sky130_osu_sc_18T_ls_ff_1P95_100C.ccs Library

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

SKY130_OSU_SC_18T_LS__ADDFx

sky130_osu_sc_18T_ls_ff_1P95_100C.ccs
Cell Library: Process , Voltage 1.95,
Temp 100.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__addf_1	46.88640
sky130_osu_sc_18T_ls__addf_l	46.88640

Pin Capacitance Information

Cell Name	Pin Cap(pf)			Max Cap(pf)		
	A	B	CI	CO	CON	S
sky130_osu_sc_18T_ls__addf_1	0.02162	0.02149	0.01645	3.57758	1.70560	3.44441
sky130_osu_sc_18T_ls__addf_l	0.02161	0.02147	0.01644	2.47215	1.71086	2.44482

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__addf_1	0.00000	2.56911	2.98995
sky130_osu_sc_18T_ls__addf_l	0.00000	2.27935	2.70019

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)	0.12182	1.55312	26.44360
	B->CO (RR)	0.10216	1.47385	25.21720
	CI->CO (RR)	0.11656	1.59647	27.08770
	CON->CO (FR)	0.02290	0.65773	10.59180
sky130_osu_sc_18T_ls__addf_1	A->CO (RR)	0.12265	1.44561	21.37950
	B->CO (RR)	0.10314	1.37735	20.51810
	CI->CO (RR)	0.11739	1.49101	22.06040
	CON->CO (FR)	0.02542	0.71497	10.60910

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)	0.14312	1.75047	29.47960
	B->CO (FF)	0.12473	1.69641	28.63850
	CI->CO (FF)	0.12240	1.77001	30.02930
	CON->CO (RF)	0.02144	0.59084	9.74308
sky130_osu_sc_18T_ls__addf_1	A->CO (FF)	0.13903	1.58006	23.14490
	B->CO (FF)	0.12105	1.54014	22.72170
	CI->CO (FF)	0.11828	1.60112	23.72000
	CON->CO (RF)	0.02275	0.60809	9.11803

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)	0.11085	0.78185	9.55236
	B->CON (FR)	0.09286	0.76834	9.62282
	CI->CON (FR)	0.09010	0.80530	10.15760
sky130_osu_sc_18T_ls__addf_1	A->CON (FR)	0.10543	0.77731	9.56723
	B->CON (FR)	0.08790	0.76429	9.63642
	CI->CON (FR)	0.08466	0.80083	10.17230

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)	0.08194	0.59063	7.22027
	B->CON (RF)	0.07981	0.59579	7.28595
	CI->CON (RF)	0.07668	0.63796	7.96358
sky130_osu_sc_18T_ls__addf_1	A->CON (RF)	0.07891	0.58778	7.23357
	B->CON (RF)	0.07707	0.59367	7.29809
	CI->CON (RF)	0.07364	0.63564	7.97656

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)	0.21346	1.56390	23.20500
	B->S (-R)	0.19966	1.51635	22.23340
	CI->S (-R)	0.19115	1.58123	23.76440
	CON->S (RR)	0.06851	0.51418	6.94066
sky130_osu_sc_18T_ls__addf_1	A->S (-R)	0.20500	1.45867	19.30440
	B->S (-R)	0.19198	1.42914	18.80440
	CI->S (-R)	0.18264	1.47721	19.88370
	CON->S (RR)	0.06829	0.55676	6.91001

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)	0.19215	1.43198	21.05660
	B->S (-F)	0.18462	1.36621	20.16720
	CI->S (-F)	0.18631	1.47285	21.70810
	CON->S (FF)	0.07616	0.61946	8.02694
sky130_osu_sc_18T_ls__addf_l	A->S (-F)	0.18185	1.31341	17.15790
	B->S (-F)	0.17477	1.26147	16.58890
	CI->S (-F)	0.17596	1.35644	17.84040
	CON->S (FF)	0.07333	0.63733	7.69307

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	0.00553	0.01058	0.11790
	B	0.00621	0.01046	0.10586
	CI	0.00889	0.01407	0.12162
sky130_osu_sc_18T_ls__addf_l	A	0.00408	0.00789	0.08051
	B	0.00480	0.00803	0.07246
	CI	0.00744	0.01146	0.08381

Internal switching power(pJ) to CO falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__addf_1	A	0.02204	0.02838	0.16508
	B	0.02318	0.02837	0.14959
	CI	0.01839	0.02512	0.16320
sky130_osu_sc_18T_ls__addf_l	A	0.02059	0.02539	0.11664
	B	0.02173	0.02564	0.10742
	CI	0.01695	0.02214	0.11473

Internal switching power(pJ) to CON rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__addf_1	A	0.02199	0.02595	0.09820
	B	0.02314	0.02640	0.09163
	CI	0.01836	0.02293	0.09636
sky130_osu_sc_18T_ls__addf_l	A	0.02055	0.02429	0.09273
	B	0.02169	0.02474	0.08634
	CI	0.01692	0.02127	0.09096

Internal switching power(pJ) to CON falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__addf_1	A	0.00548	0.00895	0.06763
	B	0.00846	0.01105	0.06409
	CI	0.00885	0.01255	0.07213
sky130_osu_sc_18T_ls__addf_l	A	0.00405	0.00724	0.06250
	B	0.00708	0.00942	0.05936
	CI	0.00742	0.01085	0.06678

Internal switching power(pJ) to S rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__addf_1	A	0.02202	0.02821	0.15948
	B	0.00495	0.00592	0.13359
	CI	0.00857	0.01249	0.13629
sky130_osu_sc_18T_ls__addf_l	A	-0.00404	-0.00283	0.13157
	B	0.00267	0.00402	0.13453
	CI	0.00630	0.01057	0.13711

Internal switching power(pJ) to S falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__addf_1	A	0.04896	0.05283	0.16746
	B	0.04337	0.04863	0.18043
	CI	0.03704	0.04121	0.14903
sky130_osu_sc_18T_ls__addf_l	A	0.04703	0.05097	0.17132
	B	0.04150	0.04726	0.18226
	CI	0.03515	0.03924	0.15260

SKY130_OSU_SC_18T_LS__ADDHx

sky130_osu_sc_18T_ls_ff_1P95_100C.ccs
Cell Library: Process , Voltage 1.95,
Temp 100.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__addh_1	27.83880
sky130_osu_sc_18T_ls__addh_l	27.83880

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)		
	A	B	CO	CON	S
sky130_osu_sc_18T_ls__addh_1	0.01055	0.01157	3.53025	1.84515	3.57685
sky130_osu_sc_18T_ls__addh_l	0.01055	0.01157	2.04490	1.84028	2.07677

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__addh_1	0.00000	2.48272	2.69783
sky130_osu_sc_18T_ls__addh_l	0.00000	1.95919	2.21267

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)	0.07983	0.52923	6.90233
	B->CO (RR)	0.08301	0.52050	6.97209
sky130_osu_sc_18T_ls__addh_l	A->CO (RR)	0.08160	0.60175	6.88966
	B->CO (RR)	0.08478	0.59334	6.88655

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)	0.06603	0.58329	7.92148
	B->CO (FF)	0.07137	0.59842	8.01986
sky130_osu_sc_18T_ls__addh_l	A->CO (FF)	0.06579	0.61309	7.20861
	B->CO (FF)	0.07088	0.62795	7.31099

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	0.11009	0.43302	3.65363
	A->CON (FR)	!B	0.05859	0.75237	10.02320
	B->CON (RR)	A	0.11305	0.42354	3.72613
	B->CON (FR)	!A	0.07548	0.73841	9.61146
sky130_osu_sc_18T_ls__addh_l	A->CON (RR)	B	0.09879	0.41357	3.66833
	A->CON (FR)	!B	0.05229	0.74471	9.99905
	B->CON (RR)	A	0.10179	0.40508	3.67760
	B->CON (FR)	!A	0.06917	0.73052	9.58695

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	0.10641	0.61594	6.40267
	A->CON (RF)	!B	0.04790	0.60925	8.10416
	B->CON (FF)	A	0.10326	0.65153	6.91686
	B->CON (RF)	!A	0.05763	0.58978	7.66165
sky130_osu_sc_18T_ls__addh_l	A->CON (FF)	B	0.09679	0.58900	6.22115
	A->CON (RF)	!B	0.04420	0.60432	8.08531
	B->CON (FF)	A	0.09381	0.62433	6.72933
	B->CON (RF)	!A	0.05394	0.58520	7.64467

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	0.08424	1.52343	26.40630
	A->S (FR)	B	0.14384	1.51689	24.46840
	B->S (RR)	!A	0.09481	1.46501	25.08290
	B->S (FR)	A	0.14038	1.59156	25.86380
	CON->S (FR)	-	0.02586	0.68200	10.96200
sky130_osu_sc_18T_ls__addh_l	A->S (RR)	!B	0.08508	1.38787	19.79970
	A->S (FR)	B	0.13910	1.36253	17.77610
	B->S (RR)	!A	0.09599	1.34247	18.93610
	B->S (FR)	A	0.13553	1.42428	18.71590
	CON->S (FR)	-	0.02952	0.77382	11.00630

