sky130_osu_sc_18T_ls_tt_1P80_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_1P80_25C.ccs
Cell Library: Process , Voltage 1.80,
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	0.02177	0.02176	0.01671	2.49206	1.17233	2.40014
sky130_osu_sc_18T_ls__addf_l	0.02176	0.02175	0.01673	1.70105	1.17513	1.69617

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__addf_1	0.00000	0.00454	0.00522
sky130_osu_sc_18T_ls__addf_l	0.00000	0.00381	0.00449

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)	0.15911	1.79275	25.77940
	B->CO (RR)	0.13854	1.69982	24.54550
	CI->CO (RR)	0.15222	1.82875	26.36690
	CON->CO (FR)	0.03297	0.82727	11.94060
sky130_osu_sc_18T_ls__addf_1	A->CO (RR)	0.15992	1.67038	20.89410
	B->CO (RR)	0.13971	1.59124	20.06120
	CI->CO (RR)	0.15300	1.70629	21.51290
	CON->CO (FR)	0.03707	0.89500	11.86470

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)	0.22632	2.27656	32.24910
	B->CO (FF)	0.20145	2.17867	31.19030
	CI->CO (FF)	0.19710	2.26065	32.51650
	CON->CO (RF)	0.02527	0.62330	9.02525
sky130_osu_sc_18T_ls__addf_1	A->CO (FF)	0.22074	2.03641	25.09060
	B->CO (FF)	0.19615	1.95236	24.42180
	CI->CO (FF)	0.19157	2.02040	25.37580
	CON->CO (RF)	0.02703	0.64576	8.58604

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)	0.17440	1.07754	11.41930
	B->CON (FR)	0.15070	1.02319	11.25030
	CI->CON (FR)	0.14510	1.06075	11.72960
sky130_osu_sc_18T_ls__addf_1	A->CON (FR)	0.16518	1.06730	11.42730
	B->CON (FR)	0.14218	1.01768	11.25810
	CI->CON (FR)	0.13585	1.05235	11.73780

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)	0.09336	0.64181	6.93276
	B->CON (RF)	0.08812	0.64036	7.03249
	CI->CON (RF)	0.08644	0.68091	7.60099
sky130_osu_sc_18T_ls__addf_1	A->CON (RF)	0.09002	0.63887	6.93899
	B->CON (RF)	0.08513	0.63785	7.03866
	CI->CON (RF)	0.08309	0.67801	7.60763

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)	0.32776	2.11564	25.35200
	B->S (-R)	0.33670	2.10816	24.63350
	CI->S (-R)	0.29639	2.09528	25.61620
	CON->S (RR)	0.09247	0.68928	7.24542
sky130_osu_sc_18T_ls__addf_1	A->S (-R)	0.31294	1.96798	21.30620
	B->S (-R)	0.32247	1.97031	20.88070
	CI->S (-R)	0.28157	1.94789	21.58290
	CON->S (RR)	0.09229	0.74171	7.18383

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)	0.26014	1.59333	18.30450
	B->S (-F)	0.26259	1.53645	17.62980
	CI->S (-F)	0.25277	1.62684	18.88630
	CON->S (FF)	0.11020	0.73543	7.08972
sky130_osu_sc_18T_ls__addf_l	A->S (-F)	0.24546	1.45986	15.12030
	B->S (-F)	0.24825	1.41325	14.70640
	CI->S (-F)	0.23798	1.49131	15.73180
	CON->S (FF)	0.10557	0.74731	6.81664

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	0.00417	0.00447	0.01133
	B	0.00651	0.00655	0.01147
	CI	0.00686	0.00729	0.01435
sky130_osu_sc_18T_ls__addf_l	A	0.00306	0.00315	0.00757
	B	0.00542	0.00525	0.00852
	CI	0.00575	0.00597	0.01038

Internal switching power(pJ) to CO falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__addf_1	A	0.01824	0.01887	0.03136
	B	0.01922	0.01984	0.03031
	CI	0.01519	0.01580	0.02866
sky130_osu_sc_18T_ls__addf_l	A	0.01714	0.01753	0.02573
	B	0.01812	0.01852	0.02510
	CI	0.01566	0.01645	0.02319

Internal switching power(pJ) to CON rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__addf_1	A	0.01821	0.01852	0.02388
	B	0.01919	0.01958	0.02369
	CI	0.01676	0.01749	0.02202
sky130_osu_sc_18T_ls__addf_l	A	0.01712	0.01727	0.02264
	B	0.01809	0.01841	0.02242
	CI	0.01564	0.01633	0.02073

Internal switching power(pJ) to CON falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__addf_1	A	0.00415	0.00430	0.00746
	B	0.00645	0.00638	0.00894
	CI	0.00683	0.00710	0.01039
sky130_osu_sc_18T_ls__addf_l	A	0.00305	0.00309	0.00615
	B	0.00537	0.00518	0.00767
	CI	0.00574	0.00589	0.00913

Internal switching power(pJ) to S rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__addf_1	A	0.01824	0.01886	0.03077
	B	0.01921	0.01983	0.02972
	CI	0.01519	0.01579	0.02799
sky130_osu_sc_18T_ls__addf_l	A	0.01714	0.01753	0.02555
	B	0.01812	0.01853	0.02494
	CI	0.01566	0.01645	0.02314

Internal switching power(pJ) to S falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__addf_1	A	0.04130	0.04173	0.04864
	B	0.03643	0.03605	0.04887
	CI	0.03329	0.03327	0.04084
sky130_osu_sc_18T_ls__addf_l	A	0.03985	0.03984	0.04696
	B	0.03503	0.03451	0.04778
	CI	0.03189	0.03174	0.03972

SKY130_OSU_SC_18T_LS__ADDHx

sky130_osu_sc_18T_ls_tt_1P80_25C.ccs
Cell Library: Process , Voltage 1.80,
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	0.01070	0.01164	2.42561	1.25762	2.50489
sky130_osu_sc_18T_ls__addh_l	0.01070	0.01164	1.42145	1.26267	1.43154

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__addh_1	0.00000	0.00411	0.00462
sky130_osu_sc_18T_ls__addh_l	0.00000	0.00615	0.00734

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)	0.10816	0.69733	7.01464
	B->CO (RR)	0.11210	0.69508	7.07435
sky130_osu_sc_18T_ls__addh_l	A->CO (RR)	0.11119	0.79604	7.09729
	B->CO (RR)	0.11515	0.79593	7.15077

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)	0.09662	0.70803	7.07354
	B->CO (FF)	0.10362	0.72335	7.10872
sky130_osu_sc_18T_ls__addh_l	A->CO (FF)	0.09532	0.73448	6.59036
	B->CO (FF)	0.10200	0.75003	6.62520

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	0.15071	0.58264	3.64690
	A->CON (FR)	!B	0.09556	0.99319	11.63140
	B->CON (RR)	A	0.15476	0.57942	3.70496
	B->CON (FR)	!A	0.11907	1.00805	11.44290
sky130_osu_sc_18T_ls__addh_l	A->CON (RR)	B	0.13447	0.55428	3.58308
	A->CON (FR)	!B	0.08444	0.98263	11.64700
	B->CON (RR)	A	0.13854	0.55438	3.63827
	B->CON (FR)	!A	0.10797	0.99728	11.45930

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	0.14238	0.75058	6.06265
	A->CON (RF)	!B	0.05538	0.64532	7.66130
	B->CON (FF)	A	0.14180	0.78748	6.44494
	B->CON (RF)	!A	0.06546	0.63109	7.30007
sky130_osu_sc_18T_ls__addh_l	A->CON (FF)	B	0.12904	0.71701	5.88529
	A->CON (RF)	!B	0.05124	0.64153	7.67407
	B->CON (FF)	A	0.12835	0.75462	6.26667
	B->CON (RF)	!A	0.06144	0.62759	7.31237

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	0.11392	1.74562	25.80260
	A->S (FR)	B	0.20102	1.82484	23.83120
	B->S (RR)	!A	0.12365	1.67838	24.52270
	B->S (FR)	A	0.20164	1.91470	25.14170
	CON->S (FR)	-	0.03688	0.85303	12.30480
sky130_osu_sc_18T_ls__addh_l	A->S (RR)	!B	0.11541	1.60228	19.59340
	A->S (FR)	B	0.19362	1.66277	17.60610
	B->S (RR)	!A	0.12548	1.55162	18.79000
	B->S (FR)	A	0.19399	1.73485	18.43810
	CON->S (FR)	-	0.04313	0.96866	12.34590

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	0.13978	2.07400	30.59120
	A->S (RF)	B	0.18876	1.36231	16.75710
	B->S (FF)	!A	0.16331	2.09166	30.45040
	B->S (RF)	A	0.19278	1.35810	16.81390
	CON->S (RF)	-	0.02365	0.60999	8.81192
sky130_osu_sc_18T_ls__addh_l	A->S (FF)	!B	0.13265	1.77010	21.62370
	A->S (RF)	B	0.17524	1.17717	11.35130
	B->S (FF)	!A	0.15615	1.78721	21.44300
	B->S (RF)	A	0.17931	1.17661	11.40580
	CON->S (RF)	-	0.02674	0.64756	8.29058

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	0.00832	0.00801	0.01094
	B	0.00000	0.00000	0.00000
	B	0.00743	0.00699	0.00960
sky130_osu_sc_18T_ls__addh_l	A	0.00000	0.00000	0.00000
	A	0.00679	0.00639	0.01103
	B	0.00000	0.00000	0.00000
	B	0.00589	0.00537	0.00935

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	0.01312	0.01275	0.01736
	B	0.00000	0.00000	0.00000
	B	0.01360	0.01391	0.01879
sky130_osu_sc_18T_ls__addh_l	A	0.00000	0.00000	0.00000
	A	0.01157	0.01119	0.01604
	B	0.00000	0.00000	0.00000
	B	0.01206	0.01223	0.01715

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	0.00832	0.00803	0.01156
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.01142	0.01152	0.01301
	B	A	0.00000	0.00000	0.00000
	B	A	0.00741	0.00701	0.01059
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01289	0.01286	0.01372
sky130_osu_sc_18T_ls__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.00678	0.00638	0.01067
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.01041	0.01044	0.01156
	B	A	0.00000	0.00000	0.00000
	B	A	0.00589	0.00536	0.00923
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01189	0.01178	0.01228

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	0.01312	0.01280	0.01760
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00169	0.00168	0.00202
	B	A	0.00000	0.00000	0.00000
	B	A	0.01359	0.01387	0.01900
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00294	0.00281	0.00337
sky130_osu_sc_18T_ls__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.01158	0.01120	0.01599
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00035	0.00030	0.00057
	B	A	0.00000	0.00000	0.00000
	B	A	0.01206	0.01224	0.01715
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00161	0.00143	0.00186

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	0.01313	0.01276	0.01751
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00170	0.00178	0.00269
	B	A	0.00000	0.00000	0.00000
	B	A	0.01360	0.01392	0.01902
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00296	0.00284	0.00353
sky130_osu_sc_18T_ls__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.01158	0.01121	0.01621
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00036	0.00031	0.00108
	B	A	0.00000	0.00000	0.00000
	B	A	0.01207	0.01225	0.01717
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00163	0.00142	0.00158

