sky130_osu_sc_12T_ls_ff_1P95_100C.ccs Library

Cell Groups
SKY130_OSU_SC_12T_LS__ADDFx
SKY130_OSU_SC_12T_LS__ADDHx
SKY130_OSU_SC_12T_LS__AND2x
SKY130_OSU_SC_12T_LS__AOI21
SKY130_OSU_SC_12T_LS__AOI22
SKY130_OSU_SC_12T_LS__BUFx
SKY130_OSU_SC_12T_LS__DFFRx
SKY130_OSU_SC_12T_LS__DFFSRx
SKY130_OSU_SC_12T_LS__DFFSx
SKY130_OSU_SC_12T_LS__DFFx
SKY130_OSU_SC_12T_LS__INVx
SKY130_OSU_SC_12T_LS__MUX2
SKY130_OSU_SC_12T_LS__NAND2x
SKY130_OSU_SC_12T_LS__NOR2x
SKY130_OSU_SC_12T_LS__OAI21
SKY130_OSU_SC_12T_LS__OAI22
SKY130_OSU_SC_12T_LS__OR2x
SKY130_OSU_SC_12T_LS__TBUFIx
SKY130_OSU_SC_12T_LS__TNBUFIx
SKY130_OSU_SC_12T_LS__XNOR2
SKY130_OSU_SC_12T_LS__XOR2
SKY130_OSU_SC_12T_LS_x

SKY130_OSU_SC_12T_LS__ADDFx

sky130_osu_sc_12T_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_12T_ls__addf_1	31.25760
sky130_osu_sc_12T_ls__addf_l	31.25760

Pin Capacitance Information

Cell Name	Pin Cap(pf)			Max Cap(pf)		
	A	B	CI	CO	CON	S
sky130_osu_sc_12T_ls__addf_1	0.01149	0.01147	0.00888	1.57417	0.71633	1.37815
sky130_osu_sc_12T_ls__addf_l	0.01150	0.01147	0.00889	1.10592	0.71702	1.37815

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_12T_ls__addf_1	0.00000	2.25366	2.45148
sky130_osu_sc_12T_ls__addf_l	0.00000	2.32833	2.71702

Delay Information

Delay(ns) to CO rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_ls__addf_1	A->CO (RR)	0.10896	1.32241	21.36900
	B->CO (RR)	0.10681	1.29931	20.96990
	CI->CO (RR)	0.10232	1.35580	22.03580
	CON->CO (FR)	0.01996	0.63316	10.64630
sky130_osu_sc_12T_ls__addf_1	A->CO (RR)	0.10977	1.24310	17.60070
	B->CO (RR)	0.10769	1.23022	17.51480
	CI->CO (RR)	0.10315	1.27860	18.31210
	CON->CO (FR)	0.02316	0.68448	10.53090

Delay(ns) to CO falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_ls__addf_1	A->CO (FF)	0.15383	1.67398	26.74550
	B->CO (FF)	0.13384	1.59683	25.65020
	CI->CO (FF)	0.13322	1.68923	27.36940
	CON->CO (RF)	0.01647	0.45072	7.58005
sky130_osu_sc_12T_ls__addf_1	A->CO (FF)	0.15025	1.51539	21.27890
	B->CO (FF)	0.13078	1.44080	20.55420
	CI->CO (FF)	0.12963	1.53144	21.92250
	CON->CO (RF)	0.01793	0.47068	7.17603

Delay(ns) to CON rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_ls__addf_1	A->CON (FR)	0.13354	0.80622	9.58424
	B->CON (FR)	0.11280	0.76471	9.50447
	CI->CON (FR)	0.11292	0.82499	10.24790
sky130_osu_sc_12T_ls__addf_l	A->CON (FR)	0.12661	0.79997	9.58407
	B->CON (FR)	0.10672	0.75939	9.50432
	CI->CON (FR)	0.10596	0.81888	10.24770

Delay(ns) to CON falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_ls__addf_1	A->CON (RF)	0.07007	0.43845	5.08183
	B->CON (RF)	0.06877	0.45839	5.40096
	CI->CON (RF)	0.06344	0.47698	5.76950
sky130_osu_sc_12T_ls__addf_l	A->CON (RF)	0.06775	0.43629	5.08305
	B->CON (RF)	0.06655	0.45632	5.40216
	CI->CON (RF)	0.06111	0.47478	5.77077

Delay(ns) to S rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_ls__addf_1	A->S (-R)	0.22805	1.56287	21.66130
	B->S (-R)	0.23105	1.53833	20.89590
	CI->S (-R)	0.20622	1.57654	22.29310
	CON->S (RR)	0.06276	0.50960	6.34955
sky130_osu_sc_12T_ls__addf_l	A->S (-R)	0.22016	1.55663	21.65690
	B->S (-R)	0.22326	1.53198	20.89000
	CI->S (-R)	0.19832	1.57009	22.28680
	CON->S (RR)	0.06278	0.50959	6.34914

Delay(ns) to S falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_ls__addf_1	A->S (-F)	0.17967	1.14079	15.03530
	B->S (-F)	0.17572	1.09888	14.70880
	CI->S (-F)	0.17278	1.17312	15.72120
	CON->S (FF)	0.07505	0.54268	6.57810
sky130_osu_sc_12T_ls__addf_l	A->S (-F)	0.17533	1.13756	15.03240
	B->S (-F)	0.17164	1.09592	14.70660
	CI->S (-F)	0.16839	1.16978	15.71760
	CON->S (FF)	0.07508	0.54264	6.57751

Power Information

Internal switching power(pJ) to CO rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__addf_1	A	0.00336	0.00572	0.05646
	B	0.00476	0.00672	0.05244
	CI	0.00484	0.00735	0.05760
sky130_osu_sc_12T_ls__addf_l	A	0.00299	0.00484	0.04279
	B	0.00439	0.00593	0.04141
	CI	0.00446	0.00645	0.04442

Internal switching power(pJ) to CO falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__addf_1	A	0.01158	0.01671	0.11572
	B	0.01196	0.01628	0.10448
	CI	0.00989	0.01519	0.11463
sky130_osu_sc_12T_ls__addf_l	A	0.01117	0.01493	0.08229
	B	0.01154	0.01470	0.07497
	CI	0.00948	0.01341	0.08088

Internal switching power(pJ) to CON rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__addf_1	A	0.01156	0.01463	0.06708
	B	0.01192	0.01455	0.06161
	CI	0.00987	0.01321	0.06576
sky130_osu_sc_12T_ls__addf_l	A	0.01116	0.01397	0.06306
	B	0.01153	0.01393	0.05800
	CI	0.00947	0.01255	0.06175

Internal switching power(pJ) to CON falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__addf_1	A	0.00334	0.00492	0.03668
	B	0.00471	0.00611	0.03907
	CI	0.00481	0.00655	0.04023
sky130_osu_sc_12T_ls__addf_l	A	0.00297	0.00446	0.03482
	B	0.00435	0.00561	0.03693
	CI	0.00444	0.00608	0.03812

Internal switching power(pJ) to S rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__addf_1	A	0.00019	0.00078	0.09412
	B	0.00290	0.00380	0.09211
	CI	0.00453	0.00677	0.09373
sky130_osu_sc_12T_ls__addf_l	A	0.00018	0.00078	0.09411
	B	0.00290	0.00379	0.09210
	CI	0.00452	0.00677	0.09371

Internal switching power(pJ) to S falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__addf_1	A	0.02452	0.02649	0.10716
	B	0.02064	0.02268	0.09854
	CI	0.01884	0.02104	0.09616
sky130_osu_sc_12T_ls__addf_l	A	0.02452	0.02649	0.10716
	B	0.02065	0.02268	0.09855
	CI	0.01884	0.02104	0.09616

SKY130_OSU_SC_12T_LS__ADDHx

sky130_osu_sc_12T_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	0	0
0	1	0	0	1
1	0	0	0	1
1	1	1	1	0

Footprint

Cell Name	Area
sky130_osu_sc_12T_ls__addh_1	18.55920
sky130_osu_sc_12T_ls__addh_l	18.55920

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)		
	A	B	CO	CON	S
sky130_osu_sc_12T_ls__addh_1	0.00562	0.00596	1.50651	1.55113	1.58645
sky130_osu_sc_12T_ls__addh_l	0.00561	0.00597	1.10003	1.55122	1.12602

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_12T_ls__addh_1	0.00000	2.03403	2.10662
sky130_osu_sc_12T_ls__addh_l	0.00000	2.18308	2.25508

Delay Information

Delay(ns) to CO rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_ls__addh_1	A->CO (RR)	0.07276	0.51156	6.42601
	B->CO (RR)	0.07539	0.50499	6.47437
sky130_osu_sc_12T_ls__addh_l	A->CO (RR)	0.07286	0.55760	6.46383
	B->CO (RR)	0.07552	0.55173	6.46971

Delay(ns) to CO falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_ls__addh_1	A->CO (FF)	0.06401	0.51921	6.73375
	B->CO (FF)	0.06828	0.53344	6.86423
sky130_osu_sc_12T_ls__addh_l	A->CO (FF)	0.06323	0.54061	6.55122
	B->CO (FF)	0.06744	0.55544	6.68819

Delay(ns) to CON rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_ls__addh_1	A->CON (RR)	0.10563	0.52855	6.40347
	B->CON (RR)	0.10780	0.52079	6.46729
sky130_osu_sc_12T_ls__addh_l	A->CON (RR)	0.09800	0.51716	6.41267
	B->CON (RR)	0.10021	0.51016	6.44117

Delay(ns) to CON falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_ls__addh_1	A->CON (FF)	0.09009	0.54031	6.86264
	B->CON (FF)	0.08805	0.54803	6.96535
sky130_osu_sc_12T_ls__addh_l	A->CON (FF)	0.08392	0.52580	6.76766
	B->CON (FF)	0.08204	0.53392	6.86910

Delay(ns) to S rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_ls__addh_1	A->S (FR)	0.12369	1.15488	17.22810
	B->S (FR)	0.12149	1.16273	17.38390
	CON->S (FR)	0.02148	0.64489	10.86940
sky130_osu_sc_12T_ls__addh_l	A->S (FR)	0.11956	1.09930	14.51290
	B->S (FR)	0.11738	1.10740	14.65400
	CON->S (FR)	0.02394	0.69149	10.69310

Delay(ns) to S falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_ls__addh_1	A->S (RF)	0.12754	1.00801	14.55160
	B->S (RF)	0.12973	0.99950	14.60250
	CON->S (RF)	0.01616	0.45340	7.65306
sky130_osu_sc_12T_ls__addh_l	A->S (RF)	0.12188	0.92690	11.58460
	B->S (RF)	0.12411	0.92028	11.60150
	CON->S (RF)	0.01752	0.47543	7.30529

Power Information

Internal switching power(pJ) to CO rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__addh_1	A	0.00000	0.00000	0.00000
	A	0.00568	0.00736	0.04573
	B	0.00000	0.00000	0.00000
	B	0.00512	0.00673	0.05232
sky130_osu_sc_12T_ls__addh_l	A	0.00000	0.00000	0.00000
	A	0.00500	0.00653	0.04408
	B	0.00000	0.00000	0.00000
	B	0.00444	0.00586	0.04872

Internal switching power(pJ) to CO falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__addh_1	A	0.00000	0.00000	0.00000
	A	0.00787	0.00938	0.05142
	B	0.00000	0.00000	0.00000
	B	0.00831	0.01033	0.05483
sky130_osu_sc_12T_ls__addh_l	A	0.00000	0.00000	0.00000
	A	0.00719	0.00868	0.04925
	B	0.00000	0.00000	0.00000
	B	0.00763	0.00955	0.05182

Internal switching power(pJ) to CON rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__addh_1	A	0.00000	0.00000	0.00000
	A	0.00568	0.00737	0.04604
	B	0.00000	0.00000	0.00000
	B	0.00512	0.00673	0.05240
sky130_osu_sc_12T_ls__addh_l	A	0.00000	0.00000	0.00000
	A	0.00500	0.00658	0.04506
	B	0.00000	0.00000	0.00000
	B	0.00444	0.00591	0.04976

Internal switching power(pJ) to CON falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__addh_1	A	0.00000	0.00000	0.00000
	A	0.00786	0.00937	0.05167
	B	0.00000	0.00000	0.00000
	B	0.00831	0.01034	0.05514
sky130_osu_sc_12T_ls__addh_l	A	0.00000	0.00000	0.00000
	A	0.00720	0.00868	0.04992
	B	0.00000	0.00000	0.00000
	B	0.00763	0.00958	0.05275

Internal switching power(pJ) to S rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__addh_1	A	0.00000	0.00000	0.00000
	A	0.00788	0.00939	0.05220
	B	0.00000	0.00000	0.00000
	B	0.00831	0.01037	0.05559
sky130_osu_sc_12T_ls__addh_l	A	0.00000	0.00000	0.00000
	A	0.00721	0.00868	0.04812
	B	0.00000	0.00000	0.00000
	B	0.00764	0.00956	0.05219

Internal switching power(pJ) to S falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__addh_1	A	0.00000	0.00000	0.00000
	A	0.00568	0.00739	0.04644
	B	0.00000	0.00000	0.00000
	B	0.00512	0.00675	0.05289
sky130_osu_sc_12T_ls__addh_l	A	0.00000	0.00000	0.00000
	A	0.00500	0.00654	0.04420
	B	0.00000	0.00000	0.00000
	B	0.00444	0.00587	0.04905

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__addh_1	(!B * !CO * !CON * S)	0.00000	0.00000	0.00000
	(!B * !CO * !CON * S)	2.15811	2.07306	0.73022
sky130_osu_sc_12T_ls__addh_l	(!B * !CO * !CON * S)	0.00000	0.00000	0.00000
	(!B * !CO * !CON * S)	2.15822	2.07307	0.73034

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__addh_1	(!A * !CO * !CON * S)	0.00000	0.00000	0.00000
	(!A * !CO * !CON * S)	2.15817	2.07535	0.79082
sky130_osu_sc_12T_ls__addh_l	(!A * !CO * !CON * S)	0.00000	0.00000	0.00000
	(!A * !CO * !CON * S)	2.15827	2.07546	0.79094

