sky130_osu_sc_18T_hs_ss_1P60_100C.ccs Library

Cell Groups
SKY130_OSU_SC_18T_HS__ADDFx
SKY130_OSU_SC_18T_HS__ADDHx
SKY130_OSU_SC_18T_HS__AND2x
SKY130_OSU_SC_18T_HS__AOI21
SKY130_OSU_SC_18T_HS__AOI22
SKY130_OSU_SC_18T_HS__BUFx
SKY130_OSU_SC_18T_HS__DFFRx
SKY130_OSU_SC_18T_HS__DFFSRx
SKY130_OSU_SC_18T_HS__DFFSx
SKY130_OSU_SC_18T_HS__DFFx
SKY130_OSU_SC_18T_HS__INVx
SKY130_OSU_SC_18T_HS__MUX2
SKY130_OSU_SC_18T_HS__NAND2x
SKY130_OSU_SC_18T_HS__NOR2x
SKY130_OSU_SC_18T_HS__OAI21
SKY130_OSU_SC_18T_HS__OAI22
SKY130_OSU_SC_18T_HS__OR2x
SKY130_OSU_SC_18T_HS__TBUFIx
SKY130_OSU_SC_18T_HS__TNBUFIx
SKY130_OSU_SC_18T_HS__XNOR2
SKY130_OSU_SC_18T_HS__XOR2
SKY130_OSU_SC_18T_HS_x

SKY130_OSU_SC_18T_HS__ADDFx

sky130_osu_sc_18T_hs_ss_1P60_100C.ccs
Cell Library: Process , Voltage 1.60, 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_18T_hs__addf_1	46.88640
sky130_osu_sc_18T_hs__addf_l	46.88640

Pin Capacitance Information

Cell Name	Pin Cap(pf)			Max Cap(pf)		
	A	B	CI	CO	CON	S
sky130_osu_sc_18T_hs__addf_1	0.02241	0.02232	0.01706	2.05689	0.96348	1.98810
sky130_osu_sc_18T_hs__addf_l	0.02240	0.02231	0.01709	1.48685	0.96542	1.49551

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__addf_1	0.00000	0.84074	1.02698
sky130_osu_sc_18T_hs__addf_l	0.00000	0.87052	1.05676

Delay Information

Delay(ns) to CO rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__addf_1	A->CO (RR)	0.20185	1.99448	26.23680
	B->CO (RR)	0.19753	1.94061	25.41230
	CI->CO (RR)	0.19309	2.03974	26.95480
	CON->CO (FR)	0.03724	0.83321	11.28730
sky130_osu_sc_18T_hs__addf_l	A->CO (RR)	0.19975	1.85798	21.71690
	B->CO (RR)	0.19572	1.81896	21.27810
	CI->CO (RR)	0.19096	1.90345	22.44670
	CON->CO (FR)	0.04004	0.87819	11.07820

Delay(ns) to CO falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__addf_1	A->CO (FF)	0.27248	2.43843	31.66990
	B->CO (FF)	0.24465	2.34429	30.81620
	CI->CO (FF)	0.23669	2.40796	31.82430
	CON->CO (RF)	0.03058	0.67817	9.19529
sky130_osu_sc_18T_hs__addf_l	A->CO (FF)	0.27573	2.33024	26.87080
	B->CO (FF)	0.24732	2.24220	26.24490
	CI->CO (FF)	0.23979	2.29968	27.04800
	CON->CO (RF)	0.03500	0.77054	9.71878

Delay(ns) to CON rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__addf_1	A->CON (FR)	0.20409	1.10660	10.64930
	B->CON (FR)	0.17797	1.05288	10.52140
	CI->CON (FR)	0.16848	1.07810	10.86900
sky130_osu_sc_18T_hs__addf_l	A->CON (FR)	0.19264	1.09606	10.65210
	B->CON (FR)	0.16701	1.04281	10.52400
	CI->CON (FR)	0.15696	1.06785	10.87170

Delay(ns) to CON falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__addf_1	A->CON (RF)	0.12719	0.73693	7.25254
	B->CON (RF)	0.12516	0.75472	7.60812
	CI->CON (RF)	0.11836	0.78424	8.03518
sky130_osu_sc_18T_hs__addf_l	A->CON (RF)	0.12188	0.73218	7.25619
	B->CON (RF)	0.12022	0.75042	7.61148
	CI->CON (RF)	0.11305	0.77946	8.03871

Delay(ns) to S rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__addf_1	A->S (-R)	0.39723	2.29500	25.58530
	B->S (-R)	0.41813	2.31437	25.02930
	CI->S (-R)	0.35865	2.25892	25.73710
	CON->S (RR)	0.11200	0.76268	7.56682
sky130_osu_sc_18T_hs__addf_l	A->S (-R)	0.37483	2.13480	21.83650
	B->S (-R)	0.39621	2.16253	21.48110
	CI->S (-R)	0.33616	2.09821	22.00510
	CON->S (RR)	0.10904	0.79252	7.41128

Delay(ns) to S falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__addf_1	A->S (-F)	0.33139	1.79668	18.73050
	B->S (-F)	0.32659	1.72150	18.21680
	CI->S (-F)	0.32176	1.83643	19.45080
	CON->S (FF)	0.13394	0.76583	6.64213
sky130_osu_sc_18T_hs__addf_l	A->S (-F)	0.32135	1.72694	16.68840
	B->S (-F)	0.31415	1.66437	16.46140
	CI->S (-F)	0.31140	1.76719	17.41660
	CON->S (FF)	0.13530	0.83461	7.15214

Power Information

Internal switching power(pJ) to CO rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__addf_1	A	0.00340	0.00404	0.01653
	B	0.00553	0.00587	0.01644
	CI	0.00566	0.00642	0.01906
sky130_osu_sc_18T_hs__addf_l	A	0.00244	0.00282	0.01133
	B	0.00458	0.00467	0.01187
	CI	0.00470	0.00521	0.01378

Internal switching power(pJ) to CO falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__addf_1	A	0.01497	0.01591	0.03594
	B	0.01594	0.01683	0.03438
	CI	0.01247	0.01348	0.03405
sky130_osu_sc_18T_hs__addf_l	A	0.01402	0.01471	0.02821
	B	0.01498	0.01561	0.02723
	CI	0.01151	0.01221	0.02655

Internal switching power(pJ) to CON rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__addf_1	A	0.01495	0.01549	0.02458
	B	0.01545	0.01592	0.02444
	CI	0.01394	0.01480	0.02336
sky130_osu_sc_18T_hs__addf_l	A	0.01400	0.01447	0.02313
	B	0.01448	0.01489	0.02300
	CI	0.01297	0.01378	0.02192

Internal switching power(pJ) to CON falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__addf_1	A	0.00337	0.00375	0.01015
	B	0.00547	0.00558	0.01128
	CI	0.00562	0.00610	0.01267
sky130_osu_sc_18T_hs__addf_l	A	0.00242	0.00270	0.00859
	B	0.00453	0.00453	0.00979
	CI	0.00467	0.00506	0.01110

Internal switching power(pJ) to S rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__addf_1	A	0.01497	0.01591	0.03506
	B	0.01594	0.01681	0.03368
	CI	0.01246	0.01345	0.03320
sky130_osu_sc_18T_hs__addf_l	A	0.01402	0.01471	0.02823
	B	0.01498	0.01561	0.02727
	CI	0.01151	0.01225	0.02653

Internal switching power(pJ) to S falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__addf_1	A	0.03375	0.03406	0.04812
	B	0.03014	0.03034	0.05154
	CI	0.02740	0.02753	0.04158
sky130_osu_sc_18T_hs__addf_l	A	0.03247	0.03264	0.04703
	B	0.02887	0.02903	0.05071
	CI	0.02616	0.02624	0.04060

SKY130_OSU_SC_18T_HS__ADDHx

sky130_osu_sc_18T_hs_ss_1P60_100C.ccs
Cell Library: Process , Voltage 1.60, Temp 100.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_hs__addh_1	27.83880
sky130_osu_sc_18T_hs__addh_l	27.83880

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)		
	A	B	CO	CON	S
sky130_osu_sc_18T_hs__addh_1	0.01098	0.01195	2.02566	1.00545	2.03766
sky130_osu_sc_18T_hs__addh_l	0.01098	0.01195	1.25321	1.01344	1.25304

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__addh_1	0.00000	0.87085	0.97308
sky130_osu_sc_18T_hs__addh_l	0.00000	0.53621	0.69430

Delay Information

Delay(ns) to CO rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__addh_1	A->CO (RR)	0.13795	0.80032	7.58058
	B->CO (RR)	0.14284	0.78319	7.57916
sky130_osu_sc_18T_hs__addh_l	A->CO (RR)	0.13729	0.87159	7.46954
	B->CO (RR)	0.14219	0.85721	7.45606

Delay(ns) to CO falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__addh_1	A->CO (FF)	0.11713	0.72877	6.58909
	B->CO (FF)	0.12482	0.74642	6.64465
sky130_osu_sc_18T_hs__addh_l	A->CO (FF)	0.11997	0.81141	6.83266
	B->CO (FF)	0.12747	0.82970	6.88543

Delay(ns) to CON rising (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_18T_hs__addh_1	A->CON (RR)	B	0.19029	0.67194	4.09960
	A->CON (FR)	!B	0.11404	1.00218	10.70680
	B->CON (RR)	A	0.19448	0.65388	4.09835
	B->CON (FR)	!A	0.14236	1.02807	10.58390
sky130_osu_sc_18T_hs__addh_l	A->CON (RR)	B	0.16887	0.63934	4.06142
	A->CON (FR)	!B	0.10007	0.99020	10.74480
	B->CON (RR)	A	0.17324	0.62464	4.05122
	B->CON (FR)	!A	0.12838	1.01607	10.62210

Delay(ns) to CON falling (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_18T_hs__addh_1	A->CON (FF)	B	0.18143	0.80539	5.72368
	A->CON (RF)	!B	0.07503	0.73215	8.01582
	B->CON (FF)	A	0.17776	0.83806	6.05258
	B->CON (RF)	!A	0.09164	0.73012	7.75345
sky130_osu_sc_18T_hs__addh_l	A->CON (FF)	B	0.16301	0.76499	5.56715
	A->CON (RF)	!B	0.06855	0.72489	8.04397
	B->CON (FF)	A	0.15946	0.79929	5.90060
	B->CON (RF)	!A	0.08521	0.72526	7.78094

Delay(ns) to S rising (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_18T_hs__addh_1	A->S (RR)	!B	0.14261	1.93390	26.19440
	A->S (FR)	B	0.25006	1.98857	23.67530
	B->S (RR)	!A	0.15989	1.89197	25.25480
	B->S (FR)	A	0.24661	2.06170	24.68340
	CON->S (FR)	-	0.04103	0.85016	11.47680
sky130_osu_sc_18T_hs__addh_l	A->S (RR)	!B	0.14040	1.77093	20.38240
	A->S (FR)	B	0.23633	1.80035	17.78080
	B->S (RR)	!A	0.15798	1.74303	19.76670
	B->S (FR)	A	0.23268	1.86221	18.46450
	CON->S (FR)	-	0.04587	0.94452	11.37290

Delay(ns) to S falling (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_18T_hs__addh_1	A->S (FF)	!B	0.17212	2.21462	29.94900
	A->S (RF)	B	0.24016	1.53928	17.32330
	B->S (FF)	!A	0.20042	2.24456	29.89400
	B->S (RF)	A	0.24435	1.52142	17.31130
	CON->S (RF)	-	0.02902	0.66294	8.94713
sky130_osu_sc_18T_hs__addh_l	A->S (FF)	!B	0.16974	2.02979	23.23160
	A->S (RF)	B	0.22681	1.44019	13.50180
	B->S (FF)	!A	0.19794	2.05876	23.14090
	B->S (RF)	A	0.23110	1.42550	13.48390
	CON->S (RF)	-	0.03510	0.77602	9.41671

Power Information

Internal switching power(pJ) to CO rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__addh_1	A	0.00000	0.00000	0.00000
	A	0.00670	0.00664	0.01346
	B	0.00000	0.00000	0.00000
	B	0.00595	0.00578	0.01320
sky130_osu_sc_18T_hs__addh_l	A	0.00000	0.00000	0.00000
	A	0.00540	0.00524	0.01276
	B	0.00000	0.00000	0.00000
	B	0.00465	0.00436	0.01199

Internal switching power(pJ) to CO falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__addh_1	A	0.00000	0.00000	0.00000
	A	0.01084	0.01080	0.02052
	B	0.00000	0.00000	0.00000
	B	0.01114	0.01169	0.02193
sky130_osu_sc_18T_hs__addh_l	A	0.00000	0.00000	0.00000
	A	0.00953	0.00940	0.01838
	B	0.00000	0.00000	0.00000
	B	0.00984	0.01021	0.01943

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

Cell Name	Input	When	Power(pJ)		
			first	mid	last
sky130_osu_sc_18T_hs__addh_1	A	B	0.00000	0.00000	0.00000
	A	B	0.00670	0.00664	0.01345
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00934	0.00966	0.01341
	B	A	0.00000	0.00000	0.00000
	B	A	0.00594	0.00577	0.01328
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01062	0.01070	0.01322
sky130_osu_sc_18T_hs__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.00540	0.00523	0.01266
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00845	0.00865	0.01147
	B	A	0.00000	0.00000	0.00000
	B	A	0.00464	0.00436	0.01210
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00974	0.00970	0.01126

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

Cell Name	Input	When	Power(pJ)		
			first	mid	last
sky130_osu_sc_18T_hs__addh_1	A	B	0.00000	0.00000	0.00000
	A	B	0.01085	0.01083	0.02013
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00152	0.00172	0.00400
	B	A	0.00000	0.00000	0.00000
	B	A	0.01114	0.01162	0.02136
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00255	0.00253	0.00490
sky130_osu_sc_18T_hs__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.00953	0.00939	0.01835
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00041	0.00049	0.00190
	B	A	0.00000	0.00000	0.00000
	B	A	0.00983	0.01019	0.01936
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00143	0.00132	0.00281

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

Cell Name	Input	When	Power(pJ)		
			first	mid	last
sky130_osu_sc_18T_hs__addh_1	A	B	0.00000	0.00000	0.00000
	A	B	0.01087	0.01083	0.02081
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00155	0.00184	0.00495
	B	A	0.00000	0.00000	0.00000
	B	A	0.01115	0.01172	0.02236
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00258	0.00264	0.00541
sky130_osu_sc_18T_hs__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.00955	0.00941	0.01850
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00043	0.00053	0.00185
	B	A	0.00000	0.00000	0.00000
	B	A	0.00984	0.01024	0.01930
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00146	0.00134	0.00264

