sky130_osu_sc_12T_ls_tt_2P10_25C.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_tt_2P10_25C.ccs
Cell Library: Process , Voltage 2.10,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_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	0.01163	0.01168	0.00901	1.38301	0.62261	1.21142
sky130_osu_sc_12T_ls__addf_l	0.01163	0.01168	0.00902	0.92702	0.62352	1.21142

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_12T_ls__addf_1	0.00000	0.08912	0.11399
sky130_osu_sc_12T_ls__addf_l	0.00000	0.07262	0.11370

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)	0.12428	1.44629	21.97480
	B->CO (RR)	0.12104	1.42438	21.68520
	CI->CO (RR)	0.11728	1.48750	22.77720
	CON->CO (FR)	0.02372	0.70085	11.27620
sky130_osu_sc_12T_ls__addf_1	A->CO (RR)	0.12606	1.35018	17.71220
	B->CO (RR)	0.12283	1.34030	17.77540
	CI->CO (RR)	0.11905	1.39240	18.55060
	CON->CO (FR)	0.02820	0.76355	11.12450

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)	0.18983	1.92085	28.75300
	B->CO (FF)	0.16871	1.83298	27.58250
	CI->CO (FF)	0.16632	1.92801	29.36930
	CON->CO (RF)	0.01782	0.47540	7.67354
sky130_osu_sc_12T_ls__addf_1	A->CO (FF)	0.18565	1.70686	22.09390
	B->CO (FF)	0.16334	1.61686	21.35150
	CI->CO (FF)	0.16210	1.71470	22.72490
	CON->CO (RF)	0.02007	0.49844	7.27966

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)	0.16072	0.92491	10.33090
	B->CON (FR)	0.13748	0.87138	10.24100
	CI->CON (FR)	0.13722	0.93221	10.98550
sky130_osu_sc_12T_ls__addf_l	A->CON (FR)	0.15182	0.91690	10.33250
	B->CON (FR)	0.12961	0.86428	10.24250
	CI->CON (FR)	0.12830	0.92448	10.98710

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)	0.07595	0.47176	5.27855
	B->CON (RF)	0.07401	0.49832	5.74149
	CI->CON (RF)	0.06894	0.51636	6.09265
sky130_osu_sc_12T_ls__addf_l	A->CON (RF)	0.07336	0.46933	5.28110
	B->CON (RF)	0.07154	0.49617	5.74410
	CI->CON (RF)	0.06634	0.51403	6.09538

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)	0.27797	1.78522	22.79890
	B->S (-R)	0.28334	1.76616	22.09780
	CI->S (-R)	0.25286	1.78980	23.41490
	CON->S (RR)	0.07215	0.58499	6.58984
sky130_osu_sc_12T_ls__addf_l	A->S (-R)	0.26742	1.77749	22.79190
	B->S (-R)	0.27297	1.75848	22.09050
	CI->S (-R)	0.24230	1.78231	23.40830
	CON->S (RR)	0.07220	0.58495	6.58943

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)	0.21010	1.21733	14.47000
	B->S (-F)	0.20728	1.18474	14.40740
	CI->S (-F)	0.20281	1.25542	15.28580
	CON->S (FF)	0.08999	0.58090	6.13897
sky130_osu_sc_12T_ls__addf_l	A->S (-F)	0.20475	1.21346	14.46610
	B->S (-F)	0.20222	1.18134	14.40380
	CI->S (-F)	0.19739	1.25160	15.28190
	CON->S (FF)	0.09003	0.58090	6.13855

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	0.00341	0.00417	0.02172
	B	0.00496	0.00552	0.02073
	CI	0.00513	0.00605	0.02369
sky130_osu_sc_12T_ls__addf_l	A	0.00356	0.00373	0.01501
	B	0.00454	0.00489	0.01619
	CI	0.00470	0.00540	0.01825

Internal switching power(pJ) to CO falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__addf_1	A	0.01297	0.01497	0.05519
	B	0.01347	0.01517	0.05088
	CI	0.01095	0.01310	0.05369
sky130_osu_sc_12T_ls__addf_l	A	0.01259	0.01393	0.03942
	B	0.01306	0.01424	0.03673
	CI	0.01058	0.01210	0.03804

Internal switching power(pJ) to CON rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__addf_1	A	0.01295	0.01405	0.03357
	B	0.01343	0.01436	0.03154
	CI	0.01094	0.01213	0.03197
sky130_osu_sc_12T_ls__addf_l	A	0.01258	0.01357	0.03186
	B	0.01305	0.01393	0.02999
	CI	0.01056	0.01164	0.03029

Internal switching power(pJ) to CON falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__addf_1	A	0.00339	0.00387	0.01410
	B	0.00493	0.00524	0.01580
	CI	0.00511	0.00576	0.01694
sky130_osu_sc_12T_ls__addf_l	A	0.00352	0.00356	0.01245
	B	0.00451	0.00478	0.01491
	CI	0.00469	0.00530	0.01603

Internal switching power(pJ) to S rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__addf_1	A	0.01296	0.01479	0.05016
	B	0.01345	0.01498	0.04619
	CI	0.01095	0.01292	0.04869
sky130_osu_sc_12T_ls__addf_l	A	0.01259	0.01428	0.04719
	B	0.01307	0.01445	0.04353
	CI	0.01058	0.01238	0.04574

Internal switching power(pJ) to S falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__addf_1	A	0.02832	0.02844	0.06007
	B	0.02553	0.02577	0.05804
	CI	0.02322	0.02303	0.05282
sky130_osu_sc_12T_ls__addf_l	A	0.02833	0.02845	0.06007
	B	0.02557	0.02577	0.05804
	CI	0.02318	0.02303	0.05282

SKY130_OSU_SC_12T_LS__ADDHx

sky130_osu_sc_12T_ls_tt_2P10_25C.ccs
Cell Library: Process , Voltage 2.10,
Temp 25.00

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	0.00569	0.00602	1.33163	1.35570	1.36707
sky130_osu_sc_12T_ls__addh_l	0.00569	0.00602	0.93017	1.35610	0.95061

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_12T_ls__addh_1	0.00000	0.09833	0.10994
sky130_osu_sc_12T_ls__addh_l	0.00000	0.06533	0.07693

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)	0.08446	0.58581	6.60646
	B->CO (RR)	0.08701	0.57699	6.62526
sky130_osu_sc_12T_ls__addh_l	A->CO (RR)	0.08514	0.63933	6.56302
	B->CO (RR)	0.08770	0.63202	6.56269

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)	0.07708	0.56204	6.42862
	B->CO (FF)	0.08185	0.57622	6.50724
sky130_osu_sc_12T_ls__addh_l	A->CO (FF)	0.07625	0.58818	6.27831
	B->CO (FF)	0.08089	0.60253	6.36941

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)	0.12313	0.60407	6.51908
	B->CON (RR)	0.12542	0.59376	6.54035
sky130_osu_sc_12T_ls__addh_l	A->CON (RR)	0.11364	0.58877	6.49978
	B->CON (RR)	0.11597	0.57995	6.50508

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)	0.10446	0.58157	6.48855
	B->CON (FF)	0.10282	0.58954	6.55299
sky130_osu_sc_12T_ls__addh_l	A->CON (FF)	0.09682	0.56299	6.36935
	B->CON (FF)	0.09531	0.57135	6.43670

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)	0.14492	1.24669	16.87510
	B->S (FR)	0.14329	1.25541	16.98240
	CON->S (FR)	0.02542	0.70762	11.37450
sky130_osu_sc_12T_ls__addh_l	A->S (FR)	0.14011	1.19944	14.33320
	B->S (FR)	0.13853	1.20829	14.41410
	CON->S (FR)	0.02898	0.77194	11.33750

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)	0.15090	1.11757	14.57890
	B->S (RF)	0.15318	1.10702	14.59620
	CON->S (RF)	0.01746	0.47641	7.65399
sky130_osu_sc_12T_ls__addh_l	A->S (RF)	0.14400	1.02441	11.42600
	B->S (RF)	0.14632	1.01497	11.42400
	CON->S (RF)	0.01961	0.50666	7.43752

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	0.00642	0.00678	0.02162
	B	0.00000	0.00000	0.00000
	B	0.00581	0.00598	0.02302
sky130_osu_sc_12T_ls__addh_l	A	0.00000	0.00000	0.00000
	A	0.00565	0.00589	0.02090
	B	0.00000	0.00000	0.00000
	B	0.00502	0.00508	0.02171

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	0.00909	0.00924	0.02548
	B	0.00000	0.00000	0.00000
	B	0.00958	0.01026	0.02726
sky130_osu_sc_12T_ls__addh_l	A	0.00000	0.00000	0.00000
	A	0.00829	0.00845	0.02481
	B	0.00000	0.00000	0.00000
	B	0.00878	0.00940	0.02621

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	0.00643	0.00678	0.02166
	B	0.00000	0.00000	0.00000
	B	0.00580	0.00598	0.02309
sky130_osu_sc_12T_ls__addh_l	A	0.00000	0.00000	0.00000
	A	0.00564	0.00591	0.02113
	B	0.00000	0.00000	0.00000
	B	0.00502	0.00510	0.02187

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	0.00909	0.00924	0.02551
	B	0.00000	0.00000	0.00000
	B	0.00958	0.01027	0.02744
sky130_osu_sc_12T_ls__addh_l	A	0.00000	0.00000	0.00000
	A	0.00829	0.00842	0.02466
	B	0.00000	0.00000	0.00000
	B	0.00878	0.00940	0.02610

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	0.00909	0.00925	0.02566
	B	0.00000	0.00000	0.00000
	B	0.00958	0.01028	0.02736
sky130_osu_sc_12T_ls__addh_l	A	0.00000	0.00000	0.00000
	A	0.00830	0.00845	0.02479
	B	0.00000	0.00000	0.00000
	B	0.00879	0.00941	0.02610

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	0.00643	0.00678	0.02179
	B	0.00000	0.00000	0.00000
	B	0.00580	0.00598	0.02324
sky130_osu_sc_12T_ls__addh_l	A	0.00000	0.00000	0.00000
	A	0.00565	0.00590	0.02121
	B	0.00000	0.00000	0.00000
	B	0.00502	0.00513	0.02208

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)	2.06431	1.97813	0.62244
sky130_osu_sc_12T_ls__addh_l	(!B * !CO * !CON * S)	0.00000	0.00000	0.00000
	(!B * !CO * !CON * S)	2.06445	1.97826	0.62257

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)	2.06435	1.98040	0.68358
sky130_osu_sc_12T_ls__addh_l	(!A * !CO * !CON * S)	0.00000	0.00000	0.00000
	(!A * !CO * !CON * S)	2.06449	1.98053	0.68371

SKY130_OSU_SC_12T_LS__AND2x

sky130_osu_sc_12T_ls_tt_2P10_25C.ccs
Cell Library: Process , Voltage 2.10,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_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	0.00306	0.00317	1.33072
sky130_osu_sc_12T_ls__and2_2	0.00306	0.00317	2.61499
sky130_osu_sc_12T_ls__and2_4	0.00306	0.00317	5.07740
sky130_osu_sc_12T_ls__and2_6	0.00309	0.00317	7.54698
sky130_osu_sc_12T_ls__and2_8	0.00306	0.00317	9.82300
sky130_osu_sc_12T_ls__and2_l	0.00231	0.00238	0.92677

