sky130_osu_sc_18T_hs_TT_1P8_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_1P8_25C.ccs
Cell Library: Process , Voltage 1.80,
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	0.02097	0.02089	0.01601	0.21935	0.08864	0.21237
sky130_osu_sc_18T_hs__addf_l	0.02096	0.02088	0.01603	0.14916	0.08985	0.14892

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__addf_1	0.00000	0.61322	0.82681
sky130_osu_sc_18T_hs__addf_l	0.00000	0.51524	0.72883

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)	0.12218	0.39936	1.86704
	B->CO (RR)	0.11600	0.38042	1.76774
	CI->CO (RR)	0.11658	0.40314	1.91307
	CON->CO (FR)	0.02458	0.15315	0.80206
sky130_osu_sc_18T_hs__addf_l	A->CO (RR)	0.12389	0.37813	1.53131
	B->CO (RR)	0.11770	0.36278	1.47269
	CI->CO (RR)	0.11827	0.38202	1.57921
	CON->CO (FR)	0.02782	0.16711	0.80459

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)	0.16224	0.50509	2.29723
	B->CO (FF)	0.14348	0.47391	2.19153
	CI->CO (FF)	0.13924	0.48035	2.28159
	CON->CO (RF)	0.02076	0.12468	0.65527
sky130_osu_sc_18T_hs__addf_l	A->CO (FF)	0.15951	0.46218	1.81655
	B->CO (FF)	0.14116	0.43443	1.74048
	CI->CO (FF)	0.13649	0.43737	1.80308
	CON->CO (RF)	0.02205	0.12792	0.61593

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)	0.12884	0.26453	0.79040
	B->CON (FR)	0.10941	0.23556	0.75288
	CI->CON (FR)	0.10588	0.23969	0.78149
sky130_osu_sc_18T_hs__addf_l	A->CON (FR)	0.12196	0.25862	0.78952
	B->CON (FR)	0.10305	0.23008	0.75205
	CI->CON (FR)	0.09896	0.23381	0.78061

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)	0.07743	0.16236	0.48848
	B->CON (RF)	0.07335	0.16098	0.50507
	CI->CON (RF)	0.07182	0.16625	0.54064
sky130_osu_sc_18T_hs__addf_l	A->CON (RF)	0.07441	0.15985	0.48900
	B->CON (RF)	0.07064	0.15878	0.50558
	CI->CON (RF)	0.06879	0.16374	0.54119

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)	0.23846	0.54783	2.01642
	B->S (-R)	0.24506	0.55446	1.98550
	CI->S (-R)	0.21353	0.52040	1.99730
	CON->S (RR)	0.07084	0.18776	0.64266
sky130_osu_sc_18T_hs__addf_l	A->S (-R)	0.22892	0.50860	1.69423
	B->S (-R)	0.23603	0.51734	1.68588
	CI->S (-R)	0.20394	0.48130	1.67690
	CON->S (RR)	0.07124	0.19412	0.62902

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)	0.19662	0.45427	1.60537
	B->S (-F)	0.19502	0.43533	1.53437
	CI->S (-F)	0.19045	0.45624	1.64925
	CON->S (FF)	0.08199	0.21185	0.69785
sky130_osu_sc_18T_hs__addf_l	A->S (-F)	0.18681	0.41617	1.31862
	B->S (-F)	0.18544	0.39896	1.27021
	CI->S (-F)	0.18051	0.41811	1.36437
	CON->S (FF)	0.07931	0.20898	0.65637

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	0.00404	0.00430	0.00633
	B	0.00628	0.00628	0.00773
	CI	0.00660	0.00695	0.00904
sky130_osu_sc_18T_hs__addf_l	A	0.00360	0.00334	0.00417
	B	0.00521	0.00506	0.00592
	CI	0.00551	0.00571	0.00694

Internal switching power(pJ) to CO falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__addf_1	A	0.01863	0.01882	0.02087
	B	0.01841	0.01887	0.02092
	CI	0.01613	0.01683	0.01914
sky130_osu_sc_18T_hs__addf_l	A	0.01756	0.01766	0.01873
	B	0.01732	0.01765	0.01874
	CI	0.01502	0.01558	0.01698

Internal switching power(pJ) to CON rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__addf_1	A	0.01859	0.01867	0.01923
	B	0.01836	0.01857	0.01915
	CI	0.01610	0.01647	0.01746
sky130_osu_sc_18T_hs__addf_l	A	0.01755	0.01758	0.01809
	B	0.01729	0.01748	0.01801
	CI	0.01499	0.01540	0.01632

Internal switching power(pJ) to CON falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__addf_1	A	0.00458	0.00436	0.00486
	B	0.00618	0.00607	0.00657
	CI	0.00656	0.00676	0.00765
sky130_osu_sc_18T_hs__addf_l	A	0.00352	0.00326	0.00367
	B	0.00514	0.00497	0.00537
	CI	0.00548	0.00565	0.00642

Internal switching power(pJ) to S rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__addf_1	A	0.01862	0.01881	0.02071
	B	0.01841	0.01886	0.02081
	CI	0.01613	0.01681	0.01897
sky130_osu_sc_18T_hs__addf_l	A	0.01756	0.01766	0.01873
	B	0.01732	0.01766	0.01872
	CI	0.01502	0.01559	0.01698

Internal switching power(pJ) to S falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__addf_1	A	0.03926	0.03934	0.04004
	B	0.03465	0.03414	0.03680
	CI	0.03167	0.03140	0.03223
sky130_osu_sc_18T_hs__addf_l	A	0.03776	0.03773	0.03829
	B	0.03324	0.03269	0.03536
	CI	0.03023	0.03000	0.03091

SKY130_OSU_SC_18T_HS__ADDHx

sky130_osu_sc_18T_hs_TT_1P8_25C.ccs
Cell Library: Process , Voltage 1.80,
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	0.01022	0.01124	0.21422	0.10124	0.21962
sky130_osu_sc_18T_hs__addh_l	0.01023	0.01124	0.12802	0.10308	0.12991

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__addh_1	0.00000	0.70979	0.81980
sky130_osu_sc_18T_hs__addh_l	0.00000	0.48792	0.64349

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)	0.08225	0.19949	0.64722
	B->CO (RR)	0.08543	0.19687	0.63980
sky130_osu_sc_18T_hs__addh_l	A->CO (RR)	0.08297	0.20867	0.62948
	B->CO (RR)	0.08618	0.20664	0.62387

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)	0.07154	0.19315	0.66946
	B->CO (FF)	0.07713	0.20026	0.68321
sky130_osu_sc_18T_hs__addh_l	A->CO (FF)	0.07079	0.19438	0.61973
	B->CO (FF)	0.07619	0.20128	0.63361

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	0.11455	0.19436	0.41499
	A->CON (FR)	!B	0.06932	0.20434	0.76692
	B->CON (RR)	A	0.11752	0.19168	0.40716
	B->CON (FR)	!A	0.08763	0.22452	0.78069
sky130_osu_sc_18T_hs__addh_l	A->CON (RR)	B	0.10254	0.18141	0.39705
	A->CON (FR)	!B	0.06125	0.19696	0.76613
	B->CON (RR)	A	0.10556	0.17895	0.39089
	B->CON (FR)	!A	0.07956	0.21704	0.77990

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	0.10915	0.21690	0.57237
	A->CON (RF)	!B	0.04548	0.14125	0.53609
	B->CON (FF)	A	0.10794	0.22290	0.60335
	B->CON (RF)	!A	0.05380	0.14605	0.52007
sky130_osu_sc_18T_hs__addh_l	A->CON (FF)	B	0.09887	0.20446	0.55044
	A->CON (RF)	!B	0.04195	0.13819	0.53727
	B->CON (FF)	A	0.09777	0.21072	0.58213
	B->CON (RF)	!A	0.05032	0.14310	0.52113

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	0.08648	0.36293	1.83482
	A->S (FR)	B	0.15058	0.43309	1.84325
	B->S (RR)	!A	0.09493	0.35810	1.75328
	B->S (FR)	A	0.15000	0.44863	1.94055
	CON->S (FR)	-	0.02788	0.15968	0.82986
sky130_osu_sc_18T_hs__addh_l	A->S (RR)	!B	0.08616	0.33213	1.40770
	A->S (FR)	B	0.14372	0.39511	1.40461
	B->S (RR)	!A	0.09481	0.33080	1.35886
	B->S (FR)	A	0.14308	0.40752	1.47031
	CON->S (FR)	-	0.03131	0.17686	0.82152

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	0.09940	0.41361	2.09400
	A->S (RF)	B	0.14247	0.35399	1.36774
	B->S (FF)	!A	0.11774	0.43423	2.11409
	B->S (RF)	A	0.14543	0.35097	1.35983
	CON->S (RF)	-	0.01948	0.12071	0.63617
sky130_osu_sc_18T_hs__addh_l	A->S (FF)	!B	0.09475	0.36195	1.53711
	A->S (RF)	B	0.13282	0.31688	1.00964
	B->S (FF)	!A	0.11310	0.38247	1.55320
	B->S (RF)	A	0.13583	0.31439	1.00340
	CON->S (RF)	-	0.02155	0.12778	0.59795

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	0.00785	0.00766	0.00831
	B	0.00000	0.00000	0.00000
	B	0.00700	0.00677	0.00722
sky130_osu_sc_18T_hs__addh_l	A	0.00000	0.00000	0.00000
	A	0.00638	0.00611	0.00682
	B	0.00000	0.00000	0.00000
	B	0.00553	0.00519	0.00572

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	0.01250	0.01223	0.01345
	B	0.00000	0.00000	0.00000
	B	0.01297	0.01320	0.01475
sky130_osu_sc_18T_hs__addh_l	A	0.00000	0.00000	0.00000
	A	0.01102	0.01070	0.01184
	B	0.00000	0.00000	0.00000
	B	0.01149	0.01159	0.01296

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	0.00784	0.00764	0.00830
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.01099	0.01105	0.01177
	B	A	0.00000	0.00000	0.00000
	B	A	0.00700	0.00672	0.00725
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01239	0.01233	0.01264
sky130_osu_sc_18T_hs__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.00637	0.00609	0.00676
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00996	0.01000	0.01060
	B	A	0.00000	0.00000	0.00000
	B	A	0.00553	0.00518	0.00571
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01136	0.01126	0.01148

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	0.01249	0.01224	0.01339
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00153	0.00158	0.00200
	B	A	0.00000	0.00000	0.00000
	B	A	0.01296	0.01311	0.01459
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00277	0.00270	0.00305
sky130_osu_sc_18T_hs__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.01102	0.01071	0.01184
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00030	0.00029	0.00039
	B	A	0.00000	0.00000	0.00000
	B	A	0.01149	0.01157	0.01295
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00153	0.00142	0.00162

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	0.01251	0.01225	0.01359
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00156	0.00169	0.00244
	B	A	0.00000	0.00000	0.00000
	B	A	0.01297	0.01321	0.01498
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00281	0.00279	0.00337
sky130_osu_sc_18T_hs__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.01103	0.01072	0.01189
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00031	0.00031	0.00062
	B	A	0.00000	0.00000	0.00000
	B	A	0.01150	0.01160	0.01303
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00155	0.00143	0.00170

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	0.00786	0.00767	0.00835
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.01100	0.01117	0.01199
	B	A	0.00000	0.00000	0.00000
	B	A	0.00701	0.00675	0.00726
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01240	0.01248	0.01305
sky130_osu_sc_18T_hs__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.00638	0.00610	0.00681
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00997	0.01001	0.01059
	B	A	0.00000	0.00000	0.00000
	B	A	0.00554	0.00519	0.00572
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01137	0.01130	0.01153

