sky130_osu_sc_18T_ls_ss_1P60_150C.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_ss_1P60_150C.ccs
Cell Library: Process , Voltage 1.60,
Temp 150.00

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	0.02330	0.02325	0.01781	1.68363	0.78715	1.65076
sky130_osu_sc_18T_ls__addf_l	0.02329	0.02324	0.01781	1.14795	0.78879	1.14386

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__addf_1	0.00000	0.79573	1.03057
sky130_osu_sc_18T_ls__addf_l	0.00000	0.67991	0.91475

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)	0.29102	2.51384	29.23740
	B->CO (RR)	0.28770	2.45016	28.37480
	CI->CO (RR)	0.27889	2.55082	29.84650
	CON->CO (FR)	0.04913	0.97195	11.83390
sky130_osu_sc_18T_ls__addf_1	A->CO (RR)	0.29185	2.33107	23.58220
	B->CO (RR)	0.28888	2.28536	23.16490
	CI->CO (RR)	0.27962	2.36799	24.21350
	CON->CO (FR)	0.05631	1.06023	11.81030

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)	0.37721	2.99536	34.37350
	B->CO (FF)	0.34368	2.89823	33.73150
	CI->CO (FF)	0.33288	2.96510	34.69480
	CON->CO (RF)	0.04185	0.82707	10.05670
sky130_osu_sc_18T_ls__addf_1	A->CO (FF)	0.36955	2.69672	26.83860
	B->CO (FF)	0.33641	2.61218	26.47850
	CI->CO (FF)	0.32536	2.66662	27.17740
	CON->CO (RF)	0.04611	0.87602	9.79162

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)	0.26821	1.31206	11.13520
	B->CON (FR)	0.23744	1.26112	11.18980
	CI->CON (FR)	0.22388	1.28252	11.49980
sky130_osu_sc_18T_ls__addf_1	A->CON (FR)	0.25366	1.29821	11.13540
	B->CON (FR)	0.22353	1.24805	11.18990
	CI->CON (FR)	0.20928	1.26896	11.50000

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)	0.18128	0.95094	8.34152
	B->CON (RF)	0.18133	0.96424	8.63361
	CI->CON (RF)	0.16899	0.98922	9.00350
sky130_osu_sc_18T_ls__addf_1	A->CON (RF)	0.17412	0.94445	8.34473
	B->CON (RF)	0.17458	0.95833	8.63636
	CI->CON (RF)	0.16177	0.98276	9.00603

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)	0.54978	2.84334	27.21060
	B->S (-R)	0.58557	2.88934	26.90400
	CI->S (-R)	0.50216	2.80589	27.52200
	CON->S (RR)	0.15610	0.95904	8.19822
sky130_osu_sc_18T_ls__addf_1	A->S (-R)	0.52338	2.60944	22.40940
	B->S (-R)	0.50889	2.58681	22.34480
	CI->S (-R)	0.47561	2.57305	22.74100
	CON->S (RR)	0.15572	1.02173	8.09467

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)	0.47820	2.35843	21.44990
	B->S (-F)	0.47314	2.26135	20.88170
	CI->S (-F)	0.46453	2.38802	22.04940
	CON->S (FF)	0.18742	0.97624	7.46228
sky130_osu_sc_18T_ls__addf_l	A->S (-F)	0.45387	2.15427	17.63960
	B->S (-F)	0.44789	2.07728	17.42490
	CI->S (-F)	0.43985	2.18321	18.25390
	CON->S (FF)	0.17620	1.01766	7.23798

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	0.00359	0.00386	0.00865
	B	0.00567	0.00586	0.00992
	CI	0.00599	0.00640	0.01131
sky130_osu_sc_18T_ls__addf_l	A	0.00259	0.00270	0.00568
	B	0.00467	0.00468	0.00720
	CI	0.00499	0.00521	0.00833

Internal switching power(pJ) to CO falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__addf_1	A	0.01574	0.01624	0.02336
	B	0.01668	0.01726	0.02330
	CI	0.01464	0.01544	0.02167
sky130_osu_sc_18T_ls__addf_l	A	0.01596	0.01606	0.01977
	B	0.01567	0.01611	0.01979
	CI	0.01362	0.01429	0.01819

Internal switching power(pJ) to CON rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__addf_1	A	0.01691	0.01702	0.01951
	B	0.01664	0.01701	0.01947
	CI	0.01461	0.01520	0.01792
sky130_osu_sc_18T_ls__addf_l	A	0.01593	0.01595	0.01834
	B	0.01564	0.01598	0.01829
	CI	0.01360	0.01415	0.01674

Internal switching power(pJ) to CON falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__addf_1	A	0.00415	0.00398	0.00576
	B	0.00561	0.00564	0.00748
	CI	0.00597	0.00625	0.00842
sky130_osu_sc_18T_ls__addf_l	A	0.00316	0.00290	0.00461
	B	0.00462	0.00456	0.00631
	CI	0.00497	0.00515	0.00725

Internal switching power(pJ) to S rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__addf_1	A	0.01574	0.01623	0.02313
	B	0.01667	0.01725	0.02308
	CI	0.01463	0.01542	0.02145
sky130_osu_sc_18T_ls__addf_l	A	0.01596	0.01606	0.01969
	B	0.01567	0.01611	0.01972
	CI	0.01361	0.01428	0.01815

Internal switching power(pJ) to S falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__addf_1	A	0.03553	0.03596	0.04015
	B	0.03171	0.03143	0.03894
	CI	0.02875	0.02893	0.03358
sky130_osu_sc_18T_ls__addf_l	A	0.03424	0.03442	0.03859
	B	0.03044	0.03008	0.03764
	CI	0.02750	0.02754	0.03232

SKY130_OSU_SC_18T_LS__ADDHx

sky130_osu_sc_18T_ls_ss_1P60_150C.ccs
Cell Library: Process , Voltage 1.60,
Temp 150.00

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	0.01150	0.01242	1.65893	0.83755	1.68635
sky130_osu_sc_18T_ls__addh_l	0.01150	0.01242	0.94359	0.82483	0.96123

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__addh_1	0.00000	1.00075	1.19253
sky130_osu_sc_18T_ls__addh_l	0.00000	0.82955	1.03483

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)	0.19787	1.01500	8.21360
	B->CO (RR)	0.20473	0.99462	8.22464
sky130_osu_sc_18T_ls__addh_l	A->CO (RR)	0.20051	1.12473	8.14373
	B->CO (RR)	0.20742	1.10914	8.14993

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)	0.16128	0.92502	7.37750
	B->CO (FF)	0.17097	0.94565	7.44558
sky130_osu_sc_18T_ls__addh_l	A->CO (FF)	0.16134	0.98043	6.97950
	B->CO (FF)	0.17061	1.00098	7.05010

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	0.26795	0.87970	4.75963
	A->CON (FR)	!B	0.15289	1.19692	11.50660
	B->CON (RR)	A	0.27469	0.85874	4.76513
	B->CON (FR)	!A	0.18901	1.22325	11.22090
sky130_osu_sc_18T_ls__addh_l	A->CON (RR)	B	0.23736	0.83260	4.57991
	A->CON (FR)	!B	0.13449	1.17244	11.37920
	B->CON (RR)	A	0.24416	0.81636	4.59799
	B->CON (FR)	!A	0.17062	1.19588	11.09010

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	0.25349	1.06537	6.84686
	A->CON (RF)	!B	0.10770	0.92426	9.08891
	B->CON (FF)	A	0.24666	1.09813	7.17062
	B->CON (RF)	!A	0.13325	0.93305	8.86754
sky130_osu_sc_18T_ls__addh_l	A->CON (FF)	B	0.22858	1.01158	6.54506
	A->CON (RF)	!B	0.09851	0.90949	9.00528
	B->CON (FF)	A	0.22179	1.04571	6.86881
	B->CON (RF)	!A	0.12415	0.91582	8.78693

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	0.20489	2.42500	29.31090
	A->S (FR)	B	0.35229	2.54187	26.85360
	B->S (RR)	!A	0.23147	2.38752	28.42340
	B->S (FR)	A	0.34501	2.62000	27.83710
	CON->S (FR)	-	0.05333	0.99249	12.06660
sky130_osu_sc_18T_ls__addh_l	A->S (RR)	!B	0.20549	2.19052	21.91790
	A->S (FR)	B	0.33773	2.27857	19.33930
	B->S (RR)	!A	0.23268	2.16957	21.38480
	B->S (FR)	A	0.33019	2.33990	19.97680
	CON->S (FR)	-	0.06428	1.13777	12.11560

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	0.24427	2.74569	33.16790
	A->S (RF)	B	0.34200	1.95649	19.29150
	B->S (FF)	!A	0.28047	2.77563	32.92610
	B->S (RF)	A	0.34871	1.93583	19.28580
	CON->S (RF)	-	0.03989	0.81151	9.87246
sky130_osu_sc_18T_ls__addh_l	A->S (FF)	!B	0.23495	2.36739	23.58450
	A->S (RF)	B	0.31776	1.74141	13.72400
	B->S (FF)	!A	0.27139	2.39623	23.31130
	B->S (RF)	A	0.32453	1.72486	13.73850
	CON->S (RF)	-	0.04724	0.89507	9.64915

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	0.00715	0.00692	0.00904
	B	0.00000	0.00000	0.00000
	B	0.00633	0.00606	0.00775
sky130_osu_sc_18T_ls__addh_l	A	0.00000	0.00000	0.00000
	A	0.00578	0.00544	0.00811
	B	0.00000	0.00000	0.00000
	B	0.00496	0.00456	0.00678

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	0.01141	0.01107	0.01388
	B	0.00000	0.00000	0.00000
	B	0.01174	0.01196	0.01494
sky130_osu_sc_18T_ls__addh_l	A	0.00000	0.00000	0.00000
	A	0.01002	0.00965	0.01243
	B	0.00000	0.00000	0.00000
	B	0.01037	0.01043	0.01335

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	0.00715	0.00693	0.00958
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00981	0.00986	0.01097
	B	A	0.00000	0.00000	0.00000
	B	A	0.00632	0.00606	0.00812
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01117	0.01119	0.01196
sky130_osu_sc_18T_ls__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.00578	0.00542	0.00803
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00893	0.00896	0.00969
	B	A	0.00000	0.00000	0.00000
	B	A	0.00496	0.00456	0.00689
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01029	0.01019	0.01066

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	0.01140	0.01114	0.01379
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00173	0.00173	0.00246
	B	A	0.00000	0.00000	0.00000
	B	A	0.01174	0.01192	0.01495
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00267	0.00255	0.00322
sky130_osu_sc_18T_ls__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.01002	0.00965	0.01241
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00053	0.00048	0.00097
	B	A	0.00000	0.00000	0.00000
	B	A	0.01037	0.01042	0.01324
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00147	0.00127	0.00180

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	0.01142	0.01110	0.01407
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00176	0.00185	0.00278
	B	A	0.00000	0.00000	0.00000
	B	A	0.01176	0.01199	0.01520
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00270	0.00263	0.00350
sky130_osu_sc_18T_ls__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.01003	0.00966	0.01244
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00054	0.00050	0.00107
	B	A	0.00000	0.00000	0.00000
	B	A	0.01038	0.01045	0.01329
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00149	0.00131	0.00181

