sky130_osu_sc_18T_ls_tt_1P44_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_1P44_25C.ccs
Cell Library: Process , Voltage 1.44,
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	0.02037	0.02042	0.01574	1.37760	0.61284	1.33193
sky130_osu_sc_18T_ls__addf_l	0.02035	0.02041	0.01574	0.95846	0.61566	0.93566

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__addf_1	0.00000	0.00131	0.00140
sky130_osu_sc_18T_ls__addf_l	0.00000	0.00108	0.00123

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)	0.24684	2.23349	25.20810
	B->CO (RR)	0.22353	2.13205	24.21240
	CI->CO (RR)	0.23629	2.24642	25.54020
	CON->CO (FR)	0.05300	1.06406	12.93690
sky130_osu_sc_18T_ls__addf_1	A->CO (RR)	0.24823	2.10598	21.03460
	B->CO (RR)	0.22545	2.02057	20.36570
	CI->CO (RR)	0.23755	2.11944	21.39720
	CON->CO (FR)	0.06100	1.15581	12.93690

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)	0.42729	3.25456	35.89530
	B->CO (FF)	0.39138	3.13557	34.76120
	CI->CO (FF)	0.37871	3.18522	35.79570
	CON->CO (RF)	0.03359	0.70476	8.59409
sky130_osu_sc_18T_ls__addf_1	A->CO (FF)	0.41536	2.89780	28.12060
	B->CO (FF)	0.38026	2.79826	27.31620
	CI->CO (FF)	0.36657	2.82843	28.03580
	CON->CO (RF)	0.03623	0.72727	8.34197

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)	0.31500	1.53294	12.92740
	B->CON (FR)	0.28233	1.46131	12.58300
	CI->CON (FR)	0.26635	1.46343	12.84710
sky130_osu_sc_18T_ls__addf_1	A->CON (FR)	0.29913	1.51932	12.95150
	B->CON (FR)	0.26753	1.44830	12.62930
	CI->CON (FR)	0.25049	1.44978	12.87620

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)	0.12738	0.77021	7.06594
	B->CON (RF)	0.11913	0.75355	7.10552
	CI->CON (RF)	0.11675	0.78659	7.47148
sky130_osu_sc_18T_ls__addf_1	A->CON (RF)	0.12278	0.76651	7.07658
	B->CON (RF)	0.11495	0.75028	7.11538
	CI->CON (RF)	0.11212	0.78293	7.48200

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)	0.60148	3.24538	29.98370
	B->S (-R)	0.59932	3.20944	29.57030
	CI->S (-R)	0.54920	3.16818	29.85770
	CON->S (RR)	0.14492	1.00468	8.61521
sky130_osu_sc_18T_ls__addf_1	A->S (-R)	0.57436	2.97708	25.01840
	B->S (-R)	0.57290	2.95449	24.76910
	CI->S (-R)	0.52185	2.90013	24.90160
	CON->S (RR)	0.14550	1.07206	8.45945

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)	0.43010	2.03818	17.86060
	B->S (-F)	0.44748	1.96930	17.32040
	CI->S (-F)	0.41890	2.04353	18.18770
	CON->S (FF)	0.18409	0.96056	7.48495
sky130_osu_sc_18T_ls__addf_l	A->S (-F)	0.40377	1.84966	14.85290
	B->S (-F)	0.42190	1.79571	14.50760
	CI->S (-F)	0.39242	1.85958	15.20320
	CON->S (FF)	0.17454	0.96775	7.21338

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	0.00317	0.00304	0.00300
	B	0.00398	0.00399	0.00402
	CI	0.00420	0.00430	0.00437
sky130_osu_sc_18T_ls__addf_l	A	0.00250	0.00229	0.00223
	B	0.00331	0.00324	0.00323
	CI	0.00353	0.00355	0.00356

Internal switching power(pJ) to CO falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__addf_1	A	0.01172	0.01174	0.01192
	B	0.01157	0.01171	0.01194
	CI	0.01012	0.01045	0.01066
sky130_osu_sc_18T_ls__addf_l	A	0.01105	0.01103	0.01111
	B	0.01090	0.01100	0.01110
	CI	0.00944	0.00974	0.00979

Internal switching power(pJ) to CON rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__addf_1	A	0.01170	0.01168	0.01167
	B	0.01155	0.01168	0.01135
	CI	0.01011	0.01040	0.01040
sky130_osu_sc_18T_ls__addf_l	A	0.01104	0.01099	0.01072
	B	0.01089	0.01098	0.01095
	CI	0.00944	0.00971	0.00970

Internal switching power(pJ) to CON falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__addf_1	A	0.00313	0.00301	0.00288
	B	0.00394	0.00394	0.00375
	CI	0.00419	0.00426	0.00421
sky130_osu_sc_18T_ls__addf_l	A	0.00246	0.00228	0.00214
	B	0.00328	0.00321	0.00304
	CI	0.00352	0.00353	0.00348

Internal switching power(pJ) to S rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__addf_1	A	0.01172	0.01174	0.01190
	B	0.01157	0.01171	0.01192
	CI	0.01012	0.01045	0.01065
sky130_osu_sc_18T_ls__addf_l	A	0.01105	0.01103	0.01108
	B	0.01090	0.01100	0.01106
	CI	0.00945	0.00974	0.00981

Internal switching power(pJ) to S falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__addf_1	A	0.02455	0.02476	0.02472
	B	0.02196	0.02161	0.02177
	CI	0.01984	0.01994	0.01993
sky130_osu_sc_18T_ls__addf_l	A	0.02365	0.02371	0.02361
	B	0.02110	0.02057	0.02080
	CI	0.01896	0.01894	0.01890

SKY130_OSU_SC_18T_LS__ADDHx

sky130_osu_sc_18T_ls_tt_1P44_25C.ccs
Cell Library: Process , Voltage 1.44,
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	0.01008	0.01091	1.36161	0.65411	1.36516
sky130_osu_sc_18T_ls__addh_l	0.01008	0.01092	0.77859	0.64966	0.77181

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__addh_1	0.00000	0.00100	0.00103
sky130_osu_sc_18T_ls__addh_l	0.00000	0.00093	0.00115

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)	0.17391	1.02702	8.52922
	B->CO (RR)	0.17933	1.02970	8.69929
sky130_osu_sc_18T_ls__addh_l	A->CO (RR)	0.18061	1.16304	8.51940
	B->CO (RR)	0.18608	1.16773	8.70152

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)	0.16305	0.91827	7.58648
	B->CO (FF)	0.17295	0.93292	7.66040
sky130_osu_sc_18T_ls__addh_l	A->CO (FF)	0.15868	0.93625	7.07038
	B->CO (FF)	0.16802	0.95146	7.14945

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	0.24083	0.87201	4.83921
	A->CON (FR)	!B	0.18258	1.36857	12.85890
	B->CON (RR)	A	0.24650	0.87455	5.00373
	B->CON (FR)	!A	0.22044	1.42631	12.98260
sky130_osu_sc_18T_ls__addh_l	A->CON (RR)	B	0.21509	0.83571	4.68895
	A->CON (FR)	!B	0.16201	1.34395	12.78580
	B->CON (RR)	A	0.22070	0.83989	4.85698
	B->CON (FR)	!A	0.19985	1.40139	12.92750

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	0.22831	0.99172	6.88008
	A->CON (RF)	!B	0.07820	0.74309	7.51235
	B->CON (FF)	A	0.23175	1.02395	7.16810
	B->CON (RF)	!A	0.09052	0.73804	7.28693
sky130_osu_sc_18T_ls__addh_l	A->CON (FF)	B	0.20643	0.95395	6.64383
	A->CON (RF)	!B	0.07229	0.73522	7.48141
	B->CON (FF)	A	0.20940	0.98581	6.94071
	B->CON (RF)	!A	0.08483	0.73085	7.25758

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	0.18206	2.13125	24.80790
	A->S (FR)	B	0.33223	2.34644	23.81610
	B->S (RR)	!A	0.19312	2.06832	23.84160
	B->S (FR)	A	0.33776	2.43514	24.85100
	CON->S (FR)	-	0.05765	1.08415	13.11750
sky130_osu_sc_18T_ls__addh_l	A->S (RR)	!B	0.18638	1.97210	19.18590
	A->S (FR)	B	0.32081	2.17141	18.17520
	B->S (RR)	!A	0.19804	1.92965	18.62840
	B->S (FR)	A	0.32569	2.23966	18.82250
	CON->S (FR)	-	0.07156	1.24288	13.18070

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	0.27527	2.92136	33.86170
	A->S (RF)	B	0.30991	1.86399	17.69350
	B->S (FF)	!A	0.31309	2.98601	34.01010
	B->S (RF)	A	0.31557	1.86670	17.85040
	CON->S (RF)	-	0.03163	0.68753	8.39813
sky130_osu_sc_18T_ls__addh_l	A->S (FF)	!B	0.25861	2.41846	23.28550
	A->S (RF)	B	0.28657	1.59041	11.87960
	B->S (FF)	!A	0.29641	2.47459	23.41050
	B->S (RF)	A	0.29231	1.59530	12.05880
	CON->S (RF)	-	0.03605	0.72271	7.98717

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	0.00517	0.00490	0.00457
	B	0.00000	0.00000	0.00000
	B	0.00472	0.00447	0.00405
sky130_osu_sc_18T_ls__addh_l	A	0.00000	0.00000	0.00000
	A	0.00423	0.00390	0.00388
	B	0.00000	0.00000	0.00000
	B	0.00378	0.00346	0.00335

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	0.00811	0.00782	0.00741
	B	0.00000	0.00000	0.00000
	B	0.00839	0.00840	0.00801
sky130_osu_sc_18T_ls__addh_l	A	0.00000	0.00000	0.00000
	A	0.00717	0.00684	0.00667
	B	0.00000	0.00000	0.00000
	B	0.00745	0.00739	0.00728

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	0.00516	0.00490	0.00487
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00699	0.00698	0.00630
	B	A	0.00000	0.00000	0.00000
	B	A	0.00471	0.00447	0.00422
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00774	0.00770	0.00735
sky130_osu_sc_18T_ls__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.00422	0.00389	0.00389
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00637	0.00633	0.00560
	B	A	0.00000	0.00000	0.00000
	B	A	0.00378	0.00346	0.00340
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00713	0.00704	0.00688

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	0.00811	0.00785	0.00768
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00122	0.00119	0.00108
	B	A	0.00000	0.00000	0.00000
	B	A	0.00839	0.00839	0.00833
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00199	0.00189	0.00173
sky130_osu_sc_18T_ls__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.00716	0.00685	0.00666
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00042	0.00037	0.00025
	B	A	0.00000	0.00000	0.00000
	B	A	0.00745	0.00738	0.00733
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00119	0.00107	0.00090

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	0.00812	0.00783	0.00766
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00123	0.00122	0.00113
	B	A	0.00000	0.00000	0.00000
	B	A	0.00839	0.00841	0.00830
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00201	0.00193	0.00181
sky130_osu_sc_18T_ls__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.00717	0.00685	0.00671
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00042	0.00039	0.00029
	B	A	0.00000	0.00000	0.00000
	B	A	0.00745	0.00740	0.00735
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00120	0.00108	0.00097

