sky130_osu_sc_18T_ls_tt_1P62_25C.ccs Library

Cell Groups
SKY130_OSU_SC_18T_LS__ADDFx
SKY130_OSU_SC_18T_LS__ADDHx
SKY130_OSU_SC_18T_LS__AND2x
SKY130_OSU_SC_18T_LS__AOI21
SKY130_OSU_SC_18T_LS__AOI22
SKY130_OSU_SC_18T_LS__BUFx
SKY130_OSU_SC_18T_LS__DFFRx
SKY130_OSU_SC_18T_LS__DFFSRx
SKY130_OSU_SC_18T_LS__DFFSx
SKY130_OSU_SC_18T_LS__DFFx
SKY130_OSU_SC_18T_LS__INVx
SKY130_OSU_SC_18T_LS__MUX2
SKY130_OSU_SC_18T_LS__NAND2x
SKY130_OSU_SC_18T_LS__NOR2x
SKY130_OSU_SC_18T_LS__OAI21
SKY130_OSU_SC_18T_LS__OAI22
SKY130_OSU_SC_18T_LS__OR2x
SKY130_OSU_SC_18T_LS__TBUFIx
SKY130_OSU_SC_18T_LS__TNBUFIx
SKY130_OSU_SC_18T_LS__XNOR2
SKY130_OSU_SC_18T_LS__XOR2
SKY130_OSU_SC_18T_LS_x

SKY130_OSU_SC_18T_LS__ADDFx

sky130_osu_sc_18T_ls_tt_1P62_25C.ccs
Cell Library: Process , Voltage 1.62,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__addf_1	46.88640
sky130_osu_sc_18T_ls__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_ls__addf_1	0.02111	0.02116	0.01620	1.94560	0.90427	1.91132
sky130_osu_sc_18T_ls__addf_l	0.02111	0.02115	0.01620	1.33768	0.90647	1.34974

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__addf_1	0.00000	0.00219	0.00239
sky130_osu_sc_18T_ls__addf_l	0.00000	0.00181	0.00201

Delay Information

Delay(ns) to CO rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__addf_1	A->CO (RR)	0.19157	1.97517	25.61020
	B->CO (RR)	0.16982	1.87789	24.46470
	CI->CO (RR)	0.18341	2.00130	26.08340
	CON->CO (FR)	0.04010	0.92257	12.35780
sky130_osu_sc_18T_ls__addf_1	A->CO (RR)	0.19253	1.84710	20.98990
	B->CO (RR)	0.17126	1.76552	20.21620
	CI->CO (RR)	0.18433	1.87413	21.48890
	CON->CO (FR)	0.04553	0.99906	12.31170

Delay(ns) to CO falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__addf_1	A->CO (FF)	0.29417	2.64003	33.65400
	B->CO (FF)	0.26454	2.52194	32.52840
	CI->CO (FF)	0.25815	2.60288	33.74040
	CON->CO (RF)	0.02859	0.66130	8.83120
sky130_osu_sc_18T_ls__addf_1	A->CO (FF)	0.28651	2.35573	26.25080
	B->CO (FF)	0.25711	2.25223	25.48400
	CI->CO (FF)	0.25039	2.31893	26.35830
	CON->CO (RF)	0.03069	0.68446	8.47623

Delay(ns) to CON rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__addf_1	A->CON (FR)	0.22198	1.25676	12.14770
	B->CON (FR)	0.19473	1.18728	11.86280
	CI->CON (FR)	0.18605	1.22019	12.27820
sky130_osu_sc_18T_ls__addf_1	A->CON (FR)	0.21056	1.24635	12.15400
	B->CON (FR)	0.18395	1.17758	11.86890
	CI->CON (FR)	0.17475	1.20982	12.28480

Delay(ns) to CON falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__addf_1	A->CON (RF)	0.10643	0.69991	7.04217
	B->CON (RF)	0.09997	0.69197	7.11358
	CI->CON (RF)	0.09803	0.72937	7.59178
sky130_osu_sc_18T_ls__addf_1	A->CON (RF)	0.10263	0.69656	7.04813
	B->CON (RF)	0.09655	0.68898	7.11874
	CI->CON (RF)	0.09422	0.72585	7.59710

Delay(ns) to S rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__addf_1	A->S (-R)	0.42115	2.54956	27.29500
	B->S (-R)	0.42647	2.53159	26.74700
	CI->S (-R)	0.38252	2.50621	27.36970
	CON->S (RR)	0.11178	0.81860	7.82170
sky130_osu_sc_18T_ls__addf_1	A->S (-R)	0.40212	2.35937	22.94450
	B->S (-R)	0.40796	2.35259	22.63080
	CI->S (-R)	0.36334	2.31717	23.03420
	CON->S (RR)	0.11178	0.87804	7.72812

Delay(ns) to S falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__addf_1	A->S (-F)	0.32033	1.78524	18.24340
	B->S (-F)	0.32772	1.72202	17.62900
	CI->S (-F)	0.31164	1.80642	18.69930
	CON->S (FF)	0.13812	0.82993	7.18495
sky130_osu_sc_18T_ls__addf_l	A->S (-F)	0.30157	1.62893	15.14870
	B->S (-F)	0.30944	1.57884	14.76410
	CI->S (-F)	0.29282	1.64958	15.63840
	CON->S (FF)	0.13166	0.84000	6.89367

Power Information

Internal switching power(pJ) to CO rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__addf_1	A	0.00397	0.00376	0.00444
	B	0.00516	0.00514	0.00590
	CI	0.00545	0.00561	0.00674
sky130_osu_sc_18T_ls__addf_l	A	0.00311	0.00280	0.00320
	B	0.00430	0.00414	0.00464
	CI	0.00458	0.00461	0.00535

Internal switching power(pJ) to CO falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__addf_1	A	0.01533	0.01542	0.01721
	B	0.01514	0.01545	0.01741
	CI	0.01323	0.01374	0.01574
sky130_osu_sc_18T_ls__addf_l	A	0.01447	0.01444	0.01555
	B	0.01427	0.01450	0.01567
	CI	0.01235	0.01279	0.01398

Internal switching power(pJ) to CON rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__addf_1	A	0.01531	0.01533	0.01594
	B	0.01512	0.01535	0.01596
	CI	0.01321	0.01365	0.01441
sky130_osu_sc_18T_ls__addf_l	A	0.01446	0.01439	0.01501
	B	0.01425	0.01441	0.01503
	CI	0.01234	0.01274	0.01348

Internal switching power(pJ) to CON falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__addf_1	A	0.00392	0.00372	0.00396
	B	0.00512	0.00502	0.00527
	CI	0.00543	0.00553	0.00599
sky130_osu_sc_18T_ls__addf_l	A	0.00306	0.00277	0.00300
	B	0.00426	0.00410	0.00435
	CI	0.00456	0.00460	0.00502

Internal switching power(pJ) to S rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__addf_1	A	0.01533	0.01538	0.01717
	B	0.01514	0.01545	0.01728
	CI	0.01323	0.01374	0.01564
sky130_osu_sc_18T_ls__addf_l	A	0.01447	0.01444	0.01561
	B	0.01427	0.01450	0.01565
	CI	0.01235	0.01279	0.01401

Internal switching power(pJ) to S falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__addf_1	A	0.03238	0.03263	0.03307
	B	0.02873	0.02813	0.03085
	CI	0.02611	0.02617	0.02690
sky130_osu_sc_18T_ls__addf_l	A	0.03122	0.03129	0.03178
	B	0.02761	0.02692	0.02970
	CI	0.02500	0.02496	0.02569

SKY130_OSU_SC_18T_LS__ADDHx

sky130_osu_sc_18T_ls_tt_1P62_25C.ccs
Cell Library: Process , Voltage 1.62,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__addh_1	27.83880
sky130_osu_sc_18T_ls__addh_l	27.83880

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)		
	A	B	CO	CON	S
sky130_osu_sc_18T_ls__addh_1	0.01042	0.01131	1.91226	0.97499	1.95439
sky130_osu_sc_18T_ls__addh_l	0.01042	0.01132	1.10443	0.96325	1.11475

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__addh_1	0.00000	0.00180	0.00193
sky130_osu_sc_18T_ls__addh_l	0.00000	0.00214	0.00260

Delay Information

Delay(ns) to CO rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__addh_1	A->CO (RR)	0.13228	0.82853	7.54725
	B->CO (RR)	0.13684	0.82947	7.64765
sky130_osu_sc_18T_ls__addh_l	A->CO (RR)	0.13653	0.93930	7.56573
	B->CO (RR)	0.14110	0.94342	7.66803

Delay(ns) to CO falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__addh_1	A->CO (FF)	0.11986	0.79978	7.16617
	B->CO (FF)	0.12787	0.81516	7.22508
sky130_osu_sc_18T_ls__addh_l	A->CO (FF)	0.11758	0.82120	6.63337
	B->CO (FF)	0.12516	0.83703	6.69769

Delay(ns) to CON rising (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_18T_ls__addh_1	A->CON (RR)	B	0.18352	0.70052	4.10246
	A->CON (FR)	!B	0.12483	1.14449	12.28450
	B->CON (RR)	A	0.18824	0.70158	4.20298
	B->CON (FR)	!A	0.15341	1.17673	12.23590
sky130_osu_sc_18T_ls__addh_l	A->CON (RR)	B	0.16376	0.66642	3.94554
	A->CON (FR)	!B	0.11038	1.12426	12.18240
	B->CON (RR)	A	0.16846	0.67036	4.05254
	B->CON (FR)	!A	0.13900	1.15642	12.13180

Delay(ns) to CON falling (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_18T_ls__addh_1	A->CON (FF)	B	0.17271	0.85784	6.34994
	A->CON (RF)	!B	0.06411	0.69123	7.67277
	B->CON (FF)	A	0.17361	0.89360	6.70039
	B->CON (RF)	!A	0.07512	0.68130	7.37147
sky130_osu_sc_18T_ls__addh_l	A->CON (FF)	B	0.15651	0.81917	6.09285
	A->CON (RF)	!B	0.05931	0.68308	7.61944
	B->CON (FF)	A	0.15708	0.85564	6.44519
	B->CON (RF)	!A	0.07050	0.67414	7.31991

Delay(ns) to S rising (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_18T_ls__addh_1	A->S (RR)	!B	0.13894	1.90920	25.55550
	A->S (FR)	B	0.24757	2.04651	23.86040
	B->S (RR)	!A	0.14916	1.84381	24.39080
	B->S (FR)	A	0.25011	2.13789	25.06820
	CON->S (FR)	-	0.04433	0.94777	12.68320
sky130_osu_sc_18T_ls__addh_l	A->S (RR)	!B	0.14135	1.75797	19.56870
	A->S (FR)	B	0.23874	1.87783	17.85340
	B->S (RR)	!A	0.15190	1.71158	18.86450
	B->S (FR)	A	0.24082	1.94900	18.61990
	CON->S (FR)	-	0.05312	1.08323	12.73420

Delay(ns) to S falling (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_18T_ls__addh_1	A->S (FF)	!B	0.18473	2.39357	31.97310
	A->S (RF)	B	0.23205	1.55977	17.06580
	B->S (FF)	!A	0.21329	2.42770	31.97490
	B->S (RF)	A	0.23672	1.55953	17.15810
	CON->S (RF)	-	0.02684	0.64512	8.64737
sky130_osu_sc_18T_ls__addh_l	A->S (FF)	!B	0.17428	2.01665	22.37690
	A->S (RF)	B	0.21504	1.34312	11.49430
	B->S (FF)	!A	0.20283	2.05187	22.34060
	B->S (RF)	A	0.21980	1.34477	11.59580
	CON->S (RF)	-	0.03043	0.68416	8.18409

Power Information

Internal switching power(pJ) to CO rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__addh_1	A	0.00000	0.00000	0.00000
	A	0.00665	0.00629	0.00643
	B	0.00000	0.00000	0.00000
	B	0.00600	0.00563	0.00544
sky130_osu_sc_18T_ls__addh_l	A	0.00000	0.00000	0.00000
	A	0.00544	0.00499	0.00602
	B	0.00000	0.00000	0.00000
	B	0.00479	0.00433	0.00503

Internal switching power(pJ) to CO falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__addh_1	A	0.00000	0.00000	0.00000
	A	0.01047	0.01004	0.01036
	B	0.00000	0.00000	0.00000
	B	0.01083	0.01090	0.01127
sky130_osu_sc_18T_ls__addh_l	A	0.00000	0.00000	0.00000
	A	0.00924	0.00879	0.00948
	B	0.00000	0.00000	0.00000
	B	0.00962	0.00958	0.01032

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

Cell Name	Input	When	Power(pJ)		
			first	mid	last
sky130_osu_sc_18T_ls__addh_1	A	B	0.00000	0.00000	0.00000
	A	B	0.00664	0.00629	0.00735
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00905	0.00906	0.00922
	B	A	0.00000	0.00000	0.00000
	B	A	0.00599	0.00564	0.00596
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01014	0.01013	0.01014
sky130_osu_sc_18T_ls__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.00543	0.00499	0.00563
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00826	0.00821	0.00834
	B	A	0.00000	0.00000	0.00000
	B	A	0.00478	0.00433	0.00464
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00935	0.00928	0.00925

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

Cell Name	Input	When	Power(pJ)		
			first	mid	last
sky130_osu_sc_18T_ls__addh_1	A	B	0.00000	0.00000	0.00000
	A	B	0.01047	0.01008	0.01042
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00145	0.00141	0.00125
	B	A	0.00000	0.00000	0.00000
	B	A	0.01084	0.01087	0.01162
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00245	0.00231	0.00222
sky130_osu_sc_18T_ls__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.00924	0.00879	0.00942
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00040	0.00034	0.00030
	B	A	0.00000	0.00000	0.00000
	B	A	0.00962	0.00958	0.01032
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00140	0.00123	0.00110

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

Cell Name	Input	When	Power(pJ)		
			first	mid	last
sky130_osu_sc_18T_ls__addh_1	A	B	0.00000	0.00000	0.00000
	A	B	0.01048	0.01005	0.01059
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00146	0.00148	0.00140
	B	A	0.00000	0.00000	0.00000
	B	A	0.01084	0.01091	0.01162
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00247	0.00235	0.00224
sky130_osu_sc_18T_ls__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.00925	0.00881	0.00929
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00041	0.00035	0.00034
	B	A	0.00000	0.00000	0.00000
	B	A	0.00963	0.00958	0.01020
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00142	0.00124	0.00107

