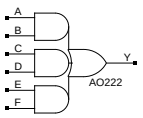
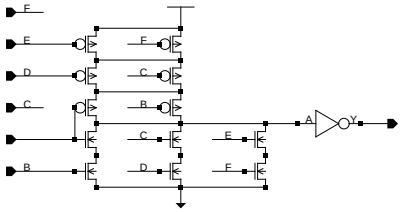
series : SYNSPEC_1.0 **function : 3-wide 2-2-2-inputs AND-OR**

macro name	AO222	size [um]	25.200 x 25.300

Symbol



Schematic



Truth Table

A	B	C	D	E	F	Y
1	1	X	X	X	X	1
X	X	1	1	X	X	1
X	X	X	X	1	1	1
other states						0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.023							
B	0.023							
C	0.022							
D	0.022							
E	0.022							
F	0.022							
Y		0.888	1.754	1.758	1.762	0.832	0.850	0.867

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.30	0.30	0.30	0.33	0.33	0.33
B	=>	Y	0.32	0.32	0.32	0.38	0.38	0.38
C	=>	Y	0.42	0.42	0.42	0.51	0.51	0.51
D	=>	Y	0.44	0.44	0.44	0.55	0.55	0.55
E	=>	Y	0.48	0.48	0.48	0.60	0.60	0.60
F	=>	Y	0.50	0.50	0.50	0.63	0.63	0.63

series : SYNSPEC_1.0 **function : 4-wide 2-2-2-2-inputs AND-OR**

macro name	AO2222	size [um]	36.400 x 25.300

Truth Table

A	B	C	D	E	F	G	H	Y
1	1	X	X	X	X	X	X	1
X	X	1	1	X	X	X	X	1
X	X	X	X	1	1	X	X	1
X	X	X	X	X	X	1	1	1
other states								0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.027							
B	0.026							
C	0.026							
D	0.026							
E	0.027							
F	0.026							
G	0.026							
H	0.026							
Y		0.860	1.774	1.777	1.779	1.239	1.248	1.257

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.23	0.23	0.23	0.29	0.29	0.29
B	=>	Y	0.24	0.24	0.24	0.36	0.36	0.36
C	=>	Y	0.29	0.29	0.29	0.41	0.41	0.41
D	=>	Y	0.31	0.31	0.31	0.48	0.48	0.48
E	=>	Y	0.26	0.26	0.26	0.29	0.29	0.29
F	=>	Y	0.28	0.28	0.28	0.35	0.35	0.35
G	=>	Y	0.33	0.33	0.33	0.41	0.41	0.41
H	=>	Y	0.35	0.35	0.35	0.47	0.47	0.47

series : SYNSPEC_1.0 **function : 4-wide 2-2-2-2-inputs AND-OR,powered**

macro name	AO2222P	size [um]	42.000 x 25.300

Truth Table

A	B	C	D	E	F	G	H	Y
1	1	X	X	X	X	X	X	1
X	X	1	1	X	X	X	X	1
X	X	X	X	1	1	X	X	1
X	X	X	X	X	X	1	1	1
other states								0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.027							
B	0.026							
C	0.026							
D	0.026							
E	0.027							
F	0.026							
G	0.026							
H	0.026							
Y		1.673	0.891	0.908	0.924	0.637	0.650	0.662

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.25	0.25	0.25	0.34	0.34	0.34
B	=>	Y	0.27	0.27	0.27	0.40	0.40	0.40
C	=>	Y	0.32	0.32	0.32	0.45	0.45	0.45
D	=>	Y	0.34	0.34	0.34	0.52	0.52	0.52
E	=>	Y	0.29	0.29	0.29	0.34	0.34	0.34
F	=>	Y	0.30	0.30	0.30	0.40	0.40	0.40
G	=>	Y	0.36	0.36	0.36	0.46	0.46	0.46
H	=>	Y	0.38	0.38	0.38	0.52	0.52	0.52

series : SYNSPEC_1.0 **function : 4-wide 2-2-2-2-inputs AND-OR,x4 powered**

macro name	AO2222P4	size [um]	53.200 x 25.300

Truth Table

A	B	C	D	E	F	G	H	Y
1	1	X	X	X	X	X	X	1
X	X	1	1	X	X	X	X	1
X	X	X	X	1	1	X	X	1
X	X	X	X	X	X	1	1	1
other states								0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.027							
B	0.026							
C	0.026							
D	0.026							
E	0.027							
F	0.026							
G	0.026							
H	0.026							
Y		3.524	0.455	0.455	0.455	0.237	0.237	0.237

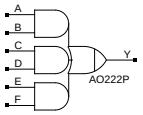
AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.52	0.52	0.52	0.65	0.65	0.65
B	=>	Y	0.53	0.53	0.53	0.71	0.71	0.71
C	=>	Y	0.58	0.58	0.58	0.77	0.77	0.77
D	=>	Y	0.60	0.60	0.60	0.84	0.84	0.84
E	=>	Y	0.56	0.56	0.56	0.66	0.66	0.66
F	=>	Y	0.58	0.58	0.58	0.72	0.72	0.72
G	=>	Y	0.63	0.63	0.63	0.77	0.77	0.77
H	=>	Y	0.65	0.65	0.65	0.84	0.84	0.84

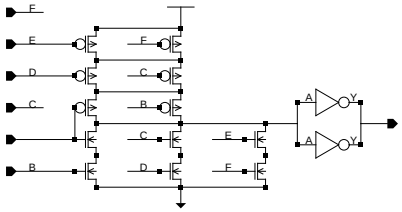
series : SYNSPEC_1.0 **function : 3-wide 2-2-2-inputs AND-OR,powered**

macro name	AO222P	size [um]	28.000 x 25.300

Symbol



Schematic



Truth Table

A	B	C	D	E	F	Y
1	1	X	X	X	X	1
X	X	1	1	X	X	1
X	X	X	X	1	1	1
other states						0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.023							
B	0.023							
C	0.022							
D	0.022							
E	0.022							
F	0.022							
Y		1.742	0.893	0.898	0.902	0.471	0.487	0.503

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.33	0.33	0.33	0.37	0.37	0.37
B	=>	Y	0.35	0.35	0.35	0.41	0.41	0.41
C	=>	Y	0.45	0.45	0.45	0.55	0.55	0.55
D	=>	Y	0.47	0.47	0.47	0.58	0.58	0.58
E	=>	Y	0.52	0.52	0.52	0.64	0.64	0.64
F	=>	Y	0.54	0.54	0.54	0.67	0.67	0.67

series : SYNSPEC_1.0 **function : 3-wide 2-2-2-inputs AND-OR,x4 powered**

macro name	AO222P4	size [um]	33.600 x 25.300

Truth Table

A	B	C	D	E	F	Y
1	1	X	X	X	X	1
X	X	1	1	X	X	1
X	X	X	X	1	1	1
other states						0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.023							
B	0.023							
C	0.022							
D	0.022							
E	0.022							
F	0.022							
Y		3.396	0.465	0.468	0.471	0.307	0.317	0.328

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.44	0.44	0.44	0.53	0.53	0.53
B	=>	Y	0.46	0.46	0.46	0.57	0.57	0.57
C	=>	Y	0.57	0.57	0.57	0.71	0.71	0.71
D	=>	Y	0.59	0.59	0.59	0.74	0.74	0.74
E	=>	Y	0.63	0.63	0.63	0.81	0.81	0.81
F	=>	Y	0.66	0.66	0.66	0.82	0.82	0.82

series : SYNSPEC_1.0 **function : 2-wide 3-3-inputs AND-OR**

macro name	AO33	size [um]	28.000 x 25.300

Truth Table

A	B	C	D	E	F	Y
1	1	1	X	X	X	1
X	X	X	1	1	1	1
other states						0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.023							
B	0.023							
C	0.022							
D	0.023							
E	0.023							
F	0.022							
Y		0.860	1.774	1.776	1.778	1.236	1.240	1.244

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.27	0.27	0.27	0.30	0.30	0.30
B	=>	Y	0.30	0.30	0.30	0.36	0.36	0.36
C	=>	Y	0.32	0.32	0.32	0.41	0.41	0.41
D	=>	Y	0.32	0.32	0.32	0.30	0.30	0.30
E	=>	Y	0.35	0.35	0.35	0.36	0.36	0.36
F	=>	Y	0.36	0.36	0.36	0.41	0.41	0.41

series : SYNSPEC_1.0 **function : 2-wide 3-3-inputs AND-OR,powered**

macro name	AO33P	size [um]	30.800 x 25.300

Truth Table

A	B	C	D	E	F	Y
1	1	1	X	X	X	1
X	X	X	1	1	1	1
other states						0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.023							
B	0.023							
C	0.022							
D	0.023							
E	0.023							
F	0.022							
Y		1.663	0.893	0.910	0.926	0.632	0.640	0.648

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.31	0.31	0.31	0.35	0.35	0.35
B	=>	Y	0.34	0.34	0.34	0.41	0.41	0.41
C	=>	Y	0.36	0.36	0.36	0.46	0.46	0.46
D	=>	Y	0.35	0.35	0.35	0.35	0.35	0.35
E	=>	Y	0.38	0.38	0.38	0.41	0.41	0.41
F	=>	Y	0.40	0.40	0.40	0.46	0.46	0.46

series : SYNSPEC_1.0 **function : 2-wide 3-3-inputs AND-OR,x4 powered**

macro name	AO33P4	size [um]	44.800 x 25.300

Truth Table

A	B	C	D	E	F	Y
1	1	1	X	X	X	1
X	X	X	1	1	1	1
other states						0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.023							
B	0.023							
C	0.022							
D	0.023							
E	0.023							
F	0.022							
Y		3.537	0.454	0.454	0.454	0.236	0.237	0.237

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.56	0.56	0.56	0.66	0.66	0.66
B	=>	Y	0.59	0.59	0.59	0.72	0.72	0.72
C	=>	Y	0.61	0.61	0.61	0.77	0.77	0.77
D	=>	Y	0.61	0.61	0.61	0.66	0.66	0.66
E	=>	Y	0.64	0.64	0.64	0.72	0.72	0.72
F	=>	Y	0.66	0.66	0.66	0.77	0.77	0.77

series : SYNSPEC_1.0 **function : 2-wide 4-4-inputs AND-OR**

macro name	AO44	size [um]	33.600 x 25.300

Truth Table

A	B	C	D	E	F	G	H	Y
1	1	1	1	X	X	X	X	1
X	X	X	X	1	1	1	1	1
other states								0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.023							
B	0.022							
C	0.022							
D	0.022							
E	0.023							
F	0.022							
G	0.022							
H	0.022							
Y		0.798	1.891	1.894	1.897	1.236	1.243	1.250

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.32	0.32	0.32	0.31	0.31	0.31
B	=>	Y	0.36	0.36	0.36	0.38	0.38	0.38
C	=>	Y	0.40	0.40	0.40	0.44	0.44	0.44
D	=>	Y	0.42	0.42	0.42	0.47	0.47	0.47
E	=>	Y	0.37	0.37	0.37	0.31	0.31	0.31
F	=>	Y	0.42	0.42	0.42	0.38	0.38	0.38
G	=>	Y	0.45	0.45	0.45	0.44	0.44	0.44
H	=>	Y	0.47	0.47	0.47	0.48	0.48	0.48

series : SYNSPEC_1.0 **function : 2-wide 4-4-inputs AND-OR,powered**

macro name	AO44P	size [um]	36.400 x 25.300

Truth Table

A	B	C	D	E	F	G	H	Y
1	1	1	1	X	X	X	X	1
X	X	X	X	1	1	1	1	1
other states								0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.023							
B	0.023							
C	0.022							
D	0.022							
E	0.023							
F	0.023							
G	0.022							
H	0.022							
Y		1.427	0.901	0.974	1.048	0.632	0.644	0.656

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.38	0.38	0.38	0.36	0.36	0.36
B	=>	Y	0.42	0.42	0.42	0.42	0.42	0.42
C	=>	Y	0.46	0.46	0.46	0.48	0.48	0.48
D	=>	Y	0.48	0.48	0.48	0.52	0.52	0.52
E	=>	Y	0.41	0.41	0.41	0.36	0.36	0.36
F	=>	Y	0.46	0.46	0.46	0.42	0.42	0.42
G	=>	Y	0.49	0.49	0.49	0.47	0.47	0.47
H	=>	Y	0.51	0.51	0.51	0.51	0.51	0.51

series : SYNSPEC_1.0 **function : 2-wide 4-4-inputs AND-OR,x4 powered**

macro name	AO44P4	size [um]	50.400 x 25.300

Truth Table

A	B	C	D	E	F	G	H	Y
1	1	1	1	X	X	X	X	1
X	X	X	X	1	1	1	1	1
other states								0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.023							
B	0.022							
C	0.022							
D	0.022							
E	0.023							
F	0.022							
G	0.022							
H	0.022							
Y		3.524	0.455	0.455	0.455	0.236	0.237	0.237

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.61	0.61	0.61	0.68	0.68	0.68
B	=>	Y	0.66	0.66	0.66	0.74	0.74	0.74
C	=>	Y	0.69	0.69	0.69	0.81	0.81	0.81
D	=>	Y	0.71	0.71	0.71	0.84	0.84	0.84
E	=>	Y	0.68	0.68	0.68	0.67	0.67	0.67
F	=>	Y	0.72	0.72	0.72	0.74	0.74	0.74
G	=>	Y	0.75	0.75	0.75	0.80	0.80	0.80
H	=>	Y	0.77	0.77	0.77	0.84	0.84	0.84

series : SYNSPEC_1.0 **function : 2-wide 2-1-inputs AND-NOR**

macro name	AOI21	size [um]	11.200 x 25.300

Truth Table

A	B	C	Y
0	X	0	1
1	X	X	0
0	0	X	1
X	1	1	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.026							
B	0.026							
C	0.026							
Y		0.377	2.724	3.173	3.622	0.778	1.007	1.236

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.15	0.15	0.15	0.07	0.07	0.07
B	=>	Y	0.28	0.28	0.28	0.11	0.11	0.11
C	=>	Y	0.35	0.35	0.35	0.12	0.12	0.12

series : SYNSPEC_1.0 **function : 3-wide 2-1-1-inputs AND-NOR**

macro name	AOI211	size [um]	14.000 x 25.300

Truth Table

A	B	C	D	Y
0	0	X	0	1
1	X	X	X	0
X	1	X	X	0
0	0	0	X	1
X	X	1	1	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.026							
B	0.027							
C	0.030							
D	0.025							
Y		0.241	4.276	4.724	5.172	0.778	1.008	1.239

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.24	0.24	0.24	0.07	0.07	0.07
B	=>	Y	0.29	0.29	0.29	0.08	0.08	0.08
C	=>	Y	0.45	0.45	0.45	0.12	0.12	0.12
D	=>	Y	0.57	0.57	0.57	0.13	0.13	0.13

series : SYNSPEC_1.0 **function : 3-wide 2-1-1-inputs AND-NOR,powered**

macro name	AOI211P	size [um]	25.200 x 25.300

Truth Table

A	B	C	D	Y
0	0	X	0	1
1	X	X	X	0
X	1	X	X	0
0	0	0	X	1
X	X	1	1	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.052							
B	0.052							
C	0.051							
D	0.051							
Y		0.503	2.158	2.385	2.611	0.391	0.513	0.635

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.18	0.18	0.18	0.07	0.07	0.07
B	=>	Y	0.24	0.24	0.24	0.07	0.07	0.07
C	=>	Y	0.40	0.40	0.40	0.09	0.09	0.09
D	=>	Y	0.51	0.51	0.51	0.11	0.11	0.11

series : SYNSPEC_1.0 **function : 3-wide 2-1-1-inputs AND-NOR,x4 powered**

macro name	AOI211P4	size [um]	30.800 x 25.300

Truth Table

A	B	C	D	Y
0	0	X	0	1
1	X	X	X	0
X	1	X	X	0
0	0	0	X	1
X	X	1	1	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.027							
B	0.026							
C	0.026							
D	0.026							
Y		3.501	0.452	0.453	0.453	0.242	0.242	0.242

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.63	0.63	0.63	0.41	0.41	0.41
B	=>	Y	0.71	0.71	0.71	0.42	0.42	0.42
C	=>	Y	0.90	0.90	0.90	0.51	0.51	0.51
D	=>	Y	1.03	1.03	1.03	0.53	0.53	0.53

series : SYNSPEC_1.0 **function : 2-wide 2-1-inputs AND-NOR**

macro name	AOI21A	size [um]	16.800 x 25.300

Truth Table

A	B	C	Y
0	X	X	0
1	X	0	1
1	0	X	1
X	1	1	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.019							
B	0.026							
C	0.026							
Y		0.395	2.600	3.041	3.482	0.786	1.011	1.236

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.24	0.24	0.24	0.22	0.22	0.22
B	=>	Y	0.27	0.27	0.27	0.11	0.11	0.11
C	=>	Y	0.34	0.34	0.34	0.12	0.12	0.12

series : SYNSPEC_1.0 **function : 2-wide 2-1-inputs AND-NOR,powered**

macro name	AOI21AP	size [um]	25.200 x 25.300

Truth Table

A	B	C	Y
0	X	X	0
1	X	0	1
1	0	X	1
X	1	1	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.018							
B	0.051							
C	0.051							
Y		0.815	1.319	1.541	1.763	0.412	0.517	0.621

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.22	0.22	0.22	0.26	0.26	0.26
B	=>	Y	0.21	0.21	0.21	0.08	0.08	0.08
C	=>	Y	0.29	0.29	0.29	0.10	0.10	0.10

series : SYNSPEC_1.0 **function : 2-wide 2-1-inputs AND-NOR,x4 powered**

macro name	AOI21AP4	size [um]	33.600 x 25.300

Truth Table

A	B	C	Y
0	X	X	0
1	X	0	1
1	0	X	1
X	1	1	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.019							
B	0.026							
C	0.026							
Y		3.581	0.445	0.445	0.446	0.237	0.237	0.238

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.58	0.58	0.58	0.55	0.55	0.55
B	=>	Y	0.65	0.65	0.65	0.48	0.48	0.48
C	=>	Y	0.73	0.73	0.73	0.49	0.49	0.49

series : SYNSPEC_1.0 **function : 2-wide 2-1-inputs AND-NOR**

macro name	AOI21B	size [um]	16.800 x 25.300

Truth Table

A	B	C	Y
0	0	X	1
1	X	X	0
X	1	0	0
0	X	1	1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.027							
B	0.026							
C	0.018							
Y		0.396	2.598	3.040	3.482	0.778	1.008	1.238

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.14	0.16	0.19	0.07	0.07	0.07
B	=>	Y	0.27	0.27	0.27	0.11	0.11	0.11
C	=>	Y	0.44	0.44	0.44	0.28	0.28	0.28

series : SYNSPEC_1.0 **function : 2-wide 2-1-inputs AND-NOR,powered**

macro name	AOI21BP	size [um]	25.200 x 25.300

Truth Table

A	B	C	Y
0	0	X	1
1	X	X	0
X	1	0	0
0	X	1	1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.058							
B	0.051							
C	0.018							
Y		0.817	1.318	1.540	1.763	0.386	0.506	0.627

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.09	0.10	0.11	0.06	0.06	0.06
B	=>	Y	0.21	0.21	0.21	0.08	0.08	0.08
C	=>	Y	0.41	0.41	0.41	0.32	0.32	0.32

series : SYNSPEC_1.0 **function : 2-wide 2-1-inputs AND-NOR,x4 powered**

macro name	AOI21BP4	size [um]	33.600 x 25.300

Truth Table

A	B	C	Y
0	0	X	1
1	X	X	0
X	1	0	0
0	X	1	1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.027							
B	0.026							
C	0.018							
Y		3.568	0.447	0.447	0.447	0.238	0.238	0.238

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.47	0.51	0.55	0.39	0.39	0.39
B	=>	Y	0.65	0.65	0.65	0.48	0.48	0.48
C	=>	Y	0.83	0.83	0.83	0.66	0.66	0.66

series : SYNSPEC_1.0 **function : 2-wide 2-1-inputs AND-NOR,powered**

macro name	AOI21P	size [um]	19.600 x 25.300

Truth Table

A	B	C	Y
0	X	0	1
1	X	X	0
0	0	X	1
X	1	1	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.052							
B	0.051							
C	0.051							
Y		0.817	1.318	1.540	1.762	0.386	0.504	0.621

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.09	0.09	0.09	0.06	0.06	0.06
B	=>	Y	0.21	0.21	0.21	0.08	0.08	0.08
C	=>	Y	0.28	0.28	0.28	0.10	0.10	0.10

series : SYNSPEC_1.0 **function : 2-wide 2-1-inputs AND-NOR,x4 powered**

macro name	AOI21P4	size [um]	28.000 x 25.300

Truth Table

A	B	C	Y
0	X	0	1
1	X	X	0
0	0	X	1
X	1	1	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.027							
B	0.026							
C	0.026							
Y		3.511	0.453	0.454	0.454	0.242	0.242	0.242

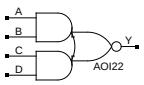
AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.49	0.49	0.49	0.40	0.40	0.40
B	=>	Y	0.67	0.67	0.67	0.50	0.50	0.50
C	=>	Y	0.75	0.75	0.75	0.51	0.51	0.51

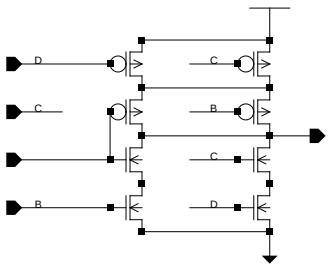
series : SYNSPEC_1.0 **function : 2-wide 2-2-inputs AND-NOR**

macro name	AOI22	size [um]	14.000 x 25.300

Symbol



Schematic



Truth Table

A	B	C	D	Y
1	1	X	X	0
X	X	1	1	0
other states				1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.027							
B	0.026							
C	0.026							
D	0.025							
Y		0.539	2.616	2.638	2.661	1.221	1.226	1.231

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.12	0.12	0.12	0.07	0.07	0.07
B	=>	Y	0.18	0.18	0.18	0.09	0.09	0.09
C	=>	Y	0.22	0.22	0.22	0.12	0.12	0.12
D	=>	Y	0.27	0.27	0.27	0.13	0.13	0.13

series : SYNSPEC_1.0 **function : 2-wide 2-2-inputs AND-NOR**

macro name	AOI22A	size [um]	19.600 x 25.300

Truth Table

A	B	C	D	Y
1	1	X	X	0
X	X	1	0	0
other states				1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.027							
B	0.026							
C	0.026							
D	0.018							
Y		0.402	2.602	3.043	3.484	1.221	1.226	1.231

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.11	0.13	0.15	0.07	0.07	0.07
B	=>	Y	0.17	0.20	0.24	0.09	0.09	0.09
C	=>	Y	0.21	0.21	0.21	0.12	0.12	0.12
D	=>	Y	0.37	0.37	0.37	0.30	0.30	0.30

series : SYNSPEC_1.0 **function : 2-wide 2-2-inputs AND-NOR,powered**

macro name	AOI22AP	size [um]	30.800 x 25.300

Truth Table

A	B	C	D	Y
1	1	X	X	0
X	X	1	0	0
other states				1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.053							
B	0.053							
C	0.051							
D	0.018							
Y		0.787	1.313	1.553	1.792	0.614	0.620	0.626

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.11	0.12	0.14	0.08	0.08	0.08
B	=>	Y	0.17	0.20	0.22	0.09	0.09	0.09
C	=>	Y	0.21	0.21	0.21	0.12	0.12	0.12
D	=>	Y	0.40	0.40	0.40	0.36	0.36	0.36

series : SYNSPEC_1.0 **function : 2-wide 2-2-inputs AND-NOR,x4 powered**

macro name	AOI22AP4	size [um]	36.400 x 25.300

Truth Table

A	B	C	D	Y
1	1	X	X	0
X	X	1	0	0
other states				1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.027							
B	0.026							
C	0.026							
D	0.018							
Y		3.513	0.454	0.454	0.454	0.241	0.241	0.241

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.45	0.48	0.51	0.44	0.44	0.44
B	=>	Y	0.52	0.56	0.60	0.46	0.46	0.46
C	=>	Y	0.57	0.57	0.57	0.51	0.51	0.51
D	=>	Y	0.74	0.74	0.74	0.69	0.69	0.69

series : SYNSPEC_1.0 **function : 2-wide 2-2-inputs AND-NOR**

macro name	AOI22B	size [um]	22.400 x 25.300

Truth Table

A	B	C	D	Y
1	0	X	X	0
X	X	1	0	0
other states				1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.027							
B	0.019							
C	0.026							
D	0.019							
Y		0.382	2.732	3.187	3.643	1.222	1.229	1.235

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.11	0.14	0.16	0.07	0.07	0.07
B	=>	Y	0.28	0.30	0.32	0.24	0.24	0.24
C	=>	Y	0.22	0.24	0.27	0.10	0.11	0.12
D	=>	Y	0.39	0.42	0.45	0.28	0.29	0.30

series : SYNSPEC_1.0 **function : 2-wide 2-2-inputs AND-NOR,powered**

macro name	AOI22BP	size [um]	33.600 x 25.300

Truth Table

A	B	C	D	Y
1	0	X	X	0
X	X	1	0	0
other states				1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.052							
B	0.019							
C	0.052							
D	0.019							
Y		0.786	1.314	1.553	1.792	0.623	0.633	0.643

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.12	0.13	0.14	0.08	0.08	0.08
B	=>	Y	0.31	0.33	0.36	0.32	0.32	0.32
C	=>	Y	0.21	0.23	0.25	0.10	0.11	0.12
D	=>	Y	0.41	0.44	0.47	0.35	0.37	0.38

series : SYNSPEC_1.0 **function : 2-wide 2-2-inputs AND-NOR,x4 powered**

macro name	AOI22BP4	size [um]	39.200 x 25.300

Truth Table

A	B	C	D	Y
1	0	X	X	0
X	X	1	0	0
other states				1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.027							
B	0.019							
C	0.027							
D	0.019							
Y		3.514	0.453	0.454	0.454	0.241	0.241	0.242

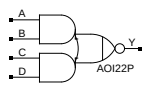
AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.46	0.49	0.51	0.44	0.44	0.44
B	=>	Y	0.65	0.69	0.73	0.63	0.63	0.63
C	=>	Y	0.58	0.62	0.65	0.50	0.51	0.52
D	=>	Y	0.77	0.81	0.85	0.69	0.70	0.71

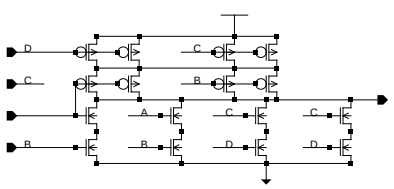
series : SYNSPEC_1.0 **function : 2-wide 2-2-inputs AND-NOR,powered**

macro name	AOI22P	size [um]	25.200 x 25.300

Symbol



Schematic



Truth Table

A	B	C	D	Y
1	1	X	X	0
X	X	1	1	0
other states				1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.052							
B	0.052							
C	0.051							
D	0.051							
Y		1.080	1.313	1.336	1.358	0.613	0.618	0.622

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.12	0.12	0.12	0.08	0.08	0.08
B	=>	Y	0.17	0.17	0.17	0.09	0.09	0.09
C	=>	Y	0.21	0.21	0.21	0.12	0.12	0.12
D	=>	Y	0.26	0.26	0.26	0.13	0.13	0.13

series : SYNSPEC_1.0 **function : 2-wide 2-2-inputs AND-NOR,x4 powered**

macro name	AOI22P4	size [um]	30.800 x 25.300

Truth Table

A	B	C	D	Y
1	1	X	X	0
X	X	1	1	0
other states				1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.027							
B	0.026							
C	0.026							
D	0.026							
Y		3.515	0.454	0.454	0.454	0.242	0.242	0.242

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.46	0.46	0.46	0.44	0.44	0.44
B	=>	Y	0.52	0.52	0.52	0.46	0.46	0.46
C	=>	Y	0.57	0.57	0.57	0.51	0.51	0.51
D	=>	Y	0.64	0.64	0.64	0.53	0.53	0.53

series : SYNSPEC_1.0 **function : Bus Keeper**

macro name	BKEEP	size [um]	11.200 x 25.300

Truth Table

Y	Y
X	-

series : SYNSPEC_1.0 **function : Non-inverting buffer**

macro name	BUF1	size [um]	8.400 x 25.300

Truth Table

A	Y
0	0
1	1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.023							
Y		0.891	1.773	1.773	1.773	0.783	0.783	0.783

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.18	0.18	0.18	0.17	0.17	0.17

series : SYNSPEC_1.0 **function : Non-inverting buffer x 2**

macro name	BUF2	size [um]	11.200 x 25.300

Truth Table

A	Y
0	0
1	1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.027							
Y		1.797	0.891	0.891	0.891	0.406	0.406	0.406

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.16	0.16	0.16	0.20	0.20	0.20

series : SYNSPEC_1.0 **function : Non-inverting buffer x 3**

macro name	BUF3	size [um]	14.000 x 25.300

Truth Table

A	Y
0	0
1	1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.027							
Y		2.679	0.598	0.598	0.598	0.291	0.291	0.291

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.19	0.19	0.19	0.24	0.24	0.24

series : SYNSPEC_1.0 **function : Non-inverting buffer x 4**

macro name	BUF4	size [um]	19.600 x 25.300

Truth Table

A	Y
0	0
1	1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.052							
Y		3.615	0.446	0.446	0.446	0.213	0.213	0.213

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.14	0.14	0.14	0.17	0.17	0.17

series : SYNSPEC_1.0 **function : Non-inverting buffer x 6**

macro name	BUF6	size [um]	25.200 x 25.300

Truth Table

A	Y
0	0
1	1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.052							
Y		5.387	0.301	0.301	0.301	0.158	0.158	0.158

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.17	0.17	0.17	0.21	0.21	0.21

series : SYNSPEC_1.0 **function : Non-inverting buffer x 8**

macro name	BUF8	size [um]	33.600 x 25.300

Truth Table

A	Y
0	0
1	1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.078							
Y		7.166	0.227	0.227	0.227	0.125	0.125	0.125

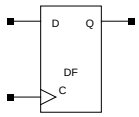
AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.16	0.16	0.16	0.21	0.21	0.21

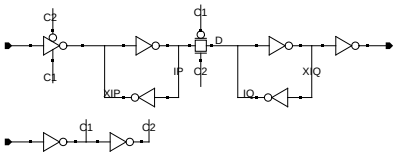
series : SYNSPEC_1.0 **function : D-flip flop**

macro name	DF	size [um]	33.600 x 25.300

Symbol



Schematic



Truth Table

C	D	Q
1->0	X	hold
0->1	0	0
0->1	1	1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
C	0.019							
D	0.018							
Q		0.885	1.777	1.777	1.777	0.793	0.793	0.793