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	0.00517	0.00490	0.00462
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00699	0.00701	0.00698
	B	A	0.00000	0.00000	0.00000
	B	A	0.00472	0.00447	0.00410
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00775	0.00778	0.00768
sky130_osu_sc_18T_ls__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.00422	0.00389	0.00387
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00637	0.00635	0.00631
	B	A	0.00000	0.00000	0.00000
	B	A	0.00378	0.00346	0.00330
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00713	0.00709	0.00700

SKY130_OSU_SC_18T_LS__AND2x

sky130_osu_sc_18T_ls_tt_1P44_25C.ccs
Cell Library: Process , Voltage 1.44,
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	0.00540	0.00549	1.35284
sky130_osu_sc_18T_ls__and2_2	0.00540	0.00550	2.69341
sky130_osu_sc_18T_ls__and2_4	0.00540	0.00549	5.13299
sky130_osu_sc_18T_ls__and2_6	0.00543	0.00549	7.55708
sky130_osu_sc_18T_ls__and2_8	0.00541	0.00550	9.82343
sky130_osu_sc_18T_ls__and2_l	0.00416	0.00425	0.94500

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__and2_1	0.00000	0.00040	0.00056
sky130_osu_sc_18T_ls__and2_2	0.00000	0.00056	0.00093
sky130_osu_sc_18T_ls__and2_4	0.00000	0.00089	0.00166
sky130_osu_sc_18T_ls__and2_6	0.00000	0.00122	0.00239
sky130_osu_sc_18T_ls__and2_8	0.00000	0.00155	0.00312
sky130_osu_sc_18T_ls__and2_l	0.00000	0.00022	0.00031

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)	0.13270	0.93595	8.01065
	B->Y (RR)	0.13975	0.94758	8.20604
sky130_osu_sc_18T_ls__and2_2	A->Y (RR)	0.15302	0.86932	8.38349
	B->Y (RR)	0.16003	0.87421	8.55880
sky130_osu_sc_18T_ls__and2_4	A->Y (RR)	0.21182	0.88927	8.85488
	B->Y (RR)	0.21877	0.88270	8.97559
sky130_osu_sc_18T_ls__and2_6	A->Y (RR)	0.26854	0.93924	9.23318
	B->Y (RR)	0.27542	0.92749	9.33151
sky130_osu_sc_18T_ls__and2_8	A->Y (RR)	0.32478	0.99806	9.56706
	B->Y (RR)	0.33178	0.98516	9.64890
sky130_osu_sc_18T_ls__and2_l	A->Y (RR)	0.14752	1.03829	8.07323
	B->Y (RR)	0.15500	1.04928	8.27151

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)**	0.12217	0.82972	6.95036
	B->Y (FF)	0.13083	0.84964	7.07868
sky130_osu_sc_18T_ls__and2_2	**A->Y (FF)**	0.14690	0.82122	7.33387
	B->Y (FF)	0.15632	0.83829	7.43574
sky130_osu_sc_18T_ls__and2_4	**A->Y (FF)**	0.21051	0.87025	7.81900
	B->Y (FF)	0.21984	0.88292	7.89565
sky130_osu_sc_18T_ls__and2_6	**A->Y (FF)**	0.27619	0.93343	8.19311
	B->Y (FF)	0.28583	0.94438	8.25508
sky130_osu_sc_18T_ls__and2_8	**A->Y (FF)**	0.33867	0.99681	8.42627
	B->Y (FF)	0.34850	1.00800	8.48301
sky130_osu_sc_18T_ls__and2_l	**A->Y (FF)**	0.13187	0.87847	6.90508
	B->Y (FF)	0.14229	0.90043	7.03918

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	0.00418	0.00364	0.00396
	B	0.00000	0.00000	0.00000
	B	0.00424	0.00370	0.00368
sky130_osu_sc_18T_ls__and2_2	A	0.00000	0.00000	0.00000
	A	0.00806	0.00779	0.00803
	B	0.00000	0.00000	0.00000
	B	0.00812	0.00790	0.00786
sky130_osu_sc_18T_ls__and2_4	A	0.00000	0.00000	0.00000
	A	0.01641	0.01659	0.01738
	B	0.00000	0.00000	0.00000
	B	0.01647	0.01685	0.01724
sky130_osu_sc_18T_ls__and2_6	A	0.00000	0.00000	0.00000
	A	0.02464	0.02546	0.02669
	B	0.00000	0.00000	0.00000
	B	0.02474	0.02570	0.02664
sky130_osu_sc_18T_ls__and2_8	A	0.00000	0.00000	0.00000
	A	0.03285	0.03415	0.03551
	B	0.00000	0.00000	0.00000
	B	0.03294	0.03454	0.03536
sky130_osu_sc_18T_ls__and2_l	A	0.00000	0.00000	0.00000
	A	0.00306	0.00266	0.00287
	B	0.00000	0.00000	0.00000
	B	0.00313	0.00270	0.00269

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	0.00977	0.00960	0.00996
	B	0.00000	0.00000	0.00000
	B	0.01097	0.01079	0.01110
sky130_osu_sc_18T_ls__and2_2	A	0.00000	0.00000	0.00000
	A	0.01237	0.01275	0.01314
	B	0.00000	0.00000	0.00000
	B	0.01358	0.01394	0.01423
sky130_osu_sc_18T_ls__and2_4	A	0.00000	0.00000	0.00000
	A	0.01867	0.02018	0.02081
	B	0.00000	0.00000	0.00000
	B	0.01987	0.02127	0.02177
sky130_osu_sc_18T_ls__and2_6	A	0.00000	0.00000	0.00000
	A	0.02504	0.02763	0.02865
	B	0.00000	0.00000	0.00000
	B	0.02626	0.02858	0.02943
sky130_osu_sc_18T_ls__and2_8	A	0.00000	0.00000	0.00000
	A	0.03122	0.03483	0.03633
	B	0.00000	0.00000	0.00000
	B	0.03240	0.03567	0.03691
sky130_osu_sc_18T_ls__and2_l	A	0.00000	0.00000	0.00000
	A	0.00753	0.00733	0.00757
	B	0.00000	0.00000	0.00000
	B	0.00843	0.00823	0.00844

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)	-0.00359	-0.00363	-0.00363
sky130_osu_sc_18T_ls__and2_2	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00359	-0.00360	-0.00363
sky130_osu_sc_18T_ls__and2_4	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00359	-0.00360	-0.00363
sky130_osu_sc_18T_ls__and2_6	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00361	-0.00361	-0.00364
sky130_osu_sc_18T_ls__and2_8	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00359	-0.00362	-0.00363
sky130_osu_sc_18T_ls__and2_l	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00262	-0.00265	-0.00265

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)	0.00362	0.00366	0.00364
sky130_osu_sc_18T_ls__and2_2	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00362	0.00366	0.00364
sky130_osu_sc_18T_ls__and2_4	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00362	0.00366	0.00364
sky130_osu_sc_18T_ls__and2_6	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00364	0.00367	0.00366
sky130_osu_sc_18T_ls__and2_8	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00362	0.00366	0.00364
sky130_osu_sc_18T_ls__and2_l	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00265	0.00267	0.00266

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)	-0.00340	-0.00342	-0.00341
sky130_osu_sc_18T_ls__and2_2	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00340	-0.00342	-0.00341
sky130_osu_sc_18T_ls__and2_4	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00340	-0.00343	-0.00341
sky130_osu_sc_18T_ls__and2_6	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00340	-0.00342	-0.00341
sky130_osu_sc_18T_ls__and2_8	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00340	-0.00342	-0.00341
sky130_osu_sc_18T_ls__and2_l	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00249	-0.00250	-0.00249

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)	0.00342	0.00343	0.00342
sky130_osu_sc_18T_ls__and2_2	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00343	0.00343	0.00342
sky130_osu_sc_18T_ls__and2_4	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00343	0.00343	0.00342
sky130_osu_sc_18T_ls__and2_6	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00343	0.00343	0.00342
sky130_osu_sc_18T_ls__and2_8	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00343	0.00343	0.00342
sky130_osu_sc_18T_ls__and2_l	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00250	0.00251	0.00250

SKY130_OSU_SC_18T_LS__AOI21

sky130_osu_sc_18T_ls_tt_1P44_25C.ccs
Cell Library: Process , Voltage 1.44,
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	0.00508	0.00529	0.00516	0.62537

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__aoi21_l	0.00000	0.00021	0.00051

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)	0.16758	1.39903	12.97760
	A1->Y (FR)	0.14422	1.33680	12.62260
	B0->Y (FR)	0.12508	1.33508	12.87900

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)	0.06906	0.69318	6.86465
	A1->Y (RF)	0.06248	0.69983	7.11637
	B0->Y (RF)	0.04201	0.65721	6.94533

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	0.00836	0.00826	0.00804
	A1	0.00000	0.00000	0.00000
	A1	0.00709	0.00697	0.00602
	B0	0.00665	0.00649	0.00528

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	0.00164	0.00138	0.00125
	A1	0.00000	0.00000	0.00000
	A1	0.00166	0.00135	0.00126
	B0	-0.00071	-0.00073	-0.00082

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)	-0.00304	-0.00316	-0.00314
	(!A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !Y)	-0.00322	-0.00324	-0.00322
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00322	-0.00324	-0.00322

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)	0.00312	0.00316	0.00314
	(!A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !Y)	0.00322	0.00326	0.00323
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00324	0.00324	0.00323

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)	-0.00301	-0.00312	-0.00311
	(!A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !Y)	-0.00317	-0.00320	-0.00318
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	-0.00342	-0.00344	-0.00346

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)	0.00309	0.00314	0.00311
	(!A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !Y)	0.00318	0.00323	0.00319
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	0.00346	0.00350	0.00348

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)	-0.00164	-0.00166	-0.00165

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)	0.00184	0.00185	0.00170

SKY130_OSU_SC_18T_LS__AOI22

sky130_osu_sc_18T_ls_tt_1P44_25C.ccs
Cell Library: Process , Voltage 1.44,
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	0.00508	0.00530	0.00550	0.00526	0.60845

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__aoi22_1	0.00000	0.00036	0.00073

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)	0.21377	1.45540	12.96750
	A1->Y (FR)	0.19095	1.41139	12.77980
	B0->Y (FR)	0.13353	1.32894	12.71260
	B1->Y (FR)	0.15648	1.37437	12.88550

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)	0.08881	0.70996	6.80327
	A1->Y (RF)	0.08222	0.71612	7.05402
	B0->Y (RF)	0.05008	0.67956	7.00901
	B1->Y (RF)	0.05637	0.66975	6.76021

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	0.01023	0.01013	0.00982
	A1	0.00900	0.00883	0.00812
	B0	0.00713	0.00692	0.00687
	B1	0.00834	0.00816	0.00693

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__aoi22_l	A0	0.00345	0.00320	0.00302
	A1	0.00346	0.00317	0.00304
	B0	-0.00033	-0.00035	-0.00045
	B1	-0.00029	-0.00033	-0.00042

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)	-0.00305	-0.00314	-0.00314
	(!A1 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * B1 * !Y)	-0.00322	-0.00322	-0.00322
	(!A1 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !B1 * Y)	-0.00322	-0.00323	-0.00322
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00322	-0.00324	-0.00322

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)	0.00312	0.00314	0.00314
	(!A1 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * B1 * !Y)	0.00322	0.00322	0.00323
	(!A1 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !B1 * Y)	0.00324	0.00324	0.00323
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00324	0.00324	0.00323