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_12T_ls__and2_1	0.00000	0.04570	0.07299
sky130_osu_sc_12T_ls__and2_2	0.00000	0.07301	0.07353
sky130_osu_sc_12T_ls__and2_4	0.00000	0.12762	0.14545
sky130_osu_sc_12T_ls__and2_6	0.00000	0.18223	0.21790
sky130_osu_sc_12T_ls__and2_8	0.00000	0.23684	0.29036
sky130_osu_sc_12T_ls__and2_l	0.00000	0.00462	0.00730

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)	0.06476	0.53037	6.44879
	B->Y (RR)	0.06867	0.52645	6.30653
sky130_osu_sc_12T_ls__and2_2	A->Y (RR)	0.07225	0.46311	6.42109
	B->Y (RR)	0.07613	0.45550	6.27588
sky130_osu_sc_12T_ls__and2_4	A->Y (RR)	0.09826	0.46339	6.62336
	B->Y (RR)	0.10214	0.44839	6.48110
sky130_osu_sc_12T_ls__and2_6	A->Y (RR)	0.12489	0.49081	6.82687
	B->Y (RR)	0.12867	0.47039	6.67974
sky130_osu_sc_12T_ls__and2_8	A->Y (RR)	0.15103	0.52263	6.94249
	B->Y (RR)	0.15491	0.49832	6.78938
sky130_osu_sc_12T_ls__and2_l	A->Y (RR)	0.07027	0.59428	6.40802
	B->Y (RR)	0.07412	0.58781	6.24565

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)	0.06130	0.50245	5.92154
	B->Y (FF)	0.06343	0.51097	5.97649
sky130_osu_sc_12T_ls__and2_2	A->Y (FF)	0.07099	0.47890	6.00240
	B->Y (FF)	0.07260	0.48406	6.06004
sky130_osu_sc_12T_ls__and2_4	A->Y (FF)	0.09972	0.50577	6.23709
	B->Y (FF)	0.09907	0.50565	6.28684
sky130_osu_sc_12T_ls__and2_6	A->Y (FF)	0.13064	0.54616	6.43566
	B->Y (FF)	0.12760	0.54092	6.48041
sky130_osu_sc_12T_ls__and2_8	A->Y (FF)	0.15991	0.58085	6.52695
	B->Y (FF)	0.15485	0.57342	6.53912
sky130_osu_sc_12T_ls__and2_l	A->Y (FF)	0.06210	0.53347	5.81615
	B->Y (FF)	0.06728	0.54800	5.91402

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	0.00430	0.00550	0.05562
	B	0.00000	0.00000	0.00000
	B	0.00437	0.00488	0.04042
sky130_osu_sc_12T_ls__and2_2	A	0.00000	0.00000	0.00000
	A	0.00835	0.00974	0.05943
	B	0.00000	0.00000	0.00000
	B	0.00842	0.00914	0.04520
sky130_osu_sc_12T_ls__and2_4	A	0.00000	0.00000	0.00000
	A	0.01778	0.01928	0.06699
	B	0.00000	0.00000	0.00000
	B	0.01787	0.01874	0.05429
sky130_osu_sc_12T_ls__and2_6	A	0.00000	0.00000	0.00000
	A	0.02819	0.02919	0.07511
	B	0.00000	0.00000	0.00000
	B	0.02826	0.02853	0.06304
sky130_osu_sc_12T_ls__and2_8	A	0.00000	0.00000	0.00000
	A	0.03929	0.03870	0.08537
	B	0.00000	0.00000	0.00000
	B	0.03937	0.03840	0.09892
sky130_osu_sc_12T_ls__and2_l	A	0.00000	0.00000	0.00000
	A	0.00328	0.00451	0.04579
	B	0.00000	0.00000	0.00000
	B	0.00335	0.00392	0.03607

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	0.01125	0.01337	0.05390
	B	0.00000	0.00000	0.00000
	B	0.01273	0.01442	0.05350
sky130_osu_sc_12T_ls__and2_2	A	0.00000	0.00000	0.00000
	A	0.01445	0.01670	0.05736
	B	0.00000	0.00000	0.00000
	B	0.01597	0.01780	0.05724
sky130_osu_sc_12T_ls__and2_4	A	0.00000	0.00000	0.00000
	A	0.02308	0.02534	0.06566
	B	0.00000	0.00000	0.00000
	B	0.02441	0.02625	0.06540
sky130_osu_sc_12T_ls__and2_6	A	0.00000	0.00000	0.00000
	A	0.03296	0.03420	0.07438
	B	0.00000	0.00000	0.00000
	B	0.03394	0.03554	0.07388
sky130_osu_sc_12T_ls__and2_8	A	0.00000	0.00000	0.00000
	A	0.04437	0.04280	0.08316
	B	0.00000	0.00000	0.00000
	B	0.04499	0.04363	0.08273
sky130_osu_sc_12T_ls__and2_l	A	0.00000	0.00000	0.00000
	A	0.00847	0.01022	0.04572
	B	0.00000	0.00000	0.00000
	B	0.00953	0.01116	0.04525

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)	-0.00402	-0.00404	-0.00405
sky130_osu_sc_12T_ls__and2_2	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00402	-0.00404	-0.00405
sky130_osu_sc_12T_ls__and2_4	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00402	-0.00403	-0.00405
sky130_osu_sc_12T_ls__and2_6	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00405	-0.00407	-0.00409
sky130_osu_sc_12T_ls__and2_8	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00402	-0.00403	-0.00405
sky130_osu_sc_12T_ls__and2_l	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00282	-0.00283	-0.00284

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)	0.00404	0.00411	0.00407
sky130_osu_sc_12T_ls__and2_2	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00404	0.00411	0.00407
sky130_osu_sc_12T_ls__and2_4	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00404	0.00411	0.00407
sky130_osu_sc_12T_ls__and2_6	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00408	0.00415	0.00411
sky130_osu_sc_12T_ls__and2_8	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00404	0.00410	0.00407
sky130_osu_sc_12T_ls__and2_l	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00283	0.00287	0.00285

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)	-0.00384	-0.00386	-0.00384
sky130_osu_sc_12T_ls__and2_2	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00384	-0.00387	-0.00385
sky130_osu_sc_12T_ls__and2_4	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00384	-0.00387	-0.00384
sky130_osu_sc_12T_ls__and2_6	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00384	-0.00387	-0.00384
sky130_osu_sc_12T_ls__and2_8	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00384	-0.00387	-0.00384
sky130_osu_sc_12T_ls__and2_l	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00269	-0.00272	-0.00270

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)	0.00391	0.00390	0.00385
sky130_osu_sc_12T_ls__and2_2	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00391	0.00391	0.00386
sky130_osu_sc_12T_ls__and2_4	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00391	0.00391	0.00386
sky130_osu_sc_12T_ls__and2_6	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00391	0.00388	0.00386
sky130_osu_sc_12T_ls__and2_8	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00392	0.00388	0.00386
sky130_osu_sc_12T_ls__and2_l	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00275	0.00272	0.00271

SKY130_OSU_SC_12T_LS__AOI21

sky130_osu_sc_12T_ls_tt_2P10_25C.ccs
Cell Library: Process , Voltage 2.10,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_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	0.00281	0.00299	0.00294	0.58940

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_12T_ls__aoi21_l	0.00000	0.01873	0.03623

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)	0.08072	0.85525	10.18300
	A1->Y (FR)	0.06374	0.77840	9.54465
	B0->Y (FR)	0.06117	0.87527	10.96920

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)	0.03880	0.41977	4.96897
	A1->Y (RF)	0.03573	0.45132	5.49492
	B0->Y (RF)	0.02389	0.42823	5.40388

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	0.00980	0.00975	0.01839
	A1	0.00000	0.00000	0.00000
	A1	0.00826	0.00816	0.01667
	B0	0.00592	0.00629	0.01742

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	0.00174	0.00160	0.00995
	A1	0.00000	0.00000	0.00000
	A1	0.00180	0.00187	0.01161
	B0	-0.00092	-0.00048	0.00909

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)	-0.00303	-0.00337	-0.00335
	(!A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !Y)	-0.00338	-0.00341	-0.00339
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00339	-0.00341	-0.00340

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)	0.00334	0.00338	0.00335
	(!A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !Y)	0.00338	0.00344	0.00340
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00346	0.00344	0.00341

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)	-0.00303	-0.00336	-0.00335
	(!A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !Y)	-0.00339	-0.00342	-0.00340
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	-0.00371	-0.00373	-0.00373

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)	0.00333	0.00336	0.00335
	(!A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !Y)	0.00339	0.00344	0.00341
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	0.00372	0.00379	0.00374

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)	-0.00143	-0.00144	-0.00143

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)	0.00154	0.00155	0.00146

SKY130_OSU_SC_12T_LS__AOI22

sky130_osu_sc_12T_ls_tt_2P10_25C.ccs
Cell Library: Process , Voltage 2.10,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_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	0.00281	0.00298	0.00312	0.00293	0.57816

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_12T_ls__aoi22_l	0.00000	0.02381	0.07245

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)	0.10339	0.87864	10.12220
	A1->Y (FR)	0.09199	0.86189	10.06330
	B0->Y (FR)	0.06511	0.87292	10.85060
	B1->Y (FR)	0.07697	0.88951	10.92820

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)	0.05132	0.43136	4.92120
	A1->Y (RF)	0.04813	0.46326	5.44279
	B0->Y (RF)	0.02640	0.43451	5.40916
	B1->Y (RF)	0.03020	0.40363	4.89054

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	0.01202	0.01191	0.02069
	A1	0.01048	0.01031	0.01896
	B0	0.00645	0.00696	0.01871
	B1	0.00805	0.00869	0.01971

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__aoi22_l	A0	0.00371	0.00356	0.01232
	A1	0.00375	0.00382	0.01389
	B0	-0.00059	-0.00013	0.00976
	B1	-0.00050	-0.00033	0.00818

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)	-0.00313	-0.00336	-0.00334
	(!A1 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * B1 * !Y)	-0.00339	-0.00341	-0.00339
	(!A1 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !B1 * Y)	-0.00339	-0.00341	-0.00339
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00339	-0.00340	-0.00339

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)	0.00333	0.00337	0.00334
	(!A1 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * B1 * !Y)	0.00339	0.00343	0.00340
	(!A1 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !B1 * Y)	0.00346	0.00344	0.00340
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00346	0.00344	0.00340

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)	-0.00312	-0.00338	-0.00335
	(!A0 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * B1 * !Y)	-0.00339	-0.00341	-0.00340
	(!A0 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !B1 * Y)	-0.00370	-0.00371	-0.00372
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	-0.00370	-0.00372	-0.00372

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)	0.00334	0.00338	0.00335
	(!A0 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * B1 * !Y)	0.00339	0.00341	0.00341
	(!A0 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !B1 * Y)	0.00371	0.00377	0.00373
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	0.00371	0.00377	0.00373

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)	-0.00141	-0.00143	-0.00142
	(A0 * A1 * !B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B1 * !Y)	-0.00141	-0.00142	-0.00142
	(!A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B1 * Y)	-0.00386	-0.00388	-0.00388
	(!A0 * A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B1 * Y)	-0.00386	-0.00388	-0.00388

