sky130_osu_sc_15T_ls_ff_1P95_100C.ccs Library

Cell Groups
SKY130_OSU_SC_15T_LS__ADDFx
SKY130_OSU_SC_15T_LS__ADDHx
SKY130_OSU_SC_15T_LS__AND2x
SKY130_OSU_SC_15T_LS__AOI21
SKY130_OSU_SC_15T_LS__AOI22
SKY130_OSU_SC_15T_LS__BUFx
SKY130_OSU_SC_15T_LS__DFFRx
SKY130_OSU_SC_15T_LS__DFFSRx
SKY130_OSU_SC_15T_LS__DFFSx
SKY130_OSU_SC_15T_LS__DFFx
SKY130_OSU_SC_15T_LS__INVx
SKY130_OSU_SC_15T_LS__MUX2
SKY130_OSU_SC_15T_LS__NAND2x
SKY130_OSU_SC_15T_LS__NOR2x
SKY130_OSU_SC_15T_LS__OAI21
SKY130_OSU_SC_15T_LS__OAI22
SKY130_OSU_SC_15T_LS__OR2x
SKY130_OSU_SC_15T_LS__TBUFIx
SKY130_OSU_SC_15T_LS__TNBUFIx
SKY130_OSU_SC_15T_LS__XNOR2
SKY130_OSU_SC_15T_LS__XOR2
SKY130_OSU_SC_15T_LS_x

SKY130_OSU_SC_15T_LS__ADDFx

sky130_osu_sc_15T_ls_ff_1P95_100C.ccs
Cell Library: Process , Voltage 1.95,
Temp 100.00

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_15T_ls__addf_1	39.07200
sky130_osu_sc_15T_ls__addf_l	39.07200

Pin Capacitance Information

Cell Name	Pin Cap(pf)			Max Cap(pf)		
	A	B	CI	CO	CON	S
sky130_osu_sc_15T_ls__addf_1	0.01581	0.01571	0.01216	2.46584	1.17134	2.34077
sky130_osu_sc_15T_ls__addf_l	0.01581	0.01570	0.01215	1.48545	1.17585	1.52614

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_15T_ls__addf_1	0.00000	1.83348	2.16092
sky130_osu_sc_15T_ls__addf_l	0.00000	1.94990	2.27735

Delay Information

Delay(ns) to CO rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_ls__addf_1	A->CO (RR)	0.11688	1.46939	24.62940
	B->CO (RR)	0.10028	1.41188	23.82690
	CI->CO (RR)	0.11060	1.50243	25.20090
	CON->CO (FR)	0.02050	0.64017	10.58910
sky130_osu_sc_15T_ls__addf_1	A->CO (RR)	0.12050	1.34006	18.54280
	B->CO (RR)	0.11845	1.31827	18.25780
	CI->CO (RR)	0.11421	1.37551	19.17460
	CON->CO (FR)	0.02554	0.71926	10.54070

Delay(ns) to CO falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_ls__addf_1	A->CO (FF)	0.14328	1.71610	28.50530
	B->CO (FF)	0.12634	1.65464	27.61930
	CI->CO (FF)	0.12387	1.73180	29.04090
	CON->CO (RF)	0.01931	0.54076	9.05474
sky130_osu_sc_15T_ls__addf_1	A->CO (FF)	0.13591	1.40740	19.30560
	B->CO (FF)	0.11955	1.36810	19.01880
	CI->CO (FF)	0.11647	1.42470	19.88490
	CON->CO (RF)	0.01970	0.49728	7.28242

Delay(ns) to CON rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_ls__addf_1	A->CON (FR)	0.11494	0.78229	9.59641
	B->CON (FR)	0.09812	0.76150	9.63716
	CI->CON (FR)	0.09552	0.80137	10.19130
sky130_osu_sc_15T_ls__addf_l	A->CON (FR)	0.10914	0.77767	9.61594
	B->CON (FR)	0.09278	0.75727	9.65818
	CI->CON (FR)	0.08968	0.79683	10.21050

Delay(ns) to CON falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_ls__addf_1	A->CON (RF)	0.07826	0.54030	6.58671
	B->CON (RF)	0.07721	0.55311	6.79977
	CI->CON (RF)	0.07198	0.57775	7.25753
sky130_osu_sc_15T_ls__addf_l	A->CON (RF)	0.07500	0.53778	6.60215
	B->CON (RF)	0.07413	0.55086	6.81454
	CI->CON (RF)	0.06870	0.57544	7.27266

Delay(ns) to S rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_ls__addf_1	A->S (-R)	0.21377	1.55581	22.84010
	B->S (-R)	0.22223	1.53574	21.94290
	CI->S (-R)	0.19279	1.56921	23.39130
	CON->S (RR)	0.06454	0.50067	6.67387
sky130_osu_sc_15T_ls__addf_l	A->S (-R)	0.20634	1.43748	18.31750
	B->S (-R)	0.19451	1.40406	17.93260
	CI->S (-R)	0.18529	1.45204	18.89400
	CON->S (RR)	0.06552	0.56131	6.65618

Delay(ns) to S falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_ls__addf_1	A->S (-F)	0.18577	1.33731	19.21460
	B->S (-F)	0.18340	1.29150	18.63410
	CI->S (-F)	0.17904	1.36799	19.79030
	CON->S (FF)	0.07307	0.58942	7.56225
sky130_osu_sc_15T_ls__addf_l	A->S (-F)	0.17192	1.15811	14.26360
	B->S (-F)	0.17026	1.12512	14.04610
	CI->S (-F)	0.16521	1.19132	14.89740
	CON->S (FF)	0.06748	0.56329	6.45371

Power Information

Internal switching power(pJ) to CO rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__addf_1	A	0.00429	0.00776	0.08258
	B	0.00491	0.00802	0.07673
	CI	0.00655	0.01024	0.08508
sky130_osu_sc_15T_ls__addf_l	A	0.00322	0.00574	0.05315
	B	0.00540	0.00735	0.05135
	CI	0.00548	0.00836	0.05601

Internal switching power(pJ) to CO falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__addf_1	A	0.01596	0.02114	0.13001
	B	0.01663	0.02093	0.11853
	CI	0.01345	0.01894	0.12897
sky130_osu_sc_15T_ls__addf_l	A	0.01491	0.01851	0.08574
	B	0.01558	0.01868	0.07893
	CI	0.01242	0.01642	0.08488

Internal switching power(pJ) to CON rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__addf_1	A	0.01591	0.01917	0.07710
	B	0.01659	0.01931	0.07189
	CI	0.01342	0.01697	0.07615
sky130_osu_sc_15T_ls__addf_l	A	0.01490	0.01807	0.07437
	B	0.01522	0.01797	0.06884
	CI	0.01240	0.01587	0.07343

Internal switching power(pJ) to CON falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__addf_1	A	0.00487	0.00657	0.04546
	B	0.00638	0.00824	0.04969
	CI	0.00651	0.00905	0.05310
sky130_osu_sc_15T_ls__addf_l	A	0.00383	0.00537	0.04212
	B	0.00535	0.00703	0.04648
	CI	0.00545	0.00790	0.04966

Internal switching power(pJ) to S rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__addf_1	A	0.01594	0.02096	0.12444
	B	0.00407	0.00508	0.10650
	CI	0.00635	0.00915	0.10783
sky130_osu_sc_15T_ls__addf_l	A	-0.00207	-0.00139	0.10562
	B	0.00239	0.00341	0.11030
	CI	0.00472	0.00771	0.10803

Internal switching power(pJ) to S falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__addf_1	A	0.03478	0.03751	0.13218
	B	0.03112	0.03446	0.13491
	CI	0.02647	0.02944	0.11838
sky130_osu_sc_15T_ls__addf_l	A	0.03332	0.03598	0.13371
	B	0.02970	0.03337	0.13669
	CI	0.02502	0.02787	0.11988

SKY130_OSU_SC_15T_LS__ADDHx

sky130_osu_sc_15T_ls_ff_1P95_100C.ccs
Cell Library: Process , Voltage 1.95,
Temp 100.00

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_15T_ls__addh_1	23.19900
sky130_osu_sc_15T_ls__addh_l	23.19900

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)		
	A	B	CO	CON	S
sky130_osu_sc_15T_ls__addh_1	0.00771	0.00856	2.41822	1.28345	2.46811
sky130_osu_sc_15T_ls__addh_l	0.00771	0.00856	1.56438	1.28173	1.58729

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_15T_ls__addh_1	0.00000	1.82774	2.01190
sky130_osu_sc_15T_ls__addh_l	0.00000	1.81420	2.12833

Delay Information

Delay(ns) to CO rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_ls__addh_1	A->CO (RR)	0.07719	0.51878	6.73688
	B->CO (RR)	0.08027	0.51137	6.78699
sky130_osu_sc_15T_ls__addh_l	A->CO (RR)	0.07957	0.58458	6.81743
	B->CO (RR)	0.08260	0.57701	6.80381

Delay(ns) to CO falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_ls__addh_1	A->CO (FF)	0.06330	0.55510	7.42835
	B->CO (FF)	0.06813	0.57088	7.54478
sky130_osu_sc_15T_ls__addh_l	A->CO (FF)	0.05891	0.49529	5.67720
	B->CO (FF)	0.06337	0.51042	5.79481

Delay(ns) to CON rising (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_15T_ls__addh_1	A->CON (RR)	B	0.10797	0.42060	3.52552
	A->CON (FR)	!B	0.06075	0.74540	10.09220
	B->CON (RR)	A	0.11066	0.41213	3.58669
	B->CON (FR)	!A	0.07611	0.73322	9.66634
sky130_osu_sc_15T_ls__addh_l	A->CON (RR)	B	0.09974	0.40796	3.55090
	A->CON (FR)	!B	0.05548	0.73950	10.07870
	B->CON (RR)	A	0.10250	0.39980	3.55863
	B->CON (FR)	!A	0.07084	0.72722	9.65425

Delay(ns) to CON falling (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_15T_ls__addh_1	A->CON (FF)	B	0.10314	0.58686	6.07410
	A->CON (RF)	!B	0.04568	0.55806	7.52616
	B->CON (FF)	A	0.09983	0.61370	6.45836
	B->CON (RF)	!A	0.05592	0.54900	7.21482
sky130_osu_sc_15T_ls__addh_l	A->CON (FF)	B	0.09632	0.57318	6.02223
	A->CON (RF)	!B	0.04267	0.55451	7.51528
	B->CON (FF)	A	0.09314	0.60001	6.40393
	B->CON (RF)	!A	0.05292	0.54558	7.20490

Delay(ns) to S rising (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_15T_ls__addh_1	A->S (RR)	!B	0.08003	1.44310	24.79160
	A->S (FR)	B	0.13872	1.46319	23.15330
	B->S (RR)	!A	0.09126	1.40747	23.88420
	B->S (FR)	A	0.13501	1.51710	24.15620
	CON->S (FR)	-	0.02256	0.65700	10.85580
sky130_osu_sc_15T_ls__addh_l	A->S (RR)	!B	0.08084	1.33435	19.57920
	A->S (FR)	B	0.13596	1.34408	17.91800
	B->S (RR)	!A	0.09229	1.30629	18.94730
	B->S (FR)	A	0.13213	1.39119	18.64510
	CON->S (FR)	-	0.02602	0.72906	10.85780

Delay(ns) to S falling (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_15T_ls__addh_1	A->S (FF)	!B	0.08697	1.57769	26.98110
	A->S (RF)	B	0.13274	1.07111	16.21640
	B->S (FF)	!A	0.10236	1.57028	26.62080
	B->S (RF)	A	0.13543	1.06259	16.26880
	CON->S (RF)	-	0.01834	0.52901	8.85853
sky130_osu_sc_15T_ls__addh_l	A->S (FF)	!B	0.08085	1.34156	19.66500
	A->S (RF)	B	0.12381	0.91773	11.46160
	B->S (FF)	!A	0.09621	1.33326	19.26290
	B->S (RF)	A	0.12656	0.90878	11.45290
	CON->S (RF)	-	0.01866	0.50238	7.50783

Power Information

Internal switching power(pJ) to CO rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__addh_1	A	0.00000	0.00000	0.00000
	A	0.00746	0.00943	0.05136
	B	0.00000	0.00000	0.00000
	B	0.00660	0.00839	0.05881
sky130_osu_sc_15T_ls__addh_l	A	0.00000	0.00000	0.00000
	A	0.00649	0.00835	0.05243
	B	0.00000	0.00000	0.00000
	B	0.00563	0.00732	0.05651

Internal switching power(pJ) to CO falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__addh_1	A	0.00000	0.00000	0.00000
	A	0.01101	0.01351	0.07246
	B	0.00000	0.00000	0.00000
	B	0.01146	0.01475	0.07783
sky130_osu_sc_15T_ls__addh_l	A	0.00000	0.00000	0.00000
	A	0.01008	0.01229	0.06495
	B	0.00000	0.00000	0.00000
	B	0.01054	0.01344	0.06853

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

Cell Name	Input	When	Power(pJ)		
			first	mid	last
sky130_osu_sc_15T_ls__addh_1	A	B	0.00000	0.00000	0.00000
	A	B	0.00744	0.00932	0.04984
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00989	0.01209	0.04163
	B	A	0.00000	0.00000	0.00000
	B	A	0.00659	0.00830	0.05719
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01131	0.01269	0.04042
sky130_osu_sc_15T_ls__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.00647	0.00834	0.05179
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00918	0.01128	0.03859
	B	A	0.00000	0.00000	0.00000
	B	A	0.00562	0.00732	0.05634
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01060	0.01182	0.03678

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

Cell Name	Input	When	Power(pJ)		
			first	mid	last
sky130_osu_sc_15T_ls__addh_1	A	B	0.00000	0.00000	0.00000
	A	B	0.01100	0.01335	0.06654
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00164	0.00344	0.02878
	B	A	0.00000	0.00000	0.00000
	B	A	0.01146	0.01449	0.07049
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00260	0.00409	0.02947
sky130_osu_sc_15T_ls__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.01008	0.01227	0.06408
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00079	0.00236	0.02419
	B	A	0.00000	0.00000	0.00000
	B	A	0.01054	0.01340	0.06733
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00175	0.00298	0.02502

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

Cell Name	Input	When	Power(pJ)		
			first	mid	last
sky130_osu_sc_15T_ls__addh_1	A	B	0.00000	0.00000	0.00000
	A	B	0.01102	0.01357	0.07295
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00168	0.00369	0.03389
	B	A	0.00000	0.00000	0.00000
	B	A	0.01148	0.01481	0.07850
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00265	0.00430	0.03271
sky130_osu_sc_15T_ls__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.01010	0.01231	0.06544
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00082	0.00246	0.02409
	B	A	0.00000	0.00000	0.00000
	B	A	0.01055	0.01349	0.06923
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00179	0.00309	0.02487

