sky130_osu_sc_18T_ls_tt_1P35_25C.ccs Library

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

SKY130_OSU_SC_18T_LS__ADDFx

sky130_osu_sc_18T_ls_tt_1P35_25C.ccs
Cell Library: Process , Voltage 1.35,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__addf_1	46.88640
sky130_osu_sc_18T_ls__addf_l	46.88640

Pin Capacitance Information

Cell Name	Pin Cap(pf)			Max Cap(pf)		
	A	B	CI	CO	CON	S
sky130_osu_sc_18T_ls__addf_1	0.01992	0.01998	0.01548	1.06449	0.46447	1.04375
sky130_osu_sc_18T_ls__addf_l	0.01992	0.01998	0.01544	0.73929	0.46584	0.74117

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__addf_1	0.00000	0.00108	0.00116
sky130_osu_sc_18T_ls__addf_l	0.00000	0.00088	0.00103

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)	0.29172	2.38436	24.32120
	B->CO (RR)	0.26746	2.28464	23.45770
	CI->CO (RR)	0.27940	2.39004	24.57920
	CON->CO (FR)	0.06457	1.16268	13.12490
sky130_osu_sc_18T_ls__addf_1	A->CO (RR)	0.29344	2.25333	20.41830
	B->CO (RR)	0.26985	2.17014	19.83810
	CI->CO (RR)	0.28109	2.25935	20.69880
	CON->CO (FR)	0.07490	1.26017	13.07840

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)	0.55171	3.71604	36.73750
	B->CO (FF)	0.50962	3.59143	35.72130
	CI->CO (FF)	0.49171	3.62230	36.52050
	CON->CO (RF)	0.03745	0.72948	8.34418
sky130_osu_sc_18T_ls__addf_1	A->CO (FF)	0.53600	3.29479	28.67680
	B->CO (FF)	0.49484	3.18908	27.95390
	CI->CO (FF)	0.47613	3.20027	28.47630
	CON->CO (RF)	0.04051	0.75423	8.13385

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)	0.40112	1.74611	13.34120
	B->CON (FR)	0.36266	1.66938	13.02880
	CI->CON (FR)	0.34088	1.65274	13.15420
sky130_osu_sc_18T_ls__addf_1	A->CON (FR)	0.38110	1.72838	13.34300
	B->CON (FR)	0.34399	1.65211	13.03010
	CI->CON (FR)	0.32106	1.63431	13.15600

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)	0.14376	0.81481	7.02152
	B->CON (RF)	0.13415	0.79450	7.03781
	CI->CON (RF)	0.13143	0.82268	7.33786
sky130_osu_sc_18T_ls__addf_1	A->CON (RF)	0.13850	0.81013	7.02425
	B->CON (RF)	0.12931	0.79033	7.04066
	CI->CON (RF)	0.12611	0.81802	7.34145

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)	0.76704	3.81138	31.98090
	B->S (-R)	0.75862	3.76315	31.59070
	CI->S (-R)	0.70243	3.70567	31.72860
	CON->S (RR)	0.17229	1.13952	9.16527
sky130_osu_sc_18T_ls__addf_1	A->S (-R)	0.73242	3.49678	26.78550
	B->S (-R)	0.72497	3.46202	26.54970
	CI->S (-R)	0.66794	3.39270	26.55050
	CON->S (RR)	0.17361	1.21906	9.06919

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)	0.52586	2.21457	17.57380
	B->S (-F)	0.55341	2.14977	17.06790
	CI->S (-F)	0.51289	2.21767	17.81360
	CON->S (FF)	0.23246	1.05357	7.76420
sky130_osu_sc_18T_ls__addf_l	A->S (-F)	0.49270	2.02233	14.75800
	B->S (-F)	0.52107	1.96504	14.42990
	CI->S (-F)	0.47974	2.02209	15.03370
	CON->S (FF)	0.21934	1.06058	7.55221

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	0.00279	0.00268	0.00259
	B	0.00344	0.00346	0.00343
	CI	0.00363	0.00371	0.00368
sky130_osu_sc_18T_ls__addf_l	A	0.00221	0.00205	0.00195
	B	0.00286	0.00282	0.00275
	CI	0.00305	0.00307	0.00302

Internal switching power(pJ) to CO falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__addf_1	A	0.01009	0.01009	0.01011
	B	0.00996	0.01008	0.01007
	CI	0.00872	0.00897	0.00899
sky130_osu_sc_18T_ls__addf_l	A	0.00951	0.00949	0.00944
	B	0.00938	0.00947	0.00943
	CI	0.00813	0.00836	0.00834

Internal switching power(pJ) to CON rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__addf_1	A	0.01008	0.01007	0.01000
	B	0.00995	0.01003	0.00997
	CI	0.00871	0.00893	0.00870
sky130_osu_sc_18T_ls__addf_l	A	0.00951	0.00947	0.00940
	B	0.00938	0.00944	0.00936
	CI	0.00813	0.00832	0.00793

Internal switching power(pJ) to CON falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__addf_1	A	0.00275	0.00267	0.00251
	B	0.00340	0.00341	0.00323
	CI	0.00362	0.00369	0.00361
sky130_osu_sc_18T_ls__addf_l	A	0.00217	0.00204	0.00188
	B	0.00282	0.00279	0.00260
	CI	0.00304	0.00306	0.00296

Internal switching power(pJ) to S rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__addf_1	A	0.01009	0.01009	0.01012
	B	0.00996	0.01008	0.01008
	CI	0.00872	0.00897	0.00898
sky130_osu_sc_18T_ls__addf_l	A	0.00951	0.00949	0.00948
	B	0.00939	0.00947	0.00945
	CI	0.00814	0.00836	0.00832

Internal switching power(pJ) to S falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__addf_1	A	0.02106	0.02123	0.02114
	B	0.01892	0.01866	0.01857
	CI	0.01702	0.01713	0.01704
sky130_osu_sc_18T_ls__addf_l	A	0.02026	0.02031	0.02026
	B	0.01815	0.01775	0.01764
	CI	0.01626	0.01627	0.01618

SKY130_OSU_SC_18T_LS__ADDHx

sky130_osu_sc_18T_ls_tt_1P35_25C.ccs
Cell Library: Process , Voltage 1.35,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__addh_1	27.83880
sky130_osu_sc_18T_ls__addh_l	27.83880

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)		
	A	B	CO	CON	S
sky130_osu_sc_18T_ls__addh_1	0.00987	0.01068	1.05033	0.49021	1.06571
sky130_osu_sc_18T_ls__addh_l	0.00987	0.01069	0.59893	0.49532	0.60334

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__addh_1	0.00000	0.00081	0.00082
sky130_osu_sc_18T_ls__addh_l	0.00000	0.00069	0.00087

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)	0.20812	1.16252	9.01786
	B->CO (RR)	0.21414	1.16521	9.19874
sky130_osu_sc_18T_ls__addh_l	A->CO (RR)	0.21755	1.31339	8.99513
	B->CO (RR)	0.22359	1.31928	9.19730

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)	0.20183	0.99323	7.79081
	B->CO (FF)	0.21353	1.00715	7.86556
sky130_osu_sc_18T_ls__addh_l	A->CO (FF)	0.19545	1.00910	7.31938
	B->CO (FF)	0.20648	1.02315	7.40384

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	0.28911	0.99378	5.29445
	A->CON (FR)	!B	0.23703	1.53682	13.11880
	B->CON (RR)	A	0.29547	0.99644	5.47271
	B->CON (FR)	!A	0.28305	1.61427	13.32140
sky130_osu_sc_18T_ls__addh_l	A->CON (RR)	B	0.25833	0.95593	5.17205
	A->CON (FR)	!B	0.21088	1.51189	13.17020
	B->CON (RR)	A	0.26465	0.96136	5.37742
	B->CON (FR)	!A	0.25701	1.59247	13.36890

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	0.27755	1.07867	7.19892
	A->CON (RF)	!B	0.08925	0.77742	7.33887
	B->CON (FF)	A	0.28317	1.10759	7.44661
	B->CON (RF)	!A	0.10254	0.77287	7.16053
sky130_osu_sc_18T_ls__addh_1	A->CON (FF)	B	0.25040	1.04211	7.02029
	A->CON (RF)	!B	0.08246	0.77226	7.36288
	B->CON (FF)	A	0.25560	1.07192	7.28032
	B->CON (RF)	!A	0.09597	0.76804	7.18361

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	0.21745	2.27571	24.10310
	A->S (FR)	B	0.40602	2.54752	23.61120
	B->S (RR)	!A	0.22928	2.21860	23.27190
	B->S (FR)	A	0.41405	2.63133	24.52110
	CON->S (FR)	-	0.06948	1.18597	13.35050
sky130_osu_sc_18T_ls__addh_1	A->S (RR)	!B	0.22380	2.12606	18.91120
	A->S (FR)	B	0.39259	2.38057	18.38810
	B->S (RR)	!A	0.23644	2.08741	18.43850
	B->S (FR)	A	0.39971	2.44434	18.95750
	CON->S (FR)	-	0.08819	1.36456	13.44420

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	0.36097	3.34882	35.04470
	A->S (RF)	B	0.37693	2.09425	18.10310
	B->S (FF)	!A	0.40715	3.42681	35.28310
	B->S (RF)	A	0.38323	2.09711	18.28020
	CON->S (RF)	-	0.03534	0.71344	8.22789
sky130_osu_sc_18T_ls__addh_l	A->S (FF)	!B	0.33884	2.74880	23.98220
	A->S (RF)	B	0.34844	1.77938	12.25430
	B->S (FF)	!A	0.38514	2.82692	24.19730
	B->S (RF)	A	0.35478	1.78467	12.44670
	CON->S (RF)	-	0.04043	0.74934	7.87110

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	0.00448	0.00429	0.00405
	B	0.00000	0.00000	0.00000
	B	0.00413	0.00394	0.00369
sky130_osu_sc_18T_ls__addh_l	A	0.00000	0.00000	0.00000
	A	0.00367	0.00341	0.00334
	B	0.00000	0.00000	0.00000
	B	0.00332	0.00307	0.00301

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	0.00704	0.00682	0.00641
	B	0.00000	0.00000	0.00000
	B	0.00728	0.00728	0.00690
sky130_osu_sc_18T_ls__addh_l	A	0.00000	0.00000	0.00000
	A	0.00622	0.00597	0.00574
	B	0.00000	0.00000	0.00000
	B	0.00646	0.00640	0.00623

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	0.00448	0.00428	0.00433
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00606	0.00601	0.00597
	B	A	0.00000	0.00000	0.00000
	B	A	0.00412	0.00394	0.00388
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00667	0.00663	0.00659
sky130_osu_sc_18T_ls__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.00367	0.00340	0.00326
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00552	0.00539	0.00542
	B	A	0.00000	0.00000	0.00000
	B	A	0.00331	0.00306	0.00301
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00613	0.00607	0.00602

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	0.00704	0.00685	0.00669
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00109	0.00109	0.00095
	B	A	0.00000	0.00000	0.00000
	B	A	0.00727	0.00728	0.00717
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00177	0.00169	0.00159
sky130_osu_sc_18T_ls__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.00621	0.00598	0.00577
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00040	0.00038	0.00023
	B	A	0.00000	0.00000	0.00000
	B	A	0.00646	0.00641	0.00627
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00108	0.00099	0.00085

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	0.00705	0.00683	0.00664
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00110	0.00111	0.00105
	B	A	0.00000	0.00000	0.00000
	B	A	0.00729	0.00729	0.00718
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00178	0.00172	0.00164
sky130_osu_sc_18T_ls__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.00623	0.00598	0.00584
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00040	0.00039	0.00031
	B	A	0.00000	0.00000	0.00000
	B	A	0.00647	0.00641	0.00636
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00109	0.00099	0.00090

