sky130_osu_sc_12T_ls_ff_1P95_150C.ccs Library

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

SKY130_OSU_SC_12T_LS__ADDFx

sky130_osu_sc_12T_ls_ff_1P95_150C.ccs
Cell Library: Process , Voltage 1.95,
Temp 150.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_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	0.01164	0.01162	0.00897	1.57477	0.71967	1.38793
sky130_osu_sc_12T_ls__addf_l	0.01164	0.01162	0.00898	1.12832	0.72020	1.38784

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_12T_ls__addf_1	0.00000	18.66670	20.27050
sky130_osu_sc_12T_ls__addf_l	0.00000	19.24920	22.03350

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)	0.11409	1.34592	21.66350
	B->CO (RR)	0.11329	1.33387	21.40020
	CI->CO (RR)	0.10722	1.38537	22.38940
	CON->CO (FR)	0.01984	0.61829	10.31760
sky130_osu_sc_12T_ls__addf_1	A->CO (RR)	0.11414	1.26507	17.95390
	B->CO (RR)	0.11341	1.26196	17.96750
	CI->CO (RR)	0.10727	1.30536	18.71890
	CON->CO (FR)	0.02268	0.66475	10.19590

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)	0.15405	1.66207	26.48260
	B->CO (FF)	0.13523	1.58883	25.42180
	CI->CO (FF)	0.13371	1.68296	27.17030
	CON->CO (RF)	0.01744	0.46940	7.84721
sky130_osu_sc_12T_ls__addf_1	A->CO (FF)	0.15053	1.51979	21.41070
	B->CO (FF)	0.13158	1.45315	20.77120
	CI->CO (FF)	0.13019	1.54154	22.11230
	CON->CO (RF)	0.01893	0.49383	7.52466

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)	0.13106	0.77769	9.16540
	B->CON (FR)	0.11117	0.74551	9.18599
	CI->CON (FR)	0.11071	0.80183	9.88670
sky130_osu_sc_12T_ls__addf_l	A->CON (FR)	0.12423	0.77159	9.16394
	B->CON (FR)	0.10515	0.73993	9.18456
	CI->CON (FR)	0.10390	0.79578	9.88509

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)	0.07570	0.45941	5.29178
	B->CON (RF)	0.07552	0.48597	5.70758
	CI->CON (RF)	0.06884	0.50213	6.05073
sky130_osu_sc_12T_ls__addf_l	A->CON (RF)	0.07311	0.45690	5.29202
	B->CON (RF)	0.07304	0.48362	5.70776
	CI->CON (RF)	0.06623	0.49968	6.05093

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)	0.22887	1.55225	21.51360
	B->S (-R)	0.23553	1.53229	20.75530
	CI->S (-R)	0.20755	1.57179	22.21210
	CON->S (RR)	0.06441	0.51200	6.44562
sky130_osu_sc_12T_ls__addf_l	A->S (-R)	0.22095	1.54580	21.50610
	B->S (-R)	0.22756	1.52630	20.74840
	CI->S (-R)	0.19956	1.56531	22.20420
	CON->S (RR)	0.06443	0.51197	6.44482

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)	0.18788	1.19190	15.81080
	B->S (-F)	0.18390	1.15338	15.52200
	CI->S (-F)	0.18081	1.22960	16.55340
	CON->S (FF)	0.07683	0.55225	6.73815
sky130_osu_sc_12T_ls__addf_l	A->S (-F)	0.18324	1.18825	15.80540
	B->S (-F)	0.17955	1.15007	15.51760
	CI->S (-F)	0.17616	1.22596	16.54860
	CON->S (FF)	0.07688	0.55221	6.73754

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	0.00384	0.00736	0.07937
	B	0.00527	0.00834	0.07397
	CI	0.00541	0.00915	0.08034
sky130_osu_sc_12T_ls__addf_l	A	0.00341	0.00618	0.06013
	B	0.00485	0.00726	0.05816
	CI	0.00498	0.00802	0.06163

Internal switching power(pJ) to CO falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__addf_1	A	0.01230	0.01914	0.14901
	B	0.01269	0.01858	0.13470
	CI	0.01056	0.01764	0.14745
sky130_osu_sc_12T_ls__addf_l	A	0.01183	0.01696	0.10736
	B	0.01222	0.01661	0.09779
	CI	0.01009	0.01547	0.10561

Internal switching power(pJ) to CON rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__addf_1	A	0.01221	0.01647	0.08648
	B	0.01260	0.01629	0.07999
	CI	0.01047	0.01503	0.08459
sky130_osu_sc_12T_ls__addf_l	A	0.01177	0.01573	0.08126
	B	0.01217	0.01557	0.07523
	CI	0.01003	0.01424	0.07936

Internal switching power(pJ) to CON falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__addf_1	A	0.00371	0.00613	0.05150
	B	0.00513	0.00727	0.05355
	CI	0.00528	0.00786	0.05476
sky130_osu_sc_12T_ls__addf_l	A	0.00330	0.00557	0.04879
	B	0.00473	0.00672	0.05072
	CI	0.00488	0.00729	0.05179

Internal switching power(pJ) to S rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__addf_1	A	0.00093	0.00282	0.12493
	B	0.00369	0.00576	0.11858
	CI	0.00522	0.00879	0.12162
sky130_osu_sc_12T_ls__addf_l	A	0.00091	0.00280	0.12490
	B	0.00367	0.00575	0.11855
	CI	0.00522	0.00877	0.12159

Internal switching power(pJ) to S falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__addf_1	A	0.02558	0.02895	0.13744
	B	0.02163	0.02486	0.12510
	CI	0.01968	0.02322	0.12352
sky130_osu_sc_12T_ls__addf_l	A	0.02557	0.02894	0.13744
	B	0.02164	0.02488	0.12510
	CI	0.01968	0.02321	0.12351

SKY130_OSU_SC_12T_LS__ADDHx

sky130_osu_sc_12T_ls_ff_1P95_150C.ccs
Cell Library: Process , Voltage 1.95,
Temp 150.00

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	0.00603	1.51470	1.55653	1.59196
sky130_osu_sc_12T_ls__addh_l	0.00569	0.00604	1.12288	1.55742	1.15022

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_12T_ls__addh_1	0.00000	18.03620	18.45200
sky130_osu_sc_12T_ls__addh_l	0.00000	19.19690	19.60420

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)	0.07565	0.52145	6.64263
	B->CO (RR)	0.07833	0.51260	6.65944
sky130_osu_sc_12T_ls__addh_l	A->CO (RR)	0.07511	0.56342	6.66594
	B->CO (RR)	0.07776	0.55454	6.64111

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)	0.06480	0.52406	6.84057
	B->CO (FF)	0.06917	0.54036	7.02220
sky130_osu_sc_12T_ls__addh_l	A->CO (FF)	0.06396	0.54965	6.71584
	B->CO (FF)	0.06829	0.56670	6.90615

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)	0.10885	0.53807	6.61016
	B->CON (RR)	0.11089	0.52818	6.64872
sky130_osu_sc_12T_ls__addh_l	A->CON (RR)	0.10098	0.52708	6.62300
	B->CON (RR)	0.10308	0.51742	6.62699

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)	0.09246	0.54683	6.97606
	B->CON (FF)	0.08999	0.55598	7.12344
sky130_osu_sc_12T_ls__addh_l	A->CON (FF)	0.08610	0.53250	6.88543
	B->CON (FF)	0.08380	0.54191	7.03393

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)	0.12559	1.15676	17.26810
	B->S (FR)	0.12275	1.16731	17.46930
	CON->S (FR)	0.02130	0.63036	10.55340
sky130_osu_sc_12T_ls__addh_l	A->S (FR)	0.12082	1.09988	14.57840
	B->S (FR)	0.11807	1.10806	14.75950
	CON->S (FR)	0.02341	0.67194	10.36510

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)	0.13215	1.03871	15.08280
	B->S (RF)	0.13423	1.02681	15.10830
	CON->S (RF)	0.01717	0.47301	7.93571
sky130_osu_sc_12T_ls__addh_l	A->S (RF)	0.12617	0.96640	12.32380
	B->S (RF)	0.12826	0.95620	12.30550
	CON->S (RF)	0.01852	0.49899	7.66177

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	0.00600	0.00840	0.05895
	B	0.00000	0.00000	0.00000
	B	0.00541	0.00779	0.06744
sky130_osu_sc_12T_ls__addh_l	A	0.00000	0.00000	0.00000
	A	0.00529	0.00748	0.05575
	B	0.00000	0.00000	0.00000
	B	0.00470	0.00686	0.06233

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	0.00818	0.01046	0.06555
	B	0.00000	0.00000	0.00000
	B	0.00863	0.01148	0.07045
sky130_osu_sc_12T_ls__addh_l	A	0.00000	0.00000	0.00000
	A	0.00748	0.00968	0.06181
	B	0.00000	0.00000	0.00000
	B	0.00792	0.01061	0.06585

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	0.00600	0.00840	0.05916
	B	0.00000	0.00000	0.00000
	B	0.00540	0.00779	0.06768
sky130_osu_sc_12T_ls__addh_l	A	0.00000	0.00000	0.00000
	A	0.00529	0.00754	0.05758
	B	0.00000	0.00000	0.00000
	B	0.00470	0.00692	0.06410

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	0.00818	0.01046	0.06588
	B	0.00000	0.00000	0.00000
	B	0.00862	0.01150	0.06937
sky130_osu_sc_12T_ls__addh_l	A	0.00000	0.00000	0.00000
	A	0.00748	0.00970	0.06318
	B	0.00000	0.00000	0.00000
	B	0.00792	0.01065	0.06739

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	0.00825	0.01053	0.06653
	B	0.00000	0.00000	0.00000
	B	0.00869	0.01159	0.07139
sky130_osu_sc_12T_ls__addh_l	A	0.00000	0.00000	0.00000
	A	0.00754	0.00974	0.06163
	B	0.00000	0.00000	0.00000
	B	0.00798	0.01068	0.06631

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	0.00602	0.00847	0.05989
	B	0.00000	0.00000	0.00000
	B	0.00542	0.00783	0.06861
sky130_osu_sc_12T_ls__addh_l	A	0.00000	0.00000	0.00000
	A	0.00529	0.00750	0.05605
	B	0.00000	0.00000	0.00000
	B	0.00469	0.00688	0.06259

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)	2.20017	2.11438	0.78691
sky130_osu_sc_12T_ls__addh_l	(!B * !CO * !CON * S)	0.00000	0.00000	0.00000
	(!B * !CO * !CON * S)	2.20024	2.11445	0.78704

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)	2.20030	2.11743	0.85772
sky130_osu_sc_12T_ls__addh_l	(!A * !CO * !CON * S)	0.00000	0.00000	0.00000
	(!A * !CO * !CON * S)	2.20036	2.11754	0.85785

SKY130_OSU_SC_12T_LS__AND2x

sky130_osu_sc_12T_ls_ff_1P95_150C.ccs
Cell Library: Process , Voltage 1.95,
Temp 150.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_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	0.00307	0.00318	1.52130
sky130_osu_sc_12T_ls__and2_2	0.00307	0.00319	2.98466
sky130_osu_sc_12T_ls__and2_4	0.00307	0.00319	5.83415
sky130_osu_sc_12T_ls__and2_6	0.00310	0.00319	8.54778
sky130_osu_sc_12T_ls__and2_8	0.00307	0.00319	11.17727
sky130_osu_sc_12T_ls__and2_l	0.00235	0.00243	1.12658