SKY130_OSU_SC_12T_LS__AND2x

sky130_osu_sc_12T_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_12T_ls__and2_1	8.30280
sky130_osu_sc_12T_ls__and2_2	10.25640
sky130_osu_sc_12T_ls__and2_4	14.16360
sky130_osu_sc_12T_ls__and2_6	18.07080
sky130_osu_sc_12T_ls__and2_8	21.97800
sky130_osu_sc_12T_ls__and2_l	8.30280

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	B	Y
sky130_osu_sc_12T_ls__and2_1	0.00303	0.00314	1.51402
sky130_osu_sc_12T_ls__and2_2	0.00303	0.00315	2.99706
sky130_osu_sc_12T_ls__and2_4	0.00303	0.00315	5.76684
sky130_osu_sc_12T_ls__and2_6	0.00306	0.00315	8.53281
sky130_osu_sc_12T_ls__and2_8	0.00303	0.00315	11.13112
sky130_osu_sc_12T_ls__and2_l	0.00233	0.00241	1.10241

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_12T_ls__and2_1	0.00000	0.82348	1.24986
sky130_osu_sc_12T_ls__and2_2	0.00000	1.23267	1.69811
sky130_osu_sc_12T_ls__and2_4	0.00000	2.05664	2.59736
sky130_osu_sc_12T_ls__and2_6	0.00000	2.88061	3.49660
sky130_osu_sc_12T_ls__and2_8	0.00000	3.70457	4.39585
sky130_osu_sc_12T_ls__and2_l	0.00000	1.07428	1.66655

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_ls__and2_1	A->Y (RR)	0.05569	0.46690	6.38968
	B->Y (RR)	0.05951	0.45954	6.12709
sky130_osu_sc_12T_ls__and2_2	A->Y (RR)	0.06251	0.40364	6.39612
	B->Y (RR)	0.06635	0.39435	6.12844
sky130_osu_sc_12T_ls__and2_4	A->Y (RR)	0.08607	0.39582	6.47816
	B->Y (RR)	0.08992	0.38322	6.21785
sky130_osu_sc_12T_ls__and2_6	A->Y (RR)	0.11130	0.41798	6.60496
	B->Y (RR)	0.11505	0.40132	6.33997
sky130_osu_sc_12T_ls__and2_8	A->Y (RR)	0.13592	0.44574	6.70135
	B->Y (RR)	0.13976	0.42655	6.42920
sky130_osu_sc_12T_ls__and2_l	A->Y (RR)	0.05969	0.52298	6.47552
	B->Y (RR)	0.06346	0.51209	6.16190

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_ls__and2_1	**A->Y (FF)**	0.05164	0.47056	6.26079
	B->Y (FF)	0.05331	0.47767	6.31770
sky130_osu_sc_12T_ls__and2_2	**A->Y (FF)**	0.05877	0.43674	6.33086
	B->Y (FF)	0.05997	0.44201	6.39271
sky130_osu_sc_12T_ls__and2_4	**A->Y (FF)**	0.08241	0.44828	6.44375
	B->Y (FF)	0.08164	0.44860	6.50882
sky130_osu_sc_12T_ls__and2_6	**A->Y (FF)**	0.10805	0.47819	6.56965
	B->Y (FF)	0.10539	0.47526	6.62784
sky130_osu_sc_12T_ls__and2_8	**A->Y (FF)**	0.13243	0.50567	6.60567
	B->Y (FF)	0.12817	0.50047	6.65608
sky130_osu_sc_12T_ls__and2_l	**A->Y (FF)**	0.05126	0.49292	6.11641
	B->Y (FF)	0.05529	0.50740	6.25577

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__and2_1	A	0.00000	0.00000	0.00000
	A	0.00370	0.00862	0.12447
	B	0.00000	0.00000	0.00000
	B	0.00371	0.00738	0.09766
sky130_osu_sc_12T_ls__and2_2	A	0.00000	0.00000	0.00000
	A	0.00736	0.01222	0.12835
	B	0.00000	0.00000	0.00000
	B	0.00739	0.01096	0.10166
sky130_osu_sc_12T_ls__and2_4	A	0.00000	0.00000	0.00000
	A	0.01651	0.02049	0.13528
	B	0.00000	0.00000	0.00000
	B	0.01658	0.01927	0.10948
sky130_osu_sc_12T_ls__and2_6	A	0.00000	0.00000	0.00000
	A	0.02844	0.02967	0.14329
	B	0.00000	0.00000	0.00000
	B	0.02843	0.02824	0.11702
sky130_osu_sc_12T_ls__and2_8	A	0.00000	0.00000	0.00000
	A	0.04242	0.03926	0.15043
	B	0.00000	0.00000	0.00000
	B	0.04232	0.03768	0.12490
sky130_osu_sc_12T_ls__and2_l	A	0.00000	0.00000	0.00000
	A	0.00288	0.00728	0.10826
	B	0.00000	0.00000	0.00000
	B	0.00292	0.00650	0.09123

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__and2_1	A	0.00000	0.00000	0.00000
	A	0.00969	0.01500	0.11413
	B	0.00000	0.00000	0.00000
	B	0.01099	0.01595	0.11140
sky130_osu_sc_12T_ls__and2_2	A	0.00000	0.00000	0.00000
	A	0.01296	0.01817	0.11702
	B	0.00000	0.00000	0.00000
	B	0.01425	0.01893	0.11483
sky130_osu_sc_12T_ls__and2_4	A	0.00000	0.00000	0.00000
	A	0.02271	0.02624	0.12386
	B	0.00000	0.00000	0.00000
	B	0.02370	0.02679	0.12192
sky130_osu_sc_12T_ls__and2_6	A	0.00000	0.00000	0.00000
	A	0.03487	0.03472	0.13176
	B	0.00000	0.00000	0.00000
	B	0.03529	0.03533	0.12955
sky130_osu_sc_12T_ls__and2_8	A	0.00000	0.00000	0.00000
	A	0.04989	0.04392	0.13987
	B	0.00000	0.00000	0.00000
	B	0.04968	0.04422	0.13686
sky130_osu_sc_12T_ls__and2_l	A	0.00000	0.00000	0.00000
	A	0.00739	0.01216	0.10248
	B	0.00000	0.00000	0.00000
	B	0.00837	0.01289	0.10092

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__and2_1	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00337	-0.00338	-0.00340
sky130_osu_sc_12T_ls__and2_2	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00336	-0.00338	-0.00340
sky130_osu_sc_12T_ls__and2_4	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00336	-0.00337	-0.00339
sky130_osu_sc_12T_ls__and2_6	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00338	-0.00340	-0.00342
sky130_osu_sc_12T_ls__and2_8	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00334	-0.00336	-0.00338
sky130_osu_sc_12T_ls__and2_l	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00239	-0.00240	-0.00241

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__and2_1	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00340	0.00344	0.00342
sky130_osu_sc_12T_ls__and2_2	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00341	0.00345	0.00343
sky130_osu_sc_12T_ls__and2_4	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00341	0.00345	0.00343
sky130_osu_sc_12T_ls__and2_6	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00345	0.00349	0.00347
sky130_osu_sc_12T_ls__and2_8	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00343	0.00346	0.00345
sky130_osu_sc_12T_ls__and2_l	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00241	0.00244	0.00243

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__and2_1	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00319	-0.00322	-0.00320
sky130_osu_sc_12T_ls__and2_2	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00319	-0.00321	-0.00320
sky130_osu_sc_12T_ls__and2_4	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00319	-0.00321	-0.00319
sky130_osu_sc_12T_ls__and2_6	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00318	-0.00320	-0.00318
sky130_osu_sc_12T_ls__and2_8	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00317	-0.00319	-0.00318
sky130_osu_sc_12T_ls__and2_l	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00226	-0.00228	-0.00227

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__and2_1	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00338	0.00327	0.00323
sky130_osu_sc_12T_ls__and2_2	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00338	0.00328	0.00323
sky130_osu_sc_12T_ls__and2_4	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00339	0.00329	0.00324
sky130_osu_sc_12T_ls__and2_6	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00339	0.00329	0.00325
sky130_osu_sc_12T_ls__and2_8	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00340	0.00328	0.00325
sky130_osu_sc_12T_ls__and2_l	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00240	0.00233	0.00229

SKY130_OSU_SC_12T_LS__AOI21

sky130_osu_sc_12T_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_12T_ls__aoi21_l	8.30280

Pin Capacitance Information

Cell Name	Pin Cap(pf)			Max Cap(pf)
	A0	A1	B0	Y
sky130_osu_sc_12T_ls__aoi21_l	0.00280	0.00297	0.00293	0.66326

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_12T_ls__aoi21_l	0.00000	0.45939	0.78395

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_ls__aoi21_l	A0->Y (FR)	0.06767	0.74366	9.32430
	A1->Y (FR)	0.05343	0.67723	8.70945
	B0->Y (FR)	0.05024	0.77441	10.13890

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_ls__aoi21_l	A0->Y (RF)	0.03598	0.38571	4.66004
	A1->Y (RF)	0.03283	0.40826	5.06047
	B0->Y (RF)	0.02143	0.38541	4.93644

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__aoi21_l	A0	0.00000	0.00000	0.00000
	A0	0.00851	0.00924	0.04121
	A1	0.00000	0.00000	0.00000
	A1	0.00709	0.00782	0.03847
	B0	0.00498	0.00677	0.04300

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__aoi21_l	A0	0.00000	0.00000	0.00000
	A0	0.00177	0.00261	0.03090
	A1	0.00000	0.00000	0.00000
	A1	0.00184	0.00318	0.03452
	B0	-0.00070	0.00102	0.03393

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__aoi21_l	(A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * !Y)	-0.00226	-0.00277	-0.00279
	(!A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !Y)	-0.00281	-0.00282	-0.00282
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00280	-0.00282	-0.00281

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__aoi21_l	(A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * !Y)	0.00278	0.00278	0.00279
	(!A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !Y)	0.00283	0.00286	0.00283
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00299	0.00287	0.00284

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__aoi21_l	(A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * B0 * !Y)	-0.00225	-0.00278	-0.00279
	(!A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !Y)	-0.00282	-0.00284	-0.00282
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	-0.00310	-0.00311	-0.00313

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__aoi21_l	(A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * B0 * !Y)	0.00277	0.00280	0.00279
	(!A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !Y)	0.00283	0.00285	0.00284
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	0.00313	0.00317	0.00314

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__aoi21_l	(A0 * A1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !Y)	-0.00108	-0.00110	-0.00109

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__aoi21_l	(A0 * A1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !Y)	0.00120	0.00120	0.00112

SKY130_OSU_SC_12T_LS__AOI22

sky130_osu_sc_12T_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_12T_ls__aoi22_l	10.25640

Pin Capacitance Information

Cell Name	Pin Cap(pf)				Max Cap(pf)
	A0	A1	B0	B1	Y
sky130_osu_sc_12T_ls__aoi22_l	0.00280	0.00296	0.00309	0.00291	0.64900

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_12T_ls__aoi22_l	0.00000	0.57471	0.89962

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_ls__aoi22_l	A0->Y (FR)	0.08677	0.76201	9.25338
	A1->Y (FR)	0.07746	0.74848	9.18990
	B0->Y (FR)	0.05338	0.77161	10.02010
	B1->Y (FR)	0.06311	0.78707	10.10200

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_ls__aoi22_l	A0->Y (RF)	0.04714	0.39646	4.60484
	A1->Y (RF)	0.04394	0.41951	4.99918
	B0->Y (RF)	0.02396	0.39316	4.96482
	B1->Y (RF)	0.02777	0.37065	4.57019

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__aoi22_l	A0	0.01046	0.01110	0.04355
	A1	0.00906	0.00965	0.04144
	B0	0.00541	0.00717	0.04419
	B1	0.00689	0.00857	0.04465

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__aoi22_l	A0	0.00358	0.00445	0.03440
	A1	0.00364	0.00483	0.03760
	B0	-0.00041	0.00114	0.03281
	B1	-0.00034	0.00087	0.02921

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__aoi22_l	(A1 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * B1 * !Y)	-0.00217	-0.00275	-0.00279
	(!A1 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * B1 * !Y)	-0.00281	-0.00282	-0.00281
	(!A1 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !B1 * Y)	-0.00280	-0.00282	-0.00281
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00280	-0.00282	-0.00281

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__aoi22_l	(A1 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * B1 * !Y)	0.00278	0.00280	0.00280
	(!A1 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * B1 * !Y)	0.00283	0.00286	0.00283
	(!A1 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !B1 * Y)	0.00299	0.00287	0.00284
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00299	0.00287	0.00284

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__aoi22_l	(A0 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * B0 * B1 * !Y)	-0.00216	-0.00277	-0.00280
	(!A0 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * B1 * !Y)	-0.00282	-0.00283	-0.00282
	(!A0 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !B1 * Y)	-0.00309	-0.00310	-0.00311
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	-0.00309	-0.00310	-0.00311

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__aoi22_l	(A0 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * B0 * B1 * !Y)	0.00278	0.00281	0.00280
	(!A0 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * B1 * !Y)	0.00283	0.00285	0.00284
	(!A0 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !B1 * Y)	0.00312	0.00316	0.00313
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	0.00312	0.00316	0.00313

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__aoi22_l	(A0 * A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * B1 * !Y)	-0.00108	-0.00109	-0.00108
	(A0 * A1 * !B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B1 * !Y)	-0.00106	-0.00107	-0.00107
	(!A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B1 * Y)	-0.00323	-0.00324	-0.00325
	(!A0 * A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B1 * Y)	-0.00322	-0.00324	-0.00325

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__aoi22_l	(A0 * A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * B1 * !Y)	0.00126	0.00125	0.00113
	(A0 * A1 * !B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B1 * !Y)	0.00108	0.00109	0.00108
	(!A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B1 * Y)	0.00326	0.00332	0.00327
	(!A0 * A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B1 * Y)	0.00326	0.00327	0.00327

