sky130_osu_sc_18T_ls_tt_1P80_100C.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_100C.ccs
Cell Library: Process , Voltage 1.80,
Temp 100.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_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	0.02237	0.02229	0.01711	2.64334	1.23197	2.54043
sky130_osu_sc_18T_ls__addf_l	0.02236	0.02228	0.01713	1.79429	1.23588	1.77981

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__addf_1	0.00000	0.15159	0.15917
sky130_osu_sc_18T_ls__addf_l	0.00000	0.12701	0.14290

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)	0.17136	1.89083	27.57520
	B->CO (RR)	0.14551	1.79564	26.37790
	CI->CO (RR)	0.16393	1.93356	28.24660
	CON->CO (FR)	0.03161	0.78905	11.43170
sky130_osu_sc_18T_ls__addf_1	A->CO (RR)	0.17227	1.74885	22.06450
	B->CO (RR)	0.16692	1.69412	21.36680
	CI->CO (RR)	0.16480	1.79231	22.76730
	CON->CO (FR)	0.03553	0.85359	11.34240

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)	0.21862	2.23037	32.17080
	B->CO (FF)	0.19396	2.15063	31.31930
	CI->CO (FF)	0.18911	2.22802	32.58570
	CON->CO (RF)	0.02741	0.66717	9.73654
sky130_osu_sc_18T_ls__addf_1	A->CO (FF)	0.21318	1.99455	24.88260
	B->CO (FF)	0.18874	1.92920	24.42500
	CI->CO (FF)	0.18366	1.99242	25.32420
	CON->CO (RF)	0.02943	0.69003	9.19579

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)	0.16465	0.99851	10.54020
	B->CON (FR)	0.14118	0.96403	10.56900
	CI->CON (FR)	0.13522	0.99810	11.01400
sky130_osu_sc_18T_ls__addf_l	A->CON (FR)	0.15613	0.99097	10.55490
	B->CON (FR)	0.13323	0.95707	10.58160
	CI->CON (FR)	0.12663	0.99094	11.02730

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)	0.10887	0.69924	7.47284
	B->CON (RF)	0.10588	0.70748	7.69116
	CI->CON (RF)	0.10132	0.74486	8.22729
sky130_osu_sc_18T_ls__addf_l	A->CON (RF)	0.10480	0.69592	7.48429
	B->CON (RF)	0.10216	0.70456	7.70187
	CI->CON (RF)	0.09724	0.74156	8.23810

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)	0.32127	2.02701	24.95950
	B->S (-R)	0.30407	1.97939	24.27100
	CI->S (-R)	0.28955	2.01963	25.37930
	CON->S (RR)	0.09541	0.67378	7.31611
sky130_osu_sc_18T_ls__addf_l	A->S (-R)	0.30710	1.87735	20.67540
	B->S (-R)	0.29074	1.84526	20.35910
	CI->S (-R)	0.27530	1.87088	21.11550
	CON->S (RR)	0.09511	0.72230	7.23075

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)	0.27645	1.70781	20.27760
	B->S (-F)	0.27032	1.63539	19.51030
	CI->S (-F)	0.26831	1.74660	20.95050
	CON->S (FF)	0.11065	0.73776	7.42924
sky130_osu_sc_18T_ls__addf_l	A->S (-F)	0.26149	1.56132	16.55590
	B->S (-F)	0.25491	1.49929	16.16640
	CI->S (-F)	0.25320	1.60079	17.25250
	CON->S (FF)	0.10664	0.75262	7.11996

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	0.00442	0.00546	0.02822
	B	0.00701	0.00761	0.02628
	CI	0.00733	0.00857	0.03159
sky130_osu_sc_18T_ls__addf_l	A	0.00323	0.00389	0.01858
	B	0.00585	0.00609	0.01853
	CI	0.00615	0.00698	0.02184

Internal switching power(pJ) to CO falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__addf_1	A	0.01904	0.02068	0.05422
	B	0.02013	0.02156	0.05109
	CI	0.01582	0.01756	0.05164
sky130_osu_sc_18T_ls__addf_l	A	0.01785	0.01897	0.04079
	B	0.01894	0.01994	0.03880
	CI	0.01464	0.01585	0.03821

Internal switching power(pJ) to CON rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__addf_1	A	0.01901	0.01996	0.03581
	B	0.02008	0.02097	0.03452
	CI	0.01581	0.01683	0.03352
sky130_osu_sc_18T_ls__addf_l	A	0.01784	0.01869	0.03392
	B	0.01891	0.01969	0.03267
	CI	0.01463	0.01556	0.03161

Internal switching power(pJ) to CON falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__addf_1	A	0.00438	0.00503	0.01646
	B	0.00696	0.00719	0.01728
	CI	0.00730	0.00808	0.01989
sky130_osu_sc_18T_ls__addf_l	A	0.00321	0.00373	0.01466
	B	0.00580	0.00590	0.01570
	CI	0.00613	0.00678	0.01807

Internal switching power(pJ) to S rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__addf_1	A	0.01903	0.02063	0.05256
	B	0.02012	0.02152	0.04980
	CI	0.01581	0.01750	0.04995
sky130_osu_sc_18T_ls__addf_l	A	0.01785	0.01897	0.04038
	B	0.01894	0.01993	0.03861
	CI	0.01464	0.01586	0.03811

Internal switching power(pJ) to S falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__addf_1	A	0.04291	0.04338	0.06923
	B	0.03814	0.03845	0.07173
	CI	0.03503	0.03512	0.06152
sky130_osu_sc_18T_ls__addf_l	A	0.04138	0.04155	0.06827
	B	0.03658	0.03686	0.07111
	CI	0.03352	0.03356	0.06075

SKY130_OSU_SC_18T_LS__ADDHx

sky130_osu_sc_18T_ls_tt_1P80_100C.ccs
Cell Library: Process , Voltage 1.80,
Temp 100.00

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	0.01097	0.01194	2.59283	1.30968	2.61452
sky130_osu_sc_18T_ls__addh_l	0.01097	0.01194	1.50739	1.31608	1.50993

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__addh_1	0.00000	0.13140	0.13715
sky130_osu_sc_18T_ls__addh_l	0.00000	0.10696	0.11282

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)	0.11457	0.69925	7.27372
	B->CO (RR)	0.11889	0.68671	7.29653
sky130_osu_sc_18T_ls__addh_l	A->CO (RR)	0.11669	0.78496	7.25888
	B->CO (RR)	0.12096	0.77601	7.26835

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)	0.09602	0.70335	7.39987
	B->CO (FF)	0.10280	0.71981	7.45075
sky130_osu_sc_18T_ls__addh_l	A->CO (FF)	0.09521	0.73717	6.86811
	B->CO (FF)	0.10183	0.75384	6.91879

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	0.15760	0.58165	3.82788
	A->CON (FR)	!B	0.08953	0.93084	10.87750
	B->CON (RR)	A	0.16182	0.56896	3.84883
	B->CON (FR)	!A	0.11327	0.93287	10.54050
sky130_osu_sc_18T_ls__addh_l	A->CON (RR)	B	0.14052	0.55304	3.79114
	A->CON (FR)	!B	0.07917	0.92123	10.89950
	B->CON (RR)	A	0.14482	0.54322	3.80119
	B->CON (FR)	!A	0.10297	0.92331	10.56260

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	0.14965	0.76115	6.26148
	A->CON (RF)	!B	0.06383	0.70322	8.28078
	B->CON (FF)	A	0.14620	0.79720	6.66340
	B->CON (RF)	!A	0.07751	0.69241	7.94285
sky130_osu_sc_18T_ls__addh_l	A->CON (FF)	B	0.13569	0.72647	6.09621
	A->CON (RF)	!B	0.05878	0.69877	8.29873
	B->CON (FF)	A	0.13231	0.76341	6.50142
	B->CON (RF)	!A	0.07252	0.68844	7.96037

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	0.12006	1.83227	27.32790
	A->S (FR)	B	0.20673	1.87040	25.03460
	B->S (RR)	!A	0.13430	1.77619	26.13850
	B->S (FR)	A	0.20351	1.95165	26.27990
	CON->S (FR)	-	0.03529	0.80574	11.66880
sky130_osu_sc_18T_ls__addh_l	A->S (RR)	!B	0.12087	1.66614	20.55500
	A->S (FR)	B	0.19889	1.68286	18.19580
	B->S (RR)	!A	0.13541	1.62639	19.80170
	B->S (FR)	A	0.19551	1.74898	19.00800
	CON->S (FR)	-	0.04088	0.91951	11.69840

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	0.13573	2.03345	30.30490
	A->S (RF)	B	0.19807	1.39396	17.55640
	B->S (FF)	!A	0.15945	2.04019	30.01710
	B->S (RF)	A	0.20225	1.38033	17.57770
	CON->S (RF)	-	0.02593	0.64960	9.42187
sky130_osu_sc_18T_ls__addh_l	A->S (FF)	!B	0.12955	1.75895	21.69690
	A->S (RF)	B	0.18394	1.22760	12.35560
	B->S (FF)	!A	0.15330	1.76478	21.37180
	B->S (RF)	A	0.18818	1.21744	12.35530
	CON->S (RF)	-	0.02940	0.69597	8.90158

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	0.00862	0.00883	0.02004
	B	0.00000	0.00000	0.00000
	B	0.00759	0.00754	0.01972
sky130_osu_sc_18T_ls__addh_l	A	0.00000	0.00000	0.00000
	A	0.00700	0.00711	0.01992
	B	0.00000	0.00000	0.00000
	B	0.00598	0.00582	0.01915

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	0.01357	0.01367	0.02951
	B	0.00000	0.00000	0.00000
	B	0.01403	0.01492	0.03161
sky130_osu_sc_18T_ls__addh_l	A	0.00000	0.00000	0.00000
	A	0.01195	0.01196	0.02641
	B	0.00000	0.00000	0.00000
	B	0.01242	0.01304	0.02785

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	0.00861	0.00882	0.02050
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.01183	0.01232	0.01867
	B	A	0.00000	0.00000	0.00000
	B	A	0.00759	0.00754	0.02036
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01355	0.01370	0.01905
sky130_osu_sc_18T_ls__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.00700	0.00710	0.02013
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.01075	0.01108	0.01584
	B	A	0.00000	0.00000	0.00000
	B	A	0.00597	0.00582	0.01925
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01248	0.01244	0.01611

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	0.01357	0.01366	0.02874
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00191	0.00220	0.00736
	B	A	0.00000	0.00000	0.00000
	B	A	0.01403	0.01483	0.03006
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00307	0.00317	0.00819
sky130_osu_sc_18T_ls__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.01195	0.01196	0.02651
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00052	0.00066	0.00429
	B	A	0.00000	0.00000	0.00000
	B	A	0.01242	0.01306	0.02770
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00169	0.00167	0.00528

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	0.01359	0.01370	0.02973
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00192	0.00236	0.00829
	B	A	0.00000	0.00000	0.00000
	B	A	0.01404	0.01494	0.03190
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00311	0.00331	0.00869
sky130_osu_sc_18T_ls__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.01197	0.01197	0.02664
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00053	0.00069	0.00435
	B	A	0.00000	0.00000	0.00000
	B	A	0.01242	0.01304	0.02759
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00171	0.00169	0.00480