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_12T_ls__and2_1	0.00000	7.44133	11.29740
sky130_osu_sc_12T_ls__and2_2	0.00000	11.23380	13.70140
sky130_osu_sc_12T_ls__and2_4	0.00000	19.05390	20.08690
sky130_osu_sc_12T_ls__and2_6	0.00000	26.87390	28.87620
sky130_osu_sc_12T_ls__and2_8	0.00000	34.69390	37.66540
sky130_osu_sc_12T_ls__and2_l	0.00000	9.23296	14.30260

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)	0.05783	0.47797	6.60928
	B->Y (RR)	0.06174	0.46598	6.29655
sky130_osu_sc_12T_ls__and2_2	A->Y (RR)	0.06530	0.41474	6.56362
	B->Y (RR)	0.06927	0.40044	6.23470
sky130_osu_sc_12T_ls__and2_4	A->Y (RR)	0.09072	0.41097	6.73726
	B->Y (RR)	0.09469	0.39214	6.40974
sky130_osu_sc_12T_ls__and2_6	A->Y (RR)	0.11795	0.43217	6.79294
	B->Y (RR)	0.12182	0.41054	6.45897
sky130_osu_sc_12T_ls__and2_8	A->Y (RR)	0.14433	0.46067	6.89666
	B->Y (RR)	0.14834	0.43659	6.55119
sky130_osu_sc_12T_ls__and2_l	A->Y (RR)	0.06128	0.53364	6.75703
	B->Y (RR)	0.06513	0.51634	6.38482

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)**	0.05245	0.47685	6.39365
	B->Y (FF)	0.05400	0.48433	6.47504
sky130_osu_sc_12T_ls__and2_2	**A->Y (FF)**	0.05949	0.43629	6.40354
	B->Y (FF)	0.06065	0.44200	6.50343
sky130_osu_sc_12T_ls__and2_4	**A->Y (FF)**	0.08350	0.44517	6.57662
	B->Y (FF)	0.08280	0.44650	6.67424
sky130_osu_sc_12T_ls__and2_6	**A->Y (FF)**	0.10957	0.47257	6.64154
	B->Y (FF)	0.10700	0.47100	6.72967
sky130_osu_sc_12T_ls__and2_8	**A->Y (FF)**	0.13441	0.49968	6.67856
	B->Y (FF)	0.13031	0.49510	6.75893
sky130_osu_sc_12T_ls__and2_l	**A->Y (FF)**	0.05158	0.49960	6.25891
	B->Y (FF)	0.05540	0.51522	6.44516

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	0.00404	0.01096	0.15565
	B	0.00000	0.00000	0.00000
	B	0.00406	0.00942	0.12765
sky130_osu_sc_12T_ls__and2_2	A	0.00000	0.00000	0.00000
	A	0.00803	0.01456	0.15986
	B	0.00000	0.00000	0.00000
	B	0.00807	0.01318	0.13196
sky130_osu_sc_12T_ls__and2_4	A	0.00000	0.00000	0.00000
	A	0.01851	0.02334	0.16631
	B	0.00000	0.00000	0.00000
	B	0.01853	0.02222	0.13918
sky130_osu_sc_12T_ls__and2_6	A	0.00000	0.00000	0.00000
	A	0.03291	0.03363	0.18518
	B	0.00000	0.00000	0.00000
	B	0.03300	0.03207	0.14805
sky130_osu_sc_12T_ls__and2_8	A	0.00000	0.00000	0.00000
	A	0.04983	0.04459	0.18657
	B	0.00000	0.00000	0.00000
	B	0.05003	0.04353	0.15565
sky130_osu_sc_12T_ls__and2_l	A	0.00000	0.00000	0.00000
	A	0.00328	0.00942	0.13615
	B	0.00000	0.00000	0.00000
	B	0.00332	0.00835	0.11878

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	0.01000	0.01726	0.14502
	B	0.00000	0.00000	0.00000
	B	0.01129	0.01821	0.14311
sky130_osu_sc_12T_ls__and2_2	A	0.00000	0.00000	0.00000
	A	0.01362	0.02043	0.14820
	B	0.00000	0.00000	0.00000
	B	0.01489	0.02139	0.14666
sky130_osu_sc_12T_ls__and2_4	A	0.00000	0.00000	0.00000
	A	0.02462	0.02887	0.15543
	B	0.00000	0.00000	0.00000
	B	0.02554	0.02964	0.15401
sky130_osu_sc_12T_ls__and2_6	A	0.00000	0.00000	0.00000
	A	0.03854	0.03870	0.16394
	B	0.00000	0.00000	0.00000
	B	0.03896	0.03900	0.16227
sky130_osu_sc_12T_ls__and2_8	A	0.00000	0.00000	0.00000
	A	0.05611	0.04946	0.17314
	B	0.00000	0.00000	0.00000
	B	0.05577	0.04893	0.17037
sky130_osu_sc_12T_ls__and2_l	A	0.00000	0.00000	0.00000
	A	0.00766	0.01418	0.13015
	B	0.00000	0.00000	0.00000
	B	0.00864	0.01490	0.12982

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)	-0.00338	-0.00341	-0.00343
sky130_osu_sc_12T_ls__and2_2	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00335	-0.00337	-0.00339
sky130_osu_sc_12T_ls__and2_4	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00327	-0.00330	-0.00331
sky130_osu_sc_12T_ls__and2_6	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00323	-0.00325	-0.00327
sky130_osu_sc_12T_ls__and2_8	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00312	-0.00314	-0.00316
sky130_osu_sc_12T_ls__and2_l	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00236	-0.00238	-0.00239

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)	0.00351	0.00355	0.00353
sky130_osu_sc_12T_ls__and2_2	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00354	0.00359	0.00356
sky130_osu_sc_12T_ls__and2_4	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00362	0.00366	0.00364
sky130_osu_sc_12T_ls__and2_6	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00373	0.00377	0.00375
sky130_osu_sc_12T_ls__and2_8	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00378	0.00381	0.00379
sky130_osu_sc_12T_ls__and2_l	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00251	0.00254	0.00252

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)	-0.00321	-0.00322	-0.00321
sky130_osu_sc_12T_ls__and2_2	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00317	-0.00317	-0.00318
sky130_osu_sc_12T_ls__and2_4	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00309	-0.00312	-0.00310
sky130_osu_sc_12T_ls__and2_6	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00302	-0.00304	-0.00303
sky130_osu_sc_12T_ls__and2_8	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00294	-0.00296	-0.00295
sky130_osu_sc_12T_ls__and2_l	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00224	-0.00226	-0.00225

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)	0.00352	0.00340	0.00335
sky130_osu_sc_12T_ls__and2_2	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00356	0.00344	0.00339
sky130_osu_sc_12T_ls__and2_4	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00363	0.00352	0.00347
sky130_osu_sc_12T_ls__and2_6	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00371	0.00360	0.00354
sky130_osu_sc_12T_ls__and2_8	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00379	0.00367	0.00362
sky130_osu_sc_12T_ls__and2_l	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00252	0.00244	0.00240

SKY130_OSU_SC_12T_LS__AOI21

sky130_osu_sc_12T_ls_ff_1P95_150C.ccs
Cell Library: Process , Voltage 1.95,
Temp 150.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_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	0.00284	0.00301	0.00296	0.66775

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_12T_ls__aoi21_l	0.00000	3.98330	6.63726

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)	0.06649	0.71616	8.92102
	A1->Y (FR)	0.05270	0.65341	8.33951
	B0->Y (FR)	0.04920	0.74854	9.79246

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)	0.03919	0.40329	4.85448
	A1->Y (RF)	0.03599	0.43248	5.36041
	B0->Y (RF)	0.02281	0.40256	5.14832

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	0.00878	0.01022	0.05637
	A1	0.00000	0.00000	0.00000
	A1	0.00735	0.00876	0.05351
	B0	0.00511	0.00765	0.05804

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	0.00195	0.00343	0.04364
	A1	0.00000	0.00000	0.00000
	A1	0.00204	0.00400	0.04716
	B0	-0.00064	0.00185	0.04735

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)	-0.00224	-0.00279	-0.00282
	(!A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !Y)	-0.00284	-0.00284	-0.00285
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00284	-0.00286	-0.00285

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)	0.00290	0.00292	0.00292
	(!A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !Y)	0.00293	0.00296	0.00293
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00311	0.00297	0.00294

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)	-0.00222	-0.00279	-0.00283
	(!A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !Y)	-0.00284	-0.00287	-0.00285
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	-0.00314	-0.00314	-0.00317

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)	0.00290	0.00292	0.00292
	(!A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !Y)	0.00293	0.00297	0.00294
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	0.00321	0.00328	0.00322

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)	-0.00106	-0.00108	-0.00106

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)	0.00124	0.00124	0.00114

SKY130_OSU_SC_12T_LS__AOI22

sky130_osu_sc_12T_ls_ff_1P95_150C.ccs
Cell Library: Process , Voltage 1.95,
Temp 150.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_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	0.00284	0.00300	0.00313	0.00295	0.65078

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_12T_ls__aoi22_l	0.00000	4.77466	8.78689

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)	0.08507	0.73283	8.83349
	A1->Y (FR)	0.07607	0.71888	8.76582
	B0->Y (FR)	0.05226	0.74477	9.65071
	B1->Y (FR)	0.06169	0.76392	9.72593

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)	0.05147	0.41401	4.78664
	A1->Y (RF)	0.04820	0.44354	5.28425
	B0->Y (RF)	0.02587	0.41569	5.24456
	B1->Y (RF)	0.02980	0.38680	4.74432

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	0.01080	0.01209	0.05988
	A1	0.00938	0.01053	0.05627
	B0	0.00557	0.00828	0.05901
	B1	0.00705	0.00981	0.05899

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__aoi22_l	A0	0.00386	0.00534	0.04825
	A1	0.00392	0.00577	0.05104
	B0	-0.00028	0.00200	0.04558
	B1	-0.00022	0.00167	0.04195

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)	-0.00205	-0.00274	-0.00278
	(!A1 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * B1 * !Y)	-0.00280	-0.00281	-0.00281
	(!A1 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !B1 * Y)	-0.00284	-0.00286	-0.00285
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00284	-0.00286	-0.00284

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)	0.00293	0.00297	0.00296
	(!A1 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * B1 * !Y)	0.00297	0.00300	0.00297
	(!A1 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !B1 * Y)	0.00311	0.00297	0.00294
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00311	0.00297	0.00294

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)	-0.00204	-0.00274	-0.00279
	(!A0 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * B1 * !Y)	-0.00281	-0.00283	-0.00282
	(!A0 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !B1 * Y)	-0.00313	-0.00313	-0.00316
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	-0.00312	-0.00313	-0.00316

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)	0.00295	0.00298	0.00296
	(!A0 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * B1 * !Y)	0.00296	0.00301	0.00298
	(!A0 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !B1 * Y)	0.00320	0.00324	0.00321
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	0.00320	0.00325	0.00322

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)	-0.00106	-0.00107	-0.00106
	(A0 * A1 * !B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B1 * !Y)	-0.00096	-0.00097	-0.00099
	(!A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B1 * Y)	-0.00326	-0.00328	-0.00329
	(!A0 * A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B1 * Y)	-0.00326	-0.00328	-0.00330