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__aoi22_l	(A0 * A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * B0 * !Y)	-0.00110	-0.00111	-0.00110
	(A0 * A1 * !B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B0 * !Y)	-0.00107	-0.00109	-0.00109
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00295	-0.00297	-0.00296
	(!A0 * A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B0 * Y)	-0.00295	-0.00297	-0.00296

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__aoi22_l	(A0 * A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * B0 * !Y)	0.00127	0.00128	0.00114
	(A0 * A1 * !B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B0 * !Y)	0.00109	0.00111	0.00110
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00313	0.00302	0.00298
	(!A0 * A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B0 * Y)	0.00312	0.00302	0.00298

SKY130_OSU_SC_12T_LS__BUFx

sky130_osu_sc_12T_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_12T_ls__buf_1	6.34920
sky130_osu_sc_12T_ls__buf_2	8.30280
sky130_osu_sc_12T_ls__buf_4	12.21000
sky130_osu_sc_12T_ls__buf_6	16.11720
sky130_osu_sc_12T_ls__buf_8	20.02440
sky130_osu_sc_12T_ls__buf_l	6.34920

Pin Capacitance Information

Cell Name	Pin Cap(pf)	Max Cap(pf)
	A	Y
sky130_osu_sc_12T_ls__buf_1	0.00315	1.41968
sky130_osu_sc_12T_ls__buf_2	0.00315	2.90877
sky130_osu_sc_12T_ls__buf_4	0.00314	5.73562
sky130_osu_sc_12T_ls__buf_6	0.00084	1.80000
sky130_osu_sc_12T_ls__buf_8	0.00315	11.19282
sky130_osu_sc_12T_ls__buf_l	0.00237	1.10204

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_12T_ls__buf_1	0.00000	0.85368	0.85368
sky130_osu_sc_12T_ls__buf_2	0.00000	1.27589	1.30193
sky130_osu_sc_12T_ls__buf_4	0.00000	2.12495	2.20116
sky130_osu_sc_12T_ls__buf_6	0.00000	0.00000	0.00000
sky130_osu_sc_12T_ls__buf_8	0.00000	3.82306	3.99963
sky130_osu_sc_12T_ls__buf_l	0.00000	1.00302	1.00303

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_ls__buf_1	**A->Y (RR)**	0.04527	0.44444	5.94343
sky130_osu_sc_12T_ls__buf_2	**A->Y (RR)**	0.04834	0.36696	5.89338
sky130_osu_sc_12T_ls__buf_4	**A->Y (RR)**	0.06490	0.34918	6.00462
sky130_osu_sc_12T_ls__buf_8	**A->Y (RR)**	0.09996	0.38174	6.20968
sky130_osu_sc_12T_ls__buf_l	**A->Y (RR)**	0.04701	0.48340	6.00258

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_ls__buf_1	**A->Y (FF)**	0.04791	0.45567	6.07712
sky130_osu_sc_12T_ls__buf_2	**A->Y (FF)**	0.05519	0.43010	6.32976
sky130_osu_sc_12T_ls__buf_4	**A->Y (FF)**	0.07864	0.44440	6.55184
sky130_osu_sc_12T_ls__buf_8	**A->Y (FF)**	0.12800	0.50381	6.75701
sky130_osu_sc_12T_ls__buf_l	**A->Y (FF)**	0.04915	0.49488	6.30709

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__buf_1	A	0.00000	0.00000	0.00000
	A	0.00342	0.00780	0.09311
sky130_osu_sc_12T_ls__buf_2	A	0.00000	0.00000	0.00000
	A	0.00687	0.01157	0.09670
sky130_osu_sc_12T_ls__buf_4	A	0.00000	0.00000	0.00000
	A	0.01515	0.01997	0.10819
sky130_osu_sc_12T_ls__buf_8	A	0.00000	0.00000	0.00000
	A	0.03610	0.03808	0.12952
sky130_osu_sc_12T_ls__buf_l	A	0.00000	0.00000	0.00000
	A	0.00267	0.00716	0.10151

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__buf_1	A	0.00000	0.00000	0.00000
	A	0.00916	0.01439	0.11204
sky130_osu_sc_12T_ls__buf_2	A	0.00000	0.00000	0.00000
	A	0.01230	0.01725	0.11481
sky130_osu_sc_12T_ls__buf_4	A	0.00000	0.00000	0.00000
	A	0.02178	0.02489	0.12119
sky130_osu_sc_12T_ls__buf_8	A	0.00000	0.00000	0.00000
	A	0.04852	0.04241	0.13530
sky130_osu_sc_12T_ls__buf_l	A	0.00000	0.00000	0.00000
	A	0.00717	0.01217	0.10797

Passive power(pJ) for A rising :

Cell Name	Power(pJ)		
	first	mid	last
sky130_osu_sc_12T_ls__buf_6	0.00000	0.00000	0.00000
	-0.00081	-0.00081	-0.00076

Passive power(pJ) for A falling :

Cell Name	Power(pJ)		
	first	mid	last
sky130_osu_sc_12T_ls__buf_6	0.00000	0.00000	0.00000
	0.00081	0.00081	0.00076

SKY130_OSU_SC_12T_LS__DFFRx

sky130_osu_sc_12T_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_12T_ls__dffr_1	42.49080
sky130_osu_sc_12T_ls__dffr_l	42.49080

Pin Capacitance Information

Cell Name	Pin Cap(pf)			Max Cap(pf)	
	D	RN	CK	Q	QN
sky130_osu_sc_12T_ls__dffr_1	0.00292	0.00289	0.00886	1.50093	1.49899
sky130_osu_sc_12T_ls__dffr_l	0.00292	0.00289	0.00885	1.10665	1.10251

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_12T_ls__dffr_1	0.00000	3.50622	4.17520
sky130_osu_sc_12T_ls__dffr_l	0.00000	3.65557	4.32454

Delay Information

Delay(ns) to Q rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_ls__dffr_1	CK->Q (RR)	0.21146	1.05668	13.39620
	QN->Q (FR)	0.02324	0.70490	11.71620
sky130_osu_sc_12T_ls__dffr_l	CK->Q (RR)	0.20897	1.14873	13.31040
	QN->Q (FR)	0.02520	0.73855	11.36540

Delay(ns) to Q falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_ls__dffr_1	CK->Q (RF)	0.22274	1.05178	13.40950
	QN->Q (RF)	0.01786	0.49335	8.17636
	RN->Q (FF)	0.16891	1.14149	15.69810
sky130_osu_sc_12T_ls__dffr_l	CK->Q (RF)	0.22461	1.15213	13.36510
	QN->Q (RF)	0.01888	0.50943	7.81699
	RN->Q (FF)	0.17098	1.24113	15.64760

Delay(ns) to QN rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_ls__dffr_1	CK->QN (RR)	0.20223	0.61047	6.06891
	RN->QN (FR)	0.14838	0.69960	8.36913
sky130_osu_sc_12T_ls__dffr_l	CK->QN (RR)	0.20191	0.65980	6.08975
	RN->QN (FR)	0.14819	0.74855	8.38347

Delay(ns) to QN falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_ls__dffr_1	**CK->QN (RF)**	0.17891	0.49129	4.00320
sky130_osu_sc_12T_ls__dffr_l	**CK->QN (RF)**	0.17342	0.50987	3.87660

Constraint Information

Constraints(ns) for D rising :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_12T_ls__dffr_1	hold	CK (R)	-0.04785	-0.05046	0.09140
	setup	CK (R)	0.16597	0.19350	0.26559
sky130_osu_sc_12T_ls__dffr_l	hold	CK (R)	-0.04797	-0.05046	0.09084
	setup	CK (R)	0.16632	0.19377	0.26609

Constraints(ns) for D falling :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_12T_ls__dffr_1	hold	CK (R)	-0.09384	-0.25131	-4.62481
	setup	CK (R)	0.11249	0.26090	4.67575
sky130_osu_sc_12T_ls__dffr_l	hold	CK (R)	-0.09361	-0.24843	-4.62395
	setup	CK (R)	0.11243	0.26090	4.67712

Constraints(ns) for D rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_12T_ls__dffr_1	hold	CK (R)	-0.04785	-0.05046	0.09140
	setup	CK (R)	0.16597	0.19350	0.26559
sky130_osu_sc_12T_ls__dffr_l	hold	CK (R)	-0.04797	-0.05046	0.09084
	setup	CK (R)	0.16632	0.19377	0.26609

Constraints(ns) for D falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_12T_ls__dffr_1	hold	CK (R)	-0.09384	-0.25131	-4.62481
	setup	CK (R)	0.11249	0.26090	4.67575
sky130_osu_sc_12T_ls__dffr_l	hold	CK (R)	-0.09361	-0.24843	-4.62395
	setup	CK (R)	0.11243	0.26090	4.67712

Constraints(ns) for RN rising :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_12T_ls__dffr_1	recovery	CK (R)	0.14369	0.17623	0.76974
	removal	CK (R)	-0.03294	-0.03822	-0.05739
sky130_osu_sc_12T_ls__dffr_l	recovery	CK (R)	0.14139	0.17858	0.77135
	removal	CK (R)	-0.03294	-0.03822	-0.05739

Constraints(ns) for RN rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_12T_ls__dffr_1	recovery	CK (R)	0.14369	0.17623	0.76974
	removal	CK (R)	-0.03294	-0.03822	-0.05739
sky130_osu_sc_12T_ls__dffr_l	recovery	CK (R)	0.14139	0.17858	0.77135
	removal	CK (R)	-0.03294	-0.03822	-0.05739

Constraints(ns) for RN falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_12T_ls__dffr_1	min_pulse_width	RN ()	0.10193	0.40405	13.33370
	min_pulse_width	RN ()	0.10498	0.40405	13.33370
sky130_osu_sc_12T_ls__dffr_l	min_pulse_width	RN ()	0.10193	0.40405	13.33370
	min_pulse_width	RN ()	0.10193	0.40405	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_12T_ls__dffr_1	min_pulse_width	CK ()	0.10193	0.40405	13.33370
	min_pulse_width	CK ()	0.11414	0.40405	13.33370
sky130_osu_sc_12T_ls__dffr_l	min_pulse_width	CK ()	0.09583	0.40405	13.33370
	min_pulse_width	CK ()	0.11108	0.40405	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_12T_ls__dffr_1	min_pulse_width	CK ()	0.21484	0.40405	13.33370
	min_pulse_width	CK ()	0.09277	0.40405	13.33370
sky130_osu_sc_12T_ls__dffr_l	min_pulse_width	CK ()	0.21484	0.40405	13.33370
	min_pulse_width	CK ()	0.09277	0.40405	13.33370

Power Information

Internal switching power(pJ) to Q rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__dffr_1	CK	0.00000	0.00000	0.00000
	CK	0.01004	0.01262	0.07600
sky130_osu_sc_12T_ls__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.00898	0.01246	0.09182

Internal switching power(pJ) to Q falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__dffr_1	CK	0.00000	0.00000	0.00000
	CK	0.01127	0.01217	0.05481
	RN	-0.00116	-0.08295	-1.42682
	RN	0.02512	0.02635	0.07077
sky130_osu_sc_12T_ls__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.01031	0.01201	0.07019
	RN	-0.00116	-0.06909	-1.05201
	RN	0.02415	0.02620	0.08608

Internal switching power(pJ) to QN rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__dffr_1	CK	0.00000	0.00000	0.00000
	CK	0.01126	0.01217	0.05493
	RN	-0.00116	-0.08288	-1.42497
	RN	0.02512	0.02634	0.07062
sky130_osu_sc_12T_ls__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.01030	0.01200	0.07020
	RN	-0.00116	-0.06893	-1.04807
	RN	0.02414	0.02618	0.08703

Internal switching power(pJ) to QN falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__dffr_1	CK	0.00000	0.00000	0.00000
	CK	0.00998	0.01261	0.07463
sky130_osu_sc_12T_ls__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.00892	0.01239	0.09069

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__dffr_1	CK	0.00000	0.00000	0.00000
	CK	-0.00223	-0.00273	-0.00278
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.01245	0.01566	0.11892
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.00495	0.00829	0.10836
sky130_osu_sc_12T_ls__dffr_l	CK	0.00000	0.00000	0.00000
	CK	-0.00223	-0.00273	-0.00278
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.01245	0.01566	0.11892
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.00496	0.00829	0.10836

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__dffr_1	CK	0.00000	0.00000	0.00000
	CK	0.00284	0.00289	0.00286
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.01863	0.02206	0.12708
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.00923	0.01251	0.11225
sky130_osu_sc_12T_ls__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.00284	0.00289	0.00286
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.01864	0.02206	0.12708
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.00923	0.01251	0.11225

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__dffr_1	(CK * !Q * QN) + (!CK * !D * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !Q * QN) + (!CK * !D * !Q * QN)	0.00356	0.00883	0.13867
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.01117	0.01643	0.15284
sky130_osu_sc_12T_ls__dffr_l	(CK * !Q * QN) + (!CK * !D * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !Q * QN) + (!CK * !D * !Q * QN)	0.00356	0.00883	0.13867
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.01117	0.01643	0.15285

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__dffr_1	(CK * !Q * QN) + (!CK * !D * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !Q * QN) + (!CK * !D * !Q * QN)	0.00953	0.01508	0.14403
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.01903	0.02451	0.15986
sky130_osu_sc_12T_ls__dffr_l	(CK * !Q * QN) + (!CK * !D * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !Q * QN) + (!CK * !D * !Q * QN)	0.00954	0.01509	0.14404
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.01903	0.02451	0.15986

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__dffr_1	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	-0.00077	0.00448	0.13674
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.00639	0.01112	0.15149
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	-0.00080	0.00438	0.13650
sky130_osu_sc_12T_ls__dffr_l	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	-0.00077	0.00449	0.13674
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.00639	0.01112	0.15149
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	-0.00080	0.00438	0.13650