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

Cell Name	Input	When	Power(pJ)		
			first	mid	last
sky130_osu_sc_15T_ls__addh_1	A	B	0.00000	0.00000	0.00000
	A	B	0.00746	0.00943	0.05268
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00992	0.01237	0.05012
	B	A	0.00000	0.00000	0.00000
	B	A	0.00661	0.00839	0.05993
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01135	0.01317	0.04914
sky130_osu_sc_15T_ls__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.00649	0.00837	0.05302
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00919	0.01126	0.03916
	B	A	0.00000	0.00000	0.00000
	B	A	0.00563	0.00735	0.05735
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01062	0.01197	0.03773

SKY130_OSU_SC_15T_LS__AND2x

sky130_osu_sc_15T_ls_ff_1P95_100C.ccs
Cell Library: Process , Voltage 1.95,
Temp 100.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_15T_ls__and2_1	10.37850
sky130_osu_sc_15T_ls__and2_2	12.82050
sky130_osu_sc_15T_ls__and2_4	17.70450
sky130_osu_sc_15T_ls__and2_6	22.58850
sky130_osu_sc_15T_ls__and2_8	27.47250
sky130_osu_sc_15T_ls__and2_l	10.37850

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	B	Y
sky130_osu_sc_15T_ls__and2_1	0.00418	0.00430	2.42213
sky130_osu_sc_15T_ls__and2_2	0.00418	0.00430	4.70764
sky130_osu_sc_15T_ls__and2_4	0.00418	0.00431	8.90450
sky130_osu_sc_15T_ls__and2_6	0.00422	0.00431	13.11701
sky130_osu_sc_15T_ls__and2_8	0.00419	0.00432	16.93739
sky130_osu_sc_15T_ls__and2_l	0.00322	0.00334	1.49214

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_15T_ls__and2_1	0.00000	0.83203	1.30236
sky130_osu_sc_15T_ls__and2_2	0.00000	1.29556	1.46118
sky130_osu_sc_15T_ls__and2_4	0.00000	2.23082	2.44229
sky130_osu_sc_15T_ls__and2_6	0.00000	3.16608	3.58222
sky130_osu_sc_15T_ls__and2_8	0.00000	4.10133	4.72214
sky130_osu_sc_15T_ls__and2_l	0.00000	0.82348	1.24986

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_ls__and2_1	A->Y (RR)	0.05898	0.47007	6.71427
	B->Y (RR)	0.06300	0.46123	6.41425
sky130_osu_sc_15T_ls__and2_2	A->Y (RR)	0.06803	0.42040	6.70946
	B->Y (RR)	0.07211	0.40903	6.40351
sky130_osu_sc_15T_ls__and2_4	A->Y (RR)	0.09453	0.42754	6.78590
	B->Y (RR)	0.09864	0.41117	6.48962
sky130_osu_sc_15T_ls__and2_6	A->Y (RR)	0.12225	0.45826	6.93604
	B->Y (RR)	0.12625	0.43815	6.63482
sky130_osu_sc_15T_ls__and2_8	A->Y (RR)	0.14955	0.49372	7.03233
	B->Y (RR)	0.15365	0.47044	6.73558
sky130_osu_sc_15T_ls__and2_l	A->Y (RR)	0.06213	0.52853	6.41509
	B->Y (RR)	0.06613	0.51812	6.10650

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_ls__and2_1	A->Y (FF)	0.05027	0.50374	7.02638
	B->Y (FF)	0.05300	0.51536	7.10117
sky130_osu_sc_15T_ls__and2_2	A->Y (FF)	0.05619	0.45796	6.96947
	B->Y (FF)	0.05929	0.46856	7.08028
sky130_osu_sc_15T_ls__and2_4	A->Y (FF)	0.07704	0.46132	6.95173
	B->Y (FF)	0.07972	0.46890	7.05659
sky130_osu_sc_15T_ls__and2_6	A->Y (FF)	0.10024	0.48937	7.04154
	B->Y (FF)	0.10241	0.49530	7.14242
sky130_osu_sc_15T_ls__and2_8	A->Y (FF)	0.12209	0.51505	6.99798
	B->Y (FF)	0.12406	0.52148	7.10133
sky130_osu_sc_15T_ls__and2_l	A->Y (FF)	0.05527	0.51842	6.15046
	B->Y (FF)	0.05941	0.53220	6.26261

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__and2_1	A	0.00000	0.00000	0.00000
	A	0.00513	0.01193	0.15395
	B	0.00000	0.00000	0.00000
	B	0.00518	0.01005	0.11813
sky130_osu_sc_15T_ls__and2_2	A	0.00000	0.00000	0.00000
	A	0.01055	0.01694	0.15865
	B	0.00000	0.00000	0.00000
	B	0.01062	0.01532	0.12264
sky130_osu_sc_15T_ls__and2_4	A	0.00000	0.00000	0.00000
	A	0.02358	0.02899	0.17738
	B	0.00000	0.00000	0.00000
	B	0.02368	0.02764	0.13214
sky130_osu_sc_15T_ls__and2_6	A	0.00000	0.00000	0.00000
	A	0.04039	0.04258	0.17758
	B	0.00000	0.00000	0.00000
	B	0.04047	0.04079	0.14169
sky130_osu_sc_15T_ls__and2_8	A	0.00000	0.00000	0.00000
	A	0.05961	0.05754	0.18977
	B	0.00000	0.00000	0.00000
	B	0.05951	0.05416	0.15063
sky130_osu_sc_15T_ls__and2_l	A	0.00000	0.00000	0.00000
	A	0.00371	0.00973	0.12676
	B	0.00000	0.00000	0.00000
	B	0.00377	0.00808	0.09718

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__and2_1	A	0.00000	0.00000	0.00000
	A	0.01331	0.02082	0.14790
	B	0.00000	0.00000	0.00000
	B	0.01506	0.02220	0.14306
sky130_osu_sc_15T_ls__and2_2	A	0.00000	0.00000	0.00000
	A	0.01765	0.02503	0.15177
	B	0.00000	0.00000	0.00000
	B	0.01941	0.02631	0.14725
sky130_osu_sc_15T_ls__and2_4	A	0.00000	0.00000	0.00000
	A	0.03025	0.03572	0.16031
	B	0.00000	0.00000	0.00000
	B	0.03185	0.03734	0.15605
sky130_osu_sc_15T_ls__and2_6	A	0.00000	0.00000	0.00000
	A	0.04453	0.04772	0.17001
	B	0.00000	0.00000	0.00000
	B	0.04596	0.04806	0.16565
sky130_osu_sc_15T_ls__and2_8	A	0.00000	0.00000	0.00000
	A	0.06258	0.05926	0.18142
	B	0.00000	0.00000	0.00000
	B	0.06373	0.06034	0.17534
sky130_osu_sc_15T_ls__and2_l	A	0.00000	0.00000	0.00000
	A	0.01026	0.01637	0.11627
	B	0.00000	0.00000	0.00000
	B	0.01154	0.01720	0.11135

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__and2_1	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00494	-0.00496	-0.00497
sky130_osu_sc_15T_ls__and2_2	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00494	-0.00494	-0.00497
sky130_osu_sc_15T_ls__and2_4	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00493	-0.00494	-0.00496
sky130_osu_sc_15T_ls__and2_6	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00495	-0.00496	-0.00498
sky130_osu_sc_15T_ls__and2_8	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00491	-0.00491	-0.00494
sky130_osu_sc_15T_ls__and2_l	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00355	-0.00356	-0.00357

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__and2_1	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00498	0.00509	0.00500
sky130_osu_sc_15T_ls__and2_2	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00499	0.00509	0.00500
sky130_osu_sc_15T_ls__and2_4	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00498	0.00510	0.00501
sky130_osu_sc_15T_ls__and2_6	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00503	0.00514	0.00506
sky130_osu_sc_15T_ls__and2_8	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00501	0.00512	0.00503
sky130_osu_sc_15T_ls__and2_l	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00358	0.00366	0.00359

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__and2_1	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00466	-0.00470	-0.00468
sky130_osu_sc_15T_ls__and2_2	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00466	-0.00469	-0.00467
sky130_osu_sc_15T_ls__and2_4	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00465	-0.00469	-0.00466
sky130_osu_sc_15T_ls__and2_6	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00464	-0.00468	-0.00465
sky130_osu_sc_15T_ls__and2_8	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00463	-0.00466	-0.00464
sky130_osu_sc_15T_ls__and2_l	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00337	-0.00339	-0.00337

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__and2_1	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00485	0.00475	0.00471
sky130_osu_sc_15T_ls__and2_2	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00485	0.00474	0.00471
sky130_osu_sc_15T_ls__and2_4	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00486	0.00477	0.00472
sky130_osu_sc_15T_ls__and2_6	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00487	0.00478	0.00473
sky130_osu_sc_15T_ls__and2_8	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00488	0.00479	0.00474
sky130_osu_sc_15T_ls__and2_l	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00352	0.00345	0.00340

SKY130_OSU_SC_15T_LS__AOI21

sky130_osu_sc_15T_ls_ff_1P95_100C.ccs
Cell Library: Process , Voltage 1.95,
Temp 100.00

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_15T_ls__aoi21_l	10.37850

Pin Capacitance Information

Cell Name	Pin Cap(pf)			Max Cap(pf)
	A0	A1	B0	Y
sky130_osu_sc_15T_ls__aoi21_l	0.00398	0.00413	0.00400	1.11610

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_15T_ls__aoi21_l	0.00000	0.50821	0.63903

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_ls__aoi21_l	A0->Y (FR)	0.06134	0.73187	9.46596
	A1->Y (FR)	0.05136	0.69210	9.07661
	B0->Y (FR)	0.04335	0.75542	10.11280

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_ls__aoi21_l	A0->Y (RF)	0.04273	0.47900	6.07673
	A1->Y (RF)	0.03887	0.50531	6.54102
	B0->Y (RF)	0.02319	0.44641	5.94933

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__aoi21_l	A0	0.00000	0.00000	0.00000
	A0	0.01221	0.01307	0.04208
	A1	0.00000	0.00000	0.00000
	A1	0.01019	0.01104	0.03947
	B0	0.00693	0.01012	0.05508

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__aoi21_l	A0	0.00000	0.00000	0.00000
	A0	0.00261	0.00347	0.02933
	A1	0.00000	0.00000	0.00000
	A1	0.00268	0.00418	0.03264
	B0	-0.00113	0.00154	0.03757

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__aoi21_l	(A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * !Y)	-0.00349	-0.00429	-0.00430
	(!A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !Y)	-0.00434	-0.00437	-0.00435
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00434	-0.00437	-0.00434

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__aoi21_l	(A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * !Y)	0.00427	0.00433	0.00430
	(!A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !Y)	0.00434	0.00440	0.00437
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00451	0.00442	0.00437

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__aoi21_l	(A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * B0 * !Y)	-0.00345	-0.00423	-0.00424
	(!A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !Y)	-0.00427	-0.00429	-0.00428
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	-0.00465	-0.00467	-0.00468

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__aoi21_l	(A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * B0 * !Y)	0.00420	0.00426	0.00424
	(!A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !Y)	0.00427	0.00429	0.00430
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	0.00468	0.00470	0.00470

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__aoi21_l	(A0 * A1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !Y)	-0.00166	-0.00170	-0.00166

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__aoi21_l	(A0 * A1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !Y)	0.00183	0.00185	0.00171

SKY130_OSU_SC_15T_LS__AOI22

sky130_osu_sc_15T_ls_ff_1P95_100C.ccs
Cell Library: Process , Voltage 1.95,
Temp 100.00

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_15T_ls__aoi22_1	12.82050

Pin Capacitance Information

Cell Name	Pin Cap(pf)				Max Cap(pf)
	A0	A1	B0	B1	Y
sky130_osu_sc_15T_ls__aoi22_1	0.00397	0.00410	0.00424	0.00405	1.13140

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_15T_ls__aoi22_1	0.00000	0.45066	1.13991

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_ls__aoi22_l	A0->Y (FR)	0.07465	0.73795	9.39205
	A1->Y (FR)	0.06681	0.72213	9.28802
	B0->Y (FR)	0.04441	0.73600	9.86510
	B1->Y (FR)	0.05242	0.75626	10.03750

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_ls__aoi22_l	A0->Y (RF)	0.05703	0.49768	6.16073
	A1->Y (RF)	0.05308	0.52388	6.62693
	B0->Y (RF)	0.02728	0.49316	6.59793
	B1->Y (RF)	0.03128	0.46703	6.13318

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__aoi22_l	A0	0.01514	0.01585	0.04554
	A1	0.01315	0.01384	0.04289
	B0	0.00761	0.01023	0.04797
	B1	0.00958	0.01194	0.04992

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__aoi22_l	A0	0.00533	0.00618	0.03363
	A1	0.00539	0.00686	0.03692
	B0	-0.00073	0.00134	0.03060
	B1	-0.00065	0.00070	0.02727

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__aoi22_l	(A1 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * B1 * !Y)	-0.00342	-0.00427	-0.00430
	(!A1 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * B1 * !Y)	-0.00433	-0.00437	-0.00434
	(!A1 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !B1 * Y)	-0.00434	-0.00436	-0.00435
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00434	-0.00437	-0.00435

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__aoi22_l	(A1 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * B1 * !Y)	0.00429	0.00433	0.00431
	(!A1 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * B1 * !Y)	0.00435	0.00441	0.00438
	(!A1 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !B1 * Y)	0.00451	0.00442	0.00437
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00451	0.00442	0.00437

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__aoi22_l	(A0 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * B0 * B1 * !Y)	-0.00338	-0.00421	-0.00423
	(!A0 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * B1 * !Y)	-0.00427	-0.00429	-0.00427
	(!A0 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !B1 * Y)	-0.00464	-0.00466	-0.00467
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	-0.00464	-0.00466	-0.00467

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__aoi22_l	(A0 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * B0 * B1 * !Y)	0.00422	0.00425	0.00424
	(!A0 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * B1 * !Y)	0.00428	0.00432	0.00430
	(!A0 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !B1 * Y)	0.00466	0.00468	0.00469
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	0.00467	0.00468	0.00469

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__aoi22_l	(A0 * A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * B1 * !Y)	-0.00167	-0.00171	-0.00167
	(A0 * A1 * !B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B1 * !Y)	-0.00163	-0.00167	-0.00166
	(!A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B1 * Y)	-0.00480	-0.00483	-0.00484
	(!A0 * A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B1 * Y)	-0.00480	-0.00483	-0.00484