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	0.08743	1.61311	27.81590
	A->S (RF)	B	0.13696	1.10894	17.09560
	B->S (FF)	!A	0.10433	1.60435	27.47420
	B->S (RF)	A	0.13994	1.09858	17.15730
	CON->S (RF)	-	0.02033	0.57289	9.43986
sky130_osu_sc_18T_ls__addh_l	A->S (FF)	!B	0.08362	1.41046	20.10920
	A->S (RF)	B	0.12768	0.98597	12.21990
	B->S (FF)	!A	0.10051	1.40016	19.70990
	B->S (RF)	A	0.13069	0.97584	12.21150
	CON->S (RF)	-	0.02261	0.60762	8.69980

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	0.00997	0.01265	0.06326
	B	0.00000	0.00000	0.00000
	B	0.00872	0.01120	0.07312
sky130_osu_sc_18T_ls__addh_l	A	0.00000	0.00000	0.00000
	A	0.00809	0.01073	0.06444
	B	0.00000	0.00000	0.00000
	B	0.00684	0.00924	0.06941

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	0.01535	0.01870	0.09521
	B	0.00000	0.00000	0.00000
	B	0.01589	0.02056	0.10318
sky130_osu_sc_18T_ls__addh_l	A	0.00000	0.00000	0.00000
	A	0.01349	0.01636	0.08019
	B	0.00000	0.00000	0.00000
	B	0.01402	0.01787	0.08444

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	0.00996	0.01261	0.06222
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.01360	0.01638	0.05259
	B	A	0.00000	0.00000	0.00000
	B	A	0.00870	0.01123	0.07183
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01564	0.01739	0.05080
sky130_osu_sc_18T_ls__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.00807	0.01072	0.06414
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.01222	0.01438	0.04152
	B	A	0.00000	0.00000	0.00000
	B	A	0.00682	0.00924	0.06971
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01427	0.01539	0.03983

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	0.01534	0.01848	0.08660
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00213	0.00452	0.03631
	B	A	0.00000	0.00000	0.00000
	B	A	0.01589	0.02019	0.09260
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00352	0.00558	0.03669
sky130_osu_sc_18T_ls__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.01348	0.01635	0.07966
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00058	0.00219	0.02398
	B	A	0.00000	0.00000	0.00000
	B	A	0.01402	0.01785	0.08345
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00196	0.00333	0.02542

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	0.01537	0.01874	0.09608
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00219	0.00480	0.04485
	B	A	0.00000	0.00000	0.00000
	B	A	0.01591	0.02062	0.10401
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00357	0.00582	0.04247
sky130_osu_sc_18T_ls__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.01350	0.01640	0.08066
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00062	0.00221	0.02363
	B	A	0.00000	0.00000	0.00000
	B	A	0.01404	0.01791	0.08449
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00199	0.00339	0.02550

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	0.00998	0.01272	0.06406
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.01363	0.01659	0.06159
	B	A	0.00000	0.00000	0.00000
	B	A	0.00873	0.01126	0.07413
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01569	0.01792	0.06119
sky130_osu_sc_18T_ls__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.00810	0.01078	0.06541
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.01223	0.01432	0.04109
	B	A	0.00000	0.00000	0.00000
	B	A	0.00684	0.00928	0.07048
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01429	0.01554	0.04009

SKY130_OSU_SC_18T_LS__AND2x

sky130_osu_sc_18T_ls_ff_1P95_100C.ccs
Cell Library: Process , Voltage 1.95,
Temp 100.00

Truth Table

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

Footprint

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

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	B	Y
sky130_osu_sc_18T_ls__and2_1	0.00572	0.00584	3.52214
sky130_osu_sc_18T_ls__and2_2	0.00572	0.00584	6.68845
sky130_osu_sc_18T_ls__and2_4	0.00572	0.00585	12.70611
sky130_osu_sc_18T_ls__and2_6	0.00576	0.00585	18.62922
sky130_osu_sc_18T_ls__and2_8	0.00574	0.00587	23.85096
sky130_osu_sc_18T_ls__and2_l	0.00441	0.00453	2.43657

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__and2_1	0.00000	1.11325	1.72910
sky130_osu_sc_18T_ls__and2_2	0.00000	1.71637	2.03533
sky130_osu_sc_18T_ls__and2_4	0.00000	2.93430	3.14730
sky130_osu_sc_18T_ls__and2_6	0.00000	4.15223	4.56550
sky130_osu_sc_18T_ls__and2_8	0.00000	5.37017	5.98370
sky130_osu_sc_18T_ls__and2_l	0.00000	0.83203	1.30236

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)	0.06124	0.47403	6.82418
	B->Y (RR)	0.06508	0.46428	6.52234
sky130_osu_sc_18T_ls__and2_2	A->Y (RR)	0.07087	0.42938	6.73608
	B->Y (RR)	0.07480	0.41628	6.42541
sky130_osu_sc_18T_ls__and2_4	A->Y (RR)	0.09793	0.44547	6.89441
	B->Y (RR)	0.10190	0.42762	6.59684
sky130_osu_sc_18T_ls__and2_6	A->Y (RR)	0.12591	0.48052	7.04756
	B->Y (RR)	0.12980	0.45850	6.74768
sky130_osu_sc_18T_ls__and2_8	A->Y (RR)	0.15383	0.51946	7.16977
	B->Y (RR)	0.15781	0.49404	6.85999
sky130_osu_sc_18T_ls__and2_l	A->Y (RR)	0.06656	0.52591	6.72163
	B->Y (RR)	0.07077	0.51613	6.43589

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)	0.05283	0.52030	7.31760
	B->Y (FF)	0.05569	0.53262	7.39751
sky130_osu_sc_18T_ls__and2_2	A->Y (FF)	0.05867	0.47015	7.15137
	B->Y (FF)	0.06222	0.48247	7.25273
sky130_osu_sc_18T_ls__and2_4	A->Y (FF)	0.07941	0.47753	7.21993
	B->Y (FF)	0.08298	0.48720	7.32114
sky130_osu_sc_18T_ls__and2_6	A->Y (FF)	0.10308	0.50782	7.30838
	B->Y (FF)	0.10648	0.51601	7.41500
sky130_osu_sc_18T_ls__and2_8	A->Y (FF)	0.12509	0.53522	7.21931
	B->Y (FF)	0.12871	0.54333	7.31421
sky130_osu_sc_18T_ls__and2_l	A->Y (FF)	0.05623	0.57277	7.22304
	B->Y (FF)	0.05996	0.58698	7.32999

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	0.00701	0.01658	0.19739
	B	0.00000	0.00000	0.00000
	B	0.00704	0.01410	0.14783
sky130_osu_sc_18T_ls__and2_2	A	0.00000	0.00000	0.00000
	A	0.01477	0.02402	0.20430
	B	0.00000	0.00000	0.00000
	B	0.01486	0.02143	0.15494
sky130_osu_sc_18T_ls__and2_4	A	0.00000	0.00000	0.00000
	A	0.03280	0.04057	0.21708
	B	0.00000	0.00000	0.00000
	B	0.03291	0.03847	0.16646
sky130_osu_sc_18T_ls__and2_6	A	0.00000	0.00000	0.00000
	A	0.05612	0.05926	0.23300
	B	0.00000	0.00000	0.00000
	B	0.05607	0.05653	0.17849
sky130_osu_sc_18T_ls__and2_8	A	0.00000	0.00000	0.00000
	A	0.08214	0.07896	0.24899
	B	0.00000	0.00000	0.00000
	B	0.08239	0.07620	0.19330
sky130_osu_sc_18T_ls__and2_l	A	0.00000	0.00000	0.00000
	A	0.00511	0.01232	0.15028
	B	0.00000	0.00000	0.00000
	B	0.00518	0.01051	0.11899

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	0.01824	0.02883	0.18374
	B	0.00000	0.00000	0.00000
	B	0.02051	0.03066	0.17744
sky130_osu_sc_18T_ls__and2_2	A	0.00000	0.00000	0.00000
	A	0.02436	0.03483	0.18935
	B	0.00000	0.00000	0.00000
	B	0.02661	0.03637	0.18326
sky130_osu_sc_18T_ls__and2_4	A	0.00000	0.00000	0.00000
	A	0.04242	0.04959	0.20189
	B	0.00000	0.00000	0.00000
	B	0.04443	0.05067	0.19620
sky130_osu_sc_18T_ls__and2_6	A	0.00000	0.00000	0.00000
	A	0.06103	0.06509	0.21658
	B	0.00000	0.00000	0.00000
	B	0.06295	0.06577	0.20992
sky130_osu_sc_18T_ls__and2_8	A	0.00000	0.00000	0.00000
	A	0.08593	0.08286	0.23200
	B	0.00000	0.00000	0.00000
	B	0.08769	0.08347	0.22424
sky130_osu_sc_18T_ls__and2_l	A	0.00000	0.00000	0.00000
	A	0.01410	0.02192	0.13608
	B	0.00000	0.00000	0.00000
	B	0.01586	0.02350	0.13331

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)	-0.00707	-0.00711	-0.00711
sky130_osu_sc_18T_ls__and2_2	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00706	-0.00710	-0.00711
sky130_osu_sc_18T_ls__and2_4	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00705	-0.00709	-0.00710
sky130_osu_sc_18T_ls__and2_6	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00707	-0.00711	-0.00712
sky130_osu_sc_18T_ls__and2_8	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00702	-0.00706	-0.00707
sky130_osu_sc_18T_ls__and2_l	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00517	-0.00519	-0.00520