SKY130_OSU_SC_18T_HS__AND2x

sky130_osu_sc_18T_hs_TT_1P8_25C.ccs
Cell Library: Process , Voltage 1.80,
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	0.00553	0.00565	0.21762
sky130_osu_sc_18T_hs__and2_2	0.00553	0.00565	0.42176
sky130_osu_sc_18T_hs__and2_4	0.00553	0.00565	0.79202
sky130_osu_sc_18T_hs__and2_6	0.00332	0.00333	1.80000
sky130_osu_sc_18T_hs__and2_8	0.00554	0.00567	1.46099
sky130_osu_sc_18T_hs__and2_l	0.00427	0.00438	0.15018

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__and2_1	0.00000	0.34131	0.54504
sky130_osu_sc_18T_hs__and2_2	0.00000	0.54480	0.55227
sky130_osu_sc_18T_hs__and2_4	0.00000	0.95176	1.08283
sky130_osu_sc_18T_hs__and2_6	0.00000	0.00000	0.00000
sky130_osu_sc_18T_hs__and2_8	0.00000	1.76569	2.15843
sky130_osu_sc_18T_hs__and2_l	0.00000	0.21889	0.34890

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)	0.06296	0.16828	0.59113
	B->Y (RR)	0.06691	0.16783	0.58650
sky130_osu_sc_18T_hs__and2_2	A->Y (RR)	0.07233	0.17470	0.63482
	B->Y (RR)	0.07630	0.17280	0.62618
sky130_osu_sc_18T_hs__and2_4	A->Y (RR)	0.09914	0.20474	0.71270
	B->Y (RR)	0.10310	0.20188	0.69847
sky130_osu_sc_18T_hs__and2_8	A->Y (RR)	0.15262	0.26117	0.83601
	B->Y (RR)	0.15659	0.25904	0.81262
sky130_osu_sc_18T_hs__and2_l	A->Y (RR)	0.06922	0.18576	0.60221
	B->Y (RR)	0.07330	0.18469	0.59667

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)	0.05606	0.16684	0.60405
	B->Y (FF)	0.05951	0.17169	0.61667
sky130_osu_sc_18T_hs__and2_2	A->Y (FF)	0.06316	0.17060	0.63956
	B->Y (FF)	0.06721	0.17556	0.65090
sky130_osu_sc_18T_hs__and2_4	A->Y (FF)	0.08572	0.19359	0.70564
	B->Y (FF)	0.08975	0.19756	0.71467
sky130_osu_sc_18T_hs__and2_8	A->Y (FF)	0.13525	0.24457	0.80220
	B->Y (FF)	0.13920	0.24861	0.80882
sky130_osu_sc_18T_hs__and2_l	A->Y (FF)	0.06050	0.17819	0.59803
	B->Y (FF)	0.06488	0.18394	0.61290

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	0.00573	0.00539	0.00838
	B	0.00000	0.00000	0.00000
	B	0.00580	0.00512	0.00700
sky130_osu_sc_18T_hs__and2_2	A	0.00000	0.00000	0.00000
	A	0.01185	0.01179	0.01430
	B	0.00000	0.00000	0.00000
	B	0.01194	0.01162	0.01320
sky130_osu_sc_18T_hs__and2_4	A	0.00000	0.00000	0.00000
	A	0.02538	0.02543	0.02773
	B	0.00000	0.00000	0.00000
	B	0.02547	0.02537	0.02700
sky130_osu_sc_18T_hs__and2_8	A	0.00000	0.00000	0.00000
	A	0.05730	0.05362	0.05599
	B	0.00000	0.00000	0.00000
	B	0.05734	0.05348	0.05525
sky130_osu_sc_18T_hs__and2_l	A	0.00000	0.00000	0.00000
	A	0.00422	0.00389	0.00568
	B	0.00000	0.00000	0.00000
	B	0.00431	0.00372	0.00489

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	0.01497	0.01542	0.01972
	B	0.00000	0.00000	0.00000
	B	0.01677	0.01699	0.02097
sky130_osu_sc_18T_hs__and2_2	A	0.00000	0.00000	0.00000
	A	0.01929	0.02026	0.02436
	B	0.00000	0.00000	0.00000
	B	0.02111	0.02153	0.02543
sky130_osu_sc_18T_hs__and2_4	A	0.00000	0.00000	0.00000
	A	0.03128	0.03147	0.03593
	B	0.00000	0.00000	0.00000
	B	0.03300	0.03300	0.03658
sky130_osu_sc_18T_hs__and2_8	A	0.00000	0.00000	0.00000
	A	0.05893	0.05419	0.05989
	B	0.00000	0.00000	0.00000
	B	0.06048	0.05510	0.05928
sky130_osu_sc_18T_hs__and2_l	A	0.00000	0.00000	0.00000
	A	0.01158	0.01178	0.01438
	B	0.00000	0.00000	0.00000
	B	0.01294	0.01298	0.01544

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)	-0.00586	-0.00589	-0.00586
sky130_osu_sc_18T_hs__and2_2	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00586	-0.00589	-0.00586
sky130_osu_sc_18T_hs__and2_4	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00586	-0.00588	-0.00586
sky130_osu_sc_18T_hs__and2_6	B	0.00000	0.00000	0.00000
	B	-0.00047	-0.00047	-0.00047
	!B	0.00000	0.00000	0.00000
	!B	-0.00039	-0.00039	-0.00039
sky130_osu_sc_18T_hs__and2_8	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00585	-0.00588	-0.00585
sky130_osu_sc_18T_hs__and2_l	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00431	-0.00434	-0.00431

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)	0.00586	0.00589	0.00586
sky130_osu_sc_18T_hs__and2_2	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00586	0.00589	0.00586
sky130_osu_sc_18T_hs__and2_4	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00586	0.00589	0.00586
sky130_osu_sc_18T_hs__and2_6	B	0.00000	0.00000	0.00000
	B	0.00047	0.00047	0.00047
	!B	0.00000	0.00000	0.00000
	!B	0.00039	0.00039	0.00039
sky130_osu_sc_18T_hs__and2_8	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00585	0.00589	0.00585
sky130_osu_sc_18T_hs__and2_1	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00431	0.00434	0.00431

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)	-0.00552	-0.00555	-0.00553
sky130_osu_sc_18T_hs__and2_2	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00553	-0.00555	-0.00553
sky130_osu_sc_18T_hs__and2_4	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00553	-0.00555	-0.00553
sky130_osu_sc_18T_hs__and2_6	A	0.00000	0.00000	0.00000
	A	-0.00046	-0.00046	-0.00046
	!A	0.00000	0.00000	0.00000
	!A	-0.00039	-0.00039	-0.00038
sky130_osu_sc_18T_hs__and2_8	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00552	-0.00555	-0.00553
sky130_osu_sc_18T_hs__and2_l	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00408	-0.00408	-0.00408

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)	0.00555	0.00556	0.00554
sky130_osu_sc_18T_hs__and2_2	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00555	0.00556	0.00554
sky130_osu_sc_18T_hs__and2_4	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00555	0.00556	0.00554
sky130_osu_sc_18T_hs__and2_6	A	0.00000	0.00000	0.00000
	A	0.00046	0.00046	0.00046
	!A	0.00000	0.00000	0.00000
	!A	0.00039	0.00039	0.00038
sky130_osu_sc_18T_hs__and2_8	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00555	0.00556	0.00553
sky130_osu_sc_18T_hs__and2_l	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00410	0.00410	0.00408

SKY130_OSU_SC_18T_HS__AOI21

sky130_osu_sc_18T_hs_TT_1P8_25C.ccs
Cell Library: Process , Voltage 1.80,
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	0.00527	0.00544	0.00528	0.09813

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__aoi21_l	0.00000	0.12797	0.26890

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)	0.06884	0.21144	0.77693
	A1->Y (FR)	0.05941	0.19566	0.74190
	B0->Y (FR)	0.04881	0.18909	0.76931

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)	0.04197	0.12795	0.46275
	A1->Y (RF)	0.03806	0.12996	0.49540
	B0->Y (RF)	0.02633	0.11796	0.48682

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	0.01346	0.01332	0.01349
	A1	0.00000	0.00000	0.00000
	A1	0.01141	0.01125	0.01141
	B0	0.01026	0.01020	0.01101

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	0.00260	0.00219	0.00232
	A1	0.00000	0.00000	0.00000
	A1	0.00265	0.00229	0.00257
	B0	-0.00153	-0.00156	-0.00123

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)	-0.00483	-0.00513	-0.00515
	(!A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !Y)	-0.00523	-0.00525	-0.00524
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00523	-0.00524	-0.00523

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)	0.00515	0.00519	0.00515
	(!A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !Y)	0.00524	0.00527	0.00524
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00526	0.00527	0.00523

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)	-0.00478	-0.00508	-0.00510
	(!A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !Y)	-0.00518	-0.00519	-0.00518
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	-0.00560	-0.00563	-0.00561

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)	0.00510	0.00513	0.00510
	(!A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !Y)	0.00518	0.00521	0.00519
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	0.00560	0.00563	0.00561

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)	-0.00242	-0.00243	-0.00242

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)	0.00247	0.00248	0.00245

SKY130_OSU_SC_18T_HS__AOI22

sky130_osu_sc_18T_hs_TT_1P8_25C.ccs
Cell Library: Process , Voltage 1.80,
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	0.00527	0.00544	0.00563	0.00541	0.09416

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__aoi22_l	0.00000	0.14053	0.53779

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)	0.08687	0.23151	0.79018
	A1->Y (FR)	0.07779	0.21875	0.76806
	B0->Y (FR)	0.05115	0.18895	0.75489
	B1->Y (FR)	0.06028	0.20176	0.78165

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)	0.05565	0.14083	0.46788
	A1->Y (RF)	0.05181	0.14261	0.50069
	B0->Y (RF)	0.02853	0.11775	0.47036
	B1->Y (RF)	0.03245	0.11531	0.43853

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	0.01658	0.01644	0.01650
	A1	0.01456	0.01437	0.01446
	B0	0.01097	0.01086	0.01191
	B1	0.01292	0.01285	0.01385

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__aoi22_l	A0	0.00563	0.00523	0.00527
	A1	0.00569	0.00532	0.00551
	B0	-0.00106	-0.00110	-0.00066
	B1	-0.00095	-0.00112	-0.00080

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)	-0.00489	-0.00512	-0.00515
	(!A1 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * B1 * !Y)	-0.00523	-0.00525	-0.00524
	(!A1 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !B1 * Y)	-0.00523	-0.00524	-0.00523
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00523	-0.00524	-0.00523

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)	0.00514	0.00518	0.00515
	(!A1 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * B1 * !Y)	0.00524	0.00527	0.00524
	(!A1 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !B1 * Y)	0.00526	0.00527	0.00523
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00526	0.00527	0.00523

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)	-0.00483	-0.00507	-0.00510
	(!A0 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * B1 * !Y)	-0.00518	-0.00519	-0.00518
	(!A0 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !B1 * Y)	-0.00560	-0.00563	-0.00560
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	-0.00560	-0.00563	-0.00560

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)	0.00510	0.00513	0.00510
	(!A0 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * B1 * !Y)	0.00518	0.00521	0.00519
	(!A0 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !B1 * Y)	0.00560	0.00563	0.00560
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	0.00560	0.00563	0.00560

