
1 1 0	D-OB	116.7	79.82	119.4	81.79	126.5	86.64	145.1	97.48	200.0	122.4	364.9	189.1
1 1 1	D-OB	116.7	79.82	119.4	81.79	126.5	86.64	145.1	97.48	200.0	122.4	364.9	189.1

Group Name : ND2

Symbol

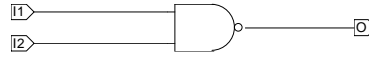
Function : 2 Input NAND



Truth Table

Schematic

I1	I2	O
1	1	0
OTHERS		1



Pin Order O I1 I2

**Input Capacitance (ff) & Maximum Loading (ff) & Power Consumption (nW/MHz)**

Version	Input Capacitance		Maximum Loading	Power Consumption
	I1	I2	O	O
ND2XLP	1.454	1.616	126.4	1.179
ND2X1	2.055	2.337	211.2	1.674
ND2X1P	2.868	3.449	293.1	2.360
ND2X2	3.889	4.380	422.3	3.242
ND2X3	5.690	6.505	633.8	4.774
ND2X4	7.543	8.658	844.4	6.594
ND2X6	11.32	12.99	1266.9	9.812

**AC Characteristics ( Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ps)**

Version	Cell Unit	Path	Output Load											
			1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
ND2XLP	4	I1-O	26.62	14.65	35.87	21.73	56.40	36.28	104.4	67.21	223.7	138.4	522.5	315.8
		I2-O	31.41	14.90	40.14	21.02	60.20	34.30	108.0	64.12	227.0	135.2	525.8	312.7
		Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
ND2X1	4	I1-O	21.70	13.66	27.82	18.95	41.11	30.03	70.75	53.04	142.1	104.4	320.5	229.9
		I2-O	26.21	14.20	31.86	18.74	44.64	28.63	73.85	50.45	145.1	101.4	323.4	227.0
		Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
ND2X1P	7	I1-O	21.20	12.20	25.77	16.10	35.85	24.51	57.99	41.61	109.9	78.63	239.0	166.0
		I2-O	25.84	12.77	30.02	16.08	39.57	23.36	61.27	39.30	113.0	75.41	241.9	162.8
		Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	

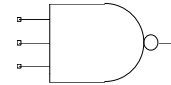
ND2X2	7	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		I1-O	18.83	11.12	22.88	14.67	32.70	23.05	56.19	41.93	117.4	86.76	287.7	206.7
		I2-O	24.40	12.68	28.00	15.66	37.17	22.91	60.12	40.30	121.0	84.36	291.3	204.4
ND2X3	9	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		I1-O	18.05	10.43	21.15	13.17	29.28	20.18	49.81	36.90	105.4	78.43	270.5	194.7
		I2-O	23.37	11.83	26.11	14.12	33.62	20.13	53.48	35.40	108.8	75.58	273.7	192.1
ND2X4	12	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		I1-O	18.01	10.42	20.36	12.50	26.69	17.98	42.72	31.32	85.14	63.71	208.9	151.5
		I2-O	23.55	11.99	25.61	13.72	31.37	18.38	46.75	30.27	88.78	61.23	212.4	148.9
ND2X6	17	Path	1.200 ff		3.939 ff		12.93 ff		42.43 ff		139.2 ff		457.0 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		I1-O	17.54	9.993	19.36	11.61	24.74	16.31	39.54	28.75	81.19	60.81	212.7	154.1
		I2-O	23.10	11.61	24.69	12.95	29.54	16.91	43.60	27.85	84.80	58.39	216.2	151.5



Group Name : ND3

Symbol

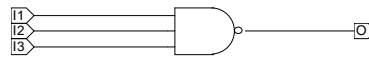
Function : 3 Input NAND



Truth Table

Schematic

I1	I2	I3	O
1	1	1	0
OTHERS			1



Pin Order O I1 I2 I3

**Input Capacitance (ff) & Maximum Loading (ff) & Power Consumption (nW/MHz)**

Version	Input Capacitance			Maximum Loading	Power Consumption
	I1	I2	I3	O	O
ND3XLP	1.505	1.656	1.746	124.5	1.851
ND3X1	1.989	2.151	2.272	209.2	2.436
ND3X1P	2.719	3.003	3.221	289.8	3.369
ND3X2	3.742	4.030	4.375	418.2	4.667
ND3X3	5.690	5.964	6.490	627.7	6.962
ND3X4	7.491	7.849	8.585	836.9	9.124
ND3X6	11.32	11.76	12.92	1255.1	13.92

**AC Characteristics ( Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ps)**

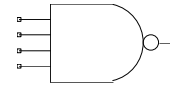
Version	Cell Unit	Path	Output Load											
			1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
			t <sub>plh</sub>	t <sub>p<sub>hl</sub></sub>	t <sub>plh</sub>	t <sub>p<sub>hl</sub></sub>	t <sub>plh</sub>	t <sub>p<sub>hl</sub></sub>	t <sub>plh</sub>	t <sub>p<sub>hl</sub></sub>	t <sub>plh</sub>	t <sub>p<sub>hl</sub></sub>	t <sub>plh</sub>	t <sub>p<sub>hl</sub></sub>
ND3XLP	6	I1-O	30.49	18.60	39.40	25.72	59.75	41.16	107.9	75.58	227.1	157.1	526.1	361.1
		I2-O	36.25	20.57	44.74	27.13	64.65	41.80	112.6	75.88	231.6	157.4	530.5	361.6
		I3-O	41.00	20.60	49.33	26.57	69.12	40.63	117.1	73.97	236.2	155.4	535.1	359.5
ND3X1	6	I1-O	24.60	20.85	30.48	26.90	43.54	40.45	72.99	70.92	144.4	142.8	322.8	322.1
		I2-O	28.87	22.54	34.38	28.23	47.03	41.15	76.26	71.34	147.5	143.3	325.8	322.7
		I3-O	32.21	22.34	37.58	27.53	50.05	39.98	79.27	69.48	150.5	141.2	328.9	320.6

ND3X1P	10	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		I1-O	22.96	17.73	27.41	22.23	37.36	32.26	59.45	54.38	111.4	105.2	240.4	229.5
		I2-O	28.32	20.37	32.40	24.49	41.86	33.88	63.54	55.56	115.4	106.0	244.3	230.5
		I3-O	32.27	21.13	36.25	24.86	45.57	33.69	67.19	54.54	119.1	104.7	248.2	229.3
ND3X2	10	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		I1-O	21.02	17.01	24.89	21.00	34.52	30.95	57.92	55.22	119.0	117.1	289.4	288.4
		I2-O	26.37	19.88	29.88	23.51	38.95	32.76	61.87	56.42	122.8	118.2	293.1	289.6
		I3-O	30.19	20.59	33.59	23.88	42.49	32.56	65.33	55.43	126.3	116.9	296.8	288.3
ND3X3	13	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		I1-O	20.55	16.60	23.48	19.62	31.38	27.76	51.68	48.87	107.2	105.5	272.3	271.3
		I2-O	25.63	19.15	28.27	21.88	35.65	29.45	55.43	50.00	110.8	106.2	275.8	272.2
		I3-O	29.27	19.61	31.83	22.09	39.02	29.03	58.69	48.60	114.2	104.5	279.2	270.6
ND3X4	18	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		I1-O	19.74	15.73	22.01	18.05	28.19	24.41	44.13	40.92	86.50	84.48	210.3	208.9
		I2-O	25.16	18.64	27.17	20.74	32.86	26.60	48.20	42.43	90.27	85.37	214.0	210.0
		I3-O	28.88	19.29	30.83	21.16	36.37	26.49	51.51	41.51	93.61	83.88	217.5	208.5
ND3X6	26	Path	1.200 ff		3.939 ff		12.93 ff		42.43 ff		139.2 ff		457.0 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		I1-O	19.64	15.63	21.38	17.40	26.58	22.76	41.17	37.90	82.76	80.73	214.3	212.9
		I2-O	25.07	18.55	26.60	20.14	31.35	25.06	45.33	39.38	86.57	81.68	218.0	214.0
		I3-O	28.77	19.17	30.25	20.60	34.87	25.06	48.64	38.66	89.90	80.05	221.4	212.5

Group Name : ND4

Symbol

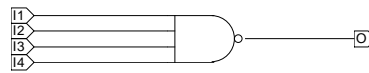
Function : 4 Input NAND



Truth Table

Schematic

I1	I2	I3	I4	O
1	1	1	1	0
OTHERS				1



Pin Order O I1 I2 I3 I4

**Input Capacitance (ff) & Maximum Loading (ff) & Power Consumption (nW/MHz)**

Version	Input Capacitance				Maximum Loading		Power Consumption
	I1	I2	I3	I4	O	O	
ND4XLP	0.9840	1.173	0.9910	1.124	127.6		4.415
ND4X1	1.250	1.430	1.230	1.398	212.8		5.745
ND4X1P	1.285	1.365	1.230	1.407	295.5		6.670
ND4X2	1.329	1.567	1.332	1.511	426.1		8.469
ND4X3	1.329	1.567	1.332	1.511	638.2		11.92

**AC Characteristics ( Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ps)**

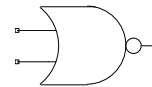
Version	Cell Unit	Path	Output Load											
			1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
ND4XLP	10	I1-O	71.12	60.49	79.07	65.81	98.38	76.38	146.1	97.58	265.3	144.1	564.1	257.4
		I2-O	75.87	59.28	83.83	64.60	103.1	75.11	150.9	96.36	270.0	142.9	568.9	256.2
		I3-O	70.02	63.29	78.08	68.60	97.46	79.22	145.1	100.4	264.5	146.9	563.5	260.2
		I4-O	75.02	62.32	83.08	67.66	102.4	78.15	150.1	99.39	269.4	146.0	568.4	259.1
ND4X1	11	I1-O	62.38	54.05	67.31	57.67	79.02	64.97	107.7	79.49	178.9	110.1	357.4	181.9
		I2-O	67.31	53.43	72.26	57.03	83.95	64.31	112.5	78.91	183.9	109.5	362.3	181.2
		I3-O	66.87	61.24	71.92	64.85	83.69	72.11	112.3	86.72	183.8	117.3	362.3	189.0
		I4-O	71.84	60.37	76.88	63.99	88.63	71.30	117.3	85.80	188.7	116.5	367.2	188.2

ND4X1P	11	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		I1-O	66.63	66.61	70.67	69.97	79.60	76.77	100.6	89.91	152.3	115.0	281.4	168.0
		I2-O	71.60	66.02	75.65	69.35	84.59	76.14	105.6	89.21	157.3	114.4	286.4	167.5
		I3-O	65.91	69.97	70.00	73.33	79.05	80.15	100.1	93.27	151.8	118.4	281.0	171.4
		I4-O	71.13	69.50	75.21	72.87	84.26	79.67	105.3	92.79	157.1	118.0	286.3	170.9
ND4X2	14	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		I1-O	62.77	60.41	66.22	63.27	74.68	69.69	96.61	83.22	157.5	112.3	328.0	182.3
		I2-O	67.82	59.95	71.29	62.81	79.75	69.27	101.7	82.75	162.5	111.8	333.0	181.8
		I3-O	67.11	67.85	70.63	70.71	79.23	77.15	101.3	90.72	162.1	119.8	332.8	189.8
		I4-O	72.18	67.13	75.71	70.00	84.30	76.42	106.4	90.03	167.1	119.1	337.8	189.1
ND4X3	15	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		I1-O	67.90	70.55	70.67	72.90	77.93	78.82	96.97	92.25	152.2	121.3	317.3	191.5
		I2-O	73.05	70.16	75.83	72.47	83.07	78.35	102.1	91.72	157.3	121.0	322.4	191.1
		I3-O	72.23	78.10	75.04	80.43	82.36	86.34	101.5	99.68	156.8	129.0	321.9	199.1
		I4-O	77.40	77.36	80.21	79.72	87.54	85.63	106.7	98.98	161.9	128.3	327.1	198.3

Group Name : NR2

Symbol

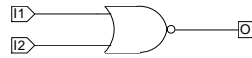
Function : 2 Input NOR



Truth Table

Schematic

I1	I2	O
0	0	1
OTHERS		0



Pin Order O I1 I2

### Input Capacitance (ff) & Maximum Loading (ff) & Power Consumption (nW/MHz)

Version	Input Capacitance		Maximum Loading	Power Consumption
	I1	I2	O	O
NR2XLP	1.690	1.551	76.44	1.322
NR2X1	2.272	1.985	110.3	1.744
NR2X1P	3.421	2.796	153.2	2.380
NR2X2	4.485	4.113	221.0	3.366
NR2X3	6.701	6.018	331.5	4.949
NR2X4	8.904	7.990	441.9	6.732
NR2X6	13.37	11.98	662.9	10.06

### AC Characteristics ( Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ps)

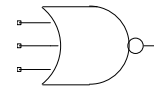
Version	Cell Unit	Path	Output Load											
			1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
NR2XLP	4	I2-O	36.31	10.03	49.81	15.23	81.98	25.44	161.4	45.23	361.0	87.09	861.6	186.6
		I1-O	38.75	12.08	52.20	16.99	84.65	26.86	164.5	46.49	364.3	88.27	865.0	187.9
		Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
NR2X1	4	I2-O	31.92	8.881	41.60	12.95	64.33	21.06	119.5	36.47	257.6	68.12	604.1	140.1
		I1-O	34.39	11.09	43.91	14.90	66.78	22.65	122.3	37.82	260.7	69.35	607.5	141.3
		Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
NR2X1P	7	I2-O	30.10	7.342	37.29	10.41	54.01	16.71	94.19	28.77	193.9	52.53	444.3	103.8
		I1-O	32.64	9.528	39.65	12.42	56.33	18.43	96.81	30.11	197.0	53.72	447.6	105.0
		Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	

NR2X2	7	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		I2-O	26.84	6.641	32.02	9.004	44.05	13.94	72.22	23.63	141.4	41.95	314.6	80.29
		I1-O	31.36	9.368	36.35	11.56	48.18	16.21	76.55	25.44	146.2	43.58	319.7	81.84
NR2X3	9	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		I2-O	25.97	6.162	30.21	8.151	41.24	12.82	69.92	22.86	148.4	43.61	369.1	91.54
		I1-O	29.41	8.727	33.47	10.54	44.24	14.92	73.05	24.52	152.0	45.05	373.1	92.89
NR2X4	12	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		I2-O	25.33	5.861	28.55	7.428	37.04	11.12	58.95	19.25	118.0	36.10	283.5	73.69
		I1-O	29.39	8.577	32.48	9.969	40.74	13.44	62.60	21.22	122.1	37.69	288.0	75.15
NR2X6	17	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		I2-O	24.74	5.566	27.16	6.770	34.03	9.828	52.86	17.16	106.4	33.14	266.7	70.11
		I1-O	28.67	8.268	30.98	9.336	37.61	12.21	56.33	19.18	110.4	34.70	271.1	71.55

Group Name : NR3

Symbol

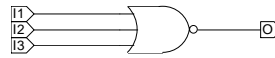
Function : 3 Input NOR



Truth Table

Schematic

I1	I2	I3	O
0	0	0	1
OTHERS			0



Pin Order O I1 I2 I3

**Input Capacitance (ff) & Maximum Loading (ff) & Power Consumption (nW/MHz)**

Version	Input Capacitance			Maximum Loading	Power Consumption
	I1	I2	I3	O	O
NR3XLP	1.653	1.633	1.486	50.48	1.910
NR3X1	2.240	2.160	1.928	72.88	2.559
NR3X1P	3.147	2.978	2.632	101.5	3.577
NR3X2	4.259	3.994	3.576	146.4	4.861
NR3X3	6.310	5.912	5.449	219.5	7.045
NR3X4	8.337	7.782	7.156	293.0	9.340
NR3X6	13.15	12.50	12.39	439.1	14.25

**AC Characteristics ( Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ps)**

Version	Cell Unit	Path	Output Load											
			1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
NR3XLP	6	I3-O	51.07	11.59	70.17	16.52	117.4	26.43	235.8	46.04	533.2	87.79	1279	187.3
		I2-O	58.77	13.61	78.31	18.35	126.0	27.92	245.0	47.39	542.7	89.05	1288	188.6
		I1-O	62.74	14.25	82.19	18.96	129.9	28.64	248.9	48.26	546.6	90.09	1292	189.8
		Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
NR3X1	6	I3-O	45.31	10.61	58.68	14.40	91.56	22.15	173.5	37.36	379.5	68.89	896.1	140.8
		I2-O	52.80	12.75	66.42	16.35	99.83	23.85	182.3	38.80	388.7	70.19	905.5	142.1
		I1-O	56.61	13.42	70.17	16.99	103.5	24.56	186.0	39.64	392.5	71.18	909.2	143.3
		Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	

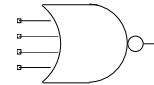
NR3X1P	10	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		I3-O	40.01	8.578	49.68	11.49	73.49	17.56	132.6	29.43	281.4	53.05	654.5	104.3
		I2-O	51.24	11.18	61.15	13.92	85.66	19.74	145.4	31.25	294.7	54.72	668.0	106.0
		I1-O	57.52	11.74	67.31	14.55	91.47	20.39	151.4	32.06	300.7	55.74	674.1	107.3
NR3X2	10	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		I3-O	36.75	8.169	43.52	10.36	60.25	15.08	101.4	24.47	204.3	42.63	462.8	80.88
		I2-O	47.36	10.84	54.39	12.90	71.38	17.39	113.2	26.37	216.7	44.37	475.6	82.52
		I1-O	53.09	11.42	59.97	13.50	77.00	18.01	118.6	27.14	222.1	45.34	481.0	83.71
NR3X3	13	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		I3-O	36.31	7.846	40.91	9.351	52.25	12.74	79.79	19.66	148.4	33.13	320.8	60.38
		I2-O	45.07	10.33	49.79	11.75	61.32	14.94	89.45	21.59	158.6	34.73	331.4	61.86
		I1-O	49.74	10.92	54.35	12.35	65.77	15.56	93.76	22.31	162.9	35.55	335.8	62.86
NR3X4	18	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		I3-O	34.40	7.282	37.89	8.470	46.42	11.15	67.26	16.78	118.8	27.80	248.0	49.53
		I2-O	44.23	9.939	47.80	11.04	56.56	13.57	77.70	18.94	130.0	29.58	259.7	51.21
		I1-O	49.43	10.52	52.94	11.62	61.56	14.17	82.70	19.57	134.8	30.36	264.6	52.15
NR3X6	26	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		I3-O	34.26	7.213	37.06	8.179	44.75	10.64	65.93	16.43	124.3	28.84	288.9	55.75
		I2-O	43.92	9.856	46.79	10.75	54.72	13.07	76.14	18.59	135.5	30.58	300.6	57.32
		I1-O	48.95	10.43	51.78	11.33	59.57	13.67	80.96	19.21	140.1	31.37	305.3	58.30



Group Name : NR4

Symbol

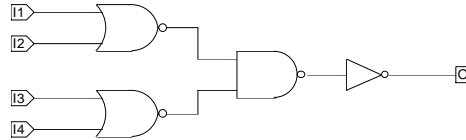
Function : 4 Input NOR



Truth Table

I1	I2	I3	I4	O
0	0	0	0	1
OTHERS				0

Schematic



Pin Order O I1 I2 I3 I4

### Input Capacitance (ff) & Maximum Loading (ff) & Power Consumption (nW/MHz)

Version	Input Capacitance				Maximum Loading		Power Consumption
	I1	I2	I3	I4	O	O	
NR4XLP	1.230	1.034	1.210	1.038	127.6		4.236
NR4X1	1.239	1.066	1.210	1.064	212.7		5.422
NR4X1P	1.323	1.148	1.279	1.101	295.5		6.563
NR4X2	1.539	1.300	1.443	1.228	425.8		8.683
NR4X3	1.548	1.299	1.440	1.226	637.8		11.79

### AC Characteristics ( Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ps)

Version	Cell Unit	Path	Output Load											
			1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
NR4XLP	10	I4-O	73.81	55.00	82.31	60.15	101.9	70.06	149.7	90.27	268.9	136.0	567.8	249.3
		I3-O	76.22	58.63	84.67	63.78	104.3	73.77	152.2	94.13	271.3	140.0	570.2	253.0
		I2-O	77.56	54.03	86.01	58.86	105.6	68.49	153.4	88.29	272.6	133.9	571.5	247.1
		I1-O	79.91	57.50	88.36	62.38	108.0	71.90	155.9	91.81	275.0	137.6	573.9	250.6
NR4X1	11	I4-O	78.64	54.38	84.08	57.91	96.29	64.89	125.2	78.64	196.5	108.4	375.0	179.9
		I3-O	80.83	57.51	86.27	61.01	98.48	67.98	127.4	81.78	198.7	111.4	377.2	183.0
		I2-O	76.17	49.86	81.52	53.14	93.66	59.72	122.5	73.13	193.9	102.6	372.3	174.0
		I1-O	78.42	52.93	83.79	56.24	95.94	62.88	124.9	76.21	196.1	105.7	374.6	177.1

NR4X1P	12	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		I4-O	75.03	52.01	79.23	54.81	88.52	60.40	109.8	71.15	161.6	93.15	290.7	143.4
		I3-O	77.27	55.28	81.47	58.07	90.74	63.66	112.0	74.44	163.8	96.13	293.0	146.7
		I2-O	78.28	51.19	82.42	53.80	91.63	59.07	112.9	69.34	164.7	90.91	293.7	141.0
		I1-O	80.60	54.27	84.73	56.88	93.93	62.16	115.2	72.49	167.0	94.06	296.1	144.3
NR4X2	13	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		I4-O	77.30	56.37	81.09	59.05	90.25	65.00	112.9	77.33	173.8	104.4	344.3	173.1
		I3-O	79.84	59.85	83.63	62.53	92.81	68.49	115.5	80.85	176.4	107.9	346.9	176.7
		I2-O	74.09	51.78	77.83	54.28	86.90	59.88	109.5	71.77	170.3	98.32	340.9	167.0
		I1-O	76.73	55.26	80.47	57.77	89.54	63.40	112.0	75.23	173.1	101.8	343.6	170.5
NR4X3	14	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		I4-O	83.44	62.82	86.44	65.04	94.31	70.47	114.3	82.45	169.8	108.9	335.0	176.5
		I3-O	85.97	66.28	88.96	68.50	96.84	73.95	116.9	86.07	172.4	112.5	337.5	180.0
		I2-O	80.23	58.21	83.17	60.30	90.97	65.48	110.9	76.98	166.3	103.0	331.5	170.3
		I1-O	82.78	61.72	85.73	63.82	93.53	68.97	113.4	80.62	169.0	106.6	334.1	174.0

Group Name : OA112

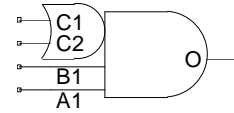
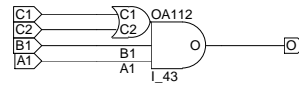
Symbol

Function : OR2 into AN3

Truth Table

A1	B1	C1	C2	O
0	X	X	X	0
X	0	X	X	0
X	X	0	0	0
OTHERS				1

Schematic



Pin Order O A1 B1 C1 C2

**Input Capacitance (ff) & Maximum Loading (ff) & Power Consumption (nW/MHz)**

Version	Input Capacitance				Maximum Loading	Power Consumption
	A1	B1	C1	C2	O	O
OA112XLP	1.287	1.422	1.510	1.571	127.6	3.259
OA112X1	1.545	1.715	1.873	1.974	212.7	4.572
OA112X1P	1.692	1.748	1.951	2.146	295.4	5.869
OA112X2	1.760	1.953	2.031	2.189	425.4	7.417
OA112X3	1.736	1.941	2.031	2.190	636.9	10.88

AC Characteristics ( Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ps)

Version : OA112XLP

Cell Unit = 9

State		Output Load											
C1 C2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 1	A1-O	40.48	52.62	49.27	58.96	69.29	71.06	117.3	93.82	236.6	141.4	535.6	254.8
1 0	A1-O	36.28	50.50	44.97	55.91	64.81	66.43	112.8	87.47	231.9	133.7	530.8	246.7
1 1	A1-O	33.70	50.38	42.09	55.79	61.69	66.27	109.5	87.27	228.7	133.5	527.6	246.6
0 1	B1-O	42.54	61.40	51.35	68.21	71.41	80.91	119.4	104.3	238.7	152.4	537.6	266.1
1 0	B1-O	38.79	59.38	47.49	65.26	67.40	76.41	115.2	98.02	234.4	144.7	533.3	258.0
1 1	B1-O	35.25	59.24	43.69	65.11	63.16	76.28	111.1	97.89	230.2	144.5	529.1	257.9
	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
	C2-O	44.22	77.86	53.10	84.80	73.09	97.76	121.1	121.8	240.3	170.6	539.3	285.0
	C1-O	41.25	75.30	50.00	82.24	69.83	95.22	117.8	119.2	236.9	168.1	535.7	282.4

Version : OA112X1

Cell Unit = 9

State		Output Load											
C1 C2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 1	A1-O	39.13	51.07	44.91	55.63	57.65	64.51	86.95	81.02	158.4	113.5	337.0	185.9
1 0	A1-O	34.63	49.01	40.30	52.84	52.88	60.51	82.05	75.18	153.4	105.9	331.9	177.6
1 1	A1-O	32.08	48.89	37.48	52.73	49.65	60.33	78.60	75.10	149.9	105.8	328.4	177.5
0 1	B1-O	41.09	59.28	46.90	64.15	59.64	73.54	88.85	90.62	160.4	123.6	339.0	196.4
1 0	B1-O	37.01	57.31	42.74	61.48	55.35	69.59	84.38	84.89	155.8	116.1	334.3	188.1
1 1	B1-O	33.47	57.18	38.93	61.34	51.15	69.44	80.07	84.77	151.4	116.0	329.8	188.0
	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
	C2-O	42.67	72.26	48.49	77.05	61.28	86.29	90.61	103.4	161.9	136.5	340.6	209.9
	C1-O	39.41	69.76	45.14	74.56	57.78	83.77	86.95	100.9	158.2	134.1	336.7	207.4

Version : OA112X1P

Cell Unit = 10

State		Output Load											
C1 C2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 1	A1-O	43.67	52.31	48.29	55.93	58.36	63.22	80.52	76.69	132.6	101.9	261.8	154.4
1 0	A1-O	39.14	50.76	43.72	53.91	53.65	60.24	75.63	72.31	127.6	95.84	256.7	147.0
1 1	A1-O	36.06	50.61	40.41	53.79	49.95	60.12	71.46	72.15	123.3	95.62	252.4	146.8
0 1	B1-O	44.92	58.71	49.62	62.58	59.75	70.25	81.83	84.24	133.8	109.9	263.2	162.8
1 0	B1-O	40.71	57.22	45.33	60.63	55.32	67.35	77.20	79.93	129.2	103.9	258.3	155.4
1 1	B1-O	36.58	57.08	40.98	60.49	50.57	67.21	72.06	79.80	123.9	103.8	253.0	155.3
	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
	C2-O	46.25	73.25	50.94	77.18	61.07	84.96	83.23	99.20	135.3	125.6	264.6	179.2
	C1-O	42.80	70.84	47.42	74.82	57.42	82.50	79.39	96.81	131.4	123.1	260.5	176.8

Version : OA112X2

Cell Unit = 10

State		Output Load											
C1 C2	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 1	A1-O	47.23	48.49	51.34	51.62	61.33	58.58	85.03	72.79	146.5	102.1	317.2	172.1
1 0	A1-O	42.17	47.09	46.23	49.84	56.09	55.94	79.58	68.71	140.9	96.38	311.4	165.4
1 1	A1-O	38.72	47.01	42.61	49.77	52.05	55.86	74.99	68.65	136.0	96.31	306.5	165.3
0 1	B1-O	48.37	53.71	52.55	57.00	62.54	64.31	86.35	78.92	147.8	108.6	318.5	178.9
1 0	B1-O	43.55	52.35	47.67	55.30	57.63	61.72	81.20	74.87	142.4	102.8	313.0	172.1
1 1	B1-O	38.96	52.24	42.91	55.19	52.40	61.63	75.44	74.76	136.4	102.7	306.9	172.0
	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
	C2-O	49.30	72.39	53.44	75.90	63.52	83.62	87.35	99.14	148.7	130.6	319.5	202.5
	C1-O	45.32	69.85	49.42	73.33	59.35	81.05	83.00	96.58	144.2	128.1	314.7	199.9

Version : OA112X3

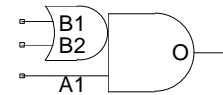
Cell Unit = 12

State		Output Load											
C1 C2	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 1	A1-O	54.49	56.26	57.66	58.76	66.21	65.00	87.68	78.66	144.0	107.7	309.5	177.2
1 0	A1-O	49.54	54.92	52.68	57.17	61.16	62.73	82.44	75.10	138.6	102.5	303.9	170.6
1 1	A1-O	45.15	54.83	48.18	57.08	56.26	62.65	76.76	75.01	132.4	102.4	297.6	170.5
0 1	B1-O	55.38	61.16	58.54	63.79	67.12	70.34	88.59	84.48	145.2	114.0	310.6	183.8
1 0	B1-O	50.58	59.86	53.75	62.25	62.28	68.10	83.51	81.01	139.9	108.8	305.1	177.3
1 1	B1-O	44.93	59.76	48.02	62.12	56.21	67.98	76.79	80.88	132.4	108.6	297.7	177.2
	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
	C2-O	56.06	82.18	59.25	84.98	67.84	91.88	89.35	107.1	146.0	138.7	311.3	211.1
	C1-O	52.06	79.59	55.25	82.34	63.78	89.24	85.11	104.5	141.5	136.1	306.7	208.4

Group Name : OA12

Symbol

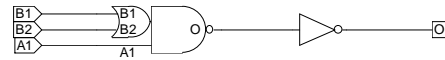
Function : OR2 into AN2



Truth Table

Schematic

A1	B1	B2	O
0	X	X	0
X	0	0	0
OTHERS			1



Pin Order O A1 B1 B2

**Input Capacitance (ff) & Maximum Loading (ff) & Power Consumption (nW/MHz)**

Version	Input Capacitance			Maximum Loading	Power Consumption
	A1	B1	B2	O	O
OA12XLP	1.396	1.271	1.322	127.6	3.218
OA12X1	1.636	1.519	1.611	212.7	4.483
OA12X1P	1.767	1.675	1.922	295.4	5.659
OA12X2	2.058	1.804	1.950	425.8	7.388
OA12X3	2.046	1.802	1.950	637.8	10.72

**AC Characteristics ( Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ps)**

Version : OA12XLP

Cell Unit = 7

State	Output Load													
B1 B2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 1	A1-O	39.09	64.31	47.47	71.26	67.12	84.15	115.0	107.7	234.2	156.0	533.2	269.8	
1 0	A1-O	36.01	62.27	44.31	68.27	63.81	79.61	111.6	101.4	230.7	148.2	529.6	261.7	
1 1	A1-O	34.87	65.01	43.08	71.18	62.51	82.74	110.2	104.7	229.4	151.5	528.2	265.1	
	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
	B2-O	37.62	54.92	45.97	60.60	65.62	71.72	113.5	93.77	232.8	141.0	531.8	254.4	
	B1-O	34.56	52.59	42.82	58.30	62.32	69.45	110.2	91.54	229.3	138.8	528.2	252.2	

Version : OA12X1

Cell Unit = 7

State		Output Load											
B1 B2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 1	A1-O	38.52	61.05	44.01	65.98	56.32	75.48	85.19	92.74	156.7	125.9	335.2	198.8
1 0	A1-O	34.89	59.02	40.28	63.20	52.45	71.34	81.21	86.77	152.6	118.0	331.0	190.1
1 1	A1-O	33.53	61.47	38.82	65.74	50.82	74.08	79.48	89.64	150.9	121.0	329.3	193.1
	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
	B2-O	37.63	52.06	43.06	55.98	55.34	63.88	84.25	79.29	155.8	111.0	334.4	183.1
	B1-O	34.05	49.34	39.40	53.25	51.53	61.15	80.40	76.67	151.7	108.3	330.1	180.5

Version : OA12X1P

Cell Unit = 8

State		Output Load											
B1 B2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 1	A1-O	39.10	58.61	43.41	62.34	52.84	69.83	74.30	83.44	126.1	108.6	255.3	161.1
1 0	A1-O	35.90	57.19	40.15	60.51	49.48	67.09	70.80	79.40	122.5	103.0	251.6	154.4
1 1	A1-O	34.21	59.31	38.33	62.73	47.48	69.46	68.62	81.95	120.3	105.7	249.3	157.1
	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
	B2-O	38.48	56.20	42.73	59.49	52.14	66.14	73.45	78.89	125.3	103.7	254.5	156.0
	B1-O	35.40	54.09	39.59	57.39	48.88	64.04	70.06	76.74	121.8	101.6	251.0	154.0

Version : OA12X2

Cell Unit = 8

State		Output Load											
B1 B2	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 1	A1-O	39.45	56.87	43.27	60.24	52.52	67.67	75.25	82.49	136.3	112.4	306.9	182.8
1 0	A1-O	36.11	55.51	39.88	58.54	49.02	65.08	71.57	78.45	132.5	106.6	303.0	176.1
1 1	A1-O	34.21	57.47	37.88	60.54	46.76	67.25	69.05	80.82	130.0	109.2	300.4	178.6
	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
	B2-O	38.99	57.01	42.77	60.01	51.95	66.78	74.63	80.99	135.5	110.9	306.2	181.5
	B1-O	35.81	54.82	39.53	57.82	48.60	64.59	71.13	78.70	132.0	108.7	302.5	179.4



Version : OA12X3

Cell Unit = 9

State	Output Load													
B1 B2	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 1	A1-O	44.32	64.11	47.32	66.80	55.25	73.51	75.38	87.86	130.8	117.6	296.2	187.6	
1 0	A1-O	41.00	62.81	43.97	65.26	51.83	71.25	71.81	84.39	127.1	112.4	292.4	181.0	
1 1	A1-O	38.23	64.66	41.14	67.17	48.71	73.29	68.28	86.63	123.5	114.8	288.7	183.5	
	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
	B2-O	44.34	66.87	47.29	69.31	55.11	75.48	75.13	89.33	130.7	119.3	295.9	190.2	
	B1-O	41.28	64.62	44.23	67.09	52.02	73.22	71.93	87.07	127.4	117.0	292.5	188.0	

Group Name : OA13

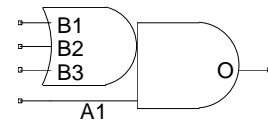
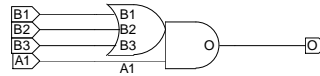
Symbol

Function : OR3 into AN2

Truth Table

A1	B1	B2	B3	O
0	X	X	X	0
X	0	0	0	0
OTHERS				1

Schematic



Pin Order O A1 B1 B2 B3

Input Capacitance (ff) & Maximum Loading (ff) & Power Consumption (nW/MHz)

Version	Input Capacitance				Maximum Loading	Power Consumption
	A1	B1	B2	B3	O	O
OA13XLP	1.142	1.391	1.463	1.559	127.5	3.134
OA13X1	1.445	1.768	1.863	2.000	212.6	4.464
OA13X1P	1.660	1.896	1.991	2.160	295.8	5.617
OA13X2	1.813	2.022	2.114	2.278	425.7	7.317
OA13X3	1.777	2.021	2.114	2.274	637.5	10.91

AC Characteristics ( Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ps)

Version : OA13XLP

Cell Unit = 8

State		Output Load											
B1 B2 B3	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 1	A1-O	45.60	51.94	54.43	58.55	74.53	71.87	122.8	98.05	242.3	149.4	541.5	264.1
0 1 0	A1-O	42.28	51.90	50.84	58.42	70.57	70.79	118.6	93.95	237.9	141.9	536.9	255.4
0 1 1	A1-O	37.59	51.95	45.78	58.53	65.17	71.05	113.1	94.30	232.3	142.4	531.4	255.8
1 0 0	A1-O	36.93	49.25	45.34	54.57	64.84	65.00	112.7	85.88	231.9	132.0	530.8	245.1
1 0 1	A1-O	33.14	49.19	41.22	54.51	60.46	64.95	108.3	85.83	227.4	132.0	526.4	245.1
1 1 0	A1-O	33.14	49.19	41.22	54.51	60.46	64.95	108.3	85.83	227.4	132.0	526.4	245.1
1 1 1	A1-O	31.84	49.17	39.81	54.49	59.12	64.93	106.8	85.81	226.0	131.9	524.9	245.1
	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
	B3-O	46.94	83.48	55.83	90.48	75.95	103.9	124.3	129.2	243.8	179.6	543.0	294.5
	B2-O	44.66	79.28	53.26	86.25	73.11	99.78	121.0	125.0	240.4	175.5	539.4	290.3
	B1-O	40.50	70.08	48.94	77.07	68.60	90.53	116.4	115.8	235.6	166.2	534.4	281.1

Version : OA13X1

Cell Unit = 8

State		Output Load											
B1 B2 B3	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 1	A1-O	40.47	50.51	46.05	55.15	58.61	64.60	87.92	83.34	159.5	119.5	338.3	194.4
0 1 0	A1-O	37.53	50.49	42.94	55.09	55.18	64.11	84.11	80.82	155.6	113.5	334.3	186.1
0 1 1	A1-O	33.24	50.52	38.38	55.17	50.19	64.31	79.04	81.20	150.4	113.9	329.0	186.5
1 0 0	A1-O	32.63	48.02	37.92	51.77	50.04	59.30	78.80	73.82	150.2	104.4	328.6	176.1
1 0 1	A1-O	29.17	47.95	34.21	51.70	45.94	59.24	74.67	73.75	146.0	104.4	324.4	176.0
1 1 0	A1-O	29.17	47.95	34.21	51.70	45.94	59.24	74.67	73.75	146.0	104.4	324.4	176.0
1 1 1	A1-O	28.01	47.93	32.96	51.68	44.64	59.20	73.20	73.73	144.6	104.3	323.0	176.0
	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
	B3-O	41.94	82.86	47.63	87.80	60.23	97.58	89.60	116.0	161.3	151.2	340.1	225.9
	B2-O	40.03	78.92	45.53	83.84	57.86	93.59	86.85	112.0	158.3	147.2	336.9	222.0
	B1-O	36.31	70.01	41.70	74.94	53.85	84.72	82.75	103.1	154.0	138.3	332.4	213.1

Version : OA13X1P

Cell Unit = 9

State		Output Load											
B1 B2 B3	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 1	A1-O	40.68	49.10	45.02	52.62	54.61	59.82	76.23	73.95	128.2	101.2	257.3	155.8
0 1 0	A1-O	38.08	49.10	42.31	52.60	51.65	59.64	73.03	72.81	124.7	97.54	253.7	149.8
0 1 1	A1-O	33.58	49.10	37.54	52.64	46.44	59.75	67.43	73.00	119.1	97.79	248.1	150.1
1 0 0	A1-O	33.80	47.37	37.97	50.36	47.19	56.38	68.33	67.97	120.0	90.94	248.9	141.9
1 0 1	A1-O	30.04	47.30	33.95	50.29	42.76	56.30	63.62	67.91	115.2	90.88	244.2	141.9
1 1 0	A1-O	30.04	47.30	33.95	50.29	42.76	56.30	63.62	67.91	115.2	90.88	244.2	141.9
1 1 1	A1-O	28.75	47.28	32.58	50.27	41.31	56.28	62.15	67.89	113.7	90.87	242.5	141.9
	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
	B3-O	41.97	88.01	46.38	92.13	56.06	100.4	77.73	116.0	129.7	144.6	258.9	201.0
	B2-O	40.26	84.70	44.56	88.81	53.98	97.10	75.43	112.7	127.2	141.3	256.1	197.7
	B1-O	36.97	76.42	41.21	80.60	50.51	88.83	71.81	104.4	123.5	133.0	252.3	189.4

Version : OA13X2

Cell Unit = 9

State		Output Load											
B1 B2 B3	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 1	A1-O	40.47	47.62	44.31	50.72	53.69	57.72	76.65	72.74	137.8	104.5	308.7	176.6
0 1 0	A1-O	38.04	47.61	41.79	50.70	50.93	57.62	73.62	71.76	134.5	100.9	305.2	170.8
0 1 1	A1-O	33.43	47.61	36.95	50.70	45.60	57.70	67.78	71.98	128.6	101.2	299.3	171.1
1 0 0	A1-O	34.04	46.19	37.73	48.88	46.74	54.88	69.21	67.50	130.0	94.91	300.6	163.8
1 0 1	A1-O	30.13	46.12	33.60	48.82	42.14	54.82	64.20	67.43	125.0	94.85	295.5	163.8
1 1 0	A1-O	30.13	46.12	33.60	48.82	42.14	54.82	64.20	67.43	125.0	94.85	295.5	163.8
1 1 1	A1-O	28.80	46.10	32.20	48.80	40.57	54.80	62.49	67.43	123.4	94.83	293.9	163.7
	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
	B3-O	41.36	96.62	45.26	100.5	54.73	109.2	77.73	127.1	139.1	162.4	309.9	238.3
	B2-O	39.75	92.75	43.57	96.62	52.80	105.3	75.52	123.2	136.6	158.5	307.2	234.5
	B1-O	36.66	83.85	40.42	87.70	49.53	96.40	72.10	114.3	133.0	149.5	303.5	225.5

Version : OA13X3

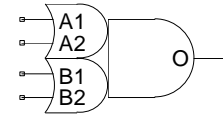
Cell Unit = 11

State		Output Load											
B1 B2 B3	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 1	A1-O	46.34	55.68	49.30	58.15	57.22	64.38	77.47	78.62	133.3	109.9	298.7	181.9
0 1 0	A1-O	43.79	55.67	46.80	58.13	54.56	64.32	74.51	77.94	130.1	106.9	295.3	176.3
0 1 1	A1-O	38.29	55.62	41.06	58.10	48.40	64.35	67.70	78.13	122.9	107.1	288.1	176.5
1 0 0	A1-O	40.00	54.30	42.92	56.52	50.66	62.00	70.49	74.22	125.9	101.4	291.0	169.3
1 0 1	A1-O	35.18	54.20	37.93	56.42	45.18	61.91	64.38	74.13	119.5	101.3	284.6	169.2
1 1 0	A1-O	35.18	54.20	37.93	56.42	45.18	61.91	64.38	74.13	119.5	101.3	284.6	169.2
1 1 1	A1-O	33.56	54.17	36.25	56.38	43.33	61.87	62.27	74.09	117.5	101.2	282.6	169.2
	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
	B3-O	46.80	111.4	49.83	114.4	57.87	122.1	78.21	139.6	134.1	175.6	299.6	253.8
	B2-O	45.05	107.6	48.03	110.5	55.92	118.3	76.01	135.7	131.5	171.7	296.8	249.9
	B1-O	41.97	98.51	44.92	101.5	52.73	109.2	72.65	126.5	128.0	162.5	293.2	240.8

Group Name : OA22

Symbol

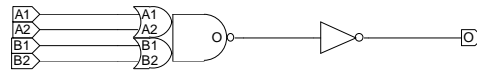
Function : 2 OR2 into AN2



Truth Table

Schematic

A1	A2	B1	B2	O
0	0	X	X	0
X	X	0	0	0
OTHERS				1



Pin Order O A1 A2 B1 B2

**Input Capacitance (ff) & Maximum Loading (ff) & Power Consumption (nW/MHz)**

Version	Input Capacitance				Maximum Loading	Power Consumption
	A1	A2	B1	B2	O	O
OA22XLP	1.351	1.270	1.391	1.465	127.5	3.622
OA22X1	1.651	1.522	1.661	1.780	212.6	5.024
OA22X1P	1.917	1.658	1.847	2.020	295.8	6.221
OA22X2	1.995	1.805	2.008	2.178	425.8	8.215
OA22X3	1.994	1.802	2.008	2.178	637.7	11.81

## AC Characteristics ( Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ps)

Version : OA22XLP

Cell Unit = 9

State		Output Load											
B1 B2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 1	A2-O	39.27	56.34	47.74	63.18	67.40	76.29	115.2	100.8	234.6	150.4	533.6	264.5
1 0	A2-O	35.49	54.05	43.81	59.88	63.42	71.28	111.3	93.75	230.4	141.3	529.3	254.8
1 1	A2-O	31.93	53.95	39.96	59.80	59.35	71.18	107.0	93.66	226.2	141.2	525.1	254.7
0 1	A1-O	42.43	59.33	51.02	66.15	70.80	79.27	118.7	103.8	238.1	153.3	537.2	267.4
1 0	A1-O	38.78	57.09	47.27	62.92	66.88	74.31	114.9	96.76	234.2	144.3	533.2	257.8
1 1	A1-O	34.62	56.94	42.76	62.77	62.12	74.19	110.0	96.56	229.3	144.1	528.3	257.6
A1 A2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 1	B2-O	41.63	73.64	50.12	80.37	69.87	93.04	117.8	116.8	237.0	165.5	536.0	279.7
1 0	B2-O	44.88	75.84	53.48	83.64	73.34	98.12	121.4	124.2	240.7	175.1	539.7	290.1
1 1	B2-O	39.74	76.75	48.14	83.68	67.74	96.62	115.5	120.6	234.8	169.4	533.7	283.7
0 1	B1-O	38.94	70.81	47.34	77.52	66.91	90.23	114.8	114.0	233.9	162.7	532.7	276.9
1 0	B1-O	42.22	73.03	50.72	80.82	70.45	95.29	118.4	121.4	237.6	172.3	536.6	287.3
1 1	B1-O	37.47	73.96	45.79	80.87	65.31	93.88	113.0	117.9	232.2	166.7	531.0	281.0

Version : OA22X1

Cell Unit = 9

State		Output Load											
B1 B2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 1	A2-O	39.18	52.89	44.68	57.64	57.02	67.06	86.07	84.64	157.4	118.7	336.0	192.4
1 0	A2-O	35.00	50.73	40.42	54.75	52.65	62.85	81.45	78.60	152.8	110.6	331.3	183.0
1 1	A2-O	31.25	50.65	36.37	54.66	48.17	62.72	76.91	78.53	148.2	110.5	326.7	182.9
0 1	A1-O	42.71	55.88	48.32	60.62	60.79	70.03	89.95	87.58	161.4	121.6	340.1	195.3
1 0	A1-O	38.65	53.77	44.21	57.80	56.56	65.92	85.63	81.53	156.9	113.6	335.6	185.9
1 1	A1-O	34.26	53.62	39.46	57.64	51.43	65.78	80.31	81.37	151.6	113.4	330.2	185.8
A1 A2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 1	B2-O	40.99	67.52	46.58	72.10	59.00	81.06	88.01	97.83	159.4	130.8	338.0	203.9
1 0	B2-O	44.70	69.65	50.36	74.97	62.91	85.32	92.07	104.1	163.6	139.3	342.3	213.9
1 1	B2-O	38.77	70.17	44.21	74.89	56.43	84.05	85.26	101.0	156.7	134.2	335.2	207.3
0 1	B1-O	37.92	64.68	43.41	69.26	55.69	78.23	84.59	95.01	155.9	128.0	334.3	201.1
1 0	B1-O	41.65	66.83	47.23	72.12	59.66	82.53	88.72	101.3	160.1	136.5	338.7	211.1
1 1	B1-O	36.21	67.39	41.59	72.13	53.74	81.24	82.42	98.24	153.8	131.4	332.3	204.5

Version : OA22X1P

Cell Unit = 10

State		Output Load											
B1 B2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 1	A2-O	39.66	54.77	43.96	58.55	53.40	66.23	74.86	80.49	126.6	107.2	255.6	161.5
1 0	A2-O	35.84	53.00	40.07	56.31	49.42	62.96	70.67	75.66	122.3	100.5	251.2	153.1
1 1	A2-O	31.80	52.89	35.78	56.20	44.66	62.83	65.59	75.54	117.2	100.4	246.1	152.9
0 1	A1-O	42.73	56.85	47.08	60.63	56.63	68.29	78.14	82.53	130.0	109.2	259.1	163.5
1 0	A1-O	39.05	55.12	43.35	58.42	52.80	65.06	74.21	77.79	126.0	102.6	254.9	155.1
1 1	A1-O	34.41	54.95	38.43	58.25	47.45	64.87	68.50	77.63	120.2	102.4	249.1	154.9
A1 A2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 1	B2-O	41.08	68.39	45.43	72.17	54.95	79.58	76.46	93.34	128.2	119.3	257.2	172.7
1 0	B2-O	44.42	70.14	48.81	74.36	58.43	82.79	80.07	98.14	131.9	125.9	260.9	181.1
1 1	B2-O	38.55	70.92	42.80	74.80	52.13	82.39	73.37	96.38	125.0	122.5	253.9	176.0
0 1	B1-O	38.24	66.11	42.54	69.84	51.94	77.27	73.32	91.08	125.0	117.0	253.8	170.4
1 0	B1-O	41.61	67.85	45.95	72.06	55.46	80.52	76.97	95.83	128.8	123.6	257.7	178.9
1 1	B1-O	36.25	68.67	40.44	72.52	49.69	80.14	70.88	94.15	122.5	120.3	251.3	173.9



Version : OA22X2

Cell Unit = 11

State		Output Load											
B1 B2	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 1	A2-O	40.08	57.18	43.90	60.66	53.16	68.57	75.99	84.65	136.9	117.1	307.6	189.9
1 0	A2-O	36.19	55.42	39.95	58.47	49.10	65.32	71.72	79.58	132.5	109.9	303.1	180.8
1 1	A2-O	32.00	55.30	35.52	58.36	44.17	65.23	66.31	79.47	127.0	109.7	297.6	180.6
0 1	A1-O	43.37	60.03	47.22	63.50	56.59	71.42	79.53	87.48	140.6	119.9	311.4	192.7
1 0	A1-O	39.60	58.30	43.42	61.35	52.70	68.19	75.49	82.51	136.4	112.7	307.1	183.6
1 1	A1-O	34.78	58.12	38.35	61.17	47.14	68.03	69.42	82.32	130.3	112.5	300.9	183.4
A1 A2	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 1	B2-O	41.41	71.46	45.27	74.90	54.62	82.60	77.46	98.12	138.5	129.5	309.1	201.3
1 0	B2-O	44.99	73.21	48.90	77.09	58.36	85.86	81.32	103.2	142.6	137.0	313.2	210.9
1 1	B2-O	38.60	73.98	42.39	77.51	51.49	85.40	73.96	101.2	135.0	132.8	305.6	204.7
0 1	B1-O	38.46	68.70	42.28	72.15	51.51	79.83	74.23	95.27	135.1	126.7	305.6	198.5
1 0	B1-O	42.05	70.47	45.92	74.33	55.27	83.09	78.15	100.4	139.2	134.2	309.8	208.1
1 1	B1-O	36.22	71.26	39.96	74.80	48.97	82.64	71.38	98.42	132.3	130.0	302.8	201.9

Version : OA22X3

Cell Unit = 12

State		Output Load											
B1 B2	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 1	A2-O	45.35	66.83	48.33	69.62	56.25	76.64	76.37	92.17	132.0	124.6	297.2	198.0
1 0	A2-O	41.56	65.10	44.58	67.59	52.38	73.78	72.39	87.74	127.9	117.9	293.0	189.1
1 1	A2-O	36.53	64.97	39.32	67.44	46.68	73.62	66.00	87.60	121.1	117.8	286.3	188.9
0 1	A1-O	48.51	69.78	51.53	72.54	59.53	79.57	79.83	95.11	135.6	127.5	300.9	200.9
1 0	A1-O	44.87	68.07	47.84	70.52	55.73	76.70	75.88	90.65	131.5	120.9	296.7	192.0
1 1	A1-O	39.16	67.84	41.99	70.32	49.44	76.53	68.82	90.44	124.0	120.7	289.3	191.8
A1 A2	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 1	B2-O	46.21	80.94	49.24	83.72	57.24	90.63	77.49	105.8	133.0	137.3	298.4	209.6
1 0	B2-O	49.79	82.70	52.84	85.76	60.90	93.48	81.30	110.3	137.0	144.2	302.4	218.9
1 1	B2-O	42.43	83.35	45.39	86.19	53.14	93.24	72.87	108.6	128.4	140.5	293.6	213.0
0 1	B1-O	43.28	78.14	46.28	80.89	54.20	87.72	74.29	102.9	129.6	134.5	294.9	206.8
1 0	B1-O	46.87	79.89	49.90	82.92	57.89	90.62	78.14	107.4	133.7	141.3	299.0	216.0
1 1	B1-O	40.13	80.55	43.07	83.37	50.74	90.41	70.42	105.8	125.7	137.7	290.9	210.1

Group Name : OA222

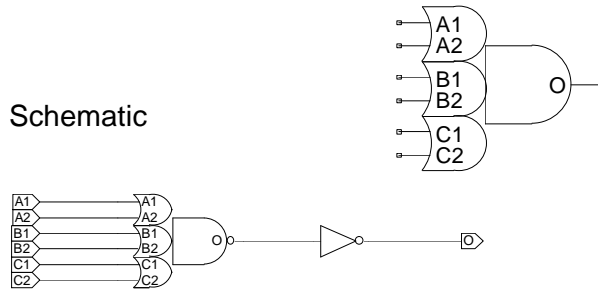
Symbol

Function : 3 OR2 into AN3

Truth Table

A1	A2	B1	B2	C1	C2	O
0	0	X	X	X	X	0
X	X	0	0	X	X	0
X	X	X	X	0	0	0
OTHERS						1

Schematic



Pin Order O A1 A2 B1 B2 C1 C2

**Input Capacitance (ff) & Maximum Loading (ff) & Power Consumption (nW/MHz)**

Version	Input Capacitance						Maximum Loading	Power Consumption
	A1	A2	B1	B2	C1	C2	O	O
OA222XLP	1.489	1.256	1.392	1.580	1.586	1.428	127.5	4.866
OA222X1	1.844	1.536	1.690	1.955	1.968	1.746	212.5	6.665
OA222X1P	1.963	1.709	1.815	1.996	2.093	1.848	295.5	7.898
OA222X2	2.053	1.770	1.876	2.206	2.261	1.962	425.0	10.31
OA222X3	2.052	1.773	1.885	2.193	2.249	1.966	636.4	14.29

AC Characteristics ( Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ps)

Version : OA222XLP

Cell Unit = 12

State				Output Load											
B1 B2 C1 C2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff			
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl		
0 1 0 1	A2-O	49.16	64.25	58.62	71.56	79.47	85.50	127.8	111.3	247.1	162.3	546.1	277.1		
0 1 1 0	A2-O	53.69	66.41	63.28	74.73	84.27	90.37	132.7	118.3	252.2	171.6	551.3	287.8		
0 1 1 1	A2-O	45.55	64.11	54.54	71.42	74.85	85.36	122.9	111.1	242.1	162.1	541.2	277.0		
1 0 0 1	A2-O	44.94	62.12	54.28	68.53	74.95	81.00	123.1	104.8	242.3	153.8	541.3	267.7		
1 0 1 0	A2-O	49.53	64.28	59.02	71.65	79.88	85.79	128.2	111.9	247.6	163.1	546.6	278.1		
1 0 1 1	A2-O	41.83	61.99	50.71	68.38	70.85	80.88	118.8	104.7	238.0	153.7	536.9	267.6		
1 1 0 1	A2-O	41.42	62.00	50.42	68.39	70.70	80.89	118.7	104.7	237.9	153.7	536.8	267.6		
1 1 1 0	A2-O	45.44	64.15	54.56	71.52	75.06	85.66	123.2	111.7	242.5	163.0	541.5	278.0		
1 1 1 1	A2-O	38.12	61.85	46.64	68.24	66.40	80.70	114.1	104.6	233.4	153.5	532.3	267.4		
0 1 0 1	A1-O	52.76	66.94	62.33	74.28	83.27	88.15	131.7	113.9	251.2	164.9	550.4	279.7		
0 1 1 0	A1-O	57.29	69.09	66.96	77.41	88.11	93.00	136.7	120.9	256.3	174.2	555.5	290.3		
0 1 1 1	A1-O	48.63	66.77	57.74	74.08	78.12	88.00	126.3	113.7	245.6	164.7	544.7	279.5		
1 0 0 1	A1-O	48.61	64.86	58.06	71.28	78.88	83.63	127.2	107.5	246.6	156.4	545.6	270.4		
1 0 1 0	A1-O	53.13	66.98	62.72	74.39	83.67	88.43	132.2	114.5	251.7	165.7	550.8	280.7		
1 0 1 1	A1-O	45.03	64.69	54.04	71.09	74.31	83.47	122.3	107.4	241.6	156.3	540.7	270.2		
1 1 0 1	A1-O	44.65	64.68	53.76	71.08	74.17	83.46	122.2	107.3	241.6	156.3	540.6	270.2		
1 1 1 0	A1-O	48.53	66.80	57.76	74.18	78.33	88.27	126.6	114.3	246.0	165.6	545.1	280.5		
1 1 1 1	A1-O	40.83	64.50	49.52	70.90	69.29	83.29	117.3	107.1	236.5	156.1	535.5	270.0		
A1 A2 C1 C2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff			
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl		
0 1 0 1	B2-O	54.85	82.64	64.34	89.98	85.16	103.8	133.5	129.2	252.8	179.4	551.8	294.3		
0 1 1 0	B2-O	59.07	84.76	68.69	93.08	89.64	108.6	138.1	136.2	257.6	188.8	556.8	304.8		
0 1 1 1	B2-O	49.35	82.35	58.42	89.70	78.65	103.5	126.7	128.9	245.9	179.2	544.9	294.0		
1 0 0 1	B2-O	58.87	84.75	68.48	93.04	89.42	108.4	137.9	135.9	257.4	188.3	556.5	304.2		
1 0 1 0	B2-O	63.11	86.84	72.83	96.09	93.91	113.1	142.5	142.7	262.2	197.5	561.4	314.9		
1 0 1 1	B2-O	52.73	84.47	61.90	92.75	82.25	108.1	130.4	135.6	249.8	188.0	548.9	303.9		
1 1 0 1	B2-O	52.94	85.91	62.40	93.45	83.14	107.6	131.4	133.3	250.6	183.7	549.6	298.6		
1 1 1 0	B2-O	56.61	87.98	66.16	96.46	87.03	112.2	135.4	140.2	254.7	193.0	553.8	309.1		
1 1 1 1	B2-O	47.26	85.60	56.22	93.15	76.33	107.3	124.3	133.0	243.5	183.4	542.5	298.3		
0 1 0 1	B1-O	51.53	79.92	60.93	87.27	81.58	101.1	129.8	126.5	249.0	176.7	547.9	291.5		
0 1 1 0	B1-O	55.75	82.06	65.27	90.37	86.08	105.9	134.4	133.5	253.8	186.1	552.8	302.1		
0 1 1 1	B1-O	46.57	79.67	55.54	87.01	75.61	100.9	123.6	126.3	242.7	176.5	541.6	291.3		
1 0 0 1	B1-O	55.56	82.05	65.07	90.32	85.86	105.7	134.2	133.2	253.6	185.6	552.6	301.5		
1 0 1 0	B1-O	59.80	84.15	69.43	93.39	90.36	110.4	138.8	140.0	258.4	194.9	557.5	312.2		
1 0 1 1	B1-O	49.97	81.79	59.05	90.08	79.26	105.5	127.3	132.9	246.6	185.4	545.6	301.3		
1 1 0 1	B1-O	50.02	83.24	59.39	90.79	80.01	104.9	128.2	130.6	247.3	181.1	546.2	295.9		
1 1 1 0	B1-O	53.74	85.32	63.20	93.81	83.97	109.6	132.2	137.5	251.5	190.4	550.5	306.5		
1 1 1 1	B1-O	44.88	83.00	53.78	90.51	73.74	104.7	121.7	130.3	240.7	180.8	539.6	295.7		

A1 A2 B1 B2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 1 0 1	C2-O	57.37	95.67	66.87	104.7	87.76	121.1	136.1	149.8	255.3	203.5	554.3	320.3
0 1 1 0	C2-O	53.67	93.42	63.08	101.5	83.80	116.5	132.0	143.3	251.1	194.9	550.0	310.6
0 1 1 1	C2-O	50.61	96.06	59.72	104.2	80.02	119.4	127.9	146.5	247.1	198.3	546.0	314.2
1 0 0 1	C2-O	61.25	97.89	70.85	107.8	91.89	125.7	140.4	156.3	259.7	212.2	558.9	330.5
1 0 1 0	C2-O	57.51	95.69	67.02	104.7	87.93	121.2	136.3	150.1	255.5	203.9	554.5	320.8
1 0 1 1	C2-O	53.88	98.34	63.10	107.5	83.48	124.2	131.5	153.3	250.9	207.3	549.9	324.3
1 1 0 1	C2-O	54.52	99.55	64.03	108.7	84.78	125.4	133.0	154.4	252.3	208.3	551.2	325.2
1 1 1 0	C2-O	51.38	97.40	60.79	105.6	81.40	120.9	129.5	148.1	248.6	199.8	547.5	315.5
1 1 1 1	C2-O	48.23	100.2	57.31	108.6	77.55	124.1	125.5	151.6	244.6	203.4	543.5	319.3
0 1 0 1	C1-O	60.92	99.39	70.54	108.3	91.60	124.8	140.1	153.5	259.5	207.2	558.6	324.0
0 1 1 0	C1-O	57.21	97.12	66.73	105.2	87.63	120.2	136.0	146.9	255.3	198.6	554.3	314.3
0 1 1 1	C1-O	53.60	99.74	62.82	107.9	83.19	123.1	131.3	150.2	250.7	202.0	549.7	317.9
1 0 0 1	C1-O	64.83	101.6	74.52	111.5	95.70	129.4	144.4	160.0	263.8	216.0	563.1	334.2
1 0 1 0	C1-O	61.06	99.40	70.69	108.4	91.76	124.9	140.3	153.8	259.7	207.6	558.8	324.5
1 0 1 1	C1-O	56.87	102.0	66.18	111.1	86.71	127.8	134.9	156.9	254.4	211.0	553.5	328.0
1 1 0 1	C1-O	57.54	103.2	67.12	112.3	87.99	129.1	136.4	158.2	255.8	212.0	554.9	328.8
1 1 1 0	C1-O	54.36	101.0	63.89	109.3	84.68	124.6	133.0	151.8	252.2	203.4	551.2	319.2
1 1 1 1	C1-O	50.70	103.8	59.86	112.3	80.24	127.8	128.3	155.2	247.5	207.0	546.5	322.9

Version : OA222X1

Cell Unit = 12

State				Output Load											
B1 B2 C1 C2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff			
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl		
0 1 0 1	A2-O	47.35	59.81	53.57	64.90	67.14	74.86	97.07	93.36	168.7	128.6	347.3	203.3		
0 1 1 0	A2-O	52.20	61.89	58.52	67.67	72.25	79.00	102.4	99.34	174.2	136.8	352.9	213.3		
0 1 1 1	A2-O	43.70	59.68	49.61	64.77	62.58	74.72	91.99	93.22	163.4	128.5	342.0	203.2		
1 0 0 1	A2-O	42.79	57.78	48.93	62.20	62.32	70.94	92.10	87.86	163.6	121.1	342.1	194.4		
1 0 1 0	A2-O	47.71	59.83	53.94	64.96	67.54	75.04	97.50	93.78	169.2	129.3	347.8	204.2		
1 0 1 1	A2-O	39.75	57.66	45.58	62.07	58.41	70.81	87.59	87.74	159.0	121.0	337.5	194.2		
1 1 0 1	A2-O	39.29	57.67	45.18	62.08	58.15	70.82	87.48	87.75	158.9	121.0	337.4	194.2		
1 1 1 0	A2-O	43.53	59.71	49.52	64.84	62.71	74.92	92.18	93.66	163.8	129.2	342.4	204.1		
1 1 1 1	A2-O	36.06	57.56	41.60	61.95	53.96	70.68	82.86	87.62	154.3	120.9	332.7	194.1		
0 1 0 1	A1-O	51.25	62.51	57.57	67.58	71.27	77.54	101.4	96.00	173.2	131.3	351.9	206.0		
0 1 1 0	A1-O	56.09	64.54	62.50	70.31	76.32	81.66	106.6	101.9	178.6	139.4	357.4	216.0		
0 1 1 1	A1-O	47.07	62.35	53.06	67.42	66.17	77.38	95.67	95.83	167.3	131.1	346.0	205.9		
1 0 0 1	A1-O	46.76	60.51	52.99	64.94	66.56	73.71	96.54	90.52	168.2	123.8	346.8	197.0		
1 0 1 0	A1-O	51.61	62.52	57.94	67.63	71.66	77.73	101.8	96.42	173.6	132.0	352.4	206.9		
1 0 1 1	A1-O	43.18	60.36	49.11	64.77	62.08	73.55	91.42	90.38	163.0	123.7	341.5	196.8		
1 1 0 1	A1-O	42.71	60.35	48.70	64.76	61.80	73.55	91.32	90.37	162.9	123.6	341.5	196.8		
1 1 1 0	A1-O	46.88	62.36	52.95	67.46	66.21	77.57	95.85	96.25	167.6	131.8	346.2	206.7		
1 1 1 1	A1-O	38.99	60.19	44.65	64.59	57.13	73.38	86.22	90.21	157.6	123.5	336.1	196.7		
A1 A2 C1 C2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff			
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl		
0 1 0 1	B2-O	52.70	76.08	58.98	81.11	72.58	90.83	102.6	108.9	174.2	143.4	352.8	217.5		
0 1 1 0	B2-O	57.28	78.10	63.64	83.81	77.39	94.90	107.6	114.8	179.3	151.6	358.1	227.5		
0 1 1 1	B2-O	47.20	75.81	53.19	80.86	66.20	90.57	95.69	108.6	167.0	143.1	345.6	217.3		
1 0 0 1	B2-O	57.11	78.10	63.46	83.80	77.20	94.81	107.4	114.6	179.1	151.3	357.8	227.0		
1 0 1 0	B2-O	61.70	80.15	68.13	86.51	82.02	98.84	112.4	120.5	184.3	159.3	363.1	237.0		
1 0 1 1	B2-O	50.91	77.84	56.97	83.54	70.09	94.58	99.73	114.4	171.2	151.0	349.9	226.8		
1 1 0 1	B2-O	50.58	79.07	56.83	84.18	70.33	94.16	100.2	112.5	171.7	147.2	350.3	221.4		
1 1 1 0	B2-O	54.55	81.04	60.86	86.83	74.47	98.14	104.5	118.3	176.1	155.4	354.8	231.3		
1 1 1 1	B2-O	44.95	78.80	50.83	83.94	63.72	93.90	93.02	112.2	164.4	146.9	342.9	221.1		
0 1 0 1	B1-O	49.08	73.44	55.28	78.45	68.69	88.18	98.55	106.3	170.0	140.8	348.4	214.9		
0 1 1 0	B1-O	53.65	75.47	59.94	81.18	73.56	92.28	103.6	112.2	175.2	149.1	353.8	224.9		
0 1 1 1	B1-O	44.17	73.23	50.07	78.25	62.94	87.96	92.28	106.1	163.5	140.6	342.0	214.7		
1 0 0 1	B1-O	53.48	75.46	59.77	81.18	73.37	92.19	103.4	112.0	175.0	148.7	353.6	224.5		
1 0 1 0	B1-O	58.08	77.56	64.46	83.90	78.22	96.23	108.4	117.9	180.2	156.8	358.9	234.5		
1 0 1 1	B1-O	47.88	75.25	53.87	80.97	66.87	91.98	96.37	111.8	167.7	148.5	346.3	224.2		
1 1 0 1	B1-O	47.41	76.45	53.59	81.58	66.96	91.55	96.73	109.9	168.0	144.7	346.5	218.8		
1 1 1 0	B1-O	51.42	78.41	57.70	84.23	71.18	95.54	101.1	115.8	172.5	152.8	351.2	228.8		
1 1 1 1	B1-O	42.39	76.21	48.20	81.34	60.97	91.32	90.18	109.7	161.4	144.5	339.9	218.6		

