sky130_osu_sc_12T_hs_ff_1P95_100C.ccs Library

Cell Groups
SKY130_OSU_SC_12T_HS__ADDFx
SKY130_OSU_SC_12T_HS__ADDHx
SKY130_OSU_SC_12T_HS__AND2x
SKY130_OSU_SC_12T_HS__AOI21
SKY130_OSU_SC_12T_HS__AOI22
SKY130_OSU_SC_12T_HS__BUFx
SKY130_OSU_SC_12T_HS__DFFRx
SKY130_OSU_SC_12T_HS__DFFSRx
SKY130_OSU_SC_12T_HS__DFFSx
SKY130_OSU_SC_12T_HS__DFFx
SKY130_OSU_SC_12T_HS__INVx
SKY130_OSU_SC_12T_HS__MUX2
SKY130_OSU_SC_12T_HS__NAND2x
SKY130_OSU_SC_12T_HS__NOR2x
SKY130_OSU_SC_12T_HS__OAI21
SKY130_OSU_SC_12T_HS__OAI22
SKY130_OSU_SC_12T_HS__OR2x
SKY130_OSU_SC_12T_HS__TBUFIx
SKY130_OSU_SC_12T_HS__TNBUFIx
SKY130_OSU_SC_12T_HS__XNOR2
SKY130_OSU_SC_12T_HS__XOR2
SKY130_OSU_SC_12T_HS_x

SKY130_OSU_SC_12T_HS__ADDFx

sky130_osu_sc_12T_hs_ff_1P95_100C.ccs
Cell Library: Process , Voltage 1.95, Temp 100.00

Truth Table

INPUT			OUTPUT		
A	**B**	**CI**	**CO**	**CON**	**S**
0	**0**	**0**	**0**	**1**	**0**
0	**0**	**1**	**0**	**1**	**1**
0	**1**	**0**	**0**	**1**	**1**
0	**1**	**1**	**1**	**0**	**0**
1	**0**	**0**	**0**	**1**	**1**
1	**0**	**1**	**1**	**0**	**0**
1	**1**	**0**	**1**	**0**	**0**
1	**1**	**1**	**1**	**0**	**1**

Footprint

Cell Name	Area
sky130_osu_sc_12T_hs__addf_1	31.25760
sky130_osu_sc_12T_hs__addf_l	31.25760

Pin Capacitance Information

Cell Name	Pin Cap(pf)			Max Cap(pf)		
	A	**B**	**CI**	**CO**	**CON**	**S**
sky130_osu_sc_12T_hs__addf_1	0.01111	0.01108	0.00852	1.90523	0.85927	1.67091
sky130_osu_sc_12T_hs__addf_l	0.01112	0.01107	0.00853	1.27371	0.86255	1.66890

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_12T_hs__addf_1	0.00000	235.34800	278.97400
sky130_osu_sc_12T_hs__addf_l	0.00000	370.36200	550.19100

Delay Information

Delay(ns) to CO rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_hs__addf_1	A->CO (RR)	0.08980	1.16720	20.86850
	B->CO (RR)	0.08880	1.16128	20.66000
	CI->CO (RR)	0.08387	1.21108	21.70870
	CON->CO (FR)	0.01477	0.52155	9.48996
sky130_osu_sc_12T_hs__addf_l	A->CO (RR)	0.09068	1.08294	16.61970
	B->CO (RR)	0.08979	1.08685	16.72980
	CI->CO (RR)	0.08477	1.12534	17.48090
	CON->CO (FR)	0.01790	0.56760	9.34167

Delay(ns) to CO falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_hs__addf_1	A->CO (FF)	0.11763	1.46821	26.12080
	B->CO (FF)	0.10405	1.39786	24.90830
	CI->CO (FF)	0.10261	1.49514	26.82210
	CON->CO (RF)	0.01468	0.44643	8.16214
sky130_osu_sc_12T_hs__addf_l	A->CO (FF)	0.11611	1.30764	19.98230
	B->CO (FF)	0.10081	1.24709	19.28290
	CI->CO (FF)	0.10110	1.33586	20.71170
	CON->CO (RF)	0.01619	0.46113	7.54173

Delay(ns) to CON rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_hs__addf_1	A->CON (FR)	0.09719	0.64722	8.44721
	B->CON (FR)	0.08131	0.62053	8.43402
	CI->CON (FR)	0.08217	0.67748	9.20301
sky130_osu_sc_12T_hs__addf_l	A->CON (FR)	0.09231	0.64369	8.46535
	B->CON (FR)	0.07710	0.61779	8.44963
	CI->CON (FR)	0.07728	0.67338	9.22185

Delay(ns) to CON falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_hs__addf_1	A->CON (RF)	0.06268	0.41529	5.29980
	B->CON (RF)	0.06214	0.44408	5.77359
	CI->CON (RF)	0.05677	0.46234	6.14399
sky130_osu_sc_12T_hs__addf_l	A->CON (RF)	0.06071	0.41412	5.31378
	B->CON (RF)	0.06026	0.44280	5.78747
	CI->CON (RF)	0.05480	0.46099	6.15867

Delay(ns) to S rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_hs__addf_1	A->S (-R)	0.17463	1.33015	20.76930
	B->S (-R)	0.17970	1.30249	19.83690
	CI->S (-R)	0.15844	1.35605	21.48180
	CON->S (RR)	0.05084	0.44085	6.32473
sky130_osu_sc_12T_hs__addf_l	A->S (-R)	0.16878	1.32475	20.74150
	B->S (-R)	0.17389	1.29717	19.81190
	CI->S (-R)	0.15255	1.35045	21.45560
	CON->S (RR)	0.05086	0.44058	6.31534

Delay(ns) to S falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_hs__addf_1	A->S (-F)	0.14898	1.07029	16.11700
	B->S (-F)	0.14324	1.03448	15.78160
	CI->S (-F)	0.14369	1.11385	16.96800
	CON->S (FF)	0.06130	0.49095	6.85842
sky130_osu_sc_12T_hs__addf_l	A->S (-F)	0.14552	1.06697	16.09630
	B->S (-F)	0.14006	1.03155	15.76280
	CI->S (-F)	0.14019	1.11054	16.94830
	CON->S (FF)	0.06133	0.49094	6.85149

Power Information

Internal switching power(pJ) to CO rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__addf_1	A	0.00681	0.01265	0.13719
	B	0.00753	0.01285	0.12624
	CI	0.00836	0.01439	0.13755
sky130_osu_sc_12T_hs__addf_l	A	0.00608	0.01066	0.10089
	B	0.00727	0.01140	0.09682
	CI	0.00763	0.01237	0.10225

Internal switching power(pJ) to CO falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__addf_1	A	0.01552	0.02612	0.24327
	B	0.01526	0.02418	0.21545
	CI	0.01391	0.02486	0.24263
sky130_osu_sc_12T_hs__addf_l	A	0.01736	0.02499	0.16634
	B	0.01716	0.02354	0.14834
	CI	0.01580	0.02374	0.16527

Internal switching power(pJ) to CON rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__addf_1	A	0.01428	0.02110	0.13780
	B	0.01417	0.01998	0.12540
	CI	0.01272	0.01994	0.13786
sky130_osu_sc_12T_hs__addf_l	A	0.01632	0.02247	0.13005
	B	0.01609	0.02126	0.11814
	CI	0.01483	0.02133	0.12998

Internal switching power(pJ) to CON falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__addf_1	A	0.00531	0.00941	0.08845
	B	0.00659	0.01035	0.08928
	CI	0.00690	0.01120	0.09124
sky130_osu_sc_12T_hs__addf_l	A	0.00489	0.00882	0.08513
	B	0.00619	0.00980	0.08618
	CI	0.00649	0.01060	0.08786

Internal switching power(pJ) to S rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__addf_1	A	0.00628	0.01112	0.21010
	B	0.00860	0.01318	0.18967
	CI	0.00986	0.01623	0.19681
sky130_osu_sc_12T_hs__addf_l	A	0.00623	0.01109	0.21003
	B	0.00857	0.01315	0.18963
	CI	0.00983	0.01620	0.19677

Internal switching power(pJ) to S falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__addf_1	A	0.02967	0.03663	0.21270
	B	0.02523	0.03159	0.18955
	CI	0.02286	0.02978	0.19124
sky130_osu_sc_12T_hs__addf_l	A	0.02964	0.03661	0.21273
	B	0.03173	0.03747	0.19808
	CI	0.02284	0.02976	0.19123

SKY130_OSU_SC_12T_HS__ADDHx

sky130_osu_sc_12T_hs_ff_1P95_100C.ccs
Cell Library: Process , Voltage 1.95, Temp 100.00

Truth Table

INPUT		OUTPUT		
A	B	CO	CON	S
0	0	0	0	0
0	1	0	0	1
1	0	0	0	1
1	1	1	1	0

Footprint

Cell Name	Area
sky130_osu_sc_12T_hs__addh_1	18.55920
sky130_osu_sc_12T_hs__addh_l	18.55920

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)		
	A	B	CO	CON	S
sky130_osu_sc_12T_hs__addh_1	0.00553	0.00587	1.82911	1.89381	1.94153
sky130_osu_sc_12T_hs__addh_l	0.00539	0.00577	1.25742	1.89243	1.30954

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_12T_hs__addh_1	0.00000	262.82500	274.03000
sky130_osu_sc_12T_hs__addh_l	0.00000	535.94300	547.14200

Delay Information

Delay(ns) to CO rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_hs__addh_1	A->CO (RR)	0.06721	0.48851	6.95868
	B->CO (RR)	0.07010	0.48303	7.07725
sky130_osu_sc_12T_hs__addh_l	A->CO (RR)	0.05946	0.49310	6.50647
	B->CO (RR)	0.06174	0.48456	6.51155

Delay(ns) to CO falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_hs__addh_1	A->CO (FF)	0.05413	0.48346	7.17378
	B->CO (FF)	0.05823	0.50053	7.37247
sky130_osu_sc_12T_hs__addh_l	A->CO (FF)	0.05001	0.47209	6.37416
	B->CO (FF)	0.05353	0.49049	6.62883

Delay(ns) to CON rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_hs__addh_1	A->CON (RR)	0.09382	0.50129	6.95044
	B->CON (RR)	0.09601	0.49522	7.09709
sky130_osu_sc_12T_hs__addh_l	A->CON (RR)	0.07723	0.44966	6.49494
	B->CON (RR)	0.07888	0.44170	6.55858

Delay(ns) to CON falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_hs__addh_1	A->CON (FF)	0.08046	0.50775	7.38536
	B->CON (FF)	0.07815	0.51753	7.54080
sky130_osu_sc_12T_hs__addh_l	A->CON (FF)	0.06788	0.46821	6.97994
	B->CON (FF)	0.06604	0.47833	7.17204

Delay(ns) to S rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_hs__addh_1	A->S (FR)	0.10502	1.03962	17.40380
	B->S (FR)	0.10244	1.05134	17.63300
	CON->S (FR)	0.01633	0.53145	9.71085
sky130_osu_sc_12T_hs__addh_l	A->S (FR)	0.09392	0.93448	13.60950
	B->S (FR)	0.09168	0.94501	13.82120
	CON->S (FR)	0.01860	0.57714	9.57302

Delay(ns) to S falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_hs__addh_1	A->S (RF)	0.11801	1.04451	17.22900
	B->S (RF)	0.12019	1.03848	17.35120
	CON->S (RF)	0.01631	0.51142	9.38478
sky130_osu_sc_12T_hs__addh_l	A->S (RF)	0.09879	0.84816	11.96010
	B->S (RF)	0.10046	0.83718	11.97940
	CON->S (RF)	0.01581	0.46765	7.72390

Power Information

Internal switching power(pJ) to CO rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__addh_1	A	0.00000	0.00000	0.00000
	A	0.00826	0.01087	0.07052
	B	0.00000	0.00000	0.00000
	B	0.00771	0.01044	0.08540
sky130_osu_sc_12T_hs__addh_l	A	0.00000	0.00000	0.00000
	A	0.00981	0.01322	0.08873
	B	0.00000	0.00000	0.00000
	B	0.00925	0.01301	0.10382

Internal switching power(pJ) to CO falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__addh_1	A	0.00000	0.00000	0.00000
	A	0.00979	0.01300	0.08816
	B	0.00000	0.00000	0.00000
	B	0.01056	0.01448	0.09527
sky130_osu_sc_12T_hs__addh_l	A	0.00000	0.00000	0.00000
	A	0.01066	0.01475	0.10169
	B	0.00000	0.00000	0.00000
	B	0.01138	0.01610	0.11074

Internal switching power(pJ) to CON rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__addh_1	A	0.00000	0.00000	0.00000
	A	0.00829	0.01089	0.07092
	B	0.00000	0.00000	0.00000
	B	0.00773	0.01047	0.08580
sky130_osu_sc_12T_hs__addh_l	A	0.00000	0.00000	0.00000
	A	0.00984	0.01333	0.09043
	B	0.00000	0.00000	0.00000
	B	0.00928	0.01311	0.10590

Internal switching power(pJ) to CON falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__addh_1	A	0.00000	0.00000	0.00000
	A	0.00982	0.01303	0.08878
	B	0.00000	0.00000	0.00000
	B	0.01059	0.01452	0.09608
sky130_osu_sc_12T_hs__addh_l	A	0.00000	0.00000	0.00000
	A	0.01095	0.01513	0.10540
	B	0.00000	0.00000	0.00000
	B	0.01168	0.01663	0.11503

Internal switching power(pJ) to S rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__addh_1	A	0.00000	0.00000	0.00000
	A	0.01055	0.01377	0.09047
	B	0.00000	0.00000	0.00000
	B	0.01140	0.01537	0.09785
sky130_osu_sc_12T_hs__addh_l	A	0.00000	0.00000	0.00000
	A	0.01236	0.01646	0.10395
	B	0.00000	0.00000	0.00000
	B	0.01316	0.01800	0.11312

Internal switching power(pJ) to S falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__addh_1	A	0.00000	0.00000	0.00000
	A	0.00889	0.01160	0.07270
	B	0.00000	0.00000	0.00000
	B	0.00833	0.01108	0.08722
sky130_osu_sc_12T_hs__addh_l	A	0.00000	0.00000	0.00000
	A	0.00971	0.01314	0.08916
	B	0.00000	0.00000	0.00000
	B	0.00914	0.01306	0.10442

Passive power(pJ) for A falling (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__addh_1	(!B * !CO * !CON * S)	0.00000	0.00000	0.00000
	(!B * !CO * !CON * S)	2.81561	2.71680	1.10031
sky130_osu_sc_12T_hs__addh_l	(!B * !CO * !CON * S)	0.00000	0.00000	0.00000
	(!B * !CO * !CON * S)	2.83675	2.73717	1.10767

Passive power(pJ) for B falling (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__addh_1	(!A * !CO * !CON * S)	0.00000	0.00000	0.00000
	(!A * !CO * !CON * S)	2.81558	2.72071	1.18618
sky130_osu_sc_12T_hs__addh_l	(!A * !CO * !CON * S)	0.00000	0.00000	0.00000
	(!A * !CO * !CON * S)	2.83678	2.74111	1.19311

SKY130_OSU_SC_12T_HS__AND2x

sky130_osu_sc_12T_hs_ff_1P95_100C.ccs
Cell Library: Process , Voltage 1.95, Temp 100.00

Truth Table

INPUT		OUTPUT
A	B	Y
0	x	0
1	0	0
1	1	1

Footprint

Cell Name	Area
sky130_osu_sc_12T_hs__and2_1	8.30280
sky130_osu_sc_12T_hs__and2_2	10.25640
sky130_osu_sc_12T_hs__and2_4	14.16360
sky130_osu_sc_12T_hs__and2_6	18.07080
sky130_osu_sc_12T_hs__and2_8	21.97800
sky130_osu_sc_12T_hs__and2_l	8.30280