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)	-0.00243	-0.00245	-0.00243
	(A0 * A1 * !B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B1 * !Y)	-0.00242	-0.00244	-0.00243
	(!A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B1 * Y)	-0.00574	-0.00576	-0.00574
	(!A0 * A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B1 * Y)	-0.00574	-0.00576	-0.00573

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)	0.00250	0.00251	0.00247
	(A0 * A1 * !B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B1 * !Y)	0.00242	0.00244	0.00243
	(!A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B1 * Y)	0.00574	0.00576	0.00574
	(!A0 * A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B1 * Y)	0.00574	0.00576	0.00573

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)	-0.00244	-0.00246	-0.00244
	(A0 * A1 * !B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B0 * !Y)	-0.00244	-0.00244	-0.00244
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00531	-0.00532	-0.00531
	(!A0 * A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B0 * Y)	-0.00531	-0.00532	-0.00531

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)	0.00251	0.00253	0.00248
	(A0 * A1 * !B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B0 * !Y)	0.00244	0.00245	0.00244
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00533	0.00534	0.00531
	(!A0 * A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B0 * Y)	0.00533	0.00533	0.00531

SKY130_OSU_SC_18T_HS__BUFx

sky130_osu_sc_18T_hs_TT_1P8_25C.ccs
Cell Library: Process , Voltage 1.80,
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	0.00563	0.21568
sky130_osu_sc_18T_hs__buf_2	0.00563	0.42039
sky130_osu_sc_18T_hs__buf_4	0.00563	0.80638
sky130_osu_sc_18T_hs__buf_6	0.00097	1.80000
sky130_osu_sc_18T_hs__buf_8	0.00564	1.53728
sky130_osu_sc_18T_hs__buf_l	0.00441	0.14944

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__buf_1	0.00000	0.27614	0.27614
sky130_osu_sc_18T_hs__buf_2	0.00000	0.41420	0.54504
sky130_osu_sc_18T_hs__buf_4	0.00000	0.69034	1.08283
sky130_osu_sc_18T_hs__buf_6	0.00000	0.00000	0.00000
sky130_osu_sc_18T_hs__buf_8	0.00000	1.24261	2.15843
sky130_osu_sc_18T_hs__buf_l	0.00000	0.17817	0.17817

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)	0.05022	0.15021	0.55733
sky130_osu_sc_18T_hs__buf_2	A->Y (RR)	0.05593	0.15144	0.59303
sky130_osu_sc_18T_hs__buf_4	A->Y (RR)	0.07523	0.17388	0.66476
sky130_osu_sc_18T_hs__buf_8	A->Y (RR)	0.11251	0.21589	0.77660
sky130_osu_sc_18T_hs__buf_l	A->Y (RR)	0.05571	0.16679	0.56610

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)	0.05333	0.16235	0.59495
sky130_osu_sc_18T_hs__buf_2	A->Y (FF)	0.06115	0.16804	0.63572
sky130_osu_sc_18T_hs__buf_4	A->Y (FF)	0.08380	0.19182	0.70887
sky130_osu_sc_18T_hs__buf_8	A->Y (FF)	0.13319	0.24319	0.81739
sky130_osu_sc_18T_hs__buf_l	A->Y (FF)	0.05844	0.17481	0.59169

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	0.00533	0.00498	0.00795
sky130_osu_sc_18T_hs__buf_2	A	0.00000	0.00000	0.00000
	A	0.01134	0.01134	0.01394
sky130_osu_sc_18T_hs__buf_4	A	0.00000	0.00000	0.00000
	A	0.02452	0.02508	0.02752
sky130_osu_sc_18T_hs__buf_8	A	0.00000	0.00000	0.00000
	A	0.05323	0.05245	0.05562
sky130_osu_sc_18T_hs__buf_l	A	0.00000	0.00000	0.00000
	A	0.00403	0.00367	0.00553

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	0.01432	0.01473	0.01909
sky130_osu_sc_18T_hs__buf_2	A	0.00000	0.00000	0.00000
	A	0.01861	0.01930	0.02338
sky130_osu_sc_18T_hs__buf_4	A	0.00000	0.00000	0.00000
	A	0.03046	0.03062	0.03466
sky130_osu_sc_18T_hs__buf_8	A	0.00000	0.00000	0.00000
	A	0.05812	0.05295	0.05772
sky130_osu_sc_18T_hs__buf_l	A	0.00000	0.00000	0.00000
	A	0.01120	0.01132	0.01405

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
	-0.00076	-0.00076	-0.00076

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
	0.00076	0.00076	0.00076

SKY130_OSU_SC_18T_HS__DFFRx

sky130_osu_sc_18T_hs_TT_1P8_25C.ccs
Cell Library: Process , Voltage 1.80,
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	0.00543	0.00537	0.01548	0.21122	0.20449
sky130_osu_sc_18T_hs__dffr_l	0.00543	0.00537	0.01546	0.14929	0.14524

Leakage Information

Cell Name	Leakage(nW)		
	Min.	**Avg**	**Max.**
sky130_osu_sc_18T_hs__dffr_1	0.00000	0.85271	1.30524
sky130_osu_sc_18T_hs__dffr_l	0.00000	0.75474	1.20727

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)	0.23781	0.45771	1.41651
	QN->Q (FR)	0.02890	0.17333	0.90228
sky130_osu_sc_18T_hs__dffr_l	CK->Q (RR)	0.23400	0.46522	1.35917
	QN->Q (FR)	0.03073	0.18175	0.87607

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)	0.24118	0.44854	1.41445
	QN->Q (RF)	0.02409	0.14679	0.76279
	RN->Q (FF)	0.18022	0.41283	1.49513
sky130_osu_sc_18T_hs__dffr_l	CK->Q (RF)	0.24430	0.46811	1.38317
	QN->Q (RF)	0.02435	0.14590	0.70308
	RN->Q (FF)	0.18374	0.43267	1.46391

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)	0.21384	0.32067	0.72848
	RN->QN (FR)	0.15292	0.28475	0.80934
sky130_osu_sc_18T_hs__dffr_l	CK->QN (RR)	0.21435	0.32918	0.72620
	RN->QN (FR)	0.15375	0.29353	0.80689

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)**	0.20098	0.30847	0.64666
sky130_osu_sc_18T_hs__dffr_l	**CK->QN (RF)**	0.19359	0.30134	0.60777

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)	-0.05623	-0.05795	-0.07058
	setup	CK (R)	0.18947	0.18381	0.26895
sky130_osu_sc_18T_hs__dffr_l	hold	CK (R)	-0.05623	-0.05795	-0.07065
	setup	CK (R)	0.18991	0.18427	0.27053

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)	-0.10120	-0.15777	-0.46405
	setup	CK (R)	0.12243	0.16820	0.47989
sky130_osu_sc_18T_hs__dffr_l	hold	CK (R)	-0.10004	-0.15860	-0.46318
	setup	CK (R)	0.12243	0.16820	0.47989

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)	-0.05623	-0.05795	-0.07058
	setup	CK (R)	0.18947	0.18381	0.26895
sky130_osu_sc_18T_hs__dffr_l	hold	CK (R)	-0.05623	-0.05795	-0.07065
	setup	CK (R)	0.18991	0.18427	0.27053

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)	-0.10120	-0.15777	-0.46405
	setup	CK (R)	0.12243	0.16820	0.47989
sky130_osu_sc_18T_hs__dffr_l	hold	CK (R)	-0.10004	-0.15860	-0.46318
	setup	CK (R)	0.12243	0.16820	0.47989

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)	0.15614	0.15383	0.24532
	removal	CK (R)	-0.03120	-0.03824	-0.04200
sky130_osu_sc_18T_hs__dffr_l	recovery	CK (R)	0.15547	0.15437	0.24625
	removal	CK (R)	-0.03120	-0.03824	-0.04200

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)	0.15614	0.15383	0.24532
	removal	CK (R)	-0.03120	-0.03824	-0.04200
sky130_osu_sc_18T_hs__dffr_l	recovery	CK (R)	0.15547	0.15437	0.24625
	removal	CK (R)	-0.03120	-0.03824	-0.04200

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 ()	0.10539	0.14498	0.97290
	min_pulse_width	RN ()	0.10539	0.14498	0.97290
sky130_osu_sc_18T_hs__dffr_l	min_pulse_width	RN ()	0.10539	0.14498	0.97290
	min_pulse_width	RN ()	0.10539	0.14498	0.97290

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 ()	0.11055	0.13184	0.97290
	min_pulse_width	CK ()	0.12474	0.13184	0.97290
sky130_osu_sc_18T_hs__dffr_l	min_pulse_width	CK ()	0.10346	0.13184	0.97290
	min_pulse_width	CK ()	0.12119	0.13184	0.97290

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 ()	0.24238	0.25340	0.97290
	min_pulse_width	CK ()	0.10088	0.13841	0.97290
sky130_osu_sc_18T_hs__dffr_l	min_pulse_width	CK ()	0.24238	0.25340	0.97290
	min_pulse_width	CK ()	0.10088	0.13841	0.97290

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	0.01431	0.01297	0.01028
sky130_osu_sc_18T_hs__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.01264	0.01157	0.01148

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	0.01652	0.01568	0.01376
	RN	-0.00185	-0.02797	-0.17109
	RN	0.03828	0.03782	0.03634
sky130_osu_sc_18T_hs__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.01488	0.01423	0.01396
	RN	-0.00185	-0.02272	-0.12092
	RN	0.03661	0.03635	0.03653

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	0.01651	0.01568	0.01395
	RN	-0.00185	-0.02744	-0.16562
	RN	0.03827	0.03782	0.03647
sky130_osu_sc_18T_hs__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.01487	0.01423	0.01408
	RN	-0.00185	-0.02234	-0.11764
	RN	0.03660	0.03635	0.03661

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	0.01425	0.01293	0.01028
sky130_osu_sc_18T_hs__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.01258	0.01153	0.01141

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	-0.00457	-0.00508	-0.00512
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.01755	0.01690	0.01784
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.00809	0.00749	0.00857
sky130_osu_sc_18T_hs__dffr_l	CK	0.00000	0.00000	0.00000
	CK	-0.00457	-0.00508	-0.00512
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.01755	0.01690	0.01784
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.00809	0.00749	0.00857

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	0.00513	0.00517	0.00513
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.03021	0.02984	0.03088
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.01386	0.01355	0.01469
sky130_osu_sc_18T_hs__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.00513	0.00517	0.00514
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.03021	0.02984	0.03088
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.01386	0.01355	0.01469

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)	0.00558	0.00516	0.00826
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.01548	0.01484	0.01772
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)	0.00558	0.00516	0.00826
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.01548	0.01484	0.01772

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)	0.01317	0.01319	0.01766
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.02893	0.02866	0.03279
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)	0.01317	0.01319	0.01766
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.02893	0.02866	0.03279

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)	-0.00143	-0.00190	0.00098
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.00814	0.00691	0.00932
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	-0.00192	-0.00241	0.00057
sky130_osu_sc_18T_hs__dffr_l	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	-0.00143	-0.00190	0.00098
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.00814	0.00691	0.00932
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	-0.00192	-0.00241	0.00057