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	0.00862	0.00884	0.02025
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.01183	0.01247	0.02060
	B	A	0.00000	0.00000	0.00000
	B	A	0.00760	0.00755	0.01976
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01358	0.01397	0.02119
sky130_osu_sc_18T_ls__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.00701	0.00712	0.01988
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.01076	0.01106	0.01586
	B	A	0.00000	0.00000	0.00000
	B	A	0.00598	0.00582	0.01878
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01249	0.01253	0.01613

SKY130_OSU_SC_18T_LS__AND2x

sky130_osu_sc_18T_ls_tt_1P80_100C.ccs
Cell Library: Process , Voltage 1.80,
Temp 100.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_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	0.00592	0.00603	2.59131
sky130_osu_sc_18T_ls__and2_2	0.00592	0.00604	5.03559
sky130_osu_sc_18T_ls__and2_4	0.00592	0.00604	9.60296
sky130_osu_sc_18T_ls__and2_6	0.00595	0.00604	14.01589
sky130_osu_sc_18T_ls__and2_8	0.00594	0.00605	18.06396
sky130_osu_sc_18T_ls__and2_l	0.00451	0.00462	1.78451

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__and2_1	0.00000	0.05364	0.06928
sky130_osu_sc_18T_ls__and2_2	0.00000	0.06891	0.10307
sky130_osu_sc_18T_ls__and2_4	0.00000	0.11027	0.17497
sky130_osu_sc_18T_ls__and2_6	0.00000	0.15162	0.24688
sky130_osu_sc_18T_ls__and2_8	0.00000	0.19297	0.31878
sky130_osu_sc_18T_ls__and2_l	0.00000	0.03391	0.04391

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)	0.08767	0.62075	7.03392
	B->Y (RR)	0.09305	0.61645	6.92834
sky130_osu_sc_18T_ls__and2_2	A->Y (RR)	0.10141	0.57907	7.10844
	B->Y (RR)	0.10683	0.56794	6.99953
sky130_osu_sc_18T_ls__and2_4	A->Y (RR)	0.13919	0.60988	7.38040
	B->Y (RR)	0.14459	0.58982	7.26851
sky130_osu_sc_18T_ls__and2_6	A->Y (RR)	0.17578	0.65932	7.58207
	B->Y (RR)	0.18110	0.63150	7.45767
sky130_osu_sc_18T_ls__and2_8	A->Y (RR)	0.21256	0.71085	7.79250
	B->Y (RR)	0.21799	0.67897	7.65662
sky130_osu_sc_18T_ls__and2_l	A->Y (RR)	0.09656	0.69293	7.00401
	B->Y (RR)	0.10236	0.68851	6.89985

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)**	0.07483	0.62210	6.86207
	B->Y (FF)	0.07927	0.63918	6.93442
sky130_osu_sc_18T_ls__and2_2	**A->Y (FF)**	0.08519	0.58991	6.91475
	B->Y (FF)	0.09041	0.60503	6.99546
sky130_osu_sc_18T_ls__and2_4	**A->Y (FF)**	0.11653	0.61927	7.13874
	B->Y (FF)	0.12185	0.63057	7.20969
sky130_osu_sc_18T_ls__and2_6	**A->Y (FF)**	0.15150	0.66348	7.30737
	B->Y (FF)	0.15664	0.67280	7.37226
sky130_osu_sc_18T_ls__and2_8	**A->Y (FF)**	0.18368	0.70421	7.36170
	B->Y (FF)	0.18904	0.71256	7.42112
sky130_osu_sc_18T_ls__and2_l	**A->Y (FF)**	0.08020	0.67687	6.77121
	B->Y (FF)	0.08582	0.69590	6.85839

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	0.00645	0.00756	0.05134
	B	0.00000	0.00000	0.00000
	B	0.00655	0.00674	0.03841
sky130_osu_sc_18T_ls__and2_2	A	0.00000	0.00000	0.00000
	A	0.01315	0.01459	0.05748
	B	0.00000	0.00000	0.00000
	B	0.01326	0.01530	0.04453
sky130_osu_sc_18T_ls__and2_4	A	0.00000	0.00000	0.00000
	A	0.02784	0.02997	0.07053
	B	0.00000	0.00000	0.00000
	B	0.02795	0.02900	0.05974
sky130_osu_sc_18T_ls__and2_6	A	0.00000	0.00000	0.00000
	A	0.04346	0.04475	0.08587
	B	0.00000	0.00000	0.00000
	B	0.04364	0.04436	0.07545
sky130_osu_sc_18T_ls__and2_8	A	0.00000	0.00000	0.00000
	A	0.06002	0.06032	0.10183
	B	0.00000	0.00000	0.00000
	B	0.06036	0.05963	0.09209
sky130_osu_sc_18T_ls__and2_l	A	0.00000	0.00000	0.00000
	A	0.00469	0.00545	0.03807
	B	0.00000	0.00000	0.00000
	B	0.00481	0.00488	0.02953

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	0.01620	0.01851	0.05761
	B	0.00000	0.00000	0.00000
	B	0.01824	0.02013	0.05721
sky130_osu_sc_18T_ls__and2_2	A	0.00000	0.00000	0.00000
	A	0.02077	0.02361	0.06257
	B	0.00000	0.00000	0.00000
	B	0.02284	0.02519	0.06227
sky130_osu_sc_18T_ls__and2_4	A	0.00000	0.00000	0.00000
	A	0.03276	0.03632	0.07443
	B	0.00000	0.00000	0.00000
	B	0.03476	0.03758	0.07414
sky130_osu_sc_18T_ls__and2_6	A	0.00000	0.00000	0.00000
	A	0.04482	0.04927	0.08704
	B	0.00000	0.00000	0.00000
	B	0.04673	0.05032	0.08621
sky130_osu_sc_18T_ls__and2_8	A	0.00000	0.00000	0.00000
	A	0.05890	0.06203	0.10045
	B	0.00000	0.00000	0.00000
	B	0.06060	0.06257	0.09803
sky130_osu_sc_18T_ls__and2_l	A	0.00000	0.00000	0.00000
	A	0.01239	0.01400	0.04233
	B	0.00000	0.00000	0.00000
	B	0.01393	0.01526	0.04266

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)	-0.00633	-0.00637	-0.00637
sky130_osu_sc_18T_ls__and2_2	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00633	-0.00637	-0.00637
sky130_osu_sc_18T_ls__and2_4	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00632	-0.00637	-0.00637
sky130_osu_sc_18T_ls__and2_6	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00635	-0.00639	-0.00640
sky130_osu_sc_18T_ls__and2_8	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00632	-0.00636	-0.00637
sky130_osu_sc_18T_ls__and2_l	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00458	-0.00460	-0.00461

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)	0.00636	0.00642	0.00639
sky130_osu_sc_18T_ls__and2_2	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00636	0.00642	0.00639
sky130_osu_sc_18T_ls__and2_4	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00636	0.00642	0.00639
sky130_osu_sc_18T_ls__and2_6	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00639	0.00645	0.00642
sky130_osu_sc_18T_ls__and2_8	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00636	0.00642	0.00639
sky130_osu_sc_18T_ls__and2_l	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00460	0.00464	0.00462

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)	-0.00603	-0.00603	-0.00603
sky130_osu_sc_18T_ls__and2_2	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00603	-0.00605	-0.00603
sky130_osu_sc_18T_ls__and2_4	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00603	-0.00604	-0.00603
sky130_osu_sc_18T_ls__and2_6	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00603	-0.00603	-0.00603
sky130_osu_sc_18T_ls__and2_8	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00603	-0.00607	-0.00603
sky130_osu_sc_18T_ls__and2_l	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00436	-0.00438	-0.00436

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)	0.00615	0.00609	0.00605
sky130_osu_sc_18T_ls__and2_2	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00615	0.00609	0.00606
sky130_osu_sc_18T_ls__and2_4	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00615	0.00609	0.00606
sky130_osu_sc_18T_ls__and2_6	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00615	0.00609	0.00606
sky130_osu_sc_18T_ls__and2_8	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00615	0.00609	0.00606
sky130_osu_sc_18T_ls__and2_l	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00444	0.00440	0.00437

SKY130_OSU_SC_18T_LS__AOI21

sky130_osu_sc_18T_ls_tt_1P80_100C.ccs
Cell Library: Process , Voltage 1.80,
Temp 100.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_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	0.00565	0.00584	0.00566	1.22691

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__aoi21_l	0.00000	0.02964	0.05346

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)	0.08955	0.92316	10.47130
	A1->Y (FR)	0.07735	0.88104	10.12310
	B0->Y (FR)	0.06343	0.92510	10.93520

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)	0.06107	0.62499	7.06987
	A1->Y (RF)	0.05592	0.65791	7.63574
	B0->Y (RF)	0.03540	0.61809	7.40827

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	0.01504	0.01492	0.02001
	A1	0.00000	0.00000	0.00000
	A1	0.01278	0.01264	0.01758
	B0	0.00881	0.00915	0.01664

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	0.00312	0.00275	0.00792
	A1	0.00000	0.00000	0.00000
	A1	0.00317	0.00302	0.00929
	B0	-0.00162	-0.00129	0.00479

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)	-0.00509	-0.00566	-0.00564
	(!A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !Y)	-0.00574	-0.00577	-0.00574
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00574	-0.00577	-0.00574

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)	0.00560	0.00566	0.00564
	(!A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !Y)	0.00574	0.00579	0.00576
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00586	0.00580	0.00576

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)	-0.00507	-0.00560	-0.00558
	(!A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !Y)	-0.00567	-0.00568	-0.00568
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	-0.00607	-0.00607	-0.00612

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)	0.00556	0.00562	0.00558
	(!A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !Y)	0.00567	0.00574	0.00570
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	0.00610	0.00617	0.00614

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)	-0.00240	-0.00242	-0.00241

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)	0.00264	0.00266	0.00248

SKY130_OSU_SC_18T_LS__AOI22

sky130_osu_sc_18T_ls_tt_1P80_100C.ccs
Cell Library: Process , Voltage 1.80,
Temp 100.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__aoi22_1	15.38460

Pin Capacitance Information

Cell Name	Pin Cap(pf)				Max Cap(pf)
	A0	A1	B0	B1	Y
sky130_osu_sc_18T_ls__aoi22_1	0.00565	0.00584	0.00602	0.00579	1.17483

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__aoi22_1	0.00000	0.04058	0.07245

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)	0.11308	0.95034	10.37010
	A1->Y (FR)	0.10128	0.92239	10.18970
	B0->Y (FR)	0.06697	0.91275	10.65750
	B1->Y (FR)	0.07893	0.94620	10.89850

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)	0.08206	0.63782	6.89938
	A1->Y (RF)	0.07697	0.67111	7.46736
	B0->Y (RF)	0.04041	0.63230	7.42915
	B1->Y (RF)	0.04561	0.59710	6.86173

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	0.01871	0.01857	0.02356
	A1	0.01646	0.01628	0.02139
	B0	0.00958	0.00992	0.01883
	B1	0.01183	0.01210	0.02067

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__aoi22_l	A0	0.00658	0.00618	0.01162
	A1	0.00664	0.00641	0.01304
	B0	-0.00103	-0.00075	0.00598
	B1	-0.00089	-0.00091	0.00466

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)	-0.00516	-0.00567	-0.00563
	(!A1 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * B1 * !Y)	-0.00574	-0.00577	-0.00574
	(!A1 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !B1 * Y)	-0.00574	-0.00577	-0.00574
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00574	-0.00577	-0.00574