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	0.00716	0.00692	0.00924
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00982	0.01004	0.01141
	B	A	0.00000	0.00000	0.00000
	B	A	0.00633	0.00606	0.00791
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01119	0.01134	0.01250
sky130_osu_sc_18T_ls__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.00578	0.00543	0.00799
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00893	0.00900	0.00972
	B	A	0.00000	0.00000	0.00000
	B	A	0.00496	0.00457	0.00666
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01030	0.01028	0.01070

SKY130_OSU_SC_18T_LS__AND2x

sky130_osu_sc_18T_ls_ss_1P60_150C.ccs
Cell Library: Process , Voltage 1.60,
Temp 150.00

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	0.00618	0.00628	1.67707
sky130_osu_sc_18T_ls__and2_2	0.00618	0.00629	3.28286
sky130_osu_sc_18T_ls__and2_4	0.00618	0.00628	6.34070
sky130_osu_sc_18T_ls__and2_6	0.00621	0.00628	9.43946
sky130_osu_sc_18T_ls__and2_8	0.00619	0.00630	12.14302
sky130_osu_sc_18T_ls__and2_l	0.00464	0.00475	1.15017

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__and2_1	0.00000	0.38532	0.48024
sky130_osu_sc_18T_ls__and2_2	0.00000	0.22776	0.27097
sky130_osu_sc_18T_ls__and2_4	0.00000	0.31837	0.35739
sky130_osu_sc_18T_ls__and2_6	0.00000	0.40897	0.49934
sky130_osu_sc_18T_ls__and2_8	0.00000	0.49958	0.64129
sky130_osu_sc_18T_ls__and2_l	0.00000	0.28757	0.35700

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)	0.15099	0.91233	7.89583
	B->Y (RR)	0.15976	0.90578	7.90844
sky130_osu_sc_18T_ls__and2_2	A->Y (RR)	0.17545	0.86671	8.10744
	B->Y (RR)	0.18436	0.85086	8.09462
sky130_osu_sc_18T_ls__and2_4	A->Y (RR)	0.24194	0.91925	8.59212
	B->Y (RR)	0.25071	0.89119	8.53655
sky130_osu_sc_18T_ls__and2_6	A->Y (RR)	0.30616	0.99418	9.04246
	B->Y (RR)	0.31474	0.96026	8.95252
sky130_osu_sc_18T_ls__and2_8	A->Y (RR)	0.36933	1.06781	9.27296
	B->Y (RR)	0.37820	1.03108	9.17790
sky130_osu_sc_18T_ls__and2_l	A->Y (RR)	0.16983	1.02087	7.98344
	B->Y (RR)	0.17939	1.01248	7.98605

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)**	0.12354	0.82544	6.85081
	B->Y (FF)	0.13093	0.84695	6.97229
sky130_osu_sc_18T_ls__and2_2	**A->Y (FF)**	0.14358	0.80006	7.09035
	B->Y (FF)	0.15196	0.81822	7.18808
sky130_osu_sc_18T_ls__and2_4	**A->Y (FF)**	0.20082	0.85094	7.54514
	B->Y (FF)	0.20940	0.86440	7.63977
sky130_osu_sc_18T_ls__and2_6	**A->Y (FF)**	0.26153	0.91774	7.98197
	B->Y (FF)	0.27016	0.92908	8.04852
sky130_osu_sc_18T_ls__and2_8	**A->Y (FF)**	0.31843	0.97680	8.13200
	B->Y (FF)	0.32726	0.98700	8.19574
sky130_osu_sc_18T_ls__and2_l	**A->Y (FF)**	0.13429	0.90028	6.85657
	B->Y (FF)	0.14340	0.92387	6.96297

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	0.00567	0.00526	0.01437
	B	0.00000	0.00000	0.00000
	B	0.00577	0.00503	0.01171
sky130_osu_sc_18T_ls__and2_2	A	0.00000	0.00000	0.00000
	A	0.01126	0.01133	0.01983
	B	0.00000	0.00000	0.00000
	B	0.01135	0.01113	0.01742
sky130_osu_sc_18T_ls__and2_4	A	0.00000	0.00000	0.00000
	A	0.02338	0.02402	0.03190
	B	0.00000	0.00000	0.00000
	B	0.02350	0.02403	0.02988
sky130_osu_sc_18T_ls__and2_6	A	0.00000	0.00000	0.00000
	A	0.03599	0.03687	0.04539
	B	0.00000	0.00000	0.00000
	B	0.03590	0.03695	0.04337
sky130_osu_sc_18T_ls__and2_8	A	0.00000	0.00000	0.00000
	A	0.04845	0.04968	0.05824
	B	0.00000	0.00000	0.00000
	B	0.04870	0.04906	0.05697
sky130_osu_sc_18T_ls__and2_l	A	0.00000	0.00000	0.00000
	A	0.00412	0.00380	0.01017
	B	0.00000	0.00000	0.00000
	B	0.00421	0.00364	0.00840

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	0.01361	0.01395	0.02295
	B	0.00000	0.00000	0.00000
	B	0.01531	0.01574	0.02399
sky130_osu_sc_18T_ls__and2_2	A	0.00000	0.00000	0.00000
	A	0.01708	0.01837	0.02710
	B	0.00000	0.00000	0.00000
	B	0.01882	0.01990	0.02807
sky130_osu_sc_18T_ls__and2_4	A	0.00000	0.00000	0.00000
	A	0.02592	0.02847	0.03717
	B	0.00000	0.00000	0.00000
	B	0.02758	0.02977	0.03808
sky130_osu_sc_18T_ls__and2_6	A	0.00000	0.00000	0.00000
	A	0.03468	0.03848	0.04797
	B	0.00000	0.00000	0.00000
	B	0.03644	0.03966	0.04842
sky130_osu_sc_18T_ls__and2_8	A	0.00000	0.00000	0.00000
	A	0.04442	0.04825	0.05860
	B	0.00000	0.00000	0.00000
	B	0.04560	0.04913	0.05861
sky130_osu_sc_18T_ls__and2_l	A	0.00000	0.00000	0.00000
	A	0.01028	0.01043	0.01673
	B	0.00000	0.00000	0.00000
	B	0.01153	0.01170	0.01761

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)	-0.00528	-0.00528	-0.00532
sky130_osu_sc_18T_ls__and2_2	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00528	-0.00529	-0.00532
sky130_osu_sc_18T_ls__and2_4	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00528	-0.00529	-0.00532
sky130_osu_sc_18T_ls__and2_6	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00530	-0.00531	-0.00534
sky130_osu_sc_18T_ls__and2_8	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00528	-0.00528	-0.00532
sky130_osu_sc_18T_ls__and2_l	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00378	-0.00378	-0.00381

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)	0.00532	0.00543	0.00535
sky130_osu_sc_18T_ls__and2_2	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00532	0.00542	0.00535
sky130_osu_sc_18T_ls__and2_4	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00532	0.00538	0.00535
sky130_osu_sc_18T_ls__and2_6	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00534	0.00544	0.00537
sky130_osu_sc_18T_ls__and2_8	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00532	0.00542	0.00535
sky130_osu_sc_18T_ls__and2_l	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00380	0.00388	0.00382

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)	-0.00505	-0.00507	-0.00506
sky130_osu_sc_18T_ls__and2_2	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00505	-0.00507	-0.00507
sky130_osu_sc_18T_ls__and2_4	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00505	-0.00508	-0.00507
sky130_osu_sc_18T_ls__and2_6	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00505	-0.00507	-0.00507
sky130_osu_sc_18T_ls__and2_8	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00505	-0.00507	-0.00507
sky130_osu_sc_18T_ls__and2_l	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00361	-0.00363	-0.00362

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)	0.00514	0.00517	0.00509
sky130_osu_sc_18T_ls__and2_2	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00513	0.00517	0.00509
sky130_osu_sc_18T_ls__and2_4	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00514	0.00516	0.00509
sky130_osu_sc_18T_ls__and2_6	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00514	0.00516	0.00509
sky130_osu_sc_18T_ls__and2_8	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00514	0.00516	0.00509
sky130_osu_sc_18T_ls__and2_l	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00367	0.00369	0.00364

SKY130_OSU_SC_18T_LS__AOI21

sky130_osu_sc_18T_ls_ss_1P60_150C.ccs
Cell Library: Process , Voltage 1.60,
Temp 150.00

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	0.00587	0.00607	0.00590	0.79196

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__aoi21_l	0.00000	0.27881	0.60737

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)	0.14409	1.19056	11.07910
	A1->Y (FR)	0.12520	1.14193	10.80720
	B0->Y (FR)	0.10423	1.15982	11.44060

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)	0.10356	0.84802	8.02582
	A1->Y (RF)	0.09555	0.87919	8.58546
	B0->Y (RF)	0.05557	0.78986	8.14851

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	0.01241	0.01226	0.01288
	A1	0.00000	0.00000	0.00000
	A1	0.01062	0.01049	0.01108
	B0	0.00949	0.00912	0.01032

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	0.00261	0.00212	0.00280
	A1	0.00000	0.00000	0.00000
	A1	0.00263	0.00226	0.00315
	B0	-0.00130	-0.00133	-0.00057

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)	-0.00453	-0.00474	-0.00472
	(!A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !Y)	-0.00482	-0.00485	-0.00484
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00482	-0.00485	-0.00483

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)	0.00470	0.00474	0.00472
	(!A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !Y)	0.00484	0.00490	0.00485
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00490	0.00490	0.00485

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)	-0.00451	-0.00470	-0.00468
	(!A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !Y)	-0.00479	-0.00480	-0.00479
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	-0.00506	-0.00510	-0.00512

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)	0.00465	0.00470	0.00468
	(!A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !Y)	0.00479	0.00482	0.00481
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	0.00512	0.00522	0.00514

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)	-0.00214	-0.00218	-0.00215

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)	0.00238	0.00239	0.00222

SKY130_OSU_SC_18T_LS__AOI22

sky130_osu_sc_18T_ls_ss_1P60_150C.ccs
Cell Library: Process , Voltage 1.60,
Temp 150.00

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	0.00588	0.00607	0.00627	0.00605	0.77880

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__aoi22_1	0.00000	0.24768	0.65820

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)	0.18129	1.24068	11.12780
	A1->Y (FR)	0.16287	1.20518	10.98550
	B0->Y (FR)	0.11062	1.16113	11.33370
	B1->Y (FR)	0.12956	1.19662	11.52270

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)	0.13990	0.88197	7.98829
	A1->Y (RF)	0.13196	0.91259	8.55024
	B0->Y (RF)	0.06853	0.84299	8.48327
	B1->Y (RF)	0.07683	0.80940	7.91953

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	0.01537	0.01525	0.01576
	A1	0.01358	0.01344	0.01392
	B0	0.01018	0.01004	0.01127
	B1	0.01192	0.01153	0.01306

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__aoi22_l	A0	0.00548	0.00498	0.00562
	A1	0.00550	0.00511	0.00597
	B0	-0.00079	-0.00083	0.00015
	B1	-0.00067	-0.00091	-0.00016

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)	-0.00454	-0.00472	-0.00472
	(!A1 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * B1 * !Y)	-0.00482	-0.00485	-0.00484
	(!A1 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !B1 * Y)	-0.00482	-0.00485	-0.00483
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00482	-0.00485	-0.00483

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)	0.00469	0.00472	0.00472
	(!A1 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * B1 * !Y)	0.00484	0.00490	0.00485
	(!A1 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !B1 * Y)	0.00490	0.00490	0.00485
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00490	0.00490	0.00485