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	B	Y
sky130_osu_sc_12T_hs__and2_1	0.00291	0.00304	1.84108
sky130_osu_sc_12T_hs__and2_2	0.00291	0.00305	3.58335
sky130_osu_sc_12T_hs__and2_4	0.00291	0.00305	6.97146
sky130_osu_sc_12T_hs__and2_6	0.00295	0.00305	10.28573
sky130_osu_sc_12T_hs__and2_8	0.00291	0.00305	13.40344
sky130_osu_sc_12T_hs__and2_l	0.00226	0.00235	1.27364

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_12T_hs__and2_1	0.00000	115.49800	184.38500
sky130_osu_sc_12T_hs__and2_2	0.00000	184.42100	186.39700
sky130_osu_sc_12T_hs__and2_4	0.00000	322.24900	366.85900
sky130_osu_sc_12T_hs__and2_6	0.00000	460.07500	549.26900
sky130_osu_sc_12T_hs__and2_8	0.00000	597.88900	731.65700
sky130_osu_sc_12T_hs__and2_l	0.00000	453.35700	724.15700

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_hs__and2_1	A->Y (RR)	0.04478	0.41360	6.54069
	B->Y (RR)	0.04808	0.39646	6.13413
sky130_osu_sc_12T_hs__and2_2	A->Y (RR)	0.05097	0.35716	6.47506
	B->Y (RR)	0.05431	0.33870	6.03919
sky130_osu_sc_12T_hs__and2_4	A->Y (RR)	0.07162	0.35016	6.61043
	B->Y (RR)	0.07500	0.32871	6.16318
sky130_osu_sc_12T_hs__and2_6	A->Y (RR)	0.09374	0.36662	6.68745
	B->Y (RR)	0.09703	0.34237	6.23439
sky130_osu_sc_12T_hs__and2_8	A->Y (RR)	0.11505	0.38859	6.76219
	B->Y (RR)	0.11843	0.36261	6.29048
sky130_osu_sc_12T_hs__and2_1	A->Y (RR)	0.04903	0.48055	6.80926
	B->Y (RR)	0.05254	0.46009	6.38246

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_hs__and2_1	**A->Y (FF)**	0.04087	0.41972	6.44272
	B->Y (FF)	0.04132	0.42445	6.51810
sky130_osu_sc_12T_hs__and2_2	**A->Y (FF)**	0.04564	0.37334	6.37846
	B->Y (FF)	0.04584	0.37762	6.48296
sky130_osu_sc_12T_hs__and2_4	**A->Y (FF)**	0.06368	0.37105	6.48984
	B->Y (FF)	0.06239	0.37205	6.59871
sky130_osu_sc_12T_hs__and2_6	**A->Y (FF)**	0.08344	0.38994	6.55398
	B->Y (FF)	0.08054	0.38778	6.65863
sky130_osu_sc_12T_hs__and2_8	**A->Y (FF)**	0.10223	0.40991	6.53983
	B->Y (FF)	0.09801	0.40554	6.63798
sky130_osu_sc_12T_hs__and2_l	**A->Y (FF)**	0.04215	0.43024	5.92677
	B->Y (FF)	0.04512	0.44550	6.12233

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__and2_1	A	0.00000	0.00000	0.00000
	A	0.00836	0.01968	0.25666
	B	0.00000	0.00000	0.00000
	B	0.00832	0.01717	0.20905
sky130_osu_sc_12T_hs__and2_2	A	0.00000	0.00000	0.00000
	A	0.01237	0.02309	0.26324
	B	0.00000	0.00000	0.00000
	B	0.01234	0.02075	0.21386
sky130_osu_sc_12T_hs__and2_4	A	0.00000	0.00000	0.00000
	A	0.02342	0.03220	0.27344
	B	0.00000	0.00000	0.00000
	B	0.02342	0.02977	0.22195
sky130_osu_sc_12T_hs__and2_6	A	0.00000	0.00000	0.00000
	A	0.03917	0.04303	0.28521
	B	0.00000	0.00000	0.00000
	B	0.03916	0.04105	0.23170
sky130_osu_sc_12T_hs__and2_8	A	0.00000	0.00000	0.00000
	A	0.05806	0.05582	0.29858
	B	0.00000	0.00000	0.00000
	B	0.05807	0.05280	0.24140
sky130_osu_sc_12T_hs__and2_l	A	0.00000	0.00000	0.00000
	A	0.02204	0.03194	0.24207
	B	0.00000	0.00000	0.00000
	B	0.02188	0.03009	0.21218

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__and2_1	A	0.00000	0.00000	0.00000
	A	0.01135	0.02332	0.23652
	B	0.00000	0.00000	0.00000
	B	0.01256	0.02439	0.23716
sky130_osu_sc_12T_hs__and2_2	A	0.00000	0.00000	0.00000
	A	0.01690	0.02817	0.24128
	B	0.00000	0.00000	0.00000
	B	0.01805	0.02927	0.24245
sky130_osu_sc_12T_hs__and2_4	A	0.00000	0.00000	0.00000
	A	0.03255	0.04000	0.25156
	B	0.00000	0.00000	0.00000
	B	0.03323	0.04088	0.25182
sky130_osu_sc_12T_hs__and2_6	A	0.00000	0.00000	0.00000
	A	0.05170	0.05332	0.26300
	B	0.00000	0.00000	0.00000
	B	0.05166	0.05364	0.26238
sky130_osu_sc_12T_hs__and2_8	A	0.00000	0.00000	0.00000
	A	0.07497	0.06803	0.27511
	B	0.00000	0.00000	0.00000
	B	0.07404	0.06793	0.27296
sky130_osu_sc_12T_hs__and2_l	A	0.00000	0.00000	0.00000
	A	0.01454	0.02523	0.21828
	B	0.00000	0.00000	0.00000
	B	0.01555	0.02617	0.21882

Passive power(pJ) for A rising (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__and2_1	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00242	-0.00245	-0.00247
sky130_osu_sc_12T_hs__and2_2	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00162	-0.00165	-0.00167
sky130_osu_sc_12T_hs__and2_4	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00004	-0.00007	-0.00009
sky130_osu_sc_12T_hs__and2_6	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00151	0.00149	0.00146
sky130_osu_sc_12T_hs__and2_8	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00313	0.00310	0.00308
sky130_osu_sc_12T_hs__and2_l	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00086	0.00084	0.00082

Passive power(pJ) for A falling (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__and2_1	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00405	0.00410	0.00407
sky130_osu_sc_12T_hs__and2_2	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00485	0.00489	0.00487
sky130_osu_sc_12T_hs__and2_4	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00644	0.00648	0.00646
sky130_osu_sc_12T_hs__and2_6	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00807	0.00810	0.00808
sky130_osu_sc_12T_hs__and2_8	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00962	0.00966	0.00964
sky130_osu_sc_12T_hs__and2_l	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00549	0.00552	0.00550

Passive power(pJ) for B rising (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__and2_1	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00226	-0.00229	-0.00227
sky130_osu_sc_12T_hs__and2_2	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00147	-0.00149	-0.00148
sky130_osu_sc_12T_hs__and2_4	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00012	0.00009	0.00011
sky130_osu_sc_12T_hs__and2_6	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00170	0.00168	0.00169
sky130_osu_sc_12T_hs__and2_8	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00328	0.00326	0.00328
sky130_osu_sc_12T_hs__and2_l	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00098	0.00095	0.00097

Passive power(pJ) for B falling (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__and2_1	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00407	0.00396	0.00390
sky130_osu_sc_12T_hs__and2_2	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00488	0.00476	0.00470
sky130_osu_sc_12T_hs__and2_4	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00647	0.00635	0.00629
sky130_osu_sc_12T_hs__and2_6	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00806	0.00794	0.00788
sky130_osu_sc_12T_hs__and2_8	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00965	0.00950	0.00947
sky130_osu_sc_12T_hs__and2_l	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00550	0.00541	0.00537

SKY130_OSU_SC_12T_HS__AOI21

sky130_osu_sc_12T_hs_ff_1P95_100C.ccs
Cell Library: Process , Voltage 1.95, Temp 100.00

Truth Table

INPUT			OUTPUT
A0	A1	B0	Y
0	x	0	1
x	x	1	0
1	0	0	1
1	1	x	0

Footprint

Cell Name	Area
sky130_osu_sc_12T_hs__aoi21_l	8.30280

Pin Capacitance Information

Cell Name	Pin Cap(pf)			Max Cap(pf)
	A0	A1	B0	Y
sky130_osu_sc_12T_hs__aoi21_l	0.00270	0.00285	0.00284	0.78439

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_12T_hs__aoi21_l	0.00000	50.37970	109.47800

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_hs__aoi21_l	A0->Y (FR)	0.04924	0.60091	8.17713
	A1->Y (FR)	0.03849	0.54384	7.54304
	B0->Y (FR)	0.03686	0.64255	9.07388

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_hs__aoi21_l	A0->Y (RF)	0.03187	0.36262	4.78101
	A1->Y (RF)	0.02908	0.39583	5.36770
	B0->Y (RF)	0.01920	0.38330	5.37564

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__aoi21_l	A0	0.00000	0.00000	0.00000
	A0	0.00814	0.01135	0.09215
	A1	0.00000	0.00000	0.00000
	A1	0.00674	0.00993	0.08828
	B0	0.00479	0.00945	0.09706

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__aoi21_l	A0	0.00000	0.00000	0.00000
	A0	0.00365	0.00615	0.06978
	A1	0.00000	0.00000	0.00000
	A1	0.00381	0.00676	0.07289
	B0	0.00097	0.00424	0.06735

Passive power(pJ) for A0 rising (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__aoi21_l	(A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * !Y)	-0.00167	-0.00231	-0.00192
	(!A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !Y)	-0.00188	-0.00191	-0.00189
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00266	-0.00267	-0.00266

Passive power(pJ) for A0 falling (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__aoi21_l	(A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * !Y)	0.00351	0.00353	0.00340
	(!A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !Y)	0.00348	0.00351	0.00349
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00291	0.00277	0.00273

Passive power(pJ) for A1 rising (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__aoi21_l	(A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * B0 * !Y)	-0.00165	-0.00233	-0.00193
	(!A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !Y)	-0.00189	-0.00191	-0.00190
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	-0.00294	-0.00293	-0.00298

Passive power(pJ) for A1 falling (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__aoi21_l	(A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * B0 * !Y)	0.00352	0.00352	0.00340
	(!A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !Y)	0.00348	0.00350	0.00349
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	0.00299	0.00306	0.00301

Passive power(pJ) for B0 rising (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__aoi21_l	(A0 * A1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !Y)	-0.00094	-0.00097	-0.00089

Passive power(pJ) for B0 falling (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__aoi21_l	(A0 * A1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !Y)	0.00231	0.00230	0.00188

SKY130_OSU_SC_12T_HS__AOI22

sky130_osu_sc_12T_hs_ff_1P95_100C.ccs
Cell Library: Process , Voltage 1.95, Temp 100.00

Truth Table

INPUT				OUTPUT
A0	A1	B0	B1	Y
0	x	0	x	1
0	x	1	0	1
x	x	1	1	0
1	0	0	x	1
1	0	1	0	1
1	1	x	x	0

Footprint

Cell Name	Area
sky130_osu_sc_12T_hs__aoi22_l	10.25640

Pin Capacitance Information

Cell Name	Pin Cap(pf)				Max Cap(pf)
	A0	A1	B0	B1	Y
sky130_osu_sc_12T_hs__aoi22_l	0.00270	0.00285	0.00297	0.00280	0.75836

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_12T_hs__aoi22_l	0.00000	57.36990	181.94300

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_hs__aoi22_l	A0->Y (FR)	0.06254	0.61144	8.06292
	A1->Y (FR)	0.05597	0.60004	7.98386
	B0->Y (FR)	0.03854	0.63851	8.94223
	B1->Y (FR)	0.04541	0.65168	9.03614

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_hs__aoi22_l	A0->Y (RF)	0.04107	0.36913	4.68563
	A1->Y (RF)	0.03825	0.40229	5.25902
	B0->Y (RF)	0.02097	0.38010	5.22106
	B1->Y (RF)	0.02435	0.34790	4.63893

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__aoi22_l	A0	0.00995	0.01304	0.09901
	A1	0.00857	0.01168	0.09446
	B0	0.00517	0.01006	0.10387
	B1	0.00661	0.01126	0.10272

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__aoi22_l	A0	0.00551	0.00805	0.07649
	A1	0.00568	0.00863	0.07798
	B0	0.00287	0.00620	0.07188
	B1	0.00277	0.00568	0.06831

Passive power(pJ) for A0 rising (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__aoi22_l	(A1 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * B1 * !Y)	-0.00138	-0.00207	-0.00123
	(!A1 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * B1 * !Y)	-0.00109	-0.00112	-0.00110
	(!A1 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !B1 * Y)	-0.00265	-0.00267	-0.00265
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00264	-0.00266	-0.00265

Passive power(pJ) for A0 falling (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__aoi22_l	(A1 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * B1 * !Y)	0.00432	0.00432	0.00404
	(!A1 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * B1 * !Y)	0.00427	0.00430	0.00427
	(!A1 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !B1 * Y)	0.00291	0.00277	0.00273
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00292	0.00277	0.00274

Passive power(pJ) for A1 rising (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__aoi22_l	(A0 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * B0 * B1 * !Y)	-0.00136	-0.00211	-0.00123
	(!A0 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * B1 * !Y)	-0.00109	-0.00112	-0.00111
	(!A0 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !B1 * Y)	-0.00292	-0.00291	-0.00296
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	-0.00292	-0.00291	-0.00295

Passive power(pJ) for A1 falling (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__aoi22_l	(A0 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * B0 * B1 * !Y)	0.00433	0.00432	0.00404
	(!A0 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * B1 * !Y)	0.00427	0.00430	0.00428
	(!A0 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !B1 * Y)	0.00299	0.00303	0.00300
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	0.00299	0.00303	0.00301

Passive power(pJ) for B0 rising (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__aoi22_l	(A0 * A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * B1 * !Y)	-0.00093	-0.00095	-0.00088
	(A0 * A1 * !B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B1 * !Y)	-0.00001	-0.00002	-0.00002
	(!A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B1 * Y)	-0.00305	-0.00307	-0.00309
	(!A0 * A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B1 * Y)	-0.00305	-0.00307	-0.00310

Passive power(pJ) for B0 falling (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__aoi22_l	(A0 * A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * B1 * !Y)	0.00234	0.00233	0.00193
	(A0 * A1 * !B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B1 * !Y)	0.00198	0.00198	0.00192
	(!A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B1 * Y)	0.00313	0.00319	0.00314
	(!A0 * A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B1 * Y)	0.00313	0.00319	0.00314

Passive power(pJ) for B1 rising (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__aoi22_l	(A0 * A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * B0 * !Y)	-0.00094	-0.00096	-0.00090
	(A0 * A1 * !B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B0 * !Y)	-0.00003	-0.00004	-0.00004
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00279	-0.00281	-0.00280
	(!A0 * A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B0 * Y)	-0.00280	-0.00282	-0.00280

Passive power(pJ) for B1 falling (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__aoi22_l	(A0 * A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * B0 * !Y)	0.00235	0.00235	0.00195
	(A0 * A1 * !B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B0 * !Y)	0.00198	0.00200	0.00193
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00306	0.00293	0.00288
	(!A0 * A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B0 * Y)	0.00305	0.00293	0.00288

