sky130_osu_sc_18T_hs_ff_1P95_-40C.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_ff_1P95_-40C.ccs
Cell Library: Process , Voltage 1.95,
Temp -40.00

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	0.01949	0.01939	0.01474	4.13816	1.98004	3.98120
sky130_osu_sc_18T_hs__addf_l	0.01948	0.01937	0.01474	2.90414	1.97935	2.90162

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__addf_1	0.00000	0.46499	0.65294
sky130_osu_sc_18T_hs__addf_l	0.00000	0.30634	0.49429

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)	0.08269	1.22627	23.25680
	B->CO (RR)	0.07140	1.16102	21.98490
	CI->CO (RR)	0.07874	1.26319	23.85570
	CON->CO (FR)	0.01770	0.58420	10.39230
sky130_osu_sc_18T_hs__addf_l	A->CO (RR)	0.08344	1.15423	19.14990
	B->CO (RR)	0.07226	1.09779	18.28090
	CI->CO (RR)	0.07950	1.19304	19.79880
	CON->CO (FR)	0.01976	0.63685	10.50560

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)	0.10502	1.51361	28.26270
	B->CO (FF)	0.09045	1.43063	26.81850
	CI->CO (FF)	0.08936	1.50644	28.34470
	CON->CO (RF)	0.01548	0.47694	8.79280
sky130_osu_sc_18T_hs__addf_l	A->CO (FF)	0.10210	1.35237	22.13750
	B->CO (FF)	0.08780	1.28372	21.15440
	CI->CO (FF)	0.08642	1.34696	22.26970
	CON->CO (RF)	0.01584	0.47138	7.92284

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)	0.08652	0.72551	10.02940
	B->CON (FR)	0.07163	0.68084	9.59115
	CI->CON (FR)	0.07083	0.72296	10.21970
sky130_osu_sc_18T_hs__addf_l	A->CON (FR)	0.08246	0.72149	10.02270
	B->CON (FR)	0.06795	0.67731	9.58352
	CI->CON (FR)	0.06677	0.71902	10.21320

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)	0.05366	0.44648	6.10755
	B->CON (RF)	0.04966	0.43677	5.96194
	CI->CON (RF)	0.04972	0.48753	6.79152
sky130_osu_sc_18T_hs__addf_l	A->CON (RF)	0.05177	0.44431	6.10391
	B->CON (RF)	0.04801	0.43481	5.95839
	CI->CON (RF)	0.04782	0.48536	6.78758

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)	0.15575	1.33701	22.55180
	B->S (-R)	0.15855	1.30307	21.38760
	CI->S (-R)	0.13884	1.32827	22.64340
	CON->S (RR)	0.04943	0.40274	6.34237
sky130_osu_sc_18T_hs__addf_l	A->S (-R)	0.15023	1.26650	19.27300
	B->S (-R)	0.15345	1.24397	18.47550
	CI->S (-R)	0.13328	1.25940	19.40240
	CON->S (RR)	0.04945	0.44646	6.45600

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)	0.13020	1.11605	18.62860
	B->S (-F)	0.12877	1.07034	17.76900
	CI->S (-F)	0.12576	1.15108	19.23320
	CON->S (FF)	0.05544	0.52452	7.79512
sky130_osu_sc_18T_hs__addf_l	A->S (-F)	0.12328	1.01508	15.11260
	B->S (-F)	0.12234	0.97746	14.57130
	CI->S (-F)	0.11878	1.05169	15.76300
	CON->S (FF)	0.05283	0.52304	7.23781

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	0.00467	0.00936	0.12146
	B	0.00536	0.00953	0.10507
	CI	0.00740	0.01241	0.12450
sky130_osu_sc_18T_hs__addf_l	A	0.00358	0.00726	0.08430
	B	0.00429	0.00721	0.07361
	CI	0.00631	0.01007	0.08833

Internal switching power(pJ) to CO falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__addf_1	A	0.01917	0.02517	0.18349
	B	0.02001	0.02450	0.16453
	CI	0.01610	0.02282	0.18635
sky130_osu_sc_18T_hs__addf_l	A	0.01809	0.02292	0.13655
	B	0.01893	0.02268	0.12352
	CI	0.01502	0.02072	0.14129

Internal switching power(pJ) to CON rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__addf_1	A	0.01914	0.02278	0.10496
	B	0.01942	0.02310	0.10090
	CI	0.01609	0.02071	0.11161
sky130_osu_sc_18T_hs__addf_l	A	0.01807	0.02183	0.10414
	B	0.01837	0.02211	0.10012
	CI	0.01502	0.01973	0.11085

Internal switching power(pJ) to CON falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__addf_1	A	0.00464	0.00777	0.06751
	B	0.00533	0.00798	0.06215
	CI	0.00736	0.01082	0.07536
sky130_osu_sc_18T_hs__addf_l	A	0.00356	0.00644	0.06302
	B	0.00427	0.00665	0.05778
	CI	0.00628	0.00950	0.07032

Internal switching power(pJ) to S rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__addf_1	A	0.01915	0.02498	0.17739
	B	-0.00734	-0.00290	0.11037
	CI	0.01609	0.02266	0.18043
sky130_osu_sc_18T_hs__addf_l	A	-0.00405	-0.00355	0.12701
	B	-0.00915	-0.00423	0.12679
	CI	0.00454	0.00746	0.13259

Internal switching power(pJ) to S falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__addf_1	A	0.04270	0.04647	0.15127
	B	0.03749	0.04450	0.20978
	CI	0.03163	0.03574	0.13585
sky130_osu_sc_18T_hs__addf_l	A	0.04123	0.04498	0.15457
	B	0.03608	0.04347	0.21262
	CI	0.03015	0.03423	0.13964

SKY130_OSU_SC_18T_HS__ADDHx

sky130_osu_sc_18T_hs_ff_1P95_-40C.ccs
Cell Library: Process , Voltage 1.95,
Temp -40.00

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	0.00945	0.01048	4.03449	2.14353	4.16292
sky130_osu_sc_18T_hs__addh_l	0.00945	0.01048	2.35011	2.14435	2.39205

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__addh_1	0.00000	0.55819	0.65220
sky130_osu_sc_18T_hs__addh_l	0.00000	0.52731	0.62840

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)	0.05486	0.39373	5.97636
	B->CO (RR)	0.05730	0.39506	6.16938
sky130_osu_sc_18T_hs__addh_l	A->CO (RR)	0.05592	0.46189	6.06135
	B->CO (RR)	0.05837	0.46280	6.14907

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)	0.04815	0.49410	7.66593
	B->CO (FF)	0.05250	0.50534	7.68564
sky130_osu_sc_18T_hs__addh_l	A->CO (FF)	0.04653	0.49123	6.59360
	B->CO (FF)	0.05062	0.50186	6.61980

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	0.07657	0.31020	2.91030
	A->CON (FR)	!B	0.04526	0.67174	9.97621
	B->CON (RR)	A	0.07892	0.31142	3.10971
	B->CON (FR)	!A	0.05784	0.68550	10.00370
sky130_osu_sc_18T_hs__addh_l	A->CON (RR)	B	0.06921	0.29734	2.98172
	A->CON (FR)	!B	0.04047	0.66662	9.97328
	B->CON (RR)	A	0.07157	0.29831	3.08561
	B->CON (FR)	!A	0.05305	0.68023	10.00070

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	0.07426	0.49447	5.99637
	A->CON (RF)	!B	0.03145	0.46304	6.86939
	B->CON (FF)	A	0.07362	0.52619	6.43374
	B->CON (RF)	!A	0.03628	0.43620	6.31934
sky130_osu_sc_18T_hs__addh_l	A->CON (FF)	B	0.06779	0.47609	5.87624
	A->CON (RF)	!B	0.02924	0.45983	6.86845
	B->CON (FF)	A	0.06726	0.50728	6.30259
	B->CON (RF)	!A	0.03408	0.43330	6.31909

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	0.05846	1.20746	23.25710
	A->S (FR)	B	0.10150	1.21757	21.98970
	B->S (RR)	!A	0.06332	1.14177	21.75000
	B->S (FR)	A	0.10143	1.29135	23.41890
	CON->S (FR)	-	0.02040	0.61075	10.86710
sky130_osu_sc_18T_hs__addh_l	A->S (RR)	!B	0.05885	1.09764	17.36560
	A->S (FR)	B	0.09778	1.09788	16.10520
	B->S (RR)	!A	0.06385	1.04585	16.38590
	B->S (FR)	A	0.09769	1.15670	17.00890
	CON->S (FR)	-	0.02299	0.68403	10.76320

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	0.06325	1.36492	26.06580
	A->S (RF)	B	0.09418	0.86283	15.17210
	B->S (FF)	!A	0.07583	1.38375	26.19480
	B->S (RF)	A	0.09653	0.86252	15.38270
	CON->S (RF)	-	0.01443	0.46061	8.51071
sky130_osu_sc_18T_hs__addh_l	A->S (FF)	!B	0.05892	1.14678	18.07870
	A->S (RF)	B	0.08708	0.72089	9.99979
	B->S (FF)	!A	0.07149	1.16263	18.12760
	B->S (RF)	A	0.08945	0.72124	10.08520
	CON->S (RF)	-	0.01505	0.44878	7.16718

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	0.00871	0.01094	0.06749
	B	0.00000	0.00000	0.00000
	B	0.00777	0.01001	0.08588
sky130_osu_sc_18T_hs__addh_l	A	0.00000	0.00000	0.00000
	A	0.00716	0.00973	0.07845
	B	0.00000	0.00000	0.00000
	B	0.00623	0.00864	0.08760

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	0.01346	0.01765	0.11527
	B	0.00000	0.00000	0.00000
	B	0.01406	0.01958	0.12435
sky130_osu_sc_18T_hs__addh_l	A	0.00000	0.00000	0.00000
	A	0.01193	0.01570	0.10288
	B	0.00000	0.00000	0.00000
	B	0.01251	0.01739	0.10677

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	0.00869	0.01096	0.06841
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.01200	0.01466	0.05169
	B	A	0.00000	0.00000	0.00000
	B	A	0.00777	0.01007	0.08633
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01351	0.01457	0.03879
sky130_osu_sc_18T_hs__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.00714	0.00973	0.07747
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.01088	0.01337	0.04727
	B	A	0.00000	0.00000	0.00000
	B	A	0.00622	0.00864	0.08754
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01240	0.01332	0.03471

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	0.01345	0.01749	0.10687
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00164	0.00369	0.03252
	B	A	0.00000	0.00000	0.00000
	B	A	0.01405	0.01921	0.11319
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00303	0.00486	0.03442
sky130_osu_sc_18T_hs__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.01193	0.01592	0.10209
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00037	0.00181	0.02225
	B	A	0.00000	0.00000	0.00000
	B	A	0.01251	0.01738	0.10613
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00176	0.00292	0.02392

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	0.01347	0.01776	0.11783
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00166	0.00410	0.04263
	B	A	0.00000	0.00000	0.00000
	B	A	0.01406	0.01965	0.12662
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00308	0.00523	0.03757
sky130_osu_sc_18T_hs__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.01194	0.01589	0.10250
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00037	0.00208	0.02432
	B	A	0.00000	0.00000	0.00000
	B	A	0.01252	0.01742	0.10722
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00178	0.00319	0.02343

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	0.00871	0.01101	0.06810
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.01200	0.01448	0.05039
	B	A	0.00000	0.00000	0.00000
	B	A	0.00778	0.01011	0.08582
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01352	0.01476	0.04242
sky130_osu_sc_18T_hs__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.00716	0.00975	0.07860
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.01089	0.01332	0.04645
	B	A	0.00000	0.00000	0.00000
	B	A	0.00622	0.00864	0.08828
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01240	0.01341	0.03497