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	0.00448	0.00429	0.00407
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00605	0.00607	0.00605
	B	A	0.00000	0.00000	0.00000
	B	A	0.00413	0.00394	0.00367
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00667	0.00668	0.00665
sky130_osu_sc_18T_ls__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.00366	0.00340	0.00331
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00552	0.00550	0.00544
	B	A	0.00000	0.00000	0.00000
	B	A	0.00331	0.00306	0.00289
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00613	0.00608	0.00605

SKY130_OSU_SC_18T_LS__AND2x

sky130_osu_sc_18T_ls_tt_1P35_25C.ccs
Cell Library: Process , Voltage 1.35,
Temp 25.00

Truth Table

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

Footprint

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

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	B	Y
sky130_osu_sc_18T_ls__and2_1	0.00529	0.00538	1.05944
sky130_osu_sc_18T_ls__and2_2	0.00529	0.00538	2.09585
sky130_osu_sc_18T_ls__and2_4	0.00529	0.00537	4.10104
sky130_osu_sc_18T_ls__and2_6	0.00532	0.00537	5.98908
sky130_osu_sc_18T_ls__and2_8	0.00529	0.00538	7.78341
sky130_osu_sc_18T_ls__and2_l	0.00408	0.00418	0.74076

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__and2_1	0.00000	0.00032	0.00044
sky130_osu_sc_18T_ls__and2_2	0.00000	0.00044	0.00075
sky130_osu_sc_18T_ls__and2_4	0.00000	0.00069	0.00138
sky130_osu_sc_18T_ls__and2_6	0.00000	0.00094	0.00201
sky130_osu_sc_18T_ls__and2_8	0.00000	0.00119	0.00264
sky130_osu_sc_18T_ls__and2_l	0.00000	0.00017	0.00024

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)**	0.15902	1.07051	8.55743
	B->Y (RR)	0.16699	1.08314	8.80740
sky130_osu_sc_18T_ls__and2_2	**A->Y (RR)**	0.18272	0.99074	8.93242
	B->Y (RR)	0.19062	0.99558	9.11856
sky130_osu_sc_18T_ls__and2_4	**A->Y (RR)**	0.25322	1.01241	9.56929
	B->Y (RR)	0.26115	1.00780	9.71195
sky130_osu_sc_18T_ls__and2_6	**A->Y (RR)**	0.32171	1.06390	9.91276
	B->Y (RR)	0.32946	1.05523	10.01650
sky130_osu_sc_18T_ls__and2_8	**A->Y (RR)**	0.38968	1.12864	10.25110
	B->Y (RR)	0.39757	1.11978	10.32720
sky130_osu_sc_18T_ls__and2_l	**A->Y (RR)**	0.17706	1.18009	8.62275
	B->Y (RR)	0.18546	1.19336	8.85520

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)**	0.14996	0.90536	7.21901
	B->Y (FF)	0.16074	0.92488	7.35265
sky130_osu_sc_18T_ls__and2_2	**A->Y (FF)**	0.18278	0.90065	7.60331
	B->Y (FF)	0.19458	0.91691	7.69887
sky130_osu_sc_18T_ls__and2_4	**A->Y (FF)**	0.26414	0.96454	8.19552
	B->Y (FF)	0.27616	0.97863	8.26922
sky130_osu_sc_18T_ls__and2_6	**A->Y (FF)**	0.34813	1.04690	8.56201
	B->Y (FF)	0.35991	1.06037	8.61892
sky130_osu_sc_18T_ls__and2_8	**A->Y (FF)**	0.42770	1.12944	8.81067
	B->Y (FF)	0.43988	1.14332	8.86388
sky130_osu_sc_18T_ls__and2_l	**A->Y (FF)**	0.16176	0.95350	7.18432
	B->Y (FF)	0.17483	0.97521	7.31403

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	0.00369	0.00325	0.00322
	B	0.00000	0.00000	0.00000
	B	0.00374	0.00332	0.00321
sky130_osu_sc_18T_ls__and2_2	A	0.00000	0.00000	0.00000
	A	0.00704	0.00685	0.00689
	B	0.00000	0.00000	0.00000
	B	0.00709	0.00692	0.00688
sky130_osu_sc_18T_ls__and2_4	A	0.00000	0.00000	0.00000
	A	0.01425	0.01446	0.01476
	B	0.00000	0.00000	0.00000
	B	0.01432	0.01463	0.01471
sky130_osu_sc_18T_ls__and2_6	A	0.00000	0.00000	0.00000
	A	0.02138	0.02216	0.02539
	B	0.00000	0.00000	0.00000
	B	0.02144	0.02230	0.02254
sky130_osu_sc_18T_ls__and2_8	A	0.00000	0.00000	0.00000
	A	0.02849	0.02926	0.03012
	B	0.00000	0.00000	0.00000
	B	0.02855	0.02946	0.03057
sky130_osu_sc_18T_ls__and2_l	A	0.00000	0.00000	0.00000
	A	0.00271	0.00239	0.00236
	B	0.00000	0.00000	0.00000
	B	0.00277	0.00243	0.00236

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	0.00849	0.00832	0.00835
	B	0.00000	0.00000	0.00000
	B	0.00953	0.00938	0.00939
sky130_osu_sc_18T_ls__and2_2	A	0.00000	0.00000	0.00000
	A	0.01077	0.01108	0.01111
	B	0.00000	0.00000	0.00000
	B	0.01181	0.01208	0.01210
sky130_osu_sc_18T_ls__and2_4	A	0.00000	0.00000	0.00000
	A	0.01628	0.01752	0.01777
	B	0.00000	0.00000	0.00000
	B	0.01732	0.01851	0.01868
sky130_osu_sc_18T_ls__and2_6	A	0.00000	0.00000	0.00000
	A	0.02187	0.02405	0.02456
	B	0.00000	0.00000	0.00000
	B	0.02289	0.02491	0.02533
sky130_osu_sc_18T_ls__and2_8	A	0.00000	0.00000	0.00000
	A	0.02724	0.03027	0.03117
	B	0.00000	0.00000	0.00000
	B	0.02826	0.03104	0.03183
sky130_osu_sc_18T_ls__and2_l	A	0.00000	0.00000	0.00000
	A	0.00656	0.00639	0.00639
	B	0.00000	0.00000	0.00000
	B	0.00733	0.00716	0.00714

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)	-0.00306	-0.00308	-0.00310
sky130_osu_sc_18T_ls__and2_2	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00307	-0.00308	-0.00310
sky130_osu_sc_18T_ls__and2_4	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00307	-0.00308	-0.00310
sky130_osu_sc_18T_ls__and2_6	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00308	-0.00310	-0.00312
sky130_osu_sc_18T_ls__and2_8	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00306	-0.00307	-0.00310
sky130_osu_sc_18T_ls__and2_l	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00224	-0.00226	-0.00227

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)	0.00310	0.00314	0.00311
sky130_osu_sc_18T_ls__and2_2	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00310	0.00314	0.00311
sky130_osu_sc_18T_ls__and2_4	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00310	0.00313	0.00311
sky130_osu_sc_18T_ls__and2_6	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00312	0.00315	0.00313
sky130_osu_sc_18T_ls__and2_8	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00310	0.00313	0.00311
sky130_osu_sc_18T_ls__and2_l	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00227	0.00230	0.00228

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)	-0.00291	-0.00293	-0.00291
sky130_osu_sc_18T_ls__and2_2	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00291	-0.00292	-0.00292
sky130_osu_sc_18T_ls__and2_4	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00291	-0.00293	-0.00292
sky130_osu_sc_18T_ls__and2_6	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00291	-0.00292	-0.00292
sky130_osu_sc_18T_ls__and2_8	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00291	-0.00293	-0.00292
sky130_osu_sc_18T_ls__and2_l	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00213	-0.00214	-0.00213

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)	0.00292	0.00296	0.00292
sky130_osu_sc_18T_ls__and2_2	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00293	0.00296	0.00292
sky130_osu_sc_18T_ls__and2_4	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00293	0.00296	0.00292
sky130_osu_sc_18T_ls__and2_6	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00293	0.00296	0.00292
sky130_osu_sc_18T_ls__and2_8	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00293	0.00296	0.00292
sky130_osu_sc_18T_ls__and2_l	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00214	0.00217	0.00214

SKY130_OSU_SC_18T_LS__AOI21

sky130_osu_sc_18T_ls_tt_1P35_25C.ccs
Cell Library: Process , Voltage 1.35,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__aoi21_l	12.45420

Pin Capacitance Information

Cell Name	Pin Cap(pf)			Max Cap(pf)
	A0	A1	B0	Y
sky130_osu_sc_18T_ls__aoi21_l	0.00495	0.00518	0.00505	0.47830

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__aoi21_l	0.00000	0.00017	0.00044

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)	0.21307	1.57907	13.39170
	A1->Y (FR)	0.18369	1.51073	13.09360
	B0->Y (FR)	0.16049	1.49033	13.21290

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)	0.07707	0.73272	6.86730
	A1->Y (RF)	0.06964	0.73610	7.05615
	B0->Y (RF)	0.04679	0.68397	6.85577

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	0.00713	0.00705	0.00702
	A1	0.00000	0.00000	0.00000
	A1	0.00605	0.00595	0.00591
	B0	0.00574	0.00559	0.00553

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	0.00140	0.00119	0.00106
	A1	0.00000	0.00000	0.00000
	A1	0.00140	0.00117	0.00106
	B0	-0.00057	-0.00059	-0.00067

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)	-0.00260	-0.00269	-0.00268
	(!A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !Y)	-0.00274	-0.00275	-0.00275
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00274	-0.00275	-0.00275

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)	0.00266	0.00270	0.00268
	(!A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !Y)	0.00275	0.00275	0.00276
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00276	0.00277	0.00276

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)	-0.00257	-0.00265	-0.00265
	(!A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !Y)	-0.00271	-0.00273	-0.00272
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	-0.00292	-0.00294	-0.00296

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)	0.00263	0.00265	0.00265
	(!A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !Y)	0.00271	0.00273	0.00272
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	0.00296	0.00302	0.00297

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)	-0.00145	-0.00147	-0.00146

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)	0.00165	0.00166	0.00152

SKY130_OSU_SC_18T_LS__AOI22

sky130_osu_sc_18T_ls_tt_1P35_25C.ccs
Cell Library: Process , Voltage 1.35,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__aoi22_1	15.38460

Pin Capacitance Information

Cell Name	Pin Cap(pf)				Max Cap(pf)
	A0	A1	B0	B1	Y
sky130_osu_sc_18T_ls__aoi22_1	0.00496	0.00518	0.00538	0.00514	0.46700

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__aoi22_1	0.00000	0.00030	0.00063

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)	0.27202	1.64919	13.41830
	A1->Y (FR)	0.24341	1.59882	13.24720
	B0->Y (FR)	0.17178	1.48705	13.04250
	B1->Y (FR)	0.20037	1.53577	13.22890

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)	0.09801	0.75237	6.82836
	A1->Y (RF)	0.09062	0.75306	7.01541
	B0->Y (RF)	0.05744	0.71508	6.96352
	B1->Y (RF)	0.06468	0.71116	6.77971

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	0.00874	0.00863	0.00860
	A1	0.00768	0.00754	0.00749
	B0	0.00616	0.00596	0.00588
	B1	0.00719	0.00698	0.00696

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__aoi22_l	A0	0.00292	0.00274	0.00256
	A1	0.00294	0.00272	0.00256
	B0	-0.00023	-0.00026	-0.00035
	B1	-0.00020	-0.00023	-0.00032

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)	-0.00260	-0.00269	-0.00267
	(!A1 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * B1 * !Y)	-0.00274	-0.00275	-0.00275
	(!A1 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !B1 * Y)	-0.00274	-0.00276	-0.00275
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00274	-0.00275	-0.00275

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)	0.00266	0.00271	0.00267
	(!A1 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * B1 * !Y)	0.00275	0.00278	0.00276
	(!A1 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !B1 * Y)	0.00276	0.00277	0.00276
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00276	0.00277	0.00276