A1 A2 B1 B2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 1 0 1	C2-O	55.17	87.49	61.47	93.62	75.06	105.4	105.1	126.2	176.6	163.9	355.2	240.6
0 1 1 0	C2-O	51.12	85.30	57.34	90.75	70.80	101.3	100.6	120.5	172.0	156.2	350.5	231.3
0 1 1 1	C2-O	48.09	87.68	54.08	93.22	67.14	103.9	96.52	123.4	167.9	159.3	346.4	234.5
1 0 0 1	C2-O	59.44	89.68	65.79	96.45	79.51	109.5	109.8	132.0	181.4	171.6	360.1	250.2
1 0 1 0	C2-O	55.33	87.50	61.64	93.64	75.24	105.5	105.3	126.5	176.8	164.2	355.5	241.0
1 0 1 1	C2-O	51.68	89.90	57.74	96.14	70.92	108.1	100.5	129.3	172.0	167.3	350.6	244.2
1 1 0 1	C2-O	52.12	91.04	58.40	97.31	71.91	109.3	101.8	130.3	173.3	168.2	351.9	245.0
1 1 1 0	C2-O	48.66	88.93	54.88	94.58	68.27	105.4	98.07	124.8	169.4	160.7	347.8	235.7
1 1 1 1	C2-O	45.52	91.48	51.50	97.23	64.51	108.2	93.83	127.9	165.2	163.9	343.6	239.1
0 1 0 1	C1-O	59.03	91.04	65.39	97.17	79.13	108.9	109.4	129.7	181.0	167.5	359.8	244.1
0 1 1 0	C1-O	54.96	88.86	61.27	94.28	74.89	104.9	104.9	124.1	176.5	159.8	355.1	234.9
0 1 1 1	C1-O	51.34	91.22	57.41	96.71	70.60	107.5	100.2	126.9	171.7	162.8	350.3	238.0
1 0 0 1	C1-O	63.31	93.23	69.75	100.00	83.58	113.0	114.0	135.5	185.8	175.2	364.7	253.8
1 0 1 0	C1-O	59.20	91.05	65.56	97.20	79.31	109.1	109.6	130.0	181.2	167.8	360.0	244.6
1 0 1 1	C1-O	54.92	93.42	61.05	99.69	74.37	111.6	104.1	132.8	175.8	170.8	354.5	247.7
1 1 0 1	C1-O	55.38	94.55	61.71	100.8	75.37	112.8	105.5	133.9	177.1	171.7	355.8	248.5
1 1 1 0	C1-O	51.91	92.47	58.19	98.07	71.73	108.9	101.7	128.4	173.2	164.2	351.8	239.2
1 1 1 1	C1-O	48.16	94.99	54.22	100.7	67.36	111.7	96.86	131.4	168.2	167.4	346.8	242.5

Version : OA222X1P

Cell Unit = 13

State				Output Load											
B1 B2 C1 C2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff			
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl		
0 1 0 1	A2-O	48.94	59.84	53.77	63.81	64.32	71.85	87.05	86.70	139.4	114.3	268.5	169.6		
0 1 1 0	A2-O	53.51	61.57	58.39	66.00	69.06	75.04	92.02	91.28	144.5	120.7	273.6	177.8		
0 1 1 1	A2-O	44.94	59.73	49.54	63.68	59.57	71.71	81.68	86.57	133.7	114.2	262.6	169.4		
1 0 0 1	A2-O	44.30	58.14	49.06	61.65	59.49	68.70	82.06	82.15	134.3	108.0	263.2	161.3		
1 0 1 0	A2-O	48.94	59.84	53.77	63.81	64.32	71.85	87.05	86.70	139.4	114.3	268.5	169.6		
1 0 1 1	A2-O	40.93	58.03	45.48	61.53	55.41	68.57	77.37	82.01	129.2	107.9	258.1	161.2		
1 1 0 1	A2-O	40.47	58.04	45.06	61.53	55.10	68.58	77.19	82.02	129.1	107.9	258.0	161.2		
1 1 1 0	A2-O	44.43	59.74	49.07	63.69	59.22	71.72	81.50	86.58	133.6	114.2	262.5	169.4		
1 1 1 1	A2-O	36.98	57.92	41.28	61.40	50.76	68.42	72.20	81.88	123.9	107.7	252.7	161.1		
0 1 0 1	A1-O	52.72	61.99	57.62	65.96	68.29	73.97	91.22	88.84	143.8	116.4	272.9	171.7		
0 1 1 0	A1-O	57.29	63.70	62.24	68.13	73.03	77.12	96.10	93.39	148.8	122.7	278.0	179.8		
0 1 1 1	A1-O	48.21	61.82	52.86	65.79	63.00	73.81	85.24	88.69	137.4	116.2	266.4	171.5		
1 0 0 1	A1-O	48.16	60.31	52.98	63.83	63.54	70.91	86.30	84.24	138.6	110.1	267.7	163.4		
1 0 1 0	A1-O	52.72	61.99	57.62	65.96	68.30	73.97	91.22	88.84	143.8	116.4	272.9	171.7		
1 0 1 1	A1-O	44.27	60.14	48.86	63.66	58.91	70.72	81.00	84.08	133.0	109.9	261.9	163.3		
1 1 0 1	A1-O	43.76	60.14	48.40	63.66	58.55	70.71	80.79	84.08	132.8	109.9	261.8	163.3		
1 1 1 0	A1-O	47.68	61.81	52.37	65.79	62.64	73.81	85.02	88.69	137.2	116.2	266.3	171.5		
1 1 1 1	A1-O	39.81	59.96	44.18	63.47	53.76	70.54	75.32	83.92	127.1	109.7	256.1	163.1		
A1 A2 C1 C2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff			
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl		
0 1 0 1	B2-O	54.07	74.87	58.95	78.86	69.54	86.68	92.35	101.4	144.6	128.3	273.7	182.8		
0 1 1 0	B2-O	58.43	76.56	63.35	80.99	74.06	89.82	97.01	105.9	149.5	134.7	278.7	191.0		
0 1 1 1	B2-O	48.19	74.62	52.83	78.57	62.97	86.46	85.06	101.1	137.0	128.1	266.0	182.6		
1 0 0 1	B2-O	58.43	76.56	63.35	80.99	74.05	89.82	97.01	105.9	149.5	134.7	278.7	191.0		
1 0 1 0	B2-O	62.81	78.26	67.77	83.14	78.57	92.89	101.7	110.4	154.3	140.9	283.6	199.1		
1 0 1 1	B2-O	51.87	76.30	56.56	80.71	66.78	89.58	89.02	105.6	141.1	134.5	270.2	190.8		
1 1 0 1	B2-O	51.54	77.55	56.39	81.64	66.90	89.65	89.55	104.6	141.8	131.9	270.7	186.4		
1 1 1 0	B2-O	55.31	79.20	60.20	83.72	70.78	92.73	93.60	109.0	145.9	138.2	275.0	194.6		
1 1 1 1	B2-O	45.52	77.30	50.12	81.36	60.06	89.41	82.01	104.4	133.9	131.6	262.8	186.2		
0 1 0 1	B1-O	50.34	72.46	55.16	76.43	65.64	84.30	88.30	98.96	140.4	126.0	269.4	180.4		
0 1 1 0	B1-O	54.71	74.17	59.59	78.58	70.19	87.43	92.99	103.5	145.3	132.3	274.4	188.6		
0 1 1 1	B1-O	45.08	72.24	49.68	76.22	59.69	84.10	81.63	98.72	133.5	125.8	262.4	180.2		
1 0 0 1	B1-O	54.71	74.17	59.59	78.58	70.19	87.43	92.98	103.5	145.3	132.3	274.4	188.6		
1 0 1 0	B1-O	59.09	75.89	64.01	80.72	74.76	90.51	97.66	107.9	150.1	138.6	279.3	196.8		
1 0 1 1	B1-O	48.76	73.93	53.40	78.37	63.52	87.21	85.60	103.2	137.5	132.1	266.5	188.4		
1 1 0 1	B1-O	48.30	75.19	53.11	79.25	63.54	87.31	86.05	102.3	138.1	129.5	267.0	184.1		
1 1 1 0	B1-O	52.12	76.84	56.97	81.34	67.46	90.37	90.13	106.7	142.3	135.8	271.3	192.3		
1 1 1 1	B1-O	42.91	74.98	47.47	79.03	57.34	87.09	79.13	102.0	130.9	129.3	259.7	183.9		

A1 A2 B1 B2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 1 0 1	C2-O	56.57	85.47	61.45	90.25	72.05	99.74	94.94	116.8	147.2	146.8	276.2	204.1
0 1 1 0	C2-O	52.36	83.65	57.20	87.94	67.71	96.47	90.40	112.1	142.6	140.3	271.4	195.8
0 1 1 1	C2-O	48.98	85.89	53.64	90.22	63.78	98.88	85.85	114.7	137.8	143.1	266.7	198.7
1 0 0 1	C2-O	60.81	87.31	65.74	92.52	76.43	102.9	99.44	121.3	151.9	153.0	281.1	212.3
1 0 1 0	C2-O	56.57	85.47	61.45	90.25	72.05	99.74	94.93	116.8	147.2	146.8	276.2	204.1
1 0 1 1	C2-O	52.53	87.72	57.24	92.54	67.46	102.1	89.74	119.4	141.8	149.6	270.8	207.1
1 1 0 1	C2-O	53.06	88.73	57.92	93.59	68.49	103.3	91.12	120.6	143.3	150.8	272.3	208.2
1 1 1 0	C2-O	49.48	86.98	54.29	91.38	64.77	100.2	87.29	116.0	139.3	144.4	268.2	199.9
1 1 1 1	C2-O	45.95	89.34	50.61	93.82	60.70	102.7	82.75	118.8	134.6	147.4	263.4	203.1
0 1 0 1	C1-O	60.20	88.05	65.13	92.86	75.83	102.3	98.86	119.3	151.3	149.4	280.5	206.7
0 1 1 0	C1-O	56.00	86.23	60.87	90.54	71.49	99.03	94.38	114.7	146.7	142.9	275.7	198.4
0 1 1 1	C1-O	52.04	88.41	56.74	92.78	66.97	101.4	89.21	117.2	141.3	145.6	270.3	201.3
1 0 0 1	C1-O	64.44	89.88	69.41	95.12	80.21	105.5	103.4	123.8	156.0	155.6	285.2	214.9
1 0 1 0	C1-O	60.20	88.05	65.13	92.86	75.83	102.3	98.86	119.3	151.3	149.4	280.5	206.7
1 0 1 1	C1-O	55.57	90.24	60.33	95.12	70.65	104.7	93.07	121.9	145.3	152.1	274.4	209.6
1 1 0 1	C1-O	56.12	91.30	61.02	96.16	71.66	105.8	94.45	123.1	146.8	153.4	275.9	210.8
1 1 1 0	C1-O	52.55	89.56	57.41	93.93	67.96	102.7	90.63	118.6	142.8	147.0	271.8	202.5
1 1 1 1	C1-O	48.43	91.88	53.14	96.32	63.32	105.2	85.48	121.3	137.4	149.9	266.4	205.6



Version : OA222X2

Cell Unit = 13

State				Output Load											
B1 B2 C1 C2	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff			
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl		
0 1 0 1	A2-O	53.06	63.10	57.37	66.76	67.91	75.04	92.57	91.80	154.5	125.4	325.2	199.4		
0 1 1 0	A2-O	58.37	64.87	62.73	68.94	73.39	78.29	98.23	96.81	160.4	132.6	331.3	208.9		
0 1 1 1	A2-O	48.46	62.97	52.57	66.62	62.59	74.90	86.33	91.67	147.8	125.2	318.4	199.3		
1 0 0 1	A2-O	48.08	61.38	52.34	64.64	62.75	71.93	87.23	87.15	149.0	118.6	319.5	190.7		
1 0 1 0	A2-O	53.45	63.11	57.76	66.78	68.31	75.13	93.00	92.08	155.0	125.9	325.7	200.2		
1 0 1 1	A2-O	44.17	61.25	48.24	64.50	58.14	71.80	81.69	87.02	143.0	118.5	313.5	190.5		
1 1 0 1	A2-O	43.66	61.26	47.75	64.51	57.75	71.80	81.50	87.03	142.9	118.6	313.4	190.5		
1 1 1 0	A2-O	48.24	62.99	52.39	66.65	62.52	75.00	86.49	91.96	148.1	125.8	318.7	200.1		
1 1 1 1	A2-O	39.70	61.12	43.58	64.37	52.99	71.66	76.01	86.88	136.9	118.4	307.4	190.4		
0 1 0 1	A1-O	57.39	65.80	61.75	69.45	72.39	77.76	97.25	94.53	159.4	128.1	330.3	202.1		
0 1 1 0	A1-O	62.69	67.56	67.08	71.63	77.85	80.97	102.9	99.49	165.3	135.3	336.3	211.6		
0 1 1 1	A1-O	52.13	65.67	56.30	69.30	66.42	77.59	90.35	94.35	152.0	127.9	322.7	202.0		
1 0 0 1	A1-O	52.41	64.11	56.74	67.36	67.27	74.66	91.97	89.91	154.0	121.3	324.7	193.4		
1 0 1 0	A1-O	57.77	65.82	62.14	69.47	72.79	77.85	97.67	94.82	159.9	128.6	330.7	202.9		
1 0 1 1	A1-O	47.90	63.97	52.02	67.21	62.05	74.51	85.79	89.74	147.3	121.2	317.9	193.2		
1 1 0 1	A1-O	47.36	63.96	51.51	67.19	61.64	74.49	85.61	89.73	147.2	121.2	317.8	193.2		
1 1 1 0	A1-O	51.89	65.67	56.10	69.32	66.34	77.68	90.52	94.63	152.3	128.5	323.0	202.7		
1 1 1 1	A1-O	42.82	63.81	46.73	67.03	56.22	74.32	79.34	89.56	140.4	121.0	311.0	193.0		
A1 A2 C1 C2	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff			
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl		
0 1 0 1	B2-O	57.79	77.17	62.13	80.82	72.71	88.88	97.49	105.2	159.4	138.0	330.2	211.0		
0 1 1 0	B2-O	62.94	78.93	67.33	82.95	78.02	92.08	103.0	110.2	165.2	145.2	336.0	220.5		
0 1 1 1	B2-O	51.27	76.92	55.43	80.57	65.52	88.65	89.40	105.0	150.7	137.7	321.4	210.8		
1 0 0 1	B2-O	62.74	78.92	67.13	82.94	77.81	92.03	102.7	110.0	165.0	145.0	335.8	220.1		
1 0 1 0	B2-O	67.94	80.72	72.35	85.13	83.13	95.23	108.3	114.9	170.7	152.1	341.7	229.6		
1 0 1 1	B2-O	55.44	78.67	59.64	82.70	69.82	91.78	93.89	109.8	155.3	144.7	326.2	219.9		
1 1 0 1	B2-O	54.55	79.67	58.86	83.37	69.34	91.63	93.77	108.2	155.5	141.2	326.2	214.4		
1 1 1 0	B2-O	58.94	81.38	63.33	85.47	73.85	94.77	98.54	113.1	160.4	148.4	331.3	224.0		
1 1 1 1	B2-O	47.90	79.40	52.05	83.13	61.90	91.41	85.41	107.9	146.6	141.0	317.3	214.2		
0 1 0 1	B1-O	53.70	74.56	58.00	78.15	68.47	86.19	93.02	102.6	154.8	135.3	325.4	208.4		
0 1 1 0	B1-O	58.85	76.29	63.20	80.30	73.79	89.40	98.57	107.5	160.5	142.6	331.3	218.0		
0 1 1 1	B1-O	47.86	74.32	51.97	77.95	61.96	85.98	85.65	102.4	146.8	135.1	317.4	208.2		
1 0 0 1	B1-O	58.65	76.28	62.99	80.28	73.58	89.36	98.35	107.4	160.3	142.3	331.1	217.5		
1 0 1 0	B1-O	63.84	78.06	68.22	82.46	78.91	92.53	103.9	112.3	166.1	149.5	336.9	227.1		
1 0 1 1	B1-O	52.02	76.08	56.19	80.08	66.28	89.15	90.17	107.2	151.5	142.1	322.2	217.3		
1 1 0 1	B1-O	51.05	77.04	55.32	80.73	65.73	88.96	89.96	105.7	151.5	138.7	322.0	211.8		
1 1 1 0	B1-O	55.49	78.75	59.81	82.84	70.27	92.11	94.78	110.5	156.5	145.9	327.2	221.4		
1 1 1 1	B1-O	45.08	76.83	49.17	80.52	58.93	88.75	82.35	105.4	143.4	138.4	313.9	211.6		

A1 A2 B1 B2	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 1 0 1	C2-O	60.05	86.58	64.39	90.85	74.97	100.4	99.75	119.3	161.6	155.3	332.4	231.4
0 1 1 0	C2-O	55.43	84.69	59.73	88.56	70.20	97.19	94.74	114.5	156.4	148.5	327.0	222.6
0 1 1 1	C2-O	51.47	86.79	55.64	90.68	65.72	99.42	89.59	116.9	151.0	151.1	321.5	225.3
1 0 0 1	C2-O	64.87	88.49	69.26	93.13	79.95	103.7	104.9	124.1	167.0	162.2	337.9	240.5
1 0 1 0	C2-O	60.21	86.59	64.56	90.86	75.14	100.5	99.92	119.5	161.8	155.6	332.6	231.8
1 0 1 1	C2-O	55.49	88.66	59.70	92.99	69.90	102.7	93.93	121.9	155.5	158.2	326.2	234.6
1 1 0 1	C2-O	55.78	89.51	60.10	93.88	70.60	103.6	95.12	122.8	156.9	159.0	327.6	235.2
1 1 1 0	C2-O	51.87	87.72	56.15	91.67	66.55	100.5	90.90	118.1	152.4	152.3	323.0	226.4
1 1 1 1	C2-O	47.75	89.93	51.91	93.94	61.91	102.9	85.61	120.7	146.7	155.0	317.3	229.3
0 1 0 1	C1-O	64.41	90.07	68.80	94.35	79.49	103.9	104.5	122.8	166.5	158.8	337.5	234.9
0 1 1 0	C1-O	59.78	88.22	64.13	92.07	74.72	100.7	99.50	118.0	161.4	152.0	332.2	226.1
0 1 1 1	C1-O	55.10	90.26	59.32	94.16	69.53	102.9	93.60	120.4	155.2	154.6	325.9	228.8
1 0 0 1	C1-O	69.25	91.97	73.66	96.63	84.48	107.2	109.7	127.6	171.9	165.7	343.0	244.0
1 0 1 0	C1-O	64.58	90.08	68.97	94.36	79.67	104.0	104.7	123.0	166.7	159.1	337.7	235.3
1 0 1 1	C1-O	59.15	92.13	63.42	96.46	73.71	106.2	97.94	125.4	159.7	161.7	330.5	238.0
1 1 0 1	C1-O	59.48	92.99	63.83	97.36	74.39	107.2	99.12	126.3	161.1	162.5	331.9	238.7
1 1 1 0	C1-O	55.52	91.20	59.85	95.15	70.34	104.0	94.93	121.6	156.7	155.7	327.4	229.9
1 1 1 1	C1-O	50.71	93.38	54.89	97.38	64.98	106.4	88.87	124.2	150.1	158.5	320.8	232.8

Version : OA222X3

Cell Unit = 14

State		Output Load											
B1 B2 C1 C2	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 1 0 1	A2-O	59.64	72.40	62.94	75.31	71.87	82.64	94.18	98.70	151.4	132.2	316.9	207.1
0 1 1 0	A2-O	64.93	74.21	68.28	77.38	77.32	85.52	99.79	103.2	157.3	138.9	323.0	216.2
0 1 1 1	A2-O	54.08	72.25	57.29	75.16	65.83	82.50	87.22	98.56	143.5	132.1	308.9	206.9
1 0 0 1	A2-O	54.72	70.68	58.00	73.31	66.86	79.87	89.08	94.47	146.0	126.0	311.3	198.6
1 0 1 0	A2-O	60.03	72.41	63.34	75.34	72.28	82.70	94.61	98.97	151.9	132.7	317.4	207.9
1 0 1 1	A2-O	49.88	70.53	53.05	73.17	61.52	79.72	82.75	94.33	138.8	125.9	304.1	198.4
1 1 0 1	A2-O	49.34	70.53	52.52	73.17	61.06	79.72	82.46	94.33	138.8	125.9	304.0	198.4
1 1 1 0	A2-O	53.86	72.27	57.08	75.19	65.71	82.56	87.29	98.82	143.8	132.6	309.2	207.7
1 1 1 1	A2-O	44.52	70.37	47.58	72.99	55.61	79.56	75.97	94.19	131.6	125.7	296.7	198.3
0 1 0 1	A1-O	63.92	75.13	67.26	78.01	76.29	85.39	98.76	101.5	156.2	135.0	321.9	209.8
0 1 1 0	A1-O	69.20	76.89	72.58	80.07	81.67	88.24	104.3	106.0	162.0	141.7	327.9	219.0
0 1 1 1	A1-O	57.76	74.96	60.97	77.86	69.58	85.21	91.13	101.3	147.6	134.8	313.1	209.7
1 0 0 1	A1-O	59.04	73.45	62.36	76.04	71.29	82.63	93.61	97.34	150.9	128.8	316.4	201.3
1 0 1 0	A1-O	64.31	75.15	67.66	78.03	76.70	85.44	99.19	101.7	156.7	135.5	322.4	210.6
1 0 1 1	A1-O	53.55	73.27	56.75	75.89	65.30	82.45	86.69	97.17	143.0	128.6	308.4	201.1
1 1 0 1	A1-O	52.99	73.26	56.20	75.88	64.83	82.44	86.39	97.16	142.9	128.6	308.3	201.1
1 1 1 0	A1-O	57.51	74.96	60.75	77.87	69.44	85.24	91.19	101.6	147.9	135.3	313.4	210.4
1 1 1 1	A1-O	47.50	73.07	50.55	75.69	58.68	82.23	79.20	96.97	134.9	128.4	300.2	200.9
A1 A2 C1 C2	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 1 0 1	B2-O	64.07	86.17	67.40	89.07	76.36	96.29	98.76	112.0	156.1	144.9	321.6	218.7
0 1 1 0	B2-O	69.27	87.91	72.61	91.09	81.65	99.16	104.2	116.5	161.8	151.6	327.4	227.9
0 1 1 1	B2-O	56.57	85.91	59.79	88.80	68.39	96.00	89.82	111.8	146.3	144.6	311.6	218.4
1 0 0 1	B2-O	69.05	87.90	72.39	91.08	81.42	99.12	104.0	116.4	161.5	151.3	327.2	227.5
1 0 1 0	B2-O	74.21	89.69	77.59	93.15	86.70	101.9	109.4	120.8	167.2	157.9	333.0	236.6
1 0 1 1	B2-O	60.75	87.65	64.00	90.82	72.65	98.82	94.25	116.1	150.9	151.0	316.3	227.2
1 1 0 1	B2-O	59.84	88.55	63.16	91.51	72.04	98.84	94.04	114.9	151.0	148.0	316.4	222.1
1 1 1 0	B2-O	64.28	90.27	67.55	93.50	76.53	101.7	98.74	119.3	155.9	154.7	321.4	231.3
1 1 1 1	B2-O	52.26	88.28	55.43	91.24	63.85	98.60	84.85	114.6	140.9	147.8	306.1	221.8
0 1 0 1	B1-O	59.96	83.47	63.28	86.36	72.19	93.54	94.42	109.4	151.4	142.3	316.8	216.0
0 1 1 0	B1-O	65.17	85.22	68.50	88.39	77.46	96.36	99.89	113.8	157.2	148.9	322.7	225.2
0 1 1 1	B1-O	53.16	83.24	56.35	86.13	64.88	93.31	86.13	109.2	142.5	142.0	307.6	215.8
1 0 0 1	B1-O	64.96	85.21	68.28	88.37	77.24	96.33	99.66	113.6	156.9	148.7	322.5	224.8
1 0 1 0	B1-O	70.17	87.02	73.51	90.45	82.55	99.18	105.1	118.1	162.7	155.2	328.4	233.9
1 0 1 1	B1-O	57.33	84.98	60.54	88.17	69.14	96.11	90.58	113.4	147.1	148.4	312.4	224.6
1 1 0 1	B1-O	56.38	85.91	59.68	88.83	68.51	96.17	90.34	112.3	147.1	145.5	312.3	219.4
1 1 1 0	B1-O	60.80	87.65	64.15	90.83	72.98	98.95	95.02	116.7	152.1	152.1	317.4	228.6
1 1 1 1	B1-O	49.50	85.70	52.65	88.62	60.98	95.93	81.82	112.1	137.7	145.2	302.9	219.1

A1 A2 B1 B2	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 1 0 1	C2-O	66.15	95.59	69.49	98.91	78.47	107.3	100.8	125.4	158.2	161.4	323.7	238.6
0 1 1 0	C2-O	61.50	93.74	64.81	96.79	73.71	104.4	95.89	121.1	153.0	155.2	318.4	230.0
0 1 1 1	C2-O	56.58	95.80	59.80	98.89	68.42	106.6	89.93	123.5	146.2	157.7	311.5	232.8
1 0 0 1	C2-O	71.01	97.49	74.36	101.1	83.43	110.2	106.0	129.8	163.6	167.7	329.2	247.3
1 0 1 0	C2-O	66.32	95.59	69.66	98.92	78.64	107.3	101.0	125.5	158.4	161.6	323.9	239.0
1 0 1 1	C2-O	60.64	97.67	63.91	101.0	72.56	109.5	94.21	127.9	150.7	164.2	316.2	241.7
1 1 0 1	C2-O	60.91	98.35	64.22	101.8	73.09	110.3	95.21	128.7	152.1	165.0	317.5	242.4
1 1 1 0	C2-O	56.93	96.54	60.22	99.69	69.07	107.5	91.04	124.5	147.8	158.8	313.0	233.9
1 1 1 1	C2-O	51.87	98.73	55.07	101.9	63.57	109.8	84.71	127.0	140.9	161.6	306.0	236.8
0 1 0 1	C1-O	70.55	99.18	73.89	102.5	82.97	110.9	105.5	129.0	163.1	165.0	328.8	242.2
0 1 1 0	C1-O	65.88	97.33	69.22	100.4	78.20	108.0	100.6	124.7	158.0	158.8	323.5	233.6
0 1 1 1	C1-O	60.24	99.37	63.47	102.4	72.18	110.1	93.84	127.0	150.4	161.3	315.8	236.4
1 0 0 1	C1-O	75.41	101.1	78.79	104.6	87.92	113.8	110.6	133.3	168.5	171.3	334.3	250.9
1 0 1 0	C1-O	70.72	99.18	74.06	102.5	83.15	110.9	105.7	129.1	163.3	165.2	329.0	242.5
1 0 1 1	C1-O	64.28	101.2	67.54	104.6	76.29	113.1	98.11	131.5	154.8	167.8	320.4	245.3
1 1 0 1	C1-O	64.59	101.9	67.93	105.3	76.86	113.9	99.12	132.2	156.3	168.6	321.8	245.9
1 1 1 0	C1-O	60.61	100.1	63.92	103.2	72.84	111.1	94.99	128.0	152.0	162.4	317.4	237.4
1 1 1 1	C1-O	54.83	102.2	58.05	105.4	66.61	113.3	87.92	130.5	144.2	165.1	309.5	240.3

Group Name : OAI112

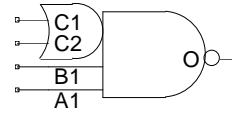
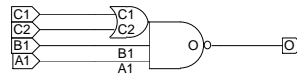
Symbol

Function : OR2 into ND3

Truth Table

A1	B1	C1	C2	O
0	X	X	X	1
X	0	X	X	1
X	X	0	0	1
OTHERS				0

Schematic



Pin Order O A1 B1 C1 C2

**Input Capacitance (ff) & Maximum Loading (ff) & Power Consumption (nW/MHz)**

Version	Input Capacitance				Maximum Loading	Power Consumption
	A1	B1	C1	C2	O	O
OAI112XLP	1.291	1.470	1.555	1.645	73.96	1.766
OAI112X1	1.652	1.898	2.035	2.198	106.8	2.386
OAI112X1P	2.344	2.915	3.374	3.687	147.4	3.656
OAI112X2	3.224	3.510	3.682	4.067	213.6	4.755
OAI112X3	1.317	1.442	1.497	1.614	295.7	7.006

## AC Characteristics ( Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ps)

Version : OAI112XLP

Cell Unit = 6

State		Output Load											
C1 C2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 1	A1-O	35.46	24.37	46.67	32.42	72.84	50.33	136.3	91.33	293.5	190.6	685.2	439.5
1 0	A1-O	34.11	19.90	45.32	28.25	71.26	46.47	133.9	87.66	290.0	186.8	681.6	435.6
1 1	A1-O	33.99	17.92	45.19	25.56	71.08	41.62	133.7	76.94	289.8	160.7	681.4	370.5
0 1	B1-O	41.26	25.53	52.06	33.20	77.88	50.62	141.1	91.43	298.1	190.8	689.8	439.7
1 0	B1-O	39.85	21.49	50.61	29.26	76.23	46.80	138.7	87.73	294.6	187.0	686.1	435.9
1 1	B1-O	39.76	18.77	50.48	25.56	76.03	40.70	138.4	75.45	294.3	159.3	685.8	369.1
	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
	C2-O	57.10	26.99	70.46	34.17	103.1	50.99	183.1	91.39	382.9	190.6	883.4	439.6
	C1-O	54.70	23.99	67.98	31.15	100.3	48.00	180.2	88.45	379.8	187.7	880.3	436.6

Version : OAI112X1

Cell Unit = 6

State		Output Load											
C1 C2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 1	A1-O	31.71	22.78	39.83	28.78	58.57	42.25	103.1	72.70	212.8	144.6	485.3	324.0
1 0	A1-O	30.29	18.04	38.48	24.41	57.12	38.26	101.0	68.85	209.6	140.8	481.7	320.1
1 1	A1-O	30.21	16.24	38.35	22.04	56.98	34.36	100.8	60.99	209.4	121.9	481.6	272.9
0 1	B1-O	37.67	24.27	45.42	29.93	63.73	42.87	108.0	73.02	217.4	145.0	489.9	324.5
1 0	B1-O	36.21	20.06	43.96	25.86	62.16	38.93	105.8	69.17	214.3	141.1	486.3	320.5
1 1	B1-O	36.14	17.51	43.85	22.62	62.00	34.01	105.6	59.81	214.0	120.8	486.0	271.9
	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
	C2-O	52.30	25.82	61.73	31.10	84.60	43.49	140.3	72.95	278.8	144.8	625.4	324.3
	C1-O	49.95	22.68	59.33	27.97	82.03	40.47	137.6	69.95	275.8	141.7	622.4	321.2

Version : OAI112X1P

Cell Unit = 11

State		Output Load											
C1 C2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 1	A1-O	31.57	22.28	37.37	26.52	50.83	36.22	82.56	58.10	160.4	108.7	353.6	233.1
1 0	A1-O	30.20	17.65	36.03	22.17	49.44	32.21	80.91	54.31	157.7	105.1	350.0	229.3
1 1	A1-O	30.13	15.87	35.93	19.98	49.33	29.00	80.75	48.30	157.5	91.82	349.8	196.6
0 1	B1-O	37.47	23.57	42.94	27.56	56.03	36.83	87.49	58.36	165.2	108.8	358.1	233.4
1 0	B1-O	36.07	19.49	41.56	23.55	54.60	33.03	85.77	54.55	162.4	105.1	354.5	229.5
1 1	B1-O	36.01	16.99	41.47	20.59	54.45	28.82	85.58	47.31	162.2	90.30	354.3	195.2
	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
	C2-O	54.31	25.56	61.15	29.23	77.77	38.04	118.3	58.88	218.7	109.1	469.2	233.6
	C1-O	51.88	22.51	58.68	26.21	75.22	35.07	115.6	55.92	215.7	106.1	466.1	230.6

Version : OAI112X2

Cell Unit = 13

State		Output Load											
C1 C2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 1	A1-O	27.58	20.44	32.01	23.73	42.13	31.17	65.28	47.66	120.9	85.21	258.6	175.1
1 0	A1-O	26.10	14.56	30.57	18.10	40.70	25.93	63.70	42.79	118.5	80.46	254.6	170.2
1 1	A1-O	26.07	13.09	30.50	16.33	40.61	23.48	63.58	38.45	118.4	70.86	254.5	146.8
0 1	B1-O	35.17	23.12	39.22	26.12	48.80	33.06	71.54	49.27	127.0	86.29	264.5	176.4
1 0	B1-O	33.64	18.00	37.70	21.14	47.29	28.25	69.80	44.45	124.4	81.54	260.5	171.3
1 1	B1-O	33.57	15.69	37.61	18.47	47.17	24.75	69.64	38.68	124.2	70.37	260.2	146.1
	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
	C2-O	50.80	24.57	55.65	27.35	67.45	34.02	95.94	49.49	165.7	86.29	339.4	176.2
	C1-O	46.33	20.68	51.15	23.51	62.87	30.11	91.20	45.51	160.7	82.26	334.2	172.1

Version : OAI112X3

Cell Unit = 12

State	Output Load													
C1 C2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 1	A1-O	67.55	62.10	71.31	64.77	79.90	70.17	100.7	80.54	152.4	102.2	281.4	152.3	
1 0	A1-O	64.02	56.71	67.72	59.37	76.32	64.71	97.18	75.15	148.8	96.73	277.9	146.9	
1 1	A1-O	63.92	53.22	67.63	55.84	76.19	61.15	97.05	71.45	148.7	92.99	277.8	143.2	
0 1	B1-O	74.05	63.53	77.80	66.19	86.36	71.55	107.1	82.04	158.7	103.6	287.9	153.8	
1 0	B1-O	70.58	58.51	74.28	61.15	82.85	66.49	103.6	76.94	155.3	98.48	284.4	148.7	
1 1	B1-O	70.49	53.98	74.20	56.61	82.76	61.91	103.5	72.19	155.2	93.74	284.4	143.8	
	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
	C2-O	91.11	64.84	94.90	67.54	103.5	72.91	124.3	83.29	175.9	104.9	304.9	155.0	
	C1-O	88.44	60.68	92.24	63.34	100.8	68.67	121.6	79.02	173.2	100.6	302.3	150.7	



Group Name : OAI12

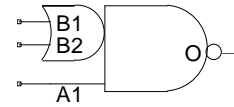
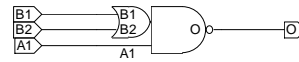
Symbol

Function : OR2 into ND2

Truth Table

A1	B1	B2	O
0	X	X	1
X	0	0	1
OTHERS			0

Schematic



Pin Order O A1 B1 B2

**Input Capacitance (ff) & Maximum Loading (ff) & Power Consumption (nW/MHz)**

Version	Input Capacitance			Maximum Loading	Power Consumption
	A1	B1	B2	O	O
OAI12XLP	1.256	1.491	1.610	75.07	1.471
OAI12X1	1.625	1.965	2.159	108.4	1.993
OAI12X1P	2.391	3.305	3.548	149.6	3.131
OAI12X2	3.251	3.719	4.077	217.2	3.740
OAI12X3	1.371	1.493	1.610	295.7	6.691

**AC Characteristics ( Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ps)**

Version : OAI12XLP

Cell Unit = 6

State		Output Load											
B1 B2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 1	A1-O	33.19	17.92	44.56	24.60	70.71	38.53	134.2	68.78	291.6	138.9	683.6	313.2
1 0	A1-O	31.83	13.95	43.19	21.07	69.11	35.39	131.7	65.87	287.9	136.0	679.4	310.2
1 1	A1-O	31.80	11.72	43.10	17.84	68.94	30.09	131.4	54.91	287.6	109.5	679.2	243.4
	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
	B2-O	49.83	19.52	63.18	25.30	95.55	38.17	175.4	67.32	375.0	137.3	875.6	311.8
	B1-O	46.78	16.99	60.01	22.93	92.14	35.92	171.7	65.07	371.1	135.0	871.6	309.5

Version : OAI12X1

Cell Unit = 6

State		Output Load											
B1 B2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 1	A1-O	29.65	16.69	37.91	21.79	56.69	32.41	101.2	55.18	211.0	106.5	483.8	232.1
1 0	A1-O	28.23	12.49	36.53	17.92	55.24	29.15	99.10	52.21	207.7	103.6	479.8	229.0
1 1	A1-O	28.22	10.40	36.47	15.18	55.09	24.87	98.86	43.90	207.4	84.56	479.6	180.9
	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
	B2-O	45.32	18.57	54.67	22.92	77.40	32.64	132.9	54.30	271.3	105.3	617.8	230.8
	B1-O	42.37	15.90	51.70	20.43	74.22	30.28	129.4	52.02	267.5	102.9	614.0	228.5

Version : OAI12X1P

Cell Unit = 9

State		Output Load											
B1 B2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 1	A1-O	30.02	16.33	35.84	19.88	49.36	27.73	81.07	44.47	158.9	81.20	352.1	168.6
1 0	A1-O	28.66	12.52	34.53	16.35	48.02	24.65	79.43	41.65	156.1	78.61	348.5	165.9
1 1	A1-O	28.65	10.46	34.49	13.80	47.92	20.98	79.24	35.23	155.9	64.99	348.2	132.6
	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
	B2-O	46.63	18.24	53.38	21.30	69.88	28.24	110.2	43.79	210.3	79.84	460.7	167.3
	B1-O	44.36	15.85	51.08	19.03	67.48	26.10	107.5	41.76	207.3	77.80	457.6	165.2

Version : OAI12X2

Cell Unit = 10

State		Output Load											
B1 B2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 1	A1-O	25.48	14.46	29.96	17.27	40.20	23.52	63.38	36.40	119.0	64.19	256.7	127.7
1 0	A1-O	23.97	9.655	28.53	12.73	38.79	19.39	61.84	32.83	116.6	60.85	252.7	124.4
1 1	A1-O	23.98	7.883	28.52	10.61	38.72	16.45	61.69	27.97	116.4	50.95	252.4	100.7
	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
	B2-O	41.78	16.59	46.59	18.99	58.27	24.39	86.56	36.28	156.0	62.95	329.6	126.5
	B1-O	37.59	13.54	42.44	16.07	54.07	21.64	82.19	33.65	151.4	60.30	324.6	123.7

Version : OAI12X3

Cell Unit = 11

State	Output Load													
B1 B2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 1	A1-O	64.54	50.67	68.26	53.21	76.81	58.34	97.60	68.52	149.3	89.80	278.4	139.9	
1 0	A1-O	60.84	46.20	64.52	48.74	73.05	53.86	93.88	63.99	145.6	85.29	274.7	135.3	
1 1	A1-O	60.79	42.47	64.47	45.01	72.99	50.14	93.86	60.10	145.6	81.39	274.6	131.4	
	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
	B2-O	81.53	52.06	85.26	54.60	93.83	59.73	114.6	69.91	166.3	91.19	295.3	141.3	
	B1-O	78.49	48.76	82.21	51.31	90.75	56.43	111.5	66.51	163.1	87.78	292.3	137.9	

Group Name : OAI122

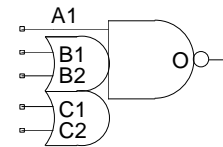
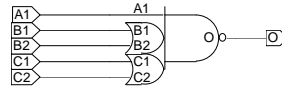
Symbol

Function : 2 OR2 into ND3

Truth Table

A1	B1	B2	C1	C2	O
0	X	X	X	X	1
X	0	0	X	X	1
X	X	X	0	0	1
OTHERS					0

Schematic



Pin Order O A1 B1 B2 C1 C2

**Input Capacitance (ff) & Maximum Loading (ff) & Power Consumption (nW/MHz)**

Version	Input Capacitance					Maximum Loading	Power Consumption
	A1	B1	B2	C1	C2	O	O
OAI122XLP	1.261	1.477	1.598	1.632	1.546	71.39	2.315
OAI122X1	1.643	1.916	2.113	2.184	2.037	103.4	3.125
OAI122X1P	2.303	2.712	2.997	2.931	2.736	142.1	4.680
OAI122X2	3.058	3.539	3.985	4.164	3.675	205.8	6.280
OAI122X3	1.319	1.477	1.597	1.632	1.547	295.7	7.681

## AC Characteristics ( Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ps)

Version : OAI122XLP

Cell Unit = 9

State				Output Load											
B1 B2 C1 C2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff			
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl		
0 1 0 1	A1-O	36.56	24.86	47.69	32.75	73.80	50.52	137.3	91.42	294.6	190.7	686.4	439.7		
0 1 1 0	A1-O	38.07	29.19	49.27	36.80	75.69	54.44	140.0	95.26	298.2	194.7	690.2	443.7		
0 1 1 1	A1-O	36.44	22.63	47.55	29.62	73.63	45.23	137.1	80.42	294.4	164.3	686.3	374.1		
1 0 0 1	A1-O	35.20	20.25	46.31	28.41	72.19	46.43	134.8	87.51	290.9	186.7	682.4	435.5		
1 0 1 0	A1-O	36.55	24.70	47.68	32.59	73.78	50.36	137.2	91.26	294.4	190.5	686.2	439.5		
1 0 1 1	A1-O	35.08	18.42	46.18	25.86	72.01	41.78	134.6	77.06	290.7	160.8	682.3	370.6		
1 1 0 1	A1-O	35.09	17.96	46.19	25.39	72.01	41.14	134.6	76.28	290.7	159.8	682.3	368.8		
1 1 1 0	A1-O	36.45	21.91	47.55	28.96	73.61	44.44	137.1	79.48	294.2	163.1	686.1	372.1		
1 1 1 1	A1-O	35.02	16.05	46.09	22.70	71.84	36.39	134.4	65.94	290.5	133.9	682.1	302.9		
C1 C2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff			
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl		
0 1	B2-O	53.74	28.83	67.01	36.24	99.36	53.73	179.5	94.25	379.1	193.6	879.7	442.7		
1 0	B2-O	55.60	32.84	69.06	40.24	102.0	57.54	183.1	98.21	383.8	197.6	884.5	446.7		
1 1	B2-O	53.55	25.23	66.76	31.71	99.09	46.66	179.1	81.24	378.8	165.1	879.3	375.0		
0 1	B1-O	50.80	25.36	64.03	32.91	96.22	50.52	176.0	91.04	375.5	190.4	876.0	439.4		
1 0	B1-O	52.74	29.40	66.10	36.82	98.79	54.33	179.7	94.91	380.2	194.3	880.8	443.4		
1 1	B1-O	50.65	22.33	63.83	28.94	95.96	44.02	175.6	78.65	375.2	162.4	875.6	372.2		
B1 B2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff			
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl		
0 1	C2-O	65.50	32.29	78.99	39.43	112.0	56.28	193.3	96.63	394.1	196.0	894.9	445.0		
1 0	C2-O	62.99	28.46	76.40	35.58	109.0	52.34	189.3	92.67	389.2	191.9	889.8	440.8		
1 1	C2-O	65.32	26.90	78.72	33.13	111.4	47.52	191.7	81.62	391.6	165.1	892.3	374.2		
0 1	C1-O	68.16	35.51	81.74	42.53	115.0	59.35	196.4	99.61	397.4	199.0	898.2	448.1		
1 0	C1-O	65.66	31.56	79.18	38.66	112.0	55.41	192.4	95.70	392.4	195.0	893.2	443.9		
1 1	C1-O	67.95	29.58	81.46	35.69	114.3	50.04	194.8	84.11	394.9	167.6	895.7	376.8		

Version : OAI122X1

Cell Unit = 9

State		Output Load											
B1 B2 C1 C2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 1 0 1	A1-O	32.75	23.29	40.79	29.17	59.44	42.50	103.9	72.84	213.7	144.8	486.4	324.1
0 1 1 0	A1-O	34.34	27.79	42.34	33.48	61.18	46.56	106.3	76.78	217.0	148.7	490.1	328.2
0 1 1 1	A1-O	32.63	21.11	40.68	26.46	59.30	38.30	103.8	64.53	213.5	125.5	486.2	276.5
1 0 0 1	A1-O	31.34	18.44	39.39	24.64	57.97	38.28	101.8	68.77	210.4	140.7	482.5	320.0
1 0 1 0	A1-O	32.75	23.15	40.78	29.03	59.43	42.36	103.9	72.70	213.6	144.6	486.2	324.0
1 0 1 1	A1-O	31.23	16.79	39.28	22.45	57.83	34.61	101.7	61.14	210.2	122.0	482.4	273.1
1 1 0 1	A1-O	31.25	16.33	39.29	21.95	57.83	34.01	101.6	60.40	210.2	121.1	482.3	271.6
1 1 1 0	A1-O	32.65	20.50	40.68	25.81	59.29	37.56	103.7	63.70	213.4	124.4	486.0	274.9
1 1 1 1	A1-O	31.19	14.58	39.21	19.62	57.70	30.28	101.5	52.61	210.0	102.5	482.2	224.1
C1 C2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 1	B2-O	48.70	27.38	58.03	32.89	80.71	45.92	136.4	75.82	274.8	147.7	621.4	327.2
1 0	B2-O	50.55	31.56	59.96	37.02	83.02	49.95	139.6	79.75	279.2	151.6	626.1	331.2
1 1	B2-O	48.52	24.00	57.80	28.84	80.45	40.02	136.1	65.59	274.5	126.3	621.1	277.6
0 1	B1-O	45.92	23.78	55.23	29.48	77.82	42.56	133.1	72.61	271.3	144.5	617.9	323.9
1 0	B1-O	47.85	27.98	57.22	33.49	80.06	46.54	136.4	76.49	275.7	148.4	622.5	327.9
1 1	B1-O	45.79	20.94	55.05	25.91	77.59	37.20	132.8	62.85	271.0	123.6	617.5	274.8
B1 B2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 1	C2-O	59.95	30.86	69.39	36.15	92.51	48.52	149.2	78.00	288.8	150.0	635.9	329.5
1 0	C2-O	57.42	26.95	66.86	32.18	89.76	44.51	145.7	73.89	284.3	145.8	631.0	325.2
1 1	C2-O	59.72	25.55	69.14	30.22	92.05	40.91	148.0	65.95	286.7	126.3	633.4	277.0
0 1	C1-O	62.47	34.20	72.06	39.36	95.29	51.72	152.2	81.19	292.0	153.1	639.1	332.6
1 0	C1-O	60.00	30.16	69.52	35.40	92.58	47.68	148.6	77.05	287.4	148.9	634.2	328.4
1 1	C1-O	62.25	28.36	71.76	32.90	94.85	43.54	151.0	68.55	289.8	128.9	636.7	279.6

Version : OAI122X1P

Cell Unit = 15

State		Output Load											
B1 B2 C1 C2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 1 0 1	A1-O	31.14	22.46	36.90	26.69	50.45	36.36	82.25	58.21	160.3	108.9	354.2	233.5
0 1 1 0	A1-O	32.70	27.88	38.39	31.96	52.08	41.33	84.37	63.01	163.6	113.8	359.0	238.6
0 1 1 1	A1-O	31.06	20.34	36.83	24.29	50.33	32.84	82.10	51.92	160.1	95.26	354.1	200.3
1 0 0 1	A1-O	29.74	16.80	35.57	21.30	49.05	31.28	80.50	53.31	157.3	104.1	349.6	228.4
1 0 1 0	A1-O	31.14	22.39	36.90	26.62	50.45	36.29	82.25	58.14	160.3	108.8	354.2	233.4
1 0 1 1	A1-O	29.67	15.26	35.49	19.37	48.94	28.39	80.37	47.67	157.1	91.19	349.4	196.0
1 1 0 1	A1-O	29.69	14.84	35.51	18.91	48.94	27.89	80.36	47.03	157.1	90.38	349.4	194.8
1 1 1 0	A1-O	31.07	19.80	36.83	23.73	50.33	32.23	82.09	51.18	160.1	94.38	354.0	199.0
1 1 1 1	A1-O	29.65	13.23	35.45	16.91	48.84	24.94	80.21	41.48	156.9	77.47	349.2	162.2
C1 C2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 1	B2-O	50.68	26.74	57.48	30.68	73.97	39.95	114.5	61.40	214.7	111.8	465.2	236.6
1 0	B2-O	52.62	31.74	59.39	35.62	76.17	44.93	117.4	66.30	219.3	116.9	471.5	241.8
1 1	B2-O	50.51	23.34	57.27	26.81	73.72	34.87	114.2	53.26	214.4	96.28	464.9	201.3
0 1	B1-O	45.66	22.46	52.39	26.54	68.87	35.80	109.1	57.38	209.0	107.8	459.5	232.3
1 0	B1-O	47.67	27.41	54.46	31.32	71.08	40.62	112.1	62.10	213.6	112.6	465.7	237.4
1 1	B1-O	45.53	19.75	52.23	23.31	68.66	31.44	108.8	49.84	208.7	92.73	459.1	197.7
B1 B2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 1	C2-O	59.95	30.05	66.77	33.83	83.62	42.70	125.0	63.69	226.9	114.1	479.1	238.7
1 0	C2-O	57.32	25.59	64.19	29.28	80.89	38.12	121.6	58.93	222.0	109.1	472.6	233.6
1 1	C2-O	59.65	24.29	66.49	27.63	83.20	35.29	123.9	53.02	224.4	95.56	475.1	200.1
0 1	C1-O	64.77	34.18	71.75	37.91	88.73	46.73	130.3	67.72	232.4	118.2	484.7	243.0
1 0	C1-O	62.27	29.44	69.17	33.16	86.01	42.00	126.9	62.91	227.5	113.2	478.3	237.8
1 1	C1-O	64.54	27.64	71.44	30.93	88.29	38.52	129.2	56.31	229.9	99.01	480.7	203.6

Version : OAI122X2

Cell Unit = 17

State		Output Load													
B1 B2 C1 C2		Path		1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl	
0 1 0 1	A1-O	29.00	21.27	33.34	24.42	43.33	31.71	66.39	48.04	122.0	85.51	259.7	175.4		
0 1 1 0	A1-O	30.65	26.84	34.96	29.83	44.98	36.82	68.31	53.02	124.9	90.31	264.0	180.5		
0 1 1 1	A1-O	28.96	19.27	33.20	22.16	43.23	28.70	66.25	43.10	121.9	75.23	259.6	151.3		
1 0 0 1	A1-O	27.54	15.44	31.90	18.84	41.90	26.46	64.79	43.11	119.6	80.68	255.7	170.4		
1 0 1 0	A1-O	29.00	21.23	33.34	24.39	43.33	31.68	66.39	48.01	122.0	85.47	259.7	175.4		
1 0 1 1	A1-O	27.48	14.04	31.80	17.15	41.79	24.12	64.65	38.91	119.4	71.22	255.5	147.2		
1 1 0 1	A1-O	27.50	13.61	31.81	16.70	41.80	23.60	64.64	38.28	119.4	70.35	255.5	146.1		
1 1 1 0	A1-O	28.98	18.75	33.21	21.62	43.23	28.12	66.24	42.43	121.8	74.42	259.5	150.3		
1 1 1 1	A1-O	27.46	12.12	31.76	14.93	41.70	21.10	64.50	33.92	119.2	61.04	255.3	122.7		
C1 C2		Path		1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl	
0 1	B2-O	46.51	25.71	51.27	28.63	62.96	35.49	91.27	51.58	160.9	88.52	334.5	178.6		
1 0	B2-O	48.45	30.79	53.26	33.65	65.00	40.54	93.82	56.39	164.7	93.47	340.1	183.7		
1 1	B2-O	46.34	22.48	51.08	25.04	62.74	31.07	90.97	44.84	160.5	76.49	334.1	152.5		
0 1	B1-O	41.86	21.33	46.65	24.37	58.27	31.42	86.41	47.52	155.7	84.54	329.1	174.4		
1 0	B1-O	43.94	26.40	48.68	29.34	60.39	36.20	88.97	52.30	159.5	89.27	334.7	179.5		
1 1	B1-O	41.74	18.77	46.51	21.45	58.09	27.60	86.16	41.44	155.4	73.11	328.8	148.9		
B1 B2		Path		1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl	
0 1	C2-O	55.96	29.26	60.80	32.05	72.60	38.64	101.5	54.11	172.5	90.91	347.9	180.8		
1 0	C2-O	53.35	24.76	58.18	27.51	69.95	34.05	98.47	49.35	168.4	86.01	342.1	175.8		
1 1	C2-O	55.65	23.56	60.47	26.07	72.23	31.84	100.8	45.03	170.7	76.02	344.6	151.6		
0 1	C1-O	60.59	33.45	65.44	36.19	77.38	42.69	106.5	58.17	177.7	95.00	353.2	185.1		
1 0	C1-O	58.00	28.69	62.86	31.42	74.74	37.99	103.4	53.37	173.6	90.09	347.5	179.9		
1 1	C1-O	60.23	27.02	65.11	29.45	76.99	35.10	105.7	48.30	175.9	79.38	349.9	155.1		



Version : OAI122X3

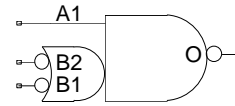
Cell Unit = 14

State		Output Load												
B1 B2 C1 C2		Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
			tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl
0 1 0 1	A1-O	68.15	61.63	71.88	64.26	80.45	69.57	101.2	79.84	152.9	101.3	282.0	151.5	
0 1 1 0	A1-O	71.58	66.80	75.36	69.46	83.94	74.79	104.7	85.06	156.3	106.6	285.4	156.6	
0 1 1 1	A1-O	68.07	57.58	71.80	60.18	80.37	65.40	101.1	75.61	152.8	96.99	281.9	147.1	
1 0 0 1	A1-O	64.67	56.15	68.36	58.76	76.90	64.01	97.73	74.33	149.4	95.77	278.5	145.9	
1 0 1 0	A1-O	68.07	61.42	71.79	64.05	80.38	69.36	101.2	79.63	152.8	101.1	281.9	151.3	
1 0 1 1	A1-O	64.59	52.75	68.28	55.34	76.81	60.53	97.66	70.73	149.4	92.09	278.4	142.2	
1 1 0 1	A1-O	64.60	52.42	68.29	55.01	76.82	60.22	97.67	70.45	149.4	91.83	278.4	141.9	
1 1 1 0	A1-O	68.00	57.07	71.73	59.67	80.32	64.89	101.1	75.14	152.7	96.57	281.8	146.7	
1 1 1 1	A1-O	64.52	48.88	68.21	51.43	76.75	56.58	97.61	66.74	149.3	88.04	278.3	138.1	
C1 C2		Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
			tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl
0 1	B2-O	85.91	65.82	89.66	68.46	98.23	73.76	119.0	84.03	170.6	105.5	299.7	155.7	
1 0	B2-O	89.82	70.70	93.65	73.36	102.3	78.68	123.0	88.97	174.5	110.5	303.7	160.5	
1 1	B2-O	85.71	60.22	89.46	62.84	98.03	68.09	118.8	78.24	170.4	99.62	299.5	149.6	
0 1	B1-O	83.05	61.39	86.79	64.01	95.36	69.27	116.1	79.57	167.8	101.0	296.8	151.1	
1 0	B1-O	86.96	66.30	90.80	68.94	99.42	74.26	120.2	84.49	171.8	106.0	300.8	156.1	
1 1	B1-O	82.88	56.49	86.62	59.09	95.19	64.32	116.0	74.44	167.6	95.80	296.7	145.8	
B1 B2		Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
			tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl	tphl
0 1	C2-O	100.5	69.04	104.5	71.67	113.1	76.95	133.8	87.30	185.3	108.7	314.4	158.8	
1 0	C2-O	96.30	64.15	100.1	66.79	108.7	72.07	129.4	82.28	180.9	103.7	310.1	153.7	
1 1	C2-O	98.74	61.21	102.6	63.80	111.2	69.02	131.8	79.20	183.4	100.6	312.5	150.7	
0 1	C1-O	103.2	73.11	107.1	75.75	115.8	81.06	136.4	91.40	188.0	112.9	317.1	163.1	
1 0	C1-O	98.99	68.29	102.8	70.92	111.4	76.20	132.1	86.52	183.7	107.9	312.8	158.1	
1 1	C1-O	101.4	64.71	105.2	67.31	113.8	72.55	134.5	82.77	186.1	104.2	315.2	154.3	

Group Name : OAI12B2

Symbol

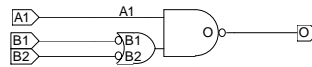
Function : OR2 into ND2, Two Input Inverted



Truth Table

A1	B1	B2	O
0	X	X	1
X	1	1	1
OTHERS			0

Schematic



Pin Order O A1 B1 B2

**Input Capacitance (ff) & Maximum Loading (ff) & Power Consumption (nW/MHz)**

Version	Input Capacitance			Maximum Loading	Power Consumption
	A1	B1	B2	O	O
OAI12B2XLP	1.274	1.042	1.011	74.76	2.241
OAI12B2X1	1.648	1.422	1.367	108.0	2.959
OAI12B2X1P	2.386	1.860	1.876	149.4	4.335
OAI12B2X2	3.251	2.587	2.634	217.0	5.281
OAI12B2X3	1.373	1.043	1.012	295.8	7.451

**AC Characteristics ( Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ps)**

Version : OAI12B2XLP

Cell Unit = 9

State		Output Load											
B1 B2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0	A1-O	33.57	12.73	44.72	18.71	70.43	30.79	133.0	55.50	289.1	110.1	680.7	243.9
0 1	A1-O	33.61	15.18	44.81	22.11	70.63	36.27	133.2	66.68	289.4	136.8	680.9	311.1
1 0	A1-O	34.83	18.85	46.04	25.34	72.15	39.21	135.6	69.39	292.9	139.5	684.9	313.9
	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
	B1-O	53.31	51.49	66.36	56.84	98.59	68.98	178.3	97.23	377.9	166.9	878.4	341.2
	B2-O	61.46	56.64	74.53	62.05	106.7	74.39	186.5	102.9	386.1	172.6	886.5	347.1

Version : OAI12B2X1

Cell Unit = 9

State		Output Load											
B1 B2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0	A1-O	29.71	11.34	37.82	15.97	56.34	25.50	100.1	44.44	208.6	85.03	480.8	181.4
0 1	A1-O	29.73	13.58	37.89	18.87	56.49	29.92	100.3	52.92	208.9	104.3	481.0	229.8
1 0	A1-O	30.98	17.49	39.14	22.44	57.82	33.02	102.3	55.77	212.1	107.0	484.8	232.7
	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
	B1-O	48.24	47.94	57.29	51.92	79.67	60.92	135.2	81.57	273.4	131.9	619.9	257.3
	B2-O	55.81	52.36	64.91	56.33	87.44	65.45	142.7	86.32	281.0	136.8	627.5	262.3

Version : OAI12B2X1P

Cell Unit = 13

State		Output Load											
B1 B2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0	A1-O	28.55	10.39	34.40	13.74	47.84	20.94	79.17	35.20	155.8	64.98	348.1	132.6
0 1	A1-O	28.55	12.45	34.43	16.31	47.94	24.62	79.36	41.65	156.1	78.65	348.4	166.0
1 0	A1-O	29.76	16.21	35.61	19.78	49.16	27.67	80.89	44.44	158.7	81.22	351.9	168.7
	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
	B1-O	51.48	49.71	58.06	52.62	74.43	59.23	114.6	74.17	214.6	109.4	465.0	196.7
	B2-O	56.75	50.88	63.34	53.72	79.68	60.23	119.9	75.11	219.9	110.5	470.3	197.8

Version : OAI12B2X2

Cell Unit = 14

State		Output Load											
B1 B2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0	A1-O	23.93	7.845	28.48	10.58	38.69	16.43	61.67	27.96	116.4	50.96	252.4	100.7
0 1	A1-O	23.93	9.629	28.50	12.71	38.76	19.39	61.83	32.86	116.6	60.91	252.7	124.5
1 0	A1-O	25.27	14.41	29.79	17.24	40.05	23.43	63.25	36.39	118.9	64.22	256.6	127.8
	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
	B1-O	43.66	43.98	48.30	46.23	59.69	51.24	87.83	62.34	157.3	87.96	330.7	150.9
	B2-O	50.37	45.29	55.05	47.44	66.48	52.36	94.68	63.44	164.0	89.23	337.4	152.3

Version : OAI12B2X3

Cell Unit = 14

State	Output Load													
B1 B2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 0	A1-O	62.99	43.78	66.67	46.29	75.20	51.38	96.07	61.36	147.8	82.59	276.8	132.7	
0 1	A1-O	63.04	47.82	66.72	50.36	75.25	55.47	96.11	65.58	147.8	86.83	276.8	136.9	
1 0	A1-O	66.31	51.97	70.03	54.52	78.58	59.67	99.39	69.71	151.1	91.01	280.2	141.1	
	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
	B1-O	85.30	83.17	89.02	85.70	97.58	90.81	118.3	100.9	169.9	122.1	299.1	172.2	
	B2-O	93.48	89.17	97.20	91.71	105.7	96.84	126.5	106.9	178.1	128.2	307.2	178.2	

Group Name : OAI13

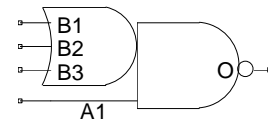
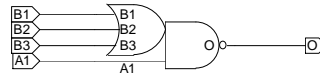
Symbol

Function : OR3 into ND2

Truth Table

A1	B1	B2	B3	O
0	X	X	X	1
X	0	0	0	1
OTHERS				0

Schematic



Pin Order O A1 B1 B2 B3

**Input Capacitance (ff) & Maximum Loading (ff) & Power Consumption (nW/MHz)**

Version	Input Capacitance				Maximum Loading	Power Consumption
	A1	B1	B2	B3	O	O
OAI13XLP	1.216	1.341	1.411	1.426	49.92	1.437
OAI13X1	1.539	1.712	1.800	1.859	72.24	1.898
OAI13X1P	1.953	2.346	2.779	3.175	100.1	2.649
OAI13X2	2.820	3.073	3.315	3.580	144.2	3.837
OAI13X3	1.206	1.365	1.413	1.413	212.9	5.280

## AC Characteristics ( Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ps)

Version : OAI13XLP

Cell Unit = 7

State		Output Load											
B1 B2 B3	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 1	A1-O	31.96	26.36	43.43	34.85	69.61	53.59	133.0	95.90	290.6	197.3	684.4	450.9
0 1 0	A1-O	31.95	23.67	43.40	32.07	69.57	50.66	133.0	92.57	290.1	193.6	681.9	446.9
0 1 1	A1-O	31.97	20.02	43.33	27.28	69.50	42.64	132.9	76.05	290.3	154.1	682.2	348.9
1 0 0	A1-O	30.59	18.54	42.03	27.55	68.02	46.57	130.4	88.48	286.4	189.5	677.9	442.7
1 0 1	A1-O	30.57	15.75	41.95	23.55	67.89	39.30	130.2	72.96	286.2	150.9	677.7	345.7
1 1 0	A1-O	30.57	15.75	41.95	23.55	67.89	39.30	130.2	72.96	286.2	150.9	677.7	345.7
1 1 1	A1-O	30.57	14.78	41.93	22.18	67.84	36.93	130.1	68.05	286.2	139.3	677.6	316.3
	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
	B3-O	68.30	26.91	87.72	34.94	135.4	53.02	254.2	94.85	551.3	196.3	1297	450.0
	B2-O	64.33	25.40	83.93	33.18	131.6	50.83	250.3	92.22	547.5	193.3	1293	446.6
	B1-O	55.36	21.69	74.54	29.60	122.0	47.29	240.4	88.70	537.4	189.7	1283	443.0

Version : OAI13X1

Cell Unit = 7

State		Output Load											
B1 B2 B3	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 1	A1-O	27.99	24.77	36.40	31.23	55.25	45.60	99.74	77.20	209.5	151.4	483.6	335.5
0 1 0	A1-O	27.97	21.91	36.38	28.39	55.23	42.58	99.68	73.94	209.3	147.6	481.9	331.5
0 1 1	A1-O	28.01	18.58	36.37	24.22	55.18	35.98	99.63	61.33	209.4	118.7	482.2	259.8
1 0 0	A1-O	26.52	16.54	34.98	23.57	53.74	38.15	97.63	69.83	206.0	143.5	478.0	327.2
1 0 1	A1-O	26.52	14.02	34.94	20.05	53.64	32.42	97.48	58.10	205.8	115.5	477.8	256.5
1 1 0	A1-O	26.52	14.02	34.94	20.05	53.64	32.42	97.48	58.10	205.8	115.5	477.8	256.5
1 1 1	A1-O	26.53	13.13	34.93	18.87	53.61	30.54	97.42	54.42	205.8	106.9	477.8	235.1
	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
	B3-O	60.99	25.55	74.59	31.61	108.0	45.24	190.3	76.34	396.3	150.6	912.6	334.8
	B2-O	57.23	24.00	70.89	29.86	104.3	43.14	186.7	73.68	392.7	147.5	909.0	331.4
	B1-O	48.54	20.09	62.01	26.12	95.08	39.59	177.1	70.08	382.9	143.8	899.1	327.7