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)	0.00711	0.00718	0.00715
sky130_osu_sc_18T_ls__and2_2	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00712	0.00718	0.00716
sky130_osu_sc_18T_ls__and2_4	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00713	0.00719	0.00717
sky130_osu_sc_18T_ls__and2_6	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00718	0.00724	0.00721
sky130_osu_sc_18T_ls__and2_8	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00716	0.00722	0.00719
sky130_osu_sc_18T_ls__and2_l	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00520	0.00524	0.00522

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)	-0.00669	-0.00672	-0.00670
sky130_osu_sc_18T_ls__and2_2	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00668	-0.00672	-0.00670
sky130_osu_sc_18T_ls__and2_4	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00667	-0.00670	-0.00668
sky130_osu_sc_18T_ls__and2_6	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00666	-0.00669	-0.00667
sky130_osu_sc_18T_ls__and2_8	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00665	-0.00668	-0.00666
sky130_osu_sc_18T_ls__and2_l	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00488	-0.00490	-0.00489

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)	0.00692	0.00679	0.00674
sky130_osu_sc_18T_ls__and2_2	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00693	0.00679	0.00675
sky130_osu_sc_18T_ls__and2_4	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00694	0.00680	0.00676
sky130_osu_sc_18T_ls__and2_6	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00695	0.00681	0.00677
sky130_osu_sc_18T_ls__and2_8	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00696	0.00683	0.00679
sky130_osu_sc_18T_ls__and2_l	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00505	0.00494	0.00492

SKY130_OSU_SC_18T_LS__AOI21

sky130_osu_sc_18T_ls_ff_1P95_100C.ccs
Cell Library: Process , Voltage 1.95,
Temp 100.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__aoi21_l	12.45420

Pin Capacitance Information

Cell Name	Pin Cap(pf)			Max Cap(pf)
	A0	A1	B0	Y
sky130_osu_sc_18T_ls__aoi21_l	0.00547	0.00565	0.00547	1.67842

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__aoi21_l	0.00000	0.50789	0.79141

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)	0.06095	0.72812	9.43589
	A1->Y (FR)	0.05261	0.69395	9.05299
	B0->Y (FR)	0.04257	0.75361	10.04070

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)	0.04564	0.52489	6.70685
	A1->Y (RF)	0.04165	0.55502	7.18603
	B0->Y (RF)	0.02655	0.52763	7.05796

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	0.01705	0.01825	0.05252
	A1	0.00000	0.00000	0.00000
	A1	0.01437	0.01566	0.04845
	B0	0.00966	0.01311	0.05782

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	0.00369	0.00500	0.03560
	A1	0.00000	0.00000	0.00000
	A1	0.00376	0.00582	0.04033
	B0	-0.00177	0.00107	0.03768

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)	-0.00529	-0.00629	-0.00630
	(!A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !Y)	-0.00635	-0.00639	-0.00636
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00635	-0.00635	-0.00636

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)	0.00625	0.00629	0.00630
	(!A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !Y)	0.00636	0.00641	0.00639
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00657	0.00643	0.00639

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)	-0.00523	-0.00621	-0.00623
	(!A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !Y)	-0.00629	-0.00632	-0.00629
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	-0.00675	-0.00681	-0.00682

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)	0.00618	0.00624	0.00623
	(!A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !Y)	0.00629	0.00633	0.00632
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	0.00681	0.00688	0.00685

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)	-0.00244	-0.00246	-0.00245

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)	0.00270	0.00271	0.00252

SKY130_OSU_SC_18T_LS__AOI22

sky130_osu_sc_18T_ls_ff_1P95_100C.ccs
Cell Library: Process , Voltage 1.95,
Temp 100.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__aoi22_1	15.38460

Pin Capacitance Information

Cell Name	Pin Cap(pf)				Max Cap(pf)
	A0	A1	B0	B1	Y
sky130_osu_sc_18T_ls__aoi22_1	0.00548	0.00565	0.00581	0.00559	1.62478

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__aoi22_1	0.00000	0.63528	1.41818

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)	0.07674	0.75025	9.43581
	A1->Y (FR)	0.06877	0.72829	9.23965
	B0->Y (FR)	0.04494	0.74755	9.85083
	B1->Y (FR)	0.05293	0.77604	10.13630

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)	0.06092	0.53566	6.57399
	A1->Y (RF)	0.05703	0.56573	7.05112
	B0->Y (RF)	0.02916	0.53198	7.02518
	B1->Y (RF)	0.03314	0.50182	6.54929

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	0.02134	0.02237	0.05775
	A1	0.01870	0.01973	0.05444
	B0	0.01052	0.01334	0.06055
	B1	0.01317	0.01688	0.06232

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__aoi22_l	A0	0.00768	0.00890	0.04163
	A1	0.00777	0.00975	0.04637
	B0	-0.00111	0.00151	0.03752
	B1	-0.00106	0.00089	0.03273

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)	-0.00517	-0.00626	-0.00630
	(!A1 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * B1 * !Y)	-0.00634	-0.00639	-0.00636
	(!A1 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !B1 * Y)	-0.00634	-0.00639	-0.00636
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00634	-0.00639	-0.00636

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)	0.00625	0.00635	0.00631
	(!A1 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * B1 * !Y)	0.00637	0.00642	0.00640
	(!A1 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !B1 * Y)	0.00657	0.00643	0.00639
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00657	0.00643	0.00639

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)	-0.00511	-0.00619	-0.00624
	(!A0 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * B1 * !Y)	-0.00628	-0.00630	-0.00629
	(!A0 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !B1 * Y)	-0.00675	-0.00680	-0.00682
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	-0.00675	-0.00680	-0.00682

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)	0.00619	0.00628	0.00624
	(!A0 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * B1 * !Y)	0.00630	0.00634	0.00633
	(!A0 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !B1 * Y)	0.00681	0.00687	0.00684
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	0.00681	0.00687	0.00684

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)	-0.00245	-0.00248	-0.00247
	(A0 * A1 * !B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B1 * !Y)	-0.00241	-0.00246	-0.00244
	(!A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B1 * Y)	-0.00692	-0.00695	-0.00698
	(!A0 * A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B1 * Y)	-0.00692	-0.00696	-0.00698

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__aoi22_l	(A0 * A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * B1 * !Y)	0.00282	0.00284	0.00256
	(A0 * A1 * !B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B1 * !Y)	0.00245	0.00246	0.00246
	(!A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B1 * Y)	0.00697	0.00704	0.00701
	(!A0 * A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B1 * Y)	0.00697	0.00704	0.00701

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)	-0.00247	-0.00249	-0.00248
	(A0 * A1 * !B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B0 * !Y)	-0.00243	-0.00246	-0.00246
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00644	-0.00648	-0.00645
	(!A0 * A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B0 * Y)	-0.00644	-0.00648	-0.00645

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)	0.00284	0.00285	0.00258
	(A0 * A1 * !B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B0 * !Y)	0.00247	0.00248	0.00247
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00666	0.00652	0.00648
	(!A0 * A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B0 * Y)	0.00666	0.00652	0.00648

SKY130_OSU_SC_18T_LS__BUFx

sky130_osu_sc_18T_ls_ff_1P95_100C.ccs
Cell Library: Process , Voltage 1.95,
Temp 100.00

Truth Table

INPUT	OUTPUT
A	Y
0	0
1	1

Footprint

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

Pin Capacitance Information

Cell Name	Pin Cap(pf)	Max Cap(pf)
	A	Y
sky130_osu_sc_18T_ls__buf_1	0.00583	3.53242
sky130_osu_sc_18T_ls__buf_2	0.00583	6.76287
sky130_osu_sc_18T_ls__buf_4	0.00583	12.94313
sky130_osu_sc_18T_ls__buf_6	0.00097	1.80000
sky130_osu_sc_18T_ls__buf_8	0.00586	24.66750
sky130_osu_sc_18T_ls__buf_l	0.00456	2.44047

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__buf_1	0.00000	1.02702	1.02702
sky130_osu_sc_18T_ls__buf_2	0.00000	1.53117	1.72910
sky130_osu_sc_18T_ls__buf_4	0.00000	2.54884	3.14731
sky130_osu_sc_18T_ls__buf_6	0.00000	0.00000	0.00000
sky130_osu_sc_18T_ls__buf_8	0.00000	4.58417	5.98371
sky130_osu_sc_18T_ls__buf_l	0.00000	0.73726	0.73726

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)**	0.04837	0.43632	6.44078
sky130_osu_sc_18T_ls__buf_2	**A->Y (RR)**	0.05432	0.38265	6.34586
sky130_osu_sc_18T_ls__buf_4	**A->Y (RR)**	0.07320	0.38696	6.49723
sky130_osu_sc_18T_ls__buf_8	**A->Y (RR)**	0.11152	0.44266	6.76637
sky130_osu_sc_18T_ls__buf_l	**A->Y (RR)**	0.05320	0.48459	6.30804

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)**	0.05004	0.51869	7.45622
sky130_osu_sc_18T_ls__buf_2	**A->Y (FF)**	0.05658	0.47233	7.37713
sky130_osu_sc_18T_ls__buf_4	**A->Y (FF)**	0.07733	0.47885	7.46366
sky130_osu_sc_18T_ls__buf_8	**A->Y (FF)**	0.12290	0.53785	7.53030
sky130_osu_sc_18T_ls__buf_l	**A->Y (FF)**	0.05409	0.57260	7.36023