SKY130_OSU_SC_12T_HS__BUFx

sky130_osu_sc_12T_hs_ff_1P95_100C.ccs
Cell Library: Process , Voltage 1.95, Temp 100.00

Truth Table

INPUT	OUTPUT
A	Y
0	0
1	1

Footprint

Cell Name	Area
sky130_osu_sc_12T_hs__buf_1	6.34920
sky130_osu_sc_12T_hs__buf_2	8.30280
sky130_osu_sc_12T_hs__buf_4	12.21000
sky130_osu_sc_12T_hs__buf_6	16.11720
sky130_osu_sc_12T_hs__buf_8	20.02440
sky130_osu_sc_12T_hs__buf_l	6.34920

Pin Capacitance Information

Cell Name	Pin Cap(pf)	Max Cap(pf)
	A	Y
sky130_osu_sc_12T_hs__buf_1	0.00304	1.71239
sky130_osu_sc_12T_hs__buf_2	0.00304	3.51019
sky130_osu_sc_12T_hs__buf_4	0.00304	6.95921
sky130_osu_sc_12T_hs__buf_6	0.00082	1.80000
sky130_osu_sc_12T_hs__buf_8	0.00305	13.57792
sky130_osu_sc_12T_hs__buf_l	0.00231	1.26342

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_12T_hs__buf_1	0.00000	93.22240	93.23760
sky130_osu_sc_12T_hs__buf_2	0.00000	139.85100	184.48700
sky130_osu_sc_12T_hs__buf_4	0.00000	233.09400	366.96300
sky130_osu_sc_12T_hs__buf_6	0.00000	0.00000	0.00000
sky130_osu_sc_12T_hs__buf_8	0.00000	419.57100	731.90100
sky130_osu_sc_12T_hs__buf_l	0.00000	363.36900	363.51000

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_hs__buf_1	**A->Y (RR)**	0.03679	0.38322	5.84245
sky130_osu_sc_12T_hs__buf_2	**A->Y (RR)**	0.03964	0.31623	5.77561
sky130_osu_sc_12T_hs__buf_4	**A->Y (RR)**	0.05396	0.30094	5.89123
sky130_osu_sc_12T_hs__buf_8	**A->Y (RR)**	0.08498	0.32934	6.03601
sky130_osu_sc_12T_hs__buf_l	**A->Y (RR)**	0.03909	0.43449	6.10494

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_hs__buf_1	**A->Y (FF)**	0.03759	0.40814	6.24112
sky130_osu_sc_12T_hs__buf_2	**A->Y (FF)**	0.04260	0.37380	6.50171
sky130_osu_sc_12T_hs__buf_4	**A->Y (FF)**	0.06038	0.37321	6.71587
sky130_osu_sc_12T_hs__buf_8	**A->Y (FF)**	0.09820	0.41212	6.83937
sky130_osu_sc_12T_hs__buf_l	**A->Y (FF)**	0.04053	0.43793	6.17056

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__buf_1	A	0.00000	0.00000	0.00000
	A	0.00568	0.01459	0.18308
sky130_osu_sc_12T_hs__buf_2	A	0.00000	0.00000	0.00000
	A	0.00921	0.01841	0.18931
sky130_osu_sc_12T_hs__buf_4	A	0.00000	0.00000	0.00000
	A	0.01843	0.02772	0.20005
sky130_osu_sc_12T_hs__buf_8	A	0.00000	0.00000	0.00000
	A	0.04521	0.05007	0.22989
sky130_osu_sc_12T_hs__buf_l	A	0.00000	0.00000	0.00000
	A	0.01201	0.02185	0.21961

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__buf_1	A	0.00000	0.00000	0.00000
	A	0.01066	0.02257	0.23547
sky130_osu_sc_12T_hs__buf_2	A	0.00000	0.00000	0.00000
	A	0.01606	0.02739	0.24093
sky130_osu_sc_12T_hs__buf_4	A	0.00000	0.00000	0.00000
	A	0.03135	0.03905	0.25069
sky130_osu_sc_12T_hs__buf_8	A	0.00000	0.00000	0.00000
	A	0.07339	0.06657	0.27098
sky130_osu_sc_12T_hs__buf_l	A	0.00000	0.00000	0.00000
	A	0.01433	0.02575	0.23076

Passive power(pJ) for A rising :

Cell Name	Power(pJ)		
	first	mid	last
sky130_osu_sc_12T_hs__buf_6	0.00000	0.00000	0.00000
	-0.00080	-0.00081	-0.00075

Passive power(pJ) for A falling :

Cell Name	Power(pJ)		
	first	mid	last
sky130_osu_sc_12T_hs__buf_6	0.00000	0.00000	0.00000
	0.00080	0.00081	0.00075

SKY130_OSU_SC_12T_HS__DFFRx

sky130_osu_sc_12T_hs_ff_1P95_100C.ccs
Cell Library: Process , Voltage 1.95, Temp 100.00

Truth Table

INPUT			OUTPUT	
D	RN	CK	Q	QN
0	1	R	0	1
1	1	R	1	0
x	0	x	0	1
x	1	x	IQ	IQN

Footprint

Cell Name	Area
sky130_osu_sc_12T_hs__dffr_1	42.49080
sky130_osu_sc_12T_hs__dffr_l	42.49080

Pin Capacitance Information

Cell Name	Pin Cap(pf)			Max Cap(pf)	
	D	RN	CK	Q	QN
sky130_osu_sc_12T_hs__dffr_1	0.00282	0.00277	0.00856	1.85067	1.82046
sky130_osu_sc_12T_hs__dffr_l	0.00282	0.00277	0.00854	1.28949	1.27493

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_12T_hs__dffr_1	0.00000	483.57600	798.71900
sky130_osu_sc_12T_hs__dffr_l	0.00000	753.75300	1068.97000

Delay Information

Delay(ns) to Q rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_hs__dffr_1	CK->Q (RR)	0.16867	0.94082	13.66060
	QN->Q (FR)	0.01749	0.59812	10.85370
sky130_osu_sc_12T_hs__dffr_l	CK->Q (RR)	0.16907	1.01333	13.02940
	QN->Q (FR)	0.01955	0.62170	10.24280

Delay(ns) to Q falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_hs__dffr_1	CK->Q (RF)	0.17887	0.95372	14.07790
	QN->Q (RF)	0.01588	0.49035	8.86137
	RN->Q (FF)	0.13575	1.00278	15.56670
sky130_osu_sc_12T_hs__dffr_l	CK->Q (RF)	0.18230	1.05338	13.81230
	QN->Q (RF)	0.01705	0.49888	8.24940
	RN->Q (FF)	0.13933	1.10171	15.29800

Delay(ns) to QN rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_hs__dffr_1	CK->QN (RR)	0.16128	0.51794	5.94618
	RN->QN (FR)	0.11813	0.56764	7.44013
sky130_osu_sc_12T_hs__dffr_l	CK->QN (RR)	0.16208	0.57141	6.03163
	RN->QN (FR)	0.11903	0.61971	7.51522

Delay(ns) to QN falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_hs__dffr_1	**CK->QN (RF)**	0.14642	0.46399	4.76952
sky130_osu_sc_12T_hs__dffr_l	**CK->QN (RF)**	0.14390	0.47775	4.38437

Constraint Information

Constraints(ns) for D rising :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_12T_hs__dffr_1	hold	CK (R)	-0.04078	-0.03178	0.22638
	setup	CK (R)	0.12867	0.15706	0.10799
sky130_osu_sc_12T_hs__dffr_l	hold	CK (R)	-0.03845	-0.03178	0.22696
	setup	CK (R)	0.13052	0.15915	0.11220

Constraints(ns) for D falling :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_12T_hs__dffr_1	hold	CK (R)	-0.07304	-0.19164	-4.22127
	setup	CK (R)	0.08665	0.20494	4.39097
sky130_osu_sc_12T_hs__dffr_l	hold	CK (R)	-0.07025	-0.19462	-4.23071
	setup	CK (R)	0.08665	0.20494	4.39097

Constraints(ns) for D rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_12T_hs__dffr_1	hold	CK (R)	-0.04078	-0.03178	0.22638
	setup	CK (R)	0.12867	0.15706	0.10799
sky130_osu_sc_12T_hs__dffr_l	hold	CK (R)	-0.03845	-0.03178	0.22696
	setup	CK (R)	0.13052	0.15915	0.11220

Constraints(ns) for D falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_12T_hs__dffr_1	hold	CK (R)	-0.07304	-0.19164	-4.22127
	setup	CK (R)	0.08665	0.20494	4.39097
sky130_osu_sc_12T_hs__dffr_l	hold	CK (R)	-0.07025	-0.19462	-4.23071
	setup	CK (R)	0.08665	0.20494	4.39097

Constraints(ns) for RN rising :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_12T_hs__dffr_1	recovery	CK (R)	0.11050	0.15381	0.86177
	removal	CK (R)	-0.02695	-0.03086	-0.01946
sky130_osu_sc_12T_hs__dffr_l	recovery	CK (R)	0.11035	0.15280	0.85650
	removal	CK (R)	-0.02695	-0.03086	-0.01946

Constraints(ns) for RN rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_12T_hs__dffr_1	recovery	CK (R)	0.11050	0.15381	0.86177
	removal	CK (R)	-0.02695	-0.03086	-0.01946
sky130_osu_sc_12T_hs__dffr_l	recovery	CK (R)	0.11035	0.15280	0.85650
	removal	CK (R)	-0.02695	-0.03086	-0.01946

Constraints(ns) for RN falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_12T_hs__dffr_1	min_pulse_width	RN ()	0.08202	0.38452	13.33370
	min_pulse_width	RN ()	0.08202	0.38452	13.33370
sky130_osu_sc_12T_hs__dffr_l	min_pulse_width	RN ()	0.08202	0.38452	13.33370
	min_pulse_width	RN ()	0.08202	0.38452	13.33370

Constraints(ns) for CK rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_12T_hs__dffr_1	min_pulse_width	CK ()	0.08202	0.38452	13.33370
	min_pulse_width	CK ()	0.09365	0.38452	13.33370
sky130_osu_sc_12T_hs__dffr_l	min_pulse_width	CK ()	0.07911	0.38452	13.33370
	min_pulse_width	CK ()	0.09074	0.38452	13.33370

Constraints(ns) for CK falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_12T_hs__dffr_1	min_pulse_width	CK ()	0.16637	0.38452	13.33370
	min_pulse_width	CK ()	0.07329	0.38452	13.33370
sky130_osu_sc_12T_hs__dffr_l	min_pulse_width	CK ()	0.16637	0.38452	13.33370
	min_pulse_width	CK ()	0.07329	0.38452	13.33370

Power Information

Internal switching power(pJ) to Q rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__dffr_1	CK	0.00000	0.00000	0.00000
	CK	0.01659	0.02504	0.18364
sky130_osu_sc_12T_hs__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.01967	0.02918	0.20815

Internal switching power(pJ) to Q falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__dffr_1	CK	0.00000	0.00000	0.00000
	CK	0.02283	0.02709	0.13878
	RN	-0.00110	-0.09193	-1.75922
	RN	0.02984	0.03492	0.15325
sky130_osu_sc_12T_hs__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.02528	0.03075	0.16688
	RN	-0.00110	-0.07400	-1.22558
	RN	0.03251	0.03882	0.17965

Internal switching power(pJ) to QN rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__dffr_1	CK	0.00000	0.00000	0.00000
	CK	0.02136	0.02563	0.13787
	RN	-0.00110	-0.09102	-1.73045
	RN	0.02868	0.03387	0.15056
sky130_osu_sc_12T_hs__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.02401	0.02948	0.16573
	RN	-0.00110	-0.07350	-1.21173
	RN	0.03144	0.03775	0.17799

Internal switching power(pJ) to QN falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__dffr_1	CK	0.00000	0.00000	0.00000
	CK	0.01428	0.02278	0.18044
sky130_osu_sc_12T_hs__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.01565	0.02517	0.20312

Passive power(pJ) for D rising (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__dffr_1	CK	0.00000	0.00000	0.00000
	CK	0.00163	0.00110	0.00154
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.01532	0.02453	0.25149
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.01015	0.01880	0.22738
sky130_osu_sc_12T_hs__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.00398	0.00345	0.00389
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.01768	0.02689	0.25385
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.01250	0.02114	0.22974

Passive power(pJ) for D falling (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__dffr_1	CK	0.00000	0.00000	0.00000
	CK	0.00702	0.00702	0.00690
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.02227	0.03213	0.25714
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.01018	0.01966	0.23244
sky130_osu_sc_12T_hs__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.00937	0.00937	0.00925
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.02463	0.03449	0.25949
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.01253	0.02202	0.23480

Passive power(pJ) for RN rising (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__dffr_1	(CK * !Q * QN) + (!CK * !D * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !Q * QN) + (!CK * !D * !Q * QN)	0.01056	0.02279	0.29151
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.01650	0.02969	0.32258
sky130_osu_sc_12T_hs__dffr_l	(CK * !Q * QN) + (!CK * !D * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !Q * QN) + (!CK * !D * !Q * QN)	0.01292	0.02514	0.29386
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.01886	0.03205	0.32494

Passive power(pJ) for RN falling (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__dffr_1	(CK * !Q * QN) + (!CK * !D * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !Q * QN) + (!CK * !D * !Q * QN)	0.01135	0.02517	0.29849
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.02420	0.03813	0.32943
sky130_osu_sc_12T_hs__dffr_l	(CK * !Q * QN) + (!CK * !D * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !Q * QN) + (!CK * !D * !Q * QN)	0.01371	0.02752	0.30084
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.02656	0.04049	0.33179

Passive power(pJ) for CK rising (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__dffr_1	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.00289	0.01528	0.29213
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.00845	0.02129	0.32348
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.00614	0.01864	0.29543
sky130_osu_sc_12T_hs__dffr_l	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.00524	0.01763	0.29449
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.01080	0.02365	0.32584
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.00850	0.02099	0.29778

Passive power(pJ) for CK falling (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__dffr_1	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.01640	0.03061	0.30850
	(D * RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * RN * !Q * QN)	0.03456	0.04858	0.42541
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.02700	0.04085	0.33883
	(!D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * Q * !QN)	0.03216	0.05722	0.48573
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.02112	0.03485	0.31266
sky130_osu_sc_12T_hs__dffr_l	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.01876	0.03297	0.31086
	(D * RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * RN * !Q * QN)	0.03692	0.05094	0.42776
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.02936	0.04317	0.34118
	(!D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * Q * !QN)	0.03453	0.05958	0.48811
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.02347	0.03720	0.31501

SKY130_OSU_SC_12T_HS__DFFSRx

sky130_osu_sc_12T_hs_ff_1P95_100C.ccs
Cell Library: Process , Voltage 1.95, Temp 100.00

Truth Table

INPUT				OUTPUT	
D	**RN**	**SN**	**CK**	**Q**	**QN**
0	**1**	**1**	**R**	**0**	**1**
1	**1**	**1**	**R**	**1**	**0**
x	**0**	**x**	**x**	**0**	**1**
x	**1**	**0**	**x**	**1**	**0**
x	**1**	**1**	**x**	**IQ**	**IQN**

Footprint

Cell Name	Area
sky130_osu_sc_12T_hs__dffsr_1	46.39800
sky130_osu_sc_12T_hs__dffsr_l	46.39800

Pin Capacitance Information

Cell Name	Pin Cap(pf)				Max Cap(pf)	
	D	**RN**	**SN**	**CK**	**Q**	**QN**
sky130_osu_sc_12T_hs__dffsr_1	0.00279	0.00279	0.00650	0.00870	1.94733	1.93603
sky130_osu_sc_12T_hs__dffsr_l	0.00279	0.00279	0.00650	0.00870	1.28450	1.27700