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
C	=>	Q	0.65	0.65	0.65	0.60	0.60	0.60
D	<=	C	setup time			0.50	0.50	0.50
D	<=	C	hold time			0.10	0.10	0.10
C		(low)	minimum pulse width			0.83	0.83	0.83
C		(high)	minimum pulse width			0.65	0.65	0.65

series : SYNSPEC_1.0 **function : D-flip flop with negative clock XC**

macro name	DFN	size [um]	33.600 x 25.300

Truth Table

D	XC	Q
X	0->1	hold
0	1->0	0
1	1->0	1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D	0.018							
Q		0.885	1.777	1.777	1.777	0.793	0.793	0.793
XC	0.019							

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
XC	=>	Q	0.69	0.69	0.69	0.59	0.59	0.59
D	<=	XC	setup time			0.45	0.45	0.45
D	<=	XC	hold time			0.10	0.10	0.10
XC		(low)	minimum pulse width			0.69	0.69	0.69
XC		(high)	minimum pulse width			0.65	0.65	0.65

series : SYNSPEC_1.0 **function : D-flip flop with negative clock XC,powered**

macro name	DFNP	size [um]	36.400 x 25.300

Truth Table

D	XC	Q
X	0->1	hold
0	1->0	0
1	1->0	1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D	0.018							
Q		1.790	0.891	0.891	0.891	0.424	0.424	0.424
XC	0.019							

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
XC	=>	Q	0.74	0.74	0.74	0.63	0.63	0.63
D	<=	XC	setup time			0.45	0.45	0.45
D	<=	XC	hold time			0.10	0.10	0.10
XC		(low)	minimum pulse width			0.74	0.74	0.74
XC		(high)	minimum pulse width			0.65	0.65	0.65

series : SYNSPEC_1.0 **function : D-flip flop with negative clock XC,x4 powered**

macro name	DFNP4	size [um]	42.000 x 25.300

Truth Table

D	XC	Q
X	0->1	hold
0	1->0	0
1	1->0	1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D	0.018							
Q		3.498	0.454	0.454	0.454	0.261	0.261	0.261
XC	0.019							

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
XC	=>	Q	0.86	0.86	0.86	0.75	0.75	0.75
D	<=	XC	setup time			0.45	0.45	0.45
D	<=	XC	hold time			0.10	0.10	0.10
XC		(low)	minimum pulse width			0.86	0.86	0.86
XC		(high)	minimum pulse width			0.65	0.65	0.65

series : SYNSPEC_1.0 **function : D-flip flop with low reset XR,negative clock XC**

macro name	DFNR	size [um]	44.800 x 25.300

Truth Table

D	XC	XR	Q
X	X	0	0
X	0->1	1	hold
0	1->0	1	0
1	1->0	1	1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D	0.018							
Q		0.901	1.752	1.752	1.752	0.784	0.787	0.790
XC	0.019							
XR	0.036							

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
XC	=>	Q	0.82	0.82	0.82	0.60	0.60	0.60
XR	=>	Q				0.28	0.28	0.28
D	<=	XC	setup time			0.29	0.29	0.29
D	<=	XC	hold time			0.12	0.12	0.12
XR	<=	XC	release time					
XR	<=	XC	removable time			0.30	0.30	0.30
XC		(low)	minimum pulse width			0.82	0.82	0.82
XC		(high)	minimum pulse width			0.65	0.65	0.65
XR		(low)	minimum pulse width			0.71	0.71	0.71

series : SYNSPEC_1.0 **function : D-flip flop with low reset XR,negative clock XC,x4 powered**

macro name	DFNRP4	size [um]	53.200 x 25.300

Truth Table

D	XC	XR	Q
X	X	0	0
X	0->1	1	hold
0	1->0	1	0
1	1->0	1	1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D	0.018							
Q		3.487	0.458	0.458	0.458	0.258	0.262	0.267
XC	0.019							
XR	0.036							

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
XC	=>	Q	1.06	1.06	1.06	0.76	0.76	0.76
XR	=>	Q				0.42	0.43	0.43
D	<=	XC	setup time			0.29	0.29	0.29
D	<=	XC	hold time			0.12	0.12	0.12
XR	<=	XC	release time					
XR	<=	XC	removable time			0.30	0.30	0.30
XC		(low)	minimum pulse width			1.06	1.06	1.06
XC		(high)	minimum pulse width			0.65	0.65	0.65
XR		(low)	minimum pulse width			0.99	0.99	0.99

series : SYNSPEC_1.0 **function : D-flip flop,inverted out with low reset XR,negative clock XC**

macro name	DFNRX	size [um]	47.600 x 25.300

Truth Table

D	XC	XR	XQ
X	X	0	1
X	0->1	1	hold
0	1->0	1	1
1	1->0	1	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D	0.018							
XC	0.019							
XQ		0.903	1.750	1.750	1.750	0.784	0.784	0.784
XR	0.036							

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
XC	=>	XQ	0.74	0.74	0.74	0.90	0.90	0.90
XR	=>	XQ	0.42	0.42	0.42			
D	<=	XC	setup time			0.29	0.29	0.29
D	<=	XC	hold time			0.12	0.12	0.12
XR	<=	XC	release time					
XR	<=	XC	removable time			0.30	0.30	0.30
XC		(low)	minimum pulse width			0.90	0.90	0.90
XC		(high)	minimum pulse width			0.65	0.65	0.65
XR		(low)	minimum pulse width			0.70	0.70	0.70

series : SYNSPEC_1.0 **function : D-flip flop with low reset XR,negative clock XC,inverted out,powered**

macro name	DFNRXP	size [um]	50.400 x 25.300

Truth Table

D	XC	XR	XQ
X	X	0	1
X	0->1	1	hold
0	1->0	1	1
1	1->0	1	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D	0.018							
XC	0.019							
XQ		1.795	0.891	0.891	0.891	0.405	0.405	0.405
XR	0.036							

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
XC	=>	XQ	0.73	0.73	0.73	0.96	0.96	0.96
XR	=>	XQ	0.41	0.41	0.41			
D	<=	XC	setup time			0.29	0.29	0.29
D	<=	XC	hold time			0.12	0.12	0.12
XR	<=	XC	release time					
XR	<=	XC	removable time			0.30	0.30	0.30
XC		(low)	minimum pulse width			0.96	0.96	0.96
XC		(high)	minimum pulse width			0.65	0.65	0.65
XR		(low)	minimum pulse width			0.71	0.71	0.71

series : SYNSPEC_1.0 **function : D-flip flop with low reset XR,negative clock XC,inverted out,x4 powered**

macro name	DFNRXP4	size [um]	58.800 x 25.300

Truth Table

D	XC	XR	XQ
X	X	0	1
X	0->1	1	hold
0	1->0	1	1
1	1->0	1	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D	0.018							
XC	0.019							
XQ		3.593	0.447	0.447	0.447	0.235	0.235	0.235
XR	0.036							

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
XC	=>	XQ	0.78	0.78	0.78	1.03	1.03	1.03
XR	=>	XQ	0.46	0.46	0.46			
D	<=	XC	setup time			0.29	0.29	0.29
D	<=	XC	hold time			0.12	0.12	0.12
XR	<=	XC	release time					
XR	<=	XC	removable time			0.30	0.30	0.30
XC		(low)	minimum pulse width			1.03	1.03	1.03
XC		(high)	minimum pulse width			0.65	0.65	0.65
XR		(low)	minimum pulse width			0.71	0.71	0.71

series : SYNSPEC_1.0 **function : D-flip flop with low reset XR,low set XS,negative clock XC,x4 powered**

macro name	DFNSRP4	size [um]	75.600 x 25.300

Truth Table

D	XC	XR	XS	Q	XQ
X	X	0	0	0	0
X	X	1	0	1	0
X	X	0	1	0	1
X	0->1	1	1	hold	hold
0	1->0	1	1	0	1
1	1->0	1	1	1	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D	0.018							
Q		2.937	0.470	0.489	0.508	0.278	0.279	0.281
XC	0.019							
XQ		3.198	0.432	0.454	0.477	0.244	0.272	0.300
XR	0.041							
XS	0.037							

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
XC	=>	Q	1.04	1.04	1.04	0.89	0.89	0.89
XR	=>	Q	0.44	0.44	0.44	0.44	0.44	0.44
XS	=>	Q	0.92	1.12	1.32			
XC	=>	XQ	1.48	1.48	1.48	1.50	1.50	1.50
XR	=>	XQ	1.04	1.12	1.19			
XS	=>	XQ	0.44	0.49	0.55	0.45	0.51	0.57
D	<=	XC	setup time			0.34	0.34	0.34
D	<=	XC	hold time			0.16	0.16	0.16
XR	<=	XC	release time			0.03	0.03	0.03
XR	<=	XC	removable time			0.10	0.10	0.10
XS	<=	XC	release time			0.01	0.01	0.01
XS	<=	XC	removable time			0.17	0.17	0.17
XS	<=	XR	recovery time			0.31	0.31	0.31
XR	<=	XS	recovery time			0.28	0.28	0.28
XC		(low)	minimum pulse width			1.50	1.50	1.50
XC		(high)	minimum pulse width			0.77	0.77	0.77
XR		(low)	minimum pulse width			1.19	1.19	1.19
XS		(low)	minimum pulse width			1.32	1.32	1.32

series : SYNSPEC_1.0 **function : D-flip flop with negative clock XC,inverted out**

macro name	DFNX	size [um]	33.600 x 25.300

Truth Table

D	XC	XQ
X	0->1	hold
0	1->0	1
1	1->0	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D	0.018							
XC	0.019							
XQ		0.883	1.780	1.780	1.780	0.834	0.834	0.834

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
XC	=>	XQ	0.50	0.50	0.50	0.59	0.59	0.59
D	<=	XC	setup time			0.45	0.45	0.45
D	<=	XC	hold time			0.10	0.10	0.10
XC		(low)	minimum pulse width			0.59	0.59	0.59
XC		(high)	minimum pulse width			0.65	0.65	0.65

series : SYNSPEC_1.0 **function : D-flip flop with negative clock XC,inverted out,powered**

macro name	DFNXP	size [um]	36.400 x 25.300

Truth Table

D	XC	XQ
X	0->1	hold
0	1->0	1
1	1->0	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D	0.018							
XC	0.019							
XQ		1.764	0.898	0.898	0.898	0.484	0.484	0.484

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
XC	=>	XQ	0.54	0.54	0.54	0.62	0.62	0.62
D	<=	XC	setup time			0.45	0.45	0.45
D	<=	XC	hold time			0.10	0.10	0.10
XC		(low)	minimum pulse width			0.66	0.66	0.66
XC		(high)	minimum pulse width			0.65	0.65	0.65

series : SYNSPEC_1.0 **function : D-flip flop with negative clock XC,inverted out,x4 powered**

macro name	DFNXP4	size [um]	47.600 x 25.300

Truth Table

D	XC	XQ
X	0->1	hold
0	1->0	1
1	1->0	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D	0.018							
XC	0.019							
XQ		3.582	0.449	0.449	0.449	0.236	0.236	0.236

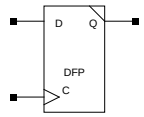
AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
XC	=>	XQ	0.77	0.77	0.77	0.90	0.90	0.90
D	<=	XC	setup time			0.45	0.45	0.45
D	<=	XC	hold time			0.10	0.10	0.10
XC		(low)	minimum pulse width			0.90	0.90	0.90
XC		(high)	minimum pulse width			0.65	0.65	0.65

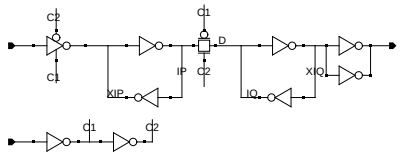
series : SYNSPEC_1.0 **function : D-flip flop,powered**

macro name	DFP	size [um]	36.400 x 25.300

Symbol



Schematic



Truth Table

C	D	Q
1->0	X	hold
0->1	0	0
0->1	1	1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
C	0.019							
D	0.018							
Q		1.802	0.885	0.885	0.885	0.425	0.425	0.425

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
C	=>	Q	0.70	0.70	0.70	0.65	0.65	0.65
D	<=	C	setup time			0.50	0.50	0.50
D	<=	C	hold time			0.10	0.10	0.10
C		(low)	minimum pulse width			0.83	0.83	0.83
C		(high)	minimum pulse width			0.70	0.70	0.70

series : SYNSPEC_1.0 **function : D-flip flop,x4 powered**

macro name	DFP4	size [um]	42.000 x 25.300

Truth Table

C	D	Q
1->0	X	hold
0->1	0	0
0->1	1	1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
C	0.019							
D	0.018							
Q		3.544	0.449	0.449	0.449	0.262	0.262	0.262

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
C	=>	Q	0.82	0.82	0.82	0.77	0.77	0.77
D	<=	C	setup time			0.50	0.50	0.50
D	<=	C	hold time			0.10	0.10	0.10
C		(low)	minimum pulse width			0.83	0.83	0.83
C		(high)	minimum pulse width			0.82	0.82	0.82

series : SYNSPEC_1.0 **function : D-flip flop with low reset XR**

macro name	DFR	size [um]	44.800 x 25.300

Truth Table

C	D	XR	Q
X	X	0	0
1->0	X	1	hold
0->1	0	1	0
0->1	1	1	1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
C	0.019							
D	0.018							
Q		0.901	1.752	1.752	1.752	0.784	0.787	0.790
XR	0.036							

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
C	=>	Q	0.77	0.77	0.77	0.62	0.62	0.62
XR	=>	Q				0.28	0.28	0.28
D	<=	C	setup time			0.35	0.35	0.35
D	<=	C	hold time			0.13	0.13	0.13
XR	<=	C	release time					
XR	<=	C	removable time			0.30	0.30	0.30
C		(low)	minimum pulse width			0.76	0.76	0.76
C		(high)	minimum pulse width			0.77	0.77	0.77
XR		(low)	minimum pulse width			0.71	0.71	0.71

series : SYNSPEC_1.0 **function : D-flip flop with low reset XR,powered**

macro name	DFRP	size [um]	47.600 x 25.300

Truth Table

C	D	XR	Q
X	X	0	0
1->0	X	1	hold
0->1	0	1	0
0->1	1	1	1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
C	0.019							
D	0.018							
Q		1.797	0.883	0.883	0.883	0.419	0.422	0.426
XR	0.036							

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
C	=>	Q	0.84	0.84	0.84	0.67	0.67	0.67
XR	=>	Q				0.31	0.31	0.31
D	<=	C	setup time			0.35	0.35	0.35
D	<=	C	hold time			0.13	0.13	0.13
XR	<=	C	release time					
XR	<=	C	removable time			0.30	0.30	0.30
C		(low)	minimum pulse width			0.76	0.76	0.76
C		(high)	minimum pulse width			0.84	0.84	0.84
XR		(low)	minimum pulse width			0.80	0.80	0.80

series : SYNSPEC_1.0 **function : D-flip flop,inverted out with low reset XR**

macro name	DFRX	size [um]	47.600 x 25.300

Truth Table

C	D	XR	XQ
X	X	0	1
1->0	X	1	hold
0->1	0	1	1
0->1	1	1	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
C	0.019							
D	0.018							
XQ		0.903	1.750	1.750	1.750	0.784	0.784	0.784
XR	0.036							

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
C	=>	XQ	0.76	0.76	0.76	0.85	0.85	0.85
XR	=>	XQ	0.42	0.42	0.42			
D	<=	C	setup time			0.35	0.35	0.35
D	<=	C	hold time			0.13	0.13	0.13
XR	<=	C	release time					
XR	<=	C	removable time			0.30	0.30	0.30
C		(low)	minimum pulse width			0.76	0.76	0.76
C		(high)	minimum pulse width			0.85	0.85	0.85
XR		(low)	minimum pulse width			0.70	0.70	0.70

series : SYNSPEC_1.0 **function : D-flip flop,inverted out with low reset XR,powered**

macro name	DFRXP	size [um]	50.400 x 25.300

Truth Table

C	D	XR	XQ
X	X	0	1
1->0	X	1	hold
0->1	0	1	1
0->1	1	1	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
C	0.019							
D	0.018							
XQ		1.796	0.891	0.891	0.891	0.405	0.405	0.405
XR	0.036							

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
C	=>	XQ	0.75	0.75	0.75	0.91	0.91	0.91
XR	=>	XQ	0.41	0.41	0.41			
D	<=	C	setup time			0.35	0.35	0.35
D	<=	C	hold time			0.13	0.13	0.13
XR	<=	C	release time					
XR	<=	C	removable time			0.30	0.30	0.30
C		(low)	minimum pulse width			0.76	0.76	0.76
C		(high)	minimum pulse width			0.91	0.91	0.91
XR		(low)	minimum pulse width			0.71	0.71	0.71

series : SYNSPEC_1.0 **function : D-flip flop,inverted out with low reset XR,x4 powered**

macro name	DFRXP4	size [um]	56.000 x 25.300

Truth Table

C	D	XR	XQ
X	X	0	1
1->0	X	1	hold
0->1	0	1	1
0->1	1	1	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
C	0.019							
D	0.018							
XQ		3.570	0.448	0.448	0.448	0.234	0.234	0.234
XR	0.036							

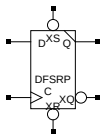
AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
C	=>	XQ	0.87	0.87	0.87	0.96	0.96	0.96
XR	=>	XQ	0.53	0.53	0.53			
D	<=	C	setup time			0.35	0.35	0.35
D	<=	C	hold time			0.13	0.13	0.13
XR	<=	C	release time					
XR	<=	C	removable time			0.30	0.30	0.30
C		(low)	minimum pulse width			0.76	0.76	0.76
C		(high)	minimum pulse width			0.96	0.96	0.96
XR		(low)	minimum pulse width			0.70	0.70	0.70

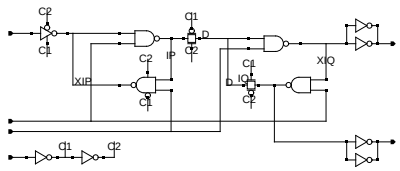
series : SYNSPEC_1.0 **function : D-flip flop with low reset XR,low set XS,powered**

macro name	DFSRP	size [um]	64.400 x 25.300

Symbol



Schematic



Truth Table

C	D	XR	XS	Q	XQ
X	X	0	0	0	0
X	X	1	0	1	0
X	X	0	1	0	1
1->0	X	1	1	hold	hold
0->1	0	1	1	0	1
0->1	1	1	1	1	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
C	0.019							
D	0.018							
Q		1.616	0.916	0.925	0.935	0.442	0.447	0.453
XQ		1.646	0.927	0.932	0.937	0.425	0.449	0.473
XR	0.040							
XS	0.037							

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
C	=>	Q	0.78	0.78	0.78	0.81	0.81	0.81
XR	=>	Q	0.33	0.33	0.33	0.33	0.34	0.34
XS	=>	Q	0.79	0.89	0.98			
C	=>	XQ	1.20	1.20	1.20	1.07	1.07	1.07
XR	=>	XQ	0.73	0.80	0.87			
XS	=>	XQ	0.33	0.38	0.44	0.34	0.39	0.45
D	<=	C	setup time			0.41	0.41	0.41
D	<=	C	hold time			0.17	0.17	0.17
XR	<=	C	release time			0.10	0.10	0.10
XR	<=	C	removable time			0.11	0.11	0.11
XS	<=	C	release time			0.07	0.07	0.07
XS	<=	C	removable time			0.18	0.18	0.18
XS	<=	XR	recovery time			0.21	0.21	0.21
XR	<=	XS	recovery time			0.17	0.17	0.17
C		(low)	minimum pulse width			0.87	0.87	0.87
C		(high)	minimum pulse width			1.20	1.20	1.20
XR		(low)	minimum pulse width			0.87	0.87	0.87
XS		(low)	minimum pulse width			0.98	0.98	0.98

series : SYNSPEC_1.0 **function : D-flip flop,inverted out**

macro name	DFX	size [um]	33.600 x 25.300

Truth Table

C	D	XQ
1->0	X	hold
0->1	0	1
0->1	1	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
C	0.019							
D	0.018							
XQ		0.883	1.779	1.779	1.779	0.835	0.835	0.835

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
C	=>	XQ	0.50	0.50	0.50	0.56	0.56	0.56
D	<=	C	setup time			0.50	0.50	0.50
D	<=	C	hold time			0.10	0.10	0.10
C		(low)	minimum pulse width			0.83	0.83	0.83
C		(high)	minimum pulse width			0.57	0.57	0.57

series : SYNSPEC_1.0 **function : D-flip flop,inverted out,powered**

macro name	DFXP	size [um]	36.400 x 25.300

Truth Table

C	D	XQ
1->0	X	hold
0->1	0	1
0->1	1	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
C	0.019							
D	0.018							
XQ		1.779	0.891	0.891	0.891	0.488	0.488	0.488

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
C	=>	XQ	0.53	0.53	0.53	0.59	0.59	0.59
D	<=	C	setup time			0.50	0.50	0.50
D	<=	C	hold time			0.10	0.10	0.10
C		(low)	minimum pulse width			0.83	0.83	0.83
C		(high)	minimum pulse width			0.65	0.65	0.65

series : SYNSPEC_1.0 **function : D-flip flop,inverted out,x4 powered**

macro name	DFXP4	size [um]	47.600 x 25.300

Truth Table

C	D	XQ
1->0	X	hold
0->1	0	1
0->1	1	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
C	0.019							
D	0.018							
XQ		3.594	0.447	0.447	0.447	0.236	0.236	0.236

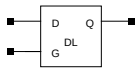
AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
C	=>	XQ	0.79	0.79	0.79	0.86	0.86	0.86
D	<=	C	setup time			0.50	0.50	0.50
D	<=	C	hold time			0.10	0.10	0.10
C		(low)	minimum pulse width			0.83	0.83	0.83
C		(high)	minimum pulse width			0.86	0.86	0.86

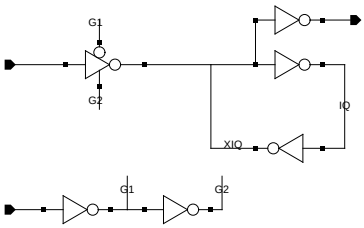
series : SYNSPEC_1.0 **function : D-latch**

macro name	DL	size [um]	25.200 x 25.300

Symbol



Schematic



Truth Table

D	G	Q
X	0	hold
0	1	0
1	1	1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D	0.018							
G	0.019							
Q		0.888	1.774	1.774	1.775	0.826	0.826	0.827

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
D	=>	Q	0.35	0.35	0.35	0.83	0.83	0.83
G	=>	Q	0.53	0.53	0.53	0.79	0.79	0.79
D	<=	G	setup time			0.61	0.61	0.61
D	<=	G	hold time			0.02	0.02	0.02
G		(high)	minimum pulse width			0.79	0.79	0.79

series : SYNSPEC_1.0 **function : D-latch with active low XG**

macro name	DLN	size [um]	25.200 x 25.300

Truth Table

D	XG	Q
0	0	0
1	0	1
X	1	hold

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D	0.018							
Q		0.888	1.774	1.774	1.774	0.826	0.826	0.826
XG	0.019							

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
D	=>	Q	0.35	0.35	0.35	0.83	0.83	0.83
XG	=>	Q	0.49	0.49	0.49	0.95	0.95	0.95
D	<=	XG	setup time			0.67	0.67	0.67
D	<=	XG	hold time			0.02	0.02	0.02
XG		(low)	minimum pulse width			0.95	0.95	0.95

series : SYNSPEC_1.0 **function : D-latch with active low XG,powered**

macro name	DLNP	size [um]	28.000 x 25.300

Truth Table

D	XG	Q
0	0	0
1	0	1
X	1	hold

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D	0.018							
Q		1.779	0.890	0.890	0.890	0.473	0.473	0.473
XG	0.019							

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
D	=>	Q	0.38	0.38	0.38	0.97	0.97	0.97
XG	=>	Q	0.53	0.53	0.53	1.09	1.09	1.09
D	<=	XG	setup time			0.84	0.84	0.84
D	<=	XG	hold time					
XG		(low)	minimum pulse width			1.11	1.11	1.11

series : SYNSPEC_1.0 **function : D-latch with active low XG,x4 powered**

macro name	DLNP4	size [um]	39.200 x 25.300

Truth Table

D	XG	Q
0	0	0
1	0	1
X	1	hold

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D	0.018							
Q		3.593	0.447	0.447	0.447	0.236	0.236	0.236
XG	0.019							

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
D	=>	Q	0.63	0.63	0.63	1.04	1.04	1.04
XG	=>	Q	0.76	0.76	0.76	1.17	1.17	1.17
D	<=	XG	setup time			0.58	0.58	0.58
D	<=	XG	hold time			0.07	0.07	0.07
XG		(low)	minimum pulse width			1.17	1.17	1.17

series : SYNSPEC_1.0 **function : D-latch with low reset XR,low active XG**

macro name	DLNR	size [um]	36.400 x 25.300

Truth Table

D	XG	XR	Q
X	X	0	0
0	0	X	0
1	0	1	1
X	1	1	hold

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D	0.018	0.875	1.785	1.785	1.786	0.837	0.854	0.870
Q								
XG	0.019							
XR	0.034							

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
D	=>	Q	0.49	0.49	0.49	0.74	0.74	0.74
XG	=>	Q	0.63	0.63	0.63	0.88	0.88	0.88
XR	=>	Q	0.47	0.47	0.47	0.66	0.66	0.67
D	<=	XG	setup time			0.62	0.62	0.62
D	<=	XG	hold time					
XR	<=	XG	release time			0.42	0.42	0.42
XR	<=	XG	removable time					
XG		(low)	minimum pulse width			0.92	0.92	0.92
XR		(low)	minimum pulse width			0.68	0.68	0.68

series : SYNSPEC_1.0 **function : D-latch with low reset XR,low active XG,inverted out,powered**

macro name	DLNRXP	size [um]	39.200 x 25.300

Truth Table

D	XG	XR	XQ
X	X	0	1
0	0	X	1
1	0	1	0
X	1	1	hold

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D	0.018	1.788	0.889	0.890	0.890	0.428	0.428	0.428
XG	0.019							
XQ								
XR	0.034							

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
D	=>	XQ	0.86	0.86	0.86	0.64	0.64	0.64
XG	=>	XQ	1.01	1.01	1.01	0.77	0.77	0.77
XR	=>	XQ	0.77	0.77	0.78	0.62	0.62	0.62
D	<=	XG	setup time			0.60	0.60	0.60
D	<=	XG	hold time			0.01	0.01	0.01
XR	<=	XG	release time			0.47	0.47	0.47
XR	<=	XG	removable time			0.03	0.03	0.03
XG		(low)	minimum pulse width			1.01	1.01	1.01
XR		(low)	minimum pulse width			0.78	0.78	0.78

series : SYNSPEC_1.0 **function : D-latch with low reset XR,low active XG,inverted out,x4 powered**

macro name	DLNRXP4	size [um]	44.800 x 25.300

Truth Table

D	XG	XR	XQ
X	X	0	1
0	0	X	1
1	0	1	0
X	1	1	hold

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D	0.018	3.537	0.449	0.449	0.449	0.265	0.265	0.266
XG	0.019							
XQ								
XR	0.034							

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
D	=>	XQ	0.95	0.95	0.95	0.76	0.76	0.76
XG	=>	XQ	1.10	1.10	1.10	0.89	0.89	0.89
XR	=>	XQ	0.86	0.87	0.87	0.74	0.74	0.74
D	<=	XG	setup time			0.68	0.68	0.68
D	<=	XG	hold time			0.01	0.01	0.01
XR	<=	XG	release time			0.60	0.60	0.60
XR	<=	XG	removable time			0.03	0.03	0.03
XG		(low)	minimum pulse width			1.10	1.10	1.10
XR		(low)	minimum pulse width			0.87	0.87	0.87

series : SYNSPEC_1.0 **function : D-latch with low reset XR,low set XS,low active XG**

macro name	DLNSR	size [um]	50.400 x 25.300

Truth Table

D	XG	XR	XS	Q	XQ
X	X	0	0	0	0
X	X	1	0	1	0
X	X	0	1	0	1
0	0	X	1	0	1
1	0	1	X	1	0
X	1	1	1	hold	hold

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D	0.018	0.868	1.772	1.781	1.790	0.846	0.903	0.960
Q								
XG	0.019							
XQ		0.893	1.734	1.744	1.754	0.791	0.798	0.806
XR	0.034							
XS	0.035							

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
D	=>	Q	0.51	0.51	0.51	0.85	0.85	0.85
XG	=>	Q	0.55	0.55	0.55	0.57	0.57	0.57
XR	=>	Q	0.48	0.48	0.48	0.44	0.58	0.73
XS	=>	Q	0.70	0.74	0.77	0.99	0.99	0.99
D	=>	XQ	1.28	1.28	1.28	0.74	0.74	0.74
XG	=>	XQ	0.97	0.97	0.97	0.79	0.79	0.79
XR	=>	XQ	0.79	0.94	1.09	0.70	0.70	0.70
XS	=>	XQ	0.30	0.86	1.43	0.31	0.31	0.32
D	<=	XG	setup time			0.93	0.93	0.93
D	<=	XG	hold time					
XR	<=	XG	release time			0.53	0.53	0.53
XR	<=	XG	removable time					
XS	<=	XG	release time			1.12	1.12	1.12
XS	<=	XG	removable time			0.08	0.08	0.08
XS	<=	XR	recovery time			1.12	1.12	1.12
XR	<=	XS	recovery time			0.51	0.51	0.51
XG		(low)	minimum pulse width			0.97	0.97	0.97
XR		(low)	minimum pulse width			1.09	1.09	1.09
XS		(low)	minimum pulse width			0.77	0.77	0.77

series : SYNSPEC_1.0 **function : D-latch with low reset XR,low set XS,low active XG,powered**

macro name	DLNSRP	size [um]	56.000 x 25.300

Truth Table

D	XG	XR	XS	Q	XQ
X	X	0	0	0	0
X	X	1	0	1	0
X	X	0	1	0	1
0	0	X	1	0	1
1	0	1	X	1	0
X	1	1	1	hold	hold

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D	0.018							
Q		1.713	0.887	0.900	0.912	0.511	0.564	0.616
XG	0.019							
XQ		1.722	0.841	0.864	0.887	0.422	0.428	0.433
XR	0.034							
XS	0.035							