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	0.00833	0.00801	0.01105
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.01143	0.01163	0.01334
	B	A	0.00000	0.00000	0.00000
	B	A	0.00743	0.00700	0.00967
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01291	0.01302	0.01433
sky130_osu_sc_18T_ls__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.00679	0.00638	0.01107
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.01041	0.01047	0.01160
	B	A	0.00000	0.00000	0.00000
	B	A	0.00590	0.00536	0.00946
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01190	0.01183	0.01236

SKY130_OSU_SC_18T_LS__AND2x

sky130_osu_sc_18T_ls_tt_1P80_25C.ccs
Cell Library: Process , Voltage 1.80,
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	0.00575	0.00586	2.45438
sky130_osu_sc_18T_ls__and2_2	0.00576	0.00586	4.77212
sky130_osu_sc_18T_ls__and2_4	0.00576	0.00586	9.09210
sky130_osu_sc_18T_ls__and2_6	0.00579	0.00586	13.42128
sky130_osu_sc_18T_ls__and2_8	0.00577	0.00588	17.17303
sky130_osu_sc_18T_ls__and2_l	0.00440	0.00450	1.70750

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__and2_1	0.00000	0.00188	0.00288
sky130_osu_sc_18T_ls__and2_2	0.00000	0.00288	0.00351
sky130_osu_sc_18T_ls__and2_4	0.00000	0.00488	0.00512
sky130_osu_sc_18T_ls__and2_6	0.00000	0.00688	0.00737
sky130_osu_sc_18T_ls__and2_8	0.00000	0.00887	0.00961
sky130_osu_sc_18T_ls__and2_l	0.00000	0.00118	0.00180

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)	0.08280	0.62406	6.77556
	B->Y (RR)	0.08769	0.62966	6.78468
sky130_osu_sc_18T_ls__and2_2	A->Y (RR)	0.09549	0.57654	6.88086
	B->Y (RR)	0.10037	0.57521	6.88710
sky130_osu_sc_18T_ls__and2_4	A->Y (RR)	0.13128	0.59975	7.21555
	B->Y (RR)	0.13614	0.59035	7.21109
sky130_osu_sc_18T_ls__and2_6	A->Y (RR)	0.16500	0.64506	7.53515
	B->Y (RR)	0.16978	0.62828	7.52214
sky130_osu_sc_18T_ls__and2_8	A->Y (RR)	0.19886	0.69114	7.74028
	B->Y (RR)	0.20374	0.67059	7.70700
sky130_osu_sc_18T_ls__and2_l	A->Y (RR)	0.09180	0.70470	6.84014
	B->Y (RR)	0.09699	0.70905	6.84892

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)**	0.07455	0.62776	6.57180
	B->Y (FF)	0.07945	0.64616	6.65383
sky130_osu_sc_18T_ls__and2_2	**A->Y (FF)**	0.08637	0.60800	6.70282
	B->Y (FF)	0.09185	0.62263	6.77022
sky130_osu_sc_18T_ls__and2_4	**A->Y (FF)**	0.11933	0.64314	7.00437
	B->Y (FF)	0.12497	0.65375	7.06225
sky130_osu_sc_18T_ls__and2_6	**A->Y (FF)**	0.15551	0.68935	7.26323
	B->Y (FF)	0.16099	0.69808	7.33201
sky130_osu_sc_18T_ls__and2_8	**A->Y (FF)**	0.18852	0.72791	7.33916
	B->Y (FF)	0.19421	0.73607	7.39165
sky130_osu_sc_18T_ls__and2_l	**A->Y (FF)**	0.07988	0.67692	6.51754
	B->Y (FF)	0.08601	0.69748	6.59834

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	0.00630	0.00592	0.02398
	B	0.00000	0.00000	0.00000
	B	0.00641	0.00554	0.01967
sky130_osu_sc_18T_ls__and2_2	A	0.00000	0.00000	0.00000
	A	0.01270	0.01280	0.02846
	B	0.00000	0.00000	0.00000
	B	0.01282	0.01251	0.02278
sky130_osu_sc_18T_ls__and2_4	A	0.00000	0.00000	0.00000
	A	0.02646	0.02748	0.04224
	B	0.00000	0.00000	0.00000
	B	0.02658	0.02721	0.03753
sky130_osu_sc_18T_ls__and2_6	A	0.00000	0.00000	0.00000
	A	0.04031	0.04173	0.05497
	B	0.00000	0.00000	0.00000
	B	0.04045	0.04177	0.05100
sky130_osu_sc_18T_ls__and2_8	A	0.00000	0.00000	0.00000
	A	0.05430	0.05629	0.07251
	B	0.00000	0.00000	0.00000
	B	0.05448	0.05611	0.06868
sky130_osu_sc_18T_ls__and2_l	A	0.00000	0.00000	0.00000
	A	0.00461	0.00432	0.01638
	B	0.00000	0.00000	0.00000
	B	0.00472	0.00404	0.01208

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	0.01571	0.01655	0.03151
	B	0.00000	0.00000	0.00000
	B	0.01770	0.01825	0.03229
sky130_osu_sc_18T_ls__and2_2	A	0.00000	0.00000	0.00000
	A	0.01998	0.02166	0.03646
	B	0.00000	0.00000	0.00000
	B	0.02201	0.02324	0.03710
sky130_osu_sc_18T_ls__and2_4	A	0.00000	0.00000	0.00000
	A	0.03074	0.03366	0.04865
	B	0.00000	0.00000	0.00000
	B	0.03266	0.03497	0.04870
sky130_osu_sc_18T_ls__and2_6	A	0.00000	0.00000	0.00000
	A	0.04153	0.04576	0.06076
	B	0.00000	0.00000	0.00000
	B	0.04321	0.04679	0.06049
sky130_osu_sc_18T_ls__and2_8	A	0.00000	0.00000	0.00000
	A	0.05253	0.05748	0.07349
	B	0.00000	0.00000	0.00000
	B	0.05459	0.05810	0.07211
sky130_osu_sc_18T_ls__and2_l	A	0.00000	0.00000	0.00000
	A	0.01204	0.01260	0.02329
	B	0.00000	0.00000	0.00000
	B	0.01355	0.01387	0.02408

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)	-0.00609	-0.00614	-0.00613
sky130_osu_sc_18T_ls__and2_2	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00609	-0.00614	-0.00613
sky130_osu_sc_18T_ls__and2_4	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00609	-0.00614	-0.00613
sky130_osu_sc_18T_ls__and2_6	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00611	-0.00616	-0.00615
sky130_osu_sc_18T_ls__and2_8	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00609	-0.00614	-0.00613
sky130_osu_sc_18T_ls__and2_l	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00442	-0.00445	-0.00444

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)	0.00611	0.00616	0.00615
sky130_osu_sc_18T_ls__and2_2	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00611	0.00616	0.00615
sky130_osu_sc_18T_ls__and2_4	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00611	0.00616	0.00615
sky130_osu_sc_18T_ls__and2_6	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00614	0.00619	0.00617
sky130_osu_sc_18T_ls__and2_8	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00611	0.00616	0.00615
sky130_osu_sc_18T_ls__and2_l	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00443	0.00447	0.00446

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)	-0.00578	-0.00581	-0.00579
sky130_osu_sc_18T_ls__and2_2	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00577	-0.00581	-0.00579
sky130_osu_sc_18T_ls__and2_4	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00577	-0.00581	-0.00579
sky130_osu_sc_18T_ls__and2_6	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00577	-0.00581	-0.00579
sky130_osu_sc_18T_ls__and2_8	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00577	-0.00581	-0.00579
sky130_osu_sc_18T_ls__and2_l	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00419	-0.00422	-0.00420

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)	0.00582	0.00584	0.00581
sky130_osu_sc_18T_ls__and2_2	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00583	0.00584	0.00581
sky130_osu_sc_18T_ls__and2_4	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00583	0.00584	0.00581
sky130_osu_sc_18T_ls__and2_6	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00581	0.00584	0.00581
sky130_osu_sc_18T_ls__and2_8	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00581	0.00584	0.00581
sky130_osu_sc_18T_ls__and2_l	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00421	0.00424	0.00421

SKY130_OSU_SC_18T_LS__AOI21

sky130_osu_sc_18T_ls_tt_1P80_25C.ccs
Cell Library: Process , Voltage 1.80,
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	0.00546	0.00566	0.00549	1.16825

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__aoi21_l	0.00000	0.00084	0.00112

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)	0.09357	0.99731	11.34540
	A1->Y (FR)	0.08005	0.94885	10.95720
	B0->Y (FR)	0.06788	0.98535	11.65260

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)	0.05162	0.57461	6.56896
	A1->Y (RF)	0.04691	0.59901	6.99052
	B0->Y (RF)	0.03191	0.58049	6.99675

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	0.01424	0.01410	0.01449
	A1	0.00000	0.00000	0.00000
	A1	0.01205	0.01191	0.01266
	B0	0.01093	0.01083	0.01247

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	0.00265	0.00214	0.00316
	A1	0.00000	0.00000	0.00000
	A1	0.00269	0.00223	0.00373
	B0	-0.00157	-0.00161	-0.00028

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)	-0.00513	-0.00542	-0.00540
	(!A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !Y)	-0.00548	-0.00550	-0.00550
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00549	-0.00553	-0.00550

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)	0.00538	0.00542	0.00540
	(!A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !Y)	0.00548	0.00554	0.00551
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00552	0.00556	0.00551

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)	-0.00508	-0.00536	-0.00535
	(!A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !Y)	-0.00543	-0.00545	-0.00544
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	-0.00583	-0.00582	-0.00587

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)	0.00531	0.00536	0.00535
	(!A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !Y)	0.00543	0.00549	0.00545
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	0.00586	0.00592	0.00589

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)	-0.00247	-0.00249	-0.00248

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)	0.00271	0.00272	0.00254

SKY130_OSU_SC_18T_LS__AOI22

sky130_osu_sc_18T_ls_tt_1P80_25C.ccs
Cell Library: Process , Voltage 1.80,
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_l	15.38460

Pin Capacitance Information

Cell Name	Pin Cap(pf)				Max Cap(pf)
	A0	A1	B0	B1	Y
sky130_osu_sc_18T_ls__aoi22_l	0.00546	0.00566	0.00585	0.00562	1.13095

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__aoi22_l	0.00000	0.00122	0.00224

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)	0.11872	1.03065	11.32810
	A1->Y (FR)	0.10565	0.99985	11.13460
	B0->Y (FR)	0.07186	0.97750	11.43350
	B1->Y (FR)	0.08495	1.01242	11.69430

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)	0.06830	0.58785	6.46300
	A1->Y (RF)	0.06362	0.61154	6.88116
	B0->Y (RF)	0.03518	0.57773	6.85120
	B1->Y (RF)	0.03998	0.55344	6.43362

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	0.01757	0.01741	0.01817
	A1	0.01539	0.01520	0.01596
	B0	0.01170	0.01154	0.01362
	B1	0.01378	0.01363	0.01576

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__aoi22_l	A0	0.00577	0.00524	0.00624
	A1	0.00583	0.00532	0.00684
	B0	-0.00099	-0.00105	0.00058
	B1	-0.00084	-0.00105	0.00007

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)	-0.00518	-0.00542	-0.00539
	(!A1 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * B1 * !Y)	-0.00548	-0.00551	-0.00550
	(!A1 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !B1 * Y)	-0.00548	-0.00552	-0.00549
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00548	-0.00552	-0.00549