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)	0.00159	0.00160	0.00146
	(A0 * A1 * !B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B1 * !Y)	0.00141	0.00142	0.00142
	(!A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B1 * Y)	0.00387	0.00389	0.00389
	(!A0 * A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B1 * Y)	0.00387	0.00389	0.00389

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)	-0.00144	-0.00145	-0.00144
	(A0 * A1 * !B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B0 * !Y)	-0.00143	-0.00144	-0.00144
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00356	-0.00359	-0.00357
	(!A0 * A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B0 * Y)	-0.00356	-0.00358	-0.00357

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)	0.00161	0.00162	0.00148
	(A0 * A1 * !B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B0 * !Y)	0.00143	0.00144	0.00144
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00363	0.00360	0.00357
	(!A0 * A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B0 * Y)	0.00363	0.00359	0.00357

SKY130_OSU_SC_12T_LS__BUFx

sky130_osu_sc_12T_ls_tt_2P10_25C.ccs
Cell Library: Process , Voltage 2.10,
Temp 25.00

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	0.00317	1.23557
sky130_osu_sc_12T_ls__buf_2	0.00317	2.55857
sky130_osu_sc_12T_ls__buf_4	0.00317	5.03026
sky130_osu_sc_12T_ls__buf_6	0.00085	1.80000
sky130_osu_sc_12T_ls__buf_8	0.00318	9.88938
sky130_osu_sc_12T_ls__buf_l	0.00235	0.92687

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_12T_ls__buf_1	0.00000	0.03677	0.03677
sky130_osu_sc_12T_ls__buf_2	0.00000	0.05515	0.07299
sky130_osu_sc_12T_ls__buf_4	0.00000	0.09192	0.14545
sky130_osu_sc_12T_ls__buf_6	0.00000	0.00000	0.00000
sky130_osu_sc_12T_ls__buf_8	0.00000	0.16545	0.29036
sky130_osu_sc_12T_ls__buf_l	0.00000	0.00378	0.00378

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)**	0.05177	0.51075	6.13447
sky130_osu_sc_12T_ls__buf_2	**A->Y (RR)**	0.05463	0.42997	6.18006
sky130_osu_sc_12T_ls__buf_4	**A->Y (RR)**	0.07270	0.41287	6.33227
sky130_osu_sc_12T_ls__buf_8	**A->Y (RR)**	0.10894	0.45038	6.64620
sky130_osu_sc_12T_ls__buf_l	**A->Y (RR)**	0.05509	0.55846	6.12777

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)**	0.05713	0.48195	5.65111
sky130_osu_sc_12T_ls__buf_2	**A->Y (FF)**	0.06706	0.46958	5.95553
sky130_osu_sc_12T_ls__buf_4	**A->Y (FF)**	0.09556	0.49880	6.24501
sky130_osu_sc_12T_ls__buf_8	**A->Y (FF)**	0.15485	0.57539	6.59787
sky130_osu_sc_12T_ls__buf_l	**A->Y (FF)**	0.05976	0.52944	5.89322

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	0.00406	0.00524	0.04093
sky130_osu_sc_12T_ls__buf_2	A	0.00000	0.00000	0.00000
	A	0.00804	0.00938	0.04639
sky130_osu_sc_12T_ls__buf_4	A	0.00000	0.00000	0.00000
	A	0.01718	0.01905	0.05710
sky130_osu_sc_12T_ls__buf_8	A	0.00000	0.00000	0.00000
	A	0.03669	0.03887	0.07675
sky130_osu_sc_12T_ls__buf_l	A	0.00000	0.00000	0.00000
	A	0.00313	0.00436	0.04156

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	0.01079	0.01283	0.05175
sky130_osu_sc_12T_ls__buf_2	A	0.00000	0.00000	0.00000
	A	0.01394	0.01605	0.05499
sky130_osu_sc_12T_ls__buf_4	A	0.00000	0.00000	0.00000
	A	0.02241	0.02411	0.06282
sky130_osu_sc_12T_ls__buf_8	A	0.00000	0.00000	0.00000
	A	0.04343	0.04147	0.07909
sky130_osu_sc_12T_ls__buf_l	A	0.00000	0.00000	0.00000
	A	0.00828	0.00999	0.04683

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
	-0.00091	-0.00091	-0.00087

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
	0.00091	0.00091	0.00087

SKY130_OSU_SC_12T_LS__DFFRx

sky130_osu_sc_12T_ls_tt_2P10_25C.ccs
Cell Library: Process , Voltage 2.10,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_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	0.00293	0.00292	0.00904	1.32978	1.30627
sky130_osu_sc_12T_ls__dffr_l	0.00293	0.00292	0.00903	0.92847	0.92326

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_12T_ls__dffr_1	0.00000	0.11277	0.18622
sky130_osu_sc_12T_ls__dffr_l	0.00000	0.07978	0.15323

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)	0.26276	1.18648	13.59880
	QN->Q (FR)	0.02750	0.77698	12.40350
sky130_osu_sc_12T_ls__dffr_l	CK->Q (RR)	0.25946	1.28657	13.30440
	QN->Q (FR)	0.03044	0.81726	11.91500

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)	0.26514	1.20044	14.05250
	QN->Q (RF)	0.01942	0.52094	8.33213
	RN->Q (FF)	0.20011	1.28152	16.33560
sky130_osu_sc_12T_ls__dffr_l	CK->Q (RF)	0.26911	1.31846	13.79170
	QN->Q (RF)	0.02114	0.53925	7.90162
	RN->Q (FF)	0.20437	1.39927	16.06930

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)	0.23982	0.70792	6.32184
	RN->QN (FR)	0.17470	0.78924	8.60373
sky130_osu_sc_12T_ls__dffr_l	CK->QN (RR)	0.24019	0.76870	6.33386
	RN->QN (FR)	0.17533	0.84975	8.60969

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)**	0.22241	0.55590	3.75874
sky130_osu_sc_12T_ls__dffr_l	**CK->QN (RF)**	0.21497	0.57711	3.69419

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)	-0.05665	-0.06442	0.03500
	setup	CK (R)	0.20049	0.22784	0.58096
sky130_osu_sc_12T_ls__dffr_l	hold	CK (R)	-0.05679	-0.06442	0.03500
	setup	CK (R)	0.20127	0.22734	0.58121

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)	-0.11132	-0.29857	-4.15776
	setup	CK (R)	0.13437	0.30646	4.19912
sky130_osu_sc_12T_ls__dffr_l	hold	CK (R)	-0.11234	-0.29523	-4.15527
	setup	CK (R)	0.13438	0.30644	4.19913

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)	-0.05665	-0.06442	0.03500
	setup	CK (R)	0.20049	0.22784	0.58096
sky130_osu_sc_12T_ls__dffr_l	hold	CK (R)	-0.05679	-0.06442	0.03500
	setup	CK (R)	0.20127	0.22734	0.58121

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)	-0.11132	-0.29857	-4.15776
	setup	CK (R)	0.13437	0.30646	4.19912
sky130_osu_sc_12T_ls__dffr_l	hold	CK (R)	-0.11234	-0.29523	-4.15527
	setup	CK (R)	0.13438	0.30644	4.19913

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)	0.17480	0.20597	0.86584
	removal	CK (R)	-0.04198	-0.04977	-0.08056
sky130_osu_sc_12T_ls__dffr_l	recovery	CK (R)	0.17782	0.20555	0.86510
	removal	CK (R)	-0.04198	-0.04977	-0.08056

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)	0.17480	0.20597	0.86584
	removal	CK (R)	-0.04198	-0.04977	-0.08056
sky130_osu_sc_12T_ls__dffr_l	recovery	CK (R)	0.17782	0.20555	0.86510
	removal	CK (R)	-0.04198	-0.04977	-0.08056

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 ()	0.12398	0.40649	13.33370
	min_pulse_width	RN ()	0.12398	0.40649	13.33370
sky130_osu_sc_12T_ls__dffr_l	min_pulse_width	RN ()	0.12091	0.40649	13.33370
	min_pulse_width	RN ()	0.12091	0.40649	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 ()	0.12398	0.40649	13.33370
	min_pulse_width	CK ()	0.13319	0.40649	13.33370
sky130_osu_sc_12T_ls__dffr_l	min_pulse_width	CK ()	0.11477	0.40649	13.33370
	min_pulse_width	CK ()	0.13012	0.40649	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 ()	0.26524	0.40649	13.33370
	min_pulse_width	CK ()	0.11169	0.40649	13.33370
sky130_osu_sc_12T_ls__dffr_l	min_pulse_width	CK ()	0.26524	0.40649	13.33370
	min_pulse_width	CK ()	0.11169	0.40649	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	0.01088	0.00958	0.01766
sky130_osu_sc_12T_ls__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.00967	0.00919	0.03465

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	0.01265	0.01122	0.01110
	RN	-0.00139	-0.09052	-1.46608
	RN	0.02892	0.02778	0.02744
sky130_osu_sc_12T_ls__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.01147	0.01082	0.02607
	RN	-0.00139	-0.07297	-1.02364
	RN	0.02773	0.02737	0.04257

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	0.01265	0.01126	0.01167
	RN	-0.00139	-0.08956	-1.44016
	RN	0.02891	0.02779	0.02809
sky130_osu_sc_12T_ls__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.01147	0.01083	0.02601
	RN	-0.00139	-0.07272	-1.01789
	RN	0.02772	0.02738	0.04240

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	0.01085	0.00959	0.01786
sky130_osu_sc_12T_ls__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.00963	0.00920	0.03390

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	-0.00293	-0.00337	-0.00338
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.01372	0.01391	0.05417
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.00551	0.00583	0.04590
sky130_osu_sc_12T_ls__dffr_l	CK	0.00000	0.00000	0.00000
	CK	-0.00293	-0.00337	-0.00337
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.01372	0.01391	0.05417
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.00551	0.00583	0.04590

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	0.00336	0.00337	0.00338
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.02153	0.02184	0.06249
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.01053	0.01088	0.05065
sky130_osu_sc_12T_ls__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.00336	0.00337	0.00337
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.02153	0.02183	0.06249
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.01053	0.01088	0.05065

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)	0.00414	0.00534	0.05989
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.01270	0.01357	0.06941
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)	0.00414	0.00534	0.05989
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.01270	0.01357	0.06941

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)	0.01090	0.01244	0.06617
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.02200	0.02320	0.07766
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)	0.01090	0.01244	0.06617
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.02200	0.02320	0.07766

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)	-0.00100	-0.00015	0.05522
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.00700	0.00702	0.06398
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	-0.00103	-0.00011	0.05514
sky130_osu_sc_12T_ls__dffr_l	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	-0.00100	-0.00015	0.05522
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.00700	0.00702	0.06403
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	-0.00103	-0.00011	0.05514

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)	0.01654	0.01803	0.07283
	(D * RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * RN * !Q * QN)	0.03477	0.03537	0.10223
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.02621	0.02727	0.08289
	(!D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * Q * !QN)	0.03376	0.03637	0.12460
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.01841	0.01971	0.07350
sky130_osu_sc_12T_ls__dffr_l	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.01654	0.01805	0.07283
	(D * RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * RN * !Q * QN)	0.03477	0.03537	0.10223
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.02621	0.02727	0.08289
	(!D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * Q * !QN)	0.03375	0.03634	0.12460
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.01841	0.01971	0.07350