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
D	=>	Q	0.55	0.55	0.55	0.91	0.91	0.91
XG	=>	Q	0.60	0.60	0.60	0.59	0.59	0.59
XR	=>	Q	0.52	0.52	0.52	0.47	0.63	0.79
XS	=>	Q	0.74	0.83	0.91	1.06	1.06	1.06
D	=>	XQ	1.56	1.56	1.56	0.88	0.88	0.88
XG	=>	XQ	1.22	1.22	1.22	0.93	0.93	0.93
XR	=>	XQ	0.97	1.16	1.34	0.84	0.84	0.84
XS	=>	XQ	0.33	1.02	1.70	0.34	0.35	0.35
D	<=	XG	setup time			1.17	1.17	1.17
D	<=	XG	hold time					
XR	<=	XG	release time			0.68	0.68	0.68
XR	<=	XG	removable time					
XS	<=	XG	release time			1.36	1.36	1.36
XS	<=	XG	removable time			0.05	0.05	0.05
XS	<=	XR	recovery time			1.34	1.34	1.34
XR	<=	XS	recovery time			0.61	0.61	0.61
XG		(low)	minimum pulse width			1.22	1.22	1.22
XR		(low)	minimum pulse width			1.34	1.34	1.34
XS		(low)	minimum pulse width			0.91	0.91	0.91

series : SYNSPEC_1.0 **function : D-latch with low reset XR,low set XS,low active XG,x4 powered**

macro name	DLNSRP4	size [um]	70.000 x 25.300

Truth Table

D	XG	XR	XS	Q	XQ
X	X	0	0	0	0
X	X	1	0	1	0
X	X	0	1	0	1
0	0	X	1	0	1
1	0	1	X	1	0
X	1	1	1	hold	hold

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D	0.018							
Q		3.061	0.439	0.465	0.490	0.254	0.283	0.313
XG	0.019							
XQ		3.248	0.422	0.443	0.464	0.239	0.256	0.272
XR	0.035							
XS	0.035							

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
D	=>	Q	1.40	1.40	1.40	1.77	1.77	1.77
XG	=>	Q	1.44	1.44	1.44	1.52	1.52	1.52
XR	=>	Q	0.45	0.91	1.36	0.46	0.51	0.57
XS	=>	Q	0.99	1.10	1.21	1.92	1.92	1.92
D	=>	XQ	1.31	1.31	1.31	0.80	0.80	0.80
XG	=>	XQ	1.05	1.05	1.05	0.84	0.84	0.84
XR	=>	XQ	0.86	1.09	1.32	0.76	0.76	0.76
XS	=>	XQ	0.44	0.95	1.45	0.45	0.45	0.45
D	<=	XG	setup time			0.97	0.97	0.97
D	<=	XG	hold time					
XR	<=	XG	release time			0.64	0.64	0.64
XR	<=	XG	removable time			0.02	0.02	0.02
XS	<=	XG	release time			1.16	1.16	1.16
XS	<=	XG	removable time					
XS	<=	XR	recovery time			1.66	1.66	1.66
XR	<=	XS	recovery time			1.06	1.06	1.06
XG		(low)	minimum pulse width			1.52	1.52	1.52
XR		(low)	minimum pulse width			1.32	1.32	1.32
XS		(low)	minimum pulse width			1.21	1.21	1.21

series : SYNSPEC_1.0 **function : D-latch,inverted out,with active low XG**

macro name	DLNX	size [um]	25.200 x 25.300

Truth Table

D	XG	XQ
0	0	1
1	0	0
X	1	hold

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D	0.018							
XG	0.019							
XQ		0.890	1.774	1.774	1.774	0.791	0.791	0.791

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
D	=>	XQ	0.83	0.83	0.83	0.45	0.45	0.45
XG	=>	XQ	0.96	0.96	0.96	0.58	0.58	0.58
D	<=	XG	setup time			0.58	0.58	0.58
D	<=	XG	hold time			0.07	0.07	0.07
XG		(low)	minimum pulse width			0.96	0.96	0.96

series : SYNSPEC_1.0 **function : D-latch,inverted out,with active low XG,powered**

macro name	DLNXP	size [um]	28.000 x 25.300

Truth Table

D	XG	XQ
0	0	1
1	0	0
X	1	hold

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D	0.018							
XG	0.019							
XQ		1.802	0.884	0.884	0.884	0.423	0.423	0.423

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
D	=>	XQ	0.89	0.89	0.89	0.49	0.49	0.49
XG	=>	XQ	1.01	1.01	1.01	0.62	0.62	0.62
D	<=	XG	setup time			0.64	0.64	0.64
D	<=	XG	hold time			0.07	0.07	0.07
XG		(low)	minimum pulse width			1.01	1.01	1.01

series : SYNSPEC_1.0 function : D-latch,inverted out,with active low XG,x4 powered

macro name	DLNXP4	size [um]	33.600 x 25.300

Truth Table

D	XG	XQ
0	0	1
1	0	0
X	1	hold

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D	0.018							
XG	0.019							
XQ		3.544	0.448	0.448	0.448	0.260	0.260	0.260

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
D	=>	XQ	1.02	1.02	1.02	0.61	0.61	0.61
XG	=>	XQ	1.14	1.14	1.14	0.75	0.75	0.75
D	<=	XG	setup time			0.74	0.74	0.74
D	<=	XG	hold time			0.07	0.07	0.07
XG		(low)	minimum pulse width			1.14	1.14	1.14

series : SYNSPEC_1.0 function : Tri-state Latch,with active low XG

macro name	DLNZ	size [um]	39.200 x 25.300

Truth Table

D	EN	XG	Q	ZQ
0	0	0	0	hiZ
1	0	0	1	hiZ
0	1	0	0	0
1	1	0	1	1
X	0	1	hold	hiZ
X	1	1	hold	hold

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D	0.018							
EN	0.029							
Q		0.880	1.777	1.779	1.780	0.837	0.842	0.847
XG	0.019							
ZQ	0.035	1.153	1.374	1.375	1.376	1.194	1.226	1.259

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
D	=>	Q	0.36	0.37	0.38	0.89	0.90	0.92
XG	=>	Q	0.51	0.52	0.53	1.01	1.03	1.04
D	=>	ZQ	0.69	0.69	0.69	1.19	1.19	1.19
EN	=>	ZQ		tpLZ				
EN	=>	ZQ		tpZH		0.21	0.21	0.21
EN	=>	ZQ		tpHZ		0.31	0.31	0.31
EN	=>	ZQ		tpZL		0.08	0.08	0.08
XG	=>	ZQ	0.83	0.83	0.83	1.31	1.31	1.31
D	<=	XG	setup time			0.81	0.81	0.81
D	<=	XG	hold time			0.01	0.01	0.01
XG		(low)	minimum pulse width			1.31	1.31	1.31

series : SYNSPEC_1.0 function : Tri-state Latch,with active low XG powered

macro name	DLNZP	size [um]	44.800 x 25.300

Truth Table

D	EN	XG	Q	ZQ
0	0	0	0	hiZ
1	0	0	1	hiZ
0	1	0	0	0
1	1	0	1	1
X	0	1	hold	hiZ
X	1	1	hold	hold

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D	0.018							
EN	0.041							
Q		1.712	0.901	0.906	0.912	0.495	0.504	0.513
XG	0.019							
ZQ	0.059	2.217	0.713	0.716	0.720	0.576	0.615	0.655

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
D	=>	Q	0.41	0.43	0.45	1.07	1.09	1.11
XG	=>	Q	0.56	0.58	0.60	1.18	1.21	1.23
D	=>	ZQ	0.82	0.82	0.82	1.53	1.53	1.53
EN	=>	ZQ		tpLZ				
EN	=>	ZQ		tpZH		0.23	0.23	0.23
EN	=>	ZQ		tpHZ		0.39	0.39	0.39
EN	=>	ZQ		tpZL		0.08	0.08	0.08
XG	=>	ZQ	0.97	0.97	0.97	1.65	1.65	1.65
D	<=	XG	setup time			1.07	1.07	1.07
D	<=	XG	hold time					
XG		(low)	minimum pulse width			1.65	1.65	1.65

series : SYNSPEC_1.0 function : Tri-state Latch,with active low XG x4 powered

macro name	DLNZP4	size [um]	67.200 x 25.300

Truth Table

D	EN	XG	Q	ZQ
0	0	0	0	hiZ
1	0	0	1	hiZ
0	1	0	0	0
1	1	0	1	1
X	0	1	hold	hiZ
X	1	1	hold	hold

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D	0.018							
EN	0.064							
Q		3.512	0.455	0.456	0.457	0.238	0.241	0.244
XG	0.019							
ZQ	0.119	3.041	0.369	0.373	0.377	0.277	0.329	0.382

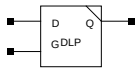
AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
D	=>	Q	0.79	0.83	0.87	1.37	1.43	1.50
XG	=>	Q	0.94	0.98	1.02	1.49	1.55	1.62
D	=>	ZQ	0.92	0.92	0.92	1.37	1.37	1.37
EN	=>	ZQ		tpLZ				
EN	=>	ZQ		tpZH		0.27	0.27	0.27
EN	=>	ZQ		tpHZ		0.54	0.54	0.54
EN	=>	ZQ		tpZL		0.08	0.08	0.08
XG	=>	ZQ	1.06	1.06	1.06	1.49	1.49	1.49
D	<=	XG	setup time			0.98	0.98	0.98
D	<=	XG	hold time			0.01	0.01	0.01
XG		(low)	minimum pulse width			1.62	1.62	1.62

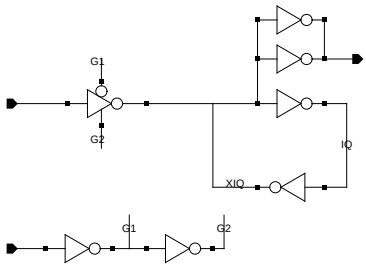
series : SYNSPEC_1.0 **function : D-latch,powered**

macro name	DLP	size [um]	28.000 x 25.300

Symbol



Schematic



Truth Table

D	G	Q
X	0	hold
0	1	0
1	1	1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D	0.018							
G	0.019							
Q		1.779	0.890	0.890	0.890	0.473	0.473	0.473

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
D	=>	Q	0.38	0.38	0.38	0.97	0.97	0.97
G	=>	Q	0.57	0.57	0.57	0.93	0.93	0.93
D	<=	G	setup time			0.78	0.78	0.78
D	<=	G	hold time					
G		(high)	minimum pulse width			0.97	0.97	0.97

series : SYNSPEC_1.0 **function : D-latch,x4 powered**

macro name	DLP4	size [um]	39.200 x 25.300

Truth Table

D	G	Q
X	0	hold
0	1	0
1	1	1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D	0.018							
G	0.019							
Q		3.593	0.447	0.447	0.447	0.236	0.236	0.236

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
D	=>	Q	0.63	0.63	0.63	1.04	1.04	1.04
G	=>	Q	0.81	0.81	0.81	1.00	1.00	1.00
D	<=	G	setup time			0.52	0.52	0.52
D	<=	G	hold time			0.06	0.06	0.06
G		(high)	minimum pulse width			1.00	1.00	1.00

series : SYNSPEC_1.0 **function : D-latch with low reset XR**

macro name	DLR	size [um]	36.400 x 25.300

Truth Table

D	G	XR	Q
X	X	0	0
X	0	1	hold
0	1	X	0
1	1	1	1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D	0.018							
G	0.019							
Q		0.875	1.785	1.785	1.786	0.837	0.854	0.870
XR	0.034							

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
D	=>	Q	0.50	0.50	0.50	0.74	0.74	0.74
G	=>	Q	0.70	0.70	0.70	0.69	0.69	0.69
XR	=>	Q	0.47	0.47	0.47	0.66	0.66	0.67
D	<=	G	setup time			0.56	0.56	0.56
D	<=	G	hold time					
XR	<=	G	release time			0.36	0.36	0.36
XR	<=	G	removable time					
G		(high)	minimum pulse width			0.79	0.79	0.79
XR		(low)	minimum pulse width			0.68	0.68	0.68

series : SYNSPEC_1.0 **function : D-latch with low reset XR,powered**

macro name	DLRP	size [um]	39.200 x 25.300

Truth Table

D	G	XR	Q
X	X	0	0
X	0	1	hold
0	1	X	0
1	1	1	1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D	0.018							
G	0.019							
Q		1.733	0.907	0.907	0.907	0.490	0.509	0.529
XR	0.034							

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
D	=>	Q	0.54	0.54	0.54	0.80	0.80	0.80
G	=>	Q	0.74	0.74	0.74	0.75	0.75	0.75
XR	=>	Q	0.51	0.51	0.51	0.72	0.73	0.73
D	<=	G	setup time			0.69	0.69	0.69
D	<=	G	hold time					
XR	<=	G	release time			0.45	0.45	0.45
XR	<=	G	removable time					
G		(high)	minimum pulse width			0.87	0.87	0.87
XR		(low)	minimum pulse width			0.80	0.80	0.80

series : SYNSPEC_1.0 **function : D-latch with low reset XR,x4 powered**

macro name	DLRP4	size [um]	50.400 x 25.300

Truth Table

D	G	XR	Q
X	X	0	0
X	0	1	hold
0	1	X	0
1	1	1	1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D	0.018							
G	0.019							
Q		3.591	0.447	0.447	0.447	0.236	0.236	0.236
XR	0.034							

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
D	=>	Q	0.79	0.79	0.79	1.03	1.03	1.03
G	=>	Q	1.00	1.00	1.00	0.98	0.98	0.98
XR	=>	Q	0.77	0.77	0.77	0.94	0.95	0.95
D	<=	G	setup time			0.50	0.50	0.50
D	<=	G	hold time			0.01	0.01	0.01
XR	<=	G	release time			0.35	0.35	0.35
XR	<=	G	removable time			0.03	0.03	0.03
G		(high)	minimum pulse width			1.00	1.00	1.00
XR		(low)	minimum pulse width			0.95	0.95	0.95

series : SYNSPEC_1.0 **function : D-latch with low reset XR,inverted out**

macro name	DLRX	size [um]	36.400 x 25.300

Truth Table

D	G	XR	XQ
X	X	0	1
X	0	1	hold
0	1	X	1
1	1	1	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D	0.018							
G	0.019							
XQ		0.890	1.771	1.772	1.772	0.795	0.796	0.796
XR	0.034							

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
D	=>	XQ	0.82	0.82	0.82	0.60	0.60	0.60
G	=>	XQ	0.77	0.77	0.77	0.81	0.81	0.81
XR	=>	XQ	0.73	0.74	0.74	0.58	0.58	0.58
D	<=	G	setup time			0.50	0.50	0.50
D	<=	G	hold time			0.01	0.01	0.01
XR	<=	G	release time			0.34	0.34	0.34
XR	<=	G	removable time			0.03	0.03	0.03
G		(high)	minimum pulse width			0.81	0.81	0.81
XR		(low)	minimum pulse width			0.74	0.74	0.74

series : SYNSPEC_1.0 **function : D-latch with low reset XR,inverted out,powered**

macro name	DLRXP	size [um]	39.200 x 25.300

Truth Table

D	G	XR	XQ
X	X	0	1
X	0	1	hold
0	1	X	1
1	1	1	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D	0.018							
G	0.019							
XQ		1.802	0.884	0.884	0.884	0.427	0.428	0.428
XR	0.034							

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
D	=>	XQ	0.86	0.86	0.86	0.64	0.64	0.64
G	=>	XQ	0.80	0.80	0.80	0.85	0.85	0.85
XR	=>	XQ	0.77	0.77	0.78	0.62	0.62	0.62
D	<=	G	setup time			0.54	0.54	0.54
D	<=	G	hold time			0.01	0.01	0.01
XR	<=	G	release time			0.41	0.41	0.41
XR	<=	G	removable time			0.03	0.03	0.03
G		(high)	minimum pulse width			0.85	0.85	0.85
XR		(low)	minimum pulse width			0.78	0.78	0.78

series : SYNSPEC_1.0 **function : D-latch with low reset XR,inverted out,x4 powered**

macro name	DLRXP4	size [um]	44.800 x 25.300

Truth Table

D	G	XR	XQ
X	X	0	1
X	0	1	hold
0	1	X	1
1	1	1	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D	0.018							
G	0.019							
XQ		3.538	0.449	0.449	0.449	0.265	0.265	0.266
XR	0.034							

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
D	=>	XQ	0.95	0.95	0.95	0.76	0.76	0.76
G	=>	XQ	0.90	0.90	0.90	0.96	0.96	0.96
XR	=>	XQ	0.86	0.87	0.87	0.74	0.74	0.74
D	<=	G	setup time			0.62	0.62	0.62
D	<=	G	hold time			0.01	0.01	0.01
XR	<=	G	release time			0.55	0.55	0.55
XR	<=	G	removable time			0.03	0.03	0.03
G		(high)	minimum pulse width			0.97	0.97	0.97
XR		(low)	minimum pulse width			0.87	0.87	0.87

series : SYNSPEC_1.0 **function : D-latch with low reset XR and low set XS**

macro name	DLSR	size [um]	50.400 x 25.300

Truth Table

D	G	XR	XS	Q	XQ
X	X	0	0	0	0
X	X	1	0	1	0
X	X	0	1	0	1
X	0	1	1	hold	hold
0	1	X	1	0	1
1	1	1	X	1	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D	0.018							
G	0.019							
Q		0.868	1.772	1.781	1.789	0.846	0.903	0.960
XQ		0.893	1.734	1.744	1.754	0.791	0.798	0.806
XR	0.034							
XS	0.035							

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
D	=>	Q	0.51	0.51	0.51	0.85	0.85	0.85
G	=>	Q	0.57	0.57	0.57	0.52	0.52	0.52
XR	=>	Q	0.48	0.48	0.48	0.44	0.58	0.73
XS	=>	Q	0.70	0.74	0.77	0.99	0.99	0.99
D	=>	XQ	1.28	1.28	1.28	0.74	0.74	0.74
G	=>	XQ	0.91	0.91	0.91	0.80	0.80	0.80
XR	=>	XQ	0.79	0.94	1.09	0.70	0.70	0.70
XS	=>	XQ	0.30	0.86	1.43	0.31	0.31	0.32
D	<=	G	setup time			0.88	0.88	0.88
D	<=	G	hold time					
XR	<=	G	release time			0.47	0.47	0.47
XR	<=	G	removable time					
XS	<=	G	release time			1.06	1.06	1.06
XS	<=	G	removable time			0.08	0.08	0.08
XS	<=	XR	recovery time			1.12	1.12	1.12
XR	<=	XS	recovery time			0.51	0.51	0.51
G		(high)	minimum pulse width			0.91	0.91	0.91
XR		(low)	minimum pulse width			1.09	1.09	1.09
XS		(low)	minimum pulse width			0.77	0.77	0.77

series : SYNSPEC_1.0 **function : D-latch with low reset XR and low set XS,powered**

macro name	DLSRP	size [um]	56.000 x 25.300

Truth Table

D	G	XR	XS	Q	XQ
X	X	0	0	0	0
X	X	1	0	1	0
X	X	0	1	0	1
X	0	1	1	hold	hold
0	1	X	1	0	1
1	1	1	X	1	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D	0.018							
G	0.019							
Q		1.714	0.887	0.900	0.912	0.512	0.564	0.616
XQ		1.722	0.841	0.864	0.887	0.422	0.428	0.433
XR	0.034							
XS	0.035							

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
D	=>	Q	0.55	0.55	0.55	0.91	0.91	0.91
G	=>	Q	0.60	0.60	0.60	0.55	0.55	0.55
XR	=>	Q	0.52	0.52	0.52	0.47	0.63	0.79
XS	=>	Q	0.74	0.83	0.91	1.06	1.06	1.06
D	=>	XQ	1.56	1.56	1.56	0.88	0.88	0.88
G	=>	XQ	1.15	1.15	1.15	0.94	0.94	0.94
XR	=>	XQ	0.97	1.16	1.34	0.84	0.84	0.84
XS	=>	XQ	0.33	1.02	1.70	0.34	0.35	0.35
D	<=	G	setup time			1.12	1.12	1.12
D	<=	G	hold time					
XR	<=	G	release time			0.63	0.63	0.63
XR	<=	G	removable time					
XS	<=	G	release time			1.31	1.31	1.31
XS	<=	G	removable time			0.04	0.04	0.04
XS	<=	XR	recovery time			1.34	1.34	1.34
XR	<=	XS	recovery time			0.61	0.61	0.61
G		(high)	minimum pulse width			1.15	1.15	1.15
XR		(low)	minimum pulse width			1.34	1.34	1.34
XS		(low)	minimum pulse width			0.91	0.91	0.91

series : SYNSPEC_1.0 **function : D-latch with low reset XR and low set XS,x4 powered**

macro name	DLSRP4	size [um]	70.000 x 25.300

Truth Table

D	G	XR	XS	Q	XQ
X	X	0	0	0	0
X	X	1	0	1	0
X	X	0	1	0	1
X	0	1	1	hold	hold
0	1	X	1	0	1
1	1	1	X	1	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D	0.018							
G	0.019							
Q		3.061	0.439	0.465	0.490	0.254	0.284	0.313
XQ		3.245	0.422	0.443	0.464	0.239	0.256	0.272
XR	0.035							
XS	0.035							

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
D	=>	Q	1.40	1.40	1.40	1.77	1.77	1.77
G	=>	Q	1.47	1.47	1.47	1.43	1.43	1.43
XR	=>	Q	0.45	0.91	1.36	0.46	0.51	0.57
XS	=>	Q	0.99	1.10	1.21	1.92	1.92	1.92
D	=>	XQ	1.31	1.31	1.31	0.80	0.80	0.80
G	=>	XQ	0.96	0.96	0.96	0.87	0.87	0.87
XR	=>	XQ	0.86	1.09	1.32	0.76	0.76	0.76
XS	=>	XQ	0.44	0.95	1.45	0.45	0.45	0.45
D	<=	G	setup time			0.92	0.92	0.92
D	<=	G	hold time					
XR	<=	G	release time			0.59	0.59	0.59
XR	<=	G	removable time			0.01	0.01	0.01
XS	<=	G	release time			1.10	1.10	1.10
XS	<=	G	removable time					
XS	<=	XR	recovery time			1.66	1.66	1.66
XR	<=	XS	recovery time			1.06	1.06	1.06
G		(high)	minimum pulse width			1.47	1.47	1.47
XR		(low)	minimum pulse width			1.32	1.32	1.32
XS		(low)	minimum pulse width			1.21	1.21	1.21

series : SYNSPEC_1.0 **function : D-latch,inverted out**

macro name	DLX	size [um]	25.200 x 25.300

Truth Table

D	G	XQ
X	0	hold
0	1	1
1	1	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D	0.018							
G	0.019							
XQ		0.890	1.774	1.774	1.774	0.791	0.791	0.791

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
D	=>	XQ	0.83	0.83	0.83	0.45	0.45	0.45
G	=>	XQ	0.79	0.79	0.79	0.63	0.63	0.63
D	<=	G	setup time			0.52	0.52	0.52
D	<=	G	hold time			0.06	0.06	0.06
G		(high)	minimum pulse width			0.79	0.79	0.79

series : SYNSPEC_1.0 **function : D-latch,inverted out,powered**

macro name	DLXP	size [um]	28.000 x 25.300

Truth Table

D	G	XQ
X	0	hold
0	1	1
1	1	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D	0.018							
G	0.019							
XQ		1.801	0.884	0.884	0.884	0.423	0.423	0.423

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
D	=>	XQ	0.89	0.89	0.89	0.49	0.49	0.49
G	=>	XQ	0.85	0.85	0.85	0.67	0.67	0.67
D	<=	G	setup time			0.58	0.58	0.58
D	<=	G	hold time			0.06	0.06	0.06
G		(high)	minimum pulse width			0.85	0.85	0.85

series : SYNSPEC_1.0 **function : D-latch,inverted out,x4 powered**

macro name	DLXP4	size [um]	33.600 x 25.300

Truth Table

D	G	XQ
X	0	hold
0	1	1
1	1	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D	0.018							
G	0.019							
XQ		3.544	0.448	0.448	0.448	0.260	0.260	0.260

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
D	=>	XQ	1.02	1.02	1.02	0.62	0.62	0.62
G	=>	XQ	0.98	0.98	0.98	0.80	0.80	0.80
D	<=	G	setup time			0.69	0.69	0.69
D	<=	G	hold time			0.06	0.06	0.06
G		(high)	minimum pulse width			0.98	0.98	0.98

series : SYNSPEC_1.0 **function : 2-wide 2-2-2-inputs OR-NAND-NAND**

macro name	ENO	size [um]	16.800 x 25.300

Truth Table

A	B	C	D	Y
0	0	X	X	1
X	X	1	1	1
other states				0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.029							
B	0.026							
C	0.019							
D	0.018							
Y		0.390	1.778	2.591	3.404	1.230	1.242	1.253

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.15	0.15	0.15	0.07	0.07	0.07
B	=>	Y	0.19	0.19	0.19	0.09	0.09	0.09
C	=>	Y	0.31	0.32	0.32	0.27	0.28	0.30
D	=>	Y	0.33	0.33	0.33	0.31	0.32	0.33

series : SYNSPEC_1.0 **function : 2-wide 2-2-2-inputs OR-NAND-NAND,powered**

macro name	ENOP	size [um]	25.200 x 25.300

Truth Table

A	B	C	D	Y
0	0	X	X	1
X	X	1	1	1
other states				0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.023							
B	0.022							
C	0.027							
D	0.027							
Y		1.801	0.886	0.888	0.889	0.441	0.450	0.460

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.46	0.46	0.46	0.48	0.48	0.48
B	=>	Y	0.51	0.51	0.51	0.49	0.49	0.49
C	=>	Y	0.23	0.23	0.23	0.35	0.35	0.35
D	=>	Y	0.24	0.24	0.24	0.42	0.42	0.42

series : SYNSPEC_1.0 **function : 2-wide 2-2-2-inputs OR-NAND-NAND,x4 powered**

macro name	ENOP4	size [um]	30.800 x 25.300

Truth Table

A	B	C	D	Y
0	0	X	X	1
X	X	1	1	1
other states				0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.023							
B	0.022							
C	0.027							
D	0.027							
Y		3.513	0.449	0.453	0.456	0.275	0.287	0.299

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.52	0.52	0.52	0.59	0.59	0.59
B	=>	Y	0.57	0.57	0.57	0.60	0.60	0.60
C	=>	Y	0.30	0.30	0.30	0.49	0.49	0.49
D	=>	Y	0.31	0.31	0.31	0.57	0.57	0.57

series : SYNSPEC_1.0 **function : 2-wide 2-2-2-inputs AND-NOR-NOR**

macro name	EOR	size [um]	16.800 x 25.300

Truth Table

A	B	C	D	Y
X	X	0	0	0
1	1	X	X	0
other states				1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.027							
B	0.026							
C	0.023							
D	0.022							
Y		0.407	2.625	3.054	3.483	0.800	1.011	1.222

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.15	0.15	0.15	0.07	0.07	0.07
B	=>	Y	0.23	0.23	0.23	0.09	0.09	0.09
C	=>	Y	0.30	0.30	0.30	0.33	0.33	0.33
D	=>	Y	0.32	0.32	0.32	0.37	0.37	0.37

series : SYNSPEC_1.0 **function : 2-wide 2-2-2-inputs AND-NOR-NOR,powered**

macro name	EORP	size [um]	25.200 x 25.300

Truth Table

A	B	C	D	Y
X	X	0	0	0
1	1	X	X	0
other states				1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.019							
B	0.018							
C	0.027							
D	0.026							
Y		1.795	0.889	0.890	0.890	0.415	0.431	0.447

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.44	0.45	0.47	0.45	0.45	0.46
B	=>	Y	0.47	0.49	0.51	0.47	0.47	0.47
C	=>	Y	0.23	0.23	0.23	0.36	0.36	0.36
D	=>	Y	0.25	0.25	0.25	0.41	0.41	0.41

series : SYNSPEC_1.0 **function : 2-wide 2-2-2-inputs AND-NOR-NOR,x4 powered**

macro name	EORP4	size [um]	30.800 x 25.300

Truth Table

A	B	C	D	Y
X	X	0	0	0
1	1	X	X	0
other states				1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.019							
B	0.018							
C	0.027							
D	0.026							
Y		3.510	0.457	0.457	0.458	0.247	0.266	0.286

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.51	0.53	0.55	0.52	0.53	0.53
B	=>	Y	0.55	0.57	0.59	0.54	0.54	0.54
C	=>	Y	0.29	0.29	0.29	0.50	0.50	0.50
D	=>	Y	0.33	0.33	0.33	0.55	0.55	0.55

series : SYNSPEC_1.0 **function : 1-bit full adder**

macro name	FAD1	size [um]	44.800 x 25.300

Truth Table

A	B	CI	CO	SO
0	0	0	0	0
1	0	0	0	1
0	1	0	0	1
1	1	0	1	0
0	0	1	0	1
1	0	1	1	0
0	1	1	1	0
1	1	1	1	1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.074							
B	0.079							
CI	0.055							
CO		0.890	1.757	1.759	1.762	0.834	0.849	0.864
SO		0.890	1.746	1.752	1.757	0.812	0.832	0.852

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	CO	0.38	0.39	0.40	0.48	0.48	0.48
B	=>	CO	0.40	0.40	0.40	0.50	0.51	0.51
CI	=>	CO	0.34	0.35	0.36	0.38	0.40	0.42
A	=>	SO	0.35	0.63	0.87	0.45	0.60	0.70
B	=>	SO	0.38	0.64	0.87	0.49	0.62	0.68
CI	=>	SO	0.34	0.59	0.80	0.41	0.57	0.67

series : SYNSPEC_1.0 **function : 1-bit full adder,powered**

macro name	FAD1P	size [um]	50.400 x 25.300

Truth Table

A	B	CI	CO	SO
0	0	0	0	0
1	0	0	0	1
0	1	0	0	1
1	1	0	1	0
0	0	1	0	1
1	0	1	1	0
0	1	1	1	0
1	1	1	1	1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.074							
B	0.079							
CI	0.055							
CO		1.768	0.893	0.896	0.899	0.479	0.494	0.509
SO		1.741	0.863	0.879	0.894	0.448	0.476	0.505

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	CO	0.41	0.42	0.43	0.51	0.52	0.52
B	=>	CO	0.43	0.43	0.43	0.54	0.54	0.55
CI	=>	CO	0.37	0.38	0.39	0.42	0.44	0.46
A	=>	SO	0.38	0.74	1.06	0.50	0.69	0.82
B	=>	SO	0.41	0.75	1.05	0.53	0.70	0.80
CI	=>	SO	0.37	0.70	0.98	0.46	0.66	0.79

series : SYNSPEC_1.0 **function : 1-bit full adder,x4 powered**

macro name	FAD1P4	size [um]	61.600 x 25.300

Truth Table

A	B	CI	CO	SO
0	0	0	0	0
1	0	0	0	1
0	1	0	0	1
1	1	0	1	0
0	0	1	0	1
1	0	1	1	0
0	1	1	1	0
1	1	1	1	1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.074							
B	0.079							
CI	0.055							
CO		3.397	0.468	0.472	0.475	0.310	0.320	0.330
SO		3.077	0.410	0.443	0.477	0.271	0.306	0.341