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)	-0.00301	-0.00311	-0.00311
	(!A0 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * B1 * !Y)	-0.00318	-0.00319	-0.00318
	(!A0 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !B1 * Y)	-0.00342	-0.00344	-0.00346
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	-0.00342	-0.00344	-0.00346

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)	0.00309	0.00311	0.00311
	(!A0 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * B1 * !Y)	0.00318	0.00323	0.00319
	(!A0 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !B1 * Y)	0.00346	0.00349	0.00347
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	0.00346	0.00349	0.00347

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)	-0.00165	-0.00167	-0.00165
	(A0 * A1 * !B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B1 * !Y)	-0.00165	-0.00165	-0.00165
	(!A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B1 * Y)	-0.00350	-0.00354	-0.00355
	(!A0 * A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B1 * Y)	-0.00352	-0.00354	-0.00355

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)	0.00193	0.00194	0.00173
	(A0 * A1 * !B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B1 * !Y)	0.00165	0.00165	0.00165
	(!A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B1 * Y)	0.00355	0.00361	0.00356
	(!A0 * A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B1 * Y)	0.00355	0.00361	0.00356

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)	-0.00166	-0.00167	-0.00166
	(A0 * A1 * !B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B0 * !Y)	-0.00165	-0.00166	-0.00166
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00326	-0.00328	-0.00327
	(!A0 * A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B0 * Y)	-0.00326	-0.00328	-0.00327

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)	0.00194	0.00195	0.00174
	(A0 * A1 * !B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B0 * !Y)	0.00165	0.00167	0.00166
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00328	0.00328	0.00328
	(!A0 * A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B0 * Y)	0.00328	0.00331	0.00328

SKY130_OSU_SC_18T_LS__BUFx

sky130_osu_sc_18T_ls_tt_1P44_25C.ccs
Cell Library: Process , Voltage 1.44,
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	0.00550	1.35508
sky130_osu_sc_18T_ls__buf_2	0.00550	2.70860
sky130_osu_sc_18T_ls__buf_4	0.00550	5.20889
sky130_osu_sc_18T_ls__buf_6	0.00098	1.80000
sky130_osu_sc_18T_ls__buf_8	0.00550	9.96133
sky130_osu_sc_18T_ls__buf_l	0.00430	0.95166

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__buf_1	0.00000	0.00047	0.00047
sky130_osu_sc_18T_ls__buf_2	0.00000	0.00070	0.00083
sky130_osu_sc_18T_ls__buf_4	0.00000	0.00116	0.00156
sky130_osu_sc_18T_ls__buf_6	0.00000	0.00000	0.00000
sky130_osu_sc_18T_ls__buf_8	0.00000	0.00208	0.00303
sky130_osu_sc_18T_ls__buf_l	0.00000	0.00023	0.00023

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)**	0.09881	0.88966	7.95316
sky130_osu_sc_18T_ls__buf_2	**A->Y (RR)**	0.10852	0.80950	8.31881
sky130_osu_sc_18T_ls__buf_4	**A->Y (RR)**	0.14648	0.80295	8.75369
sky130_osu_sc_18T_ls__buf_8	**A->Y (RR)**	0.21973	0.86735	9.31361
sky130_osu_sc_18T_ls__buf_l	**A->Y (RR)**	0.11095	0.98916	8.00869

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)**	0.11588	0.81889	6.88909
sky130_osu_sc_18T_ls__buf_2	**A->Y (FF)**	0.14170	0.81466	7.32176
sky130_osu_sc_18T_ls__buf_4	**A->Y (FF)**	0.20546	0.86333	7.83962
sky130_osu_sc_18T_ls__buf_8	**A->Y (FF)**	0.33412	0.99255	8.45860
sky130_osu_sc_18T_ls__buf_l	**A->Y (FF)**	0.12691	0.87126	6.87224

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	0.00384	0.00322	0.00355
sky130_osu_sc_18T_ls__buf_2	A	0.00000	0.00000	0.00000
	A	0.00775	0.00738	0.00758
sky130_osu_sc_18T_ls__buf_4	A	0.00000	0.00000	0.00000
	A	0.01617	0.01632	0.01661
sky130_osu_sc_18T_ls__buf_8	A	0.00000	0.00000	0.00000
	A	0.03265	0.03387	0.03543
sky130_osu_sc_18T_ls__buf_l	A	0.00000	0.00000	0.00000
	A	0.00291	0.00242	0.00264

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	0.00949	0.00927	0.00962
sky130_osu_sc_18T_ls__buf_2	A	0.00000	0.00000	0.00000
	A	0.01206	0.01235	0.01272
sky130_osu_sc_18T_ls__buf_4	A	0.00000	0.00000	0.00000
	A	0.01840	0.01972	0.02030
sky130_osu_sc_18T_ls__buf_8	A	0.00000	0.00000	0.00000
	A	0.03101	0.03425	0.03554
sky130_osu_sc_18T_ls__buf_l	A	0.00000	0.00000	0.00000
	A	0.00738	0.00714	0.00738

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
	-0.00049	-0.00049	-0.00049

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
	0.00049	0.00049	0.00049

SKY130_OSU_SC_18T_LS__DFFRx

sky130_osu_sc_18T_ls_tt_1P44_25C.ccs
Cell Library: Process , Voltage 1.44,
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	0.00522	0.00524	0.01530	1.34539	1.33076
sky130_osu_sc_18T_ls__dffr_l	0.00522	0.00524	0.01530	0.95647	0.94651

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__dffr_1	0.00000	0.00186	0.00215
sky130_osu_sc_18T_ls__dffr_l	0.00000	0.00162	0.00192

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)	0.58718	2.02341	16.10650
	QN->Q (FR)	0.05979	1.14042	13.86890
sky130_osu_sc_18T_ls__dffr_l	CK->Q (RR)	0.57073	2.12849	15.72050
	QN->Q (FR)	0.06526	1.21516	13.58000

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)	0.54600	2.09263	17.79480
	QN->Q (RF)	0.03866	0.79288	9.63208
	RN->Q (FF)	0.38864	2.11902	20.00100
sky130_osu_sc_18T_ls__dffr_l	CK->Q (RF)	0.55416	2.26322	17.60860
	QN->Q (RF)	0.03980	0.80176	9.14211
	RN->Q (FF)	0.39827	2.28832	19.79920

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)	0.48285	1.30650	8.59371
	RN->QN (FR)	0.32505	1.33210	10.79560
sky130_osu_sc_18T_ls__dffr_l	CK->QN (RR)	0.48357	1.38551	8.59957
	RN->QN (FR)	0.32651	1.41137	10.79110

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)**	0.49317	1.07994	5.17158
sky130_osu_sc_18T_ls__dffr_l	**CK->QN (RF)**	0.46944	1.07334	4.95712

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)	-0.10140	-0.13846	-0.73209
	setup	CK (R)	0.45687	0.46934	1.88965
sky130_osu_sc_18T_ls__dffr_l	hold	CK (R)	-0.10173	-0.13873	-0.73271
	setup	CK (R)	0.46217	0.47136	1.89243

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)	-0.24348	-0.65258	-6.70630
	setup	CK (R)	0.28737	0.67055	6.76067
sky130_osu_sc_18T_ls__dffr_l	hold	CK (R)	-0.24219	-0.65319	-6.70766
	setup	CK (R)	0.28703	0.67053	6.76044

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)	-0.10140	-0.13846	-0.73209
	setup	CK (R)	0.45687	0.46934	1.88965
sky130_osu_sc_18T_ls__dffr_l	hold	CK (R)	-0.10173	-0.13873	-0.73271
	setup	CK (R)	0.46217	0.47136	1.89243

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)	-0.24348	-0.65258	-6.70630
	setup	CK (R)	0.28737	0.67055	6.76067
sky130_osu_sc_18T_ls__dffr_l	hold	CK (R)	-0.24219	-0.65319	-6.70766
	setup	CK (R)	0.28703	0.67053	6.76044

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)	0.39032	0.40451	1.64885
	removal	CK (R)	-0.06640	-0.07363	-0.10905
sky130_osu_sc_18T_ls__dffr_l	recovery	CK (R)	0.39237	0.40607	1.66578
	removal	CK (R)	-0.06640	-0.07363	-0.10905

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)	0.39032	0.40451	1.64885
	removal	CK (R)	-0.06640	-0.07363	-0.10905
sky130_osu_sc_18T_ls__dffr_l	recovery	CK (R)	0.39237	0.40607	1.66578
	removal	CK (R)	-0.06640	-0.07363	-0.10905

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 ()	0.23861	0.61403	13.33370
	min_pulse_width	RN ()	0.23553	0.61187	13.33370
sky130_osu_sc_18T_ls__dffr_l	min_pulse_width	RN ()	0.23475	0.60970	13.33370
	min_pulse_width	RN ()	0.23247	0.60970	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 ()	0.25942	0.56641	13.33370
	min_pulse_width	CK ()	0.29329	0.56641	13.33370
sky130_osu_sc_18T_ls__dffr_l	min_pulse_width	CK ()	0.24036	0.56641	13.33370
	min_pulse_width	CK ()	0.28482	0.56641	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 ()	0.58879	0.68114	13.33370
	min_pulse_width	CK ()	0.23388	0.57723	13.33370
sky130_osu_sc_18T_ls__dffr_l	min_pulse_width	CK ()	0.58993	0.68547	13.33370
	min_pulse_width	CK ()	0.23388	0.57723	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	0.00936	0.00743	-0.00339
sky130_osu_sc_18T_ls__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.00829	0.00675	-0.00198

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	0.01079	0.00989	0.00339
	RN	-0.00131	-0.05670	-0.69745
	RN	0.02440	0.02362	0.01676
sky130_osu_sc_18T_ls__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.00968	0.00896	0.00560
	RN	-0.00131	-0.04620	-0.49583
	RN	0.02329	0.02269	0.01900

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	0.01079	0.00990	0.00346
	RN	-0.00131	-0.05633	-0.68987
	RN	0.02440	0.02363	0.01689
sky130_osu_sc_18T_ls__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.00968	0.00897	0.00561
	RN	-0.00131	-0.04591	-0.49067
	RN	0.02329	0.02269	0.01903

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	0.00933	0.00741	-0.00346
sky130_osu_sc_18T_ls__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.00825	0.00672	-0.00205

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	-0.00293	-0.00314	-0.00313
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.01107	0.01052	0.01029
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.00507	0.00456	0.00439
sky130_osu_sc_18T_ls__dffr_l	CK	0.00000	0.00000	0.00000
	CK	-0.00293	-0.00314	-0.00313
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.01107	0.01052	0.01029
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.00507	0.00456	0.00439

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	0.00311	0.00314	0.00313
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.01880	0.01852	0.01824
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.00871	0.00851	0.00846
sky130_osu_sc_18T_ls__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.00311	0.00314	0.00313
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.01880	0.01853	0.01823
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.00871	0.00851	0.00846

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)	0.00372	0.00310	0.00325
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.01006	0.00921	0.00914
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)	0.00372	0.00310	0.00325
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.01006	0.00921	0.00914

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)	0.00847	0.00815	0.00844
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.01827	0.01767	0.01760
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)	0.00847	0.00815	0.00844
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.01827	0.01767	0.01760