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

Cell Name	Input	When	Power(pJ)		
			first	mid	last
sky130_osu_sc_18T_hs__addh_1	A	B	0.00000	0.00000	0.00000
	A	B	0.00671	0.00665	0.01333
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00936	0.00976	0.01400
	B	A	0.00000	0.00000	0.00000
	B	A	0.00595	0.00578	0.01362
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01065	0.01087	0.01439
sky130_osu_sc_18T_hs__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.00540	0.00524	0.01285
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00846	0.00864	0.01117
	B	A	0.00000	0.00000	0.00000
	B	A	0.00465	0.00436	0.01219
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00976	0.00973	0.01127

SKY130_OSU_SC_18T_HS__AND2x

sky130_osu_sc_18T_hs_ss_1P60_100C.ccs
Cell Library: Process , Voltage 1.60, 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_18T_hs__and2_1	12.45420
sky130_osu_sc_18T_hs__and2_2	15.38460
sky130_osu_sc_18T_hs__and2_4	21.24540
sky130_osu_sc_18T_hs__and2_6	27.10620
sky130_osu_sc_18T_hs__and2_8	32.96700
sky130_osu_sc_18T_hs__and2_l	12.45420

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	B	Y
sky130_osu_sc_18T_hs__and2_1	0.00592	0.00605	2.02641
sky130_osu_sc_18T_hs__and2_2	0.00592	0.00605	3.94336
sky130_osu_sc_18T_hs__and2_4	0.00592	0.00605	7.60773
sky130_osu_sc_18T_hs__and2_6	0.00596	0.00605	11.18699
sky130_osu_sc_18T_hs__and2_8	0.00594	0.00607	14.48147
sky130_osu_sc_18T_hs__and2_l	0.00448	0.00460	1.49013

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__and2_1	0.00000	0.40303	0.62123
sky130_osu_sc_18T_hs__and2_2	0.00000	0.62273	0.68457
sky130_osu_sc_18T_hs__and2_4	0.00000	1.07090	1.17529
sky130_osu_sc_18T_hs__and2_6	0.00000	1.51907	1.72935
sky130_osu_sc_18T_hs__and2_8	0.00000	1.96724	2.28340
sky130_osu_sc_18T_hs__and2_l	0.00000	0.45490	0.71282

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__and2_1	A->Y (RR)	0.10554	0.71618	7.34631
	B->Y (RR)	0.11173	0.70822	7.24012
sky130_osu_sc_18T_hs__and2_2	A->Y (RR)	0.12111	0.66928	7.42805
	B->Y (RR)	0.12733	0.65387	7.31567
sky130_osu_sc_18T_hs__and2_4	A->Y (RR)	0.16554	0.70454	7.76310
	B->Y (RR)	0.17169	0.67834	7.63157
sky130_osu_sc_18T_hs__and2_6	A->Y (RR)	0.20883	0.75774	8.01815
	B->Y (RR)	0.21488	0.72599	7.87352
sky130_osu_sc_18T_hs__and2_8	A->Y (RR)	0.25212	0.81491	8.24536
	B->Y (RR)	0.25830	0.77953	8.08179
sky130_osu_sc_18T_hs__and2_l	A->Y (RR)	0.11796	0.81482	7.57257
	B->Y (RR)	0.12510	0.80654	7.50217

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__and2_1	**A->Y (FF)**	0.08971	0.63987	6.09689
	B->Y (FF)	0.09546	0.65810	6.17591
sky130_osu_sc_18T_hs__and2_2	**A->Y (FF)**	0.10382	0.62036	6.20322
	B->Y (FF)	0.11033	0.63546	6.28047
sky130_osu_sc_18T_hs__and2_4	**A->Y (FF)**	0.14467	0.66539	6.53467
	B->Y (FF)	0.15117	0.67655	6.60517
sky130_osu_sc_18T_hs__and2_6	**A->Y (FF)**	0.18924	0.72185	6.78983
	B->Y (FF)	0.19556	0.73122	6.85494
sky130_osu_sc_18T_hs__and2_8	**A->Y (FF)**	0.23072	0.77043	6.91567
	B->Y (FF)	0.23725	0.77824	6.98087
sky130_osu_sc_18T_hs__and2_1	**A->Y (FF)**	0.09621	0.73042	6.48480
	B->Y (FF)	0.10219	0.75002	6.56494

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__and2_1	A	0.00000	0.00000	0.00000
	A	0.00516	0.00539	0.03246
	B	0.00000	0.00000	0.00000
	B	0.00523	0.00490	0.02475
sky130_osu_sc_18T_hs__and2_2	A	0.00000	0.00000	0.00000
	A	0.01048	0.01095	0.03652
	B	0.00000	0.00000	0.00000
	B	0.01056	0.01077	0.02946
sky130_osu_sc_18T_hs__and2_4	A	0.00000	0.00000	0.00000
	A	0.02221	0.02306	0.04725
	B	0.00000	0.00000	0.00000
	B	0.02220	0.02278	0.04101
sky130_osu_sc_18T_hs__and2_6	A	0.00000	0.00000	0.00000
	A	0.03465	0.03498	0.05756
	B	0.00000	0.00000	0.00000
	B	0.03470	0.03503	0.05246
sky130_osu_sc_18T_hs__and2_8	A	0.00000	0.00000	0.00000
	A	0.04783	0.04667	0.06859
	B	0.00000	0.00000	0.00000
	B	0.04794	0.04711	0.06333
sky130_osu_sc_18T_hs__and2_l	A	0.00000	0.00000	0.00000
	A	0.00377	0.00367	0.01743
	B	0.00000	0.00000	0.00000
	B	0.00388	0.00341	0.01356

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__and2_1	A	0.00000	0.00000	0.00000
	A	0.01288	0.01416	0.03992
	B	0.00000	0.00000	0.00000
	B	0.01447	0.01562	0.04047
sky130_osu_sc_18T_hs__and2_2	A	0.00000	0.00000	0.00000
	A	0.01625	0.01810	0.04370
	B	0.00000	0.00000	0.00000
	B	0.01784	0.01943	0.04417
sky130_osu_sc_18T_hs__and2_4	A	0.00000	0.00000	0.00000
	A	0.02508	0.02766	0.05294
	B	0.00000	0.00000	0.00000
	B	0.02666	0.02889	0.05326
sky130_osu_sc_18T_hs__and2_6	A	0.00000	0.00000	0.00000
	A	0.03421	0.03716	0.06252
	B	0.00000	0.00000	0.00000
	B	0.03576	0.03815	0.06247
sky130_osu_sc_18T_hs__and2_8	A	0.00000	0.00000	0.00000
	A	0.04444	0.04668	0.07232
	B	0.00000	0.00000	0.00000
	B	0.04613	0.04829	0.07149
sky130_osu_sc_18T_hs__and2_l	A	0.00000	0.00000	0.00000
	A	0.00978	0.01033	0.02407
	B	0.00000	0.00000	0.00000
	B	0.01093	0.01135	0.02468

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__and2_1	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00504	-0.00507	-0.00508
sky130_osu_sc_18T_hs__and2_2	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00503	-0.00507	-0.00508
sky130_osu_sc_18T_hs__and2_4	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00503	-0.00502	-0.00508
sky130_osu_sc_18T_hs__and2_6	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00504	-0.00508	-0.00509
sky130_osu_sc_18T_hs__and2_8	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00502	-0.00505	-0.00507
sky130_osu_sc_18T_hs__and2_l	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00364	-0.00366	-0.00367

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__and2_1	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00507	0.00513	0.00510
sky130_osu_sc_18T_hs__and2_2	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00508	0.00513	0.00510
sky130_osu_sc_18T_hs__and2_4	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00508	0.00513	0.00511
sky130_osu_sc_18T_hs__and2_6	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00511	0.00516	0.00513
sky130_osu_sc_18T_hs__and2_8	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00509	0.00514	0.00512
sky130_osu_sc_18T_hs__and2_l	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00366	0.00371	0.00369

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__and2_1	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00481	-0.00481	-0.00482
sky130_osu_sc_18T_hs__and2_2	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00481	-0.00483	-0.00481
sky130_osu_sc_18T_hs__and2_4	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00481	-0.00482	-0.00481
sky130_osu_sc_18T_hs__and2_6	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00480	-0.00481	-0.00480
sky130_osu_sc_18T_hs__and2_8	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00480	-0.00481	-0.00480
sky130_osu_sc_18T_hs__and2_l	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00347	-0.00349	-0.00348

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__and2_1	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00494	0.00489	0.00484
sky130_osu_sc_18T_hs__and2_2	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00494	0.00489	0.00484
sky130_osu_sc_18T_hs__and2_4	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00495	0.00489	0.00485
sky130_osu_sc_18T_hs__and2_6	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00495	0.00490	0.00485
sky130_osu_sc_18T_hs__and2_8	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00496	0.00490	0.00486
sky130_osu_sc_18T_hs__and2_l	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00358	0.00354	0.00350

SKY130_OSU_SC_18T_HS__AOI21

sky130_osu_sc_18T_hs_ss_1P60_100C.ccs
Cell Library: Process , Voltage 1.60, 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_18T_hs__aoi21_l	12.45420

Pin Capacitance Information

Cell Name	Pin Cap(pf)			Max Cap(pf)
	A0	A1	B0	Y
sky130_osu_sc_18T_hs__aoi21_l	0.00566	0.00584	0.00564	0.96918

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__aoi21_l	0.00000	0.17205	0.28224

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__aoi21_l	A0->Y (FR)	0.10909	1.01422	10.62240
	A1->Y (FR)	0.09503	0.97216	10.33230
	B0->Y (FR)	0.07727	0.98875	10.81830

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__aoi21_l	A0->Y (RF)	0.07053	0.65846	6.94010
	A1->Y (RF)	0.06475	0.69696	7.57755
	B0->Y (RF)	0.04242	0.68073	7.77279

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__aoi21_l	A0	0.00000	0.00000	0.00000
	A0	0.01165	0.01157	0.01401
	A1	0.00000	0.00000	0.00000
	A1	0.00991	0.00982	0.01222
	B0	0.00891	0.00891	0.01182

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__aoi21_l	A0	0.00000	0.00000	0.00000
	A0	0.00268	0.00228	0.00460
	A1	0.00000	0.00000	0.00000
	A1	0.00271	0.00239	0.00521
	B0	-0.00127	-0.00120	0.00031

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__aoi21_l	(A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * !Y)	-0.00379	-0.00450	-0.00453
	(!A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !Y)	-0.00458	-0.00462	-0.00459
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00457	-0.00459	-0.00459

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__aoi21_l	(A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * !Y)	0.00449	0.00451	0.00453
	(!A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !Y)	0.00459	0.00465	0.00461
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00471	0.00465	0.00461

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__aoi21_l	(A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * B0 * !Y)	-0.00378	-0.00445	-0.00448
	(!A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !Y)	-0.00454	-0.00454	-0.00455
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	-0.00484	-0.00484	-0.00488

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__aoi21_l	(A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * B0 * !Y)	0.00445	0.00448	0.00448
	(!A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !Y)	0.00454	0.00461	0.00456
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	0.00487	0.00493	0.00490

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__aoi21_l	(A0 * A1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !Y)	-0.00214	-0.00216	-0.00215

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__aoi21_l	(A0 * A1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !Y)	0.00236	0.00238	0.00221

SKY130_OSU_SC_18T_HS__AOI22

sky130_osu_sc_18T_hs_ss_1P60_100C.ccs
Cell Library: Process , Voltage 1.60, 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_18T_hs__aoi22_l	15.38460

Pin Capacitance Information

Cell Name	Pin Cap(pf)				Max Cap(pf)
	A0	A1	B0	B1	Y
sky130_osu_sc_18T_hs__aoi22_l	0.00566	0.00585	0.00602	0.00581	0.92818

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__aoi22_l	0.00000	0.20595	0.55405

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__aoi22_l	A0->Y (FR)	0.13723	1.04330	10.49000
	A1->Y (FR)	0.12364	1.01482	10.34210
	B0->Y (FR)	0.08112	0.97518	10.55860
	B1->Y (FR)	0.09490	1.00888	10.75650

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__aoi22_l	A0->Y (RF)	0.09508	0.67544	6.78637
	A1->Y (RF)	0.08931	0.71352	7.42517
	B0->Y (RF)	0.04719	0.66632	7.37657
	B1->Y (RF)	0.05310	0.62828	6.73760

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__aoi22_l	A0	0.01436	0.01424	0.01665
	A1	0.01264	0.01249	0.01490
	B0	0.00761	0.00777	0.01339
	B1	0.00932	0.00945	0.01510

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__aoi22_l	A0	0.00552	0.00509	0.00748
	A1	0.00554	0.00523	0.00814
	B0	-0.00086	-0.00063	0.00221
	B1	-0.00076	-0.00090	0.00163

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__aoi22_l	(A1 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * B1 * !Y)	-0.00379	-0.00449	-0.00453
	(!A1 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * B1 * !Y)	-0.00458	-0.00460	-0.00459
	(!A1 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !B1 * Y)	-0.00457	-0.00459	-0.00458
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00457	-0.00460	-0.00458

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__aoi22_l	(A1 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * B1 * !Y)	0.00449	0.00452	0.00453
	(!A1 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * B1 * !Y)	0.00459	0.00463	0.00461
	(!A1 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !B1 * Y)	0.00470	0.00465	0.00460
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00471	0.00465	0.00460

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__aoi22_l	(A0 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * B0 * B1 * !Y)	-0.00377	-0.00445	-0.00448
	(!A0 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * B1 * !Y)	-0.00454	-0.00454	-0.00454
	(!A0 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !B1 * Y)	-0.00482	-0.00484	-0.00488
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	-0.00482	-0.00484	-0.00488

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__aoi22_l	(A0 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * B0 * B1 * !Y)	0.00446	0.00445	0.00448
	(!A0 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * B1 * !Y)	0.00455	0.00457	0.00457
	(!A0 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !B1 * Y)	0.00487	0.00492	0.00489
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	0.00487	0.00492	0.00489

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__aoi22_l	(A0 * A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * B1 * !Y)	-0.00215	-0.00217	-0.00216
	(A0 * A1 * !B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B1 * !Y)	-0.00213	-0.00215	-0.00215
	(!A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B1 * Y)	-0.00493	-0.00497	-0.00499
	(!A0 * A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B1 * Y)	-0.00493	-0.00497	-0.00499