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	CO	0.52	0.53	0.54	0.66	0.66	0.66
B	=>	CO	0.54	0.54	0.54	0.67	0.68	0.69
CI	=>	CO	0.48	0.49	0.50	0.57	0.59	0.60
A	=>	SO	0.49	1.01	1.48	0.64	0.93	1.12
B	=>	SO	0.53	1.02	1.45	0.67	0.94	1.10
CI	=>	SO	0.48	0.97	1.40	0.60	0.90	1.09

series : SYNSPEC_1.0 **function : 2-stage generation**

macro name	GEN2	size [um]	25.200 x 25.300

Truth Table

A	B	C	D	E	Y
1	X	X	X	X	1
X	1	1	X	X	1
X	1	X	1	1	1
other states					0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.027							
B	0.026							
C	0.025							
D	0.026							
E	0.026							
Y		0.875	1.775	1.782	1.789	0.793	0.840	0.887

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.17	0.17	0.17	0.26	0.26	0.26
B	=>	Y	0.25	0.30	0.34	0.40	0.43	0.46
C	=>	Y	0.29	0.29	0.29	0.66	0.66	0.66
D	=>	Y	0.40	0.40	0.40	0.86	0.86	0.86
E	=>	Y	0.42	0.42	0.42	0.98	0.98	0.98

series : SYNSPEC_1.0 **function : 2-stage generation,powered**

macro name	GEN2P	size [um]	28.000 x 25.300

Truth Table

A	B	C	D	E	Y
1	X	X	X	X	1
X	1	1	X	X	1
X	1	X	1	1	1
other states					0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.027							
B	0.026							
C	0.025							
D	0.026							
E	0.026							
Y		1.739	0.886	0.896	0.906	0.431	0.489	0.546

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.17	0.17	0.17	0.29	0.29	0.29
B	=>	Y	0.26	0.31	0.36	0.45	0.48	0.51
C	=>	Y	0.30	0.30	0.30	0.71	0.71	0.71
D	=>	Y	0.43	0.43	0.43	0.93	0.93	0.93
E	=>	Y	0.45	0.45	0.45	1.04	1.04	1.04

series : SYNSPEC_1.0 **function : 2-stage generation,x4 powered**

macro name	GEN2P4	size [um]	33.600 x 25.300

Truth Table

A	B	C	D	E	Y
1	X	X	X	X	1
X	1	1	X	X	1
X	1	X	1	1	1
other states					0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.027							
B	0.026							
C	0.025							
D	0.026							
E	0.026							
Y		3.308	0.450	0.463	0.476	0.270	0.324	0.378

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.21	0.21	0.21	0.41	0.41	0.41
B	=>	Y	0.34	0.41	0.48	0.60	0.64	0.67
C	=>	Y	0.38	0.38	0.38	0.90	0.90	0.90
D	=>	Y	0.54	0.54	0.54	1.15	1.15	1.15
E	=>	Y	0.56	0.56	0.56	1.27	1.27	1.27

series : SYNSPEC_1.0 **function : 3-stage generation**

macro name	GEN3	size [um]	33.600 x 25.300

Truth Table

A	B	C	D	E	F	G	Y
1	X	X	X	X	X	X	1
X	1	1	X	X	X	X	1
X	1	X	1	1	X	X	1
X	1	X	1	X	1	1	1
other states							0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.027							
B	0.026							
C	0.025							
D	0.025							
E	0.025							
F	0.026							
G	0.025							
Y		0.842	1.775	1.794	1.814	0.794	0.898	1.001

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.17	0.17	0.17	0.26	0.26	0.26
B	=>	Y	0.26	0.35	0.44	0.41	0.44	0.48
C	=>	Y	0.29	0.29	0.29	0.68	0.68	0.68
D	=>	Y	0.41	0.47	0.53	0.87	0.91	0.95
E	=>	Y	0.45	0.45	0.45	1.23	1.23	1.23
F	=>	Y	0.60	0.60	0.60	1.48	1.48	1.48
G	=>	Y	0.61	0.61	0.61	1.62	1.62	1.62

series : SYNSPEC_1.0 **function : 3-stage generation,powered**

macro name	GEN3P	size [um]	36.400 x 25.300

Truth Table

A	B	C	D	E	F	G	Y
1	X	X	X	X	X	X	1
X	1	1	X	X	X	X	1
X	1	X	1	1	X	X	1
X	1	X	1	X	1	1	1
other states							0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.027							
B	0.026							
C	0.025							
D	0.025							
E	0.025							
F	0.026							
G	0.025							
Y		1.649	0.886	0.911	0.935	0.433	0.543	0.653

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.17	0.17	0.17	0.29	0.29	0.29
B	=>	Y	0.27	0.37	0.48	0.45	0.50	0.54
C	=>	Y	0.30	0.30	0.30	0.73	0.73	0.73
D	=>	Y	0.44	0.50	0.57	0.94	0.97	1.01
E	=>	Y	0.48	0.48	0.48	1.31	1.31	1.31
F	=>	Y	0.63	0.63	0.63	1.57	1.57	1.57
G	=>	Y	0.65	0.65	0.65	1.71	1.71	1.71

series : SYNSPEC_1.0 **function : 3-stage generation,x4 powered**

macro name	GEN3P4	size [um]	50.400 x 25.300

Truth Table

A	B	C	D	E	F	G	Y
1	X	X	X	X	X	X	1
X	1	1	X	X	X	X	1
X	1	X	1	1	X	X	1
X	1	X	1	X	1	1	1
other states							0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.027							
B	0.026							
C	0.025							
D	0.025							
E	0.025							
F	0.026							
G	0.025							
Y		3.593	0.446	0.447	0.447	0.235	0.236	0.236

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.45	0.45	0.45	0.58	0.58	0.58
B	=>	Y	0.54	0.63	0.73	0.73	0.77	0.81
C	=>	Y	0.57	0.57	0.57	1.01	1.01	1.01
D	=>	Y	0.70	0.76	0.82	1.21	1.25	1.29
E	=>	Y	0.74	0.74	0.74	1.60	1.60	1.60
F	=>	Y	0.89	0.89	0.89	1.85	1.85	1.85
G	=>	Y	0.90	0.90	0.90	2.00	2.00	2.00

series : SYNSPEC_1.0 **function : 1-bit half adder**

macro name	HAD1	size [um]	33.600 x 25.300

Truth Table

A	B	CO	SO
0	0	0	0
1	0	0	1
0	1	0	1
1	1	1	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.053							
B	0.039							
CO		0.889	1.774	1.774	1.774	0.789	0.790	0.791
SO		0.899	1.752	1.753	1.755	0.809	0.816	0.824

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	CO	0.24	0.24	0.24	0.22	0.22	0.22
B	=>	CO	0.25	0.25	0.25	0.26	0.26	0.26
A	=>	SO	0.24	0.28	0.33	0.24	0.25	0.27
B	=>	SO	0.38	0.44	0.49	0.38	0.42	0.45

series : SYNSPEC_1.0 **function : 1-bit half adder,powered**

macro name	HAD1P	size [um]	39.200 x 25.300

Truth Table

A	B	CO	SO
0	0	0	0
1	0	0	1
0	1	0	1
1	1	1	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.053							
B	0.039							
CO		1.791	0.889	0.889	0.889	0.419	0.420	0.422
SO		1.786	0.885	0.887	0.889	0.448	0.457	0.465

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	CO	0.27	0.27	0.27	0.26	0.26	0.26
B	=>	CO	0.28	0.28	0.28	0.30	0.30	0.30
A	=>	SO	0.27	0.31	0.35	0.26	0.27	0.27
B	=>	SO	0.40	0.46	0.52	0.39	0.43	0.47

series : SYNSPEC_1.0 **function : 1-bit half adder,x4 powered**

macro name	HAD1P4	size [um]	50.400 x 25.300

Truth Table

A	B	CO	SO
0	0	0	0
1	0	0	1
0	1	0	1
1	1	1	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.053							
B	0.039							
CO		3.491	0.460	0.460	0.460	0.256	0.258	0.260
SO		3.444	0.462	0.464	0.466	0.288	0.295	0.301

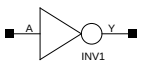
AC Characteristic

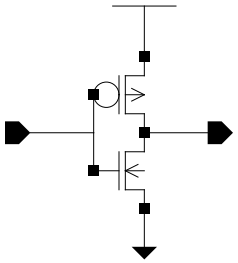
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	CO	0.37	0.37	0.37	0.37	0.37	0.37
B	=>	CO	0.39	0.39	0.39	0.40	0.40	0.40
A	=>	SO	0.36	0.40	0.44	0.34	0.34	0.35
B	=>	SO	0.50	0.56	0.62	0.49	0.52	0.56

series : SYNSPEC_1.0 function : Inverter

macro name	INV1	size [um]	5.600 x 25.300

Symbol ***Schematic***





Truth Table

A	Y
0	1
1	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.027							
Y		0.905	1.751	1.751	1.751	0.771	0.771	0.771

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.07	0.07	0.07	0.05	0.05	0.05

series : SYNSPEC_1.0 function : Inverter x 2

macro name	INV2	size [um]	8.400 x 25.300

Truth Table

A	Y
0	1
1	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.052							
Y		1.827	0.879	0.879	0.879	0.386	0.386	0.386

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.05	0.05	0.05	0.05	0.05	0.05

series : SYNSPEC_1.0 function : Inverter x 3

macro name	INV3	size [um]	11.200 x 25.300

Truth Table

A	Y
0	1
1	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.078							
Y		2.703	0.594	0.594	0.594	0.259	0.259	0.259

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.06	0.06	0.06	0.05	0.05	0.05

series : SYNSPEC_1.0 function : Inverter x 4

macro name	INV4	size [um]	14.000 x 25.300

Truth Table

A	Y
0	1
1	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.104							
Y		3.577	0.451	0.451	0.451	0.194	0.194	0.194

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.05	0.05	0.05	0.04	0.04	0.04

series : SYNSPEC_1.0 **function : Inverter x 6**

macro name	INV6	size [um]	28.000 x 25.300

Truth Table

A	Y
0	1
1	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.027							
Y		5.290	0.305	0.305	0.305	0.158	0.158	0.158

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.36	0.36	0.36	0.33	0.33	0.33

series : SYNSPEC_1.0 **function : Inverter x 8**

macro name	INV8	size [um]	39.200 x 25.300

Truth Table

A	Y
0	1
1	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.027							
Y		7.017	0.231	0.231	0.231	0.124	0.124	0.124

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.41	0.41	0.41	0.34	0.34	0.34

series : SYNSPEC_1.0 **function : 2-of3 majority**

macro name	MAJ3	size [um]	19.600 x 25.300

Truth Table

A	B	C	Y
1	1	X	1
1	X	1	1
X	1	1	1
other states			0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.023							
B	0.043							
C	0.041							
Y		0.881	1.779	1.780	1.781	0.815	0.825	0.835

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.29	0.30	0.31	0.30	0.32	0.34
B	=>	Y	0.32	0.33	0.35	0.38	0.39	0.41
C	=>	Y	0.34	0.35	0.35	0.43	0.43	0.43

series : SYNSPEC_1.0 **function : 2-of3 majority,powered**

macro name	MAJ3P	size [um]	22.400 x 25.300

Truth Table

A	B	C	Y
1	1	X	1
1	X	1	1
X	1	1	1
other states			0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.023							
B	0.043							
C	0.041							
Y		1.762	0.898	0.900	0.901	0.463	0.474	0.485

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.32	0.33	0.35	0.34	0.37	0.39
B	=>	Y	0.35	0.37	0.38	0.43	0.44	0.46
C	=>	Y	0.38	0.38	0.38	0.48	0.48	0.48

series : SYNSPEC_1.0 **function : 2-of3 majority,x4 powered**

macro name	MAJ3P4	size [um]	28.000 x 25.300

Truth Table

A	B	C	Y
1	1	X	1
1	X	1	1
X	1	1	1
other states			0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.023							
B	0.043							
C	0.041							
Y		3.386	0.469	0.472	0.474	0.301	0.308	0.316

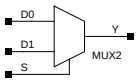
AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.43	0.44	0.46	0.48	0.50	0.53
B	=>	Y	0.46	0.48	0.49	0.56	0.58	0.60
C	=>	Y	0.50	0.50	0.50	0.62	0.62	0.62

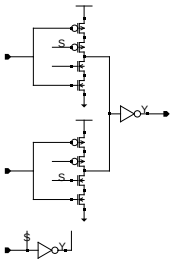
series : SYNSPEC_1.0 **function : 2-to-1 mux**

macro name	MUX2	size [um]	19.600 x 25.300

Symbol



Schematic



Truth Table

D0	D1	S	Y
0	X	0	0
1	X	0	1
X	0	1	0
X	1	1	1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D0	0.022							
D1	0.022							
S	0.033							
Y		0.887	1.774	1.775	1.777	0.808	0.808	0.809

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
D0	=>	Y	0.33	0.33	0.33	0.39	0.39	0.39
D1	=>	Y	0.32	0.32	0.32	0.39	0.39	0.39
S	=>	Y	0.27	0.37	0.47	0.30	0.36	0.43

series : SYNSPEC_1.0 **function : 2-to-1 mux,LSB inverted in**

macro name	MUX2A	size [um]	22.400 x 25.300

Truth Table

D0	D1	S	Y
0	X	0	1
1	X	0	0
X	0	1	0
X	1	1	1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D0	0.022							
D1	0.026							
S	0.039							
Y		0.888	1.775	1.776	1.778	0.796	0.806	0.816

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
D0	=>	Y	0.48	0.48	0.48	0.37	0.37	0.37
D1	=>	Y	0.26	0.26	0.26	0.47	0.47	0.47
S	=>	Y	0.25	0.34	0.43	0.39	0.43	0.46

series : SYNSPEC_1.0 **function : 2-to-1 mux,LSB inverted in,powered**

macro name	MUX2AP	size [um]	25.200 x 25.300

Truth Table

D0	D1	S	Y
0	X	0	1
1	X	0	0
X	0	1	0
X	1	1	1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D0	0.022							
D1	0.026							
S	0.039							
Y		1.792	0.886	0.888	0.891	0.428	0.443	0.458

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
D0	=>	Y	0.50	0.50	0.50	0.41	0.41	0.41
D1	=>	Y	0.28	0.28	0.28	0.52	0.52	0.52
S	=>	Y	0.26	0.36	0.45	0.44	0.47	0.50

series : SYNSPEC_1.0 **function : 2-to-1 mux,LSB inverted in,x4 powered**

macro name	MUX2AP4	size [um]	30.800 x 25.300

Truth Table

D0	D1	S	Y
0	X	0	1
1	X	0	0
X	0	1	0
X	1	1	1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D0	0.022							
D1	0.026							
S	0.039							
Y		3.493	0.451	0.454	0.457	0.264	0.281	0.297

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
D0	=>	Y	0.59	0.59	0.59	0.52	0.52	0.52
D1	=>	Y	0.35	0.35	0.35	0.66	0.66	0.66
S	=>	Y	0.33	0.44	0.54	0.59	0.61	0.64

series : SYNSPEC_1.0 **function : 2-to-1 mux,MSB inverted in**

macro name	MUX2B	size [um]	22.400 x 25.300

Truth Table

D0	D1	S	Y
0	X	0	0
1	X	0	1
X	0	1	1
X	1	1	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D0	0.025							
D1	0.022							
S	0.039							
Y		0.889	1.775	1.776	1.777	0.787	0.798	0.809

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
D0	=>	Y	0.27	0.27	0.27	0.48	0.48	0.48
D1	=>	Y	0.45	0.45	0.45	0.39	0.39	0.39
S	=>	Y	0.25	0.33	0.41	0.37	0.40	0.43

series : SYNSPEC_1.0 **function : 2-to-1 mux,MSB inverted in,powered**

macro name	MUX2BP	size [um]	25.200 x 25.300

Truth Table

D0	D1	S	Y
0	X	0	0
1	X	0	1
X	0	1	1
X	1	1	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D0	0.025							
D1	0.022							
S	0.040							
Y		1.794	0.889	0.889	0.890	0.426	0.443	0.460

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
D0	=>	Y	0.29	0.29	0.29	0.52	0.52	0.52
D1	=>	Y	0.47	0.47	0.47	0.43	0.43	0.43
S	=>	Y	0.26	0.35	0.43	0.41	0.44	0.47

series : SYNSPEC_1.0 **function : 2-to-1 mux,MSB inverted in,x4 powered**

macro name	MUX2BP4	size [um]	30.800 x 25.300

Truth Table

D0	D1	S	Y
0	X	0	0
1	X	0	1
X	0	1	1
X	1	1	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D0	0.025							
D1	0.022							
S	0.040							
Y		3.513	0.456	0.457	0.457	0.262	0.281	0.300

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
D0	=>	Y	0.36	0.36	0.36	0.66	0.66	0.66
D1	=>	Y	0.55	0.55	0.55	0.54	0.54	0.54
S	=>	Y	0.34	0.42	0.51	0.52	0.57	0.61

series : SYNSPEC_1.0 **function : 2-to-1 mux,inverted out**

macro name	MUX2I	size [um]	19.600 x 25.300

Truth Table

D0	D1	S	Y
0	X	0	1
1	X	0	0
X	0	1	1
X	1	1	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D0	0.026							
D1	0.026							
S	0.039							
Y		0.402	2.617	3.052	3.487	1.224	1.227	1.231

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
D0	=>	Y	0.18	0.18	0.18	0.09	0.09	0.09
D1	=>	Y	0.27	0.27	0.27	0.14	0.14	0.14
S	=>	Y	0.26	0.28	0.29	0.10	0.17	0.24

series : SYNSPEC_1.0 **function : 2-to-1 mux,inverted out,powered**

macro name	MUX2IP	size [um]	28.000 x 25.300

Truth Table

D0	D1	S	Y
0	X	0	1
1	X	0	0
X	0	1	1
X	1	1	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D0	0.022							
D1	0.022							
S	0.033							
Y		1.808	0.885	0.886	0.886	0.407	0.407	0.407

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
D0	=>	Y	0.52	0.52	0.52	0.46	0.46	0.46
D1	=>	Y	0.52	0.52	0.52	0.45	0.45	0.45
S	=>	Y	0.43	0.49	0.56	0.39	0.50	0.60

series : SYNSPEC_1.0 **function : 2-to-1 mux,inverted out,x4 powered**

macro name	MUX2IP4	size [um]	33.600 x 25.300

Truth Table

D0	D1	S	Y
0	X	0	1
1	X	0	0
X	0	1	1
X	1	1	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D0	0.022							
D1	0.022							
S	0.033							
Y		3.576	0.448	0.448	0.448	0.237	0.237	0.237

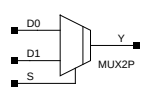
AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
D0	=>	Y	0.59	0.59	0.59	0.54	0.54	0.54
D1	=>	Y	0.59	0.59	0.59	0.53	0.53	0.53
S	=>	Y	0.50	0.56	0.62	0.48	0.58	0.68

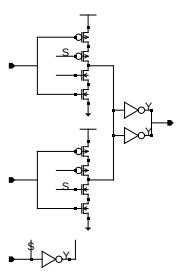
series : SYNSPEC_1.0 **function : 2-to-1 mux,powered**

macro name	MUX2P	size [um]	22.400 x 25.300

Symbol



Schematic



Truth Table

D0	D1	S	Y
0	X	0	0
1	X	0	1
X	0	1	0
X	1	1	1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D0	0.022							
D1	0.022							
S	0.033							
Y		1.782	0.890	0.891	0.892	0.449	0.449	0.450

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
D0	=>	Y	0.36	0.36	0.36	0.44	0.44	0.44
D1	=>	Y	0.35	0.35	0.35	0.44	0.44	0.44
S	=>	Y	0.30	0.40	0.50	0.34	0.41	0.47

series : SYNSPEC_1.0 **function : 2-to-1 mux,x4 powered**

macro name	MUX2P4	size [um]	28.000 x 25.300

Truth Table

D0	D1	S	Y
0	X	0	0
1	X	0	1
X	0	1	0
X	1	1	1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D0	0.022							
D1	0.022							
S	0.033							
Y		3.468	0.461	0.462	0.462	0.289	0.290	0.290

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
D0	=>	Y	0.48	0.48	0.48	0.58	0.58	0.58
D1	=>	Y	0.46	0.46	0.46	0.58	0.58	0.58
S	=>	Y	0.41	0.51	0.62	0.48	0.54	0.60

series : SYNSPEC_1.0 **function : 3-to-1 mux**

macro name	MUX3	size [um]	33.600 x 25.300

Truth Table

D0	D1	D2	S0	S1	Y
1	X	X	0	0	1
X	1	X	1	0	1
X	X	1	X	1	1
other states					0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D0	0.022							
D1	0.022							
D2	0.022							
S0	0.033							
S1	0.034							
Y		0.872	1.778	1.782	1.787	0.807	0.843	0.880

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
D0	=>	Y	0.56	0.56	0.56	0.64	0.64	0.64
D1	=>	Y	0.55	0.55	0.55	0.65	0.65	0.65
D2	=>	Y	0.31	0.31	0.31	0.38	0.38	0.38
S0	=>	Y	0.50	0.60	0.70	0.55	0.61	0.67
S1	=>	Y	0.26	0.33	0.40	0.25	0.33	0.41

series : SYNSPEC_1.0 **function : 3-to-1 mux,inverted out**

macro name	MUX3I	size [um]	39.200 x 25.300

Truth Table

D0	D1	D2	S0	S1	Y
0	X	X	0	0	1
X	0	X	1	0	1
X	X	0	X	1	1
other states					0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D0	0.022							
D1	0.022							
D2	0.022							
S0	0.033							
S1	0.034							
Y		0.890	1.774	1.775	1.775	0.819	0.820	0.820

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
D0	=>	Y	0.79	0.79	0.79	0.67	0.67	0.67
D1	=>	Y	0.79	0.79	0.79	0.66	0.66	0.66
D2	=>	Y	0.50	0.50	0.50	0.42	0.42	0.42
S0	=>	Y	0.69	0.75	0.81	0.61	0.71	0.82
S1	=>	Y	0.38	0.46	0.53	0.37	0.44	0.52

series : SYNSPEC_1.0 **function : 3-to-1 mux,inverted out,powered**

macro name	MUX3IP	size [um]	42.000 x 25.300

Truth Table

D0	D1	D2	S0	S1	Y
0	X	X	0	0	1
X	0	X	1	0	1
X	X	0	X	1	1
other states					0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D0	0.022							
D1	0.022							
D2	0.022							
S0	0.033							
S1	0.034							
Y		1.805	0.885	0.885	0.886	0.415	0.416	0.417

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
D0	=>	Y	0.82	0.82	0.82	0.70	0.70	0.70
D1	=>	Y	0.82	0.82	0.82	0.69	0.69	0.69
D2	=>	Y	0.52	0.52	0.52	0.45	0.45	0.45
S0	=>	Y	0.72	0.78	0.85	0.64	0.74	0.84
S1	=>	Y	0.40	0.48	0.55	0.40	0.47	0.55

series : SYNSPEC_1.0 **function : 3-to-1 mux,inverted out,x4 powered**

macro name	MUX3IP4	size [um]	47.600 x 25.300

Truth Table

D0	D1	D2	S0	S1	Y
0	X	X	0	0	1
X	0	X	1	0	1
X	X	0	X	1	1
other states					0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D0	0.022							
D1	0.022							
D2	0.022							
S0	0.033							
S1	0.034							
Y		3.549	0.447	0.448	0.449	0.237	0.238	0.239

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
D0	=>	Y	0.91	0.91	0.91	0.79	0.79	0.79
D1	=>	Y	0.91	0.91	0.91	0.78	0.78	0.78
D2	=>	Y	0.59	0.59	0.59	0.53	0.53	0.53
S0	=>	Y	0.81	0.87	0.93	0.72	0.83	0.93
S1	=>	Y	0.48	0.55	0.62	0.47	0.55	0.63

series : SYNSPEC_1.0 **function : 3-to-1 mux,powered**

macro name	MUX3P	size [um]	36.400 x 25.300

Truth Table

D0	D1	D2	S0	S1	Y
1	X	X	0	0	1
X	1	X	1	0	1
X	X	1	X	1	1
other states					0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D0	0.022							
D1	0.022							
D2	0.022							
S0	0.033							
S1	0.034							
Y		1.644	0.927	0.935	0.942	0.455	0.497	0.538

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
D0	=>	Y	0.61	0.61	0.61	0.69	0.69	0.69
D1	=>	Y	0.60	0.60	0.60	0.69	0.69	0.69
D2	=>	Y	0.35	0.35	0.35	0.43	0.43	0.43
S0	=>	Y	0.54	0.64	0.75	0.59	0.65	0.72
S1	=>	Y	0.29	0.37	0.44	0.30	0.38	0.46

series : SYNSPEC_1.0 **function : 3-to-1 mux,x4 powered**

macro name	MUX3P4	size [um]	42.000 x 25.300

Truth Table

D0	D1	D2	S0	S1	Y
1	X	X	0	0	1
X	1	X	1	0	1
X	X	1	X	1	1
other states					0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D0	0.022							
D1	0.022							
D2	0.022							
S0	0.033							
S1	0.034							
Y		3.029	0.493	0.505	0.516	0.295	0.329	0.364

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
D0	=>	Y	0.75	0.75	0.75	0.84	0.84	0.84
D1	=>	Y	0.74	0.74	0.74	0.84	0.84	0.84
D2	=>	Y	0.46	0.46	0.46	0.57	0.57	0.57
S0	=>	Y	0.68	0.78	0.89	0.75	0.81	0.87
S1	=>	Y	0.40	0.48	0.57	0.41	0.50	0.59

series : SYNSPEC_1.0 **function : 4-to-1 mux**

macro name	MUX4	size [um]	44.800 x 25.300

Truth Table

D0	D1	D2	D3	S0	S1	Y
1	X	X	X	0	0	1
X	1	X	X	1	0	1
X	X	1	X	0	1	1
X	X	X	1	1	1	1
other states						0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D0	0.022							
D1	0.022							
D2	0.022							
D3	0.022							
S0	0.050							
S1	0.037							
Y		0.870	1.781	1.784	1.788	0.860	0.873	0.886

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
D0	=>	Y	0.57	0.57	0.57	0.65	0.65	0.65
D1	=>	Y	0.56	0.56	0.56	0.68	0.68	0.68
D2	=>	Y	0.56	0.56	0.56	0.64	0.64	0.64
D3	=>	Y	0.55	0.55	0.55	0.67	0.67	0.67
S0	=>	Y	0.49	0.64	0.78	0.55	0.64	0.73
S1	=>	Y	0.29	0.34	0.39	0.28	0.28	0.29

series : SYNSPEC_1.0 **function : 4-to-1 mux,inverted out**

macro name	MUX4I	size [um]	47.600 x 25.300

Truth Table

D0	D1	D2	D3	S0	S1	Y
0	X	X	X	0	0	1
X	0	X	X	1	0	1
X	X	0	X	0	1	1
X	X	X	0	1	1	1
other states						0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D0	0.022							
D1	0.022							
D2	0.022							
D3	0.022							
S0	0.052							
S1	0.037							
Y		0.883	1.777	1.778	1.779	0.787	0.788	0.788

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
D0	=>	Y	0.78	0.78	0.78	0.67	0.67	0.67
D1	=>	Y	0.80	0.80	0.80	0.66	0.66	0.66
D2	=>	Y	0.78	0.78	0.78	0.67	0.67	0.67
D3	=>	Y	0.80	0.80	0.80	0.66	0.66	0.66
S0	=>	Y	0.69	0.77	0.85	0.60	0.74	0.88
S1	=>	Y	0.40	0.40	0.41	0.39	0.44	0.49

series : SYNSPEC_1.0 **function : 4-to-1 mux,inverted out,powered**

macro name	MUX4IP	size [um]	50.400 x 25.300

Truth Table

D0	D1	D2	D3	S0	S1	Y
0	X	X	X	0	0	1
X	0	X	X	1	0	1
X	X	0	X	0	1	1
X	X	X	0	1	1	1
other states						0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D0	0.022							
D1	0.022							
D2	0.022							
D3	0.022							
S0	0.052							
S1	0.037							
Y		1.788	0.890	0.892	0.893	0.411	0.411	0.412

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
D0	=>	Y	0.81	0.81	0.81	0.70	0.70	0.70
D1	=>	Y	0.84	0.84	0.84	0.69	0.69	0.69
D2	=>	Y	0.82	0.82	0.82	0.70	0.70	0.70
D3	=>	Y	0.83	0.83	0.83	0.70	0.70	0.70
S0	=>	Y	0.72	0.80	0.89	0.64	0.77	0.91
S1	=>	Y	0.42	0.43	0.44	0.43	0.48	0.53

series : SYNSPEC_1.0 **function : 4-to-1 mux,inverted out,x4 powered**

macro name	MUX4IP4	size [um]	56.000 x 25.300

Truth Table

D0	D1	D2	D3	S0	S1	Y
0	X	X	X	0	0	1
X	0	X	X	1	0	1
X	X	0	X	0	1	1
X	X	X	0	1	1	1
other states						0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D0	0.022							
D1	0.022							
D2	0.022							
D3	0.022							
S0	0.056							
S1	0.037							
Y		3.498	0.453	0.454	0.455	0.241	0.241	0.242

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
D0	=>	Y	0.90	0.90	0.90	0.79	0.79	0.79
D1	=>	Y	0.93	0.93	0.93	0.78	0.78	0.78
D2	=>	Y	0.91	0.91	0.91	0.79	0.79	0.79
D3	=>	Y	0.92	0.92	0.92	0.78	0.78	0.78
S0	=>	Y	0.81	0.90	0.99	0.73	0.83	0.93
S1	=>	Y	0.50	0.51	0.52	0.52	0.57	0.62

series : SYNSPEC_1.0 **function : 4-to-1 mux,powered**

macro name	MUX4P	size [um]	47.600 x 25.300

Truth Table

D0	D1	D2	D3	S0	S1	Y
1	X	X	X	0	0	1
X	1	X	X	1	0	1
X	X	1	X	0	1	1
X	X	X	1	1	1	1
other states						0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D0	0.022							
D1	0.022							
D2	0.022							
D3	0.022							
S0	0.050							
S1	0.037							
Y		1.718	0.909	0.911	0.913	0.512	0.523	0.535