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)	0.00560	0.00567	0.00563
	(!A1 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * B1 * !Y)	0.00574	0.00579	0.00576
	(!A1 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !B1 * Y)	0.00586	0.00580	0.00576
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00586	0.00579	0.00576

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	-0.00559	-0.00558
	(!A0 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * B1 * !Y)	-0.00568	-0.00567	-0.00568
	(!A0 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !B1 * Y)	-0.00605	-0.00608	-0.00611
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	-0.00605	-0.00607	-0.00611

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)	0.00555	0.00559	0.00558
	(!A0 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * B1 * !Y)	0.00568	0.00573	0.00570
	(!A0 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !B1 * Y)	0.00610	0.00617	0.00614
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	0.00610	0.00617	0.00614

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)	-0.00241	-0.00243	-0.00242
	(A0 * A1 * !B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B1 * !Y)	-0.00241	-0.00241	-0.00241
	(!A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B1 * Y)	-0.00621	-0.00624	-0.00626
	(!A0 * A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B1 * Y)	-0.00620	-0.00624	-0.00626

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)	0.00276	0.00277	0.00251
	(A0 * A1 * !B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B1 * !Y)	0.00241	0.00241	0.00241
	(!A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B1 * Y)	0.00624	0.00635	0.00627
	(!A0 * A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B1 * Y)	0.00624	0.00635	0.00627

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)	-0.00242	-0.00245	-0.00243
	(A0 * A1 * !B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B0 * !Y)	-0.00242	-0.00244	-0.00242
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00581	-0.00584	-0.00582
	(!A0 * A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B0 * Y)	-0.00581	-0.00584	-0.00582

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)	0.00277	0.00278	0.00253
	(A0 * A1 * !B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B0 * !Y)	0.00242	0.00244	0.00242
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00593	0.00586	0.00583
	(!A0 * A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B0 * Y)	0.00593	0.00587	0.00583

SKY130_OSU_SC_18T_LS__BUFx

sky130_osu_sc_18T_ls_tt_1P80_100C.ccs
Cell Library: Process , Voltage 1.80,
Temp 100.00

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	0.00603	2.58915
sky130_osu_sc_18T_ls__buf_2	0.00603	5.08019
sky130_osu_sc_18T_ls__buf_4	0.00603	9.75449
sky130_osu_sc_18T_ls__buf_6	0.00098	1.80000
sky130_osu_sc_18T_ls__buf_8	0.00604	18.44848
sky130_osu_sc_18T_ls__buf_l	0.00466	1.79826

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__buf_1	0.00000	0.06018	0.06018
sky130_osu_sc_18T_ls__buf_2	0.00000	0.08162	0.09397
sky130_osu_sc_18T_ls__buf_4	0.00000	0.13316	0.16587
sky130_osu_sc_18T_ls__buf_6	0.00000	0.00000	0.00000
sky130_osu_sc_18T_ls__buf_8	0.00000	0.23623	0.30968
sky130_osu_sc_18T_ls__buf_l	0.00000	0.03560	0.03560

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)**	0.06643	0.57900	6.83344
sky130_osu_sc_18T_ls__buf_2	**A->Y (RR)**	0.07430	0.52508	6.91240
sky130_osu_sc_18T_ls__buf_4	**A->Y (RR)**	0.09978	0.53682	7.16261
sky130_osu_sc_18T_ls__buf_8	**A->Y (RR)**	0.14840	0.60697	7.49473
sky130_osu_sc_18T_ls__buf_l	**A->Y (RR)**	0.07362	0.64873	6.80954

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)**	0.07105	0.61249	6.88688
sky130_osu_sc_18T_ls__buf_2	**A->Y (FF)**	0.08221	0.58615	7.01647
sky130_osu_sc_18T_ls__buf_4	**A->Y (FF)**	0.11375	0.61636	7.25866
sky130_osu_sc_18T_ls__buf_8	**A->Y (FF)**	0.18083	0.70270	7.50095
sky130_osu_sc_18T_ls__buf_l	**A->Y (FF)**	0.07721	0.67135	6.84967

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	0.00593	0.00712	0.04407
sky130_osu_sc_18T_ls__buf_2	A	0.00000	0.00000	0.00000
	A	0.01257	0.01420	0.05027
sky130_osu_sc_18T_ls__buf_4	A	0.00000	0.00000	0.00000
	A	0.02690	0.02931	0.06586
sky130_osu_sc_18T_ls__buf_8	A	0.00000	0.00000	0.00000
	A	0.05692	0.05973	0.09759
sky130_osu_sc_18T_ls__buf_l	A	0.00000	0.00000	0.00000
	A	0.00445	0.00529	0.03442

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	0.01555	0.01822	0.05714
sky130_osu_sc_18T_ls__buf_2	A	0.00000	0.00000	0.00000
	A	0.02008	0.02315	0.06160
sky130_osu_sc_18T_ls__buf_4	A	0.00000	0.00000	0.00000
	A	0.03199	0.03523	0.07341
sky130_osu_sc_18T_ls__buf_8	A	0.00000	0.00000	0.00000
	A	0.05814	0.06054	0.09761
sky130_osu_sc_18T_ls__buf_l	A	0.00000	0.00000	0.00000
	A	0.01199	0.01384	0.04259

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
	-0.00077	-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
	0.00077	0.00077	0.00076

SKY130_OSU_SC_18T_LS__DFFRx

sky130_osu_sc_18T_ls_tt_1P80_100C.ccs
Cell Library: Process , Voltage 1.80,
Temp 100.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_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	0.00580	0.00576	0.01648	2.52354	2.51121
sky130_osu_sc_18T_ls__dffr_l	0.00580	0.00576	0.01648	1.79202	1.79192

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__dffr_1	0.00000	0.22440	0.25284
sky130_osu_sc_18T_ls__dffr_l	0.00000	0.19983	0.22826

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)	0.32329	1.48695	16.98510
	QN->Q (FR)	0.03650	0.87019	12.51670
sky130_osu_sc_18T_ls__dffr_l	CK->Q (RR)	0.31642	1.59663	16.60480
	QN->Q (FR)	0.03871	0.91544	12.17890

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)	0.32606	1.48752	17.05280
	QN->Q (RF)	0.03133	0.76424	10.98400
	RN->Q (FF)	0.24230	1.51539	18.32390
sky130_osu_sc_18T_ls__dffr_l	CK->Q (RF)	0.32913	1.61796	16.77690
	QN->Q (RF)	0.03213	0.77128	10.25790
	RN->Q (FF)	0.24585	1.64619	18.04240

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)	0.28730	0.82968	6.98919
	RN->QN (FR)	0.20352	0.85813	8.25871
sky130_osu_sc_18T_ls__dffr_l	CK->QN (RR)	0.28686	0.89031	7.04283
	RN->QN (FR)	0.20353	0.91876	8.30617

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)**	0.27406	0.76429	5.97419
sky130_osu_sc_18T_ls__dffr_l	**CK->QN (RF)**	0.26271	0.78220	5.73445

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)	-0.08423	-0.09128	-0.05351
	setup	CK (R)	0.25430	0.29060	1.03789
sky130_osu_sc_18T_ls__dffr_l	hold	CK (R)	-0.08423	-0.09528	-0.05365
	setup	CK (R)	0.25500	0.29196	1.04930

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)	-0.13258	-0.37506	-2.36265
	setup	CK (R)	0.16406	0.38932	3.37113
sky130_osu_sc_18T_ls__dffr_l	hold	CK (R)	-0.13318	-0.37417	-2.27475
	setup	CK (R)	0.15995	0.38932	3.37142

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)	-0.08423	-0.09128	-0.05351
	setup	CK (R)	0.25430	0.29060	1.03789
sky130_osu_sc_18T_ls__dffr_l	hold	CK (R)	-0.08423	-0.09528	-0.05365
	setup	CK (R)	0.25500	0.29196	1.04930

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)	-0.13258	-0.37506	-2.36265
	setup	CK (R)	0.16406	0.38932	3.37113
sky130_osu_sc_18T_ls__dffr_l	hold	CK (R)	-0.13318	-0.37417	-2.27475
	setup	CK (R)	0.15995	0.38932	3.37142

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)	0.20462	0.24044	1.16521
	removal	CK (R)	-0.04038	-0.04727	-0.10161
sky130_osu_sc_18T_ls__dffr_l	recovery	CK (R)	0.20480	0.24192	1.19070
	removal	CK (R)	-0.04038	-0.04727	-0.10161

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)	0.20462	0.24044	1.16521
	removal	CK (R)	-0.04038	-0.04727	-0.10161
sky130_osu_sc_18T_ls__dffr_l	recovery	CK (R)	0.20480	0.24192	1.19070
	removal	CK (R)	-0.04038	-0.04727	-0.10161

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 ()	0.14126	0.53955	13.33370
	min_pulse_width	RN ()	0.14126	0.53955	13.33370
sky130_osu_sc_18T_ls__dffr_l	min_pulse_width	RN ()	0.13722	0.53955	13.33370
	min_pulse_width	RN ()	0.13722	0.53955	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 ()	0.15137	0.53955	13.33370
	min_pulse_width	CK ()	0.16754	0.53955	13.33370
sky130_osu_sc_18T_ls__dffr_l	min_pulse_width	CK ()	0.14126	0.53955	13.33370
	min_pulse_width	CK ()	0.16350	0.53955	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 ()	0.32524	0.53955	13.33370
	min_pulse_width	CK ()	0.13317	0.53955	13.33370
sky130_osu_sc_18T_ls__dffr_l	min_pulse_width	CK ()	0.32524	0.53955	13.33370
	min_pulse_width	CK ()	0.13317	0.53955	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	0.01553	0.01241	-0.00142
sky130_osu_sc_18T_ls__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.01368	0.01199	0.01587

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	0.01827	0.01610	0.00142
	RN	-0.00202	-0.12825	-2.04404
	RN	0.04181	0.04018	0.02671
sky130_osu_sc_18T_ls__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.01643	0.01525	0.02017
	RN	-0.00202	-0.10444	-1.45152
	RN	0.03995	0.03932	0.04511

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	0.01826	0.01611	0.00160
	RN	-0.00202	-0.12787	-2.03350
	RN	0.04179	0.04017	0.02641
sky130_osu_sc_18T_ls__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.01642	0.01524	0.02011
	RN	-0.00202	-0.10443	-1.45129
	RN	0.03994	0.03931	0.04468

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	0.01547	0.01236	-0.00160
sky130_osu_sc_18T_ls__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.01363	0.01192	0.01643

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	-0.00486	-0.00558	-0.00562
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.01918	0.01882	0.05037
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.00877	0.00854	0.04027
sky130_osu_sc_18T_ls__dffr_l	CK	0.00000	0.00000	0.00000
	CK	-0.00486	-0.00558	-0.00562
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.01918	0.01883	0.05037
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.00877	0.00854	0.04026

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	0.00558	0.00558	0.00562
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.03330	0.03319	0.06583
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.01562	0.01556	0.04747
sky130_osu_sc_18T_ls__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.00558	0.00558	0.00562
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.03330	0.03319	0.06583
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.01562	0.01556	0.04747

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)	0.00571	0.00662	0.05463
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.01644	0.01700	0.06572
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)	0.00571	0.00662	0.05463
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.01644	0.01700	0.06572

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)	0.01424	0.01590	0.06423
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.03125	0.03238	0.08077
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)	0.01424	0.01590	0.06423
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.03125	0.03238	0.08077