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__aoi22_l	(A0 * A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * B1 * !Y)	0.00247	0.00249	0.00224
	(A0 * A1 * !B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B1 * !Y)	0.00214	0.00217	0.00215
	(!A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B1 * Y)	0.00498	0.00507	0.00500
	(!A0 * A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B1 * Y)	0.00498	0.00506	0.00500

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__aoi22_l	(A0 * A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * B0 * !Y)	-0.00216	-0.00218	-0.00217
	(A0 * A1 * !B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B0 * !Y)	-0.00215	-0.00216	-0.00216
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00464	-0.00467	-0.00465
	(!A0 * A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B0 * Y)	-0.00464	-0.00467	-0.00465

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__aoi22_l	(A0 * A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * B0 * !Y)	0.00248	0.00250	0.00225
	(A0 * A1 * !B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B0 * !Y)	0.00216	0.00218	0.00216
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00476	0.00470	0.00466
	(!A0 * A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B0 * Y)	0.00476	0.00470	0.00466

SKY130_OSU_SC_18T_HS__BUFx

sky130_osu_sc_18T_hs_ss_1P60_100C.ccs
Cell Library: Process , Voltage 1.60, Temp 100.00

Truth Table

INPUT	OUTPUT
A	Y
0	0
1	1

Footprint

Cell Name	Area
sky130_osu_sc_18T_hs__buf_1	9.52380
sky130_osu_sc_18T_hs__buf_2	12.45420
sky130_osu_sc_18T_hs__buf_4	18.31500
sky130_osu_sc_18T_hs__buf_6	24.17580
sky130_osu_sc_18T_hs__buf_8	30.03660
sky130_osu_sc_18T_hs__buf_l	9.52380

Pin Capacitance Information

Cell Name	Pin Cap(pf)	Max Cap(pf)
	A	Y
sky130_osu_sc_18T_hs__buf_1	0.00603	2.02707
sky130_osu_sc_18T_hs__buf_2	0.00603	3.95155
sky130_osu_sc_18T_hs__buf_4	0.00603	7.65757
sky130_osu_sc_18T_hs__buf_6	0.00098	1.80000
sky130_osu_sc_18T_hs__buf_8	0.00604	14.76565
sky130_osu_sc_18T_hs__buf_l	0.00463	1.47931

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__buf_1	0.00000	0.34941	0.34941
sky130_osu_sc_18T_hs__buf_2	0.00000	0.51699	0.62123
sky130_osu_sc_18T_hs__buf_4	0.00000	0.85928	1.17529
sky130_osu_sc_18T_hs__buf_6	0.00000	0.00000	0.00000
sky130_osu_sc_18T_hs__buf_8	0.00000	1.54385	2.28341
sky130_osu_sc_18T_hs__buf_l	0.00000	0.37920	0.37920

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__buf_1	**A->Y (RR)**	0.07808	0.66609	7.13820
sky130_osu_sc_18T_hs__buf_2	**A->Y (RR)**	0.08615	0.60320	7.18332
sky130_osu_sc_18T_hs__buf_4	**A->Y (RR)**	0.11489	0.61419	7.47808
sky130_osu_sc_18T_hs__buf_8	**A->Y (RR)**	0.16974	0.68715	7.93287
sky130_osu_sc_18T_hs__buf_l	**A->Y (RR)**	0.08698	0.75745	7.30925

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__buf_1	**A->Y (FF)**	0.08559	0.63017	6.11664
sky130_osu_sc_18T_hs__buf_2	**A->Y (FF)**	0.10064	0.61440	6.24208
sky130_osu_sc_18T_hs__buf_4	**A->Y (FF)**	0.14165	0.66061	6.58328
sky130_osu_sc_18T_hs__buf_8	**A->Y (FF)**	0.22768	0.76877	7.03249
sky130_osu_sc_18T_hs__buf_l	**A->Y (FF)**	0.09320	0.71747	6.44617

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__buf_1	A	0.00000	0.00000	0.00000
	A	0.00483	0.00508	0.02818
sky130_osu_sc_18T_hs__buf_2	A	0.00000	0.00000	0.00000
	A	0.01007	0.01059	0.03304
sky130_osu_sc_18T_hs__buf_4	A	0.00000	0.00000	0.00000
	A	0.02151	0.02270	0.04470
sky130_osu_sc_18T_hs__buf_8	A	0.00000	0.00000	0.00000
	A	0.04509	0.04734	0.06798
sky130_osu_sc_18T_hs__buf_l	A	0.00000	0.00000	0.00000
	A	0.00362	0.00348	0.01591

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__buf_1	A	0.00000	0.00000	0.00000
	A	0.01241	0.01376	0.03992
sky130_osu_sc_18T_hs__buf_2	A	0.00000	0.00000	0.00000
	A	0.01575	0.01749	0.04333
sky130_osu_sc_18T_hs__buf_4	A	0.00000	0.00000	0.00000
	A	0.02456	0.02697	0.05233
sky130_osu_sc_18T_hs__buf_8	A	0.00000	0.00000	0.00000
	A	0.04397	0.04567	0.07089
sky130_osu_sc_18T_hs__buf_l	A	0.00000	0.00000	0.00000
	A	0.00952	0.01008	0.02406

Passive power(pJ) for A rising :

Cell Name	Power(pJ)		
	first	mid	last
sky130_osu_sc_18T_hs__buf_6	0.00000	0.00000	0.00000
	-0.00062	-0.00062	-0.00061

Passive power(pJ) for A falling :

Cell Name	Power(pJ)		
	first	mid	last
sky130_osu_sc_18T_hs__buf_6	0.00000	0.00000	0.00000
	0.00062	0.00062	0.00061

SKY130_OSU_SC_18T_HS__DFFRx

sky130_osu_sc_18T_hs_ss_1P60_100C.ccs
Cell Library: Process , Voltage 1.60, 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_18T_hs__dffr_1	63.73620
sky130_osu_sc_18T_hs__dffr_l	63.73620

Pin Capacitance Information

Cell Name	Pin Cap(pf)			Max Cap(pf)	
	D	RN	CK	Q	QN
sky130_osu_sc_18T_hs__dffr_1	0.00581	0.00576	0.01649	1.97891	1.97599
sky130_osu_sc_18T_hs__dffr_l	0.00581	0.00576	0.01648	1.50016	1.48831

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__dffr_1	0.00000	1.27616	1.63803
sky130_osu_sc_18T_hs__dffr_l	0.00000	1.30594	1.66782

Delay Information

Delay(ns) to Q rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__dffr_1	CK->Q (RR)	0.39664	1.63380	16.27790
	QN->Q (FR)	0.04218	0.90510	12.17470
sky130_osu_sc_18T_hs__dffr_l	CK->Q (RR)	0.39685	1.80469	17.02010
	QN->Q (FR)	0.04331	0.94349	11.89720

Delay(ns) to Q falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__dffr_1	CK->Q (RF)	0.40397	1.67148	16.93070
	QN->Q (RF)	0.03463	0.76568	10.25950
	RN->Q (FF)	0.30052	1.66406	17.82910
sky130_osu_sc_18T_hs__dffr_l	CK->Q (RF)	0.40649	1.87273	17.92550
	QN->Q (RF)	0.03782	0.84788	10.69770
	RN->Q (FF)	0.30369	1.86723	18.82070

Delay(ns) to QN rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__dffr_1	CK->QN (RR)	0.35694	0.97660	7.37101
	RN->QN (FR)	0.25348	0.97028	8.27212
sky130_osu_sc_18T_hs__dffr_l	CK->QN (RR)	0.35113	1.01380	7.24825
	RN->QN (FR)	0.24820	1.00765	8.14274

Delay(ns) to QN falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__dffr_1	**CK->QN (RF)**	0.33741	0.85918	5.65220
sky130_osu_sc_18T_hs__dffr_l	**CK->QN (RF)**	0.33354	0.92333	6.11474

Constraint Information

Constraints(ns) for D rising :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_hs__dffr_1	hold	CK (R)	-0.09357	-0.10673	-0.11072
	setup	CK (R)	0.31189	0.33934	0.97466
sky130_osu_sc_18T_hs__dffr_l	hold	CK (R)	-0.09382	-0.10699	-0.11077
	setup	CK (R)	0.31146	0.33927	0.97437

Constraints(ns) for D falling :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_hs__dffr_1	hold	CK (R)	-0.16993	-0.42543	-3.13231
	setup	CK (R)	0.20532	0.43962	3.21104
sky130_osu_sc_18T_hs__dffr_l	hold	CK (R)	-0.16838	-0.42491	-3.13164
	setup	CK (R)	0.20528	0.43959	3.21105

Constraints(ns) for D rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_hs__dffr_1	hold	CK (R)	-0.09357	-0.10673	-0.11072
	setup	CK (R)	0.31189	0.33934	0.97466
sky130_osu_sc_18T_hs__dffr_l	hold	CK (R)	-0.09382	-0.10699	-0.11077
	setup	CK (R)	0.31146	0.33927	0.97437

Constraints(ns) for D falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_hs__dffr_1	hold	CK (R)	-0.16993	-0.42543	-3.13231
	setup	CK (R)	0.20532	0.43962	3.21104
sky130_osu_sc_18T_hs__dffr_l	hold	CK (R)	-0.16838	-0.42491	-3.13164
	setup	CK (R)	0.20528	0.43959	3.21105

Constraints(ns) for RN rising :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_hs__dffr_1	recovery	CK (R)	0.24993	0.28602	1.14077
	removal	CK (R)	-0.04866	-0.05733	-0.10635
sky130_osu_sc_18T_hs__dffr_l	recovery	CK (R)	0.25039	0.28575	1.14334
	removal	CK (R)	-0.04866	-0.05733	-0.10635

Constraints(ns) for RN rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_hs__dffr_1	recovery	CK (R)	0.24993	0.28602	1.14077
	removal	CK (R)	-0.04866	-0.05733	-0.10635
sky130_osu_sc_18T_hs__dffr_l	recovery	CK (R)	0.25039	0.28575	1.14334
	removal	CK (R)	-0.04866	-0.05733	-0.10635

Constraints(ns) for RN falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_hs__dffr_1	min_pulse_width	RN ()	0.17939	0.54932	13.33370
	min_pulse_width	RN ()	0.17939	0.54932	13.33370
sky130_osu_sc_18T_hs__dffr_l	min_pulse_width	RN ()	0.17528	0.54932	13.33370
	min_pulse_width	RN ()	0.17528	0.54932	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_18T_hs__dffr_1	min_pulse_width	CK ()	0.18350	0.54932	13.33370
	min_pulse_width	CK ()	0.21227	0.54932	13.33370
sky130_osu_sc_18T_hs__dffr_l	min_pulse_width	CK ()	0.17322	0.54932	13.33370
	min_pulse_width	CK ()	0.20610	0.54932	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_18T_hs__dffr_1	min_pulse_width	CK ()	0.39929	0.54932	13.33370
	min_pulse_width	CK ()	0.17117	0.54932	13.33370
sky130_osu_sc_18T_hs__dffr_l	min_pulse_width	CK ()	0.39929	0.54932	13.33370
	min_pulse_width	CK ()	0.17117	0.54932	13.33370

Power Information

Internal switching power(pJ) to Q rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__dffr_1	CK	0.00000	0.00000	0.00000
	CK	0.01253	0.01039	0.00017
sky130_osu_sc_18T_hs__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.01105	0.00968	0.01501

Internal switching power(pJ) to Q falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__dffr_1	CK	0.00000	0.00000	0.00000
	CK	0.01435	0.01295	0.00814
	RN	-0.00160	-0.08777	-1.26648
	RN	0.03284	0.03174	0.02785
sky130_osu_sc_18T_hs__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.01287	0.01186	0.01551
	RN	-0.00160	-0.07433	-0.96009
	RN	0.03135	0.03065	0.03495

Internal switching power(pJ) to QN rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__dffr_1	CK	0.00000	0.00000	0.00000
	CK	0.01434	0.01293	0.00818
	RN	-0.00160	-0.08770	-1.26448
	RN	0.03283	0.03171	0.02758
sky130_osu_sc_18T_hs__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.01286	0.01186	0.01549
	RN	-0.00160	-0.07398	-0.95236
	RN	0.03133	0.03065	0.03496

Internal switching power(pJ) to QN falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__dffr_1	CK	0.00000	0.00000	0.00000
	CK	0.01248	0.01033	0.00018
sky130_osu_sc_18T_hs__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.01100	0.00969	0.01484

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__dffr_1	CK	0.00000	0.00000	0.00000
	CK	-0.00366	-0.00442	-0.00451
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.01532	0.01467	0.03051
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.00712	0.00656	0.02267
sky130_osu_sc_18T_hs__dffr_l	CK	0.00000	0.00000	0.00000
	CK	-0.00366	-0.00442	-0.00451
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.01532	0.01467	0.03051
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.00712	0.00656	0.02267

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__dffr_1	CK	0.00000	0.00000	0.00000
	CK	0.00450	0.00457	0.00454
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.02629	0.02605	0.04281
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.01215	0.01193	0.02855
sky130_osu_sc_18T_hs__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.00450	0.00457	0.00454
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.02629	0.02606	0.04281
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.01215	0.01193	0.02855

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__dffr_1	(CK * !Q * QN) + (!CK * !D * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !Q * QN) + (!CK * !D * !Q * QN)	0.00484	0.00500	0.03321
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.01318	0.01303	0.04113
sky130_osu_sc_18T_hs__dffr_l	(CK * !Q * QN) + (!CK * !D * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !Q * QN) + (!CK * !D * !Q * QN)	0.00484	0.00500	0.03321
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.01318	0.01303	0.04113

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__dffr_1	(CK * !Q * QN) + (!CK * !D * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !Q * QN) + (!CK * !D * !Q * QN)	0.01131	0.01217	0.04191
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.02488	0.02522	0.05466
sky130_osu_sc_18T_hs__dffr_l	(CK * !Q * QN) + (!CK * !D * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !Q * QN) + (!CK * !D * !Q * QN)	0.01131	0.01217	0.04191
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.02488	0.02522	0.05466

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__dffr_1	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	-0.00093	-0.00109	0.02680
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.00703	0.00621	0.03475
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	-0.00148	-0.00154	0.02611
sky130_osu_sc_18T_hs__dffr_l	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	-0.00093	-0.00109	0.02680
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.00703	0.00621	0.03475
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	-0.00148	-0.00154	0.02611