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)	0.02047	0.02053	0.02508
	(D * RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * RN * !Q * QN)	0.04538	0.04466	0.04797
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.03496	0.03466	0.03854
	(!D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * Q * !QN)	0.04444	0.04410	0.05234
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.02358	0.02359	0.02780
sky130_osu_sc_18T_hs__dffr_l	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.02047	0.02053	0.02508
	(D * RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * RN * !Q * QN)	0.04538	0.04466	0.04802
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.03496	0.03466	0.03854
	(!D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * Q * !QN)	0.04444	0.04410	0.05234
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.02358	0.02359	0.02780

SKY130_OSU_SC_18T_HS__DFFSRx

sky130_osu_sc_18T_hs_TT_1P8_25C.ccs
Cell Library: Process , Voltage 1.80,
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	0.00539	0.00538	0.01144	0.01577	0.22090	0.21488
sky130_osu_sc_18T_hs__dffsr_l	0.00539	0.00538	0.01143	0.01577	0.14992	0.14546

Leakage Information

Cell Name	Leakage(nW)		
	Min.	**Avg**	**Max.**
sky130_osu_sc_18T_hs__dffsr_1	0.00000	0.93911	1.30165
sky130_osu_sc_18T_hs__dffsr_l	0.00000	0.84114	1.20368

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)	0.24606	0.46292	1.42691
	QN->Q (FR)	0.02740	0.16839	0.88670
	RN->Q (RR)	0.19654	0.41670	1.38694
	SN->Q (FR)	0.18354	0.41887	1.52377
sky130_osu_sc_18T_hs__dffsr_l	CK->Q (RR)	0.24924	0.48120	1.38346
	QN->Q (FR)	0.03067	0.18155	0.87555
	RN->Q (RR)	0.20008	0.43581	1.34363
	SN->Q (FR)	0.18705	0.43762	1.47695

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)	0.27103	0.47862	1.44788
	QN->Q (RF)	0.02197	0.13721	0.72247
	RN->Q (FF)	0.18490	0.41468	1.50625
sky130_osu_sc_18T_hs__dffsr_l	CK->Q (RF)	0.27808	0.50507	1.42504
	QN->Q (RF)	0.02430	0.14586	0.70386
	RN->Q (FF)	0.19167	0.44145	1.48316

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)	0.24465	0.35412	0.76909
	RN->QN (FR)	0.15884	0.29026	0.82761
sky130_osu_sc_18T_hs__dffsr_l	CK->QN (RR)	0.24781	0.36550	0.76435
	RN->QN (FR)	0.16169	0.30182	0.82248

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)	0.21146	0.31776	0.66025
	RN->QN (RF)	0.16232	0.27179	0.62019
	SN->QN (FF)	0.14941	0.27391	0.75731
sky130_osu_sc_18T_hs__dffsr_l	CK->QN (RF)	0.20962	0.31776	0.62900
	RN->QN (RF)	0.16083	0.27243	0.58990
	SN->QN (FF)	0.14783	0.27436	0.72289

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)	-0.05891	-0.06000	-0.07830
	setup	CK (R)	0.18738	0.18194	0.27301
sky130_osu_sc_18T_hs__dffsr_l	hold	CK (R)	-0.06054	-0.06100	-0.07754
	setup	CK (R)	0.18700	0.18158	0.27212

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)	-0.11147	-0.16746	-0.48636
	setup	CK (R)	0.13906	0.17914	0.50030
sky130_osu_sc_18T_hs__dffsr_l	hold	CK (R)	-0.11137	-0.16776	-0.48524
	setup	CK (R)	0.13895	0.17914	0.50030

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)	-0.05891	-0.06000	-0.07830
	setup	CK (R)	0.18738	0.18194	0.27301
sky130_osu_sc_18T_hs__dffsr_l	hold	CK (R)	-0.06054	-0.06100	-0.07754
	setup	CK (R)	0.18700	0.18158	0.27212

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)	-0.11147	-0.16746	-0.48636
	setup	CK (R)	0.13906	0.17914	0.50030
sky130_osu_sc_18T_hs__dffsr_l	hold	CK (R)	-0.11137	-0.16776	-0.48524
	setup	CK (R)	0.13895	0.17914	0.50030

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)	0.13909	0.13804	0.22690
	removal	CK (R)	-0.01883	-0.02108	-0.02541
	hold	SN (R)	-0.13827	-0.17295	-0.35891
	setup	SN (R)	0.16124	0.19464	0.49417
sky130_osu_sc_18T_hs__dffsr_l	recovery	CK (R)	0.13872	0.13754	0.22628
	removal	CK (R)	-0.01883	-0.02108	-0.02691
	hold	SN (R)	-0.13841	-0.17044	-0.35125
	setup	SN (R)	0.16300	0.19464	0.48073

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)	0.13909	0.13804	0.22690
	removal	CK (R)	-0.01883	-0.02108	-0.02541
	hold	SN (R)	-0.13827	-0.17295	-0.35891
	hold	SN (R)	-0.14049	-0.17522	-0.36299
	setup	SN (R)	0.16124	0.19464	0.48674
	setup	SN (R)	0.15795	0.18956	0.49417
sky130_osu_sc_18T_hs__dffsr_l	recovery	CK (R)	0.13872	0.13754	0.22628
	removal	CK (R)	-0.01883	-0.02108	-0.02691
	hold	SN (R)	-0.13841	-0.17054	-0.35125
	hold	SN (R)	-0.13921	-0.17044	-0.35549
	setup	SN (R)	0.16300	0.19464	0.47707
	setup	SN (R)	0.15188	0.18478	0.48073

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 ()	0.12284	0.15483	0.97290
	min_pulse_width	RN ()	0.12284	0.15483	0.97290
sky130_osu_sc_18T_hs__dffsr_l	min_pulse_width	RN ()	0.12284	0.15483	0.97290
	min_pulse_width	RN ()	0.12070	0.15483	0.97290

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)	0.03671	0.04671	0.13072
	removal	CK (R)	-0.01801	-0.02943	-0.07848
sky130_osu_sc_18T_hs__dffsr_l	recovery	CK (R)	0.03601	0.04671	0.12774
	removal	CK (R)	-0.01801	-0.02943	-0.07848

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)	0.03671	0.04671	0.13072
	removal	CK (R)	-0.01801	-0.02943	-0.07848
sky130_osu_sc_18T_hs__dffsr_l	recovery	CK (R)	0.03601	0.04671	0.12774
	removal	CK (R)	-0.01801	-0.02943	-0.07848

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 ()	0.14799	0.18769	0.97290
	min_pulse_width	SN ()	0.14547	0.18440	0.97290
sky130_osu_sc_18T_hs__dffsr_l	min_pulse_width	SN ()	0.14799	0.18769	0.97290
	min_pulse_width	SN ()	0.13795	0.17783	0.97290

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 ()	0.11055	0.13184	0.97290
	min_pulse_width	CK ()	0.13659	0.13184	0.97290
sky130_osu_sc_18T_hs__dffsr_l	min_pulse_width	CK ()	0.10700	0.13184	0.97290
	min_pulse_width	CK ()	0.13421	0.13184	0.97290

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 ()	0.24238	0.25340	0.97290
	min_pulse_width	CK ()	0.11824	0.15155	0.97290
sky130_osu_sc_18T_hs__dffsr_l	min_pulse_width	CK ()	0.24238	0.25340	0.97290
	min_pulse_width	CK ()	0.11824	0.15155	0.97290

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	0.01805	0.01712	0.01606
	RN	0.03334	0.03267	0.03013
	SN	-0.00185	-0.02874	-0.17893
	SN	0.03749	0.03669	0.03312
sky130_osu_sc_18T_hs__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.01651	0.01550	0.01521
	RN	0.03180	0.03104	0.02926
	SN	-0.00185	-0.02277	-0.12143
	SN	0.03594	0.03506	0.03227

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	0.01914	0.01847	0.01701
	RN	-0.00185	-0.02874	-0.17893
	RN	0.03931	0.03892	0.03784
sky130_osu_sc_18T_hs__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.01762	0.01707	0.01688
	RN	-0.00185	-0.02277	-0.12143
	RN	0.03777	0.03750	0.03759

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	0.01912	0.01846	0.01712
	RN	-0.00185	-0.02826	-0.17405
	RN	0.03930	0.03892	0.03781
sky130_osu_sc_18T_hs__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.01760	0.01706	0.01693
	RN	-0.00185	-0.02236	-0.11782
	RN	0.03775	0.03749	0.03761

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	0.01798	0.01707	0.01606
	RN	0.03327	0.03262	0.03015
	SN	-0.00185	-0.02826	-0.17402
	SN	0.03742	0.03664	0.03315
sky130_osu_sc_18T_hs__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.01644	0.01544	0.01514
	RN	0.03173	0.03099	0.02926
	SN	-0.00185	-0.02236	-0.11779
	SN	0.03588	0.03501	0.03226

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	-0.00492	-0.00510	-0.00511
	(!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)	0.02271	0.02209	0.02293
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.00910	0.00853	0.00952
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.00908	0.00852	0.00952
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.00916	0.00859	0.00958
sky130_osu_sc_18T_hs__dffsr_1	CK	0.00000	0.00000	0.00000
	CK	-0.00492	-0.00510	-0.00511
	(!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)	0.02271	0.02209	0.02293
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.00910	0.00853	0.00952
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.00908	0.00852	0.00952
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.00916	0.00859	0.00958

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	0.00513	0.00511	0.00511
	(!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)	0.03423	0.03385	0.03459
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.01470	0.01443	0.01553
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.01474	0.01447	0.01556
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.01463	0.01436	0.01546
sky130_osu_sc_18T_hs__dffsr_1	CK	0.00000	0.00000	0.00000
	CK	0.00513	0.00511	0.00511
	(!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)	0.03422	0.03383	0.03458
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.01469	0.01441	0.01552
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.01473	0.01446	0.01555
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.01462	0.01435	0.01545

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)	0.00415	0.00371	0.00671
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.01813	0.01741	0.02013
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)	0.00415	0.00371	0.00671
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.01813	0.01742	0.02013

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)	0.01420	0.01422	0.01887
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.03061	0.03026	0.03438
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)	0.01419	0.01421	0.01885
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.03059	0.03025	0.03436

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)	-0.01163	-0.01169	-0.01163
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	-0.01158	-0.01194	-0.01192
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	-0.01132	-0.01150	-0.01148
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.00752	0.00700	0.00804
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)	-0.01163	-0.01169	-0.01163
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	-0.01156	-0.01192	-0.01190
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	-0.01131	-0.01149	-0.01148
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.00753	0.00701	0.00805

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)	0.01163	0.01169	0.01163
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.01194	0.01199	0.01192
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	0.01148	0.01155	0.01149
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.02354	0.02312	0.02373
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)	0.01163	0.01169	0.01163
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.01192	0.01197	0.01190
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	0.01147	0.01155	0.01148
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.02353	0.02311	0.02373

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)	-0.00143	-0.00190	0.00097
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.00926	0.00810	0.01053
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.00916	0.00800	0.01048
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	-0.00166	-0.00215	0.00083
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.00618	0.00506	0.01049
sky130_osu_sc_18T_hs__dffsr_1	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	-0.00143	-0.00190	0.00097
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.00925	0.00809	0.01051
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.00915	0.00799	0.01047
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	-0.00166	-0.00215	0.00083
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.00618	0.00506	0.01049