Version : OAI13X1P

Cell Unit = 9

State		Output Load											
B1 B2 B3	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 1	A1-O	25.91	23.74	32.09	28.60	45.92	39.37	77.82	63.05	155.6	117.1	349.4	249.6
0 1 0	A1-O	25.90	21.23	32.08	26.17	45.90	36.99	77.79	60.92	155.5	115.9	348.5	251.3
0 1 1	A1-O	25.92	17.97	32.08	22.29	45.86	31.32	77.71	50.88	155.5	93.63	348.7	196.9
1 0 0	A1-O	24.44	15.88	30.70	21.18	44.60	32.54	76.15	56.80	152.9	111.8	345.0	247.1
1 0 1	A1-O	24.46	13.44	30.67	18.04	44.50	27.72	76.00	47.56	152.7	90.52	344.8	193.7
1 1 0	A1-O	24.46	13.49	30.67	18.11	44.50	27.82	76.01	47.76	152.7	90.96	344.8	194.8
1 1 1	A1-O	24.47	12.61	30.67	17.01	44.47	26.19	75.94	44.71	152.6	84.42	344.7	178.5
	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
	B3-O	59.83	24.00	69.78	28.44	94.14	38.57	153.9	61.47	302.7	115.3	675.6	248.0
	B2-O	56.28	24.24	66.20	28.64	90.66	38.73	150.4	61.74	299.3	116.4	672.1	251.9
	B1-O	48.07	20.32	57.90	24.90	82.07	35.18	141.6	58.28	290.2	112.9	663.0	248.4

Version : OAI13X2

Cell Unit = 13

State		Output Load											
B1 B2 B3	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 1	A1-O	24.34	22.55	28.86	26.17	39.17	34.12	62.45	51.57	117.9	90.53	255.8	183.3
0 1 0	A1-O	24.31	19.75	28.84	23.41	39.15	31.23	62.41	48.51	117.9	86.93	255.5	179.2
0 1 1	A1-O	24.35	16.70	28.85	19.80	39.15	26.58	62.33	40.85	117.8	71.70	255.7	143.0
1 0 0	A1-O	22.70	13.29	27.36	17.20	37.74	25.72	60.83	43.39	115.5	82.01	251.4	174.1
1 0 1	A1-O	22.73	11.18	27.36	14.63	37.69	22.02	60.71	36.74	115.4	67.84	251.2	139.1
1 1 0	A1-O	22.73	11.18	27.36	14.63	37.69	22.02	60.71	36.74	115.4	67.84	251.2	139.1
1 1 1	A1-O	22.75	10.42	27.36	13.72	37.67	20.67	60.67	34.58	115.3	63.35	251.2	128.3
	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
	B3-O	60.10	24.15	67.06	27.42	84.05	34.96	125.7	51.79	229.0	90.36	487.4	183.1
	B2-O	55.44	22.75	62.44	25.90	79.45	33.16	121.2	49.50	224.6	87.46	483.0	179.6
	B1-O	43.61	18.06	50.60	21.35	67.41	28.73	108.6	45.12	211.7	83.03	470.0	175.1

Version : OAI13X3

Cell Unit = 11

State	Output Load													
B1 B2 B3	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 0 1	A1-O	60.61	61.70	65.52	65.04	77.16	71.70	105.8	85.09	177.1	114.6	355.5	185.9	
0 1 0	A1-O	60.36	57.79	65.23	61.12	76.87	67.74	105.5	81.05	176.7	110.5	355.2	181.9	
0 1 1	A1-O	60.53	52.40	65.41	55.66	77.04	62.28	105.7	75.46	176.9	104.9	355.4	176.3	
1 0 0	A1-O	56.75	51.79	61.61	55.07	73.22	61.66	102.0	74.99	173.1	104.4	351.6	175.8	
1 0 1	A1-O	56.74	47.45	61.59	50.71	73.21	57.27	101.9	70.48	173.1	99.88	351.6	171.3	
1 1 0	A1-O	56.73	47.45	61.59	50.71	73.21	57.27	101.9	70.48	173.1	99.88	351.6	171.3	
1 1 1	A1-O	56.73	45.99	61.59	49.23	73.22	55.74	101.9	69.04	173.2	98.40	351.6	169.8	
	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
	B3-O	98.47	62.44	103.4	65.78	115.0	72.43	143.6	85.81	214.8	115.2	393.2	186.6	
	B2-O	94.53	59.58	99.49	62.88	111.1	69.53	139.7	82.80	210.8	112.2	389.3	183.7	
	B1-O	85.49	54.78	90.44	58.06	102.0	64.67	130.6	77.94	201.8	107.3	380.3	178.8	



Group Name : OAI22

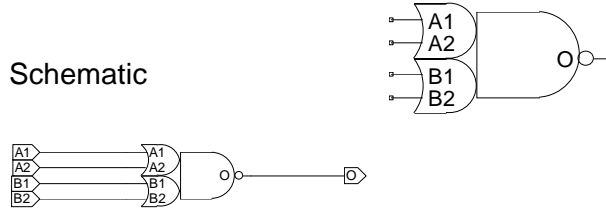
Symbol

Function : 2 OR2 into ND2

Truth Table

A1	A2	B1	B2	O
0	0	X	X	1
X	X	0	0	1
OTHERS				0

Schematic



Pin Order O A1 A2 B1 B2

**Input Capacitance (ff) & Maximum Loading (ff) & Power Consumption (nW/MHz)**

Version	Input Capacitance				Maximum Loading	Power Consumption
	A1	A2	B1	B2	O	O
OAI22XLP	1.526	1.341	1.495	1.633	72.59	2.225
OAI22X1	2.038	1.775	1.973	2.184	105.1	2.994
OAI22X1P	2.977	2.911	3.340	3.785	145.5	4.355
OAI22X2	3.831	3.252	3.722	4.088	209.7	5.893
OAI22X3	1.553	1.354	1.498	1.633	295.7	7.403

## AC Characteristics ( Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ps)

Version : OAI22XLP

Cell Unit = 7

State	Output Load													
	B1 B2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 1	A2-O	41.21	20.44	54.74	26.77	87.55	40.41	168.6	70.43	369.4	140.4	870.2	314.8	
1 0	A2-O	39.50	16.88	52.92	23.59	85.31	37.51	165.1	67.76	364.7	137.8	865.3	312.0	
1 1	A2-O	39.43	14.35	52.79	20.10	85.06	31.96	164.7	56.51	364.4	111.0	865.0	244.9	
0 1	A1-O	44.07	23.33	57.61	29.34	90.70	42.81	172.2	72.66	373.2	142.7	874.0	317.1	
1 0	A1-O	42.45	19.89	55.93	26.23	88.54	39.91	168.6	69.98	368.5	140.0	869.2	314.4	
1 1	A1-O	42.30	16.85	55.73	22.37	88.25	33.84	168.2	58.24	368.1	112.7	868.8	246.6	
A1 A2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 1	B2-O	57.17	22.70	70.42	28.26	102.8	40.85	182.7	69.79	382.4	139.8	883.0	314.2	
1 0	B2-O	59.18	25.70	72.58	31.18	105.4	43.68	186.6	72.68	387.4	142.7	888.2	317.2	
1 1	B2-O	60.15	21.01	73.25	25.85	105.5	36.42	185.3	59.78	385.1	113.6	885.7	246.7	
0 1	B1-O	54.65	20.36	67.77	26.04	99.87	38.74	179.6	67.69	379.1	137.6	879.6	312.0	
1 0	B1-O	56.70	23.38	69.97	28.94	102.6	41.57	183.5	70.55	384.1	140.6	884.8	315.0	
1 1	B1-O	57.69	18.98	70.64	23.98	102.6	34.73	182.2	58.20	381.8	112.1	882.3	245.0	

Version : OAI22X1

Cell Unit = 7

State		Output Load											
B1 B2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 1	A2-O	36.77	19.27	46.42	24.09	69.48	34.40	125.8	56.98	265.4	108.1	612.4	233.7
1 0	A2-O	35.09	15.51	44.72	20.56	67.43	31.35	122.9	54.11	261.2	105.4	607.7	230.9
1 1	A2-O	35.04	13.15	44.61	17.56	67.25	26.80	122.6	45.59	260.8	86.05	607.4	182.4
0 1	A1-O	39.61	22.24	49.16	26.76	72.38	36.90	129.2	59.28	269.0	110.4	616.2	236.0
1 0	A1-O	38.00	18.64	47.51	23.49	70.45	33.89	126.2	56.50	264.7	107.7	611.5	233.3
1 1	A1-O	37.86	15.80	47.34	19.99	70.19	28.81	125.9	47.43	264.4	87.76	611.2	184.2
A1 A2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 1	B2-O	51.89	21.59	61.20	25.74	83.82	35.20	139.5	56.65	277.8	107.5	624.4	233.0
1 0	B2-O	53.88	24.69	63.27	28.75	86.24	38.09	142.8	59.52	282.4	110.4	629.4	236.0
1 1	B2-O	54.87	20.04	64.05	23.70	86.54	31.77	142.1	49.39	280.4	89.05	627.0	185.1
0 1	B1-O	49.47	19.12	58.71	23.41	81.19	33.00	136.5	54.53	274.6	105.4	621.1	230.9
1 0	B1-O	51.56	22.28	60.86	26.42	83.58	35.89	139.8	57.39	279.2	108.3	626.2	233.9
1 1	B1-O	52.51	17.90	61.61	21.71	83.93	29.97	139.2	47.71	277.3	87.46	623.8	183.4

Version : OAI22X1P

Cell Unit = 12

State		Output Load											
B1 B2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 1	A2-O	37.31	18.43	44.32	21.84	61.14	29.48	102.1	46.05	203.4	82.62	454.6	170.1
1 0	A2-O	35.64	14.78	42.64	18.41	59.30	26.42	99.50	43.23	199.5	80.02	450.0	167.3
1 1	A2-O	35.60	12.51	42.54	15.67	59.13	22.59	99.19	36.59	199.2	66.22	449.6	133.8
0 1	A1-O	39.56	21.15	46.48	24.43	63.36	31.73	104.6	48.09	206.3	84.56	457.7	172.1
1 0	A1-O	38.02	17.67	44.87	21.15	61.56	28.79	102.1	45.42	202.4	82.03	453.1	169.5
1 1	A1-O	37.89	14.96	44.72	17.92	61.34	24.56	101.8	38.29	202.0	67.79	452.7	135.4
A1 A2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 1	B2-O	52.42	20.63	59.14	23.57	75.57	30.36	115.9	45.75	216.1	81.72	466.6	169.1
1 0	B2-O	54.33	23.50	61.14	26.36	77.78	33.07	118.8	48.42	220.1	84.37	471.3	171.8
1 1	B2-O	55.40	19.19	62.03	21.79	78.32	27.67	118.6	40.47	218.7	68.99	469.2	136.0
0 1	B1-O	50.12	18.27	56.81	21.31	73.13	28.23	113.3	43.70	213.1	79.68	463.5	167.1
1 0	B1-O	52.14	21.18	58.87	24.12	75.35	30.92	116.1	46.35	217.1	82.32	468.2	169.8
1 1	B1-O	53.17	17.11	59.76	19.84	75.94	25.89	116.0	38.84	215.8	67.42	466.1	134.4

Version : OAI22X2

Cell Unit = 13

State		Output Load											
B1 B2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 1	A2-O	32.24	17.57	37.29	20.18	49.31	26.05	78.02	38.65	148.7	66.21	324.0	129.7
1 0	A2-O	30.51	13.03	35.56	15.85	47.51	22.05	75.78	35.05	145.2	62.84	318.6	126.3
1 1	A2-O	30.49	10.96	35.51	13.43	47.39	18.83	75.54	29.91	144.8	52.60	318.2	102.3
0 1	A1-O	36.68	21.14	41.60	23.58	53.56	29.13	82.51	41.57	153.6	68.92	329.2	132.5
1 0	A1-O	35.11	16.83	40.00	19.49	51.75	25.35	80.26	38.03	150.1	65.63	323.8	129.1
1 1	A1-O	35.00	14.15	39.87	16.45	51.58	21.58	79.98	32.21	149.7	54.72	323.4	104.4
A1 A2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 1	B2-O	48.76	19.77	53.49	22.00	65.10	27.17	93.29	38.80	162.8	65.29	336.4	128.8
1 0	B2-O	50.78	23.36	55.56	25.51	67.25	30.58	95.95	42.13	166.7	68.64	342.0	132.2
1 1	B2-O	51.75	18.43	56.40	20.41	67.87	24.94	95.94	34.78	165.5	56.30	339.0	105.5
0 1	B1-O	44.51	16.79	49.23	19.12	60.75	24.42	88.79	36.14	158.0	62.62	331.3	126.0
1 0	B1-O	46.67	20.39	51.33	22.62	62.95	27.77	91.42	39.39	161.9	65.92	336.9	129.4
1 1	B1-O	47.58	15.79	52.21	17.91	63.59	22.61	91.49	32.64	160.6	54.28	333.9	103.4

Version : OAI22X3

Cell Unit = 12

State		Output Load											
B1 B2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 1	A2-O	74.80	54.79	78.61	57.41	87.24	62.70	108.0	72.97	159.6	94.50	288.7	144.6
1 0	A2-O	70.71	50.72	74.46	53.32	83.04	58.58	103.9	68.92	155.5	90.39	284.6	140.6
1 1	A2-O	70.63	46.55	74.38	49.14	82.96	54.41	103.8	64.59	155.5	86.05	284.5	136.1
0 1	A1-O	77.48	58.29	81.28	60.92	89.91	66.24	110.7	76.52	162.3	98.09	291.4	148.2
1 0	A1-O	73.47	54.35	77.23	56.97	85.82	62.28	106.6	72.55	158.3	94.09	287.4	144.2
1 1	A1-O	73.31	49.53	77.07	52.13	85.66	57.38	106.5	67.59	158.2	89.08	287.2	139.2
A1 A2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 1	B2-O	89.54	56.92	93.32	59.54	101.9	64.81	122.7	75.15	174.3	96.65	303.4	146.8
1 0	B2-O	93.67	60.54	97.55	63.17	106.2	68.47	126.9	78.81	178.6	100.3	307.6	150.5
1 1	B2-O	92.64	54.64	96.44	57.24	105.0	62.49	125.8	72.79	177.4	94.27	306.5	144.4
0 1	B1-O	87.01	53.90	90.81	56.51	99.40	61.77	120.2	72.07	171.8	93.55	300.9	143.7
1 0	B1-O	91.17	57.57	95.06	60.19	103.7	65.47	124.4	75.77	176.0	97.27	305.1	147.5
1 1	B1-O	90.16	52.13	93.95	54.72	102.6	59.94	123.3	70.28	174.9	91.72	304.0	141.9

Group Name : OAI222

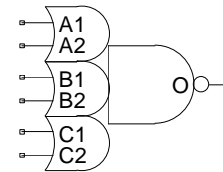
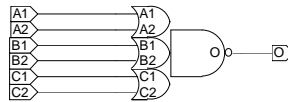
Symbol

Function : 3 OR2 into ND3

Truth Table

A1	A2	B1	B2	C1	C2	O
0	0	X	X	X	X	1
X	X	0	0	X	X	1
X	X	X	X	0	0	1
OTHERS						0

Schematic



Pin Order O A1 A2 B1 B2 C1 C2

**Input Capacitance (ff) & Maximum Loading (ff) & Power Consumption (nW/MHz)**

Version	Input Capacitance						Maximum Loading	Power Consumption
	A1	A2	B1	B2	C1	C2	O	O
OAI222XLP	1.519	1.348	1.474	1.657	1.668	1.492	68.70	3.364
OAI222X1	2.021	1.754	1.912	2.190	2.224	1.953	99.82	4.497
OAI222X1P	2.789	2.417	2.640	2.929	3.028	2.762	136.6	6.374
OAI222X2	3.781	3.274	3.544	3.976	4.081	3.687	198.5	8.593
OAI222X3	1.568	1.300	1.476	1.672	1.656	1.488	295.7	9.043

## AC Characteristics ( Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ps)

Version : OAI222XLP

Cell Unit = 10

State				Output Load											
B1 B2 C1 C2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff			
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl		
		0 1 0 1	A2-O	49.08	29.81	62.44	37.26	95.16	54.67	176.1	95.35	376.8	194.6	877.5	443.6
0 1 1 0	A2-O	51.16	33.91	64.73	41.22	98.07	58.46	180.0	99.18	381.3	198.5	882.2	447.5		
0 1 1 1	A2-O	48.96	27.16	62.30	33.82	94.98	49.00	175.9	83.86	376.6	167.7	877.3	377.4		
1 0 0 1	A2-O	47.36	25.64	60.58	33.31	92.78	50.82	172.6	91.52	372.1	190.7	872.7	439.7		
1 0 1 0	A2-O	49.08	29.80	62.44	37.25	95.16	54.66	176.1	95.34	376.8	194.6	877.4	443.5		
1 0 1 1	A2-O	47.25	23.47	60.44	30.29	92.60	45.67	172.4	80.67	372.0	164.5	872.6	374.1		
1 1 0 1	A2-O	47.26	22.99	60.44	29.80	92.60	45.05	172.4	79.87	371.9	163.4	872.5	372.4		
1 1 1 0	A2-O	48.97	26.69	62.30	33.27	94.97	48.34	175.9	83.07	376.6	166.6	877.3	375.6		
1 1 1 1	A2-O	47.14	20.65	60.28	26.71	92.39	39.88	172.1	69.03	371.7	136.9	872.3	305.8		
0 1 0 1	A1-O	51.63	33.24	65.10	40.56	98.08	57.81	179.3	98.50	380.2	197.8	880.9	446.7		
0 1 1 0	A1-O	53.61	37.30	67.36	44.56	101.0	61.63	183.3	102.3	384.8	201.7	885.7	450.7		
0 1 1 1	A1-O	51.48	30.12	64.92	36.70	97.89	51.69	179.1	86.47	380.0	170.3	880.8	380.1		
1 0 0 1	A1-O	50.00	29.11	63.28	36.63	95.64	54.00	175.8	94.66	375.6	193.9	876.2	442.8		
1 0 1 0	A1-O	51.63	33.23	65.10	40.55	98.08	57.80	179.3	98.49	380.2	197.8	880.9	446.7		
1 0 1 1	A1-O	49.86	26.51	63.10	33.19	95.43	48.41	175.6	83.27	375.4	167.1	876.1	376.8		
1 1 0 1	A1-O	49.85	26.03	63.08	32.62	95.41	47.75	175.6	82.49	375.4	166.0	876.1	375.0		
1 1 1 0	A1-O	51.47	29.58	64.91	36.06	97.87	51.01	179.1	85.67	380.0	169.2	880.8	378.3		
1 1 1 1	A1-O	49.70	23.30	62.87	29.08	95.17	42.08	175.3	71.08	375.1	139.0	875.9	307.9		
A1 A2 C1 C2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff			
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl		
		0 1 0 1	B2-O	64.97	34.99	78.09	42.16	110.5	59.06	190.5	99.59	390.2	198.8	890.8	447.8
0 1 1 0	B2-O	67.06	38.86	80.36	46.07	113.2	62.89	194.3	103.4	394.8	202.7	895.5	451.7		
0 1 1 1	B2-O	64.74	30.63	77.82	36.83	110.2	51.31	190.1	85.63	389.8	169.4	890.4	379.3		
1 0 0 1	B2-O	67.06	39.01	80.38	46.22	113.2	63.05	194.4	103.5	395.1	202.9	895.8	451.9		
1 0 1 0	B2-O	69.54	42.96	83.06	50.08	116.5	66.87	198.5	107.3	399.7	206.8	900.5	455.9		
1 0 1 1	B2-O	66.84	34.03	80.09	40.19	112.9	54.62	194.0	88.93	394.7	172.9	895.4	382.8		
1 1 0 1	B2-O	67.87	32.86	80.88	39.21	113.2	54.07	193.2	88.77	392.9	172.7	893.5	382.8		
1 1 1 0	B2-O	69.95	36.29	83.15	42.48	115.9	57.29	196.9	91.92	397.6	175.9	898.2	386.2		
1 1 1 1	B2-O	67.63	28.47	80.61	33.85	112.9	46.27	192.8	74.77	392.5	142.7	893.2	311.9		
0 1 0 1	B1-O	62.49	31.81	75.57	39.00	107.7	56.07	187.5	96.54	387.1	195.8	887.6	444.8		
0 1 1 0	B1-O	64.63	35.67	77.78	42.87	110.4	59.82	191.3	100.4	391.7	199.7	892.3	448.7		
0 1 1 1	B1-O	62.30	27.95	75.32	34.21	107.4	48.82	187.1	83.19	386.8	166.9	887.3	376.8		
1 0 0 1	B1-O	64.64	35.81	77.82	43.02	110.5	59.98	191.4	100.5	391.9	199.9	892.6	448.9		
1 0 1 0	B1-O	67.16	39.73	80.47	46.93	113.7	63.80	195.5	104.3	396.6	203.8	897.3	452.8		
1 0 1 1	B1-O	64.42	31.35	77.59	37.57	110.2	52.07	191.0	86.44	391.6	170.3	892.2	380.2		
1 1 0 1	B1-O	65.44	30.01	78.41	36.54	110.5	51.51	190.2	86.28	389.8	170.2	890.4	380.3		
1 1 1 0	B1-O	67.56	33.49	80.63	39.85	113.2	54.73	194.0	89.46	394.4	173.4	895.1	383.6		
1 1 1 1	B1-O	65.24	26.16	78.17	31.69	110.2	44.23	189.9	72.81	389.4	140.7	890.0	310.0		

A1 A2 B1 B2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 1 0 1	C2-O	76.41	37.72	89.77	44.57	122.7	61.25	203.8	101.3	404.4	200.7	905.2	449.8
0 1 1 0	C2-O	73.79	34.02	87.05	40.94	119.6	57.53	199.8	97.68	399.8	196.9	900.5	445.8
0 1 1 1	C2-O	76.04	31.81	89.31	37.74	121.9	51.92	202.2	85.88	402.2	169.3	903.0	378.4
1 0 0 1	C2-O	79.47	41.55	92.99	48.43	126.4	65.11	208.2	105.4	409.3	204.8	910.2	453.9
1 0 1 0	C2-O	76.44	37.85	89.78	44.70	122.7	61.39	203.9	101.5	404.6	200.9	905.5	450.0
1 0 1 1	C2-O	78.77	35.01	92.12	40.93	125.1	55.06	206.3	89.08	407.1	172.7	907.9	381.9
1 1 0 1	C2-O	80.06	34.66	93.23	40.58	125.9	54.88	206.7	89.09	407.1	173.0	907.8	383.2
1 1 1 0	C2-O	77.53	31.57	90.57	37.45	122.8	51.79	202.7	85.97	402.5	169.7	903.1	379.9
1 1 1 1	C2-O	79.99	29.14	93.01	34.22	125.2	46.16	205.2	73.96	405.0	141.1	905.7	308.8
0 1 0 1	C1-O	78.99	40.78	92.42	47.59	125.5	64.23	206.8	104.4	407.5	203.7	908.4	452.8
0 1 1 0	C1-O	76.37	37.10	89.72	43.92	122.3	60.52	202.8	100.6	402.9	199.9	903.6	448.9
0 1 1 1	C1-O	78.59	34.38	91.96	40.23	124.6	54.37	205.1	88.30	405.3	171.8	906.1	381.0
1 0 0 1	C1-O	82.06	44.64	95.63	51.52	129.2	68.10	211.1	108.4	412.4	207.9	913.3	457.0
1 0 1 0	C1-O	79.00	40.91	92.45	47.73	125.6	64.37	206.9	104.5	407.7	203.9	908.6	453.0
1 0 1 1	C1-O	81.31	37.57	94.76	43.50	127.9	57.58	209.3	91.56	410.1	175.2	911.1	384.4
1 1 0 1	C1-O	82.62	37.21	95.87	43.17	128.7	57.35	209.7	91.53	410.2	175.5	911.0	385.8
1 1 1 0	C1-O	80.08	34.13	93.21	39.96	125.5	54.25	205.7	88.41	405.6	172.2	906.2	382.4
1 1 1 1	C1-O	82.50	31.23	95.62	36.29	128.0	48.10	208.2	75.92	408.1	143.1	908.8	310.8

Version : OAI222X1

Cell Unit = 10

State		Output Load											
B1 B2 C1 C2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 1 0 1	A2-O	43.85	28.14	53.24	33.70	76.15	46.58	132.5	76.66	271.9	148.4	618.8	327.8
0 1 1 0	A2-O	45.90	32.41	55.39	37.74	78.74	50.54	136.0	80.49	276.3	152.3	623.4	331.8
0 1 1 1	A2-O	43.68	25.63	53.10	30.57	75.97	41.95	132.3	67.88	271.7	128.7	618.7	279.8
1 0 0 1	A2-O	42.12	23.80	51.42	29.52	74.07	42.62	129.4	72.79	267.7	144.6	614.3	323.9
1 0 1 0	A2-O	43.85	28.14	53.24	33.70	76.15	46.58	132.5	76.66	271.9	148.4	618.8	327.8
1 0 1 1	A2-O	41.98	21.76	51.28	26.90	73.87	38.57	129.2	64.64	267.5	125.4	614.1	276.4
1 1 0 1	A2-O	41.99	21.30	51.29	26.40	73.87	37.94	129.1	63.95	267.5	124.5	614.1	275.0
1 1 1 0	A2-O	43.70	25.20	53.11	30.03	75.97	41.34	132.3	67.03	271.7	127.8	618.6	278.3
1 1 1 1	A2-O	41.87	19.15	51.16	23.78	73.66	33.76	128.9	55.67	267.3	105.3	613.9	226.9
0 1 0 1	A1-O	46.28	31.69	55.69	37.09	78.82	49.87	135.5	79.80	275.2	151.5	622.2	331.0
0 1 1 0	A1-O	48.20	35.90	57.79	41.18	81.38	53.88	139.0	83.69	279.5	155.6	626.8	335.1
0 1 1 1	A1-O	46.14	28.71	55.54	33.58	78.65	44.75	135.3	70.52	275.0	131.3	622.1	282.5
1 0 0 1	A1-O	44.68	27.40	53.96	32.99	76.68	45.92	132.4	75.97	271.0	147.7	617.6	327.1
1 0 1 0	A1-O	46.28	31.69	55.69	37.09	78.82	49.86	135.5	79.80	275.2	151.5	622.2	331.0
1 0 1 1	A1-O	44.54	24.96	53.79	29.93	76.51	41.37	132.2	67.29	270.8	128.1	617.5	279.1
1 1 0 1	A1-O	44.54	24.46	53.79	29.38	76.49	40.75	132.2	66.45	270.8	127.2	617.5	277.7
1 1 1 0	A1-O	46.14	28.17	55.54	33.00	78.63	44.12	135.3	69.66	275.0	130.4	622.0	281.0
1 1 1 1	A1-O	44.39	21.92	53.62	26.28	76.30	36.04	131.9	57.79	270.5	107.3	617.3	229.1
A1 A2 C1 C2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 1 0 1	B2-O	58.67	33.13	67.84	38.38	90.50	51.05	146.1	80.65	284.5	152.3	631.2	331.9
0 1 1 0	B2-O	60.70	37.13	70.00	42.39	92.92	54.87	149.4	84.50	288.8	156.3	635.7	335.9
0 1 1 1	B2-O	58.46	29.03	67.61	33.61	90.23	44.46	145.8	69.69	284.2	130.3	630.8	281.5
1 0 0 1	B2-O	60.71	37.27	70.01	42.54	92.92	55.02	149.5	84.65	289.0	156.5	636.0	336.1
1 0 1 0	B2-O	63.17	41.34	72.54	46.57	95.89	58.90	153.2	88.48	293.4	160.5	640.5	340.1
1 0 1 1	B2-O	60.48	32.54	69.79	37.08	92.63	47.80	149.1	73.06	288.7	133.8	635.6	285.0
1 1 0 1	B2-O	61.58	31.24	70.64	35.97	93.21	47.00	148.8	72.54	287.2	133.7	633.9	285.3
1 1 1 0	B2-O	63.63	34.80	72.80	39.39	95.65	50.35	152.1	75.81	291.5	136.9	638.4	288.7
1 1 1 1	B2-O	61.35	27.11	70.40	31.13	92.92	40.43	148.4	61.60	286.8	111.2	633.5	233.3
0 1 0 1	B1-O	56.31	29.83	65.43	35.15	87.90	47.90	143.3	77.60	281.6	149.3	628.1	328.8
0 1 1 0	B1-O	58.39	33.83	67.62	39.12	90.36	51.79	146.6	81.44	285.8	153.2	632.6	332.8
0 1 1 1	B1-O	56.13	26.24	65.23	30.90	87.65	41.82	143.0	67.14	281.2	127.7	627.7	278.9
1 0 0 1	B1-O	58.40	33.97	67.64	39.26	90.37	51.93	146.6	81.59	286.0	153.4	632.8	333.0
1 0 1 0	B1-O	60.88	38.01	70.18	43.28	93.33	55.77	150.3	85.42	290.4	157.4	637.4	337.0
1 0 1 1	B1-O	58.22	29.76	67.44	34.36	90.12	45.22	146.3	70.52	285.7	131.2	632.5	282.4
1 1 0 1	B1-O	59.25	28.25	68.28	33.12	90.64	44.34	146.0	70.03	284.2	131.2	630.8	282.7
1 1 1 0	B1-O	61.34	31.89	70.44	36.63	93.11	47.68	149.3	73.24	288.5	134.4	635.3	286.1
1 1 1 1	B1-O	59.06	24.68	68.07	28.84	90.38	38.30	145.7	59.61	283.9	109.3	630.4	231.3



A1 A2 B1 B2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 1 0 1	C2-O	69.60	35.90	78.94	40.95	102.0	53.16	158.5	82.49	297.9	154.3	644.9	333.8
0 1 1 0	C2-O	67.02	32.10	76.30	37.23	99.02	49.33	154.9	78.57	293.5	150.4	640.3	329.8
0 1 1 1	C2-O	69.24	30.17	78.53	34.60	101.3	45.07	157.2	69.92	295.9	130.1	642.8	280.9
1 0 0 1	C2-O	72.64	39.85	82.04	44.87	105.4	57.13	162.5	86.53	302.5	158.4	649.7	338.0
1 0 1 0	C2-O	69.62	36.03	78.97	41.08	102.0	53.30	158.5	82.64	298.1	154.5	645.1	334.0
1 0 1 1	C2-O	71.93	33.49	81.26	37.84	104.3	48.34	160.9	73.25	300.5	133.7	647.6	284.3
1 1 0 1	C2-O	73.28	33.17	82.43	37.47	105.2	48.09	161.4	73.15	300.7	133.8	647.5	285.7
1 1 1 0	C2-O	70.76	29.96	79.86	34.34	102.3	44.87	157.8	69.89	296.3	130.6	643.0	282.3
1 1 1 1	C2-O	73.18	27.79	82.29	31.54	104.7	40.46	160.3	60.96	298.8	109.8	645.5	230.8
0 1 0 1	C1-O	72.07	39.07	81.50	44.06	104.6	56.26	161.3	85.57	300.9	157.3	648.0	336.9
0 1 1 0	C1-O	69.50	35.29	78.86	40.31	101.7	52.44	157.7	81.68	296.6	153.4	643.4	332.9
0 1 1 1	C1-O	71.69	32.86	81.06	37.18	103.9	47.61	160.1	72.45	299.0	132.8	645.9	283.4
1 0 0 1	C1-O	75.09	43.04	84.58	48.06	108.0	60.22	165.3	89.60	305.6	161.4	652.8	341.0
1 0 1 0	C1-O	72.08	39.21	81.53	44.20	104.7	56.40	161.4	85.72	301.1	157.5	648.2	337.1
1 0 1 1	C1-O	74.35	36.15	83.80	40.49	107.0	50.89	163.8	75.78	303.5	136.3	650.7	286.9
1 1 0 1	C1-O	75.73	35.81	84.96	40.15	107.9	50.66	164.3	75.71	303.7	136.5	650.6	288.2
1 1 1 0	C1-O	73.23	32.63	82.39	36.91	105.0	47.46	160.7	72.45	299.3	133.1	646.0	284.9
1 1 1 1	C1-O	75.63	29.97	84.78	33.73	107.4	42.54	163.1	62.98	301.8	111.9	648.6	232.9

Version : OAI222X1P

Cell Unit = 19

State				Output Load											
B1 B2 C1 C2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff			
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl		
0 1 0 1	A2-O	40.47	26.02	47.39	30.05	64.17	39.42	105.2	61.00	206.9	111.6	459.3	236.3		
0 1 1 0	A2-O	42.46	31.27	49.46	35.12	66.59	44.35	108.5	65.82	211.9	116.5	465.5	241.2		
0 1 1 1	A2-O	40.33	23.69	47.28	27.26	63.98	35.66	105.0	54.48	206.7	97.58	459.1	202.7		
1 0 0 1	A2-O	38.76	20.58	45.64	24.77	62.20	34.39	102.5	56.14	202.5	106.7	452.9	231.1		
1 0 1 0	A2-O	40.46	25.91	47.38	29.94	64.16	39.31	105.2	60.88	206.9	111.5	459.1	236.1		
1 0 1 1	A2-O	38.59	18.81	45.51	22.65	62.03	31.25	102.2	50.31	202.3	93.58	452.7	198.4		
1 1 0 1	A2-O	38.61	18.36	45.52	22.16	62.04	30.74	102.2	49.64	202.2	92.77	452.7	197.2		
1 1 1 0	A2-O	40.34	23.07	47.28	26.70	63.97	34.98	105.0	53.68	206.7	96.64	458.9	201.4		
1 1 1 1	A2-O	38.52	16.49	45.40	19.89	61.88	27.49	102.0	43.75	202.0	79.50	452.5	164.2		
0 1 0 1	A1-O	45.18	30.48	52.08	34.37	68.97	43.60	110.3	65.05	212.4	115.7	464.9	240.4		
0 1 1 0	A1-O	47.11	35.64	54.14	39.43	71.36	48.61	113.6	69.99	217.4	120.7	471.1	245.5		
0 1 1 1	A1-O	45.03	27.51	51.95	31.07	68.79	39.25	110.1	57.93	212.2	101.0	464.7	206.2		
1 0 0 1	A1-O	43.54	25.04	50.39	29.15	66.97	38.55	107.6	60.14	207.9	110.7	458.5	235.3		
1 0 1 0	A1-O	45.17	30.36	52.07	34.25	68.96	43.49	110.3	64.93	212.3	115.6	464.7	240.3		
1 0 1 1	A1-O	43.40	22.77	50.24	26.43	66.81	34.87	107.4	53.72	207.7	96.84	458.4	201.9		
1 1 0 1	A1-O	43.39	22.31	50.24	25.93	66.80	34.27	107.4	53.02	207.7	96.01	458.3	200.7		
1 1 1 0	A1-O	45.03	26.91	51.94	30.41	68.77	38.53	110.1	57.12	212.1	100.0	464.5	204.9		
1 1 1 1	A1-O	43.25	19.96	50.07	23.16	66.62	30.41	107.1	46.54	207.4	82.13	458.1	166.9		
A1 A2 C1 C2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff			
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl		
0 1 0 1	B2-O	58.18	30.75	64.87	34.52	81.34	43.60	121.8	64.79	222.0	115.2	472.6	239.9		
0 1 1 0	B2-O	60.15	35.62	67.01	39.39	83.67	48.50	124.9	69.64	226.7	120.2	478.8	244.9		
0 1 1 1	B2-O	57.98	26.86	64.65	30.17	81.06	38.02	121.5	56.15	221.7	99.08	472.2	204.1		
1 0 0 1	B2-O	60.15	35.67	67.01	39.44	83.67	48.56	124.9	69.69	226.7	120.2	478.9	245.0		
1 0 1 0	B2-O	62.55	40.68	69.54	44.43	86.52	53.42	128.6	74.55	231.9	125.1	485.1	250.0		
1 0 1 1	B2-O	59.98	31.03	66.78	34.30	83.39	42.12	124.6	60.25	226.4	103.2	478.5	208.4		
1 1 0 1	B2-O	61.13	29.00	67.73	32.45	84.12	40.47	124.4	59.00	224.7	101.9	475.3	207.3		
1 1 1 0	B2-O	63.13	33.38	69.86	36.72	86.46	44.57	127.6	63.11	229.4	106.1	481.5	211.6		
1 1 1 1	B2-O	60.91	25.15	67.50	28.09	83.82	34.89	124.1	50.34	224.4	85.70	474.9	170.6		
0 1 0 1	B1-O	53.08	26.51	59.76	30.39	76.14	39.44	116.4	60.64	216.3	111.0	466.8	235.5		
0 1 1 0	B1-O	55.20	31.32	61.92	35.09	78.50	44.26	119.5	65.43	221.0	115.9	472.9	240.6		
0 1 1 1	B1-O	52.90	23.32	59.57	26.73	75.89	34.62	116.1	52.78	216.0	95.59	466.4	200.5		
1 0 0 1	B1-O	55.21	31.36	61.92	35.14	78.50	44.31	119.5	65.49	221.0	115.9	473.0	240.7		
1 0 1 0	B1-O	57.67	36.26	64.40	40.06	81.36	49.16	123.2	70.35	226.2	120.9	479.3	245.7		
1 0 1 1	B1-O	55.04	27.42	61.76	30.75	78.26	38.60	119.2	56.76	220.7	99.71	472.7	204.8		
1 1 0 1	B1-O	56.09	25.22	62.67	28.71	78.93	36.92	119.1	55.52	219.0	98.55	469.4	203.7		
1 1 1 0	B1-O	58.18	29.56	64.80	33.00	81.30	41.02	122.2	59.56	223.7	102.5	475.7	208.0		
1 1 1 1	B1-O	55.91	22.06	62.48	25.09	78.69	32.06	118.8	47.59	218.7	82.97	469.1	167.8		

A1 A2 B1 B2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 1 0 1	C2-O	67.42	33.83	74.20	37.50	91.06	46.17	132.3	67.04	234.3	117.4	486.5	242.0
0 1 1 0	C2-O	64.74	29.30	71.51	32.89	88.15	41.58	128.8	62.28	229.3	112.4	480.0	236.8
0 1 1 1	C2-O	67.02	27.62	73.79	30.82	90.44	38.28	131.1	55.87	231.7	98.37	482.5	202.9
1 0 0 1	C2-O	70.55	38.56	77.44	42.18	94.49	50.95	136.5	71.81	239.7	122.2	492.9	247.2
1 0 1 0	C2-O	67.42	33.78	74.20	37.45	91.05	46.12	132.3	66.98	234.2	117.3	486.4	241.9
1 0 1 1	C2-O	69.78	31.46	76.59	34.63	93.41	42.15	134.7	59.81	236.7	102.5	488.8	207.1
1 1 0 1	C2-O	71.20	31.32	77.89	34.46	94.46	41.99	135.5	59.75	237.1	102.7	489.1	207.8
1 1 1 0	C2-O	68.63	27.40	75.24	30.61	91.61	38.00	131.9	55.78	232.1	98.41	482.7	203.5
1 1 1 1	C2-O	71.13	25.58	77.72	28.31	94.07	34.71	134.4	49.43	234.6	83.92	485.2	167.9
0 1 0 1	C1-O	72.33	37.90	79.17	41.50	96.13	50.22	137.6	71.04	239.7	121.4	492.0	246.2
0 1 1 0	C1-O	69.65	33.15	76.49	36.81	93.24	45.44	134.1	66.22	234.7	116.4	485.6	241.0
0 1 1 1	C1-O	71.90	30.92	78.73	34.08	95.50	41.53	136.4	59.18	237.1	101.8	488.0	206.4
1 0 0 1	C1-O	75.41	42.69	82.30	46.29	99.55	55.06	141.7	75.87	245.1	126.4	498.4	251.4
1 0 1 0	C1-O	72.33	37.85	79.17	41.45	96.13	50.16	137.6	70.98	239.7	121.3	491.9	246.2
1 0 1 1	C1-O	74.65	34.85	81.48	37.95	98.45	45.49	140.0	63.20	242.1	105.8	494.3	210.6
1 1 0 1	C1-O	76.08	34.70	82.78	37.77	99.50	45.37	140.7	63.14	242.5	106.1	494.7	211.3
1 1 1 0	C1-O	73.53	30.73	80.18	33.86	96.66	41.30	137.2	59.04	237.6	101.9	488.2	207.0
1 1 1 1	C1-O	75.98	28.30	82.62	30.94	99.09	37.35	139.7	52.01	240.0	86.53	490.8	170.7

Version : OAI222X2

Cell Unit = 20

State				Output Load											
B1 B2 C1 C2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff			
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl		
0 1 0 1	A2-O	36.46	24.63	41.38	27.62	53.26	34.63	81.96	50.73	152.6	87.98	328.0	178.0		
0 1 1 0	A2-O	38.55	29.93	43.45	32.80	55.54	39.60	84.79	55.59	156.8	92.65	333.7	182.9		
0 1 1 1	A2-O	36.29	22.43	41.25	25.13	53.12	31.38	81.77	45.50	152.4	77.48	327.8	153.5		
1 0 0 1	A2-O	34.69	19.09	39.62	22.25	51.34	29.48	79.66	45.79	149.0	83.18	322.5	172.9		
1 0 1 0	A2-O	36.46	24.53	41.37	27.52	53.25	34.53	81.94	50.62	152.6	87.87	327.9	177.8		
1 0 1 1	A2-O	34.56	17.47	39.45	20.35	51.20	26.90	79.47	41.33	148.8	73.34	322.3	149.4		
1 1 0 1	A2-O	34.58	17.05	39.46	19.90	51.20	26.40	79.46	40.72	148.8	72.59	322.2	148.4		
1 1 1 0	A2-O	36.30	21.86	41.26	24.63	53.11	30.75	81.75	44.79	152.4	76.63	327.7	152.4		
1 1 1 1	A2-O	34.51	15.32	39.37	17.89	51.08	23.77	79.27	36.12	148.6	63.02	322.0	124.6		
0 1 0 1	A1-O	40.81	29.10	45.70	32.06	57.61	38.83	86.52	54.82	157.6	91.91	333.3	182.1		
0 1 1 0	A1-O	42.66	34.38	47.72	37.14	59.81	43.90	89.30	59.67	161.8	96.85	338.9	187.0		
0 1 1 1	A1-O	40.72	26.37	45.56	28.94	57.46	35.13	86.34	49.02	157.4	80.88	333.1	156.9		
1 0 0 1	A1-O	39.24	23.64	44.04	26.66	55.79	33.77	84.21	49.86	154.0	87.12	327.7	177.0		
1 0 1 0	A1-O	40.80	29.00	45.70	31.96	57.59	38.73	86.50	54.72	157.6	91.80	333.1	181.9		
1 0 1 1	A1-O	39.14	21.51	43.92	24.26	55.62	30.57	84.03	44.75	153.8	76.73	327.5	152.7		
1 1 0 1	A1-O	39.14	21.03	43.92	23.76	55.61	30.02	84.02	44.12	153.7	75.97	327.5	151.7		
1 1 1 0	A1-O	40.71	25.76	45.56	28.31	57.44	34.45	86.31	48.27	157.4	80.00	332.9	155.8		
1 1 1 1	A1-O	39.02	18.87	43.78	21.28	55.41	26.82	83.80	38.98	153.5	65.73	327.3	127.3		
A1 A2 C1 C2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff			
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl		
0 1 0 1	B2-O	54.15	30.05	58.87	32.82	70.44	39.51	98.75	55.19	168.4	92.01	342.0	182.1		
0 1 1 0	B2-O	56.25	34.97	61.01	37.73	72.69	44.45	101.4	60.01	172.4	96.97	347.6	187.1		
0 1 1 1	B2-O	53.94	26.26	58.65	28.70	70.20	34.53	98.46	47.99	168.1	79.41	341.7	155.4		
1 0 0 1	B2-O	56.26	35.02	61.02	37.78	72.70	44.51	101.4	60.07	172.4	97.03	347.7	187.2		
1 0 1 0	B2-O	58.72	40.07	63.54	42.81	75.39	49.41	104.7	64.93	176.9	101.9	353.4	192.1		
1 0 1 1	B2-O	56.06	30.48	60.80	32.88	72.43	38.66	101.2	52.03	172.0	83.45	347.3	159.6		
1 1 0 1	B2-O	57.16	28.39	61.80	30.94	73.25	36.94	101.5	50.73	171.1	82.52	344.7	158.7		
1 1 1 0	B2-O	59.24	32.82	63.92	35.28	75.51	41.09	104.2	54.82	175.0	86.60	350.3	162.9		
1 1 1 1	B2-O	56.95	24.64	61.58	26.82	73.00	31.92	101.1	43.47	170.7	69.61	344.3	131.5		
0 1 0 1	B1-O	49.45	25.73	54.15	28.62	65.64	35.36	93.77	51.21	163.2	87.99	336.6	178.0		
0 1 1 0	B1-O	51.61	30.66	56.31	33.43	67.92	40.13	96.45	55.77	167.1	92.71	342.2	182.9		
0 1 1 1	B1-O	49.30	22.65	53.97	25.19	65.44	31.12	93.51	44.70	162.9	76.08	336.3	151.9		
1 0 0 1	B1-O	51.62	30.71	56.32	33.48	67.92	40.18	96.46	55.83	167.1	92.78	342.2	183.0		
1 0 1 0	B1-O	54.13	35.64	58.84	38.41	70.63	45.13	99.75	60.63	171.6	97.73	348.0	187.9		
1 0 1 1	B1-O	51.45	26.83	56.14	29.29	67.72	35.12	96.21	48.59	166.8	80.07	341.9	156.1		
1 1 0 1	B1-O	52.52	24.60	57.15	27.23	68.51	33.30	96.49	47.24	165.9	79.04	339.3	155.3		
1 1 1 0	B1-O	54.65	29.01	59.27	31.50	70.78	37.50	99.23	51.31	169.8	83.14	344.8	159.3		
1 1 1 1	B1-O	52.36	21.45	56.97	23.72	68.30	29.00	96.22	40.73	165.5	66.95	338.9	128.8		

A1 A2 B1 B2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 1 0 1	C2-O	62.77	32.83	67.50	35.53	79.28	41.95	108.1	57.32	179.1	94.01	354.4	184.0
0 1 1 0	C2-O	60.03	28.29	64.80	30.90	76.47	37.37	104.9	52.54	174.8	89.12	348.6	178.9
0 1 1 1	C2-O	62.25	26.73	67.01	29.12	78.69	34.73	107.2	47.78	177.2	78.69	351.0	154.2
1 0 0 1	C2-O	65.84	37.61	70.66	40.26	82.59	46.68	111.9	62.08	183.9	98.84	360.3	189.1
1 0 1 0	C2-O	62.76	32.80	67.50	35.50	79.28	41.92	108.1	57.28	179.1	93.96	354.4	183.9
1 0 1 1	C2-O	65.03	30.64	69.80	33.00	81.58	38.54	110.5	51.65	181.4	82.73	356.8	158.4
1 1 0 1	C2-O	66.58	30.49	71.23	32.82	82.80	38.30	111.4	51.59	182.0	82.89	357.1	159.0
1 1 1 0	C2-O	64.00	26.53	68.62	28.91	80.05	34.47	108.2	47.62	177.8	78.79	351.3	154.7
1 1 1 1	C2-O	66.45	24.86	71.05	26.89	82.48	31.65	110.6	42.74	180.2	68.17	353.8	129.0
0 1 0 1	C1-O	67.29	36.94	72.04	39.58	83.94	45.95	113.0	61.30	184.1	98.00	359.6	188.1
0 1 1 0	C1-O	64.58	32.16	69.38	34.85	81.15	41.24	109.8	56.51	179.9	93.12	353.8	182.9
0 1 1 1	C1-O	66.74	30.10	71.55	32.44	83.34	37.95	112.0	51.01	182.2	82.00	356.2	157.7
1 0 0 1	C1-O	70.36	41.76	75.20	44.39	87.19	50.81	116.7	66.11	188.9	102.9	365.5	193.2
1 0 1 0	C1-O	67.28	36.90	72.03	39.54	83.93	45.91	113.0	61.26	184.1	97.95	359.5	188.1
1 0 1 1	C1-O	69.51	34.08	74.29	36.37	86.20	41.90	115.3	54.94	186.5	86.03	361.9	161.9
1 1 0 1	C1-O	71.07	33.92	75.76	36.17	87.42	41.74	116.2	54.89	187.0	86.24	362.3	162.5
1 1 1 0	C1-O	68.50	29.90	73.19	32.23	84.69	37.67	113.0	50.89	182.8	82.13	356.5	158.2
1 1 1 1	C1-O	70.90	27.64	75.56	29.60	87.07	34.35	115.4	45.36	185.2	70.80	359.0	131.8

Version : OAI222X3

Cell Unit = 15

State				Output Load											
B1 B2 C1 C2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff			
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl		
0 1 0 1	A2-O	84.48	69.27	88.30	71.92	96.86	77.25	117.7	87.53	169.3	109.1	298.3	159.2		
0 1 1 0	A2-O	88.29	74.40	92.21	77.06	100.9	82.40	121.5	92.80	173.0	114.2	302.1	164.4		
0 1 1 1	A2-O	84.35	64.47	88.18	67.07	96.75	72.32	117.5	82.51	169.1	104.0	298.2	154.0		
1 0 0 1	A2-O	80.76	64.17	84.48	66.80	93.02	72.10	113.8	82.42	165.4	103.9	294.5	154.0		
1 0 1 0	A2-O	84.50	69.32	88.33	71.97	96.88	77.31	117.7	87.59	169.3	109.1	298.3	159.2		
1 0 1 1	A2-O	80.62	60.06	84.35	62.64	92.90	67.85	113.7	78.08	165.3	99.46	294.4	149.6		
1 1 0 1	A2-O	80.62	59.69	84.36	62.28	92.91	67.49	113.7	77.74	165.3	99.19	294.4	149.3		
1 1 1 0	A2-O	84.38	64.18	88.21	66.78	96.78	72.05	117.5	82.28	169.2	103.7	298.2	153.8		
1 1 1 1	A2-O	80.49	55.35	84.22	57.90	92.78	63.05	113.5	73.16	165.2	94.46	294.3	144.6		
0 1 0 1	A1-O	87.38	73.84	91.20	76.52	99.78	81.88	120.6	92.20	172.2	113.7	301.2	163.8		
0 1 1 0	A1-O	91.16	78.89	95.08	81.56	103.7	86.91	124.4	97.34	176.0	118.9	305.0	169.1		
0 1 1 1	A1-O	87.23	68.36	91.05	70.97	99.63	76.27	120.4	86.45	172.0	107.9	301.1	158.0		
1 0 0 1	A1-O	83.69	68.77	87.42	71.41	95.99	76.74	116.8	87.09	168.4	108.6	297.5	158.8		
1 0 1 0	A1-O	87.40	73.89	91.22	76.57	99.81	81.94	120.6	92.25	172.2	113.8	301.3	163.9		
1 0 1 1	A1-O	83.54	64.02	87.28	66.62	95.84	71.87	116.6	82.07	168.3	103.5	297.4	153.6		
1 1 0 1	A1-O	83.53	63.65	87.27	66.26	95.83	71.52	116.6	81.78	168.3	103.2	297.3	153.3		
1 1 1 0	A1-O	87.25	68.02	91.07	70.64	99.65	75.93	120.4	86.16	172.0	107.6	301.1	157.7		
1 1 1 1	A1-O	83.38	58.71	87.12	61.27	95.69	66.43	116.5	76.57	168.1	97.89	297.2	148.0		
A1 A2 C1 C2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff			
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl		
0 1 0 1	B2-O	99.66	74.74	103.5	77.39	112.0	82.74	132.8	93.00	184.4	114.5	313.4	164.6		
0 1 1 0	B2-O	103.4	79.63	107.3	82.31	115.9	87.67	136.6	97.99	188.2	119.5	317.2	169.6		
0 1 1 1	B2-O	99.42	67.98	103.2	70.57	111.8	75.80	132.5	86.08	184.1	107.5	313.2	157.6		
1 0 0 1	B2-O	103.5	79.86	107.4	82.54	116.0	87.89	136.7	98.22	188.2	119.7	317.3	169.8		
1 0 1 0	B2-O	107.2	84.68	111.2	87.36	119.9	92.73	140.6	103.1	192.1	124.7	321.2	174.9		
1 0 1 1	B2-O	103.3	72.25	107.2	74.86	115.8	80.11	136.4	90.38	188.0	111.9	317.1	162.0		
1 1 0 1	B2-O	102.6	71.85	106.4	74.51	115.0	79.80	135.7	90.08	187.3	111.5	316.4	161.6		
1 1 1 0	B2-O	106.3	76.05	110.2	78.68	118.8	83.97	139.5	94.35	191.1	115.8	320.1	166.0		
1 1 1 1	B2-O	102.4	64.85	106.2	67.44	114.8	72.65	135.5	82.80	187.1	104.2	316.1	154.2		
0 1 0 1	B1-O	96.97	70.58	100.8	73.21	109.3	78.52	130.1	88.78	181.6	110.3	310.7	160.4		
0 1 1 0	B1-O	100.7	75.46	104.6	78.12	113.3	83.48	133.9	93.75	185.5	115.2	314.6	165.3		
0 1 1 1	B1-O	96.77	64.50	100.6	67.07	109.1	72.28	129.8	82.53	181.4	103.9	310.5	154.0		
1 0 0 1	B1-O	100.8	75.68	104.7	78.35	113.4	83.71	134.1	93.98	185.6	115.5	314.7	165.5		
1 0 1 0	B1-O	104.5	80.57	108.6	83.24	117.3	88.57	137.9	98.96	189.5	120.4	318.5	170.5		
1 0 1 1	B1-O	100.6	68.78	104.5	71.37	113.2	76.59	133.9	86.85	185.4	108.3	314.5	158.4		
1 1 0 1	B1-O	99.97	68.29	103.8	70.91	112.4	76.19	133.0	86.48	184.6	107.9	313.7	157.9		
1 1 1 0	B1-O	103.6	72.51	107.5	75.14	116.2	80.43	136.9	90.77	188.4	112.2	317.5	162.3		
1 1 1 1	B1-O	99.76	61.94	103.6	64.55	112.2	69.75	132.8	79.84	184.4	101.2	313.5	151.2		

A1 A2 B1 B2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 1 0 1	C2-O	113.0	77.19	117.0	79.84	125.6	85.16	146.2	95.48	197.8	117.0	326.9	167.2
0 1 1 0	C2-O	109.1	72.58	113.0	75.20	121.6	80.48	142.2	90.85	193.7	112.2	322.8	162.4
0 1 1 1	C2-O	111.4	68.45	115.3	71.05	123.9	76.28	144.6	86.52	196.1	107.9	325.1	158.0
1 0 0 1	C2-O	117.0	82.15	121.1	84.82	129.8	90.18	150.5	100.5	201.9	122.0	330.9	172.1
1 0 1 0	C2-O	113.1	77.46	117.1	80.10	125.8	85.43	146.4	95.75	197.9	117.3	327.0	167.4
1 0 1 1	C2-O	115.5	72.60	119.5	75.22	128.2	80.50	148.8	90.69	200.3	112.1	329.3	162.2
1 1 0 1	C2-O	116.5	73.34	120.5	76.00	129.2	81.33	149.8	91.56	201.3	113.0	330.4	163.1
1 1 1 0	C2-O	112.8	69.40	116.6	72.02	125.2	77.29	145.9	87.59	197.4	109.0	326.5	159.2
1 1 1 1	C2-O	115.3	65.16	119.2	67.77	127.8	72.99	148.4	83.12	200.0	104.5	329.0	154.5
0 1 0 1	C1-O	115.9	81.29	119.9	83.96	128.6	89.35	149.2	99.62	200.7	121.2	329.8	171.2
0 1 1 0	C1-O	112.0	76.65	115.9	79.29	124.5	84.61	145.2	94.95	196.7	116.5	325.8	166.6
0 1 1 1	C1-O	114.3	71.91	118.2	74.52	126.8	79.79	147.5	89.99	199.0	111.5	328.1	161.5
1 0 0 1	C1-O	119.9	86.30	124.0	89.02	132.7	94.36	153.4	104.7	204.9	126.3	333.9	176.3
1 0 1 0	C1-O	116.1	81.56	120.1	84.23	128.7	89.62	149.4	99.89	200.9	121.5	329.9	171.5
1 0 1 1	C1-O	118.4	76.06	122.4	78.70	131.1	84.00	151.7	94.22	203.2	115.7	332.2	165.7
1 1 0 1	C1-O	119.4	76.79	123.4	79.45	132.1	84.80	152.7	95.06	204.1	116.5	333.2	166.5
1 1 1 0	C1-O	115.7	72.84	119.5	75.47	128.1	80.78	148.8	91.03	200.4	112.5	329.4	162.6
1 1 1 1	C1-O	118.1	68.00	122.0	70.57	130.6	75.79	151.3	86.03	202.8	107.4	331.9	157.5

Group Name : OAI23

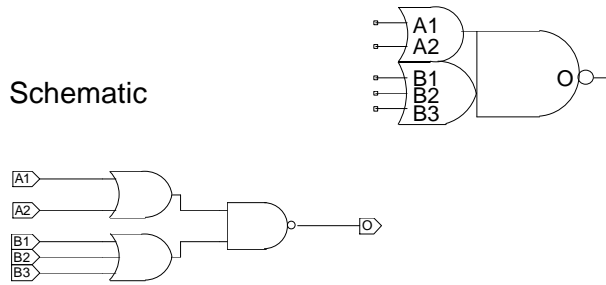
Symbol

Function : OR2, OR3 into ND2

Truth Table

A1	A2	B1	B2	B3	O
0	0	X	X	X	1
X	X	0	0	0	1
OTHERS					0

Schematic



Pin Order O A1 A2 B1 B2 B3

**Input Capacitance (ff) & Maximum Loading (ff) & Power Consumption (nW/MHz)**

Version	Input Capacitance					Maximum Loading	Power Consumption
	A1	A2	B1	B2	B3	O	O
OAI23XLP	1.356	1.195	1.336	1.399	1.401	47.82	2.036
OAI23X1	1.785	1.558	1.712	1.793	1.828	69.33	2.723
OAI23X1P	2.759	2.072	2.309	2.802	2.918	96.44	3.700
OAI23X2	3.402	2.846	3.064	3.291	3.465	137.7	5.617
OAI23X3	1.377	1.201	1.337	1.399	1.401	212.8	5.877



## AC Characteristics ( Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ps)

Version : OAI23XLP

Cell Unit = 8

State	Output Load													
	B1 B2 B3	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 1	A2-O	38.02	28.59	51.69	36.97	84.50	55.56	165.6	97.75	367.1	199.2	870.4	452.8	
0 1 0	A2-O	37.99	25.88	51.68	34.11	84.45	52.50	165.4	94.36	365.9	195.4	866.6	448.7	
0 1 1	A2-O	37.97	22.10	51.61	29.08	84.40	44.28	165.4	77.55	366.2	155.6	866.9	350.4	
1 0 0	A2-O	36.30	21.06	49.92	29.75	82.27	48.52	161.8	90.41	361.3	191.4	861.7	444.6	
1 0 1	A2-O	36.26	18.09	49.82	25.57	82.09	41.10	161.6	74.61	361.0	152.5	861.5	347.3	
1 1 0	A2-O	36.26	18.09	49.82	25.57	82.09	41.10	161.6	74.61	361.0	152.5	861.5	347.3	
1 1 1	A2-O	36.25	17.03	49.78	24.14	82.01	38.64	161.5	69.60	360.9	140.8	861.4	317.8	
0 0 1	A1-O	40.90	32.55	54.44	40.61	87.51	58.93	168.8	100.9	370.6	202.4	874.0	456.1	
0 1 0	A1-O	40.87	29.64	54.44	37.66	87.43	55.83	168.7	97.54	369.4	198.6	870.1	452.0	
0 1 1	A1-O	40.75	25.22	54.35	31.89	87.33	46.89	168.7	79.97	369.7	158.1	870.4	352.9	
1 0 0	A1-O	39.28	25.08	52.79	33.32	85.31	51.76	165.1	93.61	364.7	194.6	865.3	447.9	
1 0 1	A1-O	39.15	21.41	52.62	28.42	85.09	43.66	164.8	76.96	364.5	154.9	865.0	349.7	
1 1 0	A1-O	39.15	21.41	52.62	28.42	85.09	43.66	164.8	76.96	364.5	154.9	865.0	349.7	
1 1 1	A1-O	39.11	20.15	52.56	26.79	85.00	41.00	164.7	71.77	364.4	142.9	864.9	320.0	
A1 A2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 1	B3-O	76.38	30.13	95.74	37.94	143.6	55.80	262.4	97.40	559.7	199.0	1305	452.6	
1 0	B3-O	79.79	34.50	99.57	42.12	148.5	59.87	269.0	101.6	567.0	203.2	1313	456.8	
1 1	B3-O	79.36	27.10	98.58	33.59	146.2	48.12	265.1	80.86	562.3	158.3	1308	351.1	
0 1	B2-O	72.20	28.49	91.71	36.10	139.5	53.53	258.3	94.67	555.6	195.8	1301	449.2	
1 0	B2-O	75.64	32.65	95.43	40.11	144.4	57.50	264.9	98.68	562.9	199.9	1308	453.4	
1 1	B2-O	75.23	25.88	94.53	32.28	142.2	46.53	261.0	78.91	558.2	155.9	1304	348.6	
0 1	B1-O	63.60	24.93	82.83	32.65	130.3	50.19	248.9	91.37	546.1	192.4	1291	445.7	
1 0	B1-O	67.00	29.08	86.59	36.73	135.3	54.16	255.5	95.32	553.3	196.4	1299	449.9	
1 1	B1-O	66.67	22.91	85.74	29.52	133.0	43.95	251.5	76.40	548.7	153.4	1294	346.0	

Version : OAI23X1

Cell Unit = 8

State		Output Load											
B1 B2 B3	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 1	A2-O	33.70	27.46	43.43	33.71	66.61	47.85	122.9	79.34	262.9	153.5	612.0	337.7
0 1 0	A2-O	33.67	24.63	43.40	30.81	66.56	44.82	122.8	75.99	262.2	149.7	609.0	333.6
0 1 1	A2-O	33.68	20.99	43.37	26.32	66.50	37.88	122.8	63.06	262.5	120.4	609.4	261.5
1 0 0	A2-O	31.91	19.53	41.66	26.20	64.59	40.51	119.9	72.01	257.9	145.6	604.4	329.4
1 0 1	A2-O	31.89	16.73	41.59	22.44	64.45	34.46	119.7	59.92	257.7	117.3	604.1	258.3
1 1 0	A2-O	31.89	16.73	41.59	22.44	64.45	34.46	119.7	59.92	257.7	117.3	604.1	258.3
1 1 1	A2-O	31.89	15.74	41.58	21.15	64.39	32.47	119.6	56.13	257.6	108.5	604.0	236.7
0 0 1	A1-O	36.58	31.53	46.21	37.59	69.39	51.36	126.0	82.62	266.2	156.8	615.4	341.0
0 1 0	A1-O	36.56	28.53	46.18	34.58	69.35	48.26	125.9	79.27	265.6	153.0	612.5	336.9
0 1 1	A1-O	36.46	24.29	46.06	29.28	69.22	40.63	125.9	65.58	265.8	122.8	612.9	264.0
1 0 0	A1-O	34.97	23.79	44.54	29.97	67.45	44.03	123.0	75.23	261.3	148.9	607.8	332.7
1 0 1	A1-O	34.85	20.29	44.40	25.62	67.25	37.21	122.7	62.43	261.0	119.7	607.6	260.8
1 1 0	A1-O	34.85	20.29	44.40	25.62	67.25	37.21	122.7	62.43	261.0	119.7	607.6	260.8
1 1 1	A1-O	34.82	19.08	44.35	24.16	67.17	35.01	122.7	58.42	260.9	110.7	607.5	239.0
A1 A2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 1	B3-O	68.40	28.72	81.97	34.62	115.4	48.03	197.8	78.99	403.9	153.1	920.2	337.3
1 0	B3-O	71.68	33.29	85.54	39.00	119.7	52.28	203.7	83.19	410.9	157.3	927.4	341.6
1 1	B3-O	71.33	25.97	84.79	30.92	118.0	41.96	200.5	66.55	406.5	123.7	922.9	264.0
0 1	B2-O	64.47	27.05	78.00	32.76	111.4	45.81	194.0	76.26	400.0	149.9	916.4	333.8
1 0	B2-O	67.79	31.40	81.62	36.99	115.8	49.97	199.8	80.42	407.0	154.1	923.5	338.1
1 1	B2-O	67.43	24.71	80.80	29.59	114.1	40.41	196.6	64.65	402.6	121.4	919.0	261.4
0 1	B1-O	56.01	23.29	69.47	29.12	102.6	42.32	184.7	72.75	390.6	146.4	906.9	330.3
1 0	B1-O	59.32	27.65	73.08	33.36	106.9	46.45	190.6	76.92	397.7	150.6	914.1	334.5
1 1	B1-O	59.05	21.54	72.38	26.62	105.2	37.70	187.4	62.09	393.2	118.8	909.6	258.8

