sky130_osu_sc_18T_hs_tt_1P44_25C.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_tt_1P44_25C.ccs
Cell Library: Process , Voltage 1.44,
Temp 25.00

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	0.01980	0.01982	0.01520	1.96038	0.88146	1.91019
sky130_osu_sc_18T_hs__addf_l	0.01979	0.01981	0.01523	1.33943	0.88111	1.33604

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__addf_1	0.00000	0.17918	0.23608
sky130_osu_sc_18T_hs__addf_l	0.00000	0.16222	0.21912

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)	0.17316	1.85228	24.78370
	B->CO (RR)	0.15378	1.76366	23.72490
	CI->CO (RR)	0.16514	1.88048	25.28360
	CON->CO (FR)	0.03548	0.85603	11.87370
sky130_osu_sc_18T_hs__addf_l	A->CO (RR)	0.17602	1.74004	20.34250
	B->CO (RR)	0.15702	1.66453	19.61700
	CI->CO (RR)	0.16795	1.76874	20.87200
	CON->CO (FR)	0.04107	0.93516	11.89900

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)	0.26941	2.52951	33.35160
	B->CO (FF)	0.24157	2.42682	32.16610
	CI->CO (FF)	0.23464	2.46608	33.04610
	CON->CO (RF)	0.02600	0.61827	8.59985
sky130_osu_sc_18T_hs__addf_l	A->CO (FF)	0.26473	2.25412	25.91980
	B->CO (FF)	0.23740	2.16769	25.09160
	CI->CO (FF)	0.22991	2.19136	25.63900
	CON->CO (RF)	0.02779	0.64145	8.19830

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)	0.20521	1.19376	11.90870
	B->CON (FR)	0.17875	1.13237	11.55500
	CI->CON (FR)	0.17048	1.13215	11.66070
sky130_osu_sc_18T_hs__addf_l	A->CON (FR)	0.19497	1.18347	11.89400
	B->CON (FR)	0.16933	1.12323	11.54290
	CI->CON (FR)	0.16028	1.12197	11.64820

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)	0.09793	0.64941	6.66946
	B->CON (RF)	0.09155	0.64609	6.78470
	CI->CON (RF)	0.08986	0.67938	7.24065
sky130_osu_sc_18T_hs__addf_l	A->CON (RF)	0.09428	0.64561	6.66383
	B->CON (RF)	0.08829	0.64277	6.77936
	CI->CON (RF)	0.08620	0.67608	7.23521

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)	0.38655	2.40767	26.96740
	B->S (-R)	0.38601	2.38834	26.31620
	CI->S (-R)	0.34895	2.33846	26.64980
	CON->S (RR)	0.10089	0.75382	7.45059
sky130_osu_sc_18T_hs__addf_l	A->S (-R)	0.37134	2.22452	22.47200
	B->S (-R)	0.37139	2.21504	22.08620
	CI->S (-R)	0.33364	2.15540	22.17500
	CON->S (RR)	0.10223	0.81212	7.35826

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)	0.29114	1.65576	17.38110
	B->S (-F)	0.29730	1.59446	16.76530
	CI->S (-F)	0.28240	1.67910	17.87790
	CON->S (FF)	0.12549	0.76186	6.69699
sky130_osu_sc_18T_hs__addf_l	A->S (-F)	0.27596	1.50419	14.27370
	B->S (-F)	0.26788	1.42918	13.90990
	CI->S (-F)	0.26704	1.52870	14.79530
	CON->S (FF)	0.12051	0.76310	6.32703

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	0.00258	0.00268	0.00498
	B	0.00396	0.00394	0.00564
	CI	0.00403	0.00421	0.00653
sky130_osu_sc_18T_hs__addf_l	A	0.00253	0.00229	0.00343
	B	0.00335	0.00325	0.00438
	CI	0.00341	0.00349	0.00499

Internal switching power(pJ) to CO falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__addf_1	A	0.01057	0.01079	0.01554
	B	0.01120	0.01145	0.01526
	CI	0.00982	0.01027	0.01424
sky130_osu_sc_18T_hs__addf_l	A	0.00996	0.01008	0.01305
	B	0.01059	0.01078	0.01303
	CI	0.00919	0.00957	0.01203

Internal switching power(pJ) to CON rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__addf_1	A	0.01133	0.01137	0.01259
	B	0.01118	0.01136	0.01259
	CI	0.00979	0.01010	0.01125
sky130_osu_sc_18T_hs__addf_l	A	0.01073	0.01072	0.01195
	B	0.01058	0.01074	0.01194
	CI	0.00918	0.00945	0.01059

Internal switching power(pJ) to CON falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__addf_1	A	0.00309	0.00293	0.00364
	B	0.00391	0.00384	0.00465
	CI	0.00401	0.00414	0.00526
sky130_osu_sc_18T_hs__addf_l	A	0.00249	0.00226	0.00287
	B	0.00331	0.00317	0.00393
	CI	0.00340	0.00346	0.00456

Internal switching power(pJ) to S rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__addf_1	A	0.01057	0.01078	0.01534
	B	0.01120	0.01145	0.01511
	CI	0.00981	0.01026	0.01403
sky130_osu_sc_18T_hs__addf_l	A	0.00996	0.01008	0.01307
	B	0.01059	0.01078	0.01308
	CI	0.00919	0.00958	0.01205

Internal switching power(pJ) to S falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__addf_1	A	0.02366	0.02387	0.02517
	B	0.02122	0.02087	0.02618
	CI	0.01920	0.01926	0.02094
sky130_osu_sc_18T_hs__addf_l	A	0.02280	0.02287	0.02408
	B	0.02038	0.01996	0.02550
	CI	0.01836	0.01836	0.02003

SKY130_OSU_SC_18T_HS__ADDHx

sky130_osu_sc_18T_hs_tt_1P44_25C.ccs
Cell Library: Process , Voltage 1.44,
Temp 25.00

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	0.00973	0.01065	1.93119	0.93494	1.94013
sky130_osu_sc_18T_hs__addh_l	0.00973	0.01065	1.17530	0.92454	1.18517

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__addh_1	0.00000	0.20265	0.23251
sky130_osu_sc_18T_hs__addh_l	0.00000	0.14100	0.18396

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)	0.12034	0.76785	7.24232
	B->CO (RR)	0.12455	0.76693	7.33770
sky130_osu_sc_18T_hs__addh_l	A->CO (RR)	0.12108	0.85113	7.18324
	B->CO (RR)	0.12539	0.85292	7.27766

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)	0.10747	0.73230	6.67578
	B->CO (FF)	0.11451	0.74618	6.71631
sky130_osu_sc_18T_hs__addh_l	A->CO (FF)	0.10506	0.75430	6.27067
	B->CO (FF)	0.11191	0.76895	6.31420

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	0.16608	0.63515	3.72321
	A->CON (FR)	!B	0.11573	1.05367	11.58570
	B->CON (RR)	A	0.17024	0.63363	3.81060
	B->CON (FR)	!A	0.14237	1.11719	11.90740
sky130_osu_sc_18T_hs__addh_l	A->CON (RR)	B	0.14889	0.60430	3.59289
	A->CON (FR)	!B	0.10278	1.03897	11.49600
	B->CON (RR)	A	0.15310	0.60584	3.68296
	B->CON (FR)	!A	0.12941	1.09930	11.81530

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	0.15634	0.77518	5.67361
	A->CON (RF)	!B	0.05920	0.64024	7.26423
	B->CON (FF)	A	0.15781	0.80758	5.97218
	B->CON (RF)	!A	0.06897	0.63352	6.97720
sky130_osu_sc_18T_hs__addh_l	A->CON (FF)	B	0.14165	0.74017	5.45640
	A->CON (RF)	!B	0.05464	0.63705	7.21480
	B->CON (FF)	A	0.14290	0.77326	5.75485
	B->CON (RF)	!A	0.06454	0.62684	6.92996

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	0.12590	1.78368	24.49590
	A->S (FR)	B	0.22331	1.89231	22.53560
	B->S (RR)	!A	0.13518	1.72599	23.42540
	B->S (FR)	A	0.22608	1.97479	23.62960
	CON->S (FR)	-	0.03933	0.87550	12.08710
sky130_osu_sc_18T_hs__addh_l	A->S (RR)	!B	0.12518	1.64614	19.25450
	A->S (FR)	B	0.21272	1.73926	17.27220
	B->S (RR)	!A	0.13480	1.60670	18.56750
	B->S (FR)	A	0.21500	1.80602	17.99140
	CON->S (FR)	-	0.04528	0.97852	12.06730

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	0.16962	2.26226	30.99260
	A->S (RF)	B	0.21029	1.45173	16.32170
	B->S (FF)	!A	0.19607	2.32362	31.37250
	B->S (RF)	A	0.21444	1.45037	16.41220
	CON->S (RF)	-	0.02441	0.60558	8.35298
sky130_osu_sc_18T_hs__addh_l	A->S (FF)	!B	0.16031	1.95235	22.70000
	A->S (RF)	B	0.19543	1.27814	11.64610
	B->S (FF)	!A	0.18710	2.01154	23.04050
	B->S (RF)	A	0.19964	1.27880	11.73430
	CON->S (RF)	-	0.02729	0.64493	8.06817

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	0.00491	0.00467	0.00542
	B	0.00000	0.00000	0.00000
	B	0.00445	0.00421	0.00472
sky130_osu_sc_18T_hs__addh_l	A	0.00000	0.00000	0.00000
	A	0.00403	0.00372	0.00516
	B	0.00000	0.00000	0.00000
	B	0.00357	0.00327	0.00439

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	0.00780	0.00755	0.00925
	B	0.00000	0.00000	0.00000
	B	0.00805	0.00814	0.00990
sky130_osu_sc_18T_hs__addh_l	A	0.00000	0.00000	0.00000
	A	0.00691	0.00665	0.00853
	B	0.00000	0.00000	0.00000
	B	0.00717	0.00719	0.00912

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	0.00490	0.00467	0.00566
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00672	0.00652	0.00724
	B	A	0.00000	0.00000	0.00000
	B	A	0.00444	0.00422	0.00502
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00750	0.00745	0.00758
sky130_osu_sc_18T_hs__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.00402	0.00371	0.00505
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00613	0.00599	0.00658
	B	A	0.00000	0.00000	0.00000
	B	A	0.00357	0.00326	0.00438
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00690	0.00682	0.00690

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	0.00779	0.00757	0.00944
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00114	0.00114	0.00121
	B	A	0.00000	0.00000	0.00000
	B	A	0.00805	0.00813	0.00967
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00193	0.00185	0.00162
sky130_osu_sc_18T_hs__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.00691	0.00666	0.00854
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00040	0.00038	0.00037
	B	A	0.00000	0.00000	0.00000
	B	A	0.00717	0.00718	0.00919
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00119	0.00109	0.00119

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	0.00781	0.00757	0.00951
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00116	0.00120	0.00137
	B	A	0.00000	0.00000	0.00000
	B	A	0.00806	0.00815	0.01012
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00195	0.00189	0.00202
sky130_osu_sc_18T_hs__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.00692	0.00667	0.00844
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00041	0.00039	0.00053
	B	A	0.00000	0.00000	0.00000
	B	A	0.00718	0.00720	0.00910
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00121	0.00109	0.00112

