sky130_osu_sc_18T_ls_tt_1P89_25C.ccs Library

Cell Groups
SKY130_OSU_SC_18T_LS__ADDFx
SKY130_OSU_SC_18T_LS__ADDHx
SKY130_OSU_SC_18T_LS__AND2x
SKY130_OSU_SC_18T_LS__AOI21
SKY130_OSU_SC_18T_LS__AOI22
SKY130_OSU_SC_18T_LS__BUFx
SKY130_OSU_SC_18T_LS__DFFRx
SKY130_OSU_SC_18T_LS__DFFSRx
SKY130_OSU_SC_18T_LS__DFFSx
SKY130_OSU_SC_18T_LS__DFFx
SKY130_OSU_SC_18T_LS__INVx
SKY130_OSU_SC_18T_LS__MUX2
SKY130_OSU_SC_18T_LS__NAND2x
SKY130_OSU_SC_18T_LS__NOR2x
SKY130_OSU_SC_18T_LS__OAI21
SKY130_OSU_SC_18T_LS__OAI22
SKY130_OSU_SC_18T_LS__OR2x
SKY130_OSU_SC_18T_LS__TBUFIx
SKY130_OSU_SC_18T_LS__TNBUFIx
SKY130_OSU_SC_18T_LS__XNOR2
SKY130_OSU_SC_18T_LS__XOR2
SKY130_OSU_SC_18T_LS_x

SKY130_OSU_SC_18T_LS__ADDFx

sky130_osu_sc_18T_ls_tt_1P89_25C.ccs
Cell Library: Process , Voltage 1.89,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__addf_1	46.88640
sky130_osu_sc_18T_ls__addf_l	46.88640

Pin Capacitance Information

Cell Name	Pin Cap(pf)			Max Cap(pf)		
	A	B	CI	CO	CON	S
sky130_osu_sc_18T_ls__addf_1	0.02206	0.02202	0.01691	2.71657	1.29346	2.62768
sky130_osu_sc_18T_ls__addf_l	0.02205	0.02202	0.01692	1.85669	1.29411	1.85251

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__addf_1	0.00000	0.00695	0.00815
sky130_osu_sc_18T_ls__addf_l	0.00000	0.00588	0.00708

Delay Information

Delay(ns) to CO rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__addf_1	A->CO (RR)	0.14754	1.70904	25.51590
	B->CO (RR)	0.12744	1.61898	24.27480
	CI->CO (RR)	0.14115	1.74921	26.14890
	CON->CO (FR)	0.03045	0.78626	11.68310
sky130_osu_sc_18T_ls__addf_1	A->CO (RR)	0.14828	1.59226	20.67330
	B->CO (RR)	0.12854	1.51631	19.83400
	CI->CO (RR)	0.14191	1.63285	21.34390
	CON->CO (FR)	0.03413	0.85175	11.62590

Delay(ns) to CO falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__addf_1	A->CO (FF)	0.20410	2.13294	31.37870
	B->CO (FF)	0.18078	2.04124	30.37940
	CI->CO (FF)	0.17706	2.12320	31.72540
	CON->CO (RF)	0.02397	0.60481	9.03955
sky130_osu_sc_18T_ls__addf_1	A->CO (FF)	0.19921	1.91324	24.47930
	B->CO (FF)	0.17624	1.83551	23.87650
	CI->CO (FF)	0.17216	1.90387	24.85170
	CON->CO (RF)	0.02561	0.62665	8.58924

Delay(ns) to CON rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__addf_1	A->CON (FR)	0.15852	1.00906	11.08010
	B->CON (FR)	0.13623	0.96262	10.97640
	CI->CON (FR)	0.13152	1.00301	11.47800
sky130_osu_sc_18T_ls__addf_l	A->CON (FR)	0.15011	1.00089	11.07380
	B->CON (FR)	0.12842	0.95511	10.97190
	CI->CON (FR)	0.12306	0.99490	11.47320

Delay(ns) to CON falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__addf_1	A->CON (RF)	0.08851	0.61578	6.85710
	B->CON (RF)	0.08373	0.61632	6.97158
	CI->CON (RF)	0.08215	0.65915	7.57801
sky130_osu_sc_18T_ls__addf_l	A->CON (RF)	0.08532	0.61254	6.85605
	B->CON (RF)	0.08088	0.61379	6.97075
	CI->CON (RF)	0.07894	0.65601	7.57670

Delay(ns) to S rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__addf_1	A->S (-R)	0.29683	1.96504	24.74310
	B->S (-R)	0.30672	1.95749	23.96370
	CI->S (-R)	0.26790	1.95119	25.09610
	CON->S (RR)	0.08559	0.64111	7.10327
sky130_osu_sc_18T_ls__addf_l	A->S (-R)	0.28344	1.82899	20.73260
	B->S (-R)	0.26403	1.78139	20.31450
	CI->S (-R)	0.25450	1.81587	21.09660
	CON->S (RR)	0.08538	0.69047	7.03516

Delay(ns) to S falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__addf_1	A->S (-F)	0.23942	1.52123	18.43000
	B->S (-F)	0.24030	1.46524	17.71700
	CI->S (-F)	0.23257	1.55848	19.06400
	CON->S (FF)	0.10084	0.69878	7.14791
sky130_osu_sc_18T_ls__addf_l	A->S (-F)	0.22611	1.39254	15.14940
	B->S (-F)	0.22726	1.34824	14.71590
	CI->S (-F)	0.21917	1.43012	15.81460
	CON->S (FF)	0.09677	0.71029	6.86582

Power Information

Internal switching power(pJ) to CO rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__addf_1	A	0.00461	0.00514	0.01846
	B	0.00725	0.00740	0.01738
	CI	0.00766	0.00839	0.02212
sky130_osu_sc_18T_ls__addf_l	A	0.00337	0.00362	0.01237
	B	0.00603	0.00594	0.01282
	CI	0.00641	0.00685	0.01567

Internal switching power(pJ) to CO falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__addf_1	A	0.02038	0.02140	0.04466
	B	0.02145	0.02241	0.04209
	CI	0.01696	0.01799	0.04177
sky130_osu_sc_18T_ls__addf_l	A	0.01913	0.01979	0.03497
	B	0.02021	0.02087	0.03339
	CI	0.01572	0.01644	0.03225

Internal switching power(pJ) to CON rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__addf_1	A	0.02035	0.02093	0.03144
	B	0.02142	0.02204	0.03062
	CI	0.01871	0.01975	0.02899
sky130_osu_sc_18T_ls__addf_l	A	0.01912	0.01964	0.02983
	B	0.02018	0.02071	0.02900
	CI	0.01745	0.01844	0.02739

Internal switching power(pJ) to CON falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__addf_1	A	0.00458	0.00491	0.01143
	B	0.00718	0.00710	0.01286
	CI	0.00763	0.00808	0.01510
sky130_osu_sc_18T_ls__addf_l	A	0.00404	0.00376	0.00840
	B	0.00597	0.00583	0.01130
	CI	0.00639	0.00672	0.01350

Internal switching power(pJ) to S rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__addf_1	A	0.02037	0.02139	0.04363
	B	0.02145	0.02239	0.04143
	CI	0.01695	0.01796	0.04072
sky130_osu_sc_18T_ls__addf_l	A	0.01913	0.01979	0.03472
	B	0.02021	0.02087	0.03331
	CI	0.01572	0.01644	0.03229

Internal switching power(pJ) to S falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__addf_1	A	0.04624	0.04656	0.06213
	B	0.04068	0.04055	0.06415
	CI	0.03727	0.03727	0.05346
sky130_osu_sc_18T_ls__addf_l	A	0.04458	0.04456	0.06074
	B	0.03908	0.03883	0.06341
	CI	0.03569	0.03550	0.05258

SKY130_OSU_SC_18T_LS__ADDHx

sky130_osu_sc_18T_ls_tt_1P89_25C.ccs
Cell Library: Process , Voltage 1.89,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__addh_1	27.83880
sky130_osu_sc_18T_ls__addh_l	27.83880

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)		
	A	B	CO	CON	S
sky130_osu_sc_18T_ls__addh_1	0.01081	0.01178	2.68835	1.38938	2.71200
sky130_osu_sc_18T_ls__addh_l	0.01081	0.01178	1.56098	1.40014	1.56492

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__addh_1	0.00000	0.00654	0.00748
sky130_osu_sc_18T_ls__addh_l	0.00000	0.01054	0.01253

Delay Information

Delay(ns) to CO rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__addh_1	A->CO (RR)	0.09956	0.65146	6.95643
	B->CO (RR)	0.10325	0.64656	7.00503
sky130_osu_sc_18T_ls__addh_l	A->CO (RR)	0.10225	0.74078	6.95516
	B->CO (RR)	0.10597	0.73850	6.99116

Delay(ns) to CO falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__addh_1	A->CO (FF)	0.08867	0.67291	7.17777
	B->CO (FF)	0.09536	0.68806	7.20796
sky130_osu_sc_18T_ls__addh_l	A->CO (FF)	0.08767	0.69867	6.63791
	B->CO (FF)	0.09405	0.71371	6.66811

Delay(ns) to CON rising (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_18T_ls__addh_1	A->CON (RR)	B	0.13911	0.53818	3.54569
	A->CON (FR)	!B	0.08601	0.93614	11.36220
	B->CON (RR)	A	0.14289	0.53309	3.59313
	B->CON (FR)	!A	0.10779	0.94384	11.10420
sky130_osu_sc_18T_ls__addh_l	A->CON (RR)	B	0.12414	0.51280	3.51527
	A->CON (FR)	!B	0.07599	0.92778	11.40540
	B->CON (RR)	A	0.12794	0.50984	3.55215
	B->CON (FR)	!A	0.09776	0.93545	11.14580

Delay(ns) to CON falling (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_18T_ls__addh_1	A->CON (FF)	B	0.13189	0.70738	6.02102
	A->CON (RF)	!B	0.05216	0.62449	7.64425
	B->CON (FF)	A	0.13076	0.74457	6.42380
	B->CON (RF)	!A	0.06183	0.60884	7.25546
sky130_osu_sc_18T_ls__addh_l	A->CON (FF)	B	0.11952	0.67596	5.86519
	A->CON (RF)	!B	0.04825	0.62161	7.67468
	B->CON (FF)	A	0.11841	0.71356	6.26911
	B->CON (RF)	!A	0.05803	0.60619	7.28471

Delay(ns) to S rising (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_18T_ls__addh_1	A->S (RR)	!B	0.10498	1.66361	25.43170
	A->S (FR)	B	0.18496	1.72178	23.44230
	B->S (RR)	!A	0.11450	1.59698	24.12920
	B->S (FR)	A	0.18482	1.80973	24.77170
	CON->S (FR)	-	0.03422	0.80611	12.01130
sky130_osu_sc_18T_ls__addh_l	A->S (RR)	!B	0.10625	1.53144	19.40780
	A->S (FR)	B	0.17803	1.57150	17.40170
	B->S (RR)	!A	0.11608	1.48169	18.58250
	B->S (FR)	A	0.17772	1.64311	18.25770
	CON->S (FR)	-	0.03966	0.92374	12.09280

Delay(ns) to S falling (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_18T_ls__addh_1	A->S (FF)	!B	0.12519	1.93739	29.59610
	A->S (RF)	B	0.17372	1.27655	16.42800
	B->S (FF)	!A	0.14698	1.95115	29.37990
	B->S (RF)	A	0.17747	1.27118	16.46930
	CON->S (RF)	-	0.02248	0.58926	8.78031
sky130_osu_sc_18T_ls__addh_l	A->S (FF)	!B	0.11912	1.67152	21.17310
	A->S (RF)	B	0.16142	1.11191	11.28430
	B->S (FF)	!A	0.14094	1.68080	20.92350
	B->S (RF)	A	0.16521	1.10936	11.31880
	CON->S (RF)	-	0.02530	0.62856	8.28441

Power Information

Internal switching power(pJ) to CO rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__addh_1	A	0.00000	0.00000	0.00000
	A	0.00923	0.00908	0.01553
	B	0.00000	0.00000	0.00000
	B	0.00821	0.00783	0.01468
sky130_osu_sc_18T_ls__addh_l	A	0.00000	0.00000	0.00000
	A	0.00751	0.00727	0.01608
	B	0.00000	0.00000	0.00000
	B	0.00649	0.00606	0.01462

Internal switching power(pJ) to CO falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__addh_1	A	0.00000	0.00000	0.00000
	A	0.01456	0.01440	0.02427
	B	0.00000	0.00000	0.00000
	B	0.01510	0.01572	0.02617
sky130_osu_sc_18T_ls__addh_l	A	0.00000	0.00000	0.00000
	A	0.01284	0.01265	0.02229
	B	0.00000	0.00000	0.00000
	B	0.01339	0.01383	0.02372

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

Cell Name	Input	When	Power(pJ)		
			first	mid	last
sky130_osu_sc_18T_ls__addh_1	A	B	0.00000	0.00000	0.00000
	A	B	0.00923	0.00909	0.01640
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.01272	0.01297	0.01641
	B	A	0.00000	0.00000	0.00000
	B	A	0.00820	0.00785	0.01589
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01442	0.01445	0.01685
sky130_osu_sc_18T_ls__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.00751	0.00729	0.01579
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.01159	0.01172	0.01432
	B	A	0.00000	0.00000	0.00000
	B	A	0.00648	0.00602	0.01441
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01328	0.01320	0.01474

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

Cell Name	Input	When	Power(pJ)		
			first	mid	last
sky130_osu_sc_18T_ls__addh_1	A	B	0.00000	0.00000	0.00000
	A	B	0.01456	0.01443	0.02379
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00180	0.00188	0.00423
	B	A	0.00000	0.00000	0.00000
	B	A	0.01510	0.01569	0.02613
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00319	0.00310	0.00499
sky130_osu_sc_18T_ls__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.01284	0.01267	0.02246
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00032	0.00032	0.00189
	B	A	0.00000	0.00000	0.00000
	B	A	0.01338	0.01382	0.02383
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00171	0.00154	0.00297

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

Cell Name	Input	When	Power(pJ)		
			first	mid	last
sky130_osu_sc_18T_ls__addh_1	A	B	0.00000	0.00000	0.00000
	A	B	0.01457	0.01442	0.02432
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00182	0.00201	0.00449
	B	A	0.00000	0.00000	0.00000
	B	A	0.01511	0.01576	0.02642
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00321	0.00317	0.00525
sky130_osu_sc_18T_ls__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.01285	0.01267	0.02289
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00033	0.00033	0.00219
	B	A	0.00000	0.00000	0.00000
	B	A	0.01339	0.01385	0.02377
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00173	0.00155	0.00280