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__aoi22_l	(A0 * A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * B1 * !Y)	0.00192	0.00194	0.00174
	(A0 * A1 * !B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B1 * !Y)	0.00166	0.00167	0.00167
	(!A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B1 * Y)	0.00483	0.00486	0.00485
	(!A0 * A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B1 * Y)	0.00483	0.00486	0.00485

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__aoi22_l	(A0 * A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * B0 * !Y)	-0.00169	-0.00172	-0.00169
	(A0 * A1 * !B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B0 * !Y)	-0.00165	-0.00169	-0.00167
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00442	-0.00444	-0.00443
	(!A0 * A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B0 * Y)	-0.00442	-0.00445	-0.00443

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__aoi22_l	(A0 * A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * B0 * !Y)	0.00195	0.00195	0.00175
	(A0 * A1 * !B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B0 * !Y)	0.00168	0.00169	0.00168
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00459	0.00446	0.00445
	(!A0 * A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B0 * Y)	0.00459	0.00446	0.00445

SKY130_OSU_SC_15T_LS__BUFx

sky130_osu_sc_15T_ls_ff_1P95_100C.ccs
Cell Library: Process , Voltage 1.95,
Temp 100.00

Truth Table

INPUT	OUTPUT
A	Y
0	0
1	1

Footprint

Cell Name	Area
sky130_osu_sc_15T_ls__buf_1	7.93650
sky130_osu_sc_15T_ls__buf_2	10.37850
sky130_osu_sc_15T_ls__buf_4	15.26250
sky130_osu_sc_15T_ls__buf_6	20.14650
sky130_osu_sc_15T_ls__buf_8	25.03050
sky130_osu_sc_15T_ls__buf_l	7.93650

Pin Capacitance Information

Cell Name	Pin Cap(pf)	Max Cap(pf)
	A	Y
sky130_osu_sc_15T_ls__buf_1	0.00429	2.38611
sky130_osu_sc_15T_ls__buf_2	0.00432	4.68595
sky130_osu_sc_15T_ls__buf_4	0.00432	8.97798
sky130_osu_sc_15T_ls__buf_6	0.00091	1.80000
sky130_osu_sc_15T_ls__buf_8	0.00433	17.22281
sky130_osu_sc_15T_ls__buf_l	0.00336	1.49538

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_15T_ls__buf_1	0.00000	0.73726	0.73726
sky130_osu_sc_15T_ls__buf_2	0.00000	1.09922	1.30237
sky130_osu_sc_15T_ls__buf_4	0.00000	1.82981	2.44230
sky130_osu_sc_15T_ls__buf_6	0.00000	0.00000	0.00000
sky130_osu_sc_15T_ls__buf_8	0.00000	3.29099	4.72215
sky130_osu_sc_15T_ls__buf_l	0.00000	0.85368	0.85368

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_ls__buf_1	**A->Y (RR)**	0.04604	0.43424	6.27724
sky130_osu_sc_15T_ls__buf_2	**A->Y (RR)**	0.05286	0.37999	6.26473
sky130_osu_sc_15T_ls__buf_4	**A->Y (RR)**	0.07192	0.37722	6.37838
sky130_osu_sc_15T_ls__buf_8	**A->Y (RR)**	0.11115	0.42635	6.60492
sky130_osu_sc_15T_ls__buf_l	**A->Y (RR)**	0.05024	0.48877	5.96790

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_ls__buf_1	**A->Y (FF)**	0.04723	0.49835	7.07012
sky130_osu_sc_15T_ls__buf_2	**A->Y (FF)**	0.05462	0.46713	7.30619
sky130_osu_sc_15T_ls__buf_4	**A->Y (FF)**	0.07564	0.47215	7.42883
sky130_osu_sc_15T_ls__buf_8	**A->Y (FF)**	0.12090	0.52753	7.56920
sky130_osu_sc_15T_ls__buf_l	**A->Y (FF)**	0.05268	0.51759	6.30267

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__buf_1	A	0.00000	0.00000	0.00000
	A	0.00469	0.01132	0.12826
sky130_osu_sc_15T_ls__buf_2	A	0.00000	0.00000	0.00000
	A	0.00982	0.01604	0.12929
sky130_osu_sc_15T_ls__buf_4	A	0.00000	0.00000	0.00000
	A	0.02179	0.02797	0.14203
sky130_osu_sc_15T_ls__buf_8	A	0.00000	0.00000	0.00000
	A	0.05163	0.05437	0.16324
sky130_osu_sc_15T_ls__buf_l	A	0.00000	0.00000	0.00000
	A	0.00353	0.00925	0.10949

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__buf_1	A	0.00000	0.00000	0.00000
	A	0.01264	0.02106	0.15150
sky130_osu_sc_15T_ls__buf_2	A	0.00000	0.00000	0.00000
	A	0.01700	0.02476	0.14041
sky130_osu_sc_15T_ls__buf_4	A	0.00000	0.00000	0.00000
	A	0.02918	0.03490	0.15018
sky130_osu_sc_15T_ls__buf_8	A	0.00000	0.00000	0.00000
	A	0.06081	0.05833	0.17041
sky130_osu_sc_15T_ls__buf_l	A	0.00000	0.00000	0.00000
	A	0.00981	0.01641	0.11924

Passive power(pJ) for A rising :

Cell Name	Power(pJ)		
	first	mid	last
sky130_osu_sc_15T_ls__buf_6	0.00000	0.00000	0.00000
	-0.00087	-0.00087	-0.00084

Passive power(pJ) for A falling :

Cell Name	Power(pJ)		
	first	mid	last
sky130_osu_sc_15T_ls__buf_6	0.00000	0.00000	0.00000
	0.00087	0.00087	0.00084

SKY130_OSU_SC_15T_LS__DFFRx

sky130_osu_sc_15T_ls_ff_1P95_100C.ccs
Cell Library: Process , Voltage 1.95,
Temp 100.00

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_15T_ls__dffr_1	53.11350
sky130_osu_sc_15T_ls__dffr_l	53.11350

Pin Capacitance Information

Cell Name	Pin Cap(pf)			Max Cap(pf)	
	D	RN	CK	Q	QN
sky130_osu_sc_15T_ls__dffr_1	0.00409	0.00404	0.01166	2.17638	2.17519
sky130_osu_sc_15T_ls__dffr_l	0.00409	0.00404	0.01165	1.50742	1.48624

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_15T_ls__dffr_1	0.00000	3.04769	4.93851
sky130_osu_sc_15T_ls__dffr_l	0.00000	3.16411	5.05492

Delay Information

Delay(ns) to Q rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_ls__dffr_1	CK->Q (RR)	0.22425	1.14113	14.92310
	QN->Q (FR)	0.02607	0.75573	12.17400
sky130_osu_sc_15T_ls__dffr_l	CK->Q (RR)	0.21503	1.19615	13.92360
	QN->Q (FR)	0.02845	0.80114	11.80830

Delay(ns) to Q falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_ls__dffr_1	CK->Q (RF)	0.21989	1.10457	14.60140
	QN->Q (RF)	0.02159	0.58673	9.48234
	RN->Q (FF)	0.16279	1.15923	16.12820
sky130_osu_sc_15T_ls__dffr_l	CK->Q (RF)	0.22138	1.18631	13.85490
	QN->Q (RF)	0.02102	0.55790	8.20132
	RN->Q (FF)	0.16461	1.24014	15.36960

Delay(ns) to QN rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_ls__dffr_1	CK->QN (RR)	0.19596	0.60888	6.21467
	RN->QN (FR)	0.13881	0.66302	7.73538
sky130_osu_sc_15T_ls__dffr_l	CK->QN (RR)	0.19739	0.67880	6.38120
	RN->QN (FR)	0.14053	0.73268	7.89584

Delay(ns) to QN falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_ls__dffr_1	**CK->QN (RF)**	0.19128	0.56521	5.21696
sky130_osu_sc_15T_ls__dffr_l	**CK->QN (RF)**	0.17811	0.54659	4.39883

Constraint Information

Constraints(ns) for D rising :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_15T_ls__dffr_1	hold	CK (R)	-0.05912	-0.06500	0.07221
	setup	CK (R)	0.17825	0.20999	0.47657
sky130_osu_sc_15T_ls__dffr_l	hold	CK (R)	-0.06155	-0.06500	0.07156
	setup	CK (R)	0.18121	0.21174	0.47657

Constraints(ns) for D falling :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_15T_ls__dffr_1	hold	CK (R)	-0.08384	-0.25174	-3.00334
	setup	CK (R)	0.10601	0.26167	3.87855
sky130_osu_sc_15T_ls__dffr_l	hold	CK (R)	-0.08322	-0.24844	-3.08374
	setup	CK (R)	0.10598	0.26167	3.87860

Constraints(ns) for D rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_15T_ls__dffr_1	hold	CK (R)	-0.05912	-0.06500	0.07221
	setup	CK (R)	0.17825	0.20999	0.47657
sky130_osu_sc_15T_ls__dffr_l	hold	CK (R)	-0.06155	-0.06500	0.07156
	setup	CK (R)	0.18121	0.21174	0.47657

Constraints(ns) for D falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_15T_ls__dffr_1	hold	CK (R)	-0.08384	-0.25174	-3.00334
	setup	CK (R)	0.10601	0.26167	3.87855
sky130_osu_sc_15T_ls__dffr_l	hold	CK (R)	-0.08322	-0.24844	-3.08374
	setup	CK (R)	0.10598	0.26167	3.87860

Constraints(ns) for RN rising :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_15T_ls__dffr_1	recovery	CK (R)	0.14811	0.18580	0.91886
	removal	CK (R)	-0.03743	-0.04385	-0.12763
sky130_osu_sc_15T_ls__dffr_l	recovery	CK (R)	0.14976	0.18730	0.91218
	removal	CK (R)	-0.03743	-0.04385	-0.12763

Constraints(ns) for RN rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_15T_ls__dffr_1	recovery	CK (R)	0.14811	0.18580	0.91886
	removal	CK (R)	-0.03743	-0.04385	-0.12763
sky130_osu_sc_15T_ls__dffr_l	recovery	CK (R)	0.14976	0.18730	0.91218
	removal	CK (R)	-0.03743	-0.04385	-0.12763

Constraints(ns) for RN falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_15T_ls__dffr_1	min_pulse_width	RN ()	0.09388	0.46387	13.33370
	min_pulse_width	RN ()	0.09388	0.46387	13.33370
sky130_osu_sc_15T_ls__dffr_l	min_pulse_width	RN ()	0.09039	0.46387	13.33370
	min_pulse_width	RN ()	0.09039	0.46387	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_15T_ls__dffr_1	min_pulse_width	CK ()	0.10784	0.46387	13.33370
	min_pulse_width	CK ()	0.11133	0.46387	13.33370
sky130_osu_sc_15T_ls__dffr_l	min_pulse_width	CK ()	0.10086	0.46387	13.33370
	min_pulse_width	CK ()	0.10784	0.46387	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_15T_ls__dffr_1	min_pulse_width	CK ()	0.22652	0.46387	13.33370
	min_pulse_width	CK ()	0.08690	0.46387	13.33370
sky130_osu_sc_15T_ls__dffr_l	min_pulse_width	CK ()	0.22652	0.46387	13.33370
	min_pulse_width	CK ()	0.08341	0.46387	13.33370

Power Information

Internal switching power(pJ) to Q rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__dffr_1	CK	0.00000	0.00000	0.00000
	CK	0.01345	0.01633	0.07544
sky130_osu_sc_15T_ls__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.01188	0.01584	0.10079

Internal switching power(pJ) to Q falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__dffr_1	CK	0.00000	0.00000	0.00000
	CK	0.01528	0.01475	0.03277
	RN	-0.00161	-0.11808	-2.06891
	RN	0.03464	0.03493	0.05673
sky130_osu_sc_15T_ls__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.01379	0.01527	0.07169
	RN	-0.00161	-0.09473	-1.43298
	RN	0.03313	0.03546	0.09549

Internal switching power(pJ) to QN rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__dffr_1	CK	0.00000	0.00000	0.00000
	CK	0.01527	0.01472	0.03231
	RN	-0.00161	-0.11805	-2.06763
	RN	0.03463	0.03489	0.05624
sky130_osu_sc_15T_ls__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.01379	0.01527	0.07211
	RN	-0.00161	-0.09393	-1.41285
	RN	0.03312	0.03544	0.09595

Internal switching power(pJ) to QN falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__dffr_1	CK	0.00000	0.00000	0.00000
	CK	0.01339	0.01635	0.07434
sky130_osu_sc_15T_ls__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.01181	0.01584	0.09958

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__dffr_1	CK	0.00000	0.00000	0.00000
	CK	-0.00342	-0.00413	-0.00423
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.01667	0.02044	0.13616
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.00704	0.01095	0.12368
sky130_osu_sc_15T_ls__dffr_l	CK	0.00000	0.00000	0.00000
	CK	-0.00342	-0.00413	-0.00423
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.01667	0.02044	0.13616
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.00704	0.01095	0.12369

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__dffr_1	CK	0.00000	0.00000	0.00000
	CK	0.00429	0.00433	0.00433
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.02664	0.03076	0.14943
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.01292	0.01686	0.12955
sky130_osu_sc_15T_ls__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.00429	0.00433	0.00433
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.02664	0.03076	0.14943
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.01292	0.01687	0.12956

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__dffr_1	(CK * !Q * QN) + (!CK * !D * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !Q * QN) + (!CK * !D * !Q * QN)	0.00462	0.01177	0.17101
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.01435	0.02144	0.18802
sky130_osu_sc_15T_ls__dffr_l	(CK * !Q * QN) + (!CK * !D * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !Q * QN) + (!CK * !D * !Q * QN)	0.00462	0.01177	0.17102
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.01435	0.02144	0.18802

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__dffr_1	(CK * !Q * QN) + (!CK * !D * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !Q * QN) + (!CK * !D * !Q * QN)	0.01242	0.02095	0.17925
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.02603	0.03372	0.20043
sky130_osu_sc_15T_ls__dffr_l	(CK * !Q * QN) + (!CK * !D * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !Q * QN) + (!CK * !D * !Q * QN)	0.01242	0.02095	0.17925
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.02602	0.03372	0.20043

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__dffr_1	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	-0.00110	0.00577	0.16555
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.00826	0.01439	0.18357
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	-0.00153	0.00534	0.16454
sky130_osu_sc_15T_ls__dffr_l	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	-0.00110	0.00577	0.16556
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.00827	0.01440	0.18358
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	-0.00153	0.00534	0.16454