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)	-0.00127	-0.00027	0.04691
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.00924	0.00891	0.05759
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	-0.00194	-0.00112	0.04600
sky130_osu_sc_18T_ls__dffr_l	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	-0.00127	-0.00027	0.04691
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.00924	0.00891	0.05759
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	-0.00194	-0.00112	0.04600

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)	0.02163	0.02335	0.07177
	(D * RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * RN * !Q * QN)	0.04937	0.04991	0.10502
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.03798	0.03907	0.08687
	(!D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * Q * !QN)	0.04820	0.05099	0.13167
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.02570	0.02725	0.07420
sky130_osu_sc_18T_ls__dffr_l	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.02163	0.02348	0.07177
	(D * RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * RN * !Q * QN)	0.04937	0.04991	0.10502
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.03798	0.03907	0.08687
	(!D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * Q * !QN)	0.04820	0.05100	0.13167
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.02570	0.02725	0.07420

SKY130_OSU_SC_18T_LS__DFFSRx

sky130_osu_sc_18T_ls_tt_1P80_100C.ccs
Cell Library: Process , Voltage 1.80,
Temp 100.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_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	0.00576	0.00577	0.01232	0.01672	2.62636	2.61826
sky130_osu_sc_18T_ls__dffsr_l	0.00576	0.00577	0.01230	0.01672	1.78714	1.79244

Leakage Information

Cell Name	Leakage(nW)		
	Min.	**Avg**	**Max.**
sky130_osu_sc_18T_ls__dffsr_1	0.00000	0.24275	0.28215
sky130_osu_sc_18T_ls__dffsr_l	0.00000	0.21817	0.25758

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)	0.33511	1.48810	16.96530
	QN->Q (FR)	0.03480	0.84999	12.35110
	RN->Q (RR)	0.26449	1.42865	16.97290
	SN->Q (FR)	0.24538	1.51997	18.41340
sky130_osu_sc_18T_ls__dffsr_l	CK->Q (RR)	0.33754	1.62297	16.58290
	QN->Q (FR)	0.03865	0.91385	12.12570
	RN->Q (RR)	0.26831	1.56664	16.57650
	SN->Q (FR)	0.24826	1.65178	18.00100

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)	0.37334	1.52462	17.10600
	QN->Q (RF)	0.02878	0.72209	10.47790
	RN->Q (FF)	0.24895	1.51652	18.37020
sky130_osu_sc_18T_ls__dffsr_l	CK->Q (RF)	0.38090	1.67307	16.78090
	QN->Q (RF)	0.03206	0.76919	10.22920
	RN->Q (FF)	0.25653	1.66454	18.04280

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)	0.33554	0.88219	7.11368
	RN->QN (FR)	0.21174	0.87438	8.39061
sky130_osu_sc_18T_ls__dffsr_l	CK->QN (RR)	0.33796	0.94751	7.09974
	RN->QN (FR)	0.21436	0.93904	8.37189

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)	0.28874	0.77773	5.96222
	RN->QN (RF)	0.21928	0.71986	5.95615
	SN->QN (FF)	0.19964	0.80988	7.39058
sky130_osu_sc_18T_ls__dffsr_l	CK->QN (RF)	0.28482	0.81215	5.77556
	RN->QN (RF)	0.21589	0.75494	5.76561
	SN->QN (FF)	0.19604	0.84099	7.18840

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)	-0.08717	-0.10164	-0.10882
	setup	CK (R)	0.25517	0.29013	1.06234
sky130_osu_sc_18T_ls__dffsr_l	hold	CK (R)	-0.08758	-0.10022	-0.10849
	setup	CK (R)	0.25290	0.28662	1.06575

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)	-0.14893	-0.39577	-2.49716
	setup	CK (R)	0.18838	0.40801	3.43908
sky130_osu_sc_18T_ls__dffsr_l	hold	CK (R)	-0.14733	-0.39621	-2.49606
	setup	CK (R)	0.18853	0.40770	3.43923

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)	-0.08717	-0.10164	-0.10882
	setup	CK (R)	0.25517	0.29013	1.06234
sky130_osu_sc_18T_ls__dffsr_l	hold	CK (R)	-0.08758	-0.10022	-0.10849
	setup	CK (R)	0.25290	0.28662	1.06575

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)	-0.14893	-0.39577	-2.49716
	setup	CK (R)	0.18838	0.40801	3.43908
sky130_osu_sc_18T_ls__dffsr_l	hold	CK (R)	-0.14733	-0.39621	-2.49606
	setup	CK (R)	0.18853	0.40770	3.43923

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)	0.18177	0.21632	1.09122
	removal	CK (R)	-0.02158	-0.02813	-0.06033
	hold	SN (R)	-0.18710	-0.36226	-1.38652
	setup	SN (R)	0.21706	0.41317	5.55720
sky130_osu_sc_18T_ls__dffsr_l	recovery	CK (R)	0.18140	0.21604	1.08312
	removal	CK (R)	-0.02158	-0.02813	-0.06033
	hold	SN (R)	-0.18545	-0.35291	-1.33891
	setup	SN (R)	0.21746	0.40568	5.50659

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)	0.18177	0.21632	1.09122
	removal	CK (R)	-0.02158	-0.02813	-0.06033
	hold	SN (R)	-0.18710	-0.36226	-1.38652
	hold	SN (R)	-0.18957	-0.36373	-1.39691
	setup	SN (R)	0.21706	0.41160	5.32888
	setup	SN (R)	0.21093	0.41317	5.55720
sky130_osu_sc_18T_ls__dffsr_l	recovery	CK (R)	0.18140	0.21604	1.08312
	removal	CK (R)	-0.02158	-0.02813	-0.06033
	hold	SN (R)	-0.18572	-0.35291	-1.33891
	hold	SN (R)	-0.18545	-0.35515	-1.35062
	setup	SN (R)	0.21746	0.40102	5.22612
	setup	SN (R)	0.20343	0.40568	5.50659

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 ()	0.16350	0.53955	13.33370
	min_pulse_width	RN ()	0.16552	0.53955	13.33370
sky130_osu_sc_18T_ls__dffsr_l	min_pulse_width	RN ()	0.16350	0.53955	13.33370
	min_pulse_width	RN ()	0.15945	0.53955	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)	0.05100	0.09548	5.48567
	removal	CK (R)	-0.02151	-0.07265	-0.34131
sky130_osu_sc_18T_ls__dffsr_l	recovery	CK (R)	0.05050	0.09505	5.32234
	removal	CK (R)	-0.02151	-0.07265	-0.34131

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)	0.05100	0.09548	5.48567
	removal	CK (R)	-0.02151	-0.07265	-0.34131
sky130_osu_sc_18T_ls__dffsr_l	recovery	CK (R)	0.05050	0.09505	5.32234
	removal	CK (R)	-0.02151	-0.07265	-0.34131

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 ()	0.19382	0.53955	13.33370
	min_pulse_width	SN ()	0.19382	0.53955	13.33370
sky130_osu_sc_18T_ls__dffsr_l	min_pulse_width	SN ()	0.19382	0.53955	13.33370
	min_pulse_width	SN ()	0.18372	0.53955	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 ()	0.15339	0.53955	13.33370
	min_pulse_width	CK ()	0.18574	0.53955	13.33370
sky130_osu_sc_18T_ls__dffsr_l	min_pulse_width	CK ()	0.14935	0.53955	13.33370
	min_pulse_width	CK ()	0.18372	0.53955	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 ()	0.32524	0.53955	13.33370
	min_pulse_width	CK ()	0.16350	0.53955	13.33370
sky130_osu_sc_18T_ls__dffsr_l	min_pulse_width	CK ()	0.32524	0.53955	13.33370
	min_pulse_width	CK ()	0.16350	0.53955	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	0.01980	0.01809	0.01056
	RN	0.03622	0.03416	0.01715
	SN	-0.00202	-0.13136	-2.12735
	SN	0.04095	0.03803	0.01995
sky130_osu_sc_18T_ls__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.01809	0.01637	0.02054
	RN	0.03450	0.03241	0.02407
	SN	-0.00202	-0.10426	-1.44758
	SN	0.03923	0.03628	0.02740

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	0.02121	0.01963	0.01071
	RN	-0.00202	-0.13136	-2.12734
	RN	0.04284	0.04160	0.03446
sky130_osu_sc_18T_ls__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.01951	0.01852	0.02401
	RN	-0.00202	-0.10426	-1.44757
	RN	0.04111	0.04047	0.04740

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	0.02119	0.01960	0.01084
	RN	-0.00202	-0.13112	-2.12050
	RN	0.04282	0.04157	0.03546
sky130_osu_sc_18T_ls__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.01949	0.01851	0.02381
	RN	-0.00202	-0.10445	-1.45172
	RN	0.04109	0.04046	0.04795

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	0.01973	0.01807	0.01459
	RN	0.03616	0.03414	0.01753
	SN	-0.00202	-0.13112	-2.12059
	SN	0.04088	0.03799	0.02102
sky130_osu_sc_18T_ls__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.01803	0.01632	0.02084
	RN	0.03444	0.03236	0.02400
	SN	-0.00202	-0.10445	-1.45174
	SN	0.03917	0.03623	0.02759

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	-0.00549	-0.00563	-0.00560
	(!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)	0.02496	0.02463	0.05604
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.01006	0.00981	0.04129
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.00996	0.00973	0.04122
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.01007	0.00984	0.04135
sky130_osu_sc_18T_ls__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	-0.00549	-0.00563	-0.00560
	(!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)	0.02496	0.02463	0.05604
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.01006	0.00981	0.04130
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.00996	0.00973	0.04123
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.01007	0.00984	0.04135

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	0.00568	0.00564	0.00560
	(!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)	0.03794	0.03769	0.06943
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.01636	0.01643	0.04795
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.01645	0.01645	0.04794
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.01629	0.01637	0.04787
sky130_osu_sc_18T_ls__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.00568	0.00564	0.00560
	(!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)	0.03793	0.03767	0.06942
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.01635	0.01642	0.04793
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.01644	0.01644	0.04794
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.01628	0.01635	0.04786

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)	0.00440	0.00573	0.05305
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.01955	0.02040	0.06840
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)	0.00440	0.00568	0.05306
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.01955	0.02039	0.06840

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)	0.01515	0.01698	0.06575
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.03296	0.03404	0.08285
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)	0.01513	0.01697	0.06574
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.03294	0.03403	0.08284

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)	-0.01257	-0.01259	-0.01266
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	-0.01210	-0.01294	-0.01295
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	-0.01206	-0.01255	-0.01250
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.00863	0.00862	0.04231
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)	-0.01257	-0.01260	-0.01266
	(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	-0.01292	-0.01293
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	-0.01205	-0.01255	-0.01249
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.00863	0.00863	0.04232

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)	0.01263	0.01277	0.01270
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.01288	0.01304	0.01295
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	0.01246	0.01259	0.01252
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.02566	0.02525	0.05625
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)	0.01263	0.01277	0.01270
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.01286	0.01302	0.01293
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	0.01245	0.01258	0.01251
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.02565	0.02527	0.05624

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)	-0.00127	-0.00029	0.04692
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.01030	0.01011	0.05873
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.01015	0.00992	0.05864
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	-0.00168	-0.00090	0.04627
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.00690	0.00798	0.09622
sky130_osu_sc_18T_ls__dffsr_l	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	-0.00127	-0.00029	0.04692
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.01029	0.01009	0.05871
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.01014	0.00991	0.05863
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	-0.00168	-0.00090	0.04627
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.00690	0.00798	0.09622