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__dffr_1	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.01768	0.01862	0.04837
	(D * RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * RN * !Q * QN)	0.03906	0.03896	0.07100
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.03021	0.03060	0.05984
	(!D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * Q * !QN)	0.03854	0.03985	0.09159
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.02039	0.02131	0.05025
sky130_osu_sc_18T_hs__dffr_l	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.01768	0.01862	0.04837
	(D * RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * RN * !Q * QN)	0.03906	0.03896	0.07100
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.03021	0.03060	0.05984
	(!D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * Q * !QN)	0.03854	0.03985	0.09159
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.02039	0.02131	0.05025

SKY130_OSU_SC_18T_HS__DFFSRx

sky130_osu_sc_18T_hs_ss_1P60_100C.ccs
Cell Library: Process , Voltage 1.60, 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_18T_hs__dffsr_1	69.59700
sky130_osu_sc_18T_hs__dffsr_l	69.59700

Pin Capacitance Information

Cell Name	Pin Cap(pf)				Max Cap(pf)	
	D	**RN**	**SN**	**CK**	**Q**	**QN**
sky130_osu_sc_18T_hs__dffsr_1	0.00577	0.00577	0.01231	0.01679	2.06767	2.05326
sky130_osu_sc_18T_hs__dffsr_l	0.00577	0.00577	0.01230	0.01679	1.48611	1.48976

Leakage Information

Cell Name	Leakage(nW)		
	Min.	**Avg**	**Max.**
sky130_osu_sc_18T_hs__dffsr_1	0.00000	1.30054	1.64549
sky130_osu_sc_18T_hs__dffsr_l	0.00000	1.33033	1.67528

Delay Information

Delay(ns) to Q rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__dffsr_1	CK->Q (RR)	0.41366	1.64713	16.44130
	QN->Q (FR)	0.04039	0.89032	12.11910
	RN->Q (RR)	0.32651	1.57117	16.39040
	SN->Q (FR)	0.30491	1.64673	17.55500
sky130_osu_sc_18T_hs__dffsr_l	CK->Q (RR)	0.42311	1.83160	16.92000
	QN->Q (FR)	0.04323	0.93773	11.80210
	RN->Q (RR)	0.33633	1.75591	16.86980
	SN->Q (FR)	0.31396	1.82891	18.02860

Delay(ns) to Q falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__dffsr_1	CK->Q (RF)	0.45453	1.72095	17.14400
	QN->Q (RF)	0.03195	0.73004	9.88541
	RN->Q (FF)	0.31080	1.67733	18.04850
sky130_osu_sc_18T_hs__dffsr_l	CK->Q (RF)	0.46216	1.92775	17.81590
	QN->Q (RF)	0.03775	0.84393	10.62900
	RN->Q (FF)	0.31860	1.88469	18.71010

Delay(ns) to QN rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__dffsr_1	CK->QN (RR)	0.40827	1.03506	7.51536
	RN->QN (FR)	0.26534	0.99189	8.41437
sky130_osu_sc_18T_hs__dffsr_l	CK->QN (RR)	0.40560	1.07625	7.31469
	RN->QN (FR)	0.26293	1.03316	8.20825

Delay(ns) to QN falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__dffsr_1	CK->QN (RF)	0.35777	0.87874	5.66902
	RN->QN (RF)	0.27089	0.80275	5.62248
	SN->QN (FF)	0.24949	0.87846	6.78317
sky130_osu_sc_18T_hs__dffsr_l	CK->QN (RF)	0.36124	0.95994	6.18647
	RN->QN (RF)	0.27439	0.88461	6.13681
	SN->QN (FF)	0.25247	0.95799	7.29312

Constraint Information

Constraints(ns) for D rising :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_hs__dffsr_1	hold	CK (R)	-0.10589	-0.12092	-0.18368
	setup	CK (R)	0.31475	0.33942	1.01715
sky130_osu_sc_18T_hs__dffsr_l	hold	CK (R)	-0.10823	-0.12257	-0.18480
	setup	CK (R)	0.31313	0.33773	1.01522

Constraints(ns) for D falling :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_hs__dffsr_1	hold	CK (R)	-0.18822	-0.44032	-3.17932
	setup	CK (R)	0.23501	0.45693	3.24001
sky130_osu_sc_18T_hs__dffsr_l	hold	CK (R)	-0.18868	-0.44257	-3.17976
	setup	CK (R)	0.23531	0.45693	3.24001

Constraints(ns) for D rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_hs__dffsr_1	hold	CK (R)	-0.10589	-0.12092	-0.18368
	setup	CK (R)	0.31475	0.33942	1.01715
sky130_osu_sc_18T_hs__dffsr_l	hold	CK (R)	-0.10823	-0.12257	-0.18480
	setup	CK (R)	0.31313	0.33773	1.01522

Constraints(ns) for D falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_hs__dffsr_1	hold	CK (R)	-0.18822	-0.44032	-3.17932
	setup	CK (R)	0.23501	0.45693	3.24001
sky130_osu_sc_18T_hs__dffsr_l	hold	CK (R)	-0.18868	-0.44257	-3.17976
	setup	CK (R)	0.23531	0.45693	3.24001

Constraints(ns) for RN rising :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_hs__dffsr_1	recovery	CK (R)	0.22407	0.25329	1.06542
	removal	CK (R)	-0.02861	-0.03657	-0.07117
	hold	SN (R)	-0.23353	-0.42176	-1.67570
	setup	SN (R)	0.26702	0.47689	4.67801
sky130_osu_sc_18T_hs__dffsr_l	recovery	CK (R)	0.22388	0.25179	1.06193
	removal	CK (R)	-0.02861	-0.03657	-0.07117
	hold	SN (R)	-0.23290	-0.41924	-1.63231
	setup	SN (R)	0.26500	0.47148	4.58801

Constraints(ns) for RN rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_hs__dffsr_1	recovery	CK (R)	0.22407	0.25329	1.06542
	removal	CK (R)	-0.02861	-0.03657	-0.07117
	hold	SN (R)	-0.23566	-0.42176	-1.67570
	hold	SN (R)	-0.23353	-0.42459	-1.68493
	setup	SN (R)	0.26702	0.47139	4.42642
	setup	SN (R)	0.26133	0.47689	4.67801
sky130_osu_sc_18T_hs__dffsr_l	recovery	CK (R)	0.22388	0.25179	1.06193
	removal	CK (R)	-0.02861	-0.03657	-0.07117
	hold	SN (R)	-0.23607	-0.41924	-1.65546
	hold	SN (R)	-0.23290	-0.42094	-1.63231
	setup	SN (R)	0.26500	0.46705	4.38463
	setup	SN (R)	0.24918	0.47148	4.58801

Constraints(ns) for RN falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_hs__dffsr_1	min_pulse_width	RN ()	0.20816	0.54932	13.33370
	min_pulse_width	RN ()	0.21227	0.54932	13.33370
sky130_osu_sc_18T_hs__dffsr_l	min_pulse_width	RN ()	0.20816	0.54932	13.33370
	min_pulse_width	RN ()	0.20610	0.54932	13.33370

Constraints(ns) for SN rising :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_hs__dffsr_1	recovery	CK (R)	0.06702	0.10709	4.14457
	removal	CK (R)	-0.02461	-0.07907	-0.37223
sky130_osu_sc_18T_hs__dffsr_l	recovery	CK (R)	0.06585	0.10666	3.97811
	removal	CK (R)	-0.02584	-0.07907	-0.37118

Constraints(ns) for SN rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_hs__dffsr_1	recovery	CK (R)	0.06702	0.10709	4.14457
	removal	CK (R)	-0.02461	-0.07907	-0.37223
sky130_osu_sc_18T_hs__dffsr_l	recovery	CK (R)	0.06585	0.10666	3.97811
	removal	CK (R)	-0.02584	-0.07907	-0.37118

Constraints(ns) for SN falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_hs__dffsr_1	min_pulse_width	SN ()	0.24310	0.54932	13.33370
	min_pulse_width	SN ()	0.24104	0.54932	13.33370
sky130_osu_sc_18T_hs__dffsr_l	min_pulse_width	SN ()	0.24310	0.54932	13.33370
	min_pulse_width	SN ()	0.22871	0.54932	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_18T_hs__dffsr_1	min_pulse_width	CK ()	0.18966	0.54932	13.33370
	min_pulse_width	CK ()	0.22460	0.54932	13.33370
sky130_osu_sc_18T_hs__dffsr_l	min_pulse_width	CK ()	0.18350	0.54932	13.33370
	min_pulse_width	CK ()	0.22049	0.54932	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_18T_hs__dffsr_1	min_pulse_width	CK ()	0.40340	0.54932	13.33370
	min_pulse_width	CK ()	0.20610	0.54932	13.33370
sky130_osu_sc_18T_hs__dffsr_l	min_pulse_width	CK ()	0.40134	0.54932	13.33370
	min_pulse_width	CK ()	0.20610	0.54932	13.33370

Power Information

Internal switching power(pJ) to Q rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__dffsr_1	CK	0.00000	0.00000	0.00000
	CK	0.01577	0.01442	0.01475
	RN	0.02897	0.02764	0.02063
	SN	-0.00160	-0.09012	-1.32331
	SN	0.03245	0.03074	0.02257
sky130_osu_sc_18T_hs__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.01439	0.01304	0.01850
	RN	0.02759	0.02625	0.02213
	SN	-0.00160	-0.07392	-0.95111
	SN	0.03106	0.02937	0.02615

Internal switching power(pJ) to Q falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__dffsr_1	CK	0.00000	0.00000	0.00000
	CK	0.01683	0.01581	0.01406
	RN	-0.00160	-0.09012	-1.32330
	RN	0.03386	0.03284	0.03191
sky130_osu_sc_18T_hs__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.01547	0.01467	0.01862
	RN	-0.00160	-0.07392	-0.95110
	RN	0.03247	0.03165	0.03639

Internal switching power(pJ) to QN rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__dffsr_1	CK	0.00000	0.00000	0.00000
	CK	0.01682	0.01580	0.01408
	RN	-0.00160	-0.08974	-1.31401
	RN	0.03383	0.03281	0.03168
sky130_osu_sc_18T_hs__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.01545	0.01462	0.01858
	RN	-0.00160	-0.07402	-0.95328
	RN	0.03244	0.03161	0.03616

Internal switching power(pJ) to QN falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__dffsr_1	CK	0.00000	0.00000	0.00000
	CK	0.01570	0.01442	0.01479
	RN	0.02889	0.02754	0.02017
	SN	-0.00160	-0.08974	-1.31391
	SN	0.03237	0.03064	0.02262
sky130_osu_sc_18T_hs__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.01433	0.01301	0.01814
	RN	0.02752	0.02616	0.02368
	SN	-0.00160	-0.07402	-0.95334
	SN	0.03099	0.02930	0.02616

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__dffsr_1	CK	0.00000	0.00000	0.00000
	CK	-0.00441	-0.00449	-0.00449
	(!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)	0.01970	0.01908	0.03485
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.00816	0.00759	0.02346
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.00808	0.00753	0.02348
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.00815	0.00760	0.02350
sky130_osu_sc_18T_hs__dffsr_1	CK	0.00000	0.00000	0.00000
	CK	-0.00441	-0.00449	-0.00449
	(!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)	0.01970	0.01908	0.03485
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.00816	0.00759	0.02346
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.00808	0.00753	0.02348
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.00815	0.00760	0.02350

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__dffsr_1	CK	0.00000	0.00000	0.00000
	CK	0.00458	0.00449	0.00449
	(!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)	0.03010	0.02972	0.04604
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.01265	0.01251	0.02901
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.01288	0.01264	0.02901
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.01259	0.01245	0.02894
sky130_osu_sc_18T_hs__dffsr_1	CK	0.00000	0.00000	0.00000
	CK	0.00458	0.00449	0.00449
	(!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)	0.03009	0.02972	0.04603
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.01264	0.01250	0.02900
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.01287	0.01263	0.02900
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.01258	0.01244	0.02893

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_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)	0.00407	0.00407	0.03216
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.01581	0.01551	0.04336
sky130_osu_sc_18T_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)	0.00407	0.00407	0.03216
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.01582	0.01552	0.04337

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_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)	0.01195	0.01299	0.04299
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.02612	0.02642	0.05598
sky130_osu_sc_18T_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)	0.01193	0.01297	0.04298
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.02611	0.02641	0.05597

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_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)	-0.01000	-0.01002	-0.01009
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	-0.00902	-0.01028	-0.01033
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	-0.00931	-0.00995	-0.00998
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.00716	0.00669	0.02351
sky130_osu_sc_18T_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)	-0.01000	-0.01003	-0.01009
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	-0.00900	-0.01026	-0.01032
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	-0.00930	-0.00995	-0.00998
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.00717	0.00671	0.02351

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_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)	0.01009	0.01020	0.01014
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.01033	0.01042	0.01039
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	0.00997	0.01008	0.01004
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.02021	0.01973	0.03536
sky130_osu_sc_18T_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)	0.01009	0.01020	0.01014
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.01031	0.01040	0.01037
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	0.00997	0.01007	0.01003
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.02020	0.01977	0.03536

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__dffsr_1	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	-0.00093	-0.00109	0.02680
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.00794	0.00717	0.03565
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.00767	0.00691	0.03553
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	-0.00128	-0.00138	0.02632
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.00580	0.00532	0.05768
sky130_osu_sc_18T_hs__dffsr_1	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	-0.00093	-0.00109	0.02680
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.00794	0.00716	0.03564
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.00766	0.00690	0.03553
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	-0.00128	-0.00138	0.02632
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.00580	0.00533	0.05769

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

Cell Name	When	Power(pJ)		
		first	mid	last

sky130_osu_sc_18T_hs__dffsr_1	**(D * RN * SN * !Q * QN)**	0.00000	0.00000	0.00000
	(D * RN * SN * !Q * QN)	0.04372	0.04369	0.07554
	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.01772	0.01867	0.04841
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.03091	0.03136	0.06071
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.03096	0.03142	0.06063
	(!D * RN * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * Q * !QN)	0.04229	0.04333	0.09481
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.02023	0.02103	0.05010
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.02342	0.02494	0.08003
sky130_osu_sc_18T_hs__dffsr_l	**(D * RN * SN * !Q * QN)**	0.00000	0.00000	0.00000
	(D * RN * SN * !Q * QN)	0.04373	0.04369	0.07554
	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.01772	0.01867	0.04841
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.03091	0.03136	0.06071
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.03096	0.03142	0.06063
	(!D * RN * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * Q * !QN)	0.04228	0.04332	0.09480
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.02023	0.02104	0.05010
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.02341	0.02493	0.08002