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)	0.00537	0.00542	0.00539
	(!A1 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * B1 * !Y)	0.00548	0.00554	0.00551
	(!A1 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !B1 * Y)	0.00552	0.00554	0.00551
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00552	0.00554	0.00551

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)	-0.00513	-0.00531	-0.00534
	(!A0 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * B1 * !Y)	-0.00543	-0.00546	-0.00544
	(!A0 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !B1 * Y)	-0.00583	-0.00583	-0.00587
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	-0.00583	-0.00582	-0.00587

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)	0.00531	0.00531	0.00534
	(!A0 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * B1 * !Y)	0.00543	0.00549	0.00545
	(!A0 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !B1 * Y)	0.00585	0.00591	0.00589
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	0.00585	0.00591	0.00589

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)	-0.00248	-0.00250	-0.00249
	(A0 * A1 * !B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B1 * !Y)	-0.00248	-0.00250	-0.00248
	(!A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B1 * Y)	-0.00597	-0.00600	-0.00601
	(!A0 * A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B1 * Y)	-0.00596	-0.00601	-0.00601

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)	0.00282	0.00283	0.00258
	(A0 * A1 * !B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B1 * !Y)	0.00248	0.00250	0.00248
	(!A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B1 * Y)	0.00600	0.00610	0.00602
	(!A0 * A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B1 * Y)	0.00600	0.00610	0.00602

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)	-0.00250	-0.00252	-0.00251
	(A0 * A1 * !B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B0 * !Y)	-0.00249	-0.00251	-0.00250
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00557	-0.00559	-0.00557
	(!A0 * A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B0 * Y)	-0.00557	-0.00560	-0.00558

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)	0.00283	0.00284	0.00259
	(A0 * A1 * !B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B0 * !Y)	0.00249	0.00251	0.00250
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00561	0.00561	0.00559
	(!A0 * A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B0 * Y)	0.00561	0.00561	0.00559

SKY130_OSU_SC_18T_LS__BUFx

sky130_osu_sc_18T_ls_tt_1P80_25C.ccs
Cell Library: Process , Voltage 1.80,
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	0.00586	2.46093
sky130_osu_sc_18T_ls__buf_2	0.00586	4.80730
sky130_osu_sc_18T_ls__buf_4	0.00586	9.18778
sky130_osu_sc_18T_ls__buf_6	0.00098	1.80000
sky130_osu_sc_18T_ls__buf_8	0.00588	17.53108
sky130_osu_sc_18T_ls__buf_l	0.00454	1.70208

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__buf_1	0.00000	0.00176	0.00176
sky130_osu_sc_18T_ls__buf_2	0.00000	0.00263	0.00288
sky130_osu_sc_18T_ls__buf_4	0.00000	0.00438	0.00512
sky130_osu_sc_18T_ls__buf_6	0.00000	0.00000	0.00000
sky130_osu_sc_18T_ls__buf_8	0.00000	0.00789	0.00961
sky130_osu_sc_18T_ls__buf_l	0.00000	0.00103	0.00103

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)**	0.06463	0.59136	6.70989
sky130_osu_sc_18T_ls__buf_2	**A->Y (RR)**	0.07206	0.53265	6.79609
sky130_osu_sc_18T_ls__buf_4	**A->Y (RR)**	0.09709	0.53945	7.07631
sky130_osu_sc_18T_ls__buf_8	**A->Y (RR)**	0.14429	0.60382	7.54066
sky130_osu_sc_18T_ls__buf_l	**A->Y (RR)**	0.07185	0.66520	6.67847

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)**	0.07078	0.61835	6.56403
sky130_osu_sc_18T_ls__buf_2	**A->Y (FF)**	0.08324	0.60272	6.73801
sky130_osu_sc_18T_ls__buf_4	**A->Y (FF)**	0.11652	0.63857	7.04383
sky130_osu_sc_18T_ls__buf_8	**A->Y (FF)**	0.18564	0.72604	7.43581
sky130_osu_sc_18T_ls__buf_l	**A->Y (FF)**	0.07705	0.66932	6.48386

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	0.00578	0.00539	0.01913
sky130_osu_sc_18T_ls__buf_2	A	0.00000	0.00000	0.00000
	A	0.01223	0.01217	0.03268
sky130_osu_sc_18T_ls__buf_4	A	0.00000	0.00000	0.00000
	A	0.02599	0.02679	0.04013
sky130_osu_sc_18T_ls__buf_8	A	0.00000	0.00000	0.00000
	A	0.05340	0.05580	0.07060
sky130_osu_sc_18T_ls__buf_l	A	0.00000	0.00000	0.00000
	A	0.00436	0.00399	0.01451

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	0.01512	0.01579	0.03043
sky130_osu_sc_18T_ls__buf_2	A	0.00000	0.00000	0.00000
	A	0.01938	0.02073	0.03498
sky130_osu_sc_18T_ls__buf_4	A	0.00000	0.00000	0.00000
	A	0.03008	0.03258	0.04681
sky130_osu_sc_18T_ls__buf_8	A	0.00000	0.00000	0.00000
	A	0.05199	0.05595	0.07064
sky130_osu_sc_18T_ls__buf_l	A	0.00000	0.00000	0.00000
	A	0.01170	0.01209	0.02274

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
	-0.00076	-0.00077	-0.00076

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
	0.00076	0.00077	0.00076

SKY130_OSU_SC_18T_LS__DFFRx

sky130_osu_sc_18T_ls_tt_1P80_25C.ccs
Cell Library: Process , Voltage 1.80,
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	0.00561	0.00559	0.01608	2.39538	2.39135
sky130_osu_sc_18T_ls__dffr_l	0.00561	0.00559	0.01606	1.71142	1.69406

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__dffr_1	0.00000	0.00662	0.00755
sky130_osu_sc_18T_ls__dffr_l	0.00000	0.00589	0.00682

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)	0.32264	1.44304	15.85410
	QN->Q (FR)	0.03821	0.91499	13.12380
sky130_osu_sc_18T_ls__dffr_l	CK->Q (RR)	0.31534	1.54608	15.50710
	QN->Q (FR)	0.04046	0.96259	12.79270

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)	0.32133	1.46091	16.22960
	QN->Q (RF)	0.02928	0.72595	10.37990
	RN->Q (FF)	0.23789	1.53790	18.20360
sky130_osu_sc_18T_ls__dffr_l	CK->Q (RF)	0.32480	1.59301	16.05820
	QN->Q (RF)	0.02984	0.73176	9.72688
	RN->Q (FF)	0.24188	1.67021	18.02320

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)	0.28470	0.84266	6.93804
	RN->QN (FR)	0.20123	0.92023	8.90170
sky130_osu_sc_18T_ls__dffr_l	CK->QN (RR)	0.28456	0.90248	6.91868
	RN->QN (FR)	0.20201	0.97954	8.87604

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)**	0.27054	0.71670	4.98983
sky130_osu_sc_18T_ls__dffr_l	**CK->QN (RF)**	0.25897	0.72650	4.71493

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)	-0.06816	-0.09052	-0.17559
	setup	CK (R)	0.25508	0.29713	1.67176
sky130_osu_sc_18T_ls__dffr_l	hold	CK (R)	-0.07224	-0.09061	-0.17873
	setup	CK (R)	0.25508	0.29494	1.64689

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)	-0.13495	-0.42344	-1.76376
	setup	CK (R)	0.16681	0.43492	4.40766
sky130_osu_sc_18T_ls__dffr_l	hold	CK (R)	-0.13550	-0.42437	-1.96144
	setup	CK (R)	0.16678	0.43492	4.39493

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)	-0.06816	-0.09052	-0.17559
	setup	CK (R)	0.25508	0.29713	1.67176
sky130_osu_sc_18T_ls__dffr_l	hold	CK (R)	-0.07224	-0.09061	-0.17873
	setup	CK (R)	0.25508	0.29494	1.64689

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)	-0.13495	-0.42344	-1.76376
	setup	CK (R)	0.16681	0.43492	4.40766
sky130_osu_sc_18T_ls__dffr_l	hold	CK (R)	-0.13550	-0.42437	-1.96144
	setup	CK (R)	0.16678	0.43492	4.39493

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)	0.21157	0.25137	1.61449
	removal	CK (R)	-0.04030	-0.04629	-0.09748
sky130_osu_sc_18T_ls__dffr_l	recovery	CK (R)	0.20852	0.25282	1.60397
	removal	CK (R)	-0.04030	-0.04629	-0.09748

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)	0.21157	0.25137	1.61449
	removal	CK (R)	-0.04030	-0.04629	-0.09748
sky130_osu_sc_18T_ls__dffr_l	recovery	CK (R)	0.20852	0.25282	1.60397
	removal	CK (R)	-0.04030	-0.04629	-0.09748

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 ()	0.14315	0.52612	13.33370
	min_pulse_width	RN ()	0.13920	0.52612	13.33370
sky130_osu_sc_18T_ls__dffr_l	min_pulse_width	RN ()	0.13920	0.52612	13.33370
	min_pulse_width	RN ()	0.13920	0.52612	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 ()	0.14710	0.52612	13.33370
	min_pulse_width	CK ()	0.16289	0.52612	13.33370
sky130_osu_sc_18T_ls__dffr_l	min_pulse_width	CK ()	0.13920	0.52612	13.33370
	min_pulse_width	CK ()	0.15894	0.52612	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 ()	0.32871	0.52612	13.33370
	min_pulse_width	CK ()	0.13525	0.52612	13.33370
sky130_osu_sc_18T_ls__dffr_l	min_pulse_width	CK ()	0.32871	0.52612	13.33370
	min_pulse_width	CK ()	0.13525	0.52612	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	0.01467	0.00980	0.00000
sky130_osu_sc_18T_ls__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.01292	0.00949	-0.00451

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	0.01740	0.01467	0.00000
	RN	-0.00199	-0.12373	-1.94025
	RN	0.04021	0.03774	0.01184
sky130_osu_sc_18T_ls__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.01562	0.01377	0.00451
	RN	-0.00199	-0.10113	-1.38625
	RN	0.03842	0.03680	0.02730

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	0.01739	0.01467	0.00000
	RN	-0.00199	-0.12361	-1.93692
	RN	0.04020	0.03770	0.01179
sky130_osu_sc_18T_ls__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.01562	0.01375	0.00451
	RN	-0.00199	-0.10051	-1.37217
	RN	0.03841	0.03678	0.02762

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	0.01463	0.00981	0.00000
sky130_osu_sc_18T_ls__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.01288	0.00950	-0.00451

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	-0.00487	-0.00540	-0.00537
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.01823	0.01722	0.02687
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.00828	0.00738	0.01717
sky130_osu_sc_18T_ls__dffr_l	CK	0.00000	0.00000	0.00000
	CK	-0.00487	-0.00540	-0.00537
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.01823	0.01721	0.02687
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.00828	0.00738	0.01717

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	0.00533	0.00540	0.00537
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.03168	0.03123	0.04058
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.01476	0.01440	0.02376
sky130_osu_sc_18T_ls__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.00533	0.00540	0.00537
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.03168	0.03123	0.04058
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.01476	0.01440	0.02376

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)	0.00565	0.00516	0.02217
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.01602	0.01512	0.03203
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)	0.00565	0.00518	0.02217
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.01602	0.01512	0.03203

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)	0.01378	0.01384	0.03167
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.03010	0.02948	0.04699
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)	0.01378	0.01386	0.03167
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.03010	0.02948	0.04699