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__dffr_1	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.01797	0.02613	0.18577
	(D * RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * RN * !Q * QN)	0.04084	0.04780	0.25715
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.03070	0.03818	0.20547
	(!D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * Q * !QN)	0.03903	0.05377	0.30024
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.02097	0.02876	0.18702
sky130_osu_sc_15T_ls__dffr_l	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.01797	0.02614	0.18577
	(D * RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * RN * !Q * QN)	0.04083	0.04780	0.25715
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.03070	0.03819	0.20548
	(!D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * Q * !QN)	0.03903	0.05378	0.30024
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.02097	0.02868	0.18702

SKY130_OSU_SC_15T_LS__DFFSRx

sky130_osu_sc_15T_ls_ff_1P95_100C.ccs
Cell Library: Process , Voltage 1.95,
Temp 100.00

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_15T_ls__dffsr_1	57.99750
sky130_osu_sc_15T_ls__dffsr_l	57.99750

Pin Capacitance Information

Cell Name	Pin Cap(pf)				Max Cap(pf)	
	D	**RN**	**SN**	**CK**	**Q**	**QN**
sky130_osu_sc_15T_ls__dffsr_1	0.00405	0.00405	0.00894	0.01194	2.49827	2.47427
sky130_osu_sc_15T_ls__dffsr_l	0.00405	0.00405	0.00893	0.01194	1.50641	1.49074

Leakage Information

Cell Name	Leakage(nW)		
	Min.	**Avg**	**Max.**
sky130_osu_sc_15T_ls__dffsr_1	0.00000	3.10254	4.28702
sky130_osu_sc_15T_ls__dffsr_l	0.00000	3.21895	4.40344

Delay Information

Delay(ns) to Q rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_ls__dffsr_1	CK->Q (RR)	0.22591	1.17938	16.44850
	QN->Q (FR)	0.02274	0.70231	11.70310
	RN->Q (RR)	0.18261	1.14908	16.58390
	SN->Q (FR)	0.16295	1.22806	18.10980
sky130_osu_sc_15T_ls__dffsr_l	CK->Q (RR)	0.22350	1.20359	13.88040
	QN->Q (FR)	0.02846	0.79914	11.77640
	RN->Q (RR)	0.17944	1.17255	14.00700
	SN->Q (FR)	0.16116	1.24926	15.52570

Delay(ns) to Q falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_ls__dffsr_1	CK->Q (RF)	0.26012	1.18201	16.03450
	QN->Q (RF)	0.02130	0.62119	10.43150
	RN->Q (FF)	0.16277	1.19626	17.55520
sky130_osu_sc_15T_ls__dffsr_l	CK->Q (RF)	0.26548	1.23560	13.89380
	QN->Q (RF)	0.02099	0.55753	8.18906
	RN->Q (FF)	0.16773	1.24959	15.40160

Delay(ns) to QN rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_ls__dffsr_1	CK->QN (RR)	0.23590	0.64868	6.46775
	RN->QN (FR)	0.13882	0.66271	7.98042
sky130_osu_sc_15T_ls__dffsr_l	CK->QN (RR)	0.24136	0.72901	6.45252
	RN->QN (FR)	0.14955	0.74936	7.96035

Delay(ns) to QN falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_ls__dffsr_1	CK->QN (RF)	0.19588	0.59398	5.96550
	RN->QN (RF)	0.15298	0.56470	6.10136
	SN->QN (FF)	0.13338	0.64268	7.62464
sky130_osu_sc_15T_ls__dffsr_l	CK->QN (RF)	0.18765	0.55560	4.39039
	RN->QN (RF)	0.14543	0.52716	4.52211
	SN->QN (FF)	0.12589	0.60098	6.03269

Constraint Information

Constraints(ns) for D rising :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_15T_ls__dffsr_1	hold	CK (R)	-0.05971	-0.06734	0.05944
	setup	CK (R)	0.17427	0.21100	0.54102
sky130_osu_sc_15T_ls__dffsr_l	hold	CK (R)	-0.06190	-0.06734	0.06283
	setup	CK (R)	0.17382	0.21142	0.53520

Constraints(ns) for D falling :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_15T_ls__dffsr_1	hold	CK (R)	-0.10155	-0.27221	-3.12558
	setup	CK (R)	0.12633	0.28519	3.96566
sky130_osu_sc_15T_ls__dffsr_l	hold	CK (R)	-0.10194	-0.27123	-3.15486
	setup	CK (R)	0.12629	0.28119	3.96707

Constraints(ns) for D rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_15T_ls__dffsr_1	hold	CK (R)	-0.05971	-0.06734	0.05944
	setup	CK (R)	0.17427	0.21100	0.54102
sky130_osu_sc_15T_ls__dffsr_l	hold	CK (R)	-0.06190	-0.06734	0.06283
	setup	CK (R)	0.17382	0.21142	0.53520

Constraints(ns) for D falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_15T_ls__dffsr_1	hold	CK (R)	-0.10155	-0.27221	-3.12558
	setup	CK (R)	0.12633	0.28519	3.96566
sky130_osu_sc_15T_ls__dffsr_l	hold	CK (R)	-0.10194	-0.27123	-3.15486
	setup	CK (R)	0.12629	0.28119	3.96707

Constraints(ns) for RN rising :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_15T_ls__dffsr_1	recovery	CK (R)	0.13052	0.16395	0.90229
	removal	CK (R)	-0.01760	-0.02398	-0.06792
	hold	SN (R)	-0.12832	-0.24050	-0.96513
	setup	SN (R)	0.15136	0.28519	4.46636
sky130_osu_sc_15T_ls__dffsr_l	recovery	CK (R)	0.12959	0.16455	0.89663
	removal	CK (R)	-0.01760	-0.02398	-0.06792
	hold	SN (R)	-0.12088	-0.23265	-0.92242
	setup	SN (R)	0.14926	0.27312	4.25553

Constraints(ns) for RN rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_15T_ls__dffsr_1	recovery	CK (R)	0.13052	0.16395	0.90229
	removal	CK (R)	-0.01760	-0.02398	-0.06792
	hold	SN (R)	-0.12896	-0.24050	-0.96584
	hold	SN (R)	-0.12832	-0.24214	-0.96513
	setup	SN (R)	0.15124	0.28163	3.98695
	setup	SN (R)	0.15136	0.28519	4.46636
sky130_osu_sc_15T_ls__dffsr_l	recovery	CK (R)	0.12959	0.16455	0.89663
	removal	CK (R)	-0.01760	-0.02398	-0.06792
	hold	SN (R)	-0.12212	-0.23265	-0.92242
	hold	SN (R)	-0.12088	-0.23433	-0.93153
	setup	SN (R)	0.14926	0.27190	3.80042
	setup	SN (R)	0.14674	0.27312	4.25553

Constraints(ns) for RN falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_15T_ls__dffsr_1	min_pulse_width	RN ()	0.10784	0.46387	13.33370
	min_pulse_width	RN ()	0.11133	0.46387	13.33370
sky130_osu_sc_15T_ls__dffsr_l	min_pulse_width	RN ()	0.10784	0.46387	13.33370
	min_pulse_width	RN ()	0.10435	0.46387	13.33370

Constraints(ns) for SN rising :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_15T_ls__dffsr_1	recovery	CK (R)	0.03804	0.06858	5.01292
	removal	CK (R)	-0.01761	-0.05468	-0.33411
sky130_osu_sc_15T_ls__dffsr_l	recovery	CK (R)	0.03727	0.07025	4.92076
	removal	CK (R)	-0.01761	-0.05468	-0.33304

Constraints(ns) for SN rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_15T_ls__dffsr_1	recovery	CK (R)	0.03804	0.06858	5.01292
	removal	CK (R)	-0.01761	-0.05468	-0.33411
sky130_osu_sc_15T_ls__dffsr_l	recovery	CK (R)	0.03727	0.07025	4.92076
	removal	CK (R)	-0.01761	-0.05468	-0.33304

Constraints(ns) for SN falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_15T_ls__dffsr_1	min_pulse_width	SN ()	0.13228	0.46387	13.33370
	min_pulse_width	SN ()	0.13228	0.46387	13.33370
sky130_osu_sc_15T_ls__dffsr_l	min_pulse_width	SN ()	0.12878	0.46387	13.33370
	min_pulse_width	SN ()	0.12529	0.46387	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_15T_ls__dffsr_1	min_pulse_width	CK ()	0.10435	0.46387	13.33370
	min_pulse_width	CK ()	0.13228	0.46387	13.33370
sky130_osu_sc_15T_ls__dffsr_l	min_pulse_width	CK ()	0.10086	0.46387	13.33370
	min_pulse_width	CK ()	0.13228	0.46387	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_15T_ls__dffsr_1	min_pulse_width	CK ()	0.21954	0.46387	13.33370
	min_pulse_width	CK ()	0.11133	0.46387	13.33370
sky130_osu_sc_15T_ls__dffsr_l	min_pulse_width	CK ()	0.22303	0.46387	13.33370
	min_pulse_width	CK ()	0.11133	0.46387	13.33370

Power Information

Internal switching power(pJ) to Q rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__dffsr_1	CK	0.00000	0.00000	0.00000
	CK	0.01690	0.01914	0.06761
	RN	0.03017	0.03023	0.05561
	SN	-0.00161	-0.12827	-2.37491
	SN	0.02891	0.02778	0.05407
sky130_osu_sc_15T_ls__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.01550	0.01915	0.10289
	RN	0.02876	0.03031	0.09078
	SN	-0.00161	-0.09469	-1.43203
	SN	0.02752	0.02795	0.08958

Internal switching power(pJ) to Q falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__dffsr_1	CK	0.00000	0.00000	0.00000
	CK	0.01779	0.01884	0.06079
	RN	-0.00161	-0.12827	-2.37489
	RN	0.03544	0.03747	0.08720
sky130_osu_sc_15T_ls__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.01634	0.01781	0.07484
	RN	-0.00161	-0.09469	-1.43203
	RN	0.03397	0.03646	0.10129

Internal switching power(pJ) to QN rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__dffsr_1	CK	0.00000	0.00000	0.00000
	CK	0.01776	0.01882	0.05995
	RN	-0.00161	-0.12753	-2.35141
	RN	0.03541	0.03744	0.08691
sky130_osu_sc_15T_ls__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.01633	0.01780	0.07496
	RN	-0.00161	-0.09410	-1.41713
	RN	0.03396	0.03641	0.10165

Internal switching power(pJ) to QN falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__dffsr_1	CK	0.00000	0.00000	0.00000
	CK	0.01683	0.01908	0.06716
	RN	0.03010	0.03023	0.05592
	SN	-0.00161	-0.12753	-2.35190
	SN	0.02886	0.02773	0.05447
sky130_osu_sc_15T_ls__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.01542	0.01916	0.10223
	RN	0.02867	0.03028	0.09118
	SN	-0.00161	-0.09410	-1.41706
	SN	0.02746	0.02790	0.08982

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__dffsr_1	CK	0.00000	0.00000	0.00000
	CK	-0.00417	-0.00424	-0.00425
	(!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)	0.02146	0.02510	0.14036
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.00804	0.01183	0.12415
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.00796	0.01176	0.12420
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.00802	0.01182	0.12419
sky130_osu_sc_15T_ls__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	-0.00417	-0.00424	-0.00425
	(!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)	0.02146	0.02510	0.14036
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.00804	0.01183	0.12415
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.00796	0.01176	0.12421
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.00802	0.01183	0.12419

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__dffsr_1	CK	0.00000	0.00000	0.00000
	CK	0.00443	0.00436	0.00428
	(!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)	0.03068	0.03441	0.15105
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.01363	0.01745	0.12986
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.01389	0.01759	0.12980
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.01355	0.01738	0.12977
sky130_osu_sc_15T_ls__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.00443	0.00436	0.00428
	(!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)	0.03067	0.03440	0.15104
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.01362	0.01744	0.12986
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.01388	0.01758	0.12979
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.01354	0.01737	0.12976

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_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)	0.00339	0.01040	0.16964
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.01705	0.02398	0.19284
sky130_osu_sc_15T_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)	0.00339	0.01040	0.16965
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.01706	0.02399	0.19285

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_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)	0.01327	0.02200	0.18067
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.02752	0.03531	0.20413
sky130_osu_sc_15T_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)	0.01326	0.02198	0.18066
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.02751	0.03530	0.20412

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_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)	-0.00979	-0.00982	-0.00984
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	-0.00888	-0.01036	-0.01035
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	-0.00909	-0.00976	-0.00984
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.00667	0.01075	0.12442
sky130_osu_sc_15T_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)	-0.00979	-0.00982	-0.00984
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	-0.00885	-0.01033	-0.01033
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	-0.00908	-0.00975	-0.00983
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.00668	0.01075	0.12444

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_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)	0.00988	0.01011	0.00993
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.01036	0.01047	0.01044
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	0.00987	0.01004	0.00993
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.02189	0.02446	0.13599
sky130_osu_sc_15T_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)	0.00988	0.01011	0.00994
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.01034	0.01045	0.01041
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	0.00986	0.01003	0.00992
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.02188	0.02445	0.13598

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__dffsr_1	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	-0.00110	0.00576	0.16563
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.00946	0.01570	0.18447
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.00913	0.01539	0.18431
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	-0.00128	0.00558	0.16487
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.00512	0.01736	0.30186
sky130_osu_sc_15T_ls__dffsr_l	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	-0.00110	0.00576	0.16563
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.00944	0.01569	0.18446
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.00912	0.01538	0.18430
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	-0.00128	0.00558	0.16487
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.00512	0.01736	0.30187

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

Cell Name	When	Power(pJ)		
		first	mid	last

sky130_osu_sc_15T_ls__dffsr_1	**(D * RN * SN * !Q * QN)**	0.00000	0.00000	0.00000
	(D * RN * SN * !Q * QN)	0.04597	0.05299	0.26177
	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.01803	0.02615	0.18591
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.03138	0.03886	0.20603
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.03141	0.03898	0.20593
	(!D * RN * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * Q * !QN)	0.04293	0.05687	0.30524
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.02081	0.02856	0.18694
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.02457	0.03872	0.32278
sky130_osu_sc_15T_ls__dffsr_l	**(D * RN * SN * !Q * QN)**	0.00000	0.00000	0.00000
	(D * RN * SN * !Q * QN)	0.04597	0.05299	0.26178
	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.01803	0.02615	0.18591
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.03138	0.03886	0.20604
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.03141	0.03898	0.20593
	(!D * RN * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * Q * !QN)	0.04292	0.05686	0.30522
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.02081	0.02856	0.18694
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.02456	0.03871	0.32277