SKY130_OSU_SC_18T_HS__AND2x

sky130_osu_sc_18T_hs_ff_1P95_-40C.ccs
Cell Library: Process , Voltage 1.95,
Temp -40.00

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	0.00514	0.00526	4.09880
sky130_osu_sc_18T_hs__and2_2	0.00514	0.00527	7.66456
sky130_osu_sc_18T_hs__and2_4	0.00515	0.00527	14.49879
sky130_osu_sc_18T_hs__and2_6	0.00519	0.00528	21.29546
sky130_osu_sc_18T_hs__and2_8	0.00518	0.00531	27.14775
sky130_osu_sc_18T_hs__and2_l	0.00409	0.00421	2.92056

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__and2_1	0.00000	0.27170	0.43461
sky130_osu_sc_18T_hs__and2_2	0.00000	0.43458	0.43541
sky130_osu_sc_18T_hs__and2_4	0.00000	0.76033	0.86842
sky130_osu_sc_18T_hs__and2_6	0.00000	1.08609	1.30223
sky130_osu_sc_18T_hs__and2_8	0.00000	1.41185	1.73604
sky130_osu_sc_18T_hs__and2_l	0.00000	0.07304	0.11664

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)	0.04204	0.35652	6.10440
	B->Y (RR)	0.04500	0.35017	5.75733
sky130_osu_sc_18T_hs__and2_2	A->Y (RR)	0.04839	0.31076	5.96776
	B->Y (RR)	0.05140	0.30339	5.60582
sky130_osu_sc_18T_hs__and2_4	A->Y (RR)	0.06664	0.31405	6.09554
	B->Y (RR)	0.06967	0.30606	5.74406
sky130_osu_sc_18T_hs__and2_6	A->Y (RR)	0.08553	0.33668	6.23480
	B->Y (RR)	0.08849	0.32749	5.89291
sky130_osu_sc_18T_hs__and2_8	A->Y (RR)	0.10464	0.36531	6.33251
	B->Y (RR)	0.10766	0.35429	5.98262
sky130_osu_sc_18T_hs__and2_1	A->Y (RR)	0.04502	0.40957	6.14801
	B->Y (RR)	0.04782	0.40089	5.84446

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)**	0.03863	0.44457	7.08029
	B->Y (FF)	0.04086	0.45221	7.08637
sky130_osu_sc_18T_hs__and2_2	**A->Y (FF)**	0.04250	0.39977	6.83117
	B->Y (FF)	0.04522	0.40842	6.86122
sky130_osu_sc_18T_hs__and2_4	**A->Y (FF)**	0.05685	0.40232	6.85997
	B->Y (FF)	0.05951	0.40942	6.90791
sky130_osu_sc_18T_hs__and2_6	**A->Y (FF)**	0.07371	0.42454	6.92337
	B->Y (FF)	0.07619	0.43061	6.98483
sky130_osu_sc_18T_hs__and2_8	**A->Y (FF)**	0.08912	0.44463	6.80818
	B->Y (FF)	0.09172	0.45016	6.86617
sky130_osu_sc_18T_hs__and2_l	**A->Y (FF)**	0.04077	0.47097	6.70926
	B->Y (FF)	0.04365	0.48165	6.78710

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	0.00595	0.01707	0.26416
	B	0.00000	0.00000	0.00000
	B	0.00597	0.01221	0.17059
sky130_osu_sc_18T_hs__and2_2	A	0.00000	0.00000	0.00000
	A	0.01253	0.02234	0.27469
	B	0.00000	0.00000	0.00000
	B	0.01261	0.01838	0.17563
sky130_osu_sc_18T_hs__and2_4	A	0.00000	0.00000	0.00000
	A	0.02749	0.03564	0.28609
	B	0.00000	0.00000	0.00000
	B	0.02759	0.03273	0.17975
sky130_osu_sc_18T_hs__and2_6	A	0.00000	0.00000	0.00000
	A	0.04659	0.05257	0.29796
	B	0.00000	0.00000	0.00000
	B	0.04664	0.04906	0.18486
sky130_osu_sc_18T_hs__and2_8	A	0.00000	0.00000	0.00000
	A	0.06749	0.06875	0.31064
	B	0.00000	0.00000	0.00000
	B	0.06759	0.06565	0.20657
sky130_osu_sc_18T_hs__and2_l	A	0.00000	0.00000	0.00000
	A	0.00440	0.01371	0.20639
	B	0.00000	0.00000	0.00000
	B	0.00444	0.01062	0.14971

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	0.01613	0.02943	0.23451
	B	0.00000	0.00000	0.00000
	B	0.01815	0.03062	0.21919
sky130_osu_sc_18T_hs__and2_2	A	0.00000	0.00000	0.00000
	A	0.02140	0.03434	0.24056
	B	0.00000	0.00000	0.00000
	B	0.02341	0.03543	0.22487
sky130_osu_sc_18T_hs__and2_4	A	0.00000	0.00000	0.00000
	A	0.03763	0.04686	0.25150
	B	0.00000	0.00000	0.00000
	B	0.03936	0.04777	0.23556
sky130_osu_sc_18T_hs__and2_6	A	0.00000	0.00000	0.00000
	A	0.05389	0.05981	0.26461
	B	0.00000	0.00000	0.00000
	B	0.05557	0.06061	0.24684
sky130_osu_sc_18T_hs__and2_8	A	0.00000	0.00000	0.00000
	A	0.07656	0.07383	0.27627
	B	0.00000	0.00000	0.00000
	B	0.07807	0.07479	0.25760
sky130_osu_sc_18T_hs__and2_l	A	0.00000	0.00000	0.00000
	A	0.01284	0.02320	0.17344
	B	0.00000	0.00000	0.00000
	B	0.01439	0.02433	0.16717

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)	-0.00619	-0.00622	-0.00623
sky130_osu_sc_18T_hs__and2_2	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00619	-0.00621	-0.00623
sky130_osu_sc_18T_hs__and2_4	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00618	-0.00621	-0.00623
sky130_osu_sc_18T_hs__and2_6	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00621	-0.00625	-0.00625
sky130_osu_sc_18T_hs__and2_8	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00617	-0.00621	-0.00622
sky130_osu_sc_18T_hs__and2_l	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00472	-0.00473	-0.00475

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)	0.00621	0.00632	0.00625
sky130_osu_sc_18T_hs__and2_2	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00622	0.00632	0.00625
sky130_osu_sc_18T_hs__and2_4	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00622	0.00632	0.00625
sky130_osu_sc_18T_hs__and2_6	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00626	0.00636	0.00629
sky130_osu_sc_18T_hs__and2_8	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00623	0.00633	0.00626
sky130_osu_sc_18T_hs__and2_l	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00473	0.00475	0.00476

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)	-0.00584	-0.00586	-0.00585
sky130_osu_sc_18T_hs__and2_2	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00584	-0.00589	-0.00585
sky130_osu_sc_18T_hs__and2_4	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00583	-0.00587	-0.00584
sky130_osu_sc_18T_hs__and2_6	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00583	-0.00588	-0.00584
sky130_osu_sc_18T_hs__and2_8	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00582	-0.00588	-0.00584
sky130_osu_sc_18T_hs__and2_l	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00446	-0.00449	-0.00446

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)	0.00594	0.00593	0.00587
sky130_osu_sc_18T_hs__and2_2	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00594	0.00593	0.00587
sky130_osu_sc_18T_hs__and2_4	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00595	0.00593	0.00588
sky130_osu_sc_18T_hs__and2_6	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00595	0.00593	0.00588
sky130_osu_sc_18T_hs__and2_8	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00595	0.00593	0.00588
sky130_osu_sc_18T_hs__and2_l	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00454	0.00453	0.00448

SKY130_OSU_SC_18T_HS__AOI21

sky130_osu_sc_18T_hs_ff_1P95_-40C.ccs
Cell Library: Process , Voltage 1.95,
Temp -40.00

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	0.00489	0.00506	0.00492	1.93202

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__aoi21_l	0.00000	0.09626	0.21690

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)	0.04646	0.68122	9.86628
	A1->Y (FR)	0.03987	0.64472	9.41486
	B0->Y (FR)	0.03307	0.68198	10.08110

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)	0.02879	0.39409	5.60704
	A1->Y (RF)	0.02566	0.40727	5.85565
	B0->Y (RF)	0.01777	0.39841	5.89989

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	0.01451	0.01558	0.04576
	A1	0.00000	0.00000	0.00000
	A1	0.01207	0.01276	0.04342
	B0	0.00842	0.01398	0.08100

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	0.00298	0.00343	0.02117
	A1	0.00000	0.00000	0.00000
	A1	0.00306	0.00432	0.02833
	B0	-0.00158	0.00010	0.02436

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)	-0.00478	-0.00548	-0.00545
	(!A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !Y)	-0.00550	-0.00550	-0.00550
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00550	-0.00554	-0.00550

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)	0.00541	0.00548	0.00545
	(!A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !Y)	0.00550	0.00554	0.00552
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00560	0.00556	0.00552

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)	-0.00473	-0.00542	-0.00538
	(!A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !Y)	-0.00542	-0.00547	-0.00543
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	-0.00589	-0.00594	-0.00594

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)	0.00535	0.00542	0.00538
	(!A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !Y)	0.00543	0.00547	0.00545
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	0.00591	0.00594	0.00595

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)	-0.00250	-0.00256	-0.00251

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)	0.00268	0.00269	0.00256

SKY130_OSU_SC_18T_HS__AOI22

sky130_osu_sc_18T_hs_ff_1P95_-40C.ccs
Cell Library: Process , Voltage 1.95,
Temp -40.00

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	0.00490	0.00507	0.00523	0.00502	1.81139

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__aoi22_l	0.00000	0.10430	0.43381

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)	0.05866	0.69298	9.70520
	A1->Y (FR)	0.05229	0.67148	9.47776
	B0->Y (FR)	0.03459	0.66782	9.68665
	B1->Y (FR)	0.04094	0.69535	10.01630

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)	0.03746	0.39490	5.34624
	A1->Y (RF)	0.03433	0.40797	5.59007
	B0->Y (RF)	0.01889	0.38570	5.57831
	B1->Y (RF)	0.02205	0.37289	5.33622

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	0.01781	0.01871	0.05193
	A1	0.01541	0.01637	0.04875
	B0	0.00915	0.01412	0.08289
	B1	0.01154	0.01641	0.08318

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__aoi22_l	A0	0.00628	0.00669	0.02587
	A1	0.00637	0.00763	0.03378
	B0	-0.00109	0.00060	0.02641
	B1	-0.00103	-0.00007	0.01860

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)	-0.00483	-0.00543	-0.00545
	(!A1 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * B1 * !Y)	-0.00550	-0.00553	-0.00550
	(!A1 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !B1 * Y)	-0.00549	-0.00551	-0.00550
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00549	-0.00554	-0.00550

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)	0.00541	0.00549	0.00545
	(!A1 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * B1 * !Y)	0.00550	0.00554	0.00553
	(!A1 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !B1 * Y)	0.00560	0.00554	0.00552
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00560	0.00554	0.00552

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)	-0.00477	-0.00533	-0.00538
	(!A0 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * B1 * !Y)	-0.00542	-0.00547	-0.00543
	(!A0 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !B1 * Y)	-0.00589	-0.00594	-0.00593
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	-0.00589	-0.00593	-0.00593

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)	0.00535	0.00539	0.00538
	(!A0 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * B1 * !Y)	0.00543	0.00547	0.00546
	(!A0 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !B1 * Y)	0.00591	0.00601	0.00594
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	0.00591	0.00601	0.00594

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)	-0.00251	-0.00258	-0.00252
	(A0 * A1 * !B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B1 * !Y)	-0.00250	-0.00252	-0.00252
	(!A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B1 * Y)	-0.00605	-0.00610	-0.00610
	(!A0 * A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B1 * Y)	-0.00605	-0.00610	-0.00610