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	0.00491	0.00467	0.00542
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00673	0.00680	0.00721
	B	A	0.00000	0.00000	0.00000
	B	A	0.00445	0.00422	0.00472
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00751	0.00753	0.00774
sky130_osu_sc_18T_hs__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.00403	0.00372	0.00496
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00612	0.00613	0.00655
	B	A	0.00000	0.00000	0.00000
	B	A	0.00357	0.00326	0.00429
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00691	0.00686	0.00695

SKY130_OSU_SC_18T_HS__AND2x

sky130_osu_sc_18T_hs_tt_1P44_25C.ccs
Cell Library: Process , Voltage 1.44,
Temp 25.00

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	0.00525	0.00536	1.93362
sky130_osu_sc_18T_hs__and2_2	0.00525	0.00537	3.80564
sky130_osu_sc_18T_hs__and2_4	0.00525	0.00537	7.20522
sky130_osu_sc_18T_hs__and2_6	0.00528	0.00536	10.61204
sky130_osu_sc_18T_hs__and2_8	0.00526	0.00538	13.64078
sky130_osu_sc_18T_hs__and2_l	0.00409	0.00421	1.34626

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__and2_1	0.00000	0.09677	0.15419
sky130_osu_sc_18T_hs__and2_2	0.00000	0.15413	0.15788
sky130_osu_sc_18T_hs__and2_4	0.00000	0.26885	0.30469
sky130_osu_sc_18T_hs__and2_6	0.00000	0.38357	0.45519
sky130_osu_sc_18T_hs__and2_8	0.00000	0.49829	0.60569
sky130_osu_sc_18T_hs__and2_l	0.00000	0.07537	0.11975

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)	0.09172	0.68841	6.90295
	B->Y (RR)	0.09715	0.69814	6.96371
sky130_osu_sc_18T_hs__and2_2	A->Y (RR)	0.10546	0.64128	7.13847
	B->Y (RR)	0.11087	0.64202	7.19475
sky130_osu_sc_18T_hs__and2_4	A->Y (RR)	0.14515	0.65997	7.45814
	B->Y (RR)	0.15047	0.65299	7.49868
sky130_osu_sc_18T_hs__and2_6	A->Y (RR)	0.18310	0.70652	7.78542
	B->Y (RR)	0.18836	0.69109	7.81078
sky130_osu_sc_18T_hs__and2_8	A->Y (RR)	0.22079	0.75429	8.02401
	B->Y (RR)	0.22613	0.73544	8.03424
sky130_osu_sc_18T_hs__and2_l	A->Y (RR)	0.10175	0.78260	7.09253
	B->Y (RR)	0.10738	0.78887	7.15669

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)**	0.08170	0.65169	6.14373
	B->Y (FF)	0.08714	0.66842	6.21478
sky130_osu_sc_18T_hs__and2_2	**A->Y (FF)**	0.09531	0.63841	6.37441
	B->Y (FF)	0.10143	0.65160	6.44091
sky130_osu_sc_18T_hs__and2_4	**A->Y (FF)**	0.13329	0.67385	6.71129
	B->Y (FF)	0.13958	0.68655	6.77177
sky130_osu_sc_18T_hs__and2_6	**A->Y (FF)**	0.17404	0.72220	7.00708
	B->Y (FF)	0.18017	0.73151	7.07653
sky130_osu_sc_18T_hs__and2_8	**A->Y (FF)**	0.21167	0.76434	7.16230
	B->Y (FF)	0.21813	0.77226	7.20255
sky130_osu_sc_18T_hs__and2_l	**A->Y (FF)**	0.08911	0.69622	6.00179
	B->Y (FF)	0.09587	0.71676	6.09151

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	0.00381	0.00349	0.00914
	B	0.00000	0.00000	0.00000
	B	0.00388	0.00334	0.00648
sky130_osu_sc_18T_hs__and2_2	A	0.00000	0.00000	0.00000
	A	0.00747	0.00736	0.01253
	B	0.00000	0.00000	0.00000
	B	0.00754	0.00735	0.01029
sky130_osu_sc_18T_hs__and2_4	A	0.00000	0.00000	0.00000
	A	0.01540	0.01586	0.02014
	B	0.00000	0.00000	0.00000
	B	0.01546	0.01591	0.01887
sky130_osu_sc_18T_hs__and2_6	A	0.00000	0.00000	0.00000
	A	0.02337	0.02415	0.02953
	B	0.00000	0.00000	0.00000
	B	0.02346	0.02431	0.02793
sky130_osu_sc_18T_hs__and2_8	A	0.00000	0.00000	0.00000
	A	0.03146	0.03233	0.03736
	B	0.00000	0.00000	0.00000
	B	0.03155	0.03257	0.03591
sky130_osu_sc_18T_hs__and2_l	A	0.00000	0.00000	0.00000
	A	0.00282	0.00253	0.00597
	B	0.00000	0.00000	0.00000
	B	0.00290	0.00244	0.00455

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	0.00935	0.00956	0.01610
	B	0.00000	0.00000	0.00000
	B	0.01053	0.01064	0.01674
sky130_osu_sc_18T_hs__and2_2	A	0.00000	0.00000	0.00000
	A	0.01178	0.01245	0.01878
	B	0.00000	0.00000	0.00000
	B	0.01298	0.01352	0.01943
sky130_osu_sc_18T_hs__and2_4	A	0.00000	0.00000	0.00000
	A	0.01786	0.01944	0.02575
	B	0.00000	0.00000	0.00000
	B	0.01904	0.02038	0.02626
sky130_osu_sc_18T_hs__and2_6	A	0.00000	0.00000	0.00000
	A	0.02396	0.02654	0.03281
	B	0.00000	0.00000	0.00000
	B	0.02527	0.02737	0.03313
sky130_osu_sc_18T_hs__and2_8	A	0.00000	0.00000	0.00000
	A	0.03005	0.03324	0.04004
	B	0.00000	0.00000	0.00000
	B	0.03127	0.03410	0.04007
sky130_osu_sc_18T_hs__and2_l	A	0.00000	0.00000	0.00000
	A	0.00728	0.00733	0.01131
	B	0.00000	0.00000	0.00000
	B	0.00816	0.00816	0.01191

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)	-0.00348	-0.00351	-0.00352
sky130_osu_sc_18T_hs__and2_2	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00348	-0.00351	-0.00352
sky130_osu_sc_18T_hs__and2_4	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00348	-0.00351	-0.00352
sky130_osu_sc_18T_hs__and2_6	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00350	-0.00353	-0.00353
sky130_osu_sc_18T_hs__and2_8	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00348	-0.00351	-0.00351
sky130_osu_sc_18T_hs__and2_l	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00259	-0.00261	-0.00262

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)	0.00351	0.00354	0.00353
sky130_osu_sc_18T_hs__and2_2	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00351	0.00354	0.00353
sky130_osu_sc_18T_hs__and2_4	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00351	0.00354	0.00353
sky130_osu_sc_18T_hs__and2_6	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00354	0.00356	0.00355
sky130_osu_sc_18T_hs__and2_8	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00352	0.00354	0.00353
sky130_osu_sc_18T_hs__and2_l	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00261	0.00263	0.00262

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)	-0.00330	-0.00333	-0.00330
sky130_osu_sc_18T_hs__and2_2	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00330	-0.00333	-0.00330
sky130_osu_sc_18T_hs__and2_4	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00330	-0.00333	-0.00330
sky130_osu_sc_18T_hs__and2_6	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00330	-0.00330	-0.00330
sky130_osu_sc_18T_hs__and2_8	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00330	-0.00330	-0.00330
sky130_osu_sc_18T_hs__and2_l	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00245	-0.00247	-0.00246

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)	0.00336	0.00335	0.00332
sky130_osu_sc_18T_hs__and2_2	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00336	0.00336	0.00332
sky130_osu_sc_18T_hs__and2_4	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00336	0.00336	0.00332
sky130_osu_sc_18T_hs__and2_6	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00336	0.00336	0.00332
sky130_osu_sc_18T_hs__and2_8	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00336	0.00336	0.00332
sky130_osu_sc_18T_hs__and2_l	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00251	0.00250	0.00247

SKY130_OSU_SC_18T_HS__AOI21

sky130_osu_sc_18T_hs_tt_1P44_25C.ccs
Cell Library: Process , Voltage 1.44,
Temp 25.00

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	0.00498	0.00517	0.00501	0.88427

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__aoi21_l	0.00000	0.03782	0.07525

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)	0.10978	1.10230	11.86460
	A1->Y (FR)	0.09462	1.05344	11.52770
	B0->Y (FR)	0.07925	1.04187	11.61540

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)	0.05275	0.58286	6.38742
	A1->Y (RF)	0.04764	0.60317	6.75639
	B0->Y (RF)	0.03235	0.56886	6.65057

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	0.00809	0.00800	0.00813
	A1	0.00000	0.00000	0.00000
	A1	0.00682	0.00672	0.00682
	B0	0.00637	0.00613	0.00693

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	0.00189	0.00162	0.00170
	A1	0.00000	0.00000	0.00000
	A1	0.00191	0.00164	0.00185
	B0	-0.00077	-0.00081	-0.00067

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)	-0.00276	-0.00305	-0.00307
	(!A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !Y)	-0.00312	-0.00313	-0.00312
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00311	-0.00312	-0.00312

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)	0.00304	0.00305	0.00307
	(!A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !Y)	0.00312	0.00315	0.00313
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00317	0.00315	0.00313

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)	-0.00275	-0.00303	-0.00303
	(!A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !Y)	-0.00307	-0.00308	-0.00308
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	-0.00332	-0.00335	-0.00336

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)	0.00301	0.00304	0.00303
	(!A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !Y)	0.00308	0.00313	0.00309
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	0.00335	0.00338	0.00337

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)	-0.00160	-0.00161	-0.00160

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)	0.00179	0.00180	0.00165

SKY130_OSU_SC_18T_HS__AOI22

sky130_osu_sc_18T_hs_tt_1P44_25C.ccs
Cell Library: Process , Voltage 1.44,
Temp 25.00

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	0.00498	0.00518	0.00534	0.00513	0.86511

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__aoi22_l	0.00000	0.04162	0.15050

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)	0.13964	1.14207	11.90400
	A1->Y (FR)	0.12496	1.10976	11.72830
	B0->Y (FR)	0.08355	1.03797	11.47420
	B1->Y (FR)	0.09833	1.07168	11.69090

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)	0.06840	0.59671	6.33030
	A1->Y (RF)	0.06333	0.61070	6.69700
	B0->Y (RF)	0.03735	0.58467	6.66540
	B1->Y (RF)	0.04251	0.56454	6.29959

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	0.00995	0.00986	0.00990
	A1	0.00855	0.00842	0.00850
	B0	0.00682	0.00657	0.00754
	B1	0.00803	0.00777	0.00882

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__aoi22_l	A0	0.00379	0.00352	0.00356
	A1	0.00382	0.00356	0.00371
	B0	-0.00046	-0.00054	-0.00025
	B1	-0.00039	-0.00050	-0.00036

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)	-0.00281	-0.00306	-0.00306
	(!A1 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * B1 * !Y)	-0.00312	-0.00312	-0.00312
	(!A1 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !B1 * Y)	-0.00311	-0.00312	-0.00312
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00311	-0.00312	-0.00312

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)	0.00304	0.00308	0.00306
	(!A1 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * B1 * !Y)	0.00312	0.00315	0.00313
	(!A1 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !B1 * Y)	0.00317	0.00314	0.00313
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00317	0.00314	0.00313