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

Cell Name	Input	When	Power(pJ)		
			first	mid	last
sky130_osu_sc_18T_ls__addh_1	A	B	0.00000	0.00000	0.00000
	A	B	0.00665	0.00629	0.00630
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00906	0.00912	0.00923
	B	A	0.00000	0.00000	0.00000
	B	A	0.00600	0.00563	0.00532
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01015	0.01019	0.01022
sky130_osu_sc_18T_ls__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.00543	0.00499	0.00558
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00826	0.00824	0.00835
	B	A	0.00000	0.00000	0.00000
	B	A	0.00479	0.00433	0.00459
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00935	0.00930	0.00920

SKY130_OSU_SC_18T_LS__AND2x

sky130_osu_sc_18T_ls_tt_1P62_25C.ccs
Cell Library: Process , Voltage 1.62,
Temp 25.00

Truth Table

INPUT		OUTPUT
A	B	Y
0	x	0
1	0	0
1	1	1

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__and2_1	12.45420
sky130_osu_sc_18T_ls__and2_2	15.38460
sky130_osu_sc_18T_ls__and2_4	21.24540
sky130_osu_sc_18T_ls__and2_6	27.10620
sky130_osu_sc_18T_ls__and2_8	32.96700
sky130_osu_sc_18T_ls__and2_l	12.45420

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	B	Y
sky130_osu_sc_18T_ls__and2_1	0.00559	0.00569	1.93793
sky130_osu_sc_18T_ls__and2_2	0.00560	0.00570	3.79104
sky130_osu_sc_18T_ls__and2_4	0.00560	0.00570	7.27047
sky130_osu_sc_18T_ls__and2_6	0.00563	0.00569	10.62500
sky130_osu_sc_18T_ls__and2_8	0.00561	0.00571	13.91645
sky130_osu_sc_18T_ls__and2_l	0.00429	0.00439	1.34883

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__and2_1	0.00000	0.00077	0.00113
sky130_osu_sc_18T_ls__and2_2	0.00000	0.00113	0.00161
sky130_osu_sc_18T_ls__and2_4	0.00000	0.00185	0.00258
sky130_osu_sc_18T_ls__and2_6	0.00000	0.00257	0.00356
sky130_osu_sc_18T_ls__and2_8	0.00000	0.00329	0.00453
sky130_osu_sc_18T_ls__and2_l	0.00000	0.00045	0.00066

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__and2_1	A->Y (RR)	0.10111	0.74971	7.20924
	B->Y (RR)	0.10684	0.75994	7.32463
sky130_osu_sc_18T_ls__and2_2	A->Y (RR)	0.11673	0.69643	7.43049
	B->Y (RR)	0.12241	0.69802	7.52661
sky130_osu_sc_18T_ls__and2_4	A->Y (RR)	0.16103	0.72099	7.90055
	B->Y (RR)	0.16663	0.71236	7.96668
sky130_osu_sc_18T_ls__and2_6	A->Y (RR)	0.20310	0.76522	8.21414
	B->Y (RR)	0.20869	0.75090	8.24994
sky130_osu_sc_18T_ls__and2_8	A->Y (RR)	0.24517	0.81654	8.60299
	B->Y (RR)	0.25081	0.80099	8.62842
sky130_osu_sc_18T_ls__and2_l	A->Y (RR)	0.11219	0.83796	7.26903
	B->Y (RR)	0.11829	0.84815	7.38154

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__and2_1	A->Y (FF)	0.09118	0.71663	6.63798
	B->Y (FF)	0.09739	0.73504	6.74094
sky130_osu_sc_18T_ls__and2_2	A->Y (FF)	0.10732	0.70214	6.88425
	B->Y (FF)	0.11426	0.71690	6.96751
sky130_osu_sc_18T_ls__and2_4	A->Y (FF)	0.15097	0.74278	7.31581
	B->Y (FF)	0.15790	0.75408	7.39304
sky130_osu_sc_18T_ls__and2_6	A->Y (FF)	0.19741	0.79236	7.60457
	B->Y (FF)	0.20412	0.80144	7.67868
sky130_osu_sc_18T_ls__and2_8	A->Y (FF)	0.24041	0.83574	7.83661
	B->Y (FF)	0.24738	0.84682	7.89953
sky130_osu_sc_18T_ls__and2_l	A->Y (FF)	0.09812	0.76559	6.57697
	B->Y (FF)	0.10576	0.78581	6.68710

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__and2_1	A	0.00000	0.00000	0.00000
	A	0.00520	0.00454	0.00758
	B	0.00000	0.00000	0.00000
	B	0.00529	0.00450	0.00625
sky130_osu_sc_18T_ls__and2_2	A	0.00000	0.00000	0.00000
	A	0.01026	0.00996	0.01280
	B	0.00000	0.00000	0.00000
	B	0.01035	0.00999	0.01145
sky130_osu_sc_18T_ls__and2_4	A	0.00000	0.00000	0.00000
	A	0.02112	0.02152	0.02491
	B	0.00000	0.00000	0.00000
	B	0.02119	0.02179	0.02362
sky130_osu_sc_18T_ls__and2_6	A	0.00000	0.00000	0.00000
	A	0.03186	0.03301	0.03594
	B	0.00000	0.00000	0.00000
	B	0.03200	0.03315	0.03515
sky130_osu_sc_18T_ls__and2_8	A	0.00000	0.00000	0.00000
	A	0.04266	0.04442	0.04727
	B	0.00000	0.00000	0.00000
	B	0.04280	0.04450	0.04679
sky130_osu_sc_18T_ls__and2_l	A	0.00000	0.00000	0.00000
	A	0.00381	0.00340	0.00560
	B	0.00000	0.00000	0.00000
	B	0.00390	0.00327	0.00455

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__and2_1	A	0.00000	0.00000	0.00000
	A	0.01256	0.01252	0.01577
	B	0.00000	0.00000	0.00000
	B	0.01414	0.01402	0.01697
sky130_osu_sc_18T_ls__and2_2	A	0.00000	0.00000	0.00000
	A	0.01590	0.01661	0.01979
	B	0.00000	0.00000	0.00000
	B	0.01749	0.01803	0.02093
sky130_osu_sc_18T_ls__and2_4	A	0.00000	0.00000	0.00000
	A	0.02411	0.02618	0.02955
	B	0.00000	0.00000	0.00000
	B	0.02570	0.02745	0.03044
sky130_osu_sc_18T_ls__and2_6	A	0.00000	0.00000	0.00000
	A	0.03221	0.03573	0.03956
	B	0.00000	0.00000	0.00000
	B	0.03375	0.03673	0.04017
sky130_osu_sc_18T_ls__and2_8	A	0.00000	0.00000	0.00000
	A	0.04032	0.04490	0.04951
	B	0.00000	0.00000	0.00000
	B	0.04184	0.04572	0.04970
sky130_osu_sc_18T_ls__and2_l	A	0.00000	0.00000	0.00000
	A	0.00965	0.00956	0.01192
	B	0.00000	0.00000	0.00000
	B	0.01084	0.01067	0.01281

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__and2_1	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00476	-0.00480	-0.00479
sky130_osu_sc_18T_ls__and2_2	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00476	-0.00480	-0.00479
sky130_osu_sc_18T_ls__and2_4	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00474	-0.00480	-0.00479
sky130_osu_sc_18T_ls__and2_6	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00476	-0.00482	-0.00482
sky130_osu_sc_18T_ls__and2_8	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00474	-0.00480	-0.00479
sky130_osu_sc_18T_ls__and2_l	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00345	-0.00349	-0.00349

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__and2_1	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00479	0.00483	0.00481
sky130_osu_sc_18T_ls__and2_2	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00479	0.00483	0.00481
sky130_osu_sc_18T_ls__and2_4	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00479	0.00483	0.00481
sky130_osu_sc_18T_ls__and2_6	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00481	0.00485	0.00483
sky130_osu_sc_18T_ls__and2_8	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00479	0.00483	0.00481
sky130_osu_sc_18T_ls__and2_l	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00349	0.00352	0.00350

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__and2_1	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00451	-0.00453	-0.00452
sky130_osu_sc_18T_ls__and2_2	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00451	-0.00454	-0.00452
sky130_osu_sc_18T_ls__and2_4	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00451	-0.00454	-0.00452
sky130_osu_sc_18T_ls__and2_6	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00451	-0.00453	-0.00452
sky130_osu_sc_18T_ls__and2_8	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00451	-0.00452	-0.00452
sky130_osu_sc_18T_ls__and2_l	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00328	-0.00329	-0.00329

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__and2_1	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00454	0.00461	0.00454
sky130_osu_sc_18T_ls__and2_2	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00455	0.00461	0.00454
sky130_osu_sc_18T_ls__and2_4	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00455	0.00461	0.00454
sky130_osu_sc_18T_ls__and2_6	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00455	0.00460	0.00454
sky130_osu_sc_18T_ls__and2_8	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00455	0.00460	0.00454
sky130_osu_sc_18T_ls__and2_l	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00330	0.00331	0.00330

SKY130_OSU_SC_18T_LS__AOI21

sky130_osu_sc_18T_ls_tt_1P62_25C.ccs
Cell Library: Process , Voltage 1.62,
Temp 25.00

Truth Table

INPUT			OUTPUT
A0	A1	B0	Y
0	x	0	1
x	x	1	0
1	0	0	1
1	1	x	0

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__aoi21_l	12.45420

Pin Capacitance Information

Cell Name	Pin Cap(pf)			Max Cap(pf)
	A0	A1	B0	Y
sky130_osu_sc_18T_ls__aoi21_l	0.00528	0.00549	0.00534	0.90833

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__aoi21_l	0.00000	0.00037	0.00068

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__aoi21_l	A0->Y (FR)	0.11869	1.15773	12.11190
	A1->Y (FR)	0.10180	1.10330	11.74090
	B0->Y (FR)	0.08725	1.12337	12.23940

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__aoi21_l	A0->Y (RF)	0.05855	0.62897	6.74332
	A1->Y (RF)	0.05312	0.64190	7.09148
	B0->Y (RF)	0.03587	0.61464	7.00710

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__aoi21_l	A0	0.00000	0.00000	0.00000
	A0	0.01110	0.01101	0.01105
	A1	0.00000	0.00000	0.00000
	A1	0.00941	0.00928	0.00931
	B0	0.00866	0.00846	0.00871

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__aoi21_l	A0	0.00000	0.00000	0.00000
	A0	0.00213	0.00175	0.00175
	A1	0.00000	0.00000	0.00000
	A1	0.00216	0.00177	0.00186
	B0	-0.00113	-0.00120	-0.00112

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__aoi21_l	(A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * !Y)	-0.00403	-0.00422	-0.00420
	(!A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !Y)	-0.00428	-0.00429	-0.00428
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00427	-0.00430	-0.00428

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__aoi21_l	(A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * !Y)	0.00417	0.00422	0.00420
	(!A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !Y)	0.00428	0.00431	0.00430
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00431	0.00431	0.00430

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__aoi21_l	(A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * B0 * !Y)	-0.00398	-0.00416	-0.00416
	(!A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !Y)	-0.00422	-0.00425	-0.00424
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	-0.00455	-0.00456	-0.00459

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__aoi21_l	(A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * B0 * !Y)	0.00412	0.00416	0.00416
	(!A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !Y)	0.00423	0.00429	0.00425
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	0.00458	0.00463	0.00460

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__aoi21_l	(A0 * A1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !Y)	-0.00204	-0.00206	-0.00205

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__aoi21_l	(A0 * A1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !Y)	0.00226	0.00227	0.00211

SKY130_OSU_SC_18T_LS__AOI22

sky130_osu_sc_18T_ls_tt_1P62_25C.ccs
Cell Library: Process , Voltage 1.62,
Temp 25.00

Truth Table

INPUT				OUTPUT
A0	A1	B0	B1	Y
0	x	0	x	1
0	x	1	0	1
x	x	1	1	0
1	0	0	x	1
1	0	1	0	1
1	1	x	x	0

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__aoi22_1	15.38460

Pin Capacitance Information

Cell Name	Pin Cap(pf)				Max Cap(pf)
	A0	A1	B0	B1	Y
sky130_osu_sc_18T_ls__aoi22_1	0.00529	0.00550	0.00569	0.00546	0.88874

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__aoi22_1	0.00000	0.00060	0.00097

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__aoi22_l	A0->Y (FR)	0.15111	1.20281	12.16410
	A1->Y (FR)	0.13461	1.16636	11.97080
	B0->Y (FR)	0.09267	1.11925	12.08710
	B1->Y (FR)	0.10931	1.15747	12.32420

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__aoi22_l	A0->Y (RF)	0.07652	0.64465	6.68691
	A1->Y (RF)	0.07110	0.65734	7.03368
	B0->Y (RF)	0.04085	0.62315	6.99880
	B1->Y (RF)	0.04639	0.60882	6.65321

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__aoi22_l	A0	0.01359	0.01347	0.01345
	A1	0.01190	0.01175	0.01145
	B0	0.00929	0.00901	0.00932
	B1	0.01089	0.01066	0.01099

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__aoi22_l	A0	0.00456	0.00419	0.00412
	A1	0.00460	0.00420	0.00423
	B0	-0.00065	-0.00074	-0.00060
	B1	-0.00054	-0.00072	-0.00065

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__aoi22_l	(A1 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * B1 * !Y)	-0.00405	-0.00420	-0.00419
	(!A1 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * B1 * !Y)	-0.00428	-0.00429	-0.00428
	(!A1 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !B1 * Y)	-0.00427	-0.00428	-0.00428
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00427	-0.00428	-0.00428

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__aoi22_l	(A1 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * B1 * !Y)	0.00416	0.00420	0.00419
	(!A1 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * B1 * !Y)	0.00428	0.00431	0.00430
	(!A1 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !B1 * Y)	0.00431	0.00431	0.00430
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00431	0.00431	0.00430

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__aoi22_l	(A0 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * B0 * B1 * !Y)	-0.00400	-0.00417	-0.00415
	(!A0 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * B1 * !Y)	-0.00423	-0.00426	-0.00424
	(!A0 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !B1 * Y)	-0.00455	-0.00456	-0.00459
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	-0.00455	-0.00456	-0.00459

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__aoi22_l	(A0 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * B0 * B1 * !Y)	0.00412	0.00417	0.00415
	(!A0 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * B1 * !Y)	0.00423	0.00429	0.00425
	(!A0 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !B1 * Y)	0.00458	0.00462	0.00460
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	0.00458	0.00462	0.00460

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__aoi22_l	(A0 * A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * B1 * !Y)	-0.00204	-0.00207	-0.00205
	(A0 * A1 * !B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B1 * !Y)	-0.00204	-0.00206	-0.00205
	(!A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B1 * Y)	-0.00466	-0.00469	-0.00470
	(!A0 * A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B1 * Y)	-0.00466	-0.00469	-0.00470