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)	-0.00257	-0.00266	-0.00264
	(!A0 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * B1 * !Y)	-0.00271	-0.00273	-0.00272
	(!A0 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !B1 * Y)	-0.00292	-0.00294	-0.00296
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	-0.00292	-0.00294	-0.00296

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)	0.00263	0.00269	0.00264
	(!A0 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * B1 * !Y)	0.00271	0.00273	0.00272
	(!A0 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !B1 * Y)	0.00296	0.00299	0.00297
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	0.00296	0.00299	0.00297

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)	-0.00146	-0.00148	-0.00147
	(A0 * A1 * !B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B1 * !Y)	-0.00146	-0.00147	-0.00146
	(!A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B1 * Y)	-0.00300	-0.00303	-0.00304
	(!A0 * A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B1 * Y)	-0.00300	-0.00303	-0.00304

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)	0.00172	0.00173	0.00154
	(A0 * A1 * !B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B1 * !Y)	0.00146	0.00147	0.00146
	(!A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B1 * Y)	0.00303	0.00309	0.00305
	(!A0 * A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B1 * Y)	0.00303	0.00309	0.00305

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)	-0.00147	-0.00149	-0.00148
	(A0 * A1 * !B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B0 * !Y)	-0.00147	-0.00148	-0.00147
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00278	-0.00280	-0.00279
	(!A0 * A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B0 * Y)	-0.00278	-0.00279	-0.00279

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)	0.00173	0.00174	0.00154
	(A0 * A1 * !B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B0 * !Y)	0.00147	0.00148	0.00147
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00280	0.00281	0.00280
	(!A0 * A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B0 * Y)	0.00280	0.00279	0.00280

SKY130_OSU_SC_18T_LS__BUFx

sky130_osu_sc_18T_ls_tt_1P35_25C.ccs
Cell Library: Process , Voltage 1.35,
Temp 25.00

Truth Table

INPUT	OUTPUT
A	Y
0	0
1	1

Footprint

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

Pin Capacitance Information

Cell Name	Pin Cap(pf)	Max Cap(pf)
	A	Y
sky130_osu_sc_18T_ls__buf_1	0.00539	1.06357
sky130_osu_sc_18T_ls__buf_2	0.00539	2.09387
sky130_osu_sc_18T_ls__buf_4	0.00538	4.09386
sky130_osu_sc_18T_ls__buf_6	0.00097	1.80000
sky130_osu_sc_18T_ls__buf_8	0.00539	7.98896
sky130_osu_sc_18T_ls__buf_l	0.00423	0.74554

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__buf_1	0.00000	0.00038	0.00038
sky130_osu_sc_18T_ls__buf_2	0.00000	0.00057	0.00069
sky130_osu_sc_18T_ls__buf_4	0.00000	0.00094	0.00132
sky130_osu_sc_18T_ls__buf_6	0.00000	0.00000	0.00000
sky130_osu_sc_18T_ls__buf_8	0.00000	0.00169	0.00258
sky130_osu_sc_18T_ls__buf_l	0.00000	0.00018	0.00018

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)	0.11702	1.01788	8.52916
sky130_osu_sc_18T_ls__buf_2	A->Y (RR)	0.12708	0.91939	8.79514
sky130_osu_sc_18T_ls__buf_4	A->Y (RR)	0.17122	0.91112	9.34181
sky130_osu_sc_18T_ls__buf_8	A->Y (RR)	0.25724	0.97680	10.07450
sky130_osu_sc_18T_ls__buf_l	A->Y (RR)	0.13190	1.12537	8.53877

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)	0.14220	0.89382	7.15971
sky130_osu_sc_18T_ls__buf_2	A->Y (FF)	0.17599	0.89220	7.56051
sky130_osu_sc_18T_ls__buf_4	A->Y (FF)	0.25807	0.95653	8.15420
sky130_osu_sc_18T_ls__buf_8	A->Y (FF)	0.42209	1.12493	8.87415
sky130_osu_sc_18T_ls__buf_l	A->Y (FF)	0.15588	0.94583	7.14143

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	0.00339	0.00288	0.00286
sky130_osu_sc_18T_ls__buf_2	A	0.00000	0.00000	0.00000
	A	0.00677	0.00646	0.00648
sky130_osu_sc_18T_ls__buf_4	A	0.00000	0.00000	0.00000
	A	0.01405	0.01422	0.01450
sky130_osu_sc_18T_ls__buf_8	A	0.00000	0.00000	0.00000
	A	0.02833	0.02930	0.02992
sky130_osu_sc_18T_ls__buf_l	A	0.00000	0.00000	0.00000
	A	0.00257	0.00217	0.00213

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	0.00827	0.00808	0.00812
sky130_osu_sc_18T_ls__buf_2	A	0.00000	0.00000	0.00000
	A	0.01051	0.01074	0.01080
sky130_osu_sc_18T_ls__buf_4	A	0.00000	0.00000	0.00000
	A	0.01607	0.01717	0.01740
sky130_osu_sc_18T_ls__buf_8	A	0.00000	0.00000	0.00000
	A	0.02706	0.02986	0.03064
sky130_osu_sc_18T_ls__buf_l	A	0.00000	0.00000	0.00000
	A	0.00644	0.00624	0.00624

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
	-0.00043	-0.00043	-0.00043

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
	0.00043	0.00043	0.00043

SKY130_OSU_SC_18T_LS__DFFRx

sky130_osu_sc_18T_ls_tt_1P35_25C.ccs
Cell Library: Process , Voltage 1.35,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__dffr_1	63.73620
sky130_osu_sc_18T_ls__dffr_l	63.73620

Pin Capacitance Information

Cell Name	Pin Cap(pf)			Max Cap(pf)	
	D	RN	CK	Q	QN
sky130_osu_sc_18T_ls__dffr_1	0.00510	0.00513	0.01509	1.04074	1.04359
sky130_osu_sc_18T_ls__dffr_l	0.00510	0.00513	0.01506	0.74475	0.74846

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__dffr_1	0.00000	0.00153	0.00177
sky130_osu_sc_18T_ls__dffr_l	0.00000	0.00133	0.00158

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)	0.74561	2.29046	15.92060
	QN->Q (FR)	0.07212	1.23485	13.92320
sky130_osu_sc_18T_ls__dffr_l	CK->Q (RR)	0.72277	2.39829	15.62730
	QN->Q (FR)	0.07952	1.32205	13.70580

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)	0.67731	2.38054	18.12270
	QN->Q (RF)	0.04297	0.81228	9.25436
	RN->Q (FF)	0.47468	2.35882	20.41110
sky130_osu_sc_18T_ls__dffr_l	CK->Q (RF)	0.68862	2.57103	18.03610
	QN->Q (RF)	0.04444	0.82238	8.85918
	RN->Q (FF)	0.48761	2.55039	20.31830

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)	0.59854	1.53040	9.27503
	RN->QN (FR)	0.39513	1.50872	11.57300
sky130_osu_sc_18T_ls__dffr_l	CK->QN (RR)	0.60012	1.62045	9.32832
	RN->QN (FR)	0.39760	1.59922	11.61620

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)**	0.62746	1.27035	5.39773
sky130_osu_sc_18T_ls__dffr_l	**CK->QN (RF)**	0.59607	1.25470	5.21823

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)	-0.11909	-0.15825	-0.88724
	setup	CK (R)	0.58272	0.58488	1.91096
sky130_osu_sc_18T_ls__dffr_l	hold	CK (R)	-0.11942	-0.15889	-0.88805
	setup	CK (R)	0.58516	0.58738	1.92363

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)	-0.30936	-0.75426	-7.99147
	setup	CK (R)	0.36566	0.77897	8.05782
sky130_osu_sc_18T_ls__dffr_l	hold	CK (R)	-0.31192	-0.75193	-7.98943
	setup	CK (R)	0.36545	0.77888	8.05763

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)	-0.11909	-0.15825	-0.88724
	setup	CK (R)	0.58272	0.58488	1.91096
sky130_osu_sc_18T_ls__dffr_l	hold	CK (R)	-0.11942	-0.15889	-0.88805
	setup	CK (R)	0.58516	0.58738	1.92363

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)	-0.30936	-0.75426	-7.99147
	setup	CK (R)	0.36566	0.77897	8.05782
sky130_osu_sc_18T_ls__dffr_l	hold	CK (R)	-0.31192	-0.75193	-7.98943
	setup	CK (R)	0.36545	0.77888	8.05763

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)	0.50259	0.50580	1.62260
	removal	CK (R)	-0.08278	-0.09384	-0.11054
sky130_osu_sc_18T_ls__dffr_l	recovery	CK (R)	0.50452	0.50888	1.63638
	removal	CK (R)	-0.08278	-0.09384	-0.11054

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)	0.50259	0.50580	1.62260
	removal	CK (R)	-0.08278	-0.09384	-0.11054
sky130_osu_sc_18T_ls__dffr_l	recovery	CK (R)	0.50452	0.50888	1.63638
	removal	CK (R)	-0.08278	-0.09384	-0.11054

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 ()	0.29259	0.70039	13.33370
	min_pulse_width	RN ()	0.29174	0.69824	13.33370
sky130_osu_sc_18T_ls__dffr_l	min_pulse_width	RN ()	0.28827	0.69608	13.33370
	min_pulse_width	RN ()	0.28566	0.69608	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 ()	0.32955	0.58838	13.33370
	min_pulse_width	CK ()	0.36903	0.58838	13.33370
sky130_osu_sc_18T_ls__dffr_l	min_pulse_width	CK ()	0.30323	0.58838	13.33370
	min_pulse_width	CK ()	0.35807	0.58838	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 ()	0.74852	0.82318	13.33370
	min_pulse_width	CK ()	0.29757	0.67454	13.33370
sky130_osu_sc_18T_ls__dffr_l	min_pulse_width	CK ()	0.74852	0.82318	13.33370
	min_pulse_width	CK ()	0.29757	0.67454	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	0.00820	0.00689	-0.00284
sky130_osu_sc_18T_ls__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.00726	0.00620	0.00070

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	0.00937	0.00877	0.00525
	RN	-0.00116	-0.04286	-0.47419
	RN	0.02106	0.02058	0.01671
sky130_osu_sc_18T_ls__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.00841	0.00791	0.00598
	RN	-0.00116	-0.03506	-0.33933
	RN	0.02009	0.01970	0.01751

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	0.00937	0.00878	0.00525
	RN	-0.00116	-0.04293	-0.47549
	RN	0.02106	0.02058	0.01672
sky130_osu_sc_18T_ls__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.00841	0.00791	0.00599
	RN	-0.00116	-0.03516	-0.34102
	RN	0.02009	0.01970	0.01746

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	0.00817	0.00685	-0.00318
sky130_osu_sc_18T_ls__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.00723	0.00616	0.00048

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	-0.00252	-0.00267	-0.00266
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00954	0.00912	0.00883
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.00437	0.00398	0.00374
sky130_osu_sc_18T_ls__dffr_l	CK	0.00000	0.00000	0.00000
	CK	-0.00252	-0.00267	-0.00266
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00954	0.00912	0.00883
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.00437	0.00398	0.00374

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	0.00264	0.00267	0.00266
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.01610	0.01587	0.01560
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.00745	0.00728	0.00722
sky130_osu_sc_18T_ls__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.00264	0.00267	0.00266
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.01610	0.01587	0.01560
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.00745	0.00728	0.00722

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)	0.00329	0.00279	0.00268
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.00877	0.00807	0.00781
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)	0.00329	0.00279	0.00268
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.00877	0.00807	0.00781

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)	0.00735	0.00703	0.00708
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.01577	0.01526	0.01500
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)	0.00735	0.00703	0.00708
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.01577	0.01526	0.01500