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)	-0.00044	-0.00114	-0.00112
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.00540	0.00420	0.00390
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	-0.00087	-0.00163	-0.00152
sky130_osu_sc_18T_ls__dffr_l	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	-0.00044	-0.00114	-0.00112
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.00540	0.00420	0.00390
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	-0.00087	-0.00163	-0.00152

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)	0.01361	0.01319	0.01337
	(D * RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * RN * !Q * QN)	0.02902	0.02810	0.02741
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.02225	0.02182	0.02144
	(!D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * Q * !QN)	0.02874	0.02774	0.02813
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.01525	0.01487	0.01510
sky130_osu_sc_18T_ls__dffr_l	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.01361	0.01319	0.01337
	(D * RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * RN * !Q * QN)	0.02902	0.02810	0.02741
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.02225	0.02182	0.02144
	(!D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * Q * !QN)	0.02873	0.02774	0.02813
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.01525	0.01487	0.01510

SKY130_OSU_SC_18T_LS__DFFSRx

sky130_osu_sc_18T_ls_tt_1P44_25C.ccs
Cell Library: Process , Voltage 1.44,
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	0.00518	0.00525	0.01117	0.01561	1.36211	1.37591
sky130_osu_sc_18T_ls__dffsr_l	0.00518	0.00525	0.01116	0.01561	0.94024	0.95041

Leakage Information

Cell Name	Leakage(nW)		
	Min.	**Avg**	**Max.**
sky130_osu_sc_18T_ls__dffsr_1	0.00000	0.00197	0.00250
sky130_osu_sc_18T_ls__dffsr_l	0.00000	0.00173	0.00227

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)	0.59046	1.99873	15.80280
	QN->Q (FR)	0.05721	1.11936	13.59290
	RN->Q (RR)	0.47209	1.89646	15.87050
	SN->Q (FR)	0.45515	2.03880	18.71240
sky130_osu_sc_18T_ls__dffsr_l	CK->Q (RR)	0.59115	2.14643	15.59200
	QN->Q (FR)	0.06519	1.20632	13.42410
	RN->Q (RR)	0.47335	2.04556	15.65360
	SN->Q (FR)	0.45570	2.18827	18.45950

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)	0.61111	2.13345	17.55100
	QN->Q (RF)	0.03542	0.75039	9.14687
	RN->Q (FF)	0.40677	2.10859	19.79760
sky130_osu_sc_18T_ls__dffsr_l	CK->Q (RF)	0.62592	2.32546	17.40690
	QN->Q (RF)	0.03972	0.79653	9.06192
	RN->Q (FF)	0.42217	2.30178	19.64190

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)	0.54913	1.37759	8.73023
	RN->QN (FR)	0.34583	1.35356	10.98280
sky130_osu_sc_18T_ls__dffsr_l	CK->QN (RR)	0.55383	1.46399	8.70368
	RN->QN (FR)	0.35100	1.44064	10.94780

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)	0.50394	1.08978	5.21207
	RN->QN (RF)	0.38574	0.98924	5.27744
	SN->QN (FF)	0.36908	1.13160	8.12189
sky130_osu_sc_18T_ls__dffsr_l	CK->QN (RF)	0.49316	1.10818	5.09986
	RN->QN (RF)	0.37545	1.00843	5.16525
	SN->QN (FF)	0.35840	1.15080	7.97055

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)	-0.10948	-0.14897	-0.82391
	setup	CK (R)	0.44462	0.45114	1.85517
sky130_osu_sc_18T_ls__dffsr_l	hold	CK (R)	-0.11322	-0.14918	-0.82437
	setup	CK (R)	0.44615	0.45080	1.85699

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)	-0.27708	-0.67956	-6.92380
	setup	CK (R)	0.33464	0.69834	6.96319
sky130_osu_sc_18T_ls__dffsr_l	hold	CK (R)	-0.27701	-0.67921	-6.91914
	setup	CK (R)	0.33575	0.69565	6.96156

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)	-0.10948	-0.14897	-0.82391
	setup	CK (R)	0.44462	0.45114	1.85517
sky130_osu_sc_18T_ls__dffsr_l	hold	CK (R)	-0.11322	-0.14918	-0.82437
	setup	CK (R)	0.44615	0.45080	1.85699

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)	-0.27708	-0.67956	-6.92380
	setup	CK (R)	0.33464	0.69834	6.96319
sky130_osu_sc_18T_ls__dffsr_l	hold	CK (R)	-0.27701	-0.67921	-6.91914
	setup	CK (R)	0.33575	0.69565	6.96156

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)	0.34310	0.35101	1.53707
	removal	CK (R)	-0.03683	-0.04349	-0.08061
	hold	SN (R)	-0.35866	-0.64649	-4.66719
	setup	SN (R)	0.38697	0.69745	6.57955
sky130_osu_sc_18T_ls__dffsr_l	recovery	CK (R)	0.34208	0.35082	1.54495
	removal	CK (R)	-0.03749	-0.04038	-0.07973
	hold	SN (R)	-0.34536	-0.63035	-4.57609
	setup	SN (R)	0.38700	0.68296	6.48440

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)	0.34310	0.35101	1.53707
	removal	CK (R)	-0.03683	-0.04349	-0.08061
	hold	SN (R)	-0.35993	-0.64649	-4.66719
	hold	SN (R)	-0.35866	-0.64851	-4.67849
	setup	SN (R)	0.38697	0.69162	6.48758
	setup	SN (R)	0.37955	0.69745	6.57955
sky130_osu_sc_18T_ls__dffsr_l	recovery	CK (R)	0.34208	0.35082	1.54495
	removal	CK (R)	-0.03749	-0.04038	-0.07973
	hold	SN (R)	-0.35260	-0.63035	-4.57609
	hold	SN (R)	-0.34536	-0.63379	-4.59177
	setup	SN (R)	0.38700	0.67860	6.37217
	setup	SN (R)	0.36171	0.68296	6.48440

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 ()	0.26797	0.63568	13.33370
	min_pulse_width	RN ()	0.27274	0.63568	13.33370
sky130_osu_sc_18T_ls__dffsr_l	min_pulse_width	RN ()	0.26710	0.63352	13.33370
	min_pulse_width	RN ()	0.26710	0.63352	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)	0.06399	0.10091	2.22493
	removal	CK (R)	-0.01746	-0.06878	-0.62978
sky130_osu_sc_18T_ls__dffsr_l	recovery	CK (R)	0.06421	0.10077	2.10478
	removal	CK (R)	-0.01746	-0.06878	-0.62872

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)	0.06399	0.10091	2.22493
	removal	CK (R)	-0.01746	-0.06878	-0.62978
sky130_osu_sc_18T_ls__dffsr_l	recovery	CK (R)	0.06421	0.10077	2.10478
	removal	CK (R)	-0.01746	-0.06878	-0.62872

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 ()	0.36524	0.73959	13.33370
	min_pulse_width	SN ()	0.36347	0.74176	13.33370
sky130_osu_sc_18T_ls__dffsr_l	min_pulse_width	SN ()	0.36622	0.72444	13.33370
	min_pulse_width	SN ()	0.34633	0.72877	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 ()	0.26365	0.56641	13.33370
	min_pulse_width	CK ()	0.31446	0.56641	13.33370
sky130_osu_sc_18T_ls__dffsr_l	min_pulse_width	CK ()	0.25307	0.56641	13.33370
	min_pulse_width	CK ()	0.31023	0.56641	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 ()	0.57577	0.66599	13.33370
	min_pulse_width	CK ()	0.28602	0.61187	13.33370
sky130_osu_sc_18T_ls__dffsr_l	min_pulse_width	CK ()	0.57444	0.67032	13.33370
	min_pulse_width	CK ()	0.28372	0.61187	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	0.01157	0.01018	-0.00059
	RN	0.02155	0.02042	0.00887
	SN	-0.00131	-0.05712	-0.70612
	SN	0.02370	0.02270	0.01155
sky130_osu_sc_18T_ls__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.01058	0.00912	0.00067
	RN	0.02055	0.01937	0.01040
	SN	-0.00131	-0.04573	-0.48742
	SN	0.02270	0.02165	0.01269

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	0.01236	0.01164	0.00634
	RN	-0.00131	-0.05712	-0.70612
	RN	0.02511	0.02438	0.01884
sky130_osu_sc_18T_ls__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.01136	0.01072	0.00748
	RN	-0.00131	-0.04573	-0.48742
	RN	0.02409	0.02344	0.01996

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	0.01236	0.01164	0.00624
	RN	-0.00131	-0.05746	-0.71327
	RN	0.02512	0.02438	0.01877
sky130_osu_sc_18T_ls__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.01137	0.01072	0.00746
	RN	-0.00131	-0.04602	-0.49269
	RN	0.02410	0.02344	0.01997

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	0.01152	0.01013	-0.00083
	RN	0.02151	0.02038	0.00889
	SN	-0.00131	-0.05746	-0.71322
	SN	0.02366	0.02266	0.01134
sky130_osu_sc_18T_ls__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.01054	0.00908	0.00033
	RN	0.02051	0.01932	0.01010
	SN	-0.00131	-0.04602	-0.49265
	SN	0.02266	0.02160	0.01246

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	-0.00301	-0.00314	-0.00313
	(!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)	0.01419	0.01368	0.01348
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.00572	0.00523	0.00506
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.00568	0.00520	0.00503
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.00575	0.00527	0.00509
sky130_osu_sc_18T_ls__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	-0.00301	-0.00314	-0.00313
	(!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)	0.01420	0.01368	0.01348
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.00572	0.00523	0.00506
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.00568	0.00520	0.00503
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.00575	0.00527	0.00509

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	0.00312	0.00314	0.00313
	(!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)	0.02129	0.02101	0.02059
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.00924	0.00906	0.00899
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.00928	0.00910	0.00903
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.00920	0.00902	0.00895
sky130_osu_sc_18T_ls__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.00312	0.00314	0.00313
	(!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)	0.02128	0.02100	0.02055
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.00923	0.00905	0.00898
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.00927	0.00909	0.00902
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.00919	0.00901	0.00895

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)	0.00341	0.00278	0.00280
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.01215	0.01126	0.01107
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)	0.00341	0.00278	0.00281
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.01215	0.01127	0.01107

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)	0.00920	0.00888	0.00917
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.01940	0.01869	0.01857
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)	0.00919	0.00887	0.00916
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.01939	0.01868	0.01856

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)	-0.00711	-0.00715	-0.00720
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	-0.00725	-0.00736	-0.00736
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	-0.00703	-0.00712	-0.00709
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.00462	0.00407	0.00386
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)	-0.00711	-0.00714	-0.00720
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	-0.00724	-0.00735	-0.00735
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	-0.00703	-0.00712	-0.00709
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.00462	0.00408	0.00387

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)	0.00719	0.00727	0.00722
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00731	0.00742	0.00736
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	0.00707	0.00712	0.00710
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.01461	0.01431	0.01425
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)	0.00719	0.00727	0.00722
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00730	0.00741	0.00735
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	0.00706	0.00712	0.00710
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.01460	0.01430	0.01429

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)	-0.00045	-0.00115	-0.00112
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.00611	0.00497	0.00463
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.00605	0.00491	0.00457
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	-0.00070	-0.00146	-0.00135
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.00463	0.00320	0.00343
sky130_osu_sc_18T_ls__dffsr_l	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	-0.00045	-0.00115	-0.00112
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.00611	0.00497	0.00462
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.00604	0.00491	0.00456
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	-0.00070	-0.00146	-0.00135
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.00463	0.00320	0.00343