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__aoi22_l	(A0 * A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * B1 * !Y)	0.00236	0.00237	0.00213
	(A0 * A1 * !B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B1 * !Y)	0.00204	0.00206	0.00205
	(!A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B1 * Y)	0.00469	0.00477	0.00471
	(!A0 * A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B1 * Y)	0.00469	0.00477	0.00471

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__aoi22_l	(A0 * A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * B0 * !Y)	-0.00206	-0.00208	-0.00207
	(A0 * A1 * !B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B0 * !Y)	-0.00205	-0.00207	-0.00206
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00434	-0.00436	-0.00435
	(!A0 * A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B0 * Y)	-0.00434	-0.00437	-0.00435

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__aoi22_l	(A0 * A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * B0 * !Y)	0.00237	0.00238	0.00215
	(A0 * A1 * !B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B0 * !Y)	0.00205	0.00207	0.00206
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00437	0.00439	0.00436
	(!A0 * A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B0 * Y)	0.00437	0.00439	0.00436

SKY130_OSU_SC_18T_LS__BUFx

sky130_osu_sc_18T_ls_tt_1P62_25C.ccs
Cell Library: Process , Voltage 1.62,
Temp 25.00

Truth Table

INPUT	OUTPUT
A	Y
0	0
1	1

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__buf_1	9.52380
sky130_osu_sc_18T_ls__buf_2	12.45420
sky130_osu_sc_18T_ls__buf_4	18.31500
sky130_osu_sc_18T_ls__buf_6	24.17580
sky130_osu_sc_18T_ls__buf_8	30.03660
sky130_osu_sc_18T_ls__buf_l	9.52380

Pin Capacitance Information

Cell Name	Pin Cap(pf)	Max Cap(pf)
	A	Y
sky130_osu_sc_18T_ls__buf_1	0.00570	1.91790
sky130_osu_sc_18T_ls__buf_2	0.00570	3.81908
sky130_osu_sc_18T_ls__buf_4	0.00570	7.32767
sky130_osu_sc_18T_ls__buf_6	0.00098	1.80000
sky130_osu_sc_18T_ls__buf_8	0.00570	14.07092
sky130_osu_sc_18T_ls__buf_l	0.00443	1.35056

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__buf_1	0.00000	0.00081	0.00081
sky130_osu_sc_18T_ls__buf_2	0.00000	0.00121	0.00129
sky130_osu_sc_18T_ls__buf_4	0.00000	0.00202	0.00227
sky130_osu_sc_18T_ls__buf_6	0.00000	0.00000	0.00000
sky130_osu_sc_18T_ls__buf_8	0.00000	0.00363	0.00421
sky130_osu_sc_18T_ls__buf_l	0.00000	0.00043	0.00043

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__buf_1	**A->Y (RR)**	0.07724	0.70812	7.08694
sky130_osu_sc_18T_ls__buf_2	**A->Y (RR)**	0.08576	0.64479	7.37335
sky130_osu_sc_18T_ls__buf_4	**A->Y (RR)**	0.11573	0.64932	7.76456
sky130_osu_sc_18T_ls__buf_8	**A->Y (RR)**	0.17254	0.71450	8.34058
sky130_osu_sc_18T_ls__buf_l	**A->Y (RR)**	0.08617	0.79661	7.17233

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__buf_1	**A->Y (FF)**	0.08672	0.70375	6.54306
sky130_osu_sc_18T_ls__buf_2	**A->Y (FF)**	0.10355	0.69616	6.89670
sky130_osu_sc_18T_ls__buf_4	**A->Y (FF)**	0.14736	0.73792	7.33019
sky130_osu_sc_18T_ls__buf_8	**A->Y (FF)**	0.23686	0.83516	7.87692
sky130_osu_sc_18T_ls__buf_l	**A->Y (FF)**	0.09472	0.75698	6.53459

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__buf_1	A	0.00000	0.00000	0.00000
	A	0.00477	0.00403	0.00689
sky130_osu_sc_18T_ls__buf_2	A	0.00000	0.00000	0.00000
	A	0.00988	0.00942	0.01215
sky130_osu_sc_18T_ls__buf_4	A	0.00000	0.00000	0.00000
	A	0.02080	0.02103	0.02452
sky130_osu_sc_18T_ls__buf_8	A	0.00000	0.00000	0.00000
	A	0.04223	0.04393	0.04663
sky130_osu_sc_18T_ls__buf_l	A	0.00000	0.00000	0.00000
	A	0.00360	0.00300	0.00518

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__buf_1	A	0.00000	0.00000	0.00000
	A	0.01215	0.01202	0.01521
sky130_osu_sc_18T_ls__buf_2	A	0.00000	0.00000	0.00000
	A	0.01547	0.01597	0.01906
sky130_osu_sc_18T_ls__buf_4	A	0.00000	0.00000	0.00000
	A	0.02361	0.02544	0.02862
sky130_osu_sc_18T_ls__buf_8	A	0.00000	0.00000	0.00000
	A	0.03993	0.04397	0.04805
sky130_osu_sc_18T_ls__buf_l	A	0.00000	0.00000	0.00000
	A	0.00943	0.00924	0.01156

Passive power(pJ) for A rising :

Cell Name	Power(pJ)		
	first	mid	last
sky130_osu_sc_18T_ls__buf_6	0.00000	0.00000	0.00000
	-0.00062	-0.00062	-0.00062

Passive power(pJ) for A falling :

Cell Name	Power(pJ)		
	first	mid	last
sky130_osu_sc_18T_ls__buf_6	0.00000	0.00000	0.00000
	0.00062	0.00062	0.00062

SKY130_OSU_SC_18T_LS__DFFRx

sky130_osu_sc_18T_ls_tt_1P62_25C.ccs
Cell Library: Process , Voltage 1.62,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__dffr_1	63.73620
sky130_osu_sc_18T_ls__dffr_l	63.73620

Pin Capacitance Information

Cell Name	Pin Cap(pf)			Max Cap(pf)	
	D	RN	CK	Q	QN
sky130_osu_sc_18T_ls__dffr_1	0.00543	0.00543	0.01578	1.91397	1.89220
sky130_osu_sc_18T_ls__dffr_l	0.00543	0.00543	0.01578	1.34442	1.34848

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__dffr_1	0.00000	0.00314	0.00355
sky130_osu_sc_18T_ls__dffr_l	0.00000	0.00276	0.00317

Delay Information

Delay(ns) to Q rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__dffr_1	CK->Q (RR)	0.41345	1.67624	16.08520
	QN->Q (FR)	0.04594	1.01319	13.55560
sky130_osu_sc_18T_ls__dffr_l	CK->Q (RR)	0.40305	1.77033	15.48170
	QN->Q (FR)	0.04927	1.06334	13.10540

Delay(ns) to Q falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__dffr_1	CK->Q (RF)	0.39967	1.71066	16.98010
	QN->Q (RF)	0.03303	0.75980	10.13430
	RN->Q (FF)	0.29176	1.77478	19.03420
sky130_osu_sc_18T_ls__dffr_l	CK->Q (RF)	0.40464	1.84755	16.55980
	QN->Q (RF)	0.03382	0.76479	9.47477
	RN->Q (FF)	0.29678	1.91177	18.60920

Delay(ns) to QN rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__dffr_1	CK->QN (RR)	0.35387	1.02135	7.56006
	RN->QN (FR)	0.24516	1.08610	9.61156
sky130_osu_sc_18T_ls__dffr_l	CK->QN (RR)	0.35392	1.09024	7.58495
	RN->QN (FR)	0.24574	1.15508	9.62750

Delay(ns) to QN falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__dffr_1	**CK->QN (RF)**	0.34651	0.85534	4.95770
sky130_osu_sc_18T_ls__dffr_l	**CK->QN (RF)**	0.33088	0.86051	4.72758

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_ls__dffr_1	hold	CK (R)	-0.08042	-0.10993	-0.45969
	setup	CK (R)	0.32440	0.35441	1.71418
sky130_osu_sc_18T_ls__dffr_l	hold	CK (R)	-0.08154	-0.11108	-0.45926
	setup	CK (R)	0.32609	0.35588	1.73735

Constraints(ns) for D falling :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_ls__dffr_1	hold	CK (R)	-0.17286	-0.51813	-4.77257
	setup	CK (R)	0.20634	0.53459	4.85927
sky130_osu_sc_18T_ls__dffr_l	hold	CK (R)	-0.16956	-0.52003	-4.77087
	setup	CK (R)	0.20642	0.53443	4.85928

Constraints(ns) for D rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_ls__dffr_1	hold	CK (R)	-0.08042	-0.10993	-0.45969
	setup	CK (R)	0.32440	0.35441	1.71418
sky130_osu_sc_18T_ls__dffr_l	hold	CK (R)	-0.08154	-0.11108	-0.45926
	setup	CK (R)	0.32609	0.35588	1.73735

Constraints(ns) for D falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_ls__dffr_1	hold	CK (R)	-0.17286	-0.51813	-4.77257
	setup	CK (R)	0.20634	0.53459	4.85927
sky130_osu_sc_18T_ls__dffr_l	hold	CK (R)	-0.16956	-0.52003	-4.77087
	setup	CK (R)	0.20642	0.53443	4.85928

Constraints(ns) for RN rising :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_ls__dffr_1	recovery	CK (R)	0.27248	0.30065	1.55331
	removal	CK (R)	-0.04789	-0.05714	-0.10718
sky130_osu_sc_18T_ls__dffr_l	recovery	CK (R)	0.27332	0.30243	1.56662
	removal	CK (R)	-0.04789	-0.05714	-0.10718

Constraints(ns) for RN rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_ls__dffr_1	recovery	CK (R)	0.27248	0.30065	1.55331
	removal	CK (R)	-0.04789	-0.05714	-0.10718
sky130_osu_sc_18T_ls__dffr_l	recovery	CK (R)	0.27332	0.30243	1.56662
	removal	CK (R)	-0.04789	-0.05714	-0.10718

Constraints(ns) for RN falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_ls__dffr_1	min_pulse_width	RN ()	0.17422	0.54565	13.33370
	min_pulse_width	RN ()	0.17422	0.54565	13.33370
sky130_osu_sc_18T_ls__dffr_l	min_pulse_width	RN ()	0.17218	0.54565	13.33370
	min_pulse_width	RN ()	0.17014	0.54565	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_ls__dffr_1	min_pulse_width	CK ()	0.18442	0.54565	13.33370
	min_pulse_width	CK ()	0.20687	0.54565	13.33370
sky130_osu_sc_18T_ls__dffr_l	min_pulse_width	CK ()	0.17218	0.54565	13.33370
	min_pulse_width	CK ()	0.20075	0.54565	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_ls__dffr_1	min_pulse_width	CK ()	0.41504	0.54565	13.33370
	min_pulse_width	CK ()	0.16605	0.54565	13.33370
sky130_osu_sc_18T_ls__dffr_l	min_pulse_width	CK ()	0.41504	0.54565	13.33370
	min_pulse_width	CK ()	0.16605	0.54565	13.33370

Power Information

Internal switching power(pJ) to Q rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__dffr_1	CK	0.00000	0.00000	0.00000
	CK	0.01187	0.00847	0.00000
sky130_osu_sc_18T_ls__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.01048	0.00792	-0.00376

Internal switching power(pJ) to Q falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__dffr_1	CK	0.00000	0.00000	0.00000
	CK	0.01390	0.01215	0.00000
	RN	-0.00164	-0.08811	-1.25575
	RN	0.03182	0.03021	0.01412
sky130_osu_sc_18T_ls__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.01248	0.01118	0.00376
	RN	-0.00164	-0.07128	-0.88207
	RN	0.03039	0.02923	0.02159

Internal switching power(pJ) to QN rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__dffr_1	CK	0.00000	0.00000	0.00000
	CK	0.01390	0.01215	0.00000
	RN	-0.00164	-0.08751	-1.24146
	RN	0.03182	0.03023	0.01432
sky130_osu_sc_18T_ls__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.01248	0.01118	0.00392
	RN	-0.00164	-0.07141	-0.88474
	RN	0.03039	0.02924	0.02151

Internal switching power(pJ) to QN falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__dffr_1	CK	0.00000	0.00000	0.00000
	CK	0.01183	0.00847	0.00000
sky130_osu_sc_18T_ls__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.01044	0.00789	-0.00392

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__dffr_1	CK	0.00000	0.00000	0.00000
	CK	-0.00383	-0.00418	-0.00417
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.01444	0.01361	0.01478
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.00659	0.00583	0.00710
sky130_osu_sc_18T_ls__dffr_l	CK	0.00000	0.00000	0.00000
	CK	-0.00383	-0.00418	-0.00417
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.01444	0.01361	0.01478
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.00659	0.00583	0.00710

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__dffr_1	CK	0.00000	0.00000	0.00000
	CK	0.00414	0.00423	0.00417
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.02483	0.02442	0.02511
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.01153	0.01125	0.01222
sky130_osu_sc_18T_ls__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.00414	0.00423	0.00417
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.02483	0.02442	0.02511
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.01153	0.01125	0.01222

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__dffr_1	(CK * !Q * QN) + (!CK * !D * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !Q * QN) + (!CK * !D * !Q * QN)	0.00464	0.00396	0.00665
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.01287	0.01187	0.01439
sky130_osu_sc_18T_ls__dffr_l	(CK * !Q * QN) + (!CK * !D * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !Q * QN) + (!CK * !D * !Q * QN)	0.00464	0.00396	0.00666
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.01287	0.01187	0.01439

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__dffr_1	(CK * !Q * QN) + (!CK * !D * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !Q * QN) + (!CK * !D * !Q * QN)	0.01096	0.01057	0.01384
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.02382	0.02300	0.02586
sky130_osu_sc_18T_ls__dffr_l	(CK * !Q * QN) + (!CK * !D * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !Q * QN) + (!CK * !D * !Q * QN)	0.01096	0.01057	0.01384
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.02382	0.02300	0.02586

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__dffr_1	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	-0.00079	-0.00173	0.00094
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.00702	0.00521	0.00761
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	-0.00130	-0.00228	0.00048
sky130_osu_sc_18T_ls__dffr_l	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	-0.00079	-0.00173	0.00094
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.00702	0.00521	0.00761
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	-0.00130	-0.00228	0.00048