SKY130_OSU_SC_15T_LS__DFFSx

sky130_osu_sc_15T_ls_ff_1P95_100C.ccs
Cell Library: Process , Voltage 1.95,
Temp 100.00

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_15T_ls__dffs_1	48.22950
sky130_osu_sc_15T_ls__dffs_l	48.22950

Pin Capacitance Information

Cell Name	Pin Cap(pf)			Max Cap(pf)	
	D	SN	CK	Q	QN
sky130_osu_sc_15T_ls__dffs_1	0.00407	0.00715	0.01172	2.18356	2.18456
sky130_osu_sc_15T_ls__dffs_l	0.00407	0.00715	0.01172	1.49741	1.49180

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_15T_ls__dffs_1	0.00000	2.68193	3.36681
sky130_osu_sc_15T_ls__dffs_l	0.00000	2.79835	3.48323

Delay Information

Delay(ns) to Q rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_ls__dffs_1	CK->Q (RR)	0.18373	1.09016	14.85480
	QN->Q (FR)	0.02603	0.75231	12.12860
	SN->Q (FR)	0.14215	1.20995	16.94110
sky130_osu_sc_15T_ls__dffs_l	CK->Q (RR)	0.17912	1.14685	13.73670
	QN->Q (FR)	0.02840	0.79617	11.71070
	SN->Q (FR)	0.13790	1.26097	15.78820

Delay(ns) to Q falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_ls__dffs_1	CK->Q (RF)	0.23938	1.12905	14.63600
	QN->Q (RF)	0.02148	0.58745	9.46507
sky130_osu_sc_15T_ls__dffs_l	CK->Q (RF)	0.23993	1.20341	13.75700
	QN->Q (RF)	0.02094	0.55510	8.14033

Delay(ns) to QN rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_ls__dffs_1	CK->QN (RR)	0.21514	0.63298	6.24147
sky130_osu_sc_15T_ls__dffs_l	CK->QN (RR)	0.21583	0.70095	6.41076

Delay(ns) to QN falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_ls__dffs_1	CK->QN (RF)	0.15317	0.51672	5.14776
	SN->QN (FF)	0.11146	0.63538	7.23581
sky130_osu_sc_15T_ls__dffs_l	CK->QN (RF)	0.14477	0.50375	4.33275
	SN->QN (FF)	0.10315	0.61704	6.39132

Constraint Information

Constraints(ns) for D rising :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_15T_ls__dffs_1	hold	CK (R)	-0.04541	-0.05468	0.07677
	setup	CK (R)	0.13930	0.17498	0.44056
sky130_osu_sc_15T_ls__dffs_l	hold	CK (R)	-0.04781	-0.05468	0.07677
	setup	CK (R)	0.13889	0.17644	0.44102

Constraints(ns) for D falling :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_15T_ls__dffs_1	hold	CK (R)	-0.08650	-0.25386	-3.37278
	setup	CK (R)	0.11212	0.26557	3.90430
sky130_osu_sc_15T_ls__dffs_l	hold	CK (R)	-0.08593	-0.25386	-3.36280
	setup	CK (R)	0.11212	0.26557	3.90432

Constraints(ns) for D rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_15T_ls__dffs_1	hold	CK (R)	-0.04541	-0.05468	0.07677
	setup	CK (R)	0.13930	0.17498	0.44056
sky130_osu_sc_15T_ls__dffs_l	hold	CK (R)	-0.04781	-0.05468	0.07677
	setup	CK (R)	0.13889	0.17644	0.44102

Constraints(ns) for D falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_15T_ls__dffs_1	hold	CK (R)	-0.08650	-0.25386	-3.37278
	setup	CK (R)	0.11212	0.26557	3.90430
sky130_osu_sc_15T_ls__dffs_l	hold	CK (R)	-0.08593	-0.25386	-3.36280
	setup	CK (R)	0.11212	0.26557	3.90432

Constraints(ns) for SN rising :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_15T_ls__dffs_1	recovery	CK (R)	0.02902	0.04687	2.94163
	removal	CK (R)	-0.01304	-0.03124	-0.00159
sky130_osu_sc_15T_ls__dffs_l	recovery	CK (R)	0.02879	0.04687	2.82847
	removal	CK (R)	-0.01304	-0.03124	-0.00159

Constraints(ns) for SN rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_15T_ls__dffs_1	recovery	CK (R)	0.02902	0.04687	2.94163
	removal	CK (R)	-0.01304	-0.03124	-0.00159
sky130_osu_sc_15T_ls__dffs_l	recovery	CK (R)	0.02879	0.04687	2.82847
	removal	CK (R)	-0.01304	-0.03124	-0.00159

Constraints(ns) for SN falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_15T_ls__dffs_1	min_pulse_width	SN ()	0.10086	0.46387	13.33370
	min_pulse_width	SN ()	0.10784	0.46387	13.33370
sky130_osu_sc_15T_ls__dffs_l	min_pulse_width	SN ()	0.10086	0.46387	13.33370
	min_pulse_width	SN ()	0.10086	0.46387	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_15T_ls__dffs_1	min_pulse_width	CK ()	0.08341	0.46387	13.33370
	min_pulse_width	CK ()	0.11831	0.46387	13.33370
sky130_osu_sc_15T_ls__dffs_l	min_pulse_width	CK ()	0.07992	0.46387	13.33370
	min_pulse_width	CK ()	0.11482	0.46387	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_15T_ls__dffs_1	min_pulse_width	CK ()	0.18463	0.46387	13.33370
	min_pulse_width	CK ()	0.09388	0.46387	13.33370
sky130_osu_sc_15T_ls__dffs_l	min_pulse_width	CK ()	0.18463	0.46387	13.33370
	min_pulse_width	CK ()	0.09388	0.46387	13.33370

Power Information

Internal switching power(pJ) to Q rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__dffs_1	CK	0.00000	0.00000	0.00000
	CK	0.01325	0.01623	0.07661
	SN	-0.00161	-0.11832	-2.07575
	SN	0.02365	0.02520	0.07162
sky130_osu_sc_15T_ls__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.01170	0.01580	0.10151
	SN	-0.00161	-0.09435	-1.42348
	SN	0.02212	0.02481	0.09634

Internal switching power(pJ) to Q falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__dffs_1	CK	0.00000	0.00000	0.00000
	CK	0.01525	0.01481	0.03459
sky130_osu_sc_15T_ls__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.01375	0.01528	0.07335

Internal switching power(pJ) to QN rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__dffs_1	CK	0.00000	0.00000	0.00000
	CK	0.01523	0.01481	0.03430
sky130_osu_sc_15T_ls__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.01374	0.01528	0.07327

Internal switching power(pJ) to QN falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__dffs_1	CK	0.00000	0.00000	0.00000
	CK	0.01318	0.01623	0.07498
	SN	-0.00161	-0.11835	-2.07651
	SN	0.02361	0.02516	0.07158
sky130_osu_sc_15T_ls__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.01164	0.01574	0.10005
	SN	-0.00161	-0.09414	-1.41807
	SN	0.02207	0.02476	0.09562

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__dffs_1	CK	0.00000	0.00000	0.00000
	CK	-0.00424	-0.00431	-0.00431
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.01586	0.01990	0.13789
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.00696	0.01087	0.12365
sky130_osu_sc_15T_ls__dffs_l	CK	0.00000	0.00000	0.00000
	CK	-0.00424	-0.00431	-0.00431
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.01586	0.01990	0.13789
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.00696	0.01087	0.12365

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__dffs_1	CK	0.00000	0.00000	0.00000
	CK	0.00449	0.00443	0.00434
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.02612	0.03011	0.14829
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.01303	0.01705	0.13004
sky130_osu_sc_15T_ls__dffs_1	CK	0.00000	0.00000	0.00000
	CK	0.00449	0.00443	0.00435
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.02612	0.03011	0.14830
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.01303	0.01705	0.13004

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__dffs_1	(CK * Q * !QN) + (!CK * D * Q * !QN)	0.00000	0.00000	0.00000
	(CK * Q * !QN) + (!CK * D * Q * !QN)	-0.00716	-0.00716	-0.00719
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.00538	0.00994	0.12530
sky130_osu_sc_15T_ls__dffs_1	(CK * Q * !QN) + (!CK * D * Q * !QN)	0.00000	0.00000	0.00000
	(CK * Q * !QN) + (!CK * D * Q * !QN)	-0.00715	-0.00716	-0.00719
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.00538	0.00994	0.12528

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__dffs_1	(CK * Q * !QN) + (!CK * D * Q * !QN)	0.00000	0.00000	0.00000
	(CK * Q * !QN) + (!CK * D * Q * !QN)	0.00735	0.00730	0.00726
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.01507	0.01965	0.13410
sky130_osu_sc_15T_ls__dffs_l	(CK * Q * !QN) + (!CK * D * Q * !QN)	0.00000	0.00000	0.00000
	(CK * Q * !QN) + (!CK * D * Q * !QN)	0.00735	0.00730	0.00726
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.01507	0.01965	0.13410

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__dffs_1	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	-0.00115	0.00573	0.16573
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	-0.00147	0.00542	0.16483
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.00397	0.01650	0.30197
sky130_osu_sc_15T_ls__dffs_l	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	-0.00115	0.00573	0.16573
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	-0.00147	0.00542	0.16483
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.00397	0.01650	0.30197

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__dffs_1	(D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * SN * !Q * QN)	0.04037	0.04749	0.25821
	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.01797	0.02615	0.18599
	(!D * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * SN * Q * !QN)	0.03825	0.05270	0.29975
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	0.02089	0.02873	0.18717
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.02384	0.03843	0.32333
sky130_osu_sc_15T_ls__dffs_l	(D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * SN * !Q * QN)	0.04037	0.04749	0.25821
	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.01797	0.02616	0.18600
	(!D * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * SN * Q * !QN)	0.03825	0.05271	0.29979
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	0.02089	0.02867	0.18717
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.02384	0.03843	0.32333

SKY130_OSU_SC_15T_LS__DFFx

sky130_osu_sc_15T_ls_ff_1P95_100C.ccs
Cell Library: Process , Voltage 1.95,
Temp 100.00

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_15T_ls__dff_1	40.29300
sky130_osu_sc_15T_ls__dff_l	40.29300

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)	
	D	CK	Q	QN
sky130_osu_sc_15T_ls__dff_1	0.00423	0.01161	2.51752	2.48120
sky130_osu_sc_15T_ls__dff_l	0.00423	0.01161	1.33457	1.33885

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_15T_ls__dff_1	0.00000	2.50724	2.89003
sky130_osu_sc_15T_ls__dff_l	0.00000	2.62366	3.00644

Delay Information

Delay(ns) to Q rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_ls__dff_1	CK->Q (RR)	0.15338	1.09933	16.44190
	QN->Q (FR)	0.02260	0.70196	11.71470
sky130_osu_sc_15T_ls__dff_l	CK->Q (RR)	0.15672	1.09681	12.67660
	QN->Q (FR)	0.03203	0.85162	12.14210

Delay(ns) to Q falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_ls__dff_1	CK->Q (RF)	0.21250	1.12988	16.07410
	QN->Q (RF)	0.02122	0.61959	10.45950
sky130_osu_sc_15T_ls__dff_l	CK->Q (RF)	0.22108	1.15674	12.77670
	QN->Q (RF)	0.02107	0.53146	7.55712

Delay(ns) to QN rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_ls__dff_1	CK->QN (RR)	0.18872	0.59413	6.41338
sky130_osu_sc_15T_ls__dff_l	CK->QN (RR)	0.19738	0.68741	6.23837

Delay(ns) to QN falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_ls__dff_1	CK->QN (RF)	0.12624	0.51281	5.86864
sky130_osu_sc_15T_ls__dff_l	CK->QN (RF)	0.12227	0.45919	3.79457

Constraint Information

Constraints(ns) for D rising :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_15T_ls__dff_1	hold	CK (R)	-0.04004	-0.04687	0.07761
	setup	CK (R)	0.10387	0.14858	0.40818
sky130_osu_sc_15T_ls__dff_l	hold	CK (R)	-0.03915	-0.04687	0.08131
	setup	CK (R)	0.10541	0.15065	0.40859

Constraints(ns) for D falling :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_15T_ls__dff_1	hold	CK (R)	-0.08048	-0.25776	-3.52761
	setup	CK (R)	0.09862	0.26948	3.91858
sky130_osu_sc_15T_ls__dff_l	hold	CK (R)	-0.08222	-0.25776	-3.55076
	setup	CK (R)	0.09862	0.26948	3.91858

Constraints(ns) for CK rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_15T_ls__dff_1	min_pulse_width	CK ()	0.06945	0.46387	13.33370
	min_pulse_width	CK ()	0.11133	0.46387	13.33370
sky130_osu_sc_15T_ls__dff_l	min_pulse_width	CK ()	0.06596	0.46387	13.33370
	min_pulse_width	CK ()	0.10784	0.46387	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_15T_ls__dff_1	**min_pulse_width**	**CK ()**	0.14973	0.46387	13.33370
	min_pulse_width	**CK ()**	0.07643	0.46387	13.33370
sky130_osu_sc_15T_ls__dff_l	**min_pulse_width**	**CK ()**	0.14973	0.46387	13.33370
	min_pulse_width	**CK ()**	0.07643	0.46387	13.33370

Power Information

Internal switching power(pJ) to Q rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__dff_1	CK	0.00000	0.00000	0.00000
	CK	0.01381	0.01657	0.06727
sky130_osu_sc_15T_ls__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.01248	0.01685	0.10689

Internal switching power(pJ) to Q falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__dff_1	CK	0.00000	0.00000	0.00000
	CK	0.01547	0.01670	0.06080
sky130_osu_sc_15T_ls__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.01401	0.01459	0.05976

Internal switching power(pJ) to QN rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__dff_1	CK	0.00000	0.00000	0.00000
	CK	0.01545	0.01671	0.05998
sky130_osu_sc_15T_ls__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.01400	0.01458	0.05957

Internal switching power(pJ) to QN falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__dff_1	CK	0.00000	0.00000	0.00000
	CK	0.01376	0.01657	0.06736
sky130_osu_sc_15T_ls__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.01241	0.01680	0.10521

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__dff_1	CK	0.00000	0.00000	0.00000
	CK	-0.00344	-0.00418	-0.00424
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.01464	0.01878	0.13752
sky130_osu_sc_15T_ls__dff_l	CK	0.00000	0.00000	0.00000
	CK	-0.00343	-0.00418	-0.00424
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.01465	0.01879	0.13753