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)	0.03224	0.03137	0.03063
	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.01365	0.01323	0.01341
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.02267	0.02230	0.02197
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.02272	0.02238	0.02202
	(!D * RN * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * Q * !QN)	0.03118	0.03017	0.03034
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.01512	0.01473	0.01496
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.01797	0.01716	0.01770
sky130_osu_sc_18T_ls__dffsr_l	**(D * RN * SN * !Q * QN)**	0.00000	0.00000	0.00000
	(D * RN * SN * !Q * QN)	0.03224	0.03137	0.03063
	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.01365	0.01323	0.01341
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.02267	0.02230	0.02197
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.02272	0.02238	0.02202
	(!D * RN * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * Q * !QN)	0.03118	0.03016	0.03031
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.01512	0.01473	0.01496
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.01797	0.01715	0.01769

SKY130_OSU_SC_18T_LS__DFFSx

sky130_osu_sc_18T_ls_tt_1P44_25C.ccs
Cell Library: Process , Voltage 1.44,
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	0.00521	0.00891	0.01539	1.34719	1.34831
sky130_osu_sc_18T_ls__dffs_l	0.00521	0.00891	0.01539	0.95941	0.95822

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__dffs_1	0.00000	0.00151	0.00199
sky130_osu_sc_18T_ls__dffs_l	0.00000	0.00127	0.00175

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)	0.40437	1.81544	15.89710
	QN->Q (FR)	0.05961	1.13462	13.80050
	SN->Q (FR)	0.32364	1.94717	18.71070
sky130_osu_sc_18T_ls__dffs_l	CK->Q (RR)	0.40217	1.94148	15.56160
	QN->Q (FR)	0.06507	1.21135	13.54730
	SN->Q (FR)	0.32010	2.06997	18.31280

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)	0.60551	2.15432	17.81660
	QN->Q (RF)	0.03836	0.79063	9.60224
sky130_osu_sc_18T_ls__dffs_l	CK->Q (RF)	0.60934	2.31983	17.66850
	QN->Q (RF)	0.03956	0.80006	9.12743

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)	0.53967	1.37301	8.71119
sky130_osu_sc_18T_ls__dffs_l	CK->QN (RR)	0.53650	1.44697	8.71544

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)	0.32239	0.88252	5.03452
	SN->QN (FF)	0.24065	1.01452	7.84033
sky130_osu_sc_18T_ls__dffs_l	CK->QN (RF)	0.31223	0.89395	4.83394
	SN->QN (FF)	0.22932	1.02282	7.58524

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)	-0.07967	-0.11614	-0.68960
	setup	CK (R)	0.28362	0.30498	1.79691
sky130_osu_sc_18T_ls__dffs_l	hold	CK (R)	-0.07752	-0.11986	-0.68861
	setup	CK (R)	0.28187	0.30549	1.80103

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)	-0.24784	-0.65529	-6.74465
	setup	CK (R)	0.32443	0.67714	6.80154
sky130_osu_sc_18T_ls__dffs_l	hold	CK (R)	-0.24660	-0.65708	-6.74412
	setup	CK (R)	0.32414	0.67714	6.80135

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)	-0.07967	-0.11614	-0.68960
	setup	CK (R)	0.28362	0.30498	1.79691
sky130_osu_sc_18T_ls__dffs_l	hold	CK (R)	-0.07752	-0.11986	-0.68861
	setup	CK (R)	0.28187	0.30549	1.80103

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)	-0.24784	-0.65529	-6.74465
	setup	CK (R)	0.32443	0.67714	6.80154
sky130_osu_sc_18T_ls__dffs_l	hold	CK (R)	-0.24660	-0.65708	-6.74412
	setup	CK (R)	0.32414	0.67714	6.80135

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)	0.07586	0.11456	1.78839
	removal	CK (R)	-0.02198	-0.06570	-0.58869
sky130_osu_sc_18T_ls__dffs_l	recovery	CK (R)	0.07546	0.11456	1.66838
	removal	CK (R)	-0.02198	-0.06570	-0.58869

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)	0.07586	0.11456	1.78839
	removal	CK (R)	-0.02198	-0.06570	-0.58869
sky130_osu_sc_18T_ls__dffs_l	recovery	CK (R)	0.07546	0.11456	1.66838
	removal	CK (R)	-0.02198	-0.06570	-0.58869

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 ()	0.22259	0.69197	13.33370
	min_pulse_width	SN ()	0.22781	0.69197	13.33370
sky130_osu_sc_18T_ls__dffs_l	min_pulse_width	SN ()	0.21745	0.67465	13.33370
	min_pulse_width	SN ()	0.21362	0.67898	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 ()	0.15991	0.56641	13.33370
	min_pulse_width	CK ()	0.30811	0.56641	13.33370
sky130_osu_sc_18T_ls__dffs_l	min_pulse_width	CK ()	0.15144	0.56641	13.33370
	min_pulse_width	CK ()	0.29964	0.56641	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 ()	0.41103	0.60321	13.33370
	min_pulse_width	CK ()	0.27445	0.58589	13.33370
sky130_osu_sc_18T_ls__dffs_l	min_pulse_width	CK ()	0.41103	0.60321	13.33370
	min_pulse_width	CK ()	0.27445	0.58589	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	0.00937	0.00734	-0.00371
	SN	-0.00131	-0.05674	-0.69838
	SN	0.02028	0.01852	0.00216
sky130_osu_sc_18T_ls__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.00828	0.00668	-0.00184
	SN	-0.00131	-0.04629	-0.49736
	SN	0.01917	0.01784	0.00885

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	0.01075	0.00992	0.00371
sky130_osu_sc_18T_ls__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.00965	0.00898	0.00578

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	0.01075	0.00992	0.00374
sky130_osu_sc_18T_ls__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.00966	0.00899	0.00578

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	0.00934	0.00732	-0.00374
	SN	-0.00131	-0.05677	-0.69890
	SN	0.02024	0.01849	0.00219
sky130_osu_sc_18T_ls__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.00824	0.00666	-0.00207
	SN	-0.00131	-0.04625	-0.49670
	SN	0.01914	0.01781	0.00877

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	-0.00305	-0.00318	-0.00316
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.01074	0.01018	0.00982
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.00495	0.00445	0.00428
sky130_osu_sc_18T_ls__dffs_l	CK	0.00000	0.00000	0.00000
	CK	-0.00305	-0.00318	-0.00316
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.01074	0.01017	0.00982
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.00495	0.00445	0.00428

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	0.00316	0.00318	0.00316
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.01840	0.01810	0.01786
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.00887	0.00867	0.00862
sky130_osu_sc_18T_ls__dffs_1	CK	0.00000	0.00000	0.00000
	CK	0.00316	0.00318	0.00316
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.01840	0.01810	0.01786
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.00887	0.00867	0.00862

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)	-0.00525	-0.00527	-0.00529
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.00404	0.00356	0.00356
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)	-0.00525	-0.00529	-0.00529
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.00404	0.00356	0.00356

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)	0.00528	0.00529	0.00530
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.01017	0.00976	0.00986
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)	0.00528	0.00529	0.00530
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.01017	0.00976	0.00986

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)	-0.00046	-0.00116	-0.00114
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	-0.00079	-0.00156	-0.00145
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.00383	0.00241	0.00266
sky130_osu_sc_18T_ls__dffs_l	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	-0.00046	-0.00116	-0.00114
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	-0.00079	-0.00156	-0.00145
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.00383	0.00241	0.00266

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)	0.02864	0.02775	0.02699
	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.01362	0.01320	0.01338
	(!D * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * SN * Q * !QN)	0.02827	0.02719	0.02760
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	0.01516	0.01478	0.01501
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.01754	0.01672	0.01729
sky130_osu_sc_18T_ls__dffs_l	(D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * SN * !Q * QN)	0.02864	0.02775	0.02699
	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.01362	0.01320	0.01338
	(!D * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * SN * Q * !QN)	0.02827	0.02719	0.02760
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	0.01516	0.01478	0.01501
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.01754	0.01672	0.01729

SKY130_OSU_SC_18T_LS__DFFx

sky130_osu_sc_18T_ls_tt_1P44_25C.ccs
Cell Library: Process , Voltage 1.44,
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	0.00536	0.01525	1.38420	1.38703
sky130_osu_sc_18T_ls__dff_l	0.00536	0.01525	0.94346	0.93963

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__dff_1	0.00000	0.00179	0.00214
sky130_osu_sc_18T_ls__dff_l	0.00000	0.00155	0.00191

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)	0.35503	1.73986	15.70650
	QN->Q (FR)	0.05679	1.12250	13.67170
sky130_osu_sc_18T_ls__dff_l	CK->Q (RR)	0.36539	1.90127	15.39840
	QN->Q (FR)	0.06605	1.20723	13.57320

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)	0.52018	2.04381	17.65870
	QN->Q (RF)	0.03525	0.75139	9.18800
sky130_osu_sc_18T_ls__dff_l	CK->Q (RF)	0.53906	2.24305	17.44610
	QN->Q (RF)	0.03964	0.79631	9.05932

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)	0.46039	1.28169	8.65761
sky130_osu_sc_18T_ls__dff_l	CK->QN (RR)	0.46844	1.37239	8.57891

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)	0.27948	0.82810	4.94032
sky130_osu_sc_18T_ls__dff_l	CK->QN (RF)	0.27729	0.85587	4.76999

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)	-0.07691	-0.11955	-0.73440
	setup	CK (R)	0.22943	0.25554	1.77797
sky130_osu_sc_18T_ls__dff_l	hold	CK (R)	-0.07607	-0.12161	-0.73375
	setup	CK (R)	0.22912	0.25391	1.78888

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)	-0.23676	-0.65578	-6.79797
	setup	CK (R)	0.28236	0.67972	6.86540
sky130_osu_sc_18T_ls__dff_l	hold	CK (R)	-0.23663	-0.65522	-6.79847
	setup	CK (R)	0.28229	0.67966	6.86572

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 ()	0.14509	0.56641	13.33370
	min_pulse_width	CK ()	0.28059	0.56641	13.33370
sky130_osu_sc_18T_ls__dff_l	min_pulse_width	CK ()	0.14086	0.56641	13.33370
	min_pulse_width	CK ()	0.27424	0.56641	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 ()	0.36036	0.59022	13.33370
	min_pulse_width	CK ()	0.22257	0.58805	13.33370
sky130_osu_sc_18T_ls__dff_l	min_pulse_width	CK ()	0.35908	0.58805	13.33370
	min_pulse_width	CK ()	0.22257	0.58805	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	0.00988	0.00827	-0.00247
sky130_osu_sc_18T_ls__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.00888	0.00724	-0.00124

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	0.01094	0.01022	0.00496
sky130_osu_sc_18T_ls__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.00996	0.00927	0.00574

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	0.01094	0.01023	0.00494
sky130_osu_sc_18T_ls__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.00996	0.00928	0.00575

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	0.00984	0.00824	-0.00247
sky130_osu_sc_18T_ls__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.00884	0.00722	-0.00129

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	-0.00293	-0.00313	-0.00312
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.01017	0.00967	0.00938
sky130_osu_sc_18T_ls__dff_l	CK	0.00000	0.00000	0.00000
	CK	-0.00293	-0.00313	-0.00312
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.01017	0.00967	0.00938