Version : OAI23X1P

Cell Unit = 12

State		Output Load											
B1 B2 B3	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 1	A2-O	31.83	26.64	39.09	31.34	56.16	42.15	97.17	66.19	198.7	121.5	451.2	257.3
0 1 0	A2-O	31.81	23.47	39.04	28.16	56.11	38.66	97.12	62.01	198.3	115.7	449.5	247.8
0 1 1	A2-O	31.82	20.22	39.03	24.34	56.06	33.18	97.04	52.55	198.4	95.28	449.7	198.6
1 0 0	A2-O	30.08	18.58	37.39	23.66	54.31	34.75	94.72	58.89	194.5	113.9	444.8	249.2
1 0 1	A2-O	30.06	15.92	37.33	20.31	54.18	29.73	94.53	49.50	194.3	92.58	444.6	196.5
1 1 0	A2-O	30.06	15.86	37.33	20.24	54.18	29.62	94.52	49.30	194.3	92.11	444.6	195.4
1 1 1	A2-O	30.05	14.95	37.31	19.11	54.13	28.00	94.45	46.35	194.2	85.92	444.5	180.1
0 0 1	A1-O	34.68	30.74	41.72	35.30	58.65	45.80	99.88	69.50	201.6	124.6	454.3	260.5
0 1 0	A1-O	34.66	27.42	41.67	31.88	58.64	42.15	99.82	65.24	201.3	118.8	452.5	251.0
0 1 1	A1-O	34.58	23.55	41.56	27.32	58.51	35.95	99.72	55.04	201.4	97.70	452.8	201.0
1 0 0	A1-O	33.13	22.90	40.16	27.58	56.94	38.33	97.44	62.13	197.5	117.0	447.9	252.4
1 0 1	A1-O	33.02	19.55	40.03	23.65	56.75	32.56	97.21	52.09	197.2	95.05	447.6	199.0
1 1 0	A1-O	33.02	19.48	40.02	23.56	56.75	32.44	97.21	51.87	197.2	94.57	447.6	197.8
1 1 1	A1-O	32.98	18.30	39.98	22.24	56.68	30.61	97.12	48.72	197.1	88.09	447.5	182.3
A1 A2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 1	B3-O	66.02	28.42	75.94	32.86	100.3	43.00	160.0	66.30	309.0	121.5	681.9	257.3
1 0	B3-O	69.20	32.99	79.29	37.26	104.1	47.29	165.2	70.48	315.5	125.7	688.8	261.5
1 1	B3-O	69.07	25.77	78.86	29.50	103.1	37.96	162.7	56.78	311.6	99.64	684.5	203.4
0 1	B2-O	62.38	25.02	72.35	29.20	96.66	38.87	156.5	61.17	305.5	114.5	678.4	246.8
1 0	B2-O	65.61	29.25	75.74	33.34	100.6	42.91	161.7	65.17	312.0	118.6	685.3	251.0
1 1	B2-O	65.47	22.76	75.32	26.33	99.43	34.35	159.2	52.31	308.1	93.19	681.0	192.7
0 1	B1-O	54.03	22.91	63.90	27.34	88.00	37.41	147.6	60.35	296.3	115.0	669.2	250.4
1 0	B1-O	57.27	27.31	67.25	31.60	91.88	41.49	152.7	64.36	302.9	119.1	676.1	254.6
1 1	B1-O	57.16	21.20	66.89	25.09	90.86	33.66	150.3	52.41	299.0	94.85	671.8	198.3

Version : OAI23X2

Cell Unit = 17

State		Output Load											
B1 B2 B3	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 1	A2-O	29.57	25.75	34.73	29.12	46.84	36.88	75.53	54.18	146.2	93.13	321.9	185.9
0 1 0	A2-O	29.55	22.78	34.71	26.17	46.79	33.79	75.49	50.82	146.1	89.18	321.2	181.4
0 1 1	A2-O	29.58	19.38	34.73	22.30	46.72	28.77	75.45	42.85	146.1	73.51	321.6	144.7
1 0 0	A2-O	27.73	16.70	32.90	20.33	44.96	28.44	73.27	45.90	142.5	84.28	315.7	176.5
1 0 1	A2-O	27.74	14.27	32.87	17.43	44.85	24.45	73.11	38.86	142.3	69.77	315.5	140.9
1 1 0	A2-O	27.74	14.27	32.87	17.43	44.84	24.45	73.11	38.86	142.3	69.77	315.5	140.9
1 1 1	A2-O	27.75	13.39	32.87	16.41	44.81	23.06	73.06	36.55	142.2	65.13	315.4	130.0
0 0 1	A1-O	34.38	30.91	39.37	34.10	51.33	41.60	80.18	58.57	151.1	97.30	327.1	190.1
0 1 0	A1-O	34.37	27.75	39.36	30.87	51.30	38.30	80.16	55.01	151.0	93.35	326.4	185.6
0 1 1	A1-O	34.30	23.45	39.28	26.15	51.17	32.32	80.06	46.15	151.1	76.59	326.8	147.8
1 0 0	A1-O	32.81	21.91	37.76	25.28	49.56	32.93	77.94	50.02	147.5	88.36	320.9	180.6
1 0 1	A1-O	32.70	18.63	37.63	21.56	49.41	28.03	77.74	42.18	147.3	72.88	320.7	144.1
1 1 0	A1-O	32.70	18.63	37.63	21.56	49.41	28.03	77.74	42.18	147.3	72.88	320.7	144.1
1 1 1	A1-O	32.66	17.42	37.59	20.27	49.36	26.39	77.67	39.60	147.2	67.98	320.6	132.8
A1 A2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 1	B3-O	67.18	27.09	74.09	30.24	91.08	37.59	132.7	54.27	236.1	92.78	494.5	185.6
1 0	B3-O	70.42	32.60	77.43	35.64	94.90	42.79	137.7	59.32	243.2	97.75	503.3	190.8
1 1	B3-O	70.21	24.54	77.04	27.22	93.89	33.33	135.4	46.92	238.7	77.29	497.1	148.4
0 1	B2-O	61.59	25.45	68.51	28.48	85.51	35.57	127.2	51.71	230.6	89.52	489.1	181.7
1 0	B2-O	64.97	30.61	71.96	33.57	89.36	40.50	132.2	56.59	237.8	94.45	497.9	186.9
1 1	B2-O	64.65	23.31	71.46	25.93	88.33	31.90	129.9	45.15	233.2	75.02	491.7	145.6
0 1	B1-O	50.11	20.92	56.88	24.04	73.69	31.21	115.1	47.42	218.2	85.20	476.4	177.2
1 0	B1-O	53.37	26.02	60.32	29.04	77.51	36.12	120.0	52.30	225.3	90.11	485.3	182.4
1 1	B1-O	53.23	19.44	59.88	22.20	76.53	28.40	117.8	41.83	220.8	71.74	479.0	142.3

Version : OAI23X3

Cell Unit = 12

State			Output Load											
B1 B2 B3	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 0 1	A2-O	68.98	66.03	73.97	69.43	85.65	76.22	114.3	89.87	185.5	119.4	364.0	190.9	
0 1 0	A2-O	68.61	62.01	73.55	65.39	85.19	72.14	113.8	85.74	185.0	115.3	363.5	186.7	
0 1 1	A2-O	68.79	56.21	73.75	59.55	85.39	66.32	114.0	79.69	185.2	109.3	363.7	180.7	
1 0 0	A2-O	64.54	56.28	69.45	59.65	81.09	66.40	109.8	79.93	180.9	109.5	359.5	180.9	
1 0 1	A2-O	64.50	51.53	69.41	54.87	81.05	61.57	109.8	75.00	180.9	104.6	359.4	176.0	
1 1 0	A2-O	64.50	51.53	69.41	54.87	81.05	61.57	109.8	75.00	180.9	104.6	359.4	176.0	
1 1 1	A2-O	64.49	49.91	69.40	53.23	81.04	59.87	109.8	73.34	180.9	102.9	359.4	174.3	
0 0 1	A1-O	71.77	70.86	76.77	74.27	88.40	81.09	117.0	94.77	188.4	124.4	366.8	195.8	
0 1 0	A1-O	71.40	66.88	76.34	70.25	88.00	77.02	116.7	90.64	187.9	120.2	366.3	191.6	
0 1 1	A1-O	71.49	60.13	76.45	63.48	88.10	70.28	116.8	83.66	187.9	113.3	366.4	184.7	
1 0 0	A1-O	67.53	61.36	72.43	64.77	84.07	71.54	112.8	85.06	183.9	114.7	362.5	186.1	
1 0 1	A1-O	67.38	55.66	72.28	59.00	83.94	65.73	112.6	79.14	183.8	108.7	362.3	180.2	
1 1 0	A1-O	67.38	55.66	72.28	59.00	83.94	65.73	112.6	79.14	183.8	108.7	362.3	180.2	
1 1 1	A1-O	67.34	53.72	72.24	57.05	83.90	63.79	112.6	77.17	183.8	106.7	362.3	178.1	
A1 A2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 1	B3-O	107.7	67.75	112.7	71.16	124.3	78.03	152.8	91.56	224.1	121.2	402.5	192.6	
1 0	B3-O	113.1	73.00	118.2	76.43	129.9	83.36	158.4	96.86	229.5	126.6	407.9	198.0	
1 1	B3-O	110.7	63.68	115.8	67.03	127.3	73.79	155.9	87.39	227.1	116.9	405.6	188.3	
0 1	B2-O	103.6	64.73	108.6	68.11	120.2	74.96	148.8	88.39	219.9	118.0	398.4	189.4	
1 0	B2-O	109.0	69.89	114.1	73.28	125.7	80.14	154.2	93.62	225.4	123.3	403.8	194.7	
1 1	B2-O	106.6	61.38	111.6	64.73	123.2	71.44	151.8	84.95	222.9	114.5	401.4	185.9	
0 1	B1-O	94.95	60.13	99.97	63.49	111.6	70.31	140.1	83.71	211.3	113.3	389.8	184.7	
1 0	B1-O	100.4	65.32	105.5	68.70	117.2	75.53	145.7	88.98	216.8	118.6	395.2	190.1	
1 1	B1-O	98.07	57.67	103.1	61.03	114.7	67.71	143.2	81.19	214.5	110.7	392.9	182.1	

Group Name : OAI33

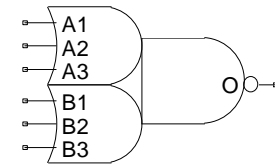
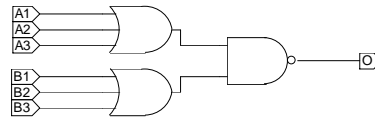
Symbol

Function : 2 OR3 into ND2

Truth Table

A1	A2	A3	B1	B2	B3	O
0	0	0	X	X	X	1
X	X	X	0	0	0	1
OTHERS						0

Schematic



Pin Order O A1 A2 A3 B1 B2 B3

**Input Capacitance (ff) & Maximum Loading (ff) & Power Consumption (nW/MHz)**

Version	Input Capacitance						Maximum Loading	Power Consumption
	A1	A2	A3	B1	B2	B3	O	O
OAI33XLP	1.296	1.212	1.337	1.313	1.376	1.393	45.92	2.599
OAI33X1	1.678	1.579	1.753	1.694	1.780	1.842	66.70	3.469
OAI33X1P	2.587	2.119	2.787	2.334	2.823	2.920	92.53	4.888
OAI33X2	3.045	2.891	3.378	3.067	3.308	3.573	131.4	7.354
OAI33X3	1.299	1.217	1.362	1.313	1.376	1.393	212.9	6.620

## AC Characteristics ( Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ps)

Version : OAI33XLP

Cell Unit = 9

State			Output Load											
B1 B2 B3	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 0 1	A3-O	65.29	36.76	85.23	44.81	134.3	63.18	255.9	105.3	556.9	207.2	1305	461.1	
0 1 0	A3-O	65.24	33.70	85.15	41.73	134.3	59.96	255.1	101.9	553.3	203.4	1299	457.0	
0 1 1	A3-O	65.15	28.37	85.05	35.08	134.2	50.12	255.3	83.27	553.8	161.7	1299	356.7	
1 0 0	A3-O	62.55	29.03	82.01	37.33	129.9	55.85	248.8	97.98	546.2	199.4	1292	452.9	
1 0 1	A3-O	62.38	24.61	81.76	31.54	129.6	46.82	248.5	80.25	545.8	158.6	1291	353.6	
1 1 0	A3-O	62.38	24.61	81.76	31.54	129.6	46.82	248.5	80.25	545.8	158.6	1291	353.6	
1 1 1	A3-O	62.32	23.09	81.67	29.63	129.5	43.86	248.3	74.71	545.7	146.2	1291	323.5	
0 0 1	A2-O	52.47	30.40	72.23	38.60	120.9	57.04	242.0	99.08	542.9	200.5	1291	454.1	
0 1 0	A2-O	52.47	27.70	72.17	35.76	120.8	53.93	241.3	95.72	539.3	196.7	1285	450.0	
0 1 1	A2-O	52.45	23.76	72.07	30.50	120.8	45.52	241.5	78.63	539.9	156.6	1285	351.4	
1 0 0	A2-O	49.72	23.03	68.94	31.44	116.5	49.95	235.0	91.76	532.2	192.7	1278	445.9	
1 0 1	A2-O	49.60	19.81	68.75	27.02	116.1	42.32	234.6	75.67	531.8	153.6	1277	348.3	
1 1 0	A2-O	49.60	19.81	68.75	27.02	116.1	42.32	234.6	75.66	531.8	153.6	1277	348.3	
1 1 1	A2-O	49.57	18.68	68.67	25.52	116.0	39.81	234.4	70.62	531.6	141.7	1277	318.8	
0 0 1	A1-O	61.11	34.49	81.10	42.45	130.3	60.61	251.8	102.5	552.7	204.0	1301	457.6	
0 1 0	A1-O	61.06	31.59	81.02	39.50	130.2	57.50	251.0	99.10	549.1	200.2	1295	453.5	
0 1 1	A1-O	60.94	26.88	80.91	33.47	130.1	48.30	251.2	81.25	549.8	159.3	1295	354.1	
1 0 0	A1-O	58.32	27.06	77.94	35.19	125.8	53.42	244.7	95.21	542.1	196.2	1288	449.4	
1 0 1	A1-O	58.14	23.17	77.65	29.99	125.4	45.08	244.3	78.23	541.7	156.2	1287	351.0	
1 1 0	A1-O	58.14	23.17	77.65	29.99	125.4	45.08	244.3	78.23	541.7	156.2	1287	351.0	
1 1 1	A1-O	58.08	21.81	77.55	28.26	125.3	42.32	244.2	72.93	541.5	144.1	1287	321.2	
A1 A2 A3	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 0 1	B3-O	85.73	39.22	105.6	46.92	154.6	64.79	275.6	106.9	576.4	208.8	1325	462.7	
0 1 0	B3-O	82.10	32.24	101.4	39.88	149.2	57.61	268.1	99.21	565.4	200.7	1311	454.3	
0 1 1	B3-O	85.13	28.85	104.3	35.18	152.0	49.56	270.8	82.15	568.1	159.5	1314	352.4	
1 0 0	B3-O	85.65	36.54	105.4	44.06	154.4	61.67	274.7	103.4	572.7	204.9	1318	458.5	
1 0 1	B3-O	88.80	32.34	108.5	38.49	157.5	52.74	278.1	85.20	576.3	162.7	1322	355.5	
1 1 0	B3-O	85.13	28.85	104.3	35.18	152.0	49.56	270.8	82.15	568.1	159.5	1313	352.4	
1 1 1	B3-O	87.71	28.13	106.8	34.15	154.5	47.60	273.2	77.70	570.5	148.5	1316	324.1	
0 0 1	B2-O	81.61	37.13	101.4	44.66	150.4	62.24	271.5	103.9	572.3	205.5	1321	459.2	
0 1 0	B2-O	78.00	30.53	97.33	37.99	145.2	55.31	264.0	96.33	561.3	197.4	1307	450.9	
0 1 1	B2-O	81.07	27.61	100.2	33.84	147.9	47.94	266.7	80.18	564.0	157.1	1309	349.8	
1 0 0	B2-O	81.54	34.68	101.3	41.99	150.2	59.27	270.6	100.5	568.6	201.7	1314	455.1	
1 0 1	B2-O	84.70	30.99	104.5	37.05	153.3	51.03	274.0	83.20	572.2	160.3	1318	353.0	
1 1 0	B2-O	81.07	27.60	100.2	33.84	147.9	47.94	266.7	80.18	564.0	157.1	1309	349.8	
1 1 1	B2-O	83.67	26.97	102.7	32.93	150.4	46.15	269.1	75.93	566.4	146.4	1312	321.8	
0 0 1	B1-O	72.91	33.42	92.51	41.05	141.3	58.76	262.1	100.5	562.8	202.1	1311	455.7	

0 1 0	B1-O	69.24	27.01	88.44	34.59	135.9	51.99	254.6	93.07	551.7	194.0	1297	447.4
0 1 1	B1-O	72.36	24.68	91.44	31.10	138.8	45.36	257.3	77.65	554.4	154.7	1300	347.2
1 0 0	B1-O	72.83	31.11	92.39	38.60	141.1	55.93	261.2	96.98	559.1	198.2	1305	451.6
1 0 1	B1-O	76.07	28.11	95.57	34.34	144.2	48.44	264.6	80.69	562.7	157.7	1308	350.4
1 1 0	B1-O	72.36	24.68	91.43	31.10	138.8	45.36	257.3	77.65	554.4	154.7	1300	347.2
1 1 1	B1-O	74.94	24.19	93.98	30.34	141.3	43.79	259.8	73.65	556.9	144.1	1302	319.4



Version : OAI33X1

Cell Unit = 9

State			Output Load											
B1 B2 B3	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 0 1	A3-O	58.52	35.77	72.41	41.77	106.8	55.52	191.4	86.91	400.7	161.4	920.9	345.9	
0 1 0	A3-O	58.47	32.59	72.38	38.57	106.7	52.24	191.0	83.45	398.5	157.6	915.1	341.8	
0 1 1	A3-O	58.39	27.44	72.29	32.44	106.6	43.77	191.2	68.80	398.9	126.3	915.6	267.8	
1 0 0	A3-O	55.85	27.70	69.44	33.93	103.0	47.98	185.5	79.40	391.6	153.5	908.1	337.6	
1 0 1	A3-O	55.71	23.44	69.18	28.68	102.7	40.31	185.1	65.60	391.3	123.2	907.8	264.6	
1 1 0	A3-O	55.71	23.44	69.18	28.68	102.7	40.31	185.1	65.60	391.3	123.2	907.8	264.6	
1 1 1	A3-O	55.66	21.98	69.10	26.95	102.6	37.81	185.0	61.23	391.1	113.8	907.6	242.4	
0 0 1	A2-O	46.14	29.12	59.93	35.28	93.94	49.22	178.2	80.56	387.2	154.7	907.3	338.8	
0 1 0	A2-O	46.10	26.32	59.88	32.37	93.85	46.19	177.8	77.21	384.9	150.9	901.5	334.7	
0 1 1	A2-O	46.11	22.59	59.88	27.67	93.81	39.06	178.0	64.07	385.4	121.3	902.0	262.4	
1 0 0	A2-O	43.35	21.33	56.92	27.80	90.07	41.91	172.3	73.20	378.1	146.7	894.5	330.5	
1 0 1	A2-O	43.27	18.34	56.78	23.97	89.80	35.68	171.9	60.97	377.8	118.3	894.2	259.3	
1 1 0	A2-O	43.27	18.34	56.78	23.97	89.80	35.68	171.9	60.97	377.8	118.3	894.2	259.3	
1 1 1	A2-O	43.25	17.27	56.73	22.61	89.70	33.61	171.8	57.09	377.6	109.4	894.0	237.6	
0 0 1	A1-O	54.45	33.40	68.54	39.32	102.9	52.91	187.6	84.06	396.8	158.3	917.0	342.5	
0 1 0	A1-O	54.35	30.40	68.48	36.31	102.8	49.80	187.1	80.71	394.6	154.5	911.2	338.4	
0 1 1	A1-O	54.33	25.86	68.36	30.79	102.7	41.99	187.3	66.80	395.0	124.0	911.7	265.2	
1 0 0	A1-O	51.82	25.65	65.55	31.76	99.10	45.63	181.6	76.68	387.8	150.3	904.2	334.2	
1 0 1	A1-O	51.61	21.94	65.35	27.12	98.80	38.59	181.2	63.64	387.4	120.9	903.9	262.0	
1 1 0	A1-O	51.61	21.94	65.35	27.12	98.80	38.59	181.2	63.64	387.4	120.9	903.9	262.0	
1 1 1	A1-O	51.54	20.65	65.27	25.57	98.70	36.28	181.1	59.51	387.2	111.7	903.7	240.1	
A1 A2 A3	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 0 1	B3-O	77.44	38.15	91.33	43.88	125.5	57.25	209.9	88.41	418.9	162.9	938.9	347.5	
0 1 0	B3-O	73.95	30.87	87.54	36.62	120.8	49.91	203.4	80.78	409.4	154.8	925.8	339.0	
0 1 1	B3-O	76.97	27.76	90.44	32.57	123.6	43.45	206.0	67.87	412.1	124.9	928.5	265.3	
1 0 0	B3-O	77.41	35.37	91.23	40.97	125.4	54.13	209.3	84.96	416.5	159.0	933.0	343.3	
1 0 1	B3-O	80.55	31.43	94.29	36.05	128.4	46.76	212.6	71.06	420.0	128.1	936.5	268.5	
1 1 0	B3-O	76.96	27.76	90.44	32.57	123.6	43.45	206.0	67.87	412.1	124.9	928.5	265.3	
1 1 1	B3-O	79.53	27.10	92.96	31.68	126.0	41.93	208.4	64.66	414.5	116.8	930.9	245.0	
0 0 1	B2-O	73.62	35.95	87.44	41.56	121.6	54.67	206.0	85.54	415.0	159.7	935.0	344.0	
0 1 0	B2-O	70.04	29.15	83.58	34.75	117.0	47.67	199.5	78.04	405.6	151.6	922.0	335.5	
0 1 1	B2-O	73.08	26.48	86.51	31.21	119.7	41.88	202.2	65.95	408.2	122.6	924.6	262.7	
1 0 0	B2-O	73.54	33.46	87.36	38.92	121.5	51.80	205.5	82.18	412.6	155.8	929.2	339.8	
1 0 1	B2-O	76.70	30.04	90.43	34.60	124.5	45.11	208.7	69.11	416.1	125.8	932.7	265.9	
1 1 0	B2-O	73.08	26.48	86.51	31.21	119.7	41.88	202.2	65.95	408.2	122.6	924.6	262.7	
1 1 1	B2-O	75.65	25.90	89.06	30.42	122.1	40.49	204.6	63.00	410.6	114.9	927.0	242.6	
0 0 1	B1-O	65.12	32.06	78.75	37.82	112.7	51.09	196.8	82.02	405.6	156.1	925.6	340.4	
0 1 0	B1-O	61.55	25.43	74.91	31.12	108.0	44.13	190.3	74.54	396.2	148.2	912.5	332.0	

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0 1 1	B1-O	64.66	23.36	77.88	28.27	110.8	39.13	193.0	63.36	398.9	120.0	915.2	260.0
1 0 0	B1-O	65.06	29.72	78.67	35.33	112.6	48.30	196.2	78.67	403.3	152.3	919.7	336.3
1 0 1	B1-O	68.26	27.00	81.83	31.72	115.7	42.39	199.5	66.48	406.7	123.2	923.2	263.3
1 1 0	B1-O	64.66	23.36	77.88	28.27	110.8	39.13	193.0	63.36	398.9	120.0	915.2	260.0
1 1 1	B1-O	67.24	22.94	80.44	27.63	113.3	37.98	195.4	60.66	401.3	112.6	917.6	240.2

Version : OAI33X1P

Cell Unit = 14

State			Output Load											
B1 B2 B3	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 0 1	A3-O	57.26	35.81	67.29	40.25	92.22	50.57	153.7	74.31	305.4	129.8	682.2	265.8	
0 1 0	A3-O	57.20	32.24	67.25	36.60	92.07	46.77	153.5	69.86	304.1	123.7	677.6	256.3	
0 1 1	A3-O	57.10	27.45	67.17	31.14	92.02	39.66	153.5	58.66	304.5	101.5	678.1	205.0	
1 0 0	A3-O	54.66	27.75	64.55	32.39	88.93	43.03	148.7	66.87	297.7	122.0	670.7	257.7	
1 0 1	A3-O	54.50	23.54	64.32	27.44	88.65	36.25	148.3	55.66	297.3	98.88	670.3	203.0	
1 1 0	A3-O	54.50	23.44	64.31	27.33	88.64	36.10	148.3	55.41	297.3	98.37	670.3	201.9	
1 1 1	A3-O	54.45	22.04	64.23	25.74	88.54	33.98	148.2	52.00	297.2	91.40	670.2	185.9	
0 0 1	A2-O	45.54	29.24	55.60	33.82	80.28	44.39	141.4	68.15	292.8	123.3	669.5	259.1	
0 1 0	A2-O	45.48	26.11	55.54	30.58	80.18	40.82	141.2	63.93	291.5	117.5	664.9	249.6	
0 1 1	A2-O	45.46	22.65	55.45	26.42	80.10	35.01	141.2	54.12	291.9	96.74	665.4	200.0	
1 0 0	A2-O	42.79	21.40	52.77	26.25	76.82	36.97	136.3	60.81	285.1	115.7	658.0	250.9	
1 0 1	A2-O	42.71	18.43	52.63	22.58	76.53	31.67	136.0	51.22	284.7	94.12	657.7	198.0	
1 1 0	A2-O	42.71	18.37	52.62	22.49	76.53	31.55	135.9	51.01	284.7	93.64	657.6	196.8	
1 1 1	A2-O	42.68	17.34	52.57	21.25	76.45	29.81	135.8	47.88	284.6	87.25	657.5	181.4	
0 0 1	A1-O	53.58	33.47	63.79	37.87	88.73	48.13	150.2	71.67	301.9	126.7	678.7	262.6	
0 1 0	A1-O	53.55	30.13	63.71	34.45	88.61	44.49	150.0	67.37	300.6	120.9	674.1	253.1	
0 1 1	A1-O	53.50	25.90	63.64	29.54	88.51	37.98	150.0	56.81	301.0	99.40	674.6	202.6	
1 0 0	A1-O	51.03	25.71	60.92	30.27	85.41	40.75	145.1	64.34	294.2	119.1	667.2	254.5	
1 0 1	A1-O	50.87	22.03	60.74	25.89	85.15	34.61	144.8	53.84	293.8	96.73	666.9	200.6	
1 1 0	A1-O	50.87	21.95	60.73	25.80	85.14	34.48	144.8	53.62	293.8	96.24	666.8	199.5	
1 1 1	A1-O	50.82	20.70	60.67	24.38	85.04	32.54	144.7	50.42	293.7	89.55	666.7	183.8	
A1 A2 A3	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 0 1	B3-O	77.11	38.74	87.12	42.98	111.9	52.99	173.2	76.35	324.5	131.7	701.1	268.0	
0 1 0	B3-O	73.67	31.53	83.52	35.79	107.8	45.75	167.5	68.87	316.5	124.0	689.4	259.7	
0 1 1	B3-O	76.78	28.35	86.53	31.92	110.6	40.16	170.3	58.74	319.2	101.5	692.1	205.2	
1 0 0	B3-O	77.07	36.00	87.03	40.14	111.8	50.01	172.9	73.06	323.1	128.1	696.4	264.0	
1 0 1	B3-O	80.25	32.01	90.18	35.46	114.9	43.50	176.0	61.89	326.5	104.6	699.9	208.4	
1 1 0	B3-O	76.78	28.35	86.53	31.92	110.6	40.16	170.3	58.74	319.2	101.5	692.1	205.2	
1 1 1	B3-O	79.40	27.68	89.12	31.07	113.1	38.80	172.7	56.18	321.6	95.51	694.5	190.3	
0 0 1	B2-O	73.54	34.59	83.60	38.62	108.4	48.26	169.7	70.79	321.0	124.6	697.6	257.2	
0 1 0	B2-O	70.06	27.99	79.98	32.05	104.2	41.51	164.0	63.67	313.0	117.0	685.9	249.3	
0 1 1	B2-O	73.22	25.26	83.00	28.66	107.0	36.47	166.8	54.27	315.7	94.90	688.6	194.4	
1 0 0	B2-O	73.51	32.18	83.48	36.13	108.3	45.56	169.3	67.71	319.6	121.1	692.9	253.4	
1 0 1	B2-O	76.72	28.67	86.65	31.93	111.4	39.58	172.5	57.20	323.0	97.90	696.3	197.4	
1 1 0	B2-O	73.22	25.26	83.00	28.66	107.0	36.47	166.8	54.27	315.7	94.90	688.6	194.4	
1 1 1	B2-O	75.87	24.65	85.58	27.89	109.5	35.26	169.2	51.72	318.1	89.14	691.0	179.2	
0 0 1	B1-O	65.14	32.65	75.00	36.92	99.61	46.86	160.7	70.05	311.9	125.2	688.4	261.1	
0 1 0	B1-O	61.64	26.02	71.36	30.27	95.49	40.07	155.0	62.84	303.9	117.4	676.8	252.9	

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0 1 1	B1-O	64.83	23.89	74.43	27.56	98.37	35.85	157.8	54.41	306.6	96.67	679.4	200.1
1 0 0	B1-O	65.08	30.32	74.94	34.49	99.53	44.14	160.4	66.90	310.5	121.6	683.7	257.1
1 0 1	B1-O	68.35	27.54	78.15	31.06	102.7	39.14	163.5	57.48	313.9	99.86	687.2	203.3
1 1 0	B1-O	64.83	23.89	74.43	27.56	98.37	35.85	157.8	54.41	306.6	96.67	679.4	200.1
1 1 1	B1-O	67.46	23.44	77.02	26.95	100.9	34.83	160.2	52.11	309.0	91.30	681.8	185.6

Version : OAI33X2

Cell Unit = 19

State			Output Load											
B1 B2 B3	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 0 1	A3-O	56.53	35.22	63.61	38.36	80.98	45.76	124.0	62.73	230.1	101.6	492.8	194.8	
0 1 0	A3-O	56.51	32.04	63.60	35.18	80.94	42.55	123.9	59.35	229.8	97.95	490.4	190.7	
0 1 1	A3-O	56.45	26.93	63.50	29.54	80.88	35.69	124.0	49.58	230.2	80.10	491.2	151.6	
1 0 0	A3-O	53.96	26.06	60.86	29.35	77.82	37.01	119.5	54.14	222.9	92.90	481.5	185.5	
1 0 1	A3-O	53.81	22.02	60.68	24.87	77.60	31.26	119.2	45.41	222.6	76.23	481.2	147.8	
1 1 0	A3-O	53.81	22.02	60.68	24.87	77.60	31.26	119.2	45.41	222.6	76.23	481.2	147.8	
1 1 1	A3-O	53.75	20.64	60.62	23.35	77.51	29.37	119.1	42.55	222.4	71.03	481.0	136.3	
0 0 1	A2-O	41.06	27.71	48.07	30.93	65.14	38.51	107.8	55.56	213.5	94.28	475.9	186.9	
0 1 0	A2-O	41.04	25.02	47.98	28.19	65.13	35.59	107.7	52.37	213.2	90.66	473.5	182.8	
0 1 1	A2-O	41.04	21.37	47.90	24.18	65.16	30.38	107.7	44.22	213.5	74.72	474.3	145.9	
1 0 0	A2-O	38.27	18.98	45.04	22.42	61.98	30.27	103.2	47.42	206.3	85.63	464.7	177.8	
1 0 1	A2-O	38.18	16.34	44.91	19.33	61.76	26.08	103.0	40.23	206.0	70.95	464.3	142.1	
1 1 0	A2-O	38.18	16.34	44.91	19.33	61.76	26.08	103.0	40.23	206.0	70.95	464.3	142.1	
1 1 1	A2-O	38.17	15.39	44.87	18.27	61.68	24.64	102.9	37.84	205.8	66.25	464.2	131.0	
0 0 1	A1-O	52.03	32.85	59.14	35.94	76.65	43.29	119.6	60.03	225.9	98.59	488.5	191.4	
0 1 0	A1-O	52.00	29.90	59.09	33.00	76.60	40.24	119.6	56.78	225.5	94.98	486.1	187.2	
0 1 1	A1-O	51.91	25.41	59.00	28.00	76.55	34.05	119.6	47.70	225.8	77.97	486.9	149.2	
1 0 0	A1-O	49.35	24.14	56.36	27.36	73.33	34.85	115.1	51.66	218.6	89.95	477.2	182.1	
1 0 1	A1-O	49.19	20.64	56.18	23.44	73.13	29.73	114.8	43.66	218.3	74.17	476.9	145.3	
1 1 0	A1-O	49.19	20.64	56.18	23.44	73.13	29.73	114.8	43.66	218.3	74.17	476.9	145.3	
1 1 1	A1-O	49.13	19.42	56.12	22.08	73.05	28.03	114.7	41.02	218.1	69.22	476.7	134.0	
A1 A2 A3	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 0 1	B3-O	78.63	38.53	85.58	41.53	103.0	48.67	145.9	65.22	251.7	104.0	513.9	197.2	
0 1 0	B3-O	74.96	30.45	81.83	33.49	98.83	40.56	140.5	56.99	244.0	95.25	502.5	188.1	
0 1 1	B3-O	78.20	27.34	84.97	29.90	101.8	35.80	143.3	49.12	246.7	79.23	505.2	150.2	
1 0 0	B3-O	78.59	35.76	85.55	38.68	103.0	45.68	145.7	61.96	251.2	100.3	511.2	193.1	
1 0 1	B3-O	81.92	31.66	88.85	34.08	106.1	39.80	148.9	52.98	254.6	82.94	515.0	153.9	
1 1 0	B3-O	78.20	27.34	84.97	29.90	101.8	35.80	143.3	49.12	246.7	79.23	505.2	150.2	
1 1 1	B3-O	80.85	26.72	87.58	29.11	104.4	34.69	145.8	47.16	249.1	74.93	507.6	139.9	
0 0 1	B2-O	74.13	36.38	81.09	39.30	98.57	46.30	141.4	62.50	247.3	100.9	509.5	193.7	
0 1 0	B2-O	70.40	28.88	77.27	31.80	94.39	38.67	136.1	54.64	239.6	92.33	498.1	184.6	
0 1 1	B2-O	73.66	26.18	80.43	28.70	97.37	34.45	138.9	47.49	242.2	77.17	500.7	147.7	
1 0 0	B2-O	74.07	33.91	81.06	36.76	98.49	43.55	141.3	59.42	246.8	97.20	506.8	189.6	
1 0 1	B2-O	77.44	30.35	84.38	32.73	101.6	38.33	144.5	51.22	250.2	80.85	510.6	151.5	
1 1 0	B2-O	73.66	26.18	80.43	28.70	97.37	34.45	138.9	47.49	242.2	77.17	500.7	147.7	
1 1 1	B2-O	76.32	25.63	83.05	27.99	99.93	33.46	141.4	45.71	244.7	73.12	503.1	137.7	
0 0 1	B1-O	62.12	31.46	69.03	34.50	86.28	41.59	128.9	57.97	234.5	96.25	496.5	189.2	
0 1 0	B1-O	58.41	24.33	65.27	27.34	82.06	34.33	123.5	50.34	226.7	87.97	485.1	180.0	

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0 1 1	B1-O	61.79	22.38	68.48	24.98	85.11	30.95	126.4	44.19	229.4	73.86	487.8	144.4
1 0 0	B1-O	62.05	29.28	69.02	32.21	86.21	39.07	128.7	55.04	234.0	92.76	493.8	185.1
1 0 1	B1-O	65.55	26.57	72.40	29.06	89.44	34.82	132.0	47.83	237.4	77.53	497.6	148.1
1 1 0	B1-O	61.79	22.38	68.48	24.98	85.11	30.95	126.4	44.19	229.4	73.86	487.8	144.4
1 1 1	B1-O	64.47	21.96	71.12	24.48	87.67	30.15	128.8	42.57	231.8	70.13	490.2	134.7

Version : OAI33X3

Cell Unit = 13

State			Output Load											
B1 B2 B3	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 0 1	A3-O	98.73	75.96	103.9	79.37	115.6	86.15	144.2	99.65	215.4	129.2	393.8	200.6	
0 1 0	A3-O	98.33	71.88	103.4	75.26	115.0	82.01	143.5	95.46	214.8	125.0	393.2	196.3	
0 1 1	A3-O	98.46	63.93	103.5	67.23	115.1	73.93	143.7	87.20	214.9	116.7	393.3	188.1	
1 0 0	A3-O	93.23	66.44	98.18	69.80	109.8	76.58	138.5	89.93	209.6	119.5	388.1	190.9	
1 0 1	A3-O	93.04	59.55	97.99	62.85	109.6	69.45	138.3	82.80	209.4	112.2	387.9	183.6	
1 1 0	A3-O	93.04	59.55	97.99	62.85	109.6	69.46	138.3	82.80	209.4	112.2	387.9	183.6	
1 1 1	A3-O	92.97	57.28	97.92	60.55	109.6	67.13	138.2	80.45	209.3	109.9	387.8	181.2	
0 0 1	A2-O	85.97	67.66	91.12	71.02	102.8	77.71	131.4	91.19	202.6	120.6	381.1	192.0	
0 1 0	A2-O	85.60	63.80	90.65	67.12	102.3	73.76	130.8	87.20	202.0	116.6	380.4	188.0	
0 1 1	A2-O	85.76	57.56	90.83	60.83	102.4	67.44	131.0	80.71	202.2	110.1	380.6	181.5	
1 0 0	A2-O	80.46	58.19	85.42	61.50	97.03	68.19	125.6	81.48	196.8	110.9	375.3	182.4	
1 0 1	A2-O	80.32	53.01	85.28	56.27	96.88	62.86	125.5	76.07	196.6	105.5	375.2	176.9	
1 1 0	A2-O	80.32	53.01	85.28	56.26	96.88	62.86	125.5	76.07	196.6	105.5	375.2	176.9	
1 1 1	A2-O	80.28	51.26	85.24	54.51	96.84	61.13	125.4	74.29	196.6	103.7	375.1	175.1	
0 0 1	A1-O	94.56	72.60	99.70	75.97	111.4	82.68	140.0	96.20	211.2	125.7	389.7	197.0	
0 1 0	A1-O	94.16	68.65	99.21	71.98	110.8	78.64	139.4	92.08	210.6	121.6	389.0	192.9	
0 1 1	A1-O	94.29	61.48	99.37	64.76	111.0	71.44	139.5	84.65	210.7	114.1	389.2	185.5	
1 0 0	A1-O	89.03	63.24	93.98	66.59	105.6	73.25	134.2	86.63	205.4	116.1	383.9	187.5	
1 0 1	A1-O	88.84	57.13	93.79	60.40	105.4	66.97	134.1	80.30	205.2	109.6	383.7	181.1	
1 1 0	A1-O	88.84	57.13	93.79	60.40	105.4	66.97	134.1	80.30	205.2	109.6	383.7	181.1	
1 1 1	A1-O	88.77	55.06	93.72	58.32	105.3	64.91	134.0	78.15	205.1	107.5	383.6	178.9	
A1 A2 A3	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 0 1	B3-O	119.1	78.59	124.4	81.97	136.2	88.72	164.7	102.3	236.0	131.8	414.4	203.2	
0 1 0	B3-O	113.6	69.61	118.7	72.97	130.2	79.74	158.7	93.09	230.0	122.6	408.4	194.0	
0 1 1	B3-O	116.6	64.97	121.7	68.29	133.3	74.94	161.8	88.36	233.0	117.8	411.4	189.2	
1 0 0	B3-O	118.8	74.78	124.0	78.16	135.6	84.90	164.1	98.36	235.2	127.9	413.7	199.2	
1 0 1	B3-O	122.0	69.07	127.2	72.39	138.9	79.05	167.3	92.50	238.5	121.9	416.9	193.3	
1 1 0	B3-O	116.6	64.97	121.7	68.29	133.3	74.94	161.8	88.36	233.0	117.8	411.4	189.2	
1 1 1	B3-O	119.2	64.20	124.3	67.48	135.9	74.11	164.4	87.52	235.6	116.9	414.0	188.3	
0 0 1	B2-O	115.0	75.34	120.3	78.73	132.1	85.44	160.6	98.93	231.8	128.4	410.2	199.8	
0 1 0	B2-O	109.5	66.61	114.5	69.94	126.1	76.68	154.7	89.96	225.8	119.5	404.3	190.9	
0 1 1	B2-O	112.6	62.72	117.6	66.01	129.2	72.61	157.7	85.97	228.9	115.4	407.3	186.8	
1 0 0	B2-O	114.7	71.70	119.8	75.05	131.5	81.77	159.9	95.14	231.0	124.7	409.5	196.0	
1 0 1	B2-O	117.9	66.77	123.1	70.07	134.7	76.68	163.3	90.06	234.3	119.5	412.8	190.9	
1 1 0	B2-O	112.6	62.72	117.6	66.01	129.2	72.61	157.7	85.97	228.9	115.4	407.3	186.8	
1 1 1	B2-O	115.2	62.11	120.2	65.39	131.8	71.97	160.4	85.32	231.5	114.8	409.9	186.1	
0 0 1	B1-O	106.3	70.74	111.6	74.10	123.4	80.88	151.9	94.23	223.1	123.8	401.5	195.2	
0 1 0	B1-O	100.8	62.07	105.8	65.38	117.4	72.09	145.9	85.34	217.1	114.8	395.6	186.2	

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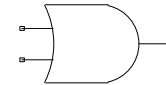
0 1 1	B1-O	103.9 59.09	109.0 62.37	120.6 68.95	149.0 82.30	220.3 111.7	398.7 183.1
1 0 0	B1-O	106.0 67.19	111.1 70.52	122.8 77.23	151.3 90.54	222.4 120.0	400.8 191.5
1 0 1	B1-O	109.3 63.21	114.5 66.50	126.1 73.10	154.7 86.44	225.7 115.9	404.2 187.3
1 1 0	B1-O	103.9 59.09	109.0 62.37	120.6 68.95	149.0 82.30	220.3 111.7	398.7 183.1
1 1 1	B1-O	106.5 58.72	111.6 61.99	123.2 68.55	151.6 81.88	222.9 111.3	401.3 182.6



Group Name : OR2

Symbol

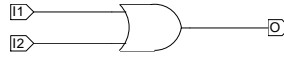
Function : 2 Input OR



Truth Table

I1	I2	O
0	0	0
OTHERS		1

Schematic



Pin Order O I1 I2

**Input Capacitance (ff) & Maximum Loading (ff) & Power Consumption (nW/MHz)**

Version	Input Capacitance		Maximum Loading		Power Consumption
	I1	I2	O		O
OR2XLP	1.520	1.252	127.6		2.632
OR2X1	1.881	1.533	212.8		3.770
OR2X1P	1.996	1.638	295.6		4.899
OR2X2	1.985	1.617	425.9		6.462
OR2X3	2.007	1.604	638.2		9.867
OR2X4	3.736	2.896	851.7		12.34
OR2X6	3.713	2.840	1276.3		19.26

**AC Characteristics ( Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ps)**

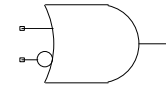
Version	Cell Unit	Path	Output Load											
			1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
OR2XLP	5	I2-O	32.24	43.42	40.11	48.62	59.41	58.95	107.2	79.85	226.3	126.2	525.2	239.4
		I1-O	35.76	45.95	43.75	51.13	63.13	61.34	110.9	82.27	230.2	128.6	529.2	241.8
		Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
OR2X1	5	I2-O	30.46	42.42	35.41	46.06	47.09	53.44	75.77	68.21	147.0	98.93	325.5	170.6
		I1-O	33.91	44.86	38.96	48.51	50.71	55.86	79.32	70.57	150.8	101.3	329.4	173.0
		Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
OR2X1P	7	I2-O	31.71	45.58	35.58	48.63	44.31	54.77	65.21	66.66	116.9	90.32	245.9	141.7
		I1-O	35.00	48.14	38.91	51.19	47.77	57.34	68.67	69.19	120.4	92.82	249.6	144.2
		Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	

OR2X2	7	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		I2-O	33.75	50.75	37.23	53.63	45.75	60.13	67.70	73.91	128.5	103.2	299.0	173.4
		I1-O	36.89	53.21	40.42	56.10	49.04	62.60	71.13	76.32	131.9	105.6	302.5	175.8
OR2X3	8	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		I2-O	39.22	60.68	42.00	63.04	49.31	68.98	68.42	82.39	123.6	111.8	288.6	182.0
		I1-O	42.14	63.10	44.97	65.48	52.32	71.39	71.49	84.84	126.7	114.3	291.9	184.4
OR2X4	12	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		I2-O	34.69	48.45	36.81	50.17	42.40	54.50	56.94	64.45	98.33	86.47	222.3	139.3
		I1-O	38.26	50.98	40.40	52.70	46.09	57.06	60.75	67.01	102.3	89.01	226.4	141.9
OR2X6	15	Path	1.200 ff		3.939 ff		12.93 ff		42.43 ff		139.2 ff		457.0 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		I2-O	41.39	59.28	43.14	60.70	48.18	64.77	62.01	75.04	102.8	98.98	234.3	157.4
		I1-O	44.75	61.77	46.43	63.19	51.52	67.31	65.48	77.55	106.4	101.5	238.0	160.0

Group Name : OR2B1

Symbol

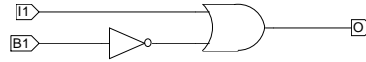
Function : 2 Input OR, One Input Inverted



Truth Table

Schematic

I1	B1	O
0	1	0
OTHERS		1



Pin Order O I1 B1

**Input Capacitance (ff) & Maximum Loading (ff) & Power Consumption (nW/MHz)**

Version	Input Capacitance		Maximum Loading		Power Consumption	
	I1	B1	O		O	
OR2B1XLP	0.9740	1.664	126.5		1.844	
OR2B1X1	1.411	2.373	211.1		2.745	
OR2B1X1P	1.927	3.601	293.2		3.705	
OR2B1X2	2.569	4.401	422.5		4.998	
OR2B1X3	2.499	6.681	633.5		7.515	

**AC Characteristics ( Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ps)**

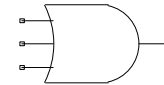
Version	Cell Unit	Path	Output Load											
			1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
OR2B1XLP	5	B1-O	30.65	15.11	39.50	21.50	59.71	35.30	107.6	65.55	226.7	137.0	525.5	314.7
		I1-O	36.05	51.16	44.09	57.50	63.50	70.71	111.2	100.1	230.5	170.9	529.4	348.4
		Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
OR2B1X1	6	B1-O	26.30	15.00	31.98	19.66	44.81	29.87	74.10	52.06	145.4	103.4	323.8	229.1
		I1-O	29.84	45.78	34.72	50.18	46.43	59.68	75.20	80.70	146.4	131.0	324.9	256.5
		Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
OR2B1X1P	8	B1-O	25.09	12.83	29.34	16.29	39.01	23.86	60.84	40.21	112.7	76.78	241.6	164.5
		I1-O	29.74	43.88	33.36	47.13	41.92	54.34	62.84	69.61	114.6	104.9	243.7	192.1
		Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	

OR2B1X2	9	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		B1-O	23.74	12.86	27.41	15.96	36.69	23.50	59.77	41.36	120.8	85.78	291.1	206.1
		I1-O	26.84	39.69	29.90	42.50	37.96	49.44	59.89	65.87	120.6	108.9	291.2	228.7
OR2B1X3	11	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		B1-O	22.98	12.50	25.76	14.90	33.36	21.23	53.37	37.13	108.8	78.23	273.9	194.9
		I1-O	31.82	46.98	34.25	49.28	40.93	55.36	59.62	70.54	114.7	110.3	279.9	226.4

Group Name : OR3

Symbol

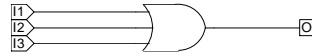
Function : 3 Input OR



Truth Table

Schematic

I1	I2	I3	O
0	0	0	0
OTHERS			1



Pin Order O I1 I2 I3

**Input Capacitance (ff) & Maximum Loading (ff) & Power Consumption (nW/MHz)**

Version	Input Capacitance			Maximum Loading	Power Consumption
	I1	I2	I3	O	O
OR3XLP	1.422	1.294	1.140	127.4	3.257
OR3X1	1.420	1.289	1.126	212.4	4.254
OR3X1P	1.834	1.634	1.454	295.4	5.684
OR3X2	1.830	1.628	1.438	425.4	7.595
OR3X3	1.828	1.620	1.420	637.3	11.77
OR3X4	3.454	2.962	2.392	850.7	14.82
OR3X6	3.397	2.946	2.351	1274.0	23.75

**AC Characteristics ( Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ps)**

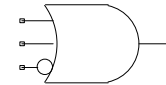
Version	Cell Unit	Path	Output Load											
			1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
OR3XLP	7	I3-O	41.92	50.04	50.16	55.99	69.58	67.77	117.4	91.10	236.4	139.7	535.4	253.6
		I2-O	47.77	58.73	56.16	64.71	75.75	76.61	123.7	99.95	242.9	148.6	542.0	262.4
		I1-O	51.31	63.37	60.01	69.32	80.00	81.15	128.2	104.5	247.8	153.0	547.0	266.9
OR3X1	7	I3-O	42.79	55.00	48.29	59.39	60.54	68.26	89.34	85.68	160.6	119.8	339.1	193.9
		I2-O	48.31	63.71	53.89	68.14	66.26	77.14	95.22	94.42	166.6	128.7	345.2	202.7
		I1-O	51.73	68.24	57.49	72.65	70.21	81.59	99.54	98.90	171.3	133.2	350.1	207.2

OR3X1P	8	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		I3-O	39.67	56.46	43.83	60.00	52.99	67.20	74.13	81.21	125.8	107.9	254.9	162.5
		I2-O	44.20	64.69	48.42	68.25	57.70	75.50	78.91	89.54	130.7	116.3	259.9	170.7
		I1-O	46.89	68.69	51.22	72.24	60.74	79.47	82.26	93.40	134.3	120.2	263.7	174.7
OR3X2	8	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		I3-O	42.40	63.87	46.16	67.18	55.28	74.76	77.69	90.80	138.5	124.1	309.0	198.1
		I2-O	46.75	72.17	50.56	75.50	59.76	83.14	82.30	99.24	143.3	132.4	313.8	206.6
		I1-O	49.44	76.08	53.33	79.41	62.74	87.02	85.59	103.1	146.9	136.3	317.6	210.4
OR3X3	9	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		I3-O	49.31	77.95	52.29	80.63	60.19	87.44	80.13	103.2	135.4	137.0	300.5	212.9
		I2-O	53.49	86.38	56.50	89.10	64.48	96.00	84.56	111.7	140.0	145.5	305.2	221.4
		I1-O	56.27	90.23	59.32	92.92	67.43	99.77	87.82	115.5	143.6	149.2	309.0	225.2
OR3X4	14	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		I3-O	45.49	62.32	47.77	64.30	53.84	69.39	69.12	81.14	110.9	106.8	234.8	164.4
		I2-O	50.49	70.96	52.79	72.93	58.95	78.06	74.42	89.89	116.4	115.5	240.4	173.1
		I1-O	53.73	74.80	56.06	76.81	62.35	81.90	78.14	93.67	120.4	119.4	244.6	177.0
OR3X6	16	Path	1.200 ff		3.939 ff		12.93 ff		42.43 ff		139.2 ff		457.0 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		I3-O	54.36	78.02	56.13	79.61	61.55	84.27	76.40	96.30	117.8	124.3	249.4	189.1
		I2-O	59.21	86.70	61.00	88.31	66.44	93.04	81.44	105.1	123.1	133.0	254.8	197.9
		I1-O	62.54	90.38	64.34	91.97	69.84	96.69	85.07	108.7	127.1	136.6	259.0	201.6

Group Name : OR3B1

Symbol

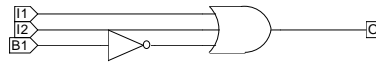
Function : 3 Input OR, One Input Inverted



Truth Table

Schematic

I1	I2	B1	O
0	0	1	0
OTHERS			1



Pin Order O I1 I2 B1

**Input Capacitance (ff) & Maximum Loading (ff) & Power Consumption (nW/MHz)**

Version	Input Capacitance			Maximum Loading	Power Consumption
	I1	I2	B1	O	O
OR3B1XLP	1.157	1.072	1.805	144.8	3.025
OR3B1X1	1.362	1.464	2.374	209.2	3.751
OR3B1X1P	1.874	1.931	3.896	290.6	5.089
OR3B1X2	2.638	2.641	4.402	418.1	7.268
OR3B1X3	2.476	2.528	6.666	627.6	10.30

**AC Characteristics (Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ps)**

Version	Cell Unit	Path	Output Load														
			1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff				
		t <sub>plh</sub>		t <sub>p<sub>hl</sub></sub>		t <sub>plh</sub>		t <sub>p<sub>hl</sub></sub>		t <sub>plh</sub>		t <sub>p<sub>hl</sub></sub>		t <sub>plh</sub>		t <sub>p<sub>hl</sub></sub>	
OR3B1XLP	8	B1-O	35.28	25.24	42.78	32.71	60.27	50.01	101.9	90.78	204.8	190.2	462.9	439.2			
		I2-O	39.60	60.64	46.44	67.95	63.18	85.06	104.3	125.3	207.4	224.7	465.4	473.8			
		I1-O	38.25	60.49	45.15	67.89	61.85	84.81	103.1	125.0	206.1	224.1	464.1	473.2			
		Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff				
OR3B1X1	9	B1-O	31.45	23.20	36.90	28.79	49.51	41.62	78.87	71.46	150.3	143.6	328.7	323.1			
		I2-O	34.85	54.48	39.62	59.86	51.30	72.47	80.15	101.9	151.3	173.6	329.8	353.1			
		I1-O	31.14	50.15	35.94	55.39	47.61	67.50	76.44	96.48	147.6	168.1	326.1	347.6			
		Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff				
OR3B1X1P	12	B1-O	30.21	20.32	34.27	24.34	43.70	33.67	65.45	55.11	117.4	105.7	246.5	230.3			
		I2-O	35.61	53.13	39.16	57.11	47.74	66.23	68.61	87.27	120.4	137.5	249.5	262.0			
		I1-O	30.83	47.65	34.41	51.49	42.94	60.33	63.82	80.81	115.6	130.6	244.6	255.2			
		Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff				

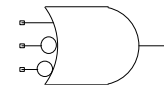
OR3B1X2	14	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		B1-O	29.87	21.79	33.30	25.29	42.23	34.40	65.20	57.71	126.3	119.5	296.9	291.0
		I2-O	33.36	49.67	36.32	53.05	44.37	61.88	66.26	84.68	127.2	146.0	297.7	317.5
		I1-O	29.64	45.40	32.64	48.73	40.68	57.29	62.55	79.55	123.3	140.7	293.8	312.1
OR3B1X3	17	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		B1-O	28.47	21.01	31.07	23.76	38.38	31.36	58.24	51.84	113.9	108.3	279.1	274.5
		I2-O	37.10	55.67	39.37	58.40	45.87	65.92	64.63	86.20	119.9	142.3	285.0	308.4
		I1-O	32.93	50.38	35.24	53.00	41.81	60.22	60.43	79.60	115.6	135.2	280.7	301.1



Group Name : OR3B2

Symbol

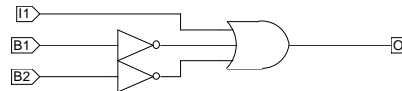
Function : 3 Input OR, Two Input Inverted



Truth Table

Schematic

I1	B1	B2	O
0	1	1	0
OTHERS			1



Pin Order O I1 B1 B2

**Input Capacitance (ff) & Maximum Loading (ff) & Power Consumption (nW/MHz)**

Version	Input Capacitance			Maximum Loading	Power Consumption
	I1	B1	B2	O	O
OR3B2XLP	1.046	1.533	1.682	144.9	2.344
OR3B2X1	1.493	2.065	2.298	209.0	3.202
OR3B2X1P	1.871	3.146	3.566	290.6	4.096
OR3B2X2	2.547	3.780	4.183	417.9	6.029
OR3B2X3	2.500	5.553	6.293	627.1	8.928

**AC Characteristics (Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ps)**

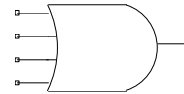
Version	Cell Unit	Path	Output Load											
			1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
OR3B2XLP	7	B1-O	31.55	24.59	39.22	32.32	56.85	50.30	98.42	91.02	201.3	190.6	459.3	439.7
		B2-O	34.98	24.41	42.46	31.75	59.91	48.82	101.4	89.46	204.3	188.8	462.4	437.8
		I1-O	35.00	55.58	41.80	62.80	58.62	79.47	99.71	119.3	202.7	218.5	460.7	467.5
		Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
OR3B2X1	7	B1-O	28.93	23.42	34.47	29.15	47.17	42.57	76.47	72.79	147.8	144.8	326.2	324.4
		B2-O	32.37	23.46	37.74	28.87	50.21	41.46	79.46	71.20	150.8	143.1	329.2	322.7
		I1-O	32.58	52.11	37.35	57.38	49.01	69.54	77.80	98.59	149.0	170.2	327.4	349.6
		Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
OR3B2X1P	11	B1-O	27.12	20.03	31.29	24.31	40.85	33.94	62.68	55.86	114.6	106.6	243.6	231.3
		B2-O	30.60	20.19	34.61	24.06	43.98	33.24	65.63	54.43	117.5	104.8	246.5	229.5
		I1-O	30.85	47.67	34.43	51.50	42.99	60.34	63.81	80.82	115.6	130.6	244.6	255.1
		Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	

OR3B2X2	14	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		B1-O	26.43	20.75	29.96	24.46	39.06	34.01	62.05	57.87	123.1	119.8	293.4	291.4
		B2-O	30.52	21.86	33.90	25.28	42.77	34.13	65.62	57.22	126.6	118.9	297.2	290.4
		I1-O	29.03	44.49	32.02	47.73	40.02	56.22	61.86	78.42	122.6	139.5	293.1	310.9
OR3B2X3	16	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		B1-O	25.53	20.17	28.20	23.00	35.63	30.89	55.51	51.77	111.1	108.6	276.1	274.8
		B2-O	29.57	21.24	32.11	23.85	39.30	31.15	58.99	51.27	114.5	107.6	279.6	273.7
		I1-O	34.41	52.51	36.72	55.14	43.31	62.46	61.91	81.98	117.1	137.7	282.2	303.5

Group Name : OR4

Symbol

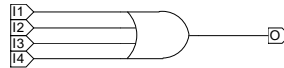
Function : 4 Input OR



Truth Table

Schematic

I1	I2	I3	I4	O
0	0	0	0	0
OTHERS				1



Pin Order O I1 I2 I3 I4

**Input Capacitance (ff) & Maximum Loading (ff) & Power Consumption (nW/MHz)**

Version	Input Capacitance				Maximum Loading		Power Consumption	
	I1	I2	I3	I4	O	O		
OR4XLP	1.071	0.9750	1.072	0.9540	146.4	3.103		
OR4X1	1.379	1.233	1.381	1.216	211.0	4.130		
OR4X1P	1.897	1.688	1.810	1.627	293.1	5.747		
OR4X2	2.496	2.116	2.474	2.130	421.9	8.016		
OR4X3	2.473	2.065	2.422	2.050	632.7	11.44		

**AC Characteristics (Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ps)**

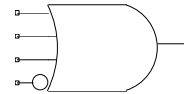
Version	Cell Unit	Path	Output Load											
			1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
OR4XLP	9	I4-O	35.57	70.93	42.41	77.74	59.20	92.28	100.4	123.7	203.5	195.3	461.5	370.3
		I3-O	37.57	72.85	44.45	79.65	61.22	94.16	102.6	125.5	205.7	197.1	463.7	372.1
		I2-O	34.69	74.33	41.75	81.87	58.47	97.62	99.90	130.1	202.8	201.7	460.8	376.4
		I1-O	36.58	76.40	43.67	83.94	60.49	99.78	102.0	132.2	204.9	203.8	463.0	378.5
OR4X1	9	I4-O	32.99	66.54	37.80	71.65	49.44	82.60	78.26	106.1	149.5	158.7	328.0	285.1
		I3-O	34.99	68.41	39.83	73.52	51.52	84.47	80.33	108.0	151.7	160.5	330.3	286.9
		I2-O	31.42	67.72	36.41	73.25	48.21	85.07	76.87	109.4	148.2	162.0	326.7	287.9
		I1-O	33.34	69.73	38.37	75.25	50.20	87.08	78.85	111.4	150.4	164.0	328.9	289.9

OR4X1P	12	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		I4-O	33.64	65.78	37.17	69.62	45.75	77.86	66.64	95.39	118.4	133.5	247.5	222.1
		I3-O	35.65	67.79	39.22	71.61	47.79	79.85	68.79	97.35	120.6	135.4	249.8	224.1
		I2-O	30.99	64.39	34.69	68.46	43.36	77.21	64.33	95.49	116.1	133.7	245.1	221.9
		I1-O	32.95	66.46	36.70	70.52	45.40	79.29	66.43	97.57	118.2	135.7	247.3	223.9
OR4X2	13	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		I4-O	32.37	62.22	35.34	65.55	43.39	73.58	65.33	92.52	126.1	138.3	296.8	259.2
		I3-O	34.64	64.72	37.64	68.05	45.68	76.06	67.75	94.98	128.6	140.8	299.3	261.8
		I2-O	29.49	60.91	32.62	64.42	40.80	72.89	62.78	92.54	123.5	138.3	294.1	258.8
		I1-O	31.53	62.98	34.72	66.51	42.95	75.07	65.01	94.60	125.9	140.4	296.4	260.9
OR4X3	16	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		I4-O	35.69	71.97	37.99	74.79	44.49	82.01	63.15	99.63	118.4	143.5	283.7	262.0
		I3-O	37.78	74.45	40.10	77.26	46.66	84.50	65.42	102.2	120.7	146.0	286.0	264.6
		I2-O	33.24	70.95	35.70	73.79	42.50	81.29	61.27	99.61	116.3	143.5	281.6	261.2
		I1-O	35.17	73.09	37.67	75.96	44.54	83.48	63.40	101.7	118.5	145.7	283.8	263.5

Group Name : OR4B1

Symbol

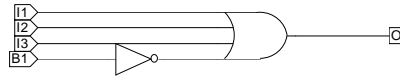
Function : 4 Input OR, One Input Inverted



Truth Table

Schematic

I1	I2	I3	B1	O
0	0	0	1	0
OTHERS				1



Pin Order O I1 I2 I3 B1

**Input Capacitance (ff) & Maximum Loading (ff) & Power Consumption (nW/MHz)**

Version	Input Capacitance				Maximum Loading		Power Consumption
	I1	I2	I3	B1	O	O	
OR4B1XLP	1.333	1.207	1.472	1.781	146.4	3.179	
OR4B1X1	1.797	1.587	2.004	2.438	211.1	4.249	
OR4B1X1P	2.690	2.280	2.961	3.688	293.3	5.488	
OR4B1X2	3.109	2.825	3.356	4.476	422.2	8.037	
OR4B1X3	4.596	4.340	5.073	6.547	633.7	11.73	

**AC Characteristics (Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ps)**

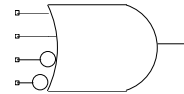
Version	Cell Unit	Path	Output Load											
			1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
OR4B1XLP	8	B1-O	29.01	15.88	36.81	22.04	54.43	35.62	96.06	65.77	198.9	136.6	456.8	311.5
		I3-O	45.61	78.31	52.99	85.73	70.20	101.5	111.8	134.1	215.0	205.9	473.3	380.6
		I2-O	39.68	66.26	46.83	73.70	63.62	89.31	105.1	121.9	207.9	193.8	465.9	368.5
		I1-O	43.51	74.46	50.71	81.88	67.69	97.74	109.2	130.3	212.1	202.1	470.3	376.8
OR4B1X1	8	B1-O	26.25	14.84	31.91	19.52	44.70	29.83	73.98	52.40	145.3	104.3	323.7	230.3
		I3-O	42.41	72.62	47.69	78.13	59.84	90.08	88.95	114.7	160.4	167.7	339.1	293.7
		I2-O	36.43	60.94	41.50	66.43	53.35	78.28	81.96	102.8	153.4	155.9	331.8	281.9
		I1-O	40.31	68.99	45.48	74.48	57.35	86.30	86.23	111.0	157.7	164.0	336.2	290.1

OR4B1X1P	12	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		B1-O	24.80	12.53	29.05	16.03	38.73	23.68	60.56	40.28	112.4	77.41	241.4	165.6
		I3-O	40.25	67.32	44.17	71.33	53.18	80.09	74.44	98.21	126.5	136.6	255.9	224.8
		I2-O	34.09	55.46	37.82	59.42	46.52	68.09	67.51	86.24	119.3	124.6	248.3	212.9
I1-O	38.10	63.60	41.89	67.57	50.77	76.26	71.87	94.55	123.6	132.8	252.8	221.1		
OR4B1X2	16	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		B1-O	24.09	13.03	27.72	16.11	36.94	23.67	59.97	41.77	121.0	86.79	291.3	207.5
		I3-O	40.35	68.98	43.77	72.54	52.46	81.20	75.00	101.2	136.2	147.7	307.1	268.5
		I2-O	33.13	52.76	36.34	56.27	44.59	64.86	66.67	84.82	127.4	131.4	297.9	252.1
I1-O	38.18	64.54	41.49	68.10	49.95	76.79	72.16	96.81	133.2	143.3	303.8	264.1		
OR4B1X3	21	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		B1-O	23.03	12.13	25.78	14.51	33.34	20.77	53.28	36.63	108.7	78.08	273.7	195.1
		I3-O	38.18	65.79	40.74	68.47	47.75	75.53	67.01	93.00	122.6	135.8	288.1	252.9
		I2-O	31.49	51.54	33.88	54.19	40.54	61.19	59.34	78.60	114.5	121.4	279.5	238.5
I1-O	35.95	61.12	38.42	63.81	45.20	70.88	64.09	88.33	119.4	131.2	284.7	248.3		

Group Name : OR4B2

Symbol

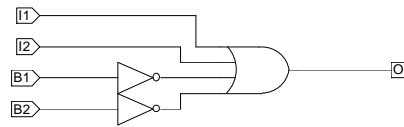
Function : 4 Input OR, Two Input Inverted



Truth Table

Schematic

I1	I2	B1	B2	O
0	0	1	1	0
OTHERS				1



Pin Order O I1 I2 B1 B2

**Input Capacitance (ff) & Maximum Loading (ff) & Power Consumption (nW/MHz)**

Version	Input Capacitance				Maximum Loading		Power Consumption
	I1	I2	B1	B2	O	O	
OR4B2XLP	1.788	1.604	1.486	1.627	135.3	2.704	
OR4B2X1	2.427	2.126	1.951	2.189	194.4	3.632	
OR4B2X1P	3.529	2.893	3.017	3.373	270.8	4.877	
OR4B2X2	4.813	4.027	3.961	4.591	389.1	6.960	
OR4B2X3	6.473	5.864	5.221	5.906	583.3	10.34	

**AC Characteristics (Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ps)**

Version	Cell Unit	Path	Output Load											
			1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
OR4B2XLP	7	B1-O	31.48	24.20	39.67	32.53	58.50	51.63	103.0	95.44	213.4	202.3	490.3	469.6
		B2-O	34.80	23.84	42.81	31.68	61.46	50.00	105.9	93.67	216.4	200.2	493.3	467.5
		I2-O	31.50	62.68	38.83	71.11	56.67	89.99	101.1	133.6	211.4	240.1	488.3	507.2
		I1-O	33.72	64.75	41.07	73.16	58.95	92.00	103.4	135.8	213.9	242.1	490.8	509.3
OR4B2X1	8	B1-O	28.73	22.98	34.68	29.19	48.26	43.55	79.71	76.14	156.3	153.7	348.5	347.3
		B2-O	32.06	22.84	37.83	28.64	51.19	42.25	82.57	74.32	159.3	151.9	351.4	345.4
		I2-O	28.79	57.75	33.92	63.95	46.48	77.90	77.21	109.9	154.0	187.3	346.1	380.7
		I1-O	31.11	59.79	36.27	66.00	48.85	79.92	79.66	112.0	156.5	189.4	348.7	382.8