SKY130_OSU_SC_12T_LS__DFFSRx

sky130_osu_sc_12T_ls_tt_2P10_25C.ccs
Cell Library: Process , Voltage 2.10,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_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	0.00289	0.00294	0.00676	0.00914	1.38847	1.36624
sky130_osu_sc_12T_ls__dffsr_l	0.00289	0.00294	0.00676	0.00914	0.92230	0.92453

Leakage Information

Cell Name	Leakage(nW)		
	Min.	**Avg**	**Max.**
sky130_osu_sc_12T_ls__dffsr_1	0.00000	0.14086	0.18672
sky130_osu_sc_12T_ls__dffsr_l	0.00000	0.10787	0.15373

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)	0.27870	1.21691	13.98530
	QN->Q (FR)	0.02586	0.75093	12.12990
	RN->Q (RR)	0.22480	1.17472	14.07380
	SN->Q (FR)	0.21073	1.28480	16.39250
sky130_osu_sc_12T_ls__dffsr_l	CK->Q (RR)	0.27973	1.31106	13.24570
	QN->Q (FR)	0.03037	0.81445	11.85850
	RN->Q (RR)	0.22608	1.26935	13.31840
	SN->Q (FR)	0.21191	1.37685	15.63750

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)	0.30151	1.24828	14.43680
	QN->Q (RF)	0.01926	0.52912	8.52835
	RN->Q (FF)	0.21108	1.30643	16.72450
sky130_osu_sc_12T_ls__dffsr_l	CK->Q (RF)	0.30765	1.35732	13.74160
	QN->Q (RF)	0.02102	0.53735	7.86230
	RN->Q (FF)	0.21750	1.41549	16.02110

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)	0.27597	0.74626	6.43120
	RN->QN (FR)	0.18619	0.80452	8.71467
sky130_osu_sc_12T_ls__dffsr_l	CK->QN (RR)	0.27859	0.81255	6.39262
	RN->QN (FR)	0.18859	0.87069	8.67105

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)	0.24004	0.58739	3.98045
	RN->QN (RF)	0.18675	0.54538	4.06021
	SN->QN (FF)	0.17279	0.65523	6.39049
sky130_osu_sc_12T_ls__dffsr_l	CK->QN (RF)	0.23605	0.60601	3.73202
	RN->QN (RF)	0.18291	0.56485	3.80854
	SN->QN (FF)	0.16889	0.67238	6.13163

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)	-0.06027	-0.07241	-0.00634
	setup	CK (R)	0.21040	0.23533	0.66604
sky130_osu_sc_12T_ls__dffsr_l	hold	CK (R)	-0.06442	-0.07241	-0.00798
	setup	CK (R)	0.21013	0.23476	0.66613

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)	-0.12772	-0.31169	-4.19978
	setup	CK (R)	0.15354	0.32286	4.24210
sky130_osu_sc_12T_ls__dffsr_l	hold	CK (R)	-0.12705	-0.31391	-4.20088
	setup	CK (R)	0.15354	0.32286	4.24210

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)	-0.06027	-0.07241	-0.00634
	setup	CK (R)	0.21040	0.23533	0.66604
sky130_osu_sc_12T_ls__dffsr_l	hold	CK (R)	-0.06442	-0.07241	-0.00798
	setup	CK (R)	0.21013	0.23476	0.66613

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)	-0.12772	-0.31169	-4.19978
	setup	CK (R)	0.15354	0.32286	4.24210
sky130_osu_sc_12T_ls__dffsr_l	hold	CK (R)	-0.12705	-0.31391	-4.20088
	setup	CK (R)	0.15354	0.32286	4.24210

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)	0.16656	0.19132	0.86806
	removal	CK (R)	-0.02656	-0.03195	-0.04934
	hold	SN (R)	-0.16499	-0.28043	-1.11789
	setup	SN (R)	0.19033	0.31133	3.17532
sky130_osu_sc_12T_ls__dffsr_l	recovery	CK (R)	0.16584	0.19117	0.86651
	removal	CK (R)	-0.02656	-0.03195	-0.04934
	hold	SN (R)	-0.16104	-0.27270	-1.08276
	setup	SN (R)	0.18909	0.30189	3.05439

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)	0.16656	0.19132	0.86806
	removal	CK (R)	-0.02656	-0.03195	-0.04934
	hold	SN (R)	-0.16501	-0.28043	-1.11789
	hold	SN (R)	-0.16499	-0.28248	-1.12680
	setup	SN (R)	0.18846	0.31133	2.90006
	setup	SN (R)	0.19033	0.30993	3.17532
sky130_osu_sc_12T_ls__dffsr_l	recovery	CK (R)	0.16584	0.19117	0.86651
	removal	CK (R)	-0.02656	-0.03195	-0.04934
	hold	SN (R)	-0.16104	-0.27270	-1.08276
	hold	SN (R)	-0.16167	-0.27472	-1.08875
	setup	SN (R)	0.18909	0.30079	2.78640
	setup	SN (R)	0.17822	0.30189	3.05439

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 ()	0.14240	0.40649	13.33370
	min_pulse_width	RN ()	0.14854	0.40649	13.33370
sky130_osu_sc_12T_ls__dffsr_l	min_pulse_width	RN ()	0.14240	0.40649	13.33370
	min_pulse_width	RN ()	0.14240	0.40649	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)	0.03667	0.06546	4.15231
	removal	CK (R)	-0.01827	-0.05238	-0.30393
sky130_osu_sc_12T_ls__dffsr_l	recovery	CK (R)	0.03437	0.06532	4.04387
	removal	CK (R)	-0.01827	-0.05238	-0.30393

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)	0.03667	0.06546	4.15231
	removal	CK (R)	-0.01827	-0.05238	-0.30393
sky130_osu_sc_12T_ls__dffsr_l	recovery	CK (R)	0.03437	0.06532	4.04387
	removal	CK (R)	-0.01827	-0.05238	-0.30393

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 ()	0.17004	0.40649	13.33370
	min_pulse_width	SN ()	0.17311	0.40649	13.33370
sky130_osu_sc_12T_ls__dffsr_l	min_pulse_width	SN ()	0.17004	0.40649	13.33370
	min_pulse_width	SN ()	0.16390	0.40649	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 ()	0.12398	0.40649	13.33370
	min_pulse_width	CK ()	0.15161	0.40649	13.33370
sky130_osu_sc_12T_ls__dffsr_l	min_pulse_width	CK ()	0.11784	0.40649	13.33370
	min_pulse_width	CK ()	0.15161	0.40649	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 ()	0.27445	0.40649	13.33370
	min_pulse_width	CK ()	0.13012	0.40649	13.33370
sky130_osu_sc_12T_ls__dffsr_l	min_pulse_width	CK ()	0.27445	0.40649	13.33370
	min_pulse_width	CK ()	0.13012	0.40649	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	0.01373	0.01232	0.01864
	RN	0.02519	0.02355	0.01619
	SN	-0.00139	-0.09290	-1.53078
	SN	0.02466	0.02233	0.01963
sky130_osu_sc_12T_ls__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.01259	0.01205	0.03727
	RN	0.02404	0.02327	0.03517
	SN	-0.00139	-0.07268	-1.01683
	SN	0.02354	0.02205	0.03808

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	0.01464	0.01378	0.02145
	RN	-0.00139	-0.09290	-1.53078
	RN	0.03048	0.02985	0.03751
sky130_osu_sc_12T_ls__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.01346	0.01290	0.02836
	RN	-0.00139	-0.07268	-1.01683
	RN	0.02898	0.02866	0.04465

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	0.01463	0.01378	0.02151
	RN	-0.00139	-0.09200	-1.50628
	RN	0.03048	0.02987	0.03769
sky130_osu_sc_12T_ls__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.01346	0.01288	0.02824
	RN	-0.00139	-0.07278	-1.01929
	RN	0.02898	0.02866	0.04455

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	0.01369	0.01231	0.01862
	RN	0.02515	0.02354	0.01688
	SN	-0.00139	-0.09200	-1.50619
	SN	0.02463	0.02234	0.02053
sky130_osu_sc_12T_ls__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.01255	0.01201	0.03644
	RN	0.02401	0.02324	0.03477
	SN	-0.00139	-0.07278	-1.01925
	SN	0.02351	0.02205	0.03780

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	-0.00332	-0.00338	-0.00340
	(!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)	0.01757	0.01775	0.05771
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.00612	0.00643	0.04626
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.00608	0.00639	0.04622
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.00614	0.00646	0.04629
sky130_osu_sc_12T_ls__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	-0.00332	-0.00339	-0.00340
	(!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)	0.01757	0.01775	0.05771
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.00612	0.00643	0.04626
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.00608	0.00639	0.04622
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.00614	0.00646	0.04629

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	0.00345	0.00340	0.00340
	(!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)	0.02473	0.02491	0.06492
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.01158	0.01192	0.05134
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.01162	0.01196	0.05133
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.01155	0.01189	0.05130
sky130_osu_sc_12T_ls__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.00345	0.00340	0.00340
	(!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)	0.02473	0.02491	0.06492
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.01158	0.01192	0.05134
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.01162	0.01196	0.05133
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.01155	0.01189	0.05130

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)	0.00307	0.00414	0.05860
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.01495	0.01562	0.07144
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)	0.00307	0.00414	0.05860
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.01495	0.01562	0.07143

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)	0.01199	0.01363	0.06752
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.02347	0.02461	0.07925
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)	0.01199	0.01363	0.06752
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.02347	0.02461	0.07925

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)	-0.00850	-0.00854	-0.00854
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	-0.00855	-0.00918	-0.00915
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	-0.00825	-0.00856	-0.00855
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.00398	0.00454	0.04520
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)	-0.00850	-0.00854	-0.00854
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	-0.00855	-0.00918	-0.00915
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	-0.00825	-0.00856	-0.00855
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.00398	0.00452	0.04520

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)	0.00853	0.00866	0.00857
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00912	0.00918	0.00915
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	0.00852	0.00860	0.00856
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.01916	0.01903	0.05723
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)	0.00853	0.00866	0.00856
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00912	0.00918	0.00915
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	0.00852	0.00860	0.00856
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.01916	0.01903	0.05723

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)	-0.00109	-0.00026	0.05509
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.00831	0.00836	0.06522
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.00824	0.00832	0.06515
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	-0.00084	0.00006	0.05528
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.00392	0.00553	0.10559
sky130_osu_sc_12T_ls__dffsr_l	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	-0.00109	-0.00026	0.05509
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.00831	0.00836	0.06522
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.00824	0.00832	0.06519
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	-0.00084	0.00006	0.05528
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.00392	0.00553	0.10559

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)	0.03897	0.03970	0.10595
	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.01686	0.01832	0.07308
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.02671	0.02781	0.08328
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.02679	0.02792	0.08352
	(!D * RN * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * Q * !QN)	0.03706	0.03933	0.12784
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.01843	0.01969	0.07346
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.02283	0.02534	0.12389
sky130_osu_sc_12T_ls__dffsr_l	**(D * RN * SN * !Q * QN)**	0.00000	0.00000	0.00000
	(D * RN * SN * !Q * QN)	0.03896	0.03969	0.10595
	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.01686	0.01832	0.07308
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.02671	0.02781	0.08328
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.02679	0.02792	0.08352
	(!D * RN * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * Q * !QN)	0.03706	0.03933	0.12784
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.01843	0.01969	0.07346
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.02283	0.02536	0.12389