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__dffr_1	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.01732	0.01704	0.02007
	(D * RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * RN * !Q * QN)	0.03776	0.03651	0.03836
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.02903	0.02827	0.03062
	(!D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * Q * !QN)	0.03720	0.03628	0.04229
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.01980	0.01936	0.02238
sky130_osu_sc_18T_ls__dffr_l	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.01732	0.01704	0.02007
	(D * RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * RN * !Q * QN)	0.03776	0.03650	0.03836
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.02902	0.02827	0.03062
	(!D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * Q * !QN)	0.03720	0.03629	0.04229
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.01980	0.01936	0.02238

SKY130_OSU_SC_18T_LS__DFFSRx

sky130_osu_sc_18T_ls_tt_1P62_25C.ccs
Cell Library: Process , Voltage 1.62,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__dffsr_1	69.59700
sky130_osu_sc_18T_ls__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_ls__dffsr_1	0.00539	0.00544	0.01159	0.01600	1.93775	1.96252
sky130_osu_sc_18T_ls__dffsr_l	0.00539	0.00544	0.01158	0.01600	1.35656	1.34870

Leakage Information

Cell Name	Leakage(nW)		
	Min.	**Avg**	**Max.**
sky130_osu_sc_18T_ls__dffsr_1	0.00000	0.00331	0.00388
sky130_osu_sc_18T_ls__dffsr_l	0.00000	0.00293	0.00350

Delay Information

Delay(ns) to Q rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__dffsr_1	CK->Q (RR)	0.42175	1.65462	15.67010
	QN->Q (FR)	0.04380	0.98118	13.19350
	RN->Q (RR)	0.33655	1.58364	15.72940
	SN->Q (FR)	0.31986	1.73578	18.23680
sky130_osu_sc_18T_ls__dffsr_l	CK->Q (RR)	0.42365	1.80719	15.69390
	QN->Q (FR)	0.04919	1.06464	13.14290
	RN->Q (RR)	0.33907	1.73735	15.74470
	SN->Q (FR)	0.32201	1.88816	18.22530

Delay(ns) to Q falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__dffsr_1	CK->Q (RF)	0.44763	1.72953	16.61850
	QN->Q (RF)	0.03017	0.71419	9.53370
	RN->Q (FF)	0.30246	1.76099	18.71420
sky130_osu_sc_18T_ls__dffsr_l	CK->Q (RF)	0.45804	1.91054	16.75510
	QN->Q (RF)	0.03375	0.76582	9.50849
	RN->Q (FF)	0.31334	1.94219	18.84280

Delay(ns) to QN rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__dffsr_1	CK->QN (RR)	0.40298	1.07290	7.67229
	RN->QN (FR)	0.25852	1.10444	9.76293
sky130_osu_sc_18T_ls__dffsr_l	CK->QN (RR)	0.40649	1.14794	7.64521
	RN->QN (FR)	0.26201	1.17954	9.72750

Delay(ns) to QN falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__dffsr_1	CK->QN (RF)	0.35969	0.86680	4.95765
	RN->QN (RF)	0.27498	0.79691	5.01376
	SN->QN (FF)	0.25833	0.94919	7.51965
sky130_osu_sc_18T_ls__dffsr_l	CK->QN (RF)	0.35334	0.89210	4.81606
	RN->QN (RF)	0.26916	0.82317	4.86803
	SN->QN (FF)	0.25223	0.97372	7.34485

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_ls__dffsr_1	hold	CK (R)	-0.08747	-0.11911	-0.53788
	setup	CK (R)	0.31694	0.34568	1.68230
sky130_osu_sc_18T_ls__dffsr_l	hold	CK (R)	-0.08714	-0.12004	-0.53563
	setup	CK (R)	0.31668	0.34536	1.68310

Constraints(ns) for D falling :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_ls__dffsr_1	hold	CK (R)	-0.19233	-0.54009	-4.94877
	setup	CK (R)	0.23919	0.55479	5.01326
sky130_osu_sc_18T_ls__dffsr_l	hold	CK (R)	-0.19464	-0.54001	-4.94517
	setup	CK (R)	0.23924	0.55479	5.01326

Constraints(ns) for D rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_ls__dffsr_1	hold	CK (R)	-0.08747	-0.11911	-0.53788
	setup	CK (R)	0.31694	0.34568	1.68230
sky130_osu_sc_18T_ls__dffsr_l	hold	CK (R)	-0.08714	-0.12004	-0.53563
	setup	CK (R)	0.31668	0.34536	1.68310

Constraints(ns) for D falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_ls__dffsr_1	hold	CK (R)	-0.19233	-0.54009	-4.94877
	setup	CK (R)	0.23919	0.55479	5.01326
sky130_osu_sc_18T_ls__dffsr_l	hold	CK (R)	-0.19464	-0.54001	-4.94517
	setup	CK (R)	0.23924	0.55479	5.01326

Constraints(ns) for RN rising :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_ls__dffsr_1	recovery	CK (R)	0.24240	0.26799	1.47443
	removal	CK (R)	-0.02907	-0.03244	-0.06971
	hold	SN (R)	-0.24904	-0.48841	-2.75423
	setup	SN (R)	0.27691	0.53438	5.57376
sky130_osu_sc_18T_ls__dffsr_l	recovery	CK (R)	0.24204	0.26787	1.47790
	removal	CK (R)	-0.02907	-0.03244	-0.06971
	hold	SN (R)	-0.24246	-0.47744	-2.67651
	setup	SN (R)	0.27298	0.52502	5.42612

Constraints(ns) for RN rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_ls__dffsr_1	recovery	CK (R)	0.24240	0.26799	1.47443
	removal	CK (R)	-0.02907	-0.03244	-0.06971
	hold	SN (R)	-0.24961	-0.48841	-2.75423
	hold	SN (R)	-0.24904	-0.48940	-2.76377
	setup	SN (R)	0.27691	0.53166	5.34824
	setup	SN (R)	0.27084	0.53438	5.57376
sky130_osu_sc_18T_ls__dffsr_l	recovery	CK (R)	0.24204	0.26787	1.47790
	removal	CK (R)	-0.02907	-0.03244	-0.06971
	hold	SN (R)	-0.24316	-0.47744	-2.67651
	hold	SN (R)	-0.24246	-0.48052	-2.68620
	setup	SN (R)	0.27298	0.52114	5.26316
	setup	SN (R)	0.25740	0.52502	5.42612

Constraints(ns) for RN falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_ls__dffsr_1	min_pulse_width	RN ()	0.19871	0.54565	13.33370
	min_pulse_width	RN ()	0.20075	0.54565	13.33370
sky130_osu_sc_18T_ls__dffsr_l	min_pulse_width	RN ()	0.19871	0.54565	13.33370
	min_pulse_width	RN ()	0.19667	0.54565	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_ls__dffsr_1	recovery	CK (R)	0.05243	0.09517	4.10342
	removal	CK (R)	-0.01821	-0.06844	-0.50291
sky130_osu_sc_18T_ls__dffsr_l	recovery	CK (R)	0.05135	0.09453	3.92570
	removal	CK (R)	-0.01821	-0.06844	-0.50186

Constraints(ns) for SN rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_ls__dffsr_1	recovery	CK (R)	0.05243	0.09517	4.10342
	removal	CK (R)	-0.01821	-0.06844	-0.50291
sky130_osu_sc_18T_ls__dffsr_l	recovery	CK (R)	0.05135	0.09453	3.92570
	removal	CK (R)	-0.01821	-0.06844	-0.50186

Constraints(ns) for SN falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_ls__dffsr_1	min_pulse_width	SN ()	0.25645	0.57610	13.33370
	min_pulse_width	SN ()	0.25303	0.57828	13.33370
sky130_osu_sc_18T_ls__dffsr_l	min_pulse_width	SN ()	0.25516	0.56305	13.33370
	min_pulse_width	SN ()	0.24128	0.56523	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_ls__dffsr_1	min_pulse_width	CK ()	0.18850	0.54565	13.33370
	min_pulse_width	CK ()	0.22524	0.54565	13.33370
sky130_osu_sc_18T_ls__dffsr_l	min_pulse_width	CK ()	0.18034	0.54565	13.33370
	min_pulse_width	CK ()	0.22116	0.54565	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_ls__dffsr_1	min_pulse_width	CK ()	0.41096	0.54565	13.33370
	min_pulse_width	CK ()	0.20075	0.54565	13.33370
sky130_osu_sc_18T_ls__dffsr_l	min_pulse_width	CK ()	0.41096	0.54565	13.33370
	min_pulse_width	CK ()	0.20075	0.54565	13.33370

Power Information

Internal switching power(pJ) to Q rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__dffsr_1	CK	0.00000	0.00000	0.00000
	CK	0.01488	0.01246	-0.00163
	RN	0.02783	0.02578	0.00232
	SN	-0.00164	-0.08877	-1.27136
	SN	0.03093	0.02897	0.00482
sky130_osu_sc_18T_ls__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.01360	0.01110	-0.00622
	RN	0.02653	0.02441	0.00540
	SN	-0.00164	-0.07167	-0.89004
	SN	0.02964	0.02761	0.00777

Internal switching power(pJ) to Q falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__dffsr_1	CK	0.00000	0.00000	0.00000
	CK	0.01600	0.01457	0.00163
	RN	-0.00164	-0.08877	-1.27136
	RN	0.03267	0.03125	0.01805
sky130_osu_sc_18T_ls__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.01472	0.01352	0.00627
	RN	-0.00164	-0.07167	-0.89004
	RN	0.03136	0.03017	0.02262

Internal switching power(pJ) to QN rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__dffsr_1	CK	0.00000	0.00000	0.00000
	CK	0.01600	0.01459	0.00165
	RN	-0.00164	-0.08944	-1.28760
	RN	0.03267	0.03124	0.01784
sky130_osu_sc_18T_ls__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.01472	0.01353	0.00648
	RN	-0.00164	-0.07142	-0.88488
	RN	0.03136	0.03018	0.02268

Internal switching power(pJ) to QN falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__dffsr_1	CK	0.00000	0.00000	0.00000
	CK	0.01484	0.01243	-0.00165
	RN	0.02778	0.02573	0.00206
	SN	-0.00164	-0.08944	-1.28752
	SN	0.03089	0.02891	0.00447
sky130_osu_sc_18T_ls__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.01355	0.01109	-0.00588
	RN	0.02649	0.02436	0.00550
	SN	-0.00164	-0.07142	-0.88482
	SN	0.02960	0.02758	0.00816

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__dffsr_1	CK	0.00000	0.00000	0.00000
	CK	-0.00403	-0.00419	-0.00417
	(!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)	0.01866	0.01786	0.01904
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.00749	0.00674	0.00796
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.00744	0.00669	0.00791
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.00753	0.00678	0.00803
sky130_osu_sc_18T_ls__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	-0.00403	-0.00419	-0.00417
	(!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)	0.01866	0.01787	0.01904
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.00749	0.00674	0.00796
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.00744	0.00669	0.00791
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.00753	0.00678	0.00803

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__dffsr_1	CK	0.00000	0.00000	0.00000
	CK	0.00417	0.00423	0.00417
	(!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)	0.02815	0.02772	0.02821
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.01221	0.01198	0.01286
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.01226	0.01202	0.01290
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.01216	0.01193	0.01283
sky130_osu_sc_18T_ls__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.00417	0.00423	0.00417
	(!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)	0.02815	0.02771	0.02820
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.01220	0.01197	0.01286
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.01225	0.01201	0.01289
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.01215	0.01192	0.01282

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__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)	0.00399	0.00320	0.00584
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.01546	0.01433	0.01672
sky130_osu_sc_18T_ls__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)	0.00399	0.00320	0.00584
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.01547	0.01434	0.01673

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__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)	0.01186	0.01150	0.01485
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.02525	0.02428	0.02712
sky130_osu_sc_18T_ls__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)	0.01184	0.01149	0.01484
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.02524	0.02426	0.02711

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__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)	-0.00945	-0.00947	-0.00952
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	-0.00956	-0.00975	-0.00973
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	-0.00929	-0.00943	-0.00939
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.00617	0.00538	0.00697
sky130_osu_sc_18T_ls__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)	-0.00945	-0.00947	-0.00952
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	-0.00954	-0.00973	-0.00971
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	-0.00929	-0.00942	-0.00938
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.00617	0.00539	0.00697

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__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)	0.00951	0.00960	0.00955
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00967	0.00975	0.00973
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	0.00935	0.00943	0.00940
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.01925	0.01885	0.01954
sky130_osu_sc_18T_ls__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)	0.00951	0.00960	0.00955
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00965	0.00973	0.00971
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	0.00935	0.00942	0.00939
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.01924	0.01885	0.01953

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__dffsr_1	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	-0.00079	-0.00173	0.00094
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.00793	0.00624	0.00853
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.00785	0.00621	0.00845
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	-0.00110	-0.00206	0.00067
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.00564	0.00374	0.00933
sky130_osu_sc_18T_ls__dffsr_l	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	-0.00079	-0.00173	0.00094
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.00792	0.00623	0.00852
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.00784	0.00620	0.00845
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	-0.00110	-0.00206	0.00067
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.00564	0.00374	0.00934

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

Cell Name	When	Power(pJ)		
		first	mid	last

sky130_osu_sc_18T_ls__dffsr_1	**(D * RN * SN * !Q * QN)**	0.00000	0.00000	0.00000
	(D * RN * SN * !Q * QN)	0.04209	0.04087	0.04270
	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.01737	0.01711	0.02009
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.02959	0.02894	0.03129
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.02970	0.02913	0.03134
	(!D * RN * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * Q * !QN)	0.04047	0.03950	0.04512
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.01963	0.01920	0.02222
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.02305	0.02244	0.02853
sky130_osu_sc_18T_ls__dffsr_l	**(D * RN * SN * !Q * QN)**	0.00000	0.00000	0.00000
	(D * RN * SN * !Q * QN)	0.04210	0.04089	0.04270
	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.01737	0.01711	0.02009
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.02959	0.02894	0.03129
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.02970	0.02913	0.03134
	(!D * RN * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * Q * !QN)	0.04046	0.03949	0.04511
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.01963	0.01920	0.02222
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.02304	0.02243	0.02848

SKY130_OSU_SC_18T_LS__DFFSx

sky130_osu_sc_18T_ls_tt_1P62_25C.ccs
Cell Library: Process , Voltage 1.62,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__dffs_1	57.87540
sky130_osu_sc_18T_ls__dffs_l	57.87540

Pin Capacitance Information

Cell Name	Pin Cap(pf)			Max Cap(pf)	
	D	SN	CK	Q	QN
sky130_osu_sc_18T_ls__dffs_1	0.00542	0.00918	0.01578	1.91047	1.91434
sky130_osu_sc_18T_ls__dffs_l	0.00542	0.00918	0.01578	1.33674	1.35194