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)	-0.00452	-0.00469	-0.00468
	(!A0 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * B1 * !Y)	-0.00479	-0.00481	-0.00479
	(!A0 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !B1 * Y)	-0.00505	-0.00510	-0.00512
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	-0.00506	-0.00510	-0.00512

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)	0.00466	0.00469	0.00468
	(!A0 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * B1 * !Y)	0.00479	0.00486	0.00481
	(!A0 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !B1 * Y)	0.00512	0.00522	0.00514
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	0.00511	0.00522	0.00514

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)	-0.00215	-0.00220	-0.00216
	(A0 * A1 * !B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B1 * !Y)	-0.00212	-0.00215	-0.00214
	(!A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B1 * Y)	-0.00517	-0.00518	-0.00523
	(!A0 * A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B1 * Y)	-0.00517	-0.00518	-0.00523

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)	0.00248	0.00250	0.00225
	(A0 * A1 * !B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B1 * !Y)	0.00215	0.00216	0.00215
	(!A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B1 * Y)	0.00523	0.00525	0.00525
	(!A0 * A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B1 * Y)	0.00523	0.00525	0.00525

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)	-0.00217	-0.00221	-0.00217
	(A0 * A1 * !B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B0 * !Y)	-0.00213	-0.00216	-0.00215
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00488	-0.00489	-0.00490
	(!A0 * A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B0 * Y)	-0.00488	-0.00489	-0.00490

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)	0.00249	0.00251	0.00226
	(A0 * A1 * !B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B0 * !Y)	0.00216	0.00218	0.00216
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00496	0.00495	0.00491
	(!A0 * A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B0 * Y)	0.00496	0.00495	0.00491

SKY130_OSU_SC_18T_LS__BUFx

sky130_osu_sc_18T_ls_ss_1P60_150C.ccs
Cell Library: Process , Voltage 1.60,
Temp 150.00

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	0.00628	1.66455
sky130_osu_sc_18T_ls__buf_2	0.00629	3.30935
sky130_osu_sc_18T_ls__buf_4	0.00628	6.41189
sky130_osu_sc_18T_ls__buf_6	0.00099	1.80000
sky130_osu_sc_18T_ls__buf_8	0.00629	12.48123
sky130_osu_sc_18T_ls__buf_l	0.00479	1.14152

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__buf_1	0.00000	0.42717	0.42717
sky130_osu_sc_18T_ls__buf_2	0.00000	0.32131	0.42471
sky130_osu_sc_18T_ls__buf_4	0.00000	0.42903	0.56666
sky130_osu_sc_18T_ls__buf_6	0.00000	0.00000	0.00000
sky130_osu_sc_18T_ls__buf_8	0.00000	0.64448	0.85055
sky130_osu_sc_18T_ls__buf_l	0.00000	0.31135	0.31135

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)**	0.10644	0.84231	7.68427
sky130_osu_sc_18T_ls__buf_2	**A->Y (RR)**	0.11870	0.78141	7.94504
sky130_osu_sc_18T_ls__buf_4	**A->Y (RR)**	0.15942	0.79837	8.37349
sky130_osu_sc_18T_ls__buf_8	**A->Y (RR)**	0.23700	0.89180	9.02890
sky130_osu_sc_18T_ls__buf_l	**A->Y (RR)**	0.11984	0.94328	7.72016

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)**	0.11750	0.80941	6.77551
sky130_osu_sc_18T_ls__buf_2	**A->Y (FF)**	0.13863	0.79218	7.13035
sky130_osu_sc_18T_ls__buf_4	**A->Y (FF)**	0.19622	0.84445	7.60037
sky130_osu_sc_18T_ls__buf_8	**A->Y (FF)**	0.31403	0.97381	8.26217
sky130_osu_sc_18T_ls__buf_l	**A->Y (FF)**	0.12967	0.88640	6.76665

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	0.00526	0.00478	0.01346
sky130_osu_sc_18T_ls__buf_2	A	0.00000	0.00000	0.00000
	A	0.01088	0.01081	0.01918
sky130_osu_sc_18T_ls__buf_4	A	0.00000	0.00000	0.00000
	A	0.02295	0.02367	0.03146
sky130_osu_sc_18T_ls__buf_8	A	0.00000	0.00000	0.00000
	A	0.04725	0.04905	0.05800
sky130_osu_sc_18T_ls__buf_l	A	0.00000	0.00000	0.00000
	A	0.00393	0.00352	0.00981

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	0.01315	0.01341	0.02235
sky130_osu_sc_18T_ls__buf_2	A	0.00000	0.00000	0.00000
	A	0.01660	0.01777	0.02642
sky130_osu_sc_18T_ls__buf_4	A	0.00000	0.00000	0.00000
	A	0.02543	0.02771	0.03648
sky130_osu_sc_18T_ls__buf_8	A	0.00000	0.00000	0.00000
	A	0.04364	0.04727	0.05686
sky130_osu_sc_18T_ls__buf_l	A	0.00000	0.00000	0.00000
	A	0.01002	0.01012	0.01649

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
	-0.00061	-0.00062	-0.00061

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
	0.00061	0.00062	0.00061

SKY130_OSU_SC_18T_LS__DFFRx

sky130_osu_sc_18T_ls_ss_1P60_150C.ccs
Cell Library: Process , Voltage 1.60,
Temp 150.00

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	0.00603	0.00602	0.01728	1.65052	1.64339
sky130_osu_sc_18T_ls__dffr_l	0.00603	0.00602	0.01728	1.15144	1.14965

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__dffr_1	0.00000	1.61696	1.90715
sky130_osu_sc_18T_ls__dffr_l	0.00000	1.50114	1.79133

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)	0.56900	2.11237	18.28000
	QN->Q (FR)	0.05488	1.04624	12.69950
sky130_osu_sc_18T_ls__dffr_l	CK->Q (RR)	0.55919	2.26679	18.04750
	QN->Q (FR)	0.05992	1.11140	12.43290

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)	0.55507	2.14806	19.09330
	QN->Q (RF)	0.04682	0.91600	11.07930
	RN->Q (FF)	0.40660	2.08458	19.76190
sky130_osu_sc_18T_ls__dffr_l	CK->Q (RF)	0.56257	2.34145	18.96230
	QN->Q (RF)	0.04959	0.94793	10.60780
	RN->Q (FF)	0.41508	2.27857	19.62650

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)	0.48627	1.26670	8.23424
	RN->QN (FR)	0.33759	1.20299	8.90134
sky130_osu_sc_18T_ls__dffr_l	CK->QN (RR)	0.48504	1.34278	8.25539
	RN->QN (FR)	0.33718	1.27951	8.91572

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)**	0.48606	1.16828	6.69719
sky130_osu_sc_18T_ls__dffr_l	**CK->QN (RF)**	0.46730	1.18825	6.51560

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)	-0.14415	-0.15456	-0.32300
	setup	CK (R)	0.44898	0.45570	1.29976
sky130_osu_sc_18T_ls__dffr_l	hold	CK (R)	-0.14288	-0.15402	-0.32254
	setup	CK (R)	0.44794	0.45653	1.30916

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)	-0.22007	-0.54528	-3.34248
	setup	CK (R)	0.26865	0.56159	3.38271
sky130_osu_sc_18T_ls__dffr_l	hold	CK (R)	-0.22030	-0.54593	-3.34172
	setup	CK (R)	0.26841	0.56159	3.38271

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)	-0.14415	-0.15456	-0.32300
	setup	CK (R)	0.44898	0.45570	1.29976
sky130_osu_sc_18T_ls__dffr_l	hold	CK (R)	-0.14288	-0.15402	-0.32254
	setup	CK (R)	0.44794	0.45653	1.30916

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)	-0.22007	-0.54528	-3.34248
	setup	CK (R)	0.26865	0.56159	3.38271
sky130_osu_sc_18T_ls__dffr_l	hold	CK (R)	-0.22030	-0.54593	-3.34172
	setup	CK (R)	0.26841	0.56159	3.38271

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)	0.35179	0.37535	1.31247
	removal	CK (R)	-0.07072	-0.07807	-0.12458
sky130_osu_sc_18T_ls__dffr_l	recovery	CK (R)	0.35178	0.37788	1.32043
	removal	CK (R)	-0.07072	-0.07807	-0.12458

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)	0.35179	0.37535	1.31247
	removal	CK (R)	-0.07072	-0.07807	-0.12458
sky130_osu_sc_18T_ls__dffr_l	recovery	CK (R)	0.35178	0.37788	1.32043
	removal	CK (R)	-0.07072	-0.07807	-0.12458

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 ()	0.23987	0.61523	13.33370
	min_pulse_width	RN ()	0.23987	0.61523	13.33370
sky130_osu_sc_18T_ls__dffr_l	min_pulse_width	RN ()	0.23529	0.61523	13.33370
	min_pulse_width	RN ()	0.23300	0.61523	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 ()	0.26733	0.61523	13.33370
	min_pulse_width	CK ()	0.29251	0.61523	13.33370
sky130_osu_sc_18T_ls__dffr_l	min_pulse_width	CK ()	0.24902	0.61523	13.33370
	min_pulse_width	CK ()	0.28564	0.61523	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 ()	0.56358	0.63450	13.33370
	min_pulse_width	CK ()	0.22614	0.61523	13.33370
sky130_osu_sc_18T_ls__dffr_l	min_pulse_width	CK ()	0.56358	0.63450	13.33370
	min_pulse_width	CK ()	0.22614	0.61523	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	0.01299	0.01086	-0.00202
sky130_osu_sc_18T_ls__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.01141	0.00981	0.00747

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	0.01531	0.01393	0.00521
	RN	-0.00174	-0.08137	-1.05633
	RN	0.03466	0.03350	0.02463
sky130_osu_sc_18T_ls__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.01371	0.01271	0.01078
	RN	-0.00174	-0.06556	-0.73692
	RN	0.03305	0.03225	0.03018

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	0.01530	0.01392	0.00513
	RN	-0.00174	-0.08116	-1.05160
	RN	0.03465	0.03349	0.02463
sky130_osu_sc_18T_ls__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.01370	0.01269	0.01064
	RN	-0.00174	-0.06550	-0.73570
	RN	0.03303	0.03224	0.03007

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	0.01294	0.01084	-0.00189
sky130_osu_sc_18T_ls__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.01137	0.00977	0.00755

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	-0.00424	-0.00470	-0.00471
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.01553	0.01462	0.02018
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.00727	0.00641	0.01211
sky130_osu_sc_18T_ls__dffr_l	CK	0.00000	0.00000	0.00000
	CK	-0.00425	-0.00470	-0.00471
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.01553	0.01462	0.02018
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.00727	0.00641	0.01211

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	0.00468	0.00474	0.00471
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.02769	0.02731	0.03284
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.01288	0.01260	0.01823
sky130_osu_sc_18T_ls__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.00468	0.00474	0.00471
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.02769	0.02731	0.03284
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.01288	0.01259	0.01823

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)	0.00487	0.00422	0.01320
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.01349	0.01251	0.02155
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)	0.00487	0.00422	0.01320
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.01349	0.01251	0.02155

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)	0.01168	0.01152	0.02106
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.02584	0.02529	0.03442
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)	0.01168	0.01152	0.02106
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.02583	0.02529	0.03442