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

Cell Name	Input	When	Power(pJ)		
			first	mid	last
sky130_osu_sc_18T_ls__addh_1	A	B	0.00000	0.00000	0.00000
	A	B	0.00923	0.00911	0.01561
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.01273	0.01310	0.01727
	B	A	0.00000	0.00000	0.00000
	B	A	0.00821	0.00786	0.01456
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01445	0.01463	0.01799
sky130_osu_sc_18T_ls__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.00751	0.00727	0.01634
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.01159	0.01176	0.01427
	B	A	0.00000	0.00000	0.00000
	B	A	0.00650	0.00601	0.01491
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01328	0.01322	0.01482

SKY130_OSU_SC_18T_LS__AND2x

sky130_osu_sc_18T_ls_tt_1P89_25C.ccs
Cell Library: Process , Voltage 1.89,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__and2_1	12.45420
sky130_osu_sc_18T_ls__and2_2	15.38460
sky130_osu_sc_18T_ls__and2_4	21.24540
sky130_osu_sc_18T_ls__and2_6	27.10620
sky130_osu_sc_18T_ls__and2_8	32.96700
sky130_osu_sc_18T_ls__and2_l	12.45420

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	B	Y
sky130_osu_sc_18T_ls__and2_1	0.00582	0.00593	2.69473
sky130_osu_sc_18T_ls__and2_2	0.00582	0.00593	5.21880
sky130_osu_sc_18T_ls__and2_4	0.00583	0.00594	9.90328
sky130_osu_sc_18T_ls__and2_6	0.00586	0.00594	14.50195
sky130_osu_sc_18T_ls__and2_8	0.00584	0.00595	18.85820
sky130_osu_sc_18T_ls__and2_l	0.00444	0.00455	1.86482

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__and2_1	0.00000	0.00307	0.00476
sky130_osu_sc_18T_ls__and2_2	0.00000	0.00476	0.00547
sky130_osu_sc_18T_ls__and2_4	0.00000	0.00815	0.00880
sky130_osu_sc_18T_ls__and2_6	0.00000	0.01154	0.01284
sky130_osu_sc_18T_ls__and2_8	0.00000	0.01492	0.01689
sky130_osu_sc_18T_ls__and2_l	0.00000	0.00195	0.00304

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__and2_1	A->Y (RR)	0.07629	0.57859	6.69934
	B->Y (RR)	0.08084	0.58117	6.65464
sky130_osu_sc_18T_ls__and2_2	A->Y (RR)	0.08792	0.53195	6.75741
	B->Y (RR)	0.09250	0.52875	6.71190
sky130_osu_sc_18T_ls__and2_4	A->Y (RR)	0.12068	0.55515	7.02031
	B->Y (RR)	0.12524	0.54273	6.97393
sky130_osu_sc_18T_ls__and2_6	A->Y (RR)	0.15162	0.59628	7.25290
	B->Y (RR)	0.15610	0.57766	7.19935
sky130_osu_sc_18T_ls__and2_8	A->Y (RR)	0.18291	0.64256	7.53411
	B->Y (RR)	0.18743	0.62103	7.47758
sky130_osu_sc_18T_ls__and2_l	A->Y (RR)	0.08453	0.65428	6.72855
	B->Y (RR)	0.08939	0.65621	6.68864

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__and2_1	**A->Y (FF)**	0.06883	0.59637	6.64232
	B->Y (FF)	0.07331	0.61106	6.70484
sky130_osu_sc_18T_ls__and2_2	**A->Y (FF)**	0.07919	0.56985	6.70096
	B->Y (FF)	0.08436	0.58397	6.76690
sky130_osu_sc_18T_ls__and2_4	**A->Y (FF)**	0.10869	0.60201	6.93257
	B->Y (FF)	0.11392	0.61157	6.99111
sky130_osu_sc_18T_ls__and2_6	**A->Y (FF)**	0.14161	0.64538	7.13532
	B->Y (FF)	0.14666	0.65349	7.18669
sky130_osu_sc_18T_ls__and2_8	**A->Y (FF)**	0.17155	0.68367	7.24666
	B->Y (FF)	0.17680	0.69130	7.29093
sky130_osu_sc_18T_ls__and2_l	**A->Y (FF)**	0.07366	0.64460	6.55139
	B->Y (FF)	0.07927	0.66116	6.62536

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__and2_1	A	0.00000	0.00000	0.00000
	A	0.00689	0.00711	0.03864
	B	0.00000	0.00000	0.00000
	B	0.00699	0.00637	0.02720
sky130_osu_sc_18T_ls__and2_2	A	0.00000	0.00000	0.00000
	A	0.01403	0.01452	0.04463
	B	0.00000	0.00000	0.00000
	B	0.01417	0.01405	0.03407
sky130_osu_sc_18T_ls__and2_4	A	0.00000	0.00000	0.00000
	A	0.02939	0.03065	0.05813
	B	0.00000	0.00000	0.00000
	B	0.02953	0.03057	0.04921
sky130_osu_sc_18T_ls__and2_6	A	0.00000	0.00000	0.00000
	A	0.04526	0.04697	0.07479
	B	0.00000	0.00000	0.00000
	B	0.04549	0.04651	0.06712
sky130_osu_sc_18T_ls__and2_8	A	0.00000	0.00000	0.00000
	A	0.06160	0.06274	0.09169
	B	0.00000	0.00000	0.00000
	B	0.06149	0.06380	0.08438
sky130_osu_sc_18T_ls__and2_l	A	0.00000	0.00000	0.00000
	A	0.00503	0.00514	0.02788
	B	0.00000	0.00000	0.00000
	B	0.00515	0.00462	0.02025

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__and2_1	A	0.00000	0.00000	0.00000
	A	0.01743	0.01932	0.04653
	B	0.00000	0.00000	0.00000
	B	0.01964	0.02102	0.04678
sky130_osu_sc_18T_ls__and2_2	A	0.00000	0.00000	0.00000
	A	0.02230	0.02487	0.05211
	B	0.00000	0.00000	0.00000
	B	0.02454	0.02655	0.05227
sky130_osu_sc_18T_ls__and2_4	A	0.00000	0.00000	0.00000
	A	0.03471	0.03793	0.06548
	B	0.00000	0.00000	0.00000
	B	0.03692	0.03966	0.06512
sky130_osu_sc_18T_ls__and2_6	A	0.00000	0.00000	0.00000
	A	0.04690	0.05116	0.07910
	B	0.00000	0.00000	0.00000
	B	0.04917	0.05280	0.07804
sky130_osu_sc_18T_ls__and2_8	A	0.00000	0.00000	0.00000
	A	0.06057	0.06425	0.09326
	B	0.00000	0.00000	0.00000
	B	0.06289	0.06541	0.09067
sky130_osu_sc_18T_ls__and2_l	A	0.00000	0.00000	0.00000
	A	0.01335	0.01462	0.03385
	B	0.00000	0.00000	0.00000
	B	0.01502	0.01596	0.03455

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__and2_1	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00681	-0.00687	-0.00686
sky130_osu_sc_18T_ls__and2_2	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00681	-0.00687	-0.00686
sky130_osu_sc_18T_ls__and2_4	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00681	-0.00687	-0.00685
sky130_osu_sc_18T_ls__and2_6	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00684	-0.00690	-0.00689
sky130_osu_sc_18T_ls__and2_8	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00681	-0.00687	-0.00685
sky130_osu_sc_18T_ls__and2_l	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00494	-0.00497	-0.00497

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__and2_1	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00684	0.00689	0.00688
sky130_osu_sc_18T_ls__and2_2	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00684	0.00689	0.00688
sky130_osu_sc_18T_ls__and2_4	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00684	0.00689	0.00688
sky130_osu_sc_18T_ls__and2_6	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00687	0.00692	0.00691
sky130_osu_sc_18T_ls__and2_8	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00684	0.00689	0.00688
sky130_osu_sc_18T_ls__and2_l	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00495	0.00499	0.00498

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__and2_1	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00648	-0.00653	-0.00648
sky130_osu_sc_18T_ls__and2_2	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00648	-0.00653	-0.00649
sky130_osu_sc_18T_ls__and2_4	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00646	-0.00653	-0.00649
sky130_osu_sc_18T_ls__and2_6	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00646	-0.00652	-0.00648
sky130_osu_sc_18T_ls__and2_8	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00646	-0.00653	-0.00649
sky130_osu_sc_18T_ls__and2_l	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00469	-0.00472	-0.00469

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__and2_1	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00652	0.00653	0.00650
sky130_osu_sc_18T_ls__and2_2	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00651	0.00653	0.00650
sky130_osu_sc_18T_ls__and2_4	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00652	0.00653	0.00650
sky130_osu_sc_18T_ls__and2_6	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00651	0.00653	0.00650
sky130_osu_sc_18T_ls__and2_8	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00652	0.00653	0.00650
sky130_osu_sc_18T_ls__and2_l	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00471	0.00473	0.00471

SKY130_OSU_SC_18T_LS__AOI21

sky130_osu_sc_18T_ls_tt_1P89_25C.ccs
Cell Library: Process , Voltage 1.89,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__aoi21_l	12.45420

Pin Capacitance Information

Cell Name	Pin Cap(pf)			Max Cap(pf)
	A0	A1	B0	Y
sky130_osu_sc_18T_ls__aoi21_l	0.00553	0.00573	0.00556	1.28844

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__aoi21_l	0.00000	0.00134	0.00202

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__aoi21_l	A0->Y (FR)	0.08513	0.93539	11.01290
	A1->Y (FR)	0.07281	0.88953	10.61820
	B0->Y (FR)	0.06144	0.93095	11.40520

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__aoi21_l	A0->Y (RF)	0.04892	0.55119	6.47942
	A1->Y (RF)	0.04445	0.57811	6.93116
	B0->Y (RF)	0.03041	0.56471	6.98115

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__aoi21_l	A0	0.00000	0.00000	0.00000
	A0	0.01596	0.01582	0.01803
	A1	0.00000	0.00000	0.00000
	A1	0.01350	0.01334	0.01568
	B0	0.00950	0.00972	0.01364

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__aoi21_l	A0	0.00000	0.00000	0.00000
	A0	0.00292	0.00241	0.00493
	A1	0.00000	0.00000	0.00000
	A1	0.00295	0.00259	0.00598
	B0	-0.00181	-0.00173	0.00133

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__aoi21_l	(A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * !Y)	-0.00572	-0.00607	-0.00606
	(!A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !Y)	-0.00614	-0.00616	-0.00616
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00615	-0.00619	-0.00616

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__aoi21_l	(A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * !Y)	0.00603	0.00610	0.00606
	(!A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !Y)	0.00614	0.00616	0.00618
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00619	0.00622	0.00618

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__aoi21_l	(A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * B0 * !Y)	-0.00569	-0.00602	-0.00600
	(!A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !Y)	-0.00608	-0.00612	-0.00609
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	-0.00653	-0.00658	-0.00658

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__aoi21_l	(A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * B0 * !Y)	0.00596	0.00603	0.00600
	(!A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !Y)	0.00608	0.00615	0.00611
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	0.00656	0.00663	0.00660

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__aoi21_l	(A0 * A1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !Y)	-0.00270	-0.00272	-0.00271

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__aoi21_l	(A0 * A1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !Y)	0.00295	0.00296	0.00278

SKY130_OSU_SC_18T_LS__AOI22

sky130_osu_sc_18T_ls_tt_1P89_25C.ccs
Cell Library: Process , Voltage 1.89,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__aoi22_1	15.38460

Pin Capacitance Information

Cell Name	Pin Cap(pf)				Max Cap(pf)
	A0	A1	B0	B1	Y
sky130_osu_sc_18T_ls__aoi22_1	0.00553	0.00573	0.00592	0.00569	1.23177

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__aoi22_1	0.00000	0.00187	0.00404

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__aoi22_l	A0->Y (FR)	0.10789	0.96211	10.91860
	A1->Y (FR)	0.09607	0.93261	10.71700
	B0->Y (FR)	0.06498	0.92063	11.10030
	B1->Y (FR)	0.07684	0.95286	11.37490

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__aoi22_l	A0->Y (RF)	0.06504	0.56063	6.31829
	A1->Y (RF)	0.06065	0.58823	6.76682
	B0->Y (RF)	0.03312	0.55553	6.73782
	B1->Y (RF)	0.03758	0.52819	6.29112

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__aoi22_l	A0	0.01975	0.01954	0.02174
	A1	0.01732	0.01681	0.01927
	B0	0.01032	0.01056	0.01567
	B1	0.01534	0.01533	0.01989

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__aoi22_l	A0	0.00642	0.00585	0.00848
	A1	0.00648	0.00598	0.00961
	B0	-0.00117	-0.00111	0.00260
	B1	-0.00102	-0.00120	0.00158

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__aoi22_l	(A1 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * B1 * !Y)	-0.00580	-0.00606	-0.00605
	(!A1 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * B1 * !Y)	-0.00614	-0.00616	-0.00616
	(!A1 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !B1 * Y)	-0.00614	-0.00619	-0.00616
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00614	-0.00619	-0.00616

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__aoi22_l	(A1 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * B1 * !Y)	0.00602	0.00609	0.00605
	(!A1 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * B1 * !Y)	0.00614	0.00616	0.00618
	(!A1 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !B1 * Y)	0.00619	0.00622	0.00618
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00619	0.00622	0.00618

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__aoi22_l	(A0 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * B0 * B1 * !Y)	-0.00574	-0.00601	-0.00599
	(!A0 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * B1 * !Y)	-0.00609	-0.00613	-0.00609
	(!A0 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !B1 * Y)	-0.00653	-0.00658	-0.00657
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	-0.00653	-0.00658	-0.00657

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__aoi22_l	(A0 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * B0 * B1 * !Y)	0.00596	0.00603	0.00599
	(!A0 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * B1 * !Y)	0.00609	0.00615	0.00611
	(!A0 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !B1 * Y)	0.00655	0.00662	0.00659
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	0.00655	0.00662	0.00659

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__aoi22_l	(A0 * A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * B1 * !Y)	-0.00271	-0.00273	-0.00272
	(A0 * A1 * !B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B1 * !Y)	-0.00271	-0.00273	-0.00271
	(!A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B1 * Y)	-0.00668	-0.00672	-0.00673
	(!A0 * A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B1 * Y)	-0.00668	-0.00672	-0.00673

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__aoi22_l	(A0 * A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * B1 * !Y)	0.00306	0.00307	0.00281
	(A0 * A1 * !B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B1 * !Y)	0.00271	0.00273	0.00271
	(!A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B1 * Y)	0.00671	0.00678	0.00674
	(!A0 * A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B1 * Y)	0.00671	0.00683	0.00674