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)	-0.00121	-0.00175	0.01474
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.00880	0.00684	0.02380
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	-0.00181	-0.00259	0.01415
sky130_osu_sc_18T_ls__dffr_l	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	-0.00121	-0.00175	0.01474
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.00880	0.00684	0.02380
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	-0.00181	-0.00259	0.01415

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)	0.02148	0.02154	0.03937
	(D * RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * RN * !Q * QN)	0.04762	0.04658	0.06420
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.03669	0.03613	0.05265
	(!D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * Q * !QN)	0.04675	0.04626	0.07810
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.02494	0.02510	0.04188
sky130_osu_sc_18T_ls__dffr_l	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.02148	0.02147	0.03937
	(D * RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * RN * !Q * QN)	0.04762	0.04657	0.06420
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.03668	0.03613	0.05265
	(!D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * Q * !QN)	0.04674	0.04623	0.07810
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.02494	0.02510	0.04188

SKY130_OSU_SC_18T_LS__DFFSRx

sky130_osu_sc_18T_ls_tt_1P80_25C.ccs
Cell Library: Process , Voltage 1.80,
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	0.00557	0.00560	0.01193	0.01634	2.51612	2.47918
sky130_osu_sc_18T_ls__dffsr_l	0.00557	0.00560	0.01192	0.01634	1.69309	1.70290

Leakage Information

Cell Name	Leakage(nW)		
	Min.	**Avg**	**Max.**
sky130_osu_sc_18T_ls__dffsr_1	0.00000	0.00697	0.00814
sky130_osu_sc_18T_ls__dffsr_l	0.00000	0.00625	0.00741

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)	0.33251	1.44567	15.93260
	QN->Q (FR)	0.03635	0.89591	13.01890
	RN->Q (RR)	0.26487	1.39123	15.94750
	SN->Q (FR)	0.24987	1.53990	18.19640
sky130_osu_sc_18T_ls__dffsr_l	CK->Q (RR)	0.33474	1.56804	15.37700
	QN->Q (FR)	0.04039	0.95629	12.67530
	RN->Q (RR)	0.26831	1.51558	15.39250
	SN->Q (FR)	0.25233	1.65984	17.61630

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)	0.35993	1.49138	16.39940
	QN->Q (RF)	0.02671	0.68480	9.89899
	RN->Q (FF)	0.24599	1.54267	18.38710
sky130_osu_sc_18T_ls__dffsr_l	CK->Q (RF)	0.36806	1.63172	15.92920
	QN->Q (RF)	0.02978	0.72749	9.65552
	RN->Q (FF)	0.25407	1.68384	17.90370

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)	0.32444	0.88258	7.01096
	RN->QN (FR)	0.21087	0.93406	8.99239
sky130_osu_sc_18T_ls__dffsr_l	CK->QN (RR)	0.32735	0.95085	7.00035
	RN->QN (FR)	0.21337	1.00268	8.97490

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)	0.28384	0.72949	4.94653
	RN->QN (RF)	0.21731	0.67585	4.96433
	SN->QN (FF)	0.20168	0.82392	7.20606
sky130_osu_sc_18T_ls__dffsr_l	CK->QN (RF)	0.27968	0.75857	4.79386
	RN->QN (RF)	0.21367	0.70588	4.80821
	SN->QN (FF)	0.19774	0.85076	7.03205

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)	-0.07421	-0.10020	-0.25109
	setup	CK (R)	0.25377	0.29046	1.54929
sky130_osu_sc_18T_ls__dffsr_l	hold	CK (R)	-0.07552	-0.09935	-0.25141
	setup	CK (R)	0.25052	0.29328	1.54773

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)	-0.15176	-0.44172	-1.38269
	setup	CK (R)	0.18861	0.45349	4.08119
sky130_osu_sc_18T_ls__dffsr_l	hold	CK (R)	-0.15313	-0.44292	-1.37453
	setup	CK (R)	0.18803	0.45349	4.08119

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)	-0.07421	-0.10020	-0.25109
	setup	CK (R)	0.25377	0.29046	1.54929
sky130_osu_sc_18T_ls__dffsr_l	hold	CK (R)	-0.07552	-0.09935	-0.25141
	setup	CK (R)	0.25052	0.29328	1.54773

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)	-0.15176	-0.44172	-1.38269
	setup	CK (R)	0.18861	0.45349	4.08119
sky130_osu_sc_18T_ls__dffsr_l	hold	CK (R)	-0.15313	-0.44292	-1.37453
	setup	CK (R)	0.18803	0.45349	4.08119

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)	0.18960	0.22250	1.37533
	removal	CK (R)	-0.02126	-0.02708	-0.05989
	hold	SN (R)	-0.19279	-0.38484	-1.70081
	setup	SN (R)	0.21905	0.43503	7.19538
sky130_osu_sc_18T_ls__dffsr_l	recovery	CK (R)	0.19015	0.22150	1.36962
	removal	CK (R)	-0.02126	-0.02708	-0.05989
	hold	SN (R)	-0.18823	-0.37572	-1.64905
	setup	SN (R)	0.21525	0.42529	7.18930

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)	0.18960	0.22250	1.37533
	removal	CK (R)	-0.02126	-0.02708	-0.05989
	hold	SN (R)	-0.19362	-0.38484	-1.70081
	hold	SN (R)	-0.19279	-0.38572	-1.70940
	setup	SN (R)	0.21905	0.43503	7.10453
	setup	SN (R)	0.21316	0.43451	7.19538
sky130_osu_sc_18T_ls__dffsr_l	recovery	CK (R)	0.19015	0.22150	1.36962
	removal	CK (R)	-0.02126	-0.02708	-0.05989
	hold	SN (R)	-0.18942	-0.37572	-1.64905
	hold	SN (R)	-0.18823	-0.37706	-1.66195
	setup	SN (R)	0.21525	0.42317	7.18824
	setup	SN (R)	0.20214	0.42529	7.18930

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 ()	0.16289	0.52612	13.33370
	min_pulse_width	RN ()	0.16289	0.52612	13.33370
sky130_osu_sc_18T_ls__dffsr_l	min_pulse_width	RN ()	0.16289	0.52612	13.33370
	min_pulse_width	RN ()	0.15894	0.52612	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)	0.04682	0.08900	7.25977
	removal	CK (R)	-0.01656	-0.06649	-0.35391
sky130_osu_sc_18T_ls__dffsr_l	recovery	CK (R)	0.04641	0.08906	7.07000
	removal	CK (R)	-0.01656	-0.06649	-0.35285

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)	0.04682	0.08900	7.25977
	removal	CK (R)	-0.01656	-0.06649	-0.35391
sky130_osu_sc_18T_ls__dffsr_l	recovery	CK (R)	0.04641	0.08906	7.07000
	removal	CK (R)	-0.01656	-0.06649	-0.35285

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 ()	0.19842	0.52612	13.33370
	min_pulse_width	SN ()	0.19842	0.52612	13.33370
sky130_osu_sc_18T_ls__dffsr_l	min_pulse_width	SN ()	0.19842	0.52612	13.33370
	min_pulse_width	SN ()	0.18658	0.52612	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 ()	0.15104	0.52612	13.33370
	min_pulse_width	CK ()	0.18263	0.52612	13.33370
sky130_osu_sc_18T_ls__dffsr_l	min_pulse_width	CK ()	0.14315	0.52612	13.33370
	min_pulse_width	CK ()	0.17868	0.52612	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 ()	0.32871	0.52612	13.33370
	min_pulse_width	CK ()	0.15894	0.52612	13.33370
sky130_osu_sc_18T_ls__dffsr_l	min_pulse_width	CK ()	0.32476	0.52612	13.33370
	min_pulse_width	CK ()	0.15894	0.52612	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	0.01864	0.01525	0.00000
	RN	0.03488	0.03179	-0.00640
	SN	-0.00199	-0.12744	-2.03806
	SN	0.03911	0.03586	-0.00382
sky130_osu_sc_18T_ls__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.01700	0.01363	-0.00664
	RN	0.03324	0.03013	0.00272
	SN	-0.00199	-0.10048	-1.37141
	SN	0.03747	0.03419	0.00530

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	0.02008	0.01785	0.00000
	RN	-0.00199	-0.12744	-2.03805
	RN	0.04123	0.03901	0.01857
sky130_osu_sc_18T_ls__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.01846	0.01675	0.00803
	RN	-0.00199	-0.10048	-1.37140
	RN	0.03958	0.03787	0.02961

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	0.02007	0.01786	0.00000
	RN	-0.00199	-0.12631	-2.00812
	RN	0.04123	0.03900	0.01809
sky130_osu_sc_18T_ls__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.01845	0.01676	0.00776
	RN	-0.00199	-0.10083	-1.37934
	RN	0.03958	0.03786	0.02909

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	0.01859	0.01522	0.00000
	RN	0.03483	0.03174	-0.00493
	SN	-0.00199	-0.12631	-2.00800
	SN	0.03906	0.03585	-0.00214
sky130_osu_sc_18T_ls__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.01696	0.01356	-0.00741
	RN	0.03319	0.03008	0.00237
	SN	-0.00199	-0.10083	-1.37924
	SN	0.03742	0.03418	0.00515

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	-0.00521	-0.00539	-0.00537
	(!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)	0.02371	0.02272	0.03230
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.00946	0.00859	0.01823
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.00940	0.00852	0.01816
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.00951	0.00863	0.01829
sky130_osu_sc_18T_ls__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	-0.00521	-0.00539	-0.00537
	(!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)	0.02371	0.02272	0.03230
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.00946	0.00859	0.01823
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.00940	0.00852	0.01816
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.00951	0.00863	0.01829

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	0.00537	0.00539	0.00537
	(!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)	0.03594	0.03532	0.04410
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.01561	0.01528	0.02437
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.01566	0.01533	0.02440
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.01555	0.01523	0.02431
sky130_osu_sc_18T_ls__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.00537	0.00539	0.00537
	(!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)	0.03593	0.03531	0.04409
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.01560	0.01527	0.02436
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.01565	0.01532	0.02439
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.01554	0.01522	0.02430

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)	0.00459	0.00426	0.02084
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.01917	0.01831	0.03469
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)	0.00459	0.00425	0.02084
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.01918	0.01831	0.03469

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)	0.01485	0.01500	0.03310
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.03188	0.03113	0.04870
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)	0.01483	0.01499	0.03309
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.03187	0.03111	0.04869

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)	-0.01208	-0.01209	-0.01217
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	-0.01214	-0.01247	-0.01244
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	-0.01187	-0.01203	-0.01201
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.00784	0.00703	0.01816
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)	-0.01208	-0.01210	-0.01217
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	-0.01212	-0.01245	-0.01242
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	-0.01186	-0.01203	-0.01200
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.00785	0.00705	0.01817

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)	0.01214	0.01226	0.01220
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.01237	0.01247	0.01244
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	0.01197	0.01210	0.01202
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.02455	0.02403	0.03242
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)	0.01214	0.01226	0.01221
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.01235	0.01245	0.01242
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	0.01196	0.01209	0.01201
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.02454	0.02402	0.03251

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)	-0.00121	-0.00175	0.01474
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.00993	0.00811	0.02494
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.00984	0.00800	0.02485
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	-0.00155	-0.00233	0.01442
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.00676	0.00514	0.03771
sky130_osu_sc_18T_ls__dffsr_l	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	-0.00121	-0.00175	0.01474
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.00992	0.00810	0.02493
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.00983	0.00799	0.02483
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	-0.00155	-0.00232	0.01441
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.00675	0.00514	0.03770