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	0.00639	0.01573	0.16471
sky130_osu_sc_18T_ls__buf_2	A	0.00000	0.00000	0.00000
	A	0.01384	0.02319	0.17414
sky130_osu_sc_18T_ls__buf_4	A	0.00000	0.00000	0.00000
	A	0.03044	0.04034	0.19021
sky130_osu_sc_18T_ls__buf_8	A	0.00000	0.00000	0.00000
	A	0.07112	0.07721	0.21927
sky130_osu_sc_18T_ls__buf_l	A	0.00000	0.00000	0.00000
	A	0.00480	0.01208	0.13539

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	0.01734	0.02849	0.18754
sky130_osu_sc_18T_ls__buf_2	A	0.00000	0.00000	0.00000
	A	0.02335	0.03408	0.19206
sky130_osu_sc_18T_ls__buf_4	A	0.00000	0.00000	0.00000
	A	0.04104	0.04845	0.20473
sky130_osu_sc_18T_ls__buf_8	A	0.00000	0.00000	0.00000
	A	0.08458	0.08214	0.23160
sky130_osu_sc_18T_ls__buf_l	A	0.00000	0.00000	0.00000
	A	0.01353	0.02195	0.14115

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
	-0.00092	-0.00092	-0.00090

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
	0.00092	0.00092	0.00090

SKY130_OSU_SC_18T_LS__DFFRx

sky130_osu_sc_18T_ls_ff_1P95_100C.ccs
Cell Library: Process , Voltage 1.95,
Temp 100.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__dffr_1	63.73620
sky130_osu_sc_18T_ls__dffr_l	63.73620

Pin Capacitance Information

Cell Name	Pin Cap(pf)			Max Cap(pf)	
	D	RN	CK	Q	QN
sky130_osu_sc_18T_ls__dffr_1	0.00563	0.00555	0.01583	3.38899	3.38712
sky130_osu_sc_18T_ls__dffr_l	0.00563	0.00555	0.01583	2.47635	2.45443

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__dffr_1	0.00000	3.59984	4.65454
sky130_osu_sc_18T_ls__dffr_l	0.00000	3.31008	4.36478

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)	0.21308	1.17403	16.57890
	QN->Q (FR)	0.02697	0.74308	11.87860
sky130_osu_sc_18T_ls__dffr_l	CK->Q (RR)	0.20900	1.27840	16.47130
	QN->Q (FR)	0.02810	0.78014	11.63020

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)	0.22404	1.14875	16.11610
	QN->Q (RF)	0.02466	0.68798	11.15100
	RN->Q (FF)	0.16956	1.20124	17.43530
sky130_osu_sc_18T_ls__dffr_l	CK->Q (RF)	0.22554	1.25803	16.01170
	QN->Q (RF)	0.02492	0.69120	10.37180
	RN->Q (FF)	0.17161	1.30932	17.32960

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)	0.19787	0.60537	6.39469
	RN->QN (FR)	0.14337	0.65706	7.71818
sky130_osu_sc_18T_ls__dffr_l	CK->QN (RR)	0.19772	0.65592	6.47589
	RN->QN (FR)	0.14348	0.70741	7.79464

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)**	0.18102	0.59599	6.28539
sky130_osu_sc_18T_ls__dffr_l	**CK->QN (RF)**	0.17380	0.61804	6.04685

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)	-0.05708	-0.06174	0.07461
	setup	CK (R)	0.16946	0.20597	0.82135
sky130_osu_sc_18T_ls__dffr_l	hold	CK (R)	-0.06108	-0.06174	0.07445
	setup	CK (R)	0.17013	0.20679	0.84361

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)	-0.08612	-0.26380	-1.05641
	setup	CK (R)	0.11009	0.27559	3.62013
sky130_osu_sc_18T_ls__dffr_l	hold	CK (R)	-0.08724	-0.26491	-1.25151
	setup	CK (R)	0.11008	0.27559	3.62012

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)	-0.05708	-0.06174	0.07461
	setup	CK (R)	0.16946	0.20597	0.82135
sky130_osu_sc_18T_ls__dffr_l	hold	CK (R)	-0.06108	-0.06174	0.07445
	setup	CK (R)	0.17013	0.20679	0.84361

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)	-0.08612	-0.26380	-1.05641
	setup	CK (R)	0.11009	0.27559	3.62013
sky130_osu_sc_18T_ls__dffr_l	hold	CK (R)	-0.08724	-0.26491	-1.25151
	setup	CK (R)	0.11008	0.27559	3.62012

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)	0.13698	0.17733	0.95159
	removal	CK (R)	-0.02644	-0.03418	-0.10353
sky130_osu_sc_18T_ls__dffr_l	recovery	CK (R)	0.13381	0.17832	0.94198
	removal	CK (R)	-0.02644	-0.03418	-0.10353

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)	0.13698	0.17733	0.95159
	removal	CK (R)	-0.02644	-0.03418	-0.10353
sky130_osu_sc_18T_ls__dffr_l	recovery	CK (R)	0.13381	0.17832	0.94198
	removal	CK (R)	-0.02644	-0.03418	-0.10353

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 ()	0.09857	0.51880	13.33370
	min_pulse_width	RN ()	0.09857	0.51880	13.33370
sky130_osu_sc_18T_ls__dffr_l	min_pulse_width	RN ()	0.09468	0.51880	13.33370
	min_pulse_width	RN ()	0.09468	0.51880	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 ()	0.10246	0.51880	13.33370
	min_pulse_width	CK ()	0.11414	0.51880	13.33370
sky130_osu_sc_18T_ls__dffr_l	min_pulse_width	CK ()	0.09468	0.51880	13.33370
	min_pulse_width	CK ()	0.11024	0.51880	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 ()	0.21919	0.51880	13.33370
	min_pulse_width	CK ()	0.09079	0.51880	13.33370
sky130_osu_sc_18T_ls__dffr_l	min_pulse_width	CK ()	0.21919	0.51880	13.33370
	min_pulse_width	CK ()	0.09079	0.51880	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	0.01811	0.02074	0.05513
sky130_osu_sc_18T_ls__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.01601	0.02103	0.10571

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	0.02087	0.02138	0.04817
	RN	-0.00219	-0.17427	-3.22158
	RN	0.04758	0.04873	0.08193
sky130_osu_sc_18T_ls__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.01884	0.02123	0.09008
	RN	-0.00219	-0.14437	-2.35405
	RN	0.04552	0.04865	0.12253

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	0.02084	0.02129	0.04875
	RN	-0.00219	-0.17421	-3.21714
	RN	0.04755	0.04872	0.08166
sky130_osu_sc_18T_ls__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.01881	0.02124	0.08993
	RN	-0.00219	-0.14360	-2.33255
	RN	0.04549	0.04863	0.12252

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	0.01804	0.02069	0.05320
sky130_osu_sc_18T_ls__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.01594	0.02102	0.10559

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	-0.00516	-0.00612	-0.00623
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.02268	0.02821	0.17609
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.01006	0.01584	0.16117
sky130_osu_sc_18T_ls__dffr_l	CK	0.00000	0.00000	0.00000
	CK	-0.00516	-0.00612	-0.00624
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.02268	0.02821	0.17609
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.01006	0.01583	0.16116

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	0.00627	0.00631	0.00633
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.03775	0.04371	0.19533
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.01790	0.02365	0.16902
sky130_osu_sc_18T_ls__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.00627	0.00630	0.00633
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.03775	0.04370	0.19532
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.01790	0.02365	0.16902

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)	0.00636	0.01709	0.22600
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.01900	0.02959	0.24660
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)	0.00636	0.01708	0.22600
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.01900	0.02959	0.24660

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)	0.01632	0.02815	0.23631
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.03559	0.04721	0.26354
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)	0.01631	0.02815	0.23631
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.03559	0.04721	0.26354

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)	-0.00150	0.00875	0.21640
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.01095	0.02023	0.23926
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	-0.00221	0.00865	0.21471
sky130_osu_sc_18T_ls__dffr_l	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	-0.00150	0.00875	0.21640
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.01095	0.02022	0.23927
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	-0.00221	0.00865	0.21471

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)	0.02385	0.03606	0.24340
	(D * RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * RN * !Q * QN)	0.05610	0.06634	0.33658
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.04284	0.05361	0.27041
	(!D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * Q * !QN)	0.05376	0.07493	0.39446
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.02862	0.03992	0.24567
sky130_osu_sc_18T_ls__dffr_l	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.02385	0.03605	0.24340
	(D * RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * RN * !Q * QN)	0.05610	0.06637	0.33658
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.04284	0.05361	0.27041
	(!D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * Q * !QN)	0.05376	0.07493	0.39446
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.02861	0.03992	0.24567

SKY130_OSU_SC_18T_LS__DFFSRx

sky130_osu_sc_18T_ls_ff_1P95_100C.ccs
Cell Library: Process , Voltage 1.95,
Temp 100.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__dffsr_1	69.59700
sky130_osu_sc_18T_ls__dffsr_l	69.59700

Pin Capacitance Information

Cell Name	Pin Cap(pf)				Max Cap(pf)	
	D	**RN**	**SN**	**CK**	**Q**	**QN**
sky130_osu_sc_18T_ls__dffsr_1	0.00559	0.00556	0.01195	0.01607	3.63390	3.58391
sky130_osu_sc_18T_ls__dffsr_l	0.00559	0.00556	0.01194	0.01607	2.46770	2.45678