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__dffr_1	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.01393	0.01981	0.15159
	(D * RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * RN * !Q * QN)	0.03002	0.03515	0.20960
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.02235	0.02780	0.16659
	(!D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * Q * !QN)	0.02874	0.03944	0.24307
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.01554	0.02115	0.15208
sky130_osu_sc_12T_ls__dffr_l	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.01393	0.01980	0.15159
	(D * RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * RN * !Q * QN)	0.03002	0.03512	0.20960
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.02235	0.02780	0.16659
	(!D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * Q * !QN)	0.02874	0.03942	0.24307
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.01554	0.02115	0.15208

SKY130_OSU_SC_12T_LS__DFFSRx

sky130_osu_sc_12T_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_12T_ls__dffsr_1	46.39800
sky130_osu_sc_12T_ls__dffsr_l	46.39800

Pin Capacitance Information

Cell Name	Pin Cap(pf)				Max Cap(pf)	
	D	**RN**	**SN**	**CK**	**Q**	**QN**
sky130_osu_sc_12T_ls__dffsr_1	0.00288	0.00291	0.00675	0.00898	1.57251	1.57384
sky130_osu_sc_12T_ls__dffsr_l	0.00288	0.00291	0.00674	0.00898	1.10950	1.10595

Leakage Information

Cell Name	Leakage(nW)		
	Min.	**Avg**	**Max.**
sky130_osu_sc_12T_ls__dffsr_1	0.00000	3.48625	4.06390
sky130_osu_sc_12T_ls__dffsr_l	0.00000	3.63560	4.21325

Delay Information

Delay(ns) to Q rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_ls__dffsr_1	CK->Q (RR)	0.23113	1.08853	13.81600
	QN->Q (FR)	0.02184	0.68067	11.45150
	RN->Q (RR)	0.18673	1.05801	13.98520
	SN->Q (FR)	0.17250	1.16218	16.22980
sky130_osu_sc_12T_ls__dffsr_l	CK->Q (RR)	0.23178	1.17697	13.36790
	QN->Q (FR)	0.02514	0.73906	11.37830
	RN->Q (RR)	0.18715	1.14649	13.51770
	SN->Q (FR)	0.17322	1.24885	15.75990

Delay(ns) to Q falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_ls__dffsr_1	CK->Q (RF)	0.25591	1.09923	13.85760
	QN->Q (RF)	0.01771	0.50166	8.41975
	RN->Q (FF)	0.17199	1.15834	16.14960
sky130_osu_sc_12T_ls__dffsr_l	CK->Q (RF)	0.25935	1.19250	13.43450
	QN->Q (RF)	0.01877	0.50920	7.82025
	RN->Q (FF)	0.17541	1.25201	15.72190

Delay(ns) to QN rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_ls__dffsr_1	CK->QN (RR)	0.23526	0.64538	6.18720
	RN->QN (FR)	0.15139	0.70542	8.47620
sky130_osu_sc_12T_ls__dffsr_l	CK->QN (RR)	0.23670	0.69977	6.15358
	RN->QN (FR)	0.15268	0.75952	8.43650

Delay(ns) to QN falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_ls__dffsr_1	CK->QN (RF)	0.19950	0.52328	4.25914
	RN->QN (RF)	0.15571	0.49351	4.42683
	SN->QN (FF)	0.14155	0.59652	6.67473
sky130_osu_sc_12T_ls__dffsr_l	CK->QN (RF)	0.19633	0.53678	3.91343
	RN->QN (RF)	0.15268	0.50780	4.07890
	SN->QN (FF)	0.13855	0.60908	6.32468

Constraint Information

Constraints(ns) for D rising :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_12T_ls__dffsr_1	hold	CK (R)	-0.05443	-0.06128	0.06159
	setup	CK (R)	0.17680	0.20581	0.33689
sky130_osu_sc_12T_ls__dffsr_l	hold	CK (R)	-0.05582	-0.06319	0.06453
	setup	CK (R)	0.17644	0.20547	0.33968

Constraints(ns) for D falling :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_12T_ls__dffsr_1	hold	CK (R)	-0.10636	-0.26445	-4.66462
	setup	CK (R)	0.13008	0.27661	4.71547
sky130_osu_sc_12T_ls__dffsr_l	hold	CK (R)	-0.10466	-0.26282	-4.66483
	setup	CK (R)	0.13008	0.27661	4.71547

Constraints(ns) for D rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_12T_ls__dffsr_1	hold	CK (R)	-0.05443	-0.06128	0.06159
	setup	CK (R)	0.17680	0.20581	0.33689
sky130_osu_sc_12T_ls__dffsr_l	hold	CK (R)	-0.05582	-0.06319	0.06453
	setup	CK (R)	0.17644	0.20547	0.33968

Constraints(ns) for D falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_12T_ls__dffsr_1	hold	CK (R)	-0.10636	-0.26445	-4.66462
	setup	CK (R)	0.13008	0.27661	4.71547
sky130_osu_sc_12T_ls__dffsr_l	hold	CK (R)	-0.10466	-0.26282	-4.66483
	setup	CK (R)	0.13008	0.27661	4.71547

Constraints(ns) for RN rising :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_12T_ls__dffsr_1	recovery	CK (R)	0.13739	0.16723	0.77884
	removal	CK (R)	-0.02445	-0.02682	-0.02393
	hold	SN (R)	-0.13362	-0.23264	-0.92396
	setup	SN (R)	0.16019	0.26590	2.75778
sky130_osu_sc_12T_ls__dffsr_l	recovery	CK (R)	0.13659	0.16708	0.77777
	removal	CK (R)	-0.02445	-0.02682	-0.02393
	hold	SN (R)	-0.12994	-0.22670	-0.90892
	setup	SN (R)	0.15663	0.25810	2.70152

Constraints(ns) for RN rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_12T_ls__dffsr_1	recovery	CK (R)	0.13739	0.16723	0.77884
	removal	CK (R)	-0.02445	-0.02682	-0.02393
	hold	SN (R)	-0.13524	-0.23406	-0.92396
	hold	SN (R)	-0.13362	-0.23264	-0.93120
	setup	SN (R)	0.15555	0.26236	2.49627
	setup	SN (R)	0.16019	0.26590	2.75778
sky130_osu_sc_12T_ls__dffsr_l	recovery	CK (R)	0.13659	0.16708	0.77777
	removal	CK (R)	-0.02445	-0.02682	-0.02393
	hold	SN (R)	-0.12994	-0.22670	-0.91306
	hold	SN (R)	-0.13019	-0.22893	-0.90892
	setup	SN (R)	0.15663	0.25615	2.44205
	setup	SN (R)	0.15142	0.25810	2.70152

Constraints(ns) for RN falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_12T_ls__dffsr_1	min_pulse_width	RN ()	0.12024	0.40405	13.33370
	min_pulse_width	RN ()	0.12329	0.40405	13.33370
sky130_osu_sc_12T_ls__dffsr_l	min_pulse_width	RN ()	0.12024	0.40405	13.33370
	min_pulse_width	RN ()	0.12024	0.40405	13.33370

Constraints(ns) for SN rising :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_12T_ls__dffsr_1	recovery	CK (R)	0.03169	0.05577	2.78186
	removal	CK (R)	-0.01756	-0.04532	-0.30880
sky130_osu_sc_12T_ls__dffsr_l	recovery	CK (R)	0.03132	0.05577	2.69553
	removal	CK (R)	-0.01756	-0.04532	-0.30880

Constraints(ns) for SN rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_12T_ls__dffsr_1	recovery	CK (R)	0.03169	0.05577	2.78186
	removal	CK (R)	-0.01756	-0.04532	-0.30880
sky130_osu_sc_12T_ls__dffsr_l	recovery	CK (R)	0.03132	0.05577	2.69553
	removal	CK (R)	-0.01756	-0.04532	-0.30880

Constraints(ns) for SN falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_12T_ls__dffsr_1	min_pulse_width	SN ()	0.13855	0.40405	13.33370
	min_pulse_width	SN ()	0.14465	0.40405	13.33370
sky130_osu_sc_12T_ls__dffsr_l	min_pulse_width	SN ()	0.13855	0.40405	13.33370
	min_pulse_width	SN ()	0.13855	0.40405	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_12T_ls__dffsr_1	min_pulse_width	CK ()	0.10803	0.40405	13.33370
	min_pulse_width	CK ()	0.13245	0.40405	13.33370
sky130_osu_sc_12T_ls__dffsr_l	min_pulse_width	CK ()	0.10193	0.40405	13.33370
	min_pulse_width	CK ()	0.12940	0.40405	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_12T_ls__dffsr_1	min_pulse_width	CK ()	0.23010	0.40405	13.33370
	min_pulse_width	CK ()	0.11108	0.40405	13.33370
sky130_osu_sc_12T_ls__dffsr_l	min_pulse_width	CK ()	0.23010	0.40405	13.33370
	min_pulse_width	CK ()	0.11108	0.40405	13.33370

Power Information

Internal switching power(pJ) to Q rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__dffsr_1	CK	0.00000	0.00000	0.00000
	CK	0.01254	0.01495	0.07636
	RN	0.02218	0.02305	0.06398
	SN	-0.00116	-0.08530	-1.49487
	SN	0.02172	0.02176	0.07001
sky130_osu_sc_12T_ls__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.01154	0.01483	0.09384
	RN	0.02120	0.02292	0.08159
	SN	-0.00116	-0.06919	-1.05472
	SN	0.02073	0.02167	0.08746

Internal switching power(pJ) to Q falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__dffsr_1	CK	0.00000	0.00000	0.00000
	CK	0.01308	0.01455	0.06619
	RN	-0.00116	-0.08530	-1.49487
	RN	0.02611	0.02806	0.08469
sky130_osu_sc_12T_ls__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.01210	0.01380	0.07245
	RN	-0.00116	-0.06919	-1.05472
	RN	0.02514	0.02733	0.08970

Internal switching power(pJ) to QN rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__dffsr_1	CK	0.00000	0.00000	0.00000
	CK	0.01307	0.01450	0.06618
	RN	-0.00116	-0.08534	-1.49612
	RN	0.02611	0.02802	0.08381
sky130_osu_sc_12T_ls__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.01210	0.01380	0.07239
	RN	-0.00116	-0.06906	-1.05134
	RN	0.02513	0.02732	0.08997

Internal switching power(pJ) to QN falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__dffsr_1	CK	0.00000	0.00000	0.00000
	CK	0.01248	0.01490	0.07541
	RN	0.02212	0.02300	0.06364
	SN	-0.00116	-0.08534	-1.49606
	SN	0.02166	0.02170	0.06958
sky130_osu_sc_12T_ls__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.01148	0.01478	0.09268
	RN	0.02113	0.02289	0.08095
	SN	-0.00116	-0.06906	-1.05130
	SN	0.02067	0.02163	0.08744

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__dffsr_1	CK	0.00000	0.00000	0.00000
	CK	-0.00277	-0.00280	-0.00281
	(!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)	0.01569	0.01880	0.12189
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.00550	0.00872	0.10843
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.00540	0.00863	0.10847
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.00544	0.00867	0.10846
sky130_osu_sc_12T_ls__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	-0.00277	-0.00280	-0.00281
	(!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)	0.01570	0.01880	0.12189
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.00550	0.00872	0.10843
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.00540	0.00863	0.10847
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.00544	0.00869	0.10846

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__dffsr_1	CK	0.00000	0.00000	0.00000
	CK	0.00301	0.00294	0.00286
	(!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)	0.02156	0.02469	0.12873
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.01002	0.01320	0.11269
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.01017	0.01328	0.11266
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.00998	0.01315	0.11264
sky130_osu_sc_12T_ls__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.00301	0.00292	0.00286
	(!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)	0.02156	0.02469	0.12873
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.01002	0.01320	0.11270
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.01017	0.01328	0.11266
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.00998	0.01315	0.11264

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_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)	0.00248	0.00790	0.13736
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.01303	0.01832	0.15446
sky130_osu_sc_12T_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)	0.00248	0.00790	0.13736
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.01303	0.01832	0.15446

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_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)	0.01033	0.01602	0.14526
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.02019	0.02572	0.16174
sky130_osu_sc_12T_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)	0.01033	0.01603	0.14527
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.02019	0.02572	0.16175

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_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)	-0.00711	-0.00712	-0.00716
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	-0.00654	-0.00764	-0.00766
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	-0.00657	-0.00713	-0.00713
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.00374	0.00697	0.10563
sky130_osu_sc_12T_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)	-0.00711	-0.00712	-0.00715
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	-0.00654	-0.00764	-0.00766
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	-0.00657	-0.00713	-0.00713
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.00374	0.00697	0.10563

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_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)	0.00721	0.00730	0.00723
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00767	0.00772	0.00773
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	0.00716	0.00725	0.00721
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.01670	0.01873	0.11564
sky130_osu_sc_12T_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)	0.00721	0.00730	0.00723
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00767	0.00772	0.00774
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	0.00716	0.00725	0.00721
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.01670	0.01873	0.11564

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__dffsr_1	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	-0.00085	0.00437	0.13666
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.00754	0.01216	0.15226
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.00735	0.01196	0.15223
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	-0.00063	0.00452	0.13666
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.00337	0.01273	0.24743
sky130_osu_sc_12T_ls__dffsr_l	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	-0.00085	0.00438	0.13666
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.00754	0.01217	0.15227
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.00735	0.01192	0.15226
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	-0.00063	0.00453	0.13667
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.00337	0.01273	0.24743

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

Cell Name	When	Power(pJ)		
		first	mid	last

sky130_osu_sc_12T_ls__dffsr_1	**(D * RN * SN * !Q * QN)**	0.00000	0.00000	0.00000
	(D * RN * SN * !Q * QN)	0.03368	0.03883	0.21244
	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.01419	0.02007	0.15183
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.02274	0.02824	0.16688
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.02279	0.02827	0.16697
	(!D * RN * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * Q * !QN)	0.03170	0.04201	0.24672
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.01556	0.02107	0.15208
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.01931	0.02968	0.26313
sky130_osu_sc_12T_ls__dffsr_l	**(D * RN * SN * !Q * QN)**	0.00000	0.00000	0.00000
	(D * RN * SN * !Q * QN)	0.03368	0.03883	0.21244
	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.01419	0.02007	0.15183
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.02274	0.02824	0.16688
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.02279	0.02828	0.16697
	(!D * RN * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * Q * !QN)	0.03170	0.04200	0.24672
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.01556	0.02108	0.15209
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.01931	0.02968	0.26313