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)	0.05322	0.05223	0.06975
	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.02154	0.02161	0.03943
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.03749	0.03686	0.05348
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.03759	0.03703	0.05351
	(!D * RN * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * Q * !QN)	0.05092	0.05042	0.08175
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.02474	0.02489	0.04167
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.02876	0.02878	0.06255
sky130_osu_sc_18T_ls__dffsr_l	**(D * RN * SN * !Q * QN)**	0.00000	0.00000	0.00000
	(D * RN * SN * !Q * QN)	0.05322	0.05224	0.06976
	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.02154	0.02162	0.03943
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.03749	0.03686	0.05348
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.03759	0.03703	0.05351
	(!D * RN * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * Q * !QN)	0.05091	0.05041	0.08174
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.02473	0.02489	0.04167
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.02875	0.02877	0.06254

SKY130_OSU_SC_18T_LS__DFFSx

sky130_osu_sc_18T_ls_tt_1P80_25C.ccs
Cell Library: Process , Voltage 1.80,
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	0.00559	0.00940	0.01610	2.40082	2.41410
sky130_osu_sc_18T_ls__dffs_l	0.00559	0.00940	0.01610	1.71271	1.71092

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__dffs_1	0.00000	0.00608	0.00779
sky130_osu_sc_18T_ls__dffs_l	0.00000	0.00535	0.00707

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)	0.24310	1.34784	15.72720
	QN->Q (FR)	0.03803	0.90894	13.04000
	SN->Q (FR)	0.19161	1.50851	17.96800
sky130_osu_sc_18T_ls__dffs_l	CK->Q (RR)	0.24219	1.46016	15.38620
	QN->Q (FR)	0.04029	0.95541	12.72530
	SN->Q (FR)	0.18988	1.61279	17.58810

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)	0.35388	1.49662	16.24440
	QN->Q (RF)	0.02905	0.72285	10.34430
sky130_osu_sc_18T_ls__dffs_l	CK->Q (RF)	0.35538	1.62530	16.05550
	QN->Q (RF)	0.02966	0.72688	9.69287

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)	0.31614	0.88132	6.99951
sky130_osu_sc_18T_ls__dffs_l	CK->QN (RR)	0.31409	0.93866	6.99101

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)	0.19601	0.62733	4.92758
	SN->QN (FF)	0.14413	0.78849	7.16306
sky130_osu_sc_18T_ls__dffs_l	CK->QN (RF)	0.19064	0.64619	4.66380
	SN->QN (FF)	0.13801	0.80023	6.86622

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)	-0.05239	-0.07645	-0.15268
	setup	CK (R)	0.17202	0.22179	1.32585
sky130_osu_sc_18T_ls__dffs_l	hold	CK (R)	-0.05411	-0.07766	-0.15512
	setup	CK (R)	0.17225	0.22228	1.32829

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)	-0.13741	-0.42272	-2.84870
	setup	CK (R)	0.17985	0.43969	4.00432
sky130_osu_sc_18T_ls__dffs_l	hold	CK (R)	-0.13604	-0.42272	-2.90904
	setup	CK (R)	0.17979	0.43969	4.00426

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)	-0.05239	-0.07645	-0.15268
	setup	CK (R)	0.17202	0.22179	1.32585
sky130_osu_sc_18T_ls__dffs_l	hold	CK (R)	-0.05411	-0.07766	-0.15512
	setup	CK (R)	0.17225	0.22228	1.32829

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)	-0.13741	-0.42272	-2.84870
	setup	CK (R)	0.17985	0.43969	4.00432
sky130_osu_sc_18T_ls__dffs_l	hold	CK (R)	-0.13604	-0.42272	-2.90904
	setup	CK (R)	0.17979	0.43969	4.00426

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)	0.04983	0.08628	7.04424
	removal	CK (R)	-0.01774	-0.06220	-0.34939
sky130_osu_sc_18T_ls__dffs_l	recovery	CK (R)	0.04962	0.08615	6.89646
	removal	CK (R)	-0.01774	-0.06220	-0.34939

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)	0.04983	0.08628	7.04424
	removal	CK (R)	-0.01774	-0.06220	-0.34939
sky130_osu_sc_18T_ls__dffs_l	recovery	CK (R)	0.04962	0.08615	6.89646
	removal	CK (R)	-0.01774	-0.06220	-0.34939

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 ()	0.13130	0.52612	13.33370
	min_pulse_width	SN ()	0.13130	0.52612	13.33370
sky130_osu_sc_18T_ls__dffs_l	min_pulse_width	SN ()	0.12735	0.52612	13.33370
	min_pulse_width	SN ()	0.12341	0.52612	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 ()	0.10366	0.52612	13.33370
	min_pulse_width	CK ()	0.17078	0.52612	13.33370
sky130_osu_sc_18T_ls__dffs_l	min_pulse_width	CK ()	0.09972	0.52612	13.33370
	min_pulse_width	CK ()	0.16684	0.52612	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 ()	0.24580	0.52612	13.33370
	min_pulse_width	CK ()	0.15104	0.52612	13.33370
sky130_osu_sc_18T_ls__dffs_l	min_pulse_width	CK ()	0.24580	0.52612	13.33370
	min_pulse_width	CK ()	0.15104	0.52612	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	0.01470	0.00981	0.00000
	SN	-0.00199	-0.12390	-1.94467
	SN	0.03284	0.02808	-0.02753
sky130_osu_sc_18T_ls__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.01294	0.00947	-0.00570
	SN	-0.00199	-0.10118	-1.38730
	SN	0.03107	0.02777	0.00144

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	0.01728	0.01476	0.00000
sky130_osu_sc_18T_ls__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.01552	0.01378	0.00570

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	0.01728	0.01474	0.00000
sky130_osu_sc_18T_ls__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.01552	0.01379	0.00536

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	0.01466	0.00982	0.00000
	SN	-0.00199	-0.12431	-1.95519
	SN	0.03280	0.02806	-0.02693
sky130_osu_sc_18T_ls__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.01289	0.00945	-0.00536
	SN	-0.00199	-0.10111	-1.38574
	SN	0.03102	0.02775	0.00172

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	-0.00527	-0.00545	-0.00542
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.01744	0.01636	0.02608
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.00808	0.00719	0.01697
sky130_osu_sc_18T_ls__dffs_l	CK	0.00000	0.00000	0.00000
	CK	-0.00527	-0.00545	-0.00542
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.01744	0.01636	0.02608
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.00808	0.00719	0.01697

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	0.00543	0.00545	0.00542
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.03083	0.03020	0.03938
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.01501	0.01466	0.02400
sky130_osu_sc_18T_ls__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.00543	0.00545	0.00542
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.03083	0.03020	0.03938
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.01501	0.01466	0.02400

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)	-0.00881	-0.00890	-0.00887
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.00665	0.00625	0.01656
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)	-0.00881	-0.00890	-0.00887
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.00665	0.00625	0.01656

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)	0.00887	0.00895	0.00889
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.01669	0.01653	0.02745
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)	0.00887	0.00895	0.00889
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.01669	0.01653	0.02745

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)	-0.00123	-0.00176	0.01474
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	-0.00170	-0.00248	0.01427
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.00530	0.00375	0.03677
sky130_osu_sc_18T_ls__dffs_l	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	-0.00124	-0.00176	0.01474
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	-0.00170	-0.00248	0.01427
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.00530	0.00375	0.03677

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)	0.04679	0.04579	0.06376
	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.02149	0.02148	0.03940
	(!D * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * SN * Q * !QN)	0.04575	0.04495	0.07681
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	0.02480	0.02500	0.04176
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.02805	0.02819	0.06229
sky130_osu_sc_18T_ls__dffs_l	(D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * SN * !Q * QN)	0.04679	0.04579	0.06376
	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.02149	0.02157	0.03940
	(!D * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * SN * Q * !QN)	0.04575	0.04514	0.07681
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	0.02480	0.02499	0.04176
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.02805	0.02819	0.06229

SKY130_OSU_SC_18T_LS__DFFx

sky130_osu_sc_18T_ls_tt_1P80_25C.ccs
Cell Library: Process , Voltage 1.80,
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	0.00575	0.01600	2.51819	2.50948
sky130_osu_sc_18T_ls__dff_l	0.00575	0.01600	1.69025	1.69136

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__dff_1	0.00000	0.00642	0.00695
sky130_osu_sc_18T_ls__dff_l	0.00000	0.00569	0.00622

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)	0.21598	1.30746	15.75100
	QN->Q (FR)	0.03604	0.89311	12.96670
sky130_osu_sc_18T_ls__dff_l	CK->Q (RR)	0.22269	1.44202	15.26230
	QN->Q (FR)	0.04103	0.96824	12.82650

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)	0.30229	1.42555	16.29970
	QN->Q (RF)	0.02658	0.68208	9.86979
sky130_osu_sc_18T_ls__dff_l	CK->Q (RF)	0.31247	1.57794	15.94530
	QN->Q (RF)	0.02972	0.72354	9.62481

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)	0.26779	0.82070	7.00087
sky130_osu_sc_18T_ls__dff_l	CK->QN (RR)	0.27239	0.89372	6.96346

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)	0.17226	0.59581	4.84075
sky130_osu_sc_18T_ls__dff_l	CK->QN (RF)	0.17196	0.62807	4.60197

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)	-0.05062	-0.07596	-0.18160
	setup	CK (R)	0.14139	0.19585	1.33440
sky130_osu_sc_18T_ls__dff_l	hold	CK (R)	-0.05062	-0.07596	-0.18357
	setup	CK (R)	0.14393	0.19468	1.34751

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)	-0.12739	-0.42518	-2.92152
	setup	CK (R)	0.15387	0.43739	4.49168
sky130_osu_sc_18T_ls__dff_l	hold	CK (R)	-0.12745	-0.42542	-2.90547
	setup	CK (R)	0.15368	0.43739	4.51023

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 ()	0.09577	0.52612	13.33370
	min_pulse_width	CK ()	0.15894	0.52612	13.33370
sky130_osu_sc_18T_ls__dff_l	min_pulse_width	CK ()	0.09182	0.52612	13.33370
	min_pulse_width	CK ()	0.15499	0.52612	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** ()	0.21816	0.52612	13.33370
	min_pulse_width	**CK** ()	0.11946	0.52612	13.33370
sky130_osu_sc_18T_ls__dff_l	**min_pulse_width**	**CK** ()	0.21421	0.52612	13.33370
	min_pulse_width	**CK** ()	0.11946	0.52612	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	0.01555	0.01195	0.00000
sky130_osu_sc_18T_ls__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.01392	0.01037	-0.00400

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	0.01763	0.01544	0.00000
sky130_osu_sc_18T_ls__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.01603	0.01419	0.00400

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	0.01763	0.01547	0.00000
sky130_osu_sc_18T_ls__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.01602	0.01418	0.00393

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	0.01551	0.01202	0.00000
sky130_osu_sc_18T_ls__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.01387	0.01047	-0.00393

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	-0.00487	-0.00537	-0.00536
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.01635	0.01546	0.02526
sky130_osu_sc_18T_ls__dff_l	CK	0.00000	0.00000	0.00000
	CK	-0.00487	-0.00537	-0.00536
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.01636	0.01548	0.02527