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)	-0.00031	-0.00086	-0.00110
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.00466	0.00375	0.00320
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	-0.00068	-0.00131	-0.00146
sky130_osu_sc_18T_ls__dffr_l	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	-0.00031	-0.00086	-0.00110
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.00466	0.00375	0.00320
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	-0.00068	-0.00131	-0.00146

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)	0.01190	0.01152	0.01142
	(D * RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * RN * !Q * QN)	0.02508	0.02439	0.02355
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.01919	0.01888	0.01845
	(!D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * Q * !QN)	0.02489	0.02407	0.02382
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.01322	0.01285	0.01283
sky130_osu_sc_18T_ls__dffr_l	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.01190	0.01152	0.01142
	(D * RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * RN * !Q * QN)	0.02508	0.02439	0.02355
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.01919	0.01888	0.01845
	(!D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * Q * !QN)	0.02489	0.02407	0.02382
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.01322	0.01285	0.01283

SKY130_OSU_SC_18T_LS__DFFSRx

sky130_osu_sc_18T_ls_tt_1P35_25C.ccs
Cell Library: Process , Voltage 1.35,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__dffsr_1	69.59700
sky130_osu_sc_18T_ls__dffsr_l	69.59700

Pin Capacitance Information

Cell Name	Pin Cap(pf)				Max Cap(pf)	
	D	RN	SN	CK	Q	QN
sky130_osu_sc_18T_ls__dffsr_1	0.00506	0.00513	0.01093	0.01538	1.06635	1.07235
sky130_osu_sc_18T_ls__dffsr_l	0.00506	0.00513	0.01092	0.01538	0.74179	0.74286

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__dffsr_1	0.00000	0.00161	0.00209
sky130_osu_sc_18T_ls__dffsr_l	0.00000	0.00142	0.00189

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)	0.74290	2.26755	15.84950
	QN->Q (FR)	0.06916	1.21258	13.78460
	RN->Q (RR)	0.59553	2.13504	15.88890
	SN->Q (FR)	0.58278	2.27528	18.89120
sky130_osu_sc_18T_ls__dffsr_l	CK->Q (RR)	0.74181	2.42239	15.70830
	QN->Q (FR)	0.07945	1.31798	13.65110
	RN->Q (RR)	0.59525	2.29079	15.74580
	SN->Q (FR)	0.57881	2.42778	18.70960

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)	0.75711	2.44889	18.13780
	QN->Q (RF)	0.03939	0.77451	8.88686
	RN->Q (FF)	0.49888	2.36295	20.46410
sky130_osu_sc_18T_ls__dffsr_l	CK->Q (RF)	0.77578	2.66324	18.06420
	QN->Q (RF)	0.04434	0.82104	8.83768
	RN->Q (FF)	0.51891	2.57786	20.37910

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)	0.67943	1.61655	9.40552
	RN->QN (FR)	0.42266	1.53160	11.74110
sky130_osu_sc_18T_ls__dffsr_l	CK->QN (RR)	0.68537	1.71048	9.36880
	RN->QN (FR)	0.42957	1.62658	11.69690

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)	0.63488	1.27221	5.44365
	RN->QN (RF)	0.48746	1.14191	5.48448
	SN->QN (FF)	0.47229	1.27849	8.47499
sky130_osu_sc_18T_ls__dffsr_l	CK->QN (RF)	0.61973	1.28377	5.34270
	RN->QN (RF)	0.47284	1.15432	5.38413
	SN->QN (FF)	0.45728	1.29135	8.33637

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)	-0.12979	-0.17338	-0.99065
	setup	CK (R)	0.56171	0.55519	1.87279
sky130_osu_sc_18T_ls__dffsr_l	hold	CK (R)	-0.12993	-0.17252	-0.99097
	setup	CK (R)	0.56080	0.55566	1.88522

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)	-0.35265	-0.78728	-8.22143
	setup	CK (R)	0.42625	0.81242	8.26944
sky130_osu_sc_18T_ls__dffsr_l	hold	CK (R)	-0.35399	-0.78711	-8.22279
	setup	CK (R)	0.42516	0.81242	8.26767

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)	-0.12979	-0.17338	-0.99065
	setup	CK (R)	0.56171	0.55519	1.87279
sky130_osu_sc_18T_ls__dffsr_l	hold	CK (R)	-0.12993	-0.17252	-0.99097
	setup	CK (R)	0.56080	0.55566	1.88522

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)	-0.35265	-0.78728	-8.22143
	setup	CK (R)	0.42625	0.81242	8.26944
sky130_osu_sc_18T_ls__dffsr_l	hold	CK (R)	-0.35399	-0.78711	-8.22279
	setup	CK (R)	0.42516	0.81242	8.26767

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)	0.44152	0.43862	1.50747
	removal	CK (R)	-0.04457	-0.05111	-0.08754
	hold	SN (R)	-0.46016	-0.77055	-5.93464
	setup	SN (R)	0.49017	0.83180	7.62495
sky130_osu_sc_18T_ls__dffsr_l	recovery	CK (R)	0.44055	0.43930	1.51861
	removal	CK (R)	-0.04682	-0.05223	-0.08682
	hold	SN (R)	-0.43990	-0.75198	-5.84669
	setup	SN (R)	0.48855	0.81289	7.52040

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)	0.44152	0.43862	1.50747
	removal	CK (R)	-0.04457	-0.05111	-0.08754
	hold	SN (R)	-0.46508	-0.77055	-5.93464
	hold	SN (R)	-0.46016	-0.77341	-5.94725
	setup	SN (R)	0.49017	0.82511	7.56977
	setup	SN (R)	0.47929	0.83180	7.62495
sky130_osu_sc_18T_ls__dffsr_l	recovery	CK (R)	0.44055	0.43930	1.51861
	removal	CK (R)	-0.04682	-0.05223	-0.08682
	hold	SN (R)	-0.44964	-0.75198	-5.84669
	hold	SN (R)	-0.43990	-0.75487	-5.86844
	setup	SN (R)	0.48855	0.80455	7.45234
	setup	SN (R)	0.45960	0.81289	7.52040

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 ()	0.32552	0.72193	13.33370
	min_pulse_width	RN ()	0.33638	0.72193	13.33370
sky130_osu_sc_18T_ls__dffsr_l	min_pulse_width	RN ()	0.32730	0.71978	13.33370
	min_pulse_width	RN ()	0.32730	0.71978	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)	0.07226	0.10830	1.55143
	removal	CK (R)	-0.01785	-0.06794	-0.67248
sky130_osu_sc_18T_ls__dffsr_l	recovery	CK (R)	0.06986	0.10794	1.45622
	removal	CK (R)	-0.01785	-0.06794	-0.67248

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)	0.07226	0.10830	1.55143
	removal	CK (R)	-0.01785	-0.06794	-0.67248
sky130_osu_sc_18T_ls__dffsr_l	recovery	CK (R)	0.06986	0.10794	1.45622
	removal	CK (R)	-0.01785	-0.06794	-0.67248

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 ()	0.47065	0.86841	13.33370
	min_pulse_width	SN ()	0.46743	0.87488	13.33370
sky130_osu_sc_18T_ls__dffsr_l	min_pulse_width	SN ()	0.46800	0.85118	13.33370
	min_pulse_width	SN ()	0.44441	0.85549	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 ()	0.33175	0.58838	13.33370
	min_pulse_width	CK ()	0.39755	0.58838	13.33370
sky130_osu_sc_18T_ls__dffsr_l	min_pulse_width	CK ()	0.31639	0.58838	13.33370
	min_pulse_width	CK ()	0.39097	0.58838	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 ()	0.72615	0.79517	13.33370
	min_pulse_width	CK ()	0.36309	0.71547	13.33370
sky130_osu_sc_18T_ls__dffsr_l	min_pulse_width	CK ()	0.72615	0.79517	13.33370
	min_pulse_width	CK ()	0.36204	0.71332	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	0.01005	0.00908	0.00251
	RN	0.01869	0.01794	0.01114
	SN	-0.00116	-0.04349	-0.48585
	SN	0.02043	0.01982	0.01309
sky130_osu_sc_18T_ls__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.00919	0.00816	0.00281
	RN	0.01782	0.01702	0.01145
	SN	-0.00116	-0.03498	-0.33798
	SN	0.01957	0.01889	0.01343

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	0.01070	0.01023	0.00730
	RN	-0.00116	-0.04349	-0.48585
	RN	0.02169	0.02122	0.01808
sky130_osu_sc_18T_ls__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.00983	0.00940	0.00754
	RN	-0.00116	-0.03498	-0.33798
	RN	0.02081	0.02037	0.01829

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	0.01070	0.01023	0.00730
	RN	-0.00116	-0.04363	-0.48859
	RN	0.02169	0.02122	0.01802
sky130_osu_sc_18T_ls__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.00984	0.00941	0.00757
	RN	-0.00116	-0.03501	-0.33846
	RN	0.02082	0.02037	0.01829

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	0.01001	0.00903	0.00208
	RN	0.01865	0.01790	0.01096
	SN	-0.00116	-0.04363	-0.48855
	SN	0.02040	0.01978	0.01286
sky130_osu_sc_18T_ls__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.00915	0.00812	0.00256
	RN	0.01778	0.01698	0.01130
	SN	-0.00116	-0.03501	-0.33844
	SN	0.01954	0.01885	0.01324

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	-0.00256	-0.00267	-0.00266
	(!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)	0.01218	0.01178	0.01154
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.00491	0.00456	0.00430
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.00488	0.00452	0.00427
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.00494	0.00459	0.00433
sky130_osu_sc_18T_ls__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	-0.00256	-0.00267	-0.00266
	(!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)	0.01218	0.01178	0.01154
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.00491	0.00456	0.00430
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.00488	0.00452	0.00427
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.00494	0.00459	0.00433

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	0.00266	0.00267	0.00266
	(!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)	0.01820	0.01799	0.01758
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.00791	0.00775	0.00768
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.00794	0.00779	0.00770
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.00787	0.00772	0.00765
sky130_osu_sc_18T_ls__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.00266	0.00267	0.00266
	(!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)	0.01819	0.01798	0.01758
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.00790	0.00775	0.00767
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.00793	0.00778	0.00769
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.00787	0.00771	0.00764

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)	0.00311	0.00262	0.00238
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.01063	0.00993	0.00952
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)	0.00311	0.00261	0.00239
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.01063	0.00993	0.00953

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)	0.00799	0.00770	0.00773
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.01675	0.01619	0.01585
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)	0.00798	0.00769	0.00770
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.01674	0.01618	0.01584

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)	-0.00609	-0.00611	-0.00616
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	-0.00621	-0.00630	-0.00630
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	-0.00601	-0.00607	-0.00607
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.00393	0.00350	0.00314
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)	-0.00609	-0.00611	-0.00616
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	-0.00620	-0.00629	-0.00629
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	-0.00601	-0.00607	-0.00606
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.00393	0.00351	0.00315

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)	0.00616	0.00623	0.00618
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00626	0.00630	0.00630
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	0.00605	0.00611	0.00607
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.01253	0.01229	0.01226
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)	0.00616	0.00623	0.00618
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00625	0.00629	0.00629
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	0.00604	0.00611	0.00607
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.01252	0.01228	0.01225

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)	-0.00032	-0.00086	-0.00110
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.00528	0.00443	0.00388
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.00522	0.00439	0.00384
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	-0.00054	-0.00116	-0.00132
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.00411	0.00297	0.00271
sky130_osu_sc_18T_ls__dffsr_l	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	-0.00032	-0.00086	-0.00110
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.00527	0.00442	0.00388
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.00521	0.00438	0.00384
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	-0.00054	-0.00116	-0.00132
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.00411	0.00297	0.00271

