sky130_osu_sc_18T_hs_tt_1P89_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_1P89_25C.ccs
Cell Library: Process , Voltage 1.89,
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	0.02122	0.02111	0.01616	3.26031	1.54644	3.15129
sky130_osu_sc_18T_hs__addf_l	0.02120	0.02110	0.01616	2.23055	1.54692	2.21219

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__addf_1	0.00000	0.82094	1.11090
sky130_osu_sc_18T_hs__addf_l	0.00000	0.67859	0.96856

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)	0.11511	1.45377	24.13820
	B->CO (RR)	0.09847	1.37777	22.97430
	CI->CO (RR)	0.10994	1.50235	24.90670
	CON->CO (FR)	0.02321	0.66180	10.68690
sky130_osu_sc_18T_hs__addf_l	A->CO (RR)	0.11659	1.36264	19.62420
	B->CO (RR)	0.11112	1.31636	18.92020
	CI->CO (RR)	0.11142	1.41284	20.42840
	CON->CO (FR)	0.02620	0.72590	10.76200

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)	0.14940	1.77818	29.18390
	B->CO (FF)	0.13079	1.70206	28.10540
	CI->CO (FF)	0.12796	1.77332	29.41900
	CON->CO (RF)	0.02003	0.54522	8.91701
sky130_osu_sc_18T_hs__addf_l	A->CO (FF)	0.14674	1.60331	22.86130
	B->CO (FF)	0.12839	1.54016	22.17350
	CI->CO (FF)	0.12532	1.59987	23.13510
	CON->CO (RF)	0.02124	0.56484	8.38641

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)	0.11932	0.83157	10.08460
	B->CON (FR)	0.10087	0.79078	9.89215
	CI->CON (FR)	0.09788	0.82699	10.40110
sky130_osu_sc_18T_hs__addf_l	A->CON (FR)	0.11291	0.82376	10.08040
	B->CON (FR)	0.09497	0.78850	9.88757
	CI->CON (FR)	0.09146	0.82413	10.39700

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)	0.07439	0.52920	6.37500
	B->CON (RF)	0.07076	0.54126	6.56382
	CI->CON (RF)	0.06922	0.58259	7.22085
sky130_osu_sc_18T_hs__addf_l	A->CON (RF)	0.07144	0.52617	6.37320
	B->CON (RF)	0.06813	0.53855	6.56216
	CI->CON (RF)	0.06625	0.57874	7.21900

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)	0.22028	1.60507	23.38200
	B->S (-R)	0.22765	1.58673	22.43350
	CI->S (-R)	0.19699	1.59726	23.62200
	CON->S (RR)	0.06675	0.50827	6.68057
sky130_osu_sc_18T_hs__addf_l	A->S (-R)	0.21141	1.49663	19.44200
	B->S (-R)	0.21929	1.48963	18.83630
	CI->S (-R)	0.18810	1.49034	19.71110
	CON->S (RR)	0.06704	0.55431	6.65170

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)	0.18426	1.31086	18.50670
	B->S (-F)	0.18169	1.25337	17.73090
	CI->S (-F)	0.17853	1.35641	19.28210
	CON->S (FF)	0.07660	0.59235	7.31217
sky130_osu_sc_18T_hs__addf_l	A->S (-F)	0.17508	1.19418	14.92320
	B->S (-F)	0.16858	1.14460	14.48900
	CI->S (-F)	0.16926	1.24157	15.72580
	CON->S (FF)	0.07415	0.60177	6.91627

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	0.00458	0.00738	0.06941
	B	0.00521	0.00761	0.06202
	CI	0.00750	0.01050	0.07296
sky130_osu_sc_18T_hs__addf_l	A	0.00332	0.00527	0.04581
	B	0.00397	0.00564	0.04100
	CI	0.00624	0.00847	0.04932

Internal switching power(pJ) to CO falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__addf_1	A	0.01970	0.02355	0.11614
	B	0.02073	0.02372	0.10634
	CI	0.01645	0.02070	0.11585
sky130_osu_sc_18T_hs__addf_l	A	0.01843	0.02123	0.08230
	B	0.01888	0.02122	0.07614
	CI	0.01518	0.01840	0.08280

Internal switching power(pJ) to CON rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__addf_1	A	0.01966	0.02186	0.06860
	B	0.02007	0.02190	0.06633
	CI	0.01642	0.01885	0.06965
sky130_osu_sc_18T_hs__addf_l	A	0.01840	0.02039	0.06518
	B	0.01885	0.02079	0.06312
	CI	0.01516	0.01772	0.06624

Internal switching power(pJ) to CON falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__addf_1	A	0.00453	0.00634	0.03970
	B	0.00518	0.00672	0.03678
	CI	0.00746	0.00949	0.04453
sky130_osu_sc_18T_hs__addf_l	A	0.00413	0.00488	0.03039
	B	0.00395	0.00524	0.03286
	CI	0.00621	0.00799	0.03983

Internal switching power(pJ) to S rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__addf_1	A	0.01969	0.02344	0.11267
	B	-0.00802	-0.00599	0.06424
	CI	0.01644	0.02061	0.11241
sky130_osu_sc_18T_hs__addf_l	A	-0.00430	-0.00602	0.07404
	B	-0.01004	-0.00791	0.07083
	CI	0.00474	0.00593	0.08222

Internal switching power(pJ) to S falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__addf_1	A	0.04412	0.04578	0.11465
	B	0.03905	0.04257	0.13759
	CI	0.03310	0.03497	0.10028
sky130_osu_sc_18T_hs__addf_l	A	0.04243	0.04393	0.11603
	B	0.03738	0.04116	0.13880
	CI	0.03143	0.03314	0.10156

SKY130_OSU_SC_18T_HS__ADDHx

sky130_osu_sc_18T_hs_tt_1P89_25C.ccs
Cell Library: Process , Voltage 1.89,
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	0.01031	0.01135	3.19206	1.66074	3.26241
sky130_osu_sc_18T_hs__addh_l	0.01031	0.01135	1.89497	1.66028	1.92965

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__addh_1	0.00000	0.95363	1.10267
sky130_osu_sc_18T_hs__addh_l	0.00000	0.65528	0.86529

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)	0.07703	0.51394	6.47606
	B->CO (RR)	0.08002	0.50620	6.56362
sky130_osu_sc_18T_hs__addh_l	A->CO (RR)	0.07770	0.58167	6.46839
	B->CO (RR)	0.08072	0.57504	6.48439

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)	0.06695	0.55935	7.19771
	B->CO (FF)	0.07237	0.57346	7.25795
sky130_osu_sc_18T_hs__addh_l	A->CO (FF)	0.06635	0.58342	6.63994
	B->CO (FF)	0.07158	0.59772	6.70188

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	0.10744	0.41660	3.27713
	A->CON (FR)	!B	0.06373	0.77436	10.24830
	B->CON (RR)	A	0.11019	0.40828	3.36410
	B->CON (FR)	!A	0.08091	0.78261	10.10250
sky130_osu_sc_18T_hs__addh_l	A->CON (RR)	B	0.09619	0.39624	3.29483
	A->CON (FR)	!B	0.05631	0.76668	10.23830
	B->CON (RR)	A	0.09898	0.38946	3.32327
	B->CON (FR)	!A	0.07350	0.77429	10.09160

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	0.10291	0.57851	5.79590
	A->CON (RF)	!B	0.04356	0.55252	7.29416
	B->CON (FF)	A	0.10138	0.61261	6.24346
	B->CON (RF)	!A	0.05158	0.53404	6.86540
sky130_osu_sc_18T_hs__addh_l	A->CON (FF)	B	0.09318	0.55239	5.64742
	A->CON (RF)	!B	0.04017	0.54828	7.28858
	B->CON (FF)	A	0.09181	0.58635	6.08744
	B->CON (RF)	!A	0.04822	0.52991	6.86055

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	0.08107	1.43341	24.28140
	A->S (FR)	B	0.14090	1.44117	22.43600
	B->S (RR)	!A	0.08932	1.37389	22.99560
	B->S (FR)	A	0.13990	1.51688	23.76480
	CON->S (FR)	-	0.02635	0.68496	11.04440
sky130_osu_sc_18T_hs__addh_l	A->S (RR)	!B	0.08077	1.30936	18.47480
	A->S (FR)	B	0.13448	1.30262	16.62770
	B->S (RR)	!A	0.08922	1.26421	17.63810
	B->S (FR)	A	0.13345	1.36447	17.49900
	CON->S (FR)	-	0.02949	0.76515	10.94960

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	0.09127	1.61882	27.35010
	A->S (RF)	B	0.13335	1.06310	15.83750
	B->S (FF)	!A	0.10846	1.63165	27.27800
	B->S (RF)	A	0.13611	1.05423	15.92220
	CON->S (RF)	-	0.01883	0.52918	8.65446
sky130_osu_sc_18T_hs__addh_l	A->S (FF)	!B	0.08708	1.41695	19.98060
	A->S (RF)	B	0.12440	0.93864	11.27080
	B->S (FF)	!A	0.10427	1.42867	19.85380
	B->S (RF)	A	0.12720	0.93099	11.28650
	CON->S (RF)	-	0.02079	0.56486	8.10850

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	0.00881	0.00992	0.04287
	B	0.00000	0.00000	0.00000
	B	0.00780	0.00871	0.05090
sky130_osu_sc_18T_hs__addh_l	A	0.00000	0.00000	0.00000
	A	0.00714	0.00824	0.04616
	B	0.00000	0.00000	0.00000
	B	0.00613	0.00701	0.05052

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	0.01394	0.01586	0.06831
	B	0.00000	0.00000	0.00000
	B	0.01445	0.01746	0.07389
sky130_osu_sc_18T_hs__addh_l	A	0.00000	0.00000	0.00000
	A	0.01228	0.01396	0.06012
	B	0.00000	0.00000	0.00000
	B	0.01278	0.01534	0.06320

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	0.00880	0.00992	0.04284
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.01228	0.01378	0.03507
	B	A	0.00000	0.00000	0.00000
	B	A	0.00779	0.00877	0.05142
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01393	0.01454	0.03071
sky130_osu_sc_18T_hs__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.00713	0.00825	0.04557
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.01109	0.01237	0.02978
	B	A	0.00000	0.00000	0.00000
	B	A	0.00612	0.00701	0.05033
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01275	0.01306	0.02486

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	0.01394	0.01575	0.06402
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00172	0.00285	0.01933
	B	A	0.00000	0.00000	0.00000
	B	A	0.01445	0.01721	0.06868
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00312	0.00393	0.01905
sky130_osu_sc_18T_hs__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.01228	0.01396	0.06023
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00033	0.00102	0.01185
	B	A	0.00000	0.00000	0.00000
	B	A	0.01278	0.01527	0.06323
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00173	0.00217	0.01246

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	0.01396	0.01594	0.06869
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00176	0.00311	0.02357
	B	A	0.00000	0.00000	0.00000
	B	A	0.01446	0.01748	0.07443
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00316	0.00414	0.02162
sky130_osu_sc_18T_hs__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.01229	0.01399	0.06104
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00035	0.00115	0.01211
	B	A	0.00000	0.00000	0.00000
	B	A	0.01279	0.01532	0.06428
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00175	0.00218	0.01259