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)	0.05062	0.04994	0.05327
	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.02050	0.02058	0.02514
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.03565	0.03537	0.03923
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.03572	0.03547	0.03935
	(!D * RN * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * Q * !QN)	0.04840	0.04797	0.05573
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.02337	0.02337	0.02759
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.02717	0.02698	0.03519
sky130_osu_sc_18T_hs__dffsr_l	**(D * RN * SN * !Q * QN)**	0.00000	0.00000	0.00000
	(D * RN * SN * !Q * QN)	0.05062	0.04994	0.05327
	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.02050	0.02058	0.02514
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.03565	0.03537	0.03923
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.03572	0.03547	0.03935
	(!D * RN * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * Q * !QN)	0.04839	0.04796	0.05572
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.02337	0.02337	0.02759
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.02716	0.02697	0.03518

SKY130_OSU_SC_18T_HS__DFFSx

sky130_osu_sc_18T_hs_TT_1P8_25C.ccs
Cell Library: Process , Voltage 1.80,
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	0.00541	0.00917	0.01555	0.21274	0.20482
sky130_osu_sc_18T_hs__dffs_l	0.00541	0.00917	0.01555	0.15030	0.14626

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__dffs_1	0.00000	0.84284	1.24713
sky130_osu_sc_18T_hs__dffs_l	0.00000	0.74486	1.14916

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)	0.18367	0.39338	1.35456
	QN->Q (FR)	0.02873	0.17260	0.89822
	SN->Q (FR)	0.14249	0.38112	1.49754
sky130_osu_sc_18T_hs__dffs_l	CK->Q (RR)	0.18360	0.40594	1.30372
	QN->Q (FR)	0.03057	0.18117	0.87400
	SN->Q (FR)	0.14284	0.39421	1.44187

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)	0.26304	0.47532	1.44505
	QN->Q (RF)	0.02391	0.14613	0.76201
sky130_osu_sc_18T_hs__dffs_l	CK->Q (RF)	0.26521	0.49309	1.41275
	QN->Q (RF)	0.02420	0.14546	0.70295

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)	0.23518	0.34663	0.75361
sky130_osu_sc_18T_hs__dffs_l	CK->QN (RR)	0.23470	0.35360	0.75261

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)	0.14987	0.24726	0.58197
	SN->QN (FF)	0.10879	0.23507	0.72470
sky130_osu_sc_18T_hs__dffs_l	CK->QN (RF)	0.14631	0.24497	0.55108
	SN->QN (FF)	0.10552	0.23326	0.68871

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)	-0.04170	-0.04236	-0.05409
	setup	CK (R)	0.13137	0.12884	0.22154
sky130_osu_sc_18T_hs__dffs_l	hold	CK (R)	-0.04036	-0.04298	-0.05540
	setup	CK (R)	0.13129	0.12891	0.22187

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)	-0.10104	-0.15775	-0.46233
	setup	CK (R)	0.13027	0.16818	0.48081
sky130_osu_sc_18T_hs__dffs_l	hold	CK (R)	-0.10203	-0.15632	-0.46429
	setup	CK (R)	0.13027	0.16818	0.48078

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)	-0.04170	-0.04236	-0.05409
	setup	CK (R)	0.13137	0.12884	0.22154
sky130_osu_sc_18T_hs__dffs_l	hold	CK (R)	-0.04036	-0.04298	-0.05540
	setup	CK (R)	0.13129	0.12891	0.22187

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)	-0.10104	-0.15775	-0.46233
	setup	CK (R)	0.13027	0.16818	0.48081
sky130_osu_sc_18T_hs__dffs_l	hold	CK (R)	-0.10203	-0.15632	-0.46429
	setup	CK (R)	0.13027	0.16818	0.48078

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)	0.03574	0.04394	0.11598
	removal	CK (R)	-0.01717	-0.02796	-0.07976
sky130_osu_sc_18T_hs__dffs_l	recovery	CK (R)	0.03557	0.04382	0.11366
	removal	CK (R)	-0.01717	-0.02796	-0.07976

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)	0.03574	0.04394	0.11598
	removal	CK (R)	-0.01717	-0.02796	-0.07976
sky130_osu_sc_18T_hs__dffs_l	recovery	CK (R)	0.03557	0.04382	0.11366
	removal	CK (R)	-0.01717	-0.02796	-0.07976

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 ()	0.09657	0.16140	0.97290
	min_pulse_width	SN ()	0.09657	0.16140	0.97290
sky130_osu_sc_18T_hs__dffs_l	min_pulse_width	SN ()	0.09510	0.15483	0.97290
	min_pulse_width	SN ()	0.09258	0.15812	0.97290

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 ()	0.07862	0.13184	0.97290
	min_pulse_width	CK ()	0.13184	0.13184	0.97290
sky130_osu_sc_18T_hs__dffs_l	min_pulse_width	CK ()	0.07507	0.13184	0.97290
	min_pulse_width	CK ()	0.12829	0.13184	0.97290

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 ()	0.18657	0.20083	0.97290
	min_pulse_width	CK ()	0.11085	0.14169	0.97290
sky130_osu_sc_18T_hs__dffs_l	min_pulse_width	CK ()	0.18657	0.20083	0.97290
	min_pulse_width	CK ()	0.11085	0.14169	0.97290

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	0.01429	0.01295	0.01040
	SN	-0.00185	-0.02809	-0.17232
	SN	0.03161	0.03039	0.02642
sky130_osu_sc_18T_hs__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.01264	0.01157	0.01156
	SN	-0.00185	-0.02281	-0.12174
	SN	0.02995	0.02902	0.02764

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	0.01640	0.01562	0.01388
sky130_osu_sc_18T_hs__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.01474	0.01414	0.01397

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	0.01639	0.01562	0.01405
sky130_osu_sc_18T_hs__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.01473	0.01414	0.01407

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	0.01422	0.01292	0.01035
	SN	-0.00185	-0.02746	-0.16585
	SN	0.03154	0.03035	0.02651
sky130_osu_sc_18T_hs__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.01257	0.01152	0.01143
	SN	-0.00185	-0.02244	-0.11843
	SN	0.02989	0.02897	0.02754

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	-0.00498	-0.00516	-0.00517
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.01680	0.01615	0.01708
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.00786	0.00727	0.00833
sky130_osu_sc_18T_hs__dffs_l	CK	0.00000	0.00000	0.00000
	CK	-0.00498	-0.00516	-0.00517
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.01680	0.01615	0.01708
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.00786	0.00727	0.00833

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	0.00518	0.00517	0.00517
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.02924	0.02883	0.02987
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.01410	0.01381	0.01501
sky130_osu_sc_18T_hs__dffs_1	CK	0.00000	0.00000	0.00000
	CK	0.00518	0.00517	0.00517
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.02924	0.02883	0.02987
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.01410	0.01381	0.01501

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)	-0.00861	-0.00865	-0.00862
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.00617	0.00577	0.00686
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)	-0.00861	-0.00865	-0.00862
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.00617	0.00577	0.00686

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)	0.00864	0.00867	0.00863
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.01618	0.01583	0.01776
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)	0.00864	0.00867	0.00863
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.01618	0.01583	0.01776

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)	-0.00145	-0.00192	0.00096
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	-0.00181	-0.00230	0.00070
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.00489	0.00378	0.00947
sky130_osu_sc_18T_hs__dffs_l	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	-0.00145	-0.00192	0.00096
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	-0.00181	-0.00230	0.00070
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.00489	0.00378	0.00947

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)	0.04460	0.04388	0.04726
	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.02048	0.02054	0.02510
	(!D * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * SN * Q * !QN)	0.04335	0.04285	0.05103
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	0.02344	0.02344	0.02768
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.02650	0.02633	0.03465
sky130_osu_sc_18T_hs__dffs_l	(D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * SN * !Q * QN)	0.04460	0.04388	0.04726
	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.02048	0.02054	0.02510
	(!D * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * SN * Q * !QN)	0.04335	0.04285	0.05104
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	0.02344	0.02344	0.02768
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.02649	0.02633	0.03465

SKY130_OSU_SC_18T_HS__DFFx

sky130_osu_sc_18T_hs_TT_1P8_25C.ccs
Cell Library: Process , Voltage 1.80,
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	0.00557	0.01533	0.22196	0.21874
sky130_osu_sc_18T_hs__dff_l	0.00557	0.01530	0.14763	0.14310

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__dff_1	0.00000	0.86271	1.10200
sky130_osu_sc_18T_hs__dff_l	0.00000	0.76474	1.00402

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)	0.16339	0.36744	1.33075
	QN->Q (FR)	0.02719	0.16750	0.88455
sky130_osu_sc_18T_hs__dff_l	CK->Q (RR)	0.16902	0.38868	1.27803
	QN->Q (FR)	0.03120	0.18321	0.88078

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)	0.22620	0.42938	1.39912
	QN->Q (RF)	0.02187	0.13677	0.72176
sky130_osu_sc_18T_hs__dff_l	CK->Q (RF)	0.23438	0.45731	1.36719
	QN->Q (RF)	0.02426	0.14472	0.69566

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)	0.20037	0.30578	0.72513
sky130_osu_sc_18T_hs__dff_l	CK->QN (RR)	0.20452	0.31865	0.71416

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)	0.13193	0.22594	0.56926
sky130_osu_sc_18T_hs__dff_l	CK->QN (RF)	0.13219	0.22782	0.53016

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)	-0.03736	-0.04007	-0.05383
	setup	CK (R)	0.11006	0.10887	0.21079
sky130_osu_sc_18T_hs__dff_l	hold	CK (R)	-0.03556	-0.04007	-0.05383
	setup	CK (R)	0.10774	0.10780	0.21024

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)	-0.09097	-0.15434	-0.46073
	setup	CK (R)	0.11267	0.16311	0.47813
sky130_osu_sc_18T_hs__dff_l	hold	CK (R)	-0.09119	-0.15441	-0.46439
	setup	CK (R)	0.11267	0.16311	0.47813

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 ()	0.07153	0.13184	0.97290
	min_pulse_width	CK ()	0.11764	0.13184	0.97290
sky130_osu_sc_18T_hs__dff_l	min_pulse_width	CK ()	0.06798	0.13184	0.97290
	min_pulse_width	CK ()	0.11410	0.13184	0.97290

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 ()**	0.16288	0.17783	0.97290
	min_pulse_width	**CK ()**	0.08572	0.13184	0.97290
sky130_osu_sc_18T_hs__dff_l	**min_pulse_width**	**CK ()**	0.16288	0.17783	0.97290
	min_pulse_width	**CK ()**	0.08572	0.13184	0.97290

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	0.01502	0.01401	0.01322
sky130_osu_sc_18T_hs__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.01351	0.01241	0.01250

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	0.01673	0.01607	0.01475
sky130_osu_sc_18T_hs__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.01525	0.01465	0.01435

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	0.01672	0.01607	0.01483
sky130_osu_sc_18T_hs__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.01524	0.01465	0.01452

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	0.01496	0.01396	0.01309
sky130_osu_sc_18T_hs__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.01345	0.01236	0.01245

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	-0.00457	-0.00507	-0.00511
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.01564	0.01508	0.01624
sky130_osu_sc_18T_hs__dff_l	CK	0.00000	0.00000	0.00000
	CK	-0.00457	-0.00507	-0.00511
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.01565	0.01508	0.01625

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	0.00512	0.00515	0.00512
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.03009	0.02967	0.03083
sky130_osu_sc_18T_hs__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.00512	0.00515	0.00512
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.03009	0.02968	0.03083

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)	-0.00146	-0.00192	0.00096
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	-0.00179	-0.00227	0.00073
sky130_osu_sc_18T_hs__dff_l	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	-0.00146	-0.00192	0.00096
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	-0.00179	-0.00227	0.00073