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__aoi22_l	(A0 * A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * B0 * !Y)	-0.00273	-0.00275	-0.00274
	(A0 * A1 * !B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B0 * !Y)	-0.00272	-0.00274	-0.00273
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00624	-0.00628	-0.00625
	(!A0 * A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B0 * Y)	-0.00624	-0.00625	-0.00625

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__aoi22_l	(A0 * A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * B0 * !Y)	0.00307	0.00309	0.00283
	(A0 * A1 * !B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B0 * !Y)	0.00273	0.00274	0.00273
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00629	0.00628	0.00626
	(!A0 * A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B0 * Y)	0.00629	0.00628	0.00626

SKY130_OSU_SC_18T_LS__BUFx

sky130_osu_sc_18T_ls_tt_1P89_25C.ccs
Cell Library: Process , Voltage 1.89,
Temp 25.00

Truth Table

INPUT	OUTPUT
A	Y
0	0
1	1

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__buf_1	9.52380
sky130_osu_sc_18T_ls__buf_2	12.45420
sky130_osu_sc_18T_ls__buf_4	18.31500
sky130_osu_sc_18T_ls__buf_6	24.17580
sky130_osu_sc_18T_ls__buf_8	30.03660
sky130_osu_sc_18T_ls__buf_l	9.52380

Pin Capacitance Information

Cell Name	Pin Cap(pf)	Max Cap(pf)
	A	Y
sky130_osu_sc_18T_ls__buf_1	0.00593	2.66491
sky130_osu_sc_18T_ls__buf_2	0.00593	5.20732
sky130_osu_sc_18T_ls__buf_4	0.00593	10.00314
sky130_osu_sc_18T_ls__buf_6	0.00098	1.80000
sky130_osu_sc_18T_ls__buf_8	0.00595	19.08914
sky130_osu_sc_18T_ls__buf_l	0.00459	1.85367

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__buf_1	0.00000	0.00274	0.00274
sky130_osu_sc_18T_ls__buf_2	0.00000	0.00410	0.00476
sky130_osu_sc_18T_ls__buf_4	0.00000	0.00684	0.00880
sky130_osu_sc_18T_ls__buf_6	0.00000	0.00000	0.00000
sky130_osu_sc_18T_ls__buf_8	0.00000	0.01231	0.01689
sky130_osu_sc_18T_ls__buf_l	0.00000	0.00166	0.00166

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__buf_1	**A->Y (RR)**	0.06010	0.54387	6.50694
sky130_osu_sc_18T_ls__buf_2	**A->Y (RR)**	0.06705	0.48856	6.56759
sky130_osu_sc_18T_ls__buf_4	**A->Y (RR)**	0.09028	0.49605	6.84750
sky130_osu_sc_18T_ls__buf_8	**A->Y (RR)**	0.13410	0.55979	7.26647
sky130_osu_sc_18T_ls__buf_l	**A->Y (RR)**	0.06677	0.61659	6.51913

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__buf_1	**A->Y (FF)**	0.06531	0.58332	6.58141
sky130_osu_sc_18T_ls__buf_2	**A->Y (FF)**	0.07637	0.56385	6.71484
sky130_osu_sc_18T_ls__buf_4	**A->Y (FF)**	0.10613	0.59778	6.98215
sky130_osu_sc_18T_ls__buf_8	**A->Y (FF)**	0.16883	0.68078	7.31519
sky130_osu_sc_18T_ls__buf_l	**A->Y (FF)**	0.07099	0.63467	6.52069

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__buf_1	A	0.00000	0.00000	0.00000
	A	0.00632	0.00657	0.03208
sky130_osu_sc_18T_ls__buf_2	A	0.00000	0.00000	0.00000
	A	0.01350	0.01409	0.03934
sky130_osu_sc_18T_ls__buf_4	A	0.00000	0.00000	0.00000
	A	0.02880	0.03024	0.05479
sky130_osu_sc_18T_ls__buf_8	A	0.00000	0.00000	0.00000
	A	0.05976	0.06244	0.08564
sky130_osu_sc_18T_ls__buf_l	A	0.00000	0.00000	0.00000
	A	0.00475	0.00486	0.02451

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__buf_1	A	0.00000	0.00000	0.00000
	A	0.01672	0.01839	0.04515
sky130_osu_sc_18T_ls__buf_2	A	0.00000	0.00000	0.00000
	A	0.02157	0.02377	0.05037
sky130_osu_sc_18T_ls__buf_4	A	0.00000	0.00000	0.00000
	A	0.03399	0.03671	0.06322
sky130_osu_sc_18T_ls__buf_8	A	0.00000	0.00000	0.00000
	A	0.05999	0.06256	0.08952
sky130_osu_sc_18T_ls__buf_l	A	0.00000	0.00000	0.00000
	A	0.01294	0.01399	0.03339

Passive power(pJ) for A rising :

Cell Name	Power(pJ)		
	first	mid	last
sky130_osu_sc_18T_ls__buf_6	0.00000	0.00000	0.00000
	-0.00084	-0.00085	-0.00084

Passive power(pJ) for A falling :

Cell Name	Power(pJ)		
	first	mid	last
sky130_osu_sc_18T_ls__buf_6	0.00000	0.00000	0.00000
	0.00084	0.00085	0.00084

SKY130_OSU_SC_18T_LS__DFFRx

sky130_osu_sc_18T_ls_tt_1P89_25C.ccs
Cell Library: Process , Voltage 1.89,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__dffr_1	63.73620
sky130_osu_sc_18T_ls__dffr_l	63.73620

Pin Capacitance Information

Cell Name	Pin Cap(pf)			Max Cap(pf)	
	D	RN	CK	Q	QN
sky130_osu_sc_18T_ls__dffr_1	0.00568	0.00566	0.01619	2.60229	2.59409
sky130_osu_sc_18T_ls__dffr_l	0.00568	0.00566	0.01619	1.86832	1.85173

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__dffr_1	0.00000	0.01021	0.01237
sky130_osu_sc_18T_ls__dffr_l	0.00000	0.00913	0.01129

Delay Information

Delay(ns) to Q rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__dffr_1	CK->Q (RR)	0.29227	1.35484	15.70110
	QN->Q (FR)	0.03541	0.87409	12.89670
sky130_osu_sc_18T_ls__dffr_l	CK->Q (RR)	0.28604	1.45872	15.43070
	QN->Q (FR)	0.03740	0.91946	12.58860

Delay(ns) to Q falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__dffr_1	CK->Q (RF)	0.29469	1.36656	15.93840
	QN->Q (RF)	0.02781	0.70724	10.43340
	RN->Q (FF)	0.21957	1.44507	17.87490
sky130_osu_sc_18T_ls__dffr_l	CK->Q (RF)	0.29770	1.49579	15.83290
	QN->Q (RF)	0.02830	0.71411	9.78304
	RN->Q (FF)	0.22303	1.57424	17.76430

Delay(ns) to QN rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__dffr_1	CK->QN (RR)	0.26115	0.77554	6.70227
	RN->QN (FR)	0.18605	0.85440	8.63761
sky130_osu_sc_18T_ls__dffr_l	CK->QN (RR)	0.26098	0.83474	6.73535
	RN->QN (FR)	0.18624	0.91357	8.66395

Delay(ns) to QN falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__dffr_1	**CK->QN (RF)**	0.24532	0.66685	5.01342
sky130_osu_sc_18T_ls__dffr_l	**CK->QN (RF)**	0.23503	0.68006	4.76956

Constraint Information

Constraints(ns) for D rising :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_ls__dffr_1	hold	CK (R)	-0.06712	-0.08424	-0.10523
	setup	CK (R)	0.22843	0.27337	1.10195
sky130_osu_sc_18T_ls__dffr_l	hold	CK (R)	-0.06710	-0.08437	-0.10273
	setup	CK (R)	0.22934	0.27478	1.08209

Constraints(ns) for D falling :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_ls__dffr_1	hold	CK (R)	-0.12114	-0.38368	-2.94628
	setup	CK (R)	0.15179	0.39551	3.84053
sky130_osu_sc_18T_ls__dffr_l	hold	CK (R)	-0.12415	-0.38281	-3.01709
	setup	CK (R)	0.15165	0.39551	3.84189

Constraints(ns) for D rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_ls__dffr_1	hold	CK (R)	-0.06712	-0.08424	-0.10523
	setup	CK (R)	0.22843	0.27337	1.10195
sky130_osu_sc_18T_ls__dffr_l	hold	CK (R)	-0.06710	-0.08437	-0.10273
	setup	CK (R)	0.22934	0.27478	1.08209

Constraints(ns) for D falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_ls__dffr_1	hold	CK (R)	-0.12114	-0.38368	-2.94628
	setup	CK (R)	0.15179	0.39551	3.84053
sky130_osu_sc_18T_ls__dffr_l	hold	CK (R)	-0.12415	-0.38281	-3.01709
	setup	CK (R)	0.15165	0.39551	3.84189

Constraints(ns) for RN rising :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_ls__dffr_1	recovery	CK (R)	0.19129	0.22970	1.18571
	removal	CK (R)	-0.03568	-0.04370	-0.09509
sky130_osu_sc_18T_ls__dffr_l	recovery	CK (R)	0.19045	0.23106	1.17663
	removal	CK (R)	-0.03568	-0.04370	-0.09509

Constraints(ns) for RN rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_ls__dffr_1	recovery	CK (R)	0.19129	0.22970	1.18571
	removal	CK (R)	-0.03568	-0.04370	-0.09509
sky130_osu_sc_18T_ls__dffr_l	recovery	CK (R)	0.19045	0.23106	1.17663
	removal	CK (R)	-0.03568	-0.04370	-0.09509

Constraints(ns) for RN falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_ls__dffr_1	min_pulse_width	RN ()	0.12890	0.51514	13.33370
	min_pulse_width	RN ()	0.12890	0.51514	13.33370
sky130_osu_sc_18T_ls__dffr_l	min_pulse_width	RN ()	0.12890	0.51514	13.33370
	min_pulse_width	RN ()	0.12504	0.51514	13.33370

Constraints(ns) for CK rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_ls__dffr_1	min_pulse_width	CK ()	0.13276	0.51514	13.33370
	min_pulse_width	CK ()	0.14821	0.51514	13.33370
sky130_osu_sc_18T_ls__dffr_l	min_pulse_width	CK ()	0.12504	0.51514	13.33370
	min_pulse_width	CK ()	0.14435	0.51514	13.33370

Constraints(ns) for CK falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_ls__dffr_1	min_pulse_width	CK ()	0.29884	0.51514	13.33370
	min_pulse_width	CK ()	0.12117	0.51514	13.33370
sky130_osu_sc_18T_ls__dffr_l	min_pulse_width	CK ()	0.29884	0.51514	13.33370
	min_pulse_width	CK ()	0.12117	0.51514	13.33370

Power Information

Internal switching power(pJ) to Q rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__dffr_1	CK	0.00000	0.00000	0.00000
	CK	0.01619	0.01083	0.00000
sky130_osu_sc_18T_ls__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.01425	0.01067	-0.00855

Internal switching power(pJ) to Q falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__dffr_1	CK	0.00000	0.00000	0.00000
	CK	0.01931	0.01617	0.00000
	RN	-0.00218	-0.14297	-2.32389
	RN	0.04477	0.04204	0.01385
sky130_osu_sc_18T_ls__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.01734	0.01534	0.00855
	RN	-0.00218	-0.11720	-1.66845
	RN	0.04278	0.04119	0.03471

Internal switching power(pJ) to QN rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__dffr_1	CK	0.00000	0.00000	0.00000
	CK	0.01930	0.01617	0.00000
	RN	-0.00218	-0.14270	-2.31643
	RN	0.04475	0.04208	0.01348
sky130_osu_sc_18T_ls__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.01733	0.01537	0.00864
	RN	-0.00218	-0.11657	-1.65361
	RN	0.04277	0.04118	0.03485

Internal switching power(pJ) to QN falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__dffr_1	CK	0.00000	0.00000	0.00000
	CK	0.01616	0.01079	0.00000
sky130_osu_sc_18T_ls__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.01420	0.01062	-0.00752

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__dffr_1	CK	0.00000	0.00000	0.00000
	CK	-0.00543	-0.00605	-0.00602
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.02027	0.01937	0.03967
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.00919	0.00842	0.02887
sky130_osu_sc_18T_ls__dffr_l	CK	0.00000	0.00000	0.00000
	CK	-0.00543	-0.00605	-0.00602
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.02027	0.01937	0.03967
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.00919	0.00842	0.02887

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__dffr_1	CK	0.00000	0.00000	0.00000
	CK	0.00598	0.00606	0.00602
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.03542	0.03488	0.05525
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.01652	0.01620	0.03634
sky130_osu_sc_18T_ls__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.00598	0.00606	0.00602
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.03542	0.03488	0.05525
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.01652	0.01620	0.03634

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__dffr_1	(CK * !Q * QN) + (!CK * !D * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !Q * QN) + (!CK * !D * !Q * QN)	0.00619	0.00634	0.04009
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.01773	0.01741	0.05128
sky130_osu_sc_18T_ls__dffr_l	(CK * !Q * QN) + (!CK * !D * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !Q * QN) + (!CK * !D * !Q * QN)	0.00619	0.00632	0.04009
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.01773	0.01741	0.05128

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__dffr_1	(CK * !Q * QN) + (!CK * !D * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !Q * QN) + (!CK * !D * !Q * QN)	0.01531	0.01601	0.05066
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.03355	0.03362	0.06773
sky130_osu_sc_18T_ls__dffr_l	(CK * !Q * QN) + (!CK * !D * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !Q * QN) + (!CK * !D * !Q * QN)	0.01531	0.01601	0.05066
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.03355	0.03362	0.06773

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__dffr_1	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	-0.00144	-0.00123	0.03179
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.00979	0.00818	0.04228
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	-0.00217	-0.00229	0.03089
sky130_osu_sc_18T_ls__dffr_l	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	-0.00144	-0.00123	0.03179
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.00979	0.00818	0.04214
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	-0.00217	-0.00229	0.03089

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__dffr_1	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.02371	0.02476	0.05907
	(D * RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * RN * !Q * QN)	0.05299	0.05262	0.09043
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.04086	0.04083	0.07410
	(!D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * Q * !QN)	0.05190	0.05315	0.11194
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.02773	0.02843	0.06167
sky130_osu_sc_18T_ls__dffr_l	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.02370	0.02477	0.05907
	(D * RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * RN * !Q * QN)	0.05299	0.05263	0.09043
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.04086	0.04083	0.07410
	(!D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * Q * !QN)	0.05190	0.05316	0.11194
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.02773	0.02843	0.06167