SKY130_OSU_SC_18T_HS__DFFSx

sky130_osu_sc_18T_hs_ss_1P60_100C.ccs
Cell Library: Process , Voltage 1.60, 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_18T_hs__dffs_1	57.87540
sky130_osu_sc_18T_hs__dffs_l	57.87540

Pin Capacitance Information

Cell Name	Pin Cap(pf)			Max Cap(pf)	
	D	SN	CK	Q	QN
sky130_osu_sc_18T_hs__dffs_1	0.00580	0.00956	0.01657	1.98401	1.99300
sky130_osu_sc_18T_hs__dffs_l	0.00580	0.00956	0.01657	1.48844	1.49515

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__dffs_1	0.00000	1.31441	2.17859
sky130_osu_sc_18T_hs__dffs_l	0.00000	1.34419	2.20837

Delay Information

Delay(ns) to Q rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__dffs_1	CK->Q (RR)	0.29541	1.51225	16.14040
	QN->Q (FR)	0.04198	0.90038	12.11600
	SN->Q (FR)	0.22154	1.57768	17.00350
sky130_osu_sc_18T_hs__dffs_l	CK->Q (RR)	0.29969	1.68435	16.73440
	QN->Q (FR)	0.04313	0.93590	11.78290
	SN->Q (FR)	0.22501	1.74251	17.57250

Delay(ns) to Q falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__dffs_1	CK->Q (RF)	0.45672	1.73297	16.97620
	QN->Q (RF)	0.03439	0.76317	10.23450
sky130_osu_sc_18T_hs__dffs_l	CK->Q (RF)	0.45563	1.92259	17.80330
	QN->Q (RF)	0.03763	0.84283	10.61800

Delay(ns) to QN rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__dffs_1	CK->QN (RR)	0.40750	1.04064	7.45973
sky130_osu_sc_18T_hs__dffs_l	CK->QN (RR)	0.39798	1.07125	7.31068

Delay(ns) to QN falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__dffs_1	CK->QN (RF)	0.24139	0.74212	5.55584
	SN->QN (FF)	0.16710	0.80767	6.41747
sky130_osu_sc_18T_hs__dffs_l	CK->QN (RF)	0.24146	0.81389	6.01036
	SN->QN (FF)	0.16642	0.87317	6.84417

Constraint Information

Constraints(ns) for D rising :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_hs__dffs_1	hold	CK (R)	-0.07235	-0.08500	-0.07469
	setup	CK (R)	0.20942	0.24587	0.97291
sky130_osu_sc_18T_hs__dffs_l	hold	CK (R)	-0.07075	-0.08686	-0.07459
	setup	CK (R)	0.20994	0.24477	0.97026

Constraints(ns) for D falling :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_hs__dffs_1	hold	CK (R)	-0.17422	-0.42627	-3.13091
	setup	CK (R)	0.23441	0.44206	3.21569
sky130_osu_sc_18T_hs__dffs_l	hold	CK (R)	-0.17411	-0.42692	-3.13072
	setup	CK (R)	0.23441	0.44206	3.21569

Constraints(ns) for D rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_hs__dffs_1	hold	CK (R)	-0.07235	-0.08500	-0.07469
	setup	CK (R)	0.20942	0.24587	0.97291
sky130_osu_sc_18T_hs__dffs_l	hold	CK (R)	-0.07075	-0.08686	-0.07459
	setup	CK (R)	0.20994	0.24477	0.97026

Constraints(ns) for D falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_hs__dffs_1	hold	CK (R)	-0.17422	-0.42627	-3.13091
	setup	CK (R)	0.23441	0.44206	3.21569
sky130_osu_sc_18T_hs__dffs_l	hold	CK (R)	-0.17411	-0.42692	-3.13072
	setup	CK (R)	0.23441	0.44206	3.21569

Constraints(ns) for SN rising :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_hs__dffs_1	recovery	CK (R)	0.07282	0.12994	3.30772
	removal	CK (R)	-0.03170	-0.10040	-0.80949
sky130_osu_sc_18T_hs__dffs_l	recovery	CK (R)	0.07285	0.12993	3.17116
	removal	CK (R)	-0.03170	-0.10040	-0.80949

Constraints(ns) for SN rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_hs__dffs_1	recovery	CK (R)	0.07282	0.12994	3.30772
	removal	CK (R)	-0.03170	-0.10040	-0.80949
sky130_osu_sc_18T_hs__dffs_l	recovery	CK (R)	0.07285	0.12993	3.17116
	removal	CK (R)	-0.03170	-0.10040	-0.80949

Constraints(ns) for SN falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_hs__dffs_1	min_pulse_width	SN ()	0.14239	0.54932	13.33370
	min_pulse_width	SN ()	0.14445	0.54932	13.33370
sky130_osu_sc_18T_hs__dffs_l	min_pulse_width	SN ()	0.14239	0.54932	13.33370
	min_pulse_width	SN ()	0.14034	0.54932	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_18T_hs__dffs_1	min_pulse_width	CK ()	0.12801	0.54932	13.33370
	min_pulse_width	CK ()	0.22871	0.54932	13.33370
sky130_osu_sc_18T_hs__dffs_l	min_pulse_width	CK ()	0.12390	0.54932	13.33370
	min_pulse_width	CK ()	0.22049	0.54932	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_18T_hs__dffs_1	min_pulse_width	CK ()	0.29653	0.54932	13.33370
	min_pulse_width	CK ()	0.20405	0.54932	13.33370
sky130_osu_sc_18T_hs__dffs_l	min_pulse_width	CK ()	0.29653	0.54932	13.33370
	min_pulse_width	CK ()	0.20405	0.54932	13.33370

Power Information

Internal switching power(pJ) to Q rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__dffs_1	CK	0.00000	0.00000	0.00000
	CK	0.01257	0.01042	0.00076
	SN	-0.00160	-0.08791	-1.26976
	SN	0.02720	0.02463	0.00609
sky130_osu_sc_18T_hs__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.01110	0.00979	0.01522
	SN	-0.00160	-0.07399	-0.95260
	SN	0.02571	0.02403	0.02032

Internal switching power(pJ) to Q falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__dffs_1	CK	0.00000	0.00000	0.00000
	CK	0.01422	0.01296	0.00933
sky130_osu_sc_18T_hs__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.01273	0.01186	0.01621

Internal switching power(pJ) to QN rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__dffs_1	CK	0.00000	0.00000	0.00000
	CK	0.01420	0.01292	0.00911
sky130_osu_sc_18T_hs__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.01272	0.01184	0.01621

Internal switching power(pJ) to QN falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__dffs_1	CK	0.00000	0.00000	0.00000
	CK	0.01252	0.01042	0.00042
	SN	-0.00160	-0.08815	-1.27528
	SN	0.02714	0.02457	0.00576
sky130_osu_sc_18T_hs__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.01105	0.00974	0.01494
	SN	-0.00160	-0.07419	-0.95679
	SN	0.02566	0.02395	0.02009

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__dffs_1	CK	0.00000	0.00000	0.00000
	CK	-0.00445	-0.00453	-0.00454
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.01457	0.01390	0.03006
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.00699	0.00641	0.02247
sky130_osu_sc_18T_hs__dffs_l	CK	0.00000	0.00000	0.00000
	CK	-0.00445	-0.00453	-0.00454
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.01457	0.01390	0.03006
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.00699	0.00641	0.02247

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__dffs_1	CK	0.00000	0.00000	0.00000
	CK	0.00462	0.00454	0.00454
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.02527	0.02489	0.04159
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.01214	0.01198	0.02874
sky130_osu_sc_18T_hs__dffs_1	CK	0.00000	0.00000	0.00000
	CK	0.00463	0.00454	0.00454
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.02527	0.02489	0.04159
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.01214	0.01198	0.02874

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__dffs_1	(CK * Q * !QN) + (!CK * D * Q * !QN)	0.00000	0.00000	0.00000
	(CK * Q * !QN) + (!CK * D * Q * !QN)	-0.00729	-0.00733	-0.00733
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.00557	0.00513	0.01711
sky130_osu_sc_18T_hs__dffs_1	(CK * Q * !QN) + (!CK * D * Q * !QN)	0.00000	0.00000	0.00000
	(CK * Q * !QN) + (!CK * D * Q * !QN)	-0.00729	-0.00733	-0.00733
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.00557	0.00513	0.01711

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__dffs_1	(CK * Q * !QN) + (!CK * D * Q * !QN)	0.00000	0.00000	0.00000
	(CK * Q * !QN) + (!CK * D * Q * !QN)	0.00743	0.00745	0.00737
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.01391	0.01364	0.02717
sky130_osu_sc_18T_hs__dffs_l	(CK * Q * !QN) + (!CK * D * Q * !QN)	0.00000	0.00000	0.00000
	(CK * Q * !QN) + (!CK * D * Q * !QN)	0.00743	0.00737	0.00737
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.01391	0.01364	0.02717

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__dffs_1	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	-0.00095	-0.00110	0.02681
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	-0.00139	-0.00144	0.02624
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.00458	0.00413	0.05709
sky130_osu_sc_18T_hs__dffs_l	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	-0.00095	-0.00110	0.02681
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	-0.00139	-0.00144	0.02624
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.00458	0.00413	0.05709

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__dffs_1	(D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * SN * !Q * QN)	0.03849	0.03851	0.07106
	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.01768	0.01863	0.04839
	(!D * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * SN * Q * !QN)	0.03738	0.03849	0.09017
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	0.02029	0.02109	0.05018
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.02282	0.02438	0.07999
sky130_osu_sc_18T_hs__dffs_l	(D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * SN * !Q * QN)	0.03849	0.03851	0.07106
	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.01768	0.01863	0.04839
	(!D * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * SN * Q * !QN)	0.03738	0.03847	0.09017
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	0.02029	0.02109	0.05018
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.02282	0.02438	0.07999

SKY130_OSU_SC_18T_HS__DFFx

sky130_osu_sc_18T_hs_ss_1P60_100C.ccs
Cell Library: Process , Voltage 1.60, Temp 100.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_hs__dff_1	48.35160
sky130_osu_sc_18T_hs__dff_l	48.35160

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)	
	D	CK	Q	QN
sky130_osu_sc_18T_hs__dff_1	0.00595	0.01645	2.07369	2.05821
sky130_osu_sc_18T_hs__dff_l	0.00595	0.01645	1.48845	1.47599

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__dff_1	0.00000	1.16431	1.39413
sky130_osu_sc_18T_hs__dff_l	0.00000	1.19409	1.42391

Delay Information

Delay(ns) to Q rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__dff_1	CK->Q (RR)	0.27223	1.48047	16.26650
	QN->Q (FR)	0.04014	0.88801	12.09550
sky130_osu_sc_18T_hs__dff_l	CK->Q (RR)	0.28337	1.67737	16.81710
	QN->Q (FR)	0.04387	0.94874	11.95280

Delay(ns) to Q falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__dff_1	CK->Q (RF)	0.37269	1.62807	17.06130
	QN->Q (RF)	0.03182	0.72797	9.87397
sky130_osu_sc_18T_hs__dff_l	CK->Q (RF)	0.38330	1.84909	17.85490
	QN->Q (RF)	0.03770	0.84061	10.61870

Delay(ns) to QN rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__dff_1	CK->QN (RR)	0.32828	0.94260	7.41467
sky130_osu_sc_18T_hs__dff_l	CK->QN (RR)	0.32839	0.99092	7.22623

Delay(ns) to QN falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__dff_1	CK->QN (RF)	0.22136	0.71367	5.48267
sky130_osu_sc_18T_hs__dff_l	CK->QN (RF)	0.22581	0.79758	5.94191

Constraint Information

Constraints(ns) for D rising :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_hs__dff_1	hold	CK (R)	-0.06806	-0.08719	-0.11191
	setup	CK (R)	0.18437	0.22151	0.97651
sky130_osu_sc_18T_hs__dff_l	hold	CK (R)	-0.06944	-0.08742	-0.10981
	setup	CK (R)	0.18112	0.21957	0.97111

Constraints(ns) for D falling :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_hs__dff_1	hold	CK (R)	-0.15339	-0.42065	-3.10759
	setup	CK (R)	0.18555	0.43712	3.18721
sky130_osu_sc_18T_hs__dff_l	hold	CK (R)	-0.15355	-0.42016	-3.10808
	setup	CK (R)	0.18555	0.43712	3.18718

Constraints(ns) for CK rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_hs__dff_1	min_pulse_width	CK ()	0.12184	0.54932	13.33370
	min_pulse_width	CK ()	0.19377	0.54932	13.33370
sky130_osu_sc_18T_hs__dff_l	min_pulse_width	CK ()	0.11979	0.54932	13.33370
	min_pulse_width	CK ()	0.18966	0.54932	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_18T_hs__dff_1	**min_pulse_width**	**CK ()**	0.27187	0.54932	13.33370
	min_pulse_width	**CK ()**	0.14445	0.54932	13.33370
sky130_osu_sc_18T_hs__dff_l	**min_pulse_width**	**CK ()**	0.26981	0.54932	13.33370
	min_pulse_width	**CK ()**	0.14445	0.54932	13.33370

Power Information

Internal switching power(pJ) to Q rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__dff_1	CK	0.00000	0.00000	0.00000
	CK	0.01327	0.01187	0.01345
sky130_osu_sc_18T_hs__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.01190	0.01058	0.01668

Internal switching power(pJ) to Q falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__dff_1	CK	0.00000	0.00000	0.00000
	CK	0.01458	0.01356	0.01251
sky130_osu_sc_18T_hs__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.01324	0.01228	0.01543

Internal switching power(pJ) to QN rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__dff_1	CK	0.00000	0.00000	0.00000
	CK	0.01457	0.01357	0.01251
sky130_osu_sc_18T_hs__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.01323	0.01229	0.01553

Internal switching power(pJ) to QN falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__dff_1	CK	0.00000	0.00000	0.00000
	CK	0.01322	0.01187	0.01287
sky130_osu_sc_18T_hs__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.01185	0.01055	0.01650

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__dff_1	CK	0.00000	0.00000	0.00000
	CK	-0.00366	-0.00442	-0.00450
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.01395	0.01340	0.02984
sky130_osu_sc_18T_hs__dff_l	CK	0.00000	0.00000	0.00000
	CK	-0.00366	-0.00442	-0.00450
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.01395	0.01340	0.02984