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)	0.00129	0.00129	0.00114
	(A0 * A1 * !B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B1 * !Y)	0.00109	0.00110	0.00110
	(!A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B1 * Y)	0.00334	0.00341	0.00336
	(!A0 * A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B1 * Y)	0.00334	0.00340	0.00335

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)	-0.00108	-0.00109	-0.00108
	(A0 * A1 * !B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B0 * !Y)	-0.00097	-0.00098	-0.00101
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00298	-0.00299	-0.00299
	(!A0 * A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B0 * Y)	-0.00299	-0.00300	-0.00300

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)	0.00130	0.00131	0.00116
	(A0 * A1 * !B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B0 * !Y)	0.00110	0.00112	0.00112
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00325	0.00313	0.00309
	(!A0 * A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B0 * Y)	0.00324	0.00312	0.00309

SKY130_OSU_SC_12T_LS__BUFx

sky130_osu_sc_12T_ls_ff_1P95_150C.ccs
Cell Library: Process , Voltage 1.95,
Temp 150.00

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	0.00319	1.41334
sky130_osu_sc_12T_ls__buf_2	0.00319	2.89248
sky130_osu_sc_12T_ls__buf_4	0.00319	5.75079
sky130_osu_sc_12T_ls__buf_6	0.00084	1.80000
sky130_osu_sc_12T_ls__buf_8	0.00320	11.41334
sky130_osu_sc_12T_ls__buf_l	0.00240	1.13252

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_12T_ls__buf_1	0.00000	7.04208	7.04221
sky130_osu_sc_12T_ls__buf_2	0.00000	10.37170	11.29780
sky130_osu_sc_12T_ls__buf_4	0.00000	17.22250	20.08730
sky130_osu_sc_12T_ls__buf_6	0.00000	0.00000	0.00000
sky130_osu_sc_12T_ls__buf_8	0.00000	30.92410	37.66620
sky130_osu_sc_12T_ls__buf_l	0.00000	8.20713	8.20726

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)**	0.04646	0.44598	5.99810
sky130_osu_sc_12T_ls__buf_2	**A->Y (RR)**	0.04990	0.37060	5.93940
sky130_osu_sc_12T_ls__buf_4	**A->Y (RR)**	0.06729	0.35483	6.10025
sky130_osu_sc_12T_ls__buf_8	**A->Y (RR)**	0.10462	0.39084	6.39078
sky130_osu_sc_12T_ls__buf_l	**A->Y (RR)**	0.04778	0.48890	6.22380

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)**	0.04859	0.46161	6.19093
sky130_osu_sc_12T_ls__buf_2	**A->Y (FF)**	0.05584	0.43149	6.44791
sky130_osu_sc_12T_ls__buf_4	**A->Y (FF)**	0.07968	0.44241	6.69444
sky130_osu_sc_12T_ls__buf_8	**A->Y (FF)**	0.13005	0.50088	6.96254
sky130_osu_sc_12T_ls__buf_l	**A->Y (FF)**	0.04937	0.50601	6.54927

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	0.00364	0.00972	0.12129
sky130_osu_sc_12T_ls__buf_2	A	0.00000	0.00000	0.00000
	A	0.00731	0.01375	0.12492
sky130_osu_sc_12T_ls__buf_4	A	0.00000	0.00000	0.00000
	A	0.01633	0.02256	0.13719
sky130_osu_sc_12T_ls__buf_8	A	0.00000	0.00000	0.00000
	A	0.04076	0.04325	0.15779
sky130_osu_sc_12T_ls__buf_l	A	0.00000	0.00000	0.00000
	A	0.00290	0.00917	0.13102

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	0.00942	0.01643	0.14506
sky130_osu_sc_12T_ls__buf_2	A	0.00000	0.00000	0.00000
	A	0.01288	0.01962	0.14810
sky130_osu_sc_12T_ls__buf_4	A	0.00000	0.00000	0.00000
	A	0.02358	0.02776	0.15480
sky130_osu_sc_12T_ls__buf_8	A	0.00000	0.00000	0.00000
	A	0.05449	0.04786	0.16960
sky130_osu_sc_12T_ls__buf_l	A	0.00000	0.00000	0.00000
	A	0.00740	0.01438	0.13922

Passive power(pJ) for A rising :

Cell Name	Power(pJ)		
	first	mid	last
sky130_osu_sc_12T_ls__buf_6	0.00000	0.00000	0.00000
	-0.00081	-0.00082	-0.00077

Passive power(pJ) for A falling :

Cell Name	Power(pJ)		
	first	mid	last
sky130_osu_sc_12T_ls__buf_6	0.00000	0.00000	0.00000
	0.00081	0.00082	0.00077

SKY130_OSU_SC_12T_LS__DFFRx

sky130_osu_sc_12T_ls_ff_1P95_150C.ccs
Cell Library: Process , Voltage 1.95,
Temp 150.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_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	0.00297	0.00293	0.00893	1.52777	1.50659
sky130_osu_sc_12T_ls__dffr_l	0.00297	0.00293	0.00891	1.13041	1.12880

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_12T_ls__dffr_1	0.00000	28.62380	35.20200
sky130_osu_sc_12T_ls__dffr_l	0.00000	29.78880	36.36730

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)	0.21202	1.08774	14.02230
	QN->Q (FR)	0.02299	0.69158	11.46470
sky130_osu_sc_12T_ls__dffr_l	CK->Q (RR)	0.20923	1.17401	13.82950
	QN->Q (FR)	0.02463	0.71759	11.01650

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)	0.22731	1.08439	14.01060
	QN->Q (RF)	0.01882	0.51274	8.47404
	RN->Q (FF)	0.17209	1.15400	15.93810
sky130_osu_sc_12T_ls__dffr_l	CK->Q (RF)	0.22822	1.17748	13.86020
	QN->Q (RF)	0.01985	0.52880	8.13035
	RN->Q (FF)	0.17318	1.24631	15.78200

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)	0.20578	0.61827	6.18879
	RN->QN (FR)	0.15049	0.68751	8.11680
sky130_osu_sc_12T_ls__dffr_l	CK->QN (RR)	0.20455	0.66424	6.22894
	RN->QN (FR)	0.14944	0.73311	8.15093

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)**	0.18062	0.51878	4.49110
sky130_osu_sc_12T_ls__dffr_l	**CK->QN (RF)**	0.17523	0.54186	4.44170

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)	-0.05106	-0.05084	0.11564
	setup	CK (R)	0.16203	0.19215	0.28564
sky130_osu_sc_12T_ls__dffr_l	hold	CK (R)	-0.05151	-0.04912	0.11787
	setup	CK (R)	0.16219	0.19289	0.28509

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)	-0.09364	-0.24249	-4.46567
	setup	CK (R)	0.11389	0.25468	4.57381
sky130_osu_sc_12T_ls__dffr_l	hold	CK (R)	-0.09461	-0.24110	-4.46659
	setup	CK (R)	0.11389	0.25468	4.57381

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)	-0.05106	-0.05084	0.11564
	setup	CK (R)	0.16203	0.19215	0.28564
sky130_osu_sc_12T_ls__dffr_l	hold	CK (R)	-0.05151	-0.04912	0.11787
	setup	CK (R)	0.16219	0.19289	0.28509

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)	-0.09364	-0.24249	-4.46567
	setup	CK (R)	0.11389	0.25468	4.57381
sky130_osu_sc_12T_ls__dffr_l	hold	CK (R)	-0.09461	-0.24110	-4.46659
	setup	CK (R)	0.11389	0.25468	4.57381

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)	0.13970	0.17770	0.85416
	removal	CK (R)	-0.03022	-0.03561	-0.05164
sky130_osu_sc_12T_ls__dffr_l	recovery	CK (R)	0.13980	0.17808	0.85120
	removal	CK (R)	-0.03022	-0.03561	-0.05164

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)	0.13970	0.17770	0.85416
	removal	CK (R)	-0.03022	-0.03561	-0.05164
sky130_osu_sc_12T_ls__dffr_l	recovery	CK (R)	0.13980	0.17808	0.85120
	removal	CK (R)	-0.03022	-0.03561	-0.05164

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 ()	0.10414	0.41382	13.33370
	min_pulse_width	RN ()	0.10414	0.41382	13.33370
sky130_osu_sc_12T_ls__dffr_l	min_pulse_width	RN ()	0.10101	0.41382	13.33370
	min_pulse_width	RN ()	0.10101	0.41382	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 ()	0.10414	0.41382	13.33370
	min_pulse_width	CK ()	0.11665	0.41382	13.33370
sky130_osu_sc_12T_ls__dffr_l	min_pulse_width	CK ()	0.09789	0.41382	13.33370
	min_pulse_width	CK ()	0.11353	0.41382	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 ()	0.21362	0.41382	13.33370
	min_pulse_width	CK ()	0.09163	0.41382	13.33370
sky130_osu_sc_12T_ls__dffr_l	min_pulse_width	CK ()	0.21362	0.41382	13.33370
	min_pulse_width	CK ()	0.09163	0.41382	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	0.01078	0.01548	0.10768
sky130_osu_sc_12T_ls__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.00968	0.01527	0.12246

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	0.01198	0.01414	0.07868
	RN	-0.00117	-0.08398	-1.45233
	RN	0.02596	0.02855	0.09573
sky130_osu_sc_12T_ls__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.01099	0.01395	0.09370
	RN	-0.00117	-0.07010	-1.07459
	RN	0.02496	0.02838	0.11050

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	0.01193	0.01412	0.07922
	RN	-0.00117	-0.08328	-1.43218
	RN	0.02593	0.02852	0.09552
sky130_osu_sc_12T_ls__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.01095	0.01391	0.09370
	RN	-0.00117	-0.07004	-1.07305
	RN	0.02493	0.02832	0.11029

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	0.01057	0.01528	0.10704
sky130_osu_sc_12T_ls__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.00946	0.01504	0.12162

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	-0.00199	-0.00252	-0.00258
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.01303	0.01801	0.15482
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.00529	0.01028	0.14057
sky130_osu_sc_12T_ls__dffr_l	CK	0.00000	0.00000	0.00000
	CK	-0.00198	-0.00251	-0.00257
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.01304	0.01802	0.15483
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.00530	0.01029	0.14058

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	0.00320	0.00323	0.00321
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.01937	0.02473	0.16293
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.00964	0.01469	0.14501
sky130_osu_sc_12T_ls__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.00321	0.00324	0.00322
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.01938	0.02474	0.16294
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.00965	0.01470	0.14502

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)	0.00384	0.01122	0.17539
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.01162	0.01923	0.19320
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)	0.00385	0.01123	0.17540
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.01163	0.01924	0.19321

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)	0.00984	0.01782	0.18117
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.01964	0.02765	0.20055
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)	0.00985	0.01783	0.18118
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.01965	0.02766	0.20056

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)	-0.00057	0.00691	0.17411
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.00673	0.01381	0.19273
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	-0.00058	0.00671	0.17380
sky130_osu_sc_12T_ls__dffr_l	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	-0.00056	0.00692	0.17413
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.00674	0.01382	0.19274
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	-0.00057	0.00673	0.17381