SKY130_OSU_SC_18T_LS__DFFSRx

sky130_osu_sc_18T_ls_tt_1P89_25C.ccs
Cell Library: Process , Voltage 1.89,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__dffsr_1	69.59700
sky130_osu_sc_18T_ls__dffsr_l	69.59700

Pin Capacitance Information

Cell Name	Pin Cap(pf)				Max Cap(pf)	
	D	**RN**	**SN**	**CK**	**Q**	**QN**
sky130_osu_sc_18T_ls__dffsr_1	0.00564	0.00567	0.01208	0.01647	2.72236	2.71230
sky130_osu_sc_18T_ls__dffsr_l	0.00564	0.00567	0.01207	0.01646	1.86325	1.85668

Leakage Information

Cell Name	Leakage(nW)		
	Min.	**Avg**	**Max.**
sky130_osu_sc_18T_ls__dffsr_1	0.00000	0.01076	0.01303
sky130_osu_sc_18T_ls__dffsr_l	0.00000	0.00968	0.01196

Delay Information

Delay(ns) to Q rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__dffsr_1	CK->Q (RR)	0.30244	1.35507	15.69990
	QN->Q (FR)	0.03367	0.85349	12.74050
	RN->Q (RR)	0.24170	1.30647	15.72120
	SN->Q (FR)	0.22653	1.44744	17.87530
sky130_osu_sc_18T_ls__dffsr_l	CK->Q (RR)	0.30477	1.48435	15.42270
	QN->Q (FR)	0.03732	0.91596	12.53140
	RN->Q (RR)	0.24458	1.43690	15.43300
	SN->Q (FR)	0.22911	1.57468	17.57100

Delay(ns) to Q falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__dffsr_1	CK->Q (RF)	0.33003	1.39097	16.00660
	QN->Q (RF)	0.02536	0.66566	9.90740
	RN->Q (FF)	0.22626	1.44656	17.95550
sky130_osu_sc_18T_ls__dffsr_l	CK->Q (RF)	0.33743	1.53678	15.81970
	QN->Q (RF)	0.02824	0.71172	9.75094
	RN->Q (FF)	0.23377	1.59132	17.76160

Delay(ns) to QN rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__dffsr_1	CK->QN (RR)	0.29762	0.81362	6.82033
	RN->QN (FR)	0.19440	0.86922	8.76500
sky130_osu_sc_18T_ls__dffsr_l	CK->QN (RR)	0.30032	0.87851	6.79368
	RN->QN (FR)	0.19693	0.93336	8.73194

Delay(ns) to QN falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__dffsr_1	CK->QN (RF)	0.25835	0.67986	4.99917
	RN->QN (RF)	0.19805	0.63165	5.01729
	SN->QN (FF)	0.18297	0.77329	7.16759
sky130_osu_sc_18T_ls__dffsr_l	CK->QN (RF)	0.25487	0.70914	4.82614
	RN->QN (RF)	0.19508	0.66221	4.84023
	SN->QN (FF)	0.17972	0.80020	6.98033

Constraint Information

Constraints(ns) for D rising :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_ls__dffsr_1	hold	CK (R)	-0.06995	-0.08862	-0.14824
	setup	CK (R)	0.23226	0.27206	1.20914
sky130_osu_sc_18T_ls__dffsr_l	hold	CK (R)	-0.07100	-0.09039	-0.14697
	setup	CK (R)	0.22917	0.26866	1.21241

Constraints(ns) for D falling :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_ls__dffsr_1	hold	CK (R)	-0.13819	-0.40079	-2.64625
	setup	CK (R)	0.17230	0.41375	3.90930
sky130_osu_sc_18T_ls__dffsr_l	hold	CK (R)	-0.13856	-0.40202	-2.64886
	setup	CK (R)	0.17230	0.41375	3.91009

Constraints(ns) for D rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_ls__dffsr_1	hold	CK (R)	-0.06995	-0.08862	-0.14824
	setup	CK (R)	0.23226	0.27206	1.20914
sky130_osu_sc_18T_ls__dffsr_l	hold	CK (R)	-0.07100	-0.09039	-0.14697
	setup	CK (R)	0.22917	0.26866	1.21241

Constraints(ns) for D falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_ls__dffsr_1	hold	CK (R)	-0.13819	-0.40079	-2.64625
	setup	CK (R)	0.17230	0.41375	3.90930
sky130_osu_sc_18T_ls__dffsr_l	hold	CK (R)	-0.13856	-0.40202	-2.64886
	setup	CK (R)	0.17230	0.41375	3.91009

Constraints(ns) for RN rising :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_ls__dffsr_1	recovery	CK (R)	0.17241	0.20845	1.14780
	removal	CK (R)	-0.01882	-0.02432	-0.05943
	hold	SN (R)	-0.17356	-0.34426	-1.41811
	setup	SN (R)	0.19995	0.39451	6.15438
sky130_osu_sc_18T_ls__dffsr_l	recovery	CK (R)	0.17147	0.20758	1.14695
	removal	CK (R)	-0.02269	-0.02432	-0.05943
	hold	SN (R)	-0.17021	-0.33546	-1.37605
	setup	SN (R)	0.19642	0.38795	5.98919

Constraints(ns) for RN rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_ls__dffsr_1	recovery	CK (R)	0.17241	0.20845	1.14780
	removal	CK (R)	-0.01882	-0.02432	-0.05943
	hold	SN (R)	-0.17356	-0.34426	-1.41811
	hold	SN (R)	-0.17461	-0.34670	-1.42632
	setup	SN (R)	0.19995	0.39098	5.80460
	setup	SN (R)	0.19240	0.39451	6.15438
sky130_osu_sc_18T_ls__dffsr_l	recovery	CK (R)	0.17147	0.20758	1.14695
	removal	CK (R)	-0.02269	-0.02432	-0.05943
	hold	SN (R)	-0.17228	-0.33546	-1.37605
	hold	SN (R)	-0.17021	-0.33815	-1.38587
	setup	SN (R)	0.19642	0.38347	5.70698
	setup	SN (R)	0.18287	0.38795	5.98919

Constraints(ns) for RN falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_ls__dffsr_1	min_pulse_width	RN ()	0.15207	0.51514	13.33370
	min_pulse_width	RN ()	0.15207	0.51514	13.33370
sky130_osu_sc_18T_ls__dffsr_l	min_pulse_width	RN ()	0.15207	0.51514	13.33370
	min_pulse_width	RN ()	0.14821	0.51514	13.33370

Constraints(ns) for SN rising :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_ls__dffsr_1	recovery	CK (R)	0.04428	0.08638	7.02683
	removal	CK (R)	-0.01560	-0.06549	-0.31355
sky130_osu_sc_18T_ls__dffsr_l	recovery	CK (R)	0.04358	0.08637	7.07184
	removal	CK (R)	-0.01560	-0.06549	-0.31648

Constraints(ns) for SN rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_ls__dffsr_1	recovery	CK (R)	0.04428	0.08638	7.02683
	removal	CK (R)	-0.01560	-0.06549	-0.31355
sky130_osu_sc_18T_ls__dffsr_l	recovery	CK (R)	0.04358	0.08637	7.07184
	removal	CK (R)	-0.01560	-0.06549	-0.31648

Constraints(ns) for SN falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_ls__dffsr_1	min_pulse_width	SN ()	0.18297	0.51514	13.33370
	min_pulse_width	SN ()	0.17911	0.51514	13.33370
sky130_osu_sc_18T_ls__dffsr_l	min_pulse_width	SN ()	0.18297	0.51514	13.33370
	min_pulse_width	SN ()	0.17139	0.51514	13.33370

Constraints(ns) for CK rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_ls__dffsr_1	min_pulse_width	CK ()	0.13662	0.51514	13.33370
	min_pulse_width	CK ()	0.16752	0.51514	13.33370
sky130_osu_sc_18T_ls__dffsr_l	min_pulse_width	CK ()	0.13276	0.51514	13.33370
	min_pulse_width	CK ()	0.16366	0.51514	13.33370

Constraints(ns) for CK falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_ls__dffsr_1	min_pulse_width	CK ()	0.29884	0.51514	13.33370
	min_pulse_width	CK ()	0.14435	0.51514	13.33370
sky130_osu_sc_18T_ls__dffsr_l	min_pulse_width	CK ()	0.29884	0.51514	13.33370
	min_pulse_width	CK ()	0.14435	0.51514	13.33370

Power Information

Internal switching power(pJ) to Q rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__dffsr_1	CK	0.00000	0.00000	0.00000
	CK	0.02067	0.01712	0.00000
	RN	0.03870	0.03520	-0.00583
	SN	-0.00218	-0.14690	-2.43113
	SN	0.04356	0.03956	-0.00334
sky130_osu_sc_18T_ls__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.01886	0.01535	-0.00264
	RN	0.03687	0.03343	0.00463
	SN	-0.00218	-0.11700	-1.66393
	SN	0.04173	0.03777	0.00712

Internal switching power(pJ) to Q falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__dffsr_1	CK	0.00000	0.00000	0.00000
	CK	0.02229	0.01977	0.00000
	RN	-0.00218	-0.14690	-2.43112
	RN	0.04590	0.04353	0.02143
sky130_osu_sc_18T_ls__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.02049	0.01865	0.01265
	RN	-0.00218	-0.11700	-1.66392
	RN	0.04405	0.04243	0.03666

Internal switching power(pJ) to QN rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__dffsr_1	CK	0.00000	0.00000	0.00000
	CK	0.02228	0.01978	0.00000
	RN	-0.00218	-0.14657	-2.42210
	RN	0.04589	0.04353	0.02107
sky130_osu_sc_18T_ls__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.02048	0.01865	0.01396
	RN	-0.00218	-0.11676	-1.65803
	RN	0.04405	0.04238	0.03651

Internal switching power(pJ) to QN falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__dffsr_1	CK	0.00000	0.00000	0.00000
	CK	0.02062	0.01710	0.00000
	RN	0.03864	0.03522	-0.00569
	SN	-0.00218	-0.14657	-2.42197
	SN	0.04351	0.03953	-0.00249
sky130_osu_sc_18T_ls__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.01880	0.01534	-0.00282
	RN	0.03681	0.03336	0.00456
	SN	-0.00218	-0.11676	-1.65793
	SN	0.04168	0.03771	0.00734

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__dffsr_1	CK	0.00000	0.00000	0.00000
	CK	-0.00585	-0.00606	-0.00602
	(!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)	0.02646	0.02557	0.04569
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.01052	0.00976	0.03004
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.01046	0.00970	0.02996
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.01058	0.00982	0.03011
sky130_osu_sc_18T_ls__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	-0.00586	-0.00606	-0.00602
	(!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)	0.02646	0.02559	0.04569
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.01053	0.00976	0.03004
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.01046	0.00970	0.02996
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.01058	0.00982	0.03011

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__dffsr_1	CK	0.00000	0.00000	0.00000
	CK	0.00604	0.00606	0.00602
	(!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)	0.04017	0.03958	0.05904
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.01746	0.01718	0.03697
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.01751	0.01723	0.03698
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.01739	0.01712	0.03690
sky130_osu_sc_18T_ls__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.00604	0.00606	0.00602
	(!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)	0.04015	0.03956	0.05903
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.01745	0.01717	0.03696
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.01750	0.01722	0.03697
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.01738	0.01711	0.03689

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__dffsr_1	(CK * SN * !Q * QN) + (!CK * !D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * SN * !Q * QN) + (!CK * !D * SN * !Q * QN)	0.00490	0.00483	0.03852
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.02117	0.02053	0.05413
sky130_osu_sc_18T_ls__dffsr_l	(CK * SN * !Q * QN) + (!CK * !D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * SN * !Q * QN) + (!CK * !D * SN * !Q * QN)	0.00490	0.00484	0.03853
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.02117	0.02053	0.05414

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__dffsr_1	(CK * SN * !Q * QN) + (!CK * !D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * SN * !Q * QN) + (!CK * !D * SN * !Q * QN)	0.01647	0.01735	0.05227
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.03551	0.03547	0.06976
sky130_osu_sc_18T_ls__dffsr_l	(CK * SN * !Q * QN) + (!CK * !D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * SN * !Q * QN) + (!CK * !D * SN * !Q * QN)	0.01645	0.01734	0.05226
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.03549	0.03545	0.06975

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__dffsr_1	(CK * RN * Q * !QN) + (!CK * D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(CK * RN * Q * !QN) + (!CK * D * RN * Q * !QN)	-0.01353	-0.01351	-0.01362
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	-0.01351	-0.01392	-0.01392
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	-0.01325	-0.01349	-0.01344
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.00876	0.00820	0.03069
sky130_osu_sc_18T_ls__dffsr_l	(CK * RN * Q * !QN) + (!CK * D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(CK * RN * Q * !QN) + (!CK * D * RN * Q * !QN)	-0.01353	-0.01352	-0.01362
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	-0.01349	-0.01389	-0.01390
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	-0.01324	-0.01349	-0.01343
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.00877	0.00821	0.03070

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__dffsr_1	(CK * RN * Q * !QN) + (!CK * D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(CK * RN * Q * !QN) + (!CK * D * RN * Q * !QN)	0.01358	0.01372	0.01366
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.01384	0.01396	0.01392
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	0.01340	0.01354	0.01345
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.02745	0.02683	0.04598
sky130_osu_sc_18T_ls__dffsr_l	(CK * RN * Q * !QN) + (!CK * D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(CK * RN * Q * !QN) + (!CK * D * RN * Q * !QN)	0.01358	0.01372	0.01366
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.01382	0.01393	0.01390
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	0.01339	0.01353	0.01345
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.02743	0.02683	0.04601

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__dffsr_1	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	-0.00144	-0.00125	0.03180
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.01104	0.00952	0.04351
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.01094	0.00938	0.04345
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	-0.00188	-0.00198	0.03123
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.00733	0.00669	0.06996
sky130_osu_sc_18T_ls__dffsr_l	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	-0.00144	-0.00125	0.03180
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.01103	0.00951	0.04348
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.01093	0.00936	0.04344
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	-0.00188	-0.00198	0.03123
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.00733	0.00677	0.06996