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__dff_1	CK	0.00000	0.00000	0.00000
	CK	0.00449	0.00456	0.00453
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.02617	0.02582	0.04290
sky130_osu_sc_18T_hs__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.00449	0.00456	0.00453
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.02617	0.02582	0.04290

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__dff_1	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	-0.00096	-0.00110	0.02682
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	-0.00138	-0.00146	0.02627
sky130_osu_sc_18T_hs__dff_l	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	-0.00096	-0.00110	0.02682
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	-0.00138	-0.00146	0.02627

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__dff_1	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.01762	0.01857	0.04834
	(D * !Q * QN)	0.00000	0.00000	0.00000
	(D * !Q * QN)	0.03793	0.03789	0.07072
	(!D * Q * !QN)	0.00000	0.00000	0.00000
	(!D * Q * !QN)	0.03807	0.03932	0.09174
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.02020	0.02113	0.05010
sky130_osu_sc_18T_hs__dff_l	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.01762	0.01857	0.04834
	(D * !Q * QN)	0.00000	0.00000	0.00000
	(D * !Q * QN)	0.03794	0.03790	0.07072
	(!D * Q * !QN)	0.00000	0.00000	0.00000
	(!D * Q * !QN)	0.03807	0.03932	0.09173
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.02020	0.02113	0.05010

SKY130_OSU_SC_18T_HS__INVx

sky130_osu_sc_18T_hs_ss_1P60_100C.ccs
Cell Library: Process , Voltage 1.60, Temp 100.00

Truth Table

INPUT	OUTPUT
A	Y
0	1
1	0

Footprint

Cell Name	Area
sky130_osu_sc_18T_hs__inv_1	6.59340
sky130_osu_sc_18T_hs__inv_10	32.96700
sky130_osu_sc_18T_hs__inv_2	9.52380
sky130_osu_sc_18T_hs__inv_3	12.45420
sky130_osu_sc_18T_hs__inv_4	15.38460
sky130_osu_sc_18T_hs__inv_6	21.24540
sky130_osu_sc_18T_hs__inv_8	27.10620
sky130_osu_sc_18T_hs__inv_l	6.59340

Pin Capacitance Information

Cell Name	Pin Cap(pf)	Max Cap(pf)
	A	Y
sky130_osu_sc_18T_hs__inv_1	0.00581	1.96650
sky130_osu_sc_18T_hs__inv_10	0.05504	17.83250
sky130_osu_sc_18T_hs__inv_2	0.01120	3.84616
sky130_osu_sc_18T_hs__inv_3	0.01671	5.56843
sky130_osu_sc_18T_hs__inv_4	0.02213	7.45985
sky130_osu_sc_18T_hs__inv_6	0.03318	11.03748
sky130_osu_sc_18T_hs__inv_8	0.04412	14.50993
sky130_osu_sc_18T_hs__inv_l	0.00437	1.42405

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__inv_1	0.00000	0.17471	0.28224
sky130_osu_sc_18T_hs__inv_10	0.00000	1.71142	2.77028
sky130_osu_sc_18T_hs__inv_2	0.00000	0.34228	0.55406
sky130_osu_sc_18T_hs__inv_3	0.00000	0.51699	0.83630
sky130_osu_sc_18T_hs__inv_4	0.00000	0.68457	1.10811
sky130_osu_sc_18T_hs__inv_6	0.00000	1.02685	1.66217
sky130_osu_sc_18T_hs__inv_8	0.00000	1.36914	2.21623
sky130_osu_sc_18T_hs__inv_l	0.00000	0.18960	0.34084

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__inv_1	**A->Y (FR)**	0.03848	0.82425	11.05860
sky130_osu_sc_18T_hs__inv_10	**A->Y (FR)**	0.05534	0.56563	11.01780
sky130_osu_sc_18T_hs__inv_2	**A->Y (FR)**	0.03143	0.70844	10.96740
sky130_osu_sc_18T_hs__inv_3	**A->Y (FR)**	0.03477	0.66591	10.98620
sky130_osu_sc_18T_hs__inv_4	**A->Y (FR)**	0.03586	0.63363	10.96230
sky130_osu_sc_18T_hs__inv_6	**A->Y (FR)**	0.04050	0.59600	10.98190
sky130_osu_sc_18T_hs__inv_8	**A->Y (FR)**	0.04744	0.57464	10.97160
sky130_osu_sc_18T_hs__inv_l	**A->Y (FR)**	0.04113	0.87288	10.86400

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__inv_1	**A->Y (RF)**	0.02900	0.65101	8.73687
sky130_osu_sc_18T_hs__inv_10	**A->Y (RF)**	0.04602	0.42907	8.57009
sky130_osu_sc_18T_hs__inv_2	**A->Y (RF)**	0.02445	0.56147	8.66058
sky130_osu_sc_18T_hs__inv_3	**A->Y (RF)**	0.02677	0.52401	8.68547
sky130_osu_sc_18T_hs__inv_4	**A->Y (RF)**	0.02696	0.49450	8.66968
sky130_osu_sc_18T_hs__inv_6	**A->Y (RF)**	0.03388	0.46185	8.66902
sky130_osu_sc_18T_hs__inv_8	**A->Y (RF)**	0.03991	0.44108	8.63774
sky130_osu_sc_18T_hs__inv_l	**A->Y (RF)**	0.03432	0.75616	9.45574

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__inv_1	A	0.00000	0.00000	0.00000
	A	0.00659	0.00701	0.01089
sky130_osu_sc_18T_hs__inv_10	A	0.00000	0.00000	0.00000
	A	0.05747	0.06589	0.10571
sky130_osu_sc_18T_hs__inv_2	A	0.00000	0.00000	0.00000
	A	0.01190	0.01326	0.02088
sky130_osu_sc_18T_hs__inv_3	A	0.00000	0.00000	0.00000
	A	0.01815	0.02043	0.03190
sky130_osu_sc_18T_hs__inv_4	A	0.00000	0.00000	0.00000
	A	0.02347	0.02628	0.04189
sky130_osu_sc_18T_hs__inv_6	A	0.00000	0.00000	0.00000
	A	0.03475	0.03962	0.06297
sky130_osu_sc_18T_hs__inv_8	A	0.00000	0.00000	0.00000
	A	0.04604	0.05437	0.08400
sky130_osu_sc_18T_hs__inv_l	A	0.00000	0.00000	0.00000
	A	0.00502	0.00519	0.00699

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__inv_1	A	0.00000	0.00000	0.00000
	A	-0.00149	-0.00130	0.00091
sky130_osu_sc_18T_hs__inv_10	A	0.00000	0.00000	0.00000
	A	-0.02307	-0.02086	0.00423
sky130_osu_sc_18T_hs__inv_2	A	0.00000	0.00000	0.00000
	A	-0.00468	-0.00377	0.00050
sky130_osu_sc_18T_hs__inv_3	A	0.00000	0.00000	0.00000
	A	-0.00625	-0.00528	0.00163
sky130_osu_sc_18T_hs__inv_4	A	0.00000	0.00000	0.00000
	A	-0.00946	-0.00830	0.00124
sky130_osu_sc_18T_hs__inv_6	A	0.00000	0.00000	0.00000
	A	-0.01448	-0.01248	0.00187
sky130_osu_sc_18T_hs__inv_8	A	0.00000	0.00000	0.00000
	A	-0.01924	-0.01632	0.00282
sky130_osu_sc_18T_hs__inv_l	A	0.00000	0.00000	0.00000
	A	-0.00105	-0.00092	0.00011

SKY130_OSU_SC_18T_HS__MUX2

sky130_osu_sc_18T_hs_ss_1P60_100C.ccs
Cell Library: Process , Voltage 1.60, 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_18T_hs__mux2_1	18.31500

Pin Capacitance Information

Cell Name	Pin Cap(pf)			Max Cap(pf)
	A0	**A1**	**S0**	**Y**
sky130_osu_sc_18T_hs__mux2_1	0.51971	0.52004	0.01178	0.53640

Leakage Information

Cell Name	Leakage(nW)		
	Min.	**Avg**	**Max.**
sky130_osu_sc_18T_hs__mux2_1	0.00000	0.35562	0.35562

Delay Information

Delay(ns) to Y rising (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_18T_hs__mux2_1	A0->Y (RR)	-	0.02029	0.33418	3.20086
	A1->Y (RR)	-	0.02223	0.33584	3.20256
	S0->Y (RR)	(!A0 * A1)	0.06201	0.37762	2.04173
	S0->Y (FR)	(A0 * !A1)	0.05453	0.46993	3.71407

Delay(ns) to Y falling (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_18T_hs__mux2_1	A0->Y (FF)	-	0.01846	0.32682	3.14939
	A1->Y (FF)	-	0.01778	0.32469	3.14077
	S0->Y (FF)	(!A0 * A1)	0.08606	0.43515	2.51702
	S0->Y (RF)	(A0 * !A1)	0.03394	0.38972	3.16344

Power Information

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

Cell Name	Input	When	Power(pJ)		
			first	mid	last
sky130_osu_sc_18T_hs__mux2_1	A0	-	0.00000	0.00000	0.00000
	A0	-	-0.00690	-0.00693	-0.00692
	A1	-	0.00000	0.00000	0.00000
	A1	-	-0.00489	-0.00490	-0.00489
	S0	(A0 * !A1)	0.00000	0.00000	0.00000
	S0	(A0 * !A1)	0.00736	0.00859	0.03965
	S0	(!A0 * A1)	0.00000	0.00000	0.00000
	S0	(!A0 * A1)	-0.00482	-0.00460	0.02482

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

Cell Name	Input	When	Power(pJ)		
			first	mid	last
sky130_osu_sc_18T_hs__mux2_1	A0	-	0.00000	0.00000	0.00000
	A0	-	0.00690	0.00693	0.00693
	A1	-	0.00000	0.00000	0.00000
	A1	-	0.00490	0.00490	0.00491
	S0	(A0 * !A1)	0.00000	0.00000	0.00000
	S0	(A0 * !A1)	0.00145	0.00184	0.03177
	S0	(!A0 * A1)	0.00000	0.00000	0.00000
	S0	(!A0 * A1)	0.01771	0.01869	0.04899

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__mux2_1	(A1 * S0 * Y) + (!A1 * S0 * !Y)	0.00000	0.00000	0.00000
	(A1 * S0 * Y) + (!A1 * S0 * !Y)	-0.00176	-0.00175	-0.00175

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__mux2_1	(A1 * S0 * Y) + (!A1 * S0 * !Y)	0.00000	0.00000	0.00000
	(A1 * S0 * Y) + (!A1 * S0 * !Y)	0.00176	0.00175	0.00175

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__mux2_1	(A0 * !S0 * Y) + (!A0 * !S0 * !Y)	0.00000	0.00000	0.00000
	(A0 * !S0 * Y) + (!A0 * !S0 * !Y)	-0.00208	-0.00207	-0.00207

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__mux2_1	(A0 * !S0 * Y) + (!A0 * !S0 * !Y)	0.00000	0.00000	0.00000
	(A0 * !S0 * Y) + (!A0 * !S0 * !Y)	0.00208	0.00207	0.00207

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__mux2_1	(A0 * A1 * Y)	0.00000	0.00000	0.00000
	(A0 * A1 * Y)	-0.00170	-0.00128	0.02828
	(!A0 * !A1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !Y)	-0.00167	-0.00143	0.02844

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__mux2_1	(A0 * A1 * Y)	0.00000	0.00000	0.00000
	(A0 * A1 * Y)	0.01322	0.01427	0.04463
	(!A0 * !A1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !Y)	0.01185	0.01313	0.04395

SKY130_OSU_SC_18T_HS__NAND2x

sky130_osu_sc_18T_hs_ss_1P60_100C.ccs
Cell Library: Process , Voltage 1.60, 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_18T_hs__nand2_1	9.52380
sky130_osu_sc_18T_hs__nand2_l	9.52380

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	B	Y
sky130_osu_sc_18T_hs__nand2_1	0.00582	0.00581	1.69258
sky130_osu_sc_18T_hs__nand2_l	0.00438	0.00438	1.13491

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__nand2_1	0.00000	0.17455	0.55406
sky130_osu_sc_18T_hs__nand2_l	0.00000	0.18968	0.67447

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__nand2_1	A->Y (FR)	0.03965	0.79051	10.19450
	B->Y (FR)	0.04645	0.79069	10.11640
sky130_osu_sc_18T_hs__nand2_l	A->Y (FR)	0.04204	0.81217	9.59170
	B->Y (FR)	0.04923	0.81582	9.56364

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__nand2_1	A->Y (RF)	0.04399	0.80907	10.51170
	B->Y (RF)	0.04977	0.77754	9.92468
sky130_osu_sc_18T_hs__nand2_l	A->Y (RF)	0.05279	0.93732	10.94420
	B->Y (RF)	0.05884	0.90726	10.39300

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__nand2_1	A	0.00000	0.00000	0.00000
	A	0.00703	0.00740	0.01147
	B	0.00000	0.00000	0.00000
	B	0.00879	0.00908	0.01318
sky130_osu_sc_18T_hs__nand2_1	A	0.00000	0.00000	0.00000
	A	0.00530	0.00543	0.00734
	B	0.00000	0.00000	0.00000
	B	0.00653	0.00662	0.00850

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__nand2_1	A	0.00000	0.00000	0.00000
	A	-0.00102	-0.00089	0.00117
	B	0.00000	0.00000	0.00000
	B	-0.00097	-0.00105	0.00073
sky130_osu_sc_18T_hs__nand2_1	A	0.00000	0.00000	0.00000
	A	-0.00076	-0.00076	0.00037
	B	0.00000	0.00000	0.00000
	B	-0.00072	-0.00082	0.00011

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__nand2_1	(!B * Y)	0.00000	0.00000	0.00000
	(!B * Y)	-0.00496	-0.00500	-0.00501
sky130_osu_sc_18T_hs__nand2_l	(!B * Y)	0.00000	0.00000	0.00000
	(!B * Y)	-0.00356	-0.00358	-0.00359

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__nand2_1	(!B * Y)	0.00000	0.00000	0.00000
	(!B * Y)	0.00500	0.00505	0.00502
sky130_osu_sc_18T_hs__nand2_l	(!B * Y)	0.00000	0.00000	0.00000
	(!B * Y)	0.00359	0.00361	0.00360

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__nand2_1	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00468	-0.00469	-0.00468
sky130_osu_sc_18T_hs__nand2_l	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00335	-0.00335	-0.00335

