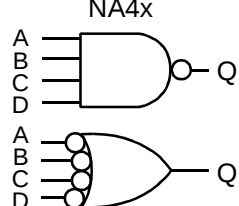


AMI5HG 0.5 micron CMOS Gate Array

Description

NA4x is a family of 4-input gates which perform the logical NAND function.

Logic Symbol	Truth Table																														
NA4x 	<table><tr><th>A</th><th>B</th><th>C</th><th>D</th><th>Q</th></tr><tr><td>L</td><td>X</td><td>X</td><td>X</td><td>H</td></tr><tr><td>X</td><td>L</td><td>X</td><td>X</td><td>H</td></tr><tr><td>X</td><td>X</td><td>L</td><td>X</td><td>H</td></tr><tr><td>X</td><td>X</td><td>X</td><td>L</td><td>H</td></tr><tr><td>H</td><td>H</td><td>H</td><td>H</td><td>L</td></tr></table>	A	B	C	D	Q	L	X	X	X	H	X	L	X	X	H	X	X	L	X	H	X	X	X	L	H	H	H	H	H	L
A	B	C	D	Q																											
L	X	X	X	H																											
X	L	X	X	H																											
X	X	L	X	H																											
X	X	X	L	H																											
H	H	H	H	L																											

HDL Syntax

Verilog NA4x *inst_name* (Q, A, B, C, D);

VHDL *inst_name*: NA4x port map (Q, A, B, C, D);

Pin Loading

Pin Name	Equivalent Loads				
	NA41	NA42	NA43	NA44	NA46
A	1.0	2.1	2.1	2.1	2.1
B	1.0	2.1	2.1	2.1	2.1
C	1.0	2.1	2.1	2.1	2.1
D	1.0	2.1	2.1	2.1	2.1

Size And Power Characteristics

Cell	Equivalent Gates	Power Characteristics ^a	
		Static I _{DD} (T _J = 85°C) (nA)	EQL _{pd} (Eq-load)
NA41	2.0	TBD	1.9
NA42	4.0	TBD	3.8
NA43	6.0	TBD	8.7
NA44	7.0	TBD	12.4
NA46	8.0	TBD	15.7

a. See page 2-15 for power equation.

AMI5HG 0.5 micron CMOS Gate Array

Propagation Delays (ns)

Conditions: $T_J = 25^\circ\text{C}$, $V_{DD} = 5.0\text{V}$, Typical Process

NA41	Number of Equivalent Loads		1	2	4	5	7 (max)
	From: Any Input To: Q	t_{PLH} t_{PHL}	0.14 0.26	0.17 0.34	0.24 0.48	0.27 0.56	0.33 0.71
NA42	Number of Equivalent Loads		1	2	5	8	10 (max)
	From: Any Input To: Q	t_{PLH} t_{PHL}	0.10 0.18	0.12 0.23	0.17 0.36	0.22 0.48	0.25 0.56
NA43	Number of Equivalent Loads		1	8	15	22	30 (max)
	From: Any Input To: Q	t_{PLH} t_{PHL}	0.30 0.48	0.41 0.62	0.52 0.73	0.61 0.83	0.72 0.93
NA44	Number of Equivalent Loads		1	14	28	42	56 (max)
	From: Any Input To: Q	t_{PLH} t_{PHL}	0.32 0.51	0.41 0.64	0.49 0.75	0.59 0.85	0.70 0.95
NA46	Number of Equivalent Loads		1	21	42	62	83 (max)
	From: Any Input To: Q	t_{PLH} t_{PHL}	0.34 0.56	0.45 0.66	0.54 0.78	0.63 0.89	0.74 1.00

Delay will vary with input conditions. See page 2-17 for interconnect estimates.