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)	-0.00279	-0.00303	-0.00303
	(!A0 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * B1 * !Y)	-0.00307	-0.00310	-0.00308
	(!A0 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !B1 * Y)	-0.00332	-0.00332	-0.00335
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	-0.00332	-0.00335	-0.00335

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)	0.00300	0.00303	0.00303
	(!A0 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * B1 * !Y)	0.00308	0.00312	0.00309
	(!A0 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !B1 * Y)	0.00335	0.00337	0.00336
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	0.00335	0.00337	0.00336

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)	-0.00160	-0.00162	-0.00161
	(A0 * A1 * !B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B1 * !Y)	-0.00160	-0.00162	-0.00161
	(!A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B1 * Y)	-0.00341	-0.00343	-0.00345
	(!A0 * A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B1 * Y)	-0.00341	-0.00343	-0.00345

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)	0.00187	0.00188	0.00168
	(A0 * A1 * !B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B1 * !Y)	0.00160	0.00162	0.00161
	(!A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B1 * Y)	0.00344	0.00347	0.00345
	(!A0 * A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B1 * Y)	0.00344	0.00349	0.00345

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)	-0.00161	-0.00162	-0.00162
	(A0 * A1 * !B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B0 * !Y)	-0.00161	-0.00162	-0.00161
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00316	-0.00318	-0.00317
	(!A0 * A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B0 * Y)	-0.00316	-0.00318	-0.00317

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)	0.00188	0.00189	0.00169
	(A0 * A1 * !B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B0 * !Y)	0.00161	0.00162	0.00161
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00322	0.00319	0.00318
	(!A0 * A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B0 * Y)	0.00322	0.00320	0.00318

SKY130_OSU_SC_18T_HS__BUFx

sky130_osu_sc_18T_hs_tt_1P44_25C.ccs
Cell Library: Process , Voltage 1.44,
Temp 25.00

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	0.00535	1.92152
sky130_osu_sc_18T_hs__buf_2	0.00535	3.78739
sky130_osu_sc_18T_hs__buf_4	0.00535	7.31026
sky130_osu_sc_18T_hs__buf_6	0.00096	1.80000
sky130_osu_sc_18T_hs__buf_8	0.00536	13.90513
sky130_osu_sc_18T_hs__buf_l	0.00424	1.34926

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__buf_1	0.00000	0.07894	0.07894
sky130_osu_sc_18T_hs__buf_2	0.00000	0.11841	0.15419
sky130_osu_sc_18T_hs__buf_4	0.00000	0.19736	0.30469
sky130_osu_sc_18T_hs__buf_6	0.00000	0.00000	0.00000
sky130_osu_sc_18T_hs__buf_8	0.00000	0.35524	0.60569
sky130_osu_sc_18T_hs__buf_l	0.00000	0.06198	0.06198

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)**	0.06996	0.65148	6.78774
sky130_osu_sc_18T_hs__buf_2	**A->Y (RR)**	0.07735	0.58983	6.97727
sky130_osu_sc_18T_hs__buf_4	**A->Y (RR)**	0.10421	0.59333	7.34610
sky130_osu_sc_18T_hs__buf_8	**A->Y (RR)**	0.15538	0.65320	7.81349
sky130_osu_sc_18T_hs__buf_l	**A->Y (RR)**	0.07850	0.74471	6.99585

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)**	0.07777	0.64101	6.07784
sky130_osu_sc_18T_hs__buf_2	**A->Y (FF)**	0.09222	0.63167	6.33953
sky130_osu_sc_18T_hs__buf_4	**A->Y (FF)**	0.13051	0.67043	6.75101
sky130_osu_sc_18T_hs__buf_8	**A->Y (FF)**	0.20902	0.76192	7.22849
sky130_osu_sc_18T_hs__buf_l	**A->Y (FF)**	0.08622	0.69030	5.97332

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	0.00355	0.00307	0.00775
sky130_osu_sc_18T_hs__buf_2	A	0.00000	0.00000	0.00000
	A	0.00723	0.00699	0.01112
sky130_osu_sc_18T_hs__buf_4	A	0.00000	0.00000	0.00000
	A	0.01516	0.01553	0.01947
sky130_osu_sc_18T_hs__buf_8	A	0.00000	0.00000	0.00000
	A	0.03085	0.03219	0.03759
sky130_osu_sc_18T_hs__buf_l	A	0.00000	0.00000	0.00000
	A	0.00271	0.00236	0.00528

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	0.00904	0.00918	0.01563
sky130_osu_sc_18T_hs__buf_2	A	0.00000	0.00000	0.00000
	A	0.01147	0.01198	0.01819
sky130_osu_sc_18T_hs__buf_4	A	0.00000	0.00000	0.00000
	A	0.01755	0.01895	0.02503
sky130_osu_sc_18T_hs__buf_8	A	0.00000	0.00000	0.00000
	A	0.02994	0.03274	0.03891
sky130_osu_sc_18T_hs__buf_l	A	0.00000	0.00000	0.00000
	A	0.00711	0.00709	0.01102

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
	-0.00049	-0.00049	-0.00048

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
	0.00049	0.00049	0.00048

SKY130_OSU_SC_18T_HS__DFFRx

sky130_osu_sc_18T_hs_tt_1P44_25C.ccs
Cell Library: Process , Voltage 1.44,
Temp 25.00

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	0.00512	0.00508	0.01498	1.90566	1.88515
sky130_osu_sc_18T_hs__dffr_l	0.00512	0.00508	0.01497	1.35346	1.35094

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__dffr_1	0.00000	0.25592	0.38148
sky130_osu_sc_18T_hs__dffr_l	0.00000	0.23896	0.36452

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)	0.38229	1.56251	15.38690
	QN->Q (FR)	0.04080	0.94159	12.99610
sky130_osu_sc_18T_hs__dffr_l	CK->Q (RR)	0.37517	1.65406	14.86400
	QN->Q (FR)	0.04460	0.99887	12.76240

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)	0.36473	1.58770	16.25090
	QN->Q (RF)	0.02994	0.71230	9.80338
	RN->Q (FF)	0.26400	1.64780	18.00300
sky130_osu_sc_18T_hs__dffr_l	CK->Q (RF)	0.37110	1.72536	15.98080
	QN->Q (RF)	0.03056	0.71572	9.19688
	RN->Q (FF)	0.27104	1.78415	17.72840

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)	0.32294	0.93657	7.14052
	RN->QN (FR)	0.22208	0.99588	8.89245
sky130_osu_sc_18T_hs__dffr_l	CK->QN (RR)	0.32457	1.00710	7.22658
	RN->QN (FR)	0.22426	1.06632	8.96906

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)**	0.32194	0.79471	4.73493
sky130_osu_sc_18T_hs__dffr_l	**CK->QN (RF)**	0.30937	0.79618	4.45034

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)	-0.07163	-0.09937	-0.41048
	setup	CK (R)	0.30149	0.33527	1.56997
sky130_osu_sc_18T_hs__dffr_l	hold	CK (R)	-0.07200	-0.09947	-0.41238
	setup	CK (R)	0.30183	0.33658	1.59052

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)	-0.15673	-0.47678	-4.36960
	setup	CK (R)	0.19128	0.49312	4.49214
sky130_osu_sc_18T_hs__dffr_l	hold	CK (R)	-0.16004	-0.47647	-4.36056
	setup	CK (R)	0.18907	0.49312	4.49426

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)	-0.07163	-0.09937	-0.41048
	setup	CK (R)	0.30149	0.33527	1.56997
sky130_osu_sc_18T_hs__dffr_l	hold	CK (R)	-0.07200	-0.09947	-0.41238
	setup	CK (R)	0.30183	0.33658	1.59052

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)	-0.15673	-0.47678	-4.36960
	setup	CK (R)	0.19128	0.49312	4.49214
sky130_osu_sc_18T_hs__dffr_l	hold	CK (R)	-0.16004	-0.47647	-4.36056
	setup	CK (R)	0.18907	0.49312	4.49426

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)	0.25288	0.28490	1.50198
	removal	CK (R)	-0.04652	-0.05602	-0.13214
sky130_osu_sc_18T_hs__dffr_l	recovery	CK (R)	0.25285	0.28641	1.50997
	removal	CK (R)	-0.04652	-0.05602	-0.13214

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)	0.25288	0.28490	1.50198
	removal	CK (R)	-0.04652	-0.05602	-0.13214
sky130_osu_sc_18T_hs__dffr_l	recovery	CK (R)	0.25285	0.28641	1.50997
	removal	CK (R)	-0.04652	-0.05602	-0.13214

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 ()	0.16014	0.51636	13.33370
	min_pulse_width	RN ()	0.16014	0.51636	13.33370
sky130_osu_sc_18T_hs__dffr_l	min_pulse_width	RN ()	0.15627	0.51636	13.33370
	min_pulse_width	RN ()	0.15627	0.51636	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 ()	0.17176	0.51636	13.33370
	min_pulse_width	CK ()	0.19499	0.51636	13.33370
sky130_osu_sc_18T_hs__dffr_l	min_pulse_width	CK ()	0.16014	0.51636	13.33370
	min_pulse_width	CK ()	0.18724	0.51636	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 ()	0.38471	0.51636	13.33370
	min_pulse_width	CK ()	0.15627	0.51636	13.33370
sky130_osu_sc_18T_hs__dffr_l	min_pulse_width	CK ()	0.38471	0.51636	13.33370
	min_pulse_width	CK ()	0.15627	0.51636	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	0.00931	0.00683	0.00000
sky130_osu_sc_18T_hs__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.00832	0.00647	-0.00444

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	0.01037	0.00910	0.00000
	RN	-0.00122	-0.06789	-0.98789
	RN	0.02362	0.02246	0.01277
sky130_osu_sc_18T_hs__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.00936	0.00842	0.00444
	RN	-0.00122	-0.05529	-0.70163
	RN	0.02260	0.02178	0.01833

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	0.01037	0.00911	0.00000
	RN	-0.00122	-0.06745	-0.97725
	RN	0.02361	0.02247	0.01288
sky130_osu_sc_18T_hs__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.00936	0.00843	0.00448
	RN	-0.00122	-0.05523	-0.70033
	RN	0.02260	0.02178	0.01832

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	0.00925	0.00679	0.00000
sky130_osu_sc_18T_hs__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.00826	0.00642	-0.00448

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	-0.00260	-0.00305	-0.00306
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.01111	0.01051	0.01224
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.00515	0.00461	0.00652
sky130_osu_sc_18T_hs__dffr_l	CK	0.00000	0.00000	0.00000
	CK	-0.00260	-0.00305	-0.00306
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.01111	0.01051	0.01224
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.00515	0.00461	0.00652

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	0.00303	0.00308	0.00306
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.01832	0.01801	0.01993
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.00842	0.00818	0.01014
sky130_osu_sc_18T_hs__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.00303	0.00308	0.00306
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.01832	0.01801	0.01993
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.00842	0.00818	0.01014

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)	0.00372	0.00328	0.00865
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.00987	0.00920	0.01433
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)	0.00372	0.00328	0.00865
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.00987	0.00920	0.01433

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)	0.00831	0.00809	0.01496
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.01786	0.01729	0.02387
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)	0.00831	0.00809	0.01496
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.01786	0.01729	0.02387

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)	-0.00047	-0.00110	0.00411
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.00519	0.00395	0.00922
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	-0.00089	-0.00157	0.00371
sky130_osu_sc_18T_hs__dffr_l	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	-0.00047	-0.00110	0.00411
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.00519	0.00395	0.00922
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	-0.00089	-0.00157	0.00371