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)	0.02041	0.02047	0.02503
	(D * !Q * QN)	0.00000	0.00000	0.00000
	(D * !Q * QN)	0.04355	0.04284	0.04636
	(!D * Q * !QN)	0.00000	0.00000	0.00000
	(!D * Q * !QN)	0.04399	0.04359	0.05195
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.02335	0.02335	0.02759
sky130_osu_sc_18T_hs__dff_l	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.02041	0.02047	0.02503
	(D * !Q * QN)	0.00000	0.00000	0.00000
	(D * !Q * QN)	0.04355	0.04285	0.04637
	(!D * Q * !QN)	0.00000	0.00000	0.00000
	(!D * Q * !QN)	0.04399	0.04360	0.05196
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.02335	0.02335	0.02759

SKY130_OSU_SC_18T_HS__INVx

sky130_osu_sc_18T_hs_TT_1P8_25C.ccs
Cell Library: Process , Voltage 1.80,
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	0.00541	0.20637
sky130_osu_sc_18T_hs__inv_10	0.05070	1.79069
sky130_osu_sc_18T_hs__inv_2	0.01041	0.40402
sky130_osu_sc_18T_hs__inv_3	0.01552	0.58284
sky130_osu_sc_18T_hs__inv_4	0.02055	0.77226
sky130_osu_sc_18T_hs__inv_6	0.03075	1.14323
sky130_osu_sc_18T_hs__inv_8	0.04077	1.49037
sky130_osu_sc_18T_hs__inv_l	0.00417	0.14156

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__inv_1	0.00000	0.13807	0.26890
sky130_osu_sc_18T_hs__inv_10	0.00000	1.38067	2.68899
sky130_osu_sc_18T_hs__inv_2	0.00000	0.27614	0.53780
sky130_osu_sc_18T_hs__inv_3	0.00000	0.41420	0.80670
sky130_osu_sc_18T_hs__inv_4	0.00000	0.55227	1.07560
sky130_osu_sc_18T_hs__inv_6	0.00000	0.82840	1.61339
sky130_osu_sc_18T_hs__inv_8	0.00000	1.10454	2.15119
sky130_osu_sc_18T_hs__inv_l	0.00000	0.08908	0.17073

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)**	0.02559	0.15174	0.78063
sky130_osu_sc_18T_hs__inv_10	**A->Y (FR)**	0.04227	0.12997	0.79996
sky130_osu_sc_18T_hs__inv_2	**A->Y (FR)**	0.02161	0.13312	0.77739
sky130_osu_sc_18T_hs__inv_3	**A->Y (FR)**	0.02441	0.12912	0.78661
sky130_osu_sc_18T_hs__inv_4	**A->Y (FR)**	0.02569	0.12479	0.78061
sky130_osu_sc_18T_hs__inv_6	**A->Y (FR)**	0.02979	0.12263	0.79012
sky130_osu_sc_18T_hs__inv_8	**A->Y (FR)**	0.03560	0.12518	0.79478
sky130_osu_sc_18T_hs__inv_l	**A->Y (FR)**	0.02883	0.16576	0.78730

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)**	0.01947	0.11784	0.60945
sky130_osu_sc_18T_hs__inv_10	**A->Y (RF)**	0.03427	0.09649	0.60622
sky130_osu_sc_18T_hs__inv_2	**A->Y (RF)**	0.01678	0.10073	0.60453
sky130_osu_sc_18T_hs__inv_3	**A->Y (RF)**	0.01874	0.09631	0.61031
sky130_osu_sc_18T_hs__inv_4	**A->Y (RF)**	0.01909	0.09121	0.60566
sky130_osu_sc_18T_hs__inv_6	**A->Y (RF)**	0.02453	0.09082	0.61206
sky130_osu_sc_18T_hs__inv_8	**A->Y (RF)**	0.02920	0.09287	0.61276
sky130_osu_sc_18T_hs__inv_l	**A->Y (RF)**	0.02144	0.12512	0.59531

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	0.00748	0.00781	0.00873
sky130_osu_sc_18T_hs__inv_10	A	0.00000	0.00000	0.00000
	A	0.06647	0.07052	0.08064
sky130_osu_sc_18T_hs__inv_2	A	0.00000	0.00000	0.00000
	A	0.01346	0.01435	0.01630
sky130_osu_sc_18T_hs__inv_3	A	0.00000	0.00000	0.00000
	A	0.02057	0.02174	0.02480
sky130_osu_sc_18T_hs__inv_4	A	0.00000	0.00000	0.00000
	A	0.02665	0.02834	0.03229
sky130_osu_sc_18T_hs__inv_6	A	0.00000	0.00000	0.00000
	A	0.03948	0.04172	0.04841
sky130_osu_sc_18T_hs__inv_8	A	0.00000	0.00000	0.00000
	A	0.05263	0.05633	0.06457
sky130_osu_sc_18T_hs__inv_l	A	0.00000	0.00000	0.00000
	A	0.00578	0.00590	0.00647

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	-0.00179	-0.00169	-0.00124
sky130_osu_sc_18T_hs__inv_10	**A**	0.00000	0.00000	0.00000
	A	-0.02239	-0.02488	-0.01859
sky130_osu_sc_18T_hs__inv_2	**A**	0.00000	0.00000	0.00000
	A	-0.00548	-0.00508	-0.00404
sky130_osu_sc_18T_hs__inv_3	**A**	0.00000	0.00000	0.00000
	A	-0.00725	-0.00681	-0.00504
sky130_osu_sc_18T_hs__inv_4	**A**	0.00000	0.00000	0.00000
	A	-0.01080	-0.01020	-0.00781
sky130_osu_sc_18T_hs__inv_6	**A**	0.00000	0.00000	0.00000
	A	-0.01644	-0.01545	-0.01164
sky130_osu_sc_18T_hs__inv_8	**A**	0.00000	0.00000	0.00000
	A	-0.02079	-0.02054	-0.01530
sky130_osu_sc_18T_hs__inv_l	**A**	0.00000	0.00000	0.00000
	A	-0.00129	-0.00120	-0.00098

SKY130_OSU_SC_18T_HS__MUX2

sky130_osu_sc_18T_hs_TT_1P8_25C.ccs
Cell Library: Process , Voltage 1.80,
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	0.06703	0.06693	0.01099	0.06220

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__mux2_1	0.00000	0.27731	0.27731

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)	-	0.01182	0.05266	0.18270
	A1->Y (RR)	-	0.01293	0.05349	0.18306
	S0->Y (RR)	(!A0 * A1)	0.03967	0.09622	0.20437
	S0->Y (FR)	(A0 * !A1)	0.03895	0.11619	0.34216

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)	-	0.01106	0.05610	0.20183
	A1->Y (FF)	-	0.01106	0.05577	0.20077
	S0->Y (FF)	(!A0 * A1)	0.05509	0.12598	0.32391
	S0->Y (RF)	(A0 * !A1)	0.02371	0.08312	0.23420

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	-	-0.00803	-0.00806	-0.00806
	A1	-	0.00000	0.00000	0.00000
	A1	-	-0.00552	-0.00552	-0.00553
	S0	(A0 * !A1)	0.00000	0.00000	0.00000
	S0	(A0 * !A1)	0.00858	0.00872	0.01376
	S0	(!A0 * A1)	0.00000	0.00000	0.00000
	S0	(!A0 * A1)	-0.00553	-0.00587	-0.00209

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	-	0.00803	0.00806	0.00806
	A1	-	0.00000	0.00000	0.00000
	A1	-	0.00552	0.00552	0.00553
	S0	(A0 * !A1)	0.00000	0.00000	0.00000
	S0	(A0 * !A1)	0.00155	0.00133	0.00546
	S0	(!A0 * A1)	0.00000	0.00000	0.00000
	S0	(!A0 * A1)	0.02043	0.02048	0.02507

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)	-0.00201	-0.00199	-0.00200

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)	0.00201	0.00199	0.00200

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)	-0.00237	-0.00236	-0.00237

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)	0.00237	0.00236	0.00237

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)	-0.00202	-0.00222	0.00177
	(!A0 * !A1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !Y)	-0.00199	-0.00230	0.00169

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)	0.01525	0.01534	0.01998
	(!A0 * !A1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !Y)	0.01375	0.01394	0.01898

SKY130_OSU_SC_18T_HS__NAND2x

sky130_osu_sc_18T_hs_TT_1P8_25C.ccs
Cell Library: Process , Voltage 1.80,
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	0.00543	0.00542	0.19365
sky130_osu_sc_18T_hs__nand2_l	0.00418	0.00417	0.13944

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__nand2_1	0.00000	0.13783	0.53780
sky130_osu_sc_18T_hs__nand2_l	0.00000	0.08898	0.34147

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)	0.02607	0.15061	0.75976
	B->Y (FR)	0.03073	0.15351	0.75509
sky130_osu_sc_18T_hs__nand2_l	A->Y (FR)	0.02928	0.16657	0.78556
	B->Y (FR)	0.03492	0.17107	0.78670

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)	0.02657	0.14389	0.73202
	B->Y (RF)	0.03026	0.14173	0.70220
sky130_osu_sc_18T_hs__nand2_l	A->Y (RF)	0.02932	0.15708	0.73530
	B->Y (RF)	0.03274	0.15404	0.70113

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	0.00798	0.00826	0.00915
	B	0.00000	0.00000	0.00000
	B	0.01007	0.01021	0.01103
sky130_osu_sc_18T_hs__nand2_1	A	0.00000	0.00000	0.00000
	A	0.00612	0.00621	0.00674
	B	0.00000	0.00000	0.00000
	B	0.00765	0.00768	0.00814

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	-0.00129	-0.00121	-0.00087
	B	0.00000	0.00000	0.00000
	B	-0.00123	-0.00131	-0.00101
sky130_osu_sc_18T_hs__nand2_1	A	0.00000	0.00000	0.00000
	A	-0.00098	-0.00100	-0.00075
	B	0.00000	0.00000	0.00000
	B	-0.00094	-0.00100	-0.00082

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)	-0.00577	-0.00579	-0.00576
sky130_osu_sc_18T_hs__nand2_l	(!B * Y)	0.00000	0.00000	0.00000
	(!B * Y)	-0.00421	-0.00423	-0.00421

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)	0.00577	0.00580	0.00576
sky130_osu_sc_18T_hs__nand2_l	(!B * Y)	0.00000	0.00000	0.00000
	(!B * Y)	0.00421	0.00423	0.00421

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)	-0.00535	-0.00537	-0.00536
sky130_osu_sc_18T_hs__nand2_l	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00391	-0.00392	-0.00391

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)	0.00538	0.00539	0.00537
sky130_osu_sc_18T_hs__nand2_l	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00393	0.00393	0.00392

SKY130_OSU_SC_18T_HS__NOR2x

sky130_osu_sc_18T_hs_TT_1P8_25C.ccs
Cell Library: Process , Voltage 1.80,
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	0.00541	0.00573	0.10935
sky130_osu_sc_18T_hs__nor2_l	0.00409	0.00444	0.07506

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__nor2_1	0.00000	0.09537	0.26890
sky130_osu_sc_18T_hs__nor2_l	0.00000	0.06565	0.17073

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)	0.05197	0.19248	0.77813
	B->Y (FR)	0.03837	0.17735	0.76916
sky130_osu_sc_18T_hs__nor2_l	A->Y (FR)	0.05784	0.21008	0.77649
	B->Y (FR)	0.04578	0.19749	0.77853