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)	0.00276	0.00277	0.00258
	(A0 * A1 * !B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B1 * !Y)	0.00251	0.00252	0.00252
	(!A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B1 * Y)	0.00608	0.00611	0.00611
	(!A0 * A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B1 * Y)	0.00608	0.00612	0.00611

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)	-0.00253	-0.00259	-0.00254
	(A0 * A1 * !B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B0 * !Y)	-0.00252	-0.00254	-0.00253
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00558	-0.00563	-0.00559
	(!A0 * A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B0 * Y)	-0.00558	-0.00562	-0.00559

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)	0.00278	0.00279	0.00260
	(A0 * A1 * !B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B0 * !Y)	0.00253	0.00254	0.00253
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00568	0.00566	0.00561
	(!A0 * A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B0 * Y)	0.00568	0.00566	0.00561

SKY130_OSU_SC_18T_HS__BUFx

sky130_osu_sc_18T_hs_ff_1P95_-40C.ccs
Cell Library: Process , Voltage 1.95,
Temp -40.00

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	0.00525	4.08853
sky130_osu_sc_18T_hs__buf_2	0.00525	7.78990
sky130_osu_sc_18T_hs__buf_4	0.00525	14.79101
sky130_osu_sc_18T_hs__buf_6	0.00095	1.80000
sky130_osu_sc_18T_hs__buf_8	0.00528	27.97019
sky130_osu_sc_18T_hs__buf_l	0.00423	2.92379

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__buf_1	0.00000	0.21771	0.21771
sky130_osu_sc_18T_hs__buf_2	0.00000	0.32656	0.43461
sky130_osu_sc_18T_hs__buf_4	0.00000	0.54426	0.86842
sky130_osu_sc_18T_hs__buf_6	0.00000	0.00000	0.00000
sky130_osu_sc_18T_hs__buf_8	0.00000	0.97968	1.73604
sky130_osu_sc_18T_hs__buf_l	0.00000	0.05906	0.05906

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)	0.03538	0.33154	5.69601
sky130_osu_sc_18T_hs__buf_2	A->Y (RR)	0.03961	0.28286	5.59840
sky130_osu_sc_18T_hs__buf_4	A->Y (RR)	0.05357	0.28047	5.70288
sky130_osu_sc_18T_hs__buf_8	A->Y (RR)	0.08193	0.32141	5.91347
sky130_osu_sc_18T_hs__buf_l	A->Y (RR)	0.03838	0.38126	5.75747

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)	0.03666	0.44126	7.11799
sky130_osu_sc_18T_hs__buf_2	A->Y (FF)	0.04113	0.40165	7.02274
sky130_osu_sc_18T_hs__buf_4	A->Y (FF)	0.05544	0.40324	7.04798
sky130_osu_sc_18T_hs__buf_8	A->Y (FF)	0.08752	0.44620	7.04559
sky130_osu_sc_18T_hs__buf_l	A->Y (FF)	0.03924	0.47081	6.79882

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	0.00551	0.01466	0.19200
sky130_osu_sc_18T_hs__buf_2	A	0.00000	0.00000	0.00000
	A	0.01190	0.02068	0.20042
sky130_osu_sc_18T_hs__buf_4	A	0.00000	0.00000	0.00000
	A	0.02612	0.03454	0.21320
sky130_osu_sc_18T_hs__buf_8	A	0.00000	0.00000	0.00000
	A	0.06113	0.06776	0.24699
sky130_osu_sc_18T_hs__buf_l	A	0.00000	0.00000	0.00000
	A	0.00418	0.01243	0.16700

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	0.01530	0.02862	0.23253
sky130_osu_sc_18T_hs__buf_2	A	0.00000	0.00000	0.00000
	A	0.02049	0.03337	0.23766
sky130_osu_sc_18T_hs__buf_4	A	0.00000	0.00000	0.00000
	A	0.03633	0.04589	0.24873
sky130_osu_sc_18T_hs__buf_8	A	0.00000	0.00000	0.00000
	A	0.07536	0.07354	0.26945
sky130_osu_sc_18T_hs__buf_l	A	0.00000	0.00000	0.00000
	A	0.01227	0.02282	0.17413

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
	-0.00089	-0.00089	-0.00088

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
	0.00089	0.00089	0.00088

SKY130_OSU_SC_18T_HS__DFFRx

sky130_osu_sc_18T_hs_ff_1P95_-40C.ccs
Cell Library: Process , Voltage 1.95,
Temp -40.00

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	0.00505	0.00497	0.01429	3.94127	3.87104
sky130_osu_sc_18T_hs__dffr_l	0.00505	0.00497	0.01428	2.93549	2.90819

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__dffr_1	0.00000	0.60703	0.99751
sky130_osu_sc_18T_hs__dffr_l	0.00000	0.44838	0.83886

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)	0.14929	0.90239	14.51580
	QN->Q (FR)	0.02145	0.68113	12.06460
sky130_osu_sc_18T_hs__dffr_l	CK->Q (RR)	0.14547	0.95723	13.95140
	QN->Q (FR)	0.02223	0.70976	11.77270

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)	0.15976	0.89580	14.39910
	QN->Q (RF)	0.01834	0.58683	10.53600
	RN->Q (FF)	0.12109	1.01198	16.61770
sky130_osu_sc_18T_hs__dffr_l	CK->Q (RF)	0.16060	0.96349	13.97000
	QN->Q (RF)	0.01779	0.56827	9.48072
	RN->Q (FF)	0.12217	1.07921	16.17860

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)	0.14189	0.45382	5.58363
	RN->QN (FR)	0.10327	0.56965	7.79399
sky130_osu_sc_18T_hs__dffr_l	CK->QN (RR)	0.14222	0.50343	5.81876
	RN->QN (FR)	0.10380	0.61886	8.02489

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)**	0.12501	0.41347	4.81711
sky130_osu_sc_18T_hs__dffr_l	**CK->QN (RF)**	0.11951	0.41628	4.39171

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)	-0.03561	-0.03800	0.13588
	setup	CK (R)	0.11895	0.15691	0.01473
sky130_osu_sc_18T_hs__dffr_l	hold	CK (R)	-0.03295	-0.03800	0.13530
	setup	CK (R)	0.11986	0.15965	0.01655

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)	-0.06504	-0.24321	-4.24487
	setup	CK (R)	0.08425	0.25461	4.37446
sky130_osu_sc_18T_hs__dffr_l	hold	CK (R)	-0.06337	-0.24321	-4.24568
	setup	CK (R)	0.08200	0.25461	4.37442

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)	-0.03561	-0.03800	0.13588
	setup	CK (R)	0.11895	0.15691	0.01473
sky130_osu_sc_18T_hs__dffr_l	hold	CK (R)	-0.03295	-0.03800	0.13530
	setup	CK (R)	0.11986	0.15965	0.01655

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)	-0.06504	-0.24321	-4.24487
	setup	CK (R)	0.08425	0.25461	4.37446
sky130_osu_sc_18T_hs__dffr_l	hold	CK (R)	-0.06337	-0.24321	-4.24568
	setup	CK (R)	0.08200	0.25461	4.37442

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)	0.09819	0.14144	0.59699
	removal	CK (R)	-0.01605	-0.02280	-0.11226
sky130_osu_sc_18T_hs__dffr_l	recovery	CK (R)	0.09878	0.14231	0.59655
	removal	CK (R)	-0.01605	-0.02280	-0.11226

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)	0.09819	0.14144	0.59699
	removal	CK (R)	-0.01605	-0.02280	-0.11226
sky130_osu_sc_18T_hs__dffr_l	recovery	CK (R)	0.09878	0.14231	0.59655
	removal	CK (R)	-0.01605	-0.02280	-0.11226

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 ()	0.07050	0.45288	13.33370
	min_pulse_width	RN ()	0.07050	0.45288	13.33370
sky130_osu_sc_18T_hs__dffr_l	min_pulse_width	RN ()	0.07050	0.45288	13.33370
	min_pulse_width	RN ()	0.07050	0.45288	13.33370

Constraints(ns) for CK rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_hs__dffr_1	min_pulse_width	CK ()	0.06708	0.45288	13.33370
	min_pulse_width	CK ()	0.08074	0.45288	13.33370
sky130_osu_sc_18T_hs__dffr_l	min_pulse_width	CK ()	0.06367	0.45288	13.33370
	min_pulse_width	CK ()	0.07732	0.45288	13.33370

Constraints(ns) for CK falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_hs__dffr_1	min_pulse_width	CK ()	0.15585	0.45288	13.33370
	min_pulse_width	CK ()	0.06708	0.45288	13.33370
sky130_osu_sc_18T_hs__dffr_l	min_pulse_width	CK ()	0.15585	0.45288	13.33370
	min_pulse_width	CK ()	0.06708	0.45288	13.33370

Power Information

Internal switching power(pJ) to Q rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__dffr_1	CK	0.00000	0.00000	0.00000
	CK	0.01586	0.01607	0.02273
sky130_osu_sc_18T_hs__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.01423	0.01700	0.09427

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	0.01808	0.01794	0.05921
	RN	-0.00199	-0.18366	-3.74660
	RN	0.04194	0.04373	0.09310
sky130_osu_sc_18T_hs__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.01644	0.01834	0.10662
	RN	-0.00199	-0.15390	-2.79052
	RN	0.04028	0.04409	0.14014

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	0.01806	0.01799	0.05988
	RN	-0.00199	-0.18169	-3.67896
	RN	0.04192	0.04365	0.09378
sky130_osu_sc_18T_hs__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.01643	0.01833	0.10706
	RN	-0.00199	-0.15304	-2.76445
	RN	0.04026	0.04410	0.14027

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	0.01579	0.01630	0.02598
sky130_osu_sc_18T_hs__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.01416	0.01732	0.09368

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	-0.00460	-0.00536	-0.00541
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.02010	0.02435	0.17307
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.00897	0.01341	0.15821
sky130_osu_sc_18T_hs__dffr_l	CK	0.00000	0.00000	0.00000
	CK	-0.00461	-0.00535	-0.00541
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.02009	0.02435	0.17307
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.00897	0.01341	0.15821

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	0.00538	0.00542	0.00543
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.03260	0.03797	0.19045
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.01511	0.02034	0.16566
sky130_osu_sc_18T_hs__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.00538	0.00542	0.00542
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.03260	0.03797	0.19045
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.01511	0.02033	0.16565

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)	0.00619	0.01837	0.29930
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.01746	0.02959	0.32799
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)	0.00618	0.01837	0.29929
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.01746	0.02959	0.32799

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)	0.01470	0.02998	0.31115
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.03173	0.04715	0.34538
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)	0.01469	0.02997	0.31115
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.03173	0.04715	0.34538

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)	-0.00140	0.01002	0.28904
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.00941	0.01965	0.32192
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	-0.00201	0.00946	0.28755
sky130_osu_sc_18T_hs__dffr_l	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	-0.00140	0.01002	0.28904
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.00940	0.01965	0.32191
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	-0.00201	0.00946	0.28755

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)	0.02228	0.03770	0.31694
	(D * RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * RN * !Q * QN)	0.04974	0.06356	0.43095
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.03803	0.05152	0.35151
	(!D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * Q * !QN)	0.04813	0.07515	0.50974
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.02529	0.04048	0.31847
sky130_osu_sc_18T_hs__dffr_l	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.02228	0.03771	0.31693
	(D * RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * RN * !Q * QN)	0.04973	0.06356	0.43095
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.03803	0.05152	0.35151
	(!D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * Q * !QN)	0.04813	0.07517	0.50974
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.02529	0.04048	0.31847