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	0.00532	0.00537	0.00536
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.03166	0.03112	0.04064
sky130_osu_sc_18T_ls__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.00532	0.00537	0.00536
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.03167	0.03112	0.04065

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)	-0.00124	-0.00176	0.01475
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	-0.00168	-0.00245	0.01432
sky130_osu_sc_18T_ls__dff_l	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	-0.00124	-0.00176	0.01475
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	-0.00168	-0.00245	0.01432

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)	0.02141	0.02161	0.03935
	(D * !Q * QN)	0.00000	0.00000	0.00000
	(D * !Q * QN)	0.04580	0.04479	0.06311
	(!D * Q * !QN)	0.00000	0.00000	0.00000
	(!D * Q * !QN)	0.04639	0.04594	0.07800
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.02471	0.02495	0.04167
sky130_osu_sc_18T_ls__dff_l	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.02141	0.02162	0.03935
	(D * !Q * QN)	0.00000	0.00000	0.00000
	(D * !Q * QN)	0.04581	0.04480	0.06312
	(!D * Q * !QN)	0.00000	0.00000	0.00000
	(!D * Q * !QN)	0.04639	0.04596	0.07800
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.02471	0.02495	0.04167

SKY130_OSU_SC_18T_LS__INVx

sky130_osu_sc_18T_ls_tt_1P80_25C.ccs
Cell Library: Process , Voltage 1.80,
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	0.00564	2.42661
sky130_osu_sc_18T_ls__inv_10	0.05333	21.42934
sky130_osu_sc_18T_ls__inv_2	0.01086	4.72095
sky130_osu_sc_18T_ls__inv_3	0.01619	6.80720
sky130_osu_sc_18T_ls__inv_4	0.02144	9.02902
sky130_osu_sc_18T_ls__inv_6	0.03216	13.45781
sky130_osu_sc_18T_ls__inv_8	0.04275	17.67691
sky130_osu_sc_18T_ls__inv_l	0.00429	1.64839

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__inv_1	0.00000	0.00088	0.00112
sky130_osu_sc_18T_ls__inv_10	0.00000	0.00877	0.01122
sky130_osu_sc_18T_ls__inv_2	0.00000	0.00175	0.00224
sky130_osu_sc_18T_ls__inv_3	0.00000	0.00263	0.00337
sky130_osu_sc_18T_ls__inv_4	0.00000	0.00351	0.00449
sky130_osu_sc_18T_ls__inv_6	0.00000	0.00526	0.00673
sky130_osu_sc_18T_ls__inv_8	0.00000	0.00701	0.00898
sky130_osu_sc_18T_ls__inv_l	0.00000	0.00051	0.00078

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)**	0.03414	0.82542	11.83990
sky130_osu_sc_18T_ls__inv_10	**A->Y (FR)**	0.05445	0.58937	11.78290
sky130_osu_sc_18T_ls__inv_2	**A->Y (FR)**	0.02876	0.71588	11.71900
sky130_osu_sc_18T_ls__inv_3	**A->Y (FR)**	0.03215	0.67777	11.79230
sky130_osu_sc_18T_ls__inv_4	**A->Y (FR)**	0.03371	0.64488	11.67560
sky130_osu_sc_18T_ls__inv_6	**A->Y (FR)**	0.03872	0.61488	11.77760
sky130_osu_sc_18T_ls__inv_8	**A->Y (FR)**	0.04610	0.59739	11.78300
sky130_osu_sc_18T_ls__inv_l	**A->Y (FR)**	0.03820	0.89130	11.72910

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)**	0.02374	0.60072	8.61047
sky130_osu_sc_18T_ls__inv_10	**A->Y (RF)**	0.04094	0.38853	8.38144
sky130_osu_sc_18T_ls__inv_2	**A->Y (RF)**	0.02048	0.51429	8.51703
sky130_osu_sc_18T_ls__inv_3	**A->Y (RF)**	0.02264	0.47913	8.56382
sky130_osu_sc_18T_ls__inv_4	**A->Y (RF)**	0.02313	0.45072	8.49345
sky130_osu_sc_18T_ls__inv_6	**A->Y (RF)**	0.02959	0.42100	8.53892
sky130_osu_sc_18T_ls__inv_8	**A->Y (RF)**	0.03525	0.40058	8.51030
sky130_osu_sc_18T_ls__inv_l	**A->Y (RF)**	0.02636	0.63916	8.42116

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	0.00796	0.00812	0.00983
sky130_osu_sc_18T_ls__inv_10	A	0.00000	0.00000	0.00000
	A	0.06950	0.07369	0.09168
sky130_osu_sc_18T_ls__inv_2	A	0.00000	0.00000	0.00000
	A	0.01442	0.01511	0.01846
sky130_osu_sc_18T_ls__inv_3	A	0.00000	0.00000	0.00000
	A	0.02202	0.02297	0.02815
sky130_osu_sc_18T_ls__inv_4	A	0.00000	0.00000	0.00000
	A	0.02851	0.02954	0.03677
sky130_osu_sc_18T_ls__inv_6	A	0.00000	0.00000	0.00000
	A	0.04216	0.04469	0.05509
sky130_osu_sc_18T_ls__inv_8	A	0.00000	0.00000	0.00000
	A	0.05579	0.06031	0.07235
sky130_osu_sc_18T_ls__inv_l	A	0.00000	0.00000	0.00000
	A	0.00607	0.00614	0.00730

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	-0.00185	-0.00176	-0.00058
sky130_osu_sc_18T_ls__inv_10	**A**	0.00000	0.00000	0.00000
	A	-0.02742	-0.02704	-0.01151
sky130_osu_sc_18T_ls__inv_2	**A**	0.00000	0.00000	0.00000
	A	-0.00562	-0.00519	-0.00264
sky130_osu_sc_18T_ls__inv_3	**A**	0.00000	0.00000	0.00000
	A	-0.00758	-0.00700	-0.00293
sky130_osu_sc_18T_ls__inv_4	**A**	0.00000	0.00000	0.00000
	A	-0.01140	-0.01068	-0.00506
sky130_osu_sc_18T_ls__inv_6	**A**	0.00000	0.00000	0.00000
	A	-0.01741	-0.01597	-0.00747
sky130_osu_sc_18T_ls__inv_8	**A**	0.00000	0.00000	0.00000
	A	-0.02309	-0.02142	-0.00981
sky130_osu_sc_18T_ls__inv_l	**A**	0.00000	0.00000	0.00000
	A	-0.00126	-0.00123	-0.00037

SKY130_OSU_SC_18T_LS__MUX2

sky130_osu_sc_18T_ls_tt_1P80_25C.ccs
Cell Library: Process , Voltage 1.80,
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	0.45160	0.45170	0.01144	0.45241

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__mux2_1	0.00000	0.00237	0.00333

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)	-	0.01766	0.30524	2.95760
	A1->Y (RR)	-	0.01906	0.30595	2.95759
	S0->Y (RR)	(!A0 * A1)	0.05175	0.28987	0.95961
	S0->Y (FR)	(A0 * !A1)	0.05050	0.45483	3.69442

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)	-	0.01546	0.28914	2.79263
	A1->Y (FF)	-	0.01525	0.28736	2.78361
	S0->Y (FF)	(!A0 * A1)	0.07509	0.42621	2.66628
	S0->Y (RF)	(A0 * !A1)	0.02849	0.31924	2.30329

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	-	-0.00831	-0.00832	-0.00833
	A1	-	0.00000	0.00000	0.00000
	A1	-	-0.00582	-0.00583	-0.00583
	S0	(A0 * !A1)	0.00000	0.00000	0.00000
	S0	(A0 * !A1)	0.00911	0.00950	0.02865
	S0	(!A0 * A1)	0.00000	0.00000	0.00000
	S0	(!A0 * A1)	-0.00577	-0.00614	0.01194

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	-	0.00831	0.00832	0.00833
	A1	-	0.00000	0.00000	0.00000
	A1	-	0.00582	0.00583	0.00583
	S0	(A0 * !A1)	0.00000	0.00000	0.00000
	S0	(A0 * !A1)	0.00159	0.00137	0.01996
	S0	(!A0 * A1)	0.00000	0.00000	0.00000
	S0	(!A0 * A1)	0.02147	0.02171	0.03990

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)	-0.00213	-0.00212	-0.00212

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)	0.00213	0.00212	0.00212

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)	-0.00253	-0.00252	-0.00252

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)	0.00253	0.00252	0.00252

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)	-0.00214	-0.00248	0.01594
	(!A0 * !A1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !Y)	-0.00207	-0.00242	0.01604

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)	0.01616	0.01631	0.03478
	(!A0 * !A1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !Y)	0.01440	0.01472	0.03386

SKY130_OSU_SC_18T_LS__NAND2x

sky130_osu_sc_18T_ls_tt_1P80_25C.ccs
Cell Library: Process , Voltage 1.80,
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	0.00566	0.00562	2.39043
sky130_osu_sc_18T_ls__nand2_l	0.00430	0.00428	1.63862

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__nand2_1	0.00000	0.00088	0.00224
sky130_osu_sc_18T_ls__nand2_l	0.00000	0.00053	0.00155

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)	0.03513	0.82867	11.83400
	B->Y (FR)	0.04147	0.82641	11.70340
sky130_osu_sc_18T_ls__nand2_l	A->Y (FR)	0.03914	0.89540	11.75530
	B->Y (FR)	0.04666	0.89838	11.70400

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)	0.03316	0.73491	10.70490
	B->Y (RF)	0.03774	0.71884	10.33630
sky130_osu_sc_18T_ls__nand2_l	A->Y (RF)	0.03735	0.80174	10.56340
	B->Y (RF)	0.04175	0.78393	10.17950

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	0.00850	0.00862	0.01024
	B	0.00000	0.00000	0.00000
	B	0.01071	0.01071	0.01229
sky130_osu_sc_18T_ls__nand2_l	A	0.00000	0.00000	0.00000
	A	0.00642	0.00649	0.00766
	B	0.00000	0.00000	0.00000
	B	0.00805	0.00803	0.00909

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	-0.00119	-0.00113	-0.00012
	B	0.00000	0.00000	0.00000
	B	-0.00112	-0.00121	-0.00046
sky130_osu_sc_18T_ls__nand2_l	A	0.00000	0.00000	0.00000
	A	-0.00085	-0.00088	-0.00011
	B	0.00000	0.00000	0.00000
	B	-0.00081	-0.00090	-0.00034

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)	-0.00599	-0.00604	-0.00603
sky130_osu_sc_18T_ls__nand2_l	(!B * Y)	0.00000	0.00000	0.00000
	(!B * Y)	-0.00431	-0.00434	-0.00434

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)	0.00602	0.00607	0.00605
sky130_osu_sc_18T_ls__nand2_l	(!B * Y)	0.00000	0.00000	0.00000
	(!B * Y)	0.00432	0.00436	0.00435

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)	-0.00561	-0.00564	-0.00562
sky130_osu_sc_18T_ls__nand2_l	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00403	-0.00405	-0.00403

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)	0.00565	0.00567	0.00563
sky130_osu_sc_18T_ls__nand2_l	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00405	0.00407	0.00404

SKY130_OSU_SC_18T_LS__NOR2x

sky130_osu_sc_18T_ls_tt_1P80_25C.ccs
Cell Library: Process , Voltage 1.80,
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	0.00563	0.00596	1.26743
sky130_osu_sc_18T_ls__nor2_l	0.00421	0.00457	0.87488