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)	0.02781	0.02715	0.02631
	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.01196	0.01155	0.01146
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.01954	0.01928	0.01883
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.01960	0.01935	0.01888
	(!D * RN * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * Q * !QN)	0.02699	0.02611	0.02569
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.01310	0.01273	0.01271
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.01567	0.01490	0.01491
sky130_osu_sc_18T_ls__dffsr_l	**(D * RN * SN * !Q * QN)**	0.00000	0.00000	0.00000
	(D * RN * SN * !Q * QN)	0.02781	0.02715	0.02631
	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.01196	0.01155	0.01146
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.01954	0.01928	0.01883
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.01960	0.01935	0.01888
	(!D * RN * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * Q * !QN)	0.02698	0.02611	0.02565
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.01310	0.01273	0.01271
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.01567	0.01489	0.01490

SKY130_OSU_SC_18T_LS__DFFSx

sky130_osu_sc_18T_ls_tt_1P35_25C.ccs
Cell Library: Process , Voltage 1.35,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__dffs_1	57.87540
sky130_osu_sc_18T_ls__dffs_l	57.87540

Pin Capacitance Information

Cell Name	Pin Cap(pf)			Max Cap(pf)	
	D	SN	CK	Q	QN
sky130_osu_sc_18T_ls__dffs_1	0.00508	0.00876	0.01517	1.03987	1.06223
sky130_osu_sc_18T_ls__dffs_l	0.00508	0.00876	0.01517	0.74828	0.75178

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__dffs_1	0.00000	0.00122	0.00164
sky130_osu_sc_18T_ls__dffs_l	0.00000	0.00102	0.00145

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)	0.49476	2.00703	15.62510
	QN->Q (FR)	0.07194	1.22814	13.85050
	SN->Q (FR)	0.40052	2.10786	18.58030
sky130_osu_sc_18T_ls__dffs_l	CK->Q (RR)	0.49176	2.14499	15.44890
	QN->Q (FR)	0.07932	1.31295	13.69180
	SN->Q (FR)	0.39522	2.24489	18.34270

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)	0.74986	2.45351	18.12570
	QN->Q (RF)	0.04263	0.80676	9.22256
sky130_osu_sc_18T_ls__dffs_l	CK->Q (RF)	0.75562	2.64362	18.13980
	QN->Q (RF)	0.04417	0.82144	8.85462

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)	0.66787	1.61189	9.44630
sky130_osu_sc_18T_ls__dffs_l	CK->QN (RR)	0.66432	1.69048	9.40677

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)	0.39344	1.00202	5.21167
	SN->QN (FF)	0.29724	1.10353	8.16257
sky130_osu_sc_18T_ls__dffs_l	CK->QN (RF)	0.38041	1.00831	5.01703
	SN->QN (FF)	0.28260	1.10840	7.90940

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)	-0.09189	-0.13585	-0.83706
	setup	CK (R)	0.34810	0.35659	1.78225
sky130_osu_sc_18T_ls__dffs_l	hold	CK (R)	-0.09303	-0.13681	-0.83636
	setup	CK (R)	0.34515	0.35750	1.79235

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)	-0.31889	-0.75991	-8.04048
	setup	CK (R)	0.41292	0.78991	8.10676
sky130_osu_sc_18T_ls__dffs_l	hold	CK (R)	-0.31949	-0.75996	-8.04246
	setup	CK (R)	0.41275	0.78991	8.10666

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)	-0.09189	-0.13585	-0.83706
	setup	CK (R)	0.34810	0.35659	1.78225
sky130_osu_sc_18T_ls__dffs_l	hold	CK (R)	-0.09303	-0.13681	-0.83636
	setup	CK (R)	0.34515	0.35750	1.79235

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)	-0.31889	-0.75991	-8.04048
	setup	CK (R)	0.41292	0.78991	8.10676
sky130_osu_sc_18T_ls__dffs_l	hold	CK (R)	-0.31949	-0.75996	-8.04246
	setup	CK (R)	0.41275	0.78991	8.10666

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)	0.08836	0.12236	1.34057
	removal	CK (R)	-0.02572	-0.06743	-0.63550
sky130_osu_sc_18T_ls__dffs_l	recovery	CK (R)	0.08925	0.12190	1.24735
	removal	CK (R)	-0.02572	-0.06743	-0.63550

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)	0.08836	0.12236	1.34057
	removal	CK (R)	-0.02572	-0.06743	-0.63550
sky130_osu_sc_18T_ls__dffs_l	recovery	CK (R)	0.08925	0.12190	1.24735
	removal	CK (R)	-0.02572	-0.06743	-0.63550

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 ()	0.27696	0.78009	13.33370
	min_pulse_width	SN ()	0.28284	0.78009	13.33370
sky130_osu_sc_18T_ls__dffs_l	min_pulse_width	SN ()	0.27123	0.76286	13.33370
	min_pulse_width	SN ()	0.26618	0.76502	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 ()	0.18698	0.58838	13.33370
	min_pulse_width	CK ()	0.39097	0.58838	13.33370
sky130_osu_sc_18T_ls__dffs_l	min_pulse_width	CK ()	0.18040	0.58838	13.33370
	min_pulse_width	CK ()	0.38220	0.58838	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 ()	0.50996	0.69178	13.33370
	min_pulse_width	CK ()	0.35200	0.68747	13.33370
sky130_osu_sc_18T_ls__dffs_l	min_pulse_width	CK ()	0.50840	0.68962	13.33370
	min_pulse_width	CK ()	0.35200	0.68747	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	0.00820	0.00681	-0.00277
	SN	-0.00116	-0.04283	-0.47379
	SN	0.01757	0.01641	0.00666
sky130_osu_sc_18T_ls__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.00725	0.00612	0.00070
	SN	-0.00116	-0.03516	-0.34094
	SN	0.01661	0.01573	0.01018

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	0.00934	0.00880	0.00545
sky130_osu_sc_18T_ls__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.00839	0.00792	0.00611

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	0.00934	0.00880	0.00541
sky130_osu_sc_18T_ls__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.00839	0.00793	0.00610

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	0.00817	0.00677	-0.00331
	SN	-0.00116	-0.04338	-0.48393
	SN	0.01754	0.01637	0.00632
sky130_osu_sc_18T_ls__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.00722	0.00609	0.00053
	SN	-0.00116	-0.03526	-0.34250
	SN	0.01658	0.01569	0.01002

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	-0.00260	-0.00270	-0.00269
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00930	0.00888	0.00846
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.00426	0.00389	0.00364
sky130_osu_sc_18T_ls__dffs_l	CK	0.00000	0.00000	0.00000
	CK	-0.00260	-0.00270	-0.00269
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00930	0.00888	0.00846
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.00426	0.00389	0.00364

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	0.00269	0.00270	0.00269
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.01579	0.01555	0.01534
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.00759	0.00741	0.00736
sky130_osu_sc_18T_ls__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.00269	0.00270	0.00269
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.01579	0.01555	0.01534
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.00759	0.00741	0.00736

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)	-0.00450	-0.00452	-0.00454
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.00348	0.00311	0.00298
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)	-0.00450	-0.00453	-0.00454
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.00348	0.00311	0.00298

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)	0.00453	0.00457	0.00455
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.00878	0.00843	0.00839
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)	0.00453	0.00457	0.00455
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.00878	0.00843	0.00839

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)	-0.00032	-0.00088	-0.00111
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	-0.00062	-0.00124	-0.00140
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.00344	0.00231	0.00205
sky130_osu_sc_18T_ls__dffs_l	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	-0.00032	-0.00088	-0.00111
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	-0.00062	-0.00124	-0.00140
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.00344	0.00231	0.00205

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)	0.02479	0.02412	0.02323
	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.01191	0.01153	0.01143
	(!D * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * SN * Q * !QN)	0.02453	0.02362	0.02341
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	0.01314	0.01277	0.01275
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.01528	0.01455	0.01455
sky130_osu_sc_18T_ls__dffs_l	(D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * SN * !Q * QN)	0.02479	0.02412	0.02323
	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.01191	0.01153	0.01143
	(!D * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * SN * Q * !QN)	0.02453	0.02362	0.02341
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	0.01314	0.01277	0.01275
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.01528	0.01455	0.01455

SKY130_OSU_SC_18T_LS__DFFx

sky130_osu_sc_18T_ls_tt_1P35_25C.ccs
Cell Library: Process , Voltage 1.35,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__dff_1	48.35160
sky130_osu_sc_18T_ls__dff_l	48.35160

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)	
	D	CK	Q	QN
sky130_osu_sc_18T_ls__dff_1	0.00524	0.01487	1.06845	1.07104
sky130_osu_sc_18T_ls__dff_l	0.00524	0.01487	0.73640	0.73883

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__dff_1	0.00000	0.00146	0.00178
sky130_osu_sc_18T_ls__dff_l	0.00000	0.00127	0.00158

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)	0.43230	1.91962	15.47660
	QN->Q (FR)	0.06867	1.21801	13.76020
sky130_osu_sc_18T_ls__dff_l	CK->Q (RR)	0.44422	2.09207	15.29470
	QN->Q (FR)	0.08041	1.31794	13.70560

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)	0.64850	2.32989	18.00350
	QN->Q (RF)	0.03921	0.77089	8.87353
sky130_osu_sc_18T_ls__dff_l	CK->Q (RF)	0.67262	2.55383	17.90590
	QN->Q (RF)	0.04426	0.81811	8.79759

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)	0.57362	1.49930	9.25176
sky130_osu_sc_18T_ls__dff_l	CK->QN (RR)	0.58388	1.60396	9.26333

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)	0.33899	0.93080	5.06050
sky130_osu_sc_18T_ls__dff_l	CK->QN (RF)	0.33541	0.95848	4.96636

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)	-0.09155	-0.13829	-0.88945
	setup	CK (R)	0.27904	0.29214	1.76312
sky130_osu_sc_18T_ls__dff_l	hold	CK (R)	-0.09184	-0.13829	-0.88767
	setup	CK (R)	0.27863	0.28998	1.76434

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)	-0.30305	-0.76003	-8.09070
	setup	CK (R)	0.36447	0.79480	8.17998
sky130_osu_sc_18T_ls__dff_l	hold	CK (R)	-0.30304	-0.76021	-8.09275
	setup	CK (R)	0.36056	0.79469	8.18055

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 ()	0.17162	0.58838	13.33370
	min_pulse_width	CK ()	0.35587	0.58838	13.33370
sky130_osu_sc_18T_ls__dff_l	min_pulse_width	CK ()	0.16724	0.58838	13.33370
	min_pulse_width	CK ()	0.34710	0.58838	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 ()	0.44454	0.67885	13.33370
	min_pulse_width	CK ()	0.28919	0.69178	13.33370
sky130_osu_sc_18T_ls__dff_l	min_pulse_width	CK ()	0.44199	0.67885	13.33370
	min_pulse_width	CK ()	0.28919	0.69178	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	0.00863	0.00751	0.00097
sky130_osu_sc_18T_ls__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.00777	0.00661	0.00134

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	0.00950	0.00902	0.00617
sky130_osu_sc_18T_ls__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.00865	0.00818	0.00618

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	0.00951	0.00902	0.00619
sky130_osu_sc_18T_ls__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.00865	0.00818	0.00618

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	0.00860	0.00749	0.00085
sky130_osu_sc_18T_ls__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.00773	0.00657	0.00127

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	-0.00252	-0.00267	-0.00266
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00883	0.00846	0.00810
sky130_osu_sc_18T_ls__dff_l	CK	0.00000	0.00000	0.00000
	CK	-0.00252	-0.00267	-0.00266
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00884	0.00846	0.00811

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	0.00264	0.00267	0.00266
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.01634	0.01607	0.01581
sky130_osu_sc_18T_ls__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.00264	0.00267	0.00266
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.01634	0.01607	0.01581

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)	-0.00033	-0.00088	-0.00111
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	-0.00061	-0.00123	-0.00138
sky130_osu_sc_18T_ls__dff_l	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	-0.00033	-0.00088	-0.00111
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	-0.00061	-0.00123	-0.00138