SKY130_OSU_SC_18T_HS__DFFSRx

sky130_osu_sc_18T_hs_ff_1P95_-40C.ccs
Cell Library: Process , Voltage 1.95,
Temp -40.00

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	0.00501	0.00498	0.01077	0.01475	4.17164	4.16030
sky130_osu_sc_18T_hs__dffsr_l	0.00501	0.00498	0.01076	0.01475	2.91591	2.91843

Leakage Information

Cell Name	Leakage(nW)		
	Min.	**Avg**	**Max.**
sky130_osu_sc_18T_hs__dffsr_1	0.00000	0.71003	0.99575
sky130_osu_sc_18T_hs__dffsr_l	0.00000	0.55138	0.83710

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)	0.15981	0.90046	14.56230
	QN->Q (FR)	0.02016	0.65829	11.82020
	RN->Q (RR)	0.12959	0.88381	14.73960
	SN->Q (FR)	0.11902	1.03511	17.15110
sky130_osu_sc_18T_hs__dffsr_l	CK->Q (RR)	0.16055	0.97195	13.86260
	QN->Q (FR)	0.02217	0.70510	11.67550
	RN->Q (RR)	0.13051	0.95453	14.03390
	SN->Q (FR)	0.11994	1.10503	16.43470

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)	0.17943	0.90179	14.41260
	QN->Q (RF)	0.01659	0.54598	9.92346
	RN->Q (FF)	0.11877	0.99499	16.62290
sky130_osu_sc_18T_hs__dffsr_l	CK->Q (RF)	0.18307	0.98461	13.88180
	QN->Q (RF)	0.01776	0.56595	9.42296
	RN->Q (FF)	0.12219	1.07744	16.08420

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)	0.16244	0.47429	5.73258
	RN->QN (FR)	0.10188	0.56767	7.93935
sky130_osu_sc_18T_hs__dffsr_l	CK->QN (RR)	0.16464	0.52848	5.85489
	RN->QN (FR)	0.10384	0.62118	8.05724

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)	0.13675	0.42425	4.92028
	RN->QN (RF)	0.10691	0.40716	5.10133
	SN->QN (FF)	0.09634	0.55817	7.50296
sky130_osu_sc_18T_hs__dffsr_l	CK->QN (RF)	0.13481	0.43500	4.43327
	RN->QN (RF)	0.10536	0.41858	4.61311
	SN->QN (FF)	0.09461	0.56676	7.01236

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)	-0.03600	-0.04560	0.11860
	setup	CK (R)	0.12379	0.16351	0.05757
sky130_osu_sc_18T_hs__dffsr_l	hold	CK (R)	-0.03834	-0.04560	0.11860
	setup	CK (R)	0.12349	0.16323	0.05687

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)	-0.07245	-0.25560	-4.26800
	setup	CK (R)	0.09430	0.26601	4.40023
sky130_osu_sc_18T_hs__dffsr_l	hold	CK (R)	-0.07225	-0.25558	-4.26764
	setup	CK (R)	0.09430	0.26601	4.40023

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)	-0.03600	-0.04560	0.11860
	setup	CK (R)	0.12379	0.16351	0.05757
sky130_osu_sc_18T_hs__dffsr_l	hold	CK (R)	-0.03834	-0.04560	0.11860
	setup	CK (R)	0.12349	0.16323	0.05687

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)	-0.07245	-0.25560	-4.26800
	setup	CK (R)	0.09430	0.26601	4.40023
sky130_osu_sc_18T_hs__dffsr_l	hold	CK (R)	-0.07225	-0.25558	-4.26764
	setup	CK (R)	0.09430	0.26601	4.40023

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)	0.09472	0.13700	0.61059
	removal	CK (R)	-0.01013	-0.01520	-0.07790
	hold	SN (R)	-0.09025	-0.19001	-1.06082
	setup	SN (R)	0.10909	0.23713	2.26408
sky130_osu_sc_18T_hs__dffsr_l	recovery	CK (R)	0.09481	0.13674	0.60974
	removal	CK (R)	-0.01013	-0.01520	-0.07790
	hold	SN (R)	-0.08972	-0.18621	-1.04640
	setup	SN (R)	0.10742	0.22976	2.23442

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)	0.09472	0.13700	0.61059
	removal	CK (R)	-0.01013	-0.01520	-0.07790
	hold	SN (R)	-0.09025	-0.19001	-1.06666
	hold	SN (R)	-0.09060	-0.19001	-1.06082
	setup	SN (R)	0.10909	0.23375	2.11579
	setup	SN (R)	0.10552	0.23713	2.26408
sky130_osu_sc_18T_hs__dffsr_l	recovery	CK (R)	0.09481	0.13674	0.60974
	removal	CK (R)	-0.01013	-0.01520	-0.07790
	hold	SN (R)	-0.08972	-0.18621	-1.06389
	hold	SN (R)	-0.09015	-0.18621	-1.04640
	setup	SN (R)	0.10742	0.22758	2.07212
	setup	SN (R)	0.10157	0.22976	2.23442

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 ()	0.08074	0.45288	13.33370
	min_pulse_width	RN ()	0.08074	0.45288	13.33370
sky130_osu_sc_18T_hs__dffsr_l	min_pulse_width	RN ()	0.08074	0.45288	13.33370
	min_pulse_width	RN ()	0.08074	0.45288	13.33370

Constraints(ns) for SN rising :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_hs__dffsr_1	recovery	CK (R)	0.02696	0.06080	1.47278
	removal	CK (R)	-0.01290	-0.04180	-0.19443
sky130_osu_sc_18T_hs__dffsr_l	recovery	CK (R)	0.02576	0.06080	1.40494
	removal	CK (R)	-0.01290	-0.04180	-0.19443

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)	0.02696	0.06080	1.47278
	removal	CK (R)	-0.01290	-0.04180	-0.19443
sky130_osu_sc_18T_hs__dffsr_l	recovery	CK (R)	0.02576	0.06080	1.40494
	removal	CK (R)	-0.01290	-0.04180	-0.19443

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 ()	0.09781	0.45288	13.33370
	min_pulse_width	SN ()	0.09439	0.45288	13.33370
sky130_osu_sc_18T_hs__dffsr_l	min_pulse_width	SN ()	0.09781	0.45288	13.33370
	min_pulse_width	SN ()	0.09098	0.45288	13.33370

Constraints(ns) for CK rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_hs__dffsr_1	min_pulse_width	CK ()	0.07391	0.45288	13.33370
	min_pulse_width	CK ()	0.09439	0.45288	13.33370
sky130_osu_sc_18T_hs__dffsr_l	min_pulse_width	CK ()	0.07050	0.45288	13.33370
	min_pulse_width	CK ()	0.09098	0.45288	13.33370

Constraints(ns) for CK falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_hs__dffsr_1	min_pulse_width	CK ()	0.15926	0.45288	13.33370
	min_pulse_width	CK ()	0.07732	0.45288	13.33370
sky130_osu_sc_18T_hs__dffsr_l	min_pulse_width	CK ()	0.15926	0.45288	13.33370
	min_pulse_width	CK ()	0.07732	0.45288	13.33370

Power Information

Internal switching power(pJ) to Q rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__dffsr_1	CK	0.00000	0.00000	0.00000
	CK	0.01989	0.02279	0.08675
	RN	0.03637	0.03642	0.07595
	SN	-0.00199	-0.19002	-3.96566
	SN	0.03451	0.03192	0.02925
sky130_osu_sc_18T_hs__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.01838	0.02120	0.09822
	RN	0.03486	0.03450	0.08798
	SN	-0.00199	-0.15328	-2.77193
	SN	0.03300	0.03015	0.04221

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	0.02092	0.02151	0.07369
	RN	-0.00199	-0.19002	-3.96564
	RN	0.04239	0.04477	0.11267
sky130_osu_sc_18T_hs__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.01941	0.02149	0.11196
	RN	-0.00199	-0.15328	-2.77191
	RN	0.04089	0.04475	0.15071

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	0.02089	0.02153	0.07318
	RN	-0.00199	-0.18971	-3.95455
	RN	0.04238	0.04471	0.11134
sky130_osu_sc_18T_hs__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.01940	0.02150	0.11186
	RN	-0.00199	-0.15336	-2.77418
	RN	0.04088	0.04473	0.14984

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	0.01982	0.02304	0.08453
	RN	0.03629	0.03628	0.07390
	SN	-0.00199	-0.18971	-3.95456
	SN	0.03445	0.03171	0.02988
sky130_osu_sc_18T_hs__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.01832	0.02119	0.09588
	RN	0.03478	0.03443	0.08655
	SN	-0.00199	-0.15336	-2.77400
	SN	0.03294	0.03013	0.04147

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	-0.00527	-0.00541	-0.00541
	(!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)	0.02533	0.02940	0.17705
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.00988	0.01416	0.15839
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.00983	0.01413	0.15831
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.00990	0.01421	0.15846
sky130_osu_sc_18T_hs__dffsr_1	CK	0.00000	0.00000	0.00000
	CK	-0.00527	-0.00541	-0.00540
	(!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)	0.02533	0.02940	0.17706
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.00988	0.01416	0.15840
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.00982	0.01413	0.15831
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.00990	0.01421	0.15846

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	0.00547	0.00541	0.00541
	(!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)	0.03706	0.04190	0.19107
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.01587	0.02097	0.16596
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.01607	0.02105	0.16580
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.01579	0.02091	0.16584
sky130_osu_sc_18T_hs__dffsr_1	CK	0.00000	0.00000	0.00000
	CK	0.00547	0.00541	0.00540
	(!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)	0.03705	0.04189	0.19106
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.01586	0.02096	0.16595
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.01605	0.02103	0.16579
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.01578	0.02090	0.16583

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)	0.00462	0.01645	0.29771
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.02030	0.03183	0.33423
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)	0.00462	0.01645	0.29772
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.02030	0.03180	0.33425

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)	0.01566	0.03141	0.31288
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.03330	0.04873	0.34819
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)	0.01564	0.03140	0.31287
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.03328	0.04871	0.34817

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)	-0.01228	-0.01236	-0.01236
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	-0.01155	-0.01282	-0.01273
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	-0.01158	-0.01221	-0.01220
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.00836	0.01334	0.17011
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)	-0.01228	-0.01236	-0.01236
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	-0.01153	-0.01279	-0.01270
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	-0.01157	-0.01220	-0.01219
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.00837	0.01335	0.17012

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)	0.01232	0.01236	0.01240
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.01270	0.01285	0.01276
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	0.01218	0.01228	0.01224
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.02583	0.02953	0.18442
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)	0.01232	0.01236	0.01240
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.01267	0.01282	0.01274
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	0.01217	0.01227	0.01223
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.02582	0.02949	0.18441

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)	-0.00139	0.01002	0.28936
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.01066	0.02087	0.32296
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.01041	0.02068	0.32284
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	-0.00171	0.00977	0.28820
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.00665	0.02722	0.52031
sky130_osu_sc_18T_hs__dffsr_1	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	-0.00139	0.01002	0.28936
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.01064	0.02086	0.32295
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.01039	0.02066	0.32283
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	-0.00171	0.00976	0.28819
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.00665	0.02722	0.52031

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)	0.05527	0.06918	0.43495
	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.02235	0.03782	0.31733
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.03851	0.05213	0.35189
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.03860	0.05225	0.35193
	(!D * RN * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * Q * !QN)	0.05250	0.07876	0.51182
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.02506	0.04015	0.31857
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.02945	0.05615	0.54931
sky130_osu_sc_18T_hs__dffsr_l	**(D * RN * SN * !Q * QN)**	0.00000	0.00000	0.00000
	(D * RN * SN * !Q * QN)	0.05527	0.06918	0.43495
	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.02235	0.03782	0.31732
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.03851	0.05213	0.35192
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.03860	0.05225	0.35194
	(!D * RN * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * Q * !QN)	0.05248	0.07875	0.51180
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.02506	0.04015	0.31857
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.02944	0.05615	0.54930