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)	0.05533	0.05599	0.11082
	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.02168	0.02360	0.07184
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.03884	0.04002	0.08767
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.03894	0.04010	0.08770
	(!D * RN * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * Q * !QN)	0.05275	0.05524	0.13586
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.02550	0.02704	0.07402
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.02928	0.03231	0.12138
sky130_osu_sc_18T_ls__dffsr_l	**(D * RN * SN * !Q * QN)**	0.00000	0.00000	0.00000
	(D * RN * SN * !Q * QN)	0.05533	0.05600	0.11083
	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.02168	0.02359	0.07184
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.03884	0.04002	0.08767
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.03894	0.04010	0.08771
	(!D * RN * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * Q * !QN)	0.05274	0.05523	0.13585
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.02550	0.02704	0.07402
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.02926	0.03227	0.12137

SKY130_OSU_SC_18T_LS__DFFSx

sky130_osu_sc_18T_ls_tt_1P80_100C.ccs
Cell Library: Process , Voltage 1.80,
Temp 100.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_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	0.00579	0.00963	0.01649	2.52541	2.51595
sky130_osu_sc_18T_ls__dffs_l	0.00579	0.00963	0.01649	1.79317	1.80074

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__dffs_1	0.00000	0.18029	0.23902
sky130_osu_sc_18T_ls__dffs_l	0.00000	0.15571	0.21445

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)	0.24964	1.39735	16.84440
	QN->Q (FR)	0.03636	0.86431	12.42590
	SN->Q (FR)	0.18873	1.50231	18.33380
sky130_osu_sc_18T_ls__dffs_l	CK->Q (RR)	0.24897	1.51661	16.48580
	QN->Q (FR)	0.03855	0.91167	12.12000
	SN->Q (FR)	0.18826	1.61403	17.94400

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)	0.36386	1.53144	17.04930
	QN->Q (RF)	0.03110	0.76036	10.94010
sky130_osu_sc_18T_ls__dffs_l	CK->Q (RF)	0.36484	1.65808	16.78270
	QN->Q (RF)	0.03195	0.76655	10.22640

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)	0.32379	0.87458	7.00826
sky130_osu_sc_18T_ls__dffs_l	CK->QN (RR)	0.32133	0.93250	7.08907

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)	0.20471	0.67873	5.87499
	SN->QN (FF)	0.14316	0.78347	7.36419
sky130_osu_sc_18T_ls__dffs_l	CK->QN (RF)	0.19937	0.70608	5.66364
	SN->QN (FF)	0.13864	0.80429	7.11752

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)	-0.06159	-0.07943	-0.03620
	setup	CK (R)	0.17821	0.22021	1.09114
sky130_osu_sc_18T_ls__dffs_l	hold	CK (R)	-0.06390	-0.07667	-0.03550
	setup	CK (R)	0.17812	0.22071	1.10947

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)	-0.13332	-0.37533	-1.45598
	setup	CK (R)	0.17552	0.38924	3.38116
sky130_osu_sc_18T_ls__dffs_l	hold	CK (R)	-0.13285	-0.37533	-1.43800
	setup	CK (R)	0.17533	0.38924	3.38116

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)	-0.06159	-0.07943	-0.03620
	setup	CK (R)	0.17821	0.22021	1.09114
sky130_osu_sc_18T_ls__dffs_l	hold	CK (R)	-0.06390	-0.07667	-0.03550
	setup	CK (R)	0.17812	0.22071	1.10947

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)	-0.13332	-0.37533	-1.45598
	setup	CK (R)	0.17552	0.38924	3.38116
sky130_osu_sc_18T_ls__dffs_l	hold	CK (R)	-0.13285	-0.37533	-1.43800
	setup	CK (R)	0.17533	0.38924	3.38116

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)	0.05081	0.08648	4.12375
	removal	CK (R)	-0.02161	-0.06249	-0.29594
sky130_osu_sc_18T_ls__dffs_l	recovery	CK (R)	0.05064	0.08633	4.08299
	removal	CK (R)	-0.02161	-0.06249	-0.29594

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)	0.05081	0.08648	4.12375
	removal	CK (R)	-0.02161	-0.06249	-0.29594
sky130_osu_sc_18T_ls__dffs_l	recovery	CK (R)	0.05064	0.08633	4.08299
	removal	CK (R)	-0.02161	-0.06249	-0.29594

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 ()	0.12508	0.53955	13.33370
	min_pulse_width	SN ()	0.12711	0.53955	13.33370
sky130_osu_sc_18T_ls__dffs_l	min_pulse_width	SN ()	0.12508	0.53955	13.33370
	min_pulse_width	SN ()	0.11902	0.53955	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 ()	0.11093	0.53955	13.33370
	min_pulse_width	CK ()	0.17765	0.53955	13.33370
sky130_osu_sc_18T_ls__dffs_l	min_pulse_width	CK ()	0.10689	0.53955	13.33370
	min_pulse_width	CK ()	0.17361	0.53955	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 ()	0.24841	0.53955	13.33370
	min_pulse_width	CK ()	0.15339	0.53955	13.33370
sky130_osu_sc_18T_ls__dffs_l	min_pulse_width	CK ()	0.24841	0.53955	13.33370
	min_pulse_width	CK ()	0.15137	0.53955	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	0.01553	0.01248	-0.00373
	SN	-0.00202	-0.12831	-2.04558
	SN	0.03404	0.03037	-0.00352
sky130_osu_sc_18T_ls__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.01370	0.01207	0.01710
	SN	-0.00202	-0.10448	-1.45247
	SN	0.03220	0.02988	0.02387

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	0.01815	0.01619	0.00373
sky130_osu_sc_18T_ls__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.01631	0.01530	0.02151

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	0.01814	0.01621	0.00379
sky130_osu_sc_18T_ls__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.01630	0.01526	0.02134

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	0.01547	0.01245	-0.00379
	SN	-0.00202	-0.12802	-2.03761
	SN	0.03398	0.03032	-0.00310
sky130_osu_sc_18T_ls__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.01364	0.01200	0.01678
	SN	-0.00202	-0.10474	-1.45845
	SN	0.03214	0.02984	0.02402

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	-0.00555	-0.00565	-0.00565
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.01820	0.01781	0.05018
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.00859	0.00837	0.04010
sky130_osu_sc_18T_ls__dffs_l	CK	0.00000	0.00000	0.00000
	CK	-0.00555	-0.00565	-0.00565
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.01820	0.01781	0.05018
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.00859	0.00837	0.04010

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	0.00574	0.00565	0.00565
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.03220	0.03201	0.06426
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.01575	0.01579	0.04779
sky130_osu_sc_18T_ls__dffs_1	CK	0.00000	0.00000	0.00000
	CK	0.00574	0.00565	0.00565
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.03220	0.03201	0.06426
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.01575	0.01579	0.04779

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)	-0.00915	-0.00916	-0.00919
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.00697	0.00713	0.03820
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)	-0.00915	-0.00916	-0.00919
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.00697	0.00713	0.03820

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)	0.00927	0.00930	0.00922
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.01733	0.01769	0.04928
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)	0.00927	0.00930	0.00922
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.01733	0.01769	0.04928

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)	-0.00129	-0.00028	0.04694
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	-0.00183	-0.00101	0.04620
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.00537	0.00661	0.09547
sky130_osu_sc_18T_ls__dffs_l	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	-0.00129	-0.00028	0.04694
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	-0.00183	-0.00101	0.04620
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.00537	0.00661	0.09547

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)	0.04842	0.04894	0.10513
	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.02163	0.02336	0.07183
	(!D * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * SN * Q * !QN)	0.04693	0.04941	0.13009
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	0.02556	0.02712	0.07412
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.02855	0.03162	0.12143
sky130_osu_sc_18T_ls__dffs_l	(D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * SN * !Q * QN)	0.04842	0.04894	0.10513
	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.02163	0.02343	0.07183
	(!D * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * SN * Q * !QN)	0.04693	0.04945	0.13009
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	0.02556	0.02712	0.07412
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.02855	0.03172	0.12144

SKY130_OSU_SC_18T_LS__DFFx

sky130_osu_sc_18T_ls_tt_1P80_100C.ccs
Cell Library: Process , Voltage 1.80,
Temp 100.00

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	0.00594	0.01647	2.64205	2.62632
sky130_osu_sc_18T_ls__dff_l	0.00594	0.01647	1.77994	1.76216

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__dff_1	0.00000	0.21319	0.24038
sky130_osu_sc_18T_ls__dff_l	0.00000	0.18862	0.21580

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)	0.22391	1.36003	16.89580
	QN->Q (FR)	0.03455	0.84944	12.34090
sky130_osu_sc_18T_ls__dff_l	CK->Q (RR)	0.23058	1.50262	16.43790
	QN->Q (FR)	0.03921	0.92201	12.25200

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)	0.30631	1.45018	17.07510
	QN->Q (RF)	0.02865	0.71765	10.48230
sky130_osu_sc_18T_ls__dff_l	CK->Q (RF)	0.31588	1.60511	16.74190
	QN->Q (RF)	0.03202	0.76420	10.18140

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)	0.26976	0.80604	7.03175
sky130_osu_sc_18T_ls__dff_l	CK->QN (RR)	0.27388	0.87549	6.98175

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)	0.18182	0.64904	5.82364
sky130_osu_sc_18T_ls__dff_l	CK->QN (RF)	0.18162	0.68542	5.53159

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)	-0.05598	-0.07423	-0.05476
	setup	CK (R)	0.15262	0.19705	1.20069
sky130_osu_sc_18T_ls__dff_l	hold	CK (R)	-0.05853	-0.07484	-0.05564
	setup	CK (R)	0.15088	0.19563	1.19871

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)	-0.12477	-0.37689	-1.16352
	setup	CK (R)	0.14857	0.38756	3.39395
sky130_osu_sc_18T_ls__dff_l	hold	CK (R)	-0.12395	-0.37702	-1.19184
	setup	CK (R)	0.14857	0.38756	3.39301

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 ()	0.10082	0.53955	13.33370
	min_pulse_width	CK ()	0.15945	0.53955	13.33370
sky130_osu_sc_18T_ls__dff_l	min_pulse_width	CK ()	0.09880	0.53955	13.33370
	min_pulse_width	CK ()	0.15743	0.53955	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 ()**	0.22011	0.53955	13.33370
	min_pulse_width	**CK ()**	0.11497	0.53955	13.33370
sky130_osu_sc_18T_ls__dff_l	**min_pulse_width**	**CK ()**	0.22011	0.53955	13.33370
	min_pulse_width	**CK ()**	0.11497	0.53955	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	0.01640	0.01479	0.01257
sky130_osu_sc_18T_ls__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.01470	0.01305	0.01889

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	0.01853	0.01698	0.00975
sky130_osu_sc_18T_ls__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.01686	0.01570	0.01985

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	0.01852	0.01697	0.00960
sky130_osu_sc_18T_ls__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.01684	0.01573	0.01982

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	0.01635	0.01477	0.01279
sky130_osu_sc_18T_ls__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.01465	0.01308	0.01869

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	-0.00486	-0.00558	-0.00561
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.01721	0.01708	0.04946
sky130_osu_sc_18T_ls__dff_l	CK	0.00000	0.00000	0.00000
	CK	-0.00486	-0.00558	-0.00560
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.01722	0.01708	0.04947