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
D0	=>	Y	0.61	0.61	0.61	0.69	0.69	0.69
D1	=>	Y	0.60	0.60	0.60	0.71	0.71	0.71
D2	=>	Y	0.60	0.60	0.60	0.68	0.68	0.68
D3	=>	Y	0.59	0.59	0.59	0.71	0.71	0.71
S0	=>	Y	0.53	0.68	0.82	0.59	0.68	0.77
S1	=>	Y	0.33	0.38	0.42	0.29	0.30	0.31

series : SYNSPEC_1.0 **function : 4-to-1 mux,x4 powered**

macro name	MUX4P4	size [um]	53.200 x 25.300

Truth Table

D0	D1	D2	D3	S0	S1	Y
1	X	X	X	0	0	1
X	1	X	X	1	0	1
X	X	1	X	0	1	1
X	X	X	1	1	1	1
other states						0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D0	0.022							
D1	0.022							
D2	0.022							
D3	0.022							
S0	0.054							
S1	0.037							
Y		3.308	0.489	0.491	0.492	0.350	0.355	0.360

AC Characteristic

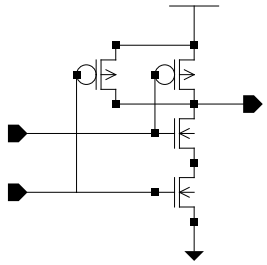
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
D0	=>	Y	0.74	0.74	0.74	0.84	0.84	0.84
D1	=>	Y	0.74	0.74	0.74	0.87	0.87	0.87
D2	=>	Y	0.73	0.73	0.73	0.83	0.83	0.83
D3	=>	Y	0.73	0.73	0.73	0.86	0.86	0.86
S0	=>	Y	0.67	0.78	0.89	0.73	0.83	0.93
S1	=>	Y	0.47	0.51	0.55	0.39	0.40	0.42

series : SYNSPEC_1.0 **function : 2-input NAND**

macro name	NAND2	size [um]	8.400 x 25.300

Symbol

Schematic



Truth Table

A	B	Y
X	0	1
0	X	1
1	1	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.026							
B	0.026							
Y		0.877	1.750	1.750	1.750	1.221	1.221	1.221

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.08	0.08	0.08	0.07	0.07	0.07
B	=>	Y	0.12	0.12	0.12	0.08	0.08	0.08

series : SYNSPEC_1.0 **function : 2-input NAND,1-input inverted**

macro name	NAND21	size [um]	11.200 x 25.300

Truth Table

A	B	Y
0	X	1
1	0	0
X	1	1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.026							
B	0.019							
Y		0.864	1.750	1.762	1.774	1.229	1.231	1.232

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.08	0.08	0.08	0.07	0.07	0.07
B	=>	Y	0.22	0.22	0.22	0.24	0.24	0.24

series : SYNSPEC_1.0 **function : 2-input NAND,1-input inverted,powered**

macro name	NAND21P	size [um]	16.800 x 25.300

Truth Table

A	B	Y
0	X	1
1	0	0
X	1	1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.052							
B	0.019							
Y		1.687	0.883	0.900	0.917	0.614	0.618	0.623

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.07	0.07	0.07	0.06	0.06	0.06
B	=>	Y	0.24	0.24	0.24	0.29	0.29	0.29

series : SYNSPEC_1.0 **function : 2-input NAND,1-input inverted,x4 powered**

macro name	NAND21P4	size [um]	28.000 x 25.300

Truth Table

A	B	Y
0	X	1
1	0	0
X	1	1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.027							
B	0.019							
Y		3.583	0.448	0.448	0.448	0.236	0.236	0.236

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.36	0.36	0.36	0.42	0.42	0.42
B	=>	Y	0.51	0.51	0.51	0.59	0.59	0.59

series : SYNSPEC_1.0 **function : 2-input NAND,2-input inverted**

macro name	NAND22	size [um]	11.200 x 25.300

Truth Table

A	B	Y
0	0	0
1	X	1
X	1	1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.027							
B	0.026							
Y		0.886	1.776	1.777	1.777	0.808	0.808	0.808

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.16	0.16	0.16	0.30	0.30	0.30
B	=>	Y	0.17	0.17	0.17	0.34	0.34	0.34

series : SYNSPEC_1.0 **function : 2-input NAND,2-input inverted,powered**

macro name	NAND22P	size [um]	14.000 x 25.300

Truth Table

A	B	Y
0	0	0
1	X	1
X	1	1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.027							
B	0.026							
Y		1.795	0.891	0.892	0.892	0.453	0.454	0.454

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.17	0.17	0.17	0.35	0.35	0.35
B	=>	Y	0.18	0.18	0.18	0.39	0.39	0.39

series : SYNSPEC_1.0 **function : 2-input NAND,2-input inverted,x4 powered**

macro name	NAND22P4	size [um]	19.600 x 25.300

Truth Table

A	B	Y
0	0	0
1	X	1
X	1	1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.027							
B	0.026							
Y		3.530	0.455	0.455	0.456	0.291	0.291	0.291

AC Characteristic

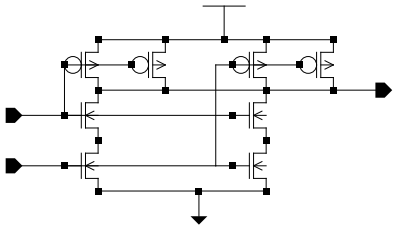
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.21	0.21	0.21	0.49	0.49	0.49
B	=>	Y	0.22	0.22	0.22	0.54	0.54	0.54

series : SYNSPEC_1.0 | function : 2-input NAND,powered

macro name	NAND2P	size [um]	14.000 x 25.300

Symbol

Schematic



Truth Table

A	B	Y
X	0	1
0	X	1
1	1	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.053							
B	0.053							
Y		1.692	0.876	0.897	0.917	0.611	0.611	0.611

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.07	0.07	0.07	0.06	0.06	0.06
B	=>	Y	0.10	0.10	0.10	0.08	0.08	0.08

series : SYNSPEC_1.0 | function : 2-input NAND,x4 powered

macro name	NAND2P4	size [um]	25.200 x 25.300

Truth Table

A	B	Y
X	0	1
0	X	1
1	1	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.019							
B	0.018							
Y		3.581	0.448	0.448	0.448	0.236	0.236	0.236

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.40	0.40	0.40	0.45	0.45	0.45
B	=>	Y	0.44	0.44	0.44	0.46	0.46	0.46

series : SYNSPEC_1.0 | function : 3-input NAND

macro name	NAND3	size [um]	11.200 x 25.300

Truth Table

A	B	C	Y
X	X	0	1
X	0	X	1
0	X	X	1
1	1	1	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.022							
B	0.022							
C	0.022							
Y		0.520	2.681	2.682	2.683	1.675	1.675	1.675

AC Characteristic

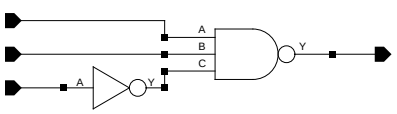
delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.13	0.13	0.13	0.08	0.08	0.08
B	=>	Y	0.19	0.19	0.19	0.11	0.11	0.11
C	=>	Y	0.26	0.26	0.26	0.13	0.13	0.13

series : SYNSPEC_1.0 | function : 3-input NAND,1-input inverted

macro name	NAND31	size [um]	14.000 x 25.300

Symbol

Schematic



Truth Table

A	B	C	Y
X	0	X	1
0	X	X	1
1	1	0	0
X	X	1	1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.022							
B	0.022							
C	0.019							
Y		0.518	2.681	2.682	2.683	1.683	1.684	1.684

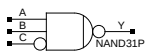
AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.13	0.13	0.13	0.08	0.08	0.08
B	=>	Y	0.20	0.20	0.20	0.12	0.12	0.12
C	=>	Y	0.34	0.34	0.34	0.27	0.27	0.27

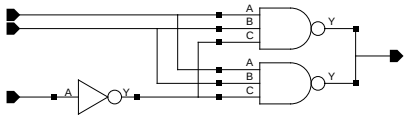
series : SYNSPEC_1.0 function : 3-input NAND,1-input inverted,powered

macro name	NAND31P	size [um]	22.400 x 25.300

Symbol



Schematic



Truth Table

A	B	C	Y
X	0	X	1
0	X	X	1
1	1	0	0
X	X	1	1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.045							
B	0.044							
C	0.027							
Y		1.010	1.345	1.375	1.404	0.840	0.842	0.843

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.10	0.10	0.10	0.07	0.07	0.07
B	=>	Y	0.16	0.16	0.16	0.10	0.10	0.10
C	=>	Y	0.32	0.32	0.32	0.26	0.26	0.26

series : SYNSPEC_1.0 function : 3-input NAND,1-input inverted,x4 powered

macro name	NAND31P4	size [um]	30.800 x 25.300

Truth Table

A	B	C	Y
X	0	X	1
0	X	X	1
1	1	0	0
X	X	1	1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.023							
B	0.022							
C	0.019							
Y		3.576	0.447	0.448	0.448	0.237	0.237	0.237

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.46	0.46	0.46	0.48	0.48	0.48
B	=>	Y	0.53	0.53	0.53	0.51	0.51	0.51
C	=>	Y	0.69	0.69	0.69	0.67	0.67	0.67

series : SYNSPEC_1.0 function : 3-input NAND,2-input inverted

macro name	NAND32	size [um]	14.000 x 25.300

Truth Table

A	B	C	Y
0	X	X	1
1	0	0	0
X	1	X	1
X	X	1	1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.026							
B	0.023							
C	0.022							
Y		0.858	1.753	1.765	1.777	1.229	1.233	1.237

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.08	0.08	0.08	0.07	0.07	0.07
B	=>	Y	0.24	0.24	0.24	0.30	0.30	0.30
C	=>	Y	0.26	0.26	0.26	0.35	0.35	0.35

series : SYNSPEC_1.0 function : 3-input NAND,2-input inverted,powered

macro name	NAND32P	size [um]	19.600 x 25.300

Truth Table

A	B	C	Y
0	X	X	1
1	0	0	0
X	1	X	1
X	X	1	1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.052							
B	0.023							
C	0.022							
Y		1.686	0.877	0.897	0.917	0.614	0.623	0.632

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.07	0.07	0.07	0.06	0.06	0.06
B	=>	Y	0.26	0.26	0.26	0.37	0.37	0.37
C	=>	Y	0.28	0.28	0.28	0.41	0.41	0.41

series : SYNSPEC_1.0 **function : 3-input NAND,2-input inverted,x4 powered**

macro name	NAND32P4	size [um]	30.800 x 25.300

Truth Table

A	B	C	Y
0	X	X	1
1	0	0	0
X	1	X	1
X	X	1	1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.027							
B	0.023							
C	0.022							
Y		3.579	0.447	0.447	0.448	0.239	0.239	0.239

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.37	0.37	0.37	0.42	0.42	0.42
B	=>	Y	0.54	0.54	0.54	0.66	0.66	0.66
C	=>	Y	0.56	0.56	0.56	0.71	0.71	0.71

series : SYNSPEC_1.0 **function : 3-input NAND,3-input inverted**

macro name	NAND33	size [um]	14.000 x 25.300

Truth Table

A	B	C	Y
0	0	0	0
1	X	X	1
X	1	X	1
X	X	1	1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.023							
B	0.022							
C	0.022							
Y		0.885	1.778	1.778	1.778	0.850	0.850	0.851

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.21	0.21	0.21	0.42	0.42	0.42
B	=>	Y	0.23	0.23	0.23	0.52	0.52	0.52
C	=>	Y	0.24	0.24	0.24	0.56	0.56	0.56

series : SYNSPEC_1.0 **function : 3-input NAND,3-input inverted,powered**

macro name	NAND33P	size [um]	16.800 x 25.300

Truth Table

A	B	C	Y
0	0	0	0
1	X	X	1
X	1	X	1
X	X	1	1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.027							
B	0.026							
C	0.026							
Y		1.715	0.923	0.924	0.924	0.516	0.516	0.516

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.19	0.19	0.19	0.54	0.54	0.54
B	=>	Y	0.20	0.20	0.20	0.64	0.64	0.64
C	=>	Y	0.20	0.20	0.20	0.69	0.69	0.69

series : SYNSPEC_1.0 **function : 3-input NAND,3-input inverted,x4 powered**

macro name	NAND33P4	size [um]	22.400 x 25.300

Truth Table

A	B	C	Y
0	0	0	0
1	X	X	1
X	1	X	1
X	X	1	1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.023							
B	0.022							
C	0.022							
Y		3.484	0.458	0.459	0.459	0.339	0.339	0.339

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.29	0.29	0.29	0.71	0.71	0.71
B	=>	Y	0.31	0.31	0.31	0.81	0.81	0.81
C	=>	Y	0.33	0.33	0.33	0.86	0.86	0.86

series : SYNSPEC_1.0 **function : 3-input NAND,powered**

macro name	NAND3P	size [um]	19.600 x 25.300

Truth Table

A	B	C	Y
X	X	0	1
X	0	X	1
0	X	X	1
1	1	1	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.044							
B	0.044							
C	0.044							
Y		1.060	1.342	1.344	1.346	0.838	0.838	0.838

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.11	0.11	0.11	0.08	0.08	0.08
B	=>	Y	0.16	0.16	0.16	0.10	0.10	0.10
C	=>	Y	0.22	0.22	0.22	0.12	0.12	0.12

series : SYNSPEC_1.0 **function : 3-input NAND,x4 powered**

macro name	NAND3P4	size [um]	28.000 x 25.300

Truth Table

A	B	C	Y
X	X	0	1
X	0	X	1
0	X	X	1
1	1	1	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.023							
B	0.022							
C	0.022							
Y		3.576	0.447	0.448	0.448	0.236	0.236	0.237

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.46	0.46	0.46	0.48	0.48	0.48
B	=>	Y	0.52	0.52	0.52	0.51	0.51	0.51
C	=>	Y	0.58	0.58	0.58	0.53	0.53	0.53

series : SYNSPEC_1.0 **function : 4-input NAND**

macro name	NAND4	size [um]	14.000 x 25.300

Truth Table

A	B	C	D	Y
X	X	X	0	1
X	X	0	X	1
X	0	X	X	1
0	X	X	X	1
1	1	1	1	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.022							
B	0.022							
C	0.022							
D	0.022							
Y		0.497	2.680	2.684	2.688	2.129	2.129	2.129

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.14	0.14	0.14	0.09	0.09	0.09
B	=>	Y	0.20	0.20	0.20	0.14	0.14	0.14
C	=>	Y	0.26	0.26	0.26	0.17	0.17	0.17
D	=>	Y	0.32	0.32	0.32	0.19	0.19	0.19

series : SYNSPEC_1.0 **function : 4-input NAND,1-input inverted**

macro name	NAND41	size [um]	16.800 x 25.300

Truth Table

A	B	C	D	Y
X	X	0	X	1
X	0	X	X	1
0	X	X	X	1
1	1	1	0	0
X	X	X	1	1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.024							
B	0.022							
C	0.022							
D	0.019							
Y		0.492	2.681	2.685	2.689	2.138	2.138	2.138

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.14	0.14	0.14	0.10	0.10	0.10
B	=>	Y	0.20	0.20	0.20	0.14	0.14	0.14
C	=>	Y	0.27	0.27	0.27	0.17	0.17	0.17
D	=>	Y	0.40	0.40	0.40	0.33	0.33	0.33

series : SYNSPEC_1.0 **function : 4-input NAND,1-input inverted,powered**

macro name	NAND41P	size [um]	28.000 x 25.300

Truth Table

A	B	C	D	Y
X	X	0	X	1
X	0	X	X	1
0	X	X	X	1
1	1	1	0	0
X	X	X	1	1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.044							
B	0.044							
C	0.045							
D	0.027							
Y		0.894	1.352	1.419	1.486	1.069	1.070	1.071

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.13	0.13	0.13	0.09	0.09	0.09
B	=>	Y	0.18	0.18	0.18	0.13	0.13	0.13
C	=>	Y	0.24	0.24	0.24	0.16	0.16	0.16
D	=>	Y	0.38	0.38	0.38	0.33	0.33	0.33

series : SYNSPEC_1.0 **function : 4-input NAND,1-input inverted,x4 powered**

macro name	NAND41P4	size [um]	33.600 x 25.300

Truth Table

A	B	C	D	Y
X	X	0	X	1
X	0	X	X	1
0	X	X	X	1
1	1	1	0	0
X	X	X	1	1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.023							
B	0.022							
C	0.022							
D	0.019							
Y		3.568	0.446	0.447	0.447	0.240	0.240	0.240

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.47	0.47	0.47	0.53	0.53	0.53
B	=>	Y	0.54	0.54	0.54	0.58	0.58	0.58
C	=>	Y	0.60	0.60	0.60	0.61	0.61	0.61
D	=>	Y	0.76	0.76	0.76	0.77	0.77	0.77

series : SYNSPEC_1.0 **function : 4-input NAND,2-input inverted**

macro name	NAND42	size [um]	16.800 x 25.300

Truth Table

A	B	C	D	Y
X	0	X	X	1
0	X	X	X	1
1	1	0	0	0
X	X	1	X	1
X	X	X	1	1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.022							
B	0.022							
C	0.023							
D	0.022							
Y		0.518	2.681	2.682	2.684	1.683	1.685	1.687

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.13	0.13	0.13	0.08	0.08	0.08
B	=>	Y	0.20	0.20	0.20	0.12	0.12	0.12
C	=>	Y	0.36	0.36	0.36	0.33	0.33	0.33
D	=>	Y	0.38	0.38	0.38	0.38	0.38	0.38

series : SYNSPEC_1.0 **function : 4-input NAND,2-input inverted,powered**

macro name	NAND42P	size [um]	25.200 x 25.300

Truth Table

A	B	C	D	Y
X	0	X	X	1
0	X	X	X	1
1	1	0	0	0
X	X	1	X	1
X	X	X	1	1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.045							
B	0.044							
C	0.027							
D	0.026							
Y		1.010	1.346	1.375	1.404	0.840	0.846	0.851

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.10	0.10	0.10	0.07	0.07	0.07
B	=>	Y	0.16	0.16	0.16	0.10	0.10	0.10
C	=>	Y	0.32	0.32	0.32	0.39	0.39	0.39
D	=>	Y	0.33	0.33	0.33	0.44	0.44	0.44

series : SYNSPEC_1.0 **function : 4-input NAND,2-input inverted,x4 powered**

macro name	NAND42P4	size [um]	33.600 x 25.300

Truth Table

A	B	C	D	Y
X	0	X	X	1
0	X	X	X	1
1	1	0	0	0
X	X	1	X	1
X	X	X	1	1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.023							
B	0.022							
C	0.023							
D	0.022							
Y		3.521	0.454	0.454	0.455	0.240	0.240	0.240

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.46	0.46	0.46	0.49	0.49	0.49
B	=>	Y	0.53	0.53	0.53	0.52	0.52	0.52
C	=>	Y	0.71	0.71	0.71	0.75	0.75	0.75
D	=>	Y	0.73	0.73	0.73	0.79	0.79	0.79

series : SYNSPEC_1.0 **function : 4-input NAND,3-input inverted**

macro name	NAND43	size [um]	16.800 x 25.300

Truth Table

A	B	C	D	Y
0	X	X	X	1
1	0	0	0	0
X	1	X	X	1
X	X	1	X	1
X	X	X	1	1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.026							
B	0.023							
C	0.022							
D	0.022							
Y		0.857	1.753	1.766	1.778	1.229	1.241	1.253

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.08	0.08	0.08	0.07	0.07	0.07
B	=>	Y	0.26	0.26	0.26	0.45	0.45	0.45
C	=>	Y	0.28	0.28	0.28	0.55	0.55	0.55
D	=>	Y	0.29	0.29	0.29	0.60	0.60	0.60

series : SYNSPEC_1.0 **function : 4-input NAND,3-input inverted,powered**

macro name	NAND43P	size [um]	22.400 x 25.300

Truth Table

A	B	C	D	Y
0	X	X	X	1
1	0	0	0	0
X	1	X	X	1
X	X	1	X	1
X	X	X	1	1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.052							
B	0.023							
C	0.023							
D	0.022							
Y		1.473	0.884	0.958	1.032	0.613	0.636	0.658

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.08	0.08	0.08	0.07	0.07	0.07
B	=>	Y	0.28	0.28	0.28	0.55	0.55	0.55
C	=>	Y	0.31	0.31	0.31	0.65	0.65	0.65
D	=>	Y	0.32	0.32	0.32	0.70	0.70	0.70

series : SYNSPEC_1.0 **function : 4-input NAND,3-input inverted,x4 powered**

macro name	NAND43P4	size [um]	33.600 x 25.300

Truth Table

A	B	C	D	Y
0	X	X	X	1
1	0	0	0	0
X	1	X	X	1
X	X	1	X	1
X	X	X	1	1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.027							
B	0.023							
C	0.022							
D	0.022							
Y		3.522	0.454	0.454	0.454	0.242	0.242	0.242

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.38	0.38	0.38	0.43	0.43	0.43
B	=>	Y	0.56	0.56	0.56	0.83	0.83	0.83
C	=>	Y	0.59	0.59	0.59	0.94	0.94	0.94
D	=>	Y	0.59	0.59	0.59	0.98	0.98	0.98

series : SYNSPEC_1.0 **function : 4-input NAND,4-input inverted**

macro name	NAND44	size [um]	16.800 x 25.300

Truth Table

A	B	C	D	Y
0	0	0	0	0
1	X	X	X	1
X	1	X	X	1
X	X	1	X	1
X	X	X	1	1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.023							
B	0.022							
C	0.022							
D	0.022							
Y		0.854	1.793	1.796	1.798	0.899	0.899	0.900

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.21	0.21	0.21	0.50	0.50	0.50
B	=>	Y	0.24	0.24	0.24	0.65	0.65	0.65
C	=>	Y	0.25	0.25	0.25	0.75	0.75	0.75
D	=>	Y	0.25	0.25	0.25	0.80	0.80	0.80

series : SYNSPEC_1.0 **function : 4-input NAND,4-input inverted,powered**

macro name	NAND44P	size [um]	19.600 x 25.300

Truth Table

A	B	C	D	Y
0	0	0	0	0
1	X	X	X	1
X	1	X	X	1
X	X	1	X	1
X	X	X	1	1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.023							
B	0.022							
C	0.022							
D	0.022							
Y		1.697	0.924	0.926	0.928	0.556	0.556	0.556

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.23	0.23	0.23	0.61	0.61	0.61
B	=>	Y	0.26	0.26	0.26	0.77	0.77	0.77
C	=>	Y	0.27	0.27	0.27	0.87	0.87	0.87
D	=>	Y	0.27	0.27	0.27	0.91	0.91	0.91

series : SYNSPEC_1.0 **function : 4-input NAND,4-input inverted,x4 powered**

macro name	NAND44P4	size [um]	25.200 x 25.300

Truth Table

A	B	C	D	Y
0	0	0	0	0
1	X	X	X	1
X	1	X	X	1
X	X	1	X	1
X	X	X	1	1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.023							
B	0.022							
C	0.022							
D	0.022							
Y		3.246	0.485	0.487	0.489	0.380	0.380	0.380

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.29	0.29	0.29	0.90	0.90	0.90
B	=>	Y	0.32	0.32	0.32	1.05	1.05	1.05
C	=>	Y	0.33	0.33	0.33	1.15	1.15	1.15
D	=>	Y	0.34	0.34	0.34	1.19	1.19	1.19

series : SYNSPEC_1.0 **function : 4-input NAND,powered**

macro name	NAND4P	size [um]	25.200 x 25.300

Truth Table

A	B	C	D	Y
X	X	X	0	1
X	X	0	X	1
X	0	X	X	1
0	X	X	X	1
1	1	1	1	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.044							
B	0.044							
C	0.045							
D	0.049							
Y		0.895	1.380	1.433	1.486	1.069	1.069	1.069

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.13	0.13	0.13	0.09	0.09	0.09
B	=>	Y	0.18	0.18	0.18	0.13	0.13	0.13
C	=>	Y	0.24	0.24	0.24	0.16	0.16	0.16
D	=>	Y	0.30	0.30	0.30	0.18	0.18	0.18

series : SYNSPEC_1.0 **function : 4-input NAND,x4 powered**

macro name	NAND4P4	size [um]	30.800 x 25.300

Truth Table

A	B	C	D	Y
X	X	X	0	1
X	X	0	X	1
X	0	X	X	1
0	X	X	X	1
1	1	1	1	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.023							
B	0.022							
C	0.022							
D	0.022							
Y		3.584	0.445	0.446	0.446	0.237	0.237	0.237

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.47	0.47	0.47	0.53	0.53	0.53
B	=>	Y	0.54	0.54	0.54	0.57	0.57	0.57
C	=>	Y	0.60	0.60	0.60	0.61	0.61	0.61
D	=>	Y	0.65	0.65	0.65	0.63	0.63	0.63

series : SYNSPEC_1.0 **function : 5-input NAND**

macro name	NAND5	size [um]	28.000 x 25.300

Truth Table

A	B	C	D	E	Y
1	1	1	1	1	0
other states					1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.023							
B	0.022							
C	0.023							
D	0.023							
E	0.022							
Y		0.885	1.777	1.778	1.778	0.803	0.803	0.803

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.39	0.39	0.39	0.39	0.39	0.39
B	=>	Y	0.46	0.46	0.46	0.41	0.41	0.41
C	=>	Y	0.45	0.45	0.45	0.48	0.48	0.48
D	=>	Y	0.52	0.52	0.52	0.51	0.51	0.51
E	=>	Y	0.57	0.57	0.57	0.53	0.53	0.53

series : SYNSPEC_1.0 **function : 5-input NAND,powered**

macro name	NAND5P	size [um]	30.800 x 25.300

Truth Table

A	B	C	D	E	Y
1	1	1	1	1	0
other states					1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.023							
B	0.022							
C	0.023							
D	0.023							
E	0.022							
Y		1.784	0.889	0.889	0.890	0.440	0.440	0.440

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.42	0.42	0.42	0.44	0.44	0.44
B	=>	Y	0.48	0.48	0.48	0.46	0.46	0.46
C	=>	Y	0.48	0.48	0.48	0.53	0.53	0.53
D	=>	Y	0.55	0.55	0.55	0.56	0.56	0.56
E	=>	Y	0.60	0.60	0.60	0.58	0.58	0.58

series : SYNSPEC_1.0 **function : 5-input NAND,x4 powered**

macro name	NAND5P4	size [um]	36.400 x 25.300

Truth Table

A	B	C	D	E	Y
1	1	1	1	1	0
other states					1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.023							
B	0.022							
C	0.023							
D	0.023							
E	0.022							
Y		3.522	0.454	0.454	0.455	0.283	0.283	0.283

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.44	0.44	0.44	0.62	0.62	0.62
B	=>	Y	0.51	0.51	0.51	0.63	0.63	0.63
C	=>	Y	0.49	0.49	0.49	0.71	0.71	0.71
D	=>	Y	0.56	0.56	0.56	0.74	0.74	0.74
E	=>	Y	0.61	0.61	0.61	0.75	0.75	0.75

series : SYNSPEC_1.0 **function : 6-input NAND**

macro name	NAND6	size [um]	30.800 x 25.300

Truth Table

A	B	C	D	E	F	Y
1	1	1	1	1	1	0
other states						1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.023							
B	0.023							
C	0.022							
D	0.023							
E	0.023							
F	0.022							
Y		0.885	1.777	1.778	1.778	0.805	0.805	0.805

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.43	0.43	0.43	0.46	0.46	0.46
B	=>	Y	0.50	0.50	0.50	0.49	0.49	0.49
C	=>	Y	0.55	0.55	0.55	0.51	0.51	0.51
D	=>	Y	0.45	0.45	0.45	0.49	0.49	0.49
E	=>	Y	0.52	0.52	0.52	0.52	0.52	0.52
F	=>	Y	0.57	0.57	0.57	0.53	0.53	0.53

series : SYNSPEC_1.0 **function : 6-input NAND,powered**

macro name	NAND6P	size [um]	33.600 x 25.300

Truth Table

A	B	C	D	E	F	Y
1	1	1	1	1	1	0
other states						1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.023							
B	0.023							
C	0.022							
D	0.023							
E	0.023							
F	0.022							
Y		1.771	0.895	0.895	0.896	0.449	0.449	0.449

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.46	0.46	0.46	0.52	0.52	0.52
B	=>	Y	0.53	0.53	0.53	0.55	0.55	0.55
C	=>	Y	0.59	0.59	0.59	0.56	0.56	0.56
D	=>	Y	0.48	0.48	0.48	0.54	0.54	0.54
E	=>	Y	0.55	0.55	0.55	0.57	0.57	0.57
F	=>	Y	0.60	0.60	0.60	0.59	0.59	0.59

series : SYNSPEC_1.0 **function : 6-input NAND,x4 powered**

macro name	NAND6P4	size [um]	39.200 x 25.300

Truth Table

A	B	C	D	E	F	Y
1	1	1	1	1	1	0
other states						1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.023							
B	0.023							
C	0.022							
D	0.023							
E	0.023							
F	0.022							
Y		3.521	0.454	0.455	0.455	0.291	0.291	0.291

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.49	0.49	0.49	0.69	0.69	0.69
B	=>	Y	0.55	0.55	0.55	0.72	0.72	0.72
C	=>	Y	0.61	0.61	0.61	0.74	0.74	0.74
D	=>	Y	0.49	0.49	0.49	0.71	0.71	0.71
E	=>	Y	0.56	0.56	0.56	0.74	0.74	0.74
F	=>	Y	0.61	0.61	0.61	0.76	0.76	0.76

series : SYNSPEC_1.0 **function : 8-input NAND**

macro name	NAND8	size [um]	47.600 x 25.300

Truth Table

A	B	C	D	E	F	G	H	Y
1	1	1	1	1	1	1	1	0
other states								1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.023							
B	0.022							
C	0.023							
D	0.022							
E	0.023							
F	0.022							
G	0.023							
H	0.022							
Y		0.863	1.775	1.775	1.776	1.245	1.247	1.249

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.40	0.40	0.40	0.43	0.43	0.43
B	=>	Y	0.46	0.46	0.46	0.44	0.44	0.44
C	=>	Y	0.43	0.43	0.43	0.47	0.47	0.47
D	=>	Y	0.49	0.49	0.49	0.49	0.49	0.49
E	=>	Y	0.43	0.43	0.43	0.43	0.43	0.43
F	=>	Y	0.50	0.50	0.50	0.44	0.44	0.44
G	=>	Y	0.46	0.46	0.46	0.47	0.47	0.47
H	=>	Y	0.52	0.52	0.52	0.49	0.49	0.49

series : SYNSPEC_1.0 **function : 8-input NAND,powered**

macro name	NAND8P	size [um]	53.200 x 25.300

Truth Table

A	B	C	D	E	F	G	H	Y
1	1	1	1	1	1	1	1	0
other states								1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.023							
B	0.022							
C	0.023							
D	0.022							
E	0.023							
F	0.022							
G	0.023							
H	0.022							
Y		1.733	0.891	0.894	0.897	0.663	0.665	0.668