SKY130_OSU_SC_18T_HS__DFFSx

sky130_osu_sc_18T_hs_ff_1P95_-40C.ccs
Cell Library: Process , Voltage 1.95,
Temp -40.00

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	0.00503	0.00881	0.01453	3.92550	3.92993
sky130_osu_sc_18T_hs__dffs_l	0.00503	0.00881	0.01453	2.93220	2.92635

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__dffs_1	0.00000	0.53934	0.77738
sky130_osu_sc_18T_hs__dffs_l	0.00000	0.38069	0.61873

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)	0.12156	0.86276	14.29940
	QN->Q (FR)	0.02128	0.67294	11.91370
	SN->Q (FR)	0.09609	1.01974	16.84340
sky130_osu_sc_18T_hs__dffs_l	CK->Q (RR)	0.12003	0.92364	13.81670
	QN->Q (FR)	0.02209	0.70330	11.66480
	SN->Q (FR)	0.09474	1.07776	16.33090

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)	0.17002	0.90400	14.28160
	QN->Q (RF)	0.01820	0.58252	10.44510
sky130_osu_sc_18T_hs__dffs_l	CK->Q (RF)	0.17034	0.97236	13.92100
	QN->Q (RF)	0.01768	0.56524	9.42665

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)	0.15208	0.46743	5.64483
sky130_osu_sc_18T_hs__dffs_l	CK->QN (RR)	0.15191	0.51484	5.83617

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)	0.09898	0.38139	4.80553
	SN->QN (FF)	0.07336	0.53734	7.34269
sky130_osu_sc_18T_hs__dffs_l	CK->QN (RF)	0.09572	0.38578	4.33275
	SN->QN (FF)	0.07028	0.53854	6.85708

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)	-0.02617	-0.02640	0.14815
	setup	CK (R)	0.08648	0.13230	0.01732
sky130_osu_sc_18T_hs__dffs_l	hold	CK (R)	-0.02621	-0.02640	0.14799
	setup	CK (R)	0.08680	0.13303	0.01959

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)	-0.06516	-0.24321	-4.26652
	setup	CK (R)	0.08560	0.25461	4.38900
sky130_osu_sc_18T_hs__dffs_l	hold	CK (R)	-0.06596	-0.24321	-4.26701
	setup	CK (R)	0.08560	0.25461	4.38900

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)	-0.02617	-0.02640	0.14815
	setup	CK (R)	0.08648	0.13230	0.01732
sky130_osu_sc_18T_hs__dffs_l	hold	CK (R)	-0.02621	-0.02640	0.14799
	setup	CK (R)	0.08680	0.13303	0.01959

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)	-0.06516	-0.24321	-4.26652
	setup	CK (R)	0.08560	0.25461	4.38900
sky130_osu_sc_18T_hs__dffs_l	hold	CK (R)	-0.06596	-0.24321	-4.26701
	setup	CK (R)	0.08560	0.25461	4.38900

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)	0.02323	0.05263	1.01666
	removal	CK (R)	-0.00850	-0.03800	-0.37702
sky130_osu_sc_18T_hs__dffs_l	recovery	CK (R)	0.02236	0.05227	0.95969
	removal	CK (R)	-0.00850	-0.03800	-0.37702

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)	0.02323	0.05263	1.01666
	removal	CK (R)	-0.00850	-0.03800	-0.37702
sky130_osu_sc_18T_hs__dffs_l	recovery	CK (R)	0.02236	0.05227	0.95969
	removal	CK (R)	-0.00850	-0.03800	-0.37702

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 ()	0.06708	0.45288	13.33370
	min_pulse_width	SN ()	0.06708	0.45288	13.33370
sky130_osu_sc_18T_hs__dffs_l	min_pulse_width	SN ()	0.06708	0.45288	13.33370
	min_pulse_width	SN ()	0.06367	0.45288	13.33370

Constraints(ns) for CK rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_hs__dffs_1	min_pulse_width	CK ()	0.05001	0.45288	13.33370
	min_pulse_width	CK ()	0.08415	0.45288	13.33370
sky130_osu_sc_18T_hs__dffs_l	min_pulse_width	CK ()	0.05001	0.45288	13.33370
	min_pulse_width	CK ()	0.08074	0.45288	13.33370

Constraints(ns) for CK falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_hs__dffs_1	min_pulse_width	CK ()	0.12512	0.45288	13.33370
	min_pulse_width	CK ()	0.07050	0.45288	13.33370
sky130_osu_sc_18T_hs__dffs_l	min_pulse_width	CK ()	0.12512	0.45288	13.33370
	min_pulse_width	CK ()	0.07050	0.45288	13.33370

Power Information

Internal switching power(pJ) to Q rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__dffs_1	CK	0.00000	0.00000	0.00000
	CK	0.01576	0.01612	0.02829
	SN	-0.00199	-0.18322	-3.73167
	SN	0.02889	0.02885	0.02430
sky130_osu_sc_18T_hs__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.01413	0.01716	0.09669
	SN	-0.00199	-0.15379	-2.78742
	SN	0.02727	0.02999	0.09366

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	0.01797	0.01820	0.06670
sky130_osu_sc_18T_hs__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.01631	0.01849	0.11184

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	0.01796	0.01818	0.06564
sky130_osu_sc_18T_hs__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.01631	0.01850	0.11190

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	0.01571	0.01627	0.02670
	SN	-0.00199	-0.18334	-3.73516
	SN	0.02884	0.02881	0.02587
sky130_osu_sc_18T_hs__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.01407	0.01715	0.09506
	SN	-0.00199	-0.15361	-2.78153
	SN	0.02723	0.02996	0.09329

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	-0.00534	-0.00547	-0.00547
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.01920	0.02384	0.17791
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.00874	0.01321	0.15829
sky130_osu_sc_18T_hs__dffs_l	CK	0.00000	0.00000	0.00000
	CK	-0.00534	-0.00548	-0.00547
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.01920	0.02384	0.17791
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.00874	0.01321	0.15829

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	0.00554	0.00548	0.00547
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.03152	0.03676	0.19040
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.01522	0.02055	0.16650
sky130_osu_sc_18T_hs__dffs_1	CK	0.00000	0.00000	0.00000
	CK	0.00554	0.00548	0.00547
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.03152	0.03676	0.19040
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.01522	0.02055	0.16650

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)	-0.00943	-0.00948	-0.00947
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.00635	0.01400	0.21316
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)	-0.00943	-0.00949	-0.00947
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.00635	0.01400	0.21316

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)	0.00953	0.00951	0.00950
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.01829	0.02750	0.22801
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)	0.00953	0.00951	0.00950
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.01829	0.02749	0.22801

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)	-0.00143	0.01004	0.28973
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	-0.00187	0.00961	0.28843
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.00540	0.02667	0.52177
sky130_osu_sc_18T_hs__dffs_l	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	-0.00143	0.01004	0.28973
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	-0.00188	0.00961	0.28843
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.00539	0.02667	0.52177

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)	0.04906	0.06312	0.43298
	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.02229	0.03775	0.31766
	(!D * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * SN * Q * !QN)	0.04684	0.07370	0.50969
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	0.02513	0.04034	0.31904
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.02867	0.05585	0.55103
sky130_osu_sc_18T_hs__dffs_l	(D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * SN * !Q * QN)	0.04905	0.06312	0.43298
	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.02229	0.03776	0.31765
	(!D * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * SN * Q * !QN)	0.04684	0.07371	0.50969
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	0.02513	0.04035	0.31903
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.02867	0.05586	0.55102

SKY130_OSU_SC_18T_HS__DFFx

sky130_osu_sc_18T_hs_ff_1P95_-40C.ccs
Cell Library: Process , Voltage 1.95,
Temp -40.00

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	0.00519	0.01427	4.24356	4.18005
sky130_osu_sc_18T_hs__dff_l	0.00519	0.01428	2.88552	2.85330

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__dff_1	0.00000	0.66296	0.87048
sky130_osu_sc_18T_hs__dff_l	0.00000	0.50431	0.71183

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)	0.10861	0.84584	14.65480
	QN->Q (FR)	0.02000	0.65680	11.86610
sky130_osu_sc_18T_hs__dff_l	CK->Q (RR)	0.11134	0.91466	13.67800
	QN->Q (FR)	0.02262	0.71570	11.82180

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)	0.15052	0.87498	14.59950
	QN->Q (RF)	0.01651	0.54624	9.99331
sky130_osu_sc_18T_hs__dff_l	CK->Q (RF)	0.15502	0.95534	13.82050
	QN->Q (RF)	0.01773	0.56205	9.32883

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)	0.13364	0.44164	5.70204
sky130_osu_sc_18T_hs__dff_l	CK->QN (RR)	0.13667	0.49875	5.78551

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)	0.08755	0.36431	4.80620
sky130_osu_sc_18T_hs__dff_l	CK->QN (RF)	0.08720	0.37308	4.18054

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)	-0.01951	-0.02717	0.14741
	setup	CK (R)	0.07315	0.12429	0.02658
sky130_osu_sc_18T_hs__dff_l	hold	CK (R)	-0.02184	-0.02749	0.14690
	setup	CK (R)	0.07251	0.12361	0.02924

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)	-0.05655	-0.23921	-4.24474
	setup	CK (R)	0.07452	0.25461	4.36258
sky130_osu_sc_18T_hs__dff_l	hold	CK (R)	-0.05692	-0.23921	-4.24313
	setup	CK (R)	0.07450	0.25461	4.36258

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 ()	0.04660	0.45288	13.33370
	min_pulse_width	CK ()	0.07732	0.45288	13.33370
sky130_osu_sc_18T_hs__dff_l	min_pulse_width	CK ()	0.04660	0.45288	13.33370
	min_pulse_width	CK ()	0.07732	0.45288	13.33370

Constraints(ns) for CK falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_hs__dff_1	**min_pulse_width**	**CK ()**	0.10805	0.45288	13.33370
	min_pulse_width	**CK ()**	0.05684	0.45288	13.33370
sky130_osu_sc_18T_hs__dff_l	**min_pulse_width**	**CK ()**	0.10805	0.45288	13.33370
	min_pulse_width	**CK ()**	0.05684	0.45288	13.33370

Power Information

Internal switching power(pJ) to Q rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__dff_1	CK	0.00000	0.00000	0.00000
	CK	0.01644	0.01999	0.08927
sky130_osu_sc_18T_hs__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.01494	0.01821	0.10282

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	0.01822	0.01916	0.07486
sky130_osu_sc_18T_hs__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.01676	0.01875	0.10664

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	0.01821	0.01917	0.07555
sky130_osu_sc_18T_hs__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.01675	0.01877	0.10732

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	0.01638	0.02000	0.08840
sky130_osu_sc_18T_hs__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.01488	0.01824	0.10161

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	-0.00461	-0.00533	-0.00540
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.01735	0.02229	0.17827
sky130_osu_sc_18T_hs__dff_l	CK	0.00000	0.00000	0.00000
	CK	-0.00461	-0.00533	-0.00540
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.01735	0.02230	0.17828

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	0.00537	0.00540	0.00541
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.03225	0.03745	0.19138
sky130_osu_sc_18T_hs__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.00537	0.00540	0.00541
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.03225	0.03745	0.19138

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)	-0.00144	0.01005	0.28965
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	-0.00186	0.00969	0.28835
sky130_osu_sc_18T_hs__dff_l	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	-0.00144	0.01004	0.28965
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	-0.00186	0.00969	0.28835