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)	0.02639	0.10620	0.42577
	B->Y (RF)	0.02072	0.09748	0.41400
sky130_osu_sc_18T_hs__nor2_l	A->Y (RF)	0.02785	0.11161	0.41634
	B->Y (RF)	0.02273	0.10389	0.40561

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	0.01101	0.01088	0.01122
	B	0.00000	0.00000	0.00000
	B	0.00809	0.00821	0.00941
sky130_osu_sc_18T_hs__nor2_l	A	0.00000	0.00000	0.00000
	A	0.00804	0.00794	0.00813
	B	0.00000	0.00000	0.00000
	B	0.00616	0.00618	0.00686

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	0.00099	0.00079	0.00113
	B	0.00000	0.00000	0.00000
	B	-0.00137	-0.00132	-0.00086
sky130_osu_sc_18T_hs__nor2_l	A	0.00000	0.00000	0.00000
	A	0.00065	0.00048	0.00072
	B	0.00000	0.00000	0.00000
	B	-0.00093	-0.00092	-0.00063

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)	-0.00461	-0.00510	-0.00514
sky130_osu_sc_18T_hs__nor2_l	(B * !Y)	0.00000	0.00000	0.00000
	(B * !Y)	-0.00332	-0.00363	-0.00365

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)	0.00514	0.00518	0.00514
sky130_osu_sc_18T_hs__nor2_l	(B * !Y)	0.00000	0.00000	0.00000
	(B * !Y)	0.00365	0.00368	0.00365

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)	-0.00242	-0.00244	-0.00242
sky130_osu_sc_18T_hs__nor2_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	-0.00180	-0.00182	-0.00180

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)	0.00246	0.00247	0.00245
sky130_osu_sc_18T_hs__nor2_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00183	0.00184	0.00182

SKY130_OSU_SC_18T_HS__OAI21

sky130_osu_sc_18T_hs_TT_1P8_25C.ccs
Cell Library: Process , Voltage 1.80,
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	0.00550	0.00556	0.00463	0.10776

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__oai21_l	0.00000	0.11412	0.43963

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)	0.05163	0.19083	0.78037
	A1->Y (FR)	0.06899	0.21006	0.79382
	B0->Y (FR)	0.03621	0.15917	0.68244

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)	0.03816	0.12941	0.50513
	A1->Y (RF)	0.04581	0.13699	0.50618
	B0->Y (RF)	0.02932	0.13006	0.55391

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	0.01111	0.01106	0.01200
	A1	0.00000	0.00000	0.00000
	A1	0.01403	0.01383	0.01404
	B0	0.00957	0.00960	0.01039

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	0.00021	0.00001	0.00027
	A1	0.00000	0.00000	0.00000
	A1	0.00260	0.00223	0.00236
	B0	0.00361	0.00352	0.00381

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)	-0.00243	-0.00244	-0.00243
	(A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * Y)	-0.00497	-0.00514	-0.00515
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00526	-0.00526	-0.00526

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)	0.00247	0.00248	0.00245
	(A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * Y)	0.00517	0.00519	0.00515
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00526	0.00529	0.00526

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)	-0.00453	-0.00502	-0.00506
	(A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * Y)	-0.00495	-0.00512	-0.00513
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	-0.00521	-0.00521	-0.00521

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)	0.00506	0.00510	0.00508
	(A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * Y)	0.00512	0.00516	0.00513
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	0.00521	0.00524	0.00522

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)	-0.00433	-0.00435	-0.00434

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)	0.00433	0.00436	0.00434

SKY130_OSU_SC_18T_HS__OAI22

sky130_osu_sc_18T_hs_TT_1P8_25C.ccs
Cell Library: Process , Voltage 1.80,
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	0.00534	0.00561	0.00573	0.00560	0.10169

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__oai22_l	0.00000	0.14249	0.53780

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)	0.07393	0.21095	0.76883
	A1->Y (FR)	0.06044	0.19485	0.75925
	B0->Y (FR)	0.04393	0.17927	0.74450
	B1->Y (FR)	0.05771	0.19497	0.75407

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)	0.06716	0.16108	0.52820
	A1->Y (RF)	0.05257	0.14467	0.50657
	B0->Y (RF)	0.04413	0.14451	0.55409
	B1->Y (RF)	0.05976	0.16377	0.58827

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	0.01827	0.01809	0.01830
	A1	0.01537	0.01526	0.01618
	B0	0.01162	0.01162	0.01260
	B1	0.01466	0.01447	0.01472

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__oai22_l	A0	0.00435	0.00400	0.00406
	A1	0.00219	0.00193	0.00203
	B0	0.00218	0.00203	0.00226
	B1	0.00439	0.00406	0.00426

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)	-0.00460	-0.00510	-0.00514
	(A1 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * B1 * !Y)	-0.00460	-0.00510	-0.00514
	(A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * !B1 * Y)	-0.00496	-0.00513	-0.00513
	(!A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * !B1 * Y)	-0.00522	-0.00524	-0.00522

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)	0.00515	0.00518	0.00514
	(A1 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * B1 * !Y)	0.00515	0.00518	0.00514
	(A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * !B1 * Y)	0.00513	0.00517	0.00513
	(!A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * !B1 * Y)	0.00522	0.00525	0.00522

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)	-0.00241	-0.00243	-0.00241
	(A0 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * B1 * !Y)	-0.00241	-0.00243	-0.00241
	(A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * !B1 * Y)	-0.00492	-0.00509	-0.00510
	(!A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * !B1 * Y)	-0.00520	-0.00523	-0.00521

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)	0.00244	0.00246	0.00244
	(A0 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * B1 * !Y)	0.00244	0.00246	0.00244
	(A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * !B1 * Y)	0.00511	0.00513	0.00510
	(!A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * !B1 * Y)	0.00520	0.00523	0.00522

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)	-0.00239	-0.00241	-0.00240
	(A0 * !A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B1 * !Y)	-0.00239	-0.00241	-0.00240
	(!A0 * !A1 * B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B1 * Y)	-0.00543	-0.00560	-0.00560
	(!A0 * !A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B1 * Y)	-0.00572	-0.00574	-0.00573

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)	0.00243	0.00244	0.00242
	(A0 * !A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B1 * !Y)	0.00243	0.00244	0.00242
	(!A0 * !A1 * B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B1 * Y)	0.00561	0.00564	0.00560
	(!A0 * !A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B1 * Y)	0.00572	0.00575	0.00573

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)	-0.00454	-0.00504	-0.00507
	(A0 * !A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B0 * !Y)	-0.00454	-0.00504	-0.00507
	(!A0 * !A1 * B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B0 * Y)	-0.00553	-0.00571	-0.00570
	(!A0 * !A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B0 * Y)	-0.00580	-0.00582	-0.00579

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)	0.00508	0.00512	0.00508
	(A0 * !A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B0 * !Y)	0.00508	0.00512	0.00508
	(!A0 * !A1 * B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B0 * Y)	0.00571	0.00575	0.00570
	(!A0 * !A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B0 * Y)	0.00580	0.00583	0.00579

SKY130_OSU_SC_18T_HS__OR2x

sky130_osu_sc_18T_hs_TT_1P8_25C.ccs
Cell Library: Process , Voltage 1.80,
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	0.00574	0.00555	0.21763
sky130_osu_sc_18T_hs__or2_2	0.00574	0.00556	0.41704
sky130_osu_sc_18T_hs__or2_4	0.00573	0.00556	0.79283
sky130_osu_sc_18T_hs__or2_8	0.00575	0.00558	1.47550
sky130_osu_sc_18T_hs__or2_l	0.00448	0.00426	0.14628

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__or2_1	0.00000	0.16802	0.28337
sky130_osu_sc_18T_hs__or2_2	0.00000	0.24067	0.55227
sky130_osu_sc_18T_hs__or2_4	0.00000	0.38597	1.09007
sky130_osu_sc_18T_hs__or2_8	0.00000	0.67658	2.16566
sky130_osu_sc_18T_hs__or2_l	0.00000	0.11391	0.18560

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)	0.05943	0.16716	0.59156
	B->Y (RR)	0.05173	0.15362	0.56328
sky130_osu_sc_18T_hs__or2_2	A->Y (RR)	0.06575	0.16600	0.61885
	B->Y (RR)	0.05767	0.15438	0.59302
sky130_osu_sc_18T_hs__or2_4	A->Y (RR)	0.08548	0.18610	0.68544
	B->Y (RR)	0.07717	0.17651	0.66392
sky130_osu_sc_18T_hs__or2_8	A->Y (RR)	0.12289	0.22593	0.78482
	B->Y (RR)	0.11433	0.21737	0.76814
sky130_osu_sc_18T_hs__or2_l	A->Y (RR)	0.06490	0.18268	0.59269
	B->Y (RR)	0.05771	0.17078	0.56669

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)	0.09312	0.20988	0.66991
	B->Y (FF)	0.07498	0.19240	0.64983
sky130_osu_sc_18T_hs__or2_2	A->Y (FF)	0.10986	0.22386	0.71200
	B->Y (FF)	0.09186	0.20597	0.69727
sky130_osu_sc_18T_hs__or2_4	A->Y (FF)	0.15312	0.26855	0.80162
	B->Y (FF)	0.13516	0.24934	0.79439
sky130_osu_sc_18T_hs__or2_8	A->Y (FF)	0.24391	0.36184	0.94228
	B->Y (FF)	0.22603	0.34193	0.93936
sky130_osu_sc_18T_hs__or2_l	A->Y (FF)	0.10212	0.22316	0.65295
	B->Y (FF)	0.08425	0.20755	0.64083

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	0.00812	0.00754	0.00916
	B	0.00000	0.00000	0.00000
	B	0.00590	0.00580	0.00856
sky130_osu_sc_18T_hs__or2_2	A	0.00000	0.00000	0.00000
	A	0.01422	0.01399	0.01553
	B	0.00000	0.00000	0.00000
	B	0.01188	0.01228	0.01481
sky130_osu_sc_18T_hs__or2_4	A	0.00000	0.00000	0.00000
	A	0.02739	0.02773	0.02949
	B	0.00000	0.00000	0.00000
	B	0.02505	0.02617	0.02889
sky130_osu_sc_18T_hs__or2_8	A	0.00000	0.00000	0.00000
	A	0.05627	0.05503	0.05771
	B	0.00000	0.00000	0.00000
	B	0.05392	0.05362	0.05773
sky130_osu_sc_18T_hs__or2_l	A	0.00000	0.00000	0.00000
	A	0.00599	0.00544	0.00647
	B	0.00000	0.00000	0.00000
	B	0.00455	0.00443	0.00611

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	0.01782	0.01753	0.01886
	B	0.00000	0.00000	0.00000
	B	0.01457	0.01502	0.01875
sky130_osu_sc_18T_hs__or2_2	A	0.00000	0.00000	0.00000
	A	0.02235	0.02222	0.02349
	B	0.00000	0.00000	0.00000
	B	0.01903	0.01967	0.02313
sky130_osu_sc_18T_hs__or2_4	A	0.00000	0.00000	0.00000
	A	0.03580	0.03348	0.03506
	B	0.00000	0.00000	0.00000
	B	0.03258	0.03058	0.03439
sky130_osu_sc_18T_hs__or2_8	A	0.00000	0.00000	0.00000
	A	0.07157	0.05813	0.05833
	B	0.00000	0.00000	0.00000
	B	0.06830	0.05494	0.05709
sky130_osu_sc_18T_hs__or2_l	A	0.00000	0.00000	0.00000
	A	0.01351	0.01323	0.01408
	B	0.00000	0.00000	0.00000
	B	0.01125	0.01146	0.01375