SKY130_OSU_SC_12T_LS__DFFSx

sky130_osu_sc_12T_ls_tt_2P10_25C.ccs
Cell Library: Process , Voltage 2.10,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_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	0.00291	0.00551	0.00899	1.31703	1.31445
sky130_osu_sc_12T_ls__dffs_l	0.00291	0.00551	0.00898	0.92668	0.92708

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_12T_ls__dffs_1	0.00000	0.10814	0.14952
sky130_osu_sc_12T_ls__dffs_l	0.00000	0.07515	0.11653

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)	0.20039	1.10422	13.34530
	QN->Q (FR)	0.02747	0.77110	12.28200
	SN->Q (FR)	0.15933	1.24107	15.82370
sky130_osu_sc_12T_ls__dffs_l	CK->Q (RR)	0.20163	1.21666	13.18130
	QN->Q (FR)	0.03040	0.81422	11.86780
	SN->Q (FR)	0.16059	1.34802	15.63130

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)	0.29116	1.22512	13.91500
	QN->Q (RF)	0.01933	0.51686	8.26048
sky130_osu_sc_12T_ls__dffs_l	CK->Q (RF)	0.29381	1.34477	13.77280
	QN->Q (RF)	0.02108	0.53723	7.87320

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)	0.26539	0.73981	6.37708
sky130_osu_sc_12T_ls__dffs_l	CK->QN (RR)	0.26453	0.79788	6.37731

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)	0.16428	0.48281	3.69135
	SN->QN (FF)	0.12251	0.61908	6.16923
sky130_osu_sc_12T_ls__dffs_l	CK->QN (RF)	0.16124	0.51077	3.62694
	SN->QN (FF)	0.11987	0.64283	6.08153

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)	-0.04358	-0.05413	0.04246
	setup	CK (R)	0.14715	0.17982	0.52390
sky130_osu_sc_12T_ls__dffs_l	hold	CK (R)	-0.04355	-0.05490	0.03998
	setup	CK (R)	0.14406	0.17957	0.52412

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)	-0.11266	-0.29829	-4.17827
	setup	CK (R)	0.14452	0.30908	4.21458
sky130_osu_sc_12T_ls__dffs_l	hold	CK (R)	-0.11363	-0.29807	-4.17779
	setup	CK (R)	0.14447	0.30908	4.21458

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)	-0.04358	-0.05413	0.04246
	setup	CK (R)	0.14715	0.17982	0.52390
sky130_osu_sc_12T_ls__dffs_l	hold	CK (R)	-0.04355	-0.05490	0.03998
	setup	CK (R)	0.14406	0.17957	0.52412

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)	-0.11266	-0.29829	-4.17827
	setup	CK (R)	0.14452	0.30908	4.21458
sky130_osu_sc_12T_ls__dffs_l	hold	CK (R)	-0.11363	-0.29807	-4.17779
	setup	CK (R)	0.14447	0.30908	4.21458

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)	0.03839	0.06550	2.60752
	removal	CK (R)	-0.02196	-0.05238	-0.33200
sky130_osu_sc_12T_ls__dffs_l	recovery	CK (R)	0.03806	0.06546	2.50621
	removal	CK (R)	-0.02196	-0.05238	-0.33200

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)	0.03839	0.06550	2.60752
	removal	CK (R)	-0.02196	-0.05238	-0.33200
sky130_osu_sc_12T_ls__dffs_l	recovery	CK (R)	0.03806	0.06546	2.50621
	removal	CK (R)	-0.02196	-0.05238	-0.33200

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 ()	0.11169	0.40649	13.33370
	min_pulse_width	SN ()	0.11477	0.40649	13.33370
sky130_osu_sc_12T_ls__dffs_l	min_pulse_width	SN ()	0.11169	0.40649	13.33370
	min_pulse_width	SN ()	0.10862	0.40649	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 ()	0.08713	0.40649	13.33370
	min_pulse_width	CK ()	0.14240	0.40649	13.33370
sky130_osu_sc_12T_ls__dffs_l	min_pulse_width	CK ()	0.08099	0.40649	13.33370
	min_pulse_width	CK ()	0.13933	0.40649	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 ()	0.20996	0.40649	13.33370
	min_pulse_width	CK ()	0.12091	0.40649	13.33370
sky130_osu_sc_12T_ls__dffs_l	min_pulse_width	CK ()	0.20996	0.40649	13.33370
	min_pulse_width	CK ()	0.12091	0.40649	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	0.01081	0.00972	0.01883
	SN	-0.00139	-0.09000	-1.45202
	SN	0.02002	0.01876	0.02163
sky130_osu_sc_12T_ls__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.00962	0.00935	0.03493
	SN	-0.00139	-0.07289	-1.02167
	SN	0.01885	0.01840	0.03748

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	0.01256	0.01125	0.01237
sky130_osu_sc_12T_ls__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.01139	0.01082	0.02658

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	0.01256	0.01126	0.01234
sky130_osu_sc_12T_ls__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.01139	0.01081	0.02652

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	0.01078	0.00967	0.01808
	SN	-0.00139	-0.08989	-1.44908
	SN	0.02000	0.01876	0.02114
sky130_osu_sc_12T_ls__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.00959	0.00932	0.03413
	SN	-0.00139	-0.07290	-1.02206
	SN	0.01881	0.01836	0.03686

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	-0.00337	-0.00344	-0.00344
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.01325	0.01344	0.05434
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.00548	0.00581	0.04590
sky130_osu_sc_12T_ls__dffs_l	CK	0.00000	0.00000	0.00000
	CK	-0.00337	-0.00344	-0.00344
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.01325	0.01344	0.05434
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.00548	0.00581	0.04590

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	0.00349	0.00344	0.00344
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.02131	0.02153	0.06200
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.01070	0.01108	0.05087
sky130_osu_sc_12T_ls__dffs_1	CK	0.00000	0.00000	0.00000
	CK	0.00349	0.00344	0.00344
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.02131	0.02153	0.06200
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.01070	0.01108	0.05087

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)	-0.00619	-0.00622	-0.00622
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.00416	0.00462	0.04346
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)	-0.00619	-0.00622	-0.00622
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.00416	0.00462	0.04346

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)	0.00626	0.00625	0.00624
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.01307	0.01362	0.05242
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)	0.00626	0.00625	0.00624
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.01307	0.01357	0.05242

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)	-0.00100	-0.00015	0.05526
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	-0.00093	-0.00001	0.05527
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.00337	0.00513	0.10563
sky130_osu_sc_12T_ls__dffs_l	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	-0.00100	-0.00015	0.05526
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	-0.00093	-0.00001	0.05527
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.00337	0.00513	0.10563

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)	0.03442	0.03510	0.10290
	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.01655	0.01808	0.07288
	(!D * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * SN * Q * !QN)	0.03334	0.03567	0.12402
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	0.01832	0.01960	0.07344
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.02160	0.02429	0.12346
sky130_osu_sc_12T_ls__dffs_l	(D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * SN * !Q * QN)	0.03442	0.03510	0.10290
	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.01655	0.01808	0.07288
	(!D * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * SN * Q * !QN)	0.03334	0.03567	0.12402
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	0.01831	0.01960	0.07344
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.02160	0.02429	0.12345

SKY130_OSU_SC_12T_LS__DFFx

sky130_osu_sc_12T_ls_tt_2P10_25C.ccs
Cell Library: Process , Voltage 2.10,
Temp 25.00

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	0.00306	0.00885	1.18844
sky130_osu_sc_12T_ls__dff_l	0.00306	0.00883	0.87050

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_12T_ls__dff_1	0.00000	0.13061	0.15007
sky130_osu_sc_12T_ls__dff_l	0.00000	0.09762	0.11708

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)**	0.16871	0.64014	6.09417
sky130_osu_sc_12T_ls__dff_l	**CK->Q (RR)**	0.16920	0.70126	6.16522

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)**	0.24688	0.54858	3.46217
sky130_osu_sc_12T_ls__dff_l	**CK->Q (RF)**	0.24856	0.58905	3.56073

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)	-0.03755	-0.04756	0.03333
	setup	CK (R)	0.11556	0.15534	0.48525
sky130_osu_sc_12T_ls__dff_l	hold	CK (R)	-0.03755	-0.04756	0.03316
	setup	CK (R)	0.11514	0.15555	0.48520

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)	-0.10613	-0.29889	-4.19023
	setup	CK (R)	0.12387	0.30997	4.22086
sky130_osu_sc_12T_ls__dff_l	hold	CK (R)	-0.10333	-0.29889	-4.19032
	setup	CK (R)	0.12387	0.30997	4.22084

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 ()	0.07177	0.40649	13.33370
	min_pulse_width	CK ()	0.12705	0.40649	13.33370
sky130_osu_sc_12T_ls__dff_l	min_pulse_width	CK ()	0.07177	0.40649	13.33370
	min_pulse_width	CK ()	0.12705	0.40649	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 ()**	0.17925	0.40649	13.33370
	min_pulse_width	**CK ()**	0.09941	0.40649	13.33370
sky130_osu_sc_12T_ls__dff_l	**min_pulse_width**	**CK ()**	0.17925	0.40649	13.33370
	min_pulse_width	**CK ()**	0.09941	0.40649	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	0.02275	0.02418	0.11010
sky130_osu_sc_12T_ls__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.02034	0.02187	0.10763

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	0.02562	0.02591	0.08283
sky130_osu_sc_12T_ls__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.02331	0.02368	0.08069

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	-0.00291	-0.00336	-0.00335
	!CK	0.00000	0.00000	0.00000
	!CK	0.01197	0.01227	0.05290
sky130_osu_sc_12T_ls__dff_l	CK	0.00000	0.00000	0.00000
	CK	-0.00291	-0.00336	-0.00335
	!CK	0.00000	0.00000	0.00000
	!CK	0.01196	0.01227	0.05290

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	0.00334	0.00336	0.00335
	!CK	0.00000	0.00000	0.00000
	!CK	0.02202	0.02221	0.06318
sky130_osu_sc_12T_ls__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.00334	0.00336	0.00335
	!CK	0.00000	0.00000	0.00000
	!CK	0.02202	0.02221	0.06318

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)	-0.00105	-0.00021	0.05524
	(!D * !Q)	0.00000	0.00000	0.00000
	(!D * !Q)	-0.00092	0.00001	0.05532
sky130_osu_sc_12T_ls__dff_l	(D * Q)	0.00000	0.00000	0.00000
	(D * Q)	-0.00105	-0.00018	0.05524
	(!D * !Q)	0.00000	0.00000	0.00000
	(!D * !Q)	-0.00092	0.00001	0.05532