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)	0.02220	0.03780	0.31749
	(D * !Q * QN)	0.00000	0.00000	0.00000
	(D * !Q * QN)	0.04738	0.06172	0.43356
	(!D * Q * !QN)	0.00000	0.00000	0.00000
	(!D * Q * !QN)	0.04746	0.07481	0.51656
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.02503	0.04023	0.31883
sky130_osu_sc_18T_hs__dff_l	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.02220	0.03781	0.31749
	(D * !Q * QN)	0.00000	0.00000	0.00000
	(D * !Q * QN)	0.04739	0.06173	0.43355
	(!D * Q * !QN)	0.00000	0.00000	0.00000
	(!D * Q * !QN)	0.04747	0.07488	0.51658
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.02502	0.04023	0.31883

SKY130_OSU_SC_18T_HS__INVx

sky130_osu_sc_18T_hs_ff_1P95_-40C.ccs
Cell Library: Process , Voltage 1.95,
Temp -40.00

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	0.00502	3.87539
sky130_osu_sc_18T_hs__inv_10	0.04714	32.66536
sky130_osu_sc_18T_hs__inv_2	0.00962	7.35029
sky130_osu_sc_18T_hs__inv_3	0.01434	10.46342
sky130_osu_sc_18T_hs__inv_4	0.01897	14.00228
sky130_osu_sc_18T_hs__inv_6	0.02844	20.48572
sky130_osu_sc_18T_hs__inv_8	0.03780	26.88261
sky130_osu_sc_18T_hs__inv_l	0.00398	2.70126

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__inv_1	0.00000	0.10885	0.21690
sky130_osu_sc_18T_hs__inv_10	0.00000	1.08853	2.16905
sky130_osu_sc_18T_hs__inv_2	0.00000	0.21771	0.43381
sky130_osu_sc_18T_hs__inv_3	0.00000	0.32656	0.65072
sky130_osu_sc_18T_hs__inv_4	0.00000	0.43541	0.86762
sky130_osu_sc_18T_hs__inv_6	0.00000	0.65312	1.30143
sky130_osu_sc_18T_hs__inv_8	0.00000	0.87082	1.73524
sky130_osu_sc_18T_hs__inv_l	0.00000	0.02953	0.05758

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)	0.01847	0.57798	10.09250
sky130_osu_sc_18T_hs__inv_10	A->Y (FR)	0.03415	0.39966	10.05020
sky130_osu_sc_18T_hs__inv_2	A->Y (FR)	0.01596	0.49974	9.92308
sky130_osu_sc_18T_hs__inv_3	A->Y (FR)	0.01824	0.47103	9.98078
sky130_osu_sc_18T_hs__inv_4	A->Y (FR)	0.01937	0.44433	9.92397
sky130_osu_sc_18T_hs__inv_6	A->Y (FR)	0.02295	0.41796	9.94533
sky130_osu_sc_18T_hs__inv_8	A->Y (FR)	0.02802	0.40456	9.97712
sky130_osu_sc_18T_hs__inv_l	A->Y (FR)	0.02059	0.62829	10.16400

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)	0.01441	0.44330	8.04640
sky130_osu_sc_18T_hs__inv_10	A->Y (RF)	0.02743	0.23804	7.58858
sky130_osu_sc_18T_hs__inv_2	A->Y (RF)	0.01263	0.35776	7.82261
sky130_osu_sc_18T_hs__inv_3	A->Y (RF)	0.01428	0.32453	7.83181
sky130_osu_sc_18T_hs__inv_4	A->Y (RF)	0.01468	0.29573	7.79552
sky130_osu_sc_18T_hs__inv_6	A->Y (RF)	0.01895	0.26742	7.75609
sky130_osu_sc_18T_hs__inv_8	A->Y (RF)	0.02292	0.25081	7.72316
sky130_osu_sc_18T_hs__inv_l	A->Y (RF)	0.01532	0.45541	7.50554

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	0.00782	0.01366	0.07013
sky130_osu_sc_18T_hs__inv_10	A	0.00000	0.00000	0.00000
	A	0.07446	0.14705	0.66724
sky130_osu_sc_18T_hs__inv_2	A	0.00000	0.00000	0.00000
	A	0.01413	0.02753	0.13567
sky130_osu_sc_18T_hs__inv_3	A	0.00000	0.00000	0.00000
	A	0.02164	0.04117	0.20151
sky130_osu_sc_18T_hs__inv_4	A	0.00000	0.00000	0.00000
	A	0.02802	0.05556	0.26765
sky130_osu_sc_18T_hs__inv_6	A	0.00000	0.00000	0.00000
	A	0.04197	0.08778	0.40069
sky130_osu_sc_18T_hs__inv_8	A	0.00000	0.00000	0.00000
	A	0.05716	0.11515	0.53207
sky130_osu_sc_18T_hs__inv_l	A	0.00000	0.00000	0.00000
	A	0.00620	0.01052	0.06081

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	-0.00190	0.00002	0.01892
sky130_osu_sc_18T_hs__inv_10	A	0.00000	0.00000	0.00000
	A	-0.01554	0.00617	0.18829
sky130_osu_sc_18T_hs__inv_2	A	0.00000	0.00000	0.00000
	A	-0.00570	-0.00131	0.03676
sky130_osu_sc_18T_hs__inv_3	A	0.00000	0.00000	0.00000
	A	-0.00739	-0.00031	0.05593
sky130_osu_sc_18T_hs__inv_4	A	0.00000	0.00000	0.00000
	A	-0.01074	0.00136	0.07354
sky130_osu_sc_18T_hs__inv_6	A	0.00000	0.00000	0.00000
	A	-0.01624	0.00058	0.11036
sky130_osu_sc_18T_hs__inv_8	A	0.00000	0.00000	0.00000
	A	-0.01850	0.00119	0.14774
sky130_osu_sc_18T_hs__inv_l	A	0.00000	0.00000	0.00000
	A	-0.00143	0.00077	0.02349

SKY130_OSU_SC_18T_HS__MUX2

sky130_osu_sc_18T_hs_ff_1P95_-40C.ccs
Cell Library: Process , Voltage 1.95,
Temp -40.00

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	0.12302	0.12284	0.01020	0.11541

Leakage Information

Cell Name	Leakage(nW)		
	Min.	**Avg**	**Max.**
sky130_osu_sc_18T_hs__mux2_1	0.00000	0.22179	0.23292

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)	-	0.00752	0.04330	0.19698
	A1->Y (RR)	-	0.00811	0.04300	0.19478
	S0->Y (RR)	(!A0 * A1)	0.02824	0.05568	-0.62330
	S0->Y (FR)	(A0 * !A1)	0.02919	0.20906	2.05032

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)	-	0.00743	0.05156	0.21012
	A1->Y (FF)	-	0.00757	0.05114	0.20766
	S0->Y (FF)	(!A0 * A1)	0.03836	0.20298	1.65098
	S0->Y (RF)	(A0 * !A1)	0.01827	0.06259	-0.30224

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	-	-0.00868	-0.00868	-0.00872
	A1	-	0.00000	0.00000	0.00000
	A1	-	-0.00576	-0.00578	-0.00579
	S0	(A0 * !A1)	0.00000	0.00000	0.00000
	S0	(A0 * !A1)	0.00922	0.02672	0.30338
	S0	(!A0 * A1)	0.00000	0.00000	0.00000
	S0	(!A0 * A1)	-0.00577	0.00747	0.28468

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	-	0.00868	0.00868	0.00872
	A1	-	0.00000	0.00000	0.00000
	A1	-	0.00577	0.00578	0.00579
	S0	(A0 * !A1)	0.00000	0.00000	0.00000
	S0	(A0 * !A1)	0.00160	0.01663	0.29432
	S0	(!A0 * A1)	0.00000	0.00000	0.00000
	S0	(!A0 * A1)	0.02178	0.03698	0.31411

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)	-0.00212	-0.00212	-0.00212

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)	0.00213	0.00212	0.00212

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)	-0.00254	-0.00253	-0.00253

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)	0.00254	0.00253	0.00253

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)	-0.00211	0.01245	0.28918
	(!A0 * !A1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !Y)	-0.00210	0.01201	0.28945

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)	0.01622	0.03168	0.30883
	(!A0 * !A1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !Y)	0.01476	0.03108	0.30842

SKY130_OSU_SC_18T_HS__NAND2x

sky130_osu_sc_18T_hs_ff_1P95_-40C.ccs
Cell Library: Process , Voltage 1.95,
Temp -40.00

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	0.00504	0.00502	3.70357
sky130_osu_sc_18T_hs__nand2_l	0.00399	0.00399	2.66531

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__nand2_1	0.00000	0.10882	0.43381
sky130_osu_sc_18T_hs__nand2_l	0.00000	0.02948	0.11516

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)	0.01867	0.57516	9.93540
	B->Y (FR)	0.02199	0.57051	9.78031
sky130_osu_sc_18T_hs__nand2_l	A->Y (FR)	0.02073	0.62807	10.15160
	B->Y (FR)	0.02495	0.62794	10.08540

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)	0.01834	0.51986	9.35057
	B->Y (RF)	0.02112	0.50722	9.14310
sky130_osu_sc_18T_hs__nand2_l	A->Y (RF)	0.01943	0.54241	8.90306
	B->Y (RF)	0.02173	0.52055	8.52932

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	0.00837	0.01330	0.06304
	B	0.00000	0.00000	0.00000
	B	0.01081	0.01575	0.06770
sky130_osu_sc_18T_hs__nand2_1	A	0.00000	0.00000	0.00000
	A	0.00658	0.01002	0.05356
	B	0.00000	0.00000	0.00000
	B	0.00846	0.01167	0.05672

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	-0.00138	0.00051	0.01744
	B	0.00000	0.00000	0.00000
	B	-0.00139	-0.00047	0.01231
sky130_osu_sc_18T_hs__nand2_1	A	0.00000	0.00000	0.00000
	A	-0.00112	0.00081	0.02045
	B	0.00000	0.00000	0.00000
	B	-0.00112	0.00006	0.01736

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)	-0.00608	-0.00611	-0.00612
sky130_osu_sc_18T_hs__nand2_l	(!B * Y)	0.00000	0.00000	0.00000
	(!B * Y)	-0.00459	-0.00460	-0.00462

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)	0.00610	0.00621	0.00614
sky130_osu_sc_18T_hs__nand2_l	(!B * Y)	0.00000	0.00000	0.00000
	(!B * Y)	0.00460	0.00463	0.00463

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)	-0.00564	-0.00568	-0.00565
sky130_osu_sc_18T_hs__nand2_l	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00426	-0.00427	-0.00427

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)	0.00573	0.00568	0.00566
sky130_osu_sc_18T_hs__nand2_l	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00434	0.00427	0.00428

SKY130_OSU_SC_18T_HS__NOR2x

sky130_osu_sc_18T_hs_ff_1P95_-40C.ccs
Cell Library: Process , Voltage 1.95,
Temp -40.00

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	0.00504	0.00534	2.19555
sky130_osu_sc_18T_hs__nor2_l	0.00392	0.00425	1.59014

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__nor2_1	0.00000	0.07104	0.21690
sky130_osu_sc_18T_hs__nor2_l	0.00000	0.01997	0.05758

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)	0.03481	0.66548	10.11090
	B->Y (FR)	0.02582	0.65656	10.09480
sky130_osu_sc_18T_hs__nor2_l	A->Y (FR)	0.03770	0.71401	9.99578
	B->Y (FR)	0.02949	0.71723	10.17560

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)	0.01936	0.35487	5.36239
	B->Y (RF)	0.01533	0.34701	5.34222
sky130_osu_sc_18T_hs__nor2_l	A->Y (RF)	0.01973	0.36847	5.07610
	B->Y (RF)	0.01624	0.36195	5.05752