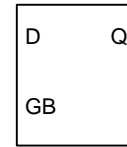
OR4B2X1P	13	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		B1-O	27.86	20.52	32.27	25.03	42.40	35.25	65.63	58.70	121.2	112.9	259.7	246.8
		B2-O	31.38	20.62	35.63	24.72	45.57	34.48	68.62	57.17	124.2	111.3	262.7	244.9
		I2-O	26.23	54.20	29.98	58.59	39.13	68.63	61.55	91.45	116.8	145.1	255.4	278.7
I1-O	28.57	56.29	32.33	60.76	41.46	70.70	63.98	93.50	119.4	147.3	258.0	280.9		
OR4B2X2	14	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		B1-O	26.14	20.24	29.92	24.23	39.64	34.36	64.22	60.11	129.7	126.8	313.3	311.8
		B2-O	29.74	20.57	33.38	24.19	42.87	33.83	67.28	58.79	132.8	125.2	316.4	310.2
		I2-O	25.77	53.20	28.89	57.14	37.52	67.06	61.13	92.14	126.5	158.2	310.0	343.0
I1-O	28.12	55.29	31.27	59.21	39.88	69.11	63.60	94.20	129.0	160.3	312.6	345.1		
OR4B2X3	21	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		B1-O	25.50	19.51	28.08	22.25	34.84	29.28	51.88	47.28	96.19	92.80	218.6	216.3
		B2-O	29.33	20.25	31.80	22.71	38.36	29.33	55.21	46.47	99.45	91.60	222.0	215.0
		I2-O	24.74	51.64	26.89	54.34	32.70	61.34	48.54	78.68	92.43	123.7	214.8	246.8
I1-O	27.36	54.77	29.53	57.48	35.38	64.41	51.28	81.79	95.26	126.8	217.7	249.9		



Group Name : QDBAH

Symbol

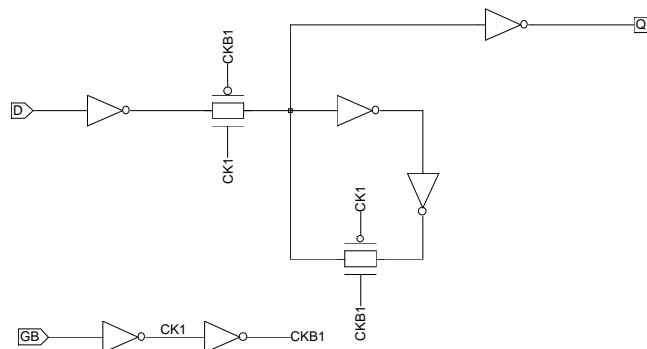
Function : D Latch, Active Low, Single Output



Truth Table

GB	D	Q
0	0	0
0	1	1
1	X	Q

Schematic



Pin Order Q D GB

Input Capacitance (ff) & Maximum Loading (ff) & Power Consumption (nW/MHz)

Version	Input Capacitance		Maximum Loading	Power Consumption		
	D	GB	Q	Q	D	GB
QDBAHX1	1.707	1.370	212.7	7.522	0.447	3.275
QDBAHX2	2.026	1.705	425.5	10.95	0.586	3.932
QDBAHX3	2.034	2.046	637.1	15.28	0.638	4.506

AC Characteristics ( Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ps)

Version	Cell Unit	Path	Output Load											
			1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
QDBAHX1	13	D-Q	44.28	62.19	50.19	66.83	63.10	75.92	92.53	92.93	164.2	126.1	342.7	199.2
		GB-Q	71.72	89.99	77.60	94.56	90.42	103.6	120.0	120.5	191.5	153.6	370.1	226.7

QDBAHX2	15	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		D-Q	46.00	65.32	50.09	68.69	59.89	76.20	83.41	91.59	144.8	122.8	315.4	194.6
		GB-Q	69.75	88.61	73.79	91.93	83.53	99.43	107.0	114.8	168.3	146.0	339.0	217.7
QDBAHX3	16	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		D-Q	53.10	76.46	56.22	79.20	64.69	85.96	85.86	101.1	142.2	132.8	307.6	205.5
		GB-Q	74.05	95.99	77.19	98.71	85.62	105.5	106.7	120.6	163.0	152.4	328.5	225.0

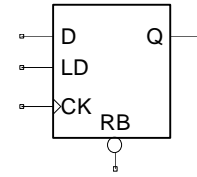
## Timing Constraint (ps)

Item \ Version	QDBAHX1	QDBAHX2	QDBAHX3
Setup Timing D / GB /	33.73	33.73	38.66
Setup Timing D \ GB /	36.19	38.66	50.99
Hold Timing D / GB /	-17.40	-19.86	-24.79
Hold Timing D \ GB /	-17.40	-17.40	-27.26
Minimum L-pulse Width GB	85.90	85.90	100.68

Group Name : QDFCLRB

Symbol

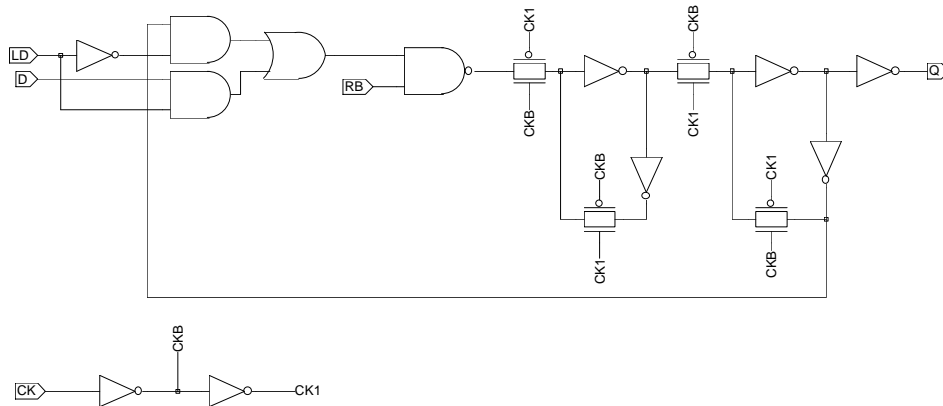
Function : D Flip-Flop with Synchronous Clear and Load,  
Single Output



Truth Table

CK	D	RB	LD	Q
	X	0	X	0
	0	X	1	0
	1	1	1	1
	X	1	0	Q

Schematic



Pin Order Q D CK RB LD

**Input Capacitance (ff) & Maximum Loading (ff) & Power Consumption (nW/MHz)**

Version	Input Capacitance				Maximum Loading	Power Consumption			
	D	CK	RB	LD	Q	Q	D	CK	RB
QDFCLRBX1	1.495	1.307	1.605	2.835	212.7	10.14	4.377	3.518	5.139
QDFCLRBX2	1.490	1.660	1.609	2.835	426.3	13.96	4.516	4.128	5.300
QDFCLRBX3	1.494	2.007	1.605	2.802	639.0	16.94	4.615	4.669	5.371

## AC Characteristics ( Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ps)

Version	Cell Unit	Output Load												
		Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
QDFCLRBX1	25		tplh	tphi	tplh	tphi	tplh	tphi	tplh	tphi	tplh	tphi	tplh	tphi
		CK-Q	85.05	86.92	90.35	90.56	102.3	97.83	131.2	112.0	202.6	142.1	381.1	213.8
QDFCLRBX2	27	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff	
			tplh	tphi	tplh	tphi	tplh	tphi	tplh	tphi	tplh	tphi	tplh	tphi
CK-Q	80.72	83.14	84.09	85.60	92.35	91.10	114.2	102.6	174.9	128.5	345.5	197.1		
QDFCLRBX3	28	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff	
			tplh	tphi	tplh	tphi	tplh	tphi	tplh	tphi	tplh	tphi	tplh	tphi
CK-Q	82.31	85.84	85.01	87.87	91.98	92.86	110.6	104.1	165.7	129.1	330.8	196.0		

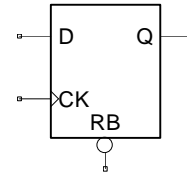
## Timing Constraint (ps)

Item	Version		
	QDFCLRBX1	QDFCLRBX2	QDFCLRBX3
Setup Timing D / CK /	74.04	71.58	71.58
Setup Timing D \ CK /	69.11	74.04	74.04
Setup Timing RB / CK /	78.98	76.51	76.51
Setup Timing RB \ CK /	51.85	54.32	56.78
Setup Timing LD / CK /	83.91	88.84	91.30
Setup Timing LD \ CK /	74.04	74.04	74.04
Hold Timing D / CK /	-33.06	-30.59	-30.59
Hold Timing D \ CK /	-28.12	-33.06	-33.06
Hold Timing RB / CK /	-40.45	-37.99	-37.99
Hold Timing RB \ CK /	-13.33	-20.73	-20.73
Hold Timing LD / CK /	-52.78	-55.25	-55.25
Hold Timing LD \ CK /	-30.59	-35.52	-35.52
Minimum H-pulse Width CK	50.18	61.27	61.27
Minimum L-pulse Width CK	88.36	85.90	80.98

Group Name : QDFCRB

Symbol

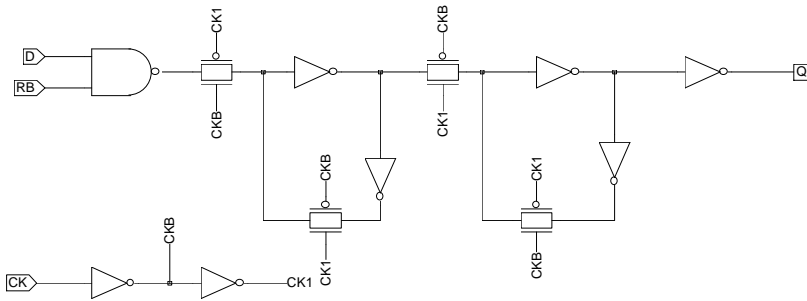
Function : D Flip-Flop with Synchronous Clear, Single Output



Truth Table

CK	D	RB	Q
	X	0	0
	0	X	0
	1	1	1
	X	X	Q

Schematic



Pin Order Q D CK RB

**Input Capacitance (ff) & Maximum Loading (ff) & Power Consumption (nW/MHz)**

Version	Input Capacitance			Maximum Loading	Power Consumption			
	D	CK	RB	Q	Q	D	CK	RB
QDFCRBX1	1.746	1.292	1.899	212.7	9.154	3.365	3.521	3.721
QDFCRBX2	1.747	1.640	1.899	426.3	12.86	3.486	4.126	3.828
QDFCRBX3	1.751	2.023	1.900	638.9	15.88	3.599	4.668	3.927

**AC Characteristics ( Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ps)**

Version	Cell Unit	Path	Output Load															
			1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff					
		t <sub>plh</sub>		t <sub>p<sub>hl</sub></sub>		t <sub>plh</sub>		t <sub>p<sub>hl</sub></sub>		t <sub>plh</sub>		t <sub>p<sub>hl</sub></sub>		t <sub>plh</sub>		t <sub>p<sub>hl</sub></sub>		
QDFCRBX1	21	CK-Q	85.35	87.22	90.67	90.89	102.7	98.17	131.5	112.4	202.9	142.4	381.3	214.0				
		Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff					
QDFCRBX2	22	CK-Q	80.86	83.22	84.24	85.71	92.51	91.25	114.4	102.7	175.2	128.7	345.6	197.2				
		Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff					

QDFCRB3	23	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		CK-Q	82.48	85.95	85.18	88.00	92.14	93.01	110.9	104.1	165.9	129.2	331.0	196.0

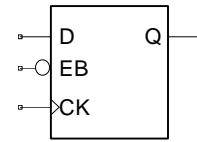
## Timing Constraint (ps)

Item	Version	QDFCRB1	QDFCRB2	QDFCRB3
Setup Timing D / CK /		41.99	39.52	39.52
Setup Timing D \ CK /		29.66	32.12	34.59
Setup Timing RB / CK /		41.99	39.52	41.99
Setup Timing RB \ CK /		34.59	37.06	37.06
Hold Timing D / CK /		-13.33	-13.33	-13.33
Hold Timing D \ CK /		-3.466	-5.932	-5.932
Hold Timing RB / CK /		-18.26	-18.26	-13.33
Hold Timing RB \ CK /		-5.932	-8.398	-8.398
Minimum H-pulse Width CK		50.80	61.27	61.27
Minimum L-pulse Width CK		80.98	80.98	68.66

Group Name : QDFE

Symbol

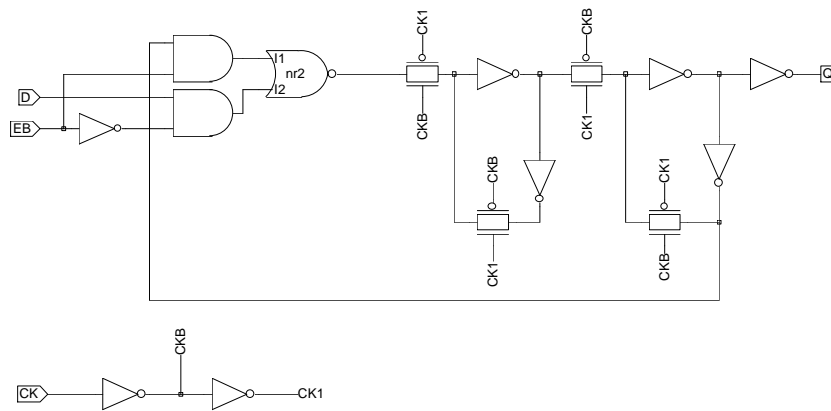
Function : Enabled Flip-Flops, Enabled Low, Single Output



Truth Table

CK	D	EB	Q
	0	0	0
	1	0	1
	X	1	Q
	X	X	Q

Schematic



Pin Order Q D CK EB

**Input Capacitance (ff) & Maximum Loading (ff) & Power Consumption (nW/MHz)**

Version	Input Capacitance			Maximum Loading	Power Consumption		
	D	CK	EB	Q	Q	D	CK
QDFEX1	1.524	1.289	2.632	212.6	10.22	3.616	3.566
QDFEX2	1.524	1.661	2.632	426.3	13.89	3.743	4.176
QDFEX3	1.523	1.989	2.632	638.9	16.95	3.839	4.736

**AC Characteristics ( Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ps)**

Version	Cell Unit	Path	Output Load											
			1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tph		tph		tph		tph		tph		tph		
QDFEX1	24	CK-Q	85.39	87.19	90.68	90.80	102.6	98.04	131.5	112.2	202.9	142.4	381.4	214.1

QDFEX2	25	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		CK-Q	80.81	83.19	84.18	85.68	92.44	91.19	114.2	102.7	175.1	128.7	345.6	197.2
QDFEX3	27	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		CK-Q	82.37	85.89	85.07	87.93	92.04	92.92	110.7	104.1	165.9	129.1	330.9	196.0

## Timing Constraint (ps)

Item	Version		
	QDFEX1	QDFEX2	QDFEX3
Setup Timing D / CK /	41.99	41.99	41.99
Setup Timing D \ CK /	59.25	64.18	66.65
Setup Timing EB / CK /	61.71	64.18	64.18
Setup Timing EB \ CK /	86.37	86.37	86.37
Hold Timing D / CK /	-18.26	-18.26	-18.26
Hold Timing D \ CK /	-23.19	-28.12	-25.66
Hold Timing EB / CK /	-20.73	-20.73	-20.73
Hold Timing EB \ CK /	-55.25	-57.71	-60.18
Minimum H-pulse Width CK	61.27	61.27	61.27
Minimum L-pulse Width CK	88.36	85.90	80.98

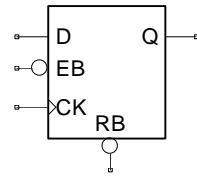


Group Name : QDFERB

Symbol

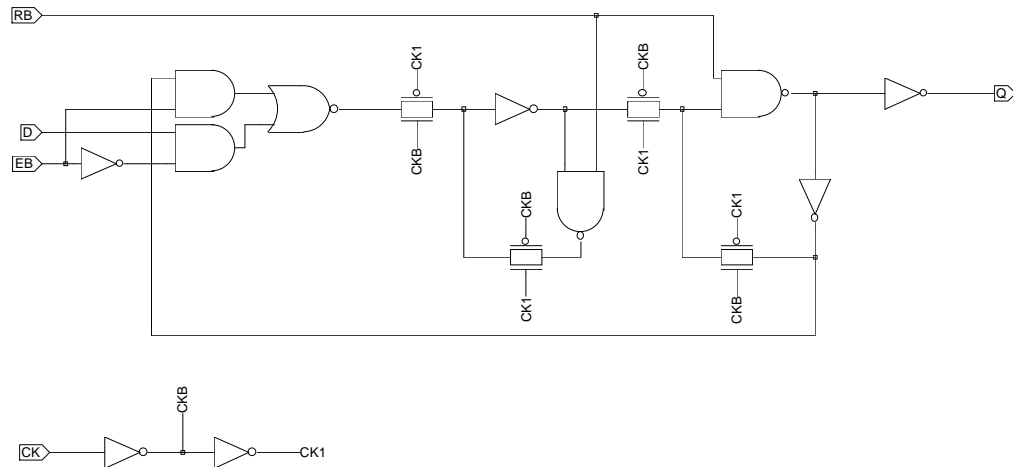
Function : Enabled Flip-Flops, Enabled Low, RB, Single Output

Truth Table



CK	D	EB	RB	Q
	0	0	1	0
	1	0	1	1
	X	1	1	Q
X	X	X	0	0

Schematic



Pin Order Q D CK EB RB

**Input Capacitance (ff) & Maximum Loading (ff) & Power Consumption (nW/MHz)**

Version	Input Capacitance				Maximum Loading	Power Consumption		
	D	CK	EB	RB	Q	Q	D	CK
QDFERBX1	1.524	1.293	2.465	1.489	212.3	10.77	4.088	3.641
QDFERBX2	1.519	1.643	2.465	2.826	425.9	14.91	4.196	4.237
QDFERBX3	1.519	2.021	2.465	2.854	638.0	18.20	4.302	4.823

## AC Characteristics ( Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ps)

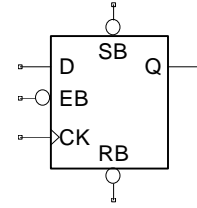
Version	Cell Unit	Output Load												
		1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
QDFERBX1	25	Path	tph	tphl	tph	tphl	tph	tphl	tph	tphl	tph	tphl	tph	tphl
			RB-Q	-	54.40	-	58.58	-	66.88	-	82.59	-	114.4	-
		CK-Q	98.91	91.78	105.1	95.78	118.7	103.8	148.8	119.1	220.7	150.4	399.2	222.5
QDFERBX2	27	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff	
			tph	tphl	tph	tphl	tph	tphl	tph	tphl	tph	tphl	tph	tphl
		RB-Q	-	41.99	-	44.63	-	50.51	-	62.54	-	89.17	-	158.6
CK-Q	89.14	81.65	92.93	84.18	102.0	89.78	124.6	101.5	185.8	127.6	356.3	196.3		
QDFERBX3	28	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff	
			tph	tphl	tph	tphl	tph	tphl	tph	tphl	tph	tphl	tph	tphl
		RB-Q	-	47.27	-	49.43	-	54.72	-	66.38	-	92.10	-	159.8
CK-Q	92.45	84.28	95.42	86.34	103.2	91.39	123.2	102.7	178.7	128.0	344.0	195.1		

## Timing Constraint (ps)

Item	Version	QDFERBX1	QDFERBX2	QDFERBX3
Setup Timing D / CK /		44.45	44.45	44.45
Setup Timing D \ CK /		61.71	64.18	66.65
Setup Timing EB / CK /		69.11	66.65	69.11
Setup Timing EB \ CK /		88.84	86.37	88.84
Hold Timing D / CK /		-20.73	-20.73	-20.73
Hold Timing D \ CK /		-23.19	-30.59	-30.59
Hold Timing EB / CK /		-25.66	-20.73	-23.19
Hold Timing EB \ CK /		-52.78	-55.25	-57.71
Minimum H-pulse Width CK		66.19	66.19	66.19
Minimum L-pulse Width CK		85.90	80.98	80.98
Minimum L-pulse Width RB		80.98	50.80	61.27
Recovery Timing RB / CK /		-24.59	-22.12	-19.66
Removal Timing RB / CK /		48.32	43.38	40.92

Group Name : QDFERSB  
 Function : Enabled Flip-Flops, Enabled Low, RB, SB, Single Outputs

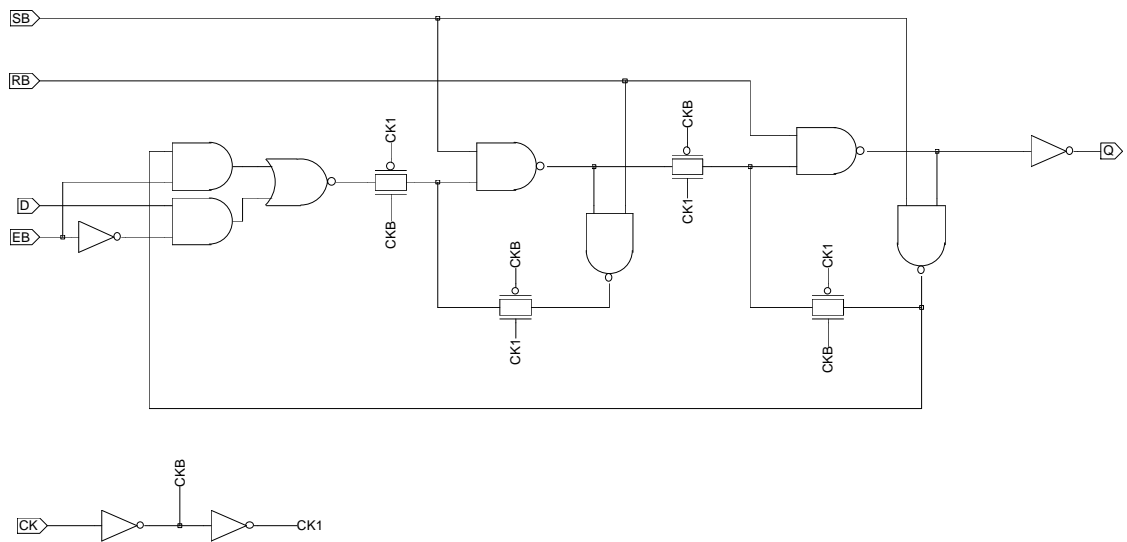
Symbol



Truth Table

CK	D	EB	RB	SB	Q
	0	0	1	1	0
	1	0	1	1	1
	X	1	1	1	Q
X	X	X	0	1	0
X	X	X	1	0	1
X	X	X	0	0	0

Schematic



Pin Order Q D CK EB RB SB

Input Capacitance (ff) & Maximum Loading (ff) & Power Consumption (nW/MHz)

Version	Input Capacitance					Maximum Loading	Power Consumption		
	D	CK	EB	RB	SB	Q	Q	D	CK
QDFERSBX1	1.527	1.291	2.687	1.886	2.676	212.5	12.53	4.253	3.675
QDFERSBX2	1.524	1.645	2.686	3.066	2.877	425.9	16.90	4.547	4.371
QDFERSBX3	1.524	2.014	2.688	3.130	2.855	637.9	20.06	4.660	4.953

## AC Characteristics ( Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ps)

Version	Cell Unit	Output Load												
		Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
QDFERSBX1	27	RB-Q	-	48.89	-	52.80	-	60.58	-	75.44	-	106.3	-	179.0
		SB-Q	109.4	-	115.5	-	128.7	-	158.3	-	229.6	-	408.1	-
		CK-Q	101.0	96.36	107.1	100.3	120.4	107.9	150.1	122.8	221.8	153.5	400.4	225.6
		Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff	
QDFERSBX2	30	RB-Q	-	43.44	-	46.12	-	52.09	-	64.33	-	91.10	-	160.8
		SB-Q	103.3	-	107.1	-	116.4	-	139.0	-	200.0	-	370.5	-
		CK-Q	91.36	88.61	95.20	91.25	104.4	97.12	127.2	109.3	188.3	136.0	358.8	204.9
		Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff	
QDFERSBX3	31	RB-Q	-	48.90	-	51.10	-	56.44	-	68.27	-	94.29	-	162.4
		SB-Q	109.9	-	112.9	-	120.8	-	140.9	-	196.3	-	361.4	-
		CK-Q	95.15	92.05	98.15	94.19	106.1	99.44	126.2	111.2	181.8	137.0	347.0	204.5
		Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff	

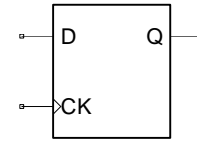
## Timing Constraint (ps)

Item	Version	QDFERSBX1	QDFERSBX2	QDFERSBX3
Setup Timing D / CK /		49.38	51.85	51.85
Setup Timing D \ CK /		76.51	76.51	78.98
Setup Timing EB / CK /		74.04	76.51	76.51
Setup Timing EB \ CK /		93.77	96.24	96.24
Hold Timing D / CK /		-20.73	-20.73	-20.73
Hold Timing D \ CK /		-28.12	-30.59	-30.59
Hold Timing EB / CK /		-20.73	-23.19	-20.73
Hold Timing EB \ CK /		-62.65	-65.11	-67.58
Minimum H-pulse Width CK		68.66	66.19	68.66
Minimum L-pulse Width CK		100.68	100.68	88.36
Minimum L-pulse Width RB		68.66	61.27	61.27
Minimum L-pulse Width SB		100.68	105.6	105.6
Recovery Timing RB / CK /		-22.12	-22.12	-19.66
Recovery Timing SB / CK /		7.466	7.466	9.932
Removal Timing RB / CK /		50.78	48.32	45.85
Removal Timing SB / CK /		8.863	6.397	3.931

Group Name : QDFF

Symbol

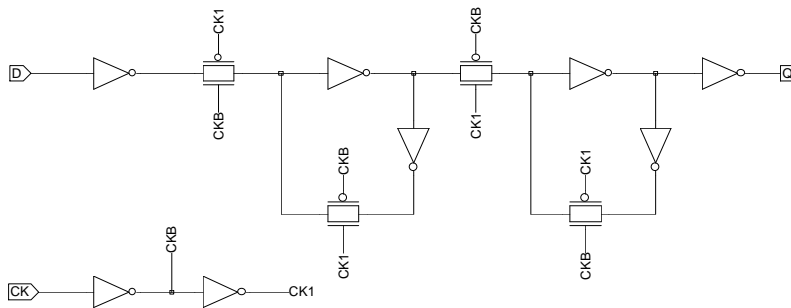
Function : D Flip-Flop, Single Output



Truth Table

CK	D	Q
	0	0
	1	1
	X	Q

Schematic



Pin Order Q D CK

**Input Capacitance (ff) & Maximum Loading (ff) & Power Consumption (nW/MHz)**

Version	Input Capacitance		Maximum Loading	Power Consumption		
	D	CK	Q	Q	D	CK
QDFFX1	0.9790	1.390	212.6	9.152	1.878	3.614
QDFFX2	0.9710	1.735	426.4	12.61	2.017	4.106
QDFFX3	0.9780	2.001	638.8	15.87	2.111	4.676

**AC Characteristics ( Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ps)**

Version	Cell Unit	Path	Output Load														
			1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff				
		t <sub>plh</sub>		t <sub>p<sub>hl</sub></sub>		t <sub>plh</sub>		t <sub>p<sub>hl</sub></sub>		t <sub>plh</sub>		t <sub>p<sub>hl</sub></sub>		t <sub>plh</sub>		t <sub>p<sub>hl</sub></sub>	
QDFFX1	17	CK-Q	85.71	88.17	91.00	91.80	103.0	99.06	131.9	113.3	203.2	143.3	381.7	214.9			
		Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff				
QDFFX2	19	CK-Q	80.06	82.39	83.44	84.87	91.71	90.40	113.7	101.8	174.4	127.7	344.8	196.2			
		Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff				

QDFFX3	20	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		CK-Q	82.65	86.13	85.34	88.17	92.29	93.18	111.1	104.3	166.1	129.4	331.1	196.2

## Timing Constraint (ps)

Item	Version	QDFFX1	QDFFX2	QDFFX3
Setup Timing D / CK /		32.12	29.66	29.66
Setup Timing D \ CK /		64.18	69.11	69.11
Hold Timing D / CK /		-5.932	-5.932	-5.932
Hold Timing D \ CK /		-10.864	-20.73	-23.19
Minimum H-pulse Width CK		48.95	50.18	61.27
Minimum L-pulse Width CK		127.8	125.3	120.4

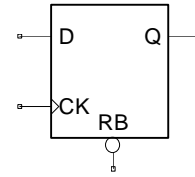
Group Name : QDFFRB

Symbol

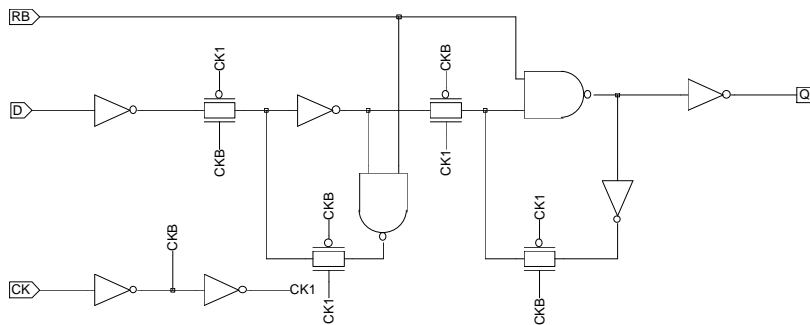
Function : D Flip-flop with Clear, Single Output

Truth Table

CK	D	RB	Q
	0	1	0
	1	1	1
X	X	0	0



Schematic



Pin Order Q D CK RB

**Input Capacitance (ff) & Maximum Loading (ff) & Power Consumption (nW/MHz)**

Version	Input Capacitance			Maximum Loading	Power Consumption		
	D	CK	RB	Q	Q	D	CK
QDFFRBX1	1.100	1.321	1.504	212.3	9.965	2.383	3.626
QDFFRBX2	0.9670	1.743	2.898	425.8	14.12	2.434	4.252
QDFFRBX3	1.015	2.008	2.878	638.0	17.30	2.591	4.831

**AC Characteristics ( Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ps)**

Version	Cell Unit	Path	Output Load											
			1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
QDFFRBX1	18	RB-Q	-	54.58	-	58.81	-	67.17	-	82.97	-	114.6	-	186.5
		CK-Q	99.72	95.69	106.0	99.72	119.7	107.8	149.9	123.2	221.6	154.3	400.0	226.3

QDFFRBX2	20	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		RB-Q	-	42.16	-	44.79	-	50.67	-	62.68	-	89.30	-	158.7
		CK-Q	90.56	83.04	94.34	85.55	103.5	91.16	126.2	102.8	187.2	129.0	357.7	197.6
QDFFRBX3	22	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		RB-Q	-	47.30	-	49.47	-	54.79	-	66.43	-	92.20	-	159.8
		CK-Q	93.33	85.08	96.30	87.16	104.1	92.24	124.2	103.5	179.6	128.9	344.9	195.8

## Timing Constraint (ps)

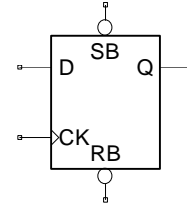
Item \ Version	QDFFRBX1	QDFFRBX2	QDFFRBX3
Setup Timing D / CK /	34.59	34.59	32.12
Setup Timing D \ CK /	56.78	59.25	64.18
Hold Timing D / CK /	-10.864	-10.864	-8.398
Hold Timing D \ CK /	-15.80	-20.73	-23.19
Minimum H-pulse Width CK	61.27	61.27	66.19
Minimum L-pulse Width CK	125.3	109.9	108.1
Minimum L-pulse Width RB	80.98	50.80	61.27
Recovery Timing RB / CK /	-29.52	-22.12	-19.66
Removal Timing RB / CK /	53.25	45.85	40.92



Group Name : QDFFRSB

Symbol

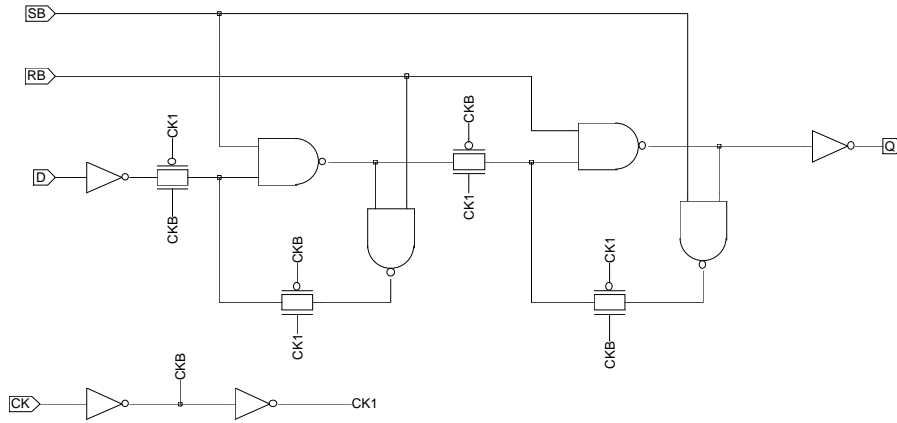
Function : D Flip-Flop with Clear/Set, Single Output



Truth Table

CK	D	RB	SB	Q
	0	1	1	0
	1	1	1	1
X	X	1	0	1
X	X	0	1	0
X	X	0	0	0

Schematic



Pin Order Q D CK RB SB

**Input Capacitance (ff) & Maximum Loading (ff) & Power Consumption (nW/MHz)**

Version	Input Capacitance				Maximum Loading	Power Consumption		
	D	CK	RB	SB	Q	Q	D	CK
QDFFRSBX1	1.098	1.321	1.886	2.671	212.5	11.50	2.540	3.672
QDFFRSBX2	0.9820	1.742	3.104	2.869	425.9	15.84	2.804	4.359
QDFFRSBX3	1.059	2.007	3.113	2.832	637.8	19.03	2.934	4.939

## AC Characteristics ( Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ps)

Version	Cell Unit	Output Load												
		Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
QDFFRSBX1	20	RB-Q	-	48.93	-	52.86	-	60.68	-	75.56	-	106.6	-	179.0
		SB-Q	109.4	-	115.5	-	128.7	-	158.2	-	229.5	-	408.0	-
		CK-Q	102.4	100.1	108.5	104.0	121.8	111.8	151.6	126.7	223.2	157.5	401.7	229.3
		Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff	
QDFFRSBX2	23	RB-Q	-	43.45	-	46.14	-	52.13	-	64.40	-	91.19	-	160.8
		SB-Q	103.3	-	107.1	-	116.4	-	139.0	-	199.9	-	370.4	-
		CK-Q	92.47	89.68	96.31	92.33	105.6	98.19	128.3	110.4	189.4	137.0	359.9	205.8
		Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff	
QDFFRSBX3	25	RB-Q	-	48.61	-	50.80	-	56.14	-	67.95	-	93.88	-	161.9
		SB-Q	109.6	-	112.5	-	120.4	-	140.5	-	195.8	-	360.9	-
		CK-Q	95.79	92.64	98.77	94.78	106.7	100.00	126.8	111.7	182.5	137.4	347.6	204.8
		Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff	

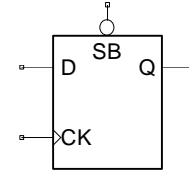
## Timing Constraint (ps)

Item	Version		
	QDFFRSBX1	QDFFRSBX2	QDFFRSBX3
Setup Timing D / CK /	39.52	41.99	41.99
Setup Timing D \ CK /	69.11	71.58	76.51
Hold Timing D / CK /	-8.398	-10.864	-8.398
Hold Timing D \ CK /	-10.864	-20.73	-23.19
Minimum H-pulse Width CK	61.27	66.19	68.66
Minimum L-pulse Width CK	140.1	125.3	125.3
Minimum L-pulse Width RB	68.66	61.27	61.27
Minimum L-pulse Width SB	100.68	105.6	105.6
Recovery Timing RB / CK /	-24.59	-22.12	-19.66
Recovery Timing SB / CK /	5.000	7.466	9.932
Removal Timing RB / CK /	55.71	48.32	45.85
Removal Timing SB / CK /	11.33	8.863	6.397

Group Name : QDFFSB

Symbol

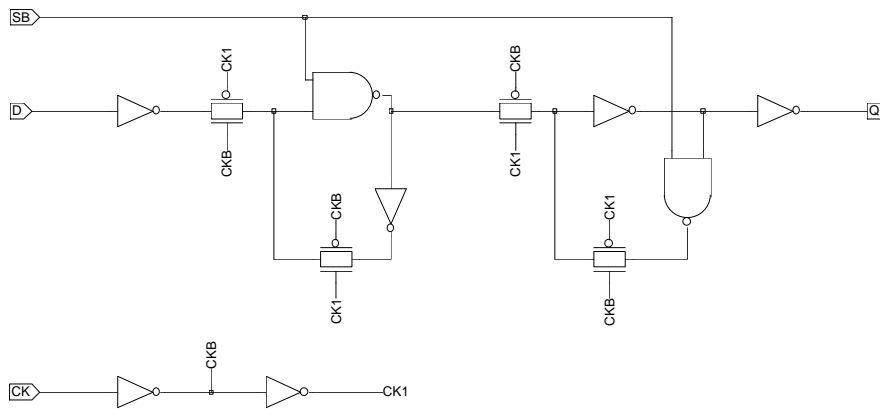
Function : D Flip-Flop with Set, Single Output



Truth Table

CK	D	SB	Q
	0	1	0
	1	1	1
X	X	0	1

Schematic



Pin Order Q D CK SB

Input Capacitance (ff) & Maximum Loading (ff) & Power Consumption (nW/MHz)

Version	Input Capacitance			Maximum Loading	Power Consumption		
	D	CK	SB	Q	Q	D	CK
QDFFSBX1	1.108	1.338	2.677	212.9	10.67	2.458	3.623
QDFFSBX2	0.9720	1.741	2.646	426.2	14.60	2.660	4.331
QDFFSBX3	1.061	2.008	2.727	638.6	17.78	2.780	4.908

## AC Characteristics ( Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ps)

Version	Cell Unit	Output Load												
		1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
QDFFSBX1	18	Path	tph	tphl	tph	tphl	tph	tphl	tph	tphl	tph	tphl	tph	tphl
			88.13	-	93.25	-	104.9	-	133.6	-	204.7	-	383.2	-
		SB-Q	81.23	97.25	86.30	101.1	98.07	108.7	126.8	123.3	198.2	153.8	376.6	225.6
QDFFSBX2	21	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff	
			tph	tphl	tph	tphl	tph	tphl	tph	tphl	tph	tphl	tph	tphl
		SB-Q	90.54	-	94.03	-	102.3	-	124.2	-	184.8	-	355.3	-
CK-Q	81.36	89.87	84.79	92.49	93.14	98.31	115.0	110.4	175.8	136.9	346.3	205.5		
QDFFSBX3	23	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff	
			tph	tphl	tph	tphl	tph	tphl	tph	tphl	tph	tphl	tph	tphl
		SB-Q	95.10	-	97.81	-	104.8	-	123.5	-	178.3	-	343.4	-
CK-Q	83.12	93.21	85.83	95.34	92.85	100.6	111.6	112.1	166.8	137.8	331.7	205.0		

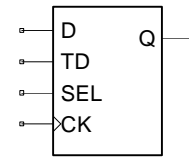
## Timing Constraint (ps)

Item	Version		
	QDFFSBX1	QDFFSBX2	QDFFSBX3
Setup Timing D / CK /	39.52	37.06	37.06
Setup Timing D \ CK /	69.11	74.04	76.51
Hold Timing D / CK /	-8.398	-10.864	-8.398
Hold Timing D \ CK /	-15.80	-23.19	-25.66
Minimum H-pulse Width CK	48.95	61.27	61.27
Minimum L-pulse Width CK	140.1	127.8	125.3
Minimum L-pulse Width SB	80.98	85.90	85.90
Recovery Timing SB / CK /	5.000	7.466	9.932
Removal Timing SB / CK /	8.863	3.931	3.931

Group Name : QDFZ

Symbol

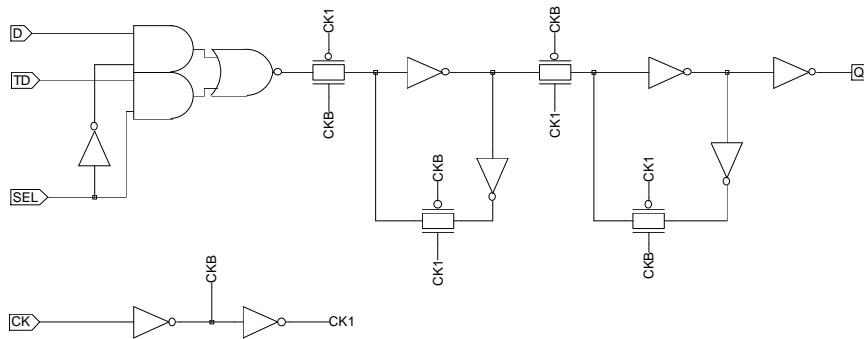
Function : D Flip-Flop with Scan, Single Output



Truth Table

CK	D	TD	SEL	Q
	0	X	0	0
	1	X	0	1
	X	0	1	0
	X	1	1	1
	X	X	X	Q

Schematic



Pin Order Q D TD CK SEL

**Input Capacitance (ff) & Maximum Loading (ff) & Power Consumption (nW/MHz)**

Version	Input Capacitance				Maximum Loading	Power Consumption				
	D	TD	CK	SEL	Q	Q	D	TD	CK	SEL
QDFZX1	1.777	0.9500	1.309	2.900	212.7	9.196	3.534	4.712	3.582	5.412
QDFZX2	1.752	0.8730	1.641	2.896	426.3	12.91	3.704	4.883	4.177	5.580
QDFZX3	1.780	0.9130	2.008	2.919	638.9	15.93	3.805	4.967	4.721	5.720

## AC Characteristics ( Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ps)

Version	Cell Unit	Output Load														
		Path		1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
				tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
QDFZX1	23	CK-Q	85.20	87.02	90.52	90.69	102.5	97.97	131.4	112.2	202.8	142.2	381.2	213.8		
		Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff			
QDFZX2	25	CK-Q	80.67	83.01	84.04	85.50	92.31	91.05	114.2	102.5	175.0	128.4	345.4	197.0		
		Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff			
QDFZX3	26	CK-Q	82.29	85.75	84.99	87.80	91.95	92.81	110.7	103.9	165.8	129.0	330.8	195.8		
		Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff			

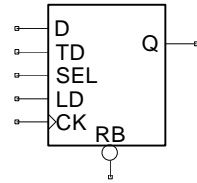
## Timing Constraint (ps)

Item	Version		
	QDFZX1	QDFZX2	QDFZX3
Setup Timing D / CK /	41.99	39.52	41.99
Setup Timing D \ CK /	46.92	49.38	51.85
Setup Timing TD / CK /	83.91	83.91	85.14
Setup Timing TD \ CK /	187.5	199.8	204.7
Setup Timing SEL / CK /	189.9	199.8	204.7
Setup Timing SEL \ CK /	59.25	56.78	59.25
Hold Timing D / CK /	-18.26	-13.33	-13.33
Hold Timing D \ CK /	-15.80	-18.26	-20.73
Hold Timing TD / CK /	-47.85	-45.39	-42.92
Hold Timing TD \ CK /	-75.52	-75.52	-76.62
Hold Timing SEL / CK /	-47.85	-42.92	-40.45
Hold Timing SEL \ CK /	-17.03	-18.26	-23.19
Minimum H-pulse Width CK	50.80	61.27	61.27
Minimum L-pulse Width CK	109.3	105.6	100.68

Group Name : QDFZCLRB

Symbol

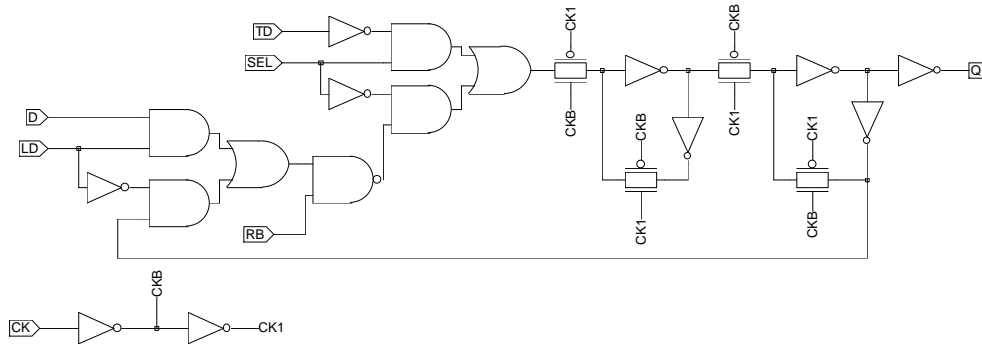
Function : D Flip-Flop with Synchronous Clear , Scan and Load,  
Single Output



Truth Table

CK	D	LD	RB	TD	SEL	Q
	X	X	X	0	1	0
	X	X	X	1	1	1
	X	X	0	X	0	0
	X	0	1	X	0	Q
	0	1	1	X	0	0
	1	1	1	X	0	1
	X	X	X	X	X	Q

Schematic



Pin Order Q D TD CK RB SEL LD

**Input Capacitance (ff) & Maximum Loading (ff)**

Version	Input Capacitance						Maximum Loading
	D	TD	CK	RB	SEL	LD	Q
QDFZCLRBX1	1.489	0.8830	1.289	1.603	2.268	2.795	212.7
QDFZCLRBX2	1.489	0.8830	1.661	1.603	2.268	2.806	426.3
QDFZCLRBX3	1.493	0.8830	1.987	1.606	2.266	2.849	638.9

## Power Consumption (nW/MHz)

Version	Power Consumption					
	Q	D	TD	CK	RB	SEL
QDFZCLRBX1	10.63	9.005	5.071	3.615	9.715	5.647
QDFZCLRBX2	14.40	9.143	5.190	4.225	9.851	5.792
QDFZCLRBX3	17.41	9.251	5.308	4.774	9.947	5.901

## AC Characteristics ( Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ps)

Version	Cell Unit	Output Load													
		Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
QDFZCLRBX1	35	Path	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
			CK-Q	85.15	87.07	90.46	90.70	102.4	97.95	131.2	112.1	202.7	142.3	381.2	214.0
		QDFZCLRBX2	36	Path	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh
CK-Q	80.67				83.13	84.03	85.61	92.29	91.10	114.1	102.6	174.9	128.5	345.4	197.1
QDFZCLRBX3	38			Path	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh
		CK-Q	82.32		85.88	85.02	87.92	91.98	92.91	110.6	104.1	165.7	129.1	330.8	196.0



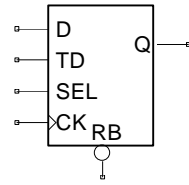
## Timing Constraint (ps)

Item	Version	QDFZCLRBX1	QDFZCLRBX2	QDFZCLRBX3
Setup Timing D / CK /		98.70	96.24	98.70
Setup Timing D \ CK /		106.1	108.6	111.0
Setup Timing TD / CK /		86.37	86.37	86.37
Setup Timing TD \ CK /		199.8	207.2	214.6
Setup Timing RB / CK /		103.6	101.2	103.6
Setup Timing RB \ CK /		96.24	101.2	101.2
Setup Timing SEL / CK /		207.2	214.6	219.5
Setup Timing SEL \ CK /		69.11	66.65	66.65
Setup Timing LD / CK /		120.9	125.8	128.3
Setup Timing LD \ CK /		108.6	108.6	108.6
Hold Timing D / CK /		-67.58	-67.58	-67.58
Hold Timing D \ CK /		-74.97	-77.44	-79.91
Hold Timing TD / CK /		-52.78	-45.39	-45.39
Hold Timing TD \ CK /		-77.73	-77.73	-77.73
Hold Timing RB / CK /		-72.51	-74.97	-74.97
Hold Timing RB \ CK /		-60.18	-65.11	-65.11
Hold Timing SEL / CK /		-45.39	-40.45	-40.45
Hold Timing SEL \ CK /		-24.43	-25.66	-25.66
Hold Timing LD / CK /		-82.37	-84.84	-84.84
Hold Timing LD \ CK /		-77.44	-79.91	-79.91
Minimum H-pulse Width CK		61.27	61.27	61.27
Minimum L-pulse Width CK		109.3	105.6	100.68

Group Name : QDFZCRB

Symbol

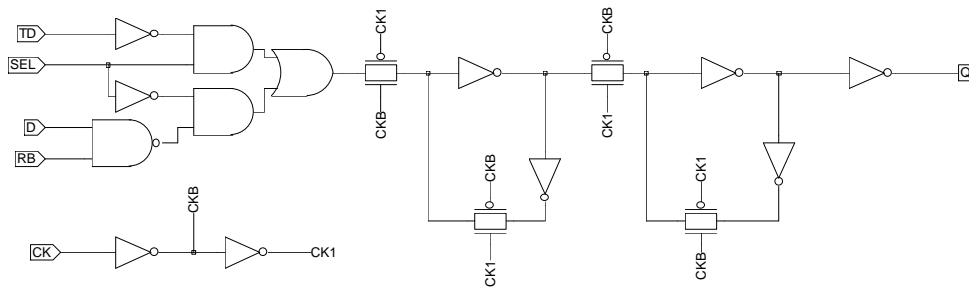
Function : D Flip-Flop with Synchronous Clear and Scan, Single Output



Truth Table

CK	D	RB	TD	SEL	Q
	X	X	0	1	0
	X	X	1	1	1
	X	0	X	0	0
	0	1	X	0	0
	1	1	X	0	1
	X	X	X	X	Q

Schematic



Pin Order Q D TD CK SEL RB

**Input Capacitance (ff) & Maximum Loading (ff)**

Version	Input Capacitance					Maximum Loading
	D	TD	CK	SEL	RB	Q
QDFZCRBX1	1.686	0.7820	1.280	2.363	1.815	212.7
QDFZCRBX2	1.687	0.7820	1.637	2.363	1.816	426.3
QDFZCRBX3	1.683	0.7830	1.998	2.368	1.829	638.9

**Power Consumption (nW/MHz)**

Version	Power Consumption					
	Q	D	TD	CK	SEL	RB
QDFZCRBX1	9.154	5.092	3.704	3.526	4.818	5.460
QDFZCRBX2	12.87	5.204	3.829	4.113	4.953	5.567
QDFZCRBX3	15.88	5.344	3.952	4.701	5.085	5.687

## AC Characteristics ( Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ps)

Version	Cell Unit	Output Load													
		Path		1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
QDFZCRBX1	26	Path		tplh	tphi	tplh	tphi	tplh	tphi	tplh	tphi	tplh	tphi	tplh	tphi
		CK-Q	85.17	87.05	90.48	90.72	102.5	98.00	131.3	112.2	202.7	142.3	381.1	213.9	
QDFZCRBX2	27	Path		1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff	
		CK-Q	80.64	83.04	84.01	85.53	92.27	91.08	114.2	102.5	175.0	128.5	345.4	197.0	
QDFZCRBX3	28	Path		1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff	
		CK-Q	82.41	85.91	85.10	87.96	92.07	92.97	110.8	104.1	165.9	129.2	330.9	196.0	

## Timing Constraint (ps)

Item	Version		
	QDFZCRBX1	QDFZCRBX2	QDFZCRBX3
Setup Timing D / CK /	71.58	66.65	69.11
Setup Timing D \ CK /	69.11	71.58	74.04
Setup Timing TD / CK /	69.11	69.11	71.58
Setup Timing TD \ CK /	157.9	165.3	170.2
Setup Timing SEL / CK /	177.6	185.0	187.5
Setup Timing SEL \ CK /	83.91	78.98	81.44
Setup Timing RB / CK /	71.58	69.11	69.11
Setup Timing RB \ CK /	74.04	76.51	78.98
Hold Timing D / CK /	-37.99	-35.52	-35.52
Hold Timing D \ CK /	-30.59	-35.52	-33.06
Hold Timing TD / CK /	-35.52	-33.06	-33.06
Hold Timing TD \ CK /	-62.20	-62.20	-64.42
Hold Timing SEL / CK /	-40.45	-35.52	-35.52
Hold Timing SEL \ CK /	-10.864	-13.33	-13.33
Hold Timing RB / CK /	-37.99	-37.99	-35.52
Hold Timing RB \ CK /	-33.06	-37.99	-37.99
Minimum H-pulse Width CK	48.95	61.27	61.27
Minimum L-pulse Width CK	120.4	105.6	100.68

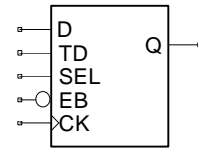
Group Name : QDFZE

Symbol

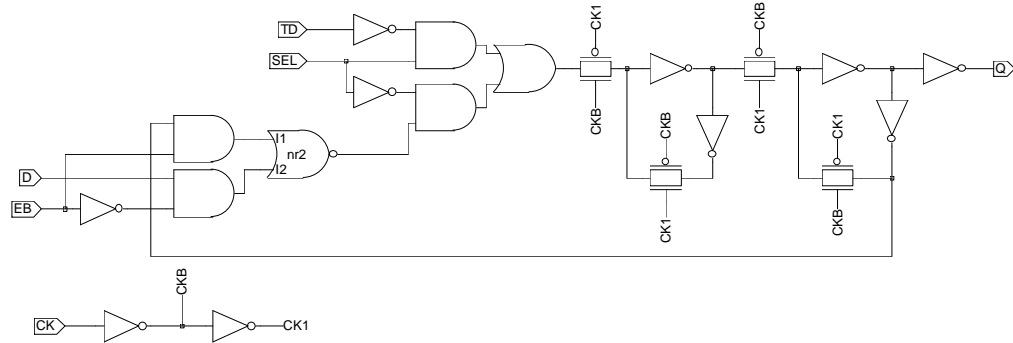
Function : Enabled Flip-Flops, Enabled Low, Scan, Single Output

Truth Table

CK	D	TD	SEL	EB	Q
	X	0	1	X	0
	X	1	1	X	1
	0	X	0	0	0
	1	X	0	0	1
	X	X	0	1	Q
	X	X	X	X	Q



Schematic



Pin Order Q D TD CK SEL EB

**Input Capacitance (ff) & Maximum Loading (ff) & Power Consumption (nW/MHz)**

Version	Input Capacitance					Maximum Loading	Power Consumption				
	D	TD	CK	SEL	EB	Q	Q	D	TD	CK	SEL
QDFZEX1	1.531	0.7720	1.303	2.553	2.579	212.6	10.40	5.348	6.906	3.554	7.788
QDFZEX2	1.504	0.7730	1.678	2.554	2.575	426.2	14.05	5.479	7.033	4.165	7.923
QDFZEX3	1.611	0.7710	1.997	2.552	2.576	639.0	17.17	5.585	7.165	4.703	8.019

## AC Characteristics ( Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ps)

Version	Cell Unit	Output Load												
		1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
QDFZEX1	30	Path	tph	tphl	tph	tphl	tph	tphl	tph	tphl	tph	tphl	tph	tphl
			85.40	87.24	90.70	90.85	102.7	98.08	131.4	112.3	202.9	142.5	381.4	214.1
		CK-Q	85.40	87.24	90.70	90.85	102.7	98.08	131.4	112.3	202.9	142.5	381.4	214.1
QDFZEX2	31	Path	tph	tphl	tph	tphl	tph	tphl	tph	tphl	tph	tphl	tph	tphl
			80.82	83.23	84.18	85.72	92.44	91.22	114.3	102.7	175.0	128.7	345.6	197.3
		CK-Q	80.82	83.23	84.18	85.72	92.44	91.22	114.3	102.7	175.0	128.7	345.6	197.3
QDFZEX3	33	Path	tph	tphl	tph	tphl	tph	tphl	tph	tphl	tph	tphl	tph	tphl
			82.25	85.79	84.94	87.83	91.91	92.81	110.6	104.1	165.7	129.0	330.8	196.0
		CK-Q	82.25	85.79	84.94	87.83	91.91	92.81	110.6	104.1	165.7	129.0	330.8	196.0

## Timing Constraint (ps)

Item	Version		
	QDFZEX1	QDFZEX2	QDFZEX3
Setup Timing D / CK /	76.51	71.58	74.04
Setup Timing D \ CK /	120.9	123.4	125.8
Setup Timing TD / CK /	113.5	113.5	116.0
Setup Timing TD \ CK /	239.2	246.7	256.5
Setup Timing SEL / CK /	305.8	305.8	313.2
Setup Timing SEL \ CK /	128.3	130.8	133.2
Setup Timing EB / CK /	86.37	86.37	86.37
Setup Timing EB \ CK /	113.5	111.0	111.0
Hold Timing D / CK /	-37.99	-40.45	-37.99
Hold Timing D \ CK /	-57.71	-60.18	-60.18
Hold Timing TD / CK /	-60.18	-57.71	-55.25
Hold Timing TD \ CK /	-112.0	-102.2	-114.4
Hold Timing SEL / CK /	-62.65	-60.18	-57.71
Hold Timing SEL \ CK /	-70.04	-74.97	-74.97
Hold Timing EB / CK /	-30.59	-28.12	-28.12
Hold Timing EB \ CK /	-77.73	-77.73	-77.73
Minimum H-pulse Width CK	61.27	61.27	61.27
Minimum L-pulse Width CK	100.68	90.21	85.90

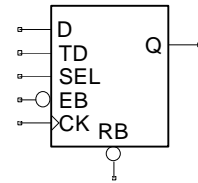
Group Name : QDFZERB

Symbol

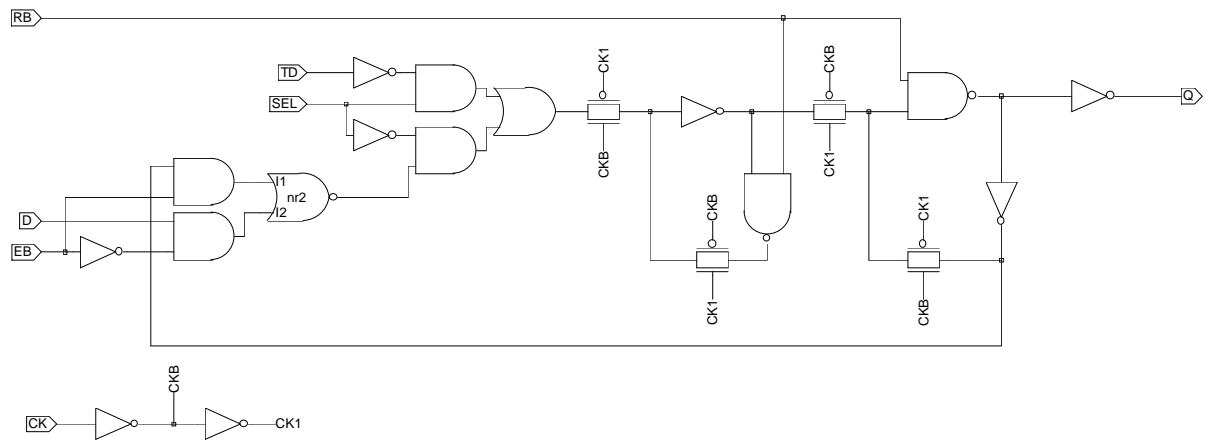
Function : Enabled Flip-Flops, Enabled Low, RB, Scan, Single Output

Truth Table

CK	D	TD	SEL	EB	RB	Q
	X	0	1	X	1	0
	X	1	1	X	1	1
	0	X	0	0	1	0
	1	X	0	0	1	1
	X	X	0	1	1	Q
X	X	X	X	X	0	0



Schematic



Pin Order Q D TD CK SEL EB RB

**Input Capacitance (ff) & Maximum Loading (ff)**

Version	Input Capacitance						Maximum Loading
	D	TD	CK	SEL	EB	RB	Q
QDFZERBX1	1.641	0.7730	1.306	2.560	2.542	1.494	212.3
QDFZERBX2	1.641	0.7730	1.645	2.558	2.544	2.865	425.9
QDFZERBX3	1.641	0.7730	2.033	2.568	2.544	2.854	638.0

**Power Consumption (nW/MHz)**

Version	Power Consumption				
	Q	D	TD	CK	SEL
QDFZERBX1	10.68	5.848	7.434	3.630	8.296
QDFZERBX2	14.82	5.941	7.537	4.216	8.421
QDFZERBX3	18.08	6.051	7.631	4.797	8.535

## AC Characteristics ( Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ps)

Version	Cell Unit	Output Load												
		1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
QDFZERBX1	31	Path	tph	tphl	tph	tphl	tph	tphl	tph	tphl	tph	tphl	tph	tphl
			98.92	91.83	105.2	95.82	118.7	103.8	148.8	119.1	220.7	150.4	399.2	222.6
		CK-Q	98.92	91.83	105.2	95.82	118.7	103.8	148.8	119.1	220.7	150.4	399.2	222.6
		RB-Q	-	54.40	-	58.58	-	66.87	-	82.60	-	114.4	-	186.3
QDFZERBX2	33	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff	
			tph	tphl	tph	tphl	tph	tphl	tph	tphl	tph	tphl	tph	tphl
		CK-Q	89.14	81.68	92.93	84.21	102.0	89.81	124.7	101.5	185.8	127.7	356.3	196.4
		RB-Q	-	41.99	-	44.63	-	50.50	-	62.56	-	89.17	-	158.6
QDFZERBX3	34	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff	
			tph	tphl	tph	tphl	tph	tphl	tph	tphl	tph	tphl	tph	tphl
		CK-Q	92.46	84.31	95.42	86.37	103.2	91.42	123.2	102.8	178.9	128.0	344.0	195.1
		RB-Q	-	47.27	-	49.43	-	54.72	-	66.39	-	92.13	-	159.8

## Timing Constraint (ps)

Item	Version		
	QDFZERBX1	QDFZERBX2	QDFZERBX3
Setup Timing D / CK /	76.51	74.04	76.51
Setup Timing D \ CK /	118.4	123.4	123.4
Setup Timing TD / CK /	113.5	113.5	116.0
Setup Timing TD \ CK /	226.9	231.9	234.3
Setup Timing SEL / CK /	293.5	296.0	298.4
Setup Timing SEL \ CK /	128.3	130.8	133.2
Setup Timing EB / CK /	93.77	93.77	93.77
Setup Timing EB \ CK /	113.5	111.0	111.0
Hold Timing D / CK /	-45.39	-45.39	-45.39
Hold Timing D \ CK /	-65.11	-65.11	-65.11
Hold Timing TD / CK /	-72.51	-67.58	-67.58
Hold Timing TD \ CK /	-102.2	-102.2	-104.4
Hold Timing SEL / CK /	-72.51	-70.04	-70.04
Hold Timing SEL \ CK /	-77.44	-79.91	-82.37
Hold Timing EB / CK /	-35.52	-35.52	-35.52
Hold Timing EB \ CK /	-84.84	-89.77	-89.77
Minimum H-pulse Width CK	66.19	66.19	66.19
Minimum L-pulse Width CK	90.21	85.90	80.98
Minimum L-pulse Width RB	80.98	50.80	61.27
Recovery Timing RB / CK /	-27.05	-22.12	-19.66
Removal Timing RB / CK /	48.32	43.38	40.92

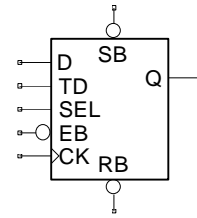
Group Name : QDFZERSB

Symbol

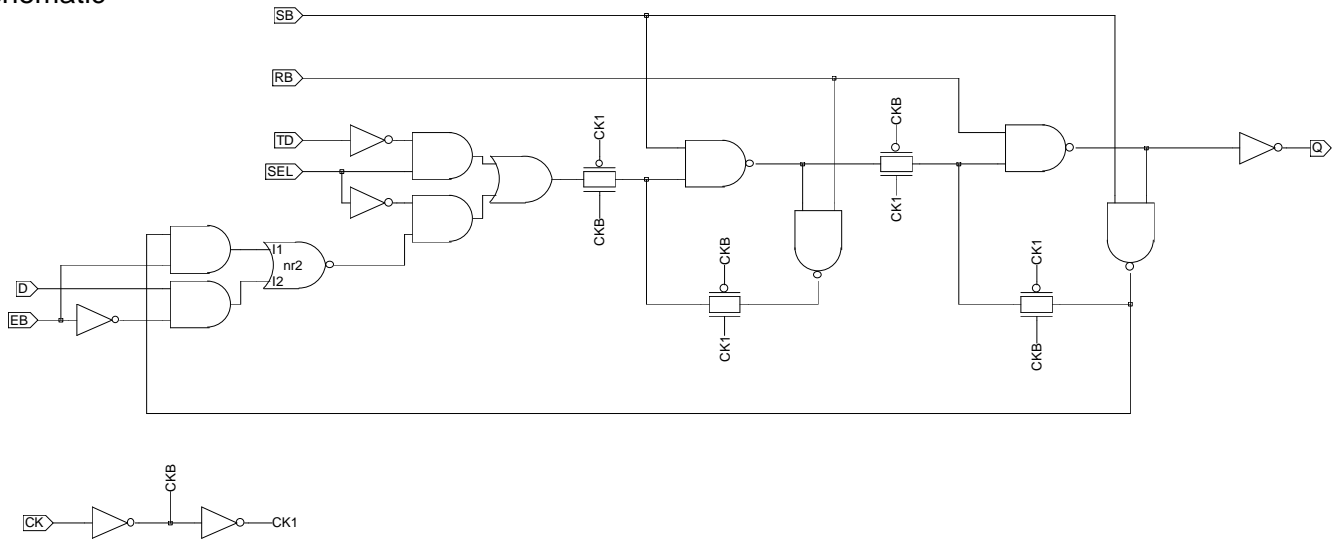
Function : Enabled Flip-Flops, Enabled Low, RB, SB, Scan, Single Outputs

Truth Table

CK	D	TD	SEL	EB	RB	SB	Q
	X	0	1	X	1	1	0
	X	1	1	X	1	1	1
	0	X	0	0	1	1	0
	1	X	0	0	1	1	1
	X	X	0	1	1	1	Q
X	X	X	X	X	0	1	0
X	X	X	X	X	1	0	1
X	X	X	X	X	0	0	0