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	0.00557	0.00558	0.00561
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.03317	0.03304	0.06569
sky130_osu_sc_18T_ls__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.00557	0.00558	0.00560
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.03317	0.03305	0.06570

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)	-0.00130	-0.00029	0.04695
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	-0.00182	-0.00102	0.04622
sky130_osu_sc_18T_ls__dff_l	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	-0.00130	-0.00029	0.04695
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	-0.00182	-0.00102	0.04622

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)	0.02156	0.02347	0.07177
	(D * !Q * QN)	0.00000	0.00000	0.00000
	(D * !Q * QN)	0.04751	0.04817	0.10518
	(!D * Q * !QN)	0.00000	0.00000	0.00000
	(!D * Q * !QN)	0.04764	0.05049	0.13233
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.02547	0.02702	0.07403
sky130_osu_sc_18T_ls__dff_l	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.02156	0.02338	0.07177
	(D * !Q * QN)	0.00000	0.00000	0.00000
	(D * !Q * QN)	0.04751	0.04817	0.10520
	(!D * Q * !QN)	0.00000	0.00000	0.00000
	(!D * Q * !QN)	0.04765	0.05041	0.13214
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.02547	0.02702	0.07403

SKY130_OSU_SC_18T_LS__INVx

sky130_osu_sc_18T_ls_tt_1P80_100C.ccs
Cell Library: Process , Voltage 1.80,
Temp 100.00

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	0.00580	2.52386
sky130_osu_sc_18T_ls__inv_10	0.05499	22.37741
sky130_osu_sc_18T_ls__inv_2	0.01119	4.91103
sky130_osu_sc_18T_ls__inv_3	0.01669	7.04212
sky130_osu_sc_18T_ls__inv_4	0.02211	9.45951
sky130_osu_sc_18T_ls__inv_6	0.03315	13.99166
sky130_osu_sc_18T_ls__inv_8	0.04408	18.17586
sky130_osu_sc_18T_ls__inv_l	0.00440	1.71605

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__inv_1	0.00000	0.03009	0.03811
sky130_osu_sc_18T_ls__inv_10	0.00000	0.25768	0.35951
sky130_osu_sc_18T_ls__inv_2	0.00000	0.05154	0.07190
sky130_osu_sc_18T_ls__inv_3	0.00000	0.08162	0.11001
sky130_osu_sc_18T_ls__inv_4	0.00000	0.10307	0.14380
sky130_osu_sc_18T_ls__inv_6	0.00000	0.15461	0.21571
sky130_osu_sc_18T_ls__inv_8	0.00000	0.20614	0.28761
sky130_osu_sc_18T_ls__inv_l	0.00000	0.01780	0.01831

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)**	0.03275	0.78154	11.17800
sky130_osu_sc_18T_ls__inv_10	**A->Y (FR)**	0.05066	0.54597	11.13170
sky130_osu_sc_18T_ls__inv_2	**A->Y (FR)**	0.02753	0.67691	11.07660
sky130_osu_sc_18T_ls__inv_3	**A->Y (FR)**	0.03070	0.63724	11.09280
sky130_osu_sc_18T_ls__inv_4	**A->Y (FR)**	0.03204	0.60790	11.07020
sky130_osu_sc_18T_ls__inv_6	**A->Y (FR)**	0.03657	0.57380	11.11310
sky130_osu_sc_18T_ls__inv_8	**A->Y (FR)**	0.04317	0.55282	11.04720
sky130_osu_sc_18T_ls__inv_l	**A->Y (FR)**	0.03664	0.84639	11.11400

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)**	0.02590	0.63991	9.18005
sky130_osu_sc_18T_ls__inv_10	**A->Y (RF)**	0.04329	0.40795	8.90175
sky130_osu_sc_18T_ls__inv_2	**A->Y (RF)**	0.02215	0.54592	9.07161
sky130_osu_sc_18T_ls__inv_3	**A->Y (RF)**	0.02441	0.50607	9.06796
sky130_osu_sc_18T_ls__inv_4	**A->Y (RF)**	0.02480	0.47603	9.05996
sky130_osu_sc_18T_ls__inv_6	**A->Y (RF)**	0.03140	0.44256	9.06229
sky130_osu_sc_18T_ls__inv_8	**A->Y (RF)**	0.03721	0.42040	8.96705
sky130_osu_sc_18T_ls__inv_l	**A->Y (RF)**	0.02878	0.68012	8.93622

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	0.00822	0.00896	0.00917
sky130_osu_sc_18T_ls__inv_10	A	0.00000	0.00000	0.00000
	A	0.07221	0.08472	0.12962
sky130_osu_sc_18T_ls__inv_2	A	0.00000	0.00000	0.00000
	A	0.01487	0.01717	0.02474
sky130_osu_sc_18T_ls__inv_3	A	0.00000	0.00000	0.00000
	A	0.02271	0.02592	0.03842
sky130_osu_sc_18T_ls__inv_4	A	0.00000	0.00000	0.00000
	A	0.02938	0.03376	0.04992
sky130_osu_sc_18T_ls__inv_6	A	0.00000	0.00000	0.00000
	A	0.04355	0.05137	0.07627
sky130_osu_sc_18T_ls__inv_8	A	0.00000	0.00000	0.00000
	A	0.05773	0.07099	0.11631
sky130_osu_sc_18T_ls__inv_l	A	0.00000	0.00000	0.00000
	A	0.00624	0.00667	0.01015

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	-0.00194	-0.00147	0.00339
sky130_osu_sc_18T_ls__inv_10	**A**	0.00000	0.00000	0.00000
	A	-0.02678	-0.02124	0.02924
sky130_osu_sc_18T_ls__inv_2	**A**	0.00000	0.00000	0.00000
	A	-0.00584	-0.00445	0.00529
sky130_osu_sc_18T_ls__inv_3	**A**	0.00000	0.00000	0.00000
	A	-0.00784	-0.00553	0.00914
sky130_osu_sc_18T_ls__inv_4	**A**	0.00000	0.00000	0.00000
	A	-0.01167	-0.00877	0.01106
sky130_osu_sc_18T_ls__inv_6	**A**	0.00000	0.00000	0.00000
	A	-0.01786	-0.01308	0.01682
sky130_osu_sc_18T_ls__inv_8	**A**	0.00000	0.00000	0.00000
	A	-0.02327	-0.01664	0.02294
sky130_osu_sc_18T_ls__inv_l	**A**	0.00000	0.00000	0.00000
	A	-0.00132	-0.00103	0.00275

SKY130_OSU_SC_18T_LS__MUX2

sky130_osu_sc_18T_ls_tt_1P80_100C.ccs
Cell Library: Process , Voltage 1.80,
Temp 100.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_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	0.67336	0.67412	0.01177	0.70208

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__mux2_1	0.00000	0.06762	0.06762

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)	-	0.01783	0.30782	3.12968
	A1->Y (RR)	-	0.01911	0.30871	3.13076
	S0->Y (RR)	(!A0 * A1)	0.05394	0.32444	1.78697
	S0->Y (FR)	(A0 * !A1)	0.04810	0.44465	3.92495

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)	-	0.01538	0.30803	3.17579
	A1->Y (FF)	-	0.01512	0.30687	3.16718
	S0->Y (FF)	(!A0 * A1)	0.07232	0.41939	2.85825
	S0->Y (RF)	(A0 * !A1)	0.03107	0.36148	3.09270

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	-	-0.00853	-0.00853	-0.00854
	A1	-	0.00000	0.00000	0.00000
	A1	-	-0.00601	-0.00602	-0.00601
	S0	(A0 * !A1)	0.00000	0.00000	0.00000
	S0	(A0 * !A1)	0.00911	0.01166	0.06145
	S0	(!A0 * A1)	0.00000	0.00000	0.00000
	S0	(!A0 * A1)	-0.00600	-0.00465	0.04431

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	-	0.00853	0.00853	0.00855
	A1	-	0.00000	0.00000	0.00000
	A1	-	0.00601	0.00602	0.00602
	S0	(A0 * !A1)	0.00000	0.00000	0.00000
	S0	(A0 * !A1)	0.00170	0.00330	0.05293
	S0	(!A0 * A1)	0.00000	0.00000	0.00000
	S0	(!A0 * A1)	0.02215	0.02433	0.07284

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)	-0.00216	-0.00215	-0.00215

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)	0.00216	0.00215	0.00215

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)	-0.00256	-0.00255	-0.00255

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)	0.00256	0.00255	0.00255

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)	-0.00220	-0.00071	0.04846
	(!A0 * !A1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !Y)	-0.00214	-0.00073	0.04872

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)	0.01666	0.01856	0.06753
	(!A0 * !A1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !Y)	0.01460	0.01688	0.06663

SKY130_OSU_SC_18T_LS__NAND2x

sky130_osu_sc_18T_ls_tt_1P80_100C.ccs
Cell Library: Process , Voltage 1.80,
Temp 100.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_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	0.00582	0.00579	2.03825
sky130_osu_sc_18T_ls__nand2_l	0.00441	0.00440	1.41667

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__nand2_1	0.00000	0.02756	0.03811
sky130_osu_sc_18T_ls__nand2_l	0.00000	0.01637	0.02560

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)	0.03373	0.73695	9.98203
	B->Y (FR)	0.03956	0.73605	9.88877
sky130_osu_sc_18T_ls__nand2_l	A->Y (FR)	0.03755	0.79868	10.01340
	B->Y (FR)	0.04455	0.80198	9.97718

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)	0.03763	0.76071	10.40270
	B->Y (RF)	0.04265	0.72739	9.89384
sky130_osu_sc_18T_ls__nand2_l	A->Y (RF)	0.04225	0.82683	10.28010
	B->Y (RF)	0.04717	0.79432	9.76124

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	0.00878	0.00940	0.01588
	B	0.00000	0.00000	0.00000
	B	0.01108	0.01160	0.01814
sky130_osu_sc_18T_ls__nand2_l	A	0.00000	0.00000	0.00000
	A	0.00662	0.00703	0.01204
	B	0.00000	0.00000	0.00000
	B	0.00831	0.00864	0.01366

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	-0.00129	-0.00102	0.00398
	B	0.00000	0.00000	0.00000
	B	-0.00121	-0.00117	0.00296
sky130_osu_sc_18T_ls__nand2_l	A	0.00000	0.00000	0.00000
	A	-0.00092	-0.00076	0.00304
	B	0.00000	0.00000	0.00000
	B	-0.00087	-0.00084	0.00231

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)	-0.00623	-0.00627	-0.00628
sky130_osu_sc_18T_ls__nand2_l	(!B * Y)	0.00000	0.00000	0.00000
	(!B * Y)	-0.00447	-0.00449	-0.00450

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)	0.00626	0.00633	0.00630
sky130_osu_sc_18T_ls__nand2_l	(!B * Y)	0.00000	0.00000	0.00000
	(!B * Y)	0.00449	0.00453	0.00451

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)	-0.00586	-0.00587	-0.00586
sky130_osu_sc_18T_ls__nand2_l	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00419	-0.00420	-0.00419

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)	0.00597	0.00593	0.00588
sky130_osu_sc_18T_ls__nand2_l	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00427	0.00424	0.00421

SKY130_OSU_SC_18T_LS__NOR2x

sky130_osu_sc_18T_ls_tt_1P80_100C.ccs
Cell Library: Process , Voltage 1.80,
Temp 100.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_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	0.00581	0.00612	1.32168
sky130_osu_sc_18T_ls__nor2_l	0.00434	0.00468	0.90616