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__nor2_1	0.00000	0.00091	0.00126
sky130_osu_sc_18T_ls__nor2_l	0.00000	0.00054	0.00078

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)	0.07080	0.96058	11.44520
	B->Y (FR)	0.05313	0.95191	11.63370
sky130_osu_sc_18T_ls__nor2_l	A->Y (FR)	0.07799	1.05223	11.39590
	B->Y (FR)	0.06250	1.04356	11.60680

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)	0.03204	0.50224	6.03535
	B->Y (RF)	0.02522	0.49009	6.01379
sky130_osu_sc_18T_ls__nor2_l	A->Y (RF)	0.03413	0.53065	5.94302
	B->Y (RF)	0.02788	0.52374	5.92491

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	0.01169	0.01160	0.01243
	B	0.00000	0.00000	0.00000
	B	0.00866	0.00871	0.01090
sky130_osu_sc_18T_ls__nor2_l	A	0.00000	0.00000	0.00000
	A	0.00847	0.00837	0.00901
	B	0.00000	0.00000	0.00000
	B	0.00652	0.00626	0.00812

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	0.00101	0.00066	0.00227
	B	0.00000	0.00000	0.00000
	B	-0.00145	-0.00145	0.00019
sky130_osu_sc_18T_ls__nor2_l	A	0.00000	0.00000	0.00000
	A	0.00065	0.00046	0.00163
	B	0.00000	0.00000	0.00000
	B	-0.00093	-0.00092	0.00025

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)	-0.00490	-0.00542	-0.00538
sky130_osu_sc_18T_ls__nor2_l	(B * !Y)	0.00000	0.00000	0.00000
	(B * !Y)	-0.00342	-0.00377	-0.00376

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)	0.00535	0.00542	0.00538
sky130_osu_sc_18T_ls__nor2_l	(B * !Y)	0.00000	0.00000	0.00000
	(B * !Y)	0.00374	0.00377	0.00376

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)	-0.00248	-0.00250	-0.00249
sky130_osu_sc_18T_ls__nor2_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	-0.00176	-0.00178	-0.00177

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)	0.00261	0.00262	0.00253
sky130_osu_sc_18T_ls__nor2_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00185	0.00186	0.00180

SKY130_OSU_SC_18T_LS__OAI21

sky130_osu_sc_18T_ls_tt_1P80_25C.ccs
Cell Library: Process , Voltage 1.80,
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	0.00570	0.00574	0.00476	1.25954

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__oai21_l	0.00000	0.00097	0.00190

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)	0.07186	0.97408	11.67010
	A1->Y (FR)	0.09395	0.98764	11.48670
	B0->Y (FR)	0.04767	0.81658	10.08100

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)	0.04708	0.60825	7.20811
	A1->Y (RF)	0.05642	0.60657	7.05872
	B0->Y (RF)	0.03631	0.64387	7.87437

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	0.01182	0.01169	0.01365
	A1	0.00000	0.00000	0.00000
	A1	0.01486	0.01465	0.01543
	B0	0.01006	0.00924	0.01195

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	0.00026	0.00004	0.00103
	A1	0.00000	0.00000	0.00000
	A1	0.00268	0.00222	0.00317
	B0	0.00378	0.00365	0.00478

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)	-0.00248	-0.00250	-0.00250
	(A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * Y)	-0.00526	-0.00544	-0.00541
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00551	-0.00554	-0.00552

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)	0.00261	0.00263	0.00254
	(A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * Y)	0.00539	0.00544	0.00541
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00552	0.00557	0.00553

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)	-0.00482	-0.00533	-0.00531
	(A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * Y)	-0.00522	-0.00540	-0.00538
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	-0.00546	-0.00549	-0.00547

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)	0.00527	0.00533	0.00531
	(A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * Y)	0.00535	0.00540	0.00538
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	0.00547	0.00552	0.00549

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)	-0.00438	-0.00442	-0.00446

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)	0.00445	0.00450	0.00448

SKY130_OSU_SC_18T_LS__OAI22

sky130_osu_sc_18T_ls_tt_1P80_25C.ccs
Cell Library: Process , Voltage 1.80,
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	0.00552	0.00581	0.00596	0.00581	1.26018

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__oai22_1	0.00000	0.00134	0.00224

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)	0.10237	0.99290	11.45300
	A1->Y (FR)	0.08473	0.98230	11.64290
	B0->Y (FR)	0.06021	0.95669	11.63500
	B1->Y (FR)	0.07826	0.96896	11.44540

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)	0.08237	0.65976	7.35804
	A1->Y (RF)	0.06490	0.63288	7.25703
	B0->Y (RF)	0.05459	0.66442	7.90576
	B1->Y (RF)	0.07341	0.69655	8.15122

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	0.01944	0.01925	0.01997
	A1	0.01639	0.01624	0.01813
	B0	0.01234	0.01191	0.01421
	B1	0.01550	0.01534	0.01608

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__oai22_l	A0	0.00453	0.00408	0.00497
	A1	0.00232	0.00199	0.00288
	B0	0.00229	0.00206	0.00340
	B1	0.00457	0.00418	0.00547

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)	-0.00487	-0.00542	-0.00538
	(A1 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * B1 * !Y)	-0.00487	-0.00542	-0.00538
	(A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * !B1 * Y)	-0.00522	-0.00542	-0.00539
	(!A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * !B1 * Y)	-0.00547	-0.00549	-0.00548

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)	0.00535	0.00542	0.00538
	(A1 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * B1 * !Y)	0.00535	0.00542	0.00538
	(A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * !B1 * Y)	0.00536	0.00542	0.00539
	(!A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * !B1 * Y)	0.00548	0.00553	0.00550

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)	-0.00246	-0.00249	-0.00247
	(A0 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * B1 * !Y)	-0.00246	-0.00249	-0.00247
	(A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * !B1 * Y)	-0.00520	-0.00537	-0.00536
	(!A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * !B1 * Y)	-0.00546	-0.00547	-0.00547

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)	0.00259	0.00261	0.00252
	(A0 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * B1 * !Y)	0.00259	0.00261	0.00252
	(A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * !B1 * Y)	0.00533	0.00537	0.00536
	(!A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * !B1 * Y)	0.00546	0.00551	0.00548

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)	-0.00245	-0.00247	-0.00246
	(A0 * !A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B1 * !Y)	-0.00245	-0.00247	-0.00246
	(!A0 * !A1 * B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B1 * Y)	-0.00575	-0.00588	-0.00589
	(!A0 * !A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B1 * Y)	-0.00587	-0.00590	-0.00599

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)	0.00258	0.00260	0.00250
	(A0 * !A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B1 * !Y)	0.00258	0.00260	0.00250
	(!A0 * !A1 * B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B1 * Y)	0.00589	0.00588	0.00589
	(!A0 * !A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B1 * Y)	0.00598	0.00604	0.00601

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)	-0.00483	-0.00533	-0.00532
	(A0 * !A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B0 * !Y)	-0.00483	-0.00533	-0.00532
	(!A0 * !A1 * B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B0 * Y)	-0.00583	-0.00600	-0.00598
	(!A0 * !A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B0 * Y)	-0.00595	-0.00600	-0.00606

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)	0.00528	0.00535	0.00532
	(A0 * !A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B0 * !Y)	0.00528	0.00539	0.00532
	(!A0 * !A1 * B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B0 * Y)	0.00597	0.00603	0.00598
	(!A0 * !A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B0 * Y)	0.00606	0.00611	0.00608

SKY130_OSU_SC_18T_LS__OR2x

sky130_osu_sc_18T_ls_tt_1P80_25C.ccs
Cell Library: Process , Voltage 1.80,
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	0.00596	0.00578	2.43992
sky130_osu_sc_18T_ls__or2_2	0.00596	0.00578	4.78787
sky130_osu_sc_18T_ls__or2_4	0.00596	0.00578	9.08698
sky130_osu_sc_18T_ls__or2_8	0.00596	0.00580	17.16522
sky130_osu_sc_18T_ls__or2_l	0.00462	0.00438	1.68082

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__or2_1	0.00000	0.00167	0.00239
sky130_osu_sc_18T_ls__or2_2	0.00000	0.00242	0.00351
sky130_osu_sc_18T_ls__or2_4	0.00000	0.00393	0.00575
sky130_osu_sc_18T_ls__or2_8	0.00000	0.00694	0.01024
sky130_osu_sc_18T_ls__or2_l	0.00000	0.00093	0.00128

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)	0.07555	0.62945	6.72272
	B->Y (RR)	0.06662	0.59438	6.62367
sky130_osu_sc_18T_ls__or2_2	A->Y (RR)	0.08359	0.56728	6.85528
	B->Y (RR)	0.07421	0.53743	6.76026
sky130_osu_sc_18T_ls__or2_4	A->Y (RR)	0.10905	0.56775	7.12648
	B->Y (RR)	0.09952	0.54428	7.03989
sky130_osu_sc_18T_ls__or2_8	A->Y (RR)	0.15616	0.62421	7.57220
	B->Y (RR)	0.14641	0.60700	7.50612
sky130_osu_sc_18T_ls__or2_l	A->Y (RR)	0.08291	0.70687	6.75202
	B->Y (RR)	0.07448	0.67465	6.66099

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)	0.12731	0.71136	6.85863
	B->Y (FF)	0.10402	0.67977	6.74854
sky130_osu_sc_18T_ls__or2_2	A->Y (FF)	0.15394	0.70062	7.04921
	B->Y (FF)	0.13101	0.67950	6.93796
sky130_osu_sc_18T_ls__or2_4	A->Y (FF)	0.21715	0.75465	7.36692
	B->Y (FF)	0.19421	0.74732	7.27179
sky130_osu_sc_18T_ls__or2_8	A->Y (FF)	0.34574	0.89501	7.76507
	B->Y (FF)	0.32290	0.88637	7.71375
sky130_osu_sc_18T_ls__or2_l	A->Y (FF)	0.13778	0.75972	6.75006
	B->Y (FF)	0.11544	0.73215	6.66210

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	0.00862	0.00780	0.01908
	B	0.00000	0.00000	0.00000
	B	0.00635	0.00603	0.01991
sky130_osu_sc_18T_ls__or2_2	A	0.00000	0.00000	0.00000
	A	0.01508	0.01469	0.02557
	B	0.00000	0.00000	0.00000
	B	0.01273	0.01299	0.03445
sky130_osu_sc_18T_ls__or2_4	A	0.00000	0.00000	0.00000
	A	0.02882	0.02982	0.04068
	B	0.00000	0.00000	0.00000
	B	0.02649	0.02779	0.04128
sky130_osu_sc_18T_ls__or2_8	A	0.00000	0.00000	0.00000
	A	0.05628	0.05834	0.07266
	B	0.00000	0.00000	0.00000
	B	0.05382	0.05714	0.07081
sky130_osu_sc_18T_ls__or2_l	A	0.00000	0.00000	0.00000
	A	0.00630	0.00560	0.01621
	B	0.00000	0.00000	0.00000
	B	0.00485	0.00461	0.01495