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)	-0.00092	-0.00179	0.00699
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.00745	0.00607	0.01469
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	-0.00142	-0.00216	0.00647
sky130_osu_sc_18T_ls__dffr_l	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	-0.00092	-0.00179	0.00699
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.00744	0.00607	0.01469
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	-0.00142	-0.00216	0.00647

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)	0.01833	0.01817	0.02765
	(D * RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * RN * !Q * QN)	0.04086	0.03976	0.04834
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.03166	0.03122	0.03982
	(!D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * Q * !QN)	0.04050	0.03989	0.05734
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.02161	0.02166	0.03041
sky130_osu_sc_18T_ls__dffr_l	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.01833	0.01816	0.02765
	(D * RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * RN * !Q * QN)	0.04085	0.03976	0.04833
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.03166	0.03122	0.03982
	(!D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * Q * !QN)	0.04050	0.03989	0.05734
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.02161	0.02165	0.03041

SKY130_OSU_SC_18T_LS__DFFSRx

sky130_osu_sc_18T_ls_ss_1P60_150C.ccs
Cell Library: Process , Voltage 1.60,
Temp 150.00

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	0.00599	0.00603	0.01276	0.01752	1.68725	1.69072
sky130_osu_sc_18T_ls__dffsr_l	0.00599	0.00603	0.01275	0.01752	1.15622	1.15424

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__dffsr_1	0.00000	1.85458	2.67642
sky130_osu_sc_18T_ls__dffsr_l	0.00000	1.73876	2.56060

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)	0.57683	2.10297	18.14560
	QN->Q (FR)	0.05273	1.02648	12.53710
	RN->Q (RR)	0.45593	2.00305	18.12710
	SN->Q (FR)	0.42052	2.03743	19.12160
sky130_osu_sc_18T_ls__dffsr_l	CK->Q (RR)	0.58210	2.30363	18.18840
	QN->Q (FR)	0.05985	1.11093	12.43960
	RN->Q (RR)	0.46194	2.20476	18.16420
	SN->Q (FR)	0.42615	2.23648	19.13210

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)	0.64319	2.22615	19.06080
	QN->Q (RF)	0.04347	0.87399	10.64050
	RN->Q (FF)	0.42140	2.08952	19.72840
sky130_osu_sc_18T_ls__dffsr_l	CK->Q (RF)	0.65646	2.45005	19.13770
	QN->Q (RF)	0.04950	0.94869	10.62230
	RN->Q (FF)	0.43580	2.31409	19.79960

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)	0.57481	1.36512	8.38569
	RN->QN (FR)	0.35445	1.22945	9.05374
sky130_osu_sc_18T_ls__dffsr_l	CK->QN (RR)	0.57705	1.44745	8.39045
	RN->QN (FR)	0.35762	1.31302	9.05269

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)	0.49879	1.17859	6.68702
	RN->QN (RF)	0.37814	1.07941	6.66703
	SN->QN (FF)	0.34307	1.11336	7.65664
sky130_osu_sc_18T_ls__dffsr_l	CK->QN (RF)	0.49232	1.22398	6.61605
	RN->QN (RF)	0.37218	1.12583	6.59267
	SN->QN (FF)	0.33673	1.15745	7.55364

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)	-0.15308	-0.16670	-0.40152
	setup	CK (R)	0.43459	0.44047	1.34734
sky130_osu_sc_18T_ls__dffsr_l	hold	CK (R)	-0.15338	-0.16533	-0.39880
	setup	CK (R)	0.43217	0.43972	1.35067

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)	-0.25617	-0.57305	-3.48796
	setup	CK (R)	0.32232	0.58947	3.52123
sky130_osu_sc_18T_ls__dffsr_l	hold	CK (R)	-0.25348	-0.57360	-3.48501
	setup	CK (R)	0.32251	0.58910	3.51981

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)	-0.15308	-0.16670	-0.40152
	setup	CK (R)	0.43459	0.44047	1.34734
sky130_osu_sc_18T_ls__dffsr_l	hold	CK (R)	-0.15338	-0.16533	-0.39880
	setup	CK (R)	0.43217	0.43972	1.35067

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)	-0.25617	-0.57305	-3.48796
	setup	CK (R)	0.32232	0.58947	3.52123
sky130_osu_sc_18T_ls__dffsr_l	hold	CK (R)	-0.25348	-0.57360	-3.48501
	setup	CK (R)	0.32251	0.58910	3.51981

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)	0.30716	0.32354	1.24694
	removal	CK (R)	-0.03834	-0.04176	-0.08002
	hold	SN (R)	-0.32803	-0.57940	-2.46627
	setup	SN (R)	0.36384	0.63780	4.64442
sky130_osu_sc_18T_ls__dffsr_l	recovery	CK (R)	0.30286	0.32286	1.25003
	removal	CK (R)	-0.03733	-0.04176	-0.08002
	hold	SN (R)	-0.31922	-0.56757	-2.39297
	setup	SN (R)	0.36497	0.62469	4.54690

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)	0.30716	0.32354	1.24694
	removal	CK (R)	-0.03834	-0.04176	-0.08002
	hold	SN (R)	-0.32848	-0.57940	-2.46627
	hold	SN (R)	-0.32803	-0.58198	-2.48606
	setup	SN (R)	0.36384	0.63326	4.50479
	setup	SN (R)	0.36294	0.63780	4.64442
sky130_osu_sc_18T_ls__dffsr_l	recovery	CK (R)	0.30286	0.32286	1.25003
	removal	CK (R)	-0.03733	-0.04176	-0.08002
	hold	SN (R)	-0.32011	-0.56757	-2.39297
	hold	SN (R)	-0.31922	-0.56916	-2.41541
	setup	SN (R)	0.36497	0.61994	4.34347
	setup	SN (R)	0.34050	0.62469	4.54690

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 ()	0.27420	0.61523	13.33370
	min_pulse_width	RN ()	0.27878	0.61523	13.33370
sky130_osu_sc_18T_ls__dffsr_l	min_pulse_width	RN ()	0.27420	0.61523	13.33370
	min_pulse_width	RN ()	0.26962	0.61523	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)	0.09051	0.13294	3.27935
	removal	CK (R)	-0.03727	-0.09824	-0.53278
sky130_osu_sc_18T_ls__dffsr_l	recovery	CK (R)	0.08700	0.13245	3.14919
	removal	CK (R)	-0.03727	-0.09824	-0.53278

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)	0.09051	0.13294	3.27935
	removal	CK (R)	-0.03727	-0.09824	-0.53278
sky130_osu_sc_18T_ls__dffsr_l	recovery	CK (R)	0.08700	0.13245	3.14919
	removal	CK (R)	-0.03727	-0.09824	-0.53278

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 ()	0.32913	0.61523	13.33370
	min_pulse_width	SN ()	0.32913	0.61523	13.33370
sky130_osu_sc_18T_ls__dffsr_l	min_pulse_width	SN ()	0.32913	0.61523	13.33370
	min_pulse_width	SN ()	0.30853	0.61523	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 ()	0.26733	0.61523	13.33370
	min_pulse_width	CK ()	0.31769	0.61523	13.33370
sky130_osu_sc_18T_ls__dffsr_l	min_pulse_width	CK ()	0.25818	0.61523	13.33370
	min_pulse_width	CK ()	0.31082	0.61523	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 ()	0.55305	0.61738	13.33370
	min_pulse_width	CK ()	0.29022	0.61523	13.33370
sky130_osu_sc_18T_ls__dffsr_l	min_pulse_width	CK ()	0.55076	0.61738	13.33370
	min_pulse_width	CK ()	0.28793	0.61523	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	0.01647	0.01500	0.00956
	RN	0.03019	0.02904	0.01931
	SN	-0.00174	-0.08245	-1.07984
	SN	0.03388	0.03263	0.02316
sky130_osu_sc_18T_ls__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.01500	0.01344	0.01109
	RN	0.02871	0.02748	0.02097
	SN	-0.00174	-0.06572	-0.73998
	SN	0.03240	0.03105	0.02471

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	0.01775	0.01673	0.01034
	RN	-0.00174	-0.08245	-1.07983
	RN	0.03542	0.03432	0.02842
sky130_osu_sc_18T_ls__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.01629	0.01543	0.01363
	RN	-0.00174	-0.06572	-0.73997
	RN	0.03391	0.03299	0.03125

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	0.01774	0.01671	0.01013
	RN	-0.00174	-0.08255	-1.08196
	RN	0.03541	0.03431	0.02777
sky130_osu_sc_18T_ls__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.01627	0.01541	0.01347
	RN	-0.00174	-0.06566	-0.73864
	RN	0.03390	0.03298	0.03112

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	0.01641	0.01495	0.00936
	RN	0.03013	0.02899	0.01912
	SN	-0.00174	-0.08255	-1.08196
	SN	0.03382	0.03257	0.02293
sky130_osu_sc_18T_ls__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.01495	0.01339	0.01101
	RN	0.02866	0.02742	0.02077
	SN	-0.00174	-0.06566	-0.73864
	SN	0.03235	0.03100	0.02461

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	-0.00459	-0.00470	-0.00470
	(!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)	0.02035	0.01949	0.02500
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.00839	0.00757	0.01314
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.00832	0.00750	0.01310
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.00842	0.00760	0.01319
sky130_osu_sc_18T_ls__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	-0.00459	-0.00470	-0.00470
	(!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)	0.02035	0.01949	0.02500
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.00839	0.00757	0.01314
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.00832	0.00749	0.01310
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.00841	0.00760	0.01319

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	0.00474	0.00474	0.00470
	(!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)	0.03151	0.03110	0.03620
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.01355	0.01331	0.01882
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.01360	0.01335	0.01884
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.01350	0.01327	0.01877
sky130_osu_sc_18T_ls__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.00474	0.00474	0.00470
	(!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)	0.03150	0.03109	0.03619
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.01354	0.01330	0.01881
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.01359	0.01334	0.01883
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.01350	0.01326	0.01876

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)	0.00407	0.00338	0.01216
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.01625	0.01521	0.02393
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)	0.00407	0.00337	0.01217
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.01626	0.01522	0.02394

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)	0.01258	0.01250	0.02214
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.02739	0.02677	0.03590
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)	0.01257	0.01247	0.02213
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.02738	0.02675	0.03589

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)	-0.01044	-0.01051	-0.01057
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	-0.01058	-0.01086	-0.01081
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	-0.01034	-0.01052	-0.01046
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.00724	0.00653	0.01269
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)	-0.01043	-0.01051	-0.01057
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	-0.01056	-0.01084	-0.01079
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	-0.01033	-0.01051	-0.01046
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.00725	0.00652	0.01269

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)	0.01058	0.01079	0.01063
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.01079	0.01089	0.01083
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	0.01045	0.01053	0.01050
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.02101	0.02055	0.02552
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)	0.01058	0.01079	0.01063
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.01078	0.01088	0.01081
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	0.01044	0.01052	0.01050
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.02100	0.02054	0.02551

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)	-0.00092	-0.00179	0.00699
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.00833	0.00707	0.01568
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.00825	0.00699	0.01562
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	-0.00122	-0.00189	0.00668
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.00612	0.00442	0.02160
sky130_osu_sc_18T_ls__dffsr_l	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	-0.00092	-0.00179	0.00699
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.00832	0.00706	0.01567
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.00824	0.00698	0.01562
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	-0.00122	-0.00189	0.00668
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.00612	0.00442	0.02160