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)	0.01317	0.01301	0.01979
	(D * RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * RN * !Q * QN)	0.02813	0.02722	0.03373
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.02152	0.02104	0.02742
	(!D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * Q * !QN)	0.02781	0.02723	0.04015
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.01459	0.01444	0.02101
sky130_osu_sc_18T_hs__dffr_l	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.01317	0.01301	0.01979
	(D * RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * RN * !Q * QN)	0.02813	0.02719	0.03373
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.02151	0.02104	0.02742
	(!D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * Q * !QN)	0.02781	0.02723	0.04014
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.01459	0.01444	0.02101

SKY130_OSU_SC_18T_HS__DFFSRx

sky130_osu_sc_18T_hs_tt_1P44_25C.ccs
Cell Library: Process , Voltage 1.44,
Temp 25.00

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	0.00508	0.00509	0.01095	0.01522	1.92892	1.94708
sky130_osu_sc_18T_hs__dffsr_l	0.00508	0.00509	0.01094	0.01522	1.34672	1.35268

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__dffsr_1	0.00000	0.27576	0.37893
sky130_osu_sc_18T_hs__dffsr_l	0.00000	0.25879	0.36197

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)	0.38934	1.54041	14.97570
	QN->Q (FR)	0.03883	0.91364	12.64380
	RN->Q (RR)	0.30869	1.47017	14.97790
	SN->Q (FR)	0.29405	1.62995	17.32420
sky130_osu_sc_18T_hs__dffsr_l	CK->Q (RR)	0.39316	1.67701	14.86270
	QN->Q (FR)	0.04454	0.99475	12.69370
	RN->Q (RR)	0.31286	1.60708	14.86050
	SN->Q (FR)	0.29782	1.76578	17.18670

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)	0.40992	1.60529	15.88490
	QN->Q (RF)	0.02737	0.66996	9.23164
	RN->Q (FF)	0.27339	1.63144	17.65430
sky130_osu_sc_18T_hs__dffsr_l	CK->Q (RF)	0.42147	1.77466	15.95220
	QN->Q (RF)	0.03050	0.71377	9.16300
	RN->Q (FF)	0.28507	1.80215	17.71490

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)	0.36901	0.98291	7.20151
	RN->QN (FR)	0.23330	1.00893	8.96940
sky130_osu_sc_18T_hs__dffsr_l	CK->QN (RR)	0.37404	1.06181	7.29124
	RN->QN (FR)	0.23833	1.08786	9.04954

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)	0.33359	0.80396	4.72570
	RN->QN (RF)	0.25314	0.73418	4.72247
	SN->QN (FF)	0.23872	0.89434	7.06865
sky130_osu_sc_18T_hs__dffsr_l	CK->QN (RF)	0.32931	0.82460	4.54121
	RN->QN (RF)	0.24917	0.75563	4.53637
	SN->QN (FF)	0.23441	0.91409	6.86022

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)	-0.07838	-0.10928	-0.48311
	setup	CK (R)	0.29543	0.32383	1.54403
sky130_osu_sc_18T_hs__dffsr_l	hold	CK (R)	-0.07872	-0.10942	-0.48356
	setup	CK (R)	0.29477	0.32302	1.55170

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)	-0.17729	-0.49577	-4.51939
	setup	CK (R)	0.22361	0.51146	4.60542
sky130_osu_sc_18T_hs__dffsr_l	hold	CK (R)	-0.17707	-0.49566	-4.51925
	setup	CK (R)	0.21904	0.51146	4.60528

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)	-0.07838	-0.10928	-0.48311
	setup	CK (R)	0.29543	0.32383	1.54403
sky130_osu_sc_18T_hs__dffsr_l	hold	CK (R)	-0.07872	-0.10942	-0.48356
	setup	CK (R)	0.29477	0.32302	1.55170

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)	-0.17729	-0.49577	-4.51939
	setup	CK (R)	0.22361	0.51146	4.60542
sky130_osu_sc_18T_hs__dffsr_l	hold	CK (R)	-0.17707	-0.49566	-4.51925
	setup	CK (R)	0.21904	0.51146	4.60528

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)	0.22403	0.25070	1.37359
	removal	CK (R)	-0.02808	-0.03289	-0.09126
	hold	SN (R)	-0.22648	-0.44577	-2.43130
	setup	SN (R)	0.25375	0.49582	5.91892
sky130_osu_sc_18T_hs__dffsr_l	recovery	CK (R)	0.22020	0.25060	1.37285
	removal	CK (R)	-0.02808	-0.03289	-0.09126
	hold	SN (R)	-0.22162	-0.43789	-2.37831
	setup	SN (R)	0.25524	0.49182	5.78879

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)	0.22403	0.25070	1.37359
	removal	CK (R)	-0.02808	-0.03289	-0.09126
	hold	SN (R)	-0.22648	-0.44577	-2.43130
	hold	SN (R)	-0.22849	-0.44649	-2.44409
	setup	SN (R)	0.25375	0.49273	5.72140
	setup	SN (R)	0.24751	0.49582	5.91892
sky130_osu_sc_18T_hs__dffsr_l	recovery	CK (R)	0.22020	0.25060	1.37285
	removal	CK (R)	-0.02808	-0.03289	-0.09126
	hold	SN (R)	-0.22446	-0.43789	-2.37831
	hold	SN (R)	-0.22162	-0.43945	-2.40191
	setup	SN (R)	0.25524	0.48643	5.62883
	setup	SN (R)	0.23822	0.49182	5.78879

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 ()	0.18337	0.51636	13.33370
	min_pulse_width	RN ()	0.18724	0.51636	13.33370
sky130_osu_sc_18T_hs__dffsr_l	min_pulse_width	RN ()	0.18337	0.51636	13.33370
	min_pulse_width	RN ()	0.17950	0.51636	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)	0.05010	0.08878	4.49148
	removal	CK (R)	-0.01465	-0.06343	-0.42069
sky130_osu_sc_18T_hs__dffsr_l	recovery	CK (R)	0.04921	0.08868	4.32516
	removal	CK (R)	-0.01465	-0.06343	-0.41963

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)	0.05010	0.08878	4.49148
	removal	CK (R)	-0.01465	-0.06343	-0.42069
sky130_osu_sc_18T_hs__dffsr_l	recovery	CK (R)	0.04921	0.08868	4.32516
	removal	CK (R)	-0.01465	-0.06343	-0.41963

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 ()	0.23815	0.53606	13.33370
	min_pulse_width	SN ()	0.23503	0.53825	13.33370
sky130_osu_sc_18T_hs__dffsr_l	min_pulse_width	SN ()	0.23747	0.52511	13.33370
	min_pulse_width	SN ()	0.22345	0.52949	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 ()	0.17563	0.51636	13.33370
	min_pulse_width	CK ()	0.21048	0.51636	13.33370
sky130_osu_sc_18T_hs__dffsr_l	min_pulse_width	CK ()	0.17176	0.51636	13.33370
	min_pulse_width	CK ()	0.20660	0.51636	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 ()	0.38084	0.51636	13.33370
	min_pulse_width	CK ()	0.19112	0.51636	13.33370
sky130_osu_sc_18T_hs__dffsr_l	min_pulse_width	CK ()	0.38084	0.51636	13.33370
	min_pulse_width	CK ()	0.18724	0.51636	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	0.01147	0.00975	-0.00298
	RN	0.02097	0.01943	0.00133
	SN	-0.00122	-0.06838	-0.99995
	SN	0.02316	0.02163	0.00373
sky130_osu_sc_18T_hs__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.01057	0.00877	-0.00230
	RN	0.02006	0.01846	0.00422
	SN	-0.00122	-0.05512	-0.69814
	SN	0.02225	0.02067	0.00621

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	0.01207	0.01105	0.00298
	RN	-0.00122	-0.06838	-0.99995
	RN	0.02430	0.02325	0.01567
sky130_osu_sc_18T_hs__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.01116	0.01031	0.00656
	RN	-0.00122	-0.05512	-0.69814
	RN	0.02337	0.02249	0.01928

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	0.01207	0.01104	0.00288
	RN	-0.00122	-0.06877	-1.00936
	RN	0.02430	0.02325	0.01571
sky130_osu_sc_18T_hs__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.01117	0.01031	0.00652
	RN	-0.00122	-0.05527	-0.70123
	RN	0.02337	0.02251	0.01930

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	0.01141	0.00967	-0.00288
	RN	0.02090	0.01939	0.00249
	SN	-0.00122	-0.06877	-1.00929
	SN	0.02309	0.02154	0.00342
sky130_osu_sc_18T_hs__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.01051	0.00871	-0.00243
	RN	0.01999	0.01838	0.00505
	SN	-0.00122	-0.05527	-0.70116
	SN	0.02218	0.02058	0.00615

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	-0.00297	-0.00304	-0.00304
	(!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)	0.01407	0.01352	0.01527
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.00574	0.00521	0.00702
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.00569	0.00518	0.00702
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.00575	0.00523	0.00706
sky130_osu_sc_18T_hs__dffsr_1	CK	0.00000	0.00000	0.00000
	CK	-0.00297	-0.00304	-0.00304
	(!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)	0.01407	0.01352	0.01527
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.00574	0.00521	0.00702
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.00569	0.00518	0.00702
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.00575	0.00523	0.00706

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	0.00308	0.00304	0.00304
	(!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)	0.02093	0.02061	0.02225
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.00885	0.00867	0.01062
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.00893	0.00872	0.01065
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.00881	0.00862	0.01058
sky130_osu_sc_18T_hs__dffsr_1	CK	0.00000	0.00000	0.00000
	CK	0.00308	0.00304	0.00304
	(!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)	0.02092	0.02060	0.02225
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.00885	0.00866	0.01061
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.00893	0.00872	0.01064
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.00880	0.00861	0.01057

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)	0.00329	0.00277	0.00802
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.01182	0.01104	0.01619
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)	0.00329	0.00277	0.00802
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.01182	0.01104	0.01620

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)	0.00887	0.00875	0.01573
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.01879	0.01820	0.02488
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)	0.00886	0.00874	0.01572
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.01878	0.01819	0.02487

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)	-0.00691	-0.00698	-0.00698
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	-0.00670	-0.00717	-0.00717
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	-0.00663	-0.00687	-0.00689
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.00483	0.00426	0.00667
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)	-0.00691	-0.00689	-0.00698
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	-0.00669	-0.00716	-0.00716
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	-0.00662	-0.00686	-0.00689
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.00483	0.00427	0.00667

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)	0.00698	0.00703	0.00700
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00713	0.00721	0.00718
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	0.00687	0.00691	0.00691
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.01427	0.01394	0.01555
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)	0.00698	0.00703	0.00700
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00712	0.00720	0.00717
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	0.00686	0.00691	0.00691
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.01426	0.01393	0.01554

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)	-0.00047	-0.00110	0.00411
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.00588	0.00471	0.00990
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.00576	0.00456	0.00983
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	-0.00073	-0.00140	0.00388
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.00438	0.00307	0.01384
sky130_osu_sc_18T_hs__dffsr_1	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	-0.00047	-0.00110	0.00411
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.00587	0.00470	0.00990
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.00575	0.00455	0.00983
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	-0.00073	-0.00140	0.00388
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.00438	0.00307	0.01384