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	0.00882	0.00994	0.04351
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.01229	0.01383	0.03683
	B	A	0.00000	0.00000	0.00000
	B	A	0.00780	0.00874	0.05175
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01396	0.01484	0.03364
sky130_osu_sc_18T_hs__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.00714	0.00827	0.04613
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.01110	0.01225	0.02907
	B	A	0.00000	0.00000	0.00000
	B	A	0.00613	0.00705	0.05071
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01276	0.01315	0.02476

SKY130_OSU_SC_18T_HS__AND2x

sky130_osu_sc_18T_hs_tt_1P89_25C.ccs
Cell Library: Process , Voltage 1.89,
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	0.00559	0.00571	3.23058
sky130_osu_sc_18T_hs__and2_2	0.00559	0.00572	6.16301
sky130_osu_sc_18T_hs__and2_4	0.00559	0.00573	11.68658
sky130_osu_sc_18T_hs__and2_6	0.00563	0.00573	17.09374
sky130_osu_sc_18T_hs__and2_8	0.00561	0.00575	22.21019
sky130_osu_sc_18T_hs__and2_l	0.00431	0.00443	2.22380

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__and2_1	0.00000	0.45912	0.73338
sky130_osu_sc_18T_hs__and2_2	0.00000	0.73308	0.74187
sky130_osu_sc_18T_hs__and2_4	0.00000	1.28099	1.45827
sky130_osu_sc_18T_hs__and2_6	0.00000	1.82890	2.18315
sky130_osu_sc_18T_hs__and2_8	0.00000	2.37681	2.90804
sky130_osu_sc_18T_hs__and2_l	0.00000	0.28137	0.44871

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)	0.05902	0.46111	6.49756
	B->Y (RR)	0.06271	0.45367	6.22740
sky130_osu_sc_18T_hs__and2_2	A->Y (RR)	0.06779	0.41479	6.43690
	B->Y (RR)	0.07153	0.40450	6.16303
sky130_osu_sc_18T_hs__and2_4	A->Y (RR)	0.09307	0.42917	6.58618
	B->Y (RR)	0.09682	0.41387	6.31858
sky130_osu_sc_18T_hs__and2_6	A->Y (RR)	0.11876	0.46353	6.72289
	B->Y (RR)	0.12242	0.44300	6.46209
sky130_osu_sc_18T_hs__and2_8	A->Y (RR)	0.14480	0.50417	6.94213
	B->Y (RR)	0.14851	0.47946	6.67062
sky130_osu_sc_18T_hs__and2_1	A->Y (RR)	0.06478	0.52786	6.48770
	B->Y (RR)	0.06859	0.51994	6.25853

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)**	0.05279	0.49977	6.68900
	B->Y (FF)	0.05598	0.51128	6.75979
sky130_osu_sc_18T_hs__and2_2	**A->Y (FF)**	0.05915	0.46189	6.59034
	B->Y (FF)	0.06291	0.47331	6.67019
sky130_osu_sc_18T_hs__and2_4	**A->Y (FF)**	0.08022	0.47796	6.68010
	B->Y (FF)	0.08394	0.48621	6.76906
sky130_osu_sc_18T_hs__and2_6	**A->Y (FF)**	0.10448	0.51097	6.77754
	B->Y (FF)	0.10799	0.51876	6.86533
sky130_osu_sc_18T_hs__and2_8	**A->Y (FF)**	0.12675	0.54251	6.80276
	B->Y (FF)	0.13041	0.54914	6.88774
sky130_osu_sc_18T_hs__and2_l	**A->Y (FF)**	0.05690	0.54231	6.44911
	B->Y (FF)	0.06096	0.55600	6.54528

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	0.00628	0.01127	0.14725
	B	0.00000	0.00000	0.00000
	B	0.00634	0.00932	0.10490
sky130_osu_sc_18T_hs__and2_2	A	0.00000	0.00000	0.00000
	A	0.01317	0.01769	0.15359
	B	0.00000	0.00000	0.00000
	B	0.01327	0.01618	0.11068
sky130_osu_sc_18T_hs__and2_4	A	0.00000	0.00000	0.00000
	A	0.02866	0.03299	0.16321
	B	0.00000	0.00000	0.00000
	B	0.02880	0.03130	0.12152
sky130_osu_sc_18T_hs__and2_6	A	0.00000	0.00000	0.00000
	A	0.04717	0.04926	0.17293
	B	0.00000	0.00000	0.00000
	B	0.04722	0.04767	0.13203
sky130_osu_sc_18T_hs__and2_8	A	0.00000	0.00000	0.00000
	A	0.06735	0.06570	0.18585
	B	0.00000	0.00000	0.00000
	B	0.06727	0.06473	0.14126
sky130_osu_sc_18T_hs__and2_l	A	0.00000	0.00000	0.00000
	A	0.00460	0.00754	0.09280
	B	0.00000	0.00000	0.00000
	B	0.00470	0.00641	0.06992

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	0.01662	0.02418	0.14036
	B	0.00000	0.00000	0.00000
	B	0.01868	0.02574	0.13678
sky130_osu_sc_18T_hs__and2_2	A	0.00000	0.00000	0.00000
	A	0.02162	0.02917	0.14571
	B	0.00000	0.00000	0.00000
	B	0.02369	0.03058	0.14220
sky130_osu_sc_18T_hs__and2_4	A	0.00000	0.00000	0.00000
	A	0.03616	0.04171	0.15785
	B	0.00000	0.00000	0.00000
	B	0.03808	0.04307	0.15415
sky130_osu_sc_18T_hs__and2_6	A	0.00000	0.00000	0.00000
	A	0.05112	0.05568	0.17091
	B	0.00000	0.00000	0.00000
	B	0.05296	0.05616	0.16626
sky130_osu_sc_18T_hs__and2_8	A	0.00000	0.00000	0.00000
	A	0.07072	0.06894	0.18413
	B	0.00000	0.00000	0.00000
	B	0.07240	0.06974	0.17766
sky130_osu_sc_18T_hs__and2_l	A	0.00000	0.00000	0.00000
	A	0.01283	0.01748	0.08833
	B	0.00000	0.00000	0.00000
	B	0.01440	0.01873	0.08840

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)	-0.00650	-0.00654	-0.00655
sky130_osu_sc_18T_hs__and2_2	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00650	-0.00655	-0.00655
sky130_osu_sc_18T_hs__and2_4	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00649	-0.00654	-0.00654
sky130_osu_sc_18T_hs__and2_6	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00651	-0.00657	-0.00656
sky130_osu_sc_18T_hs__and2_8	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00648	-0.00653	-0.00653
sky130_osu_sc_18T_hs__and2_l	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00478	-0.00481	-0.00482

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)	0.00653	0.00658	0.00657
sky130_osu_sc_18T_hs__and2_2	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00654	0.00658	0.00657
sky130_osu_sc_18T_hs__and2_4	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00654	0.00659	0.00658
sky130_osu_sc_18T_hs__and2_6	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00658	0.00664	0.00662
sky130_osu_sc_18T_hs__and2_8	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00656	0.00662	0.00659
sky130_osu_sc_18T_hs__and2_l	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00481	0.00485	0.00483

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)	-0.00617	-0.00622	-0.00619
sky130_osu_sc_18T_hs__and2_2	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00617	-0.00622	-0.00618
sky130_osu_sc_18T_hs__and2_4	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00616	-0.00619	-0.00618
sky130_osu_sc_18T_hs__and2_6	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00616	-0.00618	-0.00617
sky130_osu_sc_18T_hs__and2_8	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00615	-0.00618	-0.00617
sky130_osu_sc_18T_hs__and2_l	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00454	-0.00455	-0.00455

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)	0.00630	0.00622	0.00621
sky130_osu_sc_18T_hs__and2_2	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00631	0.00623	0.00622
sky130_osu_sc_18T_hs__and2_4	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00631	0.00623	0.00622
sky130_osu_sc_18T_hs__and2_6	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00632	0.00624	0.00623
sky130_osu_sc_18T_hs__and2_8	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00633	0.00624	0.00623
sky130_osu_sc_18T_hs__and2_l	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00465	0.00458	0.00457

SKY130_OSU_SC_18T_HS__AOI21

sky130_osu_sc_18T_hs_tt_1P89_25C.ccs
Cell Library: Process , Voltage 1.89,
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	0.00534	0.00551	0.00533	1.52640

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__aoi21_l	0.00000	0.17103	0.36244

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)	0.06381	0.77424	9.97827
	A1->Y (FR)	0.05506	0.73650	9.59374
	B0->Y (FR)	0.04500	0.77309	10.27700

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)	0.04029	0.46987	5.95390
	A1->Y (RF)	0.03655	0.50373	6.48616
	B0->Y (RF)	0.02445	0.49416	6.59886

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	0.01513	0.01546	0.03317
	A1	0.00000	0.00000	0.00000
	A1	0.01274	0.01308	0.03047
	B0	0.00885	0.01110	0.03946

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	0.00319	0.00327	0.01631
	A1	0.00000	0.00000	0.00000
	A1	0.00325	0.00372	0.01939
	B0	-0.00173	-0.00090	0.01211

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)	-0.00493	-0.00582	-0.00581
	(!A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !Y)	-0.00585	-0.00590	-0.00587
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00585	-0.00588	-0.00586

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)	0.00576	0.00582	0.00581
	(!A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !Y)	0.00586	0.00590	0.00589
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00598	0.00590	0.00588

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)	-0.00487	-0.00577	-0.00575
	(!A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !Y)	-0.00579	-0.00581	-0.00580
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	-0.00623	-0.00627	-0.00627

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)	0.00570	0.00578	0.00575
	(!A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !Y)	0.00579	0.00584	0.00582
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	0.00626	0.00630	0.00629

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)	-0.00264	-0.00266	-0.00266

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)	0.00287	0.00288	0.00272

SKY130_OSU_SC_18T_HS__AOI22

sky130_osu_sc_18T_hs_tt_1P89_25C.ccs
Cell Library: Process , Voltage 1.89,
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	0.00534	0.00552	0.00568	0.00547	1.46176

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__aoi22_l	0.00000	0.18779	0.72488

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)	0.08037	0.79345	9.90132
	A1->Y (FR)	0.07199	0.77084	9.70535
	B0->Y (FR)	0.04718	0.76575	10.03580
	B1->Y (FR)	0.05564	0.79316	10.31030

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)	0.05355	0.47802	5.78946
	A1->Y (RF)	0.04986	0.51177	6.31644
	B0->Y (RF)	0.02628	0.48041	6.29186
	B1->Y (RF)	0.03011	0.44747	5.76729

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	0.01867	0.01884	0.03788
	A1	0.01630	0.01614	0.03505
	B0	0.00962	0.01180	0.04665
	B1	0.01198	0.01401	0.04842

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__aoi22_l	A0	0.00675	0.00676	0.02069
	A1	0.00683	0.00724	0.02385
	B0	-0.00122	-0.00022	0.01627
	B1	-0.00112	-0.00056	0.01318

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)	-0.00494	-0.00582	-0.00581
	(!A1 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * B1 * !Y)	-0.00585	-0.00589	-0.00586
	(!A1 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !B1 * Y)	-0.00585	-0.00590	-0.00586
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00585	-0.00590	-0.00586

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)	0.00576	0.00584	0.00581
	(!A1 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * B1 * !Y)	0.00587	0.00591	0.00589
	(!A1 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !B1 * Y)	0.00598	0.00590	0.00588
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00598	0.00590	0.00588