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

Cell Name	When	Power(pJ)		
		first	mid	last

sky130_osu_sc_18T_ls__dffsr_1	**(D * RN * SN * !Q * QN)**	0.00000	0.00000	0.00000
	(D * RN * SN * !Q * QN)	0.05928	0.05892	0.09662
	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.02377	0.02483	0.05913
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.04178	0.04184	0.07503
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.04189	0.04185	0.07528
	(!D * RN * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * Q * !QN)	0.05657	0.05750	0.11598
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.02750	0.02820	0.06144
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.03184	0.03343	0.09734
sky130_osu_sc_18T_ls__dffsr_l	**(D * RN * SN * !Q * QN)**	0.00000	0.00000	0.00000
	(D * RN * SN * !Q * QN)	0.05928	0.05893	0.09662
	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.02377	0.02483	0.05913
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.04178	0.04184	0.07503
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.04189	0.04185	0.07528
	(!D * RN * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * Q * !QN)	0.05656	0.05749	0.11597
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.02750	0.02820	0.06144
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.03182	0.03343	0.09733

SKY130_OSU_SC_18T_LS__DFFSx

sky130_osu_sc_18T_ls_tt_1P89_25C.ccs
Cell Library: Process , Voltage 1.89,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__dffs_1	57.87540
sky130_osu_sc_18T_ls__dffs_l	57.87540

Pin Capacitance Information

Cell Name	Pin Cap(pf)			Max Cap(pf)	
	D	SN	CK	Q	QN
sky130_osu_sc_18T_ls__dffs_1	0.00567	0.00950	0.01623	2.62083	2.61886
sky130_osu_sc_18T_ls__dffs_l	0.00567	0.00950	0.01623	1.86181	1.85961

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__dffs_1	0.00000	0.00965	0.01232
sky130_osu_sc_18T_ls__dffs_l	0.00000	0.00858	0.01124

Delay Information

Delay(ns) to Q rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__dffs_1	CK->Q (RR)	0.22336	1.27351	15.65600
	QN->Q (FR)	0.03528	0.86921	12.84710
	SN->Q (FR)	0.17577	1.43119	17.81560
sky130_osu_sc_18T_ls__dffs_l	CK->Q (RR)	0.22252	1.38061	15.25660
	QN->Q (FR)	0.03723	0.91367	12.48680
	SN->Q (FR)	0.17418	1.53031	17.38030

Delay(ns) to Q falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__dffs_1	CK->Q (RF)	0.32375	1.40230	16.01360
	QN->Q (RF)	0.02759	0.70621	10.42580
sky130_osu_sc_18T_ls__dffs_l	CK->Q (RF)	0.32508	1.52305	15.75690
	QN->Q (RF)	0.02813	0.70802	9.72477

Delay(ns) to QN rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__dffs_1	CK->QN (RR)	0.28932	0.81048	6.75917
sky130_osu_sc_18T_ls__dffs_l	CK->QN (RR)	0.28752	0.86579	6.76449

Delay(ns) to QN falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__dffs_1	CK->QN (RF)	0.18060	0.58840	4.96175
	SN->QN (FF)	0.13264	0.74559	7.11282
sky130_osu_sc_18T_ls__dffs_l	CK->QN (RF)	0.17570	0.60855	4.69989
	SN->QN (FF)	0.12713	0.75837	6.82205

Constraint Information

Constraints(ns) for D rising :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_ls__dffs_1	hold	CK (R)	-0.04767	-0.06802	-0.07609
	setup	CK (R)	0.15761	0.20866	0.97141
sky130_osu_sc_18T_ls__dffs_l	hold	CK (R)	-0.05058	-0.06883	-0.07569
	setup	CK (R)	0.15742	0.20918	0.95824

Constraints(ns) for D falling :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_ls__dffs_1	hold	CK (R)	-0.12190	-0.38607	-3.31324
	setup	CK (R)	0.16320	0.39704	3.85149
sky130_osu_sc_18T_ls__dffs_l	hold	CK (R)	-0.12322	-0.38607	-3.32663
	setup	CK (R)	0.16320	0.39704	3.85160

Constraints(ns) for D rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_ls__dffs_1	hold	CK (R)	-0.04767	-0.06802	-0.07609
	setup	CK (R)	0.15761	0.20866	0.97141
sky130_osu_sc_18T_ls__dffs_l	hold	CK (R)	-0.05058	-0.06883	-0.07569
	setup	CK (R)	0.15742	0.20918	0.95824

Constraints(ns) for D falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_ls__dffs_1	hold	CK (R)	-0.12190	-0.38607	-3.31324
	setup	CK (R)	0.16320	0.39704	3.85149
sky130_osu_sc_18T_ls__dffs_l	hold	CK (R)	-0.12322	-0.38607	-3.32663
	setup	CK (R)	0.16320	0.39704	3.85160

Constraints(ns) for SN rising :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_ls__dffs_1	recovery	CK (R)	0.04529	0.08194	5.85483
	removal	CK (R)	-0.01962	-0.05915	-0.32469
sky130_osu_sc_18T_ls__dffs_l	recovery	CK (R)	0.04503	0.08187	5.69526
	removal	CK (R)	-0.01962	-0.05915	-0.32469

Constraints(ns) for SN rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_ls__dffs_1	recovery	CK (R)	0.04529	0.08194	5.85483
	removal	CK (R)	-0.01962	-0.05915	-0.32469
sky130_osu_sc_18T_ls__dffs_l	recovery	CK (R)	0.04503	0.08187	5.69526
	removal	CK (R)	-0.01962	-0.05915	-0.32469

Constraints(ns) for SN falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_ls__dffs_1	min_pulse_width	SN ()	0.11731	0.51514	13.33370
	min_pulse_width	SN ()	0.12117	0.51514	13.33370
sky130_osu_sc_18T_ls__dffs_l	min_pulse_width	SN ()	0.11731	0.51514	13.33370
	min_pulse_width	SN ()	0.11345	0.51514	13.33370

Constraints(ns) for CK rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_ls__dffs_1	min_pulse_width	CK ()	0.09414	0.51514	13.33370
	min_pulse_width	CK ()	0.15980	0.51514	13.33370
sky130_osu_sc_18T_ls__dffs_l	min_pulse_width	CK ()	0.09027	0.51514	13.33370
	min_pulse_width	CK ()	0.15207	0.51514	13.33370

Constraints(ns) for CK falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_ls__dffs_1	min_pulse_width	CK ()	0.22546	0.51514	13.33370
	min_pulse_width	CK ()	0.13662	0.51514	13.33370
sky130_osu_sc_18T_ls__dffs_l	min_pulse_width	CK ()	0.22546	0.51514	13.33370
	min_pulse_width	CK ()	0.13662	0.51514	13.33370

Power Information

Internal switching power(pJ) to Q rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__dffs_1	CK	0.00000	0.00000	0.00000
	CK	0.01622	0.01074	0.00000
	SN	-0.00218	-0.14358	-2.34046
	SN	0.03643	0.03119	-0.03529
sky130_osu_sc_18T_ls__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.01426	0.01063	-0.00663
	SN	-0.00218	-0.11695	-1.66265
	SN	0.03447	0.03103	0.00447

Internal switching power(pJ) to Q falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__dffs_1	CK	0.00000	0.00000	0.00000
	CK	0.01917	0.01627	0.00000
sky130_osu_sc_18T_ls__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.01721	0.01534	0.01037

Internal switching power(pJ) to QN rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__dffs_1	CK	0.00000	0.00000	0.00000
	CK	0.01917	0.01629	0.00000
sky130_osu_sc_18T_ls__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.01721	0.01536	0.01160

Internal switching power(pJ) to QN falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__dffs_1	CK	0.00000	0.00000	0.00000
	CK	0.01617	0.01086	0.00000
	SN	-0.00218	-0.14352	-2.33839
	SN	0.03639	0.03114	-0.03263
sky130_osu_sc_18T_ls__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.01420	0.01075	-0.00685
	SN	-0.00218	-0.11687	-1.66054
	SN	0.03442	0.03096	0.00398

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__dffs_1	CK	0.00000	0.00000	0.00000
	CK	-0.00592	-0.00612	-0.00608
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.01935	0.01835	0.03894
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.00897	0.00822	0.02870
sky130_osu_sc_18T_ls__dffs_l	CK	0.00000	0.00000	0.00000
	CK	-0.00592	-0.00612	-0.00608
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.01935	0.01835	0.03894
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.00897	0.00822	0.02870

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__dffs_1	CK	0.00000	0.00000	0.00000
	CK	0.00610	0.00612	0.00608
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.03442	0.03381	0.05393
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.01679	0.01647	0.03668
sky130_osu_sc_18T_ls__dffs_1	CK	0.00000	0.00000	0.00000
	CK	0.00610	0.00612	0.00608
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.03442	0.03381	0.05393
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.01679	0.01647	0.03668

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__dffs_1	(CK * Q * !QN) + (!CK * D * Q * !QN)	0.00000	0.00000	0.00000
	(CK * Q * !QN) + (!CK * D * Q * !QN)	-0.00984	-0.00993	-0.00991
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.00742	0.00730	0.02812
sky130_osu_sc_18T_ls__dffs_1	(CK * Q * !QN) + (!CK * D * Q * !QN)	0.00000	0.00000	0.00000
	(CK * Q * !QN) + (!CK * D * Q * !QN)	-0.00984	-0.00993	-0.00991
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.00742	0.00730	0.02811

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__dffs_1	(CK * Q * !QN) + (!CK * D * Q * !QN)	0.00000	0.00000	0.00000
	(CK * Q * !QN) + (!CK * D * Q * !QN)	0.00992	0.01000	0.00994
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.01859	0.01895	0.04031
sky130_osu_sc_18T_ls__dffs_l	(CK * Q * !QN) + (!CK * D * Q * !QN)	0.00000	0.00000	0.00000
	(CK * Q * !QN) + (!CK * D * Q * !QN)	0.00992	0.01000	0.00994
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.01859	0.01895	0.04031

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__dffs_1	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	-0.00146	-0.00124	0.03181
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	-0.00204	-0.00216	0.03107
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.00571	0.00520	0.06911
sky130_osu_sc_18T_ls__dffs_l	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	-0.00146	-0.00124	0.03181
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	-0.00204	-0.00216	0.03107
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.00571	0.00520	0.06911

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__dffs_1	(D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * SN * !Q * QN)	0.05202	0.05168	0.09031
	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.02371	0.02478	0.05912
	(!D * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * SN * Q * !QN)	0.05074	0.05168	0.11044
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	0.02758	0.02828	0.06156
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.03104	0.03271	0.09736
sky130_osu_sc_18T_ls__dffs_l	(D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * SN * !Q * QN)	0.05202	0.05168	0.09031
	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.02371	0.02479	0.05912
	(!D * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * SN * Q * !QN)	0.05074	0.05170	0.11044
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	0.02758	0.02829	0.06156
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.03104	0.03274	0.09736

SKY130_OSU_SC_18T_LS__DFFx

sky130_osu_sc_18T_ls_tt_1P89_25C.ccs
Cell Library: Process , Voltage 1.89,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__dff_1	48.35160
sky130_osu_sc_18T_ls__dff_l	48.35160

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)	
	D	CK	Q	QN
sky130_osu_sc_18T_ls__dff_1	0.00582	0.01618	2.73300	2.72092
sky130_osu_sc_18T_ls__dff_l	0.00582	0.01618	1.83421	1.82988

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__dff_1	0.00000	0.00993	0.01086
sky130_osu_sc_18T_ls__dff_l	0.00000	0.00885	0.00978

Delay Information

Delay(ns) to Q rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__dff_1	CK->Q (RR)	0.19866	1.23212	15.58110
	QN->Q (FR)	0.03342	0.85111	12.71020
sky130_osu_sc_18T_ls__dff_l	CK->Q (RR)	0.20492	1.36265	15.10660
	QN->Q (FR)	0.03791	0.92355	12.58210

Delay(ns) to Q falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__dff_1	CK->Q (RF)	0.27672	1.33129	15.96370
	QN->Q (RF)	0.02523	0.66306	9.89502
sky130_osu_sc_18T_ls__dff_l	CK->Q (RF)	0.28591	1.47790	15.61960
	QN->Q (RF)	0.02819	0.70459	9.64283

Delay(ns) to QN rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__dff_1	CK->QN (RR)	0.24511	0.75395	6.75319
sky130_osu_sc_18T_ls__dff_l	CK->QN (RR)	0.24937	0.82341	6.71174

Delay(ns) to QN falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__dff_1	CK->QN (RF)	0.15898	0.55916	4.86549
sky130_osu_sc_18T_ls__dff_l	CK->QN (RF)	0.15882	0.59120	4.61119

Constraint Information

Constraints(ns) for D rising :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_ls__dff_1	hold	CK (R)	-0.04466	-0.06760	-0.10753
	setup	CK (R)	0.13365	0.18573	0.94994
sky130_osu_sc_18T_ls__dff_l	hold	CK (R)	-0.04771	-0.06760	-0.10838
	setup	CK (R)	0.12946	0.18467	0.95182

Constraints(ns) for D falling :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_ls__dff_1	hold	CK (R)	-0.11446	-0.38302	-3.37552
	setup	CK (R)	0.13907	0.39604	3.86461
sky130_osu_sc_18T_ls__dff_l	hold	CK (R)	-0.11630	-0.38302	-3.37447
	setup	CK (R)	0.13897	0.39604	3.86469

Constraints(ns) for CK rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_ls__dff_1	min_pulse_width	CK ()	0.08641	0.51514	13.33370
	min_pulse_width	CK ()	0.14435	0.51514	13.33370
sky130_osu_sc_18T_ls__dff_l	min_pulse_width	CK ()	0.08255	0.51514	13.33370
	min_pulse_width	CK ()	0.14049	0.51514	13.33370

Constraints(ns) for CK falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_ls__dff_1	**min_pulse_width**	**CK ()**	0.19842	0.51514	13.33370
	min_pulse_width	**CK ()**	0.10959	0.51514	13.33370
sky130_osu_sc_18T_ls__dff_l	**min_pulse_width**	**CK ()**	0.19842	0.51514	13.33370
	min_pulse_width	**CK ()**	0.10572	0.51514	13.33370

Power Information

Internal switching power(pJ) to Q rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__dff_1	CK	0.00000	0.00000	0.00000
	CK	0.01715	0.01355	0.00000
sky130_osu_sc_18T_ls__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.01534	0.01186	-0.00484

Internal switching power(pJ) to Q falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__dff_1	CK	0.00000	0.00000	0.00000
	CK	0.01957	0.01710	0.00000
sky130_osu_sc_18T_ls__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.01778	0.01579	0.00839

Internal switching power(pJ) to QN rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__dff_1	CK	0.00000	0.00000	0.00000
	CK	0.01956	0.01711	0.00000
sky130_osu_sc_18T_ls__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.01777	0.01579	0.00848