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)	0.03127	0.03038	0.03683
	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.01320	0.01304	0.01982
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.02187	0.02143	0.02780
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.02192	0.02146	0.02779
	(!D * RN * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * Q * !QN)	0.03039	0.02980	0.04234
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.01446	0.01430	0.02082
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.01721	0.01689	0.03019
sky130_osu_sc_18T_hs__dffsr_l	**(D * RN * SN * !Q * QN)**	0.00000	0.00000	0.00000
	(D * RN * SN * !Q * QN)	0.03127	0.03038	0.03683
	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.01320	0.01304	0.01982
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.02187	0.02143	0.02780
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.02192	0.02146	0.02779
	(!D * RN * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * Q * !QN)	0.03038	0.02979	0.04233
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.01445	0.01430	0.02082
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.01720	0.01688	0.03017

SKY130_OSU_SC_18T_HS__DFFSx

sky130_osu_sc_18T_hs_tt_1P44_25C.ccs
Cell Library: Process , Voltage 1.44,
Temp 25.00

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	0.00511	0.00880	0.01499	1.87777	1.89939
sky130_osu_sc_18T_hs__dffs_l	0.00511	0.00880	0.01499	1.35031	1.34630

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__dffs_1	0.00000	0.25880	0.39533
sky130_osu_sc_18T_hs__dffs_l	0.00000	0.24184	0.37837

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)	0.27420	1.42477	14.99010
	QN->Q (FR)	0.04060	0.93080	12.79290
	SN->Q (FR)	0.21522	1.57035	17.08650
sky130_osu_sc_18T_hs__dffs_l	CK->Q (RR)	0.27441	1.53558	14.67480
	QN->Q (FR)	0.04443	0.99304	12.67960
	SN->Q (FR)	0.21458	1.67525	16.74350

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)	0.40263	1.61748	15.99200
	QN->Q (RF)	0.02971	0.70647	9.68696
sky130_osu_sc_18T_hs__dffs_l	CK->Q (RF)	0.40708	1.75933	15.93610
	QN->Q (RF)	0.03038	0.71242	9.15539

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)	0.35922	0.97935	7.19491
sky130_osu_sc_18T_hs__dffs_l	CK->QN (RR)	0.35907	1.04377	7.21405

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)	0.22063	0.67256	4.63665
	SN->QN (FF)	0.16108	0.81911	6.73073
sky130_osu_sc_18T_hs__dffs_l	CK->QN (RF)	0.21511	0.68255	4.31553
	SN->QN (FF)	0.15477	0.82361	6.38077

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)	-0.05245	-0.08127	-0.35664
	setup	CK (R)	0.19222	0.23862	1.54866
sky130_osu_sc_18T_hs__dffs_l	hold	CK (R)	-0.05344	-0.08345	-0.36018
	setup	CK (R)	0.19495	0.23482	1.56140

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)	-0.15962	-0.47852	-4.34726
	setup	CK (R)	0.21114	0.49549	4.52484
sky130_osu_sc_18T_hs__dffs_l	hold	CK (R)	-0.15985	-0.47812	-4.34125
	setup	CK (R)	0.21112	0.49549	4.52468

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)	-0.05245	-0.08127	-0.35664
	setup	CK (R)	0.19222	0.23862	1.54866
sky130_osu_sc_18T_hs__dffs_l	hold	CK (R)	-0.05344	-0.08345	-0.36018
	setup	CK (R)	0.19495	0.23482	1.56140

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)	-0.15962	-0.47852	-4.34726
	setup	CK (R)	0.21114	0.49549	4.52484
sky130_osu_sc_18T_hs__dffs_l	hold	CK (R)	-0.15985	-0.47812	-4.34125
	setup	CK (R)	0.21112	0.49549	4.52468

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)	0.05166	0.09472	3.57795
	removal	CK (R)	-0.01759	-0.06343	-0.55940
sky130_osu_sc_18T_hs__dffs_l	recovery	CK (R)	0.05157	0.09447	3.44335
	removal	CK (R)	-0.01759	-0.06343	-0.55940

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)	0.05166	0.09472	3.57795
	removal	CK (R)	-0.01759	-0.06343	-0.55940
sky130_osu_sc_18T_hs__dffs_l	recovery	CK (R)	0.05157	0.09447	3.44335
	removal	CK (R)	-0.01759	-0.06343	-0.55940

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 ()	0.14852	0.51636	13.33370
	min_pulse_width	SN ()	0.14852	0.51636	13.33370
sky130_osu_sc_18T_hs__dffs_l	min_pulse_width	SN ()	0.14465	0.51636	13.33370
	min_pulse_width	SN ()	0.14078	0.51636	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 ()	0.11368	0.51636	13.33370
	min_pulse_width	CK ()	0.20273	0.51636	13.33370
sky130_osu_sc_18T_hs__dffs_l	min_pulse_width	CK ()	0.10981	0.51636	13.33370
	min_pulse_width	CK ()	0.19886	0.51636	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 ()	0.27630	0.51636	13.33370
	min_pulse_width	CK ()	0.17950	0.51636	13.33370
sky130_osu_sc_18T_hs__dffs_l	min_pulse_width	CK ()	0.27630	0.51636	13.33370
	min_pulse_width	CK ()	0.17950	0.51636	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	0.00935	0.00684	0.00000
	SN	-0.00122	-0.06729	-0.97344
	SN	0.01991	0.01754	-0.00658
sky130_osu_sc_18T_hs__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.00835	0.00649	-0.00456
	SN	-0.00122	-0.05521	-0.70000
	SN	0.01891	0.01717	0.00516

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	0.01029	0.00912	0.00000
sky130_osu_sc_18T_hs__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.00930	0.00842	0.00487

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	0.01029	0.00912	0.00000
sky130_osu_sc_18T_hs__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.00929	0.00842	0.00491

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	0.00929	0.00679	0.00000
	SN	-0.00122	-0.06775	-0.98452
	SN	0.01985	0.01745	-0.00714
sky130_osu_sc_18T_hs__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.00829	0.00643	-0.00445
	SN	-0.00122	-0.05511	-0.69786
	SN	0.01885	0.01711	0.00499

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	-0.00301	-0.00307	-0.00308
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.01077	0.01014	0.01185
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.00504	0.00450	0.00636
sky130_osu_sc_18T_hs__dffs_l	CK	0.00000	0.00000	0.00000
	CK	-0.00301	-0.00307	-0.00308
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.01077	0.01014	0.01185
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.00504	0.00450	0.00636

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	0.00311	0.00307	0.00308
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.01775	0.01746	0.01929
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.00849	0.00829	0.01033
sky130_osu_sc_18T_hs__dffs_1	CK	0.00000	0.00000	0.00000
	CK	0.00311	0.00307	0.00308
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.01775	0.01746	0.01929
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.00849	0.00829	0.01033

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)	-0.00519	-0.00521	-0.00523
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.00379	0.00336	0.00598
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)	-0.00519	-0.00521	-0.00523
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.00379	0.00336	0.00598

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)	0.00526	0.00529	0.00524
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.01014	0.00980	0.01331
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)	0.00526	0.00529	0.00524
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.01014	0.00980	0.01331

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)	-0.00048	-0.00111	0.00410
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	-0.00081	-0.00150	0.00379
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.00366	0.00235	0.01338
sky130_osu_sc_18T_hs__dffs_l	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	-0.00048	-0.00112	0.00410
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	-0.00081	-0.00150	0.00379
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.00366	0.00235	0.01338

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)	0.02784	0.02705	0.03350
	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.01317	0.01301	0.01980
	(!D * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * SN * Q * !QN)	0.02717	0.02648	0.03936
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	0.01450	0.01436	0.02093
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.01678	0.01645	0.02994
sky130_osu_sc_18T_hs__dffs_l	(D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * SN * !Q * QN)	0.02784	0.02705	0.03350
	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.01317	0.01301	0.01980
	(!D * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * SN * Q * !QN)	0.02717	0.02654	0.03936
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	0.01450	0.01436	0.02093
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.01678	0.01645	0.02994

SKY130_OSU_SC_18T_HS__DFFx

sky130_osu_sc_18T_hs_tt_1P44_25C.ccs
Cell Library: Process , Voltage 1.44,
Temp 25.00

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	0.00526	0.01487	1.95766	1.95423
sky130_osu_sc_18T_hs__dff_l	0.00526	0.01486	1.34268	1.32534

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__dff_1	0.00000	0.25063	0.31476
sky130_osu_sc_18T_hs__dff_l	0.00000	0.23367	0.29780

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)	0.24168	1.37358	14.93460
	QN->Q (FR)	0.03855	0.91385	12.70130
sky130_osu_sc_18T_hs__dff_l	CK->Q (RR)	0.25024	1.51547	14.66200
	QN->Q (FR)	0.04517	1.00539	12.81980

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)	0.34474	1.54087	15.99320
	QN->Q (RF)	0.02725	0.67034	9.27510
sky130_osu_sc_18T_hs__dff_l	CK->Q (RF)	0.35839	1.71251	15.92920
	QN->Q (RF)	0.03045	0.71132	9.13004

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)	0.30535	0.91107	7.12126
sky130_osu_sc_18T_hs__dff_l	CK->QN (RR)	0.31202	0.99250	7.14489

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)	0.19221	0.63258	4.51211
sky130_osu_sc_18T_hs__dff_l	CK->QN (RF)	0.19202	0.65625	4.23703

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)	-0.04916	-0.07845	-0.37904
	setup	CK (R)	0.16054	0.20299	1.58363
sky130_osu_sc_18T_hs__dff_l	hold	CK (R)	-0.04991	-0.08245	-0.38050
	setup	CK (R)	0.15598	0.20211	1.57003

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)	-0.14826	-0.47693	-4.32428
	setup	CK (R)	0.18079	0.49450	4.52253
sky130_osu_sc_18T_hs__dff_l	hold	CK (R)	-0.14840	-0.47693	-4.33091
	setup	CK (R)	0.18075	0.49439	4.52259

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 ()	0.10206	0.51636	13.33370
	min_pulse_width	CK ()	0.18337	0.51636	13.33370
sky130_osu_sc_18T_hs__dff_l	min_pulse_width	CK ()	0.10206	0.51636	13.33370
	min_pulse_width	CK ()	0.17950	0.51636	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 ()	0.24145	0.51636	13.33370
	min_pulse_width	CK ()	0.14078	0.51636	13.33370
sky130_osu_sc_18T_hs__dff_l	min_pulse_width	CK ()	0.24145	0.51636	13.33370
	min_pulse_width	CK ()	0.14078	0.51636	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	0.00981	0.00792	-0.00163
sky130_osu_sc_18T_hs__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.00891	0.00698	-0.00388

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	0.01049	0.00946	0.00163
sky130_osu_sc_18T_hs__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.00960	0.00867	0.00438

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	0.01049	0.00947	0.00170
sky130_osu_sc_18T_hs__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.00960	0.00869	0.00449

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	0.00976	0.00791	-0.00170
sky130_osu_sc_18T_hs__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.00884	0.00696	-0.00346

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	-0.00260	-0.00304	-0.00305
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.01010	0.00955	0.01138
sky130_osu_sc_18T_hs__dff_l	CK	0.00000	0.00000	0.00000
	CK	-0.00260	-0.00304	-0.00305
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.01010	0.00955	0.01138

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	0.00302	0.00307	0.00305
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.01832	0.01794	0.01988
sky130_osu_sc_18T_hs__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.00302	0.00307	0.00305
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.01832	0.01794	0.01988