Schematic



Pin Order Q D TD CK SEL EB RB SB

**Input Capacitance (ff) & Maximum Loading (ff)**

Version	Input Capacitance							Maximum Loading
	D	TD	CK	SEL	EB	RB	SB	Q
QDFZERSBX1	1.529	0.7710	1.302	2.567	2.648	1.886	2.675	212.5
QDFZERSBX2	1.563	0.7720	1.651	2.593	2.651	3.103	2.866	425.9
QDFZERSBX3	1.563	0.7710	2.030	2.568	2.651	3.130	2.845	637.8



## Power Consumption (nW/MHz)

Version	Power Consumption				
	Q	D	TD	CK	SEL
QDFZERSBX1	12.54	5.959	7.398	3.663	8.336
QDFZERSBX2	16.89	6.282	7.819	4.346	8.719
QDFZERSBX3	20.03	6.381	7.926	4.937	8.834

## AC Characteristics ( Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ps)

Version	Cell Unit	Output Load													
		Path		1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
QDFZERSBX1	33	CK-Q	101.0	96.42	107.1	100.3	120.4	108.0	150.2	122.9	221.8	153.5	400.4	225.6	
		RB-Q	-	48.89	-	52.80	-	60.57	-	75.46	-	106.3	-	179.0	
		SB-Q	109.4	-	115.5	-	128.7	-	158.4	-	229.6	-	408.1	-	
		Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
QDFZERSBX2	36	CK-Q	91.36	88.64	95.21	91.28	104.5	97.14	127.2	109.3	188.3	136.0	358.8	204.9	
		RB-Q	-	43.44	-	46.12	-	52.09	-	64.33	-	91.11	-	160.8	
		SB-Q	103.3	-	107.2	-	116.4	-	139.1	-	200.0	-	370.5	-	
		Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff		
QDFZERSBX3	37	CK-Q	95.17	92.08	98.17	94.22	106.1	99.47	126.2	111.2	181.8	137.0	347.0	204.5	
		RB-Q	-	48.90	-	51.10	-	56.44	-	68.27	-	94.30	-	162.4	
		SB-Q	109.9	-	112.9	-	120.9	-	141.0	-	196.4	-	361.4	-	
		Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff		

## Timing Constraint (ps)

Item \ Version	QDFZERSBX1	QDFZERSBX2	QDFZERSBX3
Setup Timing D / CK /	81.44	81.44	83.91
Setup Timing D \ CK /	135.7	138.2	140.6
Setup Timing TD / CK /	120.9	123.4	123.4
Setup Timing TD \ CK /	259.0	261.4	263.9
Setup Timing SEL / CK /	323.1	323.1	325.6
Setup Timing SEL \ CK /	145.6	148.0	148.0
Setup Timing EB / CK /	101.2	101.2	101.2
Setup Timing EB \ CK /	118.4	118.4	120.9
Hold Timing D / CK /	-42.92	-45.39	-42.92
Hold Timing D \ CK /	-65.11	-70.04	-70.04
Hold Timing TD / CK /	-65.11	-65.11	-65.11
Hold Timing TD \ CK /	-108.8	-111.0	-111.0
Hold Timing SEL / CK /	-70.04	-70.04	-67.58
Hold Timing SEL \ CK /	-79.91	-82.37	-81.14
Hold Timing EB / CK /	-33.06	-35.52	-35.52
Hold Timing EB \ CK /	-97.17	-91.05	-91.05
Minimum H-pulse Width CK	69.89	66.19	69.89
Minimum L-pulse Width CK	120.4	105.6	100.68
Minimum L-pulse Width RB	68.66	61.27	61.27
Minimum L-pulse Width SB	100.68	105.6	105.6
Recovery Timing RB / CK /	-22.12	-22.12	-19.66
Recovery Timing SB / CK /	7.466	7.466	9.932
Removal Timing RB / CK /	50.78	48.32	45.85
Removal Timing SB / CK /	8.863	6.397	6.397

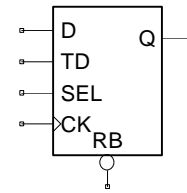
Group Name : QDFZRB

Symbol

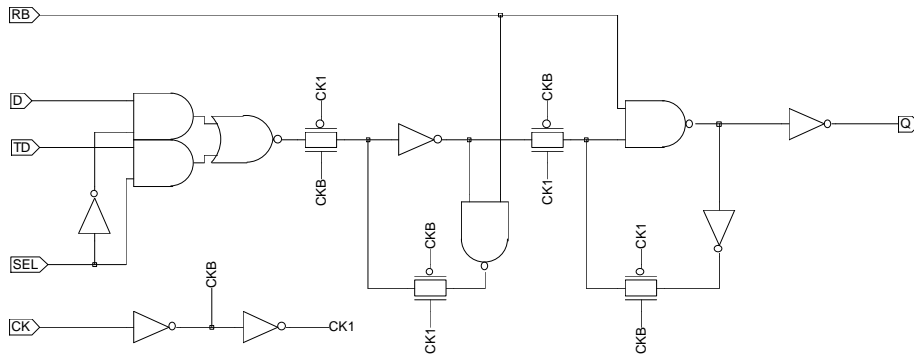
Function : D Flip-Flop with Clear and Scan, Single Output

Truth Table

CK	D	RB	TD	SEL	Q
	0	1	X	0	0
	1	1	X	0	1
	X	1	0	1	0
	X	1	1	1	1
	X	1	X	X	Q
X	X	0	X	X	0



Schematic



Pin Order Q D TD CK SEL RB

**Input Capacitance (ff) & Maximum Loading (ff) & Power Consumption (nW/MHz)**

Version	Input Capacitance					Maximum Loading	Power Consumption				
	D	TD	CK	SEL	RB	Q	Q	D	TD	CK	SEL
QDFZRBX1	1.756	0.9000	1.324	2.896	1.503	212.3	9.960	4.002	5.222	3.624	5.904
QDFZRBX2	1.754	0.8740	1.659	2.895	2.824	425.9	14.12	4.130	5.354	4.235	6.041
QDFZRBX3	1.753	0.8630	2.012	2.894	2.858	638.0	17.39	4.245	5.487	4.842	6.186

## AC Characteristics ( Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ps)

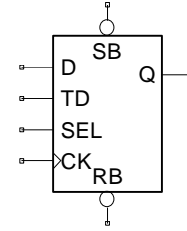
Version	Cell Unit	Output Load												
QDFZRBX1	24	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		RB-Q	-	54.57	-	58.80	-	67.15	-	82.94	-	114.6	-	186.5
		CK-Q	99.11	91.91	105.4	95.94	119.0	104.0	149.2	119.3	220.9	150.5	399.4	222.5
QDFZRBX2	26	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		RB-Q	-	42.03	-	44.69	-	50.59	-	62.62	-	89.23	-	158.6
		CK-Q	89.19	81.65	92.99	84.20	102.1	89.82	124.8	101.4	185.9	127.7	356.3	196.3
QDFZRBX3	28	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		RB-Q	-	47.32	-	49.48	-	54.79	-	66.43	-	92.19	-	159.8
		CK-Q	92.48	84.25	95.44	86.31	103.3	91.39	123.3	102.6	178.9	128.0	344.0	195.0

## Timing Constraint (ps)

Item	Version	QDFZRBX1	QDFZRBX2	QDFZRBX3
Setup Timing D / CK /		44.45	41.99	44.45
Setup Timing D \ CK /		46.92	51.85	51.85
Setup Timing TD / CK /		83.91	83.91	86.37
Setup Timing TD \ CK /		189.9	194.9	197.3
Setup Timing SEL / CK /		192.4	197.3	199.8
Setup Timing SEL \ CK /		61.71	59.25	61.71
Hold Timing D / CK /		-20.73	-18.26	-20.73
Hold Timing D \ CK /		-15.80	-20.73	-20.73
Hold Timing TD / CK /		-52.78	-50.32	-50.32
Hold Timing TD \ CK /		-75.52	-75.52	-77.73
Hold Timing SEL / CK /		-50.32	-47.85	-47.85
Hold Timing SEL \ CK /		-18.26	-23.19	-23.19
Minimum H-pulse Width CK		61.27	61.27	66.19
Minimum L-pulse Width CK		105.6	100.68	90.21
Minimum L-pulse Width RB		80.98	50.80	61.27
Recovery Timing RB / CK /		-24.59	-22.12	-19.66
Removal Timing RB / CK /		48.32	43.38	40.92

Group Name : QDFZRSB  
 Function : D Flip-Flop with Clear/Set and Scan,  
 Single Output

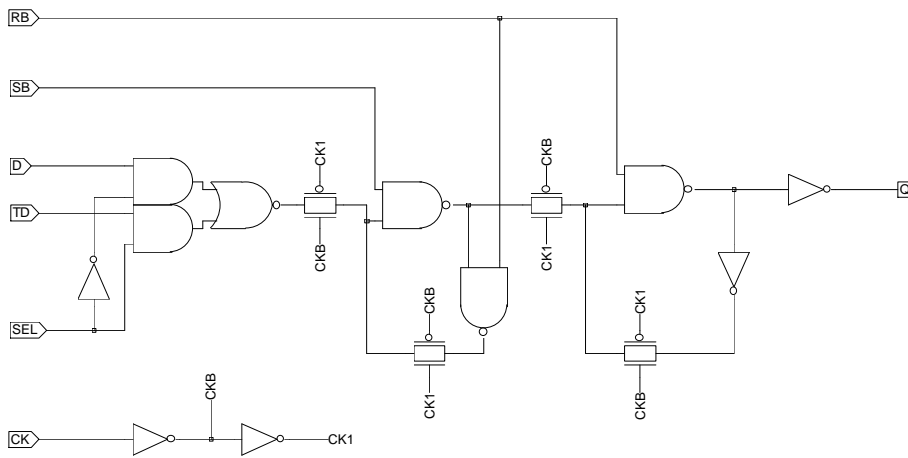
Symbol



Truth Table

CK	D	RB	SB	TD	SEL	Q
	0	1	1	X	0	0
	1	1	1	X	0	1
	X	1	1	0	1	0
	X	1	1	1	1	1
	X	1	1	X	X	Q
X	X	0	1	X	X	0
X	X	1	0	X	X	1
X	X	0	0	X	X	0

Schematic



Pin Order Q D TD CK SEL RB SB

Input Capacitance (ff) & Maximum Loading (ff)

Version	Input Capacitance						Maximum Loading
	D	TD	CK	SEL	RB	SB	Q
QDFZRSBX1	1.756	0.9000	1.322	2.895	1.886	2.682	212.5
QDFZRSBX2	1.764	0.8790	1.659	2.910	3.066	2.870	425.9
QDFZRSBX3	1.762	0.8790	2.004	2.921	3.084	2.859	637.8

## Power Consumption (nW/MHz)

Version	Power Consumption				
	Q	D	TD	CK	SEL
QDFZRSBX1	11.57	4.189	5.246	3.681	6.024
QDFZRSBX2	15.95	4.490	5.660	4.381	6.395
QDFZRSBX3	19.18	4.614	5.752	4.922	6.505

## AC Characteristics ( Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ps)

Version	Cell Unit	Output Load													
		Path		1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
QDFZRSBX1	26	RB-Q	-	48.92	-	52.86	-	60.68	-	75.55	-	106.5	-	179.0	
		SB-Q	109.4	-	115.5	-	128.7	-	158.2	-	229.5	-	408.0	-	
		CK-Q	101.1	96.35	107.3	100.3	120.6	108.0	150.4	122.9	222.0	153.6	400.5	225.5	
QDFZRSBX2	29	RB-Q	-	43.45	-	46.14	-	52.13	-	64.40	-	91.20	-	160.8	
		SB-Q	103.3	-	107.1	-	116.4	-	139.0	-	200.0	-	370.4	-	
		CK-Q	91.43	88.59	95.28	91.23	104.5	97.11	127.2	109.3	188.3	135.9	358.9	204.7	
QDFZRSBX3	31	RB-Q	-	48.75	-	50.95	-	56.30	-	68.14	-	94.11	-	162.2	
		SB-Q	109.7	-	112.7	-	120.6	-	140.7	-	196.0	-	361.1	-	
		CK-Q	94.97	91.80	97.96	93.94	105.9	99.20	126.0	111.0	181.7	136.7	346.8	204.0	

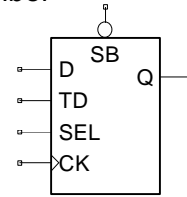
## Timing Constraint (ps)

Item	Version	QDFZRSBX1	QDFZRSBX2	QDFZRSBX3
Setup Timing D / CK /		46.92	49.38	49.38
Setup Timing D \ CK /		59.25	61.71	64.18
Setup Timing TD / CK /		91.30	93.77	93.77
Setup Timing TD \ CK /		214.6	217.1	220.8
Setup Timing SEL / CK /		214.6	217.1	222.0
Setup Timing SEL \ CK /		64.18	67.88	69.11
Hold Timing D / CK /		-18.26	-19.49	-20.73
Hold Timing D \ CK /		-18.26	-20.73	-20.73
Hold Timing TD / CK /		-50.32	-50.32	-50.32
Hold Timing TD \ CK /		-82.17	-84.39	-84.39
Hold Timing SEL / CK /		-47.85	-47.85	-47.85
Hold Timing SEL \ CK /		-20.73	-25.66	-25.66
Minimum H-pulse Width CK		66.19	66.19	66.19
Minimum L-pulse Width CK		127.8	120.4	120.4
Minimum L-pulse Width RB		68.66	61.27	61.27
Minimum L-pulse Width SB		100.68	105.6	105.6
Recovery Timing RB / CK /		-24.59	-22.12	-19.66
Recovery Timing SB / CK /		7.466	7.466	9.932
Removal Timing RB / CK /		50.78	48.32	45.85
Removal Timing SB / CK /		8.863	6.397	6.397

Group Name : QDFZSB

Symbol

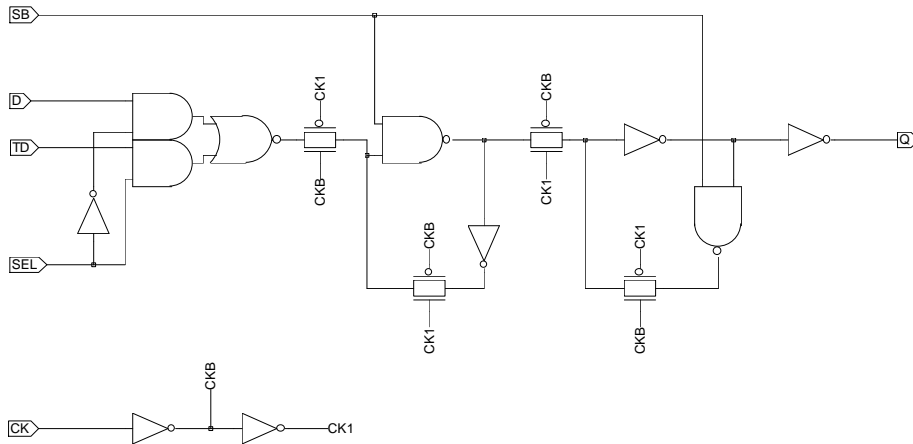
Function : D Flip-Flop with Set and Scan, Single Output Q



Truth Table

CK	D	SB	TD	SEL	Q
	0	1	X	0	0
	1	1	X	0	1
	X	1	0	1	0
	X	1	1	1	1
	X	1	X	X	Q
X	X	0	X	X	1

Schematic



Pin Order Q D TD CK SEL SB

**Input Capacitance (ff) & Maximum Loading (ff) & Power Consumption (nW/MHz)**

Version	Input Capacitance					Maximum Loading	Power Consumption				
	D	TD	CK	SEL	SB	Q	Q	D	TD	CK	SEL
QDFZSBX1	1.792	0.9750	1.315	2.936	2.677	212.9	10.75	4.100	5.173	3.666	5.918
QDFZSBX2	1.764	0.8830	1.665	2.927	2.745	426.2	14.93	4.344	5.458	4.346	6.188
QDFZSBX3	1.772	0.9030	2.018	2.924	2.723	638.6	17.90	4.458	5.566	4.929	6.331



## AC Characteristics ( Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ps)

Version	Cell Unit	Output Load												
		1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
QDFZSBX1	24	Path	tph	tphl	tph	tphl	tph	tphl	tph	tphl	tph	tphl	tph	tphl
			SB-Q	88.13	-	93.24	-	104.9	-	133.6	-	204.7	-	383.2
		CK-Q	80.31	93.84	85.39	97.65	97.17	105.2	126.0	119.8	197.3	150.4	375.7	222.1
QDFZSBX2	27	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff	
			tph	tphl	tph	tphl	tph	tphl	tph	tphl	tph	tphl	tph	tphl
		SB-Q	90.39	-	93.88	-	102.2	-	124.0	-	184.7	-	355.1	-
CK-Q	80.25	88.75	83.69	91.37	92.03	97.17	113.9	109.3	174.8	135.7	345.2	204.5		
QDFZSBX3	29	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff	
			tph	tphl	tph	tphl	tph	tphl	tph	tphl	tph	tphl	tph	tphl
		SB-Q	95.00	-	97.71	-	104.7	-	123.4	-	178.2	-	343.3	-
CK-Q	82.15	92.22	84.86	94.34	91.89	99.52	110.7	111.1	165.8	136.7	330.8	204.0		

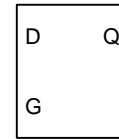
## Timing Constraint (ps)

Item	Version		
	QDFZSBX1	QDFZSBX2	QDFZSBX3
Setup Timing D / CK /	46.92	44.45	44.45
Setup Timing D \ CK /	59.25	64.18	64.18
Setup Timing TD / CK /	86.37	86.37	88.84
Setup Timing TD \ CK /	209.7	218.3	222.0
Setup Timing SEL / CK /	209.7	219.5	219.5
Setup Timing SEL \ CK /	65.41	66.65	69.11
Hold Timing D / CK /	-18.26	-18.26	-18.26
Hold Timing D \ CK /	-15.80	-20.73	-20.73
Hold Timing TD / CK /	-50.32	-47.85	-47.85
Hold Timing TD \ CK /	-77.73	-77.73	-79.95
Hold Timing SEL / CK /	-47.85	-45.39	-45.39
Hold Timing SEL \ CK /	-23.19	-23.19	-25.66
Minimum H-pulse Width CK	61.27	61.27	61.27
Minimum L-pulse Width CK	127.8	125.3	120.4
Minimum L-pulse Width SB	80.98	85.90	80.98
Recovery Timing SB / CK /	5.000	8.699	9.932
Removal Timing SB / CK /	8.863	3.931	1.466

Group Name : QDLAH

Symbol

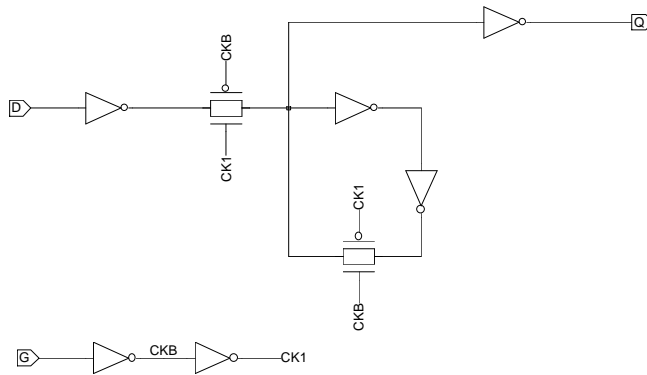
Function : D Latch, Single Output



Truth Table

G	D	Q
1	0	0
1	1	1
0	X	Q

Schematic



Pin Order Q D G

**Input Capacitance (ff) & Maximum Loading (ff) & Power Consumption (nW/MHz)**

Version	Input Capacitance		Maximum Loading	Power Consumption		
	D	G	Q	Q	D	G
QDLAHX1	1.707	1.362	212.7	6.743	0.434	3.281
QDLAHX2	2.024	1.694	425.5	9.989	0.563	3.950
QDLAHX3	2.021	2.032	637.1	14.12	0.615	4.494

**AC Characteristics ( Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ps)**

Version	Cell Unit	Path	Output Load											
			1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
QDLAHX1	13	D-Q	44.30	62.20	50.22	66.84	63.12	75.93	92.54	92.95	164.2	126.1	342.7	199.2
		G-Q	72.46	64.06	78.29	68.62	91.07	77.59	120.6	94.50	192.1	127.6	370.7	200.7

QDLAHX2	15	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		D-Q	46.04	65.33	50.10	68.70	59.91	76.21	83.38	91.60	144.8	122.8	315.4	194.6
		G-Q	69.62	65.74	73.66	69.10	83.39	76.59	106.8	91.92	168.2	123.1	338.9	194.9
QDLAHX3	16	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		D-Q	53.10	76.46	56.22	79.21	64.70	85.96	85.87	101.1	142.1	132.8	307.6	205.5
		G-Q	73.10	75.52	76.25	78.24	84.70	85.07	105.8	100.2	162.2	131.9	327.6	204.4

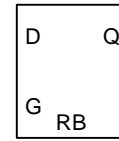
## Timing Constraint (ps)

Item \ Version	QDLAHX1	QDLAHX2	QDLAHX3
Setup Timing D / G \	6.602	9.068	18.93
Setup Timing D \ G \	43.59	46.05	55.92
Hold Timing D / G \	7.261	2.330	-5.068
Hold Timing D \ G \	-5.942	-8.161	-17.04
Minimum H-pulse Width G	48.95	61.27	68.66

Group Name : QDLAHRB

Symbol

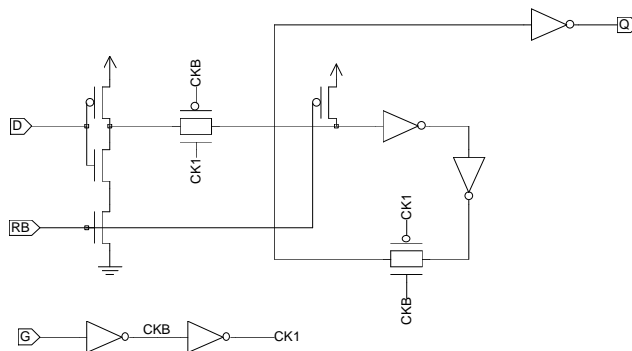
Function : D Latch with Clear, Single Output



Truth Table

G	D	RB	Q
1	0	1	0
1	1	1	1
X	X	0	0
0	X	1	Q

Schematic



Pin Order Q D G RB

**Input Capacitance (ff) & Maximum Loading (ff) & Power Consumption (nW/MHz)**

Version	Input Capacitance			Maximum Loading	Power Consumption		
	D	G	RB	Q	Q	D	G
QDLAHRBX1	1.592	1.361	2.241	212.5	6.941	0.446	3.329
QDLAHRBX2	1.892	1.694	2.543	424.7	10.60	0.578	4.001
QDLAHRBX3	1.891	2.040	2.541	635.6	14.89	0.623	4.545

**AC Characteristics (Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ps)**

Version	Cell Unit	Path	Output Load											
			1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
QDLAHRBX1	15	RB-Q	59.21	47.55	65.84	51.88	80.12	60.34	111.1	76.06	183.1	107.4	361.7	179.6
		D-Q	60.17	66.08	66.80	70.90	81.10	80.38	112.1	98.01	184.0	132.0	362.7	205.7
		G-Q	84.45	67.95	91.06	72.71	105.2	82.12	136.2	99.71	208.2	133.7	386.9	207.3

QDLAHRBX2	16	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		RB-Q	63.10	48.75	67.54	51.89	78.51	58.81	104.1	72.84	166.8	101.6	337.6	171.4
		D-Q	64.18	69.96	68.61	73.45	79.58	81.27	105.1	97.28	167.8	129.5	338.7	202.3
		G-Q	83.76	70.21	88.20	73.67	99.12	81.50	124.6	97.49	187.4	129.7	358.2	202.5
QDLAHRBX3	18	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		RB-Q	72.66	54.74	76.06	57.27	85.35	63.49	108.8	77.01	167.5	105.3	333.3	174.2
		D-Q	73.84	80.92	77.25	83.70	86.53	90.75	110.0	106.4	168.7	139.2	334.4	213.0
		G-Q	89.82	79.76	93.23	82.60	102.5	89.64	125.9	105.3	184.6	138.0	350.5	211.8

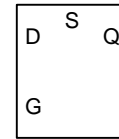
## Timing Constraint (ps)

Item	Version		
	QDLAHRBX1	QDLAHRBX2	QDLAHRBX3
Setup Timing D / G \	23.86	28.79	41.12
Setup Timing D \ G \	48.52	50.99	60.85
Hold Timing D / G \	-5.068	-10.000	-19.86
Hold Timing D \ G \	-21.48	-25.91	-37.12
Minimum H-pulse Width G	61.27	61.27	80.98
Minimum L-pulse Width RB	66.19	61.27	68.66
Recovery Timing RB / G \	26.12	31.05	43.38
Removal Timing RB / G \	-4.863	-12.26	-22.12

Group Name : QDLAHS

Symbol

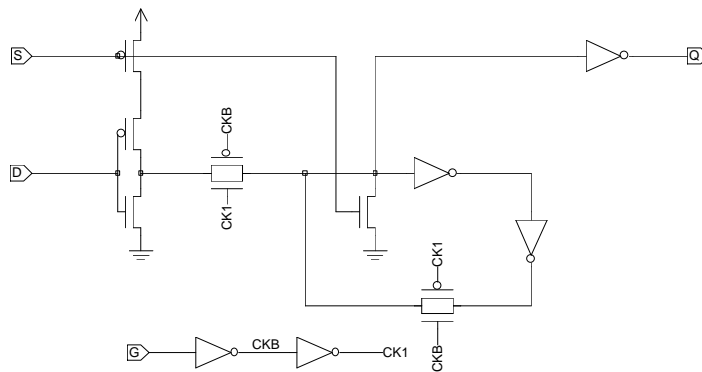
Function : D Latch with Set ( Active High ), Single Output



Truth Table

G	D	S	Q
1	0	0	0
1	1	0	1
X	X	1	1
0	X	0	Q

Schematic



Pin Order Q D G S

**Input Capacitance (ff) & Maximum Loading (ff) & Power Consumption (nW/MHz)**

Version	Input Capacitance			Maximum Loading	Power Consumption		
	D	G	S	Q	Q	D	G
QDLAHSX1	1.400	1.362	2.114	212.7	7.173	0.463	3.360
QDLAHSX2	1.661	1.693	2.420	425.4	11.22	0.597	4.028
QDLAHSX3	1.677	2.032	2.420	636.9	16.20	0.643	4.583

**AC Characteristics ( Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ps)**

Version	Cell Unit	Path	Output Load											
			1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
QDLAHSX1	15	S-Q	38.98	90.59	44.44	96.15	56.70	107.2	85.76	127.6	157.3	165.5	335.9	242.6
		D-Q	46.14	86.72	52.12	92.29	65.17	103.4	94.68	123.7	166.3	161.6	344.9	238.8
		G-Q	73.99	79.89	79.91	85.44	92.84	96.50	122.4	116.9	193.9	154.7	372.6	231.9

QDLAHSX2	16	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		S-Q	40.01	97.28	43.75	101.3	52.81	110.2	75.36	128.9	136.3	165.5	307.1	243.3
		D-Q	48.55	93.46	52.66	97.36	62.63	106.4	86.34	125.1	147.8	161.7	318.5	239.5
		G-Q	71.95	85.37	76.05	89.30	85.94	98.37	109.6	116.9	171.1	153.6	341.7	231.4
QDLAHSX3	18	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		S-Q	44.60	113.6	47.53	116.6	55.21	124.6	74.93	142.7	130.4	180.1	295.7	260.6
		D-Q	55.52	109.7	58.67	112.8	67.23	120.7	88.62	138.8	145.0	176.2	310.4	256.7
		G-Q	75.32	100.5	78.49	103.5	87.01	111.5	108.3	129.5	164.8	167.0	330.2	247.5

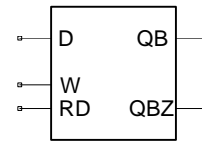
## Timing Constraint (ps)

Item \ Version	QDLAHSX1	QDLAHSX2	QDLAHSX3
Setup Timing D / G \	9.068	11.53	21.40
Setup Timing D \ G \	70.71	75.65	90.44
Hold Timing D / G \	7.261	2.330	-5.068
Hold Timing D \ G \	-8.161	-10.380	-19.26
Minimum H-pulse Width G	68.66	80.98	100.68
Minimum H-pulse Width S	41.56	41.56	41.56
Recovery Timing S \ G \	75.44	80.37	95.17
Removal Timing S \ G \	-49.25	-51.71	-64.04

Group Name : RAM2

Symbol

Function : RAM Bit with Inverted, 3-State Output

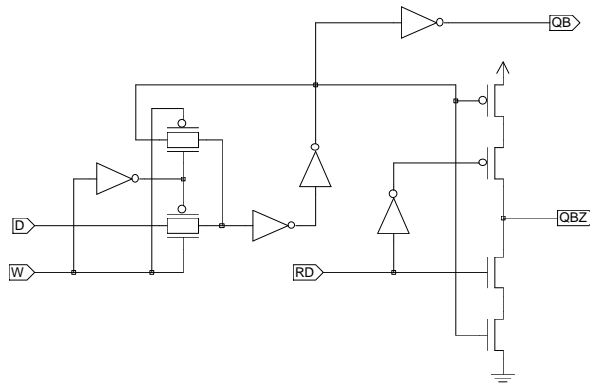


Truth Table

D	W	QB
X	0	QB
0	1	1
1	1	0

RD	QBZ
0	Z
1	QB

Schematic



Pin Order QB QBZ D W RD

**Input Capacitance (ff) & Maximum Loading (ff) & Power Consumption (nW/MHz)**

Version	Input Capacitance				Maximum Loading		Power Consumption			
	QBZ	D	W	RD	QB	QBZ	QB	QBZ	D	W
RAM2X1	1.475	1.443	2.313	2.616	105.1	109.5	7.139	5.208	0.466	1.578
RAM2X2	2.214	2.394	3.043	4.460	197.8	203.9	11.59	8.681	0.683	1.904



## AC Characteristics ( Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ps)

Version	Cell Unit	Output Load												
RAM2X1	16	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		D-QB	95.85	67.29	105.7	73.88	129.0	86.53	186.9	111.5	331.7	166.3	695.1	301.0
		W-QB	93.26	65.20	103.2	72.04	126.6	84.99	184.6	110.1	329.4	165.2	692.8	299.9
		Path	2.675 ff		4.487 ff		9.035 ff		20.45 ff		49.10 ff		121.0 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		RD-QBZ	27.85	7.922	36.71	14.08	58.63	26.13	113.5	49.78	251.4	101.6	597.8	227.2
		RD-QBZ	L>>Z 37.10						H>>Z 62.74					
D-QBZ	109.9	74.61	119.1	79.40	141.5	89.46	196.9	111.4	335.1	162.3	681.6	287.9		
W-QBZ	106.6	70.86	115.6	75.25	138.1	85.04	193.4	106.8	331.7	157.7	678.1	283.2		
RAM2X2	18	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		D-QB	82.70	59.20	88.25	63.30	100.9	71.36	131.7	86.91	208.3	119.7	400.6	196.8
		W-QB	78.23	55.63	83.88	59.90	96.66	68.26	127.6	84.05	204.2	116.9	396.5	194.2
		Path	3.414 ff		5.226 ff		9.774 ff		21.19 ff		49.84 ff		121.7 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		RD-QBZ	24.56	4.529	29.52	8.424	41.51	16.51	70.88	31.65	145.3	61.87	331.7	130.7
		RD-QBZ	L>>Z 40.18						H>>Z 77.31					
D-QBZ	98.24	66.09	103.3	68.90	115.6	74.85	145.8	87.47	220.4	115.9	407.0	183.9		
W-QBZ	93.19	61.11	98.13	63.53	110.3	69.16	140.5	81.57	215.1	109.7	401.7	177.8		

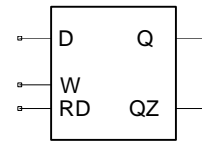
## Timing Constraint (ps)

Item	Version	
	RAM2X1	RAM2X2
Setup Timing D / W \	33.73	28.79
Setup Timing D \ W \	50.99	43.59
Hold Timing D / W \	-22.33	-22.33
Hold Timing D \ W \	-30.35	-25.91
Minimum H-pulse Width W	61.27	46.49

Group Name : RAM3

Symbol

Function : RAM Bit with 3-State Output

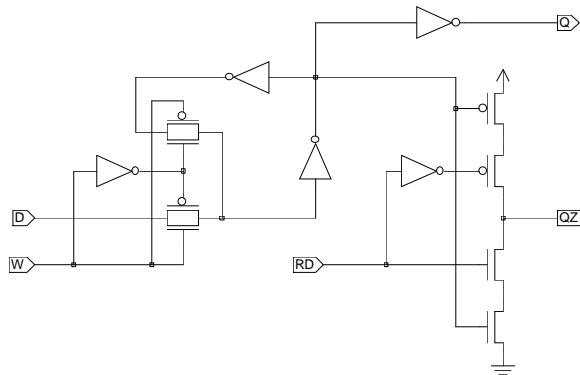


Truth Table

D	W	Q
X	0	Q
0	1	0
1	1	1

RD	QZ
0	Z
1	Q

Schematic



Pin Order Q QZ D W RD

**Input Capacitance (ff) & Maximum Loading (ff) & Power Consumption (nW/MHz)**

Version	Input Capacitance				Maximum Loading		Power Consumption			
	QZ	D	W	RD	Q	QZ	Q	QZ	D	W
RAM3X1	1.493	1.380	2.086	2.403	105.2	109.5	7.673	5.495	0.416	1.433
RAM3X2	2.216	1.858	2.873	4.142	197.7	204.0	12.47	9.048	0.544	1.631

## AC Characteristics ( Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ps)

Version	Cell Unit	Output Load												
RAM3X1	16	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		D-Q	78.76	105.4	88.48	111.8	111.8	124.0	169.8	148.4	314.6	203.1	678.0	337.6
		W-Q	75.58	105.0	85.37	111.7	108.8	124.2	166.9	148.8	311.6	203.6	675.1	338.3
		Path	2.693 ff		4.505 ff		9.053 ff		20.47 ff		49.12 ff		121.0 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		RD-QZ	27.91	7.984	36.77	14.14	58.69	26.17	113.6	49.82	251.5	101.6	597.9	227.2
		RD-QZ	L>>Z 37.15						H>>Z 62.76					
		D-QZ	94.10	113.0	103.2	117.6	125.7	127.4	181.0	149.0	319.2	199.7	665.6	325.4
W-QZ	90.25	111.0	99.30	115.2	121.7	124.8	176.9	146.3	315.2	197.0	661.6	322.6		
RAM3X2	18	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		D-Q	77.18	99.14	82.66	103.2	95.34	111.2	126.0	126.8	202.8	159.5	395.0	236.7
		W-Q	73.28	95.07	78.85	99.31	91.59	107.6	122.6	123.4	199.3	156.2	391.5	233.6
		Path	3.416 ff		5.228 ff		9.776 ff		21.19 ff		49.84 ff		121.7 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		RD-QZ	24.58	4.552	29.54	8.445	41.48	16.51	70.87	31.66	145.2	61.89	331.6	130.7
		RD-QZ	L>>Z 40.23						H>>Z 77.50					
		D-QZ	92.33	105.7	97.37	108.5	109.7	114.4	139.8	127.1	214.4	155.4	401.0	223.5
W-QZ	87.96	100.2	92.91	102.7	105.1	108.3	135.3	120.8	209.9	149.0	396.4	217.1		

## Timing Constraint (ps)

Item	Version	
	RAM3X1	RAM3X2
Setup Timing D / W \	31.26	33.73
Setup Timing D \ W \	46.05	43.59
Hold Timing D / W \	-24.79	-27.26
Hold Timing D \ W \	-28.13	-30.35
Minimum H-pulse Width W	50.18	48.95

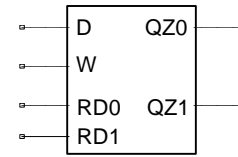
Group Name : RAM5

Symbol

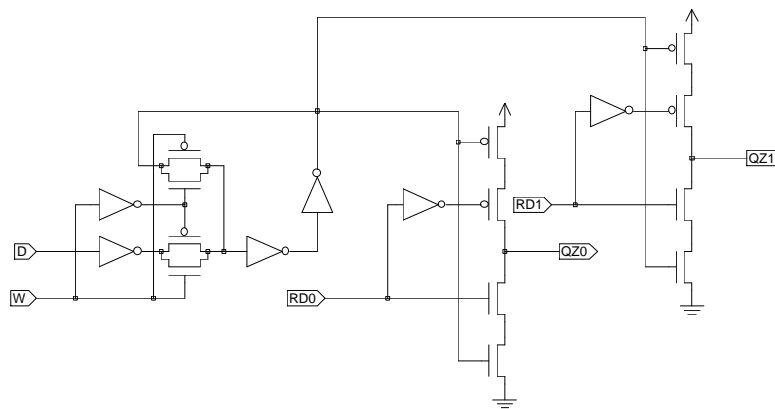
Function : RAM Bit with Dual 3-State Output

Truth Table

D	W	RD0	QZ0	D	W	RD1	QZ1
X	X	0	Z	X	X	0	Z
X	0	1	QZ0	X	0	1	QZ1
0	1	1	0	0	1	1	0
1	1	1	1	1	1	1	1



Schematic



Pin Order QZ0 QZ1 D W RD0 RD1

Input Capacitance (ff) & Maximum Loading (ff) & Power Consumption (nW/MHz)

Version	Input Capacitance						Maximum Loading		Power Consumption			
	QZ0	QZ1	D	W	RD0	RD1	QZ0	QZ1	QZ0	QZ1	D	W
RAM5X1	1.563	1.569	1.380	2.152	2.369	2.458	109.4	109.4	7.432	5.522	0.481	1.499
RAM5X2	2.211	2.216	1.859	2.742	4.144	4.125	203.9	203.9	12.03	8.825	0.588	1.697

## AC Characteristics ( Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ps)

Version	Cell Unit	Output Load												
RAM5X1	19	Path	2.763 ff		4.575 ff		9.123 ff		20.54 ff		49.19 ff		121.1 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		RD0-QZ0	28.38	8.266	37.19	14.37	59.14	26.35	114.0	49.96	251.9	101.7	598.3	227.3
		RD0-QZ0	L>>Z 37.38						H>>Z 63.09					
		D-QZ0	97.70	118.3	106.8	123.0	129.3	133.2	184.6	155.4	322.8	206.5	669.3	332.3
		W-QZ0	94.43	118.1	103.5	123.0	126.1	133.2	181.4	155.5	319.6	206.7	666.1	332.2
		RD1-QZ1	28.92	8.325	37.74	14.39	59.67	26.36	114.5	49.96	252.5	101.7	598.9	227.3
		RD1-QZ1	L>>Z 37.46						H>>Z 63.66					
		D-QZ1	97.71	118.3	106.8	123.0	129.3	133.2	184.6	155.4	322.8	206.5	669.3	332.3
		W-QZ1	94.44	118.2	103.6	123.0	126.1	133.2	181.4	155.5	319.6	206.7	666.1	332.2
RAM5X2	23	Path	3.411 ff		5.223 ff		9.771 ff		21.18 ff		49.83 ff		121.7 ff	
			tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
		RD0-QZ0	24.81	4.539	29.77	8.433	41.76	16.49	71.14	31.63	145.5	61.87	331.9	130.7
		RD0-QZ0	L>>Z 40.21						H>>Z 77.56					
		D-QZ0	94.21	108.0	99.26	110.9	111.6	117.0	141.7	129.9	216.3	158.7	403.0	226.9
		W-QZ0	90.27	104.1	95.35	107.0	107.7	113.1	137.8	126.2	212.5	155.0	399.1	223.3
		RD1-QZ1	24.60	4.538	29.56	8.432	41.55	16.51	70.92	31.65	145.3	61.87	331.7	130.7
		RD1-QZ1	L>>Z 40.20						H>>Z 77.35					
		D-QZ1	94.22	108.0	99.26	110.9	111.6	117.0	141.7	129.9	216.3	158.7	403.0	226.9
		W-QZ1	90.28	104.1	95.36	107.0	107.7	113.1	137.8	126.2	212.5	155.0	399.1	223.3

## Timing Constraint (ps)

Item	Version	
	RAM5X1	RAM5X2
Setup Timing D / W \	31.26	33.73
Setup Timing D \ W \	48.52	43.59
Hold Timing D / W \	-27.26	-29.73
Hold Timing D \ W \	-28.13	-30.35
Minimum H-pulse Width W	50.80	46.49

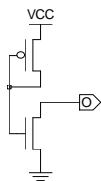
Cell Name : TIE0

Symbol

Function : Tie to Low Through Diffusion for ESD Issue



Schematic



Pin Order O

Input Capacitance (ff) &amp; Maximum Loading (ff) &amp; Power Consumption (nW/MHz)

Version	Input Capacitance	Maximum Loading	Power Consumption
		O	
TIE0X1		3000.0	
TIE0X2		3000.0	
TIE0X4		3000.0	

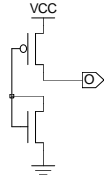
Cell Name : TIE1

Symbol

Function : Tie to High Through Diffusion for ESD Issue



Schematic



Pin Order O

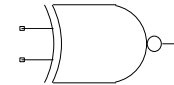
**Input Capacitance (ff) & Maximum Loading (ff) & Power Consumption (nW/MHz)**

Version	Input Capacitance	Maximum Loading	Power Consumption
		0	
TIE1X1		3000.0	
TIE1X2		3000.0	
TIE1X4		3000.0	

Group Name : XNR2

Symbol

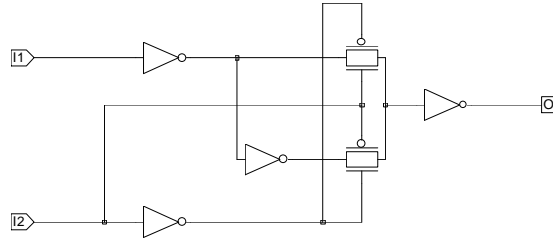
Function : Exclusive NR2



Truth Table

I1	I2	O
0	0	1
0	1	0
1	0	0
1	1	1

Schematic



Pin Order O I1 I2

**Input Capacitance (ff) & Maximum Loading (ff) & Power Consumption (nW/MHz)**

Version	Input Capacitance		Maximum Loading	Power Consumption
	I1	I2	O	O
XNR2XLP	1.853	2.432	94.10	4.231
XNR2X1	2.518	3.218	134.4	5.437
XNR2X1P	3.492	4.652	188.6	7.736
XNR2X2	4.876	6.490	269.3	10.10
XNR2X3	7.224	8.168	405.4	14.78
XNR2X4	9.629	12.74	539.5	19.55
XNR2X6	14.43	16.08	811.0	28.84

**AC Characteristics ( Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ps)**

Version : XNR2XLP

Cell Unit = 10

State	Path	Output Load											
		1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
I1		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0	I2-O	32.76	14.20	43.88	20.23	62.61	32.66	106.9	58.97	224.9	120.0	521.5	272.5
1	I2-O	32.24	43.35	38.58	47.50	54.39	57.10	96.52	80.24	210.8	139.0	505.3	290.5
I2		1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0	I1-O	50.74	28.19	59.37	33.27	80.25	44.59	129.3	70.39	247.6	131.7	543.9	285.0
1	I1-O	49.97	53.95	57.96	58.52	77.61	69.08	125.0	93.97	243.3	155.0	539.6	307.9



Version : XNR2X1

Cell Unit = 10

State	Output Load													
I1	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0	I2-O	28.50	12.52	36.62	17.09	51.14	26.69	81.83	46.49	163.8	90.89	371.7	200.1	
1	I2-O	29.69	39.72	34.24	42.68	45.81	49.66	75.01	66.03	152.8	107.8	358.0	215.7	
I2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0	I1-O	45.63	26.17	51.78	30.01	66.76	38.52	102.0	57.65	185.0	102.1	392.4	212.1	
1	I1-O	44.77	49.26	50.70	52.61	64.61	60.33	98.20	78.32	180.8	122.4	388.2	231.8	

Version : XNR2X1P

Cell Unit = 16

State	Output Load													
I1	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0	I2-O	30.00	12.73	35.92	15.98	47.08	23.17	68.31	37.94	126.1	69.94	274.5	146.3	
1	I2-O	30.96	39.77	34.02	41.90	41.78	46.95	62.39	58.67	116.1	87.63	260.9	162.4	
I2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0	I1-O	46.06	25.21	50.52	27.92	61.36	34.12	87.03	47.88	147.0	79.74	295.1	156.6	
1	I1-O	43.04	47.85	47.26	50.20	57.04	55.66	80.95	68.48	140.5	99.33	288.7	175.8	

Version : XNR2X2

Cell Unit = 16

State	Output Load													
I1	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0	I2-O	26.84	11.67	31.05	14.14	40.42	19.64	56.11	31.02	95.42	55.00	199.0	110.0	
1	I2-O	29.52	37.58	31.73	39.13	37.44	42.77	51.34	51.34	88.58	72.01	188.0	124.9	
I2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0	I1-O	41.91	23.68	45.09	25.72	52.85	30.37	71.46	40.75	114.1	64.24	217.7	119.8	
1	I1-O	39.27	44.01	42.16	45.72	49.15	49.72	66.41	59.08	107.9	81.38	211.8	136.3	

Version : XNR2X3

Cell Unit = 21

State	Output Load													
I1	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0	I2-O	24.58	10.29	28.14	12.47	37.66	17.80	57.06	29.99	101.2	57.42	233.1	127.6	
1	I2-O	31.43	42.00	33.12	43.37	37.85	46.96	51.37	55.91	92.62	79.35	219.5	146.5	
I2	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0	I1-O	39.83	22.78	42.41	24.52	49.44	28.94	68.47	39.73	117.2	66.40	249.1	136.9	
1	I1-O	38.04	43.24	40.27	44.68	46.86	48.42	64.39	58.03	111.4	83.36	243.7	153.2	

Version : XNR2X4

Cell Unit = 27

State	Output Load													
I1	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0	I2-O	24.39	10.16	26.95	11.75	33.82	15.77	47.11	25.23	80.08	46.61	179.1	99.83	
1	I2-O	27.66	35.75	29.04	36.73	32.88	39.25	43.90	45.94	74.91	63.44	168.9	113.9	
I2	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0	I1-O	40.01	22.42	41.95	23.71	47.32	27.07	61.82	35.38	98.98	55.91	198.3	109.2	
1	I1-O	37.28	42.56	38.96	43.63	43.88	46.46	57.03	53.78	92.89	72.94	191.8	125.5	

Version : XNR2X6

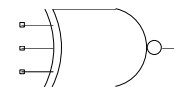
Cell Unit = 37

State	Output Load													
I1	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0	I2-O	24.23	10.04	26.22	11.30	31.97	14.68	47.09	23.27	77.16	43.43	171.8	95.22	
1	I2-O	30.84	41.24	31.79	42.00	34.63	44.19	43.25	50.10	70.45	66.33	159.9	114.5	
I2	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0	I1-O	39.05	22.23	40.49	23.22	44.76	25.99	57.15	33.32	91.50	52.28	187.6	104.1	
1	I1-O	36.55	41.90	37.85	42.70	41.68	45.00	52.77	51.31	85.51	68.82	181.5	119.8	

Group Name : XNR3

Symbol

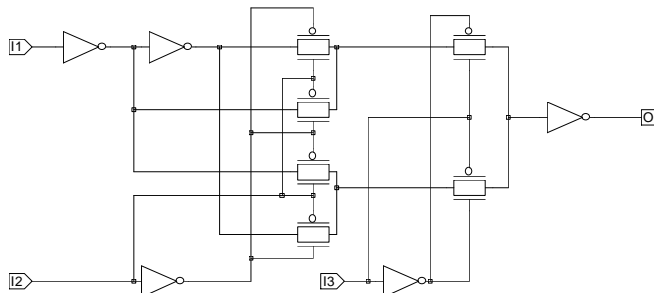
Function : Exclusive NR3



Truth Table

I1	I2	I3	O
0	0	0	1
0	0	1	0
0	1	0	0
0	1	1	1
1	0	0	0
1	0	1	1
1	1	0	1
1	1	1	0

Schematic



Pin Order O I1 I2 I3

Input Capacitance (ff) &amp; Maximum Loading (ff) &amp; Power Consumption (nW/MHz)

Version	Input Capacitance			Maximum Loading	Power Consumption
	I1	I2	I3	O	O
XNR3XLP	1.196	3.345	1.927	127.4	7.033
XNR3X1	1.542	4.029	2.080	212.4	9.276
XNR3X1P	1.633	4.118	2.322	295.3	11.05
XNR3X2	1.551	4.105	2.164	424.4	13.60
XNR3X3	1.553	4.110	2.228	634.6	18.94

## AC Characteristics ( Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ps)

Version : XNR3XLP

Cell Unit = 20

State	Output Load													
	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 0	I3-O	74.50	45.75	84.81	52.54	107.1	66.07	156.6	92.57	276.0	145.8	575.0	263.0	
0 1	I3-O	47.89	49.96	58.38	56.31	81.03	69.02	131.1	94.65	250.6	147.0	549.6	263.5	
1 0	I3-O	47.58	50.37	58.08	56.77	80.81	69.55	131.0	95.21	250.6	147.4	549.5	263.7	
1 1	I3-O	74.22	46.06	84.55	52.91	106.9	66.51	156.6	93.04	276.1	146.1	575.1	263.1	
I1 I3	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
0 0	I2-O	94.30	63.24	104.8	70.89	127.2	85.80	176.7	113.6	296.0	167.3	595.0	284.3	
0 1	I2-O	76.05	75.84	86.77	83.62	109.7	98.70	159.6	126.9	279.1	181.3	578.0	298.8	
1 0	I2-O	69.58	72.79	80.16	80.39	102.8	95.13	152.7	122.7	272.1	176.2	571.1	292.8	
1 1	I2-O	95.29	68.08	106.0	76.04	128.8	91.32	178.8	119.6	298.3	173.8	597.2	291.0	
I2 I3	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
0 0	I1-O	127.3	107.0	137.8	114.7	160.3	129.7	209.9	157.5	329.2	211.0	628.1	327.6	
0 1	I1-O	90.59	88.30	101.3	96.77	124.3	112.8	174.4	142.0	294.0	197.2	592.9	314.9	
1 0	I1-O	87.13	84.92	97.75	93.09	120.5	108.7	170.3	137.1	289.8	191.4	588.7	308.5	
1 1	I1-O	127.4	109.0	138.0	117.1	160.7	132.5	210.5	160.9	330.0	215.2	628.9	332.5	

Version : XNR3X1

Cell Unit = 20

State	Output Load													
I1 I2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 0	I3-O	70.99	48.07	77.42	53.19	91.50	63.38	122.2	83.08	194.1	121.3	372.6	199.9	
0 1	I3-O	41.91	52.04	48.45	56.63	62.76	66.02	93.92	84.74	165.9	122.0	344.5	199.8	
1 0	I3-O	41.67	52.48	48.20	57.10	62.54	66.56	93.79	85.37	165.9	122.5	344.5	200.1	
1 1	I3-O	70.78	48.40	77.21	53.57	91.32	63.80	122.2	83.60	194.1	121.8	372.6	200.2	
I1 I3	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 0	I2-O	86.60	62.70	93.23	68.32	107.5	79.54	138.4	100.7	210.1	139.9	388.6	218.6	
0 1	I2-O	64.48	77.05	71.25	82.70	85.86	94.05	117.2	115.3	189.2	154.8	367.6	234.0	
1 0	I2-O	60.06	74.87	66.69	80.39	81.07	91.45	112.2	112.3	184.1	151.1	362.7	229.4	
1 1	I2-O	86.46	66.88	93.15	72.68	107.6	84.22	138.8	105.6	210.7	145.0	389.2	224.0	
I2 I3	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 0	I1-O	116.5	100.1	123.1	105.7	137.4	117.1	168.3	138.3	240.1	177.3	418.6	255.7	
0 1	I1-O	76.71	88.21	83.43	94.45	98.01	106.7	129.3	129.2	201.4	169.6	379.9	249.3	
1 0	I1-O	74.68	85.39	81.34	91.43	95.79	103.4	126.9	125.3	198.9	165.1	377.4	244.2	
1 1	I1-O	115.4	102.6	122.1	108.5	136.5	120.2	167.5	141.7	239.5	181.2	418.0	260.3	

Version : XNR3X1P

Cell Unit = 21

State		Output Load											
I1 I2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0	I3-O	74.74	50.23	79.81	54.56	91.03	63.26	115.0	80.00	168.2	111.5	297.3	172.4
0 1	I3-O	44.95	54.97	50.12	58.79	61.53	66.70	85.82	82.24	139.4	112.5	268.6	172.6
1 0	I3-O	44.64	55.49	49.81	59.34	61.23	67.31	85.61	82.93	139.3	113.2	268.5	173.1
1 1	I3-O	74.48	50.60	79.55	54.96	90.79	63.73	114.8	80.53	168.2	112.0	297.3	172.7
I1 I3	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0	I2-O	92.44	65.65	97.59	70.25	108.9	79.61	133.1	97.44	186.3	130.0	315.2	191.5
0 1	I2-O	69.05	81.93	74.29	86.54	85.86	95.96	110.3	113.8	163.8	146.4	292.9	208.1
1 0	I2-O	64.93	81.00	70.13	85.52	81.58	94.75	105.8	112.3	159.4	144.4	288.5	205.4
1 1	I2-O	91.67	69.68	96.89	74.38	108.4	83.95	132.7	102.0	186.2	134.6	315.2	196.1
I2 I3	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0	I1-O	121.3	103.7	126.5	108.3	137.9	117.7	162.0	135.5	215.3	167.9	344.4	229.0
0 1	I1-O	80.34	91.21	85.57	96.23	97.11	106.4	121.5	125.3	175.1	158.9	304.3	221.2
1 0	I1-O	78.99	88.90	84.17	93.76	95.65	103.7	119.9	122.2	173.5	155.3	302.5	217.2
1 1	I1-O	120.0	106.1	125.2	110.8	136.7	120.4	160.9	138.6	214.4	171.4	343.5	232.8

Version : XNR3X2

Cell Unit = 24

State		Output Load											
I1 I2	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0	I3-O	77.23	55.64	81.75	59.72	93.03	69.06	119.5	88.81	183.0	128.1	353.9	210.1
0 1	I3-O	50.99	62.36	55.51	66.09	66.85	74.77	93.49	93.52	157.1	132.2	328.0	214.1
1 0	I3-O	50.73	62.69	55.24	66.45	66.60	75.17	93.31	93.98	157.1	132.7	328.0	214.3
1 1	I3-O	77.04	55.88	81.56	59.97	92.85	69.35	119.3	89.19	183.0	128.4	353.9	210.3
I1 I3	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0	I2-O	97.45	72.87	102.0	77.15	113.3	86.97	139.8	107.8	203.4	148.5	374.2	231.4
0 1	I2-O	72.83	87.62	77.41	91.86	88.86	101.6	115.6	122.1	179.3	162.3	350.1	244.9
1 0	I2-O	71.34	90.08	75.90	94.27	87.31	104.0	114.0	124.5	177.8	164.8	348.7	247.3
1 1	I2-O	94.95	75.18	99.50	79.47	110.9	89.33	137.4	110.1	200.9	150.4	371.8	232.8
I2 I3	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0	I1-O	129.0	114.1	133.6	118.4	144.9	128.2	171.5	148.9	235.1	189.5	406.0	272.2
0 1	I1-O	84.53	97.98	89.08	102.5	100.5	112.8	127.1	134.2	190.9	175.3	361.8	258.4
1 0	I1-O	85.37	98.06	89.92	102.5	101.3	112.8	128.0	134.0	191.9	175.2	362.7	258.5
1 1	I1-O	127.5	115.7	132.1	120.0	143.5	129.9	170.0	150.7	233.5	191.1	404.4	273.6

Version : XNR3X3

Cell Unit = 25

State	Output Load													
I1 I2	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 0	I3-O	86.53	65.28	89.96	68.72	99.41	77.17	123.7	96.60	183.8	137.3	350.0	223.2	
0 1	I3-O	62.04	72.84	65.45	75.98	74.94	84.15	99.25	103.0	159.5	143.3	325.7	229.1	
1 0	I3-O	61.72	73.31	65.14	76.46	74.64	84.66	99.02	103.6	159.4	143.8	325.7	229.4	
1 1	I3-O	86.34	65.58	89.77	68.87	99.26	77.35	123.6	96.93	183.7	137.5	350.0	223.2	
I1 I3	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 0	I2-O	107.5	83.11	110.9	86.42	120.4	95.11	144.7	115.0	204.7	156.6	370.9	243.2	
0 1	I2-O	83.97	99.72	87.42	103.0	96.92	111.7	121.3	131.5	181.4	172.8	347.6	259.0	
1 0	I2-O	82.10	102.0	85.54	105.3	95.06	113.9	119.5	133.6	179.7	174.8	346.0	261.0	
1 1	I2-O	104.8	85.53	108.2	88.86	117.7	97.58	142.0	117.5	202.1	158.8	368.2	244.8	
I2 I3	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 0	I1-O	139.4	125.0	142.8	128.3	152.3	137.0	176.6	156.8	236.8	198.1	403.0	284.5	
0 1	I1-O	94.72	109.7	98.21	113.2	107.7	122.0	132.0	142.3	192.2	184.3	358.5	270.9	
1 0	I1-O	95.69	109.5	99.14	112.9	108.7	121.7	133.0	141.9	193.4	183.8	359.6	270.7	
1 1	I1-O	137.8	126.7	141.2	130.0	150.7	138.7	175.0	158.6	234.9	200.1	401.2	286.2	



Group Name : XNR4

Symbol

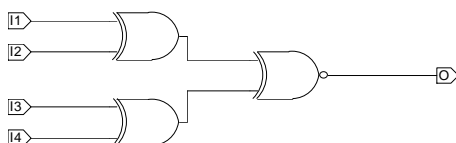
Function : Exclusive NR4

Truth Table

I1	I2	I3	I4	O
EVEN PARITY				1
ODD PARITY				0



Schematic



Pin Order O I1 I2 I3 I4

Input Capacitance (ff) &amp; Maximum Loading (ff) &amp; Power Consumption (nW/MHz)

Version	Input Capacitance				Maximum Loading	Power Consumption
	I1	I2	I3	I4	O	O
XNR4XLP	1.065	2.168	1.079	2.198	147.4	6.676
XNR4X1	1.723	2.638	1.732	2.676	212.6	9.474
XNR4X1P	1.782	2.570	1.791	2.603	295.1	11.41
XNR4X2	1.774	2.471	1.749	2.497	424.6	13.43
XNR4X3	1.790	2.479	1.754	2.496	635.1	18.23

## AC Characteristics ( Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ps)

Version : XNR4XLP

Cell Unit = 22

State		Output Load											
I1 I2 I3	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0	I4-O	113.0	115.9	122.1	122.1	141.8	134.2	185.2	157.0	288.5	202.1	546.7	303.3
0 0 1	I4-O	83.37	132.5	92.51	138.8	112.2	150.9	155.5	173.7	258.9	218.7	517.0	319.9
0 1 0	I4-O	88.38	103.4	96.38	109.9	114.1	123.3	155.7	150.0	258.7	203.1	516.9	312.9
0 1 1	I4-O	106.7	73.99	114.7	80.52	132.4	93.89	174.1	120.7	277.0	173.8	535.1	283.6
1 0 0	I4-O	88.39	103.9	96.38	110.5	114.1	124.0	155.7	150.9	258.8	203.9	516.9	313.3
1 0 1	I4-O	106.7	74.46	114.7	81.07	132.4	94.60	174.1	121.6	277.0	174.6	535.1	283.9
1 1 0	I4-O	112.7	115.9	121.8	122.1	141.7	134.2	185.2	157.0	288.6	202.1	546.8	303.2
1 1 1	I4-O	83.05	132.5	92.22	138.7	112.0	150.9	155.5	173.7	259.0	218.7	517.1	319.9
I1 I2 I4	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0	I3-O	118.0	149.7	127.2	155.9	146.9	168.1	190.2	190.9	293.6	235.9	551.7	337.1
0 0 1	I3-O	94.21	138.5	103.3	144.8	123.0	156.9	166.3	179.6	269.7	224.6	527.9	325.8
0 1 0	I3-O	123.9	108.5	131.9	115.0	149.5	128.4	191.2	155.2	294.2	208.3	552.3	318.1
0 1 1	I3-O	111.6	84.56	119.7	91.08	137.3	104.5	179.0	131.2	282.0	184.3	540.1	294.1
1 0 0	I3-O	123.9	109.0	131.9	115.6	149.5	129.1	191.2	156.1	294.2	209.1	552.3	318.5
1 0 1	I3-O	111.6	85.02	119.7	91.63	137.3	105.2	179.0	132.2	282.0	185.1	540.1	294.4
1 1 0	I3-O	117.7	149.7	126.9	155.9	146.7	168.1	190.2	190.8	293.7	235.9	551.8	337.1
1 1 1	I3-O	93.89	138.5	103.0	144.7	122.9	156.9	166.3	179.6	269.8	224.6	528.0	325.8
I1 I3 I4	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0	I2-O	99.90	77.32	109.2	85.96	129.1	102.9	172.6	134.4	275.9	191.6	534.1	303.4
0 0 1	I2-O	89.44	126.2	97.47	132.6	115.2	144.9	156.7	168.0	259.9	213.2	518.1	314.4
0 1 0	I2-O	89.46	126.2	97.50	132.6	115.2	144.8	156.8	168.0	259.9	213.2	518.1	314.4
0 1 1	I2-O	99.90	77.32	109.2	85.96	129.1	102.9	172.6	134.4	275.9	191.6	534.1	303.4
1 0 0	I2-O	71.04	114.8	80.39	123.7	100.4	141.1	144.1	173.0	247.4	230.4	505.5	342.0
1 0 1	I2-O	108.9	96.65	116.9	103.0	134.6	115.4	176.3	138.5	279.3	183.7	537.5	284.9
1 1 0	I2-O	108.9	96.62	117.0	103.0	134.7	115.4	176.3	138.5	279.3	183.7	537.5	284.9
1 1 1	I2-O	71.04	114.8	80.39	123.7	100.4	141.1	144.1	173.0	247.4	230.4	505.5	342.0
I2 I3 I4	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0	I1-O	104.3	131.5	113.6	140.4	133.5	157.8	176.9	189.7	280.3	247.1	538.6	358.7
0 0 1	I1-O	125.7	130.4	133.7	136.8	151.4	149.1	193.0	172.2	296.1	217.4	554.3	318.6
0 1 0	I1-O	125.7	130.4	133.7	136.7	151.4	149.1	193.0	172.1	296.1	217.4	554.3	318.6
0 1 1	I1-O	104.3	131.5	113.6	140.4	133.5	157.8	176.9	189.7	280.3	247.1	538.6	358.7
1 0 0	I1-O	79.34	104.1	88.69	112.8	108.7	129.8	152.4	161.5	255.7	218.8	513.7	330.8
1 0 1	I1-O	112.3	106.4	120.4	112.7	138.1	125.1	179.8	148.2	282.8	193.4	540.9	294.6
1 1 0	I1-O	112.3	106.4	120.4	112.7	138.1	125.1	179.8	148.2	282.8	193.4	541.0	294.6
1 1 1	I1-O	79.34	104.1	88.69	112.8	108.7	129.8	152.4	161.5	255.7	218.8	513.7	330.8

Version : XNR4X1

Cell Unit = 23

State		Output Load													
I1 I2 I3	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff			
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl		
0 0 0	I4-O	116.5	102.5	122.9	106.8	137.0	115.4	167.8	131.9	239.7	164.5	418.3	237.3		
0 0 1	I4-O	79.16	107.4	85.59	111.8	99.70	120.4	130.5	136.8	202.4	169.4	381.0	242.2		
0 1 0	I4-O	79.29	101.1	85.06	105.6	97.71	114.9	126.9	133.5	198.4	171.3	377.0	250.2		
0 1 1	I4-O	85.51	64.04	91.29	68.57	103.9	77.83	133.1	96.67	204.5	134.1	383.1	213.0		
1 0 0	I4-O	79.31	101.7	85.07	106.3	97.72	115.6	126.9	134.4	198.4	172.1	377.0	250.7		
1 0 1	I4-O	85.52	64.62	91.30	69.21	104.0	78.58	133.1	97.28	204.5	134.9	383.1	213.5		
1 1 0	I4-O	116.3	102.5	122.7	106.8	136.9	115.4	167.8	131.9	239.9	164.4	418.4	237.3		
1 1 1	I4-O	78.95	107.4	85.40	111.8	99.58	120.3	130.5	136.8	202.6	169.4	381.1	242.3		
I1 I2 I4	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff			
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl		
0 0 0	I3-O	109.6	123.6	116.0	128.0	130.1	136.6	160.9	153.0	232.8	185.7	411.3	258.6		
0 0 1	I3-O	90.31	115.6	96.75	119.9	110.8	128.5	141.6	144.9	213.5	177.5	392.1	250.4		
0 1 0	I3-O	101.8	94.34	107.6	98.86	120.2	108.1	149.3	126.8	220.9	164.5	399.5	243.4		
0 1 1	I3-O	93.17	74.79	98.95	79.32	111.6	88.56	140.8	107.4	212.2	144.8	390.8	223.7		
1 0 0	I3-O	101.8	94.93	107.6	99.50	120.2	108.9	149.4	127.6	220.9	165.4	399.5	243.9		
1 0 1	I3-O	93.17	75.37	98.95	79.95	111.6	89.30	140.8	108.2	212.2	145.6	390.8	224.2		
1 1 0	I3-O	109.4	123.6	115.8	128.0	130.0	136.6	160.9	153.0	232.9	185.6	411.5	258.5		
1 1 1	I3-O	90.10	115.6	96.55	119.9	110.7	128.5	141.7	144.9	213.7	177.5	392.2	250.4		
I1 I3 I4	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff			
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl		
0 0 0	I2-O	100.2	70.09	106.9	76.23	121.4	88.42	152.4	111.3	224.4	152.6	403.0	233.4		
0 0 1	I2-O	83.84	117.6	89.63	122.1	102.3	130.8	131.4	147.4	202.9	180.1	381.4	253.0		
0 1 0	I2-O	83.88	117.6	89.66	122.0	102.3	130.7	131.4	147.4	202.9	180.1	381.5	253.0		
0 1 1	I2-O	100.3	70.09	106.9	76.23	121.4	88.42	152.4	111.3	224.4	152.6	403.0	233.4		
1 0 0	I2-O	64.26	90.25	71.00	96.50	85.54	108.9	116.8	132.0	188.8	173.4	367.3	254.0		
1 0 1	I2-O	92.10	81.04	97.87	85.50	110.5	94.33	139.6	110.8	211.1	143.7	389.7	216.4		
1 1 0	I2-O	92.13	81.02	97.90	85.48	110.5	94.31	139.7	110.7	211.1	143.7	389.7	216.4		
1 1 1	I2-O	64.26	90.25	71.00	96.50	85.55	108.9	116.8	132.0	188.8	173.4	367.3	254.0		
I2 I3 I4	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff			
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl		
0 0 0	I1-O	93.25	106.4	99.94	112.6	114.4	125.1	145.4	148.1	217.5	189.6	396.1	270.1		
0 0 1	I1-O	108.1	110.6	113.9	115.0	126.5	123.8	155.7	140.4	227.1	173.1	405.7	246.0		
0 1 0	I1-O	108.1	110.6	113.9	115.0	126.6	123.8	155.7	140.4	227.1	173.1	405.7	245.9		
0 1 1	I1-O	93.25	106.4	99.94	112.6	114.4	125.1	145.5	148.1	217.5	189.6	396.1	270.1		
1 0 0	I1-O	72.40	86.60	79.13	92.82	93.65	105.2	124.9	128.2	196.9	169.7	375.3	250.6		
1 0 1	I1-O	97.74	90.81	103.5	95.28	116.2	104.0	145.4	120.5	216.7	153.3	395.3	226.1		
1 1 0	I1-O	97.76	90.79	103.5	95.26	116.2	104.0	145.4	120.5	216.7	153.3	395.4	226.1		
1 1 1	I1-O	72.40	86.60	79.13	92.82	93.65	105.2	124.9	128.2	196.9	169.7	375.3	250.6		