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__dff_1	CK	0.00000	0.00000	0.00000
	CK	0.00426	0.00430	0.00429
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.02695	0.03088	0.14939
sky130_osu_sc_15T_ls__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.00426	0.00430	0.00430
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.02696	0.03089	0.14940

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__dff_1	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	-0.00115	0.00575	0.16574
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	-0.00145	0.00546	0.16486
sky130_osu_sc_15T_ls__dff_l	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	-0.00115	0.00575	0.16574
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	-0.00145	0.00546	0.16486

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__dff_1	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.01786	0.02605	0.18590
	(D * !Q * QN)	0.00000	0.00000	0.00000
	(D * !Q * QN)	0.03914	0.04640	0.25886
	(!D * Q * !QN)	0.00000	0.00000	0.00000
	(!D * Q * !QN)	0.03885	0.05363	0.30545
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.02078	0.02852	0.18705
sky130_osu_sc_15T_ls__dff_l	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.01786	0.02606	0.18590
	(D * !Q * QN)	0.00000	0.00000	0.00000
	(D * !Q * QN)	0.03915	0.04640	0.25886
	(!D * Q * !QN)	0.00000	0.00000	0.00000
	(!D * Q * !QN)	0.03886	0.05365	0.30546
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.02078	0.02852	0.18705

SKY130_OSU_SC_15T_LS__INVx

sky130_osu_sc_15T_ls_ff_1P95_100C.ccs
Cell Library: Process , Voltage 1.95,
Temp 100.00

Truth Table

INPUT	OUTPUT
A	Y
0	1
1	0

Footprint

Cell Name	Area
sky130_osu_sc_15T_ls__inv_1	5.49450
sky130_osu_sc_15T_ls__inv_10	27.47250
sky130_osu_sc_15T_ls__inv_2	7.93650
sky130_osu_sc_15T_ls__inv_3	10.37850
sky130_osu_sc_15T_ls__inv_4	12.82050
sky130_osu_sc_15T_ls__inv_6	17.70450
sky130_osu_sc_15T_ls__inv_8	22.58850
sky130_osu_sc_15T_ls__inv_l	5.49450

Pin Capacitance Information

Cell Name	Pin Cap(pf)	Max Cap(pf)
	A	Y
sky130_osu_sc_15T_ls__inv_1	0.00409	2.26629
sky130_osu_sc_15T_ls__inv_10	0.03787	20.59724
sky130_osu_sc_15T_ls__inv_2	0.00776	4.47939
sky130_osu_sc_15T_ls__inv_3	0.01156	6.38139
sky130_osu_sc_15T_ls__inv_4	0.01526	8.57648
sky130_osu_sc_15T_ls__inv_6	0.02287	12.67442
sky130_osu_sc_15T_ls__inv_8	0.03037	16.84355
sky130_osu_sc_15T_ls__inv_l	0.00311	1.27109

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_15T_ls__inv_1	0.00000	0.36863	0.57483
sky130_osu_sc_15T_ls__inv_10	0.00000	3.65293	5.69961
sky130_osu_sc_15T_ls__inv_2	0.00000	0.73059	1.13992
sky130_osu_sc_15T_ls__inv_3	0.00000	1.09922	1.71475
sky130_osu_sc_15T_ls__inv_4	0.00000	1.46117	2.27985
sky130_osu_sc_15T_ls__inv_6	0.00000	2.19176	3.41977
sky130_osu_sc_15T_ls__inv_8	0.00000	2.92235	4.55969
sky130_osu_sc_15T_ls__inv_l	0.00000	0.42684	0.45098

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_ls__inv_1	**A->Y (FR)**	0.02154	0.63383	10.25760
sky130_osu_sc_15T_ls__inv_10	**A->Y (FR)**	0.03206	0.41960	10.22820
sky130_osu_sc_15T_ls__inv_2	**A->Y (FR)**	0.01785	0.54506	10.18920
sky130_osu_sc_15T_ls__inv_3	**A->Y (FR)**	0.01977	0.50786	10.16120
sky130_osu_sc_15T_ls__inv_4	**A->Y (FR)**	0.02033	0.47881	10.12970
sky130_osu_sc_15T_ls__inv_6	**A->Y (FR)**	0.02326	0.44655	10.15120
sky130_osu_sc_15T_ls__inv_8	**A->Y (FR)**	0.02731	0.42952	10.21290
sky130_osu_sc_15T_ls__inv_l	**A->Y (FR)**	0.02776	0.71673	10.09680

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_ls__inv_1	**A->Y (RF)**	0.01908	0.52390	8.56921
sky130_osu_sc_15T_ls__inv_10	**A->Y (RF)**	0.02883	0.30249	8.49328
sky130_osu_sc_15T_ls__inv_2	**A->Y (RF)**	0.01585	0.43654	8.56373
sky130_osu_sc_15T_ls__inv_3	**A->Y (RF)**	0.01752	0.40018	8.57271
sky130_osu_sc_15T_ls__inv_4	**A->Y (RF)**	0.01756	0.36907	8.55776
sky130_osu_sc_15T_ls__inv_6	**A->Y (RF)**	0.02136	0.33601	8.56550
sky130_osu_sc_15T_ls__inv_8	**A->Y (RF)**	0.02489	0.31760	8.59696
sky130_osu_sc_15T_ls__inv_l	**A->Y (RF)**	0.01932	0.46437	6.49634

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__inv_1	A	0.00000	0.00000	0.00000
	A	0.00651	0.00962	0.04105
sky130_osu_sc_15T_ls__inv_10	A	0.00000	0.00000	0.00000
	A	0.05745	0.09813	0.39313
sky130_osu_sc_15T_ls__inv_2	A	0.00000	0.00000	0.00000
	A	0.01155	0.01858	0.07921
sky130_osu_sc_15T_ls__inv_3	A	0.00000	0.00000	0.00000
	A	0.01772	0.02914	0.11887
sky130_osu_sc_15T_ls__inv_4	A	0.00000	0.00000	0.00000
	A	0.02281	0.03766	0.15702
sky130_osu_sc_15T_ls__inv_6	A	0.00000	0.00000	0.00000
	A	0.03401	0.06172	0.23514
sky130_osu_sc_15T_ls__inv_8	A	0.00000	0.00000	0.00000
	A	0.04541	0.08027	0.31279
sky130_osu_sc_15T_ls__inv_l	A	0.00000	0.00000	0.00000
	A	0.00491	0.00758	0.04040

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__inv_1	**A**	0.00000	0.00000	0.00000
	A	-0.00144	0.00080	0.02500
sky130_osu_sc_15T_ls__inv_10	**A**	0.00000	0.00000	0.00000
	A	-0.01769	0.01459	0.24466
sky130_osu_sc_15T_ls__inv_2	**A**	0.00000	0.00000	0.00000
	A	-0.00433	0.00100	0.04832
sky130_osu_sc_15T_ls__inv_3	**A**	0.00000	0.00000	0.00000
	A	-0.00570	0.00208	0.07278
sky130_osu_sc_15T_ls__inv_4	**A**	0.00000	0.00000	0.00000
	A	-0.00848	0.00290	0.09641
sky130_osu_sc_15T_ls__inv_6	**A**	0.00000	0.00000	0.00000
	A	-0.01289	0.00676	0.14525
sky130_osu_sc_15T_ls__inv_8	**A**	0.00000	0.00000	0.00000
	A	-0.01628	0.00831	0.19150
sky130_osu_sc_15T_ls__inv_l	**A**	0.00000	0.00000	0.00000
	A	-0.00092	0.00117	0.02864

SKY130_OSU_SC_15T_LS__MUX2

sky130_osu_sc_15T_ls_ff_1P95_100C.ccs
Cell Library: Process , Voltage 1.95,
Temp 100.00

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_15T_ls__mux2_1	15.26250

Pin Capacitance Information

Cell Name	Pin Cap(pf)			Max Cap(pf)
	A0	A1	S0	Y
sky130_osu_sc_15T_ls__mux2_1	0.21182	0.21173	0.00836	0.20774

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_15T_ls__mux2_1	0.00000	0.74414	0.74414

Delay Information

Delay(ns) to Y rising (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_15T_ls__mux2_1	A0->Y (RR)	-	0.01080	0.10389	0.68431
	A1->Y (RR)	-	0.01178	0.10443	0.68262
	S0->Y (RR)	(!A0 * A1)	0.03750	0.14535	0.19417
	S0->Y (FR)	(A0 * !A1)	0.02846	0.25154	2.21541

Delay(ns) to Y falling (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_15T_ls__mux2_1	A0->Y (FF)	-	0.01064	0.11624	0.75869
	A1->Y (FF)	-	0.01007	0.11524	0.75646
	S0->Y (FF)	(!A0 * A1)	0.04556	0.25285	1.78104
	S0->Y (RF)	(A0 * !A1)	0.02229	0.15956	0.78773

Power Information

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

Cell Name	Input	When	Power(pJ)		
			first	mid	last
sky130_osu_sc_15T_ls__mux2_1	A0	-	0.00000	0.00000	0.00000
	A0	-	-0.00670	-0.00672	-0.00671
	A1	-	0.00000	0.00000	0.00000
	A1	-	-0.00443	-0.00443	-0.00443
	S0	(A0 * !A1)	0.00000	0.00000	0.00000
	S0	(A0 * !A1)	0.00767	0.01653	0.17607
	S0	(!A0 * A1)	0.00000	0.00000	0.00000
	S0	(!A0 * A1)	-0.00454	0.00325	0.16207

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

Cell Name	Input	When	Power(pJ)		
			first	mid	last
sky130_osu_sc_15T_ls__mux2_1	A0	-	0.00000	0.00000	0.00000
	A0	-	0.00671	0.00672	0.00672
	A1	-	0.00000	0.00000	0.00000
	A1	-	0.00445	0.00446	0.00445
	S0	(A0 * !A1)	0.00000	0.00000	0.00000
	S0	(A0 * !A1)	0.00115	0.00949	0.16891
	S0	(!A0 * A1)	0.00000	0.00000	0.00000
	S0	(!A0 * A1)	0.01781	0.02589	0.18430

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__mux2_1	(A1 * S0 * Y) + (!A1 * S0 * !Y)	0.00000	0.00000	0.00000
	(A1 * S0 * Y) + (!A1 * S0 * !Y)	-0.00159	-0.00159	-0.00159

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__mux2_1	(A1 * S0 * Y) + (!A1 * S0 * !Y)	0.00000	0.00000	0.00000
	(A1 * S0 * Y) + (!A1 * S0 * !Y)	0.00160	0.00159	0.00160

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__mux2_1	(A0 * !S0 * Y) + (!A0 * !S0 * !Y)	0.00000	0.00000	0.00000
	(A0 * !S0 * Y) + (!A0 * !S0 * !Y)	-0.00191	-0.00191	-0.00191

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__mux2_1	(A0 * !S0 * Y) + (!A0 * !S0 * !Y)	0.00000	0.00000	0.00000
	(A0 * !S0 * Y) + (!A0 * !S0 * !Y)	0.00191	0.00191	0.00191

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__mux2_1	(A0 * A1 * Y)	0.00000	0.00000	0.00000
	(A0 * A1 * Y)	-0.00172	0.00643	0.16539
	(!A0 * !A1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !Y)	-0.00169	0.00641	0.16570

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__mux2_1	(A0 * A1 * Y)	0.00000	0.00000	0.00000
	(A0 * A1 * Y)	0.01353	0.02181	0.18051
	(!A0 * !A1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !Y)	0.01196	0.02083	0.18007

SKY130_OSU_SC_15T_LS__NAND2x

sky130_osu_sc_15T_ls_ff_1P95_100C.ccs
Cell Library: Process , Voltage 1.95,
Temp 100.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_15T_ls__nand2_1	7.93650
sky130_osu_sc_15T_ls__nand2_l	7.93650

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	B	Y
sky130_osu_sc_15T_ls__nand2_1	0.00409	0.00408	1.81683
sky130_osu_sc_15T_ls__nand2_l	0.00311	0.00312	1.26074

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_15T_ls__nand2_1	0.00000	0.36030	1.13992
sky130_osu_sc_15T_ls__nand2_l	0.00000	0.40871	0.79887

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_ls__nand2_1	A->Y (FR)	0.02238	0.59279	9.05250
	B->Y (FR)	0.02633	0.58812	8.90735
sky130_osu_sc_15T_ls__nand2_l	A->Y (FR)	0.02875	0.71589	10.05900
	B->Y (FR)	0.03468	0.72037	10.03680

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_ls__nand2_1	A->Y (RF)	0.02676	0.60598	9.34161
	B->Y (RF)	0.03060	0.58285	8.93423
sky130_osu_sc_15T_ls__nand2_l	A->Y (RF)	0.02644	0.58326	8.11060
	B->Y (RF)	0.02975	0.55904	7.67902

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__nand2_1	A	0.00000	0.00000	0.00000
	A	0.00697	0.00992	0.04055
	B	0.00000	0.00000	0.00000
	B	0.00900	0.01169	0.04327
sky130_osu_sc_15T_ls__nand2_l	A	0.00000	0.00000	0.00000
	A	0.00520	0.00759	0.03525
	B	0.00000	0.00000	0.00000
	B	0.00672	0.00884	0.03769

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__nand2_1	A	0.00000	0.00000	0.00000
	A	-0.00095	0.00092	0.02439
	B	0.00000	0.00000	0.00000
	B	-0.00092	0.00037	0.02200
sky130_osu_sc_15T_ls__nand2_l	A	0.00000	0.00000	0.00000
	A	-0.00064	0.00084	0.02440
	B	0.00000	0.00000	0.00000
	B	-0.00063	0.00062	0.02272

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__nand2_1	(!B * Y)	0.00000	0.00000	0.00000
	(!B * Y)	-0.00485	-0.00487	-0.00488
sky130_osu_sc_15T_ls__nand2_l	(!B * Y)	0.00000	0.00000	0.00000
	(!B * Y)	-0.00342	-0.00341	-0.00344

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__nand2_1	(!B * Y)	0.00000	0.00000	0.00000
	(!B * Y)	0.00487	0.00498	0.00489
sky130_osu_sc_15T_ls__nand2_l	(!B * Y)	0.00000	0.00000	0.00000
	(!B * Y)	0.00344	0.00349	0.00345

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__nand2_1	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00449	-0.00451	-0.00449
sky130_osu_sc_15T_ls__nand2_l	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00317	-0.00319	-0.00317

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__nand2_1	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00466	0.00454	0.00451
sky130_osu_sc_15T_ls__nand2_l	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00331	0.00324	0.00319