Leakage Information

Cell Name	Leakage(nW)		
	Min.	**Avg**	**Max.**
sky130_osu_sc_12T_hs__dffsr_1	0.00000	365.49200	500.20800
sky130_osu_sc_12T_hs__dffsr_l	0.00000	635.65300	770.46200

Delay Information

Delay(ns) to Q rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_hs__dffsr_1	CK->Q (RR)	0.17904	0.95855	14.11340
	QN->Q (FR)	0.01631	0.57439	10.52870
	RN->Q (RR)	0.14771	0.94662	14.38600
	SN->Q (FR)	0.13136	1.00395	15.79470
sky130_osu_sc_12T_hs__dffsr_l	CK->Q (RR)	0.18200	1.02444	12.99450
	QN->Q (FR)	0.01950	0.62122	10.21710
	RN->Q (RR)	0.15044	1.01211	13.27090
	SN->Q (FR)	0.13432	1.06958	14.66980

Delay(ns) to Q falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_hs__dffsr_1	CK->Q (RF)	0.20404	0.99240	14.57600
	QN->Q (RF)	0.01574	0.49982	9.16581
	RN->Q (FF)	0.13768	1.01836	16.11360
sky130_osu_sc_12T_hs__dffsr_l	CK->Q (RF)	0.20875	1.08072	13.78120
	QN->Q (RF)	0.01694	0.49849	8.21845
	RN->Q (FF)	0.14230	1.10671	15.30690

Delay(ns) to QN rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_hs__dffsr_1	CK->QN (RR)	0.18622	0.54479	6.08004
	RN->QN (FR)	0.11994	0.57096	7.61526
sky130_osu_sc_12T_hs__dffsr_l	CK->QN (RR)	0.18849	0.60170	6.07069
	RN->QN (FR)	0.12210	0.62761	7.59490

Delay(ns) to QN falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_hs__dffsr_1	CK->QN (RF)	0.15758	0.48516	5.12452
	RN->QN (RF)	0.12662	0.47341	5.40573
	SN->QN (FF)	0.11027	0.53026	6.80842
sky130_osu_sc_12T_hs__dffsr_l	CK->QN (RF)	0.15687	0.49122	4.40400
	RN->QN (RF)	0.12603	0.47962	4.68517
	SN->QN (FF)	0.10964	0.53604	6.08960

Constraint Information

Constraints(ns) for D rising :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_12T_hs__dffsr_1	hold	CK (R)	-0.04323	-0.04044	0.20797
	setup	CK (R)	0.13429	0.16539	0.17952
sky130_osu_sc_12T_hs__dffsr_l	hold	CK (R)	-0.04307	-0.04044	0.20734
	setup	CK (R)	0.13351	0.16501	0.18243

Constraints(ns) for D falling :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_12T_hs__dffsr_1	hold	CK (R)	-0.08163	-0.20240	-4.21950
	setup	CK (R)	0.10110	0.21502	4.41047
sky130_osu_sc_12T_hs__dffsr_l	hold	CK (R)	-0.08034	-0.20236	-4.21827
	setup	CK (R)	0.10046	0.21166	4.41201

Constraints(ns) for D rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_12T_hs__dffsr_1	hold	CK (R)	-0.04323	-0.04044	0.20797
	setup	CK (R)	0.13429	0.16539	0.17952
sky130_osu_sc_12T_hs__dffsr_l	hold	CK (R)	-0.04307	-0.04044	0.20734
	setup	CK (R)	0.13351	0.16501	0.18243

Constraints(ns) for D falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_12T_hs__dffsr_1	hold	CK (R)	-0.08163	-0.20240	-4.21950
	setup	CK (R)	0.10110	0.21502	4.41047
sky130_osu_sc_12T_hs__dffsr_l	hold	CK (R)	-0.08034	-0.20236	-4.21827
	setup	CK (R)	0.10046	0.21166	4.41201

Constraints(ns) for RN rising :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_12T_hs__dffsr_1	recovery	CK (R)	0.10733	0.14673	0.90011
	removal	CK (R)	-0.02053	-0.02156	0.00844
	hold	SN (R)	-0.10582	-0.19095	-0.83495
	setup	SN (R)	0.12715	0.22458	3.71402
sky130_osu_sc_12T_hs__dffsr_l	recovery	CK (R)	0.10577	0.14607	0.89951
	removal	CK (R)	-0.02053	-0.02156	0.00844
	hold	SN (R)	-0.10179	-0.18501	-0.81997
	setup	SN (R)	0.12673	0.22061	3.68124

Constraints(ns) for RN rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_12T_hs__dffsr_1	recovery	CK (R)	0.10733	0.14673	0.90011
	removal	CK (R)	-0.02053	-0.02156	0.00844
	hold	SN (R)	-0.10640	-0.19095	-0.83726
	hold	SN (R)	-0.10582	-0.19095	-0.83495
	setup	SN (R)	0.12424	0.22261	3.42229
	setup	SN (R)	0.12715	0.22458	3.71402
sky130_osu_sc_12T_hs__dffsr_l	recovery	CK (R)	0.10577	0.14607	0.89951
	removal	CK (R)	-0.02053	-0.02156	0.00844
	hold	SN (R)	-0.10346	-0.18501	-0.83652
	hold	SN (R)	-0.10179	-0.18749	-0.81997
	setup	SN (R)	0.12673	0.21809	3.37965
	setup	SN (R)	0.12090	0.22061	3.68124

Constraints(ns) for RN falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_12T_hs__dffsr_1	min_pulse_width	RN ()	0.09656	0.38452	13.33370
	min_pulse_width	RN ()	0.09947	0.38452	13.33370
sky130_osu_sc_12T_hs__dffsr_l	min_pulse_width	RN ()	0.09656	0.38452	13.33370
	min_pulse_width	RN ()	0.09656	0.38452	13.33370

Constraints(ns) for SN rising :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_12T_hs__dffsr_1	recovery	CK (R)	0.02728	0.04975	3.64322
	removal	CK (R)	-0.01336	-0.03696	-0.29092
sky130_osu_sc_12T_hs__dffsr_l	recovery	CK (R)	0.02688	0.04975	3.57181
	removal	CK (R)	-0.01336	-0.03696	-0.29092

Constraints(ns) for SN rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_12T_hs__dffsr_1	recovery	CK (R)	0.02728	0.04975	3.64322
	removal	CK (R)	-0.01336	-0.03696	-0.29092
sky130_osu_sc_12T_hs__dffsr_l	recovery	CK (R)	0.02688	0.04975	3.57181
	removal	CK (R)	-0.01336	-0.03696	-0.29092

Constraints(ns) for SN falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_12T_hs__dffsr_1	min_pulse_width	SN ()	0.10529	0.38452	13.33370
	min_pulse_width	SN ()	0.10819	0.38452	13.33370
sky130_osu_sc_12T_hs__dffsr_l	min_pulse_width	SN ()	0.10529	0.38452	13.33370
	min_pulse_width	SN ()	0.10529	0.38452	13.33370

Constraints(ns) for CK rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_12T_hs__dffsr_1	min_pulse_width	CK ()	0.08492	0.38452	13.33370
	min_pulse_width	CK ()	0.10529	0.38452	13.33370
sky130_osu_sc_12T_hs__dffsr_l	min_pulse_width	CK ()	0.08202	0.38452	13.33370
	min_pulse_width	CK ()	0.10529	0.38452	13.33370

Constraints(ns) for CK falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_12T_hs__dffsr_1	min_pulse_width	CK ()	0.17219	0.38452	13.33370
	min_pulse_width	CK ()	0.08492	0.38452	13.33370
sky130_osu_sc_12T_hs__dffsr_l	min_pulse_width	CK ()	0.17219	0.38452	13.33370
	min_pulse_width	CK ()	0.08492	0.38452	13.33370

Power Information

Internal switching power(pJ) to Q rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__dffsr_1	CK	0.00000	0.00000	0.00000
	CK	0.01899	0.02696	0.18344
	RN	0.02868	0.03368	0.16353
	SN	-0.00110	-0.09478	-1.85111
	SN	0.02569	0.03140	0.16678
sky130_osu_sc_12T_hs__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.02205	0.03117	0.20855
	RN	0.03178	0.03789	0.19030
	SN	-0.00110	-0.07383	-1.22084
	SN	0.02896	0.03579	0.19231

Internal switching power(pJ) to Q falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__dffsr_1	CK	0.00000	0.00000	0.00000
	CK	0.02043	0.02536	0.15096
	RN	-0.00110	-0.09478	-1.85111
	RN	0.03130	0.03730	0.17414
sky130_osu_sc_12T_hs__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.02278	0.02818	0.16568
	RN	-0.00110	-0.07383	-1.22085
	RN	0.03390	0.04041	0.18846

Internal switching power(pJ) to QN rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__dffsr_1	CK	0.00000	0.00000	0.00000
	CK	0.01936	0.02431	0.15051
	RN	-0.00110	-0.09445	-1.84024
	RN	0.03049	0.03650	0.17323
sky130_osu_sc_12T_hs__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.02193	0.02736	0.16491
	RN	-0.00110	-0.07357	-1.21371
	RN	0.03318	0.03970	0.18699

Internal switching power(pJ) to QN falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__dffsr_1	CK	0.00000	0.00000	0.00000
	CK	0.01682	0.02485	0.17967
	RN	0.02649	0.03154	0.16083
	SN	-0.00110	-0.09445	-1.84025
	SN	0.02430	0.03001	0.16503
sky130_osu_sc_12T_hs__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.01805	0.02710	0.20361
	RN	0.02776	0.03391	0.18474
	SN	-0.00110	-0.07357	-1.21367
	SN	0.02581	0.03262	0.18867

Passive power(pJ) for D rising (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__dffsr_1	CK	0.00000	0.00000	0.00000
	CK	0.00163	0.00162	0.00163
	(!CK * RN * SN * Q * !QN) + (!CK * RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * SN * Q * !QN) + (!CK * RN * SN * !Q * QN)	0.01862	0.02738	0.25492
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.00821	0.01673	0.22639
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.00832	0.01683	0.22609
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.00898	0.01749	0.22691
sky130_osu_sc_12T_hs__dffsr_1	CK	0.00000	0.00000	0.00000
	CK	0.00398	0.00397	0.00398
	(!CK * RN * SN * Q * !QN) + (!CK * RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * SN * Q * !QN) + (!CK * RN * SN * !Q * QN)	0.02097	0.02974	0.25728
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.01057	0.01908	0.22875
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.01067	0.01918	0.22836
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.01133	0.01984	0.22927

Passive power(pJ) for D falling (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__dffsr_1	CK	0.00000	0.00000	0.00000
	CK	0.00726	0.00717	0.00710
	(!CK * RN * SN * Q * !QN) + (!CK * RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * SN * Q * !QN) + (!CK * RN * SN * !Q * QN)	0.02443	0.03390	0.25969
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.01180	0.02098	0.23171
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.01118	0.02030	0.23142
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.01198	0.02118	0.23223
sky130_osu_sc_12T_hs__dffsr_1	CK	0.00000	0.00000	0.00000
	CK	0.00962	0.00953	0.00945
	(!CK * RN * SN * Q * !QN) + (!CK * RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * SN * Q * !QN) + (!CK * RN * SN * !Q * QN)	0.02678	0.03626	0.26204
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.01415	0.02333	0.23407
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.01353	0.02265	0.23377
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.01433	0.02354	0.23459

Passive power(pJ) for RN rising (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__dffsr_1	(CK * SN * !Q * QN) + (!CK * !D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * SN * !Q * QN) + (!CK * !D * SN * !Q * QN)	0.00718	0.01943	0.28928
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.01633	0.02907	0.32034
sky130_osu_sc_12T_hs__dffsr_l	(CK * SN * !Q * QN) + (!CK * !D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * SN * !Q * QN) + (!CK * !D * SN * !Q * QN)	0.00953	0.02178	0.29164
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.01869	0.03142	0.32270

Passive power(pJ) for RN falling (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__dffsr_1	(CK * SN * !Q * QN) + (!CK * !D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * SN * !Q * QN) + (!CK * !D * SN * !Q * QN)	0.01190	0.02577	0.29773
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.02270	0.03662	0.32658
sky130_osu_sc_12T_hs__dffsr_l	(CK * SN * !Q * QN) + (!CK * !D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * SN * !Q * QN) + (!CK * !D * SN * !Q * QN)	0.01425	0.02812	0.30008
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.02505	0.03897	0.32892

Passive power(pJ) for SN rising (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__dffsr_1	(CK * RN * Q * !QN) + (!CK * D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(CK * RN * Q * !QN) + (!CK * D * RN * Q * !QN)	-0.00322	-0.00322	-0.00330
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	-0.00353	-0.00490	-0.00421
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	-0.00281	-0.00349	-0.00316
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.00762	0.01516	0.21309
sky130_osu_sc_12T_hs__dffsr_l	(CK * RN * Q * !QN) + (!CK * D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(CK * RN * Q * !QN) + (!CK * D * RN * Q * !QN)	-0.00087	-0.00089	-0.00096
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	-0.00117	-0.00255	-0.00186
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	-0.00045	-0.00113	-0.00081
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.00996	0.01746	0.21543

Passive power(pJ) for SN falling (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__dffsr_1	(CK * RN * Q * !QN) + (!CK * D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(CK * RN * Q * !QN) + (!CK * D * RN * Q * !QN)	0.01039	0.01048	0.01043
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.01072	0.01075	0.01048
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	0.01065	0.01065	0.01054
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.01854	0.02590	0.22547
sky130_osu_sc_12T_hs__dffsr_l	(CK * RN * Q * !QN) + (!CK * D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(CK * RN * Q * !QN) + (!CK * D * RN * Q * !QN)	0.01276	0.01289	0.01279
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.01307	0.01310	0.01283
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	0.01300	0.01300	0.01289
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.02090	0.02826	0.22784

Passive power(pJ) for CK rising (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__dffsr_1	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.00283	0.01519	0.29215
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.00960	0.02230	0.32323
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.01044	0.02313	0.32395
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00366	0.01612	0.29292
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.00772	0.02999	0.51399
sky130_osu_sc_12T_hs__dffsr_1	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.00518	0.01754	0.29451
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.01196	0.02465	0.32559
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.01279	0.02548	0.32630
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00601	0.01847	0.29528
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.01007	0.03234	0.51635

Passive power(pJ) for CK falling (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last

sky130_osu_sc_12T_hs__dffsr_1	**(D * RN * SN * !Q * QN)**	0.00000	0.00000	0.00000
	(D * RN * SN * !Q * QN)	0.03589	0.04986	0.41972
	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.01670	0.03086	0.30887
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.02516	0.03911	0.33807
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.02578	0.03975	0.33898
	(!D * RN * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * Q * !QN)	0.03462	0.05927	0.49034
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.01856	0.03226	0.31010
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.02098	0.04566	0.53201
sky130_osu_sc_12T_hs__dffsr_l	**(D * RN * SN * !Q * QN)**	0.00000	0.00000	0.00000
	(D * RN * SN * !Q * QN)	0.03824	0.05221	0.42207
	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.01906	0.03321	0.31124
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.02751	0.04146	0.34042
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.02813	0.04210	0.34134
	(!D * RN * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * Q * !QN)	0.03698	0.06162	0.49271
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.02091	0.03461	0.31245
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.02334	0.04802	0.53438

SKY130_OSU_SC_12T_HS__DFFSx

sky130_osu_sc_12T_hs_ff_1P95_100C.ccs
Cell Library: Process , Voltage 1.95, Temp 100.00