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	0.00310	0.00313	0.00312
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.01900	0.01865	0.01838
sky130_osu_sc_18T_ls__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.00310	0.00313	0.00312
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.01900	0.01865	0.01838

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)	-0.00046	-0.00116	-0.00114
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	-0.00078	-0.00154	-0.00143
sky130_osu_sc_18T_ls__dff_l	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	-0.00046	-0.00116	-0.00114
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	-0.00078	-0.00154	-0.00143

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)	0.01356	0.01317	0.01331
	(D * !Q * QN)	0.00000	0.00000	0.00000
	(D * !Q * QN)	0.02810	0.02723	0.02654
	(!D * Q * !QN)	0.00000	0.00000	0.00000
	(!D * Q * !QN)	0.02870	0.02759	0.02797
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.01510	0.01472	0.01495
sky130_osu_sc_18T_ls__dff_l	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.01356	0.01317	0.01331
	(D * !Q * QN)	0.00000	0.00000	0.00000
	(D * !Q * QN)	0.02811	0.02723	0.02654
	(!D * Q * !QN)	0.00000	0.00000	0.00000
	(!D * Q * !QN)	0.02870	0.02760	0.02797
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.01510	0.01472	0.01495

SKY130_OSU_SC_18T_LS__INVx

sky130_osu_sc_18T_ls_tt_1P44_25C.ccs
Cell Library: Process , Voltage 1.44,
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	0.00528	1.34421
sky130_osu_sc_18T_ls__inv_10	0.04981	12.38900
sky130_osu_sc_18T_ls__inv_2	0.01015	2.69311
sky130_osu_sc_18T_ls__inv_3	0.01514	3.85450
sky130_osu_sc_18T_ls__inv_4	0.02004	5.21331
sky130_osu_sc_18T_ls__inv_6	0.03004	7.66481
sky130_osu_sc_18T_ls__inv_8	0.03994	10.16670
sky130_osu_sc_18T_ls__inv_l	0.00405	0.93152

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__inv_1	0.00000	0.00023	0.00037
sky130_osu_sc_18T_ls__inv_10	0.00000	0.00231	0.00367
sky130_osu_sc_18T_ls__inv_2	0.00000	0.00046	0.00073
sky130_osu_sc_18T_ls__inv_3	0.00000	0.00070	0.00110
sky130_osu_sc_18T_ls__inv_4	0.00000	0.00093	0.00147
sky130_osu_sc_18T_ls__inv_6	0.00000	0.00139	0.00220
sky130_osu_sc_18T_ls__inv_8	0.00000	0.00185	0.00293
sky130_osu_sc_18T_ls__inv_l	0.00000	0.00011	0.00015

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)**	0.05436	1.06058	12.82560
sky130_osu_sc_18T_ls__inv_10	**A->Y (FR)**	0.07781	0.75434	12.90010
sky130_osu_sc_18T_ls__inv_2	**A->Y (FR)**	0.04384	0.92250	12.88210
sky130_osu_sc_18T_ls__inv_3	**A->Y (FR)**	0.04806	0.86480	12.83780
sky130_osu_sc_18T_ls__inv_4	**A->Y (FR)**	0.04939	0.82501	12.87220
sky130_osu_sc_18T_ls__inv_6	**A->Y (FR)**	0.05589	0.78267	12.85160
sky130_osu_sc_18T_ls__inv_8	**A->Y (FR)**	0.06602	0.76447	12.90660
sky130_osu_sc_18T_ls__inv_l	**A->Y (FR)**	0.06234	1.14970	12.77390

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)**	0.03168	0.68202	8.31054
sky130_osu_sc_18T_ls__inv_10	**A->Y (RF)**	0.05050	0.49083	8.26838
sky130_osu_sc_18T_ls__inv_2	**A->Y (RF)**	0.02691	0.60832	8.33294
sky130_osu_sc_18T_ls__inv_3	**A->Y (RF)**	0.02926	0.57560	8.33219
sky130_osu_sc_18T_ls__inv_4	**A->Y (RF)**	0.02955	0.54858	8.34106
sky130_osu_sc_18T_ls__inv_6	**A->Y (RF)**	0.03657	0.51903	8.33212
sky130_osu_sc_18T_ls__inv_8	**A->Y (RF)**	0.04347	0.50447	8.33743
sky130_osu_sc_18T_ls__inv_l	**A->Y (RF)**	0.03542	0.72018	8.22768

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	0.00492	0.00486	0.00486
sky130_osu_sc_18T_ls__inv_10	A	0.00000	0.00000	0.00000
	A	0.04272	0.04315	0.04447
sky130_osu_sc_18T_ls__inv_2	A	0.00000	0.00000	0.00000
	A	0.00889	0.00889	0.00900
sky130_osu_sc_18T_ls__inv_3	A	0.00000	0.00000	0.00000
	A	0.01358	0.01355	0.01372
sky130_osu_sc_18T_ls__inv_4	A	0.00000	0.00000	0.00000
	A	0.01755	0.01749	0.01784
sky130_osu_sc_18T_ls__inv_6	A	0.00000	0.00000	0.00000
	A	0.02603	0.02497	0.02675
sky130_osu_sc_18T_ls__inv_8	A	0.00000	0.00000	0.00000
	A	0.03443	0.03476	0.03562
sky130_osu_sc_18T_ls__inv_l	A	0.00000	0.00000	0.00000
	A	0.00377	0.00370	0.00223

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	-0.00087	-0.00092	-0.00090
sky130_osu_sc_18T_ls__inv_10	**A**	0.00000	0.00000	0.00000
	A	-0.01650	-0.01572	-0.01361
sky130_osu_sc_18T_ls__inv_2	**A**	0.00000	0.00000	0.00000
	A	-0.00295	-0.00293	-0.00282
sky130_osu_sc_18T_ls__inv_3	**A**	0.00000	0.00000	0.00000
	A	-0.00392	-0.00391	-0.00364
sky130_osu_sc_18T_ls__inv_4	**A**	0.00000	0.00000	0.00000
	A	-0.00614	-0.00606	-0.00550
sky130_osu_sc_18T_ls__inv_6	**A**	0.00000	0.00000	0.00000
	A	-0.00934	-0.00928	-0.00827
sky130_osu_sc_18T_ls__inv_8	**A**	0.00000	0.00000	0.00000
	A	-0.01286	-0.01240	-0.01089
sky130_osu_sc_18T_ls__inv_l	**A**	0.00000	0.00000	0.00000
	A	-0.00061	-0.00066	-0.00066

SKY130_OSU_SC_18T_LS__MUX2

sky130_osu_sc_18T_ls_tt_1P44_25C.ccs
Cell Library: Process , Voltage 1.44,
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	0.04194	0.04173	0.01074	0.03343

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__mux2_1	0.00000	0.00055	0.00055

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)	-	0.03125	0.40085	3.02576
	A1->Y (RR)	-	0.03369	0.39699	3.02867
	S0->Y (RR)	(!A0 * A1)	0.07967	0.36221	1.05227
	S0->Y (FR)	(A0 * !A1)	0.07451	0.53176	3.79070

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)	-	0.02601	0.30382	2.15080
	A1->Y (FF)	-	0.02431	0.30192	2.14670
	S0->Y (FF)	(!A0 * A1)	0.12302	0.55358	3.29292
	S0->Y (RF)	(A0 * !A1)	0.03694	0.29708	1.52345

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	-	-0.00526	-0.00527	-0.00528
	A1	-	0.00000	0.00000	0.00000
	A1	-	-0.00374	-0.00375	-0.00375
	S0	(A0 * !A1)	0.00000	0.00000	0.00000
	S0	(A0 * !A1)	0.00576	0.00537	0.00581
	S0	(!A0 * A1)	0.00000	0.00000	0.00000
	S0	(!A0 * A1)	-0.00336	-0.00400	-0.00376

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	-	0.00526	0.00527	0.00528
	A1	-	0.00000	0.00000	0.00000
	A1	-	0.00374	0.00375	0.00375
	S0	(A0 * !A1)	0.00000	0.00000	0.00000
	S0	(A0 * !A1)	0.00128	0.00065	0.00094
	S0	(!A0 * A1)	0.00000	0.00000	0.00000
	S0	(!A0 * A1)	0.01316	0.01277	0.01311

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)	-0.00142	-0.00141	-0.00141

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)	0.00142	0.00141	0.00141

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)	-0.00167	-0.00167	-0.00167

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)	0.00167	0.00167	0.00167

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)	-0.00107	-0.00169	-0.00143
	(!A0 * !A1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !Y)	-0.00103	-0.00168	-0.00143

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)	0.00988	0.00950	0.00987
	(!A0 * !A1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !Y)	0.00904	0.00868	0.00911

SKY130_OSU_SC_18T_LS__NAND2x

sky130_osu_sc_18T_ls_tt_1P44_25C.ccs
Cell Library: Process , Voltage 1.44,
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	0.00530	0.00526	1.34115
sky130_osu_sc_18T_ls__nand2_l	0.00406	0.00404	0.92547

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__nand2_1	0.00000	0.00024	0.00037
sky130_osu_sc_18T_ls__nand2_l	0.00000	0.00013	0.00016

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)	0.05690	1.06873	12.89020
	B->Y (FR)	0.06664	1.07007	12.79020
sky130_osu_sc_18T_ls__nand2_l	A->Y (FR)	0.06447	1.15435	12.78280
	B->Y (FR)	0.07586	1.16166	12.76580

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)	0.04765	0.85772	10.34450
	B->Y (RF)	0.05415	0.85266	10.13270
sky130_osu_sc_18T_ls__nand2_l	A->Y (RF)	0.05400	0.92735	10.23760
	B->Y (RF)	0.06026	0.92264	10.02540

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	0.00525	0.00518	0.00517
	B	0.00000	0.00000	0.00000
	B	0.00651	0.00640	0.00639
sky130_osu_sc_18T_ls__nand2_l	A	0.00000	0.00000	0.00000
	A	0.00398	0.00392	0.00246
	B	0.00000	0.00000	0.00000
	B	0.00491	0.00482	0.00480

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	-0.00044	-0.00054	-0.00053
	B	0.00000	0.00000	0.00000
	B	-0.00041	-0.00049	-0.00050
sky130_osu_sc_18T_ls__nand2_l	A	0.00000	0.00000	0.00000
	A	-0.00035	-0.00041	-0.00043
	B	0.00000	0.00000	0.00000
	B	-0.00032	-0.00038	-0.00041

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)	-0.00353	-0.00356	-0.00356
sky130_osu_sc_18T_ls__nand2_l	(!B * Y)	0.00000	0.00000	0.00000
	(!B * Y)	-0.00256	-0.00258	-0.00258

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)	0.00356	0.00360	0.00358
sky130_osu_sc_18T_ls__nand2_l	(!B * Y)	0.00000	0.00000	0.00000
	(!B * Y)	0.00258	0.00260	0.00259

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)	-0.00329	-0.00331	-0.00330
sky130_osu_sc_18T_ls__nand2_l	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00238	-0.00239	-0.00238

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)	0.00331	0.00335	0.00331
sky130_osu_sc_18T_ls__nand2_l	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00239	0.00240	0.00239

SKY130_OSU_SC_18T_LS__NOR2x

sky130_osu_sc_18T_ls_tt_1P44_25C.ccs
Cell Library: Process , Voltage 1.44,
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	0.00527	0.00561	0.65058
sky130_osu_sc_18T_ls__nor2_l	0.00397	0.00433	0.44938