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)	0.04576	0.04472	0.05327
	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.01837	0.01828	0.02769
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.03245	0.03200	0.04066
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.03257	0.03212	0.04068
	(!D * RN * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * Q * !QN)	0.04426	0.04348	0.06054
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.02146	0.02150	0.03026
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.02469	0.02437	0.04248
sky130_osu_sc_18T_ls__dffsr_l	**(D * RN * SN * !Q * QN)**	0.00000	0.00000	0.00000
	(D * RN * SN * !Q * QN)	0.04576	0.04472	0.05327
	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.01837	0.01828	0.02769
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.03245	0.03200	0.04066
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.03256	0.03212	0.04068
	(!D * RN * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * Q * !QN)	0.04426	0.04347	0.06055
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.02146	0.02150	0.03026
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.02468	0.02437	0.04247

SKY130_OSU_SC_18T_LS__DFFSx

sky130_osu_sc_18T_ls_ss_1P60_150C.ccs
Cell Library: Process , Voltage 1.60,
Temp 150.00

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	0.00602	0.00988	0.01729	1.64036	1.65905
sky130_osu_sc_18T_ls__dffs_l	0.00602	0.00988	0.01729	1.14771	1.15695

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__dffs_1	0.00000	1.18287	1.31633
sky130_osu_sc_18T_ls__dffs_l	0.00000	1.06704	1.20051

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)	0.42571	1.93707	17.97370
	QN->Q (FR)	0.05468	1.03832	12.58860
	SN->Q (FR)	0.31539	1.97782	19.06740
sky130_osu_sc_18T_ls__dffs_l	CK->Q (RR)	0.42720	2.11026	17.82280
	QN->Q (FR)	0.05974	1.10886	12.36060
	SN->Q (FR)	0.31539	2.14268	18.85160

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)	0.63858	2.24079	19.02750
	QN->Q (RF)	0.04650	0.91064	11.00140
sky130_osu_sc_18T_ls__dffs_l	CK->Q (RF)	0.64064	2.42626	18.95610
	QN->Q (RF)	0.04934	0.94136	10.56140

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)	0.56583	1.36681	8.37136
sky130_osu_sc_18T_ls__dffs_l	CK->QN (RR)	0.55944	1.43339	8.36994

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)	0.35088	1.00545	6.58427
	SN->QN (FF)	0.24015	1.04637	7.66932
sky130_osu_sc_18T_ls__dffs_l	CK->QN (RF)	0.34284	1.04045	6.39909
	SN->QN (FF)	0.23054	1.07351	7.42856

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)	-0.11152	-0.13188	-0.28939
	setup	CK (R)	0.30605	0.32361	1.24394
sky130_osu_sc_18T_ls__dffs_l	hold	CK (R)	-0.11339	-0.13120	-0.28724
	setup	CK (R)	0.30508	0.32428	1.25009

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)	-0.22618	-0.54480	-3.35257
	setup	CK (R)	0.30858	0.56394	3.39571
sky130_osu_sc_18T_ls__dffs_l	hold	CK (R)	-0.22893	-0.54419	-3.35113
	setup	CK (R)	0.31040	0.56382	3.39349

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)	-0.11152	-0.13188	-0.28939
	setup	CK (R)	0.30605	0.32361	1.24394
sky130_osu_sc_18T_ls__dffs_l	hold	CK (R)	-0.11339	-0.13120	-0.28724
	setup	CK (R)	0.30508	0.32428	1.25009

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)	-0.22618	-0.54480	-3.35257
	setup	CK (R)	0.30858	0.56394	3.39571
sky130_osu_sc_18T_ls__dffs_l	hold	CK (R)	-0.22893	-0.54419	-3.35113
	setup	CK (R)	0.31040	0.56382	3.39349

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)	0.09926	0.13800	2.13541
	removal	CK (R)	-0.03865	-0.09371	-0.51532
sky130_osu_sc_18T_ls__dffs_l	recovery	CK (R)	0.09896	0.13800	1.98860
	removal	CK (R)	-0.03865	-0.09371	-0.51532

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)	0.09926	0.13800	2.13541
	removal	CK (R)	-0.03865	-0.09371	-0.51532
sky130_osu_sc_18T_ls__dffs_l	recovery	CK (R)	0.09896	0.13800	1.98860
	removal	CK (R)	-0.03865	-0.09371	-0.51532

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 ()	0.20554	0.61523	13.33370
	min_pulse_width	SN ()	0.21011	0.61523	13.33370
sky130_osu_sc_18T_ls__dffs_l	min_pulse_width	SN ()	0.20554	0.61523	13.33370
	min_pulse_width	SN ()	0.19867	0.61523	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 ()	0.19180	0.61523	13.33370
	min_pulse_width	CK ()	0.31540	0.61523	13.33370
sky130_osu_sc_18T_ls__dffs_l	min_pulse_width	CK ()	0.18265	0.61523	13.33370
	min_pulse_width	CK ()	0.30624	0.61523	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 ()	0.42068	0.61523	13.33370
	min_pulse_width	CK ()	0.27878	0.61523	13.33370
sky130_osu_sc_18T_ls__dffs_l	min_pulse_width	CK ()	0.42068	0.61523	13.33370
	min_pulse_width	CK ()	0.27878	0.61523	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	0.01302	0.01088	-0.00130
	SN	-0.00174	-0.08107	-1.04983
	SN	0.02818	0.02612	0.01087
sky130_osu_sc_18T_ls__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.01144	0.00982	0.00801
	SN	-0.00174	-0.06543	-0.73454
	SN	0.02659	0.02507	0.02005

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	0.01518	0.01397	0.00596
sky130_osu_sc_18T_ls__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.01360	0.01269	0.01115

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	0.01517	0.01395	0.00591
sky130_osu_sc_18T_ls__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.01359	0.01268	0.01111

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	0.01298	0.01083	-0.00170
	SN	-0.00174	-0.08162	-1.06166
	SN	0.02813	0.02607	0.01064
sky130_osu_sc_18T_ls__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.01140	0.00978	0.00777
	SN	-0.00174	-0.06575	-0.74037
	SN	0.02654	0.02500	0.01984

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	-0.00464	-0.00476	-0.00473
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.01479	0.01384	0.01940
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.00711	0.00627	0.01195
sky130_osu_sc_18T_ls__dffs_l	CK	0.00000	0.00000	0.00000
	CK	-0.00465	-0.00476	-0.00473
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.01479	0.01384	0.01939
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.00711	0.00627	0.01195

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	0.00477	0.00477	0.00473
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.02679	0.02630	0.03179
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.01305	0.01279	0.01846
sky130_osu_sc_18T_ls__dffs_1	CK	0.00000	0.00000	0.00000
	CK	0.00477	0.00477	0.00473
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.02679	0.02630	0.03179
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.01305	0.01279	0.01846

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)	-0.00754	-0.00760	-0.00760
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.00596	0.00534	0.01071
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)	-0.00754	-0.00760	-0.00760
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.00596	0.00534	0.01071

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)	0.00767	0.00766	0.00764
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.01412	0.01370	0.01933
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)	0.00766	0.00766	0.00764
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.01412	0.01370	0.01932

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)	-0.00094	-0.00181	0.00697
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	-0.00133	-0.00208	0.00657
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.00480	0.00310	0.02054
sky130_osu_sc_18T_ls__dffs_l	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	-0.00094	-0.00181	0.00697
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	-0.00134	-0.00208	0.00656
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.00480	0.00310	0.02054

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)	0.04006	0.03894	0.04771
	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.01833	0.01818	0.02766
	(!D * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * SN * Q * !QN)	0.03949	0.03872	0.05605
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	0.02150	0.02147	0.03031
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.02410	0.02382	0.04216
sky130_osu_sc_18T_ls__dffs_l	(D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * SN * !Q * QN)	0.04006	0.03893	0.04771
	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.01833	0.01816	0.02766
	(!D * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * SN * Q * !QN)	0.03949	0.03873	0.05605
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	0.02150	0.02147	0.03031
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.02410	0.02382	0.04216

SKY130_OSU_SC_18T_LS__DFFx

sky130_osu_sc_18T_ls_ss_1P60_150C.ccs
Cell Library: Process , Voltage 1.60,
Temp 150.00

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	0.00617	0.01727	1.70779	1.70664
sky130_osu_sc_18T_ls__dff_l	0.00617	0.01727	1.13590	1.14382

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__dff_1	0.00000	1.43351	1.74445
sky130_osu_sc_18T_ls__dff_l	0.00000	1.31768	1.62863

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)	0.38216	1.88484	18.08710
	QN->Q (FR)	0.05241	1.02748	12.58610
sky130_osu_sc_18T_ls__dff_l	CK->Q (RR)	0.39489	2.07793	17.70620
	QN->Q (FR)	0.06058	1.11791	12.41810

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)	0.52197	2.09665	19.09590
	QN->Q (RF)	0.04329	0.87489	10.68780
sky130_osu_sc_18T_ls__dff_l	CK->Q (RF)	0.53951	2.31044	18.77050
	QN->Q (RF)	0.04943	0.93967	10.50220

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)	0.45690	1.23237	8.29015
sky130_osu_sc_18T_ls__dff_l	CK->QN (RR)	0.46272	1.32051	8.24230

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)	0.31170	0.95746	6.49526
sky130_osu_sc_18T_ls__dff_l	CK->QN (RF)	0.31154	1.00922	6.33450

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)	-0.10643	-0.12991	-0.31695
	setup	CK (R)	0.26152	0.28027	1.24305
sky130_osu_sc_18T_ls__dff_l	hold	CK (R)	-0.10973	-0.12907	-0.31543
	setup	CK (R)	0.26020	0.27935	1.25110

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)	-0.21291	-0.54988	-3.40104
	setup	CK (R)	0.24818	0.56678	3.44522
sky130_osu_sc_18T_ls__dff_l	hold	CK (R)	-0.21235	-0.54910	-3.40018
	setup	CK (R)	0.24818	0.56678	3.44503

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 ()	0.17578	0.61523	13.33370
	min_pulse_width	CK ()	0.28107	0.61523	13.33370
sky130_osu_sc_18T_ls__dff_l	min_pulse_width	CK ()	0.17120	0.61523	13.33370
	min_pulse_width	CK ()	0.27420	0.61523	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 ()	0.37491	0.61523	13.33370
	min_pulse_width	CK ()	0.20096	0.61523	13.33370
sky130_osu_sc_18T_ls__dff_l	min_pulse_width	CK ()	0.37491	0.61523	13.33370
	min_pulse_width	CK ()	0.20096	0.61523	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	0.01384	0.01221	0.00692
sky130_osu_sc_18T_ls__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.01236	0.01069	0.00895

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	0.01555	0.01448	0.00844
sky130_osu_sc_18T_ls__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.01408	0.01310	0.01087

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	0.01554	0.01447	0.00826
sky130_osu_sc_18T_ls__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.01407	0.01310	0.01070

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	0.01379	0.01217	0.00724
sky130_osu_sc_18T_ls__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.01231	0.01064	0.00869

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	-0.00424	-0.00469	-0.00470
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.01425	0.01334	0.01921
sky130_osu_sc_18T_ls__dff_l	CK	0.00000	0.00000	0.00000
	CK	-0.00424	-0.00469	-0.00470
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.01426	0.01335	0.01921