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)	-0.00489	-0.00575	-0.00575
	(!A0 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * B1 * !Y)	-0.00579	-0.00584	-0.00580
	(!A0 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !B1 * Y)	-0.00622	-0.00627	-0.00627
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	-0.00622	-0.00627	-0.00627

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)	0.00570	0.00575	0.00575
	(!A0 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * B1 * !Y)	0.00579	0.00585	0.00583
	(!A0 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !B1 * Y)	0.00625	0.00630	0.00628
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	0.00625	0.00630	0.00628

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)	-0.00266	-0.00268	-0.00267
	(A0 * A1 * !B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B1 * !Y)	-0.00264	-0.00266	-0.00266
	(!A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B1 * Y)	-0.00637	-0.00639	-0.00642
	(!A0 * A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B1 * Y)	-0.00637	-0.00640	-0.00643

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)	0.00297	0.00299	0.00275
	(A0 * A1 * !B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B1 * !Y)	0.00265	0.00266	0.00266
	(!A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B1 * Y)	0.00641	0.00646	0.00644
	(!A0 * A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B1 * Y)	0.00641	0.00647	0.00644

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)	-0.00267	-0.00269	-0.00269
	(A0 * A1 * !B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B0 * !Y)	-0.00266	-0.00266	-0.00268
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00594	-0.00597	-0.00595
	(!A0 * A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B0 * Y)	-0.00593	-0.00597	-0.00595

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)	0.00299	0.00300	0.00276
	(A0 * A1 * !B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B0 * !Y)	0.00267	0.00268	0.00268
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00606	0.00597	0.00597
	(!A0 * A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B0 * Y)	0.00606	0.00597	0.00597

SKY130_OSU_SC_18T_HS__BUFx

sky130_osu_sc_18T_hs_tt_1P89_25C.ccs
Cell Library: Process , Voltage 1.89,
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	0.00570	3.20807
sky130_osu_sc_18T_hs__buf_2	0.00570	6.20043
sky130_osu_sc_18T_hs__buf_4	0.00570	11.94641
sky130_osu_sc_18T_hs__buf_6	0.00097	1.80000
sky130_osu_sc_18T_hs__buf_8	0.00572	22.56043
sky130_osu_sc_18T_hs__buf_l	0.00445	2.20607

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__buf_1	0.00000	0.37094	0.37094
sky130_osu_sc_18T_hs__buf_2	0.00000	0.55641	0.73338
sky130_osu_sc_18T_hs__buf_4	0.00000	0.92735	1.45827
sky130_osu_sc_18T_hs__buf_6	0.00000	0.00000	0.00000
sky130_osu_sc_18T_hs__buf_8	0.00000	1.66922	2.90804
sky130_osu_sc_18T_hs__buf_l	0.00000	0.22860	0.22860

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)	0.04750	0.42912	6.13077
sky130_osu_sc_18T_hs__buf_2	A->Y (RR)	0.05291	0.37688	6.09004
sky130_osu_sc_18T_hs__buf_4	A->Y (RR)	0.07114	0.38074	6.29438
sky130_osu_sc_18T_hs__buf_8	A->Y (RR)	0.10719	0.43469	6.50550
sky130_osu_sc_18T_hs__buf_l	A->Y (RR)	0.05259	0.49289	6.11028

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)	0.05019	0.49433	6.73301
sky130_osu_sc_18T_hs__buf_2	A->Y (FF)	0.05725	0.46143	6.72732
sky130_osu_sc_18T_hs__buf_4	A->Y (FF)	0.07839	0.47810	6.88317
sky130_osu_sc_18T_hs__buf_8	A->Y (FF)	0.12475	0.54246	6.96604
sky130_osu_sc_18T_hs__buf_l	A->Y (FF)	0.05497	0.53784	6.47990

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	0.00584	0.01067	0.11712
sky130_osu_sc_18T_hs__buf_2	A	0.00000	0.00000	0.00000
	A	0.01256	0.01730	0.12409
sky130_osu_sc_18T_hs__buf_4	A	0.00000	0.00000	0.00000
	A	0.02735	0.03219	0.13822
sky130_osu_sc_18T_hs__buf_8	A	0.00000	0.00000	0.00000
	A	0.06111	0.06452	0.16429
sky130_osu_sc_18T_hs__buf_l	A	0.00000	0.00000	0.00000
	A	0.00440	0.00723	0.07864

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	0.01584	0.02356	0.14168
sky130_osu_sc_18T_hs__buf_2	A	0.00000	0.00000	0.00000
	A	0.02080	0.02836	0.14588
sky130_osu_sc_18T_hs__buf_4	A	0.00000	0.00000	0.00000
	A	0.03509	0.04073	0.15802
sky130_osu_sc_18T_hs__buf_8	A	0.00000	0.00000	0.00000
	A	0.06966	0.06748	0.18092
sky130_osu_sc_18T_hs__buf_l	A	0.00000	0.00000	0.00000
	A	0.01238	0.01713	0.08999

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
	-0.00085	-0.00085	-0.00084

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
	0.00085	0.00085	0.00084

SKY130_OSU_SC_18T_HS__DFFRx

sky130_osu_sc_18T_hs_tt_1P89_25C.ccs
Cell Library: Process , Voltage 1.89,
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	0.00549	0.00542	0.01555	3.13229	3.09977
sky130_osu_sc_18T_hs__dffr_l	0.00549	0.00542	0.01553	2.23612	2.21654

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__dffr_1	0.00000	1.13552	1.74759
sky130_osu_sc_18T_hs__dffr_l	0.00000	0.99318	1.60525

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)	0.21985	1.12761	15.14240
	QN->Q (FR)	0.02736	0.74978	12.06820
sky130_osu_sc_18T_hs__dffr_l	CK->Q (RR)	0.21640	1.21131	14.66880
	QN->Q (FR)	0.02896	0.79112	11.77160

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)	0.22516	1.12226	15.19950
	QN->Q (RF)	0.02328	0.64552	10.40970
	RN->Q (FF)	0.16919	1.20048	17.02940
sky130_osu_sc_18T_hs__dffr_l	CK->Q (RF)	0.22793	1.22971	14.96310
	QN->Q (RF)	0.02348	0.64448	9.62868
	RN->Q (FF)	0.17228	1.30792	16.79990

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)	0.19971	0.60327	6.13007
	RN->QN (FR)	0.14376	0.68111	7.96755
sky130_osu_sc_18T_hs__dffr_l	CK->QN (RR)	0.20009	0.65670	6.19018
	RN->QN (FR)	0.14445	0.73450	8.02228

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)**	0.18619	0.54911	5.08488
sky130_osu_sc_18T_hs__dffr_l	**CK->QN (RF)**	0.17938	0.55982	4.73295

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)	-0.05306	-0.05785	0.10620
	setup	CK (R)	0.17389	0.21356	0.39181
sky130_osu_sc_18T_hs__dffr_l	hold	CK (R)	-0.05326	-0.05785	0.10620
	setup	CK (R)	0.17580	0.21421	0.38649

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)	-0.09341	-0.28923	-3.41634
	setup	CK (R)	0.11603	0.29880	3.91886
sky130_osu_sc_18T_hs__dffr_l	hold	CK (R)	-0.09440	-0.28802	-3.45168
	setup	CK (R)	0.11499	0.29880	3.91886

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)	-0.05306	-0.05785	0.10620
	setup	CK (R)	0.17389	0.21356	0.39181
sky130_osu_sc_18T_hs__dffr_l	hold	CK (R)	-0.05326	-0.05785	0.10620
	setup	CK (R)	0.17580	0.21421	0.38649

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)	-0.09341	-0.28923	-3.41634
	setup	CK (R)	0.11603	0.29880	3.91886
sky130_osu_sc_18T_hs__dffr_l	hold	CK (R)	-0.09440	-0.28802	-3.45168
	setup	CK (R)	0.11499	0.29880	3.91886

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)	0.14175	0.18585	0.81878
	removal	CK (R)	-0.02836	-0.03623	-0.09530
sky130_osu_sc_18T_hs__dffr_l	recovery	CK (R)	0.14367	0.18636	0.81435
	removal	CK (R)	-0.02836	-0.03623	-0.09530

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)	0.14175	0.18585	0.81878
	removal	CK (R)	-0.02836	-0.03623	-0.09530
sky130_osu_sc_18T_hs__dffr_l	recovery	CK (R)	0.14367	0.18636	0.81435
	removal	CK (R)	-0.02836	-0.03623	-0.09530

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 ()	0.09888	0.48706	13.33370
	min_pulse_width	RN ()	0.09888	0.48706	13.33370
sky130_osu_sc_18T_hs__dffr_l	min_pulse_width	RN ()	0.09888	0.48706	13.33370
	min_pulse_width	RN ()	0.09521	0.48706	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 ()	0.10254	0.48706	13.33370
	min_pulse_width	CK ()	0.11353	0.48706	13.33370
sky130_osu_sc_18T_hs__dffr_l	min_pulse_width	CK ()	0.09521	0.48706	13.33370
	min_pulse_width	CK ()	0.11353	0.48706	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 ()	0.22339	0.48706	13.33370
	min_pulse_width	CK ()	0.09521	0.48706	13.33370
sky130_osu_sc_18T_hs__dffr_l	min_pulse_width	CK ()	0.22339	0.48706	13.33370
	min_pulse_width	CK ()	0.09521	0.48706	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	0.01620	0.01497	0.00977
sky130_osu_sc_18T_hs__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.01431	0.01525	0.05879

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	0.01851	0.01715	0.03083
	RN	-0.00202	-0.15507	-2.79716
	RN	0.04284	0.04268	0.06094
sky130_osu_sc_18T_hs__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.01666	0.01687	0.06286
	RN	-0.00202	-0.12668	-1.99690
	RN	0.04097	0.04230	0.09108

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	0.01849	0.01721	0.03150
	RN	-0.00202	-0.15410	-2.76757
	RN	0.04282	0.04264	0.06022
sky130_osu_sc_18T_hs__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.01665	0.01689	0.06326
	RN	-0.00202	-0.12601	-1.97932
	RN	0.04095	0.04229	0.09169

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	0.01613	0.01500	0.01046
sky130_osu_sc_18T_hs__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.01423	0.01524	0.05812

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	-0.00476	-0.00569	-0.00577
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.02021	0.02190	0.10875
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.00914	0.01103	0.09754
sky130_osu_sc_18T_hs__dffr_l	CK	0.00000	0.00000	0.00000
	CK	-0.00476	-0.00569	-0.00577
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.02020	0.02189	0.10875
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.00914	0.01102	0.09754

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	0.00576	0.00581	0.00580
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.03397	0.03626	0.12553
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.01575	0.01810	0.10537
sky130_osu_sc_18T_hs__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.00576	0.00581	0.00580
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.03396	0.03625	0.12553
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.01575	0.01810	0.10537

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)	0.00620	0.01159	0.16439
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.01739	0.02242	0.17903
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)	0.00620	0.01159	0.16439
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.01739	0.02242	0.17902

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)	0.01488	0.02259	0.17614
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.03250	0.03971	0.19670
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)	0.01488	0.02259	0.17614
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.03250	0.03971	0.19670

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)	-0.00146	0.00359	0.15519
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.00941	0.01323	0.17244
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	-0.00209	0.00333	0.15387
sky130_osu_sc_18T_hs__dffr_l	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	-0.00146	0.00359	0.15519
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.00941	0.01323	0.17244
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	-0.00209	0.00333	0.15387