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.44	0.44	0.44	0.49	0.49	0.49
B	=>	Y	0.50	0.50	0.50	0.51	0.51	0.51
C	=>	Y	0.46	0.46	0.46	0.54	0.54	0.54
D	=>	Y	0.52	0.52	0.52	0.55	0.55	0.55
E	=>	Y	0.47	0.47	0.47	0.50	0.50	0.50
F	=>	Y	0.53	0.53	0.53	0.51	0.51	0.51
G	=>	Y	0.49	0.49	0.49	0.54	0.54	0.54
H	=>	Y	0.56	0.56	0.56	0.56	0.56	0.56

series : SYNSPEC_1.0 **function : 8-input NAND,x4 powered**

macro name	NAND8P4	size [um]	47.600 x 25.300

Truth Table

A	B	C	D	E	F	G	H	Y
1	1	1	1	1	1	1	1	0
other states								1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.023							
B	0.022							
C	0.022							
D	0.022							
E	0.023							
F	0.022							
G	0.022							
H	0.022							
Y		3.520	0.453	0.454	0.455	0.284	0.284	0.284

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.50	0.50	0.50	0.75	0.75	0.75
B	=>	Y	0.56	0.56	0.56	0.79	0.79	0.79
C	=>	Y	0.63	0.63	0.63	0.83	0.83	0.83
D	=>	Y	0.68	0.68	0.68	0.85	0.85	0.85
E	=>	Y	0.50	0.50	0.50	0.75	0.75	0.75
F	=>	Y	0.57	0.57	0.57	0.80	0.80	0.80
G	=>	Y	0.63	0.63	0.63	0.83	0.83	0.83
H	=>	Y	0.68	0.68	0.68	0.85	0.85	0.85

series : SYNSPEC_1.0 **function : 2-input NOR**

macro name	NOR2	size [um]	8.400 x 25.300

Truth Table

A	B	Y
0	0	1
1	X	0
X	1	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.026							
B	0.028							
Y		0.445	3.401	3.401	3.402	0.771	0.772	0.774

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.14	0.14	0.14	0.06	0.06	0.06
B	=>	Y	0.18	0.18	0.18	0.07	0.07	0.07

series : SYNSPEC_1.0 **function : 2-input NOR,1-input inverted**

macro name	NOR21	size [um]	11.200 x 25.300

Truth Table

A	B	Y
X	0	0
0	1	1
1	X	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.026							
B	0.023							
Y		0.442	3.426	3.426	3.426	0.771	0.778	0.784

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.14	0.14	0.14	0.06	0.06	0.06
B	=>	Y	0.28	0.28	0.28	0.19	0.19	0.19

series : SYNSPEC_1.0 **function : 2-input NOR,1-input inverted,powered**

macro name	NOR21P	size [um]	16.800 x 25.300

Truth Table

A	B	Y
X	0	0
0	1	1
1	X	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.052							
B	0.027							
Y		0.901	1.712	1.712	1.712	0.397	0.401	0.404

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.11	0.11	0.11	0.06	0.06	0.06
B	=>	Y	0.26	0.26	0.26	0.23	0.23	0.23

series : SYNSPEC_1.0 **function : 2-input NOR,1-input inverted,x4 powered**

macro name	NOR21P4	size [um]	28.000 x 25.300

Truth Table

A	B	Y
X	0	0
0	1	1
1	X	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.027							
B	0.023							
Y		3.591	0.446	0.446	0.446	0.236	0.236	0.236

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.49	0.49	0.49	0.37	0.37	0.37
B	=>	Y	0.65	0.65	0.65	0.51	0.51	0.51

series : SYNSPEC_1.0 **function : 2-input NOR,2-input inverted**

macro name	NOR22	size [um]	11.200 x 25.300

Truth Table

A	B	Y
X	0	0
0	X	0
1	1	1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.019							
B	0.018							
Y		0.889	1.774	1.774	1.774	0.789	0.790	0.791

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.24	0.24	0.24	0.22	0.22	0.22
B	=>	Y	0.25	0.25	0.25	0.26	0.26	0.26

series : SYNSPEC_1.0 **function : 2-input NOR,2-input inverted,powered**

macro name	NOR22P	size [um]	14.000 x 25.300

Truth Table

A	B	Y
X	0	0
0	X	0
1	1	1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.023							
B	0.022							
Y		1.801	0.887	0.887	0.887	0.421	0.424	0.426

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.21	0.21	0.21	0.28	0.28	0.28
B	=>	Y	0.23	0.23	0.23	0.33	0.33	0.33

series : SYNSPEC_1.0 **function : 2-input NOR,2-input inverted,x4 powered**

macro name	NOR22P4	size [um]	19.600 x 25.300

Truth Table

A	B	Y
X	0	0
0	X	0
1	1	1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.027							
B	0.026							
Y		3.486	0.461	0.461	0.461	0.245	0.247	0.249

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.29	0.29	0.29	0.28	0.28	0.28
B	=>	Y	0.31	0.31	0.31	0.32	0.32	0.32

series : SYNSPEC_1.0 **function : 2-input NOR,powered**

macro name	NOR2P	size [um]	14.000 x 25.300

Truth Table

A	B	Y
0	0	1
1	X	0
X	1	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.052							
B	0.052							
Y		0.905	1.705	1.705	1.706	0.389	0.393	0.398

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.11	0.11	0.11	0.06	0.06	0.06
B	=>	Y	0.16	0.16	0.16	0.06	0.06	0.06

series : SYNSPEC_1.0 **function : 2-input NOR,x4 powered**

macro name	NOR2P4	size [um]	25.200 x 25.300

Truth Table

A	B	Y
0	0	1
1	X	0
X	1	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.027							
B	0.026							
Y		3.579	0.448	0.448	0.448	0.236	0.236	0.236

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.49	0.49	0.49	0.37	0.37	0.37
B	=>	Y	0.54	0.54	0.54	0.39	0.39	0.39

series : SYNSPEC_1.0 **function : 3-input NOR**

macro name	NOR3	size [um]	11.200 x 25.300

Truth Table

A	B	C	Y
0	0	0	1
1	X	X	0
X	1	X	0
X	X	1	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.026							
B	0.026							
C	0.026							
Y		0.270	5.085	5.086	5.086	0.778	0.779	0.780

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.29	0.29	0.29	0.07	0.07	0.07
B	=>	Y	0.36	0.36	0.36	0.08	0.08	0.08
C	=>	Y	0.41	0.41	0.41	0.08	0.08	0.08

series : SYNSPEC_1.0 **function : 3-input NOR,1-input inverted**

macro name	NOR31	size [um]	14.000 x 25.300

Truth Table

A	B	C	Y
X	X	0	0
0	0	1	1
1	X	X	0
X	1	X	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.026							
B	0.026							
C	0.023							
Y		0.269	5.110	5.111	5.112	0.778	0.783	0.789

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.28	0.28	0.28	0.07	0.07	0.07
B	=>	Y	0.36	0.36	0.36	0.08	0.08	0.08
C	=>	Y	0.50	0.50	0.50	0.20	0.20	0.20

series : SYNSPEC_1.0 **function : 3-input NOR,1-input inverted,powered**

macro name	NOR31P	size [um]	22.400 x 25.300

Truth Table

A	B	C	Y
X	X	0	0
0	0	1	1
1	X	X	0
X	1	X	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.051							
B	0.044							
C	0.023							
Y		0.585	2.545	2.545	2.546	0.608	0.612	0.616

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.17	0.17	0.17	0.07	0.07	0.07
B	=>	Y	0.25	0.25	0.25	0.08	0.08	0.08
C	=>	Y	0.41	0.41	0.41	0.25	0.25	0.25

series : SYNSPEC_1.0 **function : 3-input NOR,1-input inverted,x4 powered**

macro name	NOR31P4	size [um]	30.800 x 25.300

Truth Table

A	B	C	Y
X	X	0	0
0	0	1	1
1	X	X	0
X	1	X	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.027							
B	0.026							
C	0.023							
Y		3.569	0.446	0.446	0.446	0.238	0.238	0.239

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.70	0.70	0.70	0.39	0.39	0.39
B	=>	Y	0.80	0.80	0.80	0.41	0.41	0.41
C	=>	Y	0.94	0.94	0.94	0.55	0.55	0.55

series : SYNSPEC_1.0 **function : 3-input NOR,2-input inverted**

macro name	NOR32	size [um]	14.000 x 25.300

Truth Table

A	B	C	Y
X	X	0	0
X	0	X	0
0	1	1	1
1	X	X	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.026							
B	0.019							
C	0.018							
Y		0.441	3.426	3.427	3.427	0.771	0.781	0.791

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.14	0.14	0.14	0.06	0.06	0.06
B	=>	Y	0.33	0.33	0.33	0.24	0.24	0.24
C	=>	Y	0.34	0.34	0.34	0.28	0.28	0.28

series : SYNSPEC_1.0 **function : 3-input NOR,2-input inverted,powered**

macro name	NOR32P	size [um]	19.600 x 25.300

Truth Table

A	B	C	Y
X	X	0	0
X	0	X	0
0	1	1	1
1	X	X	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.044							
B	0.019							
C	0.018							
Y		0.910	1.710	1.711	1.712	0.599	0.604	0.610

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.09	0.09	0.09	0.06	0.06	0.06
B	=>	Y	0.32	0.32	0.32	0.30	0.30	0.30
C	=>	Y	0.34	0.34	0.34	0.34	0.34	0.34

series : SYNSPEC_1.0 **function : 3-input NOR,2-input inverted,x4 powered**

macro name	NOR32P4	size [um]	30.800 x 25.300

Truth Table

A	B	C	Y
X	X	0	0
X	0	X	0
0	1	1	1
1	X	X	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.027							
B	0.019							
C	0.018							
Y		3.519	0.454	0.454	0.454	0.242	0.242	0.242

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.50	0.50	0.50	0.39	0.39	0.39
B	=>	Y	0.70	0.70	0.70	0.59	0.59	0.59
C	=>	Y	0.72	0.72	0.72	0.63	0.63	0.63

series : SYNSPEC_1.0 **function : 3-input NOR,3-input inverted**

macro name	NOR33	size [um]	14.000 x 25.300

Truth Table

A	B	C	Y
X	X	0	0
X	0	X	0
0	X	X	0
1	1	1	1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.023							
B	0.023							
C	0.022							
Y		0.883	1.777	1.778	1.779	0.799	0.803	0.808

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.27	0.27	0.27	0.28	0.28	0.28
B	=>	Y	0.29	0.29	0.29	0.34	0.34	0.34
C	=>	Y	0.31	0.31	0.31	0.38	0.38	0.38

series : SYNSPEC_1.0 **function : 3-input NOR,3-input inverted,powered**

macro name	NOR33P	size [um]	16.800 x 25.300

Truth Table

A	B	C	Y
X	X	0	0
X	0	X	0
0	X	X	0
1	1	1	1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.023							
B	0.023							
C	0.022							
Y		1.767	0.898	0.899	0.899	0.439	0.445	0.451

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.29	0.29	0.29	0.31	0.31	0.31
B	=>	Y	0.32	0.32	0.32	0.37	0.37	0.37
C	=>	Y	0.34	0.34	0.34	0.41	0.41	0.41

series : SYNSPEC_1.0 **function : 3-input NOR,3-input inverted,x4 powered**

macro name	NOR33P4	size [um]	22.400 x 25.300

Truth Table

A	B	C	Y
X	X	0	0
X	0	X	0
0	X	X	0
1	1	1	1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.023							
B	0.023							
C	0.022							
Y		3.424	0.472	0.472	0.472	0.275	0.281	0.288

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.38	0.38	0.38	0.42	0.42	0.42
B	=>	Y	0.42	0.42	0.42	0.48	0.48	0.48
C	=>	Y	0.44	0.44	0.44	0.52	0.52	0.52

series : SYNSPEC_1.0 **function : 3-input NOR,powered**

macro name	NOR3P	size [um]	19.600 x 25.300

Truth Table

A	B	C	Y
0	0	0	1
1	X	X	0
X	1	X	0
X	X	1	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.044							
B	0.044							
C	0.045							
Y		0.582	2.548	2.548	2.549	0.591	0.597	0.604

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.17	0.17	0.17	0.07	0.07	0.07
B	=>	Y	0.25	0.25	0.25	0.08	0.08	0.08
C	=>	Y	0.29	0.29	0.29	0.08	0.08	0.08

series : SYNSPEC_1.0 **function : 3-input NOR,x4 powered**

macro name	NOR3P4	size [um]	28.000 x 25.300

Truth Table

A	B	C	Y
0	0	0	1
1	X	X	0
X	1	X	0
X	X	1	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.027							
B	0.026							
C	0.026							
Y		3.568	0.446	0.446	0.446	0.238	0.238	0.238

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.70	0.70	0.70	0.39	0.39	0.39
B	=>	Y	0.80	0.80	0.80	0.41	0.41	0.41
C	=>	Y	0.84	0.84	0.84	0.41	0.41	0.41

series : SYNSPEC_1.0 **function : 4-input NOR**

macro name	NOR4	size [um]	14.000 x 25.300

Truth Table

A	B	C	D	Y
0	0	0	0	1
1	X	X	X	0
X	1	X	X	0
X	X	1	X	0
X	X	X	1	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.026							
B	0.027							
C	0.026							
D	0.026							
Y		0.185	6.775	6.776	6.777	0.771	0.779	0.787

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.36	0.36	0.36	0.07	0.07	0.07
B	=>	Y	0.49	0.49	0.49	0.08	0.08	0.08
C	=>	Y	0.59	0.59	0.59	0.08	0.08	0.08
D	=>	Y	0.63	0.63	0.63	0.08	0.08	0.08

series : SYNSPEC_1.0 **function : 4-input NOR,1-input inverted**

macro name	NOR41	size [um]	16.800 x 25.300

Truth Table

A	B	C	D	Y
X	X	X	0	0
0	0	0	1	1
1	X	X	X	0
X	1	X	X	0
X	X	1	X	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.026							
B	0.026							
C	0.026							
D	0.023							
Y		0.185	6.801	6.802	6.802	0.771	0.783	0.796

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.37	0.37	0.37	0.07	0.07	0.07
B	=>	Y	0.49	0.49	0.49	0.08	0.08	0.08
C	=>	Y	0.59	0.59	0.59	0.08	0.08	0.08
D	=>	Y	0.72	0.72	0.72	0.21	0.21	0.21

series : SYNSPEC_1.0 **function : 4-input NOR,1-input inverted,powered**

macro name	NOR41P	size [um]	28.000 x 25.300

Truth Table

A	B	C	D	Y
X	X	X	0	0
0	0	0	1	1
1	X	X	X	0
X	1	X	X	0
X	X	1	X	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.044							
B	0.045							
C	0.044							
D	0.023							
Y		0.409	3.401	3.402	3.402	0.611	0.622	0.633

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.23	0.23	0.23	0.08	0.08	0.08
B	=>	Y	0.36	0.36	0.36	0.09	0.09	0.09
C	=>	Y	0.46	0.46	0.46	0.09	0.09	0.09
D	=>	Y	0.61	0.61	0.61	0.26	0.26	0.26

series : SYNSPEC_1.0 **function : 4-input NOR,1-input inverted,x4 powered**

macro name	NOR41P4	size [um]	33.600 x 25.300

Truth Table

A	B	C	D	Y
X	X	X	0	0
0	0	0	1	1
1	X	X	X	0
X	1	X	X	0
X	X	1	X	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.027							
B	0.026							
C	0.026							
D	0.023							
Y		3.562	0.445	0.445	0.445	0.238	0.239	0.239

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.83	0.83	0.83	0.40	0.40	0.40
B	=>	Y	0.99	0.99	0.99	0.41	0.41	0.41
C	=>	Y	1.09	1.09	1.09	0.42	0.42	0.42
D	=>	Y	1.22	1.22	1.22	0.55	0.55	0.55

series : SYNSPEC_1.0 **function : 4-input NOR,2-input inverted**

macro name	NOR42	size [um]	16.800 x 25.300

Truth Table

A	B	C	D	Y
X	X	X	0	0
X	X	0	X	0
0	0	1	1	1
1	X	X	X	0
X	1	X	X	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.026							
B	0.026							
C	0.027							
D	0.026							
Y		0.268	5.108	5.110	5.112	0.778	0.784	0.791

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.29	0.29	0.29	0.07	0.07	0.07
B	=>	Y	0.36	0.36	0.36	0.08	0.08	0.08
C	=>	Y	0.52	0.52	0.52	0.23	0.23	0.23
D	=>	Y	0.54	0.54	0.54	0.27	0.27	0.27

series : SYNSPEC_1.0 **function : 4-input NOR,2-input inverted,powered**

macro name	NOR42P	size [um]	25.200 x 25.300

Truth Table

A	B	C	D	Y
X	X	X	0	0
X	X	0	X	0
0	0	1	1	1
1	X	X	X	0
X	1	X	X	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.044							
B	0.044							
C	0.019							
D	0.018							
Y		0.583	2.553	2.554	2.555	0.608	0.612	0.615

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.17	0.17	0.17	0.07	0.07	0.07
B	=>	Y	0.25	0.25	0.25	0.08	0.08	0.08
C	=>	Y	0.46	0.46	0.46	0.33	0.33	0.33
D	=>	Y	0.48	0.48	0.48	0.37	0.37	0.37

series : SYNSPEC_1.0 **function : 4-input NOR,2-input inverted,x4 powered**

macro name	NOR42P4	size [um]	33.600 x 25.300

Truth Table

A	B	C	D	Y
X	X	X	0	0
X	X	0	X	0
0	0	1	1	1
1	X	X	X	0
X	1	X	X	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.027							
B	0.026							
C	0.027							
D	0.026							
Y		3.514	0.453	0.453	0.453	0.242	0.242	0.242

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.70	0.70	0.70	0.41	0.41	0.41
B	=>	Y	0.80	0.80	0.80	0.42	0.42	0.42
C	=>	Y	0.96	0.96	0.96	0.58	0.58	0.58
D	=>	Y	0.97	0.97	0.97	0.62	0.62	0.62

series : SYNSPEC_1.0 **function : 4-input NOR,3-input inverted**

macro name	NOR43	size [um]	16.800 x 25.300

Truth Table

A	B	C	D	Y
X	X	X	0	0
X	X	0	X	0
X	0	X	X	0
0	1	1	1	1
1	X	X	X	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.026							
B	0.023							
C	0.023							
D	0.022							
Y		0.441	3.424	3.426	3.428	0.771	0.788	0.804

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.14	0.14	0.14	0.06	0.06	0.06
B	=>	Y	0.35	0.35	0.35	0.30	0.30	0.30
C	=>	Y	0.38	0.38	0.38	0.36	0.36	0.36
D	=>	Y	0.40	0.40	0.40	0.41	0.41	0.41

series : SYNSPEC_1.0 **function : 4-input NOR,3-input inverted,powered**

macro name	NOR43P	size [um]	22.400 x 25.300

Truth Table

A	B	C	D	Y
X	X	X	0	0
X	X	0	X	0
X	0	X	X	0
0	1	1	1	1
1	X	X	X	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.044							
B	0.023							
C	0.023							
D	0.022							
Y		0.909	1.710	1.711	1.713	0.599	0.612	0.624

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.09	0.09	0.09	0.06	0.06	0.06
B	=>	Y	0.34	0.34	0.34	0.36	0.36	0.36
C	=>	Y	0.37	0.37	0.37	0.43	0.43	0.43
D	=>	Y	0.39	0.39	0.39	0.48	0.48	0.48

series : SYNSPEC_1.0 **function : 4-input NOR,3-input inverted,x4 powered**

macro name	NOR43P4	size [um]	33.600 x 25.300

Truth Table

A	B	C	D	Y
X	X	X	0	0
X	X	0	X	0
X	0	X	X	0
0	1	1	1	1
1	X	X	X	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.027							
B	0.023							
C	0.023							
D	0.022							
Y		3.518	0.454	0.454	0.454	0.242	0.242	0.242

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.50	0.50	0.50	0.39	0.39	0.39
B	=>	Y	0.72	0.72	0.72	0.64	0.64	0.64
C	=>	Y	0.75	0.75	0.75	0.71	0.71	0.71
D	=>	Y	0.77	0.77	0.77	0.76	0.76	0.76

series : SYNSPEC_1.0 **function : 4-input NOR,4-input inverted**

macro name	NOR44	size [um]	16.800 x 25.300

Truth Table

A	B	C	D	Y
X	X	X	0	0
X	X	0	X	0
X	0	X	X	0
0	X	X	X	0
1	1	1	1	1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.023							
B	0.023							
C	0.022							
D	0.022							
Y		0.852	1.796	1.798	1.799	0.801	0.809	0.817

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.31	0.31	0.31	0.28	0.28	0.28
B	=>	Y	0.36	0.36	0.36	0.35	0.35	0.35
C	=>	Y	0.39	0.39	0.39	0.40	0.40	0.40
D	=>	Y	0.41	0.41	0.41	0.44	0.44	0.44

series : SYNSPEC_1.0 **function : 4-input NOR,4-input inverted,powered**

macro name	NOR44P	size [um]	19.600 x 25.300

Truth Table

A	B	C	D	Y
X	X	X	0	0
X	X	0	X	0
X	0	X	X	0
0	X	X	X	0
1	1	1	1	1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.023							
B	0.023							
C	0.022							
D	0.022							
Y		1.668	0.937	0.937	0.938	0.441	0.451	0.462

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.35	0.35	0.35	0.32	0.32	0.32
B	=>	Y	0.40	0.40	0.40	0.38	0.38	0.38
C	=>	Y	0.43	0.43	0.43	0.43	0.43	0.43
D	=>	Y	0.45	0.45	0.45	0.47	0.47	0.47

series : SYNSPEC_1.0 **function : 4-input NOR,4-input inverted,x4 powered**

macro name	NOR44P4	size [um]	25.200 x 25.300

Truth Table

A	B	C	D	Y
X	X	X	0	0
X	X	0	X	0
X	0	X	X	0
0	X	X	X	0
1	1	1	1	1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.023							
B	0.023							
C	0.022							
D	0.022							
Y		3.161	0.510	0.510	0.510	0.277	0.288	0.298

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.47	0.47	0.47	0.43	0.43	0.43
B	=>	Y	0.52	0.52	0.52	0.48	0.48	0.48
C	=>	Y	0.56	0.56	0.56	0.54	0.54	0.54
D	=>	Y	0.58	0.58	0.58	0.58	0.58	0.58

series : SYNSPEC_1.0 **function : 4-input NOR,powered**

macro name	NOR4P	size [um]	25.200 x 25.300

Truth Table

A	B	C	D	Y
0	0	0	0	1
1	X	X	X	0
X	1	X	X	0
X	X	1	X	0
X	X	X	1	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.044							
B	0.045							
C	0.044							
D	0.049							
Y		0.407	3.400	3.401	3.402	0.611	0.622	0.633

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.24	0.24	0.24	0.08	0.08	0.08
B	=>	Y	0.36	0.36	0.36	0.09	0.09	0.09
C	=>	Y	0.47	0.47	0.47	0.09	0.09	0.09
D	=>	Y	0.51	0.51	0.51	0.09	0.09	0.09

series : SYNSPEC_1.0 **function : 4-input NOR,x4 powered**

macro name	NOR4P4	size [um]	30.800 x 25.300

Truth Table

A	B	C	D	Y
0	0	0	0	1
1	X	X	X	0
X	1	X	X	0
X	X	1	X	0
X	X	X	1	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.027							
B	0.026							
C	0.026							
D	0.026							
Y		3.562	0.445	0.445	0.445	0.238	0.239	0.239

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.83	0.83	0.83	0.40	0.40	0.40
B	=>	Y	0.99	0.99	0.99	0.41	0.41	0.41
C	=>	Y	1.09	1.09	1.09	0.42	0.42	0.42
D	=>	Y	1.13	1.13	1.13	0.42	0.42	0.42

series : SYNSPEC_1.0 **function : 5-input NOR**

macro name	NOR5	size [um]	28.000 x 25.300

Truth Table

A	B	C	D	E	Y
0	0	0	0	0	1
other states					0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.023							
B	0.022							
C	0.023							
D	0.022							
E	0.022							
Y		0.884	1.779	1.779	1.779	0.792	0.793	0.794

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.42	0.42	0.42	0.36	0.36	0.36
B	=>	Y	0.47	0.47	0.47	0.38	0.38	0.38
C	=>	Y	0.56	0.56	0.56	0.43	0.43	0.43
D	=>	Y	0.66	0.66	0.66	0.46	0.46	0.46
E	=>	Y	0.71	0.71	0.71	0.47	0.47	0.47

series : SYNSPEC_1.0 **function : 5-input NOR,powered**

macro name	NOR5P	size [um]	30.800 x 25.300

Truth Table

A	B	C	D	E	Y
0	0	0	0	0	1
other states					0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.023							
B	0.022							
C	0.023							
D	0.022							
E	0.022							
Y		1.798	0.889	0.889	0.889	0.422	0.424	0.426

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.45	0.45	0.45	0.40	0.40	0.40
B	=>	Y	0.49	0.49	0.49	0.43	0.43	0.43
C	=>	Y	0.58	0.58	0.58	0.47	0.47	0.47
D	=>	Y	0.69	0.69	0.69	0.49	0.49	0.49
E	=>	Y	0.73	0.73	0.73	0.50	0.50	0.50

series : SYNSPEC_1.0 **function : 5-input NOR,x4 powered**

macro name	NOR5P4	size [um]	36.400 x 25.300

Truth Table

A	B	C	D	E	Y
0	0	0	0	0	1
other states					0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.023							
B	0.022							
C	0.023							
D	0.022							
E	0.022							
Y		3.472	0.461	0.461	0.462	0.242	0.242	0.243

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.57	0.57	0.57	0.43	0.43	0.43
B	=>	Y	0.62	0.62	0.62	0.45	0.45	0.45
C	=>	Y	0.71	0.71	0.71	0.46	0.46	0.46
D	=>	Y	0.82	0.82	0.82	0.49	0.49	0.49
E	=>	Y	0.86	0.86	0.86	0.50	0.50	0.50

series : SYNSPEC_1.0 **function : 6-input NOR**

macro name	NOR6	size [um]	36.400 x 25.300

Truth Table

A	B	C	D	E	F	Y
0	0	0	0	0	0	1
other states						0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.023							
B	0.022							
C	0.023							
D	0.022							
E	0.023							
F	0.022							
Y		0.830	1.894	1.894	1.894	0.785	0.788	0.791

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.54	0.54	0.54	0.35	0.35	0.35
B	=>	Y	0.59	0.59	0.59	0.37	0.37	0.37
C	=>	Y	0.57	0.57	0.57	0.40	0.40	0.40
D	=>	Y	0.61	0.61	0.61	0.42	0.42	0.42
E	=>	Y	0.57	0.57	0.57	0.43	0.43	0.43
F	=>	Y	0.62	0.62	0.62	0.45	0.45	0.45

series : SYNSPEC_1.0 **function : 6-input NOR,powered**

macro name	NOR6P	size [um]	39.200 x 25.300

Truth Table

A	B	C	D	E	F	Y
0	0	0	0	0	0	1
other states						0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.023							
B	0.022							
C	0.023							
D	0.022							
E	0.023							
F	0.022							
Y		1.720	0.923	0.923	0.923	0.416	0.421	0.425

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.57	0.57	0.57	0.37	0.37	0.37
B	=>	Y	0.61	0.61	0.61	0.39	0.39	0.39
C	=>	Y	0.59	0.59	0.59	0.42	0.42	0.42
D	=>	Y	0.63	0.63	0.63	0.43	0.43	0.43
E	=>	Y	0.59	0.59	0.59	0.44	0.44	0.44
F	=>	Y	0.64	0.64	0.64	0.46	0.46	0.46

series : SYNSPEC_1.0 **function : 8-input NOR,powered**

macro name	NOR8P	size [um]	53.200 x 25.300

Truth Table

A	B	C	D	E	F	G	H	Y
0	0	0	0	0	0	0	0	1
other states								0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.023							
B	0.022							
C	0.023							
D	0.022							
E	0.023							
F	0.022							
G	0.023							
H	0.022							
Y		0.861	1.782	1.783	1.785	0.422	0.425	0.429

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.52	0.52	0.52	0.42	0.42	0.42
B	=>	Y	0.56	0.56	0.56	0.44	0.44	0.44
C	=>	Y	0.52	0.52	0.52	0.47	0.47	0.47
D	=>	Y	0.56	0.56	0.56	0.49	0.49	0.49
E	=>	Y	0.56	0.56	0.56	0.44	0.44	0.44
F	=>	Y	0.61	0.61	0.61	0.46	0.46	0.46
G	=>	Y	0.56	0.56	0.56	0.49	0.49	0.49
H	=>	Y	0.60	0.60	0.60	0.51	0.51	0.51

series : SYNSPEC_1.0 **function : 3-wide 2-2-2-inputs OR-AND**

macro name	OA222	size [um]	25.200 x 25.300

Truth Table

A	B	C	D	E	F	Y
X	X	X	X	0	0	0
X	X	0	0	X	X	0
0	0	X	X	X	X	0
other states						1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.023							
B	0.022							
C	0.022							
D	0.022							
E	0.023							
F	0.022							
Y		0.867	1.781	1.784	1.787	0.819	0.859	0.898

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.40	0.46	0.53	0.35	0.37	0.38
B	=>	Y	0.46	0.52	0.58	0.40	0.41	0.42
C	=>	Y	0.49	0.56	0.63	0.47	0.49	0.50
D	=>	Y	0.55	0.62	0.68	0.52	0.53	0.55
E	=>	Y	0.54	0.61	0.67	0.55	0.56	0.57
F	=>	Y	0.59	0.66	0.73	0.60	0.61	0.62

series : SYNSPEC_1.0 **function : 4-wide 2-2-2-2-inputs OR-AND**

macro name	OA2222	size [um]	36.400 x 25.300

Truth Table

A	B	C	D	E	F	G	H	Y
X	X	X	X	X	X	0	0	0
X	X	X	X	0	0	X	X	0
X	X	0	0	X	X	X	X	0
0	0	X	X	X	X	X	X	0
other states								1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.023							
B	0.022							
C	0.022							
D	0.022							
E	0.023							
F	0.022							
G	0.022							
H	0.022							
Y		0.439	3.432	3.433	3.434	0.804	0.822	0.841