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)	0.01186	0.01149	0.01140
	(D * !Q * QN)	0.00000	0.00000	0.00000
	(D * !Q * QN)	0.02434	0.02367	0.02285
	(!D * Q * !QN)	0.00000	0.00000	0.00000
	(!D * Q * !QN)	0.02491	0.02400	0.02375
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.01309	0.01271	0.01270
sky130_osu_sc_18T_ls__dff_l	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.01186	0.01149	0.01140
	(D * !Q * QN)	0.00000	0.00000	0.00000
	(D * !Q * QN)	0.02434	0.02367	0.02285
	(!D * Q * !QN)	0.00000	0.00000	0.00000
	(!D * Q * !QN)	0.02491	0.02400	0.02376
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.01309	0.01271	0.01270

SKY130_OSU_SC_18T_LS__INVx

sky130_osu_sc_18T_ls_tt_1P35_25C.ccs
Cell Library: Process , Voltage 1.35,
Temp 25.00

Truth Table

INPUT	OUTPUT
A	Y
0	1
1	0

Footprint

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

Pin Capacitance Information

Cell Name	Pin Cap(pf)	Max Cap(pf)
	A	Y
sky130_osu_sc_18T_ls__inv_1	0.00517	1.05709
sky130_osu_sc_18T_ls__inv_10	0.04869	9.75774
sky130_osu_sc_18T_ls__inv_2	0.00993	2.09487
sky130_osu_sc_18T_ls__inv_3	0.01480	3.04756
sky130_osu_sc_18T_ls__inv_4	0.01959	4.09343
sky130_osu_sc_18T_ls__inv_6	0.02937	6.02811
sky130_osu_sc_18T_ls__inv_8	0.03904	8.02333
sky130_osu_sc_18T_ls__inv_l	0.00398	0.73281

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__inv_1	0.00000	0.00019	0.00032
sky130_osu_sc_18T_ls__inv_10	0.00000	0.00188	0.00315
sky130_osu_sc_18T_ls__inv_2	0.00000	0.00038	0.00063
sky130_osu_sc_18T_ls__inv_3	0.00000	0.00057	0.00095
sky130_osu_sc_18T_ls__inv_4	0.00000	0.00075	0.00126
sky130_osu_sc_18T_ls__inv_6	0.00000	0.00113	0.00189
sky130_osu_sc_18T_ls__inv_8	0.00000	0.00150	0.00252
sky130_osu_sc_18T_ls__inv_l	0.00000	0.00009	0.00013

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)	0.06601	1.16452	13.13210
sky130_osu_sc_18T_ls__inv_10	A->Y (FR)	0.08893	0.81925	13.15310
sky130_osu_sc_18T_ls__inv_2	A->Y (FR)	0.05222	1.00632	13.09970
sky130_osu_sc_18T_ls__inv_3	A->Y (FR)	0.05663	0.94352	13.14700
sky130_osu_sc_18T_ls__inv_4	A->Y (FR)	0.05750	0.90066	13.13470
sky130_osu_sc_18T_ls__inv_6	A->Y (FR)	0.06448	0.85431	13.11310
sky130_osu_sc_18T_ls__inv_8	A->Y (FR)	0.07569	0.83170	13.18440
sky130_osu_sc_18T_ls__inv_l	A->Y (FR)	0.07632	1.26157	13.06880

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)	0.03539	0.71058	8.17393
sky130_osu_sc_18T_ls__inv_10	A->Y (RF)	0.05463	0.52735	8.13146
sky130_osu_sc_18T_ls__inv_2	A->Y (RF)	0.02981	0.63805	8.16227
sky130_osu_sc_18T_ls__inv_3	A->Y (RF)	0.03228	0.60927	8.20648
sky130_osu_sc_18T_ls__inv_4	A->Y (RF)	0.03254	0.58298	8.20090
sky130_osu_sc_18T_ls__inv_6	A->Y (RF)	0.03976	0.55469	8.18836
sky130_osu_sc_18T_ls__inv_8	A->Y (RF)	0.04701	0.54033	8.21107
sky130_osu_sc_18T_ls__inv_l	A->Y (RF)	0.03965	0.74933	8.09656

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	0.00427	0.00420	0.00420
sky130_osu_sc_18T_ls__inv_10	A	0.00000	0.00000	0.00000
	A	0.03709	0.03734	0.03814
sky130_osu_sc_18T_ls__inv_2	A	0.00000	0.00000	0.00000
	A	0.00770	0.00765	0.00774
sky130_osu_sc_18T_ls__inv_3	A	0.00000	0.00000	0.00000
	A	0.01177	0.01132	0.01183
sky130_osu_sc_18T_ls__inv_4	A	0.00000	0.00000	0.00000
	A	0.01520	0.01511	0.01536
sky130_osu_sc_18T_ls__inv_6	A	0.00000	0.00000	0.00000
	A	0.02257	0.02255	0.02307
sky130_osu_sc_18T_ls__inv_8	A	0.00000	0.00000	0.00000
	A	0.02988	0.03001	0.03066
sky130_osu_sc_18T_ls__inv_l	A	0.00000	0.00000	0.00000
	A	0.00328	0.00322	0.00321

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	-0.00069	-0.00075	-0.00075
sky130_osu_sc_18T_ls__inv_10	**A**	0.00000	0.00000	0.00000
	A	-0.01360	-0.01299	-0.01156
sky130_osu_sc_18T_ls__inv_2	**A**	0.00000	0.00000	0.00000
	A	-0.00242	-0.00245	-0.00236
sky130_osu_sc_18T_ls__inv_3	**A**	0.00000	0.00000	0.00000
	A	-0.00317	-0.00321	-0.00305
sky130_osu_sc_18T_ls__inv_4	**A**	0.00000	0.00000	0.00000
	A	-0.00503	-0.00501	-0.00467
sky130_osu_sc_18T_ls__inv_6	**A**	0.00000	0.00000	0.00000
	A	-0.00769	-0.00767	-0.00698
sky130_osu_sc_18T_ls__inv_8	**A**	0.00000	0.00000	0.00000
	A	-0.01052	-0.01022	-0.00926
sky130_osu_sc_18T_ls__inv_l	**A**	0.00000	0.00000	0.00000
	A	-0.00049	-0.00053	-0.00055

SKY130_OSU_SC_18T_LS__MUX2

sky130_osu_sc_18T_ls_tt_1P35_25C.ccs
Cell Library: Process , Voltage 1.35,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__mux2_1	18.31500

Pin Capacitance Information

Cell Name	Pin Cap(pf)			Max Cap(pf)
	A0	A1	S0	Y
sky130_osu_sc_18T_ls__mux2_1	0.59653	0.60025	0.01051	0.95543

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__mux2_1	0.00000	0.00044	0.00044

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)	-	0.03849	0.73922	8.45377
	A1->Y (RR)	-	0.04173	0.74273	8.46760
	S0->Y (RR)	(!A0 * A1)	0.09388	0.84150	7.57909
	S0->Y (FR)	(A0 * !A1)	0.08752	0.98350	9.43065

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)	-	0.03098	0.64778	7.35540
	A1->Y (FF)	-	0.02839	0.64323	7.33143
	S0->Y (FF)	(!A0 * A1)	0.15015	0.86444	6.97777
	S0->Y (RF)	(A0 * !A1)	0.04097	0.68939	7.24244

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	-	-0.00460	-0.00461	-0.00461
	A1	-	0.00000	0.00000	0.00000
	A1	-	-0.00329	-0.00329	-0.00329
	S0	(A0 * !A1)	0.00000	0.00000	0.00000
	S0	(A0 * !A1)	0.00504	0.00472	0.00482
	S0	(!A0 * A1)	0.00000	0.00000	0.00000
	S0	(!A0 * A1)	-0.00286	-0.00338	-0.00345

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	-	0.00460	0.00461	0.00461
	A1	-	0.00000	0.00000	0.00000
	A1	-	0.00329	0.00329	0.00329
	S0	(A0 * !A1)	0.00000	0.00000	0.00000
	S0	(A0 * !A1)	0.00118	0.00067	0.00065
	S0	(!A0 * A1)	0.00000	0.00000	0.00000
	S0	(!A0 * A1)	0.01139	0.01106	0.01110

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)	-0.00126	-0.00125	-0.00125

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)	0.00126	0.00125	0.00125

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)	-0.00148	-0.00148	-0.00148

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)	0.00148	0.00148	0.00148

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)	-0.00085	-0.00139	-0.00141
	(!A0 * !A1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !Y)	-0.00083	-0.00137	-0.00142

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)	0.00854	0.00820	0.00827
	(!A0 * !A1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !Y)	0.00789	0.00756	0.00765

SKY130_OSU_SC_18T_LS__NAND2x

sky130_osu_sc_18T_ls_tt_1P35_25C.ccs
Cell Library: Process , Voltage 1.35,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__nand2_1	9.52380
sky130_osu_sc_18T_ls__nand2_l	9.52380

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	B	Y
sky130_osu_sc_18T_ls__nand2_1	0.00519	0.00514	1.04819
sky130_osu_sc_18T_ls__nand2_l	0.00399	0.00396	0.72830

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__nand2_1	0.00000	0.00019	0.00032
sky130_osu_sc_18T_ls__nand2_l	0.00000	0.00010	0.00013

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)	0.06949	1.17113	13.14400
	B->Y (FR)	0.08119	1.17475	13.05730
sky130_osu_sc_18T_ls__nand2_l	A->Y (FR)	0.07911	1.26662	13.07490
	B->Y (FR)	0.09266	1.27651	13.04720

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)	0.05473	0.89441	10.06510
	B->Y (RF)	0.06201	0.89624	9.90960
sky130_osu_sc_18T_ls__nand2_l	A->Y (RF)	0.06213	0.96878	9.99563
	B->Y (RF)	0.06916	0.96793	9.84153

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	0.00455	0.00448	0.00447
	B	0.00000	0.00000	0.00000
	B	0.00561	0.00552	0.00552
sky130_osu_sc_18T_ls__nand2_l	A	0.00000	0.00000	0.00000
	A	0.00346	0.00340	0.00338
	B	0.00000	0.00000	0.00000
	B	0.00424	0.00416	0.00415

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	-0.00032	-0.00040	-0.00041
	B	0.00000	0.00000	0.00000
	B	-0.00029	-0.00035	-0.00038
sky130_osu_sc_18T_ls__nand2_l	A	0.00000	0.00000	0.00000
	A	-0.00026	-0.00032	-0.00034
	B	0.00000	0.00000	0.00000
	B	-0.00024	-0.00029	-0.00032

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)	-0.00301	-0.00304	-0.00305
sky130_osu_sc_18T_ls__nand2_l	(!B * Y)	0.00000	0.00000	0.00000
	(!B * Y)	-0.00218	-0.00221	-0.00221

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)	0.00305	0.00308	0.00306
sky130_osu_sc_18T_ls__nand2_l	(!B * Y)	0.00000	0.00000	0.00000
	(!B * Y)	0.00221	0.00224	0.00222

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)	-0.00281	-0.00283	-0.00282
sky130_osu_sc_18T_ls__nand2_l	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00203	-0.00205	-0.00204

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)	0.00282	0.00284	0.00283
sky130_osu_sc_18T_ls__nand2_l	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00204	0.00206	0.00205

SKY130_OSU_SC_18T_LS__NOR2x

sky130_osu_sc_18T_ls_tt_1P35_25C.ccs
Cell Library: Process , Voltage 1.35,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__nor2_1	9.52380
sky130_osu_sc_18T_ls__nor2_l	9.52380

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	B	Y
sky130_osu_sc_18T_ls__nor2_1	0.00515	0.00549	0.49370
sky130_osu_sc_18T_ls__nor2_l	0.00389	0.00425	0.34436

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__nor2_1	0.00000	0.00020	0.00063
sky130_osu_sc_18T_ls__nor2_l	0.00000	0.00010	0.00025