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)	0.02274	0.03069	0.18353
	(D * RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * RN * !Q * QN)	0.05090	0.05712	0.24709
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.03912	0.04582	0.20440
	(!D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * Q * !QN)	0.04960	0.06357	0.30656
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.02623	0.03382	0.18533
sky130_osu_sc_18T_hs__dffr_l	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.02274	0.03069	0.18353
	(D * RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * RN * !Q * QN)	0.05090	0.05713	0.24709
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.03912	0.04581	0.20443
	(!D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * Q * !QN)	0.04960	0.06357	0.30656
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.02623	0.03382	0.18532

SKY130_OSU_SC_18T_HS__DFFSRx

sky130_osu_sc_18T_hs_tt_1P89_25C.ccs
Cell Library: Process , Voltage 1.89,
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	0.00545	0.00543	0.01167	0.01588	3.30268	3.27338
sky130_osu_sc_18T_hs__dffsr_l	0.00545	0.00543	0.01166	0.01588	2.22286	2.23062

Leakage Information

Cell Name	Leakage(nW)		
	Min.	**Avg**	**Max.**
sky130_osu_sc_18T_hs__dffsr_1	0.00000	1.25644	1.74380
sky130_osu_sc_18T_hs__dffsr_l	0.00000	1.11409	1.60145

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)	0.22769	1.12491	15.23940
	QN->Q (FR)	0.02591	0.73117	11.90710
	RN->Q (RR)	0.18236	1.08967	15.28680
	SN->Q (FR)	0.16895	1.21258	17.30670
sky130_osu_sc_18T_hs__dffsr_l	CK->Q (RR)	0.23071	1.22485	14.58480
	QN->Q (FR)	0.02890	0.78698	11.66680
	RN->Q (RR)	0.18580	1.19041	14.64520
	SN->Q (FR)	0.17204	1.31009	16.63790

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)	0.25288	1.14105	15.31820
	QN->Q (RF)	0.02123	0.60437	9.90073
	RN->Q (FF)	0.16783	1.19197	17.14800
sky130_osu_sc_18T_hs__dffsr_l	CK->Q (RF)	0.25936	1.26066	14.88600
	QN->Q (RF)	0.02343	0.64222	9.58056
	RN->Q (FF)	0.17951	1.31749	16.72730

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)	0.22838	0.63313	6.25221
	RN->QN (FR)	0.14907	0.69044	8.08778
sky130_osu_sc_18T_hs__dffsr_l	CK->QN (RR)	0.23131	0.69246	6.25742
	RN->QN (FR)	0.15147	0.74874	8.08831

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)	0.19596	0.55531	5.11128
	RN->QN (RF)	0.15102	0.52011	5.17627
	SN->QN (FF)	0.13762	0.64227	7.17265
sky130_osu_sc_18T_hs__dffsr_l	CK->QN (RF)	0.19438	0.57888	4.78832
	RN->QN (RF)	0.14982	0.54443	4.85073
	SN->QN (FF)	0.13616	0.66365	6.84621

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)	-0.05688	-0.06724	0.07619
	setup	CK (R)	0.17585	0.21247	0.45245
sky130_osu_sc_18T_hs__dffsr_l	hold	CK (R)	-0.05778	-0.06724	0.07975
	setup	CK (R)	0.17516	0.21136	0.45299

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)	-0.10437	-0.30246	-3.27948
	setup	CK (R)	0.13046	0.31293	3.94401
sky130_osu_sc_18T_hs__dffsr_l	hold	CK (R)	-0.10525	-0.30052	-3.28166
	setup	CK (R)	0.13046	0.31293	3.94161

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)	-0.05688	-0.06724	0.07619
	setup	CK (R)	0.17585	0.21247	0.45245
sky130_osu_sc_18T_hs__dffsr_l	hold	CK (R)	-0.05778	-0.06724	0.07975
	setup	CK (R)	0.17516	0.21136	0.45299

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)	-0.10437	-0.30246	-3.27948
	setup	CK (R)	0.13046	0.31293	3.94401
sky130_osu_sc_18T_hs__dffsr_l	hold	CK (R)	-0.10525	-0.30052	-3.28166
	setup	CK (R)	0.13046	0.31293	3.94161

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)	0.13062	0.16872	0.79818
	removal	CK (R)	-0.01782	-0.02223	-0.05102
	hold	SN (R)	-0.12898	-0.25236	-1.06282
	setup	SN (R)	0.15057	0.29803	3.23299
sky130_osu_sc_18T_hs__dffsr_l	recovery	CK (R)	0.13023	0.16809	0.79805
	removal	CK (R)	-0.01782	-0.02223	-0.05102
	hold	SN (R)	-0.12695	-0.24631	-1.03786
	setup	SN (R)	0.14971	0.29073	3.17320

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)	0.13062	0.16872	0.79818
	removal	CK (R)	-0.01782	-0.02223	-0.05102
	hold	SN (R)	-0.13073	-0.25236	-1.06789
	hold	SN (R)	-0.12898	-0.25236	-1.06282
	setup	SN (R)	0.15057	0.29550	2.99234
	setup	SN (R)	0.14591	0.29803	3.23299
sky130_osu_sc_18T_hs__dffsr_l	recovery	CK (R)	0.13023	0.16809	0.79805
	removal	CK (R)	-0.01782	-0.02223	-0.05102
	hold	SN (R)	-0.12695	-0.24631	-1.04467
	hold	SN (R)	-0.12721	-0.24832	-1.03786
	setup	SN (R)	0.14971	0.29072	2.89639
	setup	SN (R)	0.14088	0.29073	3.17320

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 ()	0.11719	0.48706	13.33370
	min_pulse_width	RN ()	0.11719	0.48706	13.33370
sky130_osu_sc_18T_hs__dffsr_l	min_pulse_width	RN ()	0.11719	0.48706	13.33370
	min_pulse_width	RN ()	0.11353	0.48706	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)	0.03395	0.07206	3.91298
	removal	CK (R)	-0.01806	-0.05653	-0.26483
sky130_osu_sc_18T_hs__dffsr_l	recovery	CK (R)	0.03648	0.07157	3.81788
	removal	CK (R)	-0.01806	-0.05653	-0.26483

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)	0.03395	0.07206	3.91298
	removal	CK (R)	-0.01806	-0.05653	-0.26483
sky130_osu_sc_18T_hs__dffsr_l	recovery	CK (R)	0.03648	0.07157	3.81788
	removal	CK (R)	-0.01806	-0.05653	-0.26483

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 ()	0.13550	0.48706	13.33370
	min_pulse_width	SN ()	0.13550	0.48706	13.33370
sky130_osu_sc_18T_hs__dffsr_l	min_pulse_width	SN ()	0.13550	0.48706	13.33370
	min_pulse_width	SN ()	0.12817	0.48706	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 ()	0.10254	0.48706	13.33370
	min_pulse_width	CK ()	0.12817	0.48706	13.33370
sky130_osu_sc_18T_hs__dffsr_l	min_pulse_width	CK ()	0.09888	0.48706	13.33370
	min_pulse_width	CK ()	0.12817	0.48706	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 ()	0.22705	0.48706	13.33370
	min_pulse_width	CK ()	0.10986	0.48706	13.33370
sky130_osu_sc_18T_hs__dffsr_l	min_pulse_width	CK ()	0.22705	0.48706	13.33370
	min_pulse_width	CK ()	0.10986	0.48706	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	0.02045	0.02124	0.05072
	RN	0.03745	0.03595	0.04446
	SN	-0.00202	-0.16007	-2.94938
	SN	0.03544	0.03258	0.03317
sky130_osu_sc_18T_hs__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.01869	0.01958	0.06340
	RN	0.03570	0.03422	0.05702
	SN	-0.00202	-0.12622	-1.98507
	SN	0.03370	0.03090	0.04463

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	0.02159	0.02089	0.04361
	RN	-0.00202	-0.16007	-2.94936
	RN	0.04427	0.04456	0.07326
sky130_osu_sc_18T_hs__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.01987	0.02024	0.06835
	RN	-0.00202	-0.12622	-1.98505
	RN	0.04251	0.04387	0.09499

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	0.02157	0.02090	0.04359
	RN	-0.00202	-0.15922	-2.92296
	RN	0.04423	0.04451	0.07155
sky130_osu_sc_18T_hs__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.01986	0.02022	0.06734
	RN	-0.00202	-0.12649	-1.99189
	RN	0.04249	0.04382	0.09532

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	0.02035	0.02123	0.05078
	RN	0.03735	0.03591	0.04420
	SN	-0.00202	-0.15922	-2.92290
	SN	0.03537	0.03254	0.03410
sky130_osu_sc_18T_hs__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.01860	0.01953	0.06230
	RN	0.03561	0.03410	0.05615
	SN	-0.00202	-0.12649	-1.99177
	SN	0.03364	0.03080	0.04452

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	-0.00564	-0.00576	-0.00576
	(!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)	0.02586	0.02749	0.11435
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.01035	0.01213	0.09813
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.01028	0.01208	0.09826
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.01036	0.01217	0.09819
sky130_osu_sc_18T_hs__dffsr_1	CK	0.00000	0.00000	0.00000
	CK	-0.00564	-0.00576	-0.00576
	(!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)	0.02586	0.02749	0.11436
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.01035	0.01213	0.09813
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.01027	0.01208	0.09826
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.01036	0.01217	0.09820

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	0.00585	0.00579	0.00576
	(!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)	0.03875	0.04079	0.12923
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.01646	0.01879	0.10571
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.01674	0.01893	0.10569
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.01638	0.01871	0.10561
sky130_osu_sc_18T_hs__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.00585	0.00579	0.00576
	(!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)	0.03874	0.04078	0.12923
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.01644	0.01878	0.10570
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.01673	0.01892	0.10568
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.01637	0.01870	0.10560

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)	0.00483	0.01013	0.16278
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.02059	0.02546	0.18313
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)	0.00483	0.01014	0.16279
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.02059	0.02546	0.18314

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)	0.01573	0.02380	0.17770
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.03410	0.04142	0.19950
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)	0.01571	0.02378	0.17769
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.03408	0.04140	0.19948

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)	-0.01291	-0.01300	-0.01300
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	-0.01171	-0.01340	-0.01334
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	-0.01202	-0.01285	-0.01285
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.00889	0.01089	0.10078
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)	-0.01291	-0.01300	-0.01300
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	-0.01168	-0.01338	-0.01332
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	-0.01202	-0.01284	-0.01284
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.00890	0.01090	0.10079

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)	0.01300	0.01308	0.01305
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.01330	0.01348	0.01340
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	0.01283	0.01295	0.01291
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.02657	0.02783	0.11574
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)	0.01300	0.01308	0.01305
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.01328	0.01345	0.01338
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	0.01282	0.01294	0.01290
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.02655	0.02783	0.11576

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)	-0.00145	0.00359	0.15529
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.01066	0.01447	0.17361
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.01032	0.01417	0.17345
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	-0.00181	0.00368	0.15428
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.00699	0.01607	0.28645
sky130_osu_sc_18T_hs__dffsr_1	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	-0.00146	0.00359	0.15529
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.01065	0.01445	0.17360
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.01030	0.01416	0.17344
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	-0.00181	0.00368	0.15428
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.00699	0.01607	0.28645