SKY130_OSU_SC_12T_LS__DFFSx

sky130_osu_sc_12T_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_12T_ls__dffs_1	38.58360
sky130_osu_sc_12T_ls__dffs_l	38.58360

Pin Capacitance Information

Cell Name	Pin Cap(pf)			Max Cap(pf)	
	D	SN	CK	Q	QN
sky130_osu_sc_12T_ls__dffs_1	0.00290	0.00554	0.00887	1.50644	1.51016
sky130_osu_sc_12T_ls__dffs_l	0.00290	0.00554	0.00887	1.10308	1.10491

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_12T_ls__dffs_1	0.00000	3.30377	5.10300
sky130_osu_sc_12T_ls__dffs_l	0.00000	3.45311	5.25234

Delay Information

Delay(ns) to Q rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_ls__dffs_1	CK->Q (RR)	0.16740	1.00392	13.32140
	QN->Q (FR)	0.02321	0.70281	11.69570
	SN->Q (FR)	0.13066	1.13083	15.81720
sky130_osu_sc_12T_ls__dffs_l	CK->Q (RR)	0.16800	1.09656	13.15290
	QN->Q (FR)	0.02516	0.73553	11.30790
	SN->Q (FR)	0.13144	1.21967	15.62300

Delay(ns) to Q falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_ls__dffs_1	CK->Q (RF)	0.24387	1.07902	13.45980
	QN->Q (RF)	0.01779	0.49241	8.16909
sky130_osu_sc_12T_ls__dffs_l	CK->Q (RF)	0.24472	1.17359	13.32770
	QN->Q (RF)	0.01882	0.50739	7.78021

Delay(ns) to QN rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_ls__dffs_1	CK->QN (RR)	0.22327	0.63765	6.12834
sky130_osu_sc_12T_ls__dffs_l	CK->QN (RR)	0.22194	0.68393	6.11608

Delay(ns) to QN falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_ls__dffs_1	CK->QN (RF)	0.13776	0.43950	3.93595
	SN->QN (FF)	0.10082	0.56615	6.43394
sky130_osu_sc_12T_ls__dffs_l	CK->QN (RF)	0.13529	0.46138	3.79203
	SN->QN (FF)	0.09853	0.58494	6.27217

Constraint Information

Constraints(ns) for D rising :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_12T_ls__dffs_1	hold	CK (R)	-0.03486	-0.04415	0.09965
	setup	CK (R)	0.12230	0.15994	0.25028
sky130_osu_sc_12T_ls__dffs_l	hold	CK (R)	-0.03590	-0.04171	0.09852
	setup	CK (R)	0.12251	0.15934	0.25431

Constraints(ns) for D falling :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_12T_ls__dffs_1	hold	CK (R)	-0.09604	-0.25379	-4.66189
	setup	CK (R)	0.12107	0.26666	4.70578
sky130_osu_sc_12T_ls__dffs_l	hold	CK (R)	-0.09671	-0.25381	-4.65802
	setup	CK (R)	0.12107	0.26666	4.70570

Constraints(ns) for D rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_12T_ls__dffs_1	hold	CK (R)	-0.03486	-0.04415	0.09965
	setup	CK (R)	0.12230	0.15994	0.25028
sky130_osu_sc_12T_ls__dffs_l	hold	CK (R)	-0.03590	-0.04171	0.09852
	setup	CK (R)	0.12251	0.15934	0.25431

Constraints(ns) for D falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_12T_ls__dffs_1	hold	CK (R)	-0.09604	-0.25379	-4.66189
	setup	CK (R)	0.12107	0.26666	4.70578
sky130_osu_sc_12T_ls__dffs_l	hold	CK (R)	-0.09671	-0.25381	-4.65802
	setup	CK (R)	0.12107	0.26666	4.70570

Constraints(ns) for SN rising :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_12T_ls__dffs_1	recovery	CK (R)	0.03098	0.05926	1.96635
	removal	CK (R)	-0.02088	-0.04880	-0.42288
sky130_osu_sc_12T_ls__dffs_l	recovery	CK (R)	0.03090	0.05913	1.86882
	removal	CK (R)	-0.02088	-0.04880	-0.42288

Constraints(ns) for SN rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_12T_ls__dffs_1	recovery	CK (R)	0.03098	0.05926	1.96635
	removal	CK (R)	-0.02088	-0.04880	-0.42288
sky130_osu_sc_12T_ls__dffs_l	recovery	CK (R)	0.03090	0.05913	1.86882
	removal	CK (R)	-0.02088	-0.04880	-0.42288

Constraints(ns) for SN falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_12T_ls__dffs_1	min_pulse_width	SN ()	0.08972	0.40405	13.33370
	min_pulse_width	SN ()	0.09583	0.40405	13.33370
sky130_osu_sc_12T_ls__dffs_l	min_pulse_width	SN ()	0.08972	0.40405	13.33370
	min_pulse_width	SN ()	0.08972	0.40405	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_12T_ls__dffs_1	min_pulse_width	CK ()	0.07446	0.40405	13.33370
	min_pulse_width	CK ()	0.12024	0.40405	13.33370
sky130_osu_sc_12T_ls__dffs_l	min_pulse_width	CK ()	0.07141	0.40405	13.33370
	min_pulse_width	CK ()	0.11719	0.40405	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_12T_ls__dffs_1	min_pulse_width	CK ()	0.17517	0.40405	13.33370
	min_pulse_width	CK ()	0.10193	0.40405	13.33370
sky130_osu_sc_12T_ls__dffs_l	min_pulse_width	CK ()	0.17517	0.40405	13.33370
	min_pulse_width	CK ()	0.10193	0.40405	13.33370

Power Information

Internal switching power(pJ) to Q rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__dffs_1	CK	0.00000	0.00000	0.00000
	CK	0.00982	0.01261	0.07617
	SN	-0.00116	-0.08313	-1.43206
	SN	0.01760	0.01962	0.07658
sky130_osu_sc_12T_ls__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.00882	0.01237	0.09173
	SN	-0.00116	-0.06895	-1.04862
	SN	0.01659	0.01944	0.09186

Internal switching power(pJ) to Q falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__dffs_1	CK	0.00000	0.00000	0.00000
	CK	0.01127	0.01219	0.05623
sky130_osu_sc_12T_ls__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.01029	0.01203	0.07109

Internal switching power(pJ) to QN rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__dffs_1	CK	0.00000	0.00000	0.00000
	CK	0.01126	0.01216	0.05609
sky130_osu_sc_12T_ls__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.01028	0.01199	0.07107

Internal switching power(pJ) to QN falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__dffs_1	CK	0.00000	0.00000	0.00000
	CK	0.00977	0.01258	0.07473
	SN	-0.00116	-0.08325	-1.43553
	SN	0.01755	0.01959	0.07565
sky130_osu_sc_12T_ls__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.00877	0.01237	0.09064
	SN	-0.00116	-0.06902	-1.05030
	SN	0.01655	0.01941	0.09137

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__dffs_1	CK	0.00000	0.00000	0.00000
	CK	-0.00279	-0.00284	-0.00283
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.01201	0.01547	0.12087
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.00497	0.00828	0.10836
sky130_osu_sc_12T_ls__dffs_l	CK	0.00000	0.00000	0.00000
	CK	-0.00279	-0.00284	-0.00283
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.01201	0.01547	0.12087
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.00497	0.00829	0.10836

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__dffs_1	CK	0.00000	0.00000	0.00000
	CK	0.00306	0.00298	0.00291
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.01842	0.02171	0.12657
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.00926	0.01258	0.11252
sky130_osu_sc_12T_ls__dffs_1	CK	0.00000	0.00000	0.00000
	CK	0.00306	0.00298	0.00291
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.01842	0.02171	0.12657
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.00926	0.01258	0.11252

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__dffs_1	(CK * Q * !QN) + (!CK * D * Q * !QN)	0.00000	0.00000	0.00000
	(CK * Q * !QN) + (!CK * D * Q * !QN)	-0.00523	-0.00527	-0.00526
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.00358	0.00676	0.10543
sky130_osu_sc_12T_ls__dffs_1	(CK * Q * !QN) + (!CK * D * Q * !QN)	0.00000	0.00000	0.00000
	(CK * Q * !QN) + (!CK * D * Q * !QN)	-0.00523	-0.00527	-0.00526
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.00358	0.00676	0.10543

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__dffs_1	(CK * Q * !QN) + (!CK * D * Q * !QN)	0.00000	0.00000	0.00000
	(CK * Q * !QN) + (!CK * D * Q * !QN)	0.00539	0.00539	0.00532
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.01152	0.01509	0.11346
sky130_osu_sc_12T_ls__dffs_l	(CK * Q * !QN) + (!CK * D * Q * !QN)	0.00000	0.00000	0.00000
	(CK * Q * !QN) + (!CK * D * Q * !QN)	0.00540	0.00539	0.00532
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.01152	0.01509	0.11346

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__dffs_1	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	-0.00078	0.00451	0.13685
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	-0.00070	0.00448	0.13673
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.00290	0.01246	0.24781
sky130_osu_sc_12T_ls__dffs_l	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	-0.00078	0.00451	0.13685
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	-0.00070	0.00448	0.13673
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.00290	0.01246	0.24781

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__dffs_1	(D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * SN * !Q * QN)	0.02982	0.03498	0.21057
	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.01393	0.01984	0.15171
	(!D * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * SN * Q * !QN)	0.02828	0.03876	0.24313
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	0.01547	0.02107	0.15213
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.01826	0.02890	0.26308
sky130_osu_sc_12T_ls__dffs_l	(D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * SN * !Q * QN)	0.02982	0.03498	0.21058
	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.01393	0.01985	0.15171
	(!D * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * SN * Q * !QN)	0.02828	0.03873	0.24313
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	0.01547	0.02108	0.15213
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.01826	0.02890	0.26308

SKY130_OSU_SC_12T_LS__DFFx

sky130_osu_sc_12T_ls_ff_1P95_100C.ccs
Cell Library: Process , Voltage 1.95,
Temp 100.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_12T_ls__dff_1	32.23440
sky130_osu_sc_12T_ls__dff_l	32.23440

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	D	CK	Q
sky130_osu_sc_12T_ls__dff_1	0.00305	0.00867	1.34712
sky130_osu_sc_12T_ls__dff_l	0.00305	0.00867	1.02061

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_12T_ls__dff_1	0.00000	3.03955	3.29046
sky130_osu_sc_12T_ls__dff_l	0.00000	3.18890	3.43981

Delay Information

Delay(ns) to Q rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_ls__dff_1	CK->Q (RR)	0.14314	0.55340	5.69823
sky130_osu_sc_12T_ls__dff_l	CK->Q (RR)	0.14302	0.60225	5.75163

Delay(ns) to Q falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_ls__dff_1	CK->Q (RF)	0.20789	0.49086	3.70740
sky130_osu_sc_12T_ls__dff_l	CK->Q (RF)	0.20818	0.52205	3.73171

Constraint Information

Constraints(ns) for D rising :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_12T_ls__dff_1	hold	CK (R)	-0.03254	-0.03953	0.09139
	setup	CK (R)	0.10109	0.14333	0.21640
sky130_osu_sc_12T_ls__dff_l	hold	CK (R)	-0.03089	-0.03956	0.09129
	setup	CK (R)	0.10094	0.14362	0.21808

Constraints(ns) for D falling :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_12T_ls__dff_1	hold	CK (R)	-0.08491	-0.24970	-4.66204
	setup	CK (R)	0.10533	0.26380	4.70292
sky130_osu_sc_12T_ls__dff_l	hold	CK (R)	-0.08640	-0.24970	-4.66251
	setup	CK (R)	0.10533	0.26380	4.70292

Constraints(ns) for CK rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_12T_ls__dff_1	min_pulse_width	CK ()	0.06226	0.40405	13.33370
	min_pulse_width	CK ()	0.10803	0.40405	13.33370
sky130_osu_sc_12T_ls__dff_l	min_pulse_width	CK ()	0.06226	0.40405	13.33370
	min_pulse_width	CK ()	0.10803	0.40405	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_12T_ls__dff_1	**min_pulse_width**	**CK ()**	0.15076	0.40405	13.33370
	min_pulse_width	**CK ()**	0.08057	0.40405	13.33370
sky130_osu_sc_12T_ls__dff_l	**min_pulse_width**	**CK ()**	0.15076	0.40405	13.33370
	min_pulse_width	**CK ()**	0.08057	0.40405	13.33370

Power Information

Internal switching power(pJ) to Q rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__dff_1	CK	0.00000	0.00000	0.00000
	CK	0.02037	0.02951	0.22120
sky130_osu_sc_12T_ls__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.01838	0.02761	0.21912

Internal switching power(pJ) to Q falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__dff_1	CK	0.00000	0.00000	0.00000
	CK	0.02273	0.02740	0.16838
sky130_osu_sc_12T_ls__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.02088	0.02565	0.16655

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__dff_1	CK	0.00000	0.00000	0.00000
	CK	-0.00223	-0.00274	-0.00278
	!CK	0.00000	0.00000	0.00000
	!CK	0.01074	0.01415	0.11936
sky130_osu_sc_12T_ls__dff_l	CK	0.00000	0.00000	0.00000
	CK	-0.00223	-0.00274	-0.00277
	!CK	0.00000	0.00000	0.00000
	!CK	0.01074	0.01415	0.11936

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__dff_1	CK	0.00000	0.00000	0.00000
	CK	0.00281	0.00286	0.00283
	!CK	0.00000	0.00000	0.00000
	!CK	0.01906	0.02244	0.12868
sky130_osu_sc_12T_ls__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.00282	0.00286	0.00284
	!CK	0.00000	0.00000	0.00000
	!CK	0.01906	0.02245	0.12868