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__nand2_1	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00480	0.00475	0.00470
sky130_osu_sc_18T_hs__nand2_l	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00344	0.00341	0.00337

SKY130_OSU_SC_18T_HS__NOR2x

sky130_osu_sc_18T_hs_ss_1P60_100C.ccs
Cell Library: Process , Voltage 1.60, 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_18T_hs__nor2_1	9.52380
sky130_osu_sc_18T_hs__nor2_l	9.52380

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	B	Y
sky130_osu_sc_18T_hs__nor2_1	0.00581	0.00613	1.02616
sky130_osu_sc_18T_hs__nor2_l	0.00431	0.00465	0.72599

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__nor2_1	0.00000	0.13997	0.28224
sky130_osu_sc_18T_hs__nor2_l	0.00000	0.15576	0.34084

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__nor2_1	A->Y (FR)	0.08367	0.97491	10.65990
	B->Y (FR)	0.06220	0.95725	10.78700
sky130_osu_sc_18T_hs__nor2_l	A->Y (FR)	0.08897	1.04840	10.42130
	B->Y (FR)	0.07161	1.04590	10.75360

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__nor2_1	A->Y (RF)	0.03955	0.55198	6.17817
	B->Y (RF)	0.03086	0.53605	6.15366
sky130_osu_sc_18T_hs__nor2_l	A->Y (RF)	0.04535	0.63091	6.71486
	B->Y (RF)	0.03636	0.61685	6.69355

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__nor2_1	A	0.00000	0.00000	0.00000
	A	0.00959	0.00953	0.01225
	B	0.00000	0.00000	0.00000
	B	0.00709	0.00730	0.01299
sky130_osu_sc_18T_hs__nor2_l	A	0.00000	0.00000	0.00000
	A	0.00687	0.00682	0.00810
	B	0.00000	0.00000	0.00000
	B	0.00533	0.00539	0.00801

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__nor2_1	A	0.00000	0.00000	0.00000
	A	0.00115	0.00094	0.00409
	B	0.00000	0.00000	0.00000
	B	-0.00116	-0.00100	0.00209
sky130_osu_sc_18T_hs__nor2_l	A	0.00000	0.00000	0.00000
	A	0.00077	0.00064	0.00221
	B	0.00000	0.00000	0.00000
	B	-0.00077	-0.00062	0.00085

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__nor2_1	(B * !Y)	0.00000	0.00000	0.00000
	(B * !Y)	-0.00370	-0.00445	-0.00453
sky130_osu_sc_18T_hs__nor2_l	(B * !Y)	0.00000	0.00000	0.00000
	(B * !Y)	-0.00263	-0.00314	-0.00316

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__nor2_1	(B * !Y)	0.00000	0.00000	0.00000
	(B * !Y)	0.00449	0.00456	0.00453
sky130_osu_sc_18T_hs__nor2_l	(B * !Y)	0.00000	0.00000	0.00000
	(B * !Y)	0.00315	0.00319	0.00317

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__nor2_1	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	-0.00214	-0.00216	-0.00215
sky130_osu_sc_18T_hs__nor2_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	-0.00158	-0.00159	-0.00158

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__nor2_1	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00226	0.00228	0.00219
sky130_osu_sc_18T_hs__nor2_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00166	0.00167	0.00161

SKY130_OSU_SC_18T_HS__OAI21

sky130_osu_sc_18T_hs_ss_1P60_100C.ccs
Cell Library: Process , Voltage 1.60, 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_18T_hs__oai21_l	12.45420

Pin Capacitance Information

Cell Name	Pin Cap(pf)			Max Cap(pf)
	A0	A1	B0	Y
sky130_osu_sc_18T_hs__oai21_l	0.00589	0.00595	0.00487	1.01155

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__oai21_l	0.00000	0.22448	0.62308

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__oai21_l	A0->Y (FR)	0.08430	0.97785	10.75600
	A1->Y (FR)	0.11023	1.00172	10.63430
	B0->Y (FR)	0.05219	0.78566	8.97970

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__oai21_l	A0->Y (RF)	0.06168	0.68072	7.41453
	A1->Y (RF)	0.07644	0.68419	7.27638
	B0->Y (RF)	0.04755	0.72231	8.18865

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__oai21_l	A0	0.00000	0.00000	0.00000
	A0	0.00970	0.00984	0.01478
	A1	0.00000	0.00000	0.00000
	A1	0.01220	0.01209	0.01457
	B0	0.00829	0.00852	0.01265

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__oai21_l	A0	0.00000	0.00000	0.00000
	A0	0.00025	0.00009	0.00233
	A1	0.00000	0.00000	0.00000
	A1	0.00253	0.00215	0.00437
	B0	0.00086	0.00086	0.00351

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__oai21_l	(A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * !Y)	-0.00214	-0.00216	-0.00215
	(A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * Y)	-0.00447	-0.00454	-0.00451
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00460	-0.00462	-0.00461

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__oai21_l	(A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * !Y)	0.00227	0.00228	0.00220
	(A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * Y)	0.00448	0.00454	0.00451
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00466	0.00466	0.00462

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__oai21_l	(A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * B0 * !Y)	-0.00364	-0.00439	-0.00447
	(A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * Y)	-0.00444	-0.00451	-0.00449
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	-0.00456	-0.00458	-0.00457

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__oai21_l	(A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * B0 * !Y)	0.00444	0.00451	0.00448
	(A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * Y)	0.00446	0.00452	0.00449
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	0.00462	0.00462	0.00458

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__oai21_l	(!A0 * !A1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * Y)	-0.00360	-0.00363	-0.00369

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__oai21_l	(!A0 * !A1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * Y)	0.00369	0.00376	0.00370

SKY130_OSU_SC_18T_HS__OAI22

sky130_osu_sc_18T_hs_ss_1P60_100C.ccs
Cell Library: Process , Voltage 1.60, 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_18T_hs__oai22_l	15.38460

Pin Capacitance Information

Cell Name	Pin Cap(pf)				Max Cap(pf)
	A0	A1	B0	B1	Y
sky130_osu_sc_18T_hs__oai22_l	0.00573	0.00600	0.00613	0.00600	1.01185

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__oai22_l	0.00000	0.20395	0.55428

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__oai22_l	A0->Y (FR)	0.11921	1.00820	10.61170
	A1->Y (FR)	0.09766	0.98696	10.74030
	B0->Y (FR)	0.07074	0.96112	10.72620
	B1->Y (FR)	0.09290	0.98242	10.60150

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__oai22_l	A0->Y (RF)	0.10982	0.74705	7.57198
	A1->Y (RF)	0.08583	0.71338	7.47095
	B0->Y (RF)	0.07290	0.74540	8.22655
	B1->Y (RF)	0.09834	0.79129	8.42932

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__oai22_l	A0	0.01591	0.01581	0.01820
	A1	0.01341	0.01354	0.01838
	B0	0.01009	0.01035	0.01520
	B1	0.01269	0.01260	0.01502

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__oai22_l	A0	0.00426	0.00389	0.00602
	A1	0.00216	0.00190	0.00404
	B0	-0.00050	-0.00026	0.00240
	B1	0.00427	0.00406	0.00658

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__oai22_l	(A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * !Y)	-0.00369	-0.00445	-0.00453
	(A1 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * B1 * !Y)	-0.00369	-0.00444	-0.00453
	(A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * !B1 * Y)	-0.00446	-0.00451	-0.00449
	(!A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * !B1 * Y)	-0.00457	-0.00459	-0.00458

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__oai22_l	(A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * !Y)	0.00450	0.00454	0.00453
	(A1 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * B1 * !Y)	0.00450	0.00454	0.00454
	(A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * !B1 * Y)	0.00447	0.00452	0.00449
	(!A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * !B1 * Y)	0.00462	0.00463	0.00459

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__oai22_l	(A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * B0 * !Y)	-0.00213	-0.00215	-0.00214
	(A0 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * B1 * !Y)	-0.00213	-0.00215	-0.00214
	(A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * !B1 * Y)	-0.00443	-0.00448	-0.00447
	(!A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * !B1 * Y)	-0.00456	-0.00459	-0.00457

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__oai22_l	(A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * B0 * !Y)	0.00225	0.00227	0.00218
	(A0 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * B1 * !Y)	0.00225	0.00227	0.00218
	(A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * !B1 * Y)	0.00444	0.00448	0.00447
	(!A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * !B1 * Y)	0.00461	0.00461	0.00458

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__oai22_l	(A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * B1 * !Y)	-0.00212	-0.00214	-0.00213
	(A0 * !A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B1 * !Y)	-0.00212	-0.00215	-0.00213
	(!A0 * !A1 * B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B1 * Y)	-0.00483	-0.00491	-0.00487
	(!A0 * !A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B1 * Y)	-0.00484	-0.00487	-0.00497

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__oai22_l	(A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * B1 * !Y)	0.00224	0.00226	0.00217
	(A0 * !A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B1 * !Y)	0.00224	0.00226	0.00217
	(!A0 * !A1 * B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B1 * Y)	0.00487	0.00491	0.00487
	(!A0 * !A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B1 * Y)	0.00497	0.00506	0.00499

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__oai22_l	(A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * !Y)	-0.00365	-0.00444	-0.00448
	(A0 * !A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B0 * !Y)	-0.00365	-0.00443	-0.00448
	(!A0 * !A1 * B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B0 * Y)	-0.00491	-0.00499	-0.00495
	(!A0 * !A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B0 * Y)	-0.00491	-0.00494	-0.00503

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__oai22_l	(A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * !Y)	0.00445	0.00451	0.00448
	(A0 * !A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B0 * !Y)	0.00445	0.00450	0.00448
	(!A0 * !A1 * B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B0 * Y)	0.00495	0.00499	0.00495
	(!A0 * !A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B0 * Y)	0.00503	0.00508	0.00505

SKY130_OSU_SC_18T_HS__OR2x

sky130_osu_sc_18T_hs_ss_1P60_100C.ccs
Cell Library: Process , Voltage 1.60, 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_18T_hs__or2_1	12.45420
sky130_osu_sc_18T_hs__or2_2	15.38460
sky130_osu_sc_18T_hs__or2_4	21.24540
sky130_osu_sc_18T_hs__or2_8	32.96700
sky130_osu_sc_18T_hs__or2_l	12.45420

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	B	Y
sky130_osu_sc_18T_hs__or2_1	0.00615	0.00595	2.01155
sky130_osu_sc_18T_hs__or2_2	0.00615	0.00595	3.93359
sky130_osu_sc_18T_hs__or2_4	0.00615	0.00595	7.59088
sky130_osu_sc_18T_hs__or2_8	0.00615	0.00597	14.50159
sky130_osu_sc_18T_hs__or2_l	0.00471	0.00447	1.45780

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__or2_1	0.00000	0.26101	0.41275
sky130_osu_sc_18T_hs__or2_2	0.00000	0.37647	0.68457
sky130_osu_sc_18T_hs__or2_4	0.00000	0.61287	1.23863
sky130_osu_sc_18T_hs__or2_8	0.00000	1.08567	2.34676
sky130_osu_sc_18T_hs__or2_l	0.00000	0.26983	0.41458

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__or2_1	A->Y (RR)	0.09236	0.71069	7.10881
	B->Y (RR)	0.08028	0.66819	7.02009
sky130_osu_sc_18T_hs__or2_2	A->Y (RR)	0.10103	0.64427	7.20313
	B->Y (RR)	0.08851	0.60768	7.11080
sky130_osu_sc_18T_hs__or2_4	A->Y (RR)	0.13039	0.64604	7.50645
	B->Y (RR)	0.11737	0.61838	7.42151
sky130_osu_sc_18T_hs__or2_8	A->Y (RR)	0.18541	0.71397	7.95015
	B->Y (RR)	0.17189	0.69172	7.87603
sky130_osu_sc_18T_hs__or2_l	A->Y (RR)	0.10254	0.80545	7.36119
	B->Y (RR)	0.08973	0.76288	7.24042

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__or2_1	A->Y (FF)	0.15629	0.73799	6.43969
	B->Y (FF)	0.12856	0.70312	6.36571
sky130_osu_sc_18T_hs__or2_2	A->Y (FF)	0.18856	0.73476	6.60146
	B->Y (FF)	0.16093	0.70964	6.52042
sky130_osu_sc_18T_hs__or2_4	A->Y (FF)	0.26766	0.80993	6.98857
	B->Y (FF)	0.24018	0.79423	6.90314
sky130_osu_sc_18T_hs__or2_8	A->Y (FF)	0.43004	0.98556	7.46311
	B->Y (FF)	0.40271	0.96730	7.42154
sky130_osu_sc_18T_hs__or2_l	A->Y (FF)	0.17015	0.82843	6.72996
	B->Y (FF)	0.14455	0.80086	6.66350

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__or2_1	A	0.00000	0.00000	0.00000
	A	0.00747	0.00723	0.02350
	B	0.00000	0.00000	0.00000
	B	0.00526	0.00546	0.02735
sky130_osu_sc_18T_hs__or2_2	A	0.00000	0.00000	0.00000
	A	0.01272	0.01289	0.02956
	B	0.00000	0.00000	0.00000
	B	0.01050	0.01115	0.03235
sky130_osu_sc_18T_hs__or2_4	A	0.00000	0.00000	0.00000
	A	0.02416	0.02530	0.04117
	B	0.00000	0.00000	0.00000
	B	0.02188	0.02345	0.04340
sky130_osu_sc_18T_hs__or2_8	A	0.00000	0.00000	0.00000
	A	0.04803	0.04925	0.06652
	B	0.00000	0.00000	0.00000
	B	0.04553	0.04788	0.06852
sky130_osu_sc_18T_hs__or2_l	A	0.00000	0.00000	0.00000
	A	0.00548	0.00505	0.01408
	B	0.00000	0.00000	0.00000
	B	0.00400	0.00388	0.01542

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__or2_1	A	0.00000	0.00000	0.00000
	A	0.01529	0.01538	0.03086
	B	0.00000	0.00000	0.00000
	B	0.01251	0.01392	0.03986
sky130_osu_sc_18T_hs__or2_2	A	0.00000	0.00000	0.00000
	A	0.01875	0.01939	0.03445
	B	0.00000	0.00000	0.00000
	B	0.01597	0.01780	0.04270
sky130_osu_sc_18T_hs__or2_4	A	0.00000	0.00000	0.00000
	A	0.02831	0.02895	0.04347
	B	0.00000	0.00000	0.00000
	B	0.02556	0.02694	0.05070
sky130_osu_sc_18T_hs__or2_8	A	0.00000	0.00000	0.00000
	A	0.05212	0.04776	0.06231
	B	0.00000	0.00000	0.00000
	B	0.04940	0.04537	0.06862
sky130_osu_sc_18T_hs__or2_l	A	0.00000	0.00000	0.00000
	A	0.01135	0.01131	0.01976
	B	0.00000	0.00000	0.00000
	B	0.00947	0.01010	0.02400