Internal switching power(pJ) to QN falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__dff_1	CK	0.00000	0.00000	0.00000
	CK	0.01711	0.01358	0.00000
sky130_osu_sc_18T_ls__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.01529	0.01176	-0.00493

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__dff_1	CK	0.00000	0.00000	0.00000
	CK	-0.00543	-0.00604	-0.00601
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.01812	0.01737	0.03790
sky130_osu_sc_18T_ls__dff_l	CK	0.00000	0.00000	0.00000
	CK	-0.00543	-0.00604	-0.00601
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.01813	0.01738	0.03790

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__dff_1	CK	0.00000	0.00000	0.00000
	CK	0.00597	0.00605	0.00601
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.03536	0.03482	0.05531
sky130_osu_sc_18T_ls__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.00597	0.00605	0.00601
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.03537	0.03480	0.05531

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__dff_1	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	-0.00147	-0.00125	0.03182
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	-0.00202	-0.00213	0.03111
sky130_osu_sc_18T_ls__dff_l	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	-0.00147	-0.00125	0.03182
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	-0.00202	-0.00213	0.03111

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__dff_1	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.02363	0.02472	0.05905
	(D * !Q * QN)	0.00000	0.00000	0.00000
	(D * !Q * QN)	0.05090	0.05065	0.08976
	(!D * Q * !QN)	0.00000	0.00000	0.00000
	(!D * Q * !QN)	0.05146	0.05267	0.11199
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.02747	0.02803	0.06145
sky130_osu_sc_18T_ls__dff_l	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.02363	0.02472	0.05905
	(D * !Q * QN)	0.00000	0.00000	0.00000
	(D * !Q * QN)	0.05091	0.05066	0.08977
	(!D * Q * !QN)	0.00000	0.00000	0.00000
	(!D * Q * !QN)	0.05147	0.05256	0.11200
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.02747	0.02802	0.06145

SKY130_OSU_SC_18T_LS__INVx

sky130_osu_sc_18T_ls_tt_1P89_25C.ccs
Cell Library: Process , Voltage 1.89,
Temp 25.00

Truth Table

INPUT	OUTPUT
A	Y
0	1
1	0

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__inv_1	6.59340
sky130_osu_sc_18T_ls__inv_10	32.96700
sky130_osu_sc_18T_ls__inv_2	9.52380
sky130_osu_sc_18T_ls__inv_3	12.45420
sky130_osu_sc_18T_ls__inv_4	15.38460
sky130_osu_sc_18T_ls__inv_6	21.24540
sky130_osu_sc_18T_ls__inv_8	27.10620
sky130_osu_sc_18T_ls__inv_l	6.59340

Pin Capacitance Information

Cell Name	Pin Cap(pf)	Max Cap(pf)
	A	Y
sky130_osu_sc_18T_ls__inv_1	0.00571	2.65067
sky130_osu_sc_18T_ls__inv_10	0.05402	23.01640
sky130_osu_sc_18T_ls__inv_2	0.01099	5.14712
sky130_osu_sc_18T_ls__inv_3	0.01640	7.42916
sky130_osu_sc_18T_ls__inv_4	0.02172	9.89976
sky130_osu_sc_18T_ls__inv_6	0.03257	14.62305
sky130_osu_sc_18T_ls__inv_8	0.04330	19.38298
sky130_osu_sc_18T_ls__inv_l	0.00434	1.80435

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__inv_1	0.00000	0.00137	0.00202
sky130_osu_sc_18T_ls__inv_10	0.00000	0.01368	0.02022
sky130_osu_sc_18T_ls__inv_2	0.00000	0.00274	0.00404
sky130_osu_sc_18T_ls__inv_3	0.00000	0.00410	0.00607
sky130_osu_sc_18T_ls__inv_4	0.00000	0.00547	0.00809
sky130_osu_sc_18T_ls__inv_6	0.00000	0.00821	0.01213
sky130_osu_sc_18T_ls__inv_8	0.00000	0.01094	0.01617
sky130_osu_sc_18T_ls__inv_l	0.00000	0.00083	0.00138

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__inv_1	**A->Y (FR)**	0.03158	0.78188	11.60020
sky130_osu_sc_18T_ls__inv_10	**A->Y (FR)**	0.05111	0.55582	11.45380
sky130_osu_sc_18T_ls__inv_2	**A->Y (FR)**	0.02673	0.68007	11.47260
sky130_osu_sc_18T_ls__inv_3	**A->Y (FR)**	0.02997	0.64461	11.56120
sky130_osu_sc_18T_ls__inv_4	**A->Y (FR)**	0.03151	0.61332	11.47580
sky130_osu_sc_18T_ls__inv_6	**A->Y (FR)**	0.03628	0.58223	11.52040
sky130_osu_sc_18T_ls__inv_8	**A->Y (FR)**	0.04324	0.56613	11.59140
sky130_osu_sc_18T_ls__inv_l	**A->Y (FR)**	0.03521	0.84866	11.51290

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__inv_1	**A->Y (RF)**	0.02249	0.58303	8.61605
sky130_osu_sc_18T_ls__inv_10	**A->Y (RF)**	0.03963	0.36708	8.30244
sky130_osu_sc_18T_ls__inv_2	**A->Y (RF)**	0.01949	0.49450	8.51097
sky130_osu_sc_18T_ls__inv_3	**A->Y (RF)**	0.02163	0.46244	8.56666
sky130_osu_sc_18T_ls__inv_4	**A->Y (RF)**	0.02215	0.43167	8.51515
sky130_osu_sc_18T_ls__inv_6	**A->Y (RF)**	0.02848	0.40072	8.51990
sky130_osu_sc_18T_ls__inv_8	**A->Y (RF)**	0.03396	0.38344	8.53487
sky130_osu_sc_18T_ls__inv_l	**A->Y (RF)**	0.02496	0.62002	8.43092

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__inv_1	A	0.00000	0.00000	0.00000
	A	0.00884	0.00827	0.01276
sky130_osu_sc_18T_ls__inv_10	A	0.00000	0.00000	0.00000
	A	0.07748	0.08549	0.12194
sky130_osu_sc_18T_ls__inv_2	A	0.00000	0.00000	0.00000
	A	0.01600	0.01740	0.02401
sky130_osu_sc_18T_ls__inv_3	A	0.00000	0.00000	0.00000
	A	0.02445	0.02656	0.03679
sky130_osu_sc_18T_ls__inv_4	A	0.00000	0.00000	0.00000
	A	0.03166	0.03311	0.04763
sky130_osu_sc_18T_ls__inv_6	A	0.00000	0.00000	0.00000
	A	0.04682	0.05176	0.07237
sky130_osu_sc_18T_ls__inv_8	A	0.00000	0.00000	0.00000
	A	0.06202	0.06960	0.09674
sky130_osu_sc_18T_ls__inv_l	A	0.00000	0.00000	0.00000
	A	0.00672	0.00694	0.00951

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__inv_1	**A**	0.00000	0.00000	0.00000
	A	-0.00214	-0.00193	0.00070
sky130_osu_sc_18T_ls__inv_10	**A**	0.00000	0.00000	0.00000
	A	-0.02936	-0.02850	0.00186
sky130_osu_sc_18T_ls__inv_2	**A**	0.00000	0.00000	0.00000
	A	-0.00637	-0.00560	-0.00024
sky130_osu_sc_18T_ls__inv_3	**A**	0.00000	0.00000	0.00000
	A	-0.00859	-0.00748	0.00082
sky130_osu_sc_18T_ls__inv_4	**A**	0.00000	0.00000	0.00000
	A	-0.01279	-0.01133	-0.00007
sky130_osu_sc_18T_ls__inv_6	**A**	0.00000	0.00000	0.00000
	A	-0.01953	-0.01716	0.00013
sky130_osu_sc_18T_ls__inv_8	**A**	0.00000	0.00000	0.00000
	A	-0.02548	-0.02256	0.00045
sky130_osu_sc_18T_ls__inv_l	**A**	0.00000	0.00000	0.00000
	A	-0.00146	-0.00133	0.00060

SKY130_OSU_SC_18T_LS__MUX2

sky130_osu_sc_18T_ls_tt_1P89_25C.ccs
Cell Library: Process , Voltage 1.89,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__mux2_1	18.31500

Pin Capacitance Information

Cell Name	Pin Cap(pf)			Max Cap(pf)
	A0	A1	S0	Y
sky130_osu_sc_18T_ls__mux2_1	0.59045	0.59081	0.01158	0.59980

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__mux2_1	0.00000	0.00381	0.00602

Delay Information

Delay(ns) to Y rising (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_18T_ls__mux2_1	A0->Y (RR)	-	0.01585	0.28109	2.81714
	A1->Y (RR)	-	0.01714	0.28159	2.81986
	S0->Y (RR)	(!A0 * A1)	0.04800	0.27593	1.13370
	S0->Y (FR)	(A0 * !A1)	0.04729	0.43153	3.76809

Delay(ns) to Y falling (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_18T_ls__mux2_1	A0->Y (FF)	-	0.01392	0.27739	2.82189
	A1->Y (FF)	-	0.01384	0.27636	2.81204
	S0->Y (FF)	(!A0 * A1)	0.06908	0.40581	2.78353
	S0->Y (RF)	(A0 * !A1)	0.02732	0.30982	2.44529

Power Information

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

Cell Name	Input	When	Power(pJ)		
			first	mid	last
sky130_osu_sc_18T_ls__mux2_1	A0	-	0.00000	0.00000	0.00000
	A0	-	-0.00917	-0.00918	-0.00919
	A1	-	0.00000	0.00000	0.00000
	A1	-	-0.00640	-0.00641	-0.00641
	S0	(A0 * !A1)	0.00000	0.00000	0.00000
	S0	(A0 * !A1)	0.01007	0.01142	0.04767
	S0	(!A0 * A1)	0.00000	0.00000	0.00000
	S0	(!A0 * A1)	-0.00644	-0.00611	0.02901

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

Cell Name	Input	When	Power(pJ)		
			first	mid	last
sky130_osu_sc_18T_ls__mux2_1	A0	-	0.00000	0.00000	0.00000
	A0	-	0.00917	0.00918	0.00919
	A1	-	0.00000	0.00000	0.00000
	A1	-	0.00640	0.00641	0.00641
	S0	(A0 * !A1)	0.00000	0.00000	0.00000
	S0	(A0 * !A1)	0.00170	0.00225	0.03805
	S0	(!A0 * A1)	0.00000	0.00000	0.00000
	S0	(!A0 * A1)	0.02385	0.02493	0.05974

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__mux2_1	(A1 * S0 * Y) + (!A1 * S0 * !Y)	0.00000	0.00000	0.00000
	(A1 * S0 * Y) + (!A1 * S0 * !Y)	-0.00233	-0.00231	-0.00232

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__mux2_1	(A1 * S0 * Y) + (!A1 * S0 * !Y)	0.00000	0.00000	0.00000
	(A1 * S0 * Y) + (!A1 * S0 * !Y)	0.00233	0.00231	0.00232

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__mux2_1	(A0 * !S0 * Y) + (!A0 * !S0 * !Y)	0.00000	0.00000	0.00000
	(A0 * !S0 * Y) + (!A0 * !S0 * !Y)	-0.00277	-0.00276	-0.00276

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__mux2_1	(A0 * !S0 * Y) + (!A0 * !S0 * !Y)	0.00000	0.00000	0.00000
	(A0 * !S0 * Y) + (!A0 * !S0 * !Y)	0.00277	0.00276	0.00276

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__mux2_1	(A0 * A1 * Y)	0.00000	0.00000	0.00000
	(A0 * A1 * Y)	-0.00243	-0.00208	0.03350
	(!A0 * !A1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !Y)	-0.00237	-0.00203	0.03366

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__mux2_1	(A0 * A1 * Y)	0.00000	0.00000	0.00000
	(A0 * A1 * Y)	0.01797	0.01885	0.05416
	(!A0 * !A1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !Y)	0.01593	0.01711	0.05330

SKY130_OSU_SC_18T_LS__NAND2x

sky130_osu_sc_18T_ls_tt_1P89_25C.ccs
Cell Library: Process , Voltage 1.89,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__nand2_1	9.52380
sky130_osu_sc_18T_ls__nand2_l	9.52380

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	B	Y
sky130_osu_sc_18T_ls__nand2_1	0.00572	0.00569	2.52266
sky130_osu_sc_18T_ls__nand2_l	0.00435	0.00433	1.78166

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__nand2_1	0.00000	0.00137	0.00404
sky130_osu_sc_18T_ls__nand2_l	0.00000	0.00085	0.00275

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__nand2_1	A->Y (FR)	0.03246	0.77625	11.36370
	B->Y (FR)	0.03834	0.77685	11.23500
sky130_osu_sc_18T_ls__nand2_l	A->Y (FR)	0.03607	0.85068	11.49430
	B->Y (FR)	0.04307	0.85308	11.44140

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__nand2_1	A->Y (RF)	0.03107	0.70726	10.45030
	B->Y (RF)	0.03535	0.68284	10.04930
sky130_osu_sc_18T_ls__nand2_l	A->Y (RF)	0.03499	0.77511	10.52730
	B->Y (RF)	0.03907	0.75422	10.11090

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__nand2_1	A	0.00000	0.00000	0.00000
	A	0.00944	0.00876	0.01306
	B	0.00000	0.00000	0.00000
	B	0.01191	0.01213	0.01529
sky130_osu_sc_18T_ls__nand2_l	A	0.00000	0.00000	0.00000
	A	0.00713	0.00731	0.00966
	B	0.00000	0.00000	0.00000
	B	0.00895	0.00904	0.01137

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__nand2_1	A	0.00000	0.00000	0.00000
	A	-0.00143	-0.00131	0.00110
	B	0.00000	0.00000	0.00000
	B	-0.00135	-0.00142	0.00042
sky130_osu_sc_18T_ls__nand2_l	A	0.00000	0.00000	0.00000
	A	-0.00101	-0.00095	0.00076
	B	0.00000	0.00000	0.00000
	B	-0.00097	-0.00103	0.00028

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__nand2_1	(!B * Y)	0.00000	0.00000	0.00000
	(!B * Y)	-0.00671	-0.00676	-0.00675
sky130_osu_sc_18T_ls__nand2_l	(!B * Y)	0.00000	0.00000	0.00000
	(!B * Y)	-0.00482	-0.00485	-0.00485

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__nand2_1	(!B * Y)	0.00000	0.00000	0.00000
	(!B * Y)	0.00673	0.00679	0.00677
sky130_osu_sc_18T_ls__nand2_l	(!B * Y)	0.00000	0.00000	0.00000
	(!B * Y)	0.00484	0.00487	0.00486