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__dff_1	(D * Q)	0.00000	0.00000	0.00000
	(D * Q)	-0.00082	0.00451	0.13683
	(!D * !Q)	0.00000	0.00000	0.00000
	(!D * !Q)	-0.00071	0.00449	0.13673
sky130_osu_sc_12T_ls__dff_l	(D * Q)	0.00000	0.00000	0.00000
	(D * Q)	-0.00082	0.00451	0.13683
	(!D * !Q)	0.00000	0.00000	0.00000
	(!D * !Q)	-0.00071	0.00449	0.13674

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__dff_1	(D * Q)	0.00000	0.00000	0.00000
	(D * Q)	0.01389	0.01986	0.15170
	(D * !Q)	0.00000	0.00000	0.00000
	(D * !Q)	0.02855	0.03390	0.21018
	(!D * Q)	0.00000	0.00000	0.00000
	(!D * Q)	0.02875	0.03968	0.24753
	(!D * !Q)	0.00000	0.00000	0.00000
	(!D * !Q)	0.01536	0.02099	0.15205
sky130_osu_sc_12T_ls__dff_l	(D * Q)	0.00000	0.00000	0.00000
	(D * Q)	0.01389	0.01987	0.15170
	(D * !Q)	0.00000	0.00000	0.00000
	(D * !Q)	0.02855	0.03390	0.21018
	(!D * Q)	0.00000	0.00000	0.00000
	(!D * Q)	0.02875	0.03969	0.24753
	(!D * !Q)	0.00000	0.00000	0.00000
	(!D * !Q)	0.01537	0.02099	0.15205

SKY130_OSU_SC_12T_LS__INVx

sky130_osu_sc_12T_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_12T_ls__inv_1	4.39560
sky130_osu_sc_12T_ls__inv_10	21.97800
sky130_osu_sc_12T_ls__inv_2	6.34920
sky130_osu_sc_12T_ls__inv_3	8.30280
sky130_osu_sc_12T_ls__inv_4	10.25640
sky130_osu_sc_12T_ls__inv_6	14.16360
sky130_osu_sc_12T_ls__inv_8	18.07080
sky130_osu_sc_12T_ls__inv_l	4.38570

Pin Capacitance Information

Cell Name	Pin Cap(pf)	Max Cap(pf)
	A	Y
sky130_osu_sc_12T_ls__inv_1	0.00293	1.34404
sky130_osu_sc_12T_ls__inv_10	0.02635	13.39157
sky130_osu_sc_12T_ls__inv_2	0.00546	2.75196
sky130_osu_sc_12T_ls__inv_3	0.00809	4.03988
sky130_osu_sc_12T_ls__inv_4	0.01066	5.44271
sky130_osu_sc_12T_ls__inv_6	0.01596	8.09827
sky130_osu_sc_12T_ls__inv_8	0.02115	10.78026
sky130_osu_sc_12T_ls__inv_l	0.00233	0.96478

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_12T_ls__inv_1	0.00000	0.42684	0.45098
sky130_osu_sc_12T_ls__inv_10	0.00000	4.24523	4.49614
sky130_osu_sc_12T_ls__inv_2	0.00000	0.84905	0.89923
sky130_osu_sc_12T_ls__inv_3	0.00000	1.27589	1.35021
sky130_osu_sc_12T_ls__inv_4	0.00000	1.69809	1.79846
sky130_osu_sc_12T_ls__inv_6	0.00000	2.54714	2.69768
sky130_osu_sc_12T_ls__inv_8	0.00000	3.39619	3.59691
sky130_osu_sc_12T_ls__inv_l	0.00000	0.50151	0.66822

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_ls__inv_1	**A->Y (FR)**	0.02232	0.63749	10.31800
sky130_osu_sc_12T_ls__inv_10	**A->Y (FR)**	0.02659	0.40452	10.26370
sky130_osu_sc_12T_ls__inv_2	**A->Y (FR)**	0.01681	0.53517	10.19360
sky130_osu_sc_12T_ls__inv_3	**A->Y (FR)**	0.01810	0.49829	10.22810
sky130_osu_sc_12T_ls__inv_4	**A->Y (FR)**	0.01799	0.46817	10.18530
sky130_osu_sc_12T_ls__inv_6	**A->Y (FR)**	0.02005	0.43506	10.18130
sky130_osu_sc_12T_ls__inv_8	**A->Y (FR)**	0.02302	0.41558	10.21100
sky130_osu_sc_12T_ls__inv_l	**A->Y (FR)**	0.02516	0.67347	10.06790

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_ls__inv_1	**A->Y (RF)**	0.01646	0.42129	6.76300
sky130_osu_sc_12T_ls__inv_10	**A->Y (RF)**	0.02152	0.23508	7.05032
sky130_osu_sc_12T_ls__inv_2	**A->Y (RF)**	0.01313	0.35050	6.91464
sky130_osu_sc_12T_ls__inv_3	**A->Y (RF)**	0.01424	0.31905	7.01056
sky130_osu_sc_12T_ls__inv_4	**A->Y (RF)**	0.01408	0.29359	7.02130
sky130_osu_sc_12T_ls__inv_6	**A->Y (RF)**	0.01661	0.26495	7.04319
sky130_osu_sc_12T_ls__inv_8	**A->Y (RF)**	0.01897	0.24671	7.06838
sky130_osu_sc_12T_ls__inv_l	**A->Y (RF)**	0.01797	0.44404	6.49278

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__inv_1	A	0.00000	0.00000	0.00000
	A	0.00461	0.00733	0.03925
sky130_osu_sc_12T_ls__inv_10	A	0.00000	0.00000	0.00000
	A	0.03896	0.07394	0.37130
sky130_osu_sc_12T_ls__inv_2	A	0.00000	0.00000	0.00000
	A	0.00798	0.01393	0.07590
sky130_osu_sc_12T_ls__inv_3	A	0.00000	0.00000	0.00000
	A	0.01228	0.02114	0.11277
sky130_osu_sc_12T_ls__inv_4	A	0.00000	0.00000	0.00000
	A	0.01568	0.02817	0.14961
sky130_osu_sc_12T_ls__inv_6	A	0.00000	0.00000	0.00000
	A	0.02330	0.04242	0.22364
sky130_osu_sc_12T_ls__inv_8	A	0.00000	0.00000	0.00000
	A	0.03098	0.06002	0.29712
sky130_osu_sc_12T_ls__inv_l	A	0.00000	0.00000	0.00000
	A	0.00366	0.00533	0.03567

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__inv_1	**A**	0.00000	0.00000	0.00000
	A	-0.00085	0.00092	0.02859
sky130_osu_sc_12T_ls__inv_10	**A**	0.00000	0.00000	0.00000
	A	-0.01226	0.01622	0.27241
sky130_osu_sc_12T_ls__inv_2	**A**	0.00000	0.00000	0.00000
	A	-0.00270	0.00158	0.05571
sky130_osu_sc_12T_ls__inv_3	**A**	0.00000	0.00000	0.00000
	A	-0.00353	0.00396	0.08279
sky130_osu_sc_12T_ls__inv_4	**A**	0.00000	0.00000	0.00000
	A	-0.00539	0.00454	0.10994
sky130_osu_sc_12T_ls__inv_6	**A**	0.00000	0.00000	0.00000
	A	-0.00820	0.00753	0.16420
sky130_osu_sc_12T_ls__inv_8	**A**	0.00000	0.00000	0.00000
	A	-0.01064	0.01335	0.21741
sky130_osu_sc_12T_ls__inv_l	**A**	0.00000	0.00000	0.00000
	A	-0.00064	0.00073	0.02443

SKY130_OSU_SC_12T_LS__MUX2

sky130_osu_sc_12T_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_12T_ls__mux2_1	12.21000

Pin Capacitance Information

Cell Name	Pin Cap(pf)			Max Cap(pf)
	A0	A1	S0	Y
sky130_osu_sc_12T_ls__mux2_1	0.01824	0.01813	0.00604	0.01389

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_12T_ls__mux2_1	0.00000	0.86829	0.86829

Delay Information

Delay(ns) to Y rising (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_12T_ls__mux2_1	A0->Y (RR)	-	0.00897	0.02718	0.05989
	A1->Y (RR)	-	0.01018	0.02749	0.05978
	S0->Y (RR)	(!A0 * A1)	0.03336	0.06201	-0.84230
	S0->Y (FR)	(A0 * !A1)	0.02489	0.18264	1.60892

Delay(ns) to Y falling (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_12T_ls__mux2_1	A0->Y (FF)	-	0.01031	0.03088	0.06073
	A1->Y (FF)	-	0.00947	0.03031	0.06050
	S0->Y (FF)	(!A0 * A1)	0.04548	0.20220	1.51651
	S0->Y (RF)	(A0 * !A1)	0.01844	0.03350	-0.78654

Power Information

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

Cell Name	Input	When	Power(pJ)		
			first	mid	last
sky130_osu_sc_12T_ls__mux2_1	A0	-	0.00000	0.00000	0.00000
	A0	-	-0.00461	-0.00461	-0.00463
	A1	-	0.00000	0.00000	0.00000
	A1	-	-0.00291	-0.00291	-0.00292
	S0	(A0 * !A1)	0.00000	0.00000	0.00000
	S0	(A0 * !A1)	0.00585	0.01238	0.14234
	S0	(!A0 * A1)	0.00000	0.00000	0.00000
	S0	(!A0 * A1)	-0.00297	0.00284	0.13253

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

Cell Name	Input	When	Power(pJ)		
			first	mid	last
sky130_osu_sc_12T_ls__mux2_1	A0	-	0.00000	0.00000	0.00000
	A0	-	0.00462	0.00464	0.00464
	A1	-	0.00000	0.00000	0.00000
	A1	-	0.00292	0.00293	0.00293
	S0	(A0 * !A1)	0.00000	0.00000	0.00000
	S0	(A0 * !A1)	0.00073	0.00692	0.13720
	S0	(!A0 * A1)	0.00000	0.00000	0.00000
	S0	(!A0 * A1)	0.01264	0.01853	0.14762

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__mux2_1	(A1 * S0 * Y) + (!A1 * S0 * !Y)	0.00000	0.00000	0.00000
	(A1 * S0 * Y) + (!A1 * S0 * !Y)	-0.00105	-0.00105	-0.00105

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__mux2_1	(A1 * S0 * Y) + (!A1 * S0 * !Y)	0.00000	0.00000	0.00000
	(A1 * S0 * Y) + (!A1 * S0 * !Y)	0.00106	0.00106	0.00106

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__mux2_1	(A0 * !S0 * Y) + (!A0 * !S0 * !Y)	0.00000	0.00000	0.00000
	(A0 * !S0 * Y) + (!A0 * !S0 * !Y)	-0.00127	-0.00127	-0.00127

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__mux2_1	(A0 * !S0 * Y) + (!A0 * !S0 * !Y)	0.00000	0.00000	0.00000
	(A0 * !S0 * Y) + (!A0 * !S0 * !Y)	0.00128	0.00128	0.00128

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__mux2_1	(A0 * A1 * Y)	0.00000	0.00000	0.00000
	(A0 * A1 * Y)	-0.00114	0.00492	0.13473
	(!A0 * !A1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !Y)	-0.00110	0.00488	0.13487

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__mux2_1	(A0 * A1 * Y)	0.00000	0.00000	0.00000
	(A0 * A1 * Y)	0.00973	0.01584	0.14512
	(!A0 * !A1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !Y)	0.00876	0.01527	0.14493

SKY130_OSU_SC_12T_LS__NAND2x

sky130_osu_sc_12T_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_12T_ls__nand2_1	6.34920
sky130_osu_sc_12T_ls__nand2_l	6.34920

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	B	Y
sky130_osu_sc_12T_ls__nand2_1	0.00292	0.00292	1.33039
sky130_osu_sc_12T_ls__nand2_l	0.00228	0.00232	0.95912

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_12T_ls__nand2_1	0.00000	0.40871	0.79887
sky130_osu_sc_12T_ls__nand2_l	0.00000	0.48940	1.33173

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_ls__nand2_1	A->Y (FR)	0.02359	0.63697	10.26960
	B->Y (FR)	0.02699	0.61299	9.78851
sky130_osu_sc_12T_ls__nand2_l	A->Y (FR)	0.02568	0.67366	10.02570
	B->Y (FR)	0.03091	0.67724	10.01230

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_ls__nand2_1	A->Y (RF)	0.02299	0.52739	8.42538
	B->Y (RF)	0.02637	0.50615	8.00968
sky130_osu_sc_12T_ls__nand2_l	A->Y (RF)	0.02529	0.56769	8.28452
	B->Y (RF)	0.02854	0.54126	7.73068

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__nand2_1	A	0.00000	0.00000	0.00000
	A	0.00494	0.00725	0.03432
	B	0.00000	0.00000	0.00000
	B	0.00643	0.00829	0.03744
sky130_osu_sc_12T_ls__nand2_l	A	0.00000	0.00000	0.00000
	A	0.00376	0.00479	0.03050
	B	0.00000	0.00000	0.00000
	B	0.00485	0.00591	0.03255

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__nand2_1	A	0.00000	0.00000	0.00000
	A	-0.00052	0.00085	0.02452
	B	0.00000	0.00000	0.00000
	B	-0.00053	0.00061	0.02321
sky130_osu_sc_12T_ls__nand2_l	A	0.00000	0.00000	0.00000
	A	-0.00034	0.00080	0.02058
	B	0.00000	0.00000	0.00000
	B	-0.00034	0.00053	0.01966

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__nand2_1	(!B * Y)	0.00000	0.00000	0.00000
	(!B * Y)	-0.00325	-0.00326	-0.00328
sky130_osu_sc_12T_ls__nand2_l	(!B * Y)	0.00000	0.00000	0.00000
	(!B * Y)	-0.00231	-0.00233	-0.00234

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__nand2_1	(!B * Y)	0.00000	0.00000	0.00000
	(!B * Y)	0.00328	0.00331	0.00329
sky130_osu_sc_12T_ls__nand2_l	(!B * Y)	0.00000	0.00000	0.00000
	(!B * Y)	0.00233	0.00236	0.00235

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__nand2_1	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00301	-0.00303	-0.00301
sky130_osu_sc_12T_ls__nand2_l	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00216	-0.00218	-0.00217