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)	0.16262	1.49740	13.25380
	B->Y (FR)	0.12993	1.43299	13.06170
sky130_osu_sc_18T_ls__nor2_l	A->Y (FR)	0.18266	1.63456	13.19890
	B->Y (FR)	0.15496	1.57391	12.98490

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)	0.04392	0.61181	6.08490
	B->Y (RF)	0.03715	0.60006	6.06259
sky130_osu_sc_18T_ls__nor2_l	A->Y (RF)	0.04759	0.63954	6.03299
	B->Y (RF)	0.04147	0.62987	6.01363

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	0.00588	0.00578	0.00577
	B	0.00000	0.00000	0.00000
	B	0.00466	0.00452	0.00448
sky130_osu_sc_18T_ls__nor2_l	A	0.00000	0.00000	0.00000
	A	0.00431	0.00424	0.00421
	B	0.00000	0.00000	0.00000
	B	0.00353	0.00337	0.00269

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	0.00061	0.00040	0.00032
	B	0.00000	0.00000	0.00000
	B	-0.00057	-0.00062	-0.00070
sky130_osu_sc_18T_ls__nor2_l	A	0.00000	0.00000	0.00000
	A	0.00039	0.00026	0.00020
	B	0.00000	0.00000	0.00000
	B	-0.00037	-0.00041	-0.00048

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)	-0.00253	-0.00268	-0.00267
sky130_osu_sc_18T_ls__nor2_l	(B * !Y)	0.00000	0.00000	0.00000
	(B * !Y)	-0.00178	-0.00188	-0.00188

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)	0.00266	0.00268	0.00267
sky130_osu_sc_18T_ls__nor2_l	(B * !Y)	0.00000	0.00000	0.00000
	(B * !Y)	0.00187	0.00188	0.00188

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)	-0.00146	-0.00148	-0.00147
sky130_osu_sc_18T_ls__nor2_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	-0.00103	-0.00105	-0.00104

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)	0.00155	0.00157	0.00150
sky130_osu_sc_18T_ls__nor2_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00110	0.00111	0.00106

SKY130_OSU_SC_18T_LS__OAI21

sky130_osu_sc_18T_ls_tt_1P35_25C.ccs
Cell Library: Process , Voltage 1.35,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__oai21_l	12.45420

Pin Capacitance Information

Cell Name	Pin Cap(pf)			Max Cap(pf)
	A0	A1	B0	Y
sky130_osu_sc_18T_ls__oai21_l	0.00523	0.00524	0.00442	0.49728

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__oai21_l	0.00000	0.00024	0.00051

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)	0.17688	1.49260	13.20710
	A1->Y (FR)	0.21666	1.56290	13.40470
	B0->Y (FR)	0.09711	1.12512	10.80710

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)	0.07530	0.75718	7.15456
	A1->Y (RF)	0.08614	0.75811	7.08938
	B0->Y (RF)	0.06002	0.75891	7.47336

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	0.00617	0.00602	0.00596
	A1	0.00000	0.00000	0.00000
	A1	0.00743	0.00733	0.00728
	B0	0.00508	0.00493	0.00494

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	0.00039	0.00033	0.00025
	A1	0.00000	0.00000	0.00000
	A1	0.00157	0.00139	0.00130
	B0	0.00212	0.00202	0.00195

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)	-0.00147	-0.00148	-0.00147
	(A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * Y)	-0.00258	-0.00267	-0.00268
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00276	-0.00277	-0.00276

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)	0.00156	0.00157	0.00150
	(A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * Y)	0.00267	0.00267	0.00268
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00276	0.00281	0.00277

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)	-0.00249	-0.00264	-0.00263
	(A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * Y)	-0.00257	-0.00268	-0.00267
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	-0.00273	-0.00275	-0.00273

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)	0.00261	0.00264	0.00263
	(A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * Y)	0.00265	0.00268	0.00267
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	0.00273	0.00279	0.00274

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)	-0.00221	-0.00223	-0.00228

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)	0.00228	0.00233	0.00229

SKY130_OSU_SC_18T_LS__OAI22

sky130_osu_sc_18T_ls_tt_1P35_25C.ccs
Cell Library: Process , Voltage 1.35,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__oai22_1	15.38460

Pin Capacitance Information

Cell Name	Pin Cap(pf)				Max Cap(pf)
	A0	A1	B0	B1	Y
sky130_osu_sc_18T_ls__oai22_1	0.00502	0.00534	0.00549	0.00533	0.49994

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__oai22_1	0.00000	0.00029	0.00063

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)	0.23842	1.58634	13.44470
	A1->Y (FR)	0.20468	1.51515	13.24830
	B0->Y (FR)	0.14514	1.45719	13.19220
	B1->Y (FR)	0.18059	1.52408	13.38890

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)	0.11644	0.81791	7.28356
	A1->Y (RF)	0.09641	0.78795	7.21607
	B0->Y (RF)	0.08062	0.78660	7.52340
	B1->Y (RF)	0.10237	0.82381	7.67673

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	0.00955	0.00946	0.00940
	A1	0.00829	0.00796	0.00804
	B0	0.00624	0.00610	0.00603
	B1	0.00756	0.00746	0.00741

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__oai22_l	A0	0.00236	0.00218	0.00206
	A1	0.00124	0.00118	0.00105
	B0	0.00124	0.00116	0.00103
	B1	0.00238	0.00217	0.00207

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)	-0.00253	-0.00268	-0.00267
	(A1 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * B1 * !Y)	-0.00253	-0.00268	-0.00267
	(A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * !B1 * Y)	-0.00258	-0.00269	-0.00267
	(!A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * !B1 * Y)	-0.00273	-0.00275	-0.00274

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)	0.00266	0.00268	0.00267
	(A1 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * B1 * !Y)	0.00266	0.00268	0.00267
	(A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * !B1 * Y)	0.00266	0.00270	0.00267
	(!A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * !B1 * Y)	0.00274	0.00279	0.00275

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)	-0.00145	-0.00147	-0.00146
	(A0 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * B1 * !Y)	-0.00145	-0.00147	-0.00146
	(A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * !B1 * Y)	-0.00256	-0.00266	-0.00265
	(!A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * !B1 * Y)	-0.00273	-0.00276	-0.00274

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)	0.00154	0.00156	0.00149
	(A0 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * B1 * !Y)	0.00154	0.00156	0.00149
	(A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * !B1 * Y)	0.00264	0.00266	0.00265
	(!A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * !B1 * Y)	0.00273	0.00278	0.00274

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)	-0.00144	-0.00146	-0.00145
	(A0 * !A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B1 * !Y)	-0.00144	-0.00147	-0.00145
	(!A0 * !A1 * B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B1 * Y)	-0.00285	-0.00296	-0.00295
	(!A0 * !A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B1 * Y)	-0.00293	-0.00296	-0.00302

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)	0.00154	0.00155	0.00148
	(A0 * !A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B1 * !Y)	0.00154	0.00155	0.00148
	(!A0 * !A1 * B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B1 * Y)	0.00294	0.00296	0.00295
	(!A0 * !A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B1 * Y)	0.00303	0.00308	0.00304

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)	-0.00249	-0.00265	-0.00263
	(A0 * !A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B0 * !Y)	-0.00249	-0.00265	-0.00263
	(!A0 * !A1 * B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B0 * Y)	-0.00291	-0.00302	-0.00300
	(!A0 * !A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B0 * Y)	-0.00297	-0.00298	-0.00306

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)	0.00263	0.00266	0.00263
	(A0 * !A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B0 * !Y)	0.00263	0.00265	0.00263
	(!A0 * !A1 * B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B0 * Y)	0.00300	0.00304	0.00300
	(!A0 * !A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B0 * Y)	0.00307	0.00310	0.00308

SKY130_OSU_SC_18T_LS__OR2x

sky130_osu_sc_18T_ls_tt_1P35_25C.ccs
Cell Library: Process , Voltage 1.35,
Temp 25.00

Truth Table

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

Footprint

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

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	B	Y
sky130_osu_sc_18T_ls__or2_1	0.00548	0.00531	1.05431
sky130_osu_sc_18T_ls__or2_2	0.00548	0.00531	2.09806
sky130_osu_sc_18T_ls__or2_4	0.00547	0.00531	4.05388
sky130_osu_sc_18T_ls__or2_8	0.00548	0.00531	7.79383
sky130_osu_sc_18T_ls__or2_l	0.00429	0.00407	0.74024

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__or2_1	0.00000	0.00046	0.00069
sky130_osu_sc_18T_ls__or2_2	0.00000	0.00071	0.00075
sky130_osu_sc_18T_ls__or2_4	0.00000	0.00121	0.00133
sky130_osu_sc_18T_ls__or2_8	0.00000	0.00221	0.00259
sky130_osu_sc_18T_ls__or2_l	0.00000	0.00021	0.00031

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)	0.12968	1.05224	8.67742
	B->Y (RR)	0.11984	1.02215	8.49268
sky130_osu_sc_18T_ls__or2_2	A->Y (RR)	0.14050	0.95282	8.98045
	B->Y (RR)	0.12998	0.92717	8.81766
sky130_osu_sc_18T_ls__or2_4	A->Y (RR)	0.18515	0.93531	9.43332
	B->Y (RR)	0.17423	0.91619	9.32435
sky130_osu_sc_18T_ls__or2_8	A->Y (RR)	0.27095	0.99247	10.06240
	B->Y (RR)	0.25950	0.97850	9.99435
sky130_osu_sc_18T_ls__or2_l	A->Y (RR)	0.14500	1.16444	8.77046
	B->Y (RR)	0.13556	1.13685	8.58623

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)	0.29775	1.07514	7.86944
	B->Y (FF)	0.25373	1.00451	7.34126
sky130_osu_sc_18T_ls__or2_2	A->Y (FF)	0.37648	1.12140	8.26453
	B->Y (FF)	0.33284	1.05125	7.82357
sky130_osu_sc_18T_ls__or2_4	A->Y (FF)	0.55103	1.29506	8.84299
	B->Y (FF)	0.50750	1.22175	8.51436
sky130_osu_sc_18T_ls__or2_8	A->Y (FF)	0.89712	1.67450	9.60099
	B->Y (FF)	0.85351	1.60066	9.39462
sky130_osu_sc_18T_ls__or2_l	A->Y (FF)	0.32363	1.13375	7.83767
	B->Y (FF)	0.27976	1.06604	7.33905

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	0.00473	0.00426	0.00411
	B	0.00000	0.00000	0.00000
	B	0.00357	0.00311	0.00309
sky130_osu_sc_18T_ls__or2_2	A	0.00000	0.00000	0.00000
	A	0.00811	0.00787	0.00773
	B	0.00000	0.00000	0.00000
	B	0.00693	0.00676	0.00679
sky130_osu_sc_18T_ls__or2_4	A	0.00000	0.00000	0.00000
	A	0.01539	0.01559	0.01574
	B	0.00000	0.00000	0.00000
	B	0.01419	0.01461	0.01492
sky130_osu_sc_18T_ls__or2_8	A	0.00000	0.00000	0.00000
	A	0.02972	0.03066	0.03126
	B	0.00000	0.00000	0.00000
	B	0.02848	0.02993	0.03047
sky130_osu_sc_18T_ls__or2_l	A	0.00000	0.00000	0.00000
	A	0.00348	0.00312	0.00298
	B	0.00000	0.00000	0.00000
	B	0.00273	0.00239	0.00236

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	0.00979	0.00978	0.00971
	B	0.00000	0.00000	0.00000
	B	0.00834	0.00832	0.00838
sky130_osu_sc_18T_ls__or2_2	A	0.00000	0.00000	0.00000
	A	0.01201	0.01252	0.01248
	B	0.00000	0.00000	0.00000
	B	0.01057	0.01103	0.01109
sky130_osu_sc_18T_ls__or2_4	A	0.00000	0.00000	0.00000
	A	0.01743	0.01885	0.01909
	B	0.00000	0.00000	0.00000
	B	0.01599	0.01732	0.01765
sky130_osu_sc_18T_ls__or2_8	A	0.00000	0.00000	0.00000
	A	0.02829	0.03083	0.03230
	B	0.00000	0.00000	0.00000
	B	0.02687	0.02934	0.03074
sky130_osu_sc_18T_ls__or2_l	A	0.00000	0.00000	0.00000
	A	0.00746	0.00740	0.00732
	B	0.00000	0.00000	0.00000
	B	0.00643	0.00637	0.00642