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)	0.05686	0.06316	0.25261
	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.02281	0.03075	0.18371
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.03990	0.04666	0.20509
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.03998	0.04695	0.20491
	(!D * RN * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * Q * !QN)	0.05431	0.06770	0.31132
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.02602	0.03357	0.18522
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.03018	0.04401	0.31579
sky130_osu_sc_18T_hs__dffsr_l	**(D * RN * SN * !Q * QN)**	0.00000	0.00000	0.00000
	(D * RN * SN * !Q * QN)	0.05686	0.06316	0.25259
	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.02281	0.03075	0.18371
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.03990	0.04667	0.20509
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.03998	0.04695	0.20491
	(!D * RN * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * Q * !QN)	0.05429	0.06771	0.31131
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.02602	0.03356	0.18522
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.03016	0.04399	0.31578

SKY130_OSU_SC_18T_HS__DFFSx

sky130_osu_sc_18T_hs_tt_1P89_25C.ccs
Cell Library: Process , Voltage 1.89,
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	0.00548	0.00924	0.01566	3.12670	3.12008
sky130_osu_sc_18T_hs__dffs_l	0.00548	0.00924	0.01566	2.22283	2.22764

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__dffs_1	0.00000	1.11599	1.63619
sky130_osu_sc_18T_hs__dffs_l	0.00000	0.97365	1.49385

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)	0.17166	1.06372	14.96710
	QN->Q (FR)	0.02719	0.74393	11.94180
	SN->Q (FR)	0.13341	1.19696	16.97030
sky130_osu_sc_18T_hs__dffs_l	CK->Q (RR)	0.17153	1.15125	14.45360
	QN->Q (FR)	0.02881	0.78462	11.64160
	SN->Q (FR)	0.13343	1.27970	16.44670

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)	0.24496	1.14301	15.12930
	QN->Q (RF)	0.02310	0.64238	10.34490
sky130_osu_sc_18T_hs__dffs_l	CK->Q (RF)	0.24677	1.24674	14.83770
	QN->Q (RF)	0.02335	0.64044	9.55425

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)	0.21907	0.62748	6.15461
sky130_osu_sc_18T_hs__dffs_l	CK->QN (RR)	0.21855	0.67901	6.21432

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)	0.14059	0.49137	5.02288
	SN->QN (FF)	0.10215	0.62345	7.02975
sky130_osu_sc_18T_hs__dffs_l	CK->QN (RF)	0.13725	0.50714	4.66937
	SN->QN (FF)	0.09912	0.63491	6.66116

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)	-0.03764	-0.04445	0.12467
	setup	CK (R)	0.12354	0.16638	0.33017
sky130_osu_sc_18T_hs__dffs_l	hold	CK (R)	-0.03997	-0.04445	0.12442
	setup	CK (R)	0.12323	0.16668	0.33281

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)	-0.09266	-0.28750	-3.64159
	setup	CK (R)	0.11898	0.29880	3.92763
sky130_osu_sc_18T_hs__dffs_l	hold	CK (R)	-0.09227	-0.28749	-3.62611
	setup	CK (R)	0.11893	0.29880	3.92763

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)	-0.03764	-0.04445	0.12467
	setup	CK (R)	0.12354	0.16638	0.33017
sky130_osu_sc_18T_hs__dffs_l	hold	CK (R)	-0.03997	-0.04445	0.12442
	setup	CK (R)	0.12323	0.16668	0.33281

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)	-0.09266	-0.28750	-3.64159
	setup	CK (R)	0.11898	0.29880	3.92763
sky130_osu_sc_18T_hs__dffs_l	hold	CK (R)	-0.09227	-0.28749	-3.62611
	setup	CK (R)	0.11893	0.29880	3.92763

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)	0.03333	0.06860	2.59596
	removal	CK (R)	-0.01405	-0.05451	-0.38848
sky130_osu_sc_18T_hs__dffs_l	recovery	CK (R)	0.03529	0.06959	2.47168
	removal	CK (R)	-0.01405	-0.05451	-0.38848

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)	0.03333	0.06860	2.59596
	removal	CK (R)	-0.01405	-0.05451	-0.38848
sky130_osu_sc_18T_hs__dffs_l	recovery	CK (R)	0.03529	0.06959	2.47168
	removal	CK (R)	-0.01405	-0.05451	-0.38848

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 ()	0.09155	0.48706	13.33370
	min_pulse_width	SN ()	0.09155	0.48706	13.33370
sky130_osu_sc_18T_hs__dffs_l	min_pulse_width	SN ()	0.09155	0.48706	13.33370
	min_pulse_width	SN ()	0.08789	0.48706	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 ()	0.07324	0.48706	13.33370
	min_pulse_width	CK ()	0.12085	0.48706	13.33370
sky130_osu_sc_18T_hs__dffs_l	min_pulse_width	CK ()	0.07324	0.48706	13.33370
	min_pulse_width	CK ()	0.11719	0.48706	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 ()	0.17212	0.48706	13.33370
	min_pulse_width	CK ()	0.10254	0.48706	13.33370
sky130_osu_sc_18T_hs__dffs_l	min_pulse_width	CK ()	0.17212	0.48706	13.33370
	min_pulse_width	CK ()	0.10254	0.48706	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	0.01614	0.01496	0.01344
	SN	-0.00202	-0.15490	-2.79222
	SN	0.02920	0.02617	-0.00048
sky130_osu_sc_18T_hs__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.01429	0.01531	0.05999
	SN	-0.00202	-0.12622	-1.98504
	SN	0.02736	0.02649	0.04715

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	0.01838	0.01729	0.03503
sky130_osu_sc_18T_hs__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.01651	0.01693	0.06695

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	0.01836	0.01729	0.03556
sky130_osu_sc_18T_hs__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.01649	0.01693	0.06565

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	0.01606	0.01501	0.01226
	SN	-0.00202	-0.15470	-2.78575
	SN	0.02914	0.02613	-0.00018
sky130_osu_sc_18T_hs__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.01422	0.01527	0.05968
	SN	-0.00202	-0.12639	-1.98911
	SN	0.02731	0.02644	0.04544

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	-0.00570	-0.00582	-0.00583
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.01923	0.02102	0.11006
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.00894	0.01083	0.09739
sky130_osu_sc_18T_hs__dffs_l	CK	0.00000	0.00000	0.00000
	CK	-0.00570	-0.00582	-0.00583
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.01923	0.02102	0.11006
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.00894	0.01083	0.09738

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	0.00591	0.00585	0.00583
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.03274	0.03490	0.12413
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.01579	0.01825	0.10585
sky130_osu_sc_18T_hs__dffs_1	CK	0.00000	0.00000	0.00000
	CK	0.00591	0.00585	0.00583
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.03273	0.03490	0.12413
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.01579	0.01825	0.10585

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)	-0.00956	-0.00964	-0.00962
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.00692	0.00870	0.09272
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)	-0.00956	-0.00964	-0.00962
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.00692	0.00870	0.09272

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)	0.00971	0.00970	0.00966
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.01839	0.02121	0.10752
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)	0.00971	0.00970	0.00965
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.01839	0.02121	0.10752

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)	-0.00149	0.00358	0.15545
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	-0.00196	0.00349	0.15430
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.00552	0.01511	0.28671
sky130_osu_sc_18T_hs__dffs_l	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	-0.00149	0.00358	0.15545
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	-0.00196	0.00349	0.15430
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.00552	0.01511	0.28671

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)	0.05012	0.05647	0.24803
	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.02275	0.03072	0.18382
	(!D * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * SN * Q * !QN)	0.04819	0.06191	0.30508
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	0.02608	0.03369	0.18546
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.02938	0.04355	0.31661
sky130_osu_sc_18T_hs__dffs_l	(D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * SN * !Q * QN)	0.05012	0.05647	0.24803
	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.02275	0.03072	0.18382
	(!D * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * SN * Q * !QN)	0.04819	0.06193	0.30508
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	0.02608	0.03369	0.18546
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.02938	0.04355	0.31661

SKY130_OSU_SC_18T_HS__DFFx

sky130_osu_sc_18T_hs_tt_1P89_25C.ccs
Cell Library: Process , Voltage 1.89,
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	0.00563	0.01543	3.33867	3.28705
sky130_osu_sc_18T_hs__dff_l	0.00563	0.01543	2.21138	2.19196

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__dff_1	0.00000	1.15624	1.48063
sky130_osu_sc_18T_hs__dff_l	0.00000	1.01390	1.33829

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)	0.15283	1.03933	15.24530
	QN->Q (FR)	0.02572	0.72954	11.92310
sky130_osu_sc_18T_hs__dff_l	CK->Q (RR)	0.15807	1.14154	14.46790
	QN->Q (FR)	0.02941	0.79808	11.83700

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)	0.21091	1.09716	15.39710
	QN->Q (RF)	0.02113	0.60400	9.93458
sky130_osu_sc_18T_hs__dff_l	CK->Q (RF)	0.21843	1.21910	14.87860
	QN->Q (RF)	0.02340	0.63921	9.52482

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)	0.18682	0.58539	6.20680
sky130_osu_sc_18T_hs__dff_l	CK->QN (RR)	0.19069	0.64850	6.18562

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)	0.12387	0.46806	5.00073
sky130_osu_sc_18T_hs__dff_l	CK->QN (RF)	0.12419	0.49138	4.57171

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)	-0.03269	-0.04305	0.11430
	setup	CK (R)	0.10144	0.15055	0.33018
sky130_osu_sc_18T_hs__dff_l	hold	CK (R)	-0.03663	-0.04321	0.11366
	setup	CK (R)	0.10315	0.15246	0.33126

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)	-0.08405	-0.28400	-3.66895
	setup	CK (R)	0.10535	0.29678	3.90618
sky130_osu_sc_18T_hs__dff_l	hold	CK (R)	-0.08491	-0.28672	-3.66082
	setup	CK (R)	0.10527	0.29678	3.90618

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 ()	0.06592	0.48706	13.33370
	min_pulse_width	CK ()	0.10986	0.48706	13.33370
sky130_osu_sc_18T_hs__dff_l	min_pulse_width	CK ()	0.06592	0.48706	13.33370
	min_pulse_width	CK ()	0.10620	0.48706	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 ()**	0.15381	0.48706	13.33370
	min_pulse_width	**CK ()**	0.08057	0.48706	13.33370
sky130_osu_sc_18T_hs__dff_l	**min_pulse_width**	**CK ()**	0.15381	0.48706	13.33370
	min_pulse_width	**CK ()**	0.08057	0.48706	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	0.01695	0.01795	0.05106
sky130_osu_sc_18T_hs__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.01525	0.01628	0.06323

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	0.01875	0.01821	0.04353
sky130_osu_sc_18T_hs__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.01709	0.01728	0.06255

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	0.01874	0.01824	0.04361
sky130_osu_sc_18T_hs__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.01708	0.01729	0.06304

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	0.01688	0.01809	0.05281
sky130_osu_sc_18T_hs__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.01519	0.01627	0.06400

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	-0.00476	-0.00568	-0.00576
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.01791	0.02001	0.11119
sky130_osu_sc_18T_hs__dff_l	CK	0.00000	0.00000	0.00000
	CK	-0.00476	-0.00568	-0.00576
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.01791	0.02002	0.11120

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	0.00574	0.00576	0.00579
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.03373	0.03610	0.12656
sky130_osu_sc_18T_hs__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.00574	0.00576	0.00579
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.03373	0.03610	0.12657