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	0.01166	0.01310	0.04482
	B	0.00000	0.00000	0.00000
	B	0.00849	0.01375	0.07938
sky130_osu_sc_18T_hs__nor2_l	A	0.00000	0.00000	0.00000
	A	0.00881	0.01055	0.04707
	B	0.00000	0.00000	0.00000
	B	0.00664	0.01064	0.06677

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	0.00111	0.00307	0.02814
	B	0.00000	0.00000	0.00000
	B	-0.00142	0.00045	0.02502
sky130_osu_sc_18T_hs__nor2_l	A	0.00000	0.00000	0.00000
	A	0.00072	0.00290	0.03205
	B	0.00000	0.00000	0.00000
	B	-0.00101	0.00109	0.02913

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)	-0.00464	-0.00539	-0.00543
sky130_osu_sc_18T_hs__nor2_l	(B * !Y)	0.00000	0.00000	0.00000
	(B * !Y)	-0.00346	-0.00397	-0.00398

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)	0.00540	0.00544	0.00544
sky130_osu_sc_18T_hs__nor2_l	(B * !Y)	0.00000	0.00000	0.00000
	(B * !Y)	0.00396	0.00397	0.00398

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)	-0.00250	-0.00257	-0.00252
sky130_osu_sc_18T_hs__nor2_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	-0.00187	-0.00192	-0.00188

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)	0.00261	0.00262	0.00255
sky130_osu_sc_18T_hs__nor2_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00194	0.00194	0.00190

SKY130_OSU_SC_18T_HS__OAI21

sky130_osu_sc_18T_hs_ff_1P95_-40C.ccs
Cell Library: Process , Voltage 1.95,
Temp -40.00

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	0.00510	0.00518	0.00441	2.13725

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__oai21_l	0.00000	0.05736	0.27449

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)	0.03410	0.66328	10.01000
	A1->Y (FR)	0.04632	0.67645	10.04660
	B0->Y (FR)	0.02513	0.58197	8.81308

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)	0.02667	0.42980	6.45971
	A1->Y (RF)	0.03144	0.42806	6.29961
	B0->Y (RF)	0.02062	0.47011	7.17400

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	0.01206	0.01594	0.06837
	A1	0.00000	0.00000	0.00000
	A1	0.01518	0.01626	0.04439
	B0	0.00720	0.01155	0.06634

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	0.00019	0.00090	0.01655
	A1	0.00000	0.00000	0.00000
	A1	0.00282	0.00326	0.01945
	B0	0.00091	0.00308	0.03108

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)	-0.00251	-0.00258	-0.00253
	(A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * Y)	-0.00535	-0.00547	-0.00545
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00553	-0.00554	-0.00553

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)	0.00261	0.00263	0.00256
	(A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * Y)	0.00543	0.00550	0.00545
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00555	0.00559	0.00555

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)	-0.00457	-0.00532	-0.00534
	(A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * Y)	-0.00529	-0.00543	-0.00542
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	-0.00546	-0.00549	-0.00547

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)	0.00531	0.00538	0.00535
	(A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * Y)	0.00539	0.00546	0.00542
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	0.00549	0.00550	0.00549

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)	-0.00470	-0.00473	-0.00476

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)	0.00475	0.00478	0.00477

SKY130_OSU_SC_18T_HS__OAI22

sky130_osu_sc_18T_hs_ff_1P95_-40C.ccs
Cell Library: Process , Voltage 1.95,
Temp -40.00

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	0.00495	0.00521	0.00534	0.00522	2.15114

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__oai22_l	0.00000	0.10648	0.43381

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)	0.04904	0.67671	10.01810
	A1->Y (FR)	0.04008	0.66675	10.00360
	B0->Y (FR)	0.02869	0.65665	10.01160
	B1->Y (FR)	0.03773	0.66656	10.02900

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)	0.04621	0.46277	6.63410
	A1->Y (RF)	0.03633	0.44607	6.53200
	B0->Y (RF)	0.03027	0.48409	7.21657
	B1->Y (RF)	0.04098	0.51582	7.55722

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	0.01811	0.01914	0.04605
	A1	0.01500	0.01920	0.07706
	B0	0.00918	0.01364	0.07046
	B1	0.01249	0.01359	0.03970

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__oai22_l	A0	0.00185	0.00224	0.01883
	A1	-0.00071	0.00004	0.01621
	B0	-0.00062	0.00084	0.02256
	B1	0.00185	0.00328	0.02361

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)	-0.00463	-0.00539	-0.00543
	(A1 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * B1 * !Y)	-0.00463	-0.00539	-0.00543
	(A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * !B1 * Y)	-0.00529	-0.00544	-0.00543
	(!A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * !B1 * Y)	-0.00548	-0.00550	-0.00549

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)	0.00540	0.00546	0.00544
	(A1 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * B1 * !Y)	0.00541	0.00547	0.00544
	(A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * !B1 * Y)	0.00541	0.00547	0.00543
	(!A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * !B1 * Y)	0.00549	0.00555	0.00550

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)	-0.00249	-0.00255	-0.00250
	(A0 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * B1 * !Y)	-0.00249	-0.00255	-0.00250
	(A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * !B1 * Y)	-0.00529	-0.00544	-0.00540
	(!A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * !B1 * Y)	-0.00546	-0.00549	-0.00547

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)	0.00259	0.00260	0.00253
	(A0 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * B1 * !Y)	0.00259	0.00260	0.00253
	(A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * !B1 * Y)	0.00537	0.00544	0.00540
	(!A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * !B1 * Y)	0.00547	0.00549	0.00549

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)	-0.00247	-0.00254	-0.00249
	(A0 * !A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B1 * !Y)	-0.00247	-0.00254	-0.00249
	(!A0 * !A1 * B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B1 * Y)	-0.00589	-0.00603	-0.00601
	(!A0 * !A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B1 * Y)	-0.00598	-0.00603	-0.00607

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)	0.00257	0.00259	0.00252
	(A0 * !A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B1 * !Y)	0.00257	0.00259	0.00252
	(!A0 * !A1 * B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B1 * Y)	0.00604	0.00614	0.00601
	(!A0 * !A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B1 * Y)	0.00606	0.00610	0.00609

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)	-0.00457	-0.00532	-0.00535
	(A0 * !A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B0 * !Y)	-0.00457	-0.00532	-0.00535
	(!A0 * !A1 * B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B0 * Y)	-0.00598	-0.00612	-0.00611
	(!A0 * !A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B0 * Y)	-0.00607	-0.00608	-0.00616

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)	0.00533	0.00539	0.00536
	(A0 * !A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B0 * !Y)	0.00533	0.00540	0.00536
	(!A0 * !A1 * B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B0 * Y)	0.00614	0.00620	0.00612
	(!A0 * !A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B0 * Y)	0.00614	0.00624	0.00617

SKY130_OSU_SC_18T_HS__OR2x

sky130_osu_sc_18T_hs_ff_1P95_-40C.ccs
Cell Library: Process , Voltage 1.95,
Temp -40.00

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	0.00538	0.00516	4.09912
sky130_osu_sc_18T_hs__or2_2	0.00538	0.00517	7.69424
sky130_osu_sc_18T_hs__or2_4	0.00538	0.00517	14.59756
sky130_osu_sc_18T_hs__or2_8	0.00540	0.00521	27.18567
sky130_osu_sc_18T_hs__or2_l	0.00433	0.00408	2.83059

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__or2_1	0.00000	0.12586	0.21851
sky130_osu_sc_18T_hs__or2_2	0.00000	0.18069	0.43541
sky130_osu_sc_18T_hs__or2_4	0.00000	0.29034	0.86922
sky130_osu_sc_18T_hs__or2_8	0.00000	0.50965	1.73684
sky130_osu_sc_18T_hs__or2_l	0.00000	0.03547	0.06053

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)	0.04189	0.34524	5.42091
	B->Y (RR)	0.03650	0.32882	5.50390
sky130_osu_sc_18T_hs__or2_2	A->Y (RR)	0.04670	0.29654	5.29346
	B->Y (RR)	0.04103	0.27990	5.34233
sky130_osu_sc_18T_hs__or2_4	A->Y (RR)	0.06101	0.29481	5.47921
	B->Y (RR)	0.05521	0.28061	5.49442
sky130_osu_sc_18T_hs__or2_8	A->Y (RR)	0.08945	0.33455	5.71833
	B->Y (RR)	0.08359	0.32195	5.70157
sky130_osu_sc_18T_hs__or2_l	A->Y (RR)	0.04473	0.39363	5.42704
	B->Y (RR)	0.03996	0.37766	5.41551

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)	0.06062	0.49513	7.41297
	B->Y (FF)	0.04817	0.48447	7.67107
sky130_osu_sc_18T_hs__or2_2	A->Y (FF)	0.07004	0.45896	7.23684
	B->Y (FF)	0.05761	0.44904	7.46014
sky130_osu_sc_18T_hs__or2_4	A->Y (FF)	0.09626	0.47313	7.33788
	B->Y (FF)	0.08387	0.46592	7.50436
sky130_osu_sc_18T_hs__or2_8	A->Y (FF)	0.15209	0.53434	7.31421
	B->Y (FF)	0.13974	0.53224	7.41777
sky130_osu_sc_18T_hs__or2_l	A->Y (FF)	0.06434	0.51153	6.90317
	B->Y (FF)	0.05206	0.51086	7.23828

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	0.00853	0.01364	0.12238
	B	0.00000	0.00000	0.00000
	B	0.00618	0.01473	0.17846
sky130_osu_sc_18T_hs__or2_2	A	0.00000	0.00000	0.00000
	A	0.01510	0.02060	0.13135
	B	0.00000	0.00000	0.00000
	B	0.01255	0.02111	0.18357
sky130_osu_sc_18T_hs__or2_4	A	0.00000	0.00000	0.00000
	A	0.02946	0.03629	0.14771
	B	0.00000	0.00000	0.00000
	B	0.02683	0.03557	0.19467
sky130_osu_sc_18T_hs__or2_8	A	0.00000	0.00000	0.00000
	A	0.06465	0.06831	0.17732
	B	0.00000	0.00000	0.00000
	B	0.06197	0.06939	0.21511
sky130_osu_sc_18T_hs__or2_l	A	0.00000	0.00000	0.00000
	A	0.00638	0.01125	0.11279
	B	0.00000	0.00000	0.00000
	B	0.00486	0.01239	0.14933

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	0.01919	0.02391	0.13542
	B	0.00000	0.00000	0.00000
	B	0.01570	0.02811	0.24827
sky130_osu_sc_18T_hs__or2_2	A	0.00000	0.00000	0.00000
	A	0.02484	0.02882	0.14028
	B	0.00000	0.00000	0.00000
	B	0.02132	0.03247	0.25056
sky130_osu_sc_18T_hs__or2_4	A	0.00000	0.00000	0.00000
	A	0.04376	0.04138	0.15008
	B	0.00000	0.00000	0.00000
	B	0.04024	0.04482	0.25458
sky130_osu_sc_18T_hs__or2_8	A	0.00000	0.00000	0.00000
	A	0.09561	0.06933	0.17059
	B	0.00000	0.00000	0.00000
	B	0.09202	0.07362	0.26798
sky130_osu_sc_18T_hs__or2_l	A	0.00000	0.00000	0.00000
	A	0.01505	0.01997	0.11624
	B	0.00000	0.00000	0.00000
	B	0.01248	0.02255	0.19563

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)	-0.00468	-0.00545	-0.00546
sky130_osu_sc_18T_hs__or2_2	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00468	-0.00545	-0.00545
sky130_osu_sc_18T_hs__or2_4	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00468	-0.00546	-0.00546
sky130_osu_sc_18T_hs__or2_8	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00468	-0.00546	-0.00546
sky130_osu_sc_18T_hs__or2_l	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00347	-0.00401	-0.00401