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.32	0.35	0.37	0.30	0.31	0.31
B	=>	Y	0.37	0.39	0.41	0.35	0.35	0.36
C	=>	Y	0.38	0.40	0.42	0.42	0.42	0.43
D	=>	Y	0.42	0.45	0.47	0.47	0.47	0.48
E	=>	Y	0.36	0.38	0.40	0.32	0.32	0.33
F	=>	Y	0.39	0.41	0.43	0.36	0.37	0.38
G	=>	Y	0.41	0.43	0.45	0.44	0.45	0.46
H	=>	Y	0.45	0.47	0.49	0.49	0.49	0.50

series : SYNSPEC_1.0 **function : 4-wide 2-2-2-2-inputs OR-AND,powered**

macro name	OA2222P	size [um]	42.000 x 25.300

Truth Table

A	B	C	D	E	F	G	H	Y
X	X	X	X	X	X	0	0	0
X	X	X	X	0	0	X	X	0
X	X	0	0	X	X	X	X	0
0	0	X	X	X	X	X	X	0
other states								1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.023							
B	0.022							
C	0.022							
D	0.022							
E	0.023							
F	0.022							
G	0.022							
H	0.022							
Y		0.888	1.719	1.722	1.725	0.440	0.464	0.487

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.36	0.39	0.41	0.35	0.36	0.36
B	=>	Y	0.41	0.43	0.45	0.40	0.41	0.41
C	=>	Y	0.41	0.44	0.47	0.47	0.47	0.47
D	=>	Y	0.46	0.49	0.51	0.52	0.52	0.52
E	=>	Y	0.39	0.41	0.44	0.37	0.38	0.39
F	=>	Y	0.43	0.45	0.47	0.42	0.43	0.43
G	=>	Y	0.44	0.47	0.49	0.49	0.50	0.50
H	=>	Y	0.49	0.51	0.53	0.54	0.54	0.55

series : SYNSPEC_1.0 **function : 4-wide 2-2-2-2-inputs OR-AND,x4 powered**

macro name	OA2222P4	size [um]	53.200 x 25.300

Truth Table

A	B	C	D	E	F	G	H	Y
X	X	X	X	X	X	0	0	0
X	X	X	X	0	0	X	X	0
X	X	0	0	X	X	X	X	0
0	0	X	X	X	X	X	X	0
other states								1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.023							
B	0.022							
C	0.022							
D	0.021							
E	0.023							
F	0.022							
G	0.022							
H	0.021							
Y		3.522	0.455	0.455	0.455	0.237	0.237	0.237

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.69	0.72	0.74	0.64	0.65	0.66
B	=>	Y	0.74	0.76	0.78	0.68	0.69	0.70
C	=>	Y	0.74	0.77	0.79	0.76	0.77	0.78
D	=>	Y	0.79	0.82	0.84	0.81	0.82	0.82
E	=>	Y	0.72	0.74	0.76	0.65	0.66	0.67
F	=>	Y	0.75	0.78	0.80	0.69	0.71	0.72
G	=>	Y	0.77	0.79	0.81	0.77	0.79	0.80
H	=>	Y	0.81	0.83	0.85	0.82	0.83	0.85

series : SYNSPEC_1.0 **function : 3-wide 2-2-2-inputs OR-AND,powered**

macro name	OA222P	size [um]	28.000 x 25.300

Truth Table

A	B	C	D	E	F	Y
X	X	X	X	0	0	0
X	X	0	0	X	X	0
0	0	X	X	X	X	0
other states						1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.023							
B	0.022							
C	0.022							
D	0.022							
E	0.023							
F	0.022							
Y		1.712	0.908	0.910	0.912	0.460	0.502	0.545

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.44	0.51	0.57	0.39	0.40	0.40
B	=>	Y	0.50	0.57	0.63	0.44	0.45	0.45
C	=>	Y	0.54	0.61	0.68	0.51	0.51	0.52
D	=>	Y	0.60	0.66	0.73	0.56	0.56	0.57
E	=>	Y	0.58	0.65	0.72	0.58	0.59	0.59
F	=>	Y	0.64	0.71	0.77	0.63	0.63	0.64

series : SYNSPEC_1.0 **function : 3-wide 2-2-2-inputs OR-AND,x4 powered**

macro name	OA222P4	size [um]	33.600 x 25.300

Truth Table

A	B	C	D	E	F	Y
X	X	X	X	0	0	0
X	X	0	0	X	X	0
0	0	X	X	X	X	0
other states						1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.023							
B	0.022							
C	0.022							
D	0.022							
E	0.023							
F	0.022							
Y		3.296	0.490	0.492	0.494	0.297	0.331	0.366

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.61	0.67	0.74	0.54	0.54	0.54
B	=>	Y	0.67	0.73	0.80	0.59	0.59	0.59
C	=>	Y	0.71	0.78	0.84	0.65	0.65	0.66
D	=>	Y	0.77	0.83	0.89	0.70	0.70	0.70
E	=>	Y	0.75	0.82	0.89	0.73	0.73	0.73
F	=>	Y	0.81	0.87	0.94	0.78	0.78	0.78

series : SYNSPEC_1.0 **function : 2-wide 3-3-inputs OR-AND**

macro name	OA33	size [um]	28.000 x 25.300

Truth Table

A	B	C	D	E	F	Y
X	X	X	0	0	0	0
0	0	0	X	X	X	0
other states						1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.023							
B	0.022							
C	0.022							
D	0.023							
E	0.022							
F	0.022							
Y		0.444	3.428	3.429	3.431	1.227	1.245	1.262

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.25	0.25	0.25	0.43	0.43	0.43
B	=>	Y	0.27	0.27	0.27	0.54	0.54	0.54
C	=>	Y	0.28	0.28	0.28	0.58	0.58	0.58
D	=>	Y	0.29	0.29	0.29	0.47	0.47	0.47
E	=>	Y	0.31	0.31	0.31	0.58	0.58	0.58
F	=>	Y	0.31	0.31	0.31	0.62	0.62	0.62

series : SYNSPEC_1.0 **function : 2-wide 3-3-inputs OR-AND,powered**

macro name	OA33P	size [um]	30.800 x 25.300

Truth Table

A	B	C	D	E	F	Y
X	X	X	0	0	0	0
0	0	0	X	X	X	0
other states						1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.023							
B	0.022							
C	0.022							
D	0.023							
E	0.022							
F	0.022							
Y		0.894	1.719	1.721	1.723	0.492	0.515	0.537

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.29	0.29	0.29	0.51	0.51	0.51
B	=>	Y	0.31	0.31	0.31	0.62	0.62	0.62
C	=>	Y	0.32	0.32	0.32	0.66	0.66	0.66
D	=>	Y	0.33	0.33	0.33	0.53	0.53	0.53
E	=>	Y	0.35	0.35	0.35	0.63	0.63	0.63
F	=>	Y	0.35	0.35	0.35	0.68	0.68	0.68

series : SYNSPEC_1.0 **function : 2-wide 3-3-inputs OR-AND,x4 powered**

macro name	OA33P4	size [um]	44.800 x 25.300

Truth Table

A	B	C	D	E	F	Y
X	X	X	0	0	0	0
0	0	0	X	X	X	0
other states						1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.023							
B	0.022							
C	0.022							
D	0.023							
E	0.022							
F	0.022							
Y		3.522	0.455	0.455	0.455	0.237	0.237	0.237

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.60	0.60	0.60	0.80	0.80	0.80
B	=>	Y	0.62	0.62	0.62	0.90	0.90	0.90
C	=>	Y	0.64	0.64	0.64	0.95	0.95	0.95
D	=>	Y	0.65	0.65	0.65	0.83	0.83	0.83
E	=>	Y	0.66	0.66	0.66	0.93	0.93	0.93
F	=>	Y	0.67	0.67	0.67	0.98	0.98	0.98

series : SYNSPEC_1.0 **function : 2-wide 4-4-inputs OR-AND**

macro name	OA44	size [um]	36.400 x 25.300

Truth Table

A	B	C	D	E	F	G	H	Y
X	X	X	X	0	0	0	0	0
0	0	0	0	X	X	X	X	0
other states								1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.023							
B	0.022							
C	0.022							
D	0.022							
E	0.023							
F	0.022							
G	0.022							
H	0.022							
Y		0.438	3.431	3.434	3.436	0.888	0.890	0.893

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.27	0.27	0.27	0.48	0.48	0.48
B	=>	Y	0.30	0.30	0.30	0.64	0.64	0.64
C	=>	Y	0.31	0.31	0.31	0.74	0.74	0.74
D	=>	Y	0.31	0.31	0.31	0.78	0.78	0.78
E	=>	Y	0.32	0.32	0.32	0.51	0.51	0.51
F	=>	Y	0.34	0.34	0.34	0.67	0.67	0.67
G	=>	Y	0.34	0.34	0.34	0.77	0.77	0.77
H	=>	Y	0.34	0.34	0.34	0.81	0.81	0.81

series : SYNSPEC_1.0 **function : 2-wide 4-4-inputs OR-AND,powered**

macro name	OA44P	size [um]	36.400 x 25.300

Truth Table

A	B	C	D	E	F	G	H	Y
X	X	X	X	0	0	0	0	0
0	0	0	0	X	X	X	X	0
other states								1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.023							
B	0.022							
C	0.022							
D	0.022							
E	0.023							
F	0.022							
G	0.022							
H	0.022							
Y		0.891	1.721	1.723	1.726	0.543	0.566	0.589

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.29	0.29	0.29	0.62	0.62	0.62
B	=>	Y	0.31	0.31	0.31	0.78	0.78	0.78
C	=>	Y	0.33	0.33	0.33	0.88	0.88	0.88
D	=>	Y	0.33	0.33	0.33	0.92	0.92	0.92
E	=>	Y	0.33	0.33	0.33	0.64	0.64	0.64
F	=>	Y	0.35	0.35	0.35	0.80	0.80	0.80
G	=>	Y	0.36	0.36	0.36	0.90	0.90	0.90
H	=>	Y	0.36	0.36	0.36	0.94	0.94	0.94

series : SYNSPEC_1.0 **function : 2-wide 4-4-inputs OR-AND,x4 powered**

macro name	OA44P4	size [um]	53.200 x 25.300

Truth Table

A	B	C	D	E	F	G	H	Y
X	X	X	X	0	0	0	0	0
0	0	0	0	X	X	X	X	0
other states								1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.023							
B	0.022							
C	0.022							
D	0.022							
E	0.023							
F	0.022							
G	0.022							
H	0.022							
Y		3.522	0.455	0.455	0.455	0.237	0.237	0.237

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.64	0.64	0.64	0.83	0.83	0.83
B	=>	Y	0.66	0.66	0.66	0.99	0.99	0.99
C	=>	Y	0.67	0.67	0.67	1.09	1.09	1.09
D	=>	Y	0.67	0.67	0.67	1.13	1.13	1.13
E	=>	Y	0.68	0.68	0.68	0.88	0.88	0.88
F	=>	Y	0.70	0.70	0.70	1.04	1.04	1.04
G	=>	Y	0.71	0.71	0.71	1.14	1.14	1.14
H	=>	Y	0.71	0.71	0.71	1.18	1.18	1.18

series : SYNSPEC_1.0 **function : 2-wide 2-1-inputs OR-NAND**

macro name	OAI21	size [um]	11.200 x 25.300

Truth Table

A	B	C	Y
X	0	0	1
0	X	X	1
1	1	X	0
1	X	1	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.022							
B	0.026							
C	0.025							
Y		0.403	2.681	3.043	3.404	1.267	1.281	1.294

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.11	0.12	0.13	0.06	0.07	0.08
B	=>	Y	0.28	0.28	0.28	0.10	0.10	0.10
C	=>	Y	0.31	0.31	0.31	0.12	0.12	0.12

series : SYNSPEC_1.0 **function : 3-wide 2-1-1-inputs OR-NAND**

macro name	OAI211	size [um]	14.000 x 25.300

Truth Table

A	B	C	D	Y
X	X	0	0	1
X	0	X	X	1
0	X	X	X	1
1	1	1	X	0
1	1	X	1	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.022							
B	0.022							
C	0.026							
D	0.025							
Y		0.371	2.680	3.045	3.409	1.683	1.695	1.707

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.14	0.15	0.15	0.09	0.10	0.12
B	=>	Y	0.20	0.21	0.22	0.12	0.13	0.15
C	=>	Y	0.39	0.39	0.39	0.16	0.16	0.16
D	=>	Y	0.41	0.41	0.41	0.19	0.19	0.19

series : SYNSPEC_1.0 **function : 3-wide 2-1-1-inputs OR-NAND,powered**

macro name	OAI211P	size [um]	25.200 x 25.300

Truth Table

A	B	C	D	Y
X	X	0	0	1
X	0	X	X	1
0	X	X	X	1
1	1	1	X	0
1	1	X	1	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.052							
B	0.052							
C	0.051							
D	0.051							
Y		0.756	0.883	1.300	1.718	0.852	0.856	0.859

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.09	0.09	0.09	0.08	0.10	0.11
B	=>	Y	0.12	0.12	0.12	0.11	0.13	0.14
C	=>	Y	0.35	0.35	0.35	0.16	0.16	0.16
D	=>	Y	0.39	0.39	0.39	0.18	0.18	0.18

series : SYNSPEC_1.0 **function : 3-wide 2-1-1-inputs OR-NAND,x4 powered**

macro name	OAI211P4	size [um]	30.800 x 25.300

Truth Table

A	B	C	D	Y
X	X	0	0	1
X	0	X	X	1
0	X	X	X	1
1	1	1	X	0
1	1	X	1	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.027							
B	0.026							
C	0.026							
D	0.025							
Y		3.502	0.452	0.453	0.454	0.242	0.242	0.242

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.41	0.42	0.43	0.52	0.54	0.56
B	=>	Y	0.45	0.46	0.47	0.55	0.57	0.59
C	=>	Y	0.78	0.78	0.78	0.59	0.59	0.59
D	=>	Y	0.83	0.83	0.83	0.63	0.63	0.63

series : SYNSPEC_1.0 **function : 2-wide 2-1-inputs OR-NAND**

macro name	OAI21A	size [um]	16.800 x 25.300

Truth Table

A	B	C	Y
X	0	0	1
0	1	X	0
1	X	X	1
0	X	1	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.019							
B	0.026							
C	0.025							
Y		0.404	1.752	2.577	3.402	1.231	1.243	1.255

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.18	0.18	0.18	0.23	0.24	0.26
B	=>	Y	0.28	0.28	0.28	0.11	0.11	0.11
C	=>	Y	0.31	0.31	0.31	0.13	0.13	0.13

series : SYNSPEC_1.0 **function : 2-wide 2-1-inputs OR-NAND,powered**

macro name	OAI21AP	size [um]	25.200 x 25.300

Truth Table

A	B	C	Y
X	0	0	1
0	1	X	0
1	X	X	1
0	X	1	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.018							
B	0.051							
C	0.051							
Y		0.821	0.881	1.295	1.708	0.629	0.636	0.644

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.20	0.20	0.21	0.28	0.30	0.31
B	=>	Y	0.24	0.24	0.24	0.11	0.11	0.11
C	=>	Y	0.28	0.28	0.28	0.13	0.13	0.13

series : SYNSPEC_1.0 **function : 2-wide 2-1-inputs OR-NAND,x4 powered**

macro name	OAI21AP4	size [um]	33.600 x 25.300

Truth Table

A	B	C	Y
X	0	0	1
0	1	X	0
1	X	X	1
0	X	1	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.019							
B	0.026							
C	0.025							
Y		3.580	0.445	0.446	0.447	0.236	0.236	0.236

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.47	0.48	0.49	0.58	0.60	0.62
B	=>	Y	0.65	0.65	0.65	0.46	0.46	0.46
C	=>	Y	0.70	0.70	0.70	0.49	0.49	0.49

series : SYNSPEC_1.0 **function : 2-wide 2-1-inputs OR-NAND**

macro name	OAI21B	size [um]	16.800 x 25.300

Truth Table

A	B	C	Y
0	X	X	1
1	X	0	0
X	0	1	1
1	1	X	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.027							
B	0.026							
C	0.018							
Y		0.404	1.774	2.588	3.402	0.982	1.118	1.254

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.08	0.08	0.08	0.06	0.07	0.08
B	=>	Y	0.28	0.28	0.28	0.10	0.10	0.10
C	=>	Y	0.41	0.41	0.41	0.28	0.28	0.28

series : SYNSPEC_1.0 **function : 2-wide 2-1-inputs OR-NAND,powered**

macro name	OAI21BP	size [um]	25.200 x 25.300

Truth Table

A	B	C	Y
0	X	X	1
1	X	0	0
X	0	1	1
1	1	X	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.052							
B	0.051							
C	0.018							
Y		0.820	0.879	1.293	1.707	0.496	0.563	0.631

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.07	0.07	0.07	0.06	0.07	0.08
B	=>	Y	0.24	0.24	0.24	0.10	0.10	0.10
C	=>	Y	0.42	0.42	0.42	0.33	0.33	0.33

series : SYNSPEC_1.0 **function : 2-wide 2-1-inputs OR-NAND,x4 powered**

macro name	OAI21BP4	size [um]	33.600 x 25.300

Truth Table

A	B	C	Y
0	X	X	1
1	X	0	0
X	0	1	1
1	1	X	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.027							
B	0.026							
C	0.018							
Y		3.565	0.447	0.447	0.448	0.238	0.238	0.238

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.37	0.38	0.40	0.39	0.42	0.45
B	=>	Y	0.65	0.65	0.65	0.45	0.45	0.45
C	=>	Y	0.80	0.80	0.80	0.65	0.65	0.65

series : SYNSPEC_1.0 **function : 2-wide 2-1-inputs OR-NAND,powered**

macro name	OAI21P	size [um]	19.600 x 25.300

Truth Table

A	B	C	Y
X	0	0	1
0	X	X	1
1	1	X	0
1	X	1	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.052							
B	0.051							
C	0.051							
Y		0.821	0.879	1.292	1.706	0.624	0.627	0.629

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.07	0.07	0.07	0.06	0.07	0.08
B	=>	Y	0.24	0.24	0.24	0.10	0.10	0.10
C	=>	Y	0.29	0.29	0.29	0.11	0.11	0.11

series : SYNSPEC_1.0 **function : 2-wide 2-1-inputs OR-NAND,x4 powered**

macro name	OAI21P4	size [um]	28.000 x 25.300

Truth Table

A	B	C	Y
X	0	0	1
0	X	X	1
1	1	X	0
1	X	1	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.023							
B	0.026							
C	0.025							
Y		3.569	0.447	0.447	0.448	0.237	0.237	0.237

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.44	0.45	0.47	0.42	0.44	0.46
B	=>	Y	0.65	0.65	0.65	0.46	0.46	0.46
C	=>	Y	0.70	0.70	0.70	0.49	0.49	0.49

series : SYNSPEC_1.0 **function : 2-wide 2-2-inputs OR-NAND**

macro name	OAI22	size [um]	14.000 x 25.300

Truth Table

A	B	C	D	Y
X	X	0	0	1
0	0	X	X	1
other states				0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.026							
B	0.026							
C	0.026							
D	0.025							
Y		0.376	3.404	3.410	3.416	1.230	1.241	1.253

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.15	0.16	0.18	0.07	0.08	0.09
B	=>	Y	0.19	0.19	0.20	0.08	0.09	0.11
C	=>	Y	0.34	0.35	0.36	0.11	0.13	0.14
D	=>	Y	0.37	0.37	0.38	0.13	0.14	0.16

series : SYNSPEC_1.0 **function : 2-wide 2-2-inputs OR-NAND**

macro name	OAI22A	size [um]	19.600 x 25.300

Truth Table

A	B	C	D	Y
0	0	X	X	1
X	X	0	1	1
other states				0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.026							
B	0.026							
C	0.026							
D	0.018							
Y		0.376	3.404	3.410	3.417	0.982	1.118	1.254

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.15	0.16	0.18	0.07	0.08	0.09
B	=>	Y	0.19	0.19	0.20	0.08	0.09	0.11
C	=>	Y	0.34	0.35	0.36	0.11	0.12	0.14
D	=>	Y	0.47	0.47	0.48	0.29	0.31	0.32

series : SYNSPEC_1.0 **function : 2-wide 2-2-inputs OR-NAND,powered**

macro name	OAI22AP	size [um]	30.800 x 25.300

Truth Table

A	B	C	D	Y
0	0	X	X	1
X	X	0	1	1
other states				0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.044							
B	0.044							
C	0.043							
D	0.018							
Y		0.810	1.709	1.716	1.723	0.775	0.881	0.986

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.12	0.13	0.14	0.08	0.10	0.12
B	=>	Y	0.17	0.18	0.18	0.10	0.13	0.15
C	=>	Y	0.24	0.25	0.26	0.14	0.15	0.17
D	=>	Y	0.40	0.40	0.41	0.38	0.40	0.42

series : SYNSPEC_1.0 **function : 2-wide 2-2-inputs OR-NAND,x4 powered**

macro name	OAI22AP4	size [um]	36.400 x 25.300

Truth Table

A	B	C	D	Y
0	0	X	X	1
X	X	0	1	1
other states				0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.027							
B	0.026							
C	0.026							
D	0.018							
Y		3.501	0.452	0.453	0.454	0.241	0.241	0.241

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.52	0.54	0.56	0.42	0.44	0.47
B	=>	Y	0.57	0.59	0.61	0.44	0.47	0.50
C	=>	Y	0.72	0.73	0.75	0.49	0.50	0.52
D	=>	Y	0.87	0.88	0.90	0.68	0.70	0.72

series : SYNSPEC_1.0 **function : 2-wide 2-2-inputs OR-NAND**

macro name	OAI22B	size [um]	22.400 x 25.300

Truth Table

A	B	C	D	Y
0	1	X	X	1
X	X	0	1	1
other states				0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.026							
B	0.019							
C	0.026							
D	0.019							
Y		0.377	3.404	3.411	3.417	0.976	1.139	1.301

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.15	0.16	0.18	0.07	0.08	0.09
B	=>	Y	0.29	0.30	0.30	0.25	0.27	0.29
C	=>	Y	0.35	0.36	0.36	0.10	0.12	0.15
D	=>	Y	0.48	0.49	0.50	0.29	0.31	0.34

series : SYNSPEC_1.0 **function : 2-wide 2-2-inputs OR-NAND,powered**

macro name	OAI22BP	size [um]	33.600 x 25.300

Truth Table

A	B	C	D	Y
0	1	X	X	1
X	X	0	1	1
other states				0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.044							
B	0.019							
C	0.043							
D	0.019							
Y		0.807	1.710	1.716	1.723	0.745	0.865	0.985

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.12	0.13	0.13	0.08	0.10	0.12
B	=>	Y	0.29	0.30	0.30	0.34	0.37	0.40
C	=>	Y	0.25	0.26	0.26	0.12	0.15	0.18
D	=>	Y	0.40	0.41	0.42	0.36	0.40	0.43

series : SYNSPEC_1.0 **function : 2-wide 2-2-inputs OR-NAND,x4 powered**

macro name	OAI22BP4	size [um]	39.200 x 25.300

Truth Table

A	B	C	D	Y
0	1	X	X	1
X	X	0	1	1
other states				0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.027							
B	0.019							
C	0.026							
D	0.019							
Y		3.501	0.452	0.453	0.454	0.241	0.241	0.241

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.52	0.54	0.56	0.42	0.45	0.48
B	=>	Y	0.67	0.69	0.71	0.62	0.66	0.69
C	=>	Y	0.75	0.75	0.75	0.47	0.50	0.53
D	=>	Y	0.90	0.90	0.91	0.67	0.71	0.74

series : SYNSPEC_1.0 **function : 2-wide 2-2-inputs OR-NAND,powered**

macro name	OAI22P	size [um]	25.200 x 25.300

Truth Table

A	B	C	D	Y
X	X	0	0	1
0	0	X	X	1
other states				0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.044							
B	0.044							
C	0.043							
D	0.043							
Y		0.810	1.709	1.716	1.723	0.969	0.978	0.986

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.13	0.13	0.14	0.09	0.11	0.12
B	=>	Y	0.18	0.18	0.18	0.12	0.14	0.15
C	=>	Y	0.24	0.25	0.26	0.14	0.15	0.17
D	=>	Y	0.28	0.28	0.29	0.17	0.19	0.20

series : SYNSPEC_1.0 **function : 2-wide 2-2-inputs OR-NAND,x4 powered**

macro name	OAI22P4	size [um]	30.800 x 25.300

Truth Table

A	B	C	D	Y
X	X	0	0	1
0	0	X	X	1
other states				0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.027							
B	0.026							
C	0.026							
D	0.025							
Y		3.501	0.452	0.453	0.454	0.242	0.242	0.242

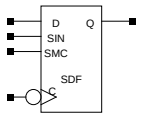
AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.52	0.54	0.56	0.44	0.46	0.47
B	=>	Y	0.57	0.59	0.61	0.47	0.49	0.50
C	=>	Y	0.72	0.74	0.75	0.49	0.50	0.52
D	=>	Y	0.77	0.78	0.80	0.52	0.53	0.55

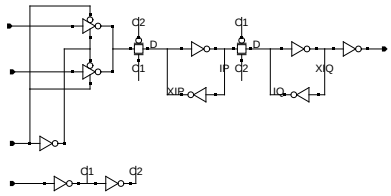
series : SYNSPEC_1.0 **function : Scan D-flip flop**

macro name	SDF	size [um]	50.400 x 25.300

Symbol



Schematic



Truth Table

C	D	SIN	SMC	Q
1->0	X	X	X	hold
0->1	0	X	0	0
0->1	1	X	0	1
0->1	X	0	1	0
0->1	X	1	1	1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
C	0.019							
D	0.022							
Q		0.903	1.751	1.751	1.751	0.785	0.785	0.785
SIN	0.022							
SMC	0.033							

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
C	=>	Q	0.65	0.65	0.65	0.60	0.60	0.60
D	<=	C	setup time			0.63	0.63	0.63
D	<=	C	hold time					
SIN	<=	C	setup time			0.61	0.61	0.61
SIN	<=	C	hold time					
SMC	<=	C	setup time			0.69	0.69	0.69
SMC	<=	C	hold time					
C		(low)	minimum pulse width			0.55	0.55	0.55
C		(high)	minimum pulse width			0.65	0.65	0.65

series : SYNSPEC_1.0 **function : Scan D-flip flop**

macro name	SDFN	size [um]	50.400 x 25.300

Truth Table

D	SIN	SMC	XC	Q
X	X	X	0->1	hold
0	X	0	1->0	0
1	X	0	1->0	1
X	0	1	1->0	0
X	1	1	1->0	1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D	0.022							
Q		0.903	1.751	1.751	1.751	0.785	0.785	0.785
SIN	0.022							
SMC	0.033							
XC	0.019							

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
XC	=>	Q	0.69	0.69	0.69	0.58	0.58	0.58
D	<=	XC	setup time			0.58	0.58	0.58
D	<=	XC	hold time					
SIN	<=	XC	setup time			0.56	0.56	0.56
SIN	<=	XC	hold time					
SMC	<=	XC	setup time			0.64	0.64	0.64
SMC	<=	XC	hold time					
XC		(low)	minimum pulse width			0.69	0.69	0.69
XC		(high)	minimum pulse width			0.54	0.54	0.54

series : SYNSPEC_1.0 **function : Scan D-flip flop,powered**

macro name	SDFNP	size [um]	53.200 x 25.300

Truth Table

D	SIN	SMC	XC	Q
X	X	X	0->1	hold
0	X	0	1->0	0
1	X	0	1->0	1
X	0	1	1->0	0
X	1	1	1->0	1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D	0.022							
Q		1.816	0.879	0.879	0.879	0.420	0.420	0.420
SIN	0.022							
SMC	0.033							
XC	0.019							

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
XC	=>	Q	0.74	0.74	0.74	0.63	0.63	0.63
D	<=	XC	setup time			0.58	0.58	0.58
D	<=	XC	hold time					
SIN	<=	XC	setup time			0.56	0.56	0.56
SIN	<=	XC	hold time					
SMC	<=	XC	setup time			0.64	0.64	0.64
SMC	<=	XC	hold time					
XC		(low)	minimum pulse width			0.74	0.74	0.74
XC		(high)	minimum pulse width			0.54	0.54	0.54

series : SYNSPEC_1.0 **function : Scan D-flip flop,x4 powered**

macro name	SDFNP4	size [um]	58.800 x 25.300

Truth Table

D	SIN	SMC	XC	Q
X	X	X	0->1	hold
0	X	0	1->0	0
1	X	0	1->0	1
X	0	1	1->0	0
X	1	1	1->0	1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D	0.022							
Q		3.555	0.448	0.448	0.448	0.261	0.261	0.261
SIN	0.022							
SMC	0.033							
XC	0.019							

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
XC	=>	Q	0.87	0.87	0.87	0.76	0.76	0.76
D	<=	XC	setup time			0.58	0.58	0.58
D	<=	XC	hold time					
SIN	<=	XC	setup time			0.56	0.56	0.56
SIN	<=	XC	hold time					
SMC	<=	XC	setup time			0.64	0.64	0.64
SMC	<=	XC	hold time					
XC		(low)	minimum pulse width			0.87	0.87	0.87
XC		(high)	minimum pulse width			0.54	0.54	0.54

series : SYNSPEC_1.0 **function : Scan D-flip flop with low reset XR,inverted out**

macro name	SDFNRX	size [um]	61.600 x 25.300

Truth Table

D	SIN	SMC	XC	XR	XQ
X	X	X	X	0	1
X	X	X	0->1	1	hold
0	X	0	1->0	1	1
1	X	0	1->0	1	0
X	0	1	1->0	1	1
X	1	1	1->0	1	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D	0.022							
SIN	0.022							
SMC	0.033							
XC	0.019							
XQ		0.890	1.771	1.771	1.771	0.818	0.818	0.818
XR	0.036							

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
XC	=>	XQ	0.80	0.80	0.80	0.89	0.89	0.89
XR	=>	XQ	0.39	0.39	0.39			
D	<=	XC	setup time			0.43	0.43	0.43
D	<=	XC	hold time					
SIN	<=	XC	setup time			0.43	0.43	0.43
SIN	<=	XC	hold time					
SMC	<=	XC	setup time			0.53	0.53	0.53
SMC	<=	XC	hold time					
XR	<=	XC	release time					
XR	<=	XC	removable time			0.30	0.30	0.30
XC		(low)	minimum pulse width			0.89	0.89	0.89
XC		(high)	minimum pulse width			0.61	0.61	0.61
XR		(low)	minimum pulse width			0.66	0.66	0.66

series : SYNSPEC_1.0 **function : Scan D-flip flop with low reset XR,inverted out,powered**

macro name	SDFNRXP	size [um]	64.400 x 25.300

Truth Table

D	SIN	SMC	XC	XR	XQ
X	X	X	X	0	1
X	X	X	0->1	1	hold
0	X	0	1->0	1	1
1	X	0	1->0	1	0
X	0	1	1->0	1	1
X	1	1	1->0	1	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D	0.022							
SIN	0.022							
SMC	0.033							
XC	0.019							
XQ		1.806	0.884	0.884	0.884	0.414	0.414	0.414
XR	0.036							