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	0.01872	0.01859	0.02673
	B	0.00000	0.00000	0.00000
	B	0.01532	0.01614	0.03197
sky130_osu_sc_18T_ls__or2_2	A	0.00000	0.00000	0.00000
	A	0.02304	0.02370	0.03145
	B	0.00000	0.00000	0.00000
	B	0.01959	0.02114	0.03585
sky130_osu_sc_18T_ls__or2_4	A	0.00000	0.00000	0.00000
	A	0.03402	0.03556	0.04302
	B	0.00000	0.00000	0.00000
	B	0.03047	0.03261	0.04661
sky130_osu_sc_18T_ls__or2_8	A	0.00000	0.00000	0.00000
	A	0.05760	0.05838	0.06675
	B	0.00000	0.00000	0.00000
	B	0.05412	0.05520	0.07002
sky130_osu_sc_18T_ls__or2_l	A	0.00000	0.00000	0.00000
	A	0.01412	0.01392	0.01989
	B	0.00000	0.00000	0.00000
	B	0.01175	0.01227	0.02382

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)	-0.00492	-0.00542	-0.00541
sky130_osu_sc_18T_ls__or2_2	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00492	-0.00542	-0.00541
sky130_osu_sc_18T_ls__or2_4	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00492	-0.00542	-0.00541
sky130_osu_sc_18T_ls__or2_8	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00492	-0.00542	-0.00541
sky130_osu_sc_18T_ls__or2_l	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00345	-0.00378	-0.00378

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)	0.00538	0.00543	0.00541
sky130_osu_sc_18T_ls__or2_2	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00538	0.00543	0.00541
sky130_osu_sc_18T_ls__or2_4	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00538	0.00543	0.00541
sky130_osu_sc_18T_ls__or2_8	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00538	0.00544	0.00541
sky130_osu_sc_18T_ls__or2_l	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00375	0.00378	0.00378

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)	-0.00248	-0.00251	-0.00250
sky130_osu_sc_18T_ls__or2_2	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00248	-0.00251	-0.00250
sky130_osu_sc_18T_ls__or2_4	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00248	-0.00251	-0.00250
sky130_osu_sc_18T_ls__or2_8	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00248	-0.00251	-0.00250
sky130_osu_sc_18T_ls__or2_l	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00179	-0.00180	-0.00180

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)	0.00262	0.00264	0.00254
sky130_osu_sc_18T_ls__or2_2	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00262	0.00264	0.00254
sky130_osu_sc_18T_ls__or2_4	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00262	0.00264	0.00254
sky130_osu_sc_18T_ls__or2_8	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00262	0.00264	0.00254
sky130_osu_sc_18T_ls__or2_l	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00188	0.00189	0.00183

SKY130_OSU_SC_18T_LS__TBUFIx

sky130_osu_sc_18T_ls_tt_1P80_25C.ccs
Cell Library: Process , Voltage 1.80,
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	0.00596	0.00750	1.27017
sky130_osu_sc_18T_ls__tbufi_l	0.00458	0.00580	0.87308

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__tbufi_1	0.00000	0.00115	0.00225
sky130_osu_sc_18T_ls__tbufi_l	0.00000	0.00064	0.00155

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)	0.05109	0.94953	11.64310
	OE->Y (FR)	0.05719	0.38452	5.09405
	OE->Y (RR)	0.09127	0.73709	6.77681
sky130_osu_sc_18T_ls__tbufi_l	A->Y (FR)	0.06036	1.04170	11.60670
	OE->Y (FR)	0.06055	0.38429	5.09380
	OE->Y (RR)	0.09984	0.83667	6.78568

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)	0.03222	0.59542	7.31999
	OE->Y (FF)	0.05755	0.38451	5.09400
	OE->Y (RF)	0.03066	0.56553	6.88908
sky130_osu_sc_18T_ls__tbufi_l	A->Y (RF)	0.03671	0.64131	7.23347
	OE->Y (FF)	0.06126	0.38429	5.09375
	OE->Y (RF)	0.03570	0.61274	6.79038

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	0.00813	0.00817	0.01019
	OE	0.00000	0.00000	0.00000
	OE	0.00838	0.00816	0.02607
sky130_osu_sc_18T_ls__tbufi_l	A	0.00000	0.00000	0.00000
	A	0.00615	0.00588	0.00760
	OE	0.00000	0.00000	0.00000
	OE	0.00598	0.00581	0.01921

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	-0.00148	-0.00145	0.00003
	OE	0.00000	0.00000	0.00000
	OE	0.00558	0.00528	0.02397
sky130_osu_sc_18T_ls__tbufi_l	A	0.00000	0.00000	0.00000
	A	-0.00094	-0.00094	0.00013
	OE	0.00000	0.00000	0.00000
	OE	0.00389	0.00365	0.01733

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)	-0.00410	-0.00416	-0.00411
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	-0.00358	-0.00366	-0.00360
sky130_osu_sc_18T_ls__tbufi_l	(!OE * Y)	0.00000	0.00000	0.00000
	(!OE * Y)	-0.00306	-0.00311	-0.00308
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	-0.00271	-0.00277	-0.00273

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)	0.00410	0.00416	0.00411
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	0.00369	0.00371	0.00365
sky130_osu_sc_18T_ls__tbufi_l	(!OE * Y)	0.00000	0.00000	0.00000
	(!OE * Y)	0.00306	0.00311	0.00308
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	0.00278	0.00280	0.00276

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)	0.00325	0.00296	0.02188
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00290	0.00304	0.02153
sky130_osu_sc_18T_ls__tbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00222	0.00201	0.01586
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00198	0.00205	0.01562

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)	0.00919	0.00938	0.02810
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00947	0.00970	0.02830
sky130_osu_sc_18T_ls__tbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00717	0.00722	0.02088
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00738	0.00745	0.02102

SKY130_OSU_SC_18T_LS__TNBUFIx

sky130_osu_sc_18T_ls_tt_1P80_25C.ccs
Cell Library: Process , Voltage 1.80,
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	0.00595	0.00940	1.28278
sky130_osu_sc_18T_ls__tnbufi_l	0.00457	0.00695	0.87676

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__tnbufi_1	0.00000	0.00132	0.00176
sky130_osu_sc_18T_ls__tnbufi_l	0.00000	0.00081	0.00103

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)	0.05147	0.95304	11.71370
	OE->Y (RR)	0.03008	0.38537	5.09503
	OE->Y (FR)	0.06701	0.96171	11.52490
sky130_osu_sc_18T_ls__tnbufi_l	A->Y (FR)	0.06084	1.04336	11.63680
	OE->Y (RR)	0.03151	0.38554	5.09521
	OE->Y (FR)	0.07425	1.05070	11.42970

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)	0.03180	0.59723	7.36161
	OE->Y (RF)	0.02983	0.38532	5.09499
	OE->Y (FF)	0.05995	0.56475	5.34961
sky130_osu_sc_18T_ls__tnbufi_l	A->Y (RF)	0.03620	0.64202	7.25120
	OE->Y (RF)	0.03125	0.38555	5.09522
	OE->Y (FF)	0.06756	0.61838	5.27576

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	0.00832	0.00836	0.01037
	OE	0.00000	0.00000	0.00000
	OE	0.02055	0.02122	0.04133
sky130_osu_sc_18T_ls__tnbufi_l	A	0.00000	0.00000	0.00000
	A	0.00634	0.00607	0.00778
	OE	0.00000	0.00000	0.00000
	OE	0.01518	0.01543	0.03013

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	-0.00173	-0.00168	-0.00020
	OE	0.00000	0.00000	0.00000
	OE	0.01806	0.01891	0.03569
sky130_osu_sc_18T_ls__tnbufi_l	A	0.00000	0.00000	0.00000
	A	-0.00119	-0.00116	-0.00011
	OE	0.00000	0.00000	0.00000
	OE	0.01330	0.01384	0.02592

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)	-0.00354	-0.00360	-0.00355
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	-0.00307	-0.00314	-0.00309
sky130_osu_sc_18T_ls__tnbufi_l	(OE * Y)	0.00000	0.00000	0.00000
	(OE * Y)	-0.00254	-0.00258	-0.00255
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	-0.00222	-0.00227	-0.00223

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)	0.00354	0.00360	0.00355
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	0.00316	0.00318	0.00313
sky130_osu_sc_18T_ls__tnbufi_l	(OE * Y)	0.00000	0.00000	0.00000
	(OE * Y)	0.00254	0.00258	0.00255
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	0.00228	0.00229	0.00226

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)	-0.00662	-0.00726	0.01230
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00638	-0.00690	0.01238
sky130_osu_sc_18T_ls__tnbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	-0.00458	-0.00504	0.00929
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00442	-0.00470	0.00930

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)	0.01542	0.01610	0.03620
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.01518	0.01585	0.03602
sky130_osu_sc_18T_ls__tnbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.01141	0.01188	0.02647
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.01124	0.01167	0.02630

SKY130_OSU_SC_18T_LS__XNOR2

sky130_osu_sc_18T_ls_tt_1P80_25C.ccs
Cell Library: Process , Voltage 1.80,
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	0.01178	0.01079	1.29926

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__xnor2_l	0.00000	0.00299	0.00400

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	0.11582	0.78629	7.00581
	A->Y (FR)	!B	0.06786	0.97210	11.77000
	B->Y (RR)	A	0.09156	0.76116	6.99283
	B->Y (FR)	!A	0.09301	0.98655	11.58600

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	0.10590	0.67124	5.80242
	A->Y (RF)	!B	0.04728	0.59877	7.18197
	B->Y (FF)	A	0.09358	0.65964	5.80085
	B->Y (RF)	!A	0.05850	0.61347	7.18818

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	0.00824	0.00781	0.02379
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.01989	0.02020	0.04036
	B	A	0.00000	0.00000	0.00000
	B	A	0.00252	0.00243	0.02076
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.02224	0.02230	0.04173

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	0.02471	0.02431	0.04192
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00546	0.00489	0.02396
	B	A	0.00000	0.00000	0.00000
	B	A	0.02268	0.02354	0.04200
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00669	0.00589	0.02486

SKY130_OSU_SC_18T_LS__XOR2

sky130_osu_sc_18T_ls_tt_1P80_25C.ccs
Cell Library: Process , Voltage 1.80,
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	0.01175	0.01083	1.26796

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__xor2_l	0.00000	0.00299	0.00351

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	0.11040	0.76565	6.85636
	A->Y (FR)	B	0.08356	0.97235	11.48260
	B->Y (RR)	!A	0.09476	0.75638	6.87099
	B->Y (FR)	A	0.09083	0.97982	11.46880

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	0.09223	0.64352	5.52191
	A->Y (RF)	B	0.04515	0.61595	7.32405
	B->Y (FF)	!A	0.08660	0.63703	5.54584
	B->Y (RF)	A	0.05444	0.59281	6.90040

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	0.02343	0.02364	0.04363
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00395	0.00268	0.02005
	B	A	0.00000	0.00000	0.00000
	B	A	0.02419	0.02448	0.04426
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00216	0.00194	0.02037

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	0.00435	0.00345	0.02326
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.02542	0.02605	0.04222
	B	A	0.00000	0.00000	0.00000
	B	A	0.00439	0.00350	0.02269
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.02305	0.02401	0.04263

SKY130_OSU_SC_18T_LS_x

sky130_osu_sc_18T_ls_tt_1P80_25C.ccs
Cell Library: Process , Voltage 1.80,
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	0.59914
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	309233.00000	618466.00000
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
	-0.00306	0.07606	0.99100

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
	5.38121	5.08109	1.22937