Version : XNR4X1P

Cell Unit = 23

State		Output Load											
I1 I2 I3	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0	I4-O	118.4	100.4	123.5	103.8	134.9	110.5	159.0	123.3	212.5	148.0	341.9	200.4
0 0 1	I4-O	79.40	106.5	84.54	109.9	95.89	116.6	120.0	129.4	173.5	154.2	302.9	206.6
0 1 0	I4-O	86.51	104.9	91.02	108.6	100.8	116.4	122.6	131.8	174.6	162.4	303.8	223.6
0 1 1	I4-O	94.14	66.12	98.65	69.85	108.4	77.59	130.2	93.17	182.2	123.8	311.4	184.8
1 0 0	I4-O	86.52	105.5	91.03	109.2	100.8	117.1	122.6	132.7	174.6	163.4	303.8	224.3
1 0 1	I4-O	94.15	66.67	98.66	70.46	108.4	78.30	130.2	94.10	182.2	124.8	311.4	185.6
1 1 0	I4-O	118.1	100.4	123.2	103.8	134.6	110.5	159.0	123.3	212.6	148.0	342.1	200.4
1 1 1	I4-O	79.10	106.5	84.25	109.9	95.66	116.6	120.0	129.4	173.6	154.2	303.1	206.6
I1 I2 I4	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0	I3-O	110.3	123.3	115.4	126.6	126.7	133.3	150.9	146.1	204.4	170.9	333.8	223.3
0 0 1	I3-O	90.46	114.0	95.59	117.3	106.9	124.0	131.1	136.8	184.7	161.5	314.0	213.9
0 1 0	I3-O	111.1	96.91	115.6	100.6	125.4	108.4	147.1	123.9	199.1	154.5	328.3	215.7
0 1 1	I3-O	101.0	76.87	105.5	80.57	115.3	88.29	137.0	103.8	188.9	134.3	318.2	195.5
1 0 0	I3-O	111.1	97.46	115.6	101.2	125.4	109.1	147.1	124.8	199.1	155.5	328.3	216.4
1 0 1	I3-O	101.0	77.43	105.5	81.16	115.3	88.97	137.0	104.6	188.9	135.3	318.2	196.2
1 1 0	I3-O	109.9	123.2	115.1	126.6	126.5	133.3	150.9	146.1	204.6	170.9	334.0	223.3
1 1 1	I3-O	90.16	113.9	95.30	117.3	106.7	124.0	131.0	136.8	184.8	161.5	314.2	213.9
I1 I3 I4	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0	I2-O	107.5	73.95	112.8	78.90	124.3	89.07	148.6	108.2	202.3	142.7	331.6	206.3
0 0 1	I2-O	89.59	119.3	94.12	122.8	104.0	129.7	125.7	142.7	177.6	167.6	307.0	220.1
0 1 0	I2-O	89.62	119.3	94.15	122.8	104.0	129.6	125.8	142.6	177.7	167.6	307.0	220.1
0 1 1	I2-O	107.5	73.94	112.8	78.89	124.3	89.07	148.6	108.2	202.3	142.7	331.6	206.3
1 0 0	I2-O	69.47	98.26	74.72	103.3	86.32	113.5	110.8	133.0	164.5	167.6	293.9	231.1
1 0 1	I2-O	98.98	81.00	103.5	84.39	113.4	91.24	135.1	104.3	187.1	129.3	316.4	181.8
1 1 0	I2-O	99.01	80.98	103.5	84.37	113.4	91.22	135.1	104.3	187.1	129.3	316.4	181.7
1 1 1	I2-O	69.47	98.26	74.72	103.3	86.32	113.5	110.8	133.0	164.5	167.6	293.9	231.1
I2 I3 I4	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0	I1-O	99.67	115.4	104.9	120.4	116.4	130.7	140.8	150.1	194.4	184.8	323.9	248.3
0 0 1	I1-O	115.9	111.6	120.4	115.0	130.3	121.8	152.1	134.9	203.9	159.9	333.3	212.3
0 1 0	I1-O	115.9	111.5	120.5	115.0	130.4	121.8	152.1	134.9	204.0	159.8	333.3	212.3
0 1 1	I1-O	99.67	115.4	104.9	120.4	116.4	130.7	140.8	150.1	194.4	184.7	323.9	248.3
1 0 0	I1-O	77.78	92.00	83.03	96.97	94.61	107.1	119.1	126.5	172.8	161.1	302.1	224.9
1 0 1	I1-O	104.4	91.04	109.0	94.47	118.8	101.4	140.6	114.4	192.5	139.4	321.8	191.8
1 1 0	I1-O	104.5	91.02	109.0	94.45	118.9	101.3	140.6	114.4	192.6	139.4	321.9	191.8
1 1 1	I1-O	77.78	91.99	83.03	96.97	94.61	107.1	119.1	126.5	172.8	161.1	302.1	224.9

Version : XNR4X2

Cell Unit = 28

State		Output Load											
I1 I2 I3	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0	I4-O	126.8	117.0	131.3	120.4	142.4	128.2	168.6	144.3	231.9	177.0	402.7	250.2
0 0 1	I4-O	87.15	121.9	91.65	125.4	102.8	133.2	128.9	149.3	192.3	182.1	363.1	255.3
0 1 0	I4-O	90.04	115.4	94.09	119.0	104.0	127.7	127.6	146.4	188.9	185.5	359.5	268.3
0 1 1	I4-O	96.26	75.96	100.3	79.65	110.2	88.26	133.7	107.1	195.0	146.2	365.7	229.0
1 0 0	I4-O	90.06	115.9	94.11	119.7	104.0	128.3	127.6	147.3	188.9	186.4	359.5	268.8
1 0 1	I4-O	96.28	76.54	100.3	80.26	110.2	88.96	133.7	107.9	195.0	147.0	365.7	229.5
1 1 0	I4-O	126.6	116.9	131.1	120.4	142.2	128.2	168.5	144.3	232.0	177.0	402.9	250.2
1 1 1	I4-O	86.90	121.9	91.40	125.4	102.6	133.2	129.0	149.3	192.4	182.1	363.2	255.3
I1 I2 I4	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0	I3-O	118.5	140.0	123.0	143.5	134.1	151.3	160.3	167.4	223.5	200.1	394.4	273.3
0 0 1	I3-O	98.25	129.9	102.7	133.3	113.9	141.1	140.0	157.2	203.3	189.9	374.1	263.1
0 1 0	I3-O	114.4	107.1	118.5	110.9	128.4	119.5	151.9	138.3	213.1	177.4	383.9	260.2
0 1 1	I3-O	104.0	86.61	108.1	90.29	117.9	98.95	141.5	117.7	202.7	156.7	373.4	239.5
1 0 0	I3-O	114.4	107.7	118.5	111.5	128.4	120.2	152.0	139.2	213.1	178.3	383.9	260.7
1 0 1	I3-O	104.0	87.22	108.1	90.90	118.0	99.63	141.5	118.6	202.7	157.5	373.4	240.0
1 1 0	I3-O	118.3	140.0	122.7	143.5	133.9	151.3	160.3	167.3	223.7	200.1	394.6	273.3
1 1 1	I3-O	97.99	129.9	102.5	133.3	113.7	141.1	140.0	157.2	203.5	189.9	374.3	263.1
I1 I3 I4	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0	I2-O	110.9	78.94	115.4	83.42	126.7	93.72	153.1	115.4	216.5	157.6	387.5	242.2
0 0 1	I2-O	92.63	135.2	96.72	138.6	106.7	146.5	130.3	162.8	191.5	195.6	362.3	268.8
0 1 0	I2-O	92.66	135.2	96.75	138.6	106.7	146.5	130.3	162.7	191.6	195.6	362.3	268.8
0 1 1	I2-O	110.9	78.94	115.4	83.42	126.7	93.72	153.1	115.4	216.5	157.6	387.5	242.2
1 0 0	I2-O	72.40	104.4	76.93	108.9	88.25	119.3	114.7	141.2	178.3	183.5	349.1	268.1
1 0 1	I2-O	100.6	96.01	104.7	99.47	114.7	107.3	138.3	123.5	199.6	156.3	370.3	229.6
1 1 0	I2-O	100.7	96.00	104.8	99.46	114.7	107.3	138.4	123.5	199.6	156.3	370.3	229.6
1 1 1	I2-O	72.40	104.4	76.94	108.9	88.25	119.3	114.7	141.2	178.3	183.5	349.1	268.1
I2 I3 I4	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0	I1-O	103.0	122.9	107.5	127.4	118.8	137.8	145.2	159.7	208.7	202.0	379.6	286.6
0 0 1	I1-O	119.0	127.2	123.1	130.7	133.1	138.5	156.7	154.7	218.0	187.5	388.6	260.8
0 1 0	I1-O	119.0	127.2	123.1	130.7	133.1	138.5	156.7	154.7	218.0	187.5	388.7	260.8
0 1 1	I1-O	103.0	122.9	107.5	127.4	118.8	137.8	145.2	159.7	208.7	202.0	379.6	286.6
1 0 0	I1-O	80.47	96.62	85.00	101.1	96.32	111.4	122.7	133.2	186.3	175.5	357.1	260.3
1 0 1	I1-O	106.6	106.1	110.7	109.6	120.7	117.5	144.3	133.7	205.6	166.5	376.3	239.8
1 1 0	I1-O	106.7	106.1	110.8	109.6	120.8	117.5	144.3	133.6	205.6	166.5	376.3	239.7
1 1 1	I1-O	80.47	96.62	85.00	101.1	96.32	111.4	122.7	133.2	186.3	175.5	357.1	260.3

Version : XNR4X3

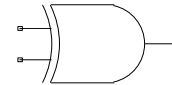
Cell Unit = 30

State		Output Load											
I1 I2 I3	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0	I4-O	135.0	130.0	138.4	132.7	147.9	139.8	171.9	155.6	231.5	189.1	397.6	263.9
0 0 1	I4-O	95.37	134.9	98.76	137.7	108.2	144.7	132.2	160.6	191.8	194.1	357.9	269.0
0 1 0	I4-O	98.74	124.3	101.9	127.4	110.3	135.6	131.6	154.6	188.0	195.6	353.3	282.6
0 1 1	I4-O	104.9	84.91	108.0	88.05	116.4	96.23	137.7	115.2	194.0	156.3	359.3	243.3
1 0 0	I4-O	98.75	125.0	101.9	128.1	110.4	136.4	131.7	155.4	188.0	196.4	353.3	282.9
1 0 1	I4-O	104.9	85.61	108.0	88.77	116.5	97.01	137.8	116.0	194.0	157.0	359.3	243.6
1 1 0	I4-O	134.7	130.0	138.2	132.7	147.6	139.8	171.8	155.6	231.6	189.1	397.7	263.9
1 1 1	I4-O	95.10	134.9	98.50	137.7	108.0	144.7	132.2	160.5	191.9	194.1	358.0	268.9
I1 I2 I4	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0	I3-O	126.6	153.0	130.1	155.7	139.5	162.7	163.5	178.6	223.2	212.1	389.2	286.9
0 0 1	I3-O	106.4	142.8	109.8	145.6	119.2	152.6	143.3	168.4	202.8	201.9	369.0	276.8
0 1 0	I3-O	123.0	116.1	126.1	119.2	134.6	127.3	155.9	146.4	212.1	187.5	377.4	274.5
0 1 1	I3-O	112.8	95.56	115.9	98.74	124.4	106.8	145.7	125.7	201.9	166.9	367.2	253.9
1 0 0	I3-O	123.0	116.8	126.1	119.9	134.6	128.1	155.9	147.2	212.1	188.2	377.4	274.8
1 0 1	I3-O	112.8	96.25	115.9	99.46	124.4	107.6	145.7	126.6	201.9	167.6	367.2	254.2
1 1 0	I3-O	126.4	152.9	129.8	155.7	139.3	162.7	163.4	178.6	223.3	212.1	389.4	286.9
1 1 1	I3-O	106.1	142.8	109.6	145.6	119.0	152.6	143.2	168.4	202.9	201.9	369.2	276.7
I1 I3 I4	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0	I2-O	120.6	89.03	124.0	92.56	133.5	101.6	157.6	122.3	217.4	165.3	383.4	253.7
0 0 1	I2-O	101.0	149.0	104.2	151.7	112.7	158.9	134.1	174.7	190.4	208.4	355.8	283.2
0 1 0	I2-O	101.0	149.0	104.2	151.7	112.7	158.8	134.2	174.7	190.4	208.4	355.8	283.2
0 1 1	I2-O	120.6	89.03	124.0	92.56	133.5	101.6	157.6	122.3	217.4	165.3	383.4	253.7
1 0 0	I2-O	82.14	119.5	85.57	123.0	95.03	132.0	119.2	152.8	179.0	196.0	345.1	284.4
1 0 1	I2-O	109.3	109.9	112.4	112.7	121.0	119.7	142.4	135.7	198.7	169.3	364.0	244.1
1 1 0	I2-O	109.3	109.9	112.4	112.7	121.0	119.7	142.4	135.6	198.8	169.3	364.1	244.1
1 1 1	I2-O	82.14	119.5	85.57	123.0	95.03	132.0	119.2	152.8	179.0	196.0	345.1	284.4
I2 I3 I4	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0	I1-O	112.7	138.1	116.1	141.5	125.6	150.6	149.7	171.3	209.4	214.5	375.6	302.9
0 0 1	I1-O	127.7	141.0	130.9	143.8	139.5	150.8	160.9	166.7	217.1	200.4	382.5	275.2
0 1 0	I1-O	127.8	141.0	130.9	143.7	139.5	150.8	160.9	166.7	217.2	200.4	382.5	275.2
0 1 1	I1-O	112.7	138.1	116.1	141.5	125.6	150.6	149.7	171.3	209.4	214.5	375.6	302.9
1 0 0	I1-O	89.90	107.4	93.34	110.9	102.8	119.9	126.9	140.6	186.7	183.8	352.8	272.3
1 0 1	I1-O	115.0	119.9	118.2	122.7	126.8	129.8	148.2	145.7	204.4	179.2	369.8	254.1
1 1 0	I1-O	115.1	119.9	118.2	122.7	126.8	129.7	148.2	145.7	204.5	179.2	369.8	254.1
1 1 1	I1-O	89.90	107.4	93.34	110.9	102.8	119.9	126.9	140.6	186.7	183.8	352.8	272.3

Group Name : XOR2

Symbol

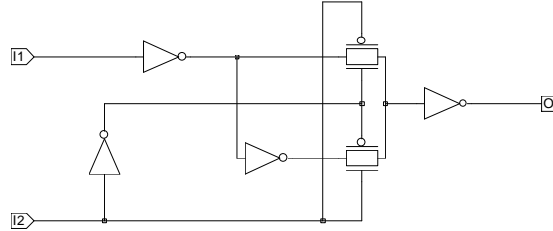
Function : Exclusive OR2



Truth Table

I1	I2	O
0	0	0
0	1	1
1	0	1
1	1	0

Schematic



Pin Order O I1 I2

**Input Capacitance (ff) & Maximum Loading (ff) & Power Consumption (nW/MHz)**

Version	Input Capacitance		Maximum Loading	Power Consumption
	I1	I2	O	O
XOR2XLP	1.849	2.455	93.66	4.317
XOR2X1	2.478	3.209	133.9	5.392
XOR2X1P	3.586	4.638	187.8	7.827
XOR2X2	4.928	6.427	268.3	10.07
XOR2X3	7.317	8.127	402.9	14.74
XOR2X4	9.721	12.66	537.1	19.56
XOR2X6	14.47	16.08	805.3	29.34

**AC Characteristics ( Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ps)**

Version : XOR2XLP

Cell Unit = 10

State	Path	Output Load											
		1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
I1		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0	I2-O	31.77	43.84	37.94	48.05	53.73	57.73	95.75	80.83	210.4	139.3	505.3	290.7
1	I2-O	33.59	13.96	44.89	19.95	64.04	32.30	108.6	58.63	225.9	119.8	522.2	272.3
I2		1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
	Path	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0	I1-O	49.75	55.62	57.61	60.34	77.27	71.07	124.5	96.30	242.9	157.4	539.2	310.6
1	I1-O	51.85	27.45	60.48	32.45	81.14	43.68	130.2	69.57	249.0	131.2	545.4	284.1

Version : XOR2X1

Cell Unit = 10

State	Output Load													
I1	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0	I2-O	29.20	39.92	33.69	42.93	45.17	49.96	74.18	66.33	152.6	108.0	358.0	215.7	
1	I2-O	29.16	12.25	37.40	16.80	52.16	26.36	83.38	46.13	164.8	90.62	372.0	199.9	
I2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0	I1-O	42.93	49.43	48.69	52.88	62.39	60.77	96.01	79.14	178.5	123.3	386.1	232.9	
1	I1-O	46.00	24.99	52.24	28.78	67.10	37.27	102.0	56.44	185.4	101.2	393.1	211.0	

Version : XOR2X1P

Cell Unit = 16

State	Output Load													
I1	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0	I2-O	30.67	40.14	33.79	42.29	41.38	47.38	61.61	59.12	115.8	87.95	261.3	162.6	
1	I2-O	31.00	12.65	36.96	15.87	48.09	22.98	70.11	37.69	127.5	69.71	275.3	146.1	
I2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0	I1-O	42.43	48.97	46.59	51.39	56.26	56.99	80.18	70.08	139.8	101.1	288.0	177.8	
1	I1-O	46.93	24.41	51.37	27.07	62.08	33.16	87.49	46.94	147.8	78.95	296.3	155.8	

Version : XOR2X2

Cell Unit = 16

State	Output Load													
I1	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0	I2-O	29.21	37.78	31.40	39.35	37.06	43.03	51.07	51.62	88.29	72.22	188.0	125.0	
1	I2-O	27.54	11.45	31.86	13.92	41.21	19.39	57.30	30.71	96.63	54.73	199.8	109.8	
I2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0	I1-O	37.49	44.30	40.17	46.06	47.18	50.19	64.38	59.75	105.9	82.27	209.7	137.4	
1	I1-O	42.49	22.66	45.70	24.66	53.44	29.29	71.73	39.66	114.6	63.33	218.5	118.8	



Version : XOR2X3

Cell Unit = 21

State	Output Load													
I1	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0	I2-O	31.30	42.24	32.96	43.62	37.51	47.25	51.02	56.25	92.34	79.64	219.7	146.6	
1	I2-O	25.21	10.07	28.86	12.25	38.50	17.56	58.08	29.68	102.5	57.13	233.5	127.3	
I2	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0	I1-O	36.53	44.31	38.72	45.82	45.04	49.73	62.35	59.71	109.4	85.51	241.6	155.8	
1	I1-O	40.93	21.53	43.55	23.22	50.67	27.56	69.38	38.27	118.1	65.12	250.6	135.6	

Version : XOR2X4

Cell Unit = 27

State	Output Load													
I1	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0	I2-O	27.45	35.99	28.78	36.97	32.64	39.52	43.60	46.25	74.30	63.69	168.9	114.0	
1	I2-O	25.17	10.05	27.81	11.63	34.77	15.62	48.13	24.99	81.48	46.35	179.8	99.64	
I2	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0	I1-O	36.01	43.27	37.66	44.37	42.47	47.30	55.42	54.80	91.31	74.32	190.3	127.1	
1	I1-O	40.81	21.58	42.78	22.84	48.16	26.15	62.46	34.43	99.54	55.09	199.3	108.5	

Version : XOR2X6

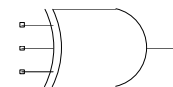
Cell Unit = 37

State	Output Load													
I1	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0	I2-O	31.17	41.92	32.09	42.69	34.84	44.90	43.19	50.85	70.57	67.16	160.4	115.1	
1	I2-O	25.50	10.21	27.54	11.45	33.34	14.78	48.22	23.29	79.00	43.37	173.0	95.23	
I2	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0	I1-O	35.29	43.07	36.51	43.91	40.17	46.30	50.95	52.88	83.48	70.93	179.5	122.3	
1	I1-O	40.46	21.21	41.93	22.15	46.23	24.84	58.52	32.07	92.48	51.17	189.2	103.2	

Group Name : XOR3

Symbol

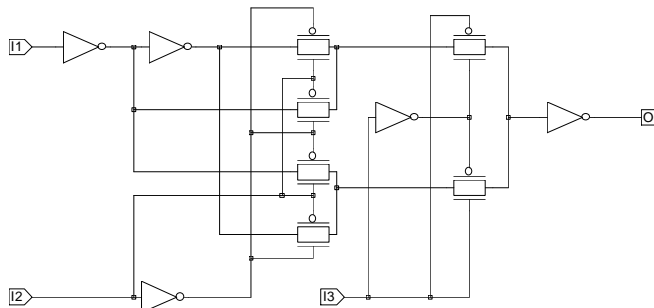
Function : Exclusive OR3



Truth Table

I1	I2	I3	O
0	0	0	0
0	0	1	1
0	1	0	1
0	1	1	0
1	0	0	1
1	0	1	0
1	1	0	0
1	1	1	1

Schematic



Pin Order O I1 I2 I3

**Input Capacitance (ff) & Maximum Loading (ff) & Power Consumption (nW/MHz)**

Version	Input Capacitance			Maximum Loading	Power Consumption
	I1	I2	I3	O	O
XOR3XLP	1.186	3.226	2.292	127.4	7.028
XOR3X1	1.528	3.834	2.633	212.4	9.306
XOR3X1P	1.619	3.919	2.802	295.3	11.01
XOR3X2	1.536	3.900	2.564	424.4	13.61
XOR3X3	1.537	3.889	2.561	634.6	18.96

AC Characteristics ( Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ps)

Version : XOR3XLP

Cell Unit = 20

State	Output Load													
	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 0	I3-O	48.29	48.62	58.67	54.90	81.06	67.51	130.8	93.12	250.3	145.8	549.2	262.7	
0 1	I3-O	73.87	46.44	84.26	53.25	106.7	66.68	156.6	92.95	276.1	145.7	575.1	262.3	
1 0	I3-O	73.53	46.94	83.93	53.84	106.5	67.34	156.5	93.68	276.0	146.2	575.0	262.5	
1 1	I3-O	48.02	48.93	58.42	55.24	80.91	67.92	130.8	93.61	250.3	146.1	549.2	262.9	
I1 I3	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
0 0	I2-O	76.36	75.54	87.06	83.26	109.9	98.27	159.8	126.4	279.4	180.8	578.3	298.3	
0 1	I2-O	93.83	63.51	104.3	71.21	126.7	86.15	176.1	113.9	295.5	167.5	594.4	284.4	
1 0	I2-O	95.56	67.57	106.3	75.47	129.1	90.70	179.0	119.0	298.5	173.2	597.4	290.4	
1 1	I2-O	68.93	72.84	79.50	80.47	102.2	95.24	152.0	122.8	271.4	176.2	570.4	292.8	
I2 I3	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff		
0 0	I1-O	90.97	88.02	101.7	96.52	124.7	112.6	174.8	141.8	294.3	196.8	593.2	314.5	
0 1	I1-O	126.7	107.4	137.2	115.2	159.7	130.2	209.2	158.0	328.5	211.3	627.5	327.9	
1 0	I1-O	127.8	108.5	138.4	116.5	161.1	131.9	210.9	160.3	330.4	214.6	629.3	331.8	
1 1	I1-O	86.43	85.04	97.05	93.19	119.8	108.7	169.6	137.1	289.0	191.4	587.9	308.5	

Version : XOR3X1

Cell Unit = 20

State		Output Load													
I1 I2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff			
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl		
0 0	I3-O	42.51	51.52	49.03	56.04	63.26	65.40	94.26	84.11	166.1	121.5	344.7	199.8		
0 1	I3-O	71.23	49.00	77.70	54.13	91.89	64.39	122.8	84.07	194.7	122.1	373.3	200.3		
1 0	I3-O	70.98	49.57	77.43	54.75	91.63	65.07	122.7	84.77	194.7	122.7	373.2	200.6		
1 1	I3-O	42.31	51.85	48.83	56.42	63.10	65.81	94.21	84.60	166.2	122.0	344.7	200.0		
I1 I3	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff			
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl		
0 0	I2-O	65.37	76.89	72.12	82.48	86.71	93.74	118.0	115.0	190.1	154.6	368.6	233.9		
0 1	I2-O	86.23	63.51	92.93	69.21	107.2	80.56	138.1	101.8	209.8	140.9	388.3	219.7		
1 0	I2-O	87.22	66.34	93.92	72.09	108.4	83.55	139.6	105.0	211.5	144.6	390.0	223.7		
1 1	I2-O	59.48	75.48	66.15	81.09	80.57	92.28	111.6	113.2	183.7	152.0	362.2	230.3		
I2 I3	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff			
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl		
0 0	I1-O	77.74	88.09	84.45	94.38	99.02	106.7	130.3	129.2	202.4	169.7	380.9	249.4		
0 1	I1-O	115.8	101.1	122.5	106.8	136.8	118.3	167.7	139.5	239.5	178.5	418.0	256.9		
1 0	I1-O	116.5	102.0	123.1	107.9	137.5	119.5	168.6	141.1	240.6	180.8	419.1	260.0		
1 1	I1-O	73.97	85.95	80.66	91.98	95.12	103.9	126.2	125.8	198.3	165.7	376.8	244.8		

Version : XOR3X1P

Cell Unit = 21

State		Output Load											
I1 I2	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0	I3-O	45.09	53.94	50.23	57.73	61.57	65.60	85.71	81.16	139.1	111.4	268.3	171.7
0 1	I3-O	73.90	50.34	78.98	54.65	90.25	63.37	114.3	80.02	167.7	111.3	296.8	171.8
1 0	I3-O	73.56	51.11	78.64	55.39	89.92	64.17	114.1	80.87	167.5	112.1	296.7	172.4
1 1	I3-O	44.84	54.33	49.99	58.15	61.36	66.05	85.60	81.70	139.1	112.0	268.3	172.1
I1 I3	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0	I2-O	69.50	81.24	74.74	85.78	86.27	95.05	110.7	112.8	164.2	145.3	293.3	207.0
0 1	I2-O	91.69	66.24	96.85	70.89	108.2	80.36	132.3	98.27	185.5	130.7	314.4	192.0
1 0	I2-O	92.10	68.75	97.29	73.40	108.8	82.84	133.0	100.7	186.5	133.4	315.5	194.9
1 1	I2-O	63.98	81.25	69.18	85.82	80.64	95.16	104.9	112.8	158.4	144.9	287.5	205.8
I2 I3	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0	I1-O	81.06	90.67	86.27	95.69	97.81	105.9	122.2	124.8	175.8	158.3	305.0	220.5
0 1	I1-O	120.2	104.4	125.4	109.0	136.7	118.5	160.9	136.4	214.2	168.7	343.2	229.6
1 0	I1-O	120.8	105.0	126.0	109.6	137.4	119.2	161.6	137.3	215.1	170.0	344.2	231.5
1 1	I1-O	77.86	89.17	83.06	94.01	94.56	103.9	118.9	122.4	172.4	155.5	301.4	217.3

Version : XOR3X2

Cell Unit = 24

State	Output Load													
I1 I2	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 0	I3-O	50.87	62.46	55.39	66.20	66.75	74.91	93.42	93.72	157.1	132.4	328.1	214.2	
0 1	I3-O	77.20	55.24	81.72	59.32	93.00	68.67	119.4	88.51	182.9	127.9	353.8	210.1	
1 0	I3-O	76.91	55.83	81.43	59.92	92.71	69.30	119.2	89.11	182.8	128.5	353.7	210.4	
1 1	I3-O	50.71	62.69	55.24	66.44	66.61	75.19	93.37	94.06	157.2	132.8	328.1	214.4	
I1 I3	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 0	I2-O	73.72	87.35	78.29	91.53	89.74	101.2	116.5	121.5	180.2	161.8	351.0	244.5	
0 1	I2-O	96.80	73.66	101.3	77.98	112.7	87.92	139.2	108.8	202.7	149.5	373.6	232.4	
1 0	I2-O	95.80	74.56	100.3	78.81	111.7	88.57	138.2	109.2	201.8	149.6	372.7	232.1	
1 1	I2-O	70.58	90.59	75.15	94.84	86.56	104.7	113.3	125.3	177.1	165.6	347.9	248.2	
I2 I3	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 0	I1-O	85.66	97.85	90.21	102.4	101.7	112.7	128.3	134.1	192.0	175.2	362.9	258.3	
0 1	I1-O	128.2	115.1	132.7	119.4	144.1	129.3	170.7	150.2	234.3	190.7	405.2	273.4	
1 0	I1-O	128.7	115.0	133.3	119.3	144.6	129.2	171.2	149.8	234.7	190.3	405.6	273.0	
1 1	I1-O	84.45	98.42	89.03	102.9	100.4	113.1	127.2	134.4	191.0	175.7	361.9	259.0	

Version : XOR3X3

Cell Unit = 25

State	Output Load													
I1 I2	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 0	I3-O	61.90	72.95	65.32	76.10	74.84	84.31	99.19	103.2	159.5	143.5	325.8	229.2	
0 1	I3-O	86.47	64.86	89.89	68.15	99.35	76.64	123.6	96.20	183.7	137.0	349.9	223.1	
1 0	I3-O	86.12	65.63	89.55	68.93	99.02	77.41	123.4	96.96	183.5	137.7	349.8	223.5	
1 1	I3-O	61.77	73.20	65.19	76.35	74.73	84.59	99.13	103.5	159.5	143.8	325.8	229.4	
I1 I3	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 0	I2-O	84.90	99.38	88.36	102.7	97.85	111.2	122.2	130.9	182.4	172.1	348.6	258.5	
0 1	I2-O	106.7	83.98	110.2	87.32	119.6	96.11	144.0	116.2	204.0	157.8	370.2	244.4	
1 0	I2-O	105.8	84.90	109.2	88.19	118.7	96.85	143.0	116.6	203.2	157.9	369.3	244.1	
1 1	I2-O	81.34	102.7	84.79	106.0	94.32	114.7	118.7	134.5	179.0	175.9	345.3	262.1	
I2 I3	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 0	I1-O	95.94	109.8	99.37	113.2	108.9	122.1	133.3	142.3	193.5	184.1	359.7	270.8	
0 1	I1-O	138.5	126.0	141.9	129.4	151.4	138.1	175.7	158.1	235.9	199.5	402.1	285.9	
1 0	I1-O	139.1	126.0	142.5	129.3	152.0	137.9	176.3	157.7	236.4	199.2	402.6	285.5	
1 1	I1-O	94.77	109.7	98.22	113.1	107.8	122.0	132.2	142.3	192.4	184.4	358.8	271.3	

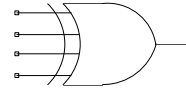
Group Name : XOR4

Symbol

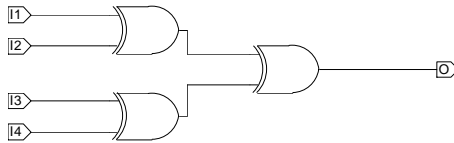
Function : Exclusive OR4

Truth Table

I1	I2	I3	I4	O
EVEN PARITY				0
ODD PARITY				1



Schematic



Pin Order O I1 I2 I3 I4

Input Capacitance (ff) &amp; Maximum Loading (ff) &amp; Power Consumption (nW/MHz)

Version	Input Capacitance				Maximum Loading	Power Consumption
	I1	I2	I3	I4	O	O
XOR4XLP	1.068	2.176	1.079	2.196	147.4	6.726
XOR4X1	1.729	2.659	1.731	2.669	212.5	9.609
XOR4X1P	1.788	2.590	1.793	2.597	295.0	11.56
XOR4X2	1.793	2.500	1.756	2.508	424.6	13.51
XOR4X3	1.795	2.499	1.756	2.508	635.1	18.40



AC Characteristics ( Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ps)

Version : XOR4XLP

Cell Unit = 22

State		Output Load											
I1 I2 I3	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0	I4-O	91.28	112.5	100.2	118.9	119.8	131.2	163.2	154.2	266.7	199.4	524.8	300.6
0 0 1	I4-O	110.0	83.22	118.9	89.56	138.4	101.9	181.8	124.9	285.3	170.1	543.4	271.3
0 1 0	I4-O	116.0	98.59	123.8	106.0	141.3	120.4	182.9	148.2	285.9	201.8	544.1	311.8
0 1 1	I4-O	86.32	115.8	94.15	123.1	111.7	137.6	153.2	165.4	256.2	218.9	514.5	329.0
1 0 0	I4-O	115.9	99.43	123.8	106.8	141.3	121.4	182.9	149.2	285.8	202.4	544.1	311.9
1 0 1	I4-O	86.29	116.6	94.12	124.0	111.7	138.5	153.2	166.3	256.2	219.6	514.4	329.0
1 1 0	I4-O	90.92	112.5	99.83	118.9	119.5	131.1	163.1	154.2	266.6	199.4	524.8	300.6
1 1 1	I4-O	109.7	83.19	118.6	89.53	138.1	101.9	181.8	124.9	285.3	170.0	543.4	271.2
I1 I2 I4	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0	I3-O	127.2	117.7	136.1	124.0	155.6	136.3	199.1	159.3	302.5	204.5	560.6	305.7
0 0 1	I3-O	114.8	93.64	123.7	100.0	143.2	112.3	186.7	135.3	290.1	180.5	548.2	281.7
0 1 0	I3-O	121.0	133.1	128.8	140.4	146.4	154.9	187.8	182.6	290.9	236.3	549.1	346.3
0 1 1	I3-O	97.06	122.7	104.9	130.0	122.5	144.4	164.0	172.1	266.9	225.6	525.2	335.5
1 0 0	I3-O	121.0	133.9	128.8	141.3	146.3	155.8	187.8	183.7	290.9	236.9	549.1	346.4
1 0 1	I3-O	97.03	123.5	104.9	130.9	122.4	145.4	164.0	173.1	266.9	226.2	525.2	335.6
1 1 0	I3-O	126.9	117.7	135.8	124.0	155.3	136.3	199.0	159.3	302.5	204.5	560.6	305.7
1 1 1	I3-O	114.4	93.61	123.3	99.98	142.9	112.3	186.6	135.3	290.1	180.5	548.2	281.7
I1 I3 I4	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0	I2-O	89.07	126.2	97.11	132.6	114.8	144.9	156.4	167.9	259.5	213.1	517.7	314.3
0 0 1	I2-O	99.74	76.72	109.0	85.32	128.9	102.1	172.4	133.5	275.7	190.6	533.9	302.4
0 1 0	I2-O	99.77	76.74	109.0	85.30	128.9	102.1	172.5	133.5	275.8	190.6	533.9	302.4
0 1 1	I2-O	89.07	126.2	97.11	132.6	114.8	144.8	156.4	167.9	259.5	213.1	517.7	314.3
1 0 0	I2-O	108.3	96.57	116.3	102.9	134.0	115.3	175.6	138.4	278.6	183.5	536.8	284.7
1 0 1	I2-O	70.90	114.0	80.23	122.9	100.2	140.2	143.9	172.0	247.2	229.3	505.3	340.8
1 1 0	I2-O	70.93	114.0	80.26	122.9	100.3	140.2	143.9	172.0	247.3	229.3	505.4	340.8
1 1 1	I2-O	108.3	96.56	116.3	102.9	134.0	115.3	175.6	138.3	278.6	183.5	536.8	284.7
I2 I3 I4	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0	I1-O	125.1	130.3	133.1	136.7	150.7	149.0	192.3	172.1	295.4	217.3	553.6	318.5
0 0 1	I1-O	104.2	130.7	113.4	139.5	133.3	156.9	176.7	188.6	280.2	246.0	538.4	357.5
0 1 0	I1-O	104.2	130.7	113.5	139.5	133.4	156.8	176.8	188.6	280.2	246.0	538.4	357.5
0 1 1	I1-O	125.1	130.3	133.1	136.7	150.7	149.0	192.3	172.1	295.4	217.3	553.6	318.5
1 0 0	I1-O	111.9	106.4	119.9	112.7	137.7	125.1	179.3	148.1	282.3	193.3	540.5	294.5
1 0 1	I1-O	79.22	103.5	88.55	112.1	108.5	129.1	152.2	160.6	255.5	217.9	513.6	329.8
1 1 0	I1-O	79.26	103.5	88.58	112.1	108.6	129.0	152.3	160.6	255.6	217.9	513.6	329.8
1 1 1	I1-O	111.9	106.4	119.9	112.7	137.7	125.0	179.3	148.1	282.3	193.3	540.5	294.5

Version : XOR4X1

Cell Unit = 23

State		Output Load											
I1 I2 I3	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0	I4-O	81.69	104.7	88.04	109.0	102.1	117.5	133.0	133.9	205.2	166.7	383.7	239.6
0 0 1	I4-O	88.00	67.68	94.34	71.97	108.4	80.55	139.4	96.92	211.4	129.7	390.0	202.5
0 1 0	I4-O	122.6	88.73	128.3	93.85	140.7	104.1	169.8	124.1	241.2	163.0	419.8	242.6
0 1 1	I4-O	85.21	93.40	90.84	98.49	103.3	108.8	132.4	128.8	203.7	167.7	382.3	247.3
1 0 0	I4-O	122.6	89.39	128.2	94.55	140.7	104.9	169.8	124.9	241.1	163.6	419.7	242.8
1 0 1	I4-O	85.17	94.05	90.81	99.19	103.3	109.5	132.4	129.6	203.7	168.3	382.3	247.5
1 1 0	I4-O	81.37	104.7	87.72	109.0	101.8	117.5	132.8	133.9	205.2	166.7	383.7	239.6
1 1 1	I4-O	87.69	67.65	94.04	71.94	108.1	80.51	139.3	96.88	211.3	129.7	389.9	202.5
I1 I2 I4	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0	I3-O	104.3	97.93	110.7	102.2	124.7	110.8	155.7	127.2	227.8	160.0	406.3	232.8
0 0 1	I3-O	95.73	78.32	102.1	82.62	116.1	91.18	147.0	107.5	219.1	140.3	397.6	213.2
0 1 0	I3-O	115.6	109.9	121.2	115.0	133.7	125.3	162.8	145.2	234.1	184.2	412.7	263.8
0 1 1	I3-O	96.27	103.0	101.9	108.1	114.4	118.3	143.5	138.2	214.8	177.0	393.4	256.5
1 0 0	I3-O	115.6	110.5	121.2	115.7	133.7	126.0	162.7	146.0	234.1	184.7	412.7	264.0
1 0 1	I3-O	96.24	103.7	101.9	108.8	114.4	119.0	143.4	139.0	214.8	177.6	393.4	256.7
1 1 0	I3-O	104.1	97.90	110.4	102.2	124.5	110.8	155.6	127.2	227.8	160.0	406.3	232.8
1 1 1	I3-O	95.43	78.29	101.7	82.59	115.8	91.16	146.9	107.5	219.0	140.3	397.6	213.1
I1 I3 I4	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0	I2-O	84.77	118.2	90.54	122.7	103.2	131.4	132.3	148.0	203.8	180.9	382.4	253.8
0 0 1	I2-O	100.8	70.74	107.5	76.83	121.9	89.00	153.0	111.9	225.0	153.3	403.6	234.3
0 1 0	I2-O	100.8	70.72	107.5	76.82	121.9	88.99	153.0	111.9	225.0	153.3	403.6	234.3
0 1 1	I2-O	84.77	118.2	90.54	122.6	103.2	131.4	132.3	148.0	203.8	180.9	382.4	253.8
1 0 0	I2-O	93.09	81.60	98.84	86.05	111.5	94.88	140.7	111.4	212.1	144.4	390.7	217.3
1 0 1	I2-O	64.78	91.14	71.51	97.36	86.05	109.8	117.3	132.9	189.3	174.4	367.8	255.1
1 1 0	I2-O	64.81	91.13	71.54	97.35	86.08	109.7	117.3	132.8	189.4	174.4	367.8	255.1
1 1 1	I2-O	93.08	81.59	98.84	86.03	111.5	94.86	140.7	111.4	212.1	144.4	390.7	217.3
I2 I3 I4	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0	I1-O	109.1	111.2	114.9	115.6	127.5	124.4	156.7	141.0	228.1	173.9	406.7	246.8
0 0 1	I1-O	93.79	107.3	100.5	113.5	114.9	126.0	146.0	149.0	218.1	190.6	396.6	271.3
0 1 0	I1-O	93.81	107.3	100.5	113.5	114.9	126.0	146.0	149.0	218.1	190.6	396.7	271.3
0 1 1	I1-O	109.1	111.2	114.9	115.6	127.5	124.4	156.7	141.0	228.1	173.9	406.7	246.8
1 0 0	I1-O	98.65	91.37	104.4	95.83	117.1	104.7	146.3	121.2	217.6	154.2	396.2	226.9
1 0 1	I1-O	72.90	87.32	79.62	93.51	94.13	105.8	125.4	128.9	197.4	170.5	375.9	251.6
1 1 0	I1-O	72.93	87.31	79.64	93.50	94.16	105.8	125.4	128.9	197.4	170.5	375.9	251.6
1 1 1	I1-O	98.65	91.36	104.4	95.82	117.1	104.6	146.3	121.2	217.6	154.1	396.2	226.9

Version : XOR4X1P

Cell Unit = 23

State		Output Load											
I1 I2 I3	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0	I4-O	89.02	107.0	94.04	110.4	105.2	117.2	129.4	130.2	183.2	155.1	312.6	207.6
0 0 1	I4-O	96.71	68.32	101.7	71.73	112.9	78.53	137.1	91.54	190.8	116.5	320.3	169.0
0 1 0	I4-O	123.6	91.95	128.1	96.13	137.8	104.7	159.4	121.3	211.3	152.9	340.5	214.7
0 1 1	I4-O	84.58	97.71	89.02	101.9	98.68	110.4	120.4	127.0	172.3	158.7	301.5	220.5
1 0 0	I4-O	123.6	92.77	128.0	97.00	137.8	105.7	159.3	122.3	211.3	153.8	340.5	215.2
1 0 1	I4-O	84.54	98.51	88.98	102.7	98.65	111.3	120.3	128.0	172.2	159.6	301.5	221.0
1 1 0	I4-O	88.65	107.0	93.67	110.4	104.9	117.2	129.2	130.2	183.1	155.1	312.6	207.6
1 1 1	I4-O	96.37	68.29	101.4	71.70	112.6	78.50	136.9	91.51	190.8	116.5	320.3	169.0
I1 I2 I4	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0	I3-O	113.6	98.99	118.6	102.4	129.8	109.2	154.0	122.2	207.7	147.2	337.2	199.6
0 0 1	I3-O	103.6	78.87	108.6	82.28	119.8	89.11	143.9	102.1	197.6	127.1	327.1	179.6
0 1 0	I3-O	115.4	114.7	119.9	118.9	129.5	127.4	151.2	143.9	203.1	175.6	332.3	237.4
0 1 1	I3-O	95.50	106.5	99.95	110.7	109.6	119.2	131.3	135.6	183.1	167.2	312.4	228.9
1 0 0	I3-O	115.4	115.5	119.8	119.7	129.5	128.3	151.2	144.9	203.1	176.5	332.3	237.9
1 0 1	I3-O	95.47	107.3	99.91	111.5	109.6	120.1	131.2	136.6	183.1	168.1	312.4	229.4
1 1 0	I3-O	113.3	98.96	118.3	102.4	129.5	109.2	153.8	122.1	207.6	147.1	337.2	199.6
1 1 1	I3-O	103.3	78.85	108.2	82.26	119.4	89.09	143.7	102.1	197.6	127.0	327.1	179.6
I1 I3 I4	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0	I2-O	90.03	119.8	94.56	123.3	104.5	130.2	126.2	143.2	178.1	168.3	307.4	220.8
0 0 1	I2-O	108.2	74.12	113.4	79.08	124.9	89.24	149.3	108.4	203.0	143.0	332.4	206.9
0 1 0	I2-O	108.2	74.10	113.4	79.06	125.0	89.23	149.4	108.4	203.0	143.0	332.4	206.9
0 1 1	I2-O	90.02	119.8	94.56	123.3	104.5	130.2	126.2	143.2	178.1	168.3	307.4	220.8
1 0 0	I2-O	99.58	81.49	104.1	84.93	114.0	91.82	135.8	104.9	187.7	129.8	317.0	182.4
1 0 1	I2-O	70.15	98.81	75.39	103.9	86.99	114.1	111.5	133.6	165.3	168.4	294.7	232.1
1 1 0	I2-O	70.18	98.80	75.42	103.9	87.02	114.1	111.5	133.6	165.3	168.4	294.7	232.1
1 1 1	I2-O	99.58	81.48	104.1	84.91	114.0	91.80	135.8	104.9	187.7	129.8	317.0	182.4
I2 I3 I4	Path	1.200 ff		3.012 ff		7.560 ff		18.97 ff		47.62 ff		119.5 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0	I1-O	116.5	112.1	121.1	115.5	131.0	122.4	152.7	135.5	204.6	160.5	333.8	213.0
0 0 1	I1-O	100.3	115.9	105.6	121.0	117.1	131.3	141.5	150.7	195.2	185.5	324.7	249.3
0 1 0	I1-O	100.4	115.9	105.6	121.0	117.1	131.2	141.5	150.7	195.2	185.5	324.7	249.3
0 1 1	I1-O	116.5	112.0	121.1	115.5	130.9	122.4	152.7	135.5	204.6	160.5	333.8	213.0
1 0 0	I1-O	104.9	91.51	109.4	94.97	119.3	101.9	141.1	115.0	193.0	140.0	322.3	192.5
1 0 1	I1-O	78.41	92.27	83.68	97.24	95.25	107.4	119.7	126.8	173.5	161.6	302.9	225.5
1 1 0	I1-O	78.45	92.25	83.71	97.23	95.28	107.4	119.8	126.8	173.5	161.6	302.9	225.5
1 1 1	I1-O	104.9	91.50	109.4	94.95	119.3	101.9	141.1	115.0	193.0	140.0	322.3	192.5

Version : XOR4X2

Cell Unit = 28

State		Output Load											
I1 I2 I3	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0	I4-O	90.85	118.9	95.25	122.4	106.4	130.1	132.6	146.3	196.0	179.0	367.0	252.3
0 0 1	I4-O	95.98	79.49	100.4	82.95	111.5	90.71	137.7	106.9	201.2	139.7	372.0	212.8
0 1 0	I4-O	133.1	97.05	137.2	101.2	147.0	110.6	170.5	130.4	231.8	170.4	402.4	253.8
0 1 1	I4-O	93.39	100.6	97.45	104.7	107.3	114.0	130.8	134.0	192.0	174.0	362.7	257.3
1 0 0	I4-O	133.1	97.76	137.2	101.9	147.0	111.3	170.4	131.2	231.8	170.9	402.4	253.8
1 0 1	I4-O	93.37	101.3	97.42	105.4	107.3	114.8	130.7	134.7	191.9	174.5	362.6	257.5
1 1 0	I4-O	90.47	118.9	94.88	122.3	106.0	130.1	132.4	146.3	195.9	179.0	366.9	252.2
1 1 1	I4-O	95.62	79.45	100.0	82.91	111.2	90.67	137.5	106.8	201.2	139.6	372.1	212.8
I1 I2 I4	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0	I3-O	114.2	110.9	118.6	114.3	129.7	122.1	155.9	138.2	219.3	171.1	390.2	244.3
0 0 1	I3-O	104.6	90.35	109.0	93.77	120.1	101.6	146.3	117.7	209.7	150.5	380.6	223.7
0 1 0	I3-O	124.9	119.0	128.9	123.0	138.8	132.4	162.2	152.3	223.5	192.3	394.2	275.7
0 1 1	I3-O	104.7	111.1	108.7	115.2	118.6	124.6	142.0	144.3	203.3	184.2	373.9	267.4
1 0 0	I3-O	124.9	119.7	128.9	123.7	138.8	133.1	162.2	153.0	223.4	192.9	394.1	275.7
1 0 1	I3-O	104.6	111.8	108.7	115.9	118.5	125.3	142.0	145.1	203.2	184.7	373.9	267.5
1 1 0	I3-O	113.8	110.8	118.2	114.3	129.3	122.1	155.7	138.2	219.3	171.0	390.2	244.2
1 1 1	I3-O	104.3	90.31	108.7	93.74	119.7	101.6	146.1	117.7	209.7	150.5	380.6	223.7
I1 I3 I4	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0	I2-O	93.16	135.4	97.25	138.9	107.3	146.7	130.9	163.0	192.1	195.9	362.9	269.1
0 0 1	I2-O	111.0	79.10	115.5	83.58	126.8	93.87	153.2	115.5	216.6	157.9	387.6	242.6
0 1 0	I2-O	111.0	79.09	115.5	83.57	126.8	93.86	153.2	115.5	216.6	157.9	387.6	242.6
0 1 1	I2-O	93.16	135.4	97.25	138.9	107.3	146.7	130.9	163.0	192.1	195.9	362.9	269.1
1 0 0	I2-O	101.4	96.41	105.5	99.80	115.5	107.6	139.1	123.9	200.4	156.8	371.1	230.0
1 0 1	I2-O	72.47	104.8	77.00	109.2	88.33	119.7	114.8	141.6	178.4	184.0	349.2	268.7
1 1 0	I2-O	72.50	104.7	77.03	109.2	88.36	119.7	114.8	141.6	178.4	184.0	349.2	268.7
1 1 1	I2-O	101.4	96.41	105.5	99.80	115.5	107.6	139.1	123.9	200.4	156.8	371.1	230.0
I2 I3 I4	Path	1.200 ff		3.381 ff		9.524 ff		26.83 ff		75.59 ff		213.0 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0	I1-O	120.0	127.6	124.1	131.1	134.0	138.9	157.6	155.1	219.0	188.0	389.6	261.3
0 0 1	I1-O	103.2	123.5	107.7	128.0	119.0	138.4	145.4	160.3	208.9	202.7	379.8	287.4
0 1 0	I1-O	103.2	123.5	107.7	128.0	119.0	138.4	145.4	160.3	208.9	202.7	379.9	287.4
0 1 1	I1-O	120.0	127.6	124.1	131.1	134.0	138.9	157.6	155.1	219.0	188.0	389.6	261.3
1 0 0	I1-O	107.3	106.4	111.4	109.9	121.3	117.8	144.9	134.0	206.2	166.9	376.9	240.1
1 0 1	I1-O	80.51	96.86	85.04	101.3	96.37	111.7	122.8	133.5	186.4	175.9	357.2	260.7
1 1 0	I1-O	80.54	96.85	85.08	101.3	96.40	111.7	122.8	133.5	186.4	175.9	357.2	260.7
1 1 1	I1-O	107.3	106.4	111.4	109.9	121.3	117.8	144.9	134.0	206.2	166.9	376.9	240.1

Version : XOR4X3

Cell Unit = 30

State		Output Load											
I1 I2 I3	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0	I4-O	101.3	132.5	104.6	135.3	114.0	142.4	138.1	158.4	197.9	192.0	364.0	267.0
0 0 1	I4-O	106.3	93.17	109.7	95.96	119.1	103.0	143.1	119.0	202.9	152.6	369.0	227.6
0 1 0	I4-O	140.6	106.0	143.8	109.3	152.3	117.8	173.5	137.6	229.8	179.2	395.2	266.6
0 1 1	I4-O	100.8	109.4	103.9	112.6	112.4	121.3	133.7	141.0	190.0	182.7	355.4	270.2
1 0 0	I4-O	140.6	106.7	143.7	110.0	152.2	118.6	173.5	138.4	229.8	179.7	395.2	267.0
1 0 1	I4-O	100.8	110.1	103.9	113.5	112.4	122.1	133.6	141.8	190.0	183.2	355.3	270.5
1 1 0	I4-O	100.9	132.5	104.3	135.3	113.6	142.3	137.8	158.3	197.8	191.9	364.0	267.0
1 1 1	I4-O	105.9	93.13	109.3	95.91	118.7	103.0	142.9	118.9	202.9	152.6	369.1	227.5
I1 I2 I4	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0	I3-O	124.5	124.5	127.9	127.3	137.3	134.4	161.3	150.3	221.1	184.0	387.2	259.0
0 0 1	I3-O	115.1	104.0	118.5	106.8	127.8	113.8	151.8	129.8	211.7	163.4	377.7	238.4
0 1 0	I3-O	132.3	127.7	135.5	131.1	144.0	139.7	165.2	159.4	221.5	200.9	386.9	288.4
0 1 1	I3-O	112.1	120.1	115.3	123.4	123.7	132.0	145.1	151.7	201.2	193.1	366.6	280.5
1 0 0	I3-O	132.3	128.5	135.4	131.9	143.9	140.5	165.2	160.1	221.5	201.6	386.8	288.8
1 0 1	I3-O	112.1	120.9	115.2	124.2	123.7	132.7	145.0	152.4	201.2	193.6	366.6	280.7
1 1 0	I3-O	124.1	124.5	127.5	127.3	136.9	134.3	161.0	150.3	221.1	184.0	387.2	259.0
1 1 1	I3-O	114.7	104.0	118.1	106.7	127.5	113.8	151.6	129.8	211.6	163.4	377.8	238.4
I1 I3 I4	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0	I2-O	101.9	149.8	105.1	152.5	113.6	159.6	135.1	175.6	191.5	209.3	356.8	284.3
0 0 1	I2-O	121.0	89.51	124.5	93.04	134.0	102.1	158.1	122.8	217.9	166.0	384.1	254.7
0 1 0	I2-O	121.1	89.51	124.5	93.04	134.0	102.1	158.1	122.8	218.0	166.0	384.1	254.7
0 1 1	I2-O	101.9	149.8	105.1	152.5	113.6	159.6	135.1	175.6	191.5	209.3	356.8	284.3
1 0 0	I2-O	110.5	110.7	113.6	113.5	122.2	120.6	143.6	136.5	200.0	170.2	365.3	245.2
1 0 1	I2-O	82.60	120.4	86.03	123.9	95.51	133.0	119.7	153.8	179.6	197.2	345.7	285.8
1 1 0	I2-O	82.63	120.4	86.06	123.9	95.54	133.0	119.7	153.8	179.6	197.2	345.7	285.8
1 1 1	I2-O	110.5	110.7	113.6	113.5	122.2	120.6	143.6	136.5	200.0	170.2	365.3	245.2
I2 I3 I4	Path	1.200 ff		3.617 ff		10.90 ff		32.86 ff		99.06 ff		298.6 ff	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0	I1-O	129.0	141.8	132.1	144.5	140.7	151.6	162.2	167.6	218.4	201.3	383.8	276.3
0 0 1	I1-O	113.1	139.0	116.6	142.4	126.0	151.5	150.2	172.3	210.0	215.6	376.2	304.4
0 1 0	I1-O	113.2	139.0	116.6	142.4	126.1	151.5	150.2	172.4	210.0	215.7	376.3	304.4
0 1 1	I1-O	128.9	141.8	132.1	144.5	140.7	151.6	162.2	167.6	218.4	201.3	383.8	276.3
1 0 0	I1-O	116.0	120.6	119.2	123.4	127.8	130.5	149.2	146.5	205.5	180.1	370.9	255.1
1 0 1	I1-O	90.31	108.0	93.76	111.5	103.2	120.5	127.4	141.3	187.3	184.6	353.4	273.3
1 1 0	I1-O	90.34	107.9	93.79	111.5	103.3	120.5	127.4	141.3	187.3	184.6	353.4	273.3
1 1 1	I1-O	116.0	120.6	119.2	123.4	127.8	130.5	149.2	146.5	205.5	180.1	370.9	255.1

# Chapter 3

## 2.5V I/O Cells

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Preliminary

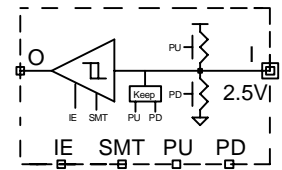
Group Name : UYN

Symbol

Function : Programmable CMOS Input Buffer, 2.5V

Cell List

Pad Limited	Core Limited
UYNGA	UYNGB



Truth Table

I	IE	O
0	1	0
1	1	1
X	0	0

Programmable Features

SMT	Input Threshold
0	Normal
1	Schmitt Trigger

PU	PD	Pull Up / Pull Down
0	0	None
1	0	75K Pull Up
0	1	75K Pull Down
1	1	75K Keeper @ IE=1
1	1	75K Pull Down @ IE=0

Pin Order O I IE PU PD SMT

**Input Capacitance (pf) & Maximum Loading (pf) & Power Consumption (uW/MHz)**

Version	Input Capacitance					Maximum Loading	Power Consumption
	I	IE	PU	PD	SMT	O	O
UYNGA	2.139	0.0149	0.0075	0.0029	0.0025	0.8949	0.253
UYNGB	2.228	0.0134	0.0071	0.0025	0.0023	0.8945	0.208

## AC Characteristics ( Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ns)

Version : UYNGB

Cell Unit = 120 (I/O UNIT)

State	Output Load													
SMT	Path	0.0012 pf		0.0036 pf		0.0109 pf		0.0329 pf		0.0991 pf		0.2986 pf		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0	I-O	0.752	0.800	0.754	0.803	0.761	0.809	0.777	0.823	0.818	0.855	0.936	0.937	
1	I-O	2.014	1.714	2.017	1.717	2.023	1.723	2.040	1.737	2.080	1.768	2.199	1.851	
0	IE-O	1.103	0.825	1.105	0.827	1.112	0.833	1.128	0.847	1.169	0.879	1.287	0.962	
1	IE-O	1.198	0.794	1.201	0.796	1.207	0.802	1.223	0.816	1.264	0.848	1.383	0.930	

Version : UYNGB

Cell Unit = 135 (I/O UNIT)

State	Output Load													
SMT	Path	0.0012 pf		0.0036 pf		0.0109 pf		0.0329 pf		0.0991 pf		0.2986 pf		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0	I-O	0.626	0.724	0.629	0.726	0.635	0.732	0.651	0.746	0.691	0.777	0.810	0.859	
1	I-O	1.891	1.631	1.893	1.633	1.899	1.639	1.915	1.653	1.956	1.684	2.074	1.766	
0	IE-O	0.838	0.676	0.840	0.679	0.846	0.685	0.862	0.698	0.903	0.730	1.021	0.812	
1	IE-O	0.902	0.648	0.904	0.651	0.910	0.657	0.926	0.670	0.967	0.702	1.085	0.784	



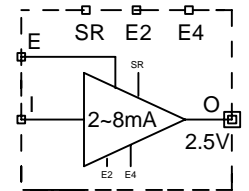
Group Name : VYA28S

Symbol

Function : Programmable 2~8mA CMOS Output Buffer, 2.5V

Cell List

Pad Limited	Core Limited
VYA28SGA	VYA28SGB



Truth Table

I	E	O
0	1	0
1	1	1
X	0	Z

Programmable Features

Output Driving Capability

E4	E2	Driving
0	0	2mA
0	1	4mA
1	0	6mA
1	1	8mA

Output Slew Rate

SR	Slew Rate
0	Fast
1	Slow

Pin Order O I E E2 E4 SR

Input Capacitance (pf) & Maximum Loading (pf) & Power Consumption (uW/MHz)

Version	Input Capacitance						Maximum Loading	Power Consumption
	O	I	E	E2	E4	SR		
VYA28SGA	2.060	0.0203	0.0029	0.0148	0.0123	0.0132		10.43
VYA28SGB	2.144	0.0229	0.0027	0.0117	0.0122	0.0117		10.56

## AC Characteristics ( Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ns)

Version : VYA28SGA

Cell Unit = 120 (I/O UNIT)

State E2 E4 SR	Path	Output Load											
		4.560 pf		7.060 pf		12.06 pf		22.06 pf		42.06 pf		82.06 pf	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0	E-O	1.790	1.788	2.090	2.121	2.688	2.787	3.882	4.119	6.272	6.783	11.05	12.11
0 0 1	E-O	1.941	1.987	2.241	2.323	2.839	2.991	4.033	4.323	6.423	6.987	11.20	12.31
0 1 0	E-O	1.638	1.619	1.755	1.745	1.966	1.976	2.369	2.421	3.166	3.310	4.759	5.086
0 1 1	E-O	1.843	1.858	1.977	2.008	2.199	2.260	2.607	2.717	3.406	3.608	4.999	5.384
1 0 0	E-O	1.653	1.636	1.806	1.806	2.106	2.139	2.704	2.805	3.899	4.137	6.288	6.801
1 0 1	E-O	1.843	1.872	2.002	2.059	2.305	2.403	2.903	3.070	4.098	4.402	6.487	7.066
1 1 0	E-O	1.601	1.578	1.691	1.677	1.853	1.854	2.158	2.190	2.757	2.856	3.952	4.188
1 1 1	E-O	1.808	1.819	1.913	1.941	2.087	2.140	2.398	2.492	2.999	3.163	4.195	4.495
	E-O	L>>Z 1.282						H>>Z 1.447					
0 0 0	I-O	1.784	1.702	2.083	2.036	2.681	2.702	3.876	4.035	6.265	6.699	11.04	12.03
0 0 1	I-O	1.935	1.901	2.234	2.238	2.832	2.905	4.027	4.237	6.416	6.901	11.19	12.23
0 1 0	I-O	1.632	1.535	1.748	1.660	1.959	1.890	2.361	2.336	3.158	3.225	4.752	5.001
0 1 1	I-O	1.837	1.772	1.969	1.922	2.192	2.174	2.601	2.632	3.399	3.523	4.992	5.299
1 0 0	I-O	1.646	1.549	1.800	1.720	2.100	2.054	2.697	2.721	3.892	4.053	6.281	6.717
1 0 1	I-O	1.836	1.786	1.995	1.973	2.298	2.316	2.896	2.985	4.091	4.317	6.480	6.981
1 1 0	I-O	1.594	1.489	1.683	1.587	1.846	1.766	2.152	2.103	2.750	2.770	3.946	4.102
1 1 1	I-O	1.801	1.734	1.906	1.855	2.079	2.054	2.391	2.405	2.992	3.077	4.188	4.410

Version : VYA28SGB

Cell Unit = 135 (I/O UNIT)

State	Output Load													
E2 E4 SR	Path	4.644 pf		7.144 pf		12.14 pf		22.14 pf		42.14 pf		82.14 pf		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 0 0	E-O	1.872	1.853	2.171	2.186	2.769	2.852	3.963	4.184	6.352	6.848	11.13	12.18	
0 0 1	E-O	2.023	2.049	2.323	2.385	2.921	3.052	4.115	4.384	6.505	7.048	11.28	12.38	
0 1 0	E-O	1.712	1.657	1.828	1.781	2.038	2.009	2.441	2.454	3.238	3.343	4.831	5.118	
0 1 1	E-O	1.909	1.890	2.040	2.034	2.262	2.281	2.671	2.736	3.469	3.626	5.062	5.402	
1 0 0	E-O	1.727	1.680	1.880	1.848	2.179	2.182	2.777	2.848	3.972	4.180	6.361	6.844	
1 0 1	E-O	1.908	1.909	2.066	2.092	2.376	2.433	2.974	3.100	4.169	4.432	6.558	7.096	
1 1 0	E-O	1.673	1.613	1.763	1.709	1.924	1.884	2.229	2.220	2.828	2.886	4.023	4.218	
1 1 1	E-O	1.869	1.849	1.974	1.964	2.147	2.159	2.458	2.507	3.059	3.177	4.254	4.509	
	E-O	L>>Z 1.137						H>>Z 1.315						
0 0 0	I-O	1.712	1.840	2.011	2.174	2.609	2.841	3.804	4.173	6.193	6.837	10.97	12.16	
0 0 1	I-O	1.862	2.037	2.162	2.374	2.760	3.041	3.955	4.374	6.344	7.038	11.12	12.37	
0 1 0	I-O	1.552	1.646	1.667	1.768	1.877	1.997	2.282	2.442	3.078	3.331	4.671	5.107	
0 1 1	I-O	1.757	1.880	1.889	2.023	2.110	2.270	2.518	2.725	3.317	3.616	4.910	5.392	
1 0 0	I-O	1.566	1.664	1.719	1.833	2.019	2.167	2.617	2.834	3.812	4.166	6.201	6.830	
1 0 1	I-O	1.754	1.898	1.913	2.080	2.215	2.421	2.813	3.089	4.008	4.422	6.397	7.086	
1 1 0	I-O	1.512	1.601	1.602	1.696	1.764	1.871	2.069	2.208	2.668	2.874	3.863	4.207	
1 1 1	I-O	1.719	1.836	1.822	1.952	1.995	2.146	2.307	2.494	2.907	3.165	4.103	4.498	