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)	-0.00465	-0.00513	-0.00516
sky130_osu_sc_18T_hs__or2_2	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00465	-0.00513	-0.00516
sky130_osu_sc_18T_hs__or2_4	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00465	-0.00513	-0.00516
sky130_osu_sc_18T_hs__or2_8	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00465	-0.00513	-0.00516
sky130_osu_sc_18T_hs__or2_l	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00334	-0.00365	-0.00367

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)	0.00516	0.00520	0.00517
sky130_osu_sc_18T_hs__or2_2	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00516	0.00520	0.00517
sky130_osu_sc_18T_hs__or2_4	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00516	0.00520	0.00517
sky130_osu_sc_18T_hs__or2_8	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00516	0.00520	0.00518
sky130_osu_sc_18T_hs__or2_l	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00367	0.00370	0.00367

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)	-0.00245	-0.00244	-0.00243
sky130_osu_sc_18T_hs__or2_2	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00245	-0.00244	-0.00243
sky130_osu_sc_18T_hs__or2_4	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00245	-0.00244	-0.00243
sky130_osu_sc_18T_hs__or2_8	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00245	-0.00244	-0.00244
sky130_osu_sc_18T_hs__or2_l	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00185	-0.00184	-0.00183

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)	0.00248	0.00248	0.00246
sky130_osu_sc_18T_hs__or2_2	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00247	0.00249	0.00246
sky130_osu_sc_18T_hs__or2_4	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00247	0.00249	0.00246
sky130_osu_sc_18T_hs__or2_8	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00247	0.00249	0.00246
sky130_osu_sc_18T_hs__or2_l	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00186	0.00186	0.00185

SKY130_OSU_SC_18T_HS__TBUFIx

sky130_osu_sc_18T_hs_TT_1P8_25C.ccs
Cell Library: Process , Voltage 1.80,
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	0.00573	0.00724	0.10977
sky130_osu_sc_18T_hs__tbufi_l	0.00445	0.00564	0.07535

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__tbufi_1	0.00000	0.14110	0.53780
sky130_osu_sc_18T_hs__tbufi_l	0.00000	0.09246	0.34147

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)	0.03716	0.17636	0.76881
	OE->Y (FR)	0.04480	0.09203	0.37291
	OE->Y (RR)	0.06945	0.18246	0.55269
sky130_osu_sc_18T_hs__tbufi_l	A->Y (FR)	0.04437	0.19697	0.77998
	OE->Y (FR)	0.04805	0.09774	0.37272
	OE->Y (RR)	0.07613	0.20336	0.56423

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)	0.02607	0.11947	0.51174
	OE->Y (FF)	0.04520	0.09271	0.37293
	OE->Y (RF)	0.02454	0.11280	0.47397
sky130_osu_sc_18T_hs__tbufi_l	A->Y (RF)	0.02909	0.12723	0.50035
	OE->Y (FF)	0.04861	0.09778	0.37272
	OE->Y (RF)	0.02796	0.12067	0.45959

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	0.00765	0.00777	0.00881
	OE	0.00000	0.00000	0.00000
	OE	0.00790	0.00767	0.01139
sky130_osu_sc_18T_hs__tbufi_l	A	0.00000	0.00000	0.00000
	A	0.00586	0.00588	0.00646
	OE	0.00000	0.00000	0.00000
	OE	0.00563	0.00540	0.00771

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	-0.00141	-0.00137	-0.00095
	OE	0.00000	0.00000	0.00000
	OE	0.00529	0.00498	0.00912
sky130_osu_sc_18T_hs__tbufi_l	A	0.00000	0.00000	0.00000
	A	-0.00095	-0.00095	-0.00070
	OE	0.00000	0.00000	0.00000
	OE	0.00370	0.00342	0.00590

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)	-0.00402	-0.00405	-0.00402
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	-0.00353	-0.00356	-0.00354
sky130_osu_sc_18T_hs__tbufi_l	(!OE * Y)	0.00000	0.00000	0.00000
	(!OE * Y)	-0.00308	-0.00310	-0.00308
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	-0.00276	-0.00278	-0.00276

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)	0.00402	0.00405	0.00402
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	0.00357	0.00359	0.00357
sky130_osu_sc_18T_hs__tbufi_l	(!OE * Y)	0.00000	0.00000	0.00000
	(!OE * Y)	0.00308	0.00310	0.00308
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	0.00278	0.00280	0.00278

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)	0.00319	0.00297	0.00717
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00285	0.00260	0.00683
sky130_osu_sc_18T_hs__tbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00218	0.00195	0.00448
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00194	0.00170	0.00424

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)	0.00873	0.00871	0.01353
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00887	0.00894	0.01379
sky130_osu_sc_18T_hs__tbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00689	0.00671	0.00967
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00702	0.00690	0.00983

SKY130_OSU_SC_18T_HS__TNBUFIx

sky130_osu_sc_18T_hs_TT_1P8_25C.ccs
Cell Library: Process , Voltage 1.80,
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	0.00573	0.00900	0.10980
sky130_osu_sc_18T_hs__tnbufi_l	0.00444	0.00675	0.07544

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__tnbufi_1	0.00000	0.22832	0.27614
sky130_osu_sc_18T_hs__tnbufi_l	0.00000	0.14689	0.17816

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)	0.03735	0.17647	0.76898
	OE->Y (RR)	0.02532	0.07727	0.37405
	OE->Y (FR)	0.04951	0.19143	0.77755
sky130_osu_sc_18T_hs__tnbufi_l	A->Y (FR)	0.04468	0.19708	0.78046
	OE->Y (RR)	0.02625	0.07754	0.37433
	OE->Y (FR)	0.05550	0.20940	0.77790

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)	0.02574	0.11934	0.51172
	OE->Y (RF)	0.02503	0.07722	0.37403
	OE->Y (FF)	0.04593	0.13969	0.45512
sky130_osu_sc_18T_hs__tnbufi_l	A->Y (RF)	0.02868	0.12711	0.50054
	OE->Y (RF)	0.02596	0.07752	0.37433
	OE->Y (FF)	0.05160	0.15155	0.44960

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	0.00784	0.00796	0.00899
	OE	0.00000	0.00000	0.00000
	OE	0.01943	0.02001	0.02563
sky130_osu_sc_18T_hs__tnbufi_l	A	0.00000	0.00000	0.00000
	A	0.00605	0.00607	0.00665
	OE	0.00000	0.00000	0.00000
	OE	0.01446	0.01469	0.01812

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	-0.00166	-0.00160	-0.00118
	OE	0.00000	0.00000	0.00000
	OE	0.01714	0.01776	0.02300
sky130_osu_sc_18T_hs__tnbufi_l	A	0.00000	0.00000	0.00000
	A	-0.00119	-0.00118	-0.00094
	OE	0.00000	0.00000	0.00000
	OE	0.01278	0.01312	0.01618

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)	-0.00346	-0.00348	-0.00347
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	-0.00303	-0.00305	-0.00303
sky130_osu_sc_18T_hs__tnbufi_l	(OE * Y)	0.00000	0.00000	0.00000
	(OE * Y)	-0.00255	-0.00257	-0.00255
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	-0.00227	-0.00229	-0.00227

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)	0.00346	0.00348	0.00347
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	0.00306	0.00308	0.00306
sky130_osu_sc_18T_hs__tnbufi_l	(OE * Y)	0.00000	0.00000	0.00000
	(OE * Y)	0.00255	0.00257	0.00255
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	0.00229	0.00230	0.00229

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)	-0.00631	-0.00705	-0.00238
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00620	-0.00684	-0.00229
sky130_osu_sc_18T_hs__tnbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	-0.00449	-0.00500	-0.00221
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00439	-0.00487	-0.00217

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)	0.01467	0.01536	0.02089
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.01446	0.01511	0.02068
sky130_osu_sc_18T_hs__tnbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.01099	0.01129	0.01464
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.01085	0.01113	0.01447

SKY130_OSU_SC_18T_HS__XNOR2

sky130_osu_sc_18T_hs_TT_1P8_25C.ccs
Cell Library: Process , Voltage 1.80,
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	0.01135	0.01039	0.10928

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__xnor2_l	0.00000	0.46432	0.81393

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_1	A->Y (RR)	B	0.08746	0.20441	0.58040
	A->Y (FR)	!B	0.04782	0.18556	0.77206
	B->Y (RR)	A	0.06856	0.18625	0.56188
	B->Y (FR)	!A	0.06747	0.20715	0.78809

Delay(ns) to Y falling (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_18T_hs__xnor2_1	A->Y (FF)	B	0.08145	0.18588	0.53038
	A->Y (RF)	!B	0.03768	0.12731	0.49926
	B->Y (FF)	A	0.07168	0.17668	0.52187
	B->Y (RF)	!A	0.04743	0.13847	0.51251

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	0.00759	0.00720	0.01049
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.01840	0.01838	0.02406
	B	A	0.00000	0.00000	0.00000
	B	A	0.00219	0.00207	0.00598
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.02064	0.02057	0.02568

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	0.02346	0.02292	0.02721
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00520	0.00470	0.00864
	B	A	0.00000	0.00000	0.00000
	B	A	0.02153	0.02187	0.02674
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00658	0.00588	0.00980

SKY130_OSU_SC_18T_HS__XOR2

sky130_osu_sc_18T_hs_TT_1P8_25C.ccs
Cell Library: Process , Voltage 1.80,
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	0.01130	0.01043	0.10935

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__xor2_1	0.00000	0.46432	0.72699

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_1	A->Y (RR)	!B	0.08184	0.19389	0.56782
	A->Y (FR)	B	0.06128	0.20141	0.78753
	B->Y (RR)	!A	0.07115	0.18818	0.56576
	B->Y (FR)	A	0.06549	0.20575	0.79074

Delay(ns) to Y falling (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_18T_hs__xor2_1	A->Y (FF)	!B	0.06993	0.17402	0.51069
	A->Y (RF)	B	0.03623	0.13324	0.52746
	B->Y (FF)	!A	0.06583	0.17058	0.50906
	B->Y (RF)	A	0.04424	0.13428	0.49759

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	0.02217	0.02235	0.02773
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00332	0.00204	0.00547
	B	A	0.00000	0.00000	0.00000
	B	A	0.02262	0.02286	0.02822
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00178	0.00158	0.00545

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	0.00409	0.00335	0.00743
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.02428	0.02474	0.02946
	B	A	0.00000	0.00000	0.00000
	B	A	0.00415	0.00335	0.00737
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.02190	0.02254	0.02748

SKY130_OSU_SC_18T_HS_x

sky130_osu_sc_18T_hs_TT_1P8_25C.ccs
Cell Library: Process , Voltage 1.80,
Temp 25.00

Footprint

Cell Name	Area
sky130_osu_sc_18T_hs__tiehi	6.59340
sky130_osu_sc_18T_hs__tielo	6.59340

Pin Capacitance Information

Cell Name	Max Cap(pf)
	Y
sky130_osu_sc_18T_hs__tiehi	0.51314
sky130_osu_sc_18T_hs__tielo	0.82285

Leakage Information

Cell Name	Leakage(nW)		
	Min.	**Avg**	**Max.**
sky130_osu_sc_18T_hs__tiehi	0.00000	0.00000	0.00000
sky130_osu_sc_18T_hs__tielo	0.00000	0.00000	0.00000