Truth Table

INPUT			OUTPUT	
D	SN	CK	Q	QN
0	1	R	0	1
1	1	R	1	0
x	0	x	1	0
x	1	x	IQ	IQN

Footprint

Cell Name	Area
sky130_osu_sc_12T_hs__dffs_1	38.58360
sky130_osu_sc_12T_hs__dffs_l	38.58360

Pin Capacitance Information

Cell Name	Pin Cap(pf)			Max Cap(pf)	
	D	SN	CK	Q	QN
sky130_osu_sc_12T_hs__dffs_1	0.00280	0.00544	0.00862	1.85777	1.82673
sky130_osu_sc_12T_hs__dffs_l	0.00280	0.00544	0.00862	1.27564	1.27743

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_12T_hs__dffs_1	0.00000	726.47900	1635.41000
sky130_osu_sc_12T_hs__dffs_l	0.00000	996.56900	1905.64000

Delay Information

Delay(ns) to Q rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_hs__dffs_1	CK->Q (RR)	0.13529	0.89750	13.56310
	QN->Q (FR)	0.01744	0.59583	10.82890
	SN->Q (FR)	0.10408	0.97169	15.25770
sky130_osu_sc_12T_hs__dffs_l	CK->Q (RR)	0.13751	0.96585	12.74130
	QN->Q (FR)	0.01950	0.61735	10.13510
	SN->Q (FR)	0.10665	1.03880	14.42450

Delay(ns) to Q falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_hs__dffs_1	CK->Q (RF)	0.19556	0.97606	14.13840
	QN->Q (RF)	0.01582	0.48954	8.85553
sky130_osu_sc_12T_hs__dffs_l	CK->Q (RF)	0.19817	1.06652	13.67170
	QN->Q (RF)	0.01699	0.49706	8.17155

Delay(ns) to QN rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_hs__dffs_1	CK->QN (RR)	0.17778	0.53907	5.97829
sky130_osu_sc_12T_hs__dffs_l	CK->QN (RR)	0.17773	0.59057	6.05842

Delay(ns) to QN falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_hs__dffs_1	CK->QN (RF)	0.11456	0.42145	4.65616
	SN->QN (FF)	0.08308	0.49513	6.35945
sky130_osu_sc_12T_hs__dffs_l	CK->QN (RF)	0.11391	0.43785	4.26326
	SN->QN (FF)	0.08258	0.51002	5.96026

Constraint Information

Constraints(ns) for D rising :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_12T_hs__dffs_1	hold	CK (R)	-0.02873	-0.02688	0.25651
	setup	CK (R)	0.09845	0.13731	0.12997
sky130_osu_sc_12T_hs__dffs_l	hold	CK (R)	-0.03084	-0.02688	0.25978
	setup	CK (R)	0.10069	0.13677	0.12792

Constraints(ns) for D falling :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_12T_hs__dffs_1	hold	CK (R)	-0.07348	-0.19450	-4.33411
	setup	CK (R)	0.09555	0.20830	4.43346
sky130_osu_sc_12T_hs__dffs_l	hold	CK (R)	-0.07561	-0.19450	-4.32705
	setup	CK (R)	0.09555	0.20830	4.43235

Constraints(ns) for D rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_12T_hs__dffs_1	hold	CK (R)	-0.02873	-0.02688	0.25651
	setup	CK (R)	0.09845	0.13731	0.12997
sky130_osu_sc_12T_hs__dffs_l	hold	CK (R)	-0.03084	-0.02688	0.25978
	setup	CK (R)	0.10069	0.13677	0.12792

Constraints(ns) for D falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_12T_hs__dffs_1	hold	CK (R)	-0.07348	-0.19450	-4.33411
	setup	CK (R)	0.09555	0.20830	4.43346
sky130_osu_sc_12T_hs__dffs_l	hold	CK (R)	-0.07561	-0.19450	-4.32705
	setup	CK (R)	0.09555	0.20830	4.43235

Constraints(ns) for SN rising :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_12T_hs__dffs_1	recovery	CK (R)	0.03026	0.06040	3.04606
	removal	CK (R)	-0.02018	-0.04703	-0.59331
sky130_osu_sc_12T_hs__dffs_l	recovery	CK (R)	0.03023	0.06019	2.99626
	removal	CK (R)	-0.02018	-0.04703	-0.59331

Constraints(ns) for SN rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_12T_hs__dffs_1	recovery	CK (R)	0.03026	0.06040	3.04606
	removal	CK (R)	-0.02018	-0.04703	-0.59331
sky130_osu_sc_12T_hs__dffs_l	recovery	CK (R)	0.03023	0.06019	2.99626
	removal	CK (R)	-0.02018	-0.04703	-0.59331

Constraints(ns) for SN falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_12T_hs__dffs_1	min_pulse_width	SN ()	0.07038	0.38452	13.33370
	min_pulse_width	SN ()	0.07620	0.38452	13.33370
sky130_osu_sc_12T_hs__dffs_l	min_pulse_width	SN ()	0.07038	0.38452	13.33370
	min_pulse_width	SN ()	0.07038	0.38452	13.33370

Constraints(ns) for CK rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_12T_hs__dffs_1	min_pulse_width	CK ()	0.06166	0.38452	13.33370
	min_pulse_width	CK ()	0.10238	0.38452	13.33370
sky130_osu_sc_12T_hs__dffs_l	min_pulse_width	CK ()	0.05875	0.38452	13.33370
	min_pulse_width	CK ()	0.09947	0.38452	13.33370

Constraints(ns) for CK falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_12T_hs__dffs_1	min_pulse_width	CK ()	0.13728	0.38452	13.33370
	min_pulse_width	CK ()	0.08202	0.38452	13.33370
sky130_osu_sc_12T_hs__dffs_l	min_pulse_width	CK ()	0.13728	0.38452	13.33370
	min_pulse_width	CK ()	0.07911	0.38452	13.33370

Power Information

Internal switching power(pJ) to Q rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__dffs_1	CK	0.00000	0.00000	0.00000
	CK	0.01466	0.02330	0.18221
	SN	-0.00110	-0.09214	-1.76597
	SN	0.02009	0.02850	0.18726
sky130_osu_sc_12T_hs__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.01772	0.02749	0.20619
	SN	-0.00110	-0.07352	-1.21242
	SN	0.02333	0.03280	0.21106

Internal switching power(pJ) to Q falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__dffs_1	CK	0.00000	0.00000	0.00000
	CK	0.03528	0.03949	0.15253
sky130_osu_sc_12T_hs__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.03687	0.04229	0.17956

Internal switching power(pJ) to QN rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__dffs_1	CK	0.00000	0.00000	0.00000
	CK	0.03225	0.03648	0.15030
sky130_osu_sc_12T_hs__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.03489	0.04034	0.17747

Internal switching power(pJ) to QN falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__dffs_1	CK	0.00000	0.00000	0.00000
	CK	0.01288	0.02159	0.17971
	SN	-0.00110	-0.09121	-1.73636
	SN	0.01914	0.02757	0.18663
sky130_osu_sc_12T_hs__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.01437	0.02421	0.20154
	SN	-0.00110	-0.07358	-1.21407
	SN	0.02082	0.03025	0.20862

Passive power(pJ) for D rising (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__dffs_1	CK	0.00000	0.00000	0.00000
	CK	0.01147	0.01146	0.01147
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.01976	0.02980	0.26593
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.00691	0.01564	0.22586
sky130_osu_sc_12T_hs__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.01382	0.01381	0.01383
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.02212	0.03215	0.26831
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.00926	0.01799	0.22821

Passive power(pJ) for D falling (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__dffs_1	CK	0.00000	0.00000	0.00000
	CK	0.01719	0.01709	0.01702
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.03120	0.04078	0.26749
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.01029	0.01971	0.23100
sky130_osu_sc_12T_hs__dffs_1	CK	0.00000	0.00000	0.00000
	CK	0.01954	0.01945	0.01937
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.03355	0.04313	0.26985
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.01264	0.02206	0.23335

Passive power(pJ) for SN rising (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__dffs_1	(CK * Q * !QN) + (!CK * D * Q * !QN)	0.00000	0.00000	0.00000
	(CK * Q * !QN) + (!CK * D * Q * !QN)	-0.00234	-0.00239	-0.00238
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.01179	0.01945	0.22060
sky130_osu_sc_12T_hs__dffs_1	(CK * Q * !QN) + (!CK * D * Q * !QN)	0.00000	0.00000	0.00000
	(CK * Q * !QN) + (!CK * D * Q * !QN)	0.00002	-0.00004	-0.00003
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.01414	0.02181	0.22295

Passive power(pJ) for SN falling (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__dffs_1	(CK * Q * !QN) + (!CK * D * Q * !QN)	0.00000	0.00000	0.00000
	(CK * Q * !QN) + (!CK * D * Q * !QN)	0.00800	0.00797	0.00789
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.01291	0.02248	0.23067
sky130_osu_sc_12T_hs__dffs_l	(CK * Q * !QN) + (!CK * D * Q * !QN)	0.00000	0.00000	0.00000
	(CK * Q * !QN) + (!CK * D * Q * !QN)	0.01035	0.01032	0.01024
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.01526	0.02483	0.23302

Passive power(pJ) for CK rising (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__dffs_1	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.00207	0.01448	0.29163
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	0.01351	0.02602	0.30310
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.00649	0.02911	0.51416
sky130_osu_sc_12T_hs__dffs_l	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.00442	0.01683	0.29399
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	0.01586	0.02837	0.30545
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.00884	0.03146	0.51653

Passive power(pJ) for CK falling (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__dffs_1	(D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * SN * !Q * QN)	0.03697	0.05125	0.43411
	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.01560	0.02982	0.30800
	(!D * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * SN * Q * !QN)	0.03577	0.06050	0.48813
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	0.02832	0.04208	0.32015
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.01916	0.04418	0.53157
sky130_osu_sc_12T_hs__dffs_l	(D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * SN * !Q * QN)	0.03932	0.05360	0.43646
	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.01796	0.03217	0.31037
	(!D * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * SN * Q * !QN)	0.03812	0.06289	0.49050
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	0.03067	0.04443	0.32250
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.02152	0.04655	0.53394

SKY130_OSU_SC_12T_HS__DFFx

sky130_osu_sc_12T_hs_ff_1P95_100C.ccs
Cell Library: Process , Voltage 1.95, Temp 100.00

Truth Table

INPUT		OUTPUT
D	CK	Q
0	R	0
1	R	1
x	x	IQ

Footprint

Cell Name	Area
sky130_osu_sc_12T_hs__dff_1	32.23440
sky130_osu_sc_12T_hs__dff_l	32.23440

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	D	CK	Q
sky130_osu_sc_12T_hs__dff_1	0.00295	0.00836	1.63080
sky130_osu_sc_12T_hs__dff_l	0.00295	0.00836	1.16802

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_12T_hs__dff_1	0.00000	321.49800	402.36200
sky130_osu_sc_12T_hs__dff_l	0.00000	591.43000	672.08300

Delay Information

Delay(ns) to Q rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_hs__dff_1	CK->Q (RR)	0.11420	0.47280	5.53675
sky130_osu_sc_12T_hs__dff_l	CK->Q (RR)	0.11575	0.52123	5.53072

Delay(ns) to Q falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_hs__dff_1	CK->Q (RF)	0.16587	0.46037	4.54135
sky130_osu_sc_12T_hs__dff_l	CK->Q (RF)	0.16786	0.48425	4.30276

Constraint Information

Constraints(ns) for D rising :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_12T_hs__dff_1	hold	CK (R)	-0.02734	-0.02352	0.23665
	setup	CK (R)	0.07964	0.11969	0.07938
sky130_osu_sc_12T_hs__dff_l	hold	CK (R)	-0.02742	-0.02352	0.23717
	setup	CK (R)	0.08159	0.12153	0.07915

Constraints(ns) for D falling :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_12T_hs__dff_1	hold	CK (R)	-0.06431	-0.19150	-4.32306
	setup	CK (R)	0.07782	0.20494	4.42743
sky130_osu_sc_12T_hs__dff_l	hold	CK (R)	-0.06322	-0.19150	-4.31955
	setup	CK (R)	0.07781	0.20494	4.42743

Constraints(ns) for CK rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_12T_hs__dff_1	min_pulse_width	CK ()	0.05293	0.38452	13.33370
	min_pulse_width	CK ()	0.09074	0.38452	13.33370
sky130_osu_sc_12T_hs__dff_l	min_pulse_width	CK ()	0.05293	0.38452	13.33370
	min_pulse_width	CK ()	0.08783	0.38452	13.33370

Constraints(ns) for CK falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_12T_hs__dff_1	**min_pulse_width**	**CK ()**	0.11692	0.38452	13.33370
	min_pulse_width	**CK ()**	0.06166	0.38452	13.33370
sky130_osu_sc_12T_hs__dff_l	**min_pulse_width**	**CK ()**	0.11692	0.38452	13.33370
	min_pulse_width	**CK ()**	0.06166	0.38452	13.33370

Power Information

Internal switching power(pJ) to Q rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__dff_1	CK	0.00000	0.00000	0.00000
	CK	0.02812	0.04869	0.42651
sky130_osu_sc_12T_hs__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.03307	0.05353	0.42907

Internal switching power(pJ) to Q falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__dff_1	CK	0.00000	0.00000	0.00000
	CK	0.02931	0.04176	0.34251
sky130_osu_sc_12T_hs__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.03230	0.04483	0.34460

Passive power(pJ) for D rising (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__dff_1	CK	0.00000	0.00000	0.00000
	CK	0.00085	0.00032	0.00077
	!CK	0.00000	0.00000	0.00000
	!CK	0.01301	0.02253	0.25418
sky130_osu_sc_12T_hs__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.00320	0.00267	0.00312
	!CK	0.00000	0.00000	0.00000
	!CK	0.01536	0.02488	0.25680

Passive power(pJ) for D falling (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__dff_1	CK	0.00000	0.00000	0.00000
	CK	0.00622	0.00622	0.00609
	!CK	0.00000	0.00000	0.00000
	!CK	0.02086	0.03068	0.26132
sky130_osu_sc_12T_hs__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.00857	0.00857	0.00844
	!CK	0.00000	0.00000	0.00000
	!CK	0.02321	0.03303	0.26368

Passive power(pJ) for CK rising (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__dff_1	(D * Q)	0.00000	0.00000	0.00000
	(D * Q)	0.00206	0.01449	0.29164
	(!D * !Q)	0.00000	0.00000	0.00000
	(!D * !Q)	0.00251	0.01505	0.29204
sky130_osu_sc_12T_hs__dff_l	(D * Q)	0.00000	0.00000	0.00000
	(D * Q)	0.00440	0.01683	0.29400
	(!D * !Q)	0.00000	0.00000	0.00000
	(!D * !Q)	0.00486	0.01740	0.29440

Passive power(pJ) for CK falling (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__dff_1	(D * Q)	0.00000	0.00000	0.00000
	(D * Q)	0.01557	0.02982	0.30798
	(D * !Q)	0.00000	0.00000	0.00000
	(D * !Q)	0.03021	0.04459	0.42265
	(!D * Q)	0.00000	0.00000	0.00000
	(!D * Q)	0.03077	0.05639	0.49464
	(!D * !Q)	0.00000	0.00000	0.00000
	(!D * !Q)	0.01721	0.03098	0.30899
sky130_osu_sc_12T_hs__dff_l	(D * Q)	0.00000	0.00000	0.00000
	(D * Q)	0.01792	0.03217	0.31035
	(D * !Q)	0.00000	0.00000	0.00000
	(D * !Q)	0.03256	0.04695	0.42503
	(!D * Q)	0.00000	0.00000	0.00000
	(!D * Q)	0.03312	0.05874	0.49700
	(!D * !Q)	0.00000	0.00000	0.00000
	(!D * !Q)	0.01956	0.03333	0.31134