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	0.00467	0.00476	0.00470
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.02765	0.02716	0.03309
sky130_osu_sc_18T_ls__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.00467	0.00476	0.00470
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.02766	0.02717	0.03309

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)	-0.00094	-0.00183	0.00697
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	-0.00132	-0.00198	0.00660
sky130_osu_sc_18T_ls__dff_l	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	-0.00095	-0.00183	0.00697
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	-0.00132	-0.00198	0.00659

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)	0.01827	0.01820	0.02761
	(D * !Q * QN)	0.00000	0.00000	0.00000
	(D * !Q * QN)	0.03956	0.03850	0.04732
	(!D * Q * !QN)	0.00000	0.00000	0.00000
	(!D * Q * !QN)	0.04011	0.03937	0.05703
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.02143	0.02148	0.03024
sky130_osu_sc_18T_ls__dff_l	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.01827	0.01820	0.02761
	(D * !Q * QN)	0.00000	0.00000	0.00000
	(D * !Q * QN)	0.03956	0.03850	0.04732
	(!D * Q * !QN)	0.00000	0.00000	0.00000
	(!D * Q * !QN)	0.04011	0.03938	0.05703
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.02142	0.02148	0.03024

SKY130_OSU_SC_18T_LS__INVx

sky130_osu_sc_18T_ls_ss_1P60_150C.ccs
Cell Library: Process , Voltage 1.60,
Temp 150.00

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	0.00606	1.65419
sky130_osu_sc_18T_ls__inv_10	0.05760	14.88647
sky130_osu_sc_18T_ls__inv_2	0.01171	3.26640
sky130_osu_sc_18T_ls__inv_3	0.01747	4.74347
sky130_osu_sc_18T_ls__inv_4	0.02315	6.28775
sky130_osu_sc_18T_ls__inv_6	0.03472	9.38102
sky130_osu_sc_18T_ls__inv_8	0.04617	12.43228
sky130_osu_sc_18T_ls__inv_l	0.00454	1.12248

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__inv_1	0.00000	0.21358	0.28276
sky130_osu_sc_18T_ls__inv_10	0.00000	0.53861	0.70974
sky130_osu_sc_18T_ls__inv_2	0.00000	0.10772	0.14195
sky130_osu_sc_18T_ls__inv_3	0.00000	0.32131	0.35626
sky130_osu_sc_18T_ls__inv_4	0.00000	0.21544	0.28389
sky130_osu_sc_18T_ls__inv_6	0.00000	0.32317	0.42584
sky130_osu_sc_18T_ls__inv_8	0.00000	0.43089	0.56779
sky130_osu_sc_18T_ls__inv_l	0.00000	0.15568	0.20465

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)	0.05050	0.96896	11.76710
sky130_osu_sc_18T_ls__inv_10	A->Y (FR)	0.06889	0.67226	11.60200
sky130_osu_sc_18T_ls__inv_2	A->Y (FR)	0.04111	0.83578	11.71780
sky130_osu_sc_18T_ls__inv_3	A->Y (FR)	0.04481	0.78428	11.74000
sky130_osu_sc_18T_ls__inv_4	A->Y (FR)	0.04580	0.74676	11.64470
sky130_osu_sc_18T_ls__inv_6	A->Y (FR)	0.05103	0.70687	11.70960
sky130_osu_sc_18T_ls__inv_8	A->Y (FR)	0.05935	0.68768	11.74970
sky130_osu_sc_18T_ls__inv_l	A->Y (FR)	0.05765	1.05535	11.70780

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)	0.03991	0.80366	9.73622
sky130_osu_sc_18T_ls__inv_10	A->Y (RF)	0.05920	0.54892	9.47962
sky130_osu_sc_18T_ls__inv_2	A->Y (RF)	0.03316	0.70169	9.69319
sky130_osu_sc_18T_ls__inv_3	A->Y (RF)	0.03575	0.66057	9.71872
sky130_osu_sc_18T_ls__inv_4	A->Y (RF)	0.03581	0.62343	9.64815
sky130_osu_sc_18T_ls__inv_6	A->Y (RF)	0.04398	0.58939	9.68379
sky130_osu_sc_18T_ls__inv_8	A->Y (RF)	0.05154	0.56864	9.68900
sky130_osu_sc_18T_ls__inv_l	A->Y (RF)	0.04537	0.86450	9.66109

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	0.00705	0.00713	0.00807
sky130_osu_sc_18T_ls__inv_10	A	0.00000	0.00000	0.00000
	A	0.06148	0.06440	0.07545
sky130_osu_sc_18T_ls__inv_2	A	0.00000	0.00000	0.00000
	A	0.01275	0.01323	0.01513
sky130_osu_sc_18T_ls__inv_3	A	0.00000	0.00000	0.00000
	A	0.01948	0.01939	0.02329
sky130_osu_sc_18T_ls__inv_4	A	0.00000	0.00000	0.00000
	A	0.02516	0.02598	0.03018
sky130_osu_sc_18T_ls__inv_6	A	0.00000	0.00000	0.00000
	A	0.03731	0.03835	0.04515
sky130_osu_sc_18T_ls__inv_8	A	0.00000	0.00000	0.00000
	A	0.04941	0.05211	0.06011
sky130_osu_sc_18T_ls__inv_l	A	0.00000	0.00000	0.00000
	A	0.00529	0.00531	0.00598

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	-0.00152	-0.00143	-0.00073
sky130_osu_sc_18T_ls__inv_10	**A**	0.00000	0.00000	0.00000
	A	-0.02534	-0.02312	-0.01280
sky130_osu_sc_18T_ls__inv_2	**A**	0.00000	0.00000	0.00000
	A	-0.00476	-0.00442	-0.00280
sky130_osu_sc_18T_ls__inv_3	**A**	0.00000	0.00000	0.00000
	A	-0.00640	-0.00603	-0.00331
sky130_osu_sc_18T_ls__inv_4	**A**	0.00000	0.00000	0.00000
	A	-0.00979	-0.00884	-0.00534
sky130_osu_sc_18T_ls__inv_6	**A**	0.00000	0.00000	0.00000
	A	-0.01502	-0.01343	-0.00796
sky130_osu_sc_18T_ls__inv_8	**A**	0.00000	0.00000	0.00000
	A	-0.02036	-0.01884	-0.01042
sky130_osu_sc_18T_ls__inv_l	**A**	0.00000	0.00000	0.00000
	A	-0.00101	-0.00099	-0.00050

SKY130_OSU_SC_18T_LS__MUX2

sky130_osu_sc_18T_ls_ss_1P60_150C.ccs
Cell Library: Process , Voltage 1.60,
Temp 150.00

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	0.35557	0.35564	0.01230	0.35952

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__mux2_1	0.00000	0.68351	0.87667

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)	-	0.03073	0.43877	3.89336
	A1->Y (RR)	-	0.03326	0.44248	3.89797
	S0->Y (RR)	(!A0 * A1)	0.08828	0.48512	2.14295
	S0->Y (FR)	(A0 * !A1)	0.06908	0.58184	4.08970

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)	-	0.02703	0.41750	3.65743
	A1->Y (FF)	-	0.02531	0.41509	3.65478
	S0->Y (FF)	(!A0 * A1)	0.11647	0.55146	2.65038
	S0->Y (RF)	(A0 * !A1)	0.04602	0.49946	3.58045

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	-	-0.00717	-0.00717	-0.00718
	A1	-	0.00000	0.00000	0.00000
	A1	-	-0.00518	-0.00518	-0.00519
	S0	(A0 * !A1)	0.00000	0.00000	0.00000
	S0	(A0 * !A1)	0.00777	0.00788	0.01814
	S0	(!A0 * A1)	0.00000	0.00000	0.00000
	S0	(!A0 * A1)	-0.00503	-0.00560	0.00394

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	-	0.00718	0.00718	0.00719
	A1	-	0.00000	0.00000	0.00000
	A1	-	0.00520	0.00520	0.00521
	S0	(A0 * !A1)	0.00000	0.00000	0.00000
	S0	(A0 * !A1)	0.00158	0.00109	0.01089
	S0	(!A0 * A1)	0.00000	0.00000	0.00000
	S0	(!A0 * A1)	0.01867	0.01867	0.02837

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)	-0.00186	-0.00186	-0.00186

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)	0.00187	0.00186	0.00186

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)	-0.00222	-0.00221	-0.00221

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)	0.00222	0.00222	0.00222

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)	-0.00176	-0.00228	0.00741
	(!A0 * !A1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !Y)	-0.00171	-0.00224	0.00745

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)	0.01405	0.01393	0.02382
	(!A0 * !A1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !Y)	0.01240	0.01240	0.02267

SKY130_OSU_SC_18T_LS__NAND2x

sky130_osu_sc_18T_ls_ss_1P60_150C.ccs
Cell Library: Process , Voltage 1.60,
Temp 150.00

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	0.00608	0.00605	1.29528
sky130_osu_sc_18T_ls__nand2_l	0.00455	0.00453	0.84623

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__nand2_1	0.00000	0.13714	0.19747
sky130_osu_sc_18T_ls__nand2_l	0.00000	0.10740	0.15235

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)	0.05260	0.90280	10.31440
	B->Y (FR)	0.06147	0.90230	10.25190
sky130_osu_sc_18T_ls__nand2_l	A->Y (FR)	0.05953	0.96384	10.04200
	B->Y (FR)	0.06972	0.97080	10.02390

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)	0.06413	0.99661	11.36100
	B->Y (RF)	0.07228	0.96495	10.83870
sky130_osu_sc_18T_ls__nand2_l	A->Y (RF)	0.07474	1.09137	11.12960
	B->Y (RF)	0.08291	1.06045	10.58520

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	0.00752	0.00755	0.00871
	B	0.00000	0.00000	0.00000
	B	0.00934	0.00882	0.01044
sky130_osu_sc_18T_ls__nand2_l	A	0.00000	0.00000	0.00000
	A	0.00560	0.00559	0.00643
	B	0.00000	0.00000	0.00000
	B	0.00691	0.00686	0.00768

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	-0.00096	-0.00098	-0.00022
	B	0.00000	0.00000	0.00000
	B	-0.00088	-0.00108	-0.00049
sky130_osu_sc_18T_ls__nand2_l	A	0.00000	0.00000	0.00000
	A	-0.00068	-0.00075	-0.00019
	B	0.00000	0.00000	0.00000
	B	-0.00063	-0.00078	-0.00037

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)	-0.00520	-0.00524	-0.00525
sky130_osu_sc_18T_ls__nand2_l	(!B * Y)	0.00000	0.00000	0.00000
	(!B * Y)	-0.00369	-0.00371	-0.00372

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)	0.00524	0.00535	0.00527
sky130_osu_sc_18T_ls__nand2_l	(!B * Y)	0.00000	0.00000	0.00000
	(!B * Y)	0.00372	0.00377	0.00374

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)	-0.00493	-0.00494	-0.00493
sky130_osu_sc_18T_ls__nand2_l	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00348	-0.00350	-0.00349

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)	0.00499	0.00500	0.00495
sky130_osu_sc_18T_ls__nand2_l	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00353	0.00354	0.00350

SKY130_OSU_SC_18T_LS__NOR2x

sky130_osu_sc_18T_ls_ss_1P60_150C.ccs
Cell Library: Process , Voltage 1.60,
Temp 150.00

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	0.00605	0.00638	0.85054
sky130_osu_sc_18T_ls__nor2_l	0.00446	0.00481	0.56973