Leakage Information

Cell Name	Leakage(nW)		
	Min.	**Avg**	**Max.**
sky130_osu_sc_18T_ls__dffsr_1	0.00000	3.91872	4.84965
sky130_osu_sc_18T_ls__dffsr_l	0.00000	3.62896	4.55989

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)	0.22397	1.18483	17.01630
	QN->Q (FR)	0.02556	0.72894	11.83560
	RN->Q (RR)	0.17880	1.14980	17.09080
	SN->Q (FR)	0.16262	1.23059	18.42470
sky130_osu_sc_18T_ls__dffsr_l	CK->Q (RR)	0.22603	1.29345	16.40150
	QN->Q (FR)	0.02805	0.77654	11.56450
	RN->Q (RR)	0.18141	1.25928	16.47220
	SN->Q (FR)	0.16505	1.33590	17.80350

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)	0.25691	1.18380	16.52870
	QN->Q (RF)	0.02261	0.65202	10.75980
	RN->Q (FF)	0.17269	1.20735	17.85270
sky130_osu_sc_18T_ls__dffsr_l	CK->Q (RF)	0.26194	1.29624	15.98940
	QN->Q (RF)	0.02487	0.68943	10.33330
	RN->Q (FF)	0.17758	1.31952	17.30800

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)	0.23160	0.64261	6.54323
	RN->QN (FR)	0.14763	0.66672	7.86422
sky130_osu_sc_18T_ls__dffsr_l	CK->QN (RR)	0.23384	0.69667	6.51404
	RN->QN (FR)	0.14968	0.71994	7.83153

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)	0.19347	0.60353	6.32829
	RN->QN (RF)	0.14862	0.56869	6.40098
	SN->QN (FF)	0.13253	0.64941	7.73323
sky130_osu_sc_18T_ls__dffsr_l	CK->QN (RF)	0.19134	0.63665	6.05980
	RN->QN (RF)	0.14706	0.60267	6.13024
	SN->QN (FF)	0.13083	0.67940	7.45499

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)	-0.06118	-0.06817	0.05485
	setup	CK (R)	0.17130	0.21058	0.90084
sky130_osu_sc_18T_ls__dffsr_l	hold	CK (R)	-0.06212	-0.06836	0.05478
	setup	CK (R)	0.17158	0.20945	0.89648

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)	-0.09848	-0.27800	-1.03468
	setup	CK (R)	0.12791	0.29454	3.67281
sky130_osu_sc_18T_ls__dffsr_l	hold	CK (R)	-0.10052	-0.27800	-1.05535
	setup	CK (R)	0.12791	0.29454	3.67281

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)	-0.06118	-0.06817	0.05485
	setup	CK (R)	0.17130	0.21058	0.90084
sky130_osu_sc_18T_ls__dffsr_l	hold	CK (R)	-0.06212	-0.06836	0.05478
	setup	CK (R)	0.17158	0.20945	0.89648

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)	-0.09848	-0.27800	-1.03468
	setup	CK (R)	0.12791	0.29454	3.67281
sky130_osu_sc_18T_ls__dffsr_l	hold	CK (R)	-0.10052	-0.27800	-1.05535
	setup	CK (R)	0.12791	0.29454	3.67281

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)	0.12415	0.16478	0.92535
	removal	CK (R)	-0.01576	-0.02136	-0.05870
	hold	SN (R)	-0.12287	-0.24568	-0.93265
	setup	SN (R)	0.14656	0.29468	5.15370
sky130_osu_sc_18T_ls__dffsr_l	recovery	CK (R)	0.12365	0.16442	0.92670
	removal	CK (R)	-0.01576	-0.02136	-0.05870
	hold	SN (R)	-0.12023	-0.23713	-0.90222
	setup	SN (R)	0.14873	0.28678	5.00772

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)	0.12415	0.16478	0.92535
	removal	CK (R)	-0.01576	-0.02136	-0.05870
	hold	SN (R)	-0.12287	-0.24568	-0.93371
	hold	SN (R)	-0.12548	-0.24568	-0.93265
	setup	SN (R)	0.14656	0.29051	4.71154
	setup	SN (R)	0.14307	0.29468	5.15370
sky130_osu_sc_18T_ls__dffsr_l	recovery	CK (R)	0.12365	0.16442	0.92670
	removal	CK (R)	-0.01576	-0.02136	-0.05870
	hold	SN (R)	-0.12186	-0.23713	-0.90222
	hold	SN (R)	-0.12023	-0.23927	-0.90596
	setup	SN (R)	0.14873	0.28427	4.57459
	setup	SN (R)	0.13708	0.28678	5.00772

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 ()	0.11414	0.51880	13.33370
	min_pulse_width	RN ()	0.11414	0.51880	13.33370
sky130_osu_sc_18T_ls__dffsr_l	min_pulse_width	RN ()	0.11414	0.51880	13.33370
	min_pulse_width	RN ()	0.11024	0.51880	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)	0.03856	0.07236	6.02941
	removal	CK (R)	-0.01922	-0.05554	-0.29433
sky130_osu_sc_18T_ls__dffsr_l	recovery	CK (R)	0.03856	0.07236	6.00840
	removal	CK (R)	-0.01922	-0.05554	-0.29726

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)	0.03856	0.07236	6.02941
	removal	CK (R)	-0.01922	-0.05554	-0.29433
sky130_osu_sc_18T_ls__dffsr_l	recovery	CK (R)	0.03856	0.07236	6.00840
	removal	CK (R)	-0.01922	-0.05554	-0.29726

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 ()	0.12970	0.51880	13.33370
	min_pulse_width	SN ()	0.12970	0.51880	13.33370
sky130_osu_sc_18T_ls__dffsr_l	min_pulse_width	SN ()	0.12970	0.51880	13.33370
	min_pulse_width	SN ()	0.12192	0.51880	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 ()	0.10635	0.51880	13.33370
	min_pulse_width	CK ()	0.12970	0.51880	13.33370
sky130_osu_sc_18T_ls__dffsr_l	min_pulse_width	CK ()	0.10246	0.51880	13.33370
	min_pulse_width	CK ()	0.12970	0.51880	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 ()	0.22308	0.51880	13.33370
	min_pulse_width	CK ()	0.11024	0.51880	13.33370
sky130_osu_sc_18T_ls__dffsr_l	min_pulse_width	CK ()	0.22308	0.51880	13.33370
	min_pulse_width	CK ()	0.11024	0.51880	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	0.02300	0.02768	0.09959
	RN	0.04129	0.04270	0.08252
	SN	-0.00219	-0.18172	-3.45447
	SN	0.03935	0.03906	0.08216
sky130_osu_sc_18T_ls__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.02104	0.02570	0.11151
	RN	0.03933	0.04070	0.09480
	SN	-0.00219	-0.14406	-2.34586
	SN	0.03740	0.03721	0.09277

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	0.02432	0.02549	0.06257
	RN	-0.00219	-0.18172	-3.45444
	RN	0.04796	0.05006	0.09664
sky130_osu_sc_18T_ls__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.02240	0.02493	0.09426
	RN	-0.00219	-0.14406	-2.34584
	RN	0.04606	0.04949	0.12851

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	0.02427	0.02550	0.06383
	RN	-0.00219	-0.18022	-3.40543
	RN	0.04793	0.05004	0.09767
sky130_osu_sc_18T_ls__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.02236	0.02492	0.09496
	RN	-0.00219	-0.14368	-2.33477
	RN	0.04604	0.04945	0.12841

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	0.02292	0.02772	0.09916
	RN	0.04120	0.04263	0.08237
	SN	-0.00219	-0.18022	-3.40661
	SN	0.03927	0.03906	0.08238
sky130_osu_sc_18T_ls__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.02096	0.02577	0.11055
	RN	0.03925	0.04065	0.09414
	SN	-0.00219	-0.14368	-2.33525
	SN	0.03734	0.03716	0.09299

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	-0.00612	-0.00621	-0.00623
	(!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)	0.02905	0.03449	0.18246
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.01148	0.01709	0.16188
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.01134	0.01698	0.16202
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.01143	0.01706	0.16192
sky130_osu_sc_18T_ls__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	-0.00612	-0.00622	-0.00624
	(!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)	0.02905	0.03448	0.18247
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.01148	0.01709	0.16188
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.01134	0.01698	0.16202
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.01143	0.01706	0.16192

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	0.00645	0.00639	0.00627
	(!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)	0.04316	0.04857	0.19878
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.01858	0.02420	0.16928
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.01899	0.02443	0.16924
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.01850	0.02415	0.16917
sky130_osu_sc_18T_ls__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.00645	0.00639	0.00627
	(!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)	0.04314	0.04855	0.19876
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.01857	0.02419	0.16927
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.01897	0.02441	0.16923
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.01848	0.02413	0.16916

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)	0.00447	0.01502	0.22398
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.02224	0.03258	0.25119
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)	0.00447	0.01502	0.22398
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.02224	0.03258	0.25120

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)	0.01717	0.02952	0.23828
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.03736	0.04915	0.26753
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)	0.01715	0.02951	0.23827
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.03734	0.04913	0.26757