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)	-0.00150	0.00358	0.15545
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	-0.00195	0.00352	0.15432
sky130_osu_sc_18T_hs__dff_l	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	-0.00150	0.00358	0.15545
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	-0.00195	0.00352	0.15431

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)	0.02267	0.03065	0.18372
	(D * !Q * QN)	0.00000	0.00000	0.00000
	(D * !Q * QN)	0.04893	0.05551	0.24804
	(!D * Q * !QN)	0.00000	0.00000	0.00000
	(!D * Q * !QN)	0.04899	0.06297	0.31006
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.02598	0.03360	0.18534
sky130_osu_sc_18T_hs__dff_l	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.02267	0.03065	0.18372
	(D * !Q * QN)	0.00000	0.00000	0.00000
	(D * !Q * QN)	0.04894	0.05552	0.24804
	(!D * Q * !QN)	0.00000	0.00000	0.00000
	(!D * Q * !QN)	0.04900	0.06297	0.31007
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.02598	0.03360	0.18534

SKY130_OSU_SC_18T_HS__INVx

sky130_osu_sc_18T_hs_tt_1P89_25C.ccs
Cell Library: Process , Voltage 1.89,
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	0.00547	3.11275
sky130_osu_sc_18T_hs__inv_10	0.05165	26.40973
sky130_osu_sc_18T_hs__inv_2	0.01052	5.92361
sky130_osu_sc_18T_hs__inv_3	0.01569	8.51680
sky130_osu_sc_18T_hs__inv_4	0.02077	11.39478
sky130_osu_sc_18T_hs__inv_6	0.03115	16.71097
sky130_osu_sc_18T_hs__inv_8	0.04140	21.93726
sky130_osu_sc_18T_hs__inv_l	0.00420	2.08037

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__inv_1	0.00000	0.18547	0.36245
sky130_osu_sc_18T_hs__inv_10	0.00000	1.85469	3.62442
sky130_osu_sc_18T_hs__inv_2	0.00000	0.37094	0.72489
sky130_osu_sc_18T_hs__inv_3	0.00000	0.55641	1.08733
sky130_osu_sc_18T_hs__inv_4	0.00000	0.74187	1.44977
sky130_osu_sc_18T_hs__inv_6	0.00000	1.11281	2.17466
sky130_osu_sc_18T_hs__inv_8	0.00000	1.48375	2.89954
sky130_osu_sc_18T_hs__inv_l	0.00000	0.11430	0.22012

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)**	0.02415	0.65661	10.47800
sky130_osu_sc_18T_hs__inv_10	**A->Y (FR)**	0.04038	0.44917	10.27780
sky130_osu_sc_18T_hs__inv_2	**A->Y (FR)**	0.02049	0.56581	10.27110
sky130_osu_sc_18T_hs__inv_3	**A->Y (FR)**	0.02317	0.53360	10.33710
sky130_osu_sc_18T_hs__inv_4	**A->Y (FR)**	0.02438	0.50422	10.28700
sky130_osu_sc_18T_hs__inv_6	**A->Y (FR)**	0.02831	0.47358	10.29360
sky130_osu_sc_18T_hs__inv_8	**A->Y (FR)**	0.03389	0.45760	10.30580
sky130_osu_sc_18T_hs__inv_l	**A->Y (FR)**	0.02716	0.71447	10.40840

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)**	0.01880	0.51675	8.34813
sky130_osu_sc_18T_hs__inv_10	**A->Y (RF)**	0.03365	0.29950	7.89430
sky130_osu_sc_18T_hs__inv_2	**A->Y (RF)**	0.01628	0.42655	8.13766
sky130_osu_sc_18T_hs__inv_3	**A->Y (RF)**	0.01821	0.39146	8.17093
sky130_osu_sc_18T_hs__inv_4	**A->Y (RF)**	0.01857	0.36234	8.13893
sky130_osu_sc_18T_hs__inv_6	**A->Y (RF)**	0.02386	0.33181	8.10522
sky130_osu_sc_18T_hs__inv_8	**A->Y (RF)**	0.02852	0.31332	8.07060
sky130_osu_sc_18T_hs__inv_l	**A->Y (RF)**	0.02061	0.54851	8.00829

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	0.00827	0.01115	0.03861
sky130_osu_sc_18T_hs__inv_10	A	0.00000	0.00000	0.00000
	A	0.07476	0.11633	0.38340
sky130_osu_sc_18T_hs__inv_2	A	0.00000	0.00000	0.00000
	A	0.01491	0.02244	0.07578
sky130_osu_sc_18T_hs__inv_3	A	0.00000	0.00000	0.00000
	A	0.02282	0.03312	0.11362
sky130_osu_sc_18T_hs__inv_4	A	0.00000	0.00000	0.00000
	A	0.02956	0.04661	0.15045
sky130_osu_sc_18T_hs__inv_6	A	0.00000	0.00000	0.00000
	A	0.04392	0.06942	0.22652
sky130_osu_sc_18T_hs__inv_8	A	0.00000	0.00000	0.00000
	A	0.05881	0.09172	0.30324
sky130_osu_sc_18T_hs__inv_l	A	0.00000	0.00000	0.00000
	A	0.00639	0.00796	0.02539

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	-0.00204	-0.00086	0.01165
sky130_osu_sc_18T_hs__inv_10	A	0.00000	0.00000	0.00000
	A	-0.02252	-0.00930	0.11524
sky130_osu_sc_18T_hs__inv_2	A	0.00000	0.00000	0.00000
	A	-0.00613	-0.00326	0.02177
sky130_osu_sc_18T_hs__inv_3	A	0.00000	0.00000	0.00000
	A	-0.00808	-0.00286	0.03400
sky130_osu_sc_18T_hs__inv_4	A	0.00000	0.00000	0.00000
	A	-0.01189	-0.00518	0.04404
sky130_osu_sc_18T_hs__inv_6	A	0.00000	0.00000	0.00000
	A	-0.01809	-0.00784	0.06686
sky130_osu_sc_18T_hs__inv_8	A	0.00000	0.00000	0.00000
	A	-0.02222	-0.00764	0.08951
sky130_osu_sc_18T_hs__inv_l	A	0.00000	0.00000	0.00000
	A	-0.00147	-0.00075	0.00796

SKY130_OSU_SC_18T_HS__MUX2

sky130_osu_sc_18T_hs_tt_1P89_25C.ccs
Cell Library: Process , Voltage 1.89,
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	0.04275	0.04255	0.01111	0.03440

Leakage Information

Cell Name	Leakage(nW)		
	Min.	**Avg**	**Max.**
sky130_osu_sc_18T_hs__mux2_1	0.00000	0.37305	0.37305

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)	-	0.01082	0.04148	0.10856
	A1->Y (RR)	-	0.01186	0.04153	0.10794
	S0->Y (RR)	(!A0 * A1)	0.03756	0.08732	-0.54589
	S0->Y (FR)	(A0 * !A1)	0.03691	0.20303	1.49342

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)	-	0.01036	0.04960	0.11355
	A1->Y (FF)	-	0.01037	0.04911	0.11277
	S0->Y (FF)	(!A0 * A1)	0.05162	0.21374	1.31221
	S0->Y (RF)	(A0 * !A1)	0.02312	0.06940	-0.41917

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	-	-0.00887	-0.00888	-0.00890
	A1	-	0.00000	0.00000	0.00000
	A1	-	-0.00606	-0.00607	-0.00609
	S0	(A0 * !A1)	0.00000	0.00000	0.00000
	S0	(A0 * !A1)	0.00945	0.01818	0.17186
	S0	(!A0 * A1)	0.00000	0.00000	0.00000
	S0	(!A0 * A1)	-0.00615	0.00071	0.15220

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	-	0.00887	0.00889	0.00890
	A1	-	0.00000	0.00000	0.00000
	A1	-	0.00608	0.00609	0.00609
	S0	(A0 * !A1)	0.00000	0.00000	0.00000
	S0	(A0 * !A1)	0.00167	0.00898	0.16247
	S0	(!A0 * A1)	0.00000	0.00000	0.00000
	S0	(!A0 * A1)	0.02266	0.03055	0.18304

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)	-0.00219	-0.00218	-0.00218

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)	0.00219	0.00218	0.00218

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)	-0.00259	-0.00258	-0.00259

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)	0.00259	0.00258	0.00259

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)	-0.00227	0.00464	0.15722
	(!A0 * !A1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !Y)	-0.00224	0.00452	0.15747

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)	0.01692	0.02547	0.17768
	(!A0 * !A1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !Y)	0.01518	0.02434	0.17707

SKY130_OSU_SC_18T_HS__NAND2x

sky130_osu_sc_18T_hs_tt_1P89_25C.ccs
Cell Library: Process , Voltage 1.89,
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	0.00549	0.00547	2.84106
sky130_osu_sc_18T_hs__nand2_l	0.00421	0.00421	2.02390

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__nand2_1	0.00000	0.18516	0.72489
sky130_osu_sc_18T_hs__nand2_l	0.00000	0.11416	0.44023

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)	0.02458	0.64329	10.01170
	B->Y (FR)	0.02896	0.64007	9.88904
sky130_osu_sc_18T_hs__nand2_l	A->Y (FR)	0.02754	0.71221	10.29910
	B->Y (FR)	0.03289	0.71329	10.24700

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)	0.02536	0.61744	9.78740
	B->Y (RF)	0.02879	0.58479	9.30429
sky130_osu_sc_18T_hs__nand2_l	A->Y (RF)	0.02793	0.67130	9.76322
	B->Y (RF)	0.03113	0.63880	9.21268

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	0.00883	0.01139	0.03642
	B	0.00000	0.00000	0.00000
	B	0.01126	0.01372	0.03914
sky130_osu_sc_18T_hs__nand2_1	A	0.00000	0.00000	0.00000
	A	0.00677	0.00814	0.02349
	B	0.00000	0.00000	0.00000
	B	0.00855	0.00984	0.02544

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	-0.00150	-0.00061	0.01094
	B	0.00000	0.00000	0.00000
	B	-0.00146	-0.00092	0.00875
sky130_osu_sc_18T_hs__nand2_1	A	0.00000	0.00000	0.00000
	A	-0.00113	-0.00059	0.00712
	B	0.00000	0.00000	0.00000
	B	-0.00109	-0.00076	0.00596

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)	-0.00640	-0.00645	-0.00645
sky130_osu_sc_18T_hs__nand2_l	(!B * Y)	0.00000	0.00000	0.00000
	(!B * Y)	-0.00467	-0.00469	-0.00470

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)	0.00644	0.00648	0.00646
sky130_osu_sc_18T_hs__nand2_l	(!B * Y)	0.00000	0.00000	0.00000
	(!B * Y)	0.00469	0.00473	0.00471

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)	-0.00598	-0.00602	-0.00600
sky130_osu_sc_18T_hs__nand2_l	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00436	-0.00438	-0.00437

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)	0.00611	0.00604	0.00602
sky130_osu_sc_18T_hs__nand2_l	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00446	0.00440	0.00438

SKY130_OSU_SC_18T_HS__NOR2x

sky130_osu_sc_18T_hs_tt_1P89_25C.ccs
Cell Library: Process , Voltage 1.89,
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	0.00549	0.00579	1.68510
sky130_osu_sc_18T_hs__nor2_l	0.00414	0.00447	1.15477