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)	-0.00256	-0.00270	-0.00268
sky130_osu_sc_18T_ls__or2_2	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00256	-0.00270	-0.00268
sky130_osu_sc_18T_ls__or2_4	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00256	-0.00270	-0.00268
sky130_osu_sc_18T_ls__or2_8	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00256	-0.00268	-0.00268
sky130_osu_sc_18T_ls__or2_l	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00180	-0.00190	-0.00189

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)	0.00268	0.00271	0.00268
sky130_osu_sc_18T_ls__or2_2	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00268	0.00271	0.00268
sky130_osu_sc_18T_ls__or2_4	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00268	0.00271	0.00268
sky130_osu_sc_18T_ls__or2_8	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00268	0.00268	0.00268
sky130_osu_sc_18T_ls__or2_l	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00188	0.00191	0.00189

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)	-0.00147	-0.00148	-0.00147
sky130_osu_sc_18T_ls__or2_2	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00147	-0.00148	-0.00147
sky130_osu_sc_18T_ls__or2_4	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00146	-0.00148	-0.00147
sky130_osu_sc_18T_ls__or2_8	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00146	-0.00148	-0.00147
sky130_osu_sc_18T_ls__or2_l	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00106	-0.00106	-0.00106

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)	0.00156	0.00158	0.00150
sky130_osu_sc_18T_ls__or2_2	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00157	0.00158	0.00150
sky130_osu_sc_18T_ls__or2_4	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00157	0.00158	0.00150
sky130_osu_sc_18T_ls__or2_8	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00158	0.00158	0.00150
sky130_osu_sc_18T_ls__or2_l	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00112	0.00113	0.00108

SKY130_OSU_SC_18T_LS__TBUFIx

sky130_osu_sc_18T_ls_tt_1P35_25C.ccs
Cell Library: Process , Voltage 1.35,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__tbufi_1	12.45420
sky130_osu_sc_18T_ls__tbufi_l	12.45420

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	OE	Y
sky130_osu_sc_18T_ls__tbufi_1	0.00549	0.00694	0.49653
sky130_osu_sc_18T_ls__tbufi_l	0.00426	0.00541	0.34818

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__tbufi_1	0.00000	0.00032	0.00038
sky130_osu_sc_18T_ls__tbufi_l	0.00000	0.00015	0.00018

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)	0.12358	1.43020	13.09610
	OE->Y (FR)	0.09940	0.54500	4.01588
	OE->Y (RR)	0.18982	1.32287	8.79317
sky130_osu_sc_18T_ls__tbufi_l	A->Y (FR)	0.14838	1.57289	13.10460
	OE->Y (FR)	0.10703	0.55240	4.01542
	OE->Y (RR)	0.21122	1.47580	8.87474

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)	0.05233	0.71935	7.14088
	OE->Y (FF)	0.10039	0.54946	4.01560
	OE->Y (RF)	0.05115	0.70837	6.94209
sky130_osu_sc_18T_ls__tbufi_l	A->Y (RF)	0.06037	0.76726	7.11727
	OE->Y (FF)	0.10805	0.55763	4.01538
	OE->Y (RF)	0.05972	0.75739	6.91952

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	0.00433	0.00420	0.00414
	OE	0.00000	0.00000	0.00000
	OE	0.00434	0.00381	0.00381
sky130_osu_sc_18T_ls__tbufi_l	A	0.00000	0.00000	0.00000
	A	0.00329	0.00306	0.00312
	OE	0.00000	0.00000	0.00000
	OE	0.00313	0.00274	0.00274

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	-0.00057	-0.00063	-0.00070
	OE	0.00000	0.00000	0.00000
	OE	0.00321	0.00270	0.00268
sky130_osu_sc_18T_ls__tbufi_l	A	0.00000	0.00000	0.00000
	A	-0.00037	-0.00040	-0.00048
	OE	0.00000	0.00000	0.00000
	OE	0.00225	0.00186	0.00185

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)	-0.00226	-0.00229	-0.00227
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	-0.00207	-0.00210	-0.00208
sky130_osu_sc_18T_ls__tbufi_l	(!OE * Y)	0.00000	0.00000	0.00000
	(!OE * Y)	-0.00170	-0.00172	-0.00170
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	-0.00156	-0.00158	-0.00157

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)	0.00226	0.00229	0.00227
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	0.00215	0.00217	0.00213
sky130_osu_sc_18T_ls__tbufi_l	(!OE * Y)	0.00000	0.00000	0.00000
	(!OE * Y)	0.00170	0.00172	0.00170
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	0.00162	0.00163	0.00160

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)	0.00181	0.00128	0.00128
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00164	0.00113	0.00110
sky130_osu_sc_18T_ls__tbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00126	0.00086	0.00085
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00112	0.00073	0.00072

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)	0.00488	0.00451	0.00451
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00508	0.00469	0.00465
sky130_osu_sc_18T_ls__tbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00385	0.00354	0.00352
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00399	0.00366	0.00362

SKY130_OSU_SC_18T_LS__TNBUFIx

sky130_osu_sc_18T_ls_tt_1P35_25C.ccs
Cell Library: Process , Voltage 1.35,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__tnbufi_1	12.45420
sky130_osu_sc_18T_ls__tnbufi_l	12.45420

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	OE	Y
sky130_osu_sc_18T_ls__tnbufi_1	0.00549	0.00854	0.49423
sky130_osu_sc_18T_ls__tnbufi_l	0.00426	0.00638	0.34584

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__tnbufi_1	0.00000	0.00024	0.00063
sky130_osu_sc_18T_ls__tnbufi_l	0.00000	0.00013	0.00026

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)	0.12488	1.42776	13.06180
	OE->Y (RR)	0.04130	0.33265	4.01471
	OE->Y (FR)	0.14952	1.48574	13.25230
sky130_osu_sc_18T_ls__tnbufi_l	A->Y (FR)	0.14976	1.56858	13.05490
	OE->Y (RR)	0.04350	0.33316	4.01502
	OE->Y (FR)	0.16811	1.62559	13.22530

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)	0.05150	0.71814	7.12642
	OE->Y (RF)	0.04070	0.33265	4.01473
	OE->Y (FF)	0.11747	0.84870	6.03468
sky130_osu_sc_18T_ls__tnbufi_l	A->Y (RF)	0.05931	0.76485	7.09688
	OE->Y (RF)	0.04301	0.33313	4.01496
	OE->Y (FF)	0.13258	0.90705	6.04407

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	0.00444	0.00431	0.00425
	OE	0.00000	0.00000	0.00000
	OE	0.01057	0.01032	0.01047
sky130_osu_sc_18T_ls__tnbufi_l	A	0.00000	0.00000	0.00000
	A	0.00341	0.00317	0.00323
	OE	0.00000	0.00000	0.00000
	OE	0.00789	0.00768	0.00777

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	-0.00071	-0.00076	-0.00083
	OE	0.00000	0.00000	0.00000
	OE	0.00962	0.00937	0.00952
sky130_osu_sc_18T_ls__tnbufi_l	A	0.00000	0.00000	0.00000
	A	-0.00050	-0.00053	-0.00061
	OE	0.00000	0.00000	0.00000
	OE	0.00714	0.00692	0.00701

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)	-0.00196	-0.00199	-0.00197
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	-0.00179	-0.00181	-0.00179
sky130_osu_sc_18T_ls__tnbufi_l	(OE * Y)	0.00000	0.00000	0.00000
	(OE * Y)	-0.00141	-0.00143	-0.00141
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	-0.00129	-0.00130	-0.00129

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)	0.00196	0.00199	0.00197
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	0.00186	0.00187	0.00184
sky130_osu_sc_18T_ls__tnbufi_l	(OE * Y)	0.00000	0.00000	0.00000
	(OE * Y)	0.00141	0.00143	0.00141
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	0.00133	0.00134	0.00132

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)	-0.00312	-0.00383	-0.00384
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00298	-0.00374	-0.00378
sky130_osu_sc_18T_ls__tnbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	-0.00216	-0.00267	-0.00268
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00206	-0.00260	-0.00265

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)	0.00805	0.00781	0.00796
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00789	0.00768	0.00779
sky130_osu_sc_18T_ls__tnbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00602	0.00581	0.00590
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00590	0.00569	0.00577

SKY130_OSU_SC_18T_LS__XNOR2

sky130_osu_sc_18T_ls_tt_1P35_25C.ccs
Cell Library: Process , Voltage 1.35,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__xnor2_l	21.24540

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	B	Y
sky130_osu_sc_18T_ls__xnor2_l	0.01084	0.00982	0.49539

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__xnor2_l	0.00000	0.00074	0.00119

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	0.24490	1.39250	8.97160
	A->Y (FR)	!B	0.16698	1.47625	13.10680
	B->Y (RR)	A	0.19787	1.34086	8.84979
	B->Y (FR)	!A	0.20811	1.54178	13.29100

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	0.19217	0.96742	6.62706
	A->Y (RF)	!B	0.07754	0.74015	7.05188
	B->Y (FF)	A	0.17929	0.95259	6.60410
	B->Y (RF)	!A	0.08800	0.75505	7.06993

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	0.00420	0.00358	0.00353
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.01061	0.01013	0.01009
	B	A	0.00000	0.00000	0.00000
	B	A	0.00187	0.00133	0.00127
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01147	0.01107	0.01113

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	0.01308	0.01255	0.01242
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00324	0.00266	0.00255
	B	A	0.00000	0.00000	0.00000
	B	A	0.01200	0.01183	0.01181
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00396	0.00330	0.00315

SKY130_OSU_SC_18T_LS__XOR2

sky130_osu_sc_18T_ls_tt_1P35_25C.ccs
Cell Library: Process , Voltage 1.35,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__xor2_l	21.24540

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	B	Y
sky130_osu_sc_18T_ls__xor2_l	0.01080	0.00987	0.49381

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__xor2_l	0.00000	0.00074	0.00101

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	0.24032	1.37351	8.90564
	A->Y (FR)	B	0.18939	1.52027	13.29020
	B->Y (RR)	!A	0.20253	1.34333	8.86551
	B->Y (FR)	A	0.20634	1.54264	13.30190

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	0.18350	0.94916	6.55299
	A->Y (RF)	B	0.06967	0.74361	7.15398
	B->Y (FF)	!A	0.17185	0.93680	6.50726
	B->Y (RF)	A	0.08067	0.74046	6.96021

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	0.01222	0.01182	0.01186
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00250	0.00154	0.00139
	B	A	0.00000	0.00000	0.00000
	B	A	0.01252	0.01218	0.01223
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00164	0.00108	0.00104

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	0.00278	0.00202	0.00187
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.01352	0.01327	0.01324
	B	A	0.00000	0.00000	0.00000
	B	A	0.00279	0.00209	0.00194
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01225	0.01212	0.01213

SKY130_OSU_SC_18T_LS_x

sky130_osu_sc_18T_ls_tt_1P35_25C.ccs
Cell Library: Process , Voltage 1.35,
Temp 25.00

Truth Table

INPUT
A
x

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__ant	6.59340
sky130_osu_sc_18T_ls__tiehi	6.59340
sky130_osu_sc_18T_ls__tielo	6.59340

Pin Capacitance Information

Cell Name	Pin Cap(pf)
	A
sky130_osu_sc_18T_ls__ant	0.17337
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	75733.50000	151467.00000
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
	-0.00259	0.01131	0.16015

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
	1.31915	1.23316	0.22206