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)	0.01422	0.02240	0.18936
	(D * RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * RN * !Q * QN)	0.03077	0.03828	0.26078
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.02297	0.03080	0.20784
	(!D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * Q * !QN)	0.02941	0.04435	0.30100
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.01598	0.02380	0.19002
sky130_osu_sc_12T_ls__dffr_l	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.01423	0.02241	0.18937
	(D * RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * RN * !Q * QN)	0.03078	0.03829	0.26079
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.02298	0.03081	0.20785
	(!D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * Q * !QN)	0.02942	0.04441	0.30101
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.01599	0.02381	0.19003

SKY130_OSU_SC_12T_LS__DFFSRx

sky130_osu_sc_12T_ls_ff_1P95_150C.ccs
Cell Library: Process , Voltage 1.95,
Temp 150.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_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	0.00293	0.00295	0.00682	0.00904	1.58046	1.58270
sky130_osu_sc_12T_ls__dffsr_l	0.00293	0.00295	0.00682	0.00904	1.12459	1.13039

Leakage Information

Cell Name	Leakage(nW)		
	Min.	**Avg**	**Max.**
sky130_osu_sc_12T_ls__dffsr_1	0.00000	29.38920	36.15120
sky130_osu_sc_12T_ls__dffsr_l	0.00000	30.55430	37.31620

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)	0.23372	1.11484	14.28810
	QN->Q (FR)	0.02163	0.66513	11.12570
	RN->Q (RR)	0.18945	1.08492	14.46450
	SN->Q (FR)	0.17295	1.16600	16.29480
sky130_osu_sc_12T_ls__dffsr_1	CK->Q (RR)	0.23386	1.19867	13.78150
	QN->Q (FR)	0.02457	0.71600	10.97400
	RN->Q (RR)	0.18973	1.17022	13.95740
	SN->Q (FR)	0.17319	1.24950	15.77680

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)	0.26268	1.12871	14.30330
	QN->Q (RF)	0.01866	0.51904	8.66109
	RN->Q (FF)	0.17499	1.16580	16.23790
sky130_osu_sc_12T_ls__dffsr_1	CK->Q (RF)	0.26506	1.21636	13.82470
	QN->Q (RF)	0.01973	0.52871	8.09278
	RN->Q (FF)	0.17722	1.25300	15.75140

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)	0.24094	0.65645	6.31848
	RN->QN (FR)	0.15322	0.69368	8.25049
sky130_osu_sc_12T_ls__dffsr_1	CK->QN (RR)	0.24141	0.70628	6.28364
	RN->QN (FR)	0.15361	0.74348	8.20937

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)	0.20305	0.55155	4.76865
	RN->QN (RF)	0.15929	0.52280	4.94689
	SN->QN (FF)	0.14286	0.60308	6.77162
sky130_osu_sc_12T_ls__dffsr_l	CK->QN (RF)	0.19982	0.56891	4.46993
	RN->QN (RF)	0.15619	0.54090	4.64630
	SN->QN (FF)	0.13978	0.61964	6.46780

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)	-0.05776	-0.06189	0.09061
	setup	CK (R)	0.17785	0.20823	0.37948
sky130_osu_sc_12T_ls__dffsr_l	hold	CK (R)	-0.05999	-0.06286	0.08890
	setup	CK (R)	0.17973	0.20641	0.37290

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)	-0.10616	-0.25399	-4.50628
	setup	CK (R)	0.13042	0.26653	4.60918
sky130_osu_sc_12T_ls__dffsr_l	hold	CK (R)	-0.10781	-0.25611	-4.50747
	setup	CK (R)	0.13042	0.26653	4.60918

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)	-0.05776	-0.06189	0.09061
	setup	CK (R)	0.17785	0.20823	0.37948
sky130_osu_sc_12T_ls__dffsr_l	hold	CK (R)	-0.05999	-0.06286	0.08890
	setup	CK (R)	0.17973	0.20641	0.37290

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)	-0.10616	-0.25399	-4.50628
	setup	CK (R)	0.13042	0.26653	4.60918
sky130_osu_sc_12T_ls__dffsr_l	hold	CK (R)	-0.10781	-0.25611	-4.50747
	setup	CK (R)	0.13042	0.26653	4.60918

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)	0.13663	0.16927	0.88226
	removal	CK (R)	-0.02328	-0.02681	-0.01751
	hold	SN (R)	-0.13519	-0.23182	-0.89283
	setup	SN (R)	0.16044	0.26968	3.49021
sky130_osu_sc_12T_ls__dffsr_l	recovery	CK (R)	0.13661	0.16917	0.88323
	removal	CK (R)	-0.02328	-0.02681	-0.01751
	hold	SN (R)	-0.13352	-0.22590	-0.87427
	setup	SN (R)	0.15942	0.26130	3.43139

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)	0.13663	0.16927	0.88226
	removal	CK (R)	-0.02328	-0.02681	-0.01751
	hold	SN (R)	-0.13519	-0.23182	-0.89283
	hold	SN (R)	-0.13750	-0.23558	-0.89782
	setup	SN (R)	0.16044	0.26568	3.16372
	setup	SN (R)	0.15851	0.26968	3.49021
sky130_osu_sc_12T_ls__dffsr_l	recovery	CK (R)	0.13661	0.16917	0.88323
	removal	CK (R)	-0.02328	-0.02681	-0.01751
	hold	SN (R)	-0.13352	-0.22590	-0.89414
	hold	SN (R)	-0.13372	-0.22806	-0.87427
	setup	SN (R)	0.15942	0.25890	3.11020
	setup	SN (R)	0.15459	0.26130	3.43139

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 ()	0.12291	0.41382	13.33370
	min_pulse_width	RN ()	0.12604	0.41382	13.33370
sky130_osu_sc_12T_ls__dffsr_l	min_pulse_width	RN ()	0.11978	0.41382	13.33370
	min_pulse_width	RN ()	0.11978	0.41382	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)	0.03380	0.06076	3.68547
	removal	CK (R)	-0.01771	-0.04611	-0.31118
sky130_osu_sc_12T_ls__dffsr_l	recovery	CK (R)	0.03376	0.06076	3.55666
	removal	CK (R)	-0.01771	-0.04611	-0.31118

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)	0.03380	0.06076	3.68547
	removal	CK (R)	-0.01771	-0.04611	-0.31118
sky130_osu_sc_12T_ls__dffsr_l	recovery	CK (R)	0.03376	0.06076	3.55666
	removal	CK (R)	-0.01771	-0.04611	-0.31118

Constraints(ns) for SN falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_12T_ls__dffsr_1	min_pulse_width	SN ()	0.13855	0.41382	13.33370
	min_pulse_width	SN ()	0.14481	0.41382	13.33370
sky130_osu_sc_12T_ls__dffsr_l	min_pulse_width	SN ()	0.13855	0.41382	13.33370
	min_pulse_width	SN ()	0.13855	0.41382	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 ()	0.11040	0.41382	13.33370
	min_pulse_width	CK ()	0.13542	0.41382	13.33370
sky130_osu_sc_12T_ls__dffsr_l	min_pulse_width	CK ()	0.10727	0.41382	13.33370
	min_pulse_width	CK ()	0.13229	0.41382	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 ()	0.22926	0.41382	13.33370
	min_pulse_width	CK ()	0.11040	0.41382	13.33370
sky130_osu_sc_12T_ls__dffsr_l	min_pulse_width	CK ()	0.22926	0.41382	13.33370
	min_pulse_width	CK ()	0.11040	0.41382	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	0.01335	0.01779	0.10886
	RN	0.02323	0.02548	0.09412
	SN	-0.00117	-0.08571	-1.50242
	SN	0.02272	0.02462	0.10242
sky130_osu_sc_12T_ls__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.01231	0.01762	0.12521
	RN	0.02220	0.02534	0.11009
	SN	-0.00117	-0.06988	-1.06906
	SN	0.02168	0.02449	0.11789

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	0.01390	0.01662	0.09129
	RN	-0.00117	-0.08571	-1.50242
	RN	0.02705	0.03043	0.11116
sky130_osu_sc_12T_ls__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.01288	0.01582	0.09599
	RN	-0.00117	-0.06988	-1.06906
	RN	0.02604	0.02964	0.11595

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	0.01385	0.01654	0.09100
	RN	-0.00117	-0.08578	-1.50452
	RN	0.02700	0.03035	0.11039
sky130_osu_sc_12T_ls__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.01285	0.01579	0.09599
	RN	-0.00117	-0.07010	-1.07456
	RN	0.02600	0.02960	0.11540

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	0.01315	0.01763	0.10826
	RN	0.02304	0.02533	0.09320
	SN	-0.00117	-0.08578	-1.50447
	SN	0.02253	0.02444	0.10165
sky130_osu_sc_12T_ls__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.01209	0.01739	0.12394
	RN	0.02199	0.02515	0.10925
	SN	-0.00117	-0.07010	-1.07452
	SN	0.02147	0.02426	0.11743

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	-0.00258	-0.00261	-0.00260
	(!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)	0.01633	0.02108	0.15780
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.00588	0.01071	0.14072
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.00577	0.01063	0.14074
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.00581	0.01067	0.14070
sky130_osu_sc_12T_ls__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	-0.00257	-0.00260	-0.00259
	(!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)	0.01634	0.02109	0.15781
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.00589	0.01072	0.14073
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.00578	0.01064	0.14075
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.00582	0.01068	0.14071

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	0.00338	0.00327	0.00323
	(!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)	0.02243	0.02741	0.16478
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.01044	0.01537	0.14543
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.01063	0.01548	0.14540
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.01039	0.01530	0.14540
sky130_osu_sc_12T_ls__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.00339	0.00328	0.00324
	(!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)	0.02244	0.02742	0.16479
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.01046	0.01538	0.14544
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.01064	0.01549	0.14541
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.01040	0.01531	0.14541

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)	0.00271	0.01003	0.17411
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.01346	0.02083	0.19524
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)	0.00272	0.01004	0.17412
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.01347	0.02084	0.19525

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)	0.01060	0.01874	0.18237
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.02077	0.02881	0.20243
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)	0.01061	0.01875	0.18238
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.02078	0.02882	0.20244

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)	-0.00698	-0.00700	-0.00705
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	-0.00629	-0.00746	-0.00756
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	-0.00639	-0.00692	-0.00702
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.00428	0.00889	0.13518
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)	-0.00697	-0.00699	-0.00704
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	-0.00628	-0.00745	-0.00755
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	-0.00638	-0.00691	-0.00701
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.00429	0.00890	0.13519

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)	0.00754	0.00769	0.00757
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00807	0.00816	0.00812
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	0.00754	0.00759	0.00759
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.01725	0.02076	0.14593
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)	0.00755	0.00770	0.00758
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00808	0.00817	0.00813
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	0.00755	0.00760	0.00760
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.01726	0.02077	0.14594

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)	-0.00064	0.00680	0.17405
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.00793	0.01493	0.19359
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.00767	0.01468	0.19350
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	-0.00041	0.00686	0.17399
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.00366	0.01694	0.31212
sky130_osu_sc_12T_ls__dffsr_l	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	-0.00063	0.00681	0.17406
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.00794	0.01494	0.19360
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.00768	0.01469	0.19351
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	-0.00040	0.00687	0.17400
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.00367	0.01695	0.31213