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__nor2_1	0.00000	0.12746	0.36244
sky130_osu_sc_18T_hs__nor2_l	0.00000	0.08374	0.22011

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)	0.04822	0.75161	10.15180
	B->Y (FR)	0.03543	0.74862	10.30820
sky130_osu_sc_18T_hs__nor2_l	A->Y (FR)	0.05352	0.82776	10.11180
	B->Y (FR)	0.04214	0.83290	10.41400

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)	0.02559	0.42040	5.60643
	B->Y (RF)	0.02004	0.40836	5.58535
sky130_osu_sc_18T_hs__nor2_l	A->Y (RF)	0.02695	0.44975	5.46474
	B->Y (RF)	0.02194	0.44009	5.44673

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	0.01229	0.01291	0.03200
	B	0.00000	0.00000	0.00000
	B	0.00894	0.01163	0.04540
sky130_osu_sc_18T_hs__nor2_l	A	0.00000	0.00000	0.00000
	A	0.00896	0.00925	0.02212
	B	0.00000	0.00000	0.00000
	B	0.00681	0.00761	0.02929

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	0.00123	0.00201	0.01895
	B	0.00000	0.00000	0.00000
	B	-0.00154	-0.00032	0.01616
sky130_osu_sc_18T_hs__nor2_l	A	0.00000	0.00000	0.00000
	A	0.00082	0.00133	0.01311
	B	0.00000	0.00000	0.00000
	B	-0.00105	-0.00032	0.01107

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)	-0.00482	-0.00578	-0.00579
sky130_osu_sc_18T_hs__nor2_l	(B * !Y)	0.00000	0.00000	0.00000
	(B * !Y)	-0.00348	-0.00411	-0.00411

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)	0.00575	0.00582	0.00580
sky130_osu_sc_18T_hs__nor2_l	(B * !Y)	0.00000	0.00000	0.00000
	(B * !Y)	0.00408	0.00413	0.00411

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)	-0.00265	-0.00268	-0.00266
sky130_osu_sc_18T_hs__nor2_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	-0.00198	-0.00199	-0.00199

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)	0.00277	0.00279	0.00270
sky130_osu_sc_18T_hs__nor2_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00206	0.00207	0.00201

SKY130_OSU_SC_18T_HS__OAI21

sky130_osu_sc_18T_hs_tt_1P89_25C.ccs
Cell Library: Process , Voltage 1.89,
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	0.00556	0.00563	0.00466	1.64220

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__oai21_l	0.00000	0.14908	0.58256

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)	0.04751	0.75815	10.21300
	A1->Y (FR)	0.06391	0.76568	10.07080
	B0->Y (FR)	0.03331	0.66187	9.06001

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)	0.03642	0.50016	6.62833
	A1->Y (RF)	0.04389	0.50001	6.47614
	B0->Y (RF)	0.02796	0.54993	7.47589

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	0.01250	0.01441	0.04296
	A1	0.00000	0.00000	0.00000
	A1	0.01583	0.01621	0.03357
	B0	0.00738	0.00897	0.03525

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	0.00015	0.00055	0.01250
	A1	0.00000	0.00000	0.00000
	A1	0.00300	0.00306	0.01529
	B0	0.00094	0.00175	0.01508

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)	-0.00267	-0.00266	-0.00267
	(A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * Y)	-0.00574	-0.00585	-0.00581
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00589	-0.00592	-0.00589

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)	0.00278	0.00279	0.00271
	(A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * Y)	0.00579	0.00585	0.00581
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00593	0.00592	0.00591

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)	-0.00473	-0.00571	-0.00571
	(A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * Y)	-0.00568	-0.00580	-0.00577
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	-0.00582	-0.00587	-0.00584

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)	0.00568	0.00578	0.00572
	(A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * Y)	0.00573	0.00580	0.00577
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	0.00587	0.00588	0.00585

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)	-0.00476	-0.00479	-0.00484

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)	0.00483	0.00486	0.00485

SKY130_OSU_SC_18T_HS__OAI22

sky130_osu_sc_18T_hs_tt_1P89_25C.ccs
Cell Library: Process , Voltage 1.89,
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_l	15.38460

Pin Capacitance Information

Cell Name	Pin Cap(pf)				Max Cap(pf)
	A0	A1	B0	B1	Y
sky130_osu_sc_18T_hs__oai22_l	0.00540	0.00567	0.00579	0.00567	1.65344

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__oai22_l	0.00000	0.19051	0.72488

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)	0.06835	0.76843	10.06550
	A1->Y (FR)	0.05566	0.76431	10.22330
	B0->Y (FR)	0.03921	0.74888	10.22350
	B1->Y (FR)	0.05361	0.75612	10.06900

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)	0.06470	0.54434	6.80441
	A1->Y (RF)	0.05047	0.52174	6.70290
	B0->Y (RF)	0.04248	0.57030	7.53978
	B1->Y (RF)	0.05757	0.60459	7.81922

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	0.02068	0.02104	0.03664
	A1	0.01736	0.01920	0.04723
	B0	0.00958	0.01192	0.04239
	B1	0.01309	0.01355	0.03003

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__oai22_l	A0	0.00200	0.00203	0.01451
	A1	-0.00076	-0.00035	0.01179
	B0	-0.00073	0.00016	0.01501
	B1	0.00199	0.00253	0.01689

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)	-0.00481	-0.00578	-0.00579
	(A1 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * B1 * !Y)	-0.00481	-0.00578	-0.00579
	(A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * !B1 * Y)	-0.00570	-0.00575	-0.00578
	(!A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * !B1 * Y)	-0.00584	-0.00588	-0.00585

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)	0.00576	0.00583	0.00581
	(A1 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * B1 * !Y)	0.00576	0.00583	0.00581
	(A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * !B1 * Y)	0.00576	0.00575	0.00578
	(!A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * !B1 * Y)	0.00587	0.00590	0.00587

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)	-0.00263	-0.00266	-0.00265
	(A0 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * B1 * !Y)	-0.00263	-0.00266	-0.00265
	(A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * !B1 * Y)	-0.00568	-0.00577	-0.00575
	(!A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * !B1 * Y)	-0.00582	-0.00586	-0.00583

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)	0.00276	0.00277	0.00269
	(A0 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * B1 * !Y)	0.00276	0.00277	0.00269
	(A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * !B1 * Y)	0.00572	0.00577	0.00575
	(!A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * !B1 * Y)	0.00585	0.00587	0.00585

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)	-0.00262	-0.00264	-0.00263
	(A0 * !A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B1 * !Y)	-0.00262	-0.00264	-0.00263
	(!A0 * !A1 * B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B1 * Y)	-0.00624	-0.00637	-0.00632
	(!A0 * !A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B1 * Y)	-0.00628	-0.00633	-0.00640

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)	0.00274	0.00276	0.00267
	(A0 * !A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B1 * !Y)	0.00274	0.00276	0.00267
	(!A0 * !A1 * B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B1 * Y)	0.00632	0.00637	0.00632
	(!A0 * !A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B1 * Y)	0.00639	0.00643	0.00642

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)	-0.00474	-0.00571	-0.00572
	(A0 * !A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B0 * !Y)	-0.00474	-0.00571	-0.00572
	(!A0 * !A1 * B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B0 * Y)	-0.00633	-0.00645	-0.00641
	(!A0 * !A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B0 * Y)	-0.00637	-0.00640	-0.00648

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)	0.00569	0.00575	0.00573
	(A0 * !A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B0 * !Y)	0.00569	0.00573	0.00573
	(!A0 * !A1 * B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B0 * Y)	0.00641	0.00645	0.00641
	(!A0 * !A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B0 * Y)	0.00646	0.00651	0.00650

SKY130_OSU_SC_18T_HS__OR2x

sky130_osu_sc_18T_hs_tt_1P89_25C.ccs
Cell Library: Process , Voltage 1.89,
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	0.00582	0.00561	3.19577
sky130_osu_sc_18T_hs__or2_2	0.00582	0.00562	6.14142
sky130_osu_sc_18T_hs__or2_4	0.00583	0.00562	11.74971
sky130_osu_sc_18T_hs__or2_8	0.00584	0.00565	22.22546
sky130_osu_sc_18T_hs__or2_l	0.00454	0.00430	2.15661

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__or2_1	0.00000	0.22445	0.37944
sky130_osu_sc_18T_hs__or2_2	0.00000	0.32143	0.74188
sky130_osu_sc_18T_hs__or2_4	0.00000	0.51539	1.46676
sky130_osu_sc_18T_hs__or2_8	0.00000	0.90332	2.91653
sky130_osu_sc_18T_hs__or2_l	0.00000	0.14513	0.23708

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)	0.05651	0.45429	5.93066
	B->Y (RR)	0.04898	0.42784	5.91625
sky130_osu_sc_18T_hs__or2_2	A->Y (RR)	0.06258	0.40087	5.91079
	B->Y (RR)	0.05463	0.37667	5.88138
sky130_osu_sc_18T_hs__or2_4	A->Y (RR)	0.08132	0.40300	6.13833
	B->Y (RR)	0.07307	0.38212	6.08271
sky130_osu_sc_18T_hs__or2_8	A->Y (RR)	0.11750	0.45362	6.46785
	B->Y (RR)	0.10904	0.43712	6.40508
sky130_osu_sc_18T_hs__or2_l	A->Y (RR)	0.06157	0.51892	5.92102
	B->Y (RR)	0.05455	0.49475	5.88116

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)	0.08626	0.55701	6.99107
	B->Y (FF)	0.06918	0.54376	7.15160
sky130_osu_sc_18T_hs__or2_2	A->Y (FF)	0.10134	0.53080	6.96451
	B->Y (FF)	0.08438	0.52205	7.09820
sky130_osu_sc_18T_hs__or2_4	A->Y (FF)	0.14121	0.56281	7.14653
	B->Y (FF)	0.12431	0.56125	7.24318
sky130_osu_sc_18T_hs__or2_8	A->Y (FF)	0.22520	0.65717	7.28358
	B->Y (FF)	0.20838	0.66096	7.36321
sky130_osu_sc_18T_hs__or2_l	A->Y (FF)	0.09447	0.59474	6.63925
	B->Y (FF)	0.07773	0.58847	6.81644

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	0.00914	0.01171	0.08324
	B	0.00000	0.00000	0.00000
	B	0.00650	0.01106	0.10707
sky130_osu_sc_18T_hs__or2_2	A	0.00000	0.00000	0.00000
	A	0.01597	0.01896	0.08937
	B	0.00000	0.00000	0.00000
	B	0.01319	0.01790	0.11230
sky130_osu_sc_18T_hs__or2_4	A	0.00000	0.00000	0.00000
	A	0.03090	0.03420	0.10926
	B	0.00000	0.00000	0.00000
	B	0.02802	0.03329	0.12855
sky130_osu_sc_18T_hs__or2_8	A	0.00000	0.00000	0.00000
	A	0.06482	0.06729	0.13936
	B	0.00000	0.00000	0.00000
	B	0.06195	0.06585	0.15643
sky130_osu_sc_18T_hs__or2_l	A	0.00000	0.00000	0.00000
	A	0.00672	0.00816	0.05502
	B	0.00000	0.00000	0.00000
	B	0.00501	0.00880	0.06970