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)	0.00542	0.00550	0.00546
sky130_osu_sc_18T_hs__or2_2	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00542	0.00550	0.00546
sky130_osu_sc_18T_hs__or2_4	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00542	0.00550	0.00546
sky130_osu_sc_18T_hs__or2_8	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00542	0.00550	0.00546
sky130_osu_sc_18T_hs__or2_l	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00399	0.00404	0.00401

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)	-0.00253	-0.00258	-0.00253
sky130_osu_sc_18T_hs__or2_2	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00253	-0.00258	-0.00253
sky130_osu_sc_18T_hs__or2_4	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00253	-0.00258	-0.00253
sky130_osu_sc_18T_hs__or2_8	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00253	-0.00259	-0.00253
sky130_osu_sc_18T_hs__or2_l	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00192	-0.00195	-0.00192

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)	0.00264	0.00264	0.00256
sky130_osu_sc_18T_hs__or2_2	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00264	0.00264	0.00256
sky130_osu_sc_18T_hs__or2_4	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00264	0.00264	0.00256
sky130_osu_sc_18T_hs__or2_8	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00264	0.00264	0.00256
sky130_osu_sc_18T_hs__or2_l	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00199	0.00199	0.00194

SKY130_OSU_SC_18T_HS__TBUFIx

sky130_osu_sc_18T_hs_ff_1P95_-40C.ccs
Cell Library: Process , Voltage 1.95,
Temp -40.00

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	0.00534	0.00680	2.20525
sky130_osu_sc_18T_hs__tbufi_l	0.00427	0.00545	1.59972

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__tbufi_1	0.00000	0.10918	0.43381
sky130_osu_sc_18T_hs__tbufi_l	0.00000	0.03010	0.11516

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)	0.02510	0.65509	10.09280
	OE->Y (FR)	0.03313	0.35799	5.34314
	OE->Y (RR)	0.04709	0.42521	5.81945
sky130_osu_sc_18T_hs__tbufi_l	A->Y (FR)	0.02868	0.71807	10.20860
	OE->Y (FR)	0.03554	0.35782	5.34304
	OE->Y (RR)	0.05037	0.48472	5.78303

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)	0.01797	0.41868	6.45800
	OE->Y (FF)	0.03330	0.35797	5.34316
	OE->Y (RF)	0.01743	0.40267	6.20769
sky130_osu_sc_18T_hs__tbufi_l	A->Y (RF)	0.01927	0.43761	6.14853
	OE->Y (FF)	0.03569	0.35780	5.34303
	OE->Y (RF)	0.01888	0.41188	5.74455

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	0.00799	0.01262	0.06855
	OE	0.00000	0.00000	0.00000
	OE	0.00840	0.02076	0.25414
sky130_osu_sc_18T_hs__tbufi_l	A	0.00000	0.00000	0.00000
	A	0.00627	0.00980	0.05829
	OE	0.00000	0.00000	0.00000
	OE	0.00622	0.01694	0.20661

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	-0.00145	0.00012	0.02158
	OE	0.00000	0.00000	0.00000
	OE	0.00555	0.01944	0.29178
sky130_osu_sc_18T_hs__tbufi_l	A	0.00000	0.00000	0.00000
	A	-0.00103	0.00077	0.02483
	OE	0.00000	0.00000	0.00000
	OE	0.00397	0.01537	0.22820

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)	-0.00430	-0.00437	-0.00432
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	-0.00378	-0.00383	-0.00380
sky130_osu_sc_18T_hs__tbufi_l	(!OE * Y)	0.00000	0.00000	0.00000
	(!OE * Y)	-0.00335	-0.00335	-0.00336
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	-0.00299	-0.00302	-0.00300

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)	0.00430	0.00437	0.00432
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	0.00385	0.00387	0.00383
sky130_osu_sc_18T_hs__tbufi_l	(!OE * Y)	0.00000	0.00000	0.00000
	(!OE * Y)	0.00335	0.00335	0.00336
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	0.00302	0.00307	0.00301

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)	0.00334	0.01863	0.30076
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00305	0.01809	0.30045
sky130_osu_sc_18T_hs__tbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00236	0.01508	0.23646
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00213	0.01463	0.23621

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)	0.00941	0.02568	0.30782
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00938	0.02579	0.30790
sky130_osu_sc_18T_hs__tbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00760	0.02047	0.24208
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00763	0.02056	0.24214

SKY130_OSU_SC_18T_HS__TNBUFIx

sky130_osu_sc_18T_hs_ff_1P95_-40C.ccs
Cell Library: Process , Voltage 1.95,
Temp -40.00

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	0.00533	0.00828	2.21254
sky130_osu_sc_18T_hs__tnbufi_l	0.00426	0.00641	1.59934

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__tnbufi_1	0.00000	0.18121	0.21771
sky130_osu_sc_18T_hs__tnbufi_l	0.00000	0.04880	0.05906

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)	0.02510	0.65579	10.11330
	OE->Y (RR)	0.01940	0.35895	5.34416
	OE->Y (FR)	0.03370	0.66465	10.11320
sky130_osu_sc_18T_hs__tnbufi_l	A->Y (FR)	0.02883	0.71787	10.20630
	OE->Y (RR)	0.01956	0.35928	5.34449
	OE->Y (FR)	0.03701	0.71226	9.95440

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)	0.01778	0.41920	6.47334
	OE->Y (RF)	0.01927	0.35893	5.34412
	OE->Y (FF)	0.03240	0.40310	5.60283
sky130_osu_sc_18T_hs__tnbufi_l	A->Y (RF)	0.01904	0.43745	6.14753
	OE->Y (RF)	0.01950	0.35928	5.34448
	OE->Y (FF)	0.03533	0.42885	5.35653

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	0.00821	0.01282	0.06857
	OE	0.00000	0.00000	0.00000
	OE	0.02072	0.03800	0.31595
sky130_osu_sc_18T_hs__tnbufi_l	A	0.00000	0.00000	0.00000
	A	0.00651	0.01000	0.05849
	OE	0.00000	0.00000	0.00000
	OE	0.01588	0.02938	0.24777

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	-0.00174	-0.00015	0.02110
	OE	0.00000	0.00000	0.00000
	OE	0.01826	0.03536	0.26944
sky130_osu_sc_18T_hs__tnbufi_l	A	0.00000	0.00000	0.00000
	A	-0.00132	0.00051	0.02460
	OE	0.00000	0.00000	0.00000
	OE	0.01393	0.02662	0.19912

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)	-0.00366	-0.00371	-0.00367
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	-0.00319	-0.00323	-0.00320
sky130_osu_sc_18T_hs__tnbufi_l	(OE * Y)	0.00000	0.00000	0.00000
	(OE * Y)	-0.00273	-0.00273	-0.00274
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	-0.00241	-0.00244	-0.00242

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)	0.00366	0.00371	0.00367
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	0.00324	0.00325	0.00323
sky130_osu_sc_18T_hs__tnbufi_l	(OE * Y)	0.00000	0.00000	0.00000
	(OE * Y)	0.00273	0.00273	0.00274
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	0.00244	0.00247	0.00243

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)	-0.00654	0.00886	0.29153
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00651	0.00870	0.29155
sky130_osu_sc_18T_hs__tnbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	-0.00481	0.00782	0.22983
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00476	0.00776	0.22991

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)	0.01564	0.03495	0.31674
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.01547	0.03492	0.31657
sky130_osu_sc_18T_hs__tnbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.01201	0.02637	0.24849
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.01189	0.02687	0.24846

SKY130_OSU_SC_18T_HS__XNOR2

sky130_osu_sc_18T_hs_ff_1P95_-40C.ccs
Cell Library: Process , Voltage 1.95,
Temp -40.00

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	0.01056	0.00961	2.26067

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__xnor2_l	0.00000	0.35563	0.65151

Delay Information

Delay(ns) to Y rising (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_18T_hs__xnor2_l	A->Y (RR)	B	0.05911	0.45125	5.99296
	A->Y (FR)	!B	0.03145	0.65923	10.11250
	B->Y (RR)	A	0.04685	0.44125	6.11011
	B->Y (FR)	!A	0.04579	0.67616	10.18950

Delay(ns) to Y falling (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_18T_hs__xnor2_l	A->Y (FF)	B	0.05477	0.45572	6.07963
	A->Y (RF)	!B	0.02612	0.43361	6.62988
	B->Y (FF)	A	0.04905	0.45194	6.10427
	B->Y (RF)	!A	0.03261	0.44195	6.61059

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	0.00810	0.01916	0.25137
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.01955	0.03784	0.35127
	B	A	0.00000	0.00000	0.00000
	B	A	0.00238	0.01651	0.29795
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.02193	0.03759	0.31766

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	0.02526	0.03931	0.30830
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00554	0.01879	0.29413
	B	A	0.00000	0.00000	0.00000
	B	A	0.02305	0.03894	0.31807
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00745	0.02053	0.29196

SKY130_OSU_SC_18T_HS__XOR2

sky130_osu_sc_18T_hs_ff_1P95_-40C.ccs
Cell Library: Process , Voltage 1.95,
Temp -40.00

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_l	21.24540

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	B	Y
sky130_osu_sc_18T_hs__xor2_l	0.01054	0.00965	2.23042

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__xor2_l	0.00000	0.35563	0.54891

Delay Information

Delay(ns) to Y rising (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_18T_hs__xor2_l	A->Y (RR)	!B	0.05563	0.43910	5.99580
	A->Y (FR)	B	0.04102	0.67773	10.27860
	B->Y (RR)	!A	0.04897	0.43971	6.04562
	B->Y (FR)	A	0.04376	0.67752	10.21970

Delay(ns) to Y falling (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_18T_hs__xor2_l	A->Y (FF)	!B	0.04791	0.43899	5.68622
	A->Y (RF)	B	0.02429	0.43149	6.48905
	B->Y (FF)	!A	0.04430	0.43831	5.88785
	B->Y (RF)	A	0.03077	0.42238	6.27529

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	0.02364	0.04084	0.34247
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00366	0.01533	0.29033
	B	A	0.00000	0.00000	0.00000
	B	A	0.02428	0.04121	0.33257
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00188	0.01595	0.30206

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	0.00449	0.01885	0.31672
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.02615	0.04105	0.27593
	B	A	0.00000	0.00000	0.00000
	B	A	0.00457	0.01801	0.29990
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.02354	0.04028	0.32370

SKY130_OSU_SC_18T_HS_x

sky130_osu_sc_18T_hs_ff_1P95_-40C.ccs
Cell Library: Process , Voltage 1.95,
Temp -40.00

Truth Table

INPUT
A
x

Footprint

Cell Name	Area
sky130_osu_sc_18T_hs__ant	6.59340
sky130_osu_sc_18T_hs__tiehi	6.59340
sky130_osu_sc_18T_hs__tielo	6.59340

Pin Capacitance Information

Cell Name	Pin Cap(pf)
	A
sky130_osu_sc_18T_hs__ant	1.37535
sky130_osu_sc_18T_hs__tiehi	0.00000
sky130_osu_sc_18T_hs__tielo	0.00000

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__ant	0.00000	683004.00000	1366010.00000
sky130_osu_sc_18T_hs__tiehi	0.00000	0.00000	0.00000
sky130_osu_sc_18T_hs__tielo	0.00000	0.00000	0.00000

Passive Power Information

Passive power(pJ) for A rising :

Cell Name	Power(pJ)		
	first	mid	last
sky130_osu_sc_18T_hs__ant	0.00000	0.00000	0.00000
	-0.00085	0.18556	2.66610

Passive power(pJ) for A falling :

Cell Name	Power(pJ)		
	first	mid	last
sky130_osu_sc_18T_hs__ant	0.00000	0.00000	0.00000
	11.88370	11.31810	3.18035