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__nor2_1	0.00000	0.00025	0.00073
sky130_osu_sc_18T_ls__nor2_l	0.00000	0.00013	0.00029

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)	0.12748	1.33001	12.85670
	B->Y (FR)	0.10024	1.28362	12.76160
sky130_osu_sc_18T_ls__nor2_l	A->Y (FR)	0.14273	1.44771	12.76520
	B->Y (FR)	0.11942	1.40700	12.67860

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)	0.04024	0.58258	6.10385
	B->Y (RF)	0.03335	0.57128	6.08225
sky130_osu_sc_18T_ls__nor2_l	A->Y (RF)	0.04337	0.61061	6.02579
	B->Y (RF)	0.03714	0.59993	6.00658

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	0.00688	0.00679	0.00648
	B	0.00000	0.00000	0.00000
	B	0.00537	0.00523	0.00522
sky130_osu_sc_18T_ls__nor2_l	A	0.00000	0.00000	0.00000
	A	0.00503	0.00488	0.00493
	B	0.00000	0.00000	0.00000
	B	0.00406	0.00393	0.00391

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	0.00069	0.00044	0.00038
	B	0.00000	0.00000	0.00000
	B	-0.00071	-0.00076	-0.00084
sky130_osu_sc_18T_ls__nor2_l	A	0.00000	0.00000	0.00000
	A	0.00045	0.00029	0.00023
	B	0.00000	0.00000	0.00000
	B	-0.00046	-0.00050	-0.00058

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)	-0.00294	-0.00315	-0.00314
sky130_osu_sc_18T_ls__nor2_l	(B * !Y)	0.00000	0.00000	0.00000
	(B * !Y)	-0.00207	-0.00221	-0.00220

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)	0.00312	0.00316	0.00314
sky130_osu_sc_18T_ls__nor2_l	(B * !Y)	0.00000	0.00000	0.00000
	(B * !Y)	0.00220	0.00221	0.00220

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)	-0.00164	-0.00166	-0.00165
sky130_osu_sc_18T_ls__nor2_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	-0.00117	-0.00118	-0.00117

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)	0.00175	0.00176	0.00168
sky130_osu_sc_18T_ls__nor2_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00124	0.00125	0.00119

SKY130_OSU_SC_18T_LS__OAI21

sky130_osu_sc_18T_ls_tt_1P44_25C.ccs
Cell Library: Process , Voltage 1.44,
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	0.00534	0.00536	0.00450	0.65644

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__oai21_l	0.00000	0.00029	0.00060

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)	0.13647	1.33032	12.88360
	A1->Y (FR)	0.16988	1.38321	12.99900
	B0->Y (FR)	0.07885	1.03573	10.70720

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)	0.06623	0.72113	7.23853
	A1->Y (RF)	0.07669	0.72031	7.14851
	B0->Y (RF)	0.05229	0.72876	7.64472

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	0.00716	0.00699	0.00581
	A1	0.00000	0.00000	0.00000
	A1	0.00871	0.00856	0.00768
	B0	0.00595	0.00578	0.00577

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	0.00029	0.00022
	A1	0.00000	0.00000	0.00000
	A1	0.00179	0.00155	0.00147
	B0	0.00243	0.00230	0.00224

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)	-0.00165	-0.00167	-0.00166
	(A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * Y)	-0.00304	-0.00315	-0.00315
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00323	-0.00325	-0.00324

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)	0.00175	0.00176	0.00169
	(A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * Y)	0.00314	0.00315	0.00315
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00323	0.00329	0.00325

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)	-0.00289	-0.00310	-0.00309
	(A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * Y)	-0.00302	-0.00315	-0.00313
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	-0.00320	-0.00321	-0.00321

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)	0.00306	0.00311	0.00309
	(A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * Y)	0.00311	0.00315	0.00313
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	0.00320	0.00327	0.00322

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)	-0.00258	-0.00260	-0.00266

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)	0.00266	0.00271	0.00267

SKY130_OSU_SC_18T_LS__OAI22

sky130_osu_sc_18T_ls_tt_1P44_25C.ccs
Cell Library: Process , Voltage 1.44,
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	0.00514	0.00545	0.00560	0.00545	0.65809

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__oai22_1	0.00000	0.00036	0.00073

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)	0.18657	1.39915	13.01740
	A1->Y (FR)	0.14625	1.33852	12.89210
	B0->Y (FR)	0.11227	1.30236	12.86930
	B1->Y (FR)	0.14133	1.35159	12.97910

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)	0.10581	0.77805	7.36875
	A1->Y (RF)	0.08646	0.74987	7.29077
	B0->Y (RF)	0.07237	0.75491	7.68389
	B1->Y (RF)	0.09333	0.79337	7.85842

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	0.01125	0.01110	0.01061
	A1	0.00969	0.00950	0.00879
	B0	0.00731	0.00714	0.00664
	B1	0.00892	0.00880	0.00813

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__oai22_l	A0	0.00276	0.00254	0.00242
	A1	0.00145	0.00134	0.00121
	B0	0.00144	0.00133	0.00121
	B1	0.00278	0.00252	0.00242

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)	-0.00293	-0.00315	-0.00313
	(A1 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * B1 * !Y)	-0.00293	-0.00315	-0.00313
	(A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * !B1 * Y)	-0.00302	-0.00315	-0.00314
	(!A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * !B1 * Y)	-0.00321	-0.00323	-0.00321

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)	0.00312	0.00315	0.00313
	(A1 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * B1 * !Y)	0.00312	0.00315	0.00313
	(A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * !B1 * Y)	0.00313	0.00315	0.00314
	(!A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * !B1 * Y)	0.00321	0.00325	0.00322

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)	-0.00164	-0.00165	-0.00164
	(A0 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * B1 * !Y)	-0.00164	-0.00165	-0.00164
	(A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * !B1 * Y)	-0.00301	-0.00312	-0.00311
	(!A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * !B1 * Y)	-0.00320	-0.00322	-0.00321

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)	0.00174	0.00175	0.00168
	(A0 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * B1 * !Y)	0.00174	0.00175	0.00168
	(A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * !B1 * Y)	0.00309	0.00312	0.00311
	(!A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * !B1 * Y)	0.00320	0.00326	0.00321

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)	-0.00163	-0.00165	-0.00163
	(A0 * !A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B1 * !Y)	-0.00163	-0.00165	-0.00163
	(!A0 * !A1 * B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B1 * Y)	-0.00334	-0.00348	-0.00345
	(!A0 * !A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B1 * Y)	-0.00344	-0.00346	-0.00353

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)	0.00173	0.00174	0.00167
	(A0 * !A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B1 * !Y)	0.00173	0.00175	0.00167
	(!A0 * !A1 * B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B1 * Y)	0.00345	0.00348	0.00345
	(!A0 * !A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B1 * Y)	0.00354	0.00360	0.00355

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)	-0.00289	-0.00310	-0.00309
	(A0 * !A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B0 * !Y)	-0.00289	-0.00310	-0.00309
	(!A0 * !A1 * B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B0 * Y)	-0.00340	-0.00353	-0.00352
	(!A0 * !A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B0 * Y)	-0.00348	-0.00349	-0.00358

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)	0.00308	0.00311	0.00309
	(A0 * !A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B0 * !Y)	0.00308	0.00310	0.00309
	(!A0 * !A1 * B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B0 * Y)	0.00351	0.00354	0.00352
	(!A0 * !A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B0 * Y)	0.00359	0.00362	0.00360

SKY130_OSU_SC_18T_LS__OR2x

sky130_osu_sc_18T_ls_tt_1P44_25C.ccs
Cell Library: Process , Voltage 1.44,
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	0.00560	0.00542	1.35796
sky130_osu_sc_18T_ls__or2_2	0.00560	0.00542	2.68844
sky130_osu_sc_18T_ls__or2_4	0.00559	0.00542	5.13251
sky130_osu_sc_18T_ls__or2_8	0.00558	0.00543	9.83765
sky130_osu_sc_18T_ls__or2_l	0.00437	0.00414	0.93232

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__or2_1	0.00000	0.00055	0.00083
sky130_osu_sc_18T_ls__or2_2	0.00000	0.00085	0.00093
sky130_osu_sc_18T_ls__or2_4	0.00000	0.00144	0.00156
sky130_osu_sc_18T_ls__or2_8	0.00000	0.00264	0.00303
sky130_osu_sc_18T_ls__or2_l	0.00000	0.00026	0.00038

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)	0.11094	0.92729	8.18653
	B->Y (RR)	0.10137	0.89543	7.99114
sky130_osu_sc_18T_ls__or2_2	A->Y (RR)	0.12135	0.83978	8.44690
	B->Y (RR)	0.11116	0.81372	8.28797
sky130_osu_sc_18T_ls__or2_4	A->Y (RR)	0.15984	0.82812	8.81736
	B->Y (RR)	0.14932	0.80683	8.70282
sky130_osu_sc_18T_ls__or2_8	A->Y (RR)	0.23281	0.88566	9.43379
	B->Y (RR)	0.22198	0.87181	9.36751
sky130_osu_sc_18T_ls__or2_l	A->Y (RR)	0.12342	1.02293	8.14424
	B->Y (RR)	0.11429	0.99439	7.95258

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)	0.23271	0.96783	7.56082
	B->Y (FF)	0.19639	0.91011	7.08034
sky130_osu_sc_18T_ls__or2_2	A->Y (FF)	0.29129	0.98794	7.92400
	B->Y (FF)	0.25508	0.93655	7.51981
sky130_osu_sc_18T_ls__or2_4	A->Y (FF)	0.42339	1.11154	8.44534
	B->Y (FF)	0.38732	1.05852	8.13013
sky130_osu_sc_18T_ls__or2_8	A->Y (FF)	0.68551	1.39652	9.13032
	B->Y (FF)	0.64956	1.34066	8.92225
sky130_osu_sc_18T_ls__or2_l	A->Y (FF)	0.25316	1.01725	7.45029
	B->Y (FF)	0.21689	0.96768	6.99645

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	0.00544	0.00482	0.00488
	B	0.00000	0.00000	0.00000
	B	0.00409	0.00352	0.00385
sky130_osu_sc_18T_ls__or2_2	A	0.00000	0.00000	0.00000
	A	0.00937	0.00901	0.00906
	B	0.00000	0.00000	0.00000
	B	0.00797	0.00775	0.00798
sky130_osu_sc_18T_ls__or2_4	A	0.00000	0.00000	0.00000
	A	0.01777	0.01798	0.01834
	B	0.00000	0.00000	0.00000
	B	0.01637	0.01683	0.01725
sky130_osu_sc_18T_ls__or2_8	A	0.00000	0.00000	0.00000
	A	0.03428	0.03544	0.03684
	B	0.00000	0.00000	0.00000
	B	0.03286	0.03461	0.03637
sky130_osu_sc_18T_ls__or2_l	A	0.00000	0.00000	0.00000
	A	0.00399	0.00350	0.00356
	B	0.00000	0.00000	0.00000
	B	0.00311	0.00270	0.00292