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	0.01987	0.02228	0.09352
	B	0.00000	0.00000	0.00000
	B	0.01616	0.02322	0.14591
sky130_osu_sc_18T_hs__or2_2	A	0.00000	0.00000	0.00000
	A	0.02522	0.02726	0.09831
	B	0.00000	0.00000	0.00000
	B	0.02150	0.02798	0.14816
sky130_osu_sc_18T_hs__or2_4	A	0.00000	0.00000	0.00000
	A	0.04206	0.04044	0.10917
	B	0.00000	0.00000	0.00000
	B	0.03845	0.04080	0.15484
sky130_osu_sc_18T_hs__or2_8	A	0.00000	0.00000	0.00000
	A	0.08844	0.06780	0.13312
	B	0.00000	0.00000	0.00000
	B	0.08437	0.06898	0.17248
sky130_osu_sc_18T_hs__or2_l	A	0.00000	0.00000	0.00000
	A	0.01503	0.01646	0.06257
	B	0.00000	0.00000	0.00000
	B	0.01248	0.01677	0.09361

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)	-0.00484	-0.00584	-0.00582
sky130_osu_sc_18T_hs__or2_2	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00483	-0.00584	-0.00582
sky130_osu_sc_18T_hs__or2_4	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00483	-0.00584	-0.00582
sky130_osu_sc_18T_hs__or2_8	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00483	-0.00584	-0.00582
sky130_osu_sc_18T_hs__or2_l	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00349	-0.00414	-0.00413

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)	0.00578	0.00585	0.00583
sky130_osu_sc_18T_hs__or2_2	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00578	0.00585	0.00583
sky130_osu_sc_18T_hs__or2_4	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00579	0.00585	0.00583
sky130_osu_sc_18T_hs__or2_8	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00579	0.00585	0.00583
sky130_osu_sc_18T_hs__or2_l	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00410	0.00414	0.00413

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)	-0.00268	-0.00267	-0.00267
sky130_osu_sc_18T_hs__or2_2	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00268	-0.00267	-0.00267
sky130_osu_sc_18T_hs__or2_4	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00268	-0.00267	-0.00267
sky130_osu_sc_18T_hs__or2_8	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00268	-0.00267	-0.00267
sky130_osu_sc_18T_hs__or2_l	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00202	-0.00201	-0.00202

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)	0.00281	0.00281	0.00271
sky130_osu_sc_18T_hs__or2_2	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00279	0.00281	0.00271
sky130_osu_sc_18T_hs__or2_4	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00279	0.00281	0.00271
sky130_osu_sc_18T_hs__or2_8	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00279	0.00281	0.00271
sky130_osu_sc_18T_hs__or2_l	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00210	0.00211	0.00204

SKY130_OSU_SC_18T_HS__TBUFIx

sky130_osu_sc_18T_hs_tt_1P89_25C.ccs
Cell Library: Process , Voltage 1.89,
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	0.00579	0.00731	1.69301
sky130_osu_sc_18T_hs__tbufi_l	0.00449	0.00568	1.15231

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__tbufi_1	0.00000	0.18898	0.72489
sky130_osu_sc_18T_hs__tbufi_l	0.00000	0.11809	0.44023

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)	0.03439	0.74773	10.31770
	OE->Y (FR)	0.04327	0.37222	5.24830
	OE->Y (RR)	0.06497	0.54092	6.18036
sky130_osu_sc_18T_hs__tbufi_l	A->Y (FR)	0.04099	0.82896	10.40130
	OE->Y (FR)	0.04642	0.37202	5.24807
	OE->Y (RR)	0.07105	0.62637	6.17157

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)	0.02499	0.50616	6.94454
	OE->Y (FF)	0.04368	0.37223	5.24831
	OE->Y (RF)	0.02332	0.46767	6.38798
sky130_osu_sc_18T_hs__tbufi_l	A->Y (RF)	0.02780	0.54224	6.72630
	OE->Y (FF)	0.04682	0.37204	5.24814
	OE->Y (RF)	0.02655	0.50102	6.12309

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	0.00847	0.01088	0.04040
	OE	0.00000	0.00000	0.00000
	OE	0.00883	0.01500	0.14724
sky130_osu_sc_18T_hs__tbufi_l	A	0.00000	0.00000	0.00000
	A	0.00649	0.00705	0.02613
	OE	0.00000	0.00000	0.00000
	OE	0.00628	0.01007	0.09530

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	-0.00158	-0.00054	0.01374
	OE	0.00000	0.00000	0.00000
	OE	0.00584	0.01262	0.16427
sky130_osu_sc_18T_hs__tbufi_l	A	0.00000	0.00000	0.00000
	A	-0.00107	-0.00044	0.00943
	OE	0.00000	0.00000	0.00000
	OE	0.00408	0.00810	0.10309

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)	-0.00444	-0.00452	-0.00446
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	-0.00388	-0.00393	-0.00390
sky130_osu_sc_18T_hs__tbufi_l	(!OE * Y)	0.00000	0.00000	0.00000
	(!OE * Y)	-0.00340	-0.00346	-0.00341
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	-0.00303	-0.00305	-0.00305

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)	0.00444	0.00452	0.00446
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	0.00396	0.00399	0.00393
sky130_osu_sc_18T_hs__tbufi_l	(!OE * Y)	0.00000	0.00000	0.00000
	(!OE * Y)	0.00340	0.00346	0.00341
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	0.00309	0.00310	0.00306

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)	0.00356	0.01071	0.16594
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00318	0.01040	0.16549
sky130_osu_sc_18T_hs__tbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00243	0.00670	0.10430
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00215	0.00651	0.10396

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)	0.00992	0.01821	0.17317
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00987	0.01830	0.17328
sky130_osu_sc_18T_hs__tbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00778	0.01277	0.11017
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00780	0.01287	0.11028

SKY130_OSU_SC_18T_HS__TNBUFIx

sky130_osu_sc_18T_hs_tt_1P89_25C.ccs
Cell Library: Process , Voltage 1.89,
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	0.00578	0.00913	1.71472
sky130_osu_sc_18T_hs__tnbufi_l	0.00448	0.00683	1.15260

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__tnbufi_1	0.00000	0.30696	0.37094
sky130_osu_sc_18T_hs__tnbufi_l	0.00000	0.18864	0.22860

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)	0.03450	0.75130	10.40080
	OE->Y (RR)	0.02475	0.37338	5.24940
	OE->Y (FR)	0.04606	0.75383	10.21320
sky130_osu_sc_18T_hs__tnbufi_l	A->Y (FR)	0.04119	0.83349	10.40270
	OE->Y (RR)	0.02564	0.37365	5.24970
	OE->Y (FR)	0.05154	0.82551	10.05970

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)	0.02468	0.50855	7.00405
	OE->Y (RF)	0.02450	0.37337	5.24943
	OE->Y (FF)	0.04329	0.45512	5.42194
sky130_osu_sc_18T_hs__tnbufi_l	A->Y (RF)	0.02743	0.54214	6.72737
	OE->Y (RF)	0.02541	0.37363	5.24973
	OE->Y (FF)	0.04860	0.49007	5.11084

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	0.00867	0.01106	0.04040
	OE	0.00000	0.00000	0.00000
	OE	0.02165	0.03122	0.18592
sky130_osu_sc_18T_hs__tnbufi_l	A	0.00000	0.00000	0.00000
	A	0.00670	0.00794	0.02632
	OE	0.00000	0.00000	0.00000
	OE	0.01608	0.02176	0.11920

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	-0.00186	-0.00081	0.01338
	OE	0.00000	0.00000	0.00000
	OE	0.01902	0.02818	0.16211
sky130_osu_sc_18T_hs__tnbufi_l	A	0.00000	0.00000	0.00000
	A	-0.00134	-0.00070	0.00917
	OE	0.00000	0.00000	0.00000
	OE	0.01415	0.01967	0.10099

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)	-0.00382	-0.00389	-0.00384
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	-0.00332	-0.00336	-0.00333
sky130_osu_sc_18T_hs__tnbufi_l	(OE * Y)	0.00000	0.00000	0.00000
	(OE * Y)	-0.00282	-0.00284	-0.00283
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	-0.00249	-0.00251	-0.00250

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)	0.00382	0.00389	0.00384
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	0.00339	0.00341	0.00337
sky130_osu_sc_18T_hs__tnbufi_l	(OE * Y)	0.00000	0.00000	0.00000
	(OE * Y)	0.00282	0.00284	0.00283
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	0.00253	0.00254	0.00251

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)	-0.00691	0.00019	0.15615
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00693	0.00022	0.15622
sky130_osu_sc_18T_hs__tnbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	-0.00490	-0.00070	0.09753
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00490	-0.00063	0.09756

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)	0.01632	0.02671	0.18258
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.01610	0.02678	0.18234
sky130_osu_sc_18T_hs__tnbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.01220	0.01840	0.11657
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.01205	0.01841	0.11645

SKY130_OSU_SC_18T_HS__XNOR2

sky130_osu_sc_18T_hs_tt_1P89_25C.ccs
Cell Library: Process , Voltage 1.89,
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	0.01146	0.01051	1.76773

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__xnor2_l	0.00000	0.62219	1.09582

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	0.08160	0.58043	6.50399
	A->Y (FR)	!B	0.04403	0.76385	10.51510
	B->Y (RR)	A	0.06413	0.56506	6.60120
	B->Y (FR)	!A	0.06258	0.77370	10.39840

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	0.07714	0.53239	5.94936
	A->Y (RF)	!B	0.03586	0.50444	6.85518
	B->Y (FF)	A	0.06769	0.52419	5.96170
	B->Y (RF)	!A	0.04554	0.51707	6.84924

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	0.00848	0.01389	0.14449
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.02047	0.03006	0.20574
	B	A	0.00000	0.00000	0.00000
	B	A	0.00223	0.00923	0.16302
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.02306	0.03142	0.19169

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	0.02637	0.03320	0.18250
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00569	0.01220	0.16986
	B	A	0.00000	0.00000	0.00000
	B	A	0.02393	0.03234	0.18647
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00756	0.01390	0.16989

SKY130_OSU_SC_18T_HS__XOR2

sky130_osu_sc_18T_hs_tt_1P89_25C.ccs
Cell Library: Process , Voltage 1.89,
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	0.01144	0.01055	1.73545

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__xor2_1	0.00000	0.62219	0.97484

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	0.07628	0.56356	6.46952
	A->Y (FR)	B	0.05678	0.76955	10.39800
	B->Y (RR)	!A	0.06652	0.56222	6.50362
	B->Y (FR)	A	0.06064	0.77155	10.35800

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	0.06574	0.50831	5.56462
	A->Y (RF)	B	0.03467	0.52755	7.05405
	B->Y (FF)	!A	0.06205	0.50774	5.73032
	B->Y (RF)	A	0.04250	0.49718	6.53603

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	0.02464	0.03373	0.20254
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00368	0.00855	0.16012
	B	A	0.00000	0.00000	0.00000
	B	A	0.02534	0.03442	0.19930
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00179	0.00853	0.16433

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	0.00476	0.01138	0.17778
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.02695	0.03535	0.16881
	B	A	0.00000	0.00000	0.00000
	B	A	0.00481	0.01118	0.17152
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.02435	0.03336	0.18916

SKY130_OSU_SC_18T_HS_x

sky130_osu_sc_18T_hs_tt_1P89_25C.ccs
Cell Library: Process , Voltage 1.89,
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	1.03208
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	485132.00000	970265.00000
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
	-0.00200	0.13701	1.87599

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
	8.44145	8.01634	2.24458