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__nor2_1	0.00000	0.03014	0.07190
sky130_osu_sc_18T_ls__nor2_l	0.00000	0.01777	0.03328

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)	0.06821	0.88891	10.55080
	B->Y (FR)	0.04994	0.89324	10.89320
sky130_osu_sc_18T_ls__nor2_l	A->Y (FR)	0.07502	0.97515	10.48770
	B->Y (FR)	0.05896	0.98245	10.85000

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)	0.03599	0.53397	6.37506
	B->Y (RF)	0.02771	0.51913	6.35206
sky130_osu_sc_18T_ls__nor2_l	A->Y (RF)	0.03828	0.56426	6.20892
	B->Y (RF)	0.03062	0.55187	6.18890

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	0.01235	0.01232	0.01783
	B	0.00000	0.00000	0.00000
	B	0.00891	0.00930	0.01791
sky130_osu_sc_18T_ls__nor2_l	A	0.00000	0.00000	0.00000
	A	0.00892	0.00890	0.01328
	B	0.00000	0.00000	0.00000
	B	0.00669	0.00694	0.01349

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	0.00126	0.00129	0.00811
	B	0.00000	0.00000	0.00000
	B	-0.00147	-0.00100	0.00569
sky130_osu_sc_18T_ls__nor2_l	A	0.00000	0.00000	0.00000
	A	0.00081	0.00090	0.00620
	B	0.00000	0.00000	0.00000
	B	-0.00094	-0.00064	0.00456

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	-0.00561	-0.00563
sky130_osu_sc_18T_ls__nor2_l	(B * !Y)	0.00000	0.00000	0.00000
	(B * !Y)	-0.00342	-0.00392	-0.00392

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)	0.00560	0.00561	0.00563
sky130_osu_sc_18T_ls__nor2_l	(B * !Y)	0.00000	0.00000	0.00000
	(B * !Y)	0.00390	0.00392	0.00392

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)	-0.00240	-0.00243	-0.00241
sky130_osu_sc_18T_ls__nor2_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	-0.00171	-0.00173	-0.00172

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)	0.00253	0.00255	0.00246
sky130_osu_sc_18T_ls__nor2_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00180	0.00181	0.00175

SKY130_OSU_SC_18T_LS__OAI21

sky130_osu_sc_18T_ls_tt_1P80_100C.ccs
Cell Library: Process , Voltage 1.80,
Temp 100.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_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	0.00588	0.00593	0.00487	1.30283

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__oai21_l	0.00000	0.03636	0.06270

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)	0.06746	0.91031	10.86720
	A1->Y (FR)	0.08970	0.91112	10.53230
	B0->Y (FR)	0.04619	0.77849	9.49518

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)	0.05311	0.65488	7.70525
	A1->Y (RF)	0.06582	0.65532	7.52798
	B0->Y (RF)	0.04074	0.69563	8.44497

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	0.01227	0.01260	0.01981
	A1	0.00000	0.00000	0.00000
	A1	0.01570	0.01556	0.02056
	B0	0.01064	0.01110	0.01765

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	0.00025	0.00017	0.00502
	A1	0.00000	0.00000	0.00000
	A1	0.00296	0.00262	0.00751
	B0	0.00102	0.00121	0.00634

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)	-0.00241	-0.00243	-0.00242
	(A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * Y)	-0.00554	-0.00568	-0.00564
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00576	-0.00579	-0.00576

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)	0.00254	0.00256	0.00247
	(A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * Y)	0.00561	0.00568	0.00564
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00581	0.00580	0.00578

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	-0.00559	-0.00555
	(A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * Y)	-0.00551	-0.00563	-0.00561
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	-0.00570	-0.00574	-0.00571

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)	0.00551	0.00559	0.00555
	(A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * Y)	0.00557	0.00563	0.00561
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	0.00576	0.00578	0.00573

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)	-0.00453	-0.00456	-0.00462

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)	0.00462	0.00467	0.00464

SKY130_OSU_SC_18T_LS__OAI22

sky130_osu_sc_18T_ls_tt_1P80_100C.ccs
Cell Library: Process , Voltage 1.80,
Temp 100.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_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	0.00571	0.00599	0.00612	0.00599	1.30938

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__oai22_1	0.00000	0.03783	0.07190

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)	0.09744	0.91756	10.53240
	A1->Y (FR)	0.07938	0.91939	10.87430
	B0->Y (FR)	0.05735	0.89902	10.87040
	B1->Y (FR)	0.07592	0.89722	10.52800

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)	0.09645	0.71627	7.90144
	A1->Y (RF)	0.07511	0.68557	7.78613
	B0->Y (RF)	0.06365	0.72234	8.50685
	B1->Y (RF)	0.08626	0.76585	8.75055

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	0.02072	0.02057	0.02534
	A1	0.01728	0.01760	0.02465
	B0	0.01299	0.01349	0.02046
	B1	0.01654	0.01645	0.02120

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__oai22_l	A0	0.00512	0.00475	0.00950
	A1	0.00265	0.00240	0.00716
	B0	-0.00056	-0.00033	0.00587
	B1	0.00209	0.00199	0.00803

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	-0.00561	-0.00563
	(A1 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * B1 * !Y)	-0.00487	-0.00561	-0.00563
	(A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * !B1 * Y)	-0.00550	-0.00567	-0.00561
	(!A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * !B1 * Y)	-0.00571	-0.00573	-0.00572

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)	0.00560	0.00561	0.00563
	(A1 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * B1 * !Y)	0.00560	0.00561	0.00563
	(A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * !B1 * Y)	0.00559	0.00567	0.00561
	(!A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * !B1 * Y)	0.00576	0.00577	0.00574

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)	-0.00239	-0.00241	-0.00240
	(A0 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * B1 * !Y)	-0.00239	-0.00241	-0.00240
	(A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * !B1 * Y)	-0.00549	-0.00561	-0.00558
	(!A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * !B1 * Y)	-0.00570	-0.00574	-0.00571

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)	0.00252	0.00254	0.00245
	(A0 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * B1 * !Y)	0.00252	0.00254	0.00245
	(A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * !B1 * Y)	0.00555	0.00561	0.00558
	(!A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * !B1 * Y)	0.00575	0.00577	0.00573

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)	-0.00238	-0.00240	-0.00239
	(A0 * !A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B1 * !Y)	-0.00238	-0.00241	-0.00239
	(!A0 * !A1 * B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B1 * Y)	-0.00602	-0.00616	-0.00612
	(!A0 * !A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B1 * Y)	-0.00610	-0.00612	-0.00623

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)	0.00251	0.00253	0.00243
	(A0 * !A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B1 * !Y)	0.00251	0.00253	0.00243
	(!A0 * !A1 * B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B1 * Y)	0.00612	0.00617	0.00612
	(!A0 * !A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B1 * Y)	0.00623	0.00629	0.00626

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	-0.00554	-0.00556
	(A0 * !A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B0 * !Y)	-0.00483	-0.00561	-0.00556
	(!A0 * !A1 * B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B0 * Y)	-0.00611	-0.00623	-0.00621
	(!A0 * !A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B0 * Y)	-0.00618	-0.00622	-0.00630

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)	0.00553	0.00554	0.00556
	(A0 * !A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B0 * !Y)	0.00553	0.00561	0.00556
	(!A0 * !A1 * B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B0 * Y)	0.00622	0.00623	0.00621
	(!A0 * !A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B0 * Y)	0.00630	0.00636	0.00633

SKY130_OSU_SC_18T_LS__OR2x

sky130_osu_sc_18T_ls_tt_1P80_100C.ccs
Cell Library: Process , Voltage 1.80,
Temp 100.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_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	0.00614	0.00595	2.57167
sky130_osu_sc_18T_ls__or2_2	0.00615	0.00595	4.98694
sky130_osu_sc_18T_ls__or2_4	0.00615	0.00595	9.54727
sky130_osu_sc_18T_ls__or2_8	0.00615	0.00597	18.13970
sky130_osu_sc_18T_ls__or2_l	0.00474	0.00450	1.75535

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__or2_1	0.00000	0.06435	0.09397
sky130_osu_sc_18T_ls__or2_2	0.00000	0.09197	0.10307
sky130_osu_sc_18T_ls__or2_4	0.00000	0.15369	0.16587
sky130_osu_sc_18T_ls__or2_8	0.00000	0.27713	0.30968
sky130_osu_sc_18T_ls__or2_l	0.00000	0.03594	0.05057

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)	0.07977	0.62061	6.80968
	B->Y (RR)	0.06867	0.58137	6.69931
sky130_osu_sc_18T_ls__or2_2	A->Y (RR)	0.08822	0.56106	6.84224
	B->Y (RR)	0.07673	0.52620	6.72450
sky130_osu_sc_18T_ls__or2_4	A->Y (RR)	0.11425	0.56717	7.11434
	B->Y (RR)	0.10241	0.53951	7.00747
sky130_osu_sc_18T_ls__or2_8	A->Y (RR)	0.16285	0.63093	7.53539
	B->Y (RR)	0.15071	0.60985	7.45239
sky130_osu_sc_18T_ls__or2_l	A->Y (RR)	0.08701	0.68944	6.74396
	B->Y (RR)	0.07642	0.65351	6.64045

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)	0.12582	0.69294	7.10323
	B->Y (FF)	0.10244	0.67398	7.14891
sky130_osu_sc_18T_ls__or2_2	A->Y (FF)	0.14985	0.67189	7.18346
	B->Y (FF)	0.12651	0.66326	7.21161
sky130_osu_sc_18T_ls__or2_4	A->Y (FF)	0.20985	0.72318	7.45086
	B->Y (FF)	0.18666	0.72530	7.49547
sky130_osu_sc_18T_ls__or2_8	A->Y (FF)	0.33437	0.85814	7.76276
	B->Y (FF)	0.31126	0.86245	7.84596
sky130_osu_sc_18T_ls__or2_l	A->Y (FF)	0.13604	0.74718	6.97634
	B->Y (FF)	0.11321	0.73294	7.04491

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	0.00912	0.00959	0.04384
	B	0.00000	0.00000	0.00000
	B	0.00655	0.00773	0.04289
sky130_osu_sc_18T_ls__or2_2	A	0.00000	0.00000	0.00000
	A	0.01578	0.01665	0.04687
	B	0.00000	0.00000	0.00000
	B	0.01314	0.01487	0.04936
sky130_osu_sc_18T_ls__or2_4	A	0.00000	0.00000	0.00000
	A	0.03012	0.03172	0.06281
	B	0.00000	0.00000	0.00000
	B	0.02740	0.03026	0.06387
sky130_osu_sc_18T_ls__or2_8	A	0.00000	0.00000	0.00000
	A	0.06004	0.06220	0.09554
	B	0.00000	0.00000	0.00000
	B	0.05745	0.06087	0.09742
sky130_osu_sc_18T_ls__or2_l	A	0.00000	0.00000	0.00000
	A	0.00662	0.00688	0.02971
	B	0.00000	0.00000	0.00000
	B	0.00497	0.00587	0.03288