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)	0.03454	0.04201	0.26339
	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.01449	0.02262	0.18963
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.02339	0.03129	0.20817
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.02343	0.03130	0.20843
	(!D * RN * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * Q * !QN)	0.03247	0.04694	0.30467
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.01604	0.02381	0.19008
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.01970	0.03418	0.32843
sky130_osu_sc_12T_ls__dffsr_l	**(D * RN * SN * !Q * QN)**	0.00000	0.00000	0.00000
	(D * RN * SN * !Q * QN)	0.03455	0.04202	0.26340
	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.01450	0.02263	0.18964
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.02340	0.03130	0.20818
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.02344	0.03131	0.20851
	(!D * RN * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * Q * !QN)	0.03248	0.04698	0.30468
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.01605	0.02382	0.19009
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.01971	0.03416	0.32844

SKY130_OSU_SC_12T_LS__DFFSx

sky130_osu_sc_12T_ls_ff_1P95_150C.ccs
Cell Library: Process , Voltage 1.95,
Temp 150.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_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	0.00294	0.00559	0.00895	1.51592	1.51436
sky130_osu_sc_12T_ls__dffs_l	0.00294	0.00559	0.00895	1.13361	1.13140

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_12T_ls__dffs_1	0.00000	28.38320	43.12810
sky130_osu_sc_12T_ls__dffs_l	0.00000	29.54810	44.29290

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)	0.17003	1.03012	13.77200
	QN->Q (FR)	0.02295	0.68670	11.36120
	SN->Q (FR)	0.13041	1.13152	15.86800
sky130_osu_sc_12T_ls__dffs_l	CK->Q (RR)	0.17018	1.12763	13.75680
	QN->Q (FR)	0.02459	0.71637	11.00280
	SN->Q (FR)	0.13055	1.22494	15.82800

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)	0.25043	1.10850	13.90650
	QN->Q (RF)	0.01874	0.50964	8.40622
sky130_osu_sc_12T_ls__dffs_l	CK->Q (RF)	0.25010	1.20507	13.91230
	QN->Q (RF)	0.01979	0.52760	8.12673

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)	0.22874	0.64772	6.23745
sky130_osu_sc_12T_ls__dffs_l	CK->QN (RR)	0.22628	0.69088	6.26060

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)	0.14112	0.46816	4.40357
	SN->QN (FF)	0.10114	0.56846	6.49690
sky130_osu_sc_12T_ls__dffs_l	CK->QN (RF)	0.13861	0.49526	4.34324
	SN->QN (FF)	0.09863	0.59214	6.42129

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)	-0.03827	-0.04329	0.12697
	setup	CK (R)	0.12637	0.15999	0.26697
sky130_osu_sc_12T_ls__dffs_l	hold	CK (R)	-0.03947	-0.04163	0.12798
	setup	CK (R)	0.12565	0.16016	0.27198

Constraints(ns) for D falling :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_12T_ls__dffs_1	hold	CK (R)	-0.09604	-0.24178	-4.54447
	setup	CK (R)	0.11932	0.25660	4.61271
sky130_osu_sc_12T_ls__dffs_l	hold	CK (R)	-0.09505	-0.24178	-4.54804
	setup	CK (R)	0.11932	0.25660	4.61272

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)	-0.03827	-0.04329	0.12697
	setup	CK (R)	0.12637	0.15999	0.26697
sky130_osu_sc_12T_ls__dffs_l	hold	CK (R)	-0.03947	-0.04163	0.12798
	setup	CK (R)	0.12565	0.16016	0.27198

Constraints(ns) for D falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_12T_ls__dffs_1	hold	CK (R)	-0.09604	-0.24178	-4.54447
	setup	CK (R)	0.11932	0.25660	4.61271
sky130_osu_sc_12T_ls__dffs_l	hold	CK (R)	-0.09505	-0.24178	-4.54804
	setup	CK (R)	0.11932	0.25660	4.61272

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)	0.03533	0.06389	2.58957
	removal	CK (R)	-0.02251	-0.04966	-0.51484
sky130_osu_sc_12T_ls__dffs_l	recovery	CK (R)	0.03531	0.06390	2.51318
	removal	CK (R)	-0.02251	-0.04966	-0.51484

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)	0.03533	0.06389	2.58957
	removal	CK (R)	-0.02251	-0.04966	-0.51484
sky130_osu_sc_12T_ls__dffs_l	recovery	CK (R)	0.03531	0.06390	2.51318
	removal	CK (R)	-0.02251	-0.04966	-0.51484

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 ()	0.08850	0.41382	13.33370
	min_pulse_width	SN ()	0.09476	0.41382	13.33370
sky130_osu_sc_12T_ls__dffs_l	min_pulse_width	SN ()	0.08850	0.41382	13.33370
	min_pulse_width	SN ()	0.08850	0.41382	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 ()	0.07599	0.41382	13.33370
	min_pulse_width	CK ()	0.12604	0.41382	13.33370
sky130_osu_sc_12T_ls__dffs_l	min_pulse_width	CK ()	0.07286	0.41382	13.33370
	min_pulse_width	CK ()	0.12291	0.41382	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 ()	0.17609	0.41382	13.33370
	min_pulse_width	CK ()	0.10414	0.41382	13.33370
sky130_osu_sc_12T_ls__dffs_l	min_pulse_width	CK ()	0.17609	0.41382	13.33370
	min_pulse_width	CK ()	0.10414	0.41382	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	0.01036	0.01531	0.10777
	SN	-0.00117	-0.08359	-1.44106
	SN	0.01823	0.02217	0.10707
sky130_osu_sc_12T_ls__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.00934	0.01503	0.12217
	SN	-0.00117	-0.07022	-1.07764
	SN	0.01720	0.02194	0.12178

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	0.01212	0.01428	0.08042
sky130_osu_sc_12T_ls__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.01111	0.01409	0.09469

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	0.01207	0.01424	0.08060
sky130_osu_sc_12T_ls__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.01107	0.01401	0.09480

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	0.01020	0.01517	0.10684
	SN	-0.00117	-0.08354	-1.43951
	SN	0.01809	0.02204	0.10640
sky130_osu_sc_12T_ls__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.00918	0.01488	0.12105
	SN	-0.00117	-0.07013	-1.07548
	SN	0.01706	0.02178	0.12056

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	-0.00256	-0.00258	-0.00258
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.01253	0.01785	0.15696
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.00526	0.01023	0.14064
sky130_osu_sc_12T_ls__dffs_l	CK	0.00000	0.00000	0.00000
	CK	-0.00255	-0.00257	-0.00257
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.01254	0.01786	0.15696
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.00527	0.01024	0.14065

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	0.00348	0.00338	0.00333
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.01920	0.02442	0.16272
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.00962	0.01470	0.14522
sky130_osu_sc_12T_ls__dffs_1	CK	0.00000	0.00000	0.00000
	CK	0.00349	0.00339	0.00334
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.01921	0.02443	0.16273
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.00963	0.01471	0.14524

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)	-0.00514	-0.00519	-0.00518
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.00396	0.00860	0.13314
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)	-0.00513	-0.00518	-0.00517
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.00397	0.00861	0.13315

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)	0.00566	0.00565	0.00557
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.01189	0.01710	0.14150
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)	0.00567	0.00566	0.00558
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.01190	0.01711	0.14151

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)	-0.00064	0.00662	0.17419
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	-0.00041	0.00690	0.17416
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.00312	0.01665	0.31252
sky130_osu_sc_12T_ls__dffs_l	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	-0.00063	0.00663	0.17420
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	-0.00040	0.00691	0.17417
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.00312	0.01666	0.31253

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)	0.03059	0.03817	0.26175
	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.01416	0.02235	0.18945
	(!D * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * SN * Q * !QN)	0.02890	0.04363	0.30106
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	0.01598	0.02379	0.19017
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.01859	0.03335	0.32835
sky130_osu_sc_12T_ls__dffs_l	(D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * SN * !Q * QN)	0.03060	0.03818	0.26176
	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.01417	0.02239	0.18946
	(!D * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * SN * Q * !QN)	0.02891	0.04365	0.30107
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	0.01598	0.02381	0.19018
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.01860	0.03341	0.32836

SKY130_OSU_SC_12T_LS__DFFx

sky130_osu_sc_12T_ls_ff_1P95_150C.ccs
Cell Library: Process , Voltage 1.95,
Temp 150.00

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	0.00310	0.00878	1.36902
sky130_osu_sc_12T_ls__dff_l	0.00310	0.00878	1.05078

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_12T_ls__dff_1	0.00000	25.29440	28.20130
sky130_osu_sc_12T_ls__dff_l	0.00000	26.45930	29.36630

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)**	0.14707	0.56394	5.86520
sky130_osu_sc_12T_ls__dff_l	**CK->Q (RR)**	0.14645	0.60903	5.90740

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)**	0.21227	0.52270	4.23306
sky130_osu_sc_12T_ls__dff_l	**CK->Q (RF)**	0.21178	0.55620	4.30952

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)	-0.03370	-0.03780	0.11438
	setup	CK (R)	0.10180	0.14682	0.23808
sky130_osu_sc_12T_ls__dff_l	hold	CK (R)	-0.03370	-0.03780	0.11819
	setup	CK (R)	0.10180	0.14702	0.23628

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)	-0.08526	-0.24311	-4.54307
	setup	CK (R)	0.10438	0.25387	4.60387
sky130_osu_sc_12T_ls__dff_l	hold	CK (R)	-0.08343	-0.24311	-4.54510
	setup	CK (R)	0.10438	0.25387	4.60388

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 ()	0.06660	0.41382	13.33370
	min_pulse_width	CK ()	0.11353	0.41382	13.33370
sky130_osu_sc_12T_ls__dff_l	min_pulse_width	CK ()	0.06660	0.41382	13.33370
	min_pulse_width	CK ()	0.11040	0.41382	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 ()**	0.15419	0.41382	13.33370
	min_pulse_width	**CK ()**	0.08224	0.41382	13.33370
sky130_osu_sc_12T_ls__dff_l	**min_pulse_width**	**CK ()**	0.15419	0.41382	13.33370
	min_pulse_width	**CK ()**	0.08224	0.41382	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	0.02136	0.03432	0.27392
sky130_osu_sc_12T_ls__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.01933	0.03237	0.27159

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	0.02379	0.03076	0.21041
sky130_osu_sc_12T_ls__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.02189	0.02894	0.20871

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	-0.00204	-0.00256	-0.00262
	!CK	0.00000	0.00000	0.00000
	!CK	0.01124	0.01647	0.15626
sky130_osu_sc_12T_ls__dff_l	CK	0.00000	0.00000	0.00000
	CK	-0.00203	-0.00255	-0.00261
	!CK	0.00000	0.00000	0.00000
	!CK	0.01125	0.01648	0.15627

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	0.00312	0.00315	0.00313
	!CK	0.00000	0.00000	0.00000
	!CK	0.01978	0.02512	0.16575
sky130_osu_sc_12T_ls__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.00313	0.00316	0.00314
	!CK	0.00000	0.00000	0.00000
	!CK	0.01979	0.02513	0.16576

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)	-0.00067	0.00661	0.17418
	(!D * !Q)	0.00000	0.00000	0.00000
	(!D * !Q)	-0.00054	0.00679	0.17402
sky130_osu_sc_12T_ls__dff_l	(D * Q)	0.00000	0.00000	0.00000
	(D * Q)	-0.00066	0.00662	0.17419
	(!D * !Q)	0.00000	0.00000	0.00000
	(!D * !Q)	-0.00053	0.00680	0.17403