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)	-0.01397	-0.01409	-0.01411
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	-0.01253	-0.01441	-0.01442
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	-0.01293	-0.01391	-0.01389
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.01002	0.01580	0.16391
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)	-0.01397	-0.01409	-0.01411
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	-0.01251	-0.01439	-0.01440
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	-0.01292	-0.01390	-0.01389
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.01002	0.01577	0.16394

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)	0.01415	0.01427	0.01422
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.01444	0.01455	0.01454
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	0.01393	0.01416	0.01401
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.02955	0.03348	0.17856
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)	0.01415	0.01427	0.01422
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.01441	0.01452	0.01451
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	0.01392	0.01415	0.01400
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.02953	0.03344	0.17857

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)	-0.00149	0.00867	0.21658
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.01231	0.02164	0.24027
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.01185	0.02123	0.24011
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	-0.00190	0.00898	0.21520
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.00741	0.02567	0.39463
sky130_osu_sc_18T_ls__dffsr_l	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	-0.00149	0.00866	0.21658
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.01229	0.02162	0.24025
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.01183	0.02121	0.24010
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	-0.00191	0.00898	0.21520
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.00741	0.02567	0.39463

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)	0.06288	0.07318	0.34264
	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.02393	0.03611	0.24364
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.04373	0.05460	0.27131
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.04384	0.05472	0.27111
	(!D * RN * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * Q * !QN)	0.05900	0.07936	0.40074
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.02841	0.03969	0.24562
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.03246	0.05323	0.42191
sky130_osu_sc_18T_ls__dffsr_l	**(D * RN * SN * !Q * QN)**	0.00000	0.00000	0.00000
	(D * RN * SN * !Q * QN)	0.06288	0.07318	0.34264
	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.02392	0.03610	0.24364
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.04373	0.05460	0.27131
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.04383	0.05472	0.27111
	(!D * RN * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * Q * !QN)	0.05899	0.07935	0.40072
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.02840	0.03969	0.24562
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.03245	0.05322	0.42190

SKY130_OSU_SC_18T_LS__DFFSx

sky130_osu_sc_18T_ls_ff_1P95_100C.ccs
Cell Library: Process , Voltage 1.95,
Temp 100.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__dffs_1	57.87540
sky130_osu_sc_18T_ls__dffs_l	57.87540

Pin Capacitance Information

Cell Name	Pin Cap(pf)			Max Cap(pf)	
	D	SN	CK	Q	QN
sky130_osu_sc_18T_ls__dffs_1	0.00562	0.00943	0.01584	3.42063	3.41204
sky130_osu_sc_18T_ls__dffs_l	0.00562	0.00943	0.01584	2.49223	2.46683

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__dffs_1	0.00000	3.40193	4.83058
sky130_osu_sc_18T_ls__dffs_l	0.00000	3.11217	4.54082

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)	0.17203	1.12583	16.58630
	QN->Q (FR)	0.02679	0.73996	11.83230
	SN->Q (FR)	0.12919	1.22381	18.12170
sky130_osu_sc_18T_ls__dffs_l	CK->Q (RR)	0.17146	1.23389	16.45090
	QN->Q (FR)	0.02796	0.77739	11.59440
	SN->Q (FR)	0.12907	1.32690	17.96360

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)	0.24560	1.17986	16.22990
	QN->Q (RF)	0.02448	0.68732	11.16430
sky130_osu_sc_18T_ls__dffs_l	CK->Q (RF)	0.24607	1.28525	16.10070
	QN->Q (RF)	0.02479	0.69014	10.37530

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)	0.21894	0.63295	6.42828
sky130_osu_sc_18T_ls__dffs_l	CK->QN (RR)	0.21783	0.68119	6.50317

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)	0.14222	0.54790	6.23746
	SN->QN (FF)	0.09923	0.64495	7.76377
sky130_osu_sc_18T_ls__dffs_l	CK->QN (RF)	0.13862	0.57475	5.98777
	SN->QN (FF)	0.09603	0.66622	7.49579

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)	-0.04232	-0.05127	0.08972
	setup	CK (R)	0.12573	0.16918	0.62688
sky130_osu_sc_18T_ls__dffs_l	hold	CK (R)	-0.04362	-0.05127	0.08558
	setup	CK (R)	0.12593	0.16957	0.60566

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)	-0.08954	-0.26486	-1.70032
	setup	CK (R)	0.11636	0.27772	3.64069
sky130_osu_sc_18T_ls__dffs_l	hold	CK (R)	-0.09044	-0.26482	-1.67236
	setup	CK (R)	0.11636	0.27772	3.64064

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)	-0.04232	-0.05127	0.08972
	setup	CK (R)	0.12573	0.16918	0.62688
sky130_osu_sc_18T_ls__dffs_l	hold	CK (R)	-0.04362	-0.05127	0.08558
	setup	CK (R)	0.12593	0.16957	0.60566

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)	-0.08954	-0.26486	-1.70032
	setup	CK (R)	0.11636	0.27772	3.64069
sky130_osu_sc_18T_ls__dffs_l	hold	CK (R)	-0.09044	-0.26482	-1.67236
	setup	CK (R)	0.11636	0.27772	3.64064

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)	0.03459	0.06103	4.23421
	removal	CK (R)	-0.01711	-0.04700	-0.24285
sky130_osu_sc_18T_ls__dffs_l	recovery	CK (R)	0.03435	0.06100	4.10594
	removal	CK (R)	-0.01711	-0.04700	-0.24285

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)	0.03459	0.06103	4.23421
	removal	CK (R)	-0.01711	-0.04700	-0.24285
sky130_osu_sc_18T_ls__dffs_l	recovery	CK (R)	0.03435	0.06100	4.10594
	removal	CK (R)	-0.01711	-0.04700	-0.24285

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 ()	0.08690	0.51880	13.33370
	min_pulse_width	SN ()	0.09079	0.51880	13.33370
sky130_osu_sc_18T_ls__dffs_l	min_pulse_width	SN ()	0.08690	0.51880	13.33370
	min_pulse_width	SN ()	0.08301	0.51880	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 ()	0.07912	0.51880	13.33370
	min_pulse_width	CK ()	0.12192	0.51880	13.33370
sky130_osu_sc_18T_ls__dffs_l	min_pulse_width	CK ()	0.07523	0.51880	13.33370
	min_pulse_width	CK ()	0.11803	0.51880	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 ()	0.17250	0.51880	13.33370
	min_pulse_width	CK ()	0.09857	0.51880	13.33370
sky130_osu_sc_18T_ls__dffs_l	min_pulse_width	CK ()	0.17250	0.51880	13.33370
	min_pulse_width	CK ()	0.09857	0.51880	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	0.01791	0.02061	0.05686
	SN	-0.00219	-0.17525	-3.25173
	SN	0.03191	0.03201	0.04411
sky130_osu_sc_18T_ls__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.01587	0.02070	0.10666
	SN	-0.00219	-0.14492	-2.36917
	SN	0.02989	0.03230	0.09359

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	0.02080	0.02149	0.05376
sky130_osu_sc_18T_ls__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.01874	0.02132	0.09251

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	0.02077	0.02149	0.05398
sky130_osu_sc_18T_ls__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.01871	0.02134	0.09330

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	0.01783	0.02072	0.05484
	SN	-0.00219	-0.17498	-3.24297
	SN	0.03186	0.03197	0.04196
sky130_osu_sc_18T_ls__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.01581	0.02091	0.10632
	SN	-0.00219	-0.14403	-2.34481
	SN	0.02984	0.03228	0.09290

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	-0.00618	-0.00628	-0.00630
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.02129	0.02720	0.17814
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.00987	0.01566	0.16120
sky130_osu_sc_18T_ls__dffs_l	CK	0.00000	0.00000	0.00000
	CK	-0.00619	-0.00628	-0.00630
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.02128	0.02720	0.17814
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.00987	0.01566	0.16120

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	0.00652	0.00646	0.00634
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.03650	0.04221	0.19335
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.01788	0.02372	0.16969
sky130_osu_sc_18T_ls__dffs_1	CK	0.00000	0.00000	0.00000
	CK	0.00652	0.00646	0.00634
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.03649	0.04221	0.19334
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.01788	0.02371	0.16969

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)	-0.01028	-0.01031	-0.01034
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.00778	0.01355	0.15384
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)	-0.01029	-0.01031	-0.01034
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.00778	0.01357	0.15383

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)	0.01053	0.01050	0.01042
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.02010	0.02612	0.16668
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)	0.01053	0.01050	0.01042
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.02010	0.02612	0.16668

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)	-0.00153	0.00875	0.21677
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	-0.00207	0.00883	0.21527
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.00572	0.02447	0.39491
sky130_osu_sc_18T_ls__dffs_l	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	-0.00154	0.00875	0.21676
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	-0.00207	0.00884	0.21527
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.00572	0.02447	0.39491

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)	0.05504	0.06550	0.33774
	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.02385	0.03609	0.24379
	(!D * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * SN * Q * !QN)	0.05222	0.07312	0.39310
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	0.02846	0.03979	0.24591
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.03162	0.05285	0.42320
sky130_osu_sc_18T_ls__dffs_l	(D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * SN * !Q * QN)	0.05504	0.06550	0.33774
	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.02385	0.03609	0.24379
	(!D * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * SN * Q * !QN)	0.05221	0.07313	0.39310
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	0.02846	0.03979	0.24591
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.03162	0.05285	0.42320