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__nand2_1	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00317	0.00308	0.00303
sky130_osu_sc_12T_ls__nand2_l	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00229	0.00220	0.00218

SKY130_OSU_SC_12T_LS__NOR2x

sky130_osu_sc_12T_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_12T_ls__nor2_1	6.34920
sky130_osu_sc_12T_ls__nor2_l	6.34920

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	B	Y
sky130_osu_sc_12T_ls__nor2_1	0.00288	0.00315	0.78870
sky130_osu_sc_12T_ls__nor2_l	0.00220	0.00241	0.58622

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_12T_ls__nor2_1	0.00000	0.40998	0.89923
sky130_osu_sc_12T_ls__nor2_l	0.00000	0.44919	0.66821

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_ls__nor2_1	A->Y (FR)	0.04748	0.71923	9.78524
	B->Y (FR)	0.03570	0.73915	10.28040
sky130_osu_sc_12T_ls__nor2_l	A->Y (FR)	0.04899	0.77221	9.64092
	B->Y (FR)	0.03974	0.79136	10.14590

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_ls__nor2_1	A->Y (RF)	0.02268	0.34492	4.52783
	B->Y (RF)	0.01770	0.33620	4.50363
sky130_osu_sc_12T_ls__nor2_l	A->Y (RF)	0.02320	0.36689	4.43310
	B->Y (RF)	0.01907	0.35999	4.40805

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__nor2_1	A	0.00000	0.00000	0.00000
	A	0.00685	0.00775	0.04054
	B	0.00000	0.00000	0.00000
	B	0.00509	0.00701	0.04285
sky130_osu_sc_12T_ls__nor2_1	A	0.00000	0.00000	0.00000
	A	0.00500	0.00600	0.03490
	B	0.00000	0.00000	0.00000
	B	0.00385	0.00548	0.03802

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__nor2_1	A	0.00000	0.00000	0.00000
	A	0.00076	0.00225	0.03585
	B	0.00000	0.00000	0.00000
	B	-0.00063	0.00115	0.03259
sky130_osu_sc_12T_ls__nor2_1	A	0.00000	0.00000	0.00000
	A	0.00050	0.00178	0.03050
	B	0.00000	0.00000	0.00000
	B	-0.00041	0.00098	0.02763

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__nor2_1	(B * !Y)	0.00000	0.00000	0.00000
	(B * !Y)	-0.00226	-0.00280	-0.00282
sky130_osu_sc_12T_ls__nor2_l	(B * !Y)	0.00000	0.00000	0.00000
	(B * !Y)	-0.00155	-0.00192	-0.00194

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__nor2_1	(B * !Y)	0.00000	0.00000	0.00000
	(B * !Y)	0.00281	0.00286	0.00283
sky130_osu_sc_12T_ls__nor2_l	(B * !Y)	0.00000	0.00000	0.00000
	(B * !Y)	0.00194	0.00197	0.00196

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__nor2_1	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	-0.00109	-0.00110	-0.00109
sky130_osu_sc_12T_ls__nor2_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	-0.00080	-0.00080	-0.00079

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__nor2_1	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00115	0.00116	0.00111
sky130_osu_sc_12T_ls__nor2_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00083	0.00083	0.00080

SKY130_OSU_SC_12T_LS__OAI21

sky130_osu_sc_12T_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_12T_ls__oai21_l	8.30280

Pin Capacitance Information

Cell Name	Pin Cap(pf)			Max Cap(pf)
	A0	A1	B0	Y
sky130_osu_sc_12T_ls__oai21_l	0.00293	0.00303	0.00257	0.75592

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_12T_ls__oai21_l	0.00000	0.60565	1.07091

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_ls__oai21_l	A0->Y (FR)	0.05168	0.74354	10.02480
	A1->Y (FR)	0.06565	0.72840	9.53741
	B0->Y (FR)	0.03117	0.62177	8.72982

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_ls__oai21_l	A0->Y (RF)	0.03211	0.40816	5.24618
	A1->Y (RF)	0.03872	0.40932	5.17729
	B0->Y (RF)	0.02444	0.44368	5.94963

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__oai21_l	A0	0.00000	0.00000	0.00000
	A0	0.00732	0.00879	0.03995
	A1	0.00000	0.00000	0.00000
	A1	0.00913	0.00991	0.03991
	B0	0.00423	0.00671	0.04392

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__oai21_l	A0	0.00000	0.00000	0.00000
	A0	0.00026	0.00130	0.02673
	A1	0.00000	0.00000	0.00000
	A1	0.00168	0.00249	0.02950
	B0	0.00062	0.00210	0.03061

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__oai21_l	(A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * !Y)	-0.00109	-0.00110	-0.00110
	(A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * Y)	-0.00285	-0.00287	-0.00287
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00289	-0.00292	-0.00290

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__oai21_l	(A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * !Y)	0.00116	0.00117	0.00113
	(A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * Y)	0.00285	0.00287	0.00287
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00307	0.00296	0.00292

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__oai21_l	(A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * B0 * !Y)	-0.00216	-0.00271	-0.00273
	(A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * Y)	-0.00282	-0.00285	-0.00284
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	-0.00286	-0.00288	-0.00286

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__oai21_l	(A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * B0 * !Y)	0.00273	0.00276	0.00275
	(A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * Y)	0.00282	0.00286	0.00284
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	0.00303	0.00293	0.00288

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__oai21_l	(!A0 * !A1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * Y)	-0.00243	-0.00244	-0.00248

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__oai21_l	(!A0 * !A1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * Y)	0.00248	0.00252	0.00250

SKY130_OSU_SC_12T_LS__OAI22

sky130_osu_sc_12T_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_12T_ls__oai22_1	10.25640

Pin Capacitance Information

Cell Name	Pin Cap(pf)				Max Cap(pf)
	A0	A1	B0	B1	Y
sky130_osu_sc_12T_ls__oai22_1	0.00277	0.00289	0.00306	0.00303	0.82005

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_12T_ls__oai22_1	0.00000	0.57697	0.89922

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_ls__oai22_l	A0->Y (FR)	0.06886	0.72925	9.70565
	A1->Y (FR)	0.05798	0.74877	10.23500
	B0->Y (FR)	0.03720	0.72918	10.21760
	B1->Y (FR)	0.04926	0.71001	9.68745

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_ls__oai22_l	A0->Y (RF)	0.05353	0.45036	5.65557
	A1->Y (RF)	0.04330	0.43705	5.61191
	B0->Y (RF)	0.03649	0.47372	6.33768
	B1->Y (RF)	0.04714	0.48875	6.41803

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__oai22_l	A0	0.01087	0.01171	0.04139
	A1	0.00910	0.01066	0.04387
	B0	0.00536	0.00711	0.03968
	B1	0.00729	0.00818	0.03690

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__oai22_l	A0	0.00115	0.00203	0.02936
	A1	-0.00014	0.00093	0.02689
	B0	-0.00019	0.00138	0.02997
	B1	0.00115	0.00239	0.03182

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__oai22_l	(A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * !Y)	-0.00223	-0.00274	-0.00276
	(A1 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * B1 * !Y)	-0.00222	-0.00274	-0.00276
	(A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * !B1 * Y)	-0.00273	-0.00276	-0.00276
	(!A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * !B1 * Y)	-0.00278	-0.00279	-0.00278

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__oai22_l	(A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * !Y)	0.00276	0.00279	0.00278
	(A1 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * B1 * !Y)	0.00276	0.00280	0.00278
	(A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * !B1 * Y)	0.00276	0.00278	0.00276
	(!A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * !B1 * Y)	0.00299	0.00284	0.00281

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__oai22_l	(A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * B0 * !Y)	-0.00106	-0.00107	-0.00106
	(A0 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * B1 * !Y)	-0.00106	-0.00107	-0.00106
	(A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * !B1 * Y)	-0.00272	-0.00275	-0.00275
	(!A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * !B1 * Y)	-0.00278	-0.00278	-0.00277

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__oai22_l	(A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * B0 * !Y)	0.00112	0.00113	0.00108
	(A0 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * B1 * !Y)	0.00112	0.00113	0.00108
	(A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * !B1 * Y)	0.00273	0.00275	0.00275
	(!A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * !B1 * Y)	0.00299	0.00285	0.00280

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__oai22_l	(A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * B1 * !Y)	-0.00107	-0.00109	-0.00108
	(A0 * !A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B1 * !Y)	-0.00107	-0.00109	-0.00108
	(!A0 * !A1 * B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B1 * Y)	-0.00321	-0.00323	-0.00324
	(!A0 * !A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B1 * Y)	-0.00317	-0.00318	-0.00325

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__oai22_l	(A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * B1 * !Y)	0.00113	0.00114	0.00110
	(A0 * !A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B1 * !Y)	0.00113	0.00115	0.00110
	(!A0 * !A1 * B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B1 * Y)	0.00328	0.00330	0.00324
	(!A0 * !A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B1 * Y)	0.00325	0.00329	0.00327

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__oai22_l	(A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * !Y)	-0.00220	-0.00272	-0.00275
	(A0 * !A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B0 * !Y)	-0.00220	-0.00272	-0.00274
	(!A0 * !A1 * B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B0 * Y)	-0.00325	-0.00330	-0.00329
	(!A0 * !A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B0 * Y)	-0.00322	-0.00324	-0.00330

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__oai22_l	(A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * !Y)	0.00274	0.00277	0.00276
	(A0 * !A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B0 * !Y)	0.00274	0.00276	0.00276
	(!A0 * !A1 * B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B0 * Y)	0.00335	0.00338	0.00331
	(!A0 * !A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B0 * Y)	0.00331	0.00335	0.00333

SKY130_OSU_SC_12T_LS__OR2x

sky130_osu_sc_12T_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_12T_ls__or2_1	8.30280
sky130_osu_sc_12T_ls__or2_2	10.25640
sky130_osu_sc_12T_ls__or2_4	14.16360
sky130_osu_sc_12T_ls__or2_8	21.97800
sky130_osu_sc_12T_ls__or2_l	8.30280

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	B	Y
sky130_osu_sc_12T_ls__or2_1	0.00324	0.00300	1.41283
sky130_osu_sc_12T_ls__or2_2	0.00324	0.00300	2.87981
sky130_osu_sc_12T_ls__or2_4	0.00324	0.00300	5.67545
sky130_osu_sc_12T_ls__or2_8	0.00324	0.00301	11.06314
sky130_osu_sc_12T_ls__or2_l	0.00246	0.00231	1.01105

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_12T_ls__or2_1	0.00000	0.84903	1.30194
sky130_osu_sc_12T_ls__or2_2	0.00000	1.28427	1.69813
sky130_osu_sc_12T_ls__or2_4	0.00000	2.15842	2.49704
sky130_osu_sc_12T_ls__or2_8	0.00000	3.90672	4.09486
sky130_osu_sc_12T_ls__or2_l	0.00000	0.86749	1.33575

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_ls__or2_1	A->Y (RR)	0.05405	0.46464	5.82543
	B->Y (RR)	0.04654	0.44109	5.66596
sky130_osu_sc_12T_ls__or2_2	A->Y (RR)	0.05777	0.38560	5.75590
	B->Y (RR)	0.04990	0.36367	5.58335
sky130_osu_sc_12T_ls__or2_4	A->Y (RR)	0.07459	0.36615	5.89159
	B->Y (RR)	0.06649	0.34722	5.72353
sky130_osu_sc_12T_ls__or2_8	A->Y (RR)	0.10987	0.39657	6.11761
	B->Y (RR)	0.10153	0.38155	5.95513
sky130_osu_sc_12T_ls__or2_l	A->Y (RR)	0.05622	0.50406	5.60448
	B->Y (RR)	0.04960	0.48232	5.44939

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_ls__or2_1	A->Y (FF)	0.08405	0.50064	6.28430
	B->Y (FF)	0.06810	0.50798	6.61865
sky130_osu_sc_12T_ls__or2_2	A->Y (FF)	0.09932	0.48065	6.51597
	B->Y (FF)	0.08352	0.49174	6.83959
sky130_osu_sc_12T_ls__or2_4	A->Y (FF)	0.14104	0.50831	6.75269
	B->Y (FF)	0.12530	0.52559	7.06372
sky130_osu_sc_12T_ls__or2_8	A->Y (FF)	0.22790	0.59435	6.97758
	B->Y (FF)	0.21218	0.61546	7.28280
sky130_osu_sc_12T_ls__or2_l	A->Y (FF)	0.08677	0.52901	6.20049
	B->Y (FF)	0.07261	0.53839	6.52267

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__or2_1	A	0.00000	0.00000	0.00000
	A	0.00506	0.00830	0.07991
	B	0.00000	0.00000	0.00000
	B	0.00374	0.00782	0.08267
sky130_osu_sc_12T_ls__or2_2	A	0.00000	0.00000	0.00000
	A	0.00861	0.01205	0.08484
	B	0.00000	0.00000	0.00000
	B	0.00720	0.01147	0.08737
sky130_osu_sc_12T_ls__or2_4	A	0.00000	0.00000	0.00000
	A	0.01703	0.02080	0.09384
	B	0.00000	0.00000	0.00000
	B	0.01551	0.02039	0.09632
sky130_osu_sc_12T_ls__or2_8	A	0.00000	0.00000	0.00000
	A	0.03833	0.03931	0.11764
	B	0.00000	0.00000	0.00000
	B	0.03651	0.03898	0.11804
sky130_osu_sc_12T_ls__or2_l	A	0.00000	0.00000	0.00000
	A	0.00386	0.00682	0.07330
	B	0.00000	0.00000	0.00000
	B	0.00296	0.00650	0.07638

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__or2_1	A	0.00000	0.00000	0.00000
	A	0.01159	0.01410	0.09399
	B	0.00000	0.00000	0.00000
	B	0.00947	0.01385	0.11260
sky130_osu_sc_12T_ls__or2_2	A	0.00000	0.00000	0.00000
	A	0.01549	0.01720	0.09686
	B	0.00000	0.00000	0.00000
	B	0.01333	0.01690	0.11459
sky130_osu_sc_12T_ls__or2_4	A	0.00000	0.00000	0.00000
	A	0.02812	0.02529	0.10270
	B	0.00000	0.00000	0.00000
	B	0.02595	0.02483	0.11919
sky130_osu_sc_12T_ls__or2_8	A	0.00000	0.00000	0.00000
	A	0.06679	0.04504	0.11714
	B	0.00000	0.00000	0.00000
	B	0.06463	0.04481	0.13213
sky130_osu_sc_12T_ls__or2_l	A	0.00000	0.00000	0.00000
	A	0.00869	0.01122	0.08391
	B	0.00000	0.00000	0.00000
	B	0.00725	0.01118	0.09662