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)	0.01413	0.02240	0.18944
	(D * !Q)	0.00000	0.00000	0.00000
	(D * !Q)	0.02932	0.03702	0.26145
	(!D * Q)	0.00000	0.00000	0.00000
	(!D * Q)	0.02938	0.04447	0.30622
	(!D * !Q)	0.00000	0.00000	0.00000
	(!D * !Q)	0.01575	0.02364	0.18996
sky130_osu_sc_12T_ls__dff_l	(D * Q)	0.00000	0.00000	0.00000
	(D * Q)	0.01414	0.02242	0.18945
	(D * !Q)	0.00000	0.00000	0.00000
	(D * !Q)	0.02933	0.03703	0.26146
	(!D * Q)	0.00000	0.00000	0.00000
	(!D * Q)	0.02939	0.04449	0.30623
	(!D * !Q)	0.00000	0.00000	0.00000
	(!D * !Q)	0.01576	0.02364	0.18997

SKY130_OSU_SC_12T_LS__INVx

sky130_osu_sc_12T_ls_ff_1P95_150C.ccs
Cell Library: Process , Voltage 1.95,
Temp 150.00

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	0.00297	1.34988
sky130_osu_sc_12T_ls__inv_10	0.02674	13.32852
sky130_osu_sc_12T_ls__inv_2	0.00554	2.75057
sky130_osu_sc_12T_ls__inv_3	0.00821	4.04592
sky130_osu_sc_12T_ls__inv_4	0.01082	5.44764
sky130_osu_sc_12T_ls__inv_6	0.01619	8.10182
sky130_osu_sc_12T_ls__inv_8	0.02146	10.73077
sky130_osu_sc_12T_ls__inv_l	0.00235	0.98205

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_12T_ls__inv_1	0.00000	3.52095	4.53356
sky130_osu_sc_12T_ls__inv_10	0.00000	34.25100	43.94300
sky130_osu_sc_12T_ls__inv_2	0.00000	6.85023	8.78867
sky130_osu_sc_12T_ls__inv_3	0.00000	10.37110	13.32220
sky130_osu_sc_12T_ls__inv_4	0.00000	13.70040	17.57730
sky130_osu_sc_12T_ls__inv_6	0.00000	20.55060	26.36590
sky130_osu_sc_12T_ls__inv_8	0.00000	27.40080	35.15450
sky130_osu_sc_12T_ls__inv_l	0.00000	4.10335	6.29620

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)**	0.02213	0.62401	10.00200
sky130_osu_sc_12T_ls__inv_10	**A->Y (FR)**	0.02605	0.38873	9.89038
sky130_osu_sc_12T_ls__inv_2	**A->Y (FR)**	0.01669	0.52032	9.85861
sky130_osu_sc_12T_ls__inv_3	**A->Y (FR)**	0.01791	0.48430	9.89568
sky130_osu_sc_12T_ls__inv_4	**A->Y (FR)**	0.01776	0.45377	9.85412
sky130_osu_sc_12T_ls__inv_6	**A->Y (FR)**	0.01977	0.42007	9.84925
sky130_osu_sc_12T_ls__inv_8	**A->Y (FR)**	0.02261	0.39966	9.84610
sky130_osu_sc_12T_ls__inv_l	**A->Y (FR)**	0.02458	0.65667	9.72356

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)**	0.01748	0.43977	7.02267
sky130_osu_sc_12T_ls__inv_10	**A->Y (RF)**	0.02237	0.24603	7.25454
sky130_osu_sc_12T_ls__inv_2	**A->Y (RF)**	0.01388	0.36555	7.15280
sky130_osu_sc_12T_ls__inv_3	**A->Y (RF)**	0.01499	0.33273	7.24850
sky130_osu_sc_12T_ls__inv_4	**A->Y (RF)**	0.01478	0.30645	7.25941
sky130_osu_sc_12T_ls__inv_6	**A->Y (RF)**	0.01731	0.27697	7.27564
sky130_osu_sc_12T_ls__inv_8	**A->Y (RF)**	0.01971	0.25784	7.27425
sky130_osu_sc_12T_ls__inv_l	**A->Y (RF)**	0.01901	0.46558	6.80149

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	0.00475	0.00782	0.05341
sky130_osu_sc_12T_ls__inv_10	A	0.00000	0.00000	0.00000
	A	0.04060	0.08841	0.50666
sky130_osu_sc_12T_ls__inv_2	A	0.00000	0.00000	0.00000
	A	0.00826	0.01586	0.10371
sky130_osu_sc_12T_ls__inv_3	A	0.00000	0.00000	0.00000
	A	0.01268	0.02521	0.15381
sky130_osu_sc_12T_ls__inv_4	A	0.00000	0.00000	0.00000
	A	0.01620	0.03310	0.20412
sky130_osu_sc_12T_ls__inv_6	A	0.00000	0.00000	0.00000
	A	0.02416	0.05048	0.30668
sky130_osu_sc_12T_ls__inv_8	A	0.00000	0.00000	0.00000
	A	0.03219	0.07259	0.40847
sky130_osu_sc_12T_ls__inv_l	A	0.00000	0.00000	0.00000
	A	0.00376	0.00666	0.04869

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	-0.00078	0.00179	0.04075
sky130_osu_sc_12T_ls__inv_10	**A**	0.00000	0.00000	0.00000
	A	-0.01109	0.02927	0.39319
sky130_osu_sc_12T_ls__inv_2	**A**	0.00000	0.00000	0.00000
	A	-0.00257	0.00357	0.07999
sky130_osu_sc_12T_ls__inv_3	**A**	0.00000	0.00000	0.00000
	A	-0.00331	0.00712	0.11865
sky130_osu_sc_12T_ls__inv_4	**A**	0.00000	0.00000	0.00000
	A	-0.00509	0.00918	0.15784
sky130_osu_sc_12T_ls__inv_6	**A**	0.00000	0.00000	0.00000
	A	-0.00774	0.01488	0.23593
sky130_osu_sc_12T_ls__inv_8	**A**	0.00000	0.00000	0.00000
	A	-0.00990	0.02362	0.31455
sky130_osu_sc_12T_ls__inv_l	**A**	0.00000	0.00000	0.00000
	A	-0.00053	0.00154	0.03551

SKY130_OSU_SC_12T_LS__MUX2

sky130_osu_sc_12T_ls_ff_1P95_150C.ccs
Cell Library: Process , Voltage 1.95,
Temp 150.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_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	0.12365	0.12356	0.00612	0.11982

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_12T_ls__mux2_1	0.00000	7.22298	7.22298

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)	-	0.00925	0.07223	0.42027
	A1->Y (RR)	-	0.01043	0.07280	0.41937
	S0->Y (RR)	(!A0 * A1)	0.03474	0.12264	-0.12936
	S0->Y (FR)	(A0 * !A1)	0.02466	0.23648	2.25484

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)	-	0.01050	0.08423	0.45177
	A1->Y (FF)	-	0.00965	0.08310	0.44989
	S0->Y (FF)	(!A0 * A1)	0.04516	0.23932	1.83689
	S0->Y (RF)	(A0 * !A1)	0.01950	0.12121	0.31839

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	-	-0.00462	-0.00462	-0.00461
	A1	-	0.00000	0.00000	0.00000
	A1	-	-0.00285	-0.00286	-0.00285
	S0	(A0 * !A1)	0.00000	0.00000	0.00000
	S0	(A0 * !A1)	0.00590	0.01468	0.17880
	S0	(!A0 * A1)	0.00000	0.00000	0.00000
	S0	(!A0 * A1)	-0.00300	0.00506	0.16884

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	-	0.00473	0.00474	0.00474
	A1	-	0.00000	0.00000	0.00000
	A1	-	0.00306	0.00307	0.00307
	S0	(A0 * !A1)	0.00000	0.00000	0.00000
	S0	(A0 * !A1)	0.00078	0.00916	0.17342
	S0	(!A0 * A1)	0.00000	0.00000	0.00000
	S0	(!A0 * A1)	0.01283	0.02098	0.18438

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)	-0.00102	-0.00103	-0.00103

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)	0.00110	0.00110	0.00110

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)	-0.00126	-0.00126	-0.00127

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__mux2_1	(A0 * !S0 * Y) + (!A0 * !S0 * !Y)	0.00000	0.00000	0.00000
	(A0 * !S0 * Y) + (!A0 * !S0 * !Y)	0.00130	0.00130	0.00131

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)	-0.00113	0.00715	0.17107
	(!A0 * !A1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !Y)	-0.00109	0.00715	0.17124

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)	0.00988	0.01836	0.18177
	(!A0 * !A1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !Y)	0.00885	0.01776	0.18152

SKY130_OSU_SC_12T_LS__NAND2x

sky130_osu_sc_12T_ls_ff_1P95_150C.ccs
Cell Library: Process , Voltage 1.95,
Temp 150.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_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	0.00296	0.00296	1.33536
sky130_osu_sc_12T_ls__nand2_l	0.00231	0.00234	0.97580

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_12T_ls__nand2_1	0.00000	3.41376	8.78857
sky130_osu_sc_12T_ls__nand2_l	0.00000	4.03263	12.39110

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)	0.02339	0.62274	9.93609
	B->Y (FR)	0.02674	0.59739	9.48001
sky130_osu_sc_12T_ls__nand2_l	A->Y (FR)	0.02514	0.65518	9.65904
	B->Y (FR)	0.03009	0.65883	9.64975

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)	0.02476	0.55817	8.86215
	B->Y (RF)	0.02821	0.53214	8.36996
sky130_osu_sc_12T_ls__nand2_l	A->Y (RF)	0.02712	0.60489	8.78793
	B->Y (RF)	0.03045	0.57220	8.16053

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	0.00509	0.00765	0.04559
	B	0.00000	0.00000	0.00000
	B	0.00659	0.00898	0.04999
sky130_osu_sc_12T_ls__nand2_l	A	0.00000	0.00000	0.00000
	A	0.00387	0.00599	0.04063
	B	0.00000	0.00000	0.00000
	B	0.00495	0.00706	0.04329

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	-0.00033	0.00165	0.03448
	B	0.00000	0.00000	0.00000
	B	-0.00035	0.00143	0.03413
sky130_osu_sc_12T_ls__nand2_l	A	0.00000	0.00000	0.00000
	A	-0.00006	0.00158	0.02946
	B	0.00000	0.00000	0.00000
	B	-0.00007	0.00134	0.02919

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)	-0.00330	-0.00333	-0.00334
sky130_osu_sc_12T_ls__nand2_l	(!B * Y)	0.00000	0.00000	0.00000
	(!B * Y)	-0.00234	-0.00236	-0.00238

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)	0.00334	0.00338	0.00336
sky130_osu_sc_12T_ls__nand2_l	(!B * Y)	0.00000	0.00000	0.00000
	(!B * Y)	0.00238	0.00241	0.00239

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)	-0.00306	-0.00308	-0.00306
sky130_osu_sc_12T_ls__nand2_l	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00219	-0.00221	-0.00220

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)	0.00328	0.00318	0.00312
sky130_osu_sc_12T_ls__nand2_l	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00236	0.00228	0.00224

SKY130_OSU_SC_12T_LS__NOR2x

sky130_osu_sc_12T_ls_ff_1P95_150C.ccs
Cell Library: Process , Voltage 1.95,
Temp 150.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_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	0.00292	0.00319	0.78054
sky130_osu_sc_12T_ls__nor2_l	0.00222	0.00244	0.59709

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_12T_ls__nor2_1	0.00000	3.39774	4.91176
sky130_osu_sc_12T_ls__nor2_l	0.00000	3.72749	6.29494