SKY130_OSU_SC_12T_HS__INVx

sky130_osu_sc_12T_hs_ff_1P95_100C.ccs
Cell Library: Process , Voltage 1.95, Temp 100.00

Truth Table

INPUT	OUTPUT
A	Y
0	1
1	0

Footprint

Cell Name	Area
sky130_osu_sc_12T_hs__inv_1	4.39560
sky130_osu_sc_12T_hs__inv_10	21.97800
sky130_osu_sc_12T_hs__inv_2	6.34920
sky130_osu_sc_12T_hs__inv_3	8.30280
sky130_osu_sc_12T_hs__inv_4	10.25640
sky130_osu_sc_12T_hs__inv_6	14.16360
sky130_osu_sc_12T_hs__inv_8	18.07080
sky130_osu_sc_12T_hs__inv_l	4.38570

Pin Capacitance Information

Cell Name	Pin Cap(pf)	Max Cap(pf)
	A	Y
sky130_osu_sc_12T_hs__inv_1	0.00282	1.59139
sky130_osu_sc_12T_hs__inv_10	0.02516	15.52137
sky130_osu_sc_12T_hs__inv_2	0.00523	3.21678
sky130_osu_sc_12T_hs__inv_3	0.00774	4.74209
sky130_osu_sc_12T_hs__inv_4	0.01019	6.41447
sky130_osu_sc_12T_hs__inv_6	0.01525	9.45608
sky130_osu_sc_12T_hs__inv_8	0.02021	12.65266
sky130_osu_sc_12T_hs__inv_l	0.00226	1.05787

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_12T_hs__inv_1	0.00000	46.60340	91.20390
sky130_osu_sc_12T_hs__inv_10	0.00000	466.01400	912.01400
sky130_osu_sc_12T_hs__inv_2	0.00000	93.21140	182.42000
sky130_osu_sc_12T_hs__inv_3	0.00000	139.81000	273.61400
sky130_osu_sc_12T_hs__inv_4	0.00000	186.41800	364.83000
sky130_osu_sc_12T_hs__inv_6	0.00000	279.62200	547.23500
sky130_osu_sc_12T_hs__inv_8	0.00000	372.82400	729.63600
sky130_osu_sc_12T_hs__inv_l	0.00000	181.45800	362.09900

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_hs__inv_1	**A->Y (FR)**	0.01669	0.52722	9.15553
sky130_osu_sc_12T_hs__inv_10	**A->Y (FR)**	0.02121	0.31912	8.99812
sky130_osu_sc_12T_hs__inv_2	**A->Y (FR)**	0.01269	0.43705	8.95324
sky130_osu_sc_12T_hs__inv_3	**A->Y (FR)**	0.01381	0.40396	9.01806
sky130_osu_sc_12T_hs__inv_4	**A->Y (FR)**	0.01378	0.37668	8.99716
sky130_osu_sc_12T_hs__inv_6	**A->Y (FR)**	0.01559	0.34589	8.94682
sky130_osu_sc_12T_hs__inv_8	**A->Y (FR)**	0.01810	0.32996	9.00793
sky130_osu_sc_12T_hs__inv_l	**A->Y (FR)**	0.01958	0.55575	8.68482

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_hs__inv_1	**A->Y (RF)**	0.01472	0.41364	7.17789
sky130_osu_sc_12T_hs__inv_10	**A->Y (RF)**	0.01965	0.23203	7.36091
sky130_osu_sc_12T_hs__inv_2	**A->Y (RF)**	0.01172	0.34269	7.26853
sky130_osu_sc_12T_hs__inv_3	**A->Y (RF)**	0.01278	0.31283	7.38749
sky130_osu_sc_12T_hs__inv_4	**A->Y (RF)**	0.01261	0.28917	7.41929
sky130_osu_sc_12T_hs__inv_6	**A->Y (RF)**	0.01491	0.26046	7.39295
sky130_osu_sc_12T_hs__inv_8	**A->Y (RF)**	0.01714	0.24496	7.44560
sky130_osu_sc_12T_hs__inv_l	**A->Y (RF)**	0.01622	0.42680	6.60481

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__inv_1	A	0.00000	0.00000	0.00000
	A	0.00447	0.01033	0.09798
sky130_osu_sc_12T_hs__inv_10	A	0.00000	0.00000	0.00000
	A	0.03914	0.12219	0.92774
sky130_osu_sc_12T_hs__inv_2	A	0.00000	0.00000	0.00000
	A	0.00772	0.02084	0.19108
sky130_osu_sc_12T_hs__inv_3	A	0.00000	0.00000	0.00000
	A	0.01187	0.03282	0.28031
sky130_osu_sc_12T_hs__inv_4	A	0.00000	0.00000	0.00000
	A	0.01516	0.04494	0.37326
sky130_osu_sc_12T_hs__inv_6	A	0.00000	0.00000	0.00000
	A	0.02272	0.07004	0.55942
sky130_osu_sc_12T_hs__inv_8	A	0.00000	0.00000	0.00000
	A	0.03059	0.09571	0.73949
sky130_osu_sc_12T_hs__inv_l	A	0.00000	0.00000	0.00000
	A	0.00356	0.00875	0.09801

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__inv_1	**A**	0.00000	0.00000	0.00000
	A	0.00119	0.00495	0.06340
sky130_osu_sc_12T_hs__inv_10	**A**	0.00000	0.00000	0.00000
	A	0.01077	0.07075	0.61496
sky130_osu_sc_12T_hs__inv_2	**A**	0.00000	0.00000	0.00000
	A	0.00145	0.01040	0.12584
sky130_osu_sc_12T_hs__inv_3	**A**	0.00000	0.00000	0.00000
	A	0.00282	0.01806	0.18509
sky130_osu_sc_12T_hs__inv_4	**A**	0.00000	0.00000	0.00000
	A	0.00317	0.02419	0.24605
sky130_osu_sc_12T_hs__inv_6	**A**	0.00000	0.00000	0.00000
	A	0.00469	0.03898	0.36955
sky130_osu_sc_12T_hs__inv_8	**A**	0.00000	0.00000	0.00000
	A	0.00713	0.05364	0.48911
sky130_osu_sc_12T_hs__inv_l	**A**	0.00000	0.00000	0.00000
	A	0.00691	0.00939	0.05351

SKY130_OSU_SC_12T_HS__MUX2

sky130_osu_sc_12T_hs_ff_1P95_100C.ccs
Cell Library: Process , Voltage 1.95, Temp 100.00

Truth Table

INPUT			OUTPUT
A0	**A1**	**S0**	**Y**
0	**0**	**x**	**0**
0	**1**	**0**	**0**
x	**1**	**1**	**1**
1	**x**	**0**	**1**
1	**0**	**1**	**0**

Footprint

Cell Name	Area
sky130_osu_sc_12T_hs__mux2_1	12.21000

Pin Capacitance Information

Cell Name	Pin Cap(pf)			Max Cap(pf)
	A0	**A1**	**S0**	**Y**
sky130_osu_sc_12T_hs__mux2_1	0.22331	0.22326	0.00581	0.22194

Leakage Information

Cell Name	Leakage(nW)		
	Min.	**Avg**	**Max.**
sky130_osu_sc_12T_hs__mux2_1	0.00000	93.19310	93.22040

Delay Information

Delay(ns) to Y rising (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_12T_hs__mux2_1	A0->Y (RR)	-	0.00677	0.07167	0.55709
	A1->Y (RR)	-	0.00769	0.07200	0.55548
	S0->Y (RR)	(!A0 * A1)	0.02818	0.12388	0.26298
	S0->Y (FR)	(A0 * !A1)	0.01882	0.20797	2.25349

Delay(ns) to Y falling (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_12T_hs__mux2_1	A0->Y (FF)	-	0.00783	0.07997	0.58820
	A1->Y (FF)	-	0.00729	0.07918	0.58633
	S0->Y (FF)	(!A0 * A1)	0.03354	0.21053	1.85483
	S0->Y (RF)	(A0 * !A1)	0.01652	0.12996	0.78103

Power Information

Internal switching power(pJ) to Y rising (conditional):

Cell Name	Input	When	Power(pJ)		
			first	mid	last
sky130_osu_sc_12T_hs__mux2_1	A0	-	0.00000	0.00000	0.00000
	A0	-	-0.00443	-0.00444	-0.00445
	A1	-	0.00000	0.00000	0.00000
	A1	-	-0.00061	-0.00061	-0.00061
	S0	(A0 * !A1)	0.00000	0.00000	0.00000
	S0	(A0 * !A1)	0.00562	0.02047	0.29047
	S0	(!A0 * A1)	0.00000	0.00000	0.00000
	S0	(!A0 * A1)	-0.00220	0.01112	0.27994

Internal switching power(pJ) to Y falling (conditional):

Cell Name	Input	When	Power(pJ)		
			first	mid	last
sky130_osu_sc_12T_hs__mux2_1	A0	-	0.00000	0.00000	0.00000
	A0	-	0.00453	0.00453	0.00453
	A1	-	0.00000	0.00000	0.00000
	A1	-	0.00485	0.00485	0.00486
	S0	(A0 * !A1)	0.00000	0.00000	0.00000
	S0	(A0 * !A1)	0.00162	0.01542	0.28465
	S0	(!A0 * A1)	0.00000	0.00000	0.00000
	S0	(!A0 * A1)	0.01217	0.02631	0.29579

Passive power(pJ) for A0 rising (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__mux2_1	(A1 * S0 * Y) + (!A1 * S0 * !Y)	0.00000	0.00000	0.00000
	(A1 * S0 * Y) + (!A1 * S0 * !Y)	-0.00020	-0.00020	-0.00021

Passive power(pJ) for A0 falling (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__mux2_1	(A1 * S0 * Y) + (!A1 * S0 * !Y)	0.00000	0.00000	0.00000
	(A1 * S0 * Y) + (!A1 * S0 * !Y)	0.00179	0.00179	0.00179

Passive power(pJ) for A1 rising (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__mux2_1	(A0 * !S0 * Y) + (!A0 * !S0 * !Y)	0.00000	0.00000	0.00000
	(A0 * !S0 * Y) + (!A0 * !S0 * !Y)	-0.00117	-0.00117	-0.00117

Passive power(pJ) for A1 falling (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__mux2_1	(A0 * !S0 * Y) + (!A0 * !S0 * !Y)	0.00000	0.00000	0.00000
	(A0 * !S0 * Y) + (!A0 * !S0 * !Y)	0.00120	0.00120	0.00120

Passive power(pJ) for S0 rising (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__mux2_1	(A0 * A1 * Y)	0.00000	0.00000	0.00000
	(A0 * A1 * Y)	-0.00031	0.01339	0.28219
	(!A0 * !A1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !Y)	-0.00028	0.01350	0.28238

Passive power(pJ) for S0 falling (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__mux2_1	(A0 * A1 * Y)	0.00000	0.00000	0.00000
	(A0 * A1 * Y)	0.00933	0.02383	0.29327
	(!A0 * !A1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !Y)	0.00851	0.02338	0.29303

SKY130_OSU_SC_12T_HS__NAND2x

sky130_osu_sc_12T_hs_ff_1P95_100C.ccs
Cell Library: Process , Voltage 1.95, Temp 100.00

Truth Table

INPUT		OUTPUT
A	**B**	**Y**
0	**x**	**1**
1	**0**	**1**
1	**1**	**0**

Footprint

Cell Name	Area
sky130_osu_sc_12T_hs__nand2_1	6.34920
sky130_osu_sc_12T_hs__nand2_l	6.34920

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	**B**	**Y**
sky130_osu_sc_12T_hs__nand2_1	0.00280	0.00281	1.57037
sky130_osu_sc_12T_hs__nand2_l	0.00221	0.00225	1.04560

Leakage Information

Cell Name	Leakage(nW)		
	Min.	**Avg**	**Max.**
sky130_osu_sc_12T_hs__nand2_1	0.00000	46.57230	182.37800
sky130_osu_sc_12T_hs__nand2_l	0.00000	181.05100	722.62600

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_hs__nand2_1	A->Y (FR)	0.01737	0.52389	9.06462
	B->Y (FR)	0.01955	0.49934	8.57434
sky130_osu_sc_12T_hs__nand2_l	A->Y (FR)	0.01967	0.54963	8.54934
	B->Y (FR)	0.02378	0.55272	8.55185

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_hs__nand2_1	A->Y (RF)	0.02018	0.51289	8.87288
	B->Y (RF)	0.02308	0.48446	8.30691
sky130_osu_sc_12T_hs__nand2_l	A->Y (RF)	0.02251	0.54035	8.32585
	B->Y (RF)	0.02556	0.50768	7.66513

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__nand2_1	A	0.00000	0.00000	0.00000
	A	0.00475	0.00951	0.08240
	B	0.00000	0.00000	0.00000
	B	0.00619	0.01129	0.09006
sky130_osu_sc_12T_hs__nand2_1	A	0.00000	0.00000	0.00000
	A	0.00362	0.00787	0.08144
	B	0.00000	0.00000	0.00000
	B	0.00472	0.00903	0.08637

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__nand2_1	A	0.00000	0.00000	0.00000
	A	0.00439	0.00756	0.05534
	B	0.00000	0.00000	0.00000
	B	0.00425	0.00709	0.05780
sky130_osu_sc_12T_hs__nand2_1	A	0.00000	0.00000	0.00000
	A	0.01820	0.01987	0.05067
	B	0.00000	0.00000	0.00000
	B	0.01767	0.01915	0.05134

Passive power(pJ) for A rising (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__nand2_1	(!B * Y)	0.00000	0.00000	0.00000
	(!B * Y)	-0.00309	-0.00311	-0.00314
sky130_osu_sc_12T_hs__nand2_l	(!B * Y)	0.00000	0.00000	0.00000
	(!B * Y)	-0.00222	-0.00224	-0.00225

Passive power(pJ) for A falling (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__nand2_1	(!B * Y)	0.00000	0.00000	0.00000
	(!B * Y)	0.00313	0.00317	0.00315
sky130_osu_sc_12T_hs__nand2_l	(!B * Y)	0.00000	0.00000	0.00000
	(!B * Y)	0.00225	0.00228	0.00226

Passive power(pJ) for B rising (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__nand2_1	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00286	-0.00289	-0.00287
sky130_osu_sc_12T_hs__nand2_l	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00207	-0.00209	-0.00208

Passive power(pJ) for B falling (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__nand2_1	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00309	0.00298	0.00292
sky130_osu_sc_12T_hs__nand2_l	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00223	0.00213	0.00210

SKY130_OSU_SC_12T_HS__NOR2x

sky130_osu_sc_12T_hs_ff_1P95_100C.ccs
Cell Library: Process , Voltage 1.95, Temp 100.00

Truth Table

INPUT		OUTPUT
A	B	Y
0	0	1
x	1	0
1	x	0

Footprint

Cell Name	Area
sky130_osu_sc_12T_hs__nor2_1	6.34920
sky130_osu_sc_12T_hs__nor2_l	6.34920

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	B	Y
sky130_osu_sc_12T_hs__nor2_1	0.00277	0.00303	0.95074
sky130_osu_sc_12T_hs__nor2_l	0.00214	0.00234	0.67025

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_12T_hs__nor2_1	0.00000	40.06830	91.07810
sky130_osu_sc_12T_hs__nor2_l	0.00000	132.39800	359.41200