SKY130_OSU_SC_15T_LS__NOR2x

sky130_osu_sc_15T_ls_ff_1P95_100C.ccs
Cell Library: Process , Voltage 1.95,
Temp 100.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_15T_ls__nor2_1	7.93650
sky130_osu_sc_15T_ls__nor2_l	7.93650

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	B	Y
sky130_osu_sc_15T_ls__nor2_1	0.00407	0.00435	1.26668
sky130_osu_sc_15T_ls__nor2_l	0.00302	0.00333	0.80524

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_15T_ls__nor2_1	0.00000	0.31491	0.57482
sky130_osu_sc_15T_ls__nor2_l	0.00000	0.40998	0.89923

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_ls__nor2_1	A->Y (FR)	0.04440	0.70433	9.65468
	B->Y (FR)	0.03272	0.72124	10.08170
sky130_osu_sc_15T_ls__nor2_l	A->Y (FR)	0.05212	0.79407	9.61999
	B->Y (FR)	0.04137	0.81891	10.14560

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_ls__nor2_1	A->Y (RF)	0.02712	0.42744	5.78293
	B->Y (RF)	0.02060	0.41616	5.76088
sky130_osu_sc_15T_ls__nor2_l	A->Y (RF)	0.02514	0.39197	4.60641
	B->Y (RF)	0.02049	0.38233	4.58237

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__nor2_1	A	0.00000	0.00000	0.00000
	A	0.00988	0.01106	0.04124
	B	0.00000	0.00000	0.00000
	B	0.00711	0.00979	0.04709
sky130_osu_sc_15T_ls__nor2_1	A	0.00000	0.00000	0.00000
	A	0.00704	0.00829	0.04127
	B	0.00000	0.00000	0.00000
	B	0.00530	0.00766	0.04337

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__nor2_1	A	0.00000	0.00000	0.00000
	A	0.00105	0.00283	0.03434
	B	0.00000	0.00000	0.00000
	B	-0.00105	0.00126	0.03115
sky130_osu_sc_15T_ls__nor2_1	A	0.00000	0.00000	0.00000
	A	0.00064	0.00241	0.03592
	B	0.00000	0.00000	0.00000
	B	-0.00064	0.00153	0.03264

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__nor2_1	(B * !Y)	0.00000	0.00000	0.00000
	(B * !Y)	-0.00349	-0.00426	-0.00428
sky130_osu_sc_15T_ls__nor2_l	(B * !Y)	0.00000	0.00000	0.00000
	(B * !Y)	-0.00244	-0.00290	-0.00291

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__nor2_1	(B * !Y)	0.00000	0.00000	0.00000
	(B * !Y)	0.00427	0.00431	0.00430
sky130_osu_sc_15T_ls__nor2_l	(B * !Y)	0.00000	0.00000	0.00000
	(B * !Y)	0.00291	0.00294	0.00292

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__nor2_1	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	-0.00168	-0.00171	-0.00168
sky130_osu_sc_15T_ls__nor2_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	-0.00117	-0.00119	-0.00117

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__nor2_1	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00177	0.00178	0.00171
sky130_osu_sc_15T_ls__nor2_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00123	0.00124	0.00119

SKY130_OSU_SC_15T_LS__OAI21

sky130_osu_sc_15T_ls_ff_1P95_100C.ccs
Cell Library: Process , Voltage 1.95,
Temp 100.00

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_15T_ls__oai21_l	10.37850

Pin Capacitance Information

Cell Name	Pin Cap(pf)			Max Cap(pf)
	A0	A1	B0	Y
sky130_osu_sc_15T_ls__oai21_l	0.00411	0.00420	0.00350	1.21301

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_15T_ls__oai21_l	0.00000	0.36270	0.97751

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_ls__oai21_l	A0->Y (FR)	0.04606	0.73544	10.01030
	A1->Y (FR)	0.06076	0.72475	9.61211
	B0->Y (FR)	0.03292	0.67497	9.33583

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_ls__oai21_l	A0->Y (RF)	0.03741	0.51058	6.79458
	A1->Y (RF)	0.04583	0.50769	6.61491
	B0->Y (RF)	0.02870	0.55308	7.58456

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__oai21_l	A0	0.00000	0.00000	0.00000
	A0	0.01008	0.01240	0.04376
	A1	0.00000	0.00000	0.00000
	A1	0.01281	0.01369	0.04101
	B0	0.00579	0.00798	0.03820

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__oai21_l	A0	0.00000	0.00000	0.00000
	A0	0.00020	0.00131	0.02480
	A1	0.00000	0.00000	0.00000
	A1	0.00236	0.00316	0.02778
	B0	0.00082	0.00261	0.02772

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__oai21_l	(A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * !Y)	-0.00168	-0.00170	-0.00168
	(A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * Y)	-0.00428	-0.00433	-0.00431
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00437	-0.00438	-0.00437

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__oai21_l	(A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * !Y)	0.00178	0.00179	0.00172
	(A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * Y)	0.00428	0.00433	0.00431
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00450	0.00441	0.00439

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__oai21_l	(A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * B0 * !Y)	-0.00338	-0.00417	-0.00419
	(A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * Y)	-0.00423	-0.00430	-0.00426
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	-0.00431	-0.00433	-0.00432

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__oai21_l	(A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * B0 * !Y)	0.00419	0.00423	0.00421
	(A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * Y)	0.00424	0.00430	0.00426
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	0.00445	0.00434	0.00434

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__oai21_l	(!A0 * !A1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * Y)	-0.00351	-0.00352	-0.00357

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__oai21_l	(!A0 * !A1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * Y)	0.00357	0.00358	0.00359

SKY130_OSU_SC_15T_LS__OAI22

sky130_osu_sc_15T_ls_ff_1P95_100C.ccs
Cell Library: Process , Voltage 1.95,
Temp 100.00

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_15T_ls__oai22_l	12.82050

Pin Capacitance Information

Cell Name	Pin Cap(pf)				Max Cap(pf)
	A0	A1	B0	B1	Y
sky130_osu_sc_15T_ls__oai22_l	0.00399	0.00420	0.00431	0.00422	1.24599

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_15T_ls__oai22_l	0.00000	0.45492	1.14022

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_ls__oai22_l	A0->Y (FR)	0.06535	0.72179	9.57462
	A1->Y (FR)	0.05368	0.73769	10.00630
	B0->Y (FR)	0.03603	0.72120	9.99826
	B1->Y (FR)	0.04868	0.70536	9.56754

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_ls__oai22_l	A0->Y (RF)	0.06599	0.55322	7.01303
	A1->Y (RF)	0.05241	0.53511	6.94888
	B0->Y (RF)	0.04443	0.57658	7.74884
	B1->Y (RF)	0.05847	0.59889	7.86337

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__oai22_l	A0	0.01695	0.01780	0.04323
	A1	0.01258	0.01473	0.04943
	B0	0.00754	0.00997	0.04399
	B1	0.01047	0.01144	0.03816

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__oai22_l	A0	0.00167	0.00249	0.02745
	A1	-0.00035	0.00075	0.02486
	B0	-0.00034	0.00160	0.02872
	B1	0.00169	0.00302	0.03013

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__oai22_l	(A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * !Y)	-0.00348	-0.00425	-0.00428
	(A1 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * B1 * !Y)	-0.00348	-0.00425	-0.00428
	(A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * !B1 * Y)	-0.00424	-0.00431	-0.00427
	(!A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * !B1 * Y)	-0.00432	-0.00435	-0.00433

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__oai22_l	(A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * !Y)	0.00427	0.00433	0.00430
	(A1 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * B1 * !Y)	0.00427	0.00433	0.00430
	(A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * !B1 * Y)	0.00425	0.00431	0.00427
	(!A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * !B1 * Y)	0.00447	0.00435	0.00435

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__oai22_l	(A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * B0 * !Y)	-0.00166	-0.00170	-0.00166
	(A0 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * B1 * !Y)	-0.00166	-0.00169	-0.00166
	(A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * !B1 * Y)	-0.00420	-0.00426	-0.00423
	(!A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * !B1 * Y)	-0.00429	-0.00432	-0.00430

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__oai22_l	(A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * B0 * !Y)	0.00175	0.00177	0.00169
	(A0 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * B1 * !Y)	0.00176	0.00177	0.00169
	(A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * !B1 * Y)	0.00421	0.00426	0.00423
	(!A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * !B1 * Y)	0.00444	0.00432	0.00432

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__oai22_l	(A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * B1 * !Y)	-0.00164	-0.00168	-0.00165
	(A0 * !A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B1 * !Y)	-0.00163	-0.00168	-0.00164
	(!A0 * !A1 * B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B1 * Y)	-0.00471	-0.00478	-0.00476
	(!A0 * !A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B1 * Y)	-0.00470	-0.00473	-0.00480

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__oai22_l	(A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * B1 * !Y)	0.00173	0.00175	0.00167
	(A0 * !A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B1 * !Y)	0.00173	0.00174	0.00168
	(!A0 * !A1 * B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B1 * Y)	0.00480	0.00481	0.00476
	(!A0 * !A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B1 * Y)	0.00479	0.00483	0.00482

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__oai22_l	(A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * !Y)	-0.00342	-0.00418	-0.00421
	(A0 * !A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B0 * !Y)	-0.00341	-0.00418	-0.00420
	(!A0 * !A1 * B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B0 * Y)	-0.00481	-0.00488	-0.00487
	(!A0 * !A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B0 * Y)	-0.00480	-0.00479	-0.00489

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__oai22_l	(A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * !Y)	0.00419	0.00423	0.00422
	(A0 * !A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B0 * !Y)	0.00419	0.00423	0.00423
	(!A0 * !A1 * B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B0 * Y)	0.00490	0.00493	0.00487
	(!A0 * !A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B0 * Y)	0.00490	0.00490	0.00491

SKY130_OSU_SC_15T_LS__OR2x

sky130_osu_sc_15T_ls_ff_1P95_100C.ccs
Cell Library: Process , Voltage 1.95,
Temp 100.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_15T_ls__or2_1	10.37850
sky130_osu_sc_15T_ls__or2_2	12.82050
sky130_osu_sc_15T_ls__or2_4	17.70450
sky130_osu_sc_15T_ls__or2_8	27.47250
sky130_osu_sc_15T_ls__or2_l	10.37850

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	B	Y
sky130_osu_sc_15T_ls__or2_1	0.00443	0.00419	2.37504
sky130_osu_sc_15T_ls__or2_2	0.00443	0.00419	4.61482
sky130_osu_sc_15T_ls__or2_4	0.00443	0.00420	8.88420
sky130_osu_sc_15T_ls__or2_8	0.00444	0.00421	16.89592
sky130_osu_sc_15T_ls__or2_l	0.00343	0.00317	1.33432

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_15T_ls__or2_1	0.00000	0.58058	0.89608
sky130_osu_sc_15T_ls__or2_2	0.00000	0.84097	1.46119
sky130_osu_sc_15T_ls__or2_4	0.00000	1.36689	2.60113
sky130_osu_sc_15T_ls__or2_8	0.00000	2.41874	4.88100
sky130_osu_sc_15T_ls__or2_l	0.00000	0.84903	1.30194

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_ls__or2_1	A->Y (RR)	0.05781	0.46048	6.15662
	B->Y (RR)	0.04916	0.43426	6.04421
sky130_osu_sc_15T_ls__or2_2	A->Y (RR)	0.06399	0.40137	6.08572
	B->Y (RR)	0.05499	0.37657	5.96065
sky130_osu_sc_15T_ls__or2_4	A->Y (RR)	0.08341	0.39815	6.26764
	B->Y (RR)	0.07421	0.37723	6.13637
sky130_osu_sc_15T_ls__or2_8	A->Y (RR)	0.12285	0.44380	6.50279
	B->Y (RR)	0.11350	0.42673	6.37797
sky130_osu_sc_15T_ls__or2_l	A->Y (RR)	0.06052	0.51692	5.60970
	B->Y (RR)	0.05322	0.49232	5.44863

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_ls__or2_1	A->Y (FF)	0.08223	0.56056	7.42970
	B->Y (FF)	0.06692	0.56261	7.74437
sky130_osu_sc_15T_ls__or2_2	A->Y (FF)	0.09615	0.52122	7.44804
	B->Y (FF)	0.08096	0.52709	7.73986
sky130_osu_sc_15T_ls__or2_4	A->Y (FF)	0.13489	0.54031	7.64404
	B->Y (FF)	0.11976	0.55320	7.91691
sky130_osu_sc_15T_ls__or2_8	A->Y (FF)	0.21574	0.62010	7.76511
	B->Y (FF)	0.20070	0.63975	8.01941
sky130_osu_sc_15T_ls__or2_l	A->Y (FF)	0.09210	0.54875	6.05732
	B->Y (FF)	0.07527	0.55748	6.39033

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__or2_1	A	0.00000	0.00000	0.00000
	A	0.00718	0.01131	0.10239
	B	0.00000	0.00000	0.00000
	B	0.00523	0.01097	0.11463
sky130_osu_sc_15T_ls__or2_2	A	0.00000	0.00000	0.00000
	A	0.01249	0.01696	0.10983
	B	0.00000	0.00000	0.00000
	B	0.01041	0.01647	0.12074
sky130_osu_sc_15T_ls__or2_4	A	0.00000	0.00000	0.00000
	A	0.02456	0.02946	0.12299
	B	0.00000	0.00000	0.00000
	B	0.02242	0.02874	0.13339
sky130_osu_sc_15T_ls__or2_8	A	0.00000	0.00000	0.00000
	A	0.05484	0.05648	0.14743
	B	0.00000	0.00000	0.00000
	B	0.05250	0.05606	0.15720
sky130_osu_sc_15T_ls__or2_l	A	0.00000	0.00000	0.00000
	A	0.00521	0.00908	0.08020
	B	0.00000	0.00000	0.00000
	B	0.00393	0.00852	0.08282

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__or2_1	A	0.00000	0.00000	0.00000
	A	0.01623	0.01976	0.10867
	B	0.00000	0.00000	0.00000
	B	0.01310	0.02029	0.14738
sky130_osu_sc_15T_ls__or2_2	A	0.00000	0.00000	0.00000
	A	0.02111	0.02396	0.11286
	B	0.00000	0.00000	0.00000
	B	0.01797	0.02397	0.14946
sky130_osu_sc_15T_ls__or2_4	A	0.00000	0.00000	0.00000
	A	0.03634	0.03467	0.12162
	B	0.00000	0.00000	0.00000
	B	0.03320	0.03503	0.15480
sky130_osu_sc_15T_ls__or2_8	A	0.00000	0.00000	0.00000
	A	0.08011	0.06098	0.14142
	B	0.00000	0.00000	0.00000
	B	0.07723	0.06024	0.17000
sky130_osu_sc_15T_ls__or2_l	A	0.00000	0.00000	0.00000
	A	0.01208	0.01514	0.09509
	B	0.00000	0.00000	0.00000
	B	0.00997	0.01502	0.11339