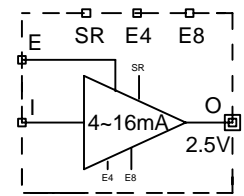
Group Name : VYA4GS

Symbol

Function : Programmable 4~16mA CMOS Output Buffer, 2.5V

Cell List

Pad Limited	Core Limited
VYA4GSGA	VYA4GSGB



Truth Table

I	E	O
0	1	0
1	1	1
X	0	Z

Programmable Features

Output Driving Capability

E8	E4	Driving
0	0	4mA
0	1	8mA
1	0	12mA
1	1	16mA

Output Slew Rate

SR	Slew Rate
0	Fast
1	Slow

Pin Order O I E E4 E8 SR

Input Capacitance (pf) & Maximum Loading (pf) & Power Consumption (uW/MHz)

Version	Input Capacitance						Maximum Loading	Power Consumption
	O	I	E	E4	E8	SR	O	
VYA4GSGA	2.059	0.0203	0.0029	0.0148	0.0123	0.0132	12.96	
VYA4GSGB	2.142	0.0229	0.0027	0.0117	0.0122	0.0117	13.15	

## AC Characteristics ( Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ns)

Version : VYA4GSGA

Cell Unit = 120 (I/O UNIT)

State E4 E8 SR	Path	Output Load											
		9.559 pf		17.06 pf		32.06 pf		62.06 pf		122.1 pf		242.1 pf	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0	E-O	1.905	1.910	2.355	2.411	3.252	3.411	5.044	5.409	8.628	9.404	15.80	17.40
0 0 1	E-O	2.094	2.161	2.547	2.673	3.445	3.675	5.237	5.673	8.821	9.669	15.99	17.66
0 1 0	E-O	1.782	1.735	2.019	1.960	2.409	2.340	3.079	3.032	4.311	4.371	6.712	7.037
0 1 1	E-O	2.011	2.033	2.271	2.296	2.690	2.715	3.377	3.435	4.621	4.788	7.025	7.456
1 0 0	E-O	1.766	1.727	2.004	1.987	2.456	2.489	3.353	3.488	5.145	5.486	8.729	9.482
1 0 1	E-O	2.002	2.013	2.254	2.302	2.713	2.819	3.611	3.822	5.403	5.820	8.987	9.816
1 1 0	E-O	1.722	1.667	1.895	1.834	2.189	2.129	2.702	2.659	3.641	3.669	5.449	5.670
1 1 1	E-O	1.972	1.969	2.166	2.178	2.476	2.504	3.002	3.060	3.951	4.086	5.765	6.091
	E-O	L>>Z 1.349						H>>Z 1.553					
0 0 0	I-O	1.898	1.824	2.348	2.325	3.245	3.325	5.038	5.324	8.622	9.320	15.79	17.31
0 0 1	I-O	2.087	2.075	2.541	2.587	3.438	3.590	5.231	5.589	8.815	9.585	15.98	17.58
0 1 0	I-O	1.795	1.726	2.023	1.932	2.407	2.293	3.074	2.969	4.306	4.300	6.705	6.960
0 1 1	I-O	2.018	2.009	2.275	2.248	2.684	2.650	3.370	3.363	4.613	4.712	7.018	7.378
1 0 0	I-O	1.758	1.642	1.996	1.901	2.448	2.403	3.345	3.403	5.137	5.401	8.721	9.397
1 0 1	I-O	1.995	1.930	2.247	2.218	2.705	2.736	3.604	3.739	5.396	5.738	8.980	9.734
1 1 0	I-O	1.728	1.637	1.895	1.799	2.185	2.079	2.696	2.595	3.634	3.597	5.441	5.593
1 1 1	I-O	1.969	1.927	2.160	2.117	2.468	2.431	2.994	2.981	3.943	4.004	5.757	6.008

Version : VYA4GSGB

Cell Unit = 135 (I/O UNIT)

State	Output Load													
E4 E8 SR	Path	9.642 pf		17.14 pf		32.14 pf		62.14 pf		122.1 pf		242.1 pf		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 0 0	E-O	1.983	1.971	2.433	2.472	3.330	3.471	5.122	5.469	8.706	9.465	15.87	17.46	
0 0 1	E-O	2.172	2.220	2.625	2.731	3.523	3.733	5.315	5.732	8.899	9.728	16.07	17.72	
0 1 0	E-O	1.857	1.778	2.093	2.001	2.483	2.380	3.152	3.072	4.385	4.412	6.785	7.078	
0 1 1	E-O	2.084	2.074	2.342	2.333	2.751	2.746	3.437	3.465	4.680	4.817	7.085	7.486	
1 0 0	E-O	1.839	1.772	2.076	2.030	2.529	2.532	3.426	3.531	5.218	5.529	8.802	9.525	
1 0 1	E-O	2.063	2.055	2.313	2.339	2.771	2.854	3.669	3.856	5.462	5.854	9.045	9.850	
1 1 0	E-O	1.794	1.707	1.967	1.878	2.261	2.169	2.774	2.697	3.713	3.707	5.520	5.708	
1 1 1	E-O	2.043	2.004	2.223	2.207	2.531	2.529	3.057	3.083	4.006	4.109	5.820	6.114	
	E-O	L>>Z 1.205						H>>Z 1.421						
0 0 0	I-O	1.823	1.958	2.273	2.460	3.170	3.460	4.962	5.458	8.546	9.454	15.71	17.45	
0 0 1	I-O	2.013	2.208	2.466	2.720	3.363	3.722	5.156	5.721	8.740	9.717	15.91	17.71	
0 1 0	I-O	1.715	1.844	1.943	2.048	2.327	2.408	2.994	3.084	4.225	4.414	6.625	7.074	
0 1 1	I-O	1.939	2.120	2.196	2.355	2.604	2.754	3.290	3.465	4.533	4.813	6.937	7.480	
1 0 0	I-O	1.677	1.761	1.915	2.019	2.367	2.520	3.264	3.520	5.056	5.518	8.640	9.514	
1 0 1	I-O	1.914	2.044	2.164	2.328	2.622	2.843	3.520	3.846	5.313	5.845	8.897	9.841	
1 1 0	I-O	1.646	1.743	1.813	1.906	2.103	2.189	2.613	2.705	3.551	3.706	5.359	5.702	
1 1 1	I-O	1.887	2.034	2.077	2.221	2.385	2.532	2.911	3.079	3.861	4.102	5.674	6.105	

Group Name : WYNA28S  
 Function : Programmable 2~8mA CMOS Bidirect Buffer, 2.5V

Symbol

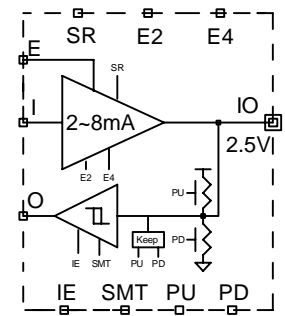
Cell List

Pad Limited	Core Limited
WYNA28SGA	WYNA28SGB

Truth Table

I	E	IO	
0	1	0	
1	1	1	
X	0	Z	
X	0	Pu1	( If Pull Up )
X	0	Pu0	( If Pull Down )
X	0	Keep	( If Keeper )

IE	IO	O
0	X	0
1	0	0
1	1	1
1	Z	X
1	Pu1	1
1	Pu0	0
1	Keep	IO



Programmable Features

Output Driving Capability

E4	E2	Driving
0	0	2mA
0	1	4mA
1	0	6mA
1	1	8mA

Input Characteristics

SMT	Input Threshold
0	Normal
1	Schmitt Trigger

Output Slew Rate

SR	Slew Rate
0	Fast
1	Slow

PU	PD	Pull Up / Pull Down
0	0	None
1	0	75K Pull Up
0	1	75K Pull Down
1	1	75K Keeper @ IE=1
1	1	75K Pull Down @ IE=0

Pin Order O I IO E E2 E4 SR IE PU PD SMT

Input Capacitance (pf) & Maximum Loading (pf)

Version	Input Capacitance										Maximum Loading
	I	IO	E	E2	E4	SR	IE	PU	PD	SMT	O
WYNA28SGA	0.0200	2.142	0.0060	0.0150	0.0127	0.0132	0.0149	0.0076	0.0028	0.0027	0.8946
WYNA28SGB	0.0227	2.236	0.0062	0.0122	0.0134	0.0125	0.0142	0.0074	0.0025	0.0023	0.8945

## Power Consumption (uW/MHz)

Version	Power Consumption	
	O	IO
WYNA28SGA	0.258	10.63
WYNA28SGB	0.208	10.87

## AC Characteristics ( Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ns)

Version : WYNA28SGA

Cell Unit = 120 (I/O UNIT)

State	Output Load													
SMT	Path	0.0012 pf		0.0036 pf		0.0109 pf		0.0329 pf		0.0991 pf		0.2986 pf		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0	IO-O	0.762	0.808	0.764	0.810	0.771	0.816	0.787	0.830	0.827	0.862	0.946	0.944	
1	IO-O	2.024	1.723	2.027	1.726	2.033	1.731	2.049	1.745	2.090	1.777	2.209	1.859	
0	IE-O	1.121	0.835	1.124	0.838	1.131	0.844	1.147	0.858	1.187	0.889	1.306	0.972	
1	IE-O	1.220	0.804	1.223	0.806	1.229	0.812	1.245	0.826	1.286	0.858	1.405	0.940	
E2 E4 SR	Path	4.642 pf		7.142 pf		12.14 pf		22.14 pf		42.14 pf		82.14 pf		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 0 0	E-IO	1.817	1.817	2.116	2.150	2.715	2.816	3.909	4.148	6.299	6.812	11.08	12.14	
0 0 1	E-IO	1.967	2.020	2.268	2.357	2.866	3.025	4.061	4.357	6.450	7.021	11.23	12.35	
0 1 0	E-IO	1.660	1.642	1.776	1.768	1.986	1.998	2.389	2.444	3.187	3.332	4.780	5.108	
0 1 1	E-IO	1.866	1.886	1.999	2.036	2.221	2.288	2.629	2.745	3.428	3.635	5.021	5.412	
1 0 0	E-IO	1.676	1.660	1.829	1.830	2.129	2.164	2.727	2.830	3.921	4.162	6.311	6.825	
1 0 1	E-IO	1.866	1.901	2.025	2.089	2.327	2.432	2.926	3.100	4.121	4.432	6.510	7.096	
1 1 0	E-IO	1.623	1.601	1.712	1.699	1.874	1.876	2.178	2.212	2.778	2.878	3.973	4.210	
1 1 1	E-IO	1.830	1.842	1.935	1.963	2.108	2.162	2.419	2.513	3.021	3.184	4.216	4.516	
	E-IO	L>>Z 1.312						H>>Z 1.477						
0 0 0	I-IO	1.795	1.717	2.095	2.051	2.693	2.718	3.888	4.050	6.277	6.714	11.06	12.04	
0 0 1	I-IO	1.946	1.921	2.246	2.258	2.844	2.925	4.039	4.258	6.429	6.922	11.21	12.25	
0 1 0	I-IO	1.638	1.542	1.754	1.667	1.964	1.897	2.367	2.343	3.165	3.232	4.758	5.008	
0 1 1	I-IO	1.844	1.787	1.976	1.935	2.199	2.187	2.607	2.644	3.406	3.535	4.999	5.312	
1 0 0	I-IO	1.654	1.557	1.806	1.730	2.107	2.064	2.705	2.731	3.900	4.063	6.289	6.727	
1 0 1	I-IO	1.844	1.801	2.003	1.988	2.306	2.331	2.904	3.000	4.099	4.332	6.488	6.997	
1 1 0	I-IO	1.600	1.502	1.689	1.599	1.852	1.775	2.156	2.112	2.756	2.779	3.951	4.111	
1 1 1	I-IO	1.808	1.747	1.912	1.867	2.085	2.066	2.397	2.418	2.998	3.089	4.194	4.422	



Version : WYNA28SGB

Cell Unit = 135 (I/O UNIT)

State	Output Load													
SMT	Path	0.0012 pf		0.0036 pf		0.0109 pf		0.0329 pf		0.0991 pf		0.2986 pf		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0	IO-O	0.628	0.725	0.630	0.728	0.637	0.733	0.653	0.747	0.693	0.779	0.812	0.861	
1	IO-O	1.892	1.633	1.895	1.635	1.901	1.641	1.917	1.654	1.957	1.686	2.076	1.768	
0	IE-O	0.837	0.688	0.839	0.690	0.846	0.696	0.862	0.710	0.902	0.741	1.021	0.823	
1	IE-O	0.898	0.660	0.900	0.662	0.907	0.668	0.922	0.682	0.963	0.713	1.082	0.795	
E2 E4 SR	Path	4.736 pf		7.236 pf		12.24 pf		22.24 pf		42.24 pf		82.24 pf		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 0 0	E-IO	1.911	1.891	2.211	2.225	2.809	2.891	4.004	4.223	6.393	6.887	11.17	12.21	
0 0 1	E-IO	2.062	2.088	2.363	2.425	2.961	3.092	4.156	4.424	6.545	7.088	11.32	12.42	
0 1 0	E-IO	1.747	1.694	1.862	1.817	2.072	2.046	2.475	2.491	3.272	3.380	4.866	5.156	
0 1 1	E-IO	1.954	1.930	2.084	2.076	2.305	2.323	2.713	2.779	3.512	3.669	5.105	5.445	
1 0 0	E-IO	1.763	1.714	1.916	1.882	2.216	2.216	2.814	2.882	4.009	4.214	6.398	6.878	
1 0 1	E-IO	1.953	1.945	2.110	2.128	2.413	2.468	3.011	3.135	4.206	4.468	6.595	7.131	
1 1 0	E-IO	1.707	1.647	1.797	1.744	1.958	1.919	2.263	2.255	2.862	2.921	4.057	4.253	
1 1 1	E-IO	1.915	1.884	2.017	2.000	2.189	2.195	2.500	2.544	3.102	3.214	4.297	4.547	
	E-IO	L>>Z 1.191						H>>Z 1.370						
0 0 0	I-IO	1.728	1.852	2.028	2.186	2.626	2.853	3.821	4.185	6.210	6.849	10.99	12.18	
0 0 1	I-IO	1.879	2.050	2.179	2.386	2.777	3.053	3.973	4.386	6.362	7.050	11.14	12.38	
0 1 0	I-IO	1.563	1.656	1.677	1.778	1.887	2.007	2.291	2.453	3.089	3.342	4.682	5.118	
0 1 1	I-IO	1.770	1.892	1.900	2.037	2.121	2.284	2.529	2.740	3.328	3.631	4.921	5.408	
1 0 0	I-IO	1.579	1.671	1.732	1.840	2.032	2.175	2.630	2.841	3.825	4.174	6.214	6.838	
1 0 1	I-IO	1.769	1.906	1.926	2.088	2.229	2.429	2.827	3.097	4.022	4.430	6.412	7.094	
1 1 0	I-IO	1.523	1.609	1.612	1.705	1.773	1.880	2.078	2.216	2.678	2.883	3.873	4.215	
1 1 1	I-IO	1.731	1.846	1.834	1.962	2.006	2.157	2.317	2.507	2.919	3.177	4.114	4.510	

Group Name : WYNA4GS  
 Function : Programmable 4~16mA CMOS Bidirect Buffer, 2.5V

Symbol

Cell List

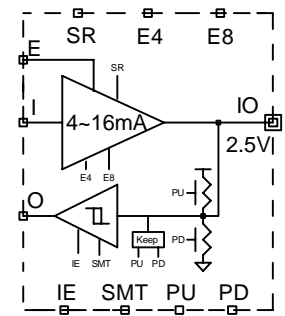
Pad Limited	Core Limited
WYNA4GSGA	WYNA4GSGB

Truth Table

I	E	IO	
0	1	0	
1	1	1	
X	0	Z	
X	0	Pu1	( If Pull Up )
X	0	Pu0	( If Pull Down )
X	0	Keep	( If Keeper )

IE	IO	O
0	X	0
1	0	0
1	1	1
1	Z	X
1	Pu1	1
1	Pu0	0
1	Keep	IO



Programmable Features

Output Driving Capability

E8	E4	Driving
0	0	4mA
0	1	8mA
1	0	12mA
1	1	16mA

Input Characteristics

SMT	Input Threshold
0	Normal
1	Schmitt Trigger

Output Slew Rate

SR	Slew Rate
0	Fast
1	Slow

PU	PD	Pull Up / Pull Down
0	0	None
1	0	75K Pull Up
0	1	75K Pull Down
1	1	75K Keeper @ IE=1
1	1	75K Pull Down @ IE=0

Pin Order O I IO E E4 E8 SR IE PU PD SMT

Input Capacitance (pf) & Maximum Loading (pf)

Version	Input Capacitance											Maximum Loading
	I	IO	E	E4	E8	SR	IE	PU	PD	SMT	O	
WYNA4GSGA	0.0200	2.141	0.0064	0.0149	0.0127	0.0131	0.0149	0.0076	0.0028	0.0027	0.8946	
WYNA4GSGB	0.0227	2.235	0.0062	0.0122	0.0134	0.0125	0.0142	0.0074	0.0025	0.0023	0.8945	

## Power Consumption (uW/MHz)

Version	Power Consumption	
	O	IO
WYNA4GSGA	0.258	13.24
WYNA4GSGB	0.208	13.48

## AC Characteristics ( Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ns)

Version : WYNA4GSGA

Cell Unit = 120 (I/O UNIT)

State	Output Load													
SMT	Path	0.0012 pf		0.0036 pf		0.0109 pf		0.0329 pf		0.0991 pf		0.2986 pf		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0	IO-O	0.763	0.808	0.765	0.811	0.772	0.817	0.788	0.831	0.829	0.862	0.947	0.945	
1	IO-O	2.025	1.724	2.028	1.726	2.034	1.732	2.050	1.746	2.091	1.778	2.210	1.860	
0	IE-O	1.119	0.835	1.122	0.838	1.128	0.843	1.144	0.857	1.185	0.889	1.303	0.972	
1	IE-O	1.217	0.804	1.220	0.806	1.226	0.812	1.242	0.826	1.283	0.858	1.402	0.940	
E4 E8 SR	Path	9.641 pf		17.14 pf		32.14 pf		62.14 pf		122.1 pf		242.1 pf		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 0 0	E-IO	1.927	1.935	2.379	2.436	3.276	3.436	5.068	5.434	8.652	9.430	15.82	17.42	
0 0 1	E-IO	2.118	2.191	2.571	2.703	3.469	3.706	5.262	5.704	8.846	9.700	16.01	17.69	
0 1 0	E-IO	1.803	1.757	2.040	1.981	2.430	2.361	3.099	3.053	4.332	4.393	6.733	7.058	
0 1 1	E-IO	2.042	2.063	2.302	2.327	2.712	2.744	3.399	3.465	4.642	4.817	7.047	7.485	
1 0 0	E-IO	1.787	1.750	2.024	2.009	2.477	2.511	3.374	3.511	5.167	5.509	8.751	9.505	
1 0 1	E-IO	2.025	2.043	2.276	2.332	2.735	2.849	3.633	3.852	5.426	5.850	9.010	9.846	
1 1 0	E-IO	1.742	1.689	1.915	1.861	2.208	2.154	2.721	2.681	3.661	3.692	5.469	5.692	
1 1 1	E-IO	1.995	1.994	2.188	2.201	2.496	2.527	3.023	3.083	3.972	4.109	5.786	6.114	
	E-IO	L>>Z 1.380						H>>Z 1.585						
0 0 0	I-IO	1.905	1.834	2.356	2.336	3.253	3.336	5.045	5.334	8.629	9.330	15.80	17.32	
0 0 1	I-IO	2.095	2.090	2.548	2.603	3.446	3.605	5.239	5.604	8.823	9.601	15.99	17.59	
0 1 0	I-IO	1.800	1.735	2.028	1.939	2.412	2.299	3.079	2.975	4.311	4.306	6.710	6.966	
0 1 1	I-IO	2.024	2.019	2.281	2.259	2.689	2.661	3.376	3.373	4.619	4.722	7.023	7.388	
1 0 0	I-IO	1.764	1.651	2.001	1.910	2.454	2.411	3.351	3.411	5.143	5.409	8.727	9.405	
1 0 1	I-IO	2.001	1.942	2.252	2.230	2.711	2.748	3.609	3.751	5.402	5.750	8.986	9.747	
1 1 0	I-IO	1.733	1.643	1.900	1.804	2.189	2.085	2.700	2.601	3.639	3.603	5.446	5.599	
1 1 1	I-IO	1.975	1.938	2.166	2.127	2.473	2.441	2.999	2.991	3.949	4.014	5.762	6.018	

Version : WYNA4GSGB

Cell Unit = 135 (I/O UNIT)

State	Output Load													
SMT	Path	0.0012 pf		0.0036 pf		0.0109 pf		0.0329 pf		0.0991 pf		0.2986 pf		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0	IO-O	0.628	0.725	0.630	0.727	0.637	0.733	0.652	0.747	0.693	0.779	0.812	0.861	
1	IO-O	1.892	1.633	1.894	1.635	1.901	1.641	1.917	1.654	1.957	1.686	2.076	1.768	
0	IE-O	0.837	0.688	0.839	0.690	0.846	0.696	0.862	0.710	0.902	0.741	1.021	0.823	
1	IE-O	0.898	0.660	0.900	0.662	0.907	0.668	0.922	0.682	0.963	0.713	1.082	0.795	
E4 E8 SR	Path	9.735 pf		17.24 pf		32.24 pf		62.24 pf		122.2 pf		242.2 pf		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 0 0	E-IO	2.017	2.004	2.468	2.505	3.365	3.505	5.158	5.503	8.742	9.499	15.91	17.49	
0 0 1	E-IO	2.206	2.255	2.660	2.766	3.558	3.768	5.350	5.766	8.934	9.762	16.10	17.75	
0 1 0	E-IO	1.889	1.813	2.125	2.036	2.515	2.416	3.184	3.108	4.417	4.448	6.818	7.113	
0 1 1	E-IO	2.120	2.113	2.375	2.373	2.783	2.788	3.469	3.508	4.713	4.861	7.117	7.529	
1 0 0	E-IO	1.873	1.802	2.110	2.058	2.562	2.560	3.460	3.559	5.252	5.557	8.836	9.553	
1 0 1	E-IO	2.099	2.088	2.348	2.372	2.805	2.887	3.704	3.889	5.496	5.887	9.080	9.883	
1 1 0	E-IO	1.827	1.740	2.000	1.911	2.293	2.202	2.806	2.731	3.745	3.741	5.553	5.742	
1 1 1	E-IO	2.067	2.037	2.257	2.240	2.564	2.564	3.090	3.119	4.039	4.146	5.853	6.151	
	E-IO	L>>Z 1.259						H>>Z 1.477						
0 0 0	I-IO	1.834	1.965	2.285	2.467	3.182	3.467	4.975	5.465	8.559	9.461	15.73	17.45	
0 0 1	I-IO	2.025	2.216	2.478	2.727	3.376	3.730	5.169	5.729	8.753	9.725	15.92	17.72	
0 1 0	I-IO	1.725	1.852	1.952	2.056	2.336	2.416	3.003	3.093	4.234	4.423	6.634	7.083	
0 1 1	I-IO	1.950	2.130	2.206	2.367	2.613	2.767	3.299	3.479	4.542	4.828	6.947	7.495	
1 0 0	I-IO	1.688	1.766	1.925	2.024	2.377	2.525	3.274	3.525	5.066	5.523	8.649	9.519	
1 0 1	I-IO	1.925	2.050	2.176	2.333	2.634	2.848	3.532	3.851	5.325	5.850	8.909	9.846	
1 1 0	I-IO	1.652	1.755	1.819	1.916	2.113	2.197	2.624	2.713	3.562	3.715	5.370	5.711	
1 1 1	I-IO	1.898	2.042	2.088	2.229	2.395	2.542	2.921	3.090	3.870	4.114	5.684	6.117	

# Chapter 4

## 2.5V with 3.3V Tolerance I/O Cells

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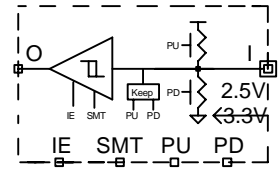
Preliminary

Group Name : UYFN  
 Function : Programmable CMOS Input Buffer,  
 2.5V with 3.3V Tolerance

Symbol

Cell List

Pad Limited	Core Limited
UYFNGA	UYFNGB



Truth Table

I	IE	O
0	1	0
1	1	1
X	0	0

Programmable Features

SMT	Input Threshold
0	Normal
1	Schmitt Trigger

PU	PD	Pull Up / Pull Down
0	0	None
1	0	75K Pull Up
0	1	75K Pull Down
1	1	75K Keeper @ IE=1
1	1	75K Pull Down @ IE=0

Pin Order O I IE PU PD SMT

Input Capacitance (pf) & Maximum Loading (pf) & Power Consumption (uW/MHz)

Version	Input Capacitance					Maximum Loading	Power Consumption
	I	IE	PU	PD	SMT	O	O
UYFNGA	2.592	0.0145	0.0070	0.0024	0.0022	0.8946	0.330
UYFNGB	2.702	0.0134	0.0071	0.0025	0.0023	0.8945	0.268

## AC Characteristics ( Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ns)

Version : UYFNGA

Cell Unit = 120 (I/O UNIT)

State	Output Load													
SMT	Path	0.0012 pf		0.0036 pf		0.0109 pf		0.0329 pf		0.0991 pf		0.2986 pf		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0	I-O	0.737	0.832	0.739	0.835	0.745	0.841	0.761	0.854	0.802	0.886	0.920	0.968	
1	I-O	2.097	1.700	2.099	1.703	2.106	1.709	2.121	1.722	2.162	1.754	2.280	1.836	
0	IE-O	1.070	0.794	1.073	0.796	1.079	0.802	1.095	0.816	1.136	0.847	1.254	0.929	
1	IE-O	1.162	0.765	1.164	0.767	1.170	0.773	1.186	0.786	1.227	0.818	1.345	0.900	

Version : UYFNGB

Cell Unit = 135 (I/O UNIT)

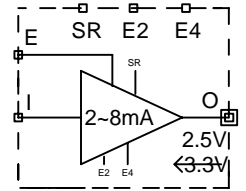
State	Output Load													
SMT	Path	0.0012 pf		0.0036 pf		0.0109 pf		0.0329 pf		0.0991 pf		0.2986 pf		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0	I-O	0.639	0.769	0.641	0.771	0.647	0.777	0.663	0.791	0.704	0.822	0.822	0.905	
1	I-O	1.995	1.641	1.998	1.643	2.004	1.649	2.020	1.663	2.060	1.694	2.179	1.776	
0	IE-O	0.839	0.677	0.841	0.679	0.847	0.685	0.863	0.699	0.904	0.730	1.022	0.812	
1	IE-O	0.902	0.649	0.905	0.651	0.911	0.657	0.927	0.671	0.967	0.702	1.086	0.784	

Group Name : VYFA28S  
 Function : Programmable 2~8mA CMOS Output Buffer,  
 2.5V with 3.3V Tolerance

Symbol

Cell List

Pad Limited	Core Limited
VYFA28SGA	VYFA28SGB



Truth Table

I	E	O
0	1	0
1	1	1
X	0	Z

Programmable Features

Output Driving Capability

E4	E2	Driving
0	0	2mA
0	1	4mA
1	0	6mA
1	1	8mA

Output Slew Rate

SR	Slew Rate
0	Fast
1	Slow

Pin Order O I E E2 E4 SR

Input Capacitance (pf) & Maximum Loading (pf) & Power Consumption (uW/MHz)

Version	Input Capacitance						Maximum Loading	Power Consumption
	O	I	E	E2	E4	SR		
VYFA28SGA	2.578	0.0206	0.0030	0.0144	0.0126	0.0127		14.39
VYFA28SGB	2.680	0.0229	0.0027	0.0117	0.0122	0.0117		14.58



AC Characteristics ( Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ns)

Version : VYFA28SGA

Cell Unit = 120 (I/O UNIT)

State		Output Load											
E2 E4 SR	Path	5.078 pf		7.578 pf		12.58 pf		22.58 pf		42.58 pf		82.58 pf	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0	E-O	2.078	1.654	2.397	2.053	3.020	2.817	4.238	4.321	6.637	7.279	11.40	13.11
0 0 1	E-O	2.259	1.789	2.577	2.190	3.200	2.956	4.417	4.461	6.817	7.417	11.58	13.25
0 1 0	E-O	1.869	1.398	1.991	1.543	2.212	1.814	2.629	2.330	3.442	3.329	5.046	5.296
0 1 1	E-O	2.111	1.590	2.248	1.742	2.481	2.019	2.904	2.539	3.718	3.540	5.322	5.508
1 0 0	E-O	1.892	1.437	2.053	1.643	2.366	2.037	2.982	2.797	4.193	4.286	6.588	7.224
1 0 1	E-O	2.115	1.618	2.282	1.828	2.598	2.229	3.213	2.991	4.423	4.482	6.818	7.420
1 1 0	E-O	1.820	1.356	1.915	1.472	2.084	1.681	2.399	2.077	3.011	2.833	4.218	4.313
1 1 1	E-O	2.075	1.555	2.183	1.677	2.364	1.896	2.687	2.296	3.301	3.054	4.509	4.535
	E-O	L>>Z 1.391						H>>Z 1.612					
0 0 0	I-O	1.968	1.597	2.287	1.992	2.911	2.753	4.129	4.240	6.528	7.173	11.29	13.00
0 0 1	I-O	2.152	1.723	2.468	2.123	3.089	2.889	4.306	4.379	6.708	7.313	11.47	13.14
0 1 0	I-O	1.758	1.364	1.880	1.492	2.101	1.744	2.518	2.246	3.332	3.235	4.936	5.190
0 1 1	I-O	2.011	1.526	2.148	1.668	2.381	1.934	2.803	2.448	3.618	3.444	5.223	5.404
1 0 0	I-O	1.781	1.384	1.943	1.574	2.256	1.956	2.872	2.707	4.083	4.185	6.479	7.111
1 0 1	I-O	2.015	1.544	2.182	1.749	2.497	2.143	3.113	2.902	4.324	4.384	6.719	7.312
1 1 0	I-O	1.709	1.317	1.803	1.417	1.972	1.607	2.288	1.985	2.901	2.730	4.108	4.201
1 1 1	I-O	1.965	1.488	2.073	1.599	2.254	1.806	2.577	2.199	3.191	2.953	4.399	4.428

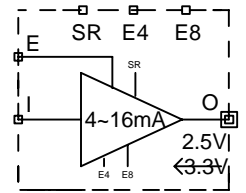
Version : VYFA28SGB

Cell Unit = 135 (I/O UNIT)

State	Output Load													
E2 E4 SR	Path	5.180 pf		7.680 pf		12.68 pf		22.68 pf		42.68 pf		82.68 pf		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 0 0	E-O	2.176	1.730	2.493	2.125	3.115	2.888	4.333	4.394	6.732	7.343	11.50	13.17	
0 0 1	E-O	2.355	1.867	2.673	2.265	3.294	3.030	4.511	4.536	6.911	7.484	11.68	13.32	
0 1 0	E-O	1.951	1.448	2.074	1.590	2.297	1.859	2.710	2.373	3.522	3.370	5.127	5.337	
0 1 1	E-O	2.214	1.638	2.351	1.787	2.583	2.061	3.005	2.578	3.819	3.577	5.424	5.543	
1 0 0	E-O	1.982	1.499	2.143	1.702	2.455	2.094	3.070	2.852	4.281	4.341	6.677	7.277	
1 0 1	E-O	2.214	1.682	2.380	1.893	2.694	2.289	3.309	3.049	4.520	4.539	6.915	7.474	
1 1 0	E-O	1.911	1.407	2.005	1.519	2.173	1.728	2.487	2.120	3.099	2.874	4.306	4.353	
1 1 1	E-O	2.165	1.605	2.272	1.726	2.453	1.940	2.775	2.336	3.389	3.092	4.596	4.571	
	E-O	L>>Z 1.248						H>>Z 1.490						
0 0 0	I-O	1.915	1.732	2.234	2.124	2.856	2.883	4.073	4.369	6.472	7.302	11.24	13.13	
0 0 1	I-O	2.097	1.861	2.415	2.258	3.036	3.020	4.253	4.509	6.653	7.443	11.42	13.27	
0 1 0	I-O	1.701	1.478	1.822	1.606	2.042	1.855	2.459	2.355	3.272	3.341	4.877	5.296	
0 1 1	I-O	1.948	1.636	2.084	1.774	2.323	2.038	2.745	2.549	3.559	3.543	5.164	5.502	
1 0 0	I-O	1.721	1.506	1.882	1.697	2.195	2.078	2.810	2.827	4.021	4.304	6.417	7.229	
1 0 1	I-O	1.955	1.671	2.120	1.873	2.435	2.265	3.050	3.022	4.261	4.503	6.656	7.431	
1 1 0	I-O	1.649	1.433	1.743	1.532	1.911	1.721	2.226	2.096	2.838	2.838	4.045	4.308	
1 1 1	I-O	1.905	1.602	2.012	1.710	2.192	1.914	2.515	2.304	3.129	3.055	4.337	4.530	

Group Name : VYFA4GS  
 Function : Programmable 4~16mA CMOS Output Buffer,  
 2.5V with 3.3V Tolerance

Symbol



Cell List

Pad Limited	Core Limited
VYFA4GSGA	VYFA4GSGB

Truth Table

I	E	O
0	1	0
1	1	1
X	0	Z

Programmable Features

Output Driving Capability

E8	E4	Driving
0	0	4mA
0	1	8mA
1	0	12mA
1	1	16mA

Output Slew Rate

SR	Slew Rate
0	Fast
1	Slow

Pin Order O I E E4 E8 SR

Input Capacitance (pf) & Maximum Loading (pf) & Power Consumption (uW/MHz)

Version	Input Capacitance						Maximum Loading	Power Consumption
	O	I	E	E4	E8	SR		
VYFA4GSGA	2.653	0.0206	0.0030	0.0144	0.0126	0.0127	19.89	
VYFA4GSGB	2.742	0.0229	0.0027	0.0117	0.0122	0.0117	20.20	

AC Characteristics ( Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ns)

Version : VYFA4GSGA

Cell Unit = 120 (I/O UNIT)

State E4 E8 SR	Path	Output Load											
		10.15 pf		17.65 pf		32.65 pf		62.65 pf		122.7 pf		242.7 pf	
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl
0 0 0	E-O	2.159	1.766	2.627	2.340	3.542	3.465	5.347	5.676	8.927	10.05	16.06	18.78
0 0 1	E-O	2.372	1.946	2.843	2.525	3.759	3.651	5.564	5.863	9.144	10.24	16.28	18.97
0 1 0	E-O	2.006	1.530	2.252	1.749	2.654	2.146	3.340	2.898	4.588	4.372	6.995	7.293
0 1 1	E-O	2.278	1.781	2.547	2.020	2.971	2.429	3.676	3.187	4.937	4.662	7.349	7.584
1 0 0	E-O	1.982	1.559	2.229	1.860	2.695	2.433	3.606	3.549	5.407	5.751	8.986	10.12
1 0 1	E-O	2.252	1.799	2.514	2.116	2.986	2.697	3.898	3.815	5.700	6.018	9.279	10.39
1 1 0	E-O	1.926	1.487	2.106	1.665	2.410	1.976	2.936	2.551	3.890	3.660	5.709	5.854
1 1 1	E-O	2.214	1.746	2.414	1.942	2.734	2.267	3.275	2.849	4.241	3.961	6.066	6.155
	E-O	L>>Z 1.433						H>>Z 1.780					
0 0 0	I-O	2.052	1.716	2.520	2.275	3.436	3.384	5.241	5.582	8.821	9.954	15.96	18.68
0 0 1	I-O	2.265	1.873	2.736	2.445	3.652	3.562	5.457	5.765	9.037	10.14	16.17	18.87
0 1 0	I-O	1.898	1.614	2.143	1.821	2.545	2.196	3.231	2.902	4.479	4.331	6.886	7.223
0 1 1	I-O	2.171	1.837	2.440	2.045	2.864	2.425	3.568	3.146	4.829	4.594	7.240	7.499
1 0 0	I-O	1.873	1.538	2.120	1.812	2.586	2.362	3.497	3.461	5.299	5.652	8.877	10.02
1 0 1	I-O	2.144	1.741	2.405	2.039	2.878	2.609	3.790	3.720	5.592	5.917	9.170	10.29
1 1 0	I-O	1.817	1.551	1.997	1.713	2.301	2.006	2.827	2.549	3.780	3.616	5.599	5.781
1 1 1	I-O	2.106	1.779	2.305	1.949	2.626	2.250	3.166	2.804	4.132	3.891	5.956	6.069

Version : VYFA4GSGB

Cell Unit = 135 (I/O UNIT)

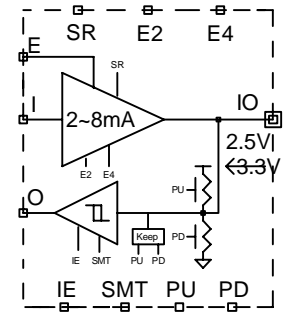
State		Output Load													
E4 E8 SR	Path	10.24 pf		17.74 pf		32.74 pf		62.74 pf		122.7 pf		242.7 pf			
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl		
0 0 0	E-O	2.259	1.837	2.727	2.412	3.643	3.536	5.447	5.747	9.027	10.12	16.16	18.85		
0 0 1	E-O	2.477	2.025	2.948	2.604	3.864	3.730	5.669	5.941	9.249	10.32	16.39	19.05		
0 1 0	E-O	2.103	1.586	2.348	1.804	2.750	2.200	3.436	2.952	4.684	4.427	7.091	7.348		
0 1 1	E-O	2.379	1.842	2.648	2.077	3.071	2.484	3.776	3.242	5.036	4.717	7.448	7.639		
1 0 0	E-O	2.079	1.624	2.325	1.925	2.791	2.498	3.702	3.614	5.503	5.816	9.082	10.19		
1 0 1	E-O	2.352	1.872	2.613	2.189	3.085	2.770	3.997	3.889	5.799	6.091	9.377	10.46		
1 1 0	E-O	2.022	1.544	2.202	1.721	2.505	2.032	3.031	2.607	3.985	3.717	5.803	5.911		
1 1 1	E-O	2.312	1.805	2.512	1.999	2.832	2.322	3.373	2.904	4.338	4.016	6.163	6.211		
	E-O	L>>Z 1.296						H>>Z 1.655							
0 0 0	I-O	2.001	1.852	2.469	2.410	3.385	3.518	5.189	5.716	8.769	10.09	15.91	18.81		
0 0 1	I-O	2.219	2.016	2.689	2.588	3.606	3.704	5.410	5.907	8.990	10.28	16.13	19.01		
0 1 0	I-O	1.844	1.733	2.088	1.940	2.489	2.316	3.175	3.022	4.423	4.450	6.830	7.341		
0 1 1	I-O	2.120	1.958	2.388	2.167	2.811	2.546	3.515	3.268	4.776	4.716	7.187	7.620		
1 0 0	I-O	1.818	1.668	2.065	1.942	2.527	2.491	3.438	3.591	5.240	5.781	8.818	10.15		
1 0 1	I-O	2.092	1.878	2.353	2.177	2.825	2.747	3.737	3.858	5.539	6.055	9.117	10.43		
1 1 0	I-O	1.761	1.671	1.940	1.834	2.243	2.127	2.769	2.670	3.723	3.737	5.541	5.900		
1 1 1	I-O	2.052	1.903	2.252	2.071	2.572	2.372	3.112	2.928	4.078	4.014	5.902	6.192		

Group Name : WYFNA28S  
 Function : Programmable 2~8mA CMOS Bidirect Buffer,  
 2.5V with 3V Tolerance

Symbol

Cell List

Pad Limited	Core Limited
WYFNA28SGA	WYFNA28SGB



Truth Table

I	E	IO
0	1	0
1	1	1
X	0	Z
X	0	Pu1 ( If Pull Up )
X	0	Pu0 ( If Pull Down )
X	0	Keep ( If Keeper )

IE	IO	O
0	X	0
1	0	0
1	1	1
1	Z	X
1	Pu1	1
1	Pu0	0
1	Keep	IO

Programmable Features

Output Driving Capability

E4	E2	Driving
0	0	2mA
0	1	4mA
1	0	6mA
1	1	8mA

Input Characteristics

SMT	Input Threshold
0	Normal
1	Schmitt Trigger

Output Slew Rate

SR	Slew Rate
0	Fast
1	Slow

PU	PD	Pull Up / Pull Down
0	0	None
1	0	75K Pull Up
0	1	75K Pull Down
1	1	75K Keeper @ IE=1
1	1	75K Pull Down @ IE=0

Pin Order O I IO E E2 E4 SR IE PU PD SMT

Input Capacitance (pf) & Maximum Loading (pf)

Version	Input Capacitance										Maximum Loading
	I	IO	E	E2	E4	SR	IE	PU	PD	SMT	O
WYFNA28SGA	0.0206	2.641	0.0061	0.0145	0.0134	0.0126	0.0145	0.0072	0.0025	0.0023	0.8946
WYFNA28SGB	0.0228	2.748	0.0062	0.0122	0.0134	0.0125	0.0142	0.0074	0.0025	0.0023	0.8945

## Power Consumption (uW/MHz)

Version	Power Consumption	
	O	IO
WYFNA28SGA	0.433	14.84
WYFNA28SGB	0.401	15.04

## AC Characteristics ( Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ns)

Version : WYFNA28SGA

Cell Unit = 120 (I/O UNIT)

State	Output Load													
SMT	Path	0.0012 pf		0.0036 pf		0.0109 pf		0.0329 pf		0.0991 pf		0.2986 pf		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0	IO-O	0.738	0.834	0.740	0.837	0.747	0.842	0.763	0.856	0.803	0.888	0.922	0.970	
1	IO-O	2.099	1.702	2.101	1.704	2.108	1.710	2.124	1.724	2.164	1.755	2.283	1.837	
0	IE-O	1.077	0.800	1.079	0.803	1.085	0.808	1.101	0.822	1.142	0.854	1.260	0.936	
1	IE-O	1.169	0.771	1.172	0.773	1.178	0.779	1.194	0.793	1.235	0.824	1.353	0.906	
E2 E4 SR	Path	5.141 pf		7.641 pf		12.64 pf		22.64 pf		42.64 pf		82.64 pf		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 0 0	E-IO	2.109	1.673	2.428	2.072	3.051	2.836	4.269	4.350	6.668	7.312	11.43	13.15	
0 0 1	E-IO	2.291	1.809	2.611	2.208	3.233	2.975	4.451	4.491	6.850	7.452	11.62	13.29	
0 1 0	E-IO	1.895	1.414	2.017	1.558	2.237	1.829	2.654	2.347	3.467	3.346	5.072	5.317	
0 1 1	E-IO	2.149	1.606	2.286	1.759	2.518	2.035	2.941	2.556	3.755	3.558	5.360	5.529	
1 0 0	E-IO	1.918	1.455	2.079	1.658	2.393	2.053	3.008	2.813	4.220	4.307	6.615	7.249	
1 0 1	E-IO	2.154	1.635	2.320	1.847	2.636	2.247	3.251	3.009	4.462	4.504	6.858	7.446	
1 1 0	E-IO	1.845	1.372	1.939	1.486	2.108	1.697	2.423	2.093	3.035	2.849	4.242	4.331	
1 1 1	E-IO	2.103	1.571	2.210	1.693	2.391	1.911	2.714	2.312	3.328	3.071	4.536	4.554	
	E-IO	L>>Z 1.419						H>>Z 1.641						
0 0 0	I-IO	1.983	1.601	2.302	1.995	2.925	2.758	4.143	4.255	6.543	7.192	11.31	13.02	
0 0 1	I-IO	2.164	1.727	2.483	2.128	3.106	2.894	4.323	4.394	6.721	7.332	11.49	13.16	
0 1 0	I-IO	1.768	1.365	1.889	1.495	2.110	1.746	2.527	2.248	3.340	3.237	4.945	5.196	
0 1 1	I-IO	2.022	1.526	2.158	1.667	2.391	1.935	2.814	2.449	3.628	3.445	5.233	5.409	
1 0 0	I-IO	1.791	1.384	1.952	1.575	2.266	1.958	2.882	2.710	4.094	4.192	6.489	7.121	
1 0 1	I-IO	2.026	1.547	2.193	1.752	2.508	2.146	3.124	2.905	4.335	4.391	6.730	7.323	
1 1 0	I-IO	1.718	1.318	1.812	1.417	1.981	1.609	2.296	1.986	2.908	2.731	4.116	4.204	
1 1 1	I-IO	1.975	1.489	2.082	1.600	2.263	1.808	2.586	2.200	3.200	2.954	4.408	4.432	

Version : WYFNA28SGB

Cell Unit = 135 (I/O UNIT)

State	Output Load													
SMT	Path	0.0012 pf		0.0036 pf		0.0109 pf		0.0329 pf		0.0991 pf		0.2986 pf		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0	IO-O	0.639	0.769	0.642	0.771	0.648	0.777	0.664	0.791	0.704	0.822	0.823	0.904	
1	IO-O	1.995	1.642	1.998	1.644	2.004	1.650	2.020	1.664	2.060	1.695	2.179	1.777	
0	IE-O	0.840	0.689	0.842	0.691	0.848	0.697	0.864	0.711	0.905	0.742	1.023	0.825	
1	IE-O	0.900	0.661	0.902	0.663	0.909	0.669	0.925	0.683	0.965	0.714	1.084	0.796	
E2 E4 SR	Path	5.248 pf		7.748 pf		12.75 pf		22.75 pf		42.75 pf		82.75 pf		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 0 0	E-IO	2.213	1.758	2.531	2.154	3.153	2.918	4.370	4.434	6.770	7.388	11.54	13.22	
0 0 1	E-IO	2.395	1.897	2.713	2.293	3.335	3.060	4.552	4.575	6.951	7.528	11.72	13.36	
0 1 0	E-IO	1.994	1.475	2.115	1.615	2.334	1.885	2.750	2.399	3.563	3.397	5.168	5.367	
0 1 1	E-IO	2.248	1.665	2.384	1.813	2.615	2.088	3.037	2.604	3.851	3.604	5.456	5.574	
1 0 0	E-IO	2.016	1.526	2.176	1.728	2.488	2.121	3.103	2.879	4.315	4.373	6.710	7.312	
1 0 1	E-IO	2.250	1.710	2.415	1.919	2.730	2.316	3.344	3.076	4.555	4.571	6.951	7.509	
1 1 0	E-IO	1.942	1.433	2.035	1.545	2.203	1.753	2.518	2.146	3.129	2.900	4.337	4.381	
1 1 1	E-IO	2.198	1.631	2.305	1.752	2.485	1.966	2.807	2.362	3.421	3.118	4.628	4.600	
	E-IO	L>>Z 1.299						H>>Z 1.543						
0 0 0	I-IO	1.934	1.743	2.253	2.135	2.874	2.896	4.092	4.392	6.491	7.328	11.26	13.16	
0 0 1	I-IO	2.116	1.872	2.434	2.269	3.056	3.034	4.273	4.532	6.672	7.469	11.44	13.30	
0 1 0	I-IO	1.713	1.487	1.834	1.614	2.054	1.863	2.470	2.362	3.283	3.350	4.888	5.309	
0 1 1	I-IO	1.968	1.645	2.104	1.785	2.335	2.048	2.757	2.559	3.571	3.554	5.176	5.517	
1 0 0	I-IO	1.735	1.515	1.895	1.706	2.208	2.086	2.823	2.836	4.035	4.318	6.430	7.246	
1 0 1	I-IO	1.970	1.679	2.135	1.882	2.449	2.274	3.064	3.031	4.275	4.517	6.671	7.448	
1 1 0	I-IO	1.661	1.440	1.754	1.539	1.923	1.728	2.237	2.103	2.849	2.845	4.056	4.317	
1 1 1	I-IO	1.918	1.609	2.024	1.718	2.204	1.921	2.527	2.310	3.141	3.060	4.348	4.537	

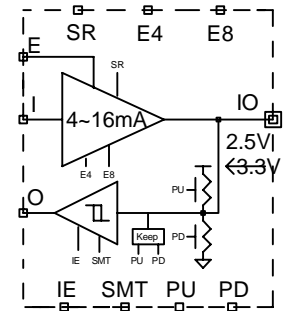


Group Name : WYFNA4GS  
 Function : Programmable 4~16mA CMOS Bidirect Buffer,  
 2.5V with 3V Tolerance

Symbol

Cell List

Pad Limited	Core Limited
WYFNA4GSGA	WYFNA4GSGB



Truth Table

I	E	IO
0	1	0
1	1	1
X	0	Z
X	0	Pu1 ( If Pull Up )
X	0	Pu0 ( If Pull Down )
X	0	Keep ( If Keeper )

IE	IO	O
0	X	0
1	0	0
1	1	1
1	Z	X
1	Pu1	1
1	Pu0	0
1	Keep	IO

Programmable Features

Output Driving Capability

E8	E4	Driving
0	0	4mA
0	1	8mA
1	0	12mA
1	1	16mA

Input Characteristics

SMT	Input Threshold
0	Normal
1	Schmitt Trigger

Output Slew Rate

SR	Slew Rate
0	Fast
1	Slow

PU	PD	Pull Up / Pull Down
0	0	None
1	0	75K Pull Up
0	1	75K Pull Down
1	1	75K Keeper @ IE=1
1	1	75K Pull Down @ IE=0

Pin Order O I IO E E4 E8 SR IE PU PD SMT

Input Capacitance (pf) & Maximum Loading (pf)

Version	Input Capacitance										Maximum Loading
	I	IO	E	E4	E8	SR	IE	PU	PD	SMT	O
WYFNA4GSGA	0.0206	2.723	0.0061	0.0145	0.0134	0.0126	0.0145	0.0072	0.0025	0.0023	0.8946
WYFNA4GSGB	0.0228	2.816	0.0062	0.0122	0.0134	0.0125	0.0142	0.0074	0.0025	0.0023	0.8945

## Power Consumption (uW/MHz)

Version	Power Consumption	
	O	IO
WYFNA4GSGA	0.687	20.35
WYFNA4GSGE	0.626	20.63

## AC Characteristics ( Temp=25.0°C Core Voltage=1.0V Process=Nominal Delay Unit=ns)

Version : WYFNA4GSGA

Cell Unit = 120 (I/O UNIT)

State	Output Load													
SMT	Path	0.0012 pf		0.0036 pf		0.0109 pf		0.0329 pf		0.0991 pf		0.2986 pf		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0	IO-O	0.738	0.831	0.741	0.834	0.747	0.839	0.763	0.853	0.804	0.885	0.922	0.967	
1	IO-O	2.105	1.702	2.108	1.704	2.114	1.710	2.130	1.723	2.171	1.755	2.289	1.837	
0	IE-O	1.077	0.800	1.079	0.803	1.085	0.808	1.101	0.822	1.142	0.854	1.260	0.936	
1	IE-O	1.169	0.771	1.172	0.773	1.178	0.779	1.194	0.793	1.235	0.824	1.353	0.906	
E4 E8 SR	Path	10.22 pf		17.72 pf		32.72 pf		62.72 pf		122.7 pf		242.7 pf		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 0 0	E-IO	2.185	1.783	2.653	2.357	3.569	3.484	5.373	5.701	8.953	10.08	16.09	18.81	
0 0 1	E-IO	2.400	1.962	2.871	2.542	3.787	3.670	5.592	5.887	9.172	10.27	16.31	18.99	
0 1 0	E-IO	2.030	1.546	2.275	1.765	2.677	2.162	3.363	2.914	4.612	4.390	7.019	7.313	
0 1 1	E-IO	2.304	1.792	2.572	2.031	2.996	2.439	3.700	3.198	4.961	4.675	7.373	7.599	
1 0 0	E-IO	2.007	1.574	2.253	1.876	2.719	2.448	3.630	3.565	5.431	5.771	9.010	10.14	
1 0 1	E-IO	2.278	1.815	2.539	2.132	3.011	2.713	3.923	3.832	5.725	6.038	9.304	10.41	
1 1 0	E-IO	1.950	1.502	2.130	1.680	2.433	1.992	2.959	2.566	3.913	3.676	5.732	5.872	
1 1 1	E-IO	2.239	1.762	2.439	1.958	2.759	2.283	3.300	2.865	4.266	3.978	6.091	6.174	
	E-IO	L>>Z 1.459						H>>Z 1.801						
0 0 0	I-IO	2.061	1.718	2.530	2.277	3.446	3.388	5.250	5.592	8.830	9.965	15.97	18.69	
0 0 1	I-IO	2.276	1.876	2.747	2.447	3.663	3.566	5.468	5.775	9.048	10.15	16.19	18.88	
0 1 0	I-IO	1.906	1.615	2.151	1.822	2.553	2.197	3.238	2.904	4.487	4.334	6.893	7.228	
0 1 1	I-IO	2.181	1.841	2.449	2.048	2.872	2.428	3.576	3.150	4.837	4.600	7.249	7.507	
1 0 0	I-IO	1.881	1.540	2.128	1.813	2.594	2.363	3.505	3.463	5.307	5.657	8.885	10.03	
1 0 1	I-IO	2.154	1.742	2.415	2.041	2.887	2.610	3.799	3.722	5.601	5.922	9.180	10.29	
1 1 0	I-IO	1.824	1.551	2.004	1.714	2.307	2.007	2.834	2.550	3.787	3.617	5.606	5.783	
1 1 1	I-IO	2.103	1.782	2.314	1.950	2.634	2.252	3.175	2.807	4.140	3.894	5.965	6.075	

Version : WYFNA4GSGB

Cell Unit = 135 (I/O UNIT)

State	Output Load													
SMT	Path	0.0012 pf		0.0036 pf		0.0109 pf		0.0329 pf		0.0991 pf		0.2986 pf		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0	IO-O	0.639	0.767	0.641	0.770	0.648	0.776	0.664	0.789	0.704	0.821	0.823	0.903	
1	IO-O	1.997	1.642	2.000	1.644	2.006	1.650	2.022	1.664	2.063	1.695	2.181	1.777	
0	IE-O	0.839	0.689	0.842	0.691	0.848	0.697	0.864	0.711	0.904	0.742	1.023	0.824	
1	IE-O	0.900	0.661	0.902	0.663	0.909	0.669	0.924	0.682	0.965	0.714	1.084	0.796	
E4 E8 SR	Path	10.32 pf		17.82 pf		32.82 pf		62.82 pf		122.8 pf		242.8 pf		
		tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	tplh	tphl	
0 0 0	E-IO	2.291	1.864	2.759	2.439	3.675	3.566	5.480	5.782	9.060	10.16	16.20	18.89	
0 0 1	E-IO	2.510	2.051	2.981	2.631	3.897	3.759	5.702	5.976	9.282	10.35	16.42	19.08	
0 1 0	E-IO	2.128	1.612	2.372	1.829	2.773	2.225	3.459	2.979	4.707	4.454	7.114	7.377	
0 1 1	E-IO	2.412	1.860	2.680	2.096	3.103	2.503	3.807	3.261	5.068	4.738	7.480	7.662	
1 0 0	E-IO	2.104	1.651	2.350	1.952	2.816	2.524	3.727	3.641	5.528	5.846	9.107	10.22	
1 0 1	E-IO	2.384	1.898	2.645	2.215	3.117	2.796	4.029	3.916	5.831	6.121	9.410	10.50	
1 1 0	E-IO	2.045	1.569	2.225	1.746	2.528	2.058	3.053	2.633	4.007	3.743	5.826	5.939	
1 1 1	E-IO	2.345	1.834	2.544	2.027	2.864	2.351	3.404	2.933	4.370	4.046	6.195	6.243	
	E-IO	L>>Z 1.348						H>>Z 1.708						
0 0 0	I-IO	2.014	1.861	2.483	2.419	3.399	3.530	5.203	5.732	8.783	10.11	15.92	18.83	
0 0 1	I-IO	2.232	2.025	2.703	2.597	3.620	3.716	5.424	5.924	9.004	10.30	16.14	19.03	
0 1 0	I-IO	1.855	1.740	2.101	1.947	2.502	2.322	3.187	3.029	4.436	4.459	6.842	7.352	
0 1 1	I-IO	2.134	1.965	2.402	2.173	2.825	2.553	3.528	3.275	4.789	4.724	7.201	7.631	
1 0 0	I-IO	1.831	1.676	2.077	1.949	2.543	2.499	3.454	3.599	5.256	5.793	8.835	10.16	
1 0 1	I-IO	2.106	1.886	2.366	2.185	2.838	2.755	3.750	3.867	5.552	6.067	9.131	10.44	
1 1 0	I-IO	1.769	1.677	1.953	1.839	2.256	2.133	2.782	2.676	3.735	3.744	5.554	5.909	
1 1 1	I-IO	2.066	1.909	2.265	2.077	2.585	2.379	3.125	2.934	4.091	4.022	5.916	6.202	

**FARADAY TECHNOLOGY CORP. FARADAY TECHNOLOGY CORP. (U.S.A.)**  
**TERMS AND CONDITIONS OF SALE**  
**(Revision: Sep. 2004)**

**0. PARTIES**

Faraday is a company headquartered in the Republic of China, Taiwan, and incorporated under Taiwan law, and ASIC is a separate company incorporated under California law, and headquartered in California. Faraday and ASIC are independent, and, except as to the entity as to which delivers goods to it. Buyer holds no rights against and has no commitments from Faraday and/or ASIC. Subject to the foregoing, "Seller" refers either to Faraday or to ASIC (whichever entity delivers product by buyer), provided however that ASIC and Faraday shall each be entitled to claim protection under paragraphs 4(b)-4(f), 5, 8(b) & (c), 9,10,11,12 and 13 below.

**1. ACCEPTANCE OF TERMS**

BUYER ACCEPTS THESE TERMS (i) BY WRITTEN ACCEPTANCE (BY PURCHASE ORDER OR OTHERWISE), OR (ii) BY FAILURE TO RETURN GOODS DESCRIBED ON THE FACE OF THIS FORM WITHIN FIVE DAYS OF THEIR DELIVERY.

**2. DELIVERY**

a. Delivery will be made F.O.B. (Incoterms), Seller's plant.  
b. Title to the goods and the entire risk will pass to Buyer upon delivery to carrier.  
c. Shipments are subject to availability. Seller shall make every reasonable effort to meet the date(s) quoted or acknowledged; and if Seller makes such effort, Seller will not be liable for any delays.

**3. TERMS OF PAYMENT**

a. Terms are as stated on Seller's quotation, or if none are stated, Letter of Credit at sight. Accounts past due will incur a monthly charge at the rate of one and one-half percent (1.5%) per month (or, if less, the maximum allowed by applicable law) to cover servicing costs.  
b. Seller reserves the right to change credit terms at any time in its sole discretion.

**4. LIMITED WARRANTY**

a. Seller warrants that the goods sold will be free from defects in material and workmanship and comply with Seller's applicable published specifications for a period of sixty (60) days from the date of Seller's shipment.  
b. Goods or parts which have been subject to abuse (including repeated or extended exposure to conditions at or near the limits of applicable absolute ratings), misuse, accident, alteration, neglect, or unauthorized repair or improper application are not covered by any warranty. Except as provided in paragraph 8 below with respect to intellectual property in Seller's standard cells and/or gate arrays, no warranty is made with respect to custom products or goods produced to Buyer's specifications (unless specifically stated in a writing signed by Seller).  
c. No warranty is made with respect to goods used in devices intended for use in applications where failure to perform when properly used can reasonably be expected to result in significant injury (including, without limitation, navigation, aviation or nuclear equipment, or for surgical implant or to support or sustain life) and Buyer agrees to indemnify, defend, and hold harmless Seller from all claims, damages and liabilities arising out of any such uses.  
d. This Paragraph 4 is the only warranty by Seller with respect to goods and may not be modified or amended except in writing signed by an authorized officer of Seller and by Buyer.  
e. Buyer acknowledges and agrees that it is not relying on any applications or circuits contained in Seller's literature, and to test all parts and applications under extended field and laboratory conditions. Notwithstanding any cross-reference or any statements of compatibility, functionality, interchangeability, and the like, Seller's goods may differ from similar goods from other vendors in performance, function or operation, and in areas not contained in Seller's written specifications, or as to ranges and conditions outside such specifications; and Buyer agrees that Seller makes no warranties and is not responsible for such things.  
f. EXCEPT AS PROVIDED ABOVE, SELLER MAKES NO WARRANTIES OR CONDITIONS, EXPRESS, IMPLIED, OR STATUTORY, AND EXPRESSLY EXCLUDES AND DISCLAIMS ANY WARRANTY OR CONDITION OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR APPLICATION.

**5. LIMITATION OF LIABILITY**

a. Seller will not be liable for any loss, damage or penalty resulting from causes beyond its reasonable control, including but not limited to delay by others, force majeure, act of God, or labor conditions. In any such event, the date(s) for Seller's performance will be deemed extended for a period equal to any delay resulting.  
b. SELLER'S LIABILITY ARISING OUT OF THIS CONTRACT OR ANY GOODS SOLD WILL BE LIMITED TO REFUND OF THE PURCHASE PRICE OR REPAIR (IF AUTHORIZED BY SELLER IN ADVANCE) OR REPLACEMENT OF PURCHASED GOODS (RETURNED TO SELLER FREIGHT PRE-PAID).  
c. Buyer will not return any goods without first obtaining a customer return order number.  
d. AS A SEPARATE LIMITATION, IN NO EVENT WILL SELLER BE LIABLE FOR COSTS OF SUBSTITUTE GOODS; FOR ANY SPECIAL, CONSEQUENTIAL, INCIDENTAL OR INDIRECT DAMAGES; OR LOSS OF USE, OPPORTUNITY, MARKET POTENTIAL, AND/OR PROFIT ON ANY THEORY (CONTRACT, TORT, FROM THIRD PARTY CLAIMS OR OTHERWISE). THESE LIMITATIONS SHALL APPLY NOTWITHSTANDING ANY FAILURE OF ESSENTIAL PURPOSE OF ANY REMEDY.  
e. No action against Seller, whether for breach, indemnification, contribution or otherwise, shall be commenced more than one year after the cause of action has accrued, or more than one year after either the Buyer, user or other person knew or with reasonable diligence should have known of the matter or of any claim of dissatisfaction or defect involved; and no such claim may be brought unless Seller has first been given commercially reasonable notice, a full written explanation of all pertinent details, and a good faith opportunity to resolve the matter.  
f. BUYER EXPRESSLY AGREES TO THE LIMITATIONS OF THIS PARAGRAPH 5 AND TO THEIR REASONABLENESS.

**6. SUBSTITUTIONS AND MODIFICATIONS**

Seller may at any time make substitutions and modifications to products which do not materially and adversely affect overall performance with the then current Seller specifications in the typical and intended use; provided however that Seller shall not modify any design for product approved in writing by Buyer without Buyer's written consent. Seller reserves the right to halt production or alter specifications and prices without notice. Buyer shall verify that the literature and information is current before purchasing.

**7. CANCELLATION**

a. This contract may not be canceled by Buyer except with written consent by Seller and Buyer's payment of reasonable cancellation charges (including but not be limited to expenses already incurred for labor and material, overhead, commitments made by Seller, and a reasonable profit).  
b. In no event will Buyer have rights in partially completed goods.

**8. INDEMNIFICATION**

a. Seller will, at its own expense, defend and/or settle all suits against Buyer to the extent based on any valid claim that any standard parts from Seller's standard cell library and/or standard gate array configurations incorporated by Seller into goods purchased by Buyer under this Agreement infringe any valid, enforceable, unexpired R.O.C. patent, copyright and/or trademark, and/or that any processing steps or methods by Seller in making parts under this Agreement infringe any valid, enforceable, unexpired R.O.C. method patent, copyright or trademark; provided, however, that Buyer (i) gives immediate written notice to Seller, (ii) permits Seller to defend, and (iii) gives Seller all needed information, assistance, and authority. Seller is not responsible for infringements resulting from anything not manufactured entirely by Seller, or from any combination with products, equipment or materials not furnished entirely by Seller. Seller shall have no liability under this Paragraph 8 for any infringements resulting from and/or arising out of Buyer's specifications, requirements, code or design nor under any claim arising out of or based upon strict and/or product liability. THIS PARAGRAPH STATES SELLER'S ENTIRE LIABILITY AND OBLIGATION WITH RESPECT TO PRODUCT LIABILITY, INTELLECTUAL OR INDUSTRIAL PROPERTY INFRINGEMENT OR CLAIMS THEREFORE.  
b. Except as to claims Seller agrees to defend, BUYER WILL INDEMNIFY, DEFEND AND HOLD HARMLESS SELLER FROM ALL CLAIMS, COSTS, LOSSES, AND DAMAGES (INCLUDING ATTORNEYS FEES) AGAINST AND/OR ARISING OUT OF GOODS SOLD AND/OR SHIPPED HEREUNDER. Without limiting this indemnification, Buyer guarantees that it has all necessary rights in and to the designs and products involved, and that the manufacture of goods for Buyer will not infringe or violate the rights of any person or entity.

**9. CONFIDENTIAL INFORMATION**

a. Seller shall have no obligation to hold any information in confidence except as provided in a separate non-disclosure agreement signed by both parties; provided however that Seller shall not disclose to others, without the consent of Buyer, any designs, database tapes or electronic files received from Buyer clearly stamped or marked as "CONFIDENTIAL."  
b. Unless Buyer agrees otherwise, Seller will not use to manufacture products for others, any documents, electronic files or other things which Buyer provides to Seller in a form clearly, marked or stamped as "CONFIDENTIAL."

**10. ENTIRE AGREEMENT**

a. These terms and conditions are the entire agreement between Seller and Buyer, and no addition, deletion or modification shall be binding on Seller unless expressly agreed to in a writing signed by an officer of Seller.  
b. Buyer is not relying upon any warranty or representation except for those specifically stated here.

**11. APPLICABLE LAW**

This contract and all performance and disputes arising out of or relating to goods involved will be governed by the laws of the country of Seller's headquarters, without reference to conflict of laws principles and excluding the U.N. Convention on Contracts for the International Sale of Goods. Buyer agrees at its sole expense to comply with all applicable laws in connection with the purchase, use or sale of the goods provided hereunder.

**12. JURISDICTION AND VENUE**

The courts located within 100 miles of Seller's headquarters, will have the sole and exclusive jurisdiction and venue over any dispute arising out of or relating to this contract or any sale of goods hereunder, and Buyer hereby consents to the jurisdiction of such courts.

**13. ATTORNEYS' FEES**

Reasonable attorneys' fees and costs will be awarded to the prevailing party in the event of litigation involving the enforcement or interpretation of this contract.



**FARADAY**  
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