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)	0.01651	0.01806	0.07286
	(D * !Q)	0.00000	0.00000	0.00000
	(D * !Q)	0.03313	0.03384	0.10240
	(!D * Q)	0.00000	0.00000	0.00000
	(!D * Q)	0.03384	0.03632	0.12614
	(!D * !Q)	0.00000	0.00000	0.00000
	(!D * !Q)	0.01821	0.01954	0.07336
sky130_osu_sc_12T_ls__dff_l	(D * Q)	0.00000	0.00000	0.00000
	(D * Q)	0.01651	0.01806	0.07286
	(D * !Q)	0.00000	0.00000	0.00000
	(D * !Q)	0.03313	0.03384	0.10240
	(!D * Q)	0.00000	0.00000	0.00000
	(!D * Q)	0.03383	0.03633	0.12614
	(!D * !Q)	0.00000	0.00000	0.00000
	(!D * !Q)	0.01821	0.01954	0.07336

SKY130_OSU_SC_12T_LS__INVx

sky130_osu_sc_12T_ls_tt_2P10_25C.ccs
Cell Library: Process , Voltage 2.10,
Temp 25.00

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	0.00296	1.22622
sky130_osu_sc_12T_ls__inv_10	0.02663	11.94336
sky130_osu_sc_12T_ls__inv_2	0.00552	2.52573
sky130_osu_sc_12T_ls__inv_3	0.00818	3.66167
sky130_osu_sc_12T_ls__inv_4	0.01078	5.00201
sky130_osu_sc_12T_ls__inv_6	0.01613	7.45053
sky130_osu_sc_12T_ls__inv_8	0.02138	9.67097
sky130_osu_sc_12T_ls__inv_l	0.00231	0.84542

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_12T_ls__inv_1	0.00000	0.01838	0.03623
sky130_osu_sc_12T_ls__inv_10	0.00000	0.18383	0.36227
sky130_osu_sc_12T_ls__inv_2	0.00000	0.03677	0.07245
sky130_osu_sc_12T_ls__inv_3	0.00000	0.05515	0.10868
sky130_osu_sc_12T_ls__inv_4	0.00000	0.07353	0.14491
sky130_osu_sc_12T_ls__inv_6	0.00000	0.11030	0.21736
sky130_osu_sc_12T_ls__inv_8	0.00000	0.14706	0.28982
sky130_osu_sc_12T_ls__inv_l	0.00000	0.00189	0.00353

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)**	0.02656	0.71493	11.18000
sky130_osu_sc_12T_ls__inv_10	**A->Y (FR)**	0.03080	0.45614	10.96590
sky130_osu_sc_12T_ls__inv_2	**A->Y (FR)**	0.01973	0.59980	11.08990
sky130_osu_sc_12T_ls__inv_3	**A->Y (FR)**	0.02123	0.55567	11.04530
sky130_osu_sc_12T_ls__inv_4	**A->Y (FR)**	0.02101	0.52556	11.09090
sky130_osu_sc_12T_ls__inv_6	**A->Y (FR)**	0.02327	0.49112	11.09250
sky130_osu_sc_12T_ls__inv_8	**A->Y (FR)**	0.02670	0.46874	10.95400
sky130_osu_sc_12T_ls__inv_l	**A->Y (FR)**	0.03053	0.76428	10.89480

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)**	0.01777	0.45584	7.10024
sky130_osu_sc_12T_ls__inv_10	**A->Y (RF)**	0.02356	0.27085	7.26889
sky130_osu_sc_12T_ls__inv_2	**A->Y (RF)**	0.01419	0.38748	7.26178
sky130_osu_sc_12T_ls__inv_3	**A->Y (RF)**	0.01539	0.35677	7.30564
sky130_osu_sc_12T_ls__inv_4	**A->Y (RF)**	0.01520	0.33267	7.37543
sky130_osu_sc_12T_ls__inv_6	**A->Y (RF)**	0.01809	0.30416	7.40399
sky130_osu_sc_12T_ls__inv_8	**A->Y (RF)**	0.02081	0.28350	7.31145
sky130_osu_sc_12T_ls__inv_l	**A->Y (RF)**	0.02011	0.48385	6.84954

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	0.00555	0.00645	0.01411
sky130_osu_sc_12T_ls__inv_10	A	0.00000	0.00000	0.00000
	A	0.04579	0.05827	0.14543
sky130_osu_sc_12T_ls__inv_2	A	0.00000	0.00000	0.00000
	A	0.00956	0.01126	0.02900
sky130_osu_sc_12T_ls__inv_3	A	0.00000	0.00000	0.00000
	A	0.01474	0.01748	0.04374
sky130_osu_sc_12T_ls__inv_4	A	0.00000	0.00000	0.00000
	A	0.01878	0.02291	0.05745
sky130_osu_sc_12T_ls__inv_6	A	0.00000	0.00000	0.00000
	A	0.02777	0.03682	0.08606
sky130_osu_sc_12T_ls__inv_8	A	0.00000	0.00000	0.00000
	A	0.03673	0.04564	0.11529
sky130_osu_sc_12T_ls__inv_l	A	0.00000	0.00000	0.00000
	A	0.00433	0.00501	0.01359

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	-0.00108	-0.00059	0.00740
sky130_osu_sc_12T_ls__inv_10	**A**	0.00000	0.00000	0.00000
	A	-0.01692	-0.00872	0.06926
sky130_osu_sc_12T_ls__inv_2	**A**	0.00000	0.00000	0.00000
	A	-0.00336	-0.00197	0.01356
sky130_osu_sc_12T_ls__inv_3	**A**	0.00000	0.00000	0.00000
	A	-0.00445	-0.00236	0.02095
sky130_osu_sc_12T_ls__inv_4	**A**	0.00000	0.00000	0.00000
	A	-0.00684	-0.00401	0.02698
sky130_osu_sc_12T_ls__inv_6	**A**	0.00000	0.00000	0.00000
	A	-0.01043	-0.00572	0.04051
sky130_osu_sc_12T_ls__inv_8	**A**	0.00000	0.00000	0.00000
	A	-0.01393	-0.00658	0.05465
sky130_osu_sc_12T_ls__inv_l	**A**	0.00000	0.00000	0.00000
	A	-0.00077	-0.00045	0.00615

SKY130_OSU_SC_12T_LS__MUX2

sky130_osu_sc_12T_ls_tt_2P10_25C.ccs
Cell Library: Process , Voltage 2.10,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_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	0.36215	0.36225	0.00610	0.36947

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_12T_ls__mux2_1	0.00000	0.05496	0.10866

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)	-	0.01060	0.19417	1.96537
	A1->Y (RR)	-	0.01228	0.19635	1.96413
	S0->Y (RR)	(!A0 * A1)	0.03778	0.23915	1.11597
	S0->Y (FR)	(A0 * !A1)	0.02931	0.35942	3.67383

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)	-	0.01222	0.21674	2.26734
	A1->Y (FF)	-	0.01101	0.21454	2.26145
	S0->Y (FF)	(!A0 * A1)	0.05585	0.34332	2.89408
	S0->Y (RF)	(A0 * !A1)	0.01983	0.24103	1.98894

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	-	-0.00538	-0.00538	-0.00539
	A1	-	0.00000	0.00000	0.00000
	A1	-	-0.00346	-0.00347	-0.00347
	S0	(A0 * !A1)	0.00000	0.00000	0.00000
	S0	(A0 * !A1)	0.00714	0.00938	0.06466
	S0	(!A0 * A1)	0.00000	0.00000	0.00000
	S0	(!A0 * A1)	-0.00357	-0.00216	0.05337

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	-	0.00538	0.00538	0.00539
	A1	-	0.00000	0.00000	0.00000
	A1	-	0.00346	0.00347	0.00347
	S0	(A0 * !A1)	0.00000	0.00000	0.00000
	S0	(A0 * !A1)	0.00081	0.00242	0.05842
	S0	(!A0 * A1)	0.00000	0.00000	0.00000
	S0	(!A0 * A1)	0.01499	0.01690	0.07122

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)	-0.00126	-0.00126	-0.00126

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)	0.00126	0.00126	0.00126

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)	-0.00152	-0.00152	-0.00152

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)	0.00152	0.00152	0.00152

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)	-0.00141	0.00023	0.05576
	(!A0 * !A1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !Y)	-0.00136	0.00010	0.05581

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)	0.01160	0.01333	0.06801
	(!A0 * !A1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !Y)	0.01050	0.01247	0.06775

SKY130_OSU_SC_12T_LS__NAND2x

sky130_osu_sc_12T_ls_tt_2P10_25C.ccs
Cell Library: Process , Voltage 2.10,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_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	0.00295	0.00295	1.21815
sky130_osu_sc_12T_ls__nand2_l	0.00227	0.00230	0.83086

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_12T_ls__nand2_1	0.00000	0.01840	0.07245
sky130_osu_sc_12T_ls__nand2_l	0.00000	0.00192	0.00705

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)	0.02793	0.71575	11.17060
	B->Y (FR)	0.03203	0.68597	10.66820
sky130_osu_sc_12T_ls__nand2_l	A->Y (FR)	0.03105	0.76072	10.79720
	B->Y (FR)	0.03734	0.76548	10.78070

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)	0.02542	0.57279	8.87155
	B->Y (RF)	0.02882	0.54471	8.30475
sky130_osu_sc_12T_ls__nand2_l	A->Y (RF)	0.02852	0.61387	8.54701
	B->Y (RF)	0.03182	0.58028	7.90550

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	0.00590	0.00670	0.01319
	B	0.00000	0.00000	0.00000
	B	0.00756	0.00772	0.01649
sky130_osu_sc_12T_ls__nand2_l	A	0.00000	0.00000	0.00000
	A	0.00441	0.00504	0.01238
	B	0.00000	0.00000	0.00000
	B	0.00557	0.00611	0.01367

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	-0.00071	-0.00039	0.00652
	B	0.00000	0.00000	0.00000
	B	-0.00069	-0.00058	0.00556
sky130_osu_sc_12T_ls__nand2_l	A	0.00000	0.00000	0.00000
	A	-0.00046	-0.00029	0.00539
	B	0.00000	0.00000	0.00000
	B	-0.00046	-0.00037	0.00468

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)	-0.00388	-0.00389	-0.00391
sky130_osu_sc_12T_ls__nand2_l	(!B * Y)	0.00000	0.00000	0.00000
	(!B * Y)	-0.00273	-0.00274	-0.00275

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)	0.00391	0.00396	0.00392
sky130_osu_sc_12T_ls__nand2_l	(!B * Y)	0.00000	0.00000	0.00000
	(!B * Y)	0.00275	0.00278	0.00276

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)	-0.00362	-0.00363	-0.00363
sky130_osu_sc_12T_ls__nand2_l	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00258	-0.00259	-0.00258

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)	0.00369	0.00367	0.00364
sky130_osu_sc_12T_ls__nand2_l	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00261	0.00263	0.00259

SKY130_OSU_SC_12T_LS__NOR2x

sky130_osu_sc_12T_ls_tt_2P10_25C.ccs
Cell Library: Process , Voltage 2.10,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_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	0.00290	0.00318	0.68481
sky130_osu_sc_12T_ls__nor2_l	0.00218	0.00240	0.48246

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_12T_ls__nor2_1	0.00000	0.01882	0.03623
sky130_osu_sc_12T_ls__nor2_l	0.00000	0.00197	0.00353