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__nor2_1	0.00000	0.25581	0.31862
sky130_osu_sc_18T_ls__nor2_l	0.00000	0.18689	0.24082

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)	0.11197	1.15116	11.24670
	B->Y (FR)	0.08428	1.13516	11.54470
sky130_osu_sc_18T_ls__nor2_l	A->Y (FR)	0.12498	1.25850	11.05620
	B->Y (FR)	0.10050	1.24288	11.37130

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)	0.05518	0.68695	7.07630
	B->Y (RF)	0.04252	0.67001	7.04820
sky130_osu_sc_18T_ls__nor2_l	A->Y (RF)	0.06001	0.72688	6.98315
	B->Y (RF)	0.04805	0.70908	6.95819

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	0.01032	0.01023	0.01085
	B	0.00000	0.00000	0.00000
	B	0.00761	0.00760	0.00897
sky130_osu_sc_18T_ls__nor2_l	A	0.00000	0.00000	0.00000
	A	0.00739	0.00729	0.00778
	B	0.00000	0.00000	0.00000
	B	0.00565	0.00540	0.00655

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	0.00110	0.00082	0.00179
	B	0.00000	0.00000	0.00000
	B	-0.00119	-0.00112	-0.00016
sky130_osu_sc_18T_ls__nor2_l	A	0.00000	0.00000	0.00000
	A	0.00071	0.00054	0.00126
	B	0.00000	0.00000	0.00000
	B	-0.00074	-0.00069	-0.00004

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)	-0.00426	-0.00474	-0.00471
sky130_osu_sc_18T_ls__nor2_l	(B * !Y)	0.00000	0.00000	0.00000
	(B * !Y)	-0.00298	-0.00327	-0.00326

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)	0.00469	0.00474	0.00471
sky130_osu_sc_18T_ls__nor2_l	(B * !Y)	0.00000	0.00000	0.00000
	(B * !Y)	0.00325	0.00328	0.00326

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)	-0.00214	-0.00218	-0.00215
sky130_osu_sc_18T_ls__nor2_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	-0.00150	-0.00152	-0.00151

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)	0.00227	0.00230	0.00220
sky130_osu_sc_18T_ls__nor2_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00159	0.00161	0.00154

SKY130_OSU_SC_18T_LS__OAI21

sky130_osu_sc_18T_ls_ss_1P60_150C.ccs
Cell Library: Process , Voltage 1.60,
Temp 150.00

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	0.00613	0.00616	0.00502	0.82682

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__oai21_l	0.00000	0.30258	0.52327

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)	0.11411	1.15905	11.41340
	A1->Y (FR)	0.14693	1.18027	11.12400
	B0->Y (FR)	0.07324	0.96280	9.87289

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)	0.08800	0.86901	8.49802
	A1->Y (RF)	0.11104	0.87849	8.35243
	B0->Y (RF)	0.06830	0.89699	9.14634

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	0.01030	0.01016	0.01138
	A1	0.00000	0.00000	0.00000
	A1	0.01302	0.01286	0.01345
	B0	0.00887	0.00881	0.00994

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	0.00031	0.00007	0.00074
	A1	0.00000	0.00000	0.00000
	A1	0.00255	0.00210	0.00278
	B0	0.00352	0.00342	0.00413

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)	-0.00214	-0.00219	-0.00215
	(A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * Y)	-0.00465	-0.00471	-0.00470
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00485	-0.00486	-0.00485

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)	0.00228	0.00230	0.00221
	(A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * Y)	0.00468	0.00471	0.00470
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00487	0.00491	0.00487

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)	-0.00422	-0.00463	-0.00465
	(A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * Y)	-0.00461	-0.00468	-0.00469
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	-0.00480	-0.00484	-0.00481

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)	0.00463	0.00463	0.00465
	(A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * Y)	0.00467	0.00468	0.00469
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	0.00483	0.00488	0.00483

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)	-0.00371	-0.00373	-0.00382

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)	0.00382	0.00390	0.00384

SKY130_OSU_SC_18T_LS__OAI22

sky130_osu_sc_18T_ls_ss_1P60_150C.ccs
Cell Library: Process , Voltage 1.60,
Temp 150.00

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	0.00594	0.00623	0.00638	0.00623	0.82344

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__oai22_1	0.00000	0.17531	0.43102

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)	0.16110	1.18927	11.08120
	A1->Y (FR)	0.13324	1.17321	11.37570
	B0->Y (FR)	0.09563	1.13548	11.34840
	B1->Y (FR)	0.12449	1.15235	11.05490

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)	0.15805	0.96040	8.65733
	A1->Y (RF)	0.12378	0.91453	8.54294
	B0->Y (RF)	0.10606	0.93731	9.17526
	B1->Y (RF)	0.14218	0.99288	9.37381

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	0.01710	0.01694	0.01752
	A1	0.01437	0.01422	0.01539
	B0	0.01086	0.01083	0.01202
	B1	0.01369	0.01356	0.01417

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__oai22_l	A0	0.00431	0.00388	0.00446
	A1	0.00223	0.00192	0.00250
	B0	0.00220	0.00204	0.00285
	B1	0.00432	0.00399	0.00480

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)	-0.00426	-0.00473	-0.00471
	(A1 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * B1 * !Y)	-0.00426	-0.00474	-0.00471
	(A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * !B1 * Y)	-0.00462	-0.00468	-0.00470
	(!A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * !B1 * Y)	-0.00482	-0.00484	-0.00482

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)	0.00468	0.00473	0.00471
	(A1 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * B1 * !Y)	0.00468	0.00474	0.00471
	(A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * !B1 * Y)	0.00467	0.00468	0.00470
	(!A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * !B1 * Y)	0.00484	0.00488	0.00484

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)	-0.00213	-0.00217	-0.00214
	(A0 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * B1 * !Y)	-0.00213	-0.00217	-0.00214
	(A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * !B1 * Y)	-0.00461	-0.00467	-0.00466
	(!A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * !B1 * Y)	-0.00480	-0.00483	-0.00481

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)	0.00226	0.00228	0.00219
	(A0 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * B1 * !Y)	0.00226	0.00228	0.00219
	(A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * !B1 * Y)	0.00464	0.00467	0.00466
	(!A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * !B1 * Y)	0.00483	0.00487	0.00483

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)	-0.00212	-0.00216	-0.00213
	(A0 * !A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B1 * !Y)	-0.00212	-0.00212	-0.00213
	(!A0 * !A1 * B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B1 * Y)	-0.00502	-0.00512	-0.00508
	(!A0 * !A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B1 * Y)	-0.00505	-0.00510	-0.00521

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)	0.00225	0.00227	0.00218
	(A0 * !A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B1 * !Y)	0.00225	0.00226	0.00218
	(!A0 * !A1 * B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B1 * Y)	0.00508	0.00512	0.00508
	(!A0 * !A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B1 * Y)	0.00521	0.00523	0.00524

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)	-0.00421	-0.00468	-0.00466
	(A0 * !A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B0 * !Y)	-0.00421	-0.00467	-0.00466
	(!A0 * !A1 * B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B0 * Y)	-0.00507	-0.00516	-0.00517
	(!A0 * !A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B0 * Y)	-0.00513	-0.00514	-0.00526

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)	0.00463	0.00468	0.00466
	(A0 * !A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B0 * !Y)	0.00463	0.00467	0.00466
	(!A0 * !A1 * B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B0 * Y)	0.00517	0.00516	0.00517
	(!A0 * !A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B0 * Y)	0.00527	0.00537	0.00530

SKY130_OSU_SC_18T_LS__OR2x

sky130_osu_sc_18T_ls_ss_1P60_150C.ccs
Cell Library: Process , Voltage 1.60,
Temp 150.00

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	0.00638	0.00620	1.66537
sky130_osu_sc_18T_ls__or2_2	0.00638	0.00620	3.27821
sky130_osu_sc_18T_ls__or2_4	0.00638	0.00620	6.41116
sky130_osu_sc_18T_ls__or2_8	0.00637	0.00622	12.15184
sky130_osu_sc_18T_ls__or2_l	0.00486	0.00463	1.13653

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__or2_1	0.00000	0.43765	0.47396
sky130_osu_sc_18T_ls__or2_2	0.00000	0.38349	0.47150
sky130_osu_sc_18T_ls__or2_4	0.00000	0.50832	0.61344
sky130_osu_sc_18T_ls__or2_8	0.00000	0.75799	0.89734
sky130_osu_sc_18T_ls__or2_l	0.00000	0.32086	0.35831

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)	0.12683	0.90479	7.88674
	B->Y (RR)	0.10976	0.84773	7.67083
sky130_osu_sc_18T_ls__or2_2	A->Y (RR)	0.13966	0.83089	8.07055
	B->Y (RR)	0.12211	0.78646	7.88011
sky130_osu_sc_18T_ls__or2_4	A->Y (RR)	0.18104	0.84230	8.54941
	B->Y (RR)	0.16290	0.80599	8.39500
sky130_osu_sc_18T_ls__or2_8	A->Y (RR)	0.25878	0.92164	9.05164
	B->Y (RR)	0.23998	0.89434	8.92345
sky130_osu_sc_18T_ls__or2_l	A->Y (RR)	0.14064	1.00692	7.94173
	B->Y (RR)	0.12360	0.95498	7.74441

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)	0.21696	0.94509	7.19222
	B->Y (FF)	0.18185	0.90576	7.05458
sky130_osu_sc_18T_ls__or2_2	A->Y (FF)	0.26313	0.93944	7.46399
	B->Y (FF)	0.22820	0.91517	7.36321
sky130_osu_sc_18T_ls__or2_4	A->Y (FF)	0.37447	1.03618	8.02715
	B->Y (FF)	0.33947	1.01796	7.98812
sky130_osu_sc_18T_ls__or2_8	A->Y (FF)	0.59889	1.27757	8.60962
	B->Y (FF)	0.56402	1.25730	8.67688
sky130_osu_sc_18T_ls__or2_l	A->Y (FF)	0.23717	1.02173	7.15476
	B->Y (FF)	0.20254	0.98789	7.03414

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	0.00789	0.00721	0.01426
	B	0.00000	0.00000	0.00000
	B	0.00569	0.00518	0.01366
sky130_osu_sc_18T_ls__or2_2	A	0.00000	0.00000	0.00000
	A	0.01345	0.01329	0.02024
	B	0.00000	0.00000	0.00000
	B	0.01128	0.01124	0.01959
sky130_osu_sc_18T_ls__or2_4	A	0.00000	0.00000	0.00000
	A	0.02551	0.02626	0.03326
	B	0.00000	0.00000	0.00000
	B	0.02329	0.02431	0.03197
sky130_osu_sc_18T_ls__or2_8	A	0.00000	0.00000	0.00000
	A	0.05004	0.05146	0.05961
	B	0.00000	0.00000	0.00000
	B	0.04747	0.04993	0.05893
sky130_osu_sc_18T_ls__or2_l	A	0.00000	0.00000	0.00000
	A	0.00571	0.00514	0.01017
	B	0.00000	0.00000	0.00000
	B	0.00428	0.00388	0.00996