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)	-0.00049	-0.00112	0.00411
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	-0.00080	-0.00148	0.00382
sky130_osu_sc_18T_hs__dff_l	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	-0.00049	-0.00112	0.00411
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	-0.00080	-0.00148	0.00382

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)	0.01312	0.01296	0.01975
	(D * !Q * QN)	0.00000	0.00000	0.00000
	(D * !Q * QN)	0.02721	0.02637	0.03304
	(!D * Q * !QN)	0.00000	0.00000	0.00000
	(!D * Q * !QN)	0.02758	0.02694	0.03987
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.01444	0.01429	0.02087
sky130_osu_sc_18T_hs__dff_l	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.01312	0.01296	0.01975
	(D * !Q * QN)	0.00000	0.00000	0.00000
	(D * !Q * QN)	0.02721	0.02637	0.03304
	(!D * Q * !QN)	0.00000	0.00000	0.00000
	(!D * Q * !QN)	0.02758	0.02695	0.03988
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.01444	0.01429	0.02087

SKY130_OSU_SC_18T_HS__INVx

sky130_osu_sc_18T_hs_tt_1P44_25C.ccs
Cell Library: Process , Voltage 1.44,
Temp 25.00

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	0.00513	1.85850
sky130_osu_sc_18T_hs__inv_10	0.04826	17.26868
sky130_osu_sc_18T_hs__inv_2	0.00984	3.68206
sky130_osu_sc_18T_hs__inv_3	0.01467	5.29064
sky130_osu_sc_18T_hs__inv_4	0.01942	7.11461
sky130_osu_sc_18T_hs__inv_6	0.02911	10.59842
sky130_osu_sc_18T_hs__inv_8	0.03870	13.95671
sky130_osu_sc_18T_hs__inv_l	0.00399	1.30569

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__inv_1	0.00000	0.03947	0.07525
sky130_osu_sc_18T_hs__inv_10	0.00000	0.39471	0.75250
sky130_osu_sc_18T_hs__inv_2	0.00000	0.07894	0.15050
sky130_osu_sc_18T_hs__inv_3	0.00000	0.11841	0.22575
sky130_osu_sc_18T_hs__inv_4	0.00000	0.15788	0.30100
sky130_osu_sc_18T_hs__inv_6	0.00000	0.23683	0.45150
sky130_osu_sc_18T_hs__inv_8	0.00000	0.31577	0.60200
sky130_osu_sc_18T_hs__inv_l	0.00000	0.03099	0.05777

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)**	0.03663	0.84610	11.58990
sky130_osu_sc_18T_hs__inv_10	**A->Y (FR)**	0.05613	0.60793	11.81500
sky130_osu_sc_18T_hs__inv_2	**A->Y (FR)**	0.03008	0.73704	11.59990
sky130_osu_sc_18T_hs__inv_3	**A->Y (FR)**	0.03353	0.69388	11.61000
sky130_osu_sc_18T_hs__inv_4	**A->Y (FR)**	0.03480	0.66313	11.60150
sky130_osu_sc_18T_hs__inv_6	**A->Y (FR)**	0.03994	0.63194	11.68450
sky130_osu_sc_18T_hs__inv_8	**A->Y (FR)**	0.04749	0.61353	11.69800
sky130_osu_sc_18T_hs__inv_l	**A->Y (FR)**	0.04220	0.93273	11.80130

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)**	0.02450	0.59539	8.14243
sky130_osu_sc_18T_hs__inv_10	**A->Y (RF)**	0.03992	0.39803	8.13236
sky130_osu_sc_18T_hs__inv_2	**A->Y (RF)**	0.02081	0.51510	8.13444
sky130_osu_sc_18T_hs__inv_3	**A->Y (RF)**	0.02283	0.48329	8.14764
sky130_osu_sc_18T_hs__inv_4	**A->Y (RF)**	0.02312	0.45431	8.14518
sky130_osu_sc_18T_hs__inv_6	**A->Y (RF)**	0.02914	0.42946	8.17967
sky130_osu_sc_18T_hs__inv_8	**A->Y (RF)**	0.03456	0.41081	8.16314
sky130_osu_sc_18T_hs__inv_l	**A->Y (RF)**	0.02713	0.63155	8.08086

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	0.00466	0.00470	0.00534
sky130_osu_sc_18T_hs__inv_10	A	0.00000	0.00000	0.00000
	A	0.04017	0.04209	0.05004
sky130_osu_sc_18T_hs__inv_2	A	0.00000	0.00000	0.00000
	A	0.00839	0.00866	0.01013
sky130_osu_sc_18T_hs__inv_3	A	0.00000	0.00000	0.00000
	A	0.01282	0.01332	0.01524
sky130_osu_sc_18T_hs__inv_4	A	0.00000	0.00000	0.00000
	A	0.01654	0.01700	0.01984
sky130_osu_sc_18T_hs__inv_6	A	0.00000	0.00000	0.00000
	A	0.02445	0.02547	0.03018
sky130_osu_sc_18T_hs__inv_8	A	0.00000	0.00000	0.00000
	A	0.03231	0.03363	0.04004
sky130_osu_sc_18T_hs__inv_l	A	0.00000	0.00000	0.00000
	A	0.00364	0.00363	0.00413

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	-0.00090	-0.00091	-0.00068
sky130_osu_sc_18T_hs__inv_10	A	0.00000	0.00000	0.00000
	A	-0.01613	-0.01546	-0.01119
sky130_osu_sc_18T_hs__inv_2	A	0.00000	0.00000	0.00000
	A	-0.00304	-0.00288	-0.00237
sky130_osu_sc_18T_hs__inv_3	A	0.00000	0.00000	0.00000
	A	-0.00402	-0.00389	-0.00292
sky130_osu_sc_18T_hs__inv_4	A	0.00000	0.00000	0.00000
	A	-0.00627	-0.00598	-0.00461
sky130_osu_sc_18T_hs__inv_6	A	0.00000	0.00000	0.00000
	A	-0.00960	-0.00915	-0.00683
sky130_osu_sc_18T_hs__inv_8	A	0.00000	0.00000	0.00000
	A	-0.01296	-0.01232	-0.00904
sky130_osu_sc_18T_hs__inv_l	A	0.00000	0.00000	0.00000
	A	-0.00066	-0.00067	-0.00052

SKY130_OSU_SC_18T_HS__MUX2

sky130_osu_sc_18T_hs_tt_1P44_25C.ccs
Cell Library: Process , Voltage 1.44,
Temp 25.00

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	0.28237	0.28228	0.01043	0.27773

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__mux2_1	0.00000	0.07906	0.07906

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)	-	0.01894	0.33289	3.09840
	A1->Y (RR)	-	0.02085	0.33280	3.09840
	S0->Y (RR)	(!A0 * A1)	0.05573	0.31419	0.98937
	S0->Y (FR)	(A0 * !A1)	0.05261	0.47810	3.59172

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)	-	0.01764	0.29331	2.68414
	A1->Y (FF)	-	0.01685	0.29100	2.67554
	S0->Y (FF)	(!A0 * A1)	0.08146	0.44007	2.51725
	S0->Y (RF)	(A0 * !A1)	0.02870	0.32325	2.17957

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	-	-0.00513	-0.00513	-0.00513
	A1	-	0.00000	0.00000	0.00000
	A1	-	-0.00357	-0.00357	-0.00358
	S0	(A0 * !A1)	0.00000	0.00000	0.00000
	S0	(A0 * !A1)	0.00546	0.00547	0.01295
	S0	(!A0 * A1)	0.00000	0.00000	0.00000
	S0	(!A0 * A1)	-0.00330	-0.00380	0.00234

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	-	0.00513	0.00513	0.00513
	A1	-	0.00000	0.00000	0.00000
	A1	-	0.00357	0.00357	0.00358
	S0	(A0 * !A1)	0.00000	0.00000	0.00000
	S0	(A0 * !A1)	0.00114	0.00068	0.00711
	S0	(!A0 * A1)	0.00000	0.00000	0.00000
	S0	(!A0 * A1)	0.01265	0.01256	0.01968

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)	-0.00134	-0.00134	-0.00134

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)	0.00134	0.00134	0.00134

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)	-0.00158	-0.00157	-0.00158

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)	0.00158	0.00157	0.00158

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)	-0.00110	-0.00160	0.00477
	(!A0 * !A1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !Y)	-0.00106	-0.00159	0.00480

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)	0.00942	0.00931	0.01654
	(!A0 * !A1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !Y)	0.00869	0.00867	0.01612

SKY130_OSU_SC_18T_HS__NAND2x

sky130_osu_sc_18T_hs_tt_1P44_25C.ccs
Cell Library: Process , Voltage 1.44,
Temp 25.00

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	0.00515	0.00513	1.83581
sky130_osu_sc_18T_hs__nand2_l	0.00400	0.00399	1.29331

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__nand2_1	0.00000	0.03940	0.15050
sky130_osu_sc_18T_hs__nand2_l	0.00000	0.03099	0.11554

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)	0.03772	0.84997	11.59590
	B->Y (FR)	0.04436	0.84849	11.48640
sky130_osu_sc_18T_hs__nand2_l	A->Y (FR)	0.04321	0.93558	11.79750
	B->Y (FR)	0.05104	0.93897	11.75320

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)	0.03540	0.73898	10.14080
	B->Y (RF)	0.04041	0.72482	9.81297
sky130_osu_sc_18T_hs__nand2_l	A->Y (RF)	0.03935	0.80109	10.06660
	B->Y (RF)	0.04407	0.78197	9.66284

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	0.00497	0.00499	0.00561
	B	0.00000	0.00000	0.00000
	B	0.00625	0.00621	0.00682
sky130_osu_sc_18T_hs__nand2_1	A	0.00000	0.00000	0.00000
	A	0.00384	0.00383	0.00425
	B	0.00000	0.00000	0.00000
	B	0.00478	0.00473	0.00520

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	-0.00055	-0.00060	-0.00039
	B	0.00000	0.00000	0.00000
	B	-0.00050	-0.00058	-0.00045
sky130_osu_sc_18T_hs__nand2_1	A	0.00000	0.00000	0.00000
	A	-0.00044	-0.00049	-0.00035
	B	0.00000	0.00000	0.00000
	B	-0.00042	-0.00048	-0.00039

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)	-0.00342	-0.00345	-0.00346
sky130_osu_sc_18T_hs__nand2_l	(!B * Y)	0.00000	0.00000	0.00000
	(!B * Y)	-0.00253	-0.00254	-0.00255

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)	0.00345	0.00347	0.00347
sky130_osu_sc_18T_hs__nand2_l	(!B * Y)	0.00000	0.00000	0.00000
	(!B * Y)	0.00254	0.00256	0.00256

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)	-0.00319	-0.00322	-0.00320
sky130_osu_sc_18T_hs__nand2_l	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00235	-0.00236	-0.00236

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)	0.00325	0.00323	0.00321
sky130_osu_sc_18T_hs__nand2_l	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00240	0.00239	0.00237

SKY130_OSU_SC_18T_HS__NOR2x

sky130_osu_sc_18T_hs_tt_1P44_25C.ccs
Cell Library: Process , Voltage 1.44,
Temp 25.00

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	0.00514	0.00545	0.92422
sky130_osu_sc_18T_hs__nor2_l	0.00392	0.00426	0.64653

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__nor2_1	0.00000	0.02828	0.07525
sky130_osu_sc_18T_hs__nor2_l	0.00000	0.02371	0.05777