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)	0.04700	0.69320	9.29792
	B->Y (FR)	0.03513	0.71305	9.85091
sky130_osu_sc_12T_ls__nor2_l	A->Y (FR)	0.04749	0.73664	9.18140
	B->Y (FR)	0.03831	0.76237	9.75242

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)	0.02435	0.35768	4.66233
	B->Y (RF)	0.01885	0.34841	4.63200
sky130_osu_sc_12T_ls__nor2_l	A->Y (RF)	0.02485	0.38436	4.66971
	B->Y (RF)	0.02022	0.37688	4.63711

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	0.00713	0.00906	0.05735
	B	0.00000	0.00000	0.00000
	B	0.00527	0.00779	0.05790
sky130_osu_sc_12T_ls__nor2_1	A	0.00000	0.00000	0.00000
	A	0.00519	0.00688	0.04979
	B	0.00000	0.00000	0.00000
	B	0.00399	0.00649	0.05165

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	0.00085	0.00313	0.05049
	B	0.00000	0.00000	0.00000
	B	-0.00057	0.00197	0.04606
sky130_osu_sc_12T_ls__nor2_1	A	0.00000	0.00000	0.00000
	A	0.00059	0.00259	0.04333
	B	0.00000	0.00000	0.00000
	B	-0.00032	0.00172	0.03937

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)	-0.00225	-0.00282	-0.00285
sky130_osu_sc_12T_ls__nor2_l	(B * !Y)	0.00000	0.00000	0.00000
	(B * !Y)	-0.00154	-0.00190	-0.00193

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)	0.00294	0.00296	0.00295
sky130_osu_sc_12T_ls__nor2_l	(B * !Y)	0.00000	0.00000	0.00000
	(B * !Y)	0.00205	0.00208	0.00205

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)	-0.00107	-0.00110	-0.00107
sky130_osu_sc_12T_ls__nor2_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	-0.00078	-0.00079	-0.00078

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)	0.00116	0.00117	0.00111
sky130_osu_sc_12T_ls__nor2_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00085	0.00086	0.00082

SKY130_OSU_SC_12T_LS__OAI21

sky130_osu_sc_12T_ls_ff_1P95_150C.ccs
Cell Library: Process , Voltage 1.95,
Temp 150.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_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	0.00296	0.00307	0.00260	0.76094

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_12T_ls__oai21_l	0.00000	4.94973	10.82870

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)	0.05081	0.72053	9.69173
	A1->Y (FR)	0.06481	0.70440	9.14472
	B0->Y (FR)	0.03042	0.59907	8.35519

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)	0.03431	0.42703	5.46348
	A1->Y (RF)	0.04186	0.42815	5.39283
	B0->Y (RF)	0.02615	0.46756	6.25339

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	0.00752	0.00960	0.05236
	A1	0.00000	0.00000	0.00000
	A1	0.00941	0.01093	0.05394
	B0	0.00433	0.00738	0.05875

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	0.00044	0.00210	0.03833
	A1	0.00000	0.00000	0.00000
	A1	0.00189	0.00331	0.04198
	B0	0.00074	0.00299	0.04390

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)	-0.00103	-0.00104	-0.00103
	(A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * Y)	-0.00292	-0.00294	-0.00294
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00295	-0.00296	-0.00295

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)	0.00122	0.00123	0.00117
	(A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * Y)	0.00296	0.00299	0.00297
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00320	0.00307	0.00301

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)	-0.00211	-0.00267	-0.00271
	(A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * Y)	-0.00289	-0.00291	-0.00290
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	-0.00291	-0.00293	-0.00291

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)	0.00290	0.00293	0.00292
	(A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * Y)	0.00292	0.00296	0.00294
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	0.00317	0.00305	0.00297

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)	-0.00244	-0.00246	-0.00251

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)	0.00253	0.00258	0.00254

SKY130_OSU_SC_12T_LS__OAI22

sky130_osu_sc_12T_ls_ff_1P95_150C.ccs
Cell Library: Process , Voltage 1.95,
Temp 150.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_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	0.00281	0.00292	0.00310	0.00306	0.81420

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_12T_ls__oai22_1	0.00000	4.82407	8.80070

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)	0.06801	0.70163	9.23748
	A1->Y (FR)	0.05704	0.72546	9.82836
	B0->Y (FR)	0.03671	0.70577	9.80873
	B1->Y (FR)	0.04879	0.68398	9.21267

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)	0.05782	0.46873	5.83449
	A1->Y (RF)	0.04668	0.45445	5.78489
	B0->Y (RF)	0.03956	0.49614	6.58378
	B1->Y (RF)	0.05112	0.51021	6.66543

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	0.01121	0.01281	0.05682
	A1	0.00934	0.01200	0.05822
	B0	0.00556	0.00834	0.05359
	B1	0.00756	0.00925	0.05175

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__oai22_l	A0	0.00128	0.00279	0.04231
	A1	-0.00004	0.00165	0.03883
	B0	-0.00008	0.00216	0.04195
	B1	0.00129	0.00320	0.04417

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)	-0.00222	-0.00274	-0.00279
	(A1 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * B1 * !Y)	-0.00219	-0.00272	-0.00276
	(A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * !B1 * Y)	-0.00279	-0.00280	-0.00280
	(!A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * !B1 * Y)	-0.00281	-0.00282	-0.00281

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)	0.00288	0.00292	0.00290
	(A1 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * B1 * !Y)	0.00291	0.00294	0.00292
	(A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * !B1 * Y)	0.00286	0.00288	0.00288
	(!A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * !B1 * Y)	0.00315	0.00298	0.00291

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)	-0.00104	-0.00105	-0.00104
	(A0 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * B1 * !Y)	-0.00101	-0.00104	-0.00102
	(A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * !B1 * Y)	-0.00278	-0.00280	-0.00279
	(!A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * !B1 * Y)	-0.00280	-0.00280	-0.00280

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)	0.00113	0.00114	0.00109
	(A0 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * B1 * !Y)	0.00115	0.00116	0.00111
	(A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * !B1 * Y)	0.00286	0.00288	0.00287
	(!A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * !B1 * Y)	0.00315	0.00299	0.00291

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)	-0.00105	-0.00108	-0.00105
	(A0 * !A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B1 * !Y)	-0.00102	-0.00105	-0.00103
	(!A0 * !A1 * B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B1 * Y)	-0.00329	-0.00331	-0.00330
	(!A0 * !A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B1 * Y)	-0.00320	-0.00321	-0.00330

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)	0.00114	0.00115	0.00110
	(A0 * !A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B1 * !Y)	0.00117	0.00118	0.00112
	(!A0 * !A1 * B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B1 * Y)	0.00340	0.00343	0.00336
	(!A0 * !A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B1 * Y)	0.00332	0.00339	0.00334

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)	-0.00219	-0.00272	-0.00277
	(A0 * !A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B0 * !Y)	-0.00217	-0.00270	-0.00275
	(!A0 * !A1 * B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B0 * Y)	-0.00335	-0.00337	-0.00336
	(!A0 * !A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B0 * Y)	-0.00325	-0.00328	-0.00336

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)	0.00287	0.00290	0.00288
	(A0 * !A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B0 * !Y)	0.00289	0.00291	0.00290
	(!A0 * !A1 * B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B0 * Y)	0.00346	0.00351	0.00343
	(!A0 * !A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B0 * Y)	0.00338	0.00342	0.00340

SKY130_OSU_SC_12T_LS__OR2x

sky130_osu_sc_12T_ls_ff_1P95_150C.ccs
Cell Library: Process , Voltage 1.95,
Temp 150.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_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	0.00328	0.00305	1.41851
sky130_osu_sc_12T_ls__or2_2	0.00328	0.00305	2.88139
sky130_osu_sc_12T_ls__or2_4	0.00328	0.00305	5.74337
sky130_osu_sc_12T_ls__or2_8	0.00329	0.00305	11.15638
sky130_osu_sc_12T_ls__or2_l	0.00248	0.00234	1.03326

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_12T_ls__or2_1	0.00000	6.41828	9.44634
sky130_osu_sc_12T_ls__or2_2	0.00000	9.28505	13.70270
sky130_osu_sc_12T_ls__or2_4	0.00000	15.16680	22.49370
sky130_osu_sc_12T_ls__or2_8	0.00000	26.93030	40.07590
sky130_osu_sc_12T_ls__or2_l	0.00000	6.74056	10.03860

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)	0.05612	0.46571	5.90886
	B->Y (RR)	0.04782	0.44114	5.71974
sky130_osu_sc_12T_ls__or2_2	A->Y (RR)	0.06017	0.38874	5.81990
	B->Y (RR)	0.05151	0.36524	5.62062
sky130_osu_sc_12T_ls__or2_4	A->Y (RR)	0.07794	0.37269	6.02251
	B->Y (RR)	0.06897	0.35216	5.81858
sky130_osu_sc_12T_ls__or2_8	A->Y (RR)	0.11553	0.40392	6.20410
	B->Y (RR)	0.10624	0.38734	6.01496
sky130_osu_sc_12T_ls__or2_l	A->Y (RR)	0.05774	0.50357	5.74429
	B->Y (RR)	0.05042	0.48087	5.54733

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)	0.08461	0.50870	6.46414
	B->Y (FF)	0.06871	0.51894	6.82899
sky130_osu_sc_12T_ls__or2_2	A->Y (FF)	0.10003	0.48327	6.67784
	B->Y (FF)	0.08427	0.49711	7.04163
sky130_osu_sc_12T_ls__or2_4	A->Y (FF)	0.14234	0.50734	6.96052
	B->Y (FF)	0.12661	0.52745	7.31646
sky130_osu_sc_12T_ls__or2_8	A->Y (FF)	0.23047	0.58916	7.14739
	B->Y (FF)	0.21484	0.61335	7.49770
sky130_osu_sc_12T_ls__or2_l	A->Y (FF)	0.08587	0.53823	6.41898
	B->Y (FF)	0.07206	0.55097	6.77033

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	0.00535	0.00996	0.10429
	B	0.00000	0.00000	0.00000
	B	0.00399	0.00947	0.10639
sky130_osu_sc_12T_ls__or2_2	A	0.00000	0.00000	0.00000
	A	0.00914	0.01401	0.10949
	B	0.00000	0.00000	0.00000
	B	0.00767	0.01331	0.11118
sky130_osu_sc_12T_ls__or2_4	A	0.00000	0.00000	0.00000
	A	0.01845	0.02340	0.12199
	B	0.00000	0.00000	0.00000
	B	0.01677	0.02265	0.11982
sky130_osu_sc_12T_ls__or2_8	A	0.00000	0.00000	0.00000
	A	0.04332	0.04454	0.14520
	B	0.00000	0.00000	0.00000
	B	0.04133	0.04318	0.14550
sky130_osu_sc_12T_ls__or2_l	A	0.00000	0.00000	0.00000
	A	0.00408	0.00837	0.09666
	B	0.00000	0.00000	0.00000
	B	0.00321	0.00808	0.09851