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__dffs_1	0.00000	0.00269	0.00347
sky130_osu_sc_18T_ls__dffs_l	0.00000	0.00231	0.00310

Delay Information

Delay(ns) to Q rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__dffs_1	CK->Q (RR)	0.30032	1.54163	15.87830
	QN->Q (FR)	0.04576	1.00493	13.42800
	SN->Q (FR)	0.23771	1.69730	18.38660
sky130_osu_sc_18T_ls__dffs_l	CK->Q (RR)	0.29906	1.64703	15.24190
	QN->Q (FR)	0.04909	1.05697	13.02710
	SN->Q (FR)	0.23566	1.79677	17.69890

Delay(ns) to Q falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__dffs_1	CK->Q (RF)	0.44206	1.75363	16.92380
	QN->Q (RF)	0.03277	0.75579	10.08120
sky130_osu_sc_18T_ls__dffs_l	CK->Q (RF)	0.44425	1.88341	16.46120
	QN->Q (RF)	0.03361	0.76027	9.41567

Delay(ns) to QN rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__dffs_1	CK->QN (RR)	0.39455	1.07080	7.64799
sky130_osu_sc_18T_ls__dffs_l	CK->QN (RR)	0.39202	1.13333	7.61541

Delay(ns) to QN falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__dffs_1	CK->QN (RF)	0.24078	0.73011	4.87543
	SN->QN (FF)	0.17800	0.88755	7.37833
sky130_osu_sc_18T_ls__dffs_l	CK->QN (RF)	0.23383	0.74560	4.61644
	SN->QN (FF)	0.16999	0.89733	7.07140

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_ls__dffs_1	hold	CK (R)	-0.06166	-0.09428	-0.42365
	setup	CK (R)	0.21080	0.25356	1.64609
sky130_osu_sc_18T_ls__dffs_l	hold	CK (R)	-0.06264	-0.09154	-0.42288
	setup	CK (R)	0.21080	0.25364	1.65119

Constraints(ns) for D falling :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_ls__dffs_1	hold	CK (R)	-0.17477	-0.52093	-4.77364
	setup	CK (R)	0.22984	0.53816	4.88072
sky130_osu_sc_18T_ls__dffs_l	hold	CK (R)	-0.17302	-0.51966	-4.77573
	setup	CK (R)	0.22984	0.53816	4.88072

Constraints(ns) for D rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_ls__dffs_1	hold	CK (R)	-0.06166	-0.09428	-0.42365
	setup	CK (R)	0.21080	0.25356	1.64609
sky130_osu_sc_18T_ls__dffs_l	hold	CK (R)	-0.06264	-0.09154	-0.42288
	setup	CK (R)	0.21080	0.25364	1.65119

Constraints(ns) for D falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_ls__dffs_1	hold	CK (R)	-0.17477	-0.52093	-4.77364
	setup	CK (R)	0.22984	0.53816	4.88072
sky130_osu_sc_18T_ls__dffs_l	hold	CK (R)	-0.17302	-0.51966	-4.77573
	setup	CK (R)	0.22984	0.53816	4.88072

Constraints(ns) for SN rising :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_ls__dffs_1	recovery	CK (R)	0.05893	0.09782	3.31333
	removal	CK (R)	-0.01986	-0.06487	-0.46379
sky130_osu_sc_18T_ls__dffs_l	recovery	CK (R)	0.05973	0.09771	3.14847
	removal	CK (R)	-0.01986	-0.06487	-0.46379

Constraints(ns) for SN rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_ls__dffs_1	recovery	CK (R)	0.05893	0.09782	3.31333
	removal	CK (R)	-0.01986	-0.06487	-0.46379
sky130_osu_sc_18T_ls__dffs_l	recovery	CK (R)	0.05973	0.09771	3.14847
	removal	CK (R)	-0.01986	-0.06487	-0.46379

Constraints(ns) for SN falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_ls__dffs_1	min_pulse_width	SN ()	0.16181	0.56088	13.33370
	min_pulse_width	SN ()	0.16392	0.56088	13.33370
sky130_osu_sc_18T_ls__dffs_l	min_pulse_width	SN ()	0.15789	0.54565	13.33370
	min_pulse_width	SN ()	0.15585	0.54565	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_ls__dffs_1	min_pulse_width	CK ()	0.12320	0.54565	13.33370
	min_pulse_width	CK ()	0.21707	0.54565	13.33370
sky130_osu_sc_18T_ls__dffs_l	min_pulse_width	CK ()	0.11911	0.54565	13.33370
	min_pulse_width	CK ()	0.21095	0.54565	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_ls__dffs_1	min_pulse_width	CK ()	0.30279	0.54565	13.33370
	min_pulse_width	CK ()	0.19259	0.54565	13.33370
sky130_osu_sc_18T_ls__dffs_l	min_pulse_width	CK ()	0.30279	0.54565	13.33370
	min_pulse_width	CK ()	0.19259	0.54565	13.33370

Power Information

Internal switching power(pJ) to Q rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__dffs_1	CK	0.00000	0.00000	0.00000
	CK	0.01189	0.00846	0.00000
	SN	-0.00164	-0.08801	-1.25346
	SN	0.02620	0.02296	-0.01171
sky130_osu_sc_18T_ls__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.01048	0.00790	-0.00443
	SN	-0.00164	-0.07104	-0.87703
	SN	0.02479	0.02243	0.00466

Internal switching power(pJ) to Q falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__dffs_1	CK	0.00000	0.00000	0.00000
	CK	0.01382	0.01221	0.00000
sky130_osu_sc_18T_ls__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.01241	0.01121	0.00443

Internal switching power(pJ) to QN rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__dffs_1	CK	0.00000	0.00000	0.00000
	CK	0.01382	0.01220	0.00000
sky130_osu_sc_18T_ls__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.01241	0.01122	0.00440

Internal switching power(pJ) to QN falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__dffs_1	CK	0.00000	0.00000	0.00000
	CK	0.01186	0.00840	0.00000
	SN	-0.00164	-0.08812	-1.25587
	SN	0.02616	0.02295	-0.01113
sky130_osu_sc_18T_ls__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.01044	0.00787	-0.00440
	SN	-0.00164	-0.07152	-0.88694
	SN	0.02475	0.02239	0.00422

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__dffs_1	CK	0.00000	0.00000	0.00000
	CK	-0.00408	-0.00423	-0.00422
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.01390	0.01301	0.01411
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.00644	0.00567	0.00695
sky130_osu_sc_18T_ls__dffs_l	CK	0.00000	0.00000	0.00000
	CK	-0.00408	-0.00423	-0.00422
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.01390	0.01301	0.01412
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.00644	0.00567	0.00695

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__dffs_1	CK	0.00000	0.00000	0.00000
	CK	0.00422	0.00427	0.00422
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.02421	0.02380	0.02447
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.01174	0.01147	0.01243
sky130_osu_sc_18T_ls__dffs_1	CK	0.00000	0.00000	0.00000
	CK	0.00422	0.00427	0.00422
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.02421	0.02380	0.02447
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.01174	0.01147	0.01243

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__dffs_1	(CK * Q * !QN) + (!CK * D * Q * !QN)	0.00000	0.00000	0.00000
	(CK * Q * !QN) + (!CK * D * Q * !QN)	-0.00693	-0.00691	-0.00696
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.00526	0.00465	0.00628
sky130_osu_sc_18T_ls__dffs_1	(CK * Q * !QN) + (!CK * D * Q * !QN)	0.00000	0.00000	0.00000
	(CK * Q * !QN) + (!CK * D * Q * !QN)	-0.00693	-0.00691	-0.00696
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.00526	0.00465	0.00628

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__dffs_1	(CK * Q * !QN) + (!CK * D * Q * !QN)	0.00000	0.00000	0.00000
	(CK * Q * !QN) + (!CK * D * Q * !QN)	0.00696	0.00704	0.00698
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.01323	0.01267	0.01465
sky130_osu_sc_18T_ls__dffs_l	(CK * Q * !QN) + (!CK * D * Q * !QN)	0.00000	0.00000	0.00000
	(CK * Q * !QN) + (!CK * D * Q * !QN)	0.00696	0.00704	0.00698
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.01323	0.01269	0.01465

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__dffs_1	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	-0.00081	-0.00174	0.00092
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	-0.00121	-0.00219	0.00058
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.00457	0.00268	0.00838
sky130_osu_sc_18T_ls__dffs_l	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	-0.00081	-0.00174	0.00092
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	-0.00121	-0.00218	0.00058
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.00457	0.00268	0.00838

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__dffs_1	(D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * SN * !Q * QN)	0.03718	0.03589	0.03781
	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.01733	0.01705	0.02007
	(!D * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * SN * Q * !QN)	0.03650	0.03541	0.04145
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	0.01969	0.01925	0.02228
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.02249	0.02188	0.02815
sky130_osu_sc_18T_ls__dffs_l	(D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * SN * !Q * QN)	0.03718	0.03589	0.03781
	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.01733	0.01704	0.02007
	(!D * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * SN * Q * !QN)	0.03649	0.03541	0.04145
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	0.01969	0.01925	0.02228
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.02249	0.02188	0.02815

SKY130_OSU_SC_18T_LS__DFFx

sky130_osu_sc_18T_ls_tt_1P62_25C.ccs
Cell Library: Process , Voltage 1.62,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__dff_1	48.35160
sky130_osu_sc_18T_ls__dff_l	48.35160

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)	
	D	CK	Q	QN
sky130_osu_sc_18T_ls__dff_1	0.00557	0.01569	1.96297	1.96508
sky130_osu_sc_18T_ls__dff_l	0.00557	0.01568	1.32612	1.33366

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__dff_1	0.00000	0.00303	0.00341
sky130_osu_sc_18T_ls__dff_l	0.00000	0.00265	0.00304

Delay Information

Delay(ns) to Q rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__dff_1	CK->Q (RR)	0.26561	1.48110	15.62680
	QN->Q (FR)	0.04346	0.98322	13.21710
sky130_osu_sc_18T_ls__dff_l	CK->Q (RR)	0.27373	1.62650	15.19810
	QN->Q (FR)	0.04989	1.06855	13.11630

Delay(ns) to Q falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__dff_1	CK->Q (RF)	0.37782	1.65885	16.69770
	QN->Q (RF)	0.03003	0.71473	9.56796
sky130_osu_sc_18T_ls__dff_l	CK->Q (RF)	0.39091	1.82912	16.40900
	QN->Q (RF)	0.03368	0.75669	9.37876

Delay(ns) to QN rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__dff_1	CK->QN (RR)	0.33463	0.99631	7.57178
sky130_osu_sc_18T_ls__dff_l	CK->QN (RR)	0.34034	1.07791	7.55444

Delay(ns) to QN falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__dff_1	CK->QN (RF)	0.21057	0.68916	4.74687
sky130_osu_sc_18T_ls__dff_l	CK->QN (RF)	0.20965	0.72082	4.55922

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_ls__dff_1	hold	CK (R)	-0.06112	-0.09480	-0.45784
	setup	CK (R)	0.17317	0.21893	1.64375
sky130_osu_sc_18T_ls__dff_l	hold	CK (R)	-0.06146	-0.09480	-0.45564
	setup	CK (R)	0.17320	0.21743	1.65212

Constraints(ns) for D falling :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_ls__dff_1	hold	CK (R)	-0.16170	-0.52394	-4.81610
	setup	CK (R)	0.19679	0.54043	4.92541
sky130_osu_sc_18T_ls__dff_l	hold	CK (R)	-0.16379	-0.52428	-4.82062
	setup	CK (R)	0.19767	0.54043	4.92446

Constraints(ns) for CK rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_ls__dff_1	min_pulse_width	CK ()	0.11299	0.54565	13.33370
	min_pulse_width	CK ()	0.19871	0.54565	13.33370
sky130_osu_sc_18T_ls__dff_l	min_pulse_width	CK ()	0.10891	0.54565	13.33370
	min_pulse_width	CK ()	0.19463	0.54565	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_ls__dff_1	**min_pulse_width**	**CK** ()	0.26606	0.54565	13.33370
	min_pulse_width	**CK** ()	0.15381	0.54565	13.33370
sky130_osu_sc_18T_ls__dff_l	**min_pulse_width**	**CK** ()	0.26401	0.54565	13.33370
	min_pulse_width	**CK** ()	0.15381	0.54565	13.33370

Power Information

Internal switching power(pJ) to Q rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__dff_1	CK	0.00000	0.00000	0.00000
	CK	0.01256	0.00996	-0.00007
sky130_osu_sc_18T_ls__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.01127	0.00865	-0.00395

Internal switching power(pJ) to Q falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__dff_1	CK	0.00000	0.00000	0.00000
	CK	0.01409	0.01266	0.00007
sky130_osu_sc_18T_ls__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.01281	0.01154	0.00395

Internal switching power(pJ) to QN rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__dff_1	CK	0.00000	0.00000	0.00000
	CK	0.01409	0.01267	0.00027
sky130_osu_sc_18T_ls__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.01281	0.01154	0.00390

Internal switching power(pJ) to QN falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__dff_1	CK	0.00000	0.00000	0.00000
	CK	0.01252	0.00992	-0.00027
sky130_osu_sc_18T_ls__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.01123	0.00862	-0.00390

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__dff_1	CK	0.00000	0.00000	0.00000
	CK	-0.00383	-0.00418	-0.00416
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.01309	0.01231	0.01353
sky130_osu_sc_18T_ls__dff_l	CK	0.00000	0.00000	0.00000
	CK	-0.00383	-0.00418	-0.00416
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.01309	0.01231	0.01353

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__dff_1	CK	0.00000	0.00000	0.00000
	CK	0.00414	0.00419	0.00416
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.02493	0.02450	0.02519
sky130_osu_sc_18T_ls__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.00414	0.00419	0.00416
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.02494	0.02450	0.02519

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__dff_1	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	-0.00081	-0.00175	0.00094
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	-0.00119	-0.00216	0.00059
sky130_osu_sc_18T_ls__dff_l	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	-0.00081	-0.00175	0.00094
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	-0.00119	-0.00216	0.00059