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__nand2_1	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00629	-0.00633	-0.00629
sky130_osu_sc_18T_ls__nand2_l	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00450	-0.00454	-0.00451

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__nand2_1	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00633	0.00635	0.00631
sky130_osu_sc_18T_ls__nand2_l	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00453	0.00455	0.00452

SKY130_OSU_SC_18T_LS__NOR2x

sky130_osu_sc_18T_ls_tt_1P89_25C.ccs
Cell Library: Process , Voltage 1.89,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__nor2_1	9.52380
sky130_osu_sc_18T_ls__nor2_l	9.52380

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	B	Y
sky130_osu_sc_18T_ls__nor2_1	0.00570	0.00603	1.40492
sky130_osu_sc_18T_ls__nor2_l	0.00426	0.00461	0.96915

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__nor2_1	0.00000	0.00141	0.00202
sky130_osu_sc_18T_ls__nor2_l	0.00000	0.00087	0.00138

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__nor2_1	A->Y (FR)	0.06436	0.90242	11.13190
	B->Y (FR)	0.04797	0.90027	11.39100
sky130_osu_sc_18T_ls__nor2_l	A->Y (FR)	0.07070	0.98891	11.08670
	B->Y (FR)	0.05625	0.98810	11.36620

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__nor2_1	A->Y (RF)	0.03065	0.48529	5.99425
	B->Y (RF)	0.02397	0.47233	5.97253
sky130_osu_sc_18T_ls__nor2_l	A->Y (RF)	0.03262	0.51736	5.89748
	B->Y (RF)	0.02646	0.50643	5.87917

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__nor2_1	A	0.00000	0.00000	0.00000
	A	0.01308	0.01300	0.01542
	B	0.00000	0.00000	0.00000
	B	0.00960	0.00991	0.01465
sky130_osu_sc_18T_ls__nor2_1	A	0.00000	0.00000	0.00000
	A	0.00948	0.00940	0.01122
	B	0.00000	0.00000	0.00000
	B	0.00722	0.00731	0.01083

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__nor2_1	A	0.00000	0.00000	0.00000
	A	0.00108	0.00079	0.00448
	B	0.00000	0.00000	0.00000
	B	-0.00166	-0.00152	0.00214
sky130_osu_sc_18T_ls__nor2_1	A	0.00000	0.00000	0.00000
	A	0.00069	0.00054	0.00327
	B	0.00000	0.00000	0.00000
	B	-0.00107	-0.00095	0.00170

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__nor2_1	(B * !Y)	0.00000	0.00000	0.00000
	(B * !Y)	-0.00546	-0.00606	-0.00604
sky130_osu_sc_18T_ls__nor2_l	(B * !Y)	0.00000	0.00000	0.00000
	(B * !Y)	-0.00381	-0.00423	-0.00421

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__nor2_1	(B * !Y)	0.00000	0.00000	0.00000
	(B * !Y)	0.00600	0.00608	0.00604
sky130_osu_sc_18T_ls__nor2_l	(B * !Y)	0.00000	0.00000	0.00000
	(B * !Y)	0.00419	0.00425	0.00421

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__nor2_1	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	-0.00271	-0.00273	-0.00272
sky130_osu_sc_18T_ls__nor2_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	-0.00193	-0.00194	-0.00193

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__nor2_1	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00284	0.00286	0.00276
sky130_osu_sc_18T_ls__nor2_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00202	0.00203	0.00196

SKY130_OSU_SC_18T_LS__OAI21

sky130_osu_sc_18T_ls_tt_1P89_25C.ccs
Cell Library: Process , Voltage 1.89,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__oai21_l	12.45420

Pin Capacitance Information

Cell Name	Pin Cap(pf)			Max Cap(pf)
	A0	A1	B0	Y
sky130_osu_sc_18T_ls__oai21_l	0.00577	0.00582	0.00481	1.38980

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__oai21_l	0.00000	0.00148	0.00340

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__oai21_l	A0->Y (FR)	0.06473	0.91862	11.39540
	A1->Y (FR)	0.08536	0.92549	11.14170
	B0->Y (FR)	0.04392	0.77998	9.91179

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__oai21_l	A0->Y (RF)	0.04426	0.58414	7.14759
	A1->Y (RF)	0.05333	0.58337	6.98946
	B0->Y (RF)	0.03401	0.62375	7.86609

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__oai21_l	A0	0.00000	0.00000	0.00000
	A0	0.01316	0.01318	0.01744
	A1	0.00000	0.00000	0.00000
	A1	0.01664	0.01644	0.01866
	B0	0.01126	0.01073	0.01542

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__oai21_l	A0	0.00000	0.00000	0.00000
	A0	0.00021	-0.00001	0.00237
	A1	0.00000	0.00000	0.00000
	A1	0.00291	0.00242	0.00479
	B0	0.00104	0.00105	0.00386

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__oai21_l	(A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * !Y)	-0.00271	-0.00274	-0.00273
	(A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * Y)	-0.00591	-0.00608	-0.00607
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00618	-0.00621	-0.00618

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__oai21_l	(A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * !Y)	0.00285	0.00286	0.00277
	(A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * Y)	0.00605	0.00608	0.00607
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00618	0.00623	0.00620

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__oai21_l	(A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * B0 * !Y)	-0.00538	-0.00596	-0.00596
	(A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * Y)	-0.00587	-0.00604	-0.00604
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	-0.00612	-0.00616	-0.00613

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__oai21_l	(A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * B0 * !Y)	0.00592	0.00598	0.00596
	(A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * Y)	0.00600	0.00604	0.00604
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	0.00613	0.00619	0.00615

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__oai21_l	(!A0 * !A1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * Y)	-0.00490	-0.00494	-0.00498

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__oai21_l	(!A0 * !A1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * Y)	0.00497	0.00502	0.00500

SKY130_OSU_SC_18T_LS__OAI22

sky130_osu_sc_18T_ls_tt_1P89_25C.ccs
Cell Library: Process , Voltage 1.89,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__oai22_1	15.38460

Pin Capacitance Information

Cell Name	Pin Cap(pf)				Max Cap(pf)
	A0	A1	B0	B1	Y
sky130_osu_sc_18T_ls__oai22_1	0.00559	0.00588	0.00602	0.00588	1.38764

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__oai22_1	0.00000	0.00209	0.00404

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__oai22_l	A0->Y (FR)	0.09281	0.92882	11.09030
	A1->Y (FR)	0.07644	0.92523	11.35050
	B0->Y (FR)	0.05452	0.90411	11.34570
	B1->Y (FR)	0.07119	0.90774	11.08820

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__oai22_l	A0->Y (RF)	0.07866	0.63431	7.29117
	A1->Y (RF)	0.06156	0.60792	7.18684
	B0->Y (RF)	0.05189	0.64506	7.88862
	B1->Y (RF)	0.07021	0.68232	8.14744

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__oai22_l	A0	0.02183	0.02165	0.02376
	A1	0.01834	0.01834	0.02251
	B0	0.01381	0.01396	0.01811
	B1	0.01742	0.01726	0.01941

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__oai22_l	A0	0.00502	0.00454	0.00678
	A1	0.00256	0.00219	0.00447
	B0	-0.00069	-0.00068	0.00272
	B1	0.00504	0.00465	0.00762

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__oai22_l	(A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * !Y)	-0.00543	-0.00605	-0.00604
	(A1 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * B1 * !Y)	-0.00543	-0.00605	-0.00604
	(A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * !B1 * Y)	-0.00587	-0.00606	-0.00605
	(!A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * !B1 * Y)	-0.00613	-0.00616	-0.00614

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__oai22_l	(A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * !Y)	0.00600	0.00607	0.00604
	(A1 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * B1 * !Y)	0.00600	0.00607	0.00604
	(A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * !B1 * Y)	0.00601	0.00608	0.00605
	(!A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * !B1 * Y)	0.00614	0.00619	0.00616

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__oai22_l	(A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * B0 * !Y)	-0.00269	-0.00271	-0.00270
	(A0 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * B1 * !Y)	-0.00269	-0.00271	-0.00270
	(A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * !B1 * Y)	-0.00585	-0.00601	-0.00601
	(!A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * !B1 * Y)	-0.00611	-0.00614	-0.00613

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__oai22_l	(A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * B0 * !Y)	0.00283	0.00285	0.00275
	(A0 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * B1 * !Y)	0.00283	0.00285	0.00275
	(A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * !B1 * Y)	0.00599	0.00601	0.00601
	(!A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * !B1 * Y)	0.00612	0.00617	0.00615

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__oai22_l	(A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * B1 * !Y)	-0.00268	-0.00270	-0.00269
	(A0 * !A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B1 * !Y)	-0.00268	-0.00270	-0.00269
	(!A0 * !A1 * B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B1 * Y)	-0.00645	-0.00664	-0.00660
	(!A0 * !A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B1 * Y)	-0.00658	-0.00660	-0.00670

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__oai22_l	(A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * B1 * !Y)	0.00281	0.00283	0.00273
	(A0 * !A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B1 * !Y)	0.00281	0.00283	0.00273
	(!A0 * !A1 * B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B1 * Y)	0.00661	0.00664	0.00660
	(!A0 * !A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B1 * Y)	0.00670	0.00676	0.00673

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__oai22_l	(A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * !Y)	-0.00538	-0.00598	-0.00597
	(A0 * !A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B0 * !Y)	-0.00538	-0.00598	-0.00597
	(!A0 * !A1 * B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B0 * Y)	-0.00653	-0.00671	-0.00670
	(!A0 * !A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B0 * Y)	-0.00667	-0.00672	-0.00678

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__oai22_l	(A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * !Y)	0.00593	0.00600	0.00597
	(A0 * !A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B0 * !Y)	0.00593	0.00599	0.00597
	(!A0 * !A1 * B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B0 * Y)	0.00669	0.00677	0.00670
	(!A0 * !A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B0 * Y)	0.00677	0.00683	0.00681

SKY130_OSU_SC_18T_LS__OR2x

sky130_osu_sc_18T_ls_tt_1P89_25C.ccs
Cell Library: Process , Voltage 1.89,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__or2_1	12.45420
sky130_osu_sc_18T_ls__or2_2	15.38460
sky130_osu_sc_18T_ls__or2_4	21.24540
sky130_osu_sc_18T_ls__or2_8	32.96700
sky130_osu_sc_18T_ls__or2_l	12.45420

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	B	Y
sky130_osu_sc_18T_ls__or2_1	0.00603	0.00585	2.66797
sky130_osu_sc_18T_ls__or2_2	0.00603	0.00585	5.18063
sky130_osu_sc_18T_ls__or2_4	0.00604	0.00585	9.88619
sky130_osu_sc_18T_ls__or2_8	0.00604	0.00587	18.72708
sky130_osu_sc_18T_ls__or2_l	0.00466	0.00443	1.83350

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__or2_1	0.00000	0.00246	0.00345
sky130_osu_sc_18T_ls__or2_2	0.00000	0.00350	0.00547
sky130_osu_sc_18T_ls__or2_4	0.00000	0.00558	0.00951
sky130_osu_sc_18T_ls__or2_8	0.00000	0.00974	0.01760
sky130_osu_sc_18T_ls__or2_l	0.00000	0.00143	0.00195

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__or2_1	A->Y (RR)	0.07085	0.58377	6.54708
	B->Y (RR)	0.06204	0.54879	6.46216
sky130_osu_sc_18T_ls__or2_2	A->Y (RR)	0.07840	0.52245	6.59203
	B->Y (RR)	0.06918	0.49316	6.50478
sky130_osu_sc_18T_ls__or2_4	A->Y (RR)	0.10212	0.52444	6.87042
	B->Y (RR)	0.09267	0.50067	6.78830
sky130_osu_sc_18T_ls__or2_8	A->Y (RR)	0.14585	0.58046	7.29984
	B->Y (RR)	0.13628	0.56328	7.23752
sky130_osu_sc_18T_ls__or2_l	A->Y (RR)	0.07758	0.65673	6.56254
	B->Y (RR)	0.06927	0.62826	6.48487

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__or2_1	A->Y (FF)	0.11553	0.66552	6.86199
	B->Y (FF)	0.09400	0.64062	6.83179
sky130_osu_sc_18T_ls__or2_2	A->Y (FF)	0.13878	0.65120	6.96158
	B->Y (FF)	0.11743	0.63817	6.93557
sky130_osu_sc_18T_ls__or2_4	A->Y (FF)	0.19466	0.70100	7.26344
	B->Y (FF)	0.17338	0.69889	7.23214
sky130_osu_sc_18T_ls__or2_8	A->Y (FF)	0.31008	0.82740	7.59932
	B->Y (FF)	0.28888	0.82791	7.60343
sky130_osu_sc_18T_ls__or2_l	A->Y (FF)	0.12493	0.71472	6.75254
	B->Y (FF)	0.10402	0.69369	6.74492

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__or2_1	A	0.00000	0.00000	0.00000
	A	0.00951	0.00905	0.02931
	B	0.00000	0.00000	0.00000
	B	0.00699	0.00730	0.03264
sky130_osu_sc_18T_ls__or2_2	A	0.00000	0.00000	0.00000
	A	0.01671	0.01670	0.03734
	B	0.00000	0.00000	0.00000
	B	0.01409	0.01503	0.04013
sky130_osu_sc_18T_ls__or2_4	A	0.00000	0.00000	0.00000
	A	0.03203	0.03309	0.05360
	B	0.00000	0.00000	0.00000
	B	0.02941	0.03150	0.07450
sky130_osu_sc_18T_ls__or2_8	A	0.00000	0.00000	0.00000
	A	0.06317	0.06501	0.08794
	B	0.00000	0.00000	0.00000
	B	0.06043	0.06366	0.09046
sky130_osu_sc_18T_ls__or2_l	A	0.00000	0.00000	0.00000
	A	0.00693	0.00649	0.02144
	B	0.00000	0.00000	0.00000
	B	0.00533	0.00604	0.02444

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__or2_1	A	0.00000	0.00000	0.00000
	A	0.02086	0.02081	0.03762
	B	0.00000	0.00000	0.00000
	B	0.01701	0.01863	0.04825
sky130_osu_sc_18T_ls__or2_2	A	0.00000	0.00000	0.00000
	A	0.02575	0.02642	0.04284
	B	0.00000	0.00000	0.00000
	B	0.02193	0.02396	0.05202
sky130_osu_sc_18T_ls__or2_4	A	0.00000	0.00000	0.00000
	A	0.03859	0.03999	0.05562
	B	0.00000	0.00000	0.00000
	B	0.03473	0.03677	0.06303
sky130_osu_sc_18T_ls__or2_8	A	0.00000	0.00000	0.00000
	A	0.06806	0.06552	0.08190
	B	0.00000	0.00000	0.00000
	B	0.06419	0.06235	0.08704
sky130_osu_sc_18T_ls__or2_l	A	0.00000	0.00000	0.00000
	A	0.01572	0.01549	0.02778
	B	0.00000	0.00000	0.00000
	B	0.01301	0.01407	0.03564