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)	0.08265	1.05143	11.75760
	B->Y (FR)	0.06314	1.00170	11.43880
sky130_osu_sc_18T_hs__nor2_l	A->Y (FR)	0.09352	1.16034	11.79500
	B->Y (FR)	0.07639	1.12194	11.63390

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)	0.03154	0.49273	5.69010
	B->Y (RF)	0.02578	0.48444	5.67013
sky130_osu_sc_18T_hs__nor2_l	A->Y (RF)	0.03366	0.52483	5.65837
	B->Y (RF)	0.02843	0.51334	5.64071

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	0.00658	0.00651	0.00667
	B	0.00000	0.00000	0.00000
	B	0.00506	0.00502	0.00595
sky130_osu_sc_18T_hs__nor2_l	A	0.00000	0.00000	0.00000
	A	0.00486	0.00480	0.00490
	B	0.00000	0.00000	0.00000
	B	0.00388	0.00381	0.00438

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	0.00082	0.00060	0.00088
	B	0.00000	0.00000	0.00000
	B	-0.00073	-0.00075	-0.00046
sky130_osu_sc_18T_hs__nor2_l	A	0.00000	0.00000	0.00000
	A	0.00054	0.00039	0.00058
	B	0.00000	0.00000	0.00000
	B	-0.00050	-0.00050	-0.00033

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)	-0.00263	-0.00304	-0.00307
sky130_osu_sc_18T_hs__nor2_l	(B * !Y)	0.00000	0.00000	0.00000
	(B * !Y)	-0.00190	-0.00218	-0.00220

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)	0.00305	0.00308	0.00307
sky130_osu_sc_18T_hs__nor2_l	(B * !Y)	0.00000	0.00000	0.00000
	(B * !Y)	0.00219	0.00220	0.00220

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)	-0.00160	-0.00161	-0.00161
sky130_osu_sc_18T_hs__nor2_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	-0.00119	-0.00120	-0.00119

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)	0.00170	0.00172	0.00164
sky130_osu_sc_18T_hs__nor2_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00126	0.00127	0.00121

SKY130_OSU_SC_18T_HS__OAI21

sky130_osu_sc_18T_hs_tt_1P44_25C.ccs
Cell Library: Process , Voltage 1.44,
Temp 25.00

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	0.00521	0.00526	0.00443	0.94887

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__oai21_l	0.00000	0.03708	0.13302

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)	0.08613	1.04073	11.70590
	A1->Y (FR)	0.11037	1.09573	12.02990
	B0->Y (FR)	0.05331	0.84606	9.94958

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)	0.05007	0.61379	6.90801
	A1->Y (RF)	0.05842	0.61210	6.79355
	B0->Y (RF)	0.03918	0.64014	7.48324

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	0.00691	0.00679	0.00765
	A1	0.00000	0.00000	0.00000
	A1	0.00846	0.00833	0.00847
	B0	0.00577	0.00567	0.00640

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	0.00035	0.00025	0.00037
	A1	0.00000	0.00000	0.00000
	A1	0.00188	0.00163	0.00174
	B0	0.00246	0.00237	0.00257

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)	-0.00160	-0.00162	-0.00161
	(A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * Y)	-0.00301	-0.00306	-0.00307
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00313	-0.00315	-0.00313

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)	0.00171	0.00172	0.00165
	(A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * Y)	0.00306	0.00306	0.00307
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00314	0.00317	0.00314

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)	-0.00258	-0.00299	-0.00302
	(A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * Y)	-0.00299	-0.00306	-0.00305
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	-0.00309	-0.00312	-0.00310

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)	0.00299	0.00301	0.00302
	(A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * Y)	0.00303	0.00306	0.00305
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	0.00311	0.00314	0.00311

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)	-0.00257	-0.00259	-0.00263

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)	0.00263	0.00265	0.00264

SKY130_OSU_SC_18T_HS__OAI22

sky130_osu_sc_18T_hs_tt_1P44_25C.ccs
Cell Library: Process , Voltage 1.44,
Temp 25.00

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_1	15.38460

Pin Capacitance Information

Cell Name	Pin Cap(pf)				Max Cap(pf)
	A0	A1	B0	B1	Y
sky130_osu_sc_18T_hs__oai22_1	0.00504	0.00532	0.00545	0.00533	0.92825

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__oai22_1	0.00000	0.04218	0.15050

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)	0.11955	1.09332	11.84350
	A1->Y (FR)	0.09996	1.03914	11.52650
	B0->Y (FR)	0.07124	1.01108	11.51140
	B1->Y (FR)	0.09155	1.06519	11.82980

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)	0.08181	0.65569	6.94084
	A1->Y (RF)	0.06600	0.63187	6.86132
	B0->Y (RF)	0.05499	0.65536	7.42148
	B1->Y (RF)	0.07216	0.68482	7.62361

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	0.01091	0.01080	0.01092
	A1	0.00936	0.00907	0.01008
	B0	0.00699	0.00669	0.00773
	B1	0.00860	0.00849	0.00863

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__oai22_l	A0	0.00296	0.00273	0.00278
	A1	0.00152	0.00138	0.00145
	B0	0.00151	0.00140	0.00159
	B1	0.00299	0.00274	0.00293

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)	-0.00261	-0.00304	-0.00307
	(A1 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * B1 * !Y)	-0.00261	-0.00304	-0.00307
	(A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * !B1 * Y)	-0.00298	-0.00306	-0.00305
	(!A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * !B1 * Y)	-0.00310	-0.00312	-0.00311

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)	0.00304	0.00310	0.00307
	(A1 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * B1 * !Y)	0.00304	0.00310	0.00307
	(A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * !B1 * Y)	0.00303	0.00306	0.00305
	(!A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * !B1 * Y)	0.00311	0.00314	0.00312

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)	-0.00159	-0.00160	-0.00160
	(A0 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * B1 * !Y)	-0.00159	-0.00160	-0.00160
	(A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * !B1 * Y)	-0.00298	-0.00304	-0.00303
	(!A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * !B1 * Y)	-0.00309	-0.00311	-0.00310

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)	0.00170	0.00171	0.00163
	(A0 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * B1 * !Y)	0.00170	0.00171	0.00163
	(A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * !B1 * Y)	0.00302	0.00304	0.00303
	(!A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * !B1 * Y)	0.00310	0.00313	0.00311

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)	-0.00158	-0.00160	-0.00159
	(A0 * !A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B1 * !Y)	-0.00158	-0.00160	-0.00159
	(!A0 * !A1 * B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B1 * Y)	-0.00331	-0.00337	-0.00336
	(!A0 * !A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B1 * Y)	-0.00334	-0.00335	-0.00343

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)	0.00169	0.00170	0.00162
	(A0 * !A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B1 * !Y)	0.00169	0.00170	0.00162
	(!A0 * !A1 * B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B1 * Y)	0.00336	0.00338	0.00336
	(!A0 * !A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B1 * Y)	0.00343	0.00346	0.00344

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)	-0.00257	-0.00300	-0.00302
	(A0 * !A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B0 * !Y)	-0.00257	-0.00300	-0.00302
	(!A0 * !A1 * B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B0 * Y)	-0.00335	-0.00344	-0.00342
	(!A0 * !A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B0 * Y)	-0.00339	-0.00342	-0.00347

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)	0.00299	0.00305	0.00302
	(A0 * !A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B0 * !Y)	0.00299	0.00303	0.00302
	(!A0 * !A1 * B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B0 * Y)	0.00341	0.00344	0.00342
	(!A0 * !A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B0 * Y)	0.00347	0.00350	0.00349

SKY130_OSU_SC_18T_HS__OR2x

sky130_osu_sc_18T_hs_tt_1P44_25C.ccs
Cell Library: Process , Voltage 1.44,
Temp 25.00

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	0.00548	0.00527	1.93593
sky130_osu_sc_18T_hs__or2_2	0.00548	0.00527	3.75653
sky130_osu_sc_18T_hs__or2_4	0.00548	0.00527	7.20193
sky130_osu_sc_18T_hs__or2_8	0.00547	0.00528	13.64039
sky130_osu_sc_18T_hs__or2_l	0.00432	0.00408	1.32382

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__or2_1	0.00000	0.04986	0.08264
sky130_osu_sc_18T_hs__or2_2	0.00000	0.07145	0.15788
sky130_osu_sc_18T_hs__or2_4	0.00000	0.11461	0.30838
sky130_osu_sc_18T_hs__or2_8	0.00000	0.20094	0.60938
sky130_osu_sc_18T_hs__or2_l	0.00000	0.04131	0.06620

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)	0.07987	0.69067	6.92017
	B->Y (RR)	0.07165	0.65865	6.83264
sky130_osu_sc_18T_hs__or2_2	A->Y (RR)	0.08780	0.62133	7.02646
	B->Y (RR)	0.07920	0.59362	6.93696
sky130_osu_sc_18T_hs__or2_4	A->Y (RR)	0.11514	0.61660	7.38178
	B->Y (RR)	0.10627	0.59702	7.30202
sky130_osu_sc_18T_hs__or2_8	A->Y (RR)	0.16622	0.67373	7.86258
	B->Y (RR)	0.15706	0.65807	7.78679
sky130_osu_sc_18T_hs__or2_l	A->Y (RR)	0.08851	0.77949	7.05991
	B->Y (RR)	0.08080	0.75042	6.95606

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)	0.14925	0.77077	6.68311
	B->Y (FF)	0.12334	0.70947	6.28540
sky130_osu_sc_18T_hs__or2_2	A->Y (FF)	0.18223	0.76945	6.90122
	B->Y (FF)	0.15648	0.71825	6.49468
sky130_osu_sc_18T_hs__or2_4	A->Y (FF)	0.25982	0.83863	7.38950
	B->Y (FF)	0.23400	0.79516	6.96357
sky130_osu_sc_18T_hs__or2_8	A->Y (FF)	0.41537	1.01111	7.94168
	B->Y (FF)	0.38969	0.95912	7.55066
sky130_osu_sc_18T_hs__or2_l	A->Y (FF)	0.16541	0.81268	6.43927
	B->Y (FF)	0.13933	0.76281	6.09086

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	0.00531	0.00472	0.00732
	B	0.00000	0.00000	0.00000
	B	0.00383	0.00340	0.00809
sky130_osu_sc_18T_hs__or2_2	A	0.00000	0.00000	0.00000
	A	0.00901	0.00883	0.01135
	B	0.00000	0.00000	0.00000
	B	0.00747	0.00743	0.01156
sky130_osu_sc_18T_hs__or2_4	A	0.00000	0.00000	0.00000
	A	0.01693	0.01724	0.02042
	B	0.00000	0.00000	0.00000
	B	0.01539	0.01608	0.02029
sky130_osu_sc_18T_hs__or2_8	A	0.00000	0.00000	0.00000
	A	0.03273	0.03404	0.03831
	B	0.00000	0.00000	0.00000
	B	0.03109	0.03299	0.03882
sky130_osu_sc_18T_hs__or2_l	A	0.00000	0.00000	0.00000
	A	0.00394	0.00344	0.00529
	B	0.00000	0.00000	0.00000
	B	0.00295	0.00262	0.00555