SKY130_OSU_SC_18T_LS__DFFx

sky130_osu_sc_18T_ls_ff_1P95_100C.ccs
Cell Library: Process , Voltage 1.95,
Temp 100.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__dff_1	48.35160
sky130_osu_sc_18T_ls__dff_l	48.35160

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)	
	D	CK	Q	QN
sky130_osu_sc_18T_ls__dff_1	0.00577	0.01582	3.61292	3.59948
sky130_osu_sc_18T_ls__dff_l	0.00577	0.01582	2.42079	2.41972

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__dff_1	0.00000	3.50739	3.98297
sky130_osu_sc_18T_ls__dff_l	0.00000	3.21763	3.69321

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)	0.15488	1.10128	16.77540
	QN->Q (FR)	0.02537	0.72249	11.73260
sky130_osu_sc_18T_ls__dff_l	CK->Q (RR)	0.15959	1.21282	16.06750
	QN->Q (FR)	0.02852	0.78393	11.61070

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)	0.20969	1.12462	16.34280
	QN->Q (RF)	0.02250	0.64827	10.67850
sky130_osu_sc_18T_ls__dff_l	CK->Q (RF)	0.21593	1.23955	15.72960
	QN->Q (RF)	0.02484	0.68287	10.17330

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)	0.18491	0.58842	6.49466
sky130_osu_sc_18T_ls__dff_l	CK->QN (RR)	0.18818	0.64687	6.45333

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)	0.12684	0.52694	6.24473
sky130_osu_sc_18T_ls__dff_l	CK->QN (RF)	0.12707	0.55987	5.86088

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)	-0.04098	-0.04767	0.07032
	setup	CK (R)	0.10547	0.15487	0.65042
sky130_osu_sc_18T_ls__dff_l	hold	CK (R)	-0.04133	-0.04788	0.07348
	setup	CK (R)	0.10575	0.15402	0.65680

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)	-0.08202	-0.26491	-1.51489
	setup	CK (R)	0.09872	0.27559	3.62776
sky130_osu_sc_18T_ls__dff_l	hold	CK (R)	-0.08235	-0.26491	-1.51321
	setup	CK (R)	0.09872	0.27559	3.62907

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 ()	0.07133	0.51880	13.33370
	min_pulse_width	CK ()	0.11024	0.51880	13.33370
sky130_osu_sc_18T_ls__dff_l	min_pulse_width	CK ()	0.07133	0.51880	13.33370
	min_pulse_width	CK ()	0.10635	0.51880	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** ()	0.15694	0.51880	13.33370
	min_pulse_width	**CK** ()	0.07523	0.51880	13.33370
sky130_osu_sc_18T_ls__dff_l	**min_pulse_width**	**CK** ()	0.15305	0.51880	13.33370
	min_pulse_width	**CK** ()	0.07523	0.51880	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	0.01876	0.02411	0.10092
sky130_osu_sc_18T_ls__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.01688	0.02223	0.11330

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	0.02117	0.02272	0.06388
sky130_osu_sc_18T_ls__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.01933	0.02180	0.09065

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	0.02114	0.02270	0.06478
sky130_osu_sc_18T_ls__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.01930	0.02178	0.08975

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	0.01870	0.02409	0.10005
sky130_osu_sc_18T_ls__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.01682	0.02219	0.11176

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	-0.00517	-0.00614	-0.00623
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.01986	0.02602	0.17855
sky130_osu_sc_18T_ls__dff_l	CK	0.00000	0.00000	0.00000
	CK	-0.00517	-0.00614	-0.00623
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.01986	0.02603	0.17856

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	0.00626	0.00630	0.00631
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.03757	0.04358	0.19698
sky130_osu_sc_18T_ls__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.00626	0.00629	0.00631
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.03758	0.04358	0.19699

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)	-0.00154	0.00875	0.21674
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	-0.00206	0.00884	0.21526
sky130_osu_sc_18T_ls__dff_l	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	-0.00154	0.00875	0.21674
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	-0.00207	0.00884	0.21526

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)	0.02377	0.03601	0.24369
	(D * !Q * QN)	0.00000	0.00000	0.00000
	(D * !Q * QN)	0.05373	0.06425	0.33856
	(!D * Q * !QN)	0.00000	0.00000	0.00000
	(!D * Q * !QN)	0.05309	0.07459	0.40070
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.02835	0.03976	0.24577
sky130_osu_sc_18T_ls__dff_l	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.02376	0.03600	0.24369
	(D * !Q * QN)	0.00000	0.00000	0.00000
	(D * !Q * QN)	0.05374	0.06428	0.33855
	(!D * Q * !QN)	0.00000	0.00000	0.00000
	(!D * Q * !QN)	0.05309	0.07460	0.40071
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.02834	0.03976	0.24577

SKY130_OSU_SC_18T_LS__INVx

sky130_osu_sc_18T_ls_ff_1P95_100C.ccs
Cell Library: Process , Voltage 1.95,
Temp 100.00

Truth Table

INPUT	OUTPUT
A	Y
0	1
1	0

Footprint

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

Pin Capacitance Information

Cell Name	Pin Cap(pf)	Max Cap(pf)
	A	Y
sky130_osu_sc_18T_ls__inv_1	0.00560	3.34822
sky130_osu_sc_18T_ls__inv_10	0.05296	28.89949
sky130_osu_sc_18T_ls__inv_2	0.01078	6.44170
sky130_osu_sc_18T_ls__inv_3	0.01608	9.20425
sky130_osu_sc_18T_ls__inv_4	0.02130	12.35509
sky130_osu_sc_18T_ls__inv_6	0.03193	18.31582
sky130_osu_sc_18T_ls__inv_8	0.04245	24.05440
sky130_osu_sc_18T_ls__inv_l	0.00430	2.28022

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__inv_1	0.00000	0.51351	0.71612
sky130_osu_sc_18T_ls__inv_10	0.00000	5.08829	7.09098
sky130_osu_sc_18T_ls__inv_2	0.00000	1.01766	1.41820
sky130_osu_sc_18T_ls__inv_3	0.00000	1.53117	2.13432
sky130_osu_sc_18T_ls__inv_4	0.00000	2.03532	2.83639
sky130_osu_sc_18T_ls__inv_6	0.00000	3.05298	4.25459
sky130_osu_sc_18T_ls__inv_8	0.00000	4.07063	5.67278
sky130_osu_sc_18T_ls__inv_l	0.00000	0.36863	0.57483

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)**	0.02374	0.64869	10.25550
sky130_osu_sc_18T_ls__inv_10	**A->Y (FR)**	0.03916	0.43940	10.16250
sky130_osu_sc_18T_ls__inv_2	**A->Y (FR)**	0.02038	0.55895	10.11130
sky130_osu_sc_18T_ls__inv_3	**A->Y (FR)**	0.02279	0.52458	10.14250
sky130_osu_sc_18T_ls__inv_4	**A->Y (FR)**	0.02394	0.49462	10.11030
sky130_osu_sc_18T_ls__inv_6	**A->Y (FR)**	0.02771	0.46492	10.18540
sky130_osu_sc_18T_ls__inv_8	**A->Y (FR)**	0.03298	0.44815	10.20200
sky130_osu_sc_18T_ls__inv_l	**A->Y (FR)**	0.02630	0.69957	10.18370

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)**	0.02024	0.55559	8.97530
sky130_osu_sc_18T_ls__inv_10	**A->Y (RF)**	0.03603	0.32329	8.55205
sky130_osu_sc_18T_ls__inv_2	**A->Y (RF)**	0.01758	0.45989	8.80858
sky130_osu_sc_18T_ls__inv_3	**A->Y (RF)**	0.01956	0.42021	8.79194
sky130_osu_sc_18T_ls__inv_4	**A->Y (RF)**	0.01999	0.38954	8.78096
sky130_osu_sc_18T_ls__inv_6	**A->Y (RF)**	0.02529	0.35808	8.80039
sky130_osu_sc_18T_ls__inv_8	**A->Y (RF)**	0.03034	0.33849	8.76139
sky130_osu_sc_18T_ls__inv_l	**A->Y (RF)**	0.02221	0.58685	8.60409

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	0.00897	0.01339	0.05159
sky130_osu_sc_18T_ls__inv_10	A	0.00000	0.00000	0.00000
	A	0.08275	0.14630	0.50144
sky130_osu_sc_18T_ls__inv_2	A	0.00000	0.00000	0.00000
	A	0.01629	0.02714	0.10085
sky130_osu_sc_18T_ls__inv_3	A	0.00000	0.00000	0.00000
	A	0.02488	0.04052	0.15184
sky130_osu_sc_18T_ls__inv_4	A	0.00000	0.00000	0.00000
	A	0.03227	0.05707	0.20067
sky130_osu_sc_18T_ls__inv_6	A	0.00000	0.00000	0.00000
	A	0.04826	0.08487	0.30065
sky130_osu_sc_18T_ls__inv_8	A	0.00000	0.00000	0.00000
	A	0.06481	0.11231	0.40151
sky130_osu_sc_18T_ls__inv_l	A	0.00000	0.00000	0.00000
	A	0.00688	0.00949	0.04142