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__or2_1	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00551	-0.00604	-0.00607
sky130_osu_sc_18T_ls__or2_2	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00550	-0.00604	-0.00607
sky130_osu_sc_18T_ls__or2_4	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00550	-0.00604	-0.00607
sky130_osu_sc_18T_ls__or2_8	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00550	-0.00604	-0.00607
sky130_osu_sc_18T_ls__or2_l	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00384	-0.00424	-0.00423

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__or2_1	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00603	0.00604	0.00607
sky130_osu_sc_18T_ls__or2_2	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00603	0.00604	0.00607
sky130_osu_sc_18T_ls__or2_4	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00603	0.00604	0.00607
sky130_osu_sc_18T_ls__or2_8	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00603	0.00604	0.00607
sky130_osu_sc_18T_ls__or2_l	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00421	0.00424	0.00423

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__or2_1	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00271	-0.00275	-0.00273
sky130_osu_sc_18T_ls__or2_2	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00272	-0.00274	-0.00273
sky130_osu_sc_18T_ls__or2_4	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00272	-0.00274	-0.00273
sky130_osu_sc_18T_ls__or2_8	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00271	-0.00274	-0.00273
sky130_osu_sc_18T_ls__or2_l	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00196	-0.00198	-0.00197

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__or2_1	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00286	0.00288	0.00277
sky130_osu_sc_18T_ls__or2_2	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00286	0.00288	0.00277
sky130_osu_sc_18T_ls__or2_4	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00286	0.00288	0.00277
sky130_osu_sc_18T_ls__or2_8	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00286	0.00288	0.00277
sky130_osu_sc_18T_ls__or2_l	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00205	0.00207	0.00200

SKY130_OSU_SC_18T_LS__TBUFIx

sky130_osu_sc_18T_ls_tt_1P89_25C.ccs
Cell Library: Process , Voltage 1.89,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__tbufi_1	12.45420
sky130_osu_sc_18T_ls__tbufi_l	12.45420

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	OE	Y
sky130_osu_sc_18T_ls__tbufi_1	0.00603	0.00758	1.40960
sky130_osu_sc_18T_ls__tbufi_l	0.00462	0.00585	0.96661

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__tbufi_1	0.00000	0.00168	0.00405
sky130_osu_sc_18T_ls__tbufi_l	0.00000	0.00097	0.00276

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__tbufi_1	A->Y (FR)	0.04625	0.89809	11.40650
	OE->Y (FR)	0.05426	0.38976	5.24844
	OE->Y (RR)	0.08389	0.68053	6.63365
sky130_osu_sc_18T_ls__tbufi_l	A->Y (FR)	0.05444	0.98714	11.36200
	OE->Y (FR)	0.05718	0.38951	5.24814
	OE->Y (RR)	0.09154	0.77427	6.62796

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__tbufi_1	A->Y (RF)	0.03031	0.57571	7.30037
	OE->Y (FF)	0.05461	0.38975	5.24839
	OE->Y (RF)	0.02862	0.54369	6.83659
sky130_osu_sc_18T_ls__tbufi_l	A->Y (RF)	0.03447	0.62210	7.20483
	OE->Y (FF)	0.05779	0.38951	5.24813
	OE->Y (RF)	0.03335	0.59022	6.72582

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__tbufi_1	A	0.00000	0.00000	0.00000
	A	0.00903	0.00928	0.01366
	OE	0.00000	0.00000	0.00000
	OE	0.00937	0.00979	0.04093
sky130_osu_sc_18T_ls__tbufi_l	A	0.00000	0.00000	0.00000
	A	0.00682	0.00690	0.01008
	OE	0.00000	0.00000	0.00000
	OE	0.00668	0.00697	0.03034

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__tbufi_1	A	0.00000	0.00000	0.00000
	A	-0.00169	-0.00153	0.00171
	OE	0.00000	0.00000	0.00000
	OE	0.00614	0.00655	0.04232
sky130_osu_sc_18T_ls__tbufi_l	A	0.00000	0.00000	0.00000
	A	-0.00108	-0.00102	0.00138
	OE	0.00000	0.00000	0.00000
	OE	0.00428	0.00453	0.03056

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__tbufi_1	(!OE * Y)	0.00000	0.00000	0.00000
	(!OE * Y)	-0.00453	-0.00454	-0.00455
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	-0.00393	-0.00401	-0.00395
sky130_osu_sc_18T_ls__tbufi_l	(!OE * Y)	0.00000	0.00000	0.00000
	(!OE * Y)	-0.00339	-0.00341	-0.00340
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	-0.00298	-0.00304	-0.00299

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__tbufi_1	(!OE * Y)	0.00000	0.00000	0.00000
	(!OE * Y)	0.00453	0.00454	0.00455
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	0.00403	0.00406	0.00400
sky130_osu_sc_18T_ls__tbufi_l	(!OE * Y)	0.00000	0.00000	0.00000
	(!OE * Y)	0.00339	0.00341	0.00340
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	0.00305	0.00307	0.00302

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__tbufi_1	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00360	0.00406	0.04033
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00323	0.00423	0.03997
sky130_osu_sc_18T_ls__tbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00245	0.00277	0.02918
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00220	0.00290	0.02894

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__tbufi_1	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.01022	0.01096	0.04708
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.01050	0.01132	0.04730
sky130_osu_sc_18T_ls__tbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00795	0.00836	0.03460
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00817	0.00862	0.03477

SKY130_OSU_SC_18T_LS__TNBUFIx

sky130_osu_sc_18T_ls_tt_1P89_25C.ccs
Cell Library: Process , Voltage 1.89,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__tnbufi_1	12.45420
sky130_osu_sc_18T_ls__tnbufi_l	12.45420

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	OE	Y
sky130_osu_sc_18T_ls__tnbufi_1	0.00602	0.00953	1.40847
sky130_osu_sc_18T_ls__tnbufi_l	0.00462	0.00704	0.96667

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__tnbufi_1	0.00000	0.00212	0.00274
sky130_osu_sc_18T_ls__tnbufi_l	0.00000	0.00133	0.00166

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__tnbufi_1	A->Y (FR)	0.04652	0.89785	11.40080
	OE->Y (RR)	0.02892	0.39073	5.24928
	OE->Y (FR)	0.06111	0.90037	11.14010
sky130_osu_sc_18T_ls__tnbufi_l	A->Y (FR)	0.05483	0.98713	11.36240
	OE->Y (RR)	0.03026	0.39092	5.24947
	OE->Y (FR)	0.06755	0.98742	11.08080

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__tnbufi_1	A->Y (RF)	0.02993	0.57635	7.29677
	OE->Y (RF)	0.02866	0.39070	5.24932
	OE->Y (FF)	0.05539	0.53187	5.35270
sky130_osu_sc_18T_ls__tnbufi_l	A->Y (RF)	0.03401	0.61890	7.20493
	OE->Y (RF)	0.02998	0.39092	5.24951
	OE->Y (FF)	0.06241	0.58540	5.29719

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__tnbufi_1	A	0.00000	0.00000	0.00000
	A	0.00924	0.00949	0.01387
	OE	0.00000	0.00000	0.00000
	OE	0.02295	0.02456	0.06192
sky130_osu_sc_18T_ls__tnbufi_l	A	0.00000	0.00000	0.00000
	A	0.00703	0.00711	0.01029
	OE	0.00000	0.00000	0.00000
	OE	0.01692	0.01797	0.04506

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__tnbufi_1	A	0.00000	0.00000	0.00000
	A	-0.00197	-0.00182	0.00147
	OE	0.00000	0.00000	0.00000
	OE	0.02005	0.02207	0.05280
sky130_osu_sc_18T_ls__tnbufi_l	A	0.00000	0.00000	0.00000
	A	-0.00136	-0.00124	0.00112
	OE	0.00000	0.00000	0.00000
	OE	0.01476	0.01612	0.03790

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__tnbufi_1	(OE * Y)	0.00000	0.00000	0.00000
	(OE * Y)	-0.00391	-0.00392	-0.00392
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	-0.00337	-0.00344	-0.00339
sky130_osu_sc_18T_ls__tnbufi_l	(OE * Y)	0.00000	0.00000	0.00000
	(OE * Y)	-0.00280	-0.00282	-0.00281
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	-0.00243	-0.00249	-0.00245

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__tnbufi_1	(OE * Y)	0.00000	0.00000	0.00000
	(OE * Y)	0.00391	0.00392	0.00392
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	0.00345	0.00348	0.00343
sky130_osu_sc_18T_ls__tnbufi_l	(OE * Y)	0.00000	0.00000	0.00000
	(OE * Y)	0.00280	0.00282	0.00281
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	0.00249	0.00251	0.00247

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__tnbufi_1	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	-0.00748	-0.00731	0.02972
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00722	-0.00734	0.02981
sky130_osu_sc_18T_ls__tnbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	-0.00517	-0.00502	0.02193
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00499	-0.00507	0.02199

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__tnbufi_1	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.01718	0.01894	0.05653
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.01691	0.01867	0.05628
sky130_osu_sc_18T_ls__tnbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.01271	0.01389	0.04107
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.01251	0.01360	0.04090

SKY130_OSU_SC_18T_LS__XNOR2

sky130_osu_sc_18T_ls_tt_1P89_25C.ccs
Cell Library: Process , Voltage 1.89,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__xnor2_l	21.24540

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	B	Y
sky130_osu_sc_18T_ls__xnor2_l	0.01192	0.01093	1.44382

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__xnor2_l	0.00000	0.00452	0.00678

Delay Information

Delay(ns) to Y rising (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_18T_ls__xnor2_l	A->Y (RR)	B	0.10622	0.72613	6.85799
	A->Y (FR)	!B	0.06112	0.91850	11.53300
	B->Y (RR)	A	0.08389	0.70385	6.86979
	B->Y (FR)	!A	0.08469	0.92668	11.28380

Delay(ns) to Y falling (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_18T_ls__xnor2_l	A->Y (FF)	B	0.09878	0.63421	5.84582
	A->Y (RF)	!B	0.04430	0.57700	7.15549
	B->Y (FF)	A	0.08679	0.62360	5.84750
	B->Y (RF)	!A	0.05551	0.59147	7.15951

Power Information

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

Cell Name	Input	When	Power(pJ)		
			first	mid	last
sky130_osu_sc_18T_ls__xnor2_l	A	B	0.00000	0.00000	0.00000
	A	B	0.00921	0.00934	0.04019
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.02208	0.02357	0.06249
	B	A	0.00000	0.00000	0.00000
	B	A	0.00266	0.00320	0.03935
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.02481	0.02564	0.06275

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

Cell Name	Input	When	Power(pJ)		
			first	mid	last
sky130_osu_sc_18T_ls__xnor2_l	A	B	0.00000	0.00000	0.00000
	A	B	0.02743	0.02785	0.06165
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00596	0.00606	0.04305
	B	A	0.00000	0.00000	0.00000
	B	A	0.02521	0.02717	0.06223
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00729	0.00715	0.04386

SKY130_OSU_SC_18T_LS__XOR2

sky130_osu_sc_18T_ls_tt_1P89_25C.ccs
Cell Library: Process , Voltage 1.89,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__xor2_l	21.24540

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	B	Y
sky130_osu_sc_18T_ls__xor2_l	0.01189	0.01098	1.42540

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__xor2_l	0.00000	0.00452	0.00547

Delay Information

Delay(ns) to Y rising (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_18T_ls__xor2_l	A->Y (RR)	!B	0.10092	0.70864	6.80627
	A->Y (FR)	B	0.07599	0.91803	11.27400
	B->Y (RR)	!A	0.08690	0.70372	6.82658
	B->Y (FR)	A	0.08252	0.92425	11.25620

Delay(ns) to Y falling (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_18T_ls__xor2_l	A->Y (FF)	!B	0.08502	0.60894	5.58121
	A->Y (RF)	B	0.04259	0.59790	7.35759
	B->Y (FF)	!A	0.08001	0.60370	5.62864
	B->Y (RF)	A	0.05169	0.57271	6.90452

Power Information

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

Cell Name	Input	When	Power(pJ)		
			first	mid	last
sky130_osu_sc_18T_ls__xor2_l	A	B	0.00000	0.00000	0.00000
	A	B	0.02612	0.02717	0.06542
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00425	0.00313	0.03802
	B	A	0.00000	0.00000	0.00000
	B	A	0.02698	0.02811	0.06596
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00225	0.00259	0.03892

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

Cell Name	Input	When	Power(pJ)		
			first	mid	last
sky130_osu_sc_18T_ls__xor2_l	A	B	0.00000	0.00000	0.00000
	A	B	0.00466	0.00446	0.04326
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.02823	0.02993	0.05990
	B	A	0.00000	0.00000	0.00000
	B	A	0.00471	0.00444	0.04173
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.02563	0.02770	0.06328

SKY130_OSU_SC_18T_LS_x

sky130_osu_sc_18T_ls_tt_1P89_25C.ccs
Cell Library: Process , Voltage 1.89,
Temp 25.00

Truth Table

INPUT
A
x

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__ant	6.59340
sky130_osu_sc_18T_ls__tiehi	6.59340
sky130_osu_sc_18T_ls__tielo	6.59340

Pin Capacitance Information

Cell Name	Pin Cap(pf)
	A
sky130_osu_sc_18T_ls__ant	0.69611
sky130_osu_sc_18T_ls__tiehi	0.00000
sky130_osu_sc_18T_ls__tielo	0.00000

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__ant	0.00000	374555.00000	749110.00000
sky130_osu_sc_18T_ls__tiehi	0.00000	0.00000	0.00000
sky130_osu_sc_18T_ls__tielo	0.00000	0.00000	0.00000

Passive Power Information

Passive power(pJ) for A rising :

Cell Name	Power(pJ)		
	first	mid	last
sky130_osu_sc_18T_ls__ant	0.00000	0.00000	0.00000
	-0.00307	0.09637	1.26817

Passive power(pJ) for A falling :

Cell Name	Power(pJ)		
	first	mid	last
sky130_osu_sc_18T_ls__ant	0.00000	0.00000	0.00000
	6.51772	6.16500	1.55567