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)	0.05694	0.81826	10.51570
	B->Y (FR)	0.04405	0.83164	11.01620
sky130_osu_sc_12T_ls__nor2_l	A->Y (FR)	0.06072	0.87977	10.25040
	B->Y (FR)	0.05041	0.89667	10.79860

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)	0.02403	0.37715	4.82727
	B->Y (RF)	0.01898	0.36803	4.80985
sky130_osu_sc_12T_ls__nor2_l	A->Y (RF)	0.02558	0.40091	4.68041
	B->Y (RF)	0.02119	0.39316	4.66442

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	0.00800	0.00804	0.01695
	B	0.00000	0.00000	0.00000
	B	0.00607	0.00669	0.01783
sky130_osu_sc_12T_ls__nor2_l	A	0.00000	0.00000	0.00000
	A	0.00577	0.00581	0.01418
	B	0.00000	0.00000	0.00000
	B	0.00453	0.00510	0.01529

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	0.00069	0.00085	0.01129
	B	0.00000	0.00000	0.00000
	B	-0.00084	-0.00031	0.00959
sky130_osu_sc_12T_ls__nor2_l	A	0.00000	0.00000	0.00000
	A	0.00047	0.00063	0.00926
	B	0.00000	0.00000	0.00000
	B	-0.00053	-0.00016	0.00795

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)	-0.00292	-0.00340	-0.00339
sky130_osu_sc_12T_ls__nor2_l	(B * !Y)	0.00000	0.00000	0.00000
	(B * !Y)	-0.00198	-0.00232	-0.00230

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)	0.00338	0.00341	0.00339
sky130_osu_sc_12T_ls__nor2_l	(B * !Y)	0.00000	0.00000	0.00000
	(B * !Y)	0.00229	0.00232	0.00230

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)	-0.00143	-0.00144	-0.00143
sky130_osu_sc_12T_ls__nor2_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	-0.00101	-0.00102	-0.00101

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)	0.00149	0.00150	0.00145
sky130_osu_sc_12T_ls__nor2_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00105	0.00105	0.00102

SKY130_OSU_SC_12T_LS__OAI21

sky130_osu_sc_12T_ls_tt_2P10_25C.ccs
Cell Library: Process , Voltage 2.10,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_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	0.00295	0.00304	0.00257	0.66630

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_12T_ls__oai21_l	0.00000	0.01093	0.03976

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)	0.06353	0.84307	10.86700
	A1->Y (FR)	0.07906	0.83392	10.36600
	B0->Y (FR)	0.03905	0.70602	9.48894

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)	0.03506	0.44110	5.49378
	A1->Y (RF)	0.04207	0.44142	5.42328
	B0->Y (RF)	0.02708	0.48254	6.31717

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	0.00853	0.00901	0.01859
	A1	0.00000	0.00000	0.00000
	A1	0.01051	0.01044	0.01884
	B0	0.00704	0.00769	0.01819

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	0.00022	0.00034	0.00794
	A1	0.00000	0.00000	0.00000
	A1	0.00176	0.00161	0.00953
	B0	0.00070	0.00102	0.00958

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)	-0.00144	-0.00145	-0.00144
	(A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * Y)	-0.00338	-0.00346	-0.00344
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00349	-0.00351	-0.00349

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)	0.00150	0.00151	0.00146
	(A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * Y)	0.00342	0.00346	0.00344
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00350	0.00353	0.00350

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)	-0.00282	-0.00329	-0.00328
	(A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * Y)	-0.00334	-0.00343	-0.00341
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	-0.00345	-0.00345	-0.00345

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)	0.00326	0.00330	0.00328
	(A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * Y)	0.00338	0.00343	0.00341
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	0.00347	0.00347	0.00346

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)	-0.00287	-0.00287	-0.00292

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)	0.00292	0.00297	0.00293

SKY130_OSU_SC_12T_LS__OAI22

sky130_osu_sc_12T_ls_tt_2P10_25C.ccs
Cell Library: Process , Voltage 2.10,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_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	0.00278	0.00291	0.00309	0.00305	0.70815

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_12T_ls__oai22_1	0.00000	0.02823	0.07245

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)	0.08359	0.83177	10.44510
	A1->Y (FR)	0.07148	0.84547	10.97410
	B0->Y (FR)	0.04580	0.82039	10.95510
	B1->Y (FR)	0.06077	0.80928	10.43000

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)	0.05832	0.48179	5.79039
	A1->Y (RF)	0.04695	0.46740	5.75273
	B0->Y (RF)	0.03996	0.50856	6.59613
	B1->Y (RF)	0.05181	0.52512	6.66792

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	0.01352	0.01348	0.02130
	A1	0.01155	0.01202	0.02137
	B0	0.00638	0.00704	0.01715
	B1	0.00850	0.00846	0.01673

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	0.00103	0.00898
	A1	-0.00025	-0.00013	0.00753
	B0	-0.00033	0.00007	0.00921
	B1	0.00115	0.00122	0.01041

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)	-0.00288	-0.00332	-0.00332
	(A1 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * B1 * !Y)	-0.00288	-0.00332	-0.00332
	(A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * !B1 * Y)	-0.00325	-0.00332	-0.00332
	(!A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * !B1 * Y)	-0.00336	-0.00336	-0.00336

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)	0.00331	0.00335	0.00332
	(A1 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * B1 * !Y)	0.00331	0.00335	0.00332
	(A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * !B1 * Y)	0.00331	0.00334	0.00332
	(!A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * !B1 * Y)	0.00336	0.00340	0.00337

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)	-0.00140	-0.00141	-0.00140
	(A0 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * B1 * !Y)	-0.00140	-0.00141	-0.00140
	(A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * !B1 * Y)	-0.00324	-0.00331	-0.00330
	(!A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * !B1 * Y)	-0.00334	-0.00337	-0.00335

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)	0.00145	0.00147	0.00141
	(A0 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * B1 * !Y)	0.00146	0.00147	0.00141
	(A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * !B1 * Y)	0.00329	0.00331	0.00330
	(!A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * !B1 * Y)	0.00336	0.00339	0.00336

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)	-0.00141	-0.00142	-0.00141
	(A0 * !A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B1 * !Y)	-0.00141	-0.00143	-0.00141
	(!A0 * !A1 * B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B1 * Y)	-0.00377	-0.00384	-0.00384
	(!A0 * !A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B1 * Y)	-0.00380	-0.00383	-0.00387

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)	0.00147	0.00148	0.00143
	(A0 * !A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B1 * !Y)	0.00147	0.00149	0.00143
	(!A0 * !A1 * B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B1 * Y)	0.00385	0.00388	0.00384
	(!A0 * !A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B1 * Y)	0.00387	0.00393	0.00389

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)	-0.00285	-0.00330	-0.00330
	(A0 * !A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B0 * !Y)	-0.00285	-0.00330	-0.00330
	(!A0 * !A1 * B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B0 * Y)	-0.00383	-0.00395	-0.00392
	(!A0 * !A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B0 * Y)	-0.00386	-0.00388	-0.00394

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)	0.00329	0.00332	0.00330
	(A0 * !A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B0 * !Y)	0.00329	0.00333	0.00330
	(!A0 * !A1 * B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B0 * Y)	0.00391	0.00397	0.00392
	(!A0 * !A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B0 * Y)	0.00395	0.00400	0.00396

SKY130_OSU_SC_12T_LS__OR2x

sky130_osu_sc_12T_ls_tt_2P10_25C.ccs
Cell Library: Process , Voltage 2.10,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_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	0.00326	0.00303	1.24002
sky130_osu_sc_12T_ls__or2_2	0.00326	0.00303	2.52742
sky130_osu_sc_12T_ls__or2_4	0.00326	0.00303	4.99971
sky130_osu_sc_12T_ls__or2_8	0.00326	0.00304	9.75649
sky130_osu_sc_12T_ls__or2_l	0.00243	0.00229	0.86196

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_12T_ls__or2_1	0.00000	0.02829	0.03731
sky130_osu_sc_12T_ls__or2_2	0.00000	0.03775	0.07353
sky130_osu_sc_12T_ls__or2_4	0.00000	0.05667	0.14599
sky130_osu_sc_12T_ls__or2_8	0.00000	0.09451	0.29090
sky130_osu_sc_12T_ls__or2_l	0.00000	0.00304	0.00403

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)	0.06065	0.54067	6.16711
	B->Y (RR)	0.05304	0.51769	6.03007
sky130_osu_sc_12T_ls__or2_2	A->Y (RR)	0.06422	0.45414	6.11287
	B->Y (RR)	0.05615	0.43188	5.98466
sky130_osu_sc_12T_ls__or2_4	A->Y (RR)	0.08256	0.43481	6.33017
	B->Y (RR)	0.07425	0.41620	6.20083
sky130_osu_sc_12T_ls__or2_8	A->Y (RR)	0.11890	0.46776	6.62465
	B->Y (RR)	0.11042	0.45317	6.51215
sky130_osu_sc_12T_ls__or2_l	A->Y (RR)	0.06494	0.59344	5.97010
	B->Y (RR)	0.05784	0.57054	5.83741

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)	0.10286	0.53812	5.86324
	B->Y (FF)	0.08465	0.53965	6.05496
sky130_osu_sc_12T_ls__or2_2	A->Y (FF)	0.12274	0.53115	6.11396
	B->Y (FF)	0.10488	0.53986	6.30063
sky130_osu_sc_12T_ls__or2_4	A->Y (FF)	0.17450	0.57952	6.44964
	B->Y (FF)	0.15669	0.59448	6.63018
sky130_osu_sc_12T_ls__or2_8	A->Y (FF)	0.28160	0.69589	6.80581
	B->Y (FF)	0.26384	0.71118	7.00430
sky130_osu_sc_12T_ls__or2_l	A->Y (FF)	0.10859	0.57327	5.81886
	B->Y (FF)	0.09196	0.57933	5.99354

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	0.00583	0.00634	0.03764
	B	0.00000	0.00000	0.00000
	B	0.00440	0.00605	0.03818
sky130_osu_sc_12T_ls__or2_2	A	0.00000	0.00000	0.00000
	A	0.00987	0.01074	0.04346
	B	0.00000	0.00000	0.00000
	B	0.00836	0.01000	0.04368
sky130_osu_sc_12T_ls__or2_4	A	0.00000	0.00000	0.00000
	A	0.01904	0.02052	0.05426
	B	0.00000	0.00000	0.00000
	B	0.01748	0.01994	0.05535
sky130_osu_sc_12T_ls__or2_8	A	0.00000	0.00000	0.00000
	A	0.03876	0.03982	0.07423
	B	0.00000	0.00000	0.00000
	B	0.03713	0.03981	0.07547
sky130_osu_sc_12T_ls__or2_l	A	0.00000	0.00000	0.00000
	A	0.00439	0.00504	0.03190
	B	0.00000	0.00000	0.00000
	B	0.00342	0.00447	0.03264