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__dff_1	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.01727	0.01703	0.02003
	(D * !Q * QN)	0.00000	0.00000	0.00000
	(D * !Q * QN)	0.03643	0.03520	0.03720
	(!D * Q * !QN)	0.00000	0.00000	0.00000
	(!D * Q * !QN)	0.03701	0.03599	0.04197
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.01961	0.01918	0.02220
sky130_osu_sc_18T_ls__dff_l	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.01727	0.01703	0.02003
	(D * !Q * QN)	0.00000	0.00000	0.00000
	(D * !Q * QN)	0.03644	0.03521	0.03721
	(!D * Q * !QN)	0.00000	0.00000	0.00000
	(!D * Q * !QN)	0.03702	0.03602	0.04197
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.01961	0.01918	0.02220

SKY130_OSU_SC_18T_LS__INVx

sky130_osu_sc_18T_ls_tt_1P62_25C.ccs
Cell Library: Process , Voltage 1.62,
Temp 25.00

Truth Table

INPUT	OUTPUT
A	Y
0	1
1	0

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__inv_1	6.59340
sky130_osu_sc_18T_ls__inv_10	32.96700
sky130_osu_sc_18T_ls__inv_2	9.52380
sky130_osu_sc_18T_ls__inv_3	12.45420
sky130_osu_sc_18T_ls__inv_4	15.38460
sky130_osu_sc_18T_ls__inv_6	21.24540
sky130_osu_sc_18T_ls__inv_8	27.10620
sky130_osu_sc_18T_ls__inv_l	6.59340

Pin Capacitance Information

Cell Name	Pin Cap(pf)	Max Cap(pf)
	A	Y
sky130_osu_sc_18T_ls__inv_1	0.00548	1.90282
sky130_osu_sc_18T_ls__inv_10	0.05174	17.12922
sky130_osu_sc_18T_ls__inv_2	0.01054	3.79725
sky130_osu_sc_18T_ls__inv_3	0.01572	5.46374
sky130_osu_sc_18T_ls__inv_4	0.02081	7.38152
sky130_osu_sc_18T_ls__inv_6	0.03120	10.74146
sky130_osu_sc_18T_ls__inv_8	0.04148	14.06954
sky130_osu_sc_18T_ls__inv_l	0.00418	1.31854

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__inv_1	0.00000	0.00040	0.00049
sky130_osu_sc_18T_ls__inv_10	0.00000	0.00403	0.00486
sky130_osu_sc_18T_ls__inv_2	0.00000	0.00081	0.00097
sky130_osu_sc_18T_ls__inv_3	0.00000	0.00121	0.00146
sky130_osu_sc_18T_ls__inv_4	0.00000	0.00161	0.00194
sky130_osu_sc_18T_ls__inv_6	0.00000	0.00242	0.00292
sky130_osu_sc_18T_ls__inv_8	0.00000	0.00322	0.00389
sky130_osu_sc_18T_ls__inv_l	0.00000	0.00022	0.00024

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__inv_1	**A->Y (FR)**	0.04136	0.92085	12.27790
sky130_osu_sc_18T_ls__inv_10	**A->Y (FR)**	0.06346	0.66133	12.28400
sky130_osu_sc_18T_ls__inv_2	**A->Y (FR)**	0.03433	0.80156	12.32090
sky130_osu_sc_18T_ls__inv_3	**A->Y (FR)**	0.03807	0.75894	12.35550
sky130_osu_sc_18T_ls__inv_4	**A->Y (FR)**	0.03962	0.72471	12.37050
sky130_osu_sc_18T_ls__inv_6	**A->Y (FR)**	0.04526	0.68777	12.29380
sky130_osu_sc_18T_ls__inv_8	**A->Y (FR)**	0.05376	0.66934	12.27500
sky130_osu_sc_18T_ls__inv_l	**A->Y (FR)**	0.04674	0.99863	12.28260

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__inv_1	**A->Y (RF)**	0.02694	0.63570	8.49146
sky130_osu_sc_18T_ls__inv_10	**A->Y (RF)**	0.04472	0.43204	8.35666
sky130_osu_sc_18T_ls__inv_2	**A->Y (RF)**	0.02305	0.55926	8.51359
sky130_osu_sc_18T_ls__inv_3	**A->Y (RF)**	0.02527	0.52521	8.54124
sky130_osu_sc_18T_ls__inv_4	**A->Y (RF)**	0.02567	0.49923	8.55577
sky130_osu_sc_18T_ls__inv_6	**A->Y (RF)**	0.03241	0.46659	8.49416
sky130_osu_sc_18T_ls__inv_8	**A->Y (RF)**	0.03859	0.44693	8.45543
sky130_osu_sc_18T_ls__inv_l	**A->Y (RF)**	0.02998	0.67638	8.40045

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__inv_1	A	0.00000	0.00000	0.00000
	A	0.00635	0.00634	0.00670
sky130_osu_sc_18T_ls__inv_10	A	0.00000	0.00000	0.00000
	A	0.05518	0.05647	0.06075
sky130_osu_sc_18T_ls__inv_2	A	0.00000	0.00000	0.00000
	A	0.01150	0.01083	0.01241
sky130_osu_sc_18T_ls__inv_3	A	0.00000	0.00000	0.00000
	A	0.01756	0.01768	0.01892
sky130_osu_sc_18T_ls__inv_4	A	0.00000	0.00000	0.00000
	A	0.02271	0.02285	0.02459
sky130_osu_sc_18T_ls__inv_6	A	0.00000	0.00000	0.00000
	A	0.03362	0.03420	0.03684
sky130_osu_sc_18T_ls__inv_8	A	0.00000	0.00000	0.00000
	A	0.04444	0.04559	0.04887
sky130_osu_sc_18T_ls__inv_l	A	0.00000	0.00000	0.00000
	A	0.00485	0.00471	0.00506

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__inv_1	**A**	0.00000	0.00000	0.00000
	A	-0.00132	-0.00132	-0.00115
sky130_osu_sc_18T_ls__inv_10	**A**	0.00000	0.00000	0.00000
	A	-0.02235	-0.02160	-0.01697
sky130_osu_sc_18T_ls__inv_2	**A**	0.00000	0.00000	0.00000
	A	-0.00419	-0.00400	-0.00357
sky130_osu_sc_18T_ls__inv_3	**A**	0.00000	0.00000	0.00000
	A	-0.00564	-0.00550	-0.00457
sky130_osu_sc_18T_ls__inv_4	**A**	0.00000	0.00000	0.00000
	A	-0.00867	-0.00827	-0.00696
sky130_osu_sc_18T_ls__inv_6	**A**	0.00000	0.00000	0.00000
	A	-0.01321	-0.01276	-0.01039
sky130_osu_sc_18T_ls__inv_8	**A**	0.00000	0.00000	0.00000
	A	-0.01797	-0.01721	-0.01375
sky130_osu_sc_18T_ls__inv_l	**A**	0.00000	0.00000	0.00000
	A	-0.00090	-0.00094	-0.00083

SKY130_OSU_SC_18T_LS__MUX2

sky130_osu_sc_18T_ls_tt_1P62_25C.ccs
Cell Library: Process , Voltage 1.62,
Temp 25.00

Truth Table

INPUT			OUTPUT
A0	A1	S0	Y
0	0	x	0
0	1	0	0
x	1	1	1
1	x	0	1
1	0	1	0

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__mux2_1	18.31500

Pin Capacitance Information

Cell Name	Pin Cap(pf)			Max Cap(pf)
	A0	A1	S0	Y
sky130_osu_sc_18T_ls__mux2_1	0.26791	0.26781	0.01112	0.26195

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__mux2_1	0.00000	0.00102	0.00110

Delay Information

Delay(ns) to Y rising (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_18T_ls__mux2_1	A0->Y (RR)	-	0.02267	0.37837	3.63857
	A1->Y (RR)	-	0.02442	0.37917	3.64400
	S0->Y (RR)	(!A0 * A1)	0.06218	0.34476	1.01464
	S0->Y (FR)	(A0 * !A1)	0.05932	0.52758	3.96553

Delay(ns) to Y falling (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_18T_ls__mux2_1	A0->Y (FF)	-	0.01958	0.32856	2.98047
	A1->Y (FF)	-	0.01886	0.32622	2.97211
	S0->Y (FF)	(!A0 * A1)	0.09223	0.49476	2.86347
	S0->Y (RF)	(A0 * !A1)	0.03177	0.35607	2.36137

Power Information

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

Cell Name	Input	When	Power(pJ)		
			first	mid	last
sky130_osu_sc_18T_ls__mux2_1	A0	-	0.00000	0.00000	0.00000
	A0	-	-0.00671	-0.00671	-0.00671
	A1	-	0.00000	0.00000	0.00000
	A1	-	-0.00473	-0.00474	-0.00474
	S0	(A0 * !A1)	0.00000	0.00000	0.00000
	S0	(A0 * !A1)	0.00734	0.00701	0.01076
	S0	(!A0 * A1)	0.00000	0.00000	0.00000
	S0	(!A0 * A1)	-0.00449	-0.00526	-0.00207

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

Cell Name	Input	When	Power(pJ)		
			first	mid	last
sky130_osu_sc_18T_ls__mux2_1	A0	-	0.00000	0.00000	0.00000
	A0	-	0.00671	0.00671	0.00671
	A1	-	0.00000	0.00000	0.00000
	A1	-	0.00473	0.00474	0.00474
	S0	(A0 * !A1)	0.00000	0.00000	0.00000
	S0	(A0 * !A1)	0.00143	0.00071	0.00405
	S0	(!A0 * A1)	0.00000	0.00000	0.00000
	S0	(!A0 * A1)	0.01707	0.01667	0.02009

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__mux2_1	(A1 * S0 * Y) + (!A1 * S0 * !Y)	0.00000	0.00000	0.00000
	(A1 * S0 * Y) + (!A1 * S0 * !Y)	-0.00176	-0.00175	-0.00175

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__mux2_1	(A1 * S0 * Y) + (!A1 * S0 * !Y)	0.00000	0.00000	0.00000
	(A1 * S0 * Y) + (!A1 * S0 * !Y)	0.00176	0.00175	0.00175

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__mux2_1	(A0 * !S0 * Y) + (!A0 * !S0 * !Y)	0.00000	0.00000	0.00000
	(A0 * !S0 * Y) + (!A0 * !S0 * !Y)	-0.00208	-0.00208	-0.00208

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__mux2_1	(A0 * !S0 * Y) + (!A0 * !S0 * !Y)	0.00000	0.00000	0.00000
	(A0 * !S0 * Y) + (!A0 * !S0 * !Y)	0.00208	0.00208	0.00208

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__mux2_1	(A0 * A1 * Y)	0.00000	0.00000	0.00000
	(A0 * A1 * Y)	-0.00157	-0.00227	0.00100
	(!A0 * !A1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !Y)	-0.00151	-0.00231	0.00097

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__mux2_1	(A0 * A1 * Y)	0.00000	0.00000	0.00000
	(A0 * A1 * Y)	0.01283	0.01242	0.01591
	(!A0 * !A1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !Y)	0.01157	0.01122	0.01497

SKY130_OSU_SC_18T_LS__NAND2x

sky130_osu_sc_18T_ls_tt_1P62_25C.ccs
Cell Library: Process , Voltage 1.62,
Temp 25.00

Truth Table

INPUT		OUTPUT
A	B	Y
0	x	1
1	0	1
1	1	0

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__nand2_1	9.52380
sky130_osu_sc_18T_ls__nand2_l	9.52380

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	B	Y
sky130_osu_sc_18T_ls__nand2_1	0.00550	0.00546	1.87466
sky130_osu_sc_18T_ls__nand2_l	0.00419	0.00417	1.30727

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__nand2_1	0.00000	0.00041	0.00064
sky130_osu_sc_18T_ls__nand2_l	0.00000	0.00023	0.00047

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__nand2_1	A->Y (FR)	0.04286	0.92442	12.26410
	B->Y (FR)	0.05045	0.92347	12.14690
sky130_osu_sc_18T_ls__nand2_l	A->Y (FR)	0.04806	1.00209	12.28480
	B->Y (FR)	0.05703	1.00697	12.24030

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__nand2_1	A->Y (RF)	0.03873	0.78834	10.54740
	B->Y (RF)	0.04409	0.77682	10.25050
sky130_osu_sc_18T_ls__nand2_l	A->Y (RF)	0.04373	0.85732	10.51600
	B->Y (RF)	0.04889	0.84816	10.20990

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__nand2_1	A	0.00000	0.00000	0.00000
	A	0.00678	0.00674	0.00710
	B	0.00000	0.00000	0.00000
	B	0.00848	0.00837	0.00873
sky130_osu_sc_18T_ls__nand2_l	A	0.00000	0.00000	0.00000
	A	0.00513	0.00499	0.00533
	B	0.00000	0.00000	0.00000
	B	0.00639	0.00622	0.00653

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__nand2_1	A	0.00000	0.00000	0.00000
	A	-0.00077	-0.00087	-0.00069
	B	0.00000	0.00000	0.00000
	B	-0.00071	-0.00083	-0.00073
sky130_osu_sc_18T_ls__nand2_l	A	0.00000	0.00000	0.00000
	A	-0.00057	-0.00065	-0.00055
	B	0.00000	0.00000	0.00000
	B	-0.00054	-0.00062	-0.00056

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__nand2_1	(!B * Y)	0.00000	0.00000	0.00000
	(!B * Y)	-0.00468	-0.00472	-0.00472
sky130_osu_sc_18T_ls__nand2_l	(!B * Y)	0.00000	0.00000	0.00000
	(!B * Y)	-0.00338	-0.00340	-0.00340

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__nand2_1	(!B * Y)	0.00000	0.00000	0.00000
	(!B * Y)	0.00471	0.00475	0.00473
sky130_osu_sc_18T_ls__nand2_l	(!B * Y)	0.00000	0.00000	0.00000
	(!B * Y)	0.00340	0.00343	0.00341

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__nand2_1	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00438	-0.00438	-0.00438
sky130_osu_sc_18T_ls__nand2_l	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00315	-0.00315	-0.00315

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__nand2_1	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00440	0.00444	0.00440
sky130_osu_sc_18T_ls__nand2_l	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00316	0.00319	0.00316

SKY130_OSU_SC_18T_LS__NOR2x

sky130_osu_sc_18T_ls_tt_1P62_25C.ccs
Cell Library: Process , Voltage 1.62,
Temp 25.00

Truth Table

INPUT		OUTPUT
A	B	Y
0	0	1
x	1	0
1	x	0

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__nor2_1	9.52380
sky130_osu_sc_18T_ls__nor2_l	9.52380

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	B	Y
sky130_osu_sc_18T_ls__nor2_1	0.00546	0.00580	0.97064
sky130_osu_sc_18T_ls__nor2_l	0.00410	0.00446	0.66652

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__nor2_1	0.00000	0.00042	0.00097
sky130_osu_sc_18T_ls__nor2_l	0.00000	0.00024	0.00039