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__or2_1	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00371	-0.00448	-0.00455
sky130_osu_sc_18T_hs__or2_2	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00371	-0.00448	-0.00455
sky130_osu_sc_18T_hs__or2_4	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00371	-0.00448	-0.00455
sky130_osu_sc_18T_hs__or2_8	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00370	-0.00448	-0.00455
sky130_osu_sc_18T_hs__or2_l	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00265	-0.00313	-0.00318

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__or2_1	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00452	0.00459	0.00455
sky130_osu_sc_18T_hs__or2_2	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00452	0.00459	0.00455
sky130_osu_sc_18T_hs__or2_4	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00452	0.00459	0.00455
sky130_osu_sc_18T_hs__or2_8	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00452	0.00459	0.00456
sky130_osu_sc_18T_hs__or2_l	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00316	0.00320	0.00318

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__or2_1	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00216	-0.00217	-0.00216
sky130_osu_sc_18T_hs__or2_2	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00216	-0.00217	-0.00216
sky130_osu_sc_18T_hs__or2_4	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00215	-0.00217	-0.00216
sky130_osu_sc_18T_hs__or2_8	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00215	-0.00217	-0.00215
sky130_osu_sc_18T_hs__or2_l	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00161	-0.00162	-0.00161

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__or2_1	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00227	0.00229	0.00220
sky130_osu_sc_18T_hs__or2_2	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00228	0.00230	0.00220
sky130_osu_sc_18T_hs__or2_4	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00228	0.00230	0.00220
sky130_osu_sc_18T_hs__or2_8	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00228	0.00230	0.00220
sky130_osu_sc_18T_hs__or2_l	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00169	0.00170	0.00163

SKY130_OSU_SC_18T_HS__TBUFIx

sky130_osu_sc_18T_hs_ss_1P60_100C.ccs
Cell Library: Process , Voltage 1.60, 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_18T_hs__tbufi_1	12.45420
sky130_osu_sc_18T_hs__tbufi_l	12.45420

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	OE	Y
sky130_osu_sc_18T_hs__tbufi_1	0.00613	0.00766	1.02543
sky130_osu_sc_18T_hs__tbufi_l	0.00466	0.00583	0.72364

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__tbufi_1	0.00000	0.20777	0.56448
sky130_osu_sc_18T_hs__tbufi_l	0.00000	0.21306	0.68168

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__tbufi_1	A->Y (FR)	0.05992	0.95249	10.77190
	OE->Y (FR)	0.06472	0.36706	4.68900
	OE->Y (RR)	0.11129	0.82285	7.10216
sky130_osu_sc_18T_hs__tbufi_l	A->Y (FR)	0.06926	1.04423	10.73950
	OE->Y (FR)	0.06542	0.36667	4.68874
	OE->Y (RR)	0.12042	0.95025	7.41513

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__tbufi_1	A->Y (RF)	0.04312	0.67780	7.79644
	OE->Y (FF)	0.06596	0.36701	4.68898
	OE->Y (RF)	0.03936	0.63499	7.14704
sky130_osu_sc_18T_hs__tbufi_l	A->Y (RF)	0.05238	0.79189	8.39639
	OE->Y (FF)	0.06667	0.36671	4.68870
	OE->Y (RF)	0.04887	0.75030	7.80343

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__tbufi_1	A	0.00000	0.00000	0.00000
	A	0.00674	0.00706	0.01208
	OE	0.00000	0.00000	0.00000
	OE	0.00694	0.00727	0.03445
sky130_osu_sc_18T_hs__tbufi_l	A	0.00000	0.00000	0.00000
	A	0.00508	0.00517	0.00752
	OE	0.00000	0.00000	0.00000
	OE	0.00484	0.00481	0.01902

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__tbufi_1	A	0.00000	0.00000	0.00000
	A	-0.00117	-0.00086	0.00168
	OE	0.00000	0.00000	0.00000
	OE	0.00471	0.00505	0.03502
sky130_osu_sc_18T_hs__tbufi_l	A	0.00000	0.00000	0.00000
	A	-0.00077	-0.00066	0.00067
	OE	0.00000	0.00000	0.00000
	OE	0.00326	0.00319	0.01873

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__tbufi_1	(!OE * Y)	0.00000	0.00000	0.00000
	(!OE * Y)	-0.00346	-0.00353	-0.00348
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	-0.00305	-0.00308	-0.00306
sky130_osu_sc_18T_hs__tbufi_l	(!OE * Y)	0.00000	0.00000	0.00000
	(!OE * Y)	-0.00262	-0.00267	-0.00263
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	-0.00235	-0.00238	-0.00236

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__tbufi_1	(!OE * Y)	0.00000	0.00000	0.00000
	(!OE * Y)	0.00346	0.00353	0.00348
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	0.00313	0.00316	0.00310
sky130_osu_sc_18T_hs__tbufi_l	(!OE * Y)	0.00000	0.00000	0.00000
	(!OE * Y)	0.00262	0.00267	0.00263
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	0.00241	0.00243	0.00238

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__tbufi_1	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00288	0.00357	0.03355
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00251	0.00302	0.03312
sky130_osu_sc_18T_hs__tbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00194	0.00195	0.01759
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00168	0.00169	0.01728

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__tbufi_1	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00786	0.00866	0.03936
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00784	0.00877	0.03947
sky130_osu_sc_18T_hs__tbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00608	0.00625	0.02239
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00609	0.00633	0.02245

SKY130_OSU_SC_18T_HS__TNBUFIx

sky130_osu_sc_18T_hs_ss_1P60_100C.ccs
Cell Library: Process , Voltage 1.60, 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_18T_hs__tnbufi_1	12.45420
sky130_osu_sc_18T_hs__tnbufi_l	12.45420

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	OE	Y
sky130_osu_sc_18T_hs__tnbufi_1	0.00612	0.00979	1.02705
sky130_osu_sc_18T_hs__tnbufi_l	0.00465	0.00719	0.72336

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__tnbufi_1	0.00000	0.27946	0.34941
sky130_osu_sc_18T_hs__tnbufi_l	0.00000	0.31389	0.37919

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__tnbufi_1	A->Y (FR)	0.06048	0.95317	10.78270
	OE->Y (RR)	0.03588	0.36820	4.69028
	OE->Y (FR)	0.07820	0.97033	10.64190
sky130_osu_sc_18T_hs__tnbufi_l	A->Y (FR)	0.06988	1.04407	10.73690
	OE->Y (RR)	0.03945	0.36847	4.69057
	OE->Y (FR)	0.08365	1.04253	10.39520

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__tnbufi_1	A->Y (RF)	0.04251	0.67787	7.80317
	OE->Y (RF)	0.03558	0.36819	4.69038
	OE->Y (FF)	0.07308	0.59046	5.11872
sky130_osu_sc_18T_hs__tnbufi_l	A->Y (RF)	0.05155	0.79145	8.39404
	OE->Y (RF)	0.03901	0.36847	4.69066
	OE->Y (FF)	0.08410	0.68246	5.18698

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__tnbufi_1	A	0.00000	0.00000	0.00000
	A	0.00689	0.00721	0.01221
	OE	0.00000	0.00000	0.00000
	OE	0.01684	0.01847	0.05027
sky130_osu_sc_18T_hs__tnbufi_l	A	0.00000	0.00000	0.00000
	A	0.00523	0.00531	0.00767
	OE	0.00000	0.00000	0.00000
	OE	0.01234	0.01307	0.02987

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__tnbufi_1	A	0.00000	0.00000	0.00000
	A	-0.00137	-0.00105	0.00149
	OE	0.00000	0.00000	0.00000
	OE	0.01487	0.01651	0.04560
sky130_osu_sc_18T_hs__tnbufi_l	A	0.00000	0.00000	0.00000
	A	-0.00097	-0.00084	0.00049
	OE	0.00000	0.00000	0.00000
	OE	0.01092	0.01165	0.02705

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__tnbufi_1	(OE * Y)	0.00000	0.00000	0.00000
	(OE * Y)	-0.00302	-0.00307	-0.00303
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	-0.00264	-0.00267	-0.00265
sky130_osu_sc_18T_hs__tnbufi_l	(OE * Y)	0.00000	0.00000	0.00000
	(OE * Y)	-0.00220	-0.00224	-0.00221
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	-0.00195	-0.00197	-0.00196

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__tnbufi_1	(OE * Y)	0.00000	0.00000	0.00000
	(OE * Y)	0.00302	0.00307	0.00303
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	0.00271	0.00274	0.00269
sky130_osu_sc_18T_hs__tnbufi_l	(OE * Y)	0.00000	0.00000	0.00000
	(OE * Y)	0.00220	0.00224	0.00221
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	0.00200	0.00202	0.00198

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__tnbufi_1	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	-0.00523	-0.00513	0.02574
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00528	-0.00522	0.02578
sky130_osu_sc_18T_hs__tnbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	-0.00368	-0.00400	0.01214
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00371	-0.00399	0.01216

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__tnbufi_1	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.01272	0.01455	0.04621
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.01250	0.01429	0.04601
sky130_osu_sc_18T_hs__tnbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00940	0.01017	0.02688
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00925	0.00999	0.02676

SKY130_OSU_SC_18T_HS__XNOR2

sky130_osu_sc_18T_hs_ss_1P60_100C.ccs
Cell Library: Process , Voltage 1.60, 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_18T_hs__xnor2_l	21.24540

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	B	Y
sky130_osu_sc_18T_hs__xnor2_l	0.01214	0.01116	1.06143

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__xnor2_l	0.00000	0.61354	0.90403

Delay Information

Delay(ns) to Y rising (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_18T_hs__xnor2_l	A->Y (RR)	B	0.14025	0.87975	7.41411
	A->Y (FR)	!B	0.07851	0.98235	10.98400
	B->Y (RR)	A	0.10961	0.84801	7.41763
	B->Y (FR)	!A	0.10596	1.00607	10.87390

Delay(ns) to Y falling (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_18T_hs__xnor2_l	A->Y (FF)	B	0.13568	0.72530	5.66428
	A->Y (RF)	!B	0.06163	0.67495	7.48673
	B->Y (FF)	A	0.11599	0.70614	5.66151
	B->Y (RF)	!A	0.07836	0.69634	7.50324

Power Information

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

Cell Name	Input	When	Power(pJ)		
			first	mid	last
sky130_osu_sc_18T_hs__xnor2_l	A	B	0.00000	0.00000	0.00000
	A	B	0.00666	0.00671	0.03332
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.01614	0.01731	0.05222
	B	A	0.00000	0.00000	0.00000
	B	A	0.00184	0.00235	0.03224
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01809	0.01918	0.05183

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

Cell Name	Input	When	Power(pJ)		
			first	mid	last
sky130_osu_sc_18T_hs__xnor2_l	A	B	0.00000	0.00000	0.00000
	A	B	0.02074	0.02108	0.05092
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00459	0.00467	0.03604
	B	A	0.00000	0.00000	0.00000
	B	A	0.01860	0.01998	0.05072
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00603	0.00595	0.03730

SKY130_OSU_SC_18T_HS__XOR2

sky130_osu_sc_18T_hs_ss_1P60_100C.ccs
Cell Library: Process , Voltage 1.60, 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_18T_hs__xor2_1	21.24540

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	B	Y
sky130_osu_sc_18T_hs__xor2_1	0.01210	0.01121	1.02994

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__xor2_1	0.00000	0.61354	0.81905

Delay Information

Delay(ns) to Y rising (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_18T_hs__xor2_l	A->Y (RR)	!B	0.13009	0.85029	7.22945
	A->Y (FR)	B	0.09775	0.98862	10.71710
	B->Y (RR)	!A	0.11266	0.84125	7.23871
	B->Y (FR)	A	0.10464	0.99603	10.70880

Delay(ns) to Y falling (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_18T_hs__xor2_l	A->Y (FF)	!B	0.11483	0.68591	5.33635
	A->Y (RF)	B	0.06296	0.71122	7.83876
	B->Y (FF)	!A	0.10917	0.68410	5.39969
	B->Y (RF)	A	0.07306	0.67436	7.21079

Power Information

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

Cell Name	Input	When	Power(pJ)		
			first	mid	last
sky130_osu_sc_18T_hs__xor2_l	A	B	0.00000	0.00000	0.00000
	A	B	0.01920	0.02047	0.05379
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00298	0.00243	0.03181
	B	A	0.00000	0.00000	0.00000
	B	A	0.01974	0.02098	0.05414
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00156	0.00194	0.03201

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

Cell Name	Input	When	Power(pJ)		
			first	mid	last
sky130_osu_sc_18T_hs__xor2_l	A	B	0.00000	0.00000	0.00000
	A	B	0.00408	0.00394	0.03630
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.02088	0.02219	0.05062
	B	A	0.00000	0.00000	0.00000
	B	A	0.00411	0.00399	0.03573
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01890	0.02048	0.05143

SKY130_OSU_SC_18T_HS_x

sky130_osu_sc_18T_hs_ss_1P60_100C.ccs
Cell Library: Process , Voltage 1.60, Temp 100.00

Truth Table

INPUT
A
x

Footprint

Cell Name	Area
sky130_osu_sc_18T_hs__ant	6.59340
sky130_osu_sc_18T_hs__tiehi	6.59340
sky130_osu_sc_18T_hs__tielo	6.59340

Pin Capacitance Information

Cell Name	Pin Cap(pf)
	A
sky130_osu_sc_18T_hs__ant	0.57921
sky130_osu_sc_18T_hs__tiehi	0.00000
sky130_osu_sc_18T_hs__tielo	0.00000

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__ant	0.00000	207139.00000	414277.00000
sky130_osu_sc_18T_hs__tiehi	0.00000	0.00000	0.00000
sky130_osu_sc_18T_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_18T_hs__ant	0.00000	0.00000	0.00000
	-0.00271	0.05818	0.75127

Passive power(pJ) for A falling :

Cell Name	Power(pJ)		
	first	mid	last
sky130_osu_sc_18T_hs__ant	0.00000	0.00000	0.00000
	3.60532	3.40333	0.91279