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	0.01333	0.01332	0.04421
	B	0.00000	0.00000	0.00000
	B	0.01095	0.01285	0.05434
sky130_osu_sc_12T_ls__or2_2	A	0.00000	0.00000	0.00000
	A	0.01678	0.01683	0.04750
	B	0.00000	0.00000	0.00000
	B	0.01442	0.01628	0.05635
sky130_osu_sc_12T_ls__or2_4	A	0.00000	0.00000	0.00000
	A	0.02690	0.02529	0.05511
	B	0.00000	0.00000	0.00000
	B	0.02449	0.02453	0.06189
sky130_osu_sc_12T_ls__or2_8	A	0.00000	0.00000	0.00000
	A	0.05499	0.04353	0.07087
	B	0.00000	0.00000	0.00000
	B	0.05258	0.04261	0.07597
sky130_osu_sc_12T_ls__or2_1	A	0.00000	0.00000	0.00000
	A	0.00985	0.01007	0.03710
	B	0.00000	0.00000	0.00000
	B	0.00823	0.00992	0.04407

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)	-0.00296	-0.00342	-0.00341
sky130_osu_sc_12T_ls__or2_2	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00296	-0.00342	-0.00341
sky130_osu_sc_12T_ls__or2_4	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00296	-0.00343	-0.00341
sky130_osu_sc_12T_ls__or2_8	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00296	-0.00343	-0.00341
sky130_osu_sc_12T_ls__or2_l	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00199	-0.00232	-0.00232

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)	0.00339	0.00344	0.00341
sky130_osu_sc_12T_ls__or2_2	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00339	0.00344	0.00341
sky130_osu_sc_12T_ls__or2_4	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00339	0.00344	0.00341
sky130_osu_sc_12T_ls__or2_8	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00339	0.00344	0.00341
sky130_osu_sc_12T_ls__or2_l	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00231	0.00232	0.00232

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)	-0.00143	-0.00145	-0.00144
sky130_osu_sc_12T_ls__or2_2	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00143	-0.00145	-0.00144
sky130_osu_sc_12T_ls__or2_4	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00143	-0.00145	-0.00144
sky130_osu_sc_12T_ls__or2_8	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00143	-0.00145	-0.00144
sky130_osu_sc_12T_ls__or2_l	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00099	-0.00099	-0.00099

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)	0.00150	0.00151	0.00146
sky130_osu_sc_12T_ls__or2_2	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00150	0.00151	0.00146
sky130_osu_sc_12T_ls__or2_4	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00150	0.00152	0.00146
sky130_osu_sc_12T_ls__or2_8	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00150	0.00152	0.00146
sky130_osu_sc_12T_ls__or2_l	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00103	0.00104	0.00100

SKY130_OSU_SC_12T_LS__TBUFIx

sky130_osu_sc_12T_ls_tt_2P10_25C.ccs
Cell Library: Process , Voltage 2.10,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_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	0.00316	0.00412	0.70254
sky130_osu_sc_12T_ls__tbufi_l	0.00241	0.00313	0.48204

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_12T_ls__tbufi_1	0.00000	0.01865	0.07246
sky130_osu_sc_12T_ls__tbufi_l	0.00000	0.00202	0.00706

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)	0.04093	0.81426	10.89230
	OE->Y (FR)	0.04668	0.34096	5.55625
	OE->Y (RR)	0.06942	0.62000	6.13109
sky130_osu_sc_12T_ls__tbufi_l	A->Y (FR)	0.04889	0.89469	10.78120
	OE->Y (FR)	0.04727	0.34091	5.55618
	OE->Y (RR)	0.07573	0.70262	6.05671

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)	0.02487	0.46518	6.17967
	OE->Y (FF)	0.04712	0.34097	5.55623
	OE->Y (RF)	0.02301	0.42863	5.58312
sky130_osu_sc_12T_ls__tbufi_l	A->Y (RF)	0.02830	0.49556	5.94662
	OE->Y (FF)	0.04780	0.34093	5.55617
	OE->Y (RF)	0.02582	0.45465	5.29572

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	0.00569	0.00623	0.01584
	OE	0.00000	0.00000	0.00000
	OE	0.00570	0.00736	0.05660
sky130_osu_sc_12T_ls__tbufi_l	A	0.00000	0.00000	0.00000
	A	0.00428	0.00475	0.01351
	OE	0.00000	0.00000	0.00000
	OE	0.00413	0.00552	0.04719

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	-0.00085	-0.00038	0.00824
	OE	0.00000	0.00000	0.00000
	OE	0.00340	0.00506	0.06179
sky130_osu_sc_12T_ls__tbufi_l	A	0.00000	0.00000	0.00000
	A	-0.00051	-0.00020	0.00677
	OE	0.00000	0.00000	0.00000
	OE	0.00238	0.00377	0.04962

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)	-0.00259	-0.00263	-0.00260
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	-0.00225	-0.00228	-0.00226
sky130_osu_sc_12T_ls__tbufi_l	(!OE * Y)	0.00000	0.00000	0.00000
	(!OE * Y)	-0.00187	-0.00190	-0.00188
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	-0.00164	-0.00165	-0.00164

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)	0.00259	0.00263	0.00260
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	0.00230	0.00231	0.00227
sky130_osu_sc_12T_ls__tbufi_l	(!OE * Y)	0.00000	0.00000	0.00000
	(!OE * Y)	0.00187	0.00190	0.00188
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	0.00167	0.00167	0.00165

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)	0.00204	0.00394	0.06122
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00180	0.00360	0.06098
sky130_osu_sc_12T_ls__tbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00141	0.00302	0.04902
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00121	0.00272	0.04882

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)	0.00670	0.00873	0.06527
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00691	0.00881	0.06538
sky130_osu_sc_12T_ls__tbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00501	0.00660	0.05234
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00518	0.00722	0.05246

SKY130_OSU_SC_12T_LS__TNBUFIx

sky130_osu_sc_12T_ls_tt_2P10_25C.ccs
Cell Library: Process , Voltage 2.10,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_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	0.00315	0.00472	0.70263
sky130_osu_sc_12T_ls__tnbufi_l	0.00231	0.00355	0.48245

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_12T_ls__tnbufi_1	0.00000	0.03054	0.03677
sky130_osu_sc_12T_ls__tnbufi_l	0.00000	0.00311	0.00378

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)	0.04118	0.81416	10.89300
	OE->Y (RR)	0.02397	0.34116	5.55640
	OE->Y (FR)	0.05119	0.79800	10.32010
sky130_osu_sc_12T_ls__tnbufi_l	A->Y (FR)	0.04794	0.89382	10.78420
	OE->Y (RR)	0.02627	0.34091	5.55615
	OE->Y (FR)	0.05627	0.87628	10.17030

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)	0.02441	0.46506	6.18014
	OE->Y (RF)	0.02377	0.34114	5.55639
	OE->Y (FF)	0.04730	0.45237	4.88729
sky130_osu_sc_12T_ls__tnbufi_l	A->Y (RF)	0.02708	0.49485	5.94922
	OE->Y (RF)	0.02621	0.34090	5.55615
	OE->Y (FF)	0.05205	0.49060	4.80140

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	0.00589	0.00643	0.01603
	OE	0.00000	0.00000	0.00000
	OE	0.01429	0.01667	0.07313
sky130_osu_sc_12T_ls__tnbufi_l	A	0.00000	0.00000	0.00000
	A	0.00440	0.00485	0.01363
	OE	0.00000	0.00000	0.00000
	OE	0.01074	0.01269	0.05828

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	-0.00112	-0.00064	0.00799
	OE	0.00000	0.00000	0.00000
	OE	0.01222	0.01469	0.06243
sky130_osu_sc_12T_ls__tnbufi_l	A	0.00000	0.00000	0.00000
	A	-0.00079	-0.00046	0.00652
	OE	0.00000	0.00000	0.00000
	OE	0.00920	0.01120	0.05187

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)	-0.00212	-0.00216	-0.00214
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	-0.00182	-0.00184	-0.00183
sky130_osu_sc_12T_ls__tnbufi_l	(OE * Y)	0.00000	0.00000	0.00000
	(OE * Y)	-0.00146	-0.00148	-0.00147
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	-0.00126	-0.00126	-0.00125

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)	0.00212	0.00216	0.00214
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	0.00186	0.00187	0.00183
sky130_osu_sc_12T_ls__tnbufi_l	(OE * Y)	0.00000	0.00000	0.00000
	(OE * Y)	0.00146	0.00148	0.00147
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	0.00127	0.00128	0.00127

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)	-0.00390	-0.00247	0.05536
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00377	-0.00237	0.05540
sky130_osu_sc_12T_ls__tnbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	-0.00266	-0.00149	0.04484
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00261	-0.00144	0.04487

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)	0.01063	0.01314	0.07074
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.01048	0.01352	0.07064
sky130_osu_sc_12T_ls__tnbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00806	0.01019	0.05633
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00798	0.01043	0.05627

SKY130_OSU_SC_12T_LS__XNOR2

sky130_osu_sc_12T_ls_tt_2P10_25C.ccs
Cell Library: Process , Voltage 2.10,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_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	0.00632	0.00543	0.73816

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_12T_ls__xnor2_l	0.00000	0.05629	0.10922

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	0.08816	0.65776	6.42077
	A->Y (FR)	!B	0.05562	0.83418	11.10300
	B->Y (RR)	A	0.07165	0.64441	6.48086
	B->Y (FR)	!A	0.06976	0.82104	10.58180

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	0.08179	0.52331	5.28572
	A->Y (RF)	!B	0.03370	0.44819	5.82982
	B->Y (FF)	A	0.07122	0.51370	5.28575
	B->Y (RF)	!A	0.04172	0.45857	5.83261

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	0.00606	0.00742	0.05894
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.01432	0.01667	0.08249
	B	A	0.00000	0.00000	0.00000
	B	A	0.00230	0.00419	0.06214
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01543	0.01740	0.08053

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	0.01680	0.01819	0.07369
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00372	0.00544	0.06968
	B	A	0.00000	0.00000	0.00000
	B	A	0.01549	0.01774	0.07464
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00454	0.00609	0.06969

SKY130_OSU_SC_12T_LS__XOR2

sky130_osu_sc_12T_ls_tt_2P10_25C.ccs
Cell Library: Process , Voltage 2.10,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_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	0.00633	0.00548	0.69070

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_12T_ls__xor2_l	0.00000	0.05629	0.07602

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	0.09238	0.66622	6.42591
	A->Y (FR)	B	0.07183	0.83658	10.62110
	B->Y (RR)	!A	0.07602	0.65983	6.43929
	B->Y (FR)	A	0.07890	0.84341	10.60980

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	0.07691	0.51173	4.99316
	A->Y (RF)	B	0.03546	0.47873	6.11321
	B->Y (FF)	!A	0.07358	0.51047	5.10111
	B->Y (RF)	A	0.04095	0.44801	5.56127

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	0.01680	0.01859	0.07979
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00340	0.00388	0.05846
	B	A	0.00000	0.00000	0.00000
	B	A	0.01715	0.01904	0.07930
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00220	0.00387	0.06013

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	0.00283	0.00412	0.06694
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.01774	0.01973	0.06610
	B	A	0.00000	0.00000	0.00000
	B	A	0.00288	0.00418	0.06474
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01569	0.01798	0.07314

SKY130_OSU_SC_12T_LS_x

sky130_osu_sc_12T_ls_tt_2P10_25C.ccs
Cell Library: Process , Voltage 2.10,
Temp 25.00

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	0.39989
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	236220.00000	472439.00000
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
	-0.00221	0.05479	0.89511

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
	4.11269	3.93317	1.07661