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_hs__nor2_1	A->Y (FR)	0.03448	0.58720	8.67624
	B->Y (FR)	0.02587	0.61249	9.23214
sky130_osu_sc_12T_hs__nor2_l	A->Y (FR)	0.03730	0.62863	8.39378
	B->Y (FR)	0.03033	0.65075	8.89384

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_hs__nor2_1	A->Y (RF)	0.02008	0.33854	4.90074
	B->Y (RF)	0.01582	0.33109	4.86588
sky130_osu_sc_12T_hs__nor2_l	A->Y (RF)	0.02077	0.35789	4.71029
	B->Y (RF)	0.01723	0.35171	4.67285

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__nor2_1	A	0.00000	0.00000	0.00000
	A	0.00657	0.01033	0.09383
	B	0.00000	0.00000	0.00000
	B	0.00490	0.01002	0.10117
sky130_osu_sc_12T_hs__nor2_l	A	0.00000	0.00000	0.00000
	A	0.00480	0.00815	0.08511
	B	0.00000	0.00000	0.00000
	B	0.00375	0.00843	0.09866

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__nor2_1	A	0.00000	0.00000	0.00000
	A	0.00174	0.00526	0.07631
	B	0.00000	0.00000	0.00000
	B	0.00100	0.00463	0.07025
sky130_osu_sc_12T_hs__nor2_l	A	0.00000	0.00000	0.00000
	A	0.00318	0.00572	0.06322
	B	0.00000	0.00000	0.00000
	B	0.00574	0.00823	0.05977

Passive power(pJ) for A rising (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__nor2_1	(B * !Y)	0.00000	0.00000	0.00000
	(B * !Y)	-0.00184	-0.00243	-0.00196
sky130_osu_sc_12T_hs__nor2_l	(B * !Y)	0.00000	0.00000	0.00000
	(B * !Y)	-0.00114	-0.00141	0.00072

Passive power(pJ) for A falling (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__nor2_1	(B * !Y)	0.00000	0.00000	0.00000
	(B * !Y)	0.00353	0.00356	0.00341
sky130_osu_sc_12T_hs__nor2_l	(B * !Y)	0.00000	0.00000	0.00000
	(B * !Y)	0.00503	0.00499	0.00436

Passive power(pJ) for B rising (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__nor2_1	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	-0.00101	-0.00103	-0.00097
sky130_osu_sc_12T_hs__nor2_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	-0.00072	-0.00072	-0.00049

Passive power(pJ) for B falling (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__nor2_1	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00169	0.00169	0.00146
sky130_osu_sc_12T_hs__nor2_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00234	0.00229	0.00149

SKY130_OSU_SC_12T_HS__OAI21

sky130_osu_sc_12T_hs_ff_1P95_100C.ccs
Cell Library: Process , Voltage 1.95, Temp 100.00

Truth Table

INPUT			OUTPUT
A0	A1	B0	Y
0	0	x	1
x	1	0	1
x	1	1	0
1	x	0	1
1	x	1	0

Footprint

Cell Name	Area
sky130_osu_sc_12T_hs__oai21_l	8.30280

Pin Capacitance Information

Cell Name	Pin Cap(pf)			Max Cap(pf)
	A0	A1	B0	Y
sky130_osu_sc_12T_hs__oai21_l	0.00282	0.00293	0.00247	0.89977

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_12T_hs__oai21_l	0.00000	156.41800	452.59000

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_hs__oai21_l	A0->Y (FR)	0.03740	0.60947	8.90065
	A1->Y (FR)	0.04770	0.58767	8.36703
	B0->Y (FR)	0.02397	0.52563	7.87578

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_hs__oai21_l	A0->Y (RF)	0.02846	0.38717	5.42408
	A1->Y (RF)	0.03406	0.38684	5.34873
	B0->Y (RF)	0.02163	0.43174	6.30193

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__oai21_l	A0	0.00000	0.00000	0.00000
	A0	0.00713	0.01126	0.09125
	A1	0.00000	0.00000	0.00000
	A1	0.00880	0.01203	0.09014
	B0	0.00412	0.01003	0.11913

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__oai21_l	A0	0.00000	0.00000	0.00000
	A0	0.00912	0.01152	0.06482
	A1	0.00000	0.00000	0.00000
	A1	0.00955	0.01185	0.07016
	B0	0.00753	0.01050	0.06843

Passive power(pJ) for A0 rising (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__oai21_l	(A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * !Y)	0.00214	0.00213	0.00218
	(A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * Y)	-0.00275	-0.00276	-0.00275
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00276	-0.00277	-0.00275

Passive power(pJ) for A0 falling (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__oai21_l	(A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * !Y)	0.00484	0.00485	0.00461
	(A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * Y)	0.00279	0.00282	0.00280
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00300	0.00287	0.00280

Passive power(pJ) for A1 rising (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__oai21_l	(A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * B0 * !Y)	0.00140	0.00079	0.00128
	(A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * Y)	-0.00272	-0.00274	-0.00272
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	-0.00272	-0.00274	-0.00272

Passive power(pJ) for A1 falling (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__oai21_l	(A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * B0 * !Y)	0.00659	0.00661	0.00646
	(A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * Y)	0.00275	0.00279	0.00276
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	0.00297	0.00283	0.00277

Passive power(pJ) for B0 rising (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__oai21_l	(!A0 * !A1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * Y)	-0.00230	-0.00232	-0.00238

Passive power(pJ) for B0 falling (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__oai21_l	(!A0 * !A1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * Y)	0.00239	0.00244	0.00240

SKY130_OSU_SC_12T_HS__OAI22

sky130_osu_sc_12T_hs_ff_1P95_100C.ccs
Cell Library: Process , Voltage 1.95, Temp 100.00

Truth Table

INPUT				OUTPUT
A0	A1	B0	B1	Y
0	0	x	x	1
x	1	0	0	1
x	1	x	1	0
x	1	1	x	0
1	x	0	0	1
1	x	x	1	0
1	x	1	x	0

Footprint

Cell Name	Area
sky130_osu_sc_12T_hs__oai22_l	10.25640

Pin Capacitance Information

Cell Name	Pin Cap(pf)				Max Cap(pf)
	A0	A1	B0	B1	Y
sky130_osu_sc_12T_hs__oai22_l	0.00267	0.00278	0.00294	0.00291	0.98638

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_12T_hs__oai22_l	0.00000	59.99550	182.14500

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_hs__oai22_l	A0->Y (FR)	0.04910	0.58550	8.50879
	A1->Y (FR)	0.04125	0.61310	9.12193
	B0->Y (FR)	0.02679	0.59939	9.10311
	B1->Y (FR)	0.03542	0.57199	8.48660

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_hs__oai22_l	A0->Y (RF)	0.04663	0.42689	5.91772
	A1->Y (RF)	0.03809	0.41579	5.85886
	B0->Y (RF)	0.03199	0.46141	6.75924
	B1->Y (RF)	0.04095	0.47437	6.84912

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__oai22_l	A0	0.01060	0.01390	0.09021
	A1	0.00893	0.01346	0.09929
	B0	0.00520	0.00986	0.09333
	B1	0.00701	0.01032	0.08393

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__oai22_l	A0	0.00240	0.00500	0.06677
	A1	0.00175	0.00446	0.06173
	B0	0.00180	0.00503	0.06446
	B1	0.00246	0.00546	0.06668

Passive power(pJ) for A0 rising (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__oai22_l	(A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * !Y)	-0.00176	-0.00229	-0.00183
	(A1 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * B1 * !Y)	-0.00132	-0.00185	-0.00140
	(A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * !B1 * Y)	-0.00262	-0.00263	-0.00262
	(!A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * !B1 * Y)	-0.00262	-0.00262	-0.00262

Passive power(pJ) for A0 falling (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__oai22_l	(A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * !Y)	0.00353	0.00356	0.00341
	(A1 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * B1 * !Y)	0.00397	0.00400	0.00385
	(A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * !B1 * Y)	0.00268	0.00272	0.00270
	(!A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * !B1 * Y)	0.00295	0.00275	0.00270

Passive power(pJ) for A1 rising (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__oai22_l	(A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * B0 * !Y)	-0.00091	-0.00093	-0.00087
	(A0 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * B1 * !Y)	-0.00047	-0.00050	-0.00044
	(A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * !B1 * Y)	-0.00262	-0.00262	-0.00261
	(!A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * !B1 * Y)	-0.00261	-0.00262	-0.00261

Passive power(pJ) for A1 falling (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__oai22_l	(A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * B0 * !Y)	0.00173	0.00172	0.00150
	(A0 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * B1 * !Y)	0.00217	0.00216	0.00193
	(A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * !B1 * Y)	0.00268	0.00271	0.00269
	(!A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * !B1 * Y)	0.00295	0.00278	0.00270

Passive power(pJ) for B0 rising (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__oai22_l	(A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * B1 * !Y)	-0.00092	-0.00095	-0.00089
	(A0 * !A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B1 * !Y)	-0.00049	-0.00049	-0.00045
	(!A0 * !A1 * B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B1 * Y)	-0.00310	-0.00313	-0.00310
	(!A0 * !A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B1 * Y)	-0.00299	-0.00302	-0.00310

Passive power(pJ) for B0 falling (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__oai22_l	(A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * B1 * !Y)	0.00174	0.00174	0.00151
	(A0 * !A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B1 * !Y)	0.00218	0.00218	0.00195
	(!A0 * !A1 * B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B1 * Y)	0.00322	0.00325	0.00317
	(!A0 * !A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B1 * Y)	0.00311	0.00315	0.00313

Passive power(pJ) for B1 rising (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__oai22_l	(A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * !Y)	-0.00174	-0.00227	-0.00182
	(A0 * !A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B0 * !Y)	-0.00130	-0.00183	-0.00138
	(!A0 * !A1 * B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B0 * Y)	-0.00316	-0.00318	-0.00315
	(!A0 * !A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B0 * Y)	-0.00304	-0.00307	-0.00315

Passive power(pJ) for B1 falling (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__oai22_l	(A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * !Y)	0.00352	0.00354	0.00340
	(A0 * !A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B0 * !Y)	0.00396	0.00398	0.00383
	(!A0 * !A1 * B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B0 * Y)	0.00327	0.00330	0.00323
	(!A0 * !A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B0 * Y)	0.00317	0.00320	0.00318

SKY130_OSU_SC_12T_HS__OR2x

sky130_osu_sc_12T_hs_ff_1P95_100C.ccs
Cell Library: Process , Voltage 1.95, Temp 100.00

Truth Table

INPUT		OUTPUT
A	B	Y
0	0	0
x	1	1
1	x	1

Footprint

Cell Name	Area
sky130_osu_sc_12T_hs__or2_1	8.30280
sky130_osu_sc_12T_hs__or2_2	10.25640
sky130_osu_sc_12T_hs__or2_4	14.16360
sky130_osu_sc_12T_hs__or2_8	21.97800
sky130_osu_sc_12T_hs__or2_l	8.30280

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	B	Y
sky130_osu_sc_12T_hs__or2_1	0.00314	0.00290	1.69684
sky130_osu_sc_12T_hs__or2_2	0.00314	0.00290	3.46081
sky130_osu_sc_12T_hs__or2_4	0.00314	0.00290	6.85949
sky130_osu_sc_12T_hs__or2_8	0.00315	0.00290	13.34224
sky130_osu_sc_12T_hs__or2_l	0.00241	0.00225	1.16795

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_12T_hs__or2_1	0.00000	64.38100	95.24390
sky130_osu_sc_12T_hs__or2_2	0.00000	88.69800	186.50000
sky130_osu_sc_12T_hs__or2_4	0.00000	137.32500	368.99100
sky130_osu_sc_12T_hs__or2_8	0.00000	234.57600	733.95900
sky130_osu_sc_12T_hs__or2_l	0.00000	223.56100	364.21600

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_hs__or2_1	A->Y (RR)	0.04443	0.39218	5.58029
	B->Y (RR)	0.03780	0.37027	5.39916
sky130_osu_sc_12T_hs__or2_2	A->Y (RR)	0.04782	0.32539	5.50004
	B->Y (RR)	0.04093	0.30458	5.30217
sky130_osu_sc_12T_hs__or2_4	A->Y (RR)	0.06251	0.31080	5.64090
	B->Y (RR)	0.05531	0.29210	5.44370
sky130_osu_sc_12T_hs__or2_8	A->Y (RR)	0.09379	0.33833	5.80787
	B->Y (RR)	0.08630	0.32275	5.61804
sky130_osu_sc_12T_hs__or2_l	A->Y (RR)	0.04699	0.44333	5.58158
	B->Y (RR)	0.04127	0.42634	5.46075

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_hs__or2_1	A->Y (FF)	0.06403	0.44886	6.49034
	B->Y (FF)	0.05238	0.46181	6.91053
sky130_osu_sc_12T_hs__or2_2	A->Y (FF)	0.07503	0.41825	6.72269
	B->Y (FF)	0.06342	0.43290	7.14493
sky130_osu_sc_12T_hs__or2_4	A->Y (FF)	0.10646	0.42791	6.95632
	B->Y (FF)	0.09492	0.44620	7.37126
sky130_osu_sc_12T_hs__or2_8	A->Y (FF)	0.17217	0.48457	7.08365
	B->Y (FF)	0.16065	0.50879	7.49207
sky130_osu_sc_12T_hs__or2_l	A->Y (FF)	0.06966	0.47287	6.16373
	B->Y (FF)	0.05869	0.48375	6.52711

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__or2_1	A	0.00000	0.00000	0.00000
	A	0.00643	0.01316	0.14874
	B	0.00000	0.00000	0.00000
	B	0.00602	0.01385	0.15974
sky130_osu_sc_12T_hs__or2_2	A	0.00000	0.00000	0.00000
	A	0.01023	0.01735	0.15567
	B	0.00000	0.00000	0.00000
	B	0.00961	0.01783	0.16508
sky130_osu_sc_12T_hs__or2_4	A	0.00000	0.00000	0.00000
	A	0.01983	0.02705	0.16776
	B	0.00000	0.00000	0.00000
	B	0.01892	0.02724	0.17608
sky130_osu_sc_12T_hs__or2_8	A	0.00000	0.00000	0.00000
	A	0.04747	0.05042	0.19409
	B	0.00000	0.00000	0.00000
	B	0.04598	0.05027	0.20035
sky130_osu_sc_12T_hs__or2_l	A	0.00000	0.00000	0.00000
	A	0.00788	0.01393	0.14402
	B	0.00000	0.00000	0.00000
	B	0.01220	0.01943	0.16360

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__or2_1	A	0.00000	0.00000	0.00000
	A	0.01308	0.02065	0.19069
	B	0.00000	0.00000	0.00000
	B	0.01112	0.02121	0.22275
sky130_osu_sc_12T_hs__or2_2	A	0.00000	0.00000	0.00000
	A	0.01983	0.02561	0.19591
	B	0.00000	0.00000	0.00000
	B	0.01784	0.02605	0.22790
sky130_osu_sc_12T_hs__or2_4	A	0.00000	0.00000	0.00000
	A	0.03979	0.03774	0.20384
	B	0.00000	0.00000	0.00000
	B	0.03787	0.03821	0.23547
sky130_osu_sc_12T_hs__or2_8	A	0.00000	0.00000	0.00000
	A	0.09944	0.06833	0.22282
	B	0.00000	0.00000	0.00000
	B	0.09757	0.06975	0.25384
sky130_osu_sc_12T_hs__or2_l	A	0.00000	0.00000	0.00000
	A	0.01558	0.02215	0.16852
	B	0.00000	0.00000	0.00000
	B	0.01429	0.02304	0.19701