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	0.01088	0.01079	0.01266
	B	0.00000	0.00000	0.00000
	B	0.00911	0.00938	0.01582
sky130_osu_sc_18T_hs__or2_2	A	0.00000	0.00000	0.00000
	A	0.01330	0.01376	0.01545
	B	0.00000	0.00000	0.00000
	B	0.01150	0.01220	0.01828
sky130_osu_sc_18T_hs__or2_4	A	0.00000	0.00000	0.00000
	A	0.01938	0.02078	0.02251
	B	0.00000	0.00000	0.00000
	B	0.01773	0.01905	0.02491
sky130_osu_sc_18T_hs__or2_8	A	0.00000	0.00000	0.00000
	A	0.03221	0.03421	0.03680
	B	0.00000	0.00000	0.00000
	B	0.03047	0.03242	0.03867
sky130_osu_sc_18T_hs__or2_l	A	0.00000	0.00000	0.00000
	A	0.00833	0.00820	0.00951
	B	0.00000	0.00000	0.00000
	B	0.00708	0.00719	0.01116

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)	-0.00265	-0.00306	-0.00308
sky130_osu_sc_18T_hs__or2_2	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00264	-0.00306	-0.00308
sky130_osu_sc_18T_hs__or2_4	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00264	-0.00306	-0.00308
sky130_osu_sc_18T_hs__or2_8	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00264	-0.00306	-0.00308
sky130_osu_sc_18T_hs__or2_l	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00191	-0.00219	-0.00221

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)	0.00305	0.00310	0.00308
sky130_osu_sc_18T_hs__or2_2	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00305	0.00310	0.00308
sky130_osu_sc_18T_hs__or2_4	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00305	0.00310	0.00308
sky130_osu_sc_18T_hs__or2_8	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00305	0.00310	0.00308
sky130_osu_sc_18T_hs__or2_l	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00219	0.00221	0.00221

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)	-0.00160	-0.00162	-0.00161
sky130_osu_sc_18T_hs__or2_2	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00160	-0.00162	-0.00161
sky130_osu_sc_18T_hs__or2_4	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00160	-0.00162	-0.00161
sky130_osu_sc_18T_hs__or2_8	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00160	-0.00162	-0.00161
sky130_osu_sc_18T_hs__or2_l	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00121	-0.00122	-0.00121

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)	0.00173	0.00173	0.00165
sky130_osu_sc_18T_hs__or2_2	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00171	0.00173	0.00165
sky130_osu_sc_18T_hs__or2_4	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00171	0.00173	0.00165
sky130_osu_sc_18T_hs__or2_8	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00172	0.00173	0.00165
sky130_osu_sc_18T_hs__or2_l	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00129	0.00129	0.00123

SKY130_OSU_SC_18T_HS__TBUFIx

sky130_osu_sc_18T_hs_tt_1P44_25C.ccs
Cell Library: Process , Voltage 1.44,
Temp 25.00

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	0.00545	0.00690	0.92490
sky130_osu_sc_18T_hs__tbufi_l	0.00427	0.00542	0.64513

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__tbufi_1	0.00000	0.04115	0.15050
sky130_osu_sc_18T_hs__tbufi_l	0.00000	0.03306	0.11554

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)	0.06041	0.99843	11.43840
	OE->Y (FR)	0.05769	0.31967	4.28371
	OE->Y (RR)	0.10417	0.83282	6.90226
sky130_osu_sc_18T_hs__tbufi_l	A->Y (FR)	0.07360	1.11943	11.63060
	OE->Y (FR)	0.06290	0.33094	4.28352
	OE->Y (RR)	0.11589	0.96054	7.14717

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)	0.03423	0.59244	6.90526
	OE->Y (FF)	0.05857	0.31991	4.28373
	OE->Y (RF)	0.03319	0.56684	6.52845
sky130_osu_sc_18T_hs__tbufi_l	A->Y (RF)	0.03862	0.62975	6.85460
	OE->Y (FF)	0.06362	0.33200	4.28361
	OE->Y (RF)	0.03795	0.60446	6.41131

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	0.00476	0.00472	0.00557
	OE	0.00000	0.00000	0.00000
	OE	0.00478	0.00432	0.01028
sky130_osu_sc_18T_hs__tbufi_l	A	0.00000	0.00000	0.00000
	A	0.00368	0.00360	0.00412
	OE	0.00000	0.00000	0.00000
	OE	0.00345	0.00309	0.00672

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	-0.00073	-0.00076	-0.00048
	OE	0.00000	0.00000	0.00000
	OE	0.00344	0.00297	0.00955
sky130_osu_sc_18T_hs__tbufi_l	A	0.00000	0.00000	0.00000
	A	-0.00050	-0.00050	-0.00035
	OE	0.00000	0.00000	0.00000
	OE	0.00242	0.00204	0.00599

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)	-0.00255	-0.00257	-0.00256
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	-0.00231	-0.00233	-0.00232
sky130_osu_sc_18T_hs__tbufi_l	(!OE * Y)	0.00000	0.00000	0.00000
	(!OE * Y)	-0.00196	-0.00198	-0.00196
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	-0.00180	-0.00182	-0.00181

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)	0.00255	0.00257	0.00256
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	0.00238	0.00240	0.00236
sky130_osu_sc_18T_hs__tbufi_l	(!OE * Y)	0.00000	0.00000	0.00000
	(!OE * Y)	0.00196	0.00198	0.00196
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	0.00185	0.00186	0.00183

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)	0.00199	0.00157	0.00820
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00181	0.00136	0.00798
sky130_osu_sc_18T_hs__tbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00138	0.00102	0.00502
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00124	0.00096	0.00485

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)	0.00556	0.00526	0.01260
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00558	0.00536	0.01271
sky130_osu_sc_18T_hs__tbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00441	0.00412	0.00859
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00445	0.00420	0.00867

SKY130_OSU_SC_18T_HS__TNBUFIx

sky130_osu_sc_18T_hs_tt_1P44_25C.ccs
Cell Library: Process , Voltage 1.44,
Temp 25.00

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	0.00544	0.00851	0.92502
sky130_osu_sc_18T_hs__tnbufi_l	0.00426	0.00644	0.64519

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__tnbufi_1	0.00000	0.06500	0.07894
sky130_osu_sc_18T_hs__tnbufi_l	0.00000	0.05091	0.06198

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)	0.06112	0.99856	11.43940
	OE->Y (RR)	0.02977	0.32013	4.28482
	OE->Y (FR)	0.07748	1.04638	11.76030
sky130_osu_sc_18T_hs__tnbufi_l	A->Y (FR)	0.07438	1.11946	11.63120
	OE->Y (RR)	0.03100	0.32042	4.28512
	OE->Y (FR)	0.08794	1.15477	11.79130

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)	0.03372	0.59228	6.90532
	OE->Y (RF)	0.02950	0.32011	4.28483
	OE->Y (FF)	0.06617	0.58162	4.81290
sky130_osu_sc_18T_hs__tnbufi_l	A->Y (RF)	0.03798	0.62953	6.85437
	OE->Y (RF)	0.03070	0.32040	4.28514
	OE->Y (FF)	0.07483	0.63006	4.68450

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	0.00489	0.00483	0.00569
	OE	0.00000	0.00000	0.00000
	OE	0.01177	0.01189	0.01994
sky130_osu_sc_18T_hs__tnbufi_l	A	0.00000	0.00000	0.00000
	A	0.00380	0.00372	0.00424
	OE	0.00000	0.00000	0.00000
	OE	0.00886	0.00888	0.01377

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	-0.00089	-0.00091	-0.00063
	OE	0.00000	0.00000	0.00000
	OE	0.01063	0.01090	0.01815
sky130_osu_sc_18T_hs__tnbufi_l	A	0.00000	0.00000	0.00000
	A	-0.00065	-0.00065	-0.00050
	OE	0.00000	0.00000	0.00000
	OE	0.00798	0.00806	0.01241

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)	-0.00220	-0.00222	-0.00221
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	-0.00198	-0.00201	-0.00199
sky130_osu_sc_18T_hs__tnbufi_l	(OE * Y)	0.00000	0.00000	0.00000
	(OE * Y)	-0.00163	-0.00164	-0.00163
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	-0.00148	-0.00150	-0.00149

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)	0.00220	0.00222	0.00221
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	0.00205	0.00206	0.00203
sky130_osu_sc_18T_hs__tnbufi_l	(OE * Y)	0.00000	0.00000	0.00000
	(OE * Y)	0.00163	0.00164	0.00163
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	0.00153	0.00154	0.00151

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)	-0.00349	-0.00432	0.00281
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00349	-0.00421	0.00286
sky130_osu_sc_18T_hs__tnbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	-0.00251	-0.00303	0.00115
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00250	-0.00303	0.00117

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)	0.00896	0.00919	0.01703
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00881	0.00902	0.01691
sky130_osu_sc_18T_hs__tnbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00679	0.00684	0.01163
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00668	0.00671	0.01153

SKY130_OSU_SC_18T_HS__XNOR2

sky130_osu_sc_18T_hs_tt_1P44_25C.ccs
Cell Library: Process , Voltage 1.44,
Temp 25.00

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	0.01078	0.00980	0.96201

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__xnor2_l	0.00000	0.13461	0.22944

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	0.13261	0.89232	7.26577
	A->Y (FR)	!B	0.07956	1.03097	11.68870
	B->Y (RR)	A	0.10418	0.85995	7.19662
	B->Y (FR)	!A	0.10639	1.08496	12.01280

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	0.11229	0.69059	5.35102
	A->Y (RF)	!B	0.05035	0.60084	6.83299
	B->Y (FF)	A	0.10207	0.67948	5.34608
	B->Y (RF)	!A	0.05975	0.61405	6.84144

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	0.00460	0.00404	0.00953
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.01150	0.01144	0.01950
	B	A	0.00000	0.00000	0.00000
	B	A	0.00167	0.00131	0.00763
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01262	0.01246	0.02004

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	0.01482	0.01440	0.02129
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00351	0.00291	0.00927
	B	A	0.00000	0.00000	0.00000
	B	A	0.01330	0.01350	0.02071
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00467	0.00396	0.01031

SKY130_OSU_SC_18T_HS__XOR2

sky130_osu_sc_18T_hs_tt_1P44_25C.ccs
Cell Library: Process , Voltage 1.44,
Temp 25.00

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	0.01076	0.00985	0.93254

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__xor2_1	0.00000	0.13461	0.20938

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	0.12601	0.86290	7.02147
	A->Y (FR)	B	0.09721	1.06693	11.85190
	B->Y (RR)	!A	0.10775	0.85315	7.03119
	B->Y (FR)	A	0.10452	1.07506	11.84200

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	0.10221	0.66592	5.10053
	A->Y (RF)	B	0.04655	0.61348	6.95232
	B->Y (FF)	!A	0.09564	0.65958	5.11558
	B->Y (RF)	A	0.05532	0.59446	6.57926

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	0.01358	0.01346	0.02116
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00242	0.00132	0.00740
	B	A	0.00000	0.00000	0.00000
	B	A	0.01387	0.01381	0.02147
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00148	0.00106	0.00737

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	0.00320	0.00242	0.00887
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.01507	0.01515	0.02197
	B	A	0.00000	0.00000	0.00000
	B	A	0.00322	0.00246	0.00885
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01352	0.01380	0.02109

SKY130_OSU_SC_18T_HS_x

sky130_osu_sc_18T_hs_tt_1P44_25C.ccs
Cell Library: Process , Voltage 1.44,
Temp 25.00

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	0.46467
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	167290.00000	334580.00000
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
	-0.00223	0.03639	0.49261

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
	2.91170	2.74855	0.62253