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	0.01628	0.01633	0.02173
	B	0.00000	0.00000	0.00000
	B	0.01327	0.01388	0.02275
sky130_osu_sc_18T_ls__or2_2	A	0.00000	0.00000	0.00000
	A	0.01982	0.02067	0.02581
	B	0.00000	0.00000	0.00000
	B	0.01676	0.01803	0.02653
sky130_osu_sc_18T_ls__or2_4	A	0.00000	0.00000	0.00000
	A	0.02874	0.03068	0.03590
	B	0.00000	0.00000	0.00000
	B	0.02575	0.02775	0.03627
sky130_osu_sc_18T_ls__or2_8	A	0.00000	0.00000	0.00000
	A	0.04884	0.04968	0.05638
	B	0.00000	0.00000	0.00000
	B	0.04561	0.04680	0.05647
sky130_osu_sc_18T_ls__or2_l	A	0.00000	0.00000	0.00000
	A	0.01209	0.01200	0.01589
	B	0.00000	0.00000	0.00000
	B	0.01001	0.01040	0.01666

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)	-0.00433	-0.00477	-0.00474
sky130_osu_sc_18T_ls__or2_2	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00433	-0.00477	-0.00474
sky130_osu_sc_18T_ls__or2_4	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00433	-0.00477	-0.00474
sky130_osu_sc_18T_ls__or2_8	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00433	-0.00477	-0.00474
sky130_osu_sc_18T_ls__or2_l	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00301	-0.00328	-0.00327

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)	0.00471	0.00479	0.00474
sky130_osu_sc_18T_ls__or2_2	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00471	0.00479	0.00474
sky130_osu_sc_18T_ls__or2_4	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00471	0.00479	0.00474
sky130_osu_sc_18T_ls__or2_8	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00471	0.00480	0.00474
sky130_osu_sc_18T_ls__or2_l	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00325	0.00328	0.00327

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)	-0.00214	-0.00217	-0.00215
sky130_osu_sc_18T_ls__or2_2	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00214	-0.00217	-0.00215
sky130_osu_sc_18T_ls__or2_4	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00214	-0.00217	-0.00215
sky130_osu_sc_18T_ls__or2_8	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00214	-0.00217	-0.00215
sky130_osu_sc_18T_ls__or2_l	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00153	-0.00155	-0.00153

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)	0.00229	0.00231	0.00221
sky130_osu_sc_18T_ls__or2_2	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00229	0.00232	0.00221
sky130_osu_sc_18T_ls__or2_4	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00229	0.00232	0.00221
sky130_osu_sc_18T_ls__or2_8	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00229	0.00232	0.00222
sky130_osu_sc_18T_ls__or2_l	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00164	0.00164	0.00157

SKY130_OSU_SC_18T_LS__TBUFIx

sky130_osu_sc_18T_ls_ss_1P60_150C.ccs
Cell Library: Process , Voltage 1.60,
Temp 150.00

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	0.00638	0.00793	0.83643
sky130_osu_sc_18T_ls__tbufi_l	0.00482	0.00603	0.58153

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__tbufi_1	0.00000	0.37185	0.56553
sky130_osu_sc_18T_ls__tbufi_l	0.00000	0.27591	0.40930

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)	0.08079	1.12151	11.41790
	OE->Y (FR)	0.08290	0.40252	4.68905
	OE->Y (RR)	0.15102	1.03349	7.70092
sky130_osu_sc_18T_ls__tbufi_l	A->Y (FR)	0.09677	1.25096	11.52650
	OE->Y (FR)	0.08813	0.40217	4.68876
	OE->Y (RR)	0.16713	1.17414	7.88778

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)	0.06225	0.85560	8.79716
	OE->Y (FF)	0.08445	0.40255	4.68908
	OE->Y (RF)	0.05631	0.80990	8.22650
sky130_osu_sc_18T_ls__tbufi_l	A->Y (RF)	0.07358	0.94333	8.92937
	OE->Y (FF)	0.08964	0.40217	4.68879
	OE->Y (RF)	0.06758	0.90328	8.34335

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	0.00720	0.00695	0.00842
	OE	0.00000	0.00000	0.00000
	OE	0.00754	0.00708	0.01648
sky130_osu_sc_18T_ls__tbufi_l	A	0.00000	0.00000	0.00000
	A	0.00536	0.00508	0.00619
	OE	0.00000	0.00000	0.00000
	OE	0.00533	0.00497	0.01172

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	-0.00121	-0.00115	-0.00025
	OE	0.00000	0.00000	0.00000
	OE	0.00502	0.00454	0.01443
sky130_osu_sc_18T_ls__tbufi_l	A	0.00000	0.00000	0.00000
	A	-0.00075	-0.00071	-0.00012
	OE	0.00000	0.00000	0.00000
	OE	0.00348	0.00309	0.01012

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)	-0.00353	-0.00359	-0.00354
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	-0.00303	-0.00309	-0.00305
sky130_osu_sc_18T_ls__tbufi_l	(!OE * Y)	0.00000	0.00000	0.00000
	(!OE * Y)	-0.00260	-0.00265	-0.00261
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	-0.00227	-0.00231	-0.00228

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)	0.00353	0.00359	0.00354
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	0.00314	0.00318	0.00312
sky130_osu_sc_18T_ls__tbufi_l	(!OE * Y)	0.00000	0.00000	0.00000
	(!OE * Y)	0.00260	0.00265	0.00261
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	0.00234	0.00236	0.00232

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)	0.00295	0.00253	0.01241
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00261	0.00218	0.01203
sky130_osu_sc_18T_ls__tbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00202	0.00168	0.00871
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00178	0.00144	0.00845

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)	0.00809	0.00786	0.01782
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00833	0.00805	0.01804
sky130_osu_sc_18T_ls__tbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00619	0.00593	0.01302
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00638	0.00613	0.01319

SKY130_OSU_SC_18T_LS__TNBUFIx

sky130_osu_sc_18T_ls_ss_1P60_150C.ccs
Cell Library: Process , Voltage 1.60,
Temp 150.00

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	0.00638	0.01024	0.84495
sky130_osu_sc_18T_ls__tnbufi_l	0.00482	0.00746	0.57984

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__tnbufi_1	0.00000	0.41797	0.48016
sky130_osu_sc_18T_ls__tnbufi_l	0.00000	0.30856	0.35695

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)	0.08166	1.12603	11.49050
	OE->Y (RR)	0.04806	0.40274	4.69035
	OE->Y (FR)	0.10407	1.14113	11.19010
sky130_osu_sc_18T_ls__tnbufi_l	A->Y (FR)	0.09785	1.24969	11.50490
	OE->Y (RR)	0.05132	0.40298	4.69053
	OE->Y (FR)	0.11642	1.26145	11.18470

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)	0.06139	0.85827	8.84485
	OE->Y (RF)	0.04755	0.40277	4.69038
	OE->Y (FF)	0.10193	0.78464	5.88650
sky130_osu_sc_18T_ls__tnbufi_l	A->Y (RF)	0.07253	0.94184	8.91390
	OE->Y (RF)	0.05074	0.40298	4.69057
	OE->Y (FF)	0.11748	0.88580	5.97627

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	0.00735	0.00709	0.00859
	OE	0.00000	0.00000	0.00000
	OE	0.01801	0.01826	0.02909
sky130_osu_sc_18T_ls__tnbufi_l	A	0.00000	0.00000	0.00000
	A	0.00551	0.00523	0.00634
	OE	0.00000	0.00000	0.00000
	OE	0.01311	0.01318	0.02088

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	-0.00139	-0.00134	-0.00043
	OE	0.00000	0.00000	0.00000
	OE	0.01572	0.01599	0.02614
sky130_osu_sc_18T_ls__tnbufi_l	A	0.00000	0.00000	0.00000
	A	-0.00095	-0.00090	-0.00031
	OE	0.00000	0.00000	0.00000
	OE	0.01143	0.01156	0.01873

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)	-0.00307	-0.00313	-0.00308
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	-0.00262	-0.00268	-0.00264
sky130_osu_sc_18T_ls__tnbufi_l	(OE * Y)	0.00000	0.00000	0.00000
	(OE * Y)	-0.00217	-0.00221	-0.00218
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	-0.00187	-0.00191	-0.00188

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)	0.00307	0.00313	0.00308
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	0.00271	0.00275	0.00270
sky130_osu_sc_18T_ls__tnbufi_l	(OE * Y)	0.00000	0.00000	0.00000
	(OE * Y)	0.00217	0.00221	0.00218
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	0.00193	0.00195	0.00192

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)	-0.00574	-0.00658	0.00368
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00553	-0.00648	0.00374
sky130_osu_sc_18T_ls__tnbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	-0.00393	-0.00449	0.00276
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00378	-0.00444	0.00282

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)	0.01339	0.01399	0.02448
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.01316	0.01360	0.02427
sky130_osu_sc_18T_ls__tnbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00979	0.01008	0.01753
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00963	0.00980	0.01738

SKY130_OSU_SC_18T_LS__XNOR2

sky130_osu_sc_18T_ls_ss_1P60_150C.ccs
Cell Library: Process , Voltage 1.60,
Temp 150.00

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	0.01263	0.01163	0.85704

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__xnor2_l	0.00000	0.61523	0.75256

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	0.19096	1.10229	7.99588
	A->Y (FR)	!B	0.10894	1.16488	11.58820
	B->Y (RR)	A	0.15172	1.06182	7.95110
	B->Y (FR)	!A	0.14299	1.18266	11.30100

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	0.19104	0.95696	6.48395
	A->Y (RF)	!B	0.08892	0.85723	8.50653
	B->Y (FF)	A	0.16061	0.92598	6.45956
	B->Y (RF)	!A	0.11331	0.88853	8.53507

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	0.00743	0.00675	0.01592
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.01752	0.01732	0.02863
	B	A	0.00000	0.00000	0.00000
	B	A	0.00220	0.00187	0.01169
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01967	0.01952	0.03032

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	0.02165	0.02099	0.03068
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00487	0.00409	0.01438
	B	A	0.00000	0.00000	0.00000
	B	A	0.01970	0.01997	0.03018
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00596	0.00502	0.01529

SKY130_OSU_SC_18T_LS__XOR2

sky130_osu_sc_18T_ls_ss_1P60_150C.ccs
Cell Library: Process , Voltage 1.60,
Temp 150.00

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	0.01260	0.01168	0.83377

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__xor2_l	0.00000	0.61523	0.73742

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	0.18014	1.07147	7.79062
	A->Y (FR)	B	0.13097	1.15817	11.13850
	B->Y (RR)	!A	0.15523	1.05373	7.78804
	B->Y (FR)	A	0.14251	1.17199	11.13800

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	0.16130	0.90563	6.17842
	A->Y (RF)	B	0.09408	0.89745	8.81998
	B->Y (FF)	!A	0.15312	0.90015	6.18736
	B->Y (RF)	A	0.10628	0.86397	8.26637

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	0.02049	0.02038	0.03131
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00349	0.00228	0.01173
	B	A	0.00000	0.00000	0.00000
	B	A	0.02126	0.02123	0.03215
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00187	0.00143	0.01128

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	0.00412	0.00307	0.01375
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.02195	0.02208	0.03171
	B	A	0.00000	0.00000	0.00000
	B	A	0.00413	0.00314	0.01350
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.02006	0.02042	0.03064

SKY130_OSU_SC_18T_LS_x

sky130_osu_sc_18T_ls_ss_1P60_150C.ccs
Cell Library: Process , Voltage 1.60,
Temp 150.00

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	0.42242
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	163747.00000	327494.00000
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
	-0.00312	0.04524	0.54641

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
	2.85016	2.67179	0.67634