Passive power(pJ) for A rising (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__or2_1	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00182	-0.00245	-0.00197
sky130_osu_sc_12T_hs__or2_2	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00181	-0.00243	-0.00195
sky130_osu_sc_12T_hs__or2_4	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00178	-0.00240	-0.00192
sky130_osu_sc_12T_hs__or2_8	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00171	-0.00233	-0.00185
sky130_osu_sc_12T_hs__or2_l	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00110	-0.00141	0.00072

Passive power(pJ) for A falling (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__or2_1	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00358	0.00358	0.00345
sky130_osu_sc_12T_hs__or2_2	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00359	0.00362	0.00347
sky130_osu_sc_12T_hs__or2_4	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00363	0.00363	0.00351
sky130_osu_sc_12T_hs__or2_8	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00370	0.00373	0.00358
sky130_osu_sc_12T_hs__or2_l	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00505	0.00500	0.00437

Passive power(pJ) for B rising (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__or2_1	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00100	-0.00100	-0.00096
sky130_osu_sc_12T_hs__or2_2	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00098	-0.00099	-0.00094
sky130_osu_sc_12T_hs__or2_4	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00094	-0.00095	-0.00090
sky130_osu_sc_12T_hs__or2_8	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00087	-0.00088	-0.00083
sky130_osu_sc_12T_hs__or2_l	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00069	-0.00069	-0.00047

Passive power(pJ) for B falling (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__or2_1	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00172	0.00172	0.00149
sky130_osu_sc_12T_hs__or2_2	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00174	0.00174	0.00151
sky130_osu_sc_12T_hs__or2_4	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00177	0.00177	0.00155
sky130_osu_sc_12T_hs__or2_8	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00184	0.00184	0.00162
sky130_osu_sc_12T_hs__or2_l	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00234	0.00230	0.00150

SKY130_OSU_SC_12T_HS__TBUFIx

sky130_osu_sc_12T_hs_ff_1P95_100C.ccs
Cell Library: Process , Voltage 1.95, Temp 100.00

Truth Table

INPUT		OUTPUT
A	OE	Y
-	0	HiZ
0	1	1
1	1	0

Footprint

Cell Name	Area
sky130_osu_sc_12T_hs__tbufi_1	8.30280
sky130_osu_sc_12T_hs__tbufi_l	8.30280

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	OE	Y
sky130_osu_sc_12T_hs__tbufi_1	0.00301	0.00398	0.99273
sky130_osu_sc_12T_hs__tbufi_l	0.00235	0.00313	0.66410

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_12T_hs__tbufi_1	0.00000	47.88400	182.26100
sky130_osu_sc_12T_hs__tbufi_l	0.00000	181.46800	720.80100

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_hs__tbufi_1	A->Y (FR)	0.02420	0.59691	9.10193
	OE->Y (FR)	0.03007	0.31350	5.34255
	OE->Y (RR)	0.04571	0.45636	5.75628
sky130_osu_sc_12T_hs__tbufi_l	A->Y (FR)	0.02950	0.64062	8.72432
	OE->Y (FR)	0.03116	0.31350	5.34254
	OE->Y (RR)	0.04975	0.51755	5.66509

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_hs__tbufi_1	A->Y (RF)	0.01999	0.42341	6.36267
	OE->Y (FF)	0.03049	0.31349	5.34255
	OE->Y (RF)	0.01853	0.37767	5.54156
sky130_osu_sc_12T_hs__tbufi_l	A->Y (RF)	0.02255	0.44698	5.99264
	OE->Y (FF)	0.03169	0.31348	5.34254
	OE->Y (RF)	0.02103	0.39746	5.07826

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__tbufi_1	A	0.00000	0.00000	0.00000
	A	0.00712	0.01148	0.08863
	OE	0.00000	0.00000	0.00000
	OE	0.00692	0.01945	0.26082
sky130_osu_sc_12T_hs__tbufi_l	A	0.00000	0.00000	0.00000
	A	0.01346	0.01717	0.09216
	OE	0.00000	0.00000	0.00000
	OE	0.01228	0.02333	0.23764

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__tbufi_1	A	0.00000	0.00000	0.00000
	A	0.00318	0.00628	0.06132
	OE	0.00000	0.00000	0.00000
	OE	0.00634	0.02027	0.29253
sky130_osu_sc_12T_hs__tbufi_l	A	0.00000	0.00000	0.00000
	A	0.01405	0.01601	0.05671
	OE	0.00000	0.00000	0.00000
	OE	0.01559	0.02731	0.25501

Passive power(pJ) for A rising (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__tbufi_1	(!OE * Y)	0.00000	0.00000	0.00000
	(!OE * Y)	-0.00223	-0.00225	-0.00219
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	-0.00170	-0.00170	-0.00167
sky130_osu_sc_12T_hs__tbufi_l	(!OE * Y)	0.00000	0.00000	0.00000
	(!OE * Y)	-0.00170	-0.00171	-0.00163
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	-0.00128	-0.00129	-0.00119

Passive power(pJ) for A falling (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__tbufi_1	(!OE * Y)	0.00000	0.00000	0.00000
	(!OE * Y)	0.00223	0.00225	0.00219
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	0.00220	0.00220	0.00208
sky130_osu_sc_12T_hs__tbufi_l	(!OE * Y)	0.00000	0.00000	0.00000
	(!OE * Y)	0.00171	0.00171	0.00163
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	0.00202	0.00202	0.00179

Passive power(pJ) for OE rising (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__tbufi_1	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00336	0.01784	0.29701
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00238	0.01679	0.29634
sky130_osu_sc_12T_hs__tbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00754	0.01973	0.25332
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00424	0.01660	0.25145

Passive power(pJ) for OE falling (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__tbufi_1	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00574	0.02098	0.30117
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00552	0.02078	0.30068
sky130_osu_sc_12T_hs__tbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00451	0.01764	0.25671
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00424	0.01734	0.25500

SKY130_OSU_SC_12T_HS__TNBUFIx

sky130_osu_sc_12T_hs_ff_1P95_100C.ccs
Cell Library: Process , Voltage 1.95, Temp 100.00

Truth Table

INPUT		OUTPUT
A	OE	Y
0	0	1
1	0	0
-	1	HiZ

Footprint

Cell Name	Area
sky130_osu_sc_12T_hs__tnbufi_1	8.30280
sky130_osu_sc_12T_hs__tnbufi_l	8.30280

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	OE	Y
sky130_osu_sc_12T_hs__tnbufi_1	0.00300	0.00445	0.99945
sky130_osu_sc_12T_hs__tnbufi_l	0.00225	0.00341	0.66517

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_12T_hs__tnbufi_1	0.00000	77.63180	93.09120
sky130_osu_sc_12T_hs__tnbufi_l	0.00000	302.13400	363.08200

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_hs__tnbufi_1	A->Y (FR)	0.02429	0.59836	9.14042
	OE->Y (RR)	0.02027	0.31382	5.34287
	OE->Y (FR)	0.03102	0.55637	8.19715
sky130_osu_sc_12T_hs__tnbufi_l	A->Y (FR)	0.02880	0.63985	8.72820
	OE->Y (RR)	0.02216	0.31352	5.34260
	OE->Y (FR)	0.03436	0.59835	7.70031

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_hs__tnbufi_1	A->Y (RF)	0.01961	0.42451	6.39506
	OE->Y (RF)	0.02011	0.31380	5.34285
	OE->Y (FF)	0.03353	0.39050	5.21341
sky130_osu_sc_12T_hs__tnbufi_l	A->Y (RF)	0.02153	0.44676	6.00019
	OE->Y (RF)	0.02197	0.31355	5.34260
	OE->Y (FF)	0.03770	0.41326	4.85781

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__tnbufi_1	A	0.00000	0.00000	0.00000
	A	0.00482	0.00919	0.08637
	OE	0.00000	0.00000	0.00000
	OE	0.01171	0.02702	0.30026
sky130_osu_sc_12T_hs__tnbufi_l	A	0.00000	0.00000	0.00000
	A	0.00366	0.00747	0.08353
	OE	0.00000	0.00000	0.00000
	OE	0.00898	0.02213	0.25650

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__tnbufi_1	A	0.00000	0.00000	0.00000
	A	0.00110	0.00421	0.05909
	OE	0.00000	0.00000	0.00000
	OE	0.01160	0.02620	0.27786
sky130_osu_sc_12T_hs__tnbufi_l	A	0.00000	0.00000	0.00000
	A	0.00659	0.00859	0.04945
	OE	0.00000	0.00000	0.00000
	OE	0.01381	0.02642	0.24623

Passive power(pJ) for A rising (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__tnbufi_1	(OE * Y)	0.00000	0.00000	0.00000
	(OE * Y)	-0.00111	-0.00112	-0.00103
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	-0.00052	-0.00052	-0.00050
sky130_osu_sc_12T_hs__tnbufi_l	(OE * Y)	0.00000	0.00000	0.00000
	(OE * Y)	0.00181	0.00180	0.00187
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	0.00221	0.00220	0.00230

Passive power(pJ) for A falling (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__tnbufi_1	(OE * Y)	0.00000	0.00000	0.00000
	(OE * Y)	0.00260	0.00263	0.00256
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	0.00259	0.00259	0.00247
sky130_osu_sc_12T_hs__tnbufi_l	(OE * Y)	0.00000	0.00000	0.00000
	(OE * Y)	0.00449	0.00451	0.00442
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	0.00480	0.00480	0.00458

Passive power(pJ) for OE rising (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__tnbufi_1	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	-0.00196	0.01253	0.29251
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00236	0.01240	0.29198
sky130_osu_sc_12T_hs__tnbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00135	0.01357	0.25015
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00091	0.01323	0.24824

Passive power(pJ) for OE falling (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__tnbufi_1	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00957	0.02542	0.30581
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00870	0.02489	0.30517
sky130_osu_sc_12T_hs__tnbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.01002	0.02346	0.26036
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00682	0.02040	0.25838

SKY130_OSU_SC_12T_HS__XNOR2

sky130_osu_sc_12T_hs_ff_1P95_100C.ccs
Cell Library: Process , Voltage 1.95, Temp 100.00

Truth Table

INPUT		OUTPUT
A	B	Y
0	0	1
0	1	0
1	0	0
1	1	1

Footprint

Cell Name	Area
sky130_osu_sc_12T_hs__xnor2_l	14.16360

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	B	Y
sky130_osu_sc_12T_hs__xnor2_l	0.00605	0.00518	1.01625

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_12T_hs__xnor2_l	0.00000	169.42800	275.36700

Delay Information

Delay(ns) to Y rising (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_12T_hs__xnor2_1	A->Y (RR)	B	0.05739	0.47367	5.83794
	A->Y (FR)	!B	0.03151	0.59589	9.05494
	B->Y (RR)	A	0.04684	0.47217	6.07564
	B->Y (FR)	!A	0.04076	0.57432	8.51358

Delay(ns) to Y falling (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_12T_hs__xnor2_1	A->Y (FF)	B	0.05606	0.43156	5.52692
	A->Y (RF)	!B	0.02687	0.40275	5.94463
	B->Y (FF)	A	0.04890	0.42676	5.55267
	B->Y (RF)	!A	0.03286	0.40914	5.92734

Power Information

Internal switching power(pJ) to Y rising (conditional):

Cell Name	Input	When	Power(pJ)		
			first	mid	last
sky130_osu_sc_12T_hs__xnor2_l	A	B	0.00000	0.00000	0.00000
	A	B	0.00978	0.02237	0.27878
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.01161	0.03060	0.38549
	B	A	0.00000	0.00000	0.00000
	B	A	0.00657	0.02117	0.30839
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01254	0.03024	0.37090

Internal switching power(pJ) to Y falling (conditional):

Cell Name	Input	When	Power(pJ)		
			first	mid	last
sky130_osu_sc_12T_hs__xnor2_l	A	B	0.00000	0.00000	0.00000
	A	B	0.01765	0.03193	0.31028
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00869	0.02515	0.35508
	B	A	0.00000	0.00000	0.00000
	B	A	0.01771	0.03296	0.31768
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00830	0.02468	0.35127

SKY130_OSU_SC_12T_HS__XOR2

sky130_osu_sc_12T_hs_ff_1P95_100C.ccs
Cell Library: Process , Voltage 1.95, Temp 100.00

Truth Table

INPUT		OUTPUT
A	B	Y
0	0	0
0	1	1
1	0	1
1	1	0

Footprint

Cell Name	Area
sky130_osu_sc_12T_hs__xor2_l	14.16360

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	B	Y
sky130_osu_sc_12T_hs__xor2_l	0.00606	0.00522	0.96306

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_12T_hs__xor2_l	0.00000	169.38600	297.60400

Delay Information

Delay(ns) to Y rising (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_12T_hs__xor2_1	A->Y (RR)	!B	0.05846	0.48693	6.04613
	A->Y (FR)	B	0.04367	0.60374	8.83468
	B->Y (RR)	!A	0.04961	0.48683	6.08774
	B->Y (FR)	A	0.04680	0.60424	8.78697

Delay(ns) to Y falling (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_12T_hs__xor2_1	A->Y (FF)	!B	0.05302	0.42431	5.20110
	A->Y (RF)	B	0.02862	0.42627	6.15722
	B->Y (FF)	!A	0.05046	0.42827	5.45213
	B->Y (RF)	A	0.03268	0.39763	5.62537

Power Information

Internal switching power(pJ) to Y rising (conditional):

Cell Name	Input	When	Power(pJ)		
			first	mid	last
sky130_osu_sc_12T_hs__xor2_l	A	B	0.00000	0.00000	0.00000
	A	B	0.01645	0.03307	0.35639
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00533	0.01771	0.28696
	B	A	0.00000	0.00000	0.00000
	B	A	0.01672	0.03313	0.35058
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00437	0.01808	0.29345

Internal switching power(pJ) to Y falling (conditional):

Cell Name	Input	When	Power(pJ)		
			first	mid	last
sky130_osu_sc_12T_hs__xor2_l	A	B	0.00000	0.00000	0.00000
	A	B	0.00862	0.02390	0.33447
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.01789	0.03129	0.27557
	B	A	0.00000	0.00000	0.00000
	B	A	0.00841	0.02324	0.32718
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01615	0.03077	0.30329

SKY130_OSU_SC_12T_HS_x

sky130_osu_sc_12T_hs_ff_1P95_100C.ccs
Cell Library: Process , Voltage 1.95, Temp 100.00

Truth Table

INPUT
A
x

Footprint

Cell Name	Area
sky130_osu_sc_12T_hs__ant	4.39560
sky130_osu_sc_12T_hs__tiehi	4.39560
sky130_osu_sc_12T_hs__tielo	4.39560

Pin Capacitance Information

Cell Name	Pin Cap(pf)
	A
sky130_osu_sc_12T_hs__ant	0.80020
sky130_osu_sc_12T_hs__tiehi	0.00000
sky130_osu_sc_12T_hs__tielo	0.00000

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_12T_hs__ant	0.00000	322352.00000	644705.00000
sky130_osu_sc_12T_hs__tiehi	0.00000	0.00000	0.00000
sky130_osu_sc_12T_hs__tielo	0.00000	0.00000	0.00000

Passive Power Information

Passive power(pJ) for A rising :

Cell Name	Power(pJ)		
	first	mid	last
sky130_osu_sc_12T_hs__ant	0.00000	0.00000	0.00000
	-0.00102	0.09254	1.53822

Passive power(pJ) for A falling :

Cell Name	Power(pJ)		
	first	mid	last
sky130_osu_sc_12T_hs__ant	0.00000	0.00000	0.00000
	5.61105	5.39174	1.78222