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	0.01205	0.01613	0.12417
	B	0.00000	0.00000	0.00000
	B	0.00985	0.01584	0.14116
sky130_osu_sc_12T_ls__or2_2	A	0.00000	0.00000	0.00000
	A	0.01656	0.01942	0.12731
	B	0.00000	0.00000	0.00000
	B	0.01432	0.01900	0.14373
sky130_osu_sc_12T_ls__or2_4	A	0.00000	0.00000	0.00000
	A	0.03110	0.02821	0.13325
	B	0.00000	0.00000	0.00000
	B	0.02889	0.02777	0.14857
sky130_osu_sc_12T_ls__or2_8	A	0.00000	0.00000	0.00000
	A	0.07699	0.05114	0.14781
	B	0.00000	0.00000	0.00000
	B	0.07496	0.05212	0.16233
sky130_osu_sc_12T_ls__or2_l	A	0.00000	0.00000	0.00000
	A	0.00905	0.01305	0.11119
	B	0.00000	0.00000	0.00000
	B	0.00757	0.01310	0.12216

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)	-0.00224	-0.00282	-0.00286
sky130_osu_sc_12T_ls__or2_2	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00222	-0.00280	-0.00283
sky130_osu_sc_12T_ls__or2_4	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00217	-0.00276	-0.00279
sky130_osu_sc_12T_ls__or2_8	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00209	-0.00267	-0.00271
sky130_osu_sc_12T_ls__or2_l	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00151	-0.00190	-0.00192

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)	0.00298	0.00302	0.00300
sky130_osu_sc_12T_ls__or2_2	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00300	0.00303	0.00302
sky130_osu_sc_12T_ls__or2_4	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00305	0.00308	0.00307
sky130_osu_sc_12T_ls__or2_8	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00313	0.00317	0.00315
sky130_osu_sc_12T_ls__or2_l	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00207	0.00210	0.00208

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)	-0.00106	-0.00107	-0.00106
sky130_osu_sc_12T_ls__or2_2	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00104	-0.00105	-0.00104
sky130_osu_sc_12T_ls__or2_4	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00099	-0.00101	-0.00099
sky130_osu_sc_12T_ls__or2_8	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00091	-0.00092	-0.00091
sky130_osu_sc_12T_ls__or2_l	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00075	-0.00075	-0.00074

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)	0.00119	0.00120	0.00114
sky130_osu_sc_12T_ls__or2_2	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00121	0.00122	0.00116
sky130_osu_sc_12T_ls__or2_4	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00125	0.00126	0.00120
sky130_osu_sc_12T_ls__or2_8	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00134	0.00135	0.00129
sky130_osu_sc_12T_ls__or2_l	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00085	0.00086	0.00081

SKY130_OSU_SC_12T_LS__TBUFIx

sky130_osu_sc_12T_ls_ff_1P95_150C.ccs
Cell Library: Process , Voltage 1.95,
Temp 150.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_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	0.00317	0.00416	0.81419
sky130_osu_sc_12T_ls__tbufi_l	0.00245	0.00322	0.59594

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_12T_ls__tbufi_1	0.00000	4.68660	9.06654
sky130_osu_sc_12T_ls__tbufi_l	0.00000	5.03313	12.59090

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)	0.03279	0.70213	9.78121
	OE->Y (FR)	0.03892	0.33220	5.34257
	OE->Y (RR)	0.06013	0.53228	5.86188
sky130_osu_sc_12T_ls__tbufi_l	A->Y (FR)	0.03722	0.75268	9.66646
	OE->Y (FR)	0.03796	0.33219	5.34255
	OE->Y (RR)	0.06212	0.59139	5.86275

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)	0.02432	0.45385	6.19139
	OE->Y (FF)	0.03971	0.33219	5.34256
	OE->Y (RF)	0.02228	0.41213	5.48913
sky130_osu_sc_12T_ls__tbufi_l	A->Y (RF)	0.02701	0.49062	6.12874
	OE->Y (FF)	0.03865	0.33218	5.34253
	OE->Y (RF)	0.02465	0.44021	5.26235

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	0.00502	0.00744	0.04992
	OE	0.00000	0.00000	0.00000
	OE	0.00520	0.01311	0.16286
sky130_osu_sc_12T_ls__tbufi_l	A	0.00000	0.00000	0.00000
	A	0.00391	0.00559	0.04380
	OE	0.00000	0.00000	0.00000
	OE	0.00383	0.01088	0.14418

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	-0.00047	0.00170	0.03889
	OE	0.00000	0.00000	0.00000
	OE	0.00309	0.01160	0.17844
sky130_osu_sc_12T_ls__tbufi_l	A	0.00000	0.00000	0.00000
	A	-0.00016	0.00154	0.03284
	OE	0.00000	0.00000	0.00000
	OE	0.00227	0.00975	0.15328

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)	-0.00220	-0.00221	-0.00219
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	-0.00178	-0.00179	-0.00178
sky130_osu_sc_12T_ls__tbufi_l	(!OE * Y)	0.00000	0.00000	0.00000
	(!OE * Y)	-0.00161	-0.00162	-0.00160
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	-0.00132	-0.00133	-0.00132

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)	0.00220	0.00221	0.00219
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	0.00187	0.00189	0.00185
sky130_osu_sc_12T_ls__tbufi_l	(!OE * Y)	0.00000	0.00000	0.00000
	(!OE * Y)	0.00161	0.00162	0.00160
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	0.00140	0.00140	0.00138

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)	0.00194	0.01078	0.18015
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00169	0.01046	0.17980
sky130_osu_sc_12T_ls__tbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00139	0.00909	0.15438
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00116	0.00884	0.15410

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)	0.00588	0.01463	0.18363
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00590	0.01466	0.18365
sky130_osu_sc_12T_ls__tbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00448	0.01229	0.15732
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00448	0.01231	0.15734

SKY130_OSU_SC_12T_LS__TNBUFIx

sky130_osu_sc_12T_ls_ff_1P95_150C.ccs
Cell Library: Process , Voltage 1.95,
Temp 150.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_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	0.00316	0.00472	0.81430
sky130_osu_sc_12T_ls__tnbufi_l	0.00235	0.00359	0.59702

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_12T_ls__tnbufi_1	0.00000	5.36172	7.04134
sky130_osu_sc_12T_ls__tnbufi_l	0.00000	6.49511	8.20532

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)	0.03299	0.70201	9.78124
	OE->Y (RR)	0.02370	0.33244	5.34283
	OE->Y (FR)	0.04222	0.66678	8.92817
sky130_osu_sc_12T_ls__tnbufi_l	A->Y (FR)	0.03656	0.75216	9.67419
	OE->Y (RR)	0.02533	0.33218	5.34254
	OE->Y (FR)	0.04396	0.71833	8.75974

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)	0.02387	0.45373	6.19256
	OE->Y (RF)	0.02359	0.33246	5.34284
	OE->Y (FF)	0.04227	0.44209	5.26728
sky130_osu_sc_12T_ls__tnbufi_l	A->Y (RF)	0.02585	0.49015	6.13700
	OE->Y (RF)	0.02506	0.33219	5.34256
	OE->Y (FF)	0.04528	0.48237	5.28806

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	0.00514	0.00755	0.05003
	OE	0.00000	0.00000	0.00000
	OE	0.01251	0.02172	0.18760
sky130_osu_sc_12T_ls__tnbufi_l	A	0.00000	0.00000	0.00000
	A	0.00388	0.00557	0.04376
	OE	0.00000	0.00000	0.00000
	OE	0.00950	0.01754	0.16084

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	-0.00075	0.00145	0.03866
	OE	0.00000	0.00000	0.00000
	OE	0.01059	0.01932	0.17053
sky130_osu_sc_12T_ls__tnbufi_l	A	0.00000	0.00000	0.00000
	A	-0.00050	0.00123	0.03254
	OE	0.00000	0.00000	0.00000
	OE	0.00815	0.01591	0.15029

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)	-0.00179	-0.00181	-0.00180
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	-0.00138	-0.00139	-0.00138
sky130_osu_sc_12T_ls__tnbufi_l	(OE * Y)	0.00000	0.00000	0.00000
	(OE * Y)	-0.00128	-0.00128	-0.00125
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	-0.00094	-0.00095	-0.00094

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)	0.00179	0.00181	0.00180
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	0.00151	0.00152	0.00149
sky130_osu_sc_12T_ls__tnbufi_l	(OE * Y)	0.00000	0.00000	0.00000
	(OE * Y)	0.00129	0.00128	0.00128
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	0.00111	0.00111	0.00109

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_ls__tnbufi_1	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	-0.00308	0.00575	0.17510
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00319	0.00568	0.17513
sky130_osu_sc_12T_ls__tnbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	-0.00215	0.00538	0.15073
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00226	0.00537	0.15071

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)	0.00923	0.01887	0.18848
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00914	0.01882	0.18840
sky130_osu_sc_12T_ls__tnbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00716	0.01547	0.16088
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00708	0.01550	0.16087

SKY130_OSU_SC_12T_LS__XNOR2

sky130_osu_sc_12T_ls_ff_1P95_150C.ccs
Cell Library: Process , Voltage 1.95,
Temp 150.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_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	0.00634	0.00547	0.84256

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_12T_ls__xnor2_l	0.00000	13.13380	15.86160

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	0.07594	0.55869	6.02847
	A->Y (FR)	!B	0.04411	0.71057	9.84471
	B->Y (RR)	A	0.06105	0.55040	6.18664
	B->Y (FR)	!A	0.05650	0.69010	9.29807

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	0.07292	0.49798	5.65065
	A->Y (RF)	!B	0.03266	0.43822	5.87162
	B->Y (FF)	A	0.06246	0.48966	5.65984
	B->Y (RF)	!A	0.04056	0.44758	5.86667

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	0.00585	0.01358	0.17114
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.01243	0.02314	0.23334
	B	A	0.00000	0.00000	0.00000
	B	A	0.00229	0.01118	0.18436
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01355	0.02372	0.22880

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	0.01495	0.02290	0.19129
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00363	0.01370	0.21736
	B	A	0.00000	0.00000	0.00000
	B	A	0.01366	0.02249	0.19448
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00453	0.01451	0.21644

SKY130_OSU_SC_12T_LS__XOR2

sky130_osu_sc_12T_ls_ff_1P95_150C.ccs
Cell Library: Process , Voltage 1.95,
Temp 150.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_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	0.00637	0.00552	0.79511

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_12T_ls__xor2_l	0.00000	13.13360	15.66350

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	0.07745	0.56766	6.13242
	A->Y (FR)	B	0.05895	0.71197	9.47570
	B->Y (RR)	!A	0.06453	0.56517	6.16454
	B->Y (FR)	A	0.06405	0.71554	9.44575

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	0.06769	0.48752	5.31213
	A->Y (RF)	B	0.03547	0.46217	6.05420
	B->Y (FF)	!A	0.06426	0.48836	5.51395
	B->Y (RF)	A	0.04019	0.43603	5.57356

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	0.01487	0.02441	0.22061
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00329	0.01037	0.17373
	B	A	0.00000	0.00000	0.00000
	B	A	0.01520	0.02476	0.21816
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00220	0.01054	0.17769

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	0.00300	0.01256	0.20701
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.01561	0.02348	0.17070
	B	A	0.00000	0.00000	0.00000
	B	A	0.00305	0.01215	0.20244
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01385	0.02242	0.18826

SKY130_OSU_SC_12T_LS_x

sky130_osu_sc_12T_ls_ff_1P95_150C.ccs
Cell Library: Process , Voltage 1.95,
Temp 150.00

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	0.56995
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	242464.00000	484929.00000
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
	-0.00142	0.06932	1.09550

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
	4.22080	4.04266	1.28054