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__or2_1	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00350	-0.00428	-0.00431
sky130_osu_sc_15T_ls__or2_2	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00350	-0.00428	-0.00431
sky130_osu_sc_15T_ls__or2_4	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00350	-0.00428	-0.00430
sky130_osu_sc_15T_ls__or2_8	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00349	-0.00428	-0.00430
sky130_osu_sc_15T_ls__or2_1	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00243	-0.00293	-0.00294

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__or2_1	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00429	0.00432	0.00433
sky130_osu_sc_15T_ls__or2_2	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00430	0.00433	0.00433
sky130_osu_sc_15T_ls__or2_4	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00430	0.00433	0.00433
sky130_osu_sc_15T_ls__or2_8	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00431	0.00434	0.00434
sky130_osu_sc_15T_ls__or2_1	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00294	0.00297	0.00296

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__or2_1	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00168	-0.00171	-0.00169
sky130_osu_sc_15T_ls__or2_2	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00168	-0.00170	-0.00168
sky130_osu_sc_15T_ls__or2_4	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00168	-0.00170	-0.00168
sky130_osu_sc_15T_ls__or2_8	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00167	-0.00170	-0.00168
sky130_osu_sc_15T_ls__or2_l	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00119	-0.00121	-0.00120

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__or2_1	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00178	0.00180	0.00172
sky130_osu_sc_15T_ls__or2_2	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00178	0.00180	0.00172
sky130_osu_sc_15T_ls__or2_4	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00178	0.00180	0.00172
sky130_osu_sc_15T_ls__or2_8	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00179	0.00181	0.00173
sky130_osu_sc_15T_ls__or2_l	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00126	0.00128	0.00122

SKY130_OSU_SC_15T_LS__TBUFIx

sky130_osu_sc_15T_ls_ff_1P95_100C.ccs
Cell Library: Process , Voltage 1.95,
Temp 100.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_15T_ls__tbufi_1	10.37850
sky130_osu_sc_15T_ls__tbufi_l	10.37850

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	OE	Y
sky130_osu_sc_15T_ls__tbufi_1	0.00434	0.00560	1.27788
sky130_osu_sc_15T_ls__tbufi_l	0.00333	0.00435	0.80151

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_15T_ls__tbufi_1	0.00000	0.43645	1.14964
sky130_osu_sc_15T_ls__tbufi_l	0.00000	0.60347	0.85367

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_ls__tbufi_1	A->Y (FR)	0.03135	0.71640	10.04840
	OE->Y (FR)	0.03854	0.36466	5.34284
	OE->Y (RR)	0.06173	0.53111	6.14669
sky130_osu_sc_15T_ls__tbufi_l	A->Y (FR)	0.04009	0.81215	10.08440
	OE->Y (FR)	0.04420	0.36451	5.34272
	OE->Y (RR)	0.06711	0.60016	5.75082

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_ls__tbufi_1	A->Y (RF)	0.02627	0.52672	7.33045
	OE->Y (FF)	0.03901	0.36466	5.34283
	OE->Y (RF)	0.02490	0.49394	6.81024
sky130_osu_sc_15T_ls__tbufi_l	A->Y (RF)	0.02631	0.48197	5.82673
	OE->Y (FF)	0.04487	0.36450	5.34269
	OE->Y (RF)	0.02464	0.44732	5.28890

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__tbufi_1	A	0.00000	0.00000	0.00000
	A	0.00670	0.00904	0.04081
	OE	0.00000	0.00000	0.00000
	OE	0.00709	0.01469	0.15596
sky130_osu_sc_15T_ls__tbufi_l	A	0.00000	0.00000	0.00000
	A	0.00501	0.00675	0.03766
	OE	0.00000	0.00000	0.00000
	OE	0.00501	0.01161	0.12741

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__tbufi_1	A	0.00000	0.00000	0.00000
	A	-0.00107	0.00084	0.02621
	OE	0.00000	0.00000	0.00000
	OE	0.00432	0.01245	0.17039
sky130_osu_sc_15T_ls__tbufi_l	A	0.00000	0.00000	0.00000
	A	-0.00064	0.00116	0.02783
	OE	0.00000	0.00000	0.00000
	OE	0.00293	0.01007	0.14112

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__tbufi_1	(!OE * Y)	0.00000	0.00000	0.00000
	(!OE * Y)	-0.00316	-0.00321	-0.00317
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	-0.00264	-0.00267	-0.00265
sky130_osu_sc_15T_ls__tbufi_l	(!OE * Y)	0.00000	0.00000	0.00000
	(!OE * Y)	-0.00235	-0.00239	-0.00236
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	-0.00201	-0.00202	-0.00201

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__tbufi_1	(!OE * Y)	0.00000	0.00000	0.00000
	(!OE * Y)	0.00316	0.00321	0.00317
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	0.00270	0.00274	0.00268
sky130_osu_sc_15T_ls__tbufi_l	(!OE * Y)	0.00000	0.00000	0.00000
	(!OE * Y)	0.00235	0.00239	0.00236
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	0.00205	0.00207	0.00203

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__tbufi_1	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00266	0.01135	0.17285
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00230	0.01098	0.17246
sky130_osu_sc_15T_ls__tbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00178	0.00937	0.14216
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00156	0.00900	0.14186

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__tbufi_1	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00799	0.01688	0.17771
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00800	0.01686	0.17780
sky130_osu_sc_15T_ls__tbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00610	0.01356	0.14579
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00616	0.01359	0.14586

SKY130_OSU_SC_15T_LS__TNBUFIx

sky130_osu_sc_15T_ls_ff_1P95_100C.ccs
Cell Library: Process , Voltage 1.95,
Temp 100.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_15T_ls__tnbufi_1	10.37850
sky130_osu_sc_15T_ls__tnbufi_l	10.37850

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	OE	Y
sky130_osu_sc_15T_ls__tnbufi_1	0.00433	0.00666	1.27794
sky130_osu_sc_15T_ls__tnbufi_l	0.00333	0.00489	0.80144

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_15T_ls__tnbufi_1	0.00000	0.57391	0.73725
sky130_osu_sc_15T_ls__tnbufi_l	0.00000	0.58738	0.90196

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_ls__tnbufi_1	A->Y (FR)	0.03154	0.71634	10.04770
	OE->Y (RR)	0.02567	0.36521	5.34340
	OE->Y (FR)	0.04179	0.69578	9.52323
sky130_osu_sc_15T_ls__tnbufi_l	A->Y (FR)	0.04028	0.81196	10.08280
	OE->Y (RR)	0.02436	0.36516	5.34335
	OE->Y (FR)	0.05007	0.78479	9.37806

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_ls__tnbufi_1	A->Y (RF)	0.02588	0.52660	7.33075
	OE->Y (RF)	0.02541	0.36523	5.34339
	OE->Y (FF)	0.04334	0.48056	5.82546
sky130_osu_sc_15T_ls__tnbufi_l	A->Y (RF)	0.02585	0.48179	5.82674
	OE->Y (RF)	0.02410	0.36519	5.34342
	OE->Y (FF)	0.04731	0.48270	5.11512

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__tnbufi_1	A	0.00000	0.00000	0.00000
	A	0.00688	0.00921	0.04104
	OE	0.00000	0.00000	0.00000
	OE	0.01729	0.02676	0.18654
sky130_osu_sc_15T_ls__tnbufi_l	A	0.00000	0.00000	0.00000
	A	0.00521	0.00694	0.03790
	OE	0.00000	0.00000	0.00000
	OE	0.01257	0.02028	0.15056

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__tnbufi_1	A	0.00000	0.00000	0.00000
	A	-0.00134	0.00059	0.02598
	OE	0.00000	0.00000	0.00000
	OE	0.01481	0.02356	0.15922
sky130_osu_sc_15T_ls__tnbufi_l	A	0.00000	0.00000	0.00000
	A	-0.00090	0.00092	0.02762
	OE	0.00000	0.00000	0.00000
	OE	0.01071	0.01802	0.13394

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__tnbufi_1	(OE * Y)	0.00000	0.00000	0.00000
	(OE * Y)	-0.00264	-0.00269	-0.00266
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	-0.00217	-0.00220	-0.00218
sky130_osu_sc_15T_ls__tnbufi_l	(OE * Y)	0.00000	0.00000	0.00000
	(OE * Y)	-0.00186	-0.00189	-0.00187
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	-0.00155	-0.00157	-0.00155

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__tnbufi_1	(OE * Y)	0.00000	0.00000	0.00000
	(OE * Y)	0.00264	0.00269	0.00266
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	0.00223	0.00226	0.00221
sky130_osu_sc_15T_ls__tnbufi_l	(OE * Y)	0.00000	0.00000	0.00000
	(OE * Y)	0.00186	0.00189	0.00187
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	0.00159	0.00160	0.00157

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__tnbufi_1	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	-0.00495	0.00344	0.16548
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00493	0.00345	0.16553
sky130_osu_sc_15T_ls__tnbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	-0.00329	0.00407	0.13716
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00324	0.00410	0.13721

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__tnbufi_1	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.01282	0.02301	0.18485
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.01264	0.02262	0.18477
sky130_osu_sc_15T_ls__tnbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00932	0.01768	0.15059
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00923	0.01782	0.15054

SKY130_OSU_SC_15T_LS__XNOR2

sky130_osu_sc_15T_ls_ff_1P95_100C.ccs
Cell Library: Process , Voltage 1.95,
Temp 100.00

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_15T_ls__xnor2_l	17.70450

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	B	Y
sky130_osu_sc_15T_ls__xnor2_l	0.00861	0.00771	1.31966

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_15T_ls__xnor2_l	0.00000	1.32895	1.87793

Delay Information

Delay(ns) to Y rising (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_15T_ls__xnor2_l	A->Y (RR)	B	0.07746	0.56177	6.34666
	A->Y (FR)	!B	0.04133	0.72882	10.16490
	B->Y (RR)	A	0.06171	0.55070	6.48521
	B->Y (FR)	!A	0.05684	0.71770	9.76988

Delay(ns) to Y falling (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_15T_ls__xnor2_l	A->Y (FF)	B	0.07656	0.54334	6.22956
	A->Y (RF)	!B	0.03585	0.51488	7.06773
	B->Y (FF)	A	0.06470	0.53363	6.24005
	B->Y (RF)	!A	0.04614	0.52693	7.06041

Power Information

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

Cell Name	Input	When	Power(pJ)		
			first	mid	last
sky130_osu_sc_15T_ls__xnor2_l	A	B	0.00000	0.00000	0.00000
	A	B	0.00741	0.01464	0.15848
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.01656	0.02690	0.21595
	B	A	0.00000	0.00000	0.00000
	B	A	0.00223	0.01084	0.17472
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01851	0.02786	0.20737

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

Cell Name	Input	When	Power(pJ)		
			first	mid	last
sky130_osu_sc_15T_ls__xnor2_l	A	B	0.00000	0.00000	0.00000
	A	B	0.02064	0.02858	0.18699
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00457	0.01356	0.19463
	B	A	0.00000	0.00000	0.00000
	B	A	0.01875	0.02793	0.19077
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00593	0.01476	0.19312

SKY130_OSU_SC_15T_LS__XOR2

sky130_osu_sc_15T_ls_ff_1P95_100C.ccs
Cell Library: Process , Voltage 1.95,
Temp 100.00

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_15T_ls__xor2_l	17.70450

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	B	Y
sky130_osu_sc_15T_ls__xor2_l	0.00863	0.00775	1.29616

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_15T_ls__xor2_l	0.00000	1.32895	1.80592

Delay Information

Delay(ns) to Y rising (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_15T_ls__xor2_l	A->Y (RR)	!B	0.07511	0.55831	6.45489
	A->Y (FR)	B	0.05382	0.72088	9.85082
	B->Y (RR)	!A	0.06501	0.55684	6.49532
	B->Y (FR)	A	0.05825	0.72349	9.81012

Delay(ns) to Y falling (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_15T_ls__xor2_l	A->Y (FF)	!B	0.06668	0.53313	5.99448
	A->Y (RF)	B	0.03857	0.54628	7.39413
	B->Y (FF)	!A	0.06254	0.53184	6.18172
	B->Y (RF)	A	0.04599	0.52488	6.97577

Power Information

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

Cell Name	Input	When	Power(pJ)		
			first	mid	last
sky130_osu_sc_15T_ls__xor2_l	A	B	0.00000	0.00000	0.00000
	A	B	0.01994	0.02948	0.21135
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00345	0.01004	0.16680
	B	A	0.00000	0.00000	0.00000
	B	A	0.02057	0.02999	0.20672
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00197	0.01022	0.17246

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

Cell Name	Input	When	Power(pJ)		
			first	mid	last
sky130_osu_sc_15T_ls__xor2_l	A	B	0.00000	0.00000	0.00000
	A	B	0.00366	0.01257	0.19510
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.02133	0.02971	0.16378
	B	A	0.00000	0.00000	0.00000
	B	A	0.00373	0.01215	0.18756
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01911	0.02840	0.18952

SKY130_OSU_SC_15T_LS_x

sky130_osu_sc_15T_ls_ff_1P95_100C.ccs
Cell Library: Process , Voltage 1.95,
Temp 100.00

Truth Table

INPUT
A
x

Footprint

Cell Name	Area
sky130_osu_sc_15T_ls__ant	5.49450
sky130_osu_sc_15T_ls__tiehi	5.49450
sky130_osu_sc_15T_ls__tielo	5.49450

Pin Capacitance Information

Cell Name	Pin Cap(pf)
	A
sky130_osu_sc_15T_ls__ant	0.81775
sky130_osu_sc_15T_ls__tiehi	0.00000
sky130_osu_sc_15T_ls__tielo	0.00000

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_15T_ls__ant	0.00000	380810.00000	761619.00000
sky130_osu_sc_15T_ls__tiehi	0.00000	0.00000	0.00000
sky130_osu_sc_15T_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_15T_ls__ant	0.00000	0.00000	0.00000
	-0.00159	0.11045	1.57768

Passive power(pJ) for A falling :

Cell Name	Power(pJ)		
	first	mid	last
sky130_osu_sc_15T_ls__ant	0.00000	0.00000	0.00000
	6.62726	6.31244	1.86736