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__nor2_1	A->Y (FR)	0.08993	1.10986	12.13760
	B->Y (FR)	0.06897	1.08455	12.19020
sky130_osu_sc_18T_ls__nor2_l	A->Y (FR)	0.09995	1.21056	12.03450
	B->Y (FR)	0.08161	1.18852	12.10400

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__nor2_1	A->Y (RF)	0.03540	0.53742	6.10083
	B->Y (RF)	0.02844	0.52519	6.07936
sky130_osu_sc_18T_ls__nor2_l	A->Y (RF)	0.03789	0.56823	5.99796
	B->Y (RF)	0.03155	0.56030	5.97944

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__nor2_1	A	0.00000	0.00000	0.00000
	A	0.00912	0.00903	0.00912
	B	0.00000	0.00000	0.00000
	B	0.00692	0.00677	0.00714
sky130_osu_sc_18T_ls__nor2_1	A	0.00000	0.00000	0.00000
	A	0.00664	0.00655	0.00661
	B	0.00000	0.00000	0.00000
	B	0.00522	0.00509	0.00533

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__nor2_1	A	0.00000	0.00000	0.00000
	A	0.00087	0.00053	0.00068
	B	0.00000	0.00000	0.00000
	B	-0.00106	-0.00106	-0.00095
sky130_osu_sc_18T_ls__nor2_1	A	0.00000	0.00000	0.00000
	A	0.00056	0.00034	0.00045
	B	0.00000	0.00000	0.00000
	B	-0.00067	-0.00071	-0.00063

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__nor2_1	(B * !Y)	0.00000	0.00000	0.00000
	(B * !Y)	-0.00387	-0.00418	-0.00418
sky130_osu_sc_18T_ls__nor2_l	(B * !Y)	0.00000	0.00000	0.00000
	(B * !Y)	-0.00270	-0.00294	-0.00293

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__nor2_1	(B * !Y)	0.00000	0.00000	0.00000
	(B * !Y)	0.00417	0.00423	0.00418
sky130_osu_sc_18T_ls__nor2_l	(B * !Y)	0.00000	0.00000	0.00000
	(B * !Y)	0.00292	0.00294	0.00293

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__nor2_1	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	-0.00204	-0.00206	-0.00205
sky130_osu_sc_18T_ls__nor2_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	-0.00145	-0.00146	-0.00146

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__nor2_1	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00216	0.00218	0.00209
sky130_osu_sc_18T_ls__nor2_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00153	0.00154	0.00148

SKY130_OSU_SC_18T_LS__OAI21

sky130_osu_sc_18T_ls_tt_1P62_25C.ccs
Cell Library: Process , Voltage 1.62,
Temp 25.00

Truth Table

INPUT			OUTPUT
A0	A1	B0	Y
0	0	x	1
x	1	0	1
x	1	1	0
1	x	0	1
1	x	1	0

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__oai21_l	12.45420

Pin Capacitance Information

Cell Name	Pin Cap(pf)			Max Cap(pf)
	A0	A1	B0	Y
sky130_osu_sc_18T_ls__oai21_l	0.00554	0.00557	0.00464	0.97545

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__oai21_l	0.00000	0.00047	0.00079

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__oai21_l	A0->Y (FR)	0.09354	1.11842	12.30600
	A1->Y (FR)	0.11972	1.14787	12.25670
	B0->Y (FR)	0.05857	0.91263	10.43840

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__oai21_l	A0->Y (RF)	0.05452	0.66222	7.29630
	A1->Y (RF)	0.06439	0.66018	7.16773
	B0->Y (RF)	0.04249	0.68124	7.84483

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__oai21_l	A0	0.00000	0.00000	0.00000
	A0	0.00935	0.00913	0.00945
	A1	0.00000	0.00000	0.00000
	A1	0.01158	0.01143	0.01148
	B0	0.00787	0.00770	0.00794

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__oai21_l	A0	0.00000	0.00000	0.00000
	A0	0.00035	0.00018	0.00023
	A1	0.00000	0.00000	0.00000
	A1	0.00223	0.00189	0.00191
	B0	0.00308	0.00293	0.00302

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__oai21_l	(A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * !Y)	-0.00205	-0.00207	-0.00206
	(A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * Y)	-0.00407	-0.00422	-0.00420
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00430	-0.00431	-0.00430

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__oai21_l	(A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * !Y)	0.00217	0.00218	0.00210
	(A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * Y)	0.00419	0.00422	0.00420
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00430	0.00434	0.00431

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__oai21_l	(A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * B0 * !Y)	-0.00380	-0.00414	-0.00412
	(A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * Y)	-0.00405	-0.00421	-0.00418
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	-0.00425	-0.00427	-0.00426

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__oai21_l	(A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * B0 * !Y)	0.00409	0.00417	0.00412
	(A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * Y)	0.00415	0.00423	0.00418
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	0.00426	0.00431	0.00428

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__oai21_l	(!A0 * !A1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * Y)	-0.00343	-0.00346	-0.00350

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__oai21_l	(!A0 * !A1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * Y)	0.00350	0.00354	0.00351

SKY130_OSU_SC_18T_LS__OAI22

sky130_osu_sc_18T_ls_tt_1P62_25C.ccs
Cell Library: Process , Voltage 1.62,
Temp 25.00

Truth Table

INPUT				OUTPUT
A0	A1	B0	B1	Y
0	0	x	x	1
x	1	0	0	1
x	1	x	1	0
x	1	1	x	0
1	x	0	0	1
1	x	x	1	0
1	x	1	x	0

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__oai22_1	15.38460

Pin Capacitance Information

Cell Name	Pin Cap(pf)				Max Cap(pf)
	A0	A1	B0	B1	Y
sky130_osu_sc_18T_ls__oai22_1	0.00535	0.00565	0.00580	0.00565	0.96864

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__oai22_1	0.00000	0.00062	0.00097

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__oai22_l	A0->Y (FR)	0.13092	1.15336	12.17920
	A1->Y (FR)	0.10969	1.12732	12.22910
	B0->Y (FR)	0.07654	1.09358	12.21170
	B1->Y (FR)	0.09870	1.12007	12.16130

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__oai22_l	A0->Y (RF)	0.09179	0.71377	7.40296
	A1->Y (RF)	0.07346	0.68608	7.31086
	B0->Y (RF)	0.06164	0.70478	7.84471
	B1->Y (RF)	0.08144	0.74237	8.05790

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__oai22_l	A0	0.01507	0.01491	0.01497
	A1	0.01283	0.01259	0.01288
	B0	0.00966	0.00948	0.00979
	B1	0.01198	0.01184	0.01189

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__oai22_l	A0	0.00361	0.00328	0.00327
	A1	0.00187	0.00166	0.00163
	B0	0.00185	0.00171	0.00173
	B1	0.00365	0.00329	0.00337

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__oai22_l	(A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * !Y)	-0.00384	-0.00419	-0.00418
	(A1 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * B1 * !Y)	-0.00384	-0.00419	-0.00418
	(A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * !B1 * Y)	-0.00404	-0.00418	-0.00419
	(!A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * !B1 * Y)	-0.00427	-0.00429	-0.00427

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__oai22_l	(A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * !Y)	0.00415	0.00423	0.00418
	(A1 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * B1 * !Y)	0.00415	0.00423	0.00418
	(A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * !B1 * Y)	0.00416	0.00423	0.00419
	(!A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * !B1 * Y)	0.00427	0.00432	0.00428

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__oai22_l	(A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * B0 * !Y)	-0.00203	-0.00205	-0.00204
	(A0 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * B1 * !Y)	-0.00203	-0.00205	-0.00204
	(A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * !B1 * Y)	-0.00403	-0.00418	-0.00416
	(!A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * !B1 * Y)	-0.00425	-0.00426	-0.00426

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__oai22_l	(A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * B0 * !Y)	0.00215	0.00217	0.00208
	(A0 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * B1 * !Y)	0.00215	0.00217	0.00208
	(A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * !B1 * Y)	0.00414	0.00418	0.00416
	(!A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * !B1 * Y)	0.00426	0.00430	0.00427

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__oai22_l	(A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * B1 * !Y)	-0.00202	-0.00204	-0.00203
	(A0 * !A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B1 * !Y)	-0.00202	-0.00204	-0.00203
	(!A0 * !A1 * B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B1 * Y)	-0.00445	-0.00460	-0.00459
	(!A0 * !A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B1 * Y)	-0.00458	-0.00460	-0.00468

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__oai22_l	(A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * B1 * !Y)	0.00214	0.00215	0.00207
	(A0 * !A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B1 * !Y)	0.00214	0.00216	0.00207
	(!A0 * !A1 * B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B1 * Y)	0.00458	0.00460	0.00459
	(!A0 * !A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B1 * Y)	0.00468	0.00473	0.00470

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__oai22_l	(A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * !Y)	-0.00379	-0.00416	-0.00413
	(A0 * !A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B0 * !Y)	-0.00379	-0.00416	-0.00413
	(!A0 * !A1 * B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B0 * Y)	-0.00451	-0.00470	-0.00467
	(!A0 * !A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B0 * Y)	-0.00464	-0.00468	-0.00474

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__oai22_l	(A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * !Y)	0.00411	0.00417	0.00413
	(A0 * !A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B0 * !Y)	0.00411	0.00418	0.00413
	(!A0 * !A1 * B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B0 * Y)	0.00465	0.00472	0.00467
	(!A0 * !A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B0 * Y)	0.00474	0.00478	0.00476

SKY130_OSU_SC_18T_LS__OR2x

sky130_osu_sc_18T_ls_tt_1P62_25C.ccs
Cell Library: Process , Voltage 1.62,
Temp 25.00

Truth Table

INPUT		OUTPUT
A	B	Y
0	0	0
x	1	1
1	x	1

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__or2_1	12.45420
sky130_osu_sc_18T_ls__or2_2	15.38460
sky130_osu_sc_18T_ls__or2_4	21.24540
sky130_osu_sc_18T_ls__or2_8	32.96700
sky130_osu_sc_18T_ls__or2_l	12.45420

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	B	Y
sky130_osu_sc_18T_ls__or2_1	0.00579	0.00562	1.92795
sky130_osu_sc_18T_ls__or2_2	0.00580	0.00562	3.78472
sky130_osu_sc_18T_ls__or2_4	0.00580	0.00562	7.23828
sky130_osu_sc_18T_ls__or2_8	0.00579	0.00563	13.75568
sky130_osu_sc_18T_ls__or2_l	0.00451	0.00428	1.32282

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__or2_1	0.00000	0.00087	0.00129
sky130_osu_sc_18T_ls__or2_2	0.00000	0.00131	0.00161
sky130_osu_sc_18T_ls__or2_4	0.00000	0.00220	0.00227
sky130_osu_sc_18T_ls__or2_8	0.00000	0.00398	0.00421
sky130_osu_sc_18T_ls__or2_l	0.00000	0.00044	0.00062

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__or2_1	A->Y (RR)	0.08864	0.75072	7.29145
	B->Y (RR)	0.07939	0.71511	7.12835
sky130_osu_sc_18T_ls__or2_2	A->Y (RR)	0.09774	0.67846	7.46557
	B->Y (RR)	0.08805	0.64938	7.33581
sky130_osu_sc_18T_ls__or2_4	A->Y (RR)	0.12819	0.67554	7.83659
	B->Y (RR)	0.11818	0.65371	7.72395
sky130_osu_sc_18T_ls__or2_8	A->Y (RR)	0.18494	0.73349	8.38341
	B->Y (RR)	0.17464	0.71740	8.30850
sky130_osu_sc_18T_ls__or2_l	A->Y (RR)	0.09778	0.83454	7.27448
	B->Y (RR)	0.08905	0.80167	7.12947

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__or2_1	A->Y (FF)	0.16278	0.81713	7.03087
	B->Y (FF)	0.13490	0.77789	6.73404
sky130_osu_sc_18T_ls__or2_2	A->Y (FF)	0.20017	0.81882	7.31089
	B->Y (FF)	0.17261	0.78780	7.04621
sky130_osu_sc_18T_ls__or2_4	A->Y (FF)	0.28649	0.89344	7.78141
	B->Y (FF)	0.25903	0.86911	7.56210
sky130_osu_sc_18T_ls__or2_8	A->Y (FF)	0.45918	1.08001	8.33443
	B->Y (FF)	0.43170	1.05132	8.19855
sky130_osu_sc_18T_ls__or2_l	A->Y (FF)	0.17698	0.86895	6.90950
	B->Y (FF)	0.14977	0.82980	6.63237

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__or2_1	A	0.00000	0.00000	0.00000
	A	0.00696	0.00607	0.00813
	B	0.00000	0.00000	0.00000
	B	0.00517	0.00448	0.00743
sky130_osu_sc_18T_ls__or2_2	A	0.00000	0.00000	0.00000
	A	0.01208	0.01155	0.01348
	B	0.00000	0.00000	0.00000
	B	0.01023	0.00997	0.01290
sky130_osu_sc_18T_ls__or2_4	A	0.00000	0.00000	0.00000
	A	0.02300	0.02327	0.02603
	B	0.00000	0.00000	0.00000
	B	0.02111	0.02178	0.02551
sky130_osu_sc_18T_ls__or2_8	A	0.00000	0.00000	0.00000
	A	0.04446	0.04610	0.04849
	B	0.00000	0.00000	0.00000
	B	0.04256	0.04478	0.04835
sky130_osu_sc_18T_ls__or2_l	A	0.00000	0.00000	0.00000
	A	0.00509	0.00438	0.00591
	B	0.00000	0.00000	0.00000
	B	0.00394	0.00344	0.00561

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__or2_1	A	0.00000	0.00000	0.00000
	A	0.01479	0.01472	0.01559
	B	0.00000	0.00000	0.00000
	B	0.01230	0.01240	0.01559
sky130_osu_sc_18T_ls__or2_2	A	0.00000	0.00000	0.00000
	A	0.01806	0.01883	0.01956
	B	0.00000	0.00000	0.00000
	B	0.01559	0.01639	0.01942
sky130_osu_sc_18T_ls__or2_4	A	0.00000	0.00000	0.00000
	A	0.02615	0.02820	0.02932
	B	0.00000	0.00000	0.00000
	B	0.02366	0.02565	0.02882
sky130_osu_sc_18T_ls__or2_8	A	0.00000	0.00000	0.00000
	A	0.04270	0.04626	0.04885
	B	0.00000	0.00000	0.00000
	B	0.04053	0.04361	0.04803
sky130_osu_sc_18T_ls__or2_l	A	0.00000	0.00000	0.00000
	A	0.01120	0.01104	0.01171
	B	0.00000	0.00000	0.00000
	B	0.00944	0.00945	0.01180