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	0.01959	0.01983	0.04768
	B	0.00000	0.00000	0.00000
	B	0.01580	0.01821	0.05959
sky130_osu_sc_18T_ls__or2_2	A	0.00000	0.00000	0.00000
	A	0.02428	0.02508	0.05243
	B	0.00000	0.00000	0.00000
	B	0.02052	0.02319	0.06284
sky130_osu_sc_18T_ls__or2_4	A	0.00000	0.00000	0.00000
	A	0.03718	0.03740	0.06400
	B	0.00000	0.00000	0.00000
	B	0.03338	0.03529	0.07266
sky130_osu_sc_18T_ls__or2_8	A	0.00000	0.00000	0.00000
	A	0.06887	0.06293	0.08779
	B	0.00000	0.00000	0.00000
	B	0.06514	0.06166	0.09435
sky130_osu_sc_18T_ls__or2_l	A	0.00000	0.00000	0.00000
	A	0.01471	0.01477	0.03545
	B	0.00000	0.00000	0.00000
	B	0.01209	0.01375	0.04461

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)	-0.00493	-0.00569	-0.00565
sky130_osu_sc_18T_ls__or2_2	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00493	-0.00569	-0.00565
sky130_osu_sc_18T_ls__or2_4	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00493	-0.00569	-0.00565
sky130_osu_sc_18T_ls__or2_8	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00492	-0.00569	-0.00565
sky130_osu_sc_18T_ls__or2_l	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00346	-0.00395	-0.00394

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)	0.00561	0.00569	0.00565
sky130_osu_sc_18T_ls__or2_2	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00561	0.00569	0.00565
sky130_osu_sc_18T_ls__or2_4	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00561	0.00569	0.00565
sky130_osu_sc_18T_ls__or2_8	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00562	0.00569	0.00565
sky130_osu_sc_18T_ls__or2_l	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00392	0.00395	0.00394

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)	-0.00241	-0.00243	-0.00242
sky130_osu_sc_18T_ls__or2_2	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00241	-0.00244	-0.00242
sky130_osu_sc_18T_ls__or2_4	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00241	-0.00244	-0.00242
sky130_osu_sc_18T_ls__or2_8	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00241	-0.00244	-0.00242
sky130_osu_sc_18T_ls__or2_l	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00174	-0.00176	-0.00175

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)	0.00255	0.00257	0.00247
sky130_osu_sc_18T_ls__or2_2	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00255	0.00257	0.00247
sky130_osu_sc_18T_ls__or2_4	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00255	0.00257	0.00247
sky130_osu_sc_18T_ls__or2_8	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00255	0.00258	0.00247
sky130_osu_sc_18T_ls__or2_l	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00185	0.00185	0.00178

SKY130_OSU_SC_18T_LS__TBUFIx

sky130_osu_sc_18T_ls_tt_1P80_100C.ccs
Cell Library: Process , Voltage 1.80,
Temp 100.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_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	0.00612	0.00768	1.32175
sky130_osu_sc_18T_ls__tbufi_l	0.00469	0.00593	0.90362

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__tbufi_1	0.00000	0.04866	0.06018
sky130_osu_sc_18T_ls__tbufi_l	0.00000	0.02784	0.03560

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)	0.04823	0.88971	10.88360
	OE->Y (FR)	0.05619	0.39276	5.09405
	OE->Y (RR)	0.09201	0.70998	6.75050
sky130_osu_sc_18T_ls__tbufi_l	A->Y (FR)	0.05697	0.97656	10.83890
	OE->Y (FR)	0.05930	0.39254	5.09381
	OE->Y (RR)	0.10027	0.80015	6.69379

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)	0.03679	0.65076	7.95757
	OE->Y (FF)	0.05703	0.39277	5.09403
	OE->Y (RF)	0.03401	0.60928	7.37856
sky130_osu_sc_18T_ls__tbufi_l	A->Y (RF)	0.04177	0.69699	7.77431
	OE->Y (FF)	0.05996	0.39253	5.09380
	OE->Y (RF)	0.03954	0.65660	7.18385

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	0.00840	0.00901	0.01636
	OE	0.00000	0.00000	0.00000
	OE	0.00894	0.01036	0.05443
sky130_osu_sc_18T_ls__tbufi_l	A	0.00000	0.00000	0.00000
	A	0.00633	0.00636	0.01237
	OE	0.00000	0.00000	0.00000
	OE	0.00635	0.00744	0.04125

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	-0.00150	-0.00109	0.00487
	OE	0.00000	0.00000	0.00000
	OE	0.00578	0.00725	0.05696
sky130_osu_sc_18T_ls__tbufi_l	A	0.00000	0.00000	0.00000
	A	-0.00097	-0.00072	0.00388
	OE	0.00000	0.00000	0.00000
	OE	0.00401	0.00512	0.04210

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)	-0.00414	-0.00417	-0.00416
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	-0.00352	-0.00356	-0.00354
sky130_osu_sc_18T_ls__tbufi_l	(!OE * Y)	0.00000	0.00000	0.00000
	(!OE * Y)	-0.00309	-0.00315	-0.00311
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	-0.00267	-0.00271	-0.00269

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)	0.00414	0.00417	0.00416
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	0.00362	0.00365	0.00359
sky130_osu_sc_18T_ls__tbufi_l	(!OE * Y)	0.00000	0.00000	0.00000
	(!OE * Y)	0.00309	0.00315	0.00311
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	0.00274	0.00276	0.00272

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)	0.00344	0.00516	0.05507
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00304	0.00496	0.05460
sky130_osu_sc_18T_ls__tbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00234	0.00366	0.04093
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00206	0.00348	0.04061

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)	0.00964	0.01132	0.06115
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00980	0.01153	0.06128
sky130_osu_sc_18T_ls__tbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00747	0.00867	0.04582
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00760	0.00884	0.04596

SKY130_OSU_SC_18T_LS__TNBUFIx

sky130_osu_sc_18T_ls_tt_1P80_100C.ccs
Cell Library: Process , Voltage 1.80,
Temp 100.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_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	0.00612	0.00974	1.35402
sky130_osu_sc_18T_ls__tnbufi_l	0.00468	0.00718	0.90369

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__tnbufi_1	0.00000	0.04332	0.07621
sky130_osu_sc_18T_ls__tnbufi_l	0.00000	0.02750	0.03663

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)	0.04856	0.89787	11.04980
	OE->Y (RR)	0.03267	0.39387	5.09517
	OE->Y (FR)	0.06445	0.89350	10.69200
sky130_osu_sc_18T_ls__tnbufi_l	A->Y (FR)	0.05745	0.97660	10.83940
	OE->Y (RR)	0.03428	0.39413	5.09543
	OE->Y (FR)	0.07130	0.97256	10.45410

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)	0.03632	0.65583	8.07054
	OE->Y (RF)	0.03254	0.39387	5.09519
	OE->Y (FF)	0.06171	0.57590	5.72208
sky130_osu_sc_18T_ls__tnbufi_l	A->Y (RF)	0.04119	0.69678	7.77449
	OE->Y (RF)	0.03413	0.39413	5.09543
	OE->Y (FF)	0.06963	0.63064	5.53863

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	0.00860	0.00920	0.01655
	OE	0.00000	0.00000	0.00000
	OE	0.02146	0.02414	0.07514
sky130_osu_sc_18T_ls__tnbufi_l	A	0.00000	0.00000	0.00000
	A	0.00653	0.00654	0.01256
	OE	0.00000	0.00000	0.00000
	OE	0.01578	0.01772	0.05563

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	-0.00176	-0.00132	0.00454
	OE	0.00000	0.00000	0.00000
	OE	0.01860	0.02128	0.06603
sky130_osu_sc_18T_ls__tnbufi_l	A	0.00000	0.00000	0.00000
	A	-0.00120	-0.00095	0.00365
	OE	0.00000	0.00000	0.00000
	OE	0.01368	0.01557	0.04818

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)	-0.00357	-0.00360	-0.00359
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	-0.00301	-0.00305	-0.00303
sky130_osu_sc_18T_ls__tnbufi_l	(OE * Y)	0.00000	0.00000	0.00000
	(OE * Y)	-0.00256	-0.00261	-0.00257
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	-0.00218	-0.00221	-0.00219

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)	0.00357	0.00360	0.00359
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	0.00309	0.00312	0.00307
sky130_osu_sc_18T_ls__tnbufi_l	(OE * Y)	0.00000	0.00000	0.00000
	(OE * Y)	0.00256	0.00261	0.00257
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	0.00223	0.00225	0.00222

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)	-0.00679	-0.00573	0.04517
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00664	-0.00523	0.04522
sky130_osu_sc_18T_ls__tnbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	-0.00469	-0.00378	0.03414
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00459	-0.00370	0.03419

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)	0.01592	0.01892	0.06995
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.01570	0.01867	0.06977
sky130_osu_sc_18T_ls__tnbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.01176	0.01384	0.05183
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.01159	0.01372	0.05173

SKY130_OSU_SC_18T_LS__XNOR2

sky130_osu_sc_18T_ls_tt_1P80_100C.ccs
Cell Library: Process , Voltage 1.80,
Temp 100.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_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	0.01212	0.01115	1.38045

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__xnor2_l	0.00000	0.10725	0.13820

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	0.11623	0.76317	7.11160
	A->Y (FR)	!B	0.06378	0.91762	11.14170
	B->Y (RR)	A	0.09147	0.73902	7.14074
	B->Y (FR)	!A	0.08847	0.91944	10.81290

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	0.11356	0.68907	6.22570
	A->Y (RF)	!B	0.05308	0.65108	7.81422
	B->Y (FF)	A	0.09687	0.67408	6.22323
	B->Y (RF)	!A	0.06811	0.66950	7.82227

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	0.00889	0.00999	0.05357
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.02053	0.02267	0.07873
	B	A	0.00000	0.00000	0.00000
	B	A	0.00240	0.00401	0.05354
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.02326	0.02517	0.07811

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	0.02575	0.02676	0.07495
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00564	0.00692	0.05999
	B	A	0.00000	0.00000	0.00000
	B	A	0.02344	0.02580	0.07544
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00710	0.00816	0.06083

SKY130_OSU_SC_18T_LS__XOR2

sky130_osu_sc_18T_ls_tt_1P80_100C.ccs
Cell Library: Process , Voltage 1.80,
Temp 100.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_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	0.01210	0.01119	1.33666

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__xor2_l	0.00000	0.10725	0.13340

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	0.10877	0.73782	6.93404
	A->Y (FR)	B	0.08052	0.90406	10.66440
	B->Y (RR)	!A	0.09427	0.73139	6.95194
	B->Y (FR)	A	0.08696	0.91018	10.64820

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	0.09530	0.65302	5.83952
	A->Y (RF)	B	0.05384	0.67728	8.02167
	B->Y (FF)	!A	0.09021	0.65013	5.91131
	B->Y (RF)	A	0.06363	0.64554	7.47302

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	0.02441	0.02654	0.08116
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00395	0.00408	0.05250
	B	A	0.00000	0.00000	0.00000
	B	A	0.02528	0.02751	0.08147
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00201	0.00346	0.05334

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

Cell Name	Input	When	Power(pJ)		
			first	mid	last
sky130_osu_sc_18T_ls__xor2_l	A	B	0.00000	0.00000	0.00000
	A	B	0.00466	0.00586	0.06120
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.02620	0.02850	0.07242
	B	A	0.00000	0.00000	0.00000
	B	A	0.00470	0.00568	0.05920
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.02384	0.02643	0.07639

SKY130_OSU_SC_18T_LS_x

sky130_osu_sc_18T_ls_tt_1P80_100C.ccs
Cell Library: Process , Voltage 1.80,
Temp 100.00

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	0.72602
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	331198.00000	662397.00000
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
	-0.00264	0.09311	1.19610

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
	5.76348	5.44413	1.45080