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
XC	=>	XQ	0.83	0.83	0.83	0.92	0.92	0.92
XR	=>	XQ	0.41	0.41	0.41			
D	<=	XC	setup time			0.43	0.43	0.43
D	<=	XC	hold time					
SIN	<=	XC	setup time			0.43	0.43	0.43
SIN	<=	XC	hold time					
SMC	<=	XC	setup time			0.53	0.53	0.53
SMC	<=	XC	hold time					
XR	<=	XC	release time					
XR	<=	XC	removable time			0.30	0.30	0.30
XC		(low)	minimum pulse width			0.92	0.92	0.92
XC		(high)	minimum pulse width			0.61	0.61	0.61
XR		(low)	minimum pulse width			0.66	0.66	0.66

series : SYNSPEC_1.0 **function : Scan D-flip flop with low reset XR,inverted out,x4 powered**

macro name	SDFNRXP4	size [um]	70.000 x 25.300

Truth Table

D	SIN	SMC	XC	XR	XQ
X	X	X	X	0	1
X	X	X	0->1	1	hold
0	X	0	1->0	1	1
1	X	0	1->0	1	0
X	0	1	1->0	1	1
X	1	1	1->0	1	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D	0.022							
SIN	0.022							
SMC	0.033							
XC	0.019							
XQ		3.577	0.447	0.447	0.448	0.238	0.238	0.238
XR	0.036							

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
XC	=>	XQ	0.85	0.85	0.85	1.02	1.02	1.02
XR	=>	XQ	0.44	0.44	0.44			
D	<=	XC	setup time			0.43	0.43	0.43
D	<=	XC	hold time					
SIN	<=	XC	setup time			0.43	0.43	0.43
SIN	<=	XC	hold time					
SMC	<=	XC	setup time			0.53	0.53	0.53
SMC	<=	XC	hold time					
XR	<=	XC	release time					
XR	<=	XC	removable time			0.30	0.30	0.30
XC		(low)	minimum pulse width			1.02	1.02	1.02
XC		(high)	minimum pulse width			0.61	0.61	0.61
XR		(low)	minimum pulse width			0.67	0.67	0.67

series : SYNSPEC_1.0 **function : Scan D-flip flop with low reset XR,low set XS**

macro name	SDFNSR	size [um]	72.800 x 25.300

Truth Table

D	SIN	SMC	XC	XR	XS	Q	XQ
X	X	X	X	0	0	0	0
X	X	X	X	1	0	1	0
X	X	X	X	0	1	0	1
X	X	X	0->1	1	1	hold	hold
0	X	0	1->0	1	1	0	1
1	X	0	1->0	1	1	1	0
X	0	1	1->0	1	1	0	1
X	1	1	1->0	1	1	1	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D	0.022							
Q		0.841	1.795	1.811	1.826	0.799	0.809	0.818
SIN	0.022							
SMC	0.033							
XC	0.019							
XQ		0.865	1.776	1.790	1.804	0.796	0.814	0.832
XR	0.037							
XS	0.037							

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
XC	=>	Q	0.84	0.84	0.84	0.72	0.72	0.72
XR	=>	Q	0.29	0.29	0.29	0.30	0.30	0.30
XS	=>	Q	0.73	0.77	0.81			
XC	=>	XQ	0.99	0.99	0.99	1.05	1.05	1.05
XR	=>	XQ	0.58	0.65	0.73			
XS	=>	XQ	0.30	0.35	0.41	0.31	0.37	0.43
D	<=	XC	setup time			0.48	0.48	0.48
D	<=	XC	hold time					
SIN	<=	XC	setup time			0.49	0.49	0.49
SIN	<=	XC	hold time					
SMC	<=	XC	setup time			0.61	0.61	0.61
SMC	<=	XC	hold time			0.03	0.03	0.03
XR	<=	XC	release time			0.03	0.03	0.03
XR	<=	XC	removable time			0.10	0.10	0.10
XS	<=	XC	release time			0.00	0.00	0.00
XS	<=	XC	removable time			0.18	0.18	0.18
XS	<=	XR	recovery time			0.23	0.23	0.23
XR	<=	XS	recovery time			0.13	0.13	0.13
XC		(low)	minimum pulse width			1.05	1.05	1.05
XC		(high)	minimum pulse width			0.73	0.73	0.73
XR		(low)	minimum pulse width			0.76	0.76	0.76
XS		(low)	minimum pulse width			0.81	0.81	0.81

series : SYNSPEC_1.0 **function : Scan D-flip flop with low reset XR,low set XS,powered**

macro name	SDFNSRP	size [um]	78.400 x 25.300

Truth Table

D	SIN	SMC	XC	XR	XS	Q	XQ
X	X	X	X	0	0	0	0
X	X	X	X	1	0	1	0
X	X	X	X	0	1	0	1
X	X	X	0->1	1	1	hold	hold
0	X	0	1->0	1	1	0	1
1	X	0	1->0	1	1	1	0
X	0	1	1->0	1	1	0	1
X	1	1	1->0	1	1	1	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D	0.022							
Q		1.710	0.899	0.909	0.918	0.442	0.448	0.453
SIN	0.022							
SMC	0.033							
XC	0.019							
XQ		1.647	0.928	0.932	0.937	0.425	0.449	0.473
XR	0.037							
XS	0.037							

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
XC	=>	Q	0.91	0.91	0.91	0.77	0.77	0.77
XR	=>	Q	0.33	0.33	0.33	0.34	0.34	0.34
XS	=>	Q	0.80	0.89	0.98			
XC	=>	XQ	1.15	1.15	1.15	1.20	1.20	1.20
XR	=>	XQ	0.73	0.80	0.88			
XS	=>	XQ	0.33	0.38	0.44	0.34	0.39	0.45
D	<=	XC	setup time			0.48	0.48	0.48
D	<=	XC	hold time					
SIN	<=	XC	setup time			0.49	0.49	0.49
SIN	<=	XC	hold time					
SMC	<=	XC	setup time			0.61	0.61	0.61
SMC	<=	XC	hold time			0.03	0.03	0.03
XR	<=	XC	release time			0.03	0.03	0.03
XR	<=	XC	removable time			0.10	0.10	0.10
XS	<=	XC	release time			0.00	0.00	0.00
XS	<=	XC	removable time			0.18	0.18	0.18
XS	<=	XR	recovery time			0.21	0.21	0.21
XR	<=	XS	recovery time			0.17	0.17	0.17
XC		(low)	minimum pulse width			1.20	1.20	1.20
XC		(high)	minimum pulse width			0.73	0.73	0.73
XR		(low)	minimum pulse width			0.88	0.88	0.88
XS		(low)	minimum pulse width			0.98	0.98	0.98

series : SYNSPEC_1.0 **function : Scan D-flip flop,inverted out,powered**

macro name	SDFNXP	size [um]	53.200 x 25.300

Truth Table

D	SIN	SMC	XC	XQ
X	X	X	0->1	hold
0	X	0	1->0	1
1	X	0	1->0	0
X	0	1	1->0	1
X	1	1	1->0	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D	0.022							
SIN	0.022							
SMC	0.033							
XC	0.019							
XQ		1.791	0.886	0.886	0.886	0.481	0.481	0.481

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
XC	=>	XQ	0.53	0.53	0.53	0.61	0.61	0.61
D	<=	XC	setup time			0.58	0.58	0.58
D	<=	XC	hold time					
SIN	<=	XC	setup time			0.56	0.56	0.56
SIN	<=	XC	hold time					
SMC	<=	XC	setup time			0.64	0.64	0.64
SMC	<=	XC	hold time					
XC		(low)	minimum pulse width			0.66	0.66	0.66
XC		(high)	minimum pulse width			0.54	0.54	0.54

series : SYNSPEC_1.0 **function : Scan D-flip flop,inverted out,x4 powered**

macro name	SDFNXP4	size [um]	61.600 x 25.300

Truth Table

D	SIN	SMC	XC	XQ
X	X	X	0->1	hold
0	X	0	1->0	1
1	X	0	1->0	0
X	0	1	1->0	1
X	1	1	1->0	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
D	0.022							
SIN	0.022							
SMC	0.033							
XC	0.019							
XQ		3.537	0.454	0.454	0.454	0.236	0.236	0.236

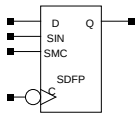
AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
XC	=>	XQ	0.77	0.77	0.77	0.91	0.91	0.91
D	<=	XC	setup time			0.58	0.58	0.58
D	<=	XC	hold time					
SIN	<=	XC	setup time			0.56	0.56	0.56
SIN	<=	XC	hold time					
SMC	<=	XC	setup time			0.64	0.64	0.64
SMC	<=	XC	hold time					
XC		(low)	minimum pulse width			0.91	0.91	0.91
XC		(high)	minimum pulse width			0.54	0.54	0.54

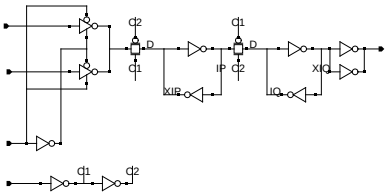
series : SYNSPEC_1.0 **function : Scan D-flip flop,powered**

macro name	SDFP	size [um]	53.200 x 25.300

Symbol



Schematic



Truth Table

C	D	SIN	SMC	Q
1->0	X	X	X	hold
0->1	0	X	0	0
0->1	1	X	0	1
0->1	X	0	1	0
0->1	X	1	1	1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
C	0.019							
D	0.022							
Q		1.817	0.879	0.879	0.879	0.420	0.420	0.420
SIN	0.022							
SMC	0.033							

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
C	=>	Q	0.70	0.70	0.70	0.65	0.65	0.65
D	<=	C	setup time			0.63	0.63	0.63
D	<=	C	hold time					
SIN	<=	C	setup time			0.61	0.61	0.61
SIN	<=	C	hold time					
SMC	<=	C	setup time			0.69	0.69	0.69
SMC	<=	C	hold time					
C		(low)	minimum pulse width			0.55	0.55	0.55
C		(high)	minimum pulse width			0.70	0.70	0.70

series : SYNSPEC_1.0 **function : Scan D-flip flop,x4 powered**

macro name	SDFP4	size [um]	58.800 x 25.300

Truth Table

C	D	SIN	SMC	Q
1->0	X	X	X	hold
0->1	0	X	0	0
0->1	1	X	0	1
0->1	X	0	1	0
0->1	X	1	1	1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
C	0.019							
D	0.022							
Q		3.556	0.448	0.448	0.448	0.261	0.261	0.261
SIN	0.022							
SMC	0.033							

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
C	=>	Q	0.82	0.82	0.82	0.77	0.77	0.77
D	<=	C	setup time			0.63	0.63	0.63
D	<=	C	hold time					
SIN	<=	C	setup time			0.61	0.61	0.61
SIN	<=	C	hold time					
SMC	<=	C	setup time			0.69	0.69	0.69
SMC	<=	C	hold time					
C		(low)	minimum pulse width			0.56	0.56	0.56
C		(high)	minimum pulse width			0.82	0.82	0.82

series : SYNSPEC_1.0 **function : Scan D-flip flop with low reset XR,inverted out**

macro name	SDFRX	size [um]	61.600 x 25.300

Truth Table

C	D	SIN	SMC	XR	XQ
X	X	X	X	0	1
1->0	X	X	X	1	hold
0->1	0	X	0	1	1
0->1	1	X	0	1	0
0->1	X	0	1	1	1
0->1	X	1	1	1	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
C	0.019							
D	0.022							
SIN	0.022							
SMC	0.033							
XQ		0.890	1.771	1.771	1.771	0.818	0.818	0.818
XR	0.036							

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
C	=>	XQ	0.83	0.83	0.83	0.84	0.84	0.84
XR	=>	XQ	0.39	0.39	0.39			
D	<=	C	setup time			0.49	0.49	0.49
D	<=	C	hold time					
SIN	<=	C	setup time			0.50	0.50	0.50
SIN	<=	C	hold time					
SMC	<=	C	setup time			0.60	0.60	0.60
SMC	<=	C	hold time					
XR	<=	C	release time					
XR	<=	C	removable time			0.30	0.30	0.30
C		(low)	minimum pulse width			0.57	0.57	0.57
C		(high)	minimum pulse width			0.84	0.84	0.84
XR		(low)	minimum pulse width			0.67	0.67	0.67

series : SYNSPEC_1.0 **function : Scan D-flip flop with low reset XR,inverted out,powered**

macro name	SDFRXP	size [um]	64.400 x 25.300

Truth Table

C	D	SIN	SMC	XR	XQ
X	X	X	X	0	1
1->0	X	X	X	1	hold
0->1	0	X	0	1	1
0->1	1	X	0	1	0
0->1	X	0	1	1	1
0->1	X	1	1	1	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
C	0.019							
D	0.022							
SIN	0.022							
SMC	0.033							
XQ		1.806	0.883	0.884	0.884	0.414	0.414	0.414
XR	0.036							

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
C	=>	XQ	0.86	0.86	0.86	0.87	0.87	0.87
XR	=>	XQ	0.41	0.41	0.41			
D	<=	C	setup time			0.49	0.49	0.49
D	<=	C	hold time					
SIN	<=	C	setup time			0.50	0.50	0.50
SIN	<=	C	hold time					
SMC	<=	C	setup time			0.60	0.60	0.60
SMC	<=	C	hold time					
XR	<=	C	release time					
XR	<=	C	removable time			0.30	0.30	0.30
C		(low)	minimum pulse width			0.57	0.57	0.57
C		(high)	minimum pulse width			0.87	0.87	0.87
XR		(low)	minimum pulse width			0.67	0.67	0.67

series : SYNSPEC_1.0 **function : Scan D-flip flop with low reset XR,inverted out,x4 powered**

macro name	SDFRXP4	size [um]	70.000 x 25.300

Truth Table

C	D	SIN	SMC	XR	XQ
X	X	X	X	0	1
1->0	X	X	X	1	hold
0->1	0	X	0	1	1
0->1	1	X	0	1	0
0->1	X	0	1	1	1
0->1	X	1	1	1	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
C	0.019							
D	0.022							
SIN	0.022							
SMC	0.033							
XQ		3.575	0.447	0.447	0.448	0.239	0.239	0.239
XR	0.036							

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
C	=>	XQ	0.88	0.88	0.88	0.97	0.97	0.97
XR	=>	XQ	0.44	0.44	0.44			
D	<=	C	setup time			0.49	0.49	0.49
D	<=	C	hold time					
SIN	<=	C	setup time			0.50	0.50	0.50
SIN	<=	C	hold time					
SMC	<=	C	setup time			0.60	0.60	0.60
SMC	<=	C	hold time					
XR	<=	C	release time					
XR	<=	C	removable time			0.30	0.30	0.30
C		(low)	minimum pulse width			0.57	0.57	0.57
C		(high)	minimum pulse width			0.97	0.97	0.97
XR		(low)	minimum pulse width			0.67	0.67	0.67

series : SYNSPEC_1.0 **function : Scan D-flip flop with low reset XR,low set XS**

macro name	SDFSR	size [um]	72.800 x 25.300

Truth Table

C	D	SIN	SMC	XR	XS	Q	XQ
X	X	X	X	0	0	0	0
X	X	X	X	1	0	1	0
X	X	X	X	0	1	0	1
1->0	X	X	X	1	1	hold	hold
0->1	0	X	0	1	1	0	1
0->1	1	X	0	1	1	1	0
0->1	X	0	1	1	1	0	1
0->1	X	1	1	1	1	1	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
C	0.019							
D	0.022							
Q		0.841	1.795	1.811	1.827	0.799	0.809	0.818
SIN	0.022							
SMC	0.033							
XQ		0.865	1.776	1.790	1.804	0.796	0.814	0.832
XR	0.037							
XS	0.037							

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
C	=>	Q	0.71	0.71	0.71	0.75	0.75	0.75
XR	=>	Q	0.29	0.29	0.29	0.30	0.30	0.30
XS	=>	Q	0.73	0.77	0.81			
C	=>	XQ	1.03	1.03	1.03	0.92	0.92	0.92
XR	=>	XQ	0.58	0.65	0.73			
XS	=>	XQ	0.30	0.35	0.41	0.31	0.37	0.43
D	<=	C	setup time			0.55	0.55	0.55
D	<=	C	hold time					
SIN	<=	C	setup time			0.56	0.56	0.56
SIN	<=	C	hold time					
SMC	<=	C	setup time			0.67	0.67	0.67
SMC	<=	C	hold time			0.03	0.03	0.03
XR	<=	C	release time			0.10	0.10	0.10
XR	<=	C	removable time			0.10	0.10	0.10
XS	<=	C	release time			0.07	0.07	0.07
XS	<=	C	removable time			0.18	0.18	0.18
XS	<=	XR	recovery time			0.23	0.23	0.23
XR	<=	XS	recovery time			0.13	0.13	0.13
C		(low)	minimum pulse width			0.67	0.67	0.67
C		(high)	minimum pulse width			1.03	1.03	1.03
XR		(low)	minimum pulse width			0.76	0.76	0.76
XS		(low)	minimum pulse width			0.81	0.81	0.81

series : SYNSPEC_1.0 **function : Scan D-flip flop with low reset XR,low set XS,powered**

macro name	SDFSRP	size [um]	78.400 x 25.300

Truth Table

C	D	SIN	SMC	XR	XS	Q	XQ
X	X	X	X	0	0	0	0
X	X	X	X	1	0	1	0
X	X	X	X	0	1	0	1
1->0	X	X	X	1	1	hold	hold
0->1	0	X	0	1	1	0	1
0->1	1	X	0	1	1	1	0
0->1	X	0	1	1	1	0	1
0->1	X	1	1	1	1	1	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
C	0.019							
D	0.022							
Q		1.659	0.927	0.936	0.945	0.437	0.443	0.448
SIN	0.022							
SMC	0.033							
XQ		1.649	0.927	0.932	0.937	0.425	0.449	0.474
XR	0.037							
XS	0.037							

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
C	=>	Q	0.78	0.78	0.78	0.81	0.81	0.81
XR	=>	Q	0.34	0.34	0.34	0.34	0.34	0.34
XS	=>	Q	0.80	0.89	0.98			
C	=>	XQ	1.19	1.19	1.19	1.07	1.07	1.07
XR	=>	XQ	0.73	0.80	0.88			
XS	=>	XQ	0.33	0.38	0.44	0.34	0.39	0.45
D	<=	C	setup time			0.55	0.55	0.55
D	<=	C	hold time					
SIN	<=	C	setup time			0.56	0.56	0.56
SIN	<=	C	hold time					
SMC	<=	C	setup time			0.67	0.67	0.67
SMC	<=	C	hold time			0.03	0.03	0.03
XR	<=	C	release time			0.10	0.10	0.10
XR	<=	C	removable time			0.10	0.10	0.10
XS	<=	C	release time			0.07	0.07	0.07
XS	<=	C	removable time			0.18	0.18	0.18
XS	<=	XR	recovery time			0.21	0.21	0.21
XR	<=	XS	recovery time			0.17	0.17	0.17
C		(low)	minimum pulse width			0.67	0.67	0.67
C		(high)	minimum pulse width			1.19	1.19	1.19
XR		(low)	minimum pulse width			0.88	0.88	0.88
XS		(low)	minimum pulse width			0.98	0.98	0.98

series : SYNSPEC_1.0 **function : Scan D-flip flop with low reset XR,low set XS,x4 powered**

macro name	SDFSRP4	size [um]	89.600 x 25.300

Truth Table

C	D	SIN	SMC	XR	XS	Q	XQ
X	X	X	X	0	0	0	0
X	X	X	X	1	0	1	0
X	X	X	X	0	1	0	1
1->0	X	X	X	1	1	hold	hold
0->1	0	X	0	1	1	0	1
0->1	1	X	0	1	1	1	0
0->1	X	0	1	1	1	0	1
0->1	X	1	1	1	1	1	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
C	0.019							
D	0.022							
Q		3.162	0.442	0.461	0.480	0.279	0.281	0.282
SIN	0.022							
SMC	0.033							
XQ		3.191	0.432	0.454	0.477	0.246	0.274	0.302
XR	0.038							
XS	0.037							

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
C	=>	Q	0.90	0.90	0.90	0.92	0.92	0.92
XR	=>	Q	0.43	0.44	0.44	0.44	0.44	0.44
XS	=>	Q	0.92	1.12	1.32			
C	=>	XQ	1.52	1.52	1.52	1.36	1.36	1.36
XR	=>	XQ	1.05	1.12	1.20			
XS	=>	XQ	0.44	0.49	0.55	0.45	0.51	0.57
D	<=	C	setup time			0.55	0.55	0.55
D	<=	C	hold time					
SIN	<=	C	setup time			0.56	0.56	0.56
SIN	<=	C	hold time					
SMC	<=	C	setup time			0.67	0.67	0.67
SMC	<=	C	hold time			0.03	0.03	0.03
XR	<=	C	release time			0.10	0.10	0.10
XR	<=	C	removable time			0.10	0.10	0.10
XS	<=	C	release time			0.07	0.07	0.07
XS	<=	C	removable time			0.18	0.18	0.18
XS	<=	XR	recovery time			0.31	0.31	0.31
XR	<=	XS	recovery time			0.27	0.27	0.27
C		(low)	minimum pulse width			0.67	0.67	0.67
C		(high)	minimum pulse width			1.52	1.52	1.52
XR		(low)	minimum pulse width			1.20	1.20	1.20
XS		(low)	minimum pulse width			1.32	1.32	1.32

series : SYNSPEC_1.0 **function : Scan D-flip flop,inverted out**

macro name	SDFX	size [um]	50.400 x 25.300

Truth Table

C	D	SIN	SMC	XQ
1->0	X	X	X	hold
0->1	0	X	0	1
0->1	1	X	0	0
0->1	X	0	1	1
0->1	X	1	1	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
C	0.019							
D	0.022							
SIN	0.022							
SMC	0.033							
XQ		0.901	1.753	1.753	1.753	0.825	0.825	0.825

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
C	=>	XQ	0.50	0.50	0.50	0.56	0.56	0.56
D	<=	C	setup time			0.63	0.63	0.63
D	<=	C	hold time					
SIN	<=	C	setup time			0.61	0.61	0.61
SIN	<=	C	hold time					
SMC	<=	C	setup time			0.69	0.69	0.69
SMC	<=	C	hold time					
C		(low)	minimum pulse width			0.55	0.55	0.55
C		(high)	minimum pulse width			0.57	0.57	0.57

series : SYNSPEC_1.0 **function : Scan D-flip flop,inverted out,powered**

macro name	SDFXP	size [um]	53.200 x 25.300

Truth Table

C	D	SIN	SMC	XQ
1->0	X	X	X	hold
0->1	0	X	0	1
0->1	1	X	0	0
0->1	X	0	1	1
0->1	X	1	1	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
C	0.019							
D	0.022							
SIN	0.022							
SMC	0.033							
XQ		1.792	0.885	0.885	0.885	0.481	0.481	0.481

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
C	=>	XQ	0.53	0.53	0.53	0.59	0.59	0.59
D	<=	C	setup time			0.63	0.63	0.63
D	<=	C	hold time					
SIN	<=	C	setup time			0.61	0.61	0.61
SIN	<=	C	hold time					
SMC	<=	C	setup time			0.69	0.69	0.69
SMC	<=	C	hold time					
C		(low)	minimum pulse width			0.55	0.55	0.55
C		(high)	minimum pulse width			0.65	0.65	0.65

series : SYNSPEC_1.0 **function : Tri-state buffer**

macro name	TBUF1	size [um]	16.800 x 25.300

Truth Table

A	EN	Y
X	0	hiZ
0	1	0
1	1	1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.019							
EN	0.027							
Y	0.028	0.557	1.980	1.983	1.987	1.066	1.068	1.069

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.27	0.27	0.27	0.27	0.27	0.27
EN	=>	Y		tpLZ				
EN	=>	Y		tpZH		0.06	0.06	0.06
EN	=>	Y		tpHZ		0.22	0.22	0.22
EN	=>	Y		tpZL		0.06	0.06	0.06

series : SYNSPEC_1.0 **function : Tri-state buffer x 2**

macro name	TBUF2	size [um]	25.200 x 25.300

Truth Table

A	EN	Y
X	0	hiZ
0	1	0
1	1	1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.052							
EN	0.048							
Y	0.035	1.794	0.891	0.892	0.892	0.449	0.449	0.449

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.19	0.19	0.19	0.29	0.29	0.29
EN	=>	Y		tpLZ		0.27	0.27	0.27
EN	=>	Y		tpZH		0.18	0.18	0.18
EN	=>	Y		tpHZ		0.26	0.26	0.26
EN	=>	Y		tpZL		0.32	0.32	0.32

series : SYNSPEC_1.0 **function : Tri-state buffer x 4**

macro name	TBUF4	size [um]	33.600 x 25.300

Truth Table

A	EN	Y
X	0	hiZ
0	1	0
1	1	1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.057							
EN	0.048							
Y	0.068	3.270	0.487	0.489	0.490	0.268	0.269	0.270

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.23	0.23	0.23	0.34	0.34	0.34
EN	=>	Y		tpLZ		0.32	0.32	0.32
EN	=>	Y		tpZH		0.21	0.21	0.21
EN	=>	Y		tpHZ		0.37	0.37	0.37
EN	=>	Y		tpZL		0.36	0.36	0.36

series : SYNSPEC_1.0 **function : Tri-state buffer,inverted out**

macro name	TINV1	size [um]	14.000 x 25.300

Truth Table

A	EN	Y
X	0	hiZ
0	1	1
1	1	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.026							
EN	0.027							
Y	0.028	0.563	1.960	1.963	1.966	1.058	1.059	1.060

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.16	0.16	0.16	0.10	0.10	0.10
EN	=>	Y		tpLZ				
EN	=>	Y		tpZH		0.06	0.06	0.06
EN	=>	Y		tpHZ		0.22	0.22	0.22
EN	=>	Y		tpZL		0.06	0.06	0.06

series : SYNSPEC_1.0 **function : Tri-state buffer,inverted out x 2**

macro name	TINV2	size [um]	30.800 x 25.300

Truth Table

A	EN	Y
X	0	hiZ
0	1	1
1	1	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.027							
EN	0.048							
Y	0.035	1.789	0.891	0.893	0.895	0.440	0.440	0.441

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.37	0.37	0.37	0.39	0.39	0.39
EN	=>	Y		tpLZ		0.28	0.28	0.28
EN	=>	Y		tpZH		0.18	0.18	0.18
EN	=>	Y		tpHZ		0.26	0.26	0.26
EN	=>	Y		tpZL		0.33	0.33	0.33

series : SYNSPEC_1.0 **function : Tri-state buffer,inverted out x 4**

macro name	TINV4	size [um]	36.400 x 25.300

Truth Table

A	EN	Y
X	0	hiZ
0	1	1
1	1	0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.027							
EN	0.048							
Y	0.069	3.220	0.494	0.495	0.497	0.267	0.269	0.271

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.41	0.41	0.41	0.41	0.41	0.41
EN	=>	Y		tpLZ		0.34	0.34	0.34
EN	=>	Y		tpZH		0.20	0.20	0.20
EN	=>	Y		tpHZ		0.35	0.35	0.35
EN	=>	Y		tpZL		0.41	0.41	0.41

series : SYNSPEC_1.0 **function : 2-input exclusive-NOR**

macro name	XNOR2	size [um]	19.600 x 25.300

Truth Table

A	B	Y
0	0	1
1	0	0
0	1	0
1	1	1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.042							
B	0.048							
Y		0.404	1.748	2.575	3.402	1.231	1.241	1.251

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.21	0.24	0.28	0.10	0.16	0.22
B	=>	Y	0.23	0.27	0.31	0.12	0.18	0.25

series : SYNSPEC_1.0 **function : 2-input exclusive-NOR,powered**

macro name	XNOR2P	size [um]	25.200 x 25.300

Truth Table

A	B	Y
0	0	1
1	0	0
0	1	0
1	1	1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.043							
B	0.048							
Y		1.789	0.886	0.889	0.891	0.460	0.463	0.466

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.28	0.37	0.45	0.49	0.51	0.53
B	=>	Y	0.30	0.40	0.49	0.49	0.52	0.55

series : SYNSPEC_1.0 **function : 2-input exclusive-NOR,x4 powered**

macro name	XNOR2P4	size [um]	30.800 x 25.300

Truth Table

A	B	Y
0	0	1
1	0	0
0	1	0
1	1	1

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.043							
B	0.048							
Y		3.445	0.453	0.458	0.463	0.295	0.299	0.302

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.35	0.43	0.51	0.63	0.65	0.66
B	=>	Y	0.37	0.46	0.55	0.63	0.66	0.69

series : SYNSPEC_1.0 **function : 3-input exclusive-OR**

macro name	XOR3	size [um]	39.200 x 25.300

Truth Table

A	B	C	Y
1	0	0	1
0	1	0	1
0	0	1	1
1	1	1	1
other states			0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.040							
B	0.045							
C	0.045							
Y		0.892	1.752	1.756	1.760	0.806	0.861	0.917

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.21	0.27	0.33	0.24	0.36	0.47
B	=>	Y	0.47	0.62	0.77	0.56	0.71	0.82
C	=>	Y	0.50	0.63	0.82	0.55	0.71	0.84

series : SYNSPEC_1.0 **function : 3-input exclusive-OR,powered**

macro name	XOR3P	size [um]	42.000 x 25.300

Truth Table

A	B	C	Y
1	0	0	1
0	1	0	1
0	0	1	1
1	1	1	1
other states			0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.040							
B	0.045							
C	0.045							
Y		1.759	0.883	0.890	0.897	0.452	0.511	0.570

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.22	0.29	0.35	0.26	0.39	0.51
B	=>	Y	0.48	0.64	0.79	0.57	0.73	0.86
C	=>	Y	0.52	0.64	0.84	0.56	0.74	0.86

series : SYNSPEC_1.0 **function : 3-input exclusive-OR,x4 powered**

macro name	XOR3P4	size [um]	47.600 x 25.300

Truth Table

A	B	C	Y
1	0	0	1
0	1	0	1
0	0	1	1
1	1	1	1
other states			0

Port Characteristic

port name	Cin [pF]	Cmax [pF]	delta-t (rise) [nsec/pF]			delta-t (fall) [nsec/pF]		
			min	typ	max	min	typ	max
A	0.040							
B	0.045							
C	0.045							
Y		3.295	0.460	0.470	0.481	0.292	0.339	0.385

AC Characteristic

delay time from pin to pin			tpdr0 [nsec]			tpdf0 [nsec]		
			min	typ	max	min	typ	max
A	=>	Y	0.29	0.36	0.43	0.32	0.49	0.64
B	=>	Y	0.58	0.73	0.88	0.65	0.86	1.00
C	=>	Y	0.62	0.73	0.92	0.64	0.86	1.01