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__or2_1	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00390	-0.00423	-0.00420
sky130_osu_sc_18T_ls__or2_2	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00390	-0.00423	-0.00420
sky130_osu_sc_18T_ls__or2_4	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00390	-0.00423	-0.00420
sky130_osu_sc_18T_ls__or2_8	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00390	-0.00423	-0.00420
sky130_osu_sc_18T_ls__or2_l	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00273	-0.00295	-0.00294

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__or2_1	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00418	0.00425	0.00420
sky130_osu_sc_18T_ls__or2_2	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00418	0.00425	0.00420
sky130_osu_sc_18T_ls__or2_4	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00418	0.00426	0.00420
sky130_osu_sc_18T_ls__or2_8	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00418	0.00426	0.00420
sky130_osu_sc_18T_ls__or2_l	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00292	0.00295	0.00294

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__or2_1	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00205	-0.00207	-0.00206
sky130_osu_sc_18T_ls__or2_2	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00205	-0.00207	-0.00206
sky130_osu_sc_18T_ls__or2_4	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00205	-0.00207	-0.00206
sky130_osu_sc_18T_ls__or2_8	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00205	-0.00207	-0.00206
sky130_osu_sc_18T_ls__or2_l	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00147	-0.00149	-0.00148

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__or2_1	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00217	0.00219	0.00210
sky130_osu_sc_18T_ls__or2_2	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00217	0.00219	0.00210
sky130_osu_sc_18T_ls__or2_4	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00217	0.00219	0.00210
sky130_osu_sc_18T_ls__or2_8	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00217	0.00219	0.00210
sky130_osu_sc_18T_ls__or2_l	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00157	0.00157	0.00151

SKY130_OSU_SC_18T_LS__TBUFIx

sky130_osu_sc_18T_ls_tt_1P62_25C.ccs
Cell Library: Process , Voltage 1.62,
Temp 25.00

Truth Table

INPUT		OUTPUT
A	OE	Y
-	0	HiZ
0	1	1
1	1	0

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__tbufi_1	12.45420
sky130_osu_sc_18T_ls__tbufi_l	12.45420

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	OE	Y
sky130_osu_sc_18T_ls__tbufi_1	0.00580	0.00731	0.98058
sky130_osu_sc_18T_ls__tbufi_l	0.00447	0.00566	0.67831

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__tbufi_1	0.00000	0.00061	0.00081
sky130_osu_sc_18T_ls__tbufi_l	0.00000	0.00031	0.00047

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__tbufi_1	A->Y (FR)	0.06600	1.08611	12.25680
	OE->Y (FR)	0.06602	0.36921	4.73392
	OE->Y (RR)	0.11295	0.90069	7.35028
sky130_osu_sc_18T_ls__tbufi_l	A->Y (FR)	0.07851	1.19594	12.24540
	OE->Y (FR)	0.07015	0.37620	4.73371
	OE->Y (RR)	0.12430	1.01566	7.39106

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__tbufi_1	A->Y (RF)	0.03738	0.63707	7.36274
	OE->Y (FF)	0.06675	0.37166	4.73391
	OE->Y (RF)	0.03603	0.61706	7.00624
sky130_osu_sc_18T_ls__tbufi_l	A->Y (RF)	0.04280	0.68317	7.29944
	OE->Y (FF)	0.07108	0.38130	4.73361
	OE->Y (RF)	0.04198	0.66463	6.93626

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__tbufi_1	A	0.00000	0.00000	0.00000
	A	0.00648	0.00634	0.00663
	OE	0.00000	0.00000	0.00000
	OE	0.00660	0.00590	0.00926
sky130_osu_sc_18T_ls__tbufi_l	A	0.00000	0.00000	0.00000
	A	0.00491	0.00478	0.00499
	OE	0.00000	0.00000	0.00000
	OE	0.00473	0.00422	0.00671

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__tbufi_1	A	0.00000	0.00000	0.00000
	A	-0.00107	-0.00106	-0.00096
	OE	0.00000	0.00000	0.00000
	OE	0.00456	0.00383	0.00729
sky130_osu_sc_18T_ls__tbufi_l	A	0.00000	0.00000	0.00000
	A	-0.00068	-0.00071	-0.00065
	OE	0.00000	0.00000	0.00000
	OE	0.00318	0.00265	0.00518

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__tbufi_1	(!OE * Y)	0.00000	0.00000	0.00000
	(!OE * Y)	-0.00330	-0.00335	-0.00331
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	-0.00293	-0.00297	-0.00295
sky130_osu_sc_18T_ls__tbufi_l	(!OE * Y)	0.00000	0.00000	0.00000
	(!OE * Y)	-0.00247	-0.00249	-0.00248
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	-0.00222	-0.00225	-0.00223

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__tbufi_1	(!OE * Y)	0.00000	0.00000	0.00000
	(!OE * Y)	0.00330	0.00335	0.00331
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	0.00303	0.00306	0.00300
sky130_osu_sc_18T_ls__tbufi_l	(!OE * Y)	0.00000	0.00000	0.00000
	(!OE * Y)	0.00247	0.00249	0.00248
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	0.00228	0.00230	0.00226

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__tbufi_1	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00261	0.00192	0.00535
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00236	0.00183	0.00508
sky130_osu_sc_18T_ls__tbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00180	0.00127	0.00381
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00160	0.00119	0.00360

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__tbufi_1	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00729	0.00679	0.01036
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00756	0.00708	0.01051
sky130_osu_sc_18T_ls__tbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00571	0.00530	0.00788
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00591	0.00547	0.00802

SKY130_OSU_SC_18T_LS__TNBUFIx

sky130_osu_sc_18T_ls_tt_1P62_25C.ccs
Cell Library: Process , Voltage 1.62,
Temp 25.00

Truth Table

INPUT		OUTPUT
A	OE	Y
0	0	1
1	0	0
-	1	HiZ

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__tnbufi_1	12.45420
sky130_osu_sc_18T_ls__tnbufi_l	12.45420

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	OE	Y
sky130_osu_sc_18T_ls__tnbufi_1	0.00579	0.00910	0.97489
sky130_osu_sc_18T_ls__tnbufi_l	0.00446	0.00676	0.66400

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__tnbufi_1	0.00000	0.00056	0.00097
sky130_osu_sc_18T_ls__tnbufi_l	0.00000	0.00032	0.00043

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__tnbufi_1	A->Y (FR)	0.06665	1.08384	12.21610
	OE->Y (RR)	0.03294	0.36887	4.73493
	OE->Y (FR)	0.08450	1.10626	12.16470
sky130_osu_sc_18T_ls__tnbufi_l	A->Y (FR)	0.07924	1.18594	12.08940
	OE->Y (RR)	0.03449	0.36907	4.73512
	OE->Y (FR)	0.09414	1.20518	12.02080

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__tnbufi_1	A->Y (RF)	0.03686	0.63561	7.34007
	OE->Y (RF)	0.03262	0.36881	4.73491
	OE->Y (FF)	0.07306	0.65058	5.35893
sky130_osu_sc_18T_ls__tnbufi_l	A->Y (RF)	0.04217	0.67832	7.21765
	OE->Y (RF)	0.03435	0.36906	4.73516
	OE->Y (FF)	0.08241	0.70382	5.27736

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__tnbufi_1	A	0.00000	0.00000	0.00000
	A	0.00664	0.00649	0.00682
	OE	0.00000	0.00000	0.00000
	OE	0.01616	0.01606	0.02024
sky130_osu_sc_18T_ls__tnbufi_l	A	0.00000	0.00000	0.00000
	A	0.00507	0.00493	0.00514
	OE	0.00000	0.00000	0.00000
	OE	0.01198	0.01185	0.01489

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__tnbufi_1	A	0.00000	0.00000	0.00000
	A	-0.00127	-0.00125	-0.00115
	OE	0.00000	0.00000	0.00000
	OE	0.01437	0.01424	0.01804
sky130_osu_sc_18T_ls__tnbufi_l	A	0.00000	0.00000	0.00000
	A	-0.00087	-0.00090	-0.00083
	OE	0.00000	0.00000	0.00000
	OE	0.01061	0.01046	0.01321

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__tnbufi_1	(OE * Y)	0.00000	0.00000	0.00000
	(OE * Y)	-0.00285	-0.00290	-0.00286
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	-0.00252	-0.00256	-0.00253
sky130_osu_sc_18T_ls__tnbufi_l	(OE * Y)	0.00000	0.00000	0.00000
	(OE * Y)	-0.00205	-0.00207	-0.00205
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	-0.00182	-0.00184	-0.00183

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__tnbufi_1	(OE * Y)	0.00000	0.00000	0.00000
	(OE * Y)	0.00285	0.00290	0.00286
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	0.00260	0.00262	0.00258
sky130_osu_sc_18T_ls__tnbufi_l	(OE * Y)	0.00000	0.00000	0.00000
	(OE * Y)	0.00205	0.00207	0.00205
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	0.00187	0.00189	0.00185

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__tnbufi_1	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	-0.00506	-0.00597	-0.00249
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00486	-0.00597	-0.00242
sky130_osu_sc_18T_ls__tnbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	-0.00350	-0.00417	-0.00159
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00336	-0.00413	-0.00154

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__tnbufi_1	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.01219	0.01212	0.01616
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.01198	0.01186	0.01595
sky130_osu_sc_18T_ls__tnbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00906	0.00893	0.01185
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00890	0.00873	0.01173

SKY130_OSU_SC_18T_LS__XNOR2

sky130_osu_sc_18T_ls_tt_1P62_25C.ccs
Cell Library: Process , Voltage 1.62,
Temp 25.00

Truth Table

INPUT		OUTPUT
A	B	Y
0	0	1
0	1	0
1	0	0
1	1	1

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__xnor2_l	21.24540

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	B	Y
sky130_osu_sc_18T_ls__xnor2_l	0.01146	0.01046	0.98019

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__xnor2_l	0.00000	0.00147	0.00182

Delay Information

Delay(ns) to Y rising (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_18T_ls__xnor2_l	A->Y (RR)	B	0.14408	0.94801	7.46546
	A->Y (FR)	!B	0.08842	1.10672	12.23670
	B->Y (RR)	A	0.11438	0.91571	7.41012
	B->Y (FR)	!A	0.11763	1.13632	12.18600

Delay(ns) to Y falling (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_18T_ls__xnor2_l	A->Y (FF)	B	0.12586	0.76406	5.86028
	A->Y (RF)	!B	0.05520	0.64512	7.17069
	B->Y (FF)	A	0.11308	0.75155	5.85592
	B->Y (RF)	!A	0.06631	0.66048	7.18100

Power Information

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

Cell Name	Input	When	Power(pJ)		
			first	mid	last
sky130_osu_sc_18T_ls__xnor2_l	A	B	0.00000	0.00000	0.00000
	A	B	0.00647	0.00563	0.00880
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.01585	0.01524	0.01908
	B	A	0.00000	0.00000	0.00000
	B	A	0.00229	0.00163	0.00503
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01752	0.01709	0.02088

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

Cell Name	Input	When	Power(pJ)		
			first	mid	last
sky130_osu_sc_18T_ls__xnor2_l	A	B	0.00000	0.00000	0.00000
	A	B	0.01966	0.01878	0.02194
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00453	0.00361	0.00695
	B	A	0.00000	0.00000	0.00000
	B	A	0.01801	0.01795	0.02148
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00554	0.00452	0.00780

SKY130_OSU_SC_18T_LS__XOR2

sky130_osu_sc_18T_ls_tt_1P62_25C.ccs
Cell Library: Process , Voltage 1.62,
Temp 25.00

Truth Table

INPUT		OUTPUT
A	B	Y
0	0	0
0	1	1
1	0	1
1	1	0

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__xor2_l	21.24540

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	B	Y
sky130_osu_sc_18T_ls__xor2_l	0.01142	0.01050	0.96050

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__xor2_l	0.00000	0.00147	0.00178

Delay Information

Delay(ns) to Y rising (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_18T_ls__xor2_l	A->Y (RR)	!B	0.13843	0.92495	7.30816
	A->Y (FR)	B	0.10595	1.11932	12.09420
	B->Y (RR)	!A	0.11795	0.91283	7.31289
	B->Y (FR)	A	0.11548	1.13005	12.08730

Delay(ns) to Y falling (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_18T_ls__xor2_l	A->Y (FF)	!B	0.11293	0.73746	5.65311
	A->Y (RF)	B	0.05173	0.65866	7.30029
	B->Y (FF)	!A	0.10588	0.73018	5.64384
	B->Y (RF)	A	0.06149	0.64181	6.94898

Power Information

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

Cell Name	Input	When	Power(pJ)		
			first	mid	last
sky130_osu_sc_18T_ls__xor2_l	A	B	0.00000	0.00000	0.00000
	A	B	0.01852	0.01815	0.02197
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00337	0.00176	0.00488
	B	A	0.00000	0.00000	0.00000
	B	A	0.01908	0.01877	0.02258
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00198	0.00126	0.00466

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

Cell Name	Input	When	Power(pJ)		
			first	mid	last
sky130_osu_sc_18T_ls__xor2_l	A	B	0.00000	0.00000	0.00000
	A	B	0.00373	0.00256	0.00594
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.02023	0.02004	0.02340
	B	A	0.00000	0.00000	0.00000
	B	A	0.00376	0.00266	0.00595
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01832	0.01832	0.02195

SKY130_OSU_SC_18T_LS_x

sky130_osu_sc_18T_ls_tt_1P62_25C.ccs
Cell Library: Process , Voltage 1.62,
Temp 25.00

Truth Table

INPUT
A
x

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__ant	6.59340
sky130_osu_sc_18T_ls__tiehi	6.59340
sky130_osu_sc_18T_ls__tielo	6.59340

Pin Capacitance Information

Cell Name	Pin Cap(pf)
	A
sky130_osu_sc_18T_ls__ant	0.41202
sky130_osu_sc_18T_ls__tiehi	0.00000
sky130_osu_sc_18T_ls__tielo	0.00000

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__ant	0.00000	196584.00000	393167.00000
sky130_osu_sc_18T_ls__tiehi	0.00000	0.00000	0.00000
sky130_osu_sc_18T_ls__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_ls__ant	0.00000	0.00000	0.00000
	-0.00297	0.04225	0.55270

Passive power(pJ) for A falling :

Cell Name	Power(pJ)		
	first	mid	last
sky130_osu_sc_18T_ls__ant	0.00000	0.00000	0.00000
	3.42183	3.21937	0.70618