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__or2_1	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00226	-0.00282	-0.00285
sky130_osu_sc_12T_ls__or2_2	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00226	-0.00282	-0.00284
sky130_osu_sc_12T_ls__or2_4	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00226	-0.00281	-0.00284
sky130_osu_sc_12T_ls__or2_8	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00224	-0.00280	-0.00282
sky130_osu_sc_12T_ls__or2_l	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00153	-0.00192	-0.00194

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__or2_1	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00285	0.00288	0.00286
sky130_osu_sc_12T_ls__or2_2	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00286	0.00289	0.00287
sky130_osu_sc_12T_ls__or2_4	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00287	0.00290	0.00288
sky130_osu_sc_12T_ls__or2_8	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00288	0.00291	0.00289
sky130_osu_sc_12T_ls__or2_l	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00195	0.00198	0.00197

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__or2_1	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00109	-0.00110	-0.00110
sky130_osu_sc_12T_ls__or2_2	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00109	-0.00110	-0.00109
sky130_osu_sc_12T_ls__or2_4	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00108	-0.00109	-0.00109
sky130_osu_sc_12T_ls__or2_8	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00106	-0.00108	-0.00107
sky130_osu_sc_12T_ls__or2_l	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00076	-0.00078	-0.00077

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__or2_1	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00116	0.00117	0.00112
sky130_osu_sc_12T_ls__or2_2	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00117	0.00118	0.00113
sky130_osu_sc_12T_ls__or2_4	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00117	0.00119	0.00113
sky130_osu_sc_12T_ls__or2_8	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00119	0.00120	0.00115
sky130_osu_sc_12T_ls__or2_l	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00082	0.00082	0.00079

SKY130_OSU_SC_12T_LS__TBUFIx

sky130_osu_sc_12T_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_12T_ls__tbufi_1	8.30280
sky130_osu_sc_12T_ls__tbufi_l	8.30280

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	OE	Y
sky130_osu_sc_12T_ls__tbufi_1	0.00313	0.00412	0.81122
sky130_osu_sc_12T_ls__tbufi_l	0.00242	0.00319	0.57638

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_12T_ls__tbufi_1	0.00000	0.60347	0.85367
sky130_osu_sc_12T_ls__tbufi_l	0.00000	0.63596	1.33643

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_ls__tbufi_1	A->Y (FR)	0.03320	0.72151	10.12990
	OE->Y (FR)	0.03881	0.32628	5.34258
	OE->Y (RR)	0.05928	0.53205	5.79264
sky130_osu_sc_12T_ls__tbufi_l	A->Y (FR)	0.03856	0.78266	9.98854
	OE->Y (FR)	0.03824	0.32626	5.34254
	OE->Y (RR)	0.06244	0.59498	5.72515

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_ls__tbufi_1	A->Y (RF)	0.02254	0.42933	5.87957
	OE->Y (FF)	0.03956	0.32629	5.34256
	OE->Y (RF)	0.02101	0.39769	5.34150
sky130_osu_sc_12T_ls__tbufi_l	A->Y (RF)	0.02513	0.45947	5.69186
	OE->Y (FF)	0.03905	0.32627	5.34254
	OE->Y (RF)	0.02327	0.41894	5.00979

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__tbufi_1	A	0.00000	0.00000	0.00000
	A	0.00477	0.00644	0.03737
	OE	0.00000	0.00000	0.00000
	OE	0.00493	0.01076	0.12820
sky130_osu_sc_12T_ls__tbufi_l	A	0.00000	0.00000	0.00000
	A	0.00365	0.00501	0.03283
	OE	0.00000	0.00000	0.00000
	OE	0.00358	0.00871	0.11299

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__tbufi_1	A	0.00000	0.00000	0.00000
	A	-0.00063	0.00089	0.02789
	OE	0.00000	0.00000	0.00000
	OE	0.00287	0.00912	0.14149
sky130_osu_sc_12T_ls__tbufi_l	A	0.00000	0.00000	0.00000
	A	-0.00039	0.00078	0.02351
	OE	0.00000	0.00000	0.00000
	OE	0.00202	0.00745	0.12043

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__tbufi_1	(!OE * Y)	0.00000	0.00000	0.00000
	(!OE * Y)	-0.00215	-0.00216	-0.00215
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	-0.00181	-0.00182	-0.00182
sky130_osu_sc_12T_ls__tbufi_l	(!OE * Y)	0.00000	0.00000	0.00000
	(!OE * Y)	-0.00157	-0.00158	-0.00157
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	-0.00133	-0.00137	-0.00134

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__tbufi_1	(!OE * Y)	0.00000	0.00000	0.00000
	(!OE * Y)	0.00215	0.00216	0.00215
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	0.00186	0.00187	0.00183
sky130_osu_sc_12T_ls__tbufi_l	(!OE * Y)	0.00000	0.00000	0.00000
	(!OE * Y)	0.00157	0.00158	0.00157
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	0.00138	0.00138	0.00136

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__tbufi_1	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00178	0.00830	0.14261
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00155	0.00811	0.14231
sky130_osu_sc_12T_ls__tbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00124	0.00685	0.12116
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00105	0.00668	0.12090

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__tbufi_1	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00573	0.01205	0.14596
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00580	0.01218	0.14603
sky130_osu_sc_12T_ls__tbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00437	0.00996	0.12399
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00442	0.01004	0.12405

SKY130_OSU_SC_12T_LS__TNBUFIx

sky130_osu_sc_12T_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_12T_ls__tnbufi_1	8.30280
sky130_osu_sc_12T_ls__tnbufi_l	8.30280

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	OE	Y
sky130_osu_sc_12T_ls__tnbufi_1	0.00312	0.00464	0.81124
sky130_osu_sc_12T_ls__tnbufi_l	0.00232	0.00354	0.57698

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_12T_ls__tnbufi_1	0.00000	0.58738	0.90196
sky130_osu_sc_12T_ls__tnbufi_l	0.00000	0.74710	1.00300

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_ls__tnbufi_1	A->Y (FR)	0.03339	0.72138	10.12950
	OE->Y (RR)	0.02244	0.32652	5.34276
	OE->Y (FR)	0.04270	0.69602	9.42793
sky130_osu_sc_12T_ls__tnbufi_l	A->Y (FR)	0.03786	0.78057	9.99172
	OE->Y (RR)	0.02398	0.32625	5.34252
	OE->Y (FR)	0.04542	0.75429	9.25001

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_ls__tnbufi_1	A->Y (RF)	0.02210	0.42918	5.88008
	OE->Y (RF)	0.02211	0.32651	5.34279
	OE->Y (FF)	0.04131	0.43097	5.14651
sky130_osu_sc_12T_ls__tnbufi_l	A->Y (RF)	0.02401	0.45866	5.69617
	OE->Y (RF)	0.02382	0.32626	5.34253
	OE->Y (FF)	0.04462	0.46599	5.10223

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__tnbufi_1	A	0.00000	0.00000	0.00000
	A	0.00494	0.00661	0.03753
	OE	0.00000	0.00000	0.00000
	OE	0.01216	0.01901	0.15069
sky130_osu_sc_12T_ls__tnbufi_l	A	0.00000	0.00000	0.00000
	A	0.00374	0.00528	0.03291
	OE	0.00000	0.00000	0.00000
	OE	0.00927	0.01518	0.12807

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__tnbufi_1	A	0.00000	0.00000	0.00000
	A	-0.00086	0.00068	0.02771
	OE	0.00000	0.00000	0.00000
	OE	0.01032	0.01685	0.13381
sky130_osu_sc_12T_ls__tnbufi_l	A	0.00000	0.00000	0.00000
	A	-0.00063	0.00055	0.02332
	OE	0.00000	0.00000	0.00000
	OE	0.00791	0.01360	0.11765

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__tnbufi_1	(OE * Y)	0.00000	0.00000	0.00000
	(OE * Y)	-0.00175	-0.00177	-0.00174
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	-0.00144	-0.00145	-0.00144
sky130_osu_sc_12T_ls__tnbufi_l	(OE * Y)	0.00000	0.00000	0.00000
	(OE * Y)	-0.00122	-0.00122	-0.00122
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	-0.00101	-0.00102	-0.00101

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__tnbufi_1	(OE * Y)	0.00000	0.00000	0.00000
	(OE * Y)	0.00175	0.00177	0.00174
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	0.00148	0.00148	0.00146
sky130_osu_sc_12T_ls__tnbufi_l	(OE * Y)	0.00000	0.00000	0.00000
	(OE * Y)	0.00122	0.00122	0.00122
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	0.00105	0.00105	0.00103

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__tnbufi_1	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	-0.00308	0.00338	0.13768
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00307	0.00333	0.13772
sky130_osu_sc_12T_ls__tnbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	-0.00217	0.00326	0.11755
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00219	0.00341	0.11755

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__tnbufi_1	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00899	0.01640	0.15071
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00890	0.01654	0.15066
sky130_osu_sc_12T_ls__tnbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00696	0.01311	0.12747
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00691	0.01314	0.12744

SKY130_OSU_SC_12T_LS__XNOR2

sky130_osu_sc_12T_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_12T_ls__xnor2_l	14.16360

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	B	Y
sky130_osu_sc_12T_ls__xnor2_l	0.00626	0.00539	0.84636

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_12T_ls__xnor2_l	0.00000	1.59119	1.70557

Delay Information

Delay(ns) to Y rising (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_12T_ls__xnor2_l	A->Y (RR)	B	0.07509	0.56096	6.00984
	A->Y (FR)	!B	0.04475	0.73289	10.24970
	B->Y (RR)	A	0.06030	0.55162	6.14158
	B->Y (FR)	!A	0.05729	0.71682	9.75548

Delay(ns) to Y falling (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_12T_ls__xnor2_l	A->Y (FF)	B	0.07017	0.48524	5.53156
	A->Y (RF)	!B	0.03054	0.42028	5.67932
	B->Y (FF)	A	0.06062	0.47744	5.53944
	B->Y (RF)	!A	0.03781	0.42936	5.67515

Power Information

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

Cell Name	Input	When	Power(pJ)		
			first	mid	last
sky130_osu_sc_12T_ls__xnor2_l	A	B	0.00000	0.00000	0.00000
	A	B	0.00535	0.01098	0.13453
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.01205	0.01963	0.18309
	B	A	0.00000	0.00000	0.00000
	B	A	0.00198	0.00856	0.14559
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01309	0.02021	0.17777

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

Cell Name	Input	When	Power(pJ)		
			first	mid	last
sky130_osu_sc_12T_ls__xnor2_l	A	B	0.00000	0.00000	0.00000
	A	B	0.01447	0.02014	0.15315
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00329	0.01046	0.16862
	B	A	0.00000	0.00000	0.00000
	B	A	0.01318	0.01968	0.15570
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00423	0.01131	0.16773

SKY130_OSU_SC_12T_LS__XOR2

sky130_osu_sc_12T_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_12T_ls__xor2_l	14.16360

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	B	Y
sky130_osu_sc_12T_ls__xor2_l	0.00628	0.00544	0.78973

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_12T_ls__xor2_l	0.00000	1.59118	1.75386

Delay Information

Delay(ns) to Y rising (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_12T_ls__xor2_l	A->Y (RR)	!B	0.07722	0.56753	6.03955
	A->Y (FR)	B	0.05977	0.73551	9.85911
	B->Y (RR)	!A	0.06395	0.56479	6.07031
	B->Y (FR)	A	0.06504	0.73956	9.83082

Delay(ns) to Y falling (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_12T_ls__xor2_l	A->Y (FF)	!B	0.06616	0.47560	5.18182
	A->Y (RF)	B	0.03240	0.43750	5.74147
	B->Y (FF)	!A	0.06238	0.47460	5.35652
	B->Y (RF)	A	0.03748	0.41700	5.35308

Power Information

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

Cell Name	Input	When	Power(pJ)		
			first	mid	last
sky130_osu_sc_12T_ls__xor2_l	A	B	0.00000	0.00000	0.00000
	A	B	0.01431	0.02096	0.17239
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00305	0.00794	0.13667
	B	A	0.00000	0.00000	0.00000
	B	A	0.01466	0.02134	0.17018
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00192	0.00809	0.14026

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

Cell Name	Input	When	Power(pJ)		
			first	mid	last
sky130_osu_sc_12T_ls__xor2_l	A	B	0.00000	0.00000	0.00000
	A	B	0.00266	0.00947	0.16142
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.01516	0.02088	0.13462
	B	A	0.00000	0.00000	0.00000
	B	A	0.00272	0.00912	0.15665
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01339	0.01972	0.15089

SKY130_OSU_SC_12T_LS_x

sky130_osu_sc_12T_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_12T_ls__ant	4.39560
sky130_osu_sc_12T_ls__tiehi	4.39560
sky130_osu_sc_12T_ls__tielo	4.39560

Pin Capacitance Information

Cell Name	Pin Cap(pf)
	A
sky130_osu_sc_12T_ls__ant	0.52898
sky130_osu_sc_12T_ls__tiehi	0.00000
sky130_osu_sc_12T_ls__tielo	0.00000

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_12T_ls__ant	0.00000	239191.00000	478382.00000
sky130_osu_sc_12T_ls__tiehi	0.00000	0.00000	0.00000
sky130_osu_sc_12T_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_12T_ls__ant	0.00000	0.00000	0.00000
	-0.00152	0.06315	1.01865

Passive power(pJ) for A falling :

Cell Name	Power(pJ)		
	first	mid	last
sky130_osu_sc_12T_ls__ant	0.00000	0.00000	0.00000
	4.16390	3.98793	1.20121