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	0.01135	0.01130	0.01127
	B	0.00000	0.00000	0.00000
	B	0.00959	0.00958	0.00995
sky130_osu_sc_18T_ls__or2_2	A	0.00000	0.00000	0.00000
	A	0.01389	0.01446	0.01450
	B	0.00000	0.00000	0.00000
	B	0.01213	0.01264	0.01304
sky130_osu_sc_18T_ls__or2_4	A	0.00000	0.00000	0.00000
	A	0.02013	0.02180	0.02209
	B	0.00000	0.00000	0.00000
	B	0.01835	0.01992	0.02057
sky130_osu_sc_18T_ls__or2_8	A	0.00000	0.00000	0.00000
	A	0.03276	0.03565	0.03740
	B	0.00000	0.00000	0.00000
	B	0.03080	0.03381	0.03566
sky130_osu_sc_18T_ls__or2_l	A	0.00000	0.00000	0.00000
	A	0.00863	0.00853	0.00849
	B	0.00000	0.00000	0.00000
	B	0.00737	0.00730	0.00757

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)	-0.00297	-0.00316	-0.00315
sky130_osu_sc_18T_ls__or2_2	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00297	-0.00316	-0.00315
sky130_osu_sc_18T_ls__or2_4	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00297	-0.00316	-0.00315
sky130_osu_sc_18T_ls__or2_8	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00297	-0.00316	-0.00315
sky130_osu_sc_18T_ls__or2_l	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00209	-0.00222	-0.00221

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)	0.00313	0.00316	0.00315
sky130_osu_sc_18T_ls__or2_2	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00313	0.00316	0.00315
sky130_osu_sc_18T_ls__or2_4	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00313	0.00316	0.00315
sky130_osu_sc_18T_ls__or2_8	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00313	0.00316	0.00315
sky130_osu_sc_18T_ls__or2_l	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00220	0.00223	0.00221

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)	-0.00165	-0.00167	-0.00166
sky130_osu_sc_18T_ls__or2_2	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00165	-0.00167	-0.00166
sky130_osu_sc_18T_ls__or2_4	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00165	-0.00167	-0.00166
sky130_osu_sc_18T_ls__or2_8	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00165	-0.00167	-0.00166
sky130_osu_sc_18T_ls__or2_l	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00118	-0.00120	-0.00119

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)	0.00176	0.00177	0.00169
sky130_osu_sc_18T_ls__or2_2	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00176	0.00178	0.00169
sky130_osu_sc_18T_ls__or2_4	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00176	0.00178	0.00169
sky130_osu_sc_18T_ls__or2_8	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00176	0.00178	0.00169
sky130_osu_sc_18T_ls__or2_l	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00126	0.00127	0.00121

SKY130_OSU_SC_18T_LS__TBUFIx

sky130_osu_sc_18T_ls_tt_1P44_25C.ccs
Cell Library: Process , Voltage 1.44,
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	0.00560	0.00708	0.65090
sky130_osu_sc_18T_ls__tbufi_l	0.00434	0.00551	0.44875

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__tbufi_1	0.00000	0.00039	0.00047
sky130_osu_sc_18T_ls__tbufi_l	0.00000	0.00019	0.00023

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)	0.09554	1.27804	12.75860
	OE->Y (FR)	0.08318	0.47626	4.28371
	OE->Y (RR)	0.15340	1.14056	8.16629
sky130_osu_sc_18T_ls__tbufi_l	A->Y (FR)	0.11455	1.40288	12.67690
	OE->Y (FR)	0.08938	0.48333	4.28356
	OE->Y (RR)	0.17008	1.27081	8.14952

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)	0.04573	0.68721	7.22454
	OE->Y (FF)	0.08430	0.47847	4.28371
	OE->Y (RF)	0.04447	0.67039	6.96438
sky130_osu_sc_18T_ls__tbufi_l	A->Y (RF)	0.05262	0.72855	7.14834
	OE->Y (FF)	0.09061	0.48578	4.28354
	OE->Y (RF)	0.05190	0.71716	6.88803

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	0.00500	0.00487	0.00484
	OE	0.00000	0.00000	0.00000
	OE	0.00504	0.00441	0.00476
sky130_osu_sc_18T_ls__tbufi_l	A	0.00000	0.00000	0.00000
	A	0.00380	0.00368	0.00364
	OE	0.00000	0.00000	0.00000
	OE	0.00363	0.00317	0.00341

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	-0.00072	-0.00077	-0.00084
	OE	0.00000	0.00000	0.00000
	OE	0.00364	0.00303	0.00335
sky130_osu_sc_18T_ls__tbufi_l	A	0.00000	0.00000	0.00000
	A	-0.00046	-0.00051	-0.00058
	OE	0.00000	0.00000	0.00000
	OE	0.00255	0.00208	0.00231

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)	-0.00259	-0.00261	-0.00260
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	-0.00234	-0.00237	-0.00235
sky130_osu_sc_18T_ls__tbufi_l	(!OE * Y)	0.00000	0.00000	0.00000
	(!OE * Y)	-0.00194	-0.00196	-0.00194
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	-0.00177	-0.00179	-0.00178

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)	0.00259	0.00261	0.00260
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	0.00243	0.00245	0.00240
sky130_osu_sc_18T_ls__tbufi_l	(!OE * Y)	0.00000	0.00000	0.00000
	(!OE * Y)	0.00194	0.00196	0.00194
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	0.00183	0.00184	0.00181

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)	0.00207	0.00145	0.00175
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00186	0.00124	0.00155
sky130_osu_sc_18T_ls__tbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00143	0.00097	0.00118
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00128	0.00080	0.00102

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)	0.00563	0.00524	0.00553
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00586	0.00544	0.00567
sky130_osu_sc_18T_ls__tbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00443	0.00408	0.00429
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00460	0.00424	0.00440

SKY130_OSU_SC_18T_LS__TNBUFIx

sky130_osu_sc_18T_ls_tt_1P44_25C.ccs
Cell Library: Process , Voltage 1.44,
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	0.00560	0.00875	0.65106
sky130_osu_sc_18T_ls__tnbufi_l	0.00433	0.00652	0.44953

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__tnbufi_1	0.00000	0.00030	0.00073
sky130_osu_sc_18T_ls__tnbufi_l	0.00000	0.00016	0.00030

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)	0.09658	1.27825	12.76050
	OE->Y (RR)	0.03756	0.34454	4.28478
	OE->Y (FR)	0.11820	1.32153	12.84360
sky130_osu_sc_18T_ls__tnbufi_l	A->Y (FR)	0.11565	1.40380	12.68950
	OE->Y (RR)	0.03975	0.34473	4.28516
	OE->Y (FR)	0.13255	1.44253	12.77270

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)	0.04505	0.68695	7.22513
	OE->Y (RF)	0.03720	0.34448	4.28479
	OE->Y (FF)	0.09669	0.77010	5.70840
sky130_osu_sc_18T_ls__tnbufi_l	A->Y (RF)	0.05175	0.72857	7.15379
	OE->Y (RF)	0.03928	0.34471	4.28504
	OE->Y (FF)	0.10917	0.82588	5.67987

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	0.00513	0.00499	0.00496
	OE	0.00000	0.00000	0.00000
	OE	0.01231	0.01205	0.01189
sky130_osu_sc_18T_ls__tnbufi_l	A	0.00000	0.00000	0.00000
	A	0.00393	0.00380	0.00376
	OE	0.00000	0.00000	0.00000
	OE	0.00916	0.00891	0.00930

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	-0.00087	-0.00091	-0.00098
	OE	0.00000	0.00000	0.00000
	OE	0.01110	0.01086	0.01138
sky130_osu_sc_18T_ls__tnbufi_l	A	0.00000	0.00000	0.00000
	A	-0.00061	-0.00065	-0.00073
	OE	0.00000	0.00000	0.00000
	OE	0.00822	0.00797	0.00833

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)	-0.00224	-0.00226	-0.00225
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	-0.00202	-0.00204	-0.00203
sky130_osu_sc_18T_ls__tnbufi_l	(OE * Y)	0.00000	0.00000	0.00000
	(OE * Y)	-0.00161	-0.00162	-0.00161
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	-0.00146	-0.00147	-0.00146

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)	0.00224	0.00226	0.00225
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	0.00209	0.00211	0.00207
sky130_osu_sc_18T_ls__tnbufi_l	(OE * Y)	0.00000	0.00000	0.00000
	(OE * Y)	0.00161	0.00162	0.00161
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	0.00150	0.00152	0.00149

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)	-0.00369	-0.00456	-0.00424
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00353	-0.00446	-0.00419
sky130_osu_sc_18T_ls__tnbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	-0.00256	-0.00317	-0.00295
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00245	-0.00308	-0.00291

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)	0.00935	0.00912	0.00962
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00917	0.00892	0.00943
sky130_osu_sc_18T_ls__tnbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00697	0.00675	0.00710
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00683	0.00661	0.00697

SKY130_OSU_SC_18T_LS__XNOR2

sky130_osu_sc_18T_ls_tt_1P44_25C.ccs
Cell Library: Process , Voltage 1.44,
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	0.01107	0.01005	0.65190

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__xnor2_l	0.00000	0.00090	0.00138

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	0.19702	1.20124	8.34899
	A->Y (FR)	!B	0.12887	1.31385	12.77520
	B->Y (RR)	A	0.15797	1.15744	8.25197
	B->Y (FR)	!A	0.16466	1.36409	12.85670

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	0.16124	0.88656	6.27605
	A->Y (RF)	!B	0.06776	0.70243	7.10259
	B->Y (FF)	A	0.14839	0.87112	6.27305
	B->Y (RF)	!A	0.07850	0.71710	7.11820

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	0.00491	0.00420	0.00454
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.01225	0.01170	0.01203
	B	A	0.00000	0.00000	0.00000
	B	A	0.00203	0.00140	0.00167
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01334	0.01291	0.01255

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	0.01514	0.01445	0.01458
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00367	0.00295	0.00317
	B	A	0.00000	0.00000	0.00000
	B	A	0.01388	0.01367	0.01403
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00448	0.00366	0.00382

SKY130_OSU_SC_18T_LS__XOR2

sky130_osu_sc_18T_ls_tt_1P44_25C.ccs
Cell Library: Process , Voltage 1.44,
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	0.01103	0.01010	0.64700

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__xor2_l	0.00000	0.00090	0.00120

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	0.19167	1.18062	8.25601
	A->Y (FR)	B	0.14930	1.34575	12.84750
	B->Y (RR)	!A	0.16210	1.15936	8.24853
	B->Y (FR)	A	0.16266	1.36275	12.84050

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	0.15061	0.86498	6.17110
	A->Y (RF)	B	0.06185	0.71014	7.22890
	B->Y (FF)	!A	0.14102	0.85362	6.13489
	B->Y (RF)	A	0.07234	0.70154	6.97366

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	0.01418	0.01372	0.01382
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00277	0.00159	0.00173
	B	A	0.00000	0.00000	0.00000
	B	A	0.01456	0.01418	0.01382
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00176	0.00111	0.00140

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	0.00311	0.00220	0.00232
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.01561	0.01532	0.01564
	B	A	0.00000	0.00000	0.00000
	B	A	0.00311	0.00225	0.00244
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01414	0.01402	0.01440

SKY130_OSU_SC_18T_LS_x

sky130_osu_sc_18T_ls_tt_1P44_25C.ccs
Cell Library: Process , Voltage 1.44,
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	0.24470
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	109448.00000	218897.00000
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
	-0.00277	0.01894	0.25871

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
	1.90566	1.78624	0.34626