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__inv_1	**A**	0.00000	0.00000	0.00000
	A	-0.00214	0.00088	0.03052
sky130_osu_sc_18T_ls__inv_10	**A**	0.00000	0.00000	0.00000
	A	-0.01944	0.01981	0.30483
sky130_osu_sc_18T_ls__inv_2	**A**	0.00000	0.00000	0.00000
	A	-0.00635	0.00087	0.05954
sky130_osu_sc_18T_ls__inv_3	**A**	0.00000	0.00000	0.00000
	A	-0.00827	0.00399	0.09067
sky130_osu_sc_18T_ls__inv_4	**A**	0.00000	0.00000	0.00000
	A	-0.01196	0.00464	0.11788
sky130_osu_sc_18T_ls__inv_6	**A**	0.00000	0.00000	0.00000
	A	-0.01805	0.00730	0.17587
sky130_osu_sc_18T_ls__inv_8	**A**	0.00000	0.00000	0.00000
	A	-0.02116	0.01446	0.23590
sky130_osu_sc_18T_ls__inv_l	**A**	0.00000	0.00000	0.00000
	A	-0.00152	0.00073	0.02470

SKY130_OSU_SC_18T_LS__MUX2

sky130_osu_sc_18T_ls_ff_1P95_100C.ccs
Cell Library: Process , Voltage 1.95,
Temp 100.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__mux2_1	18.31500

Pin Capacitance Information

Cell Name	Pin Cap(pf)			Max Cap(pf)
	A0	A1	S0	Y
sky130_osu_sc_18T_ls__mux2_1	0.33447	0.33442	0.01137	0.33007

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__mux2_1	0.00000	1.03621	1.03621

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)	-	0.01182	0.11649	0.81434
	A1->Y (RR)	-	0.01253	0.11643	0.81144
	S0->Y (RR)	(!A0 * A1)	0.03906	0.15884	0.37336
	S0->Y (FR)	(A0 * !A1)	0.03585	0.26489	2.20452

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)	-	0.01028	0.12712	0.90187
	A1->Y (FF)	-	0.01035	0.12686	0.89737
	S0->Y (FF)	(!A0 * A1)	0.05025	0.26286	1.75644
	S0->Y (RF)	(A0 * !A1)	0.02518	0.18028	1.03091

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	-	-0.00951	-0.00953	-0.00952
	A1	-	0.00000	0.00000	0.00000
	A1	-	-0.00651	-0.00654	-0.00653
	S0	(A0 * !A1)	0.00000	0.00000	0.00000
	S0	(A0 * !A1)	0.00989	0.02365	0.23100
	S0	(!A0 * A1)	0.00000	0.00000	0.00000
	S0	(!A0 * A1)	-0.00658	0.00522	0.21209

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	-	0.00951	0.00953	0.00952
	A1	-	0.00000	0.00000	0.00000
	A1	-	0.00654	0.00656	0.00655
	S0	(A0 * !A1)	0.00000	0.00000	0.00000
	S0	(A0 * !A1)	0.00191	0.01437	0.22229
	S0	(!A0 * A1)	0.00000	0.00000	0.00000
	S0	(!A0 * A1)	0.02458	0.03748	0.24296

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)	-0.00234	-0.00233	-0.00233

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)	0.00235	0.00234	0.00234

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)	-0.00278	-0.00278	-0.00278

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)	0.00278	0.00278	0.00278

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)	-0.00235	0.00987	0.21722
	(!A0 * !A1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !Y)	-0.00236	0.00974	0.21758

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)	0.01845	0.03146	0.23737
	(!A0 * !A1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !Y)	0.01605	0.02990	0.23671

SKY130_OSU_SC_18T_LS__NAND2x

sky130_osu_sc_18T_ls_ff_1P95_100C.ccs
Cell Library: Process , Voltage 1.95,
Temp 100.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__nand2_1	9.52380
sky130_osu_sc_18T_ls__nand2_l	9.52380

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	B	Y
sky130_osu_sc_18T_ls__nand2_1	0.00562	0.00559	2.54295
sky130_osu_sc_18T_ls__nand2_l	0.00431	0.00430	1.81501

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__nand2_1	0.00000	0.49843	1.41820
sky130_osu_sc_18T_ls__nand2_l	0.00000	0.36030	1.13992

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)	0.02438	0.60030	8.80962
	B->Y (FR)	0.02852	0.59817	8.71113
sky130_osu_sc_18T_ls__nand2_l	A->Y (FR)	0.02688	0.65409	8.95640
	B->Y (FR)	0.03201	0.65559	8.91675

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)	0.02780	0.63042	9.49616
	B->Y (RF)	0.03141	0.60211	9.07502
sky130_osu_sc_18T_ls__nand2_l	A->Y (RF)	0.03053	0.67746	9.33430
	B->Y (RF)	0.03412	0.65164	8.92420

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	0.00962	0.01370	0.05206
	B	0.00000	0.00000	0.00000
	B	0.01232	0.01635	0.05631
sky130_osu_sc_18T_ls__nand2_l	A	0.00000	0.00000	0.00000
	A	0.00733	0.01018	0.04057
	B	0.00000	0.00000	0.00000
	B	0.00936	0.01217	0.04361

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	-0.00148	0.00115	0.03108
	B	0.00000	0.00000	0.00000
	B	-0.00148	0.00051	0.02772
sky130_osu_sc_18T_ls__nand2_l	A	0.00000	0.00000	0.00000
	A	-0.00109	0.00087	0.02417
	B	0.00000	0.00000	0.00000
	B	-0.00108	0.00036	0.02170

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)	-0.00697	-0.00700	-0.00701
sky130_osu_sc_18T_ls__nand2_l	(!B * Y)	0.00000	0.00000	0.00000
	(!B * Y)	-0.00505	-0.00507	-0.00508

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)	0.00700	0.00706	0.00703
sky130_osu_sc_18T_ls__nand2_l	(!B * Y)	0.00000	0.00000	0.00000
	(!B * Y)	0.00507	0.00511	0.00509

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)	-0.00649	-0.00650	-0.00650
sky130_osu_sc_18T_ls__nand2_l	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00469	-0.00471	-0.00470

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)	0.00671	0.00659	0.00653
sky130_osu_sc_18T_ls__nand2_l	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00485	0.00475	0.00472

SKY130_OSU_SC_18T_LS__NOR2x

sky130_osu_sc_18T_ls_ff_1P95_100C.ccs
Cell Library: Process , Voltage 1.95,
Temp 100.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__nor2_1	9.52380
sky130_osu_sc_18T_ls__nor2_l	9.52380

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	B	Y
sky130_osu_sc_18T_ls__nor2_1	0.00562	0.00592	1.86707
sky130_osu_sc_18T_ls__nor2_l	0.00424	0.00458	1.28802

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__nor2_1	0.00000	0.44616	0.71612
sky130_osu_sc_18T_ls__nor2_l	0.00000	0.31491	0.57482

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)	0.04632	0.71042	9.65634
	B->Y (FR)	0.03342	0.72949	10.07570
sky130_osu_sc_18T_ls__nor2_l	A->Y (FR)	0.05037	0.77889	9.61623
	B->Y (FR)	0.03883	0.80037	10.05750

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)	0.02827	0.45479	6.11767
	B->Y (RF)	0.02175	0.44284	6.09359
sky130_osu_sc_18T_ls__nor2_l	A->Y (RF)	0.02981	0.47868	5.85166
	B->Y (RF)	0.02377	0.46893	5.82995

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	0.01389	0.01565	0.05221
	B	0.00000	0.00000	0.00000
	B	0.00975	0.01393	0.05977
sky130_osu_sc_18T_ls__nor2_1	A	0.00000	0.00000	0.00000
	A	0.01011	0.01147	0.04160
	B	0.00000	0.00000	0.00000
	B	0.00739	0.01035	0.04720

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	0.00146	0.00420	0.04273
	B	0.00000	0.00000	0.00000
	B	-0.00155	0.00146	0.03846
sky130_osu_sc_18T_ls__nor2_1	A	0.00000	0.00000	0.00000
	A	0.00092	0.00312	0.03423
	B	0.00000	0.00000	0.00000
	B	-0.00103	0.00120	0.03101

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)	-0.00526	-0.00625	-0.00628
sky130_osu_sc_18T_ls__nor2_l	(B * !Y)	0.00000	0.00000	0.00000
	(B * !Y)	-0.00371	-0.00440	-0.00441

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)	0.00626	0.00633	0.00630
sky130_osu_sc_18T_ls__nor2_l	(B * !Y)	0.00000	0.00000	0.00000
	(B * !Y)	0.00440	0.00442	0.00443

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)	-0.00245	-0.00247	-0.00246
sky130_osu_sc_18T_ls__nor2_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	-0.00177	-0.00179	-0.00178

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)	0.00258	0.00260	0.00250
sky130_osu_sc_18T_ls__nor2_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00186	0.00188	0.00181

SKY130_OSU_SC_18T_LS__OAI21

sky130_osu_sc_18T_ls_ff_1P95_100C.ccs
Cell Library: Process , Voltage 1.95,
Temp 100.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__oai21_l	12.45420

Pin Capacitance Information

Cell Name	Pin Cap(pf)			Max Cap(pf)
	A0	A1	B0	Y
sky130_osu_sc_18T_ls__oai21_l	0.00567	0.00575	0.00475	1.81418

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__oai21_l	0.00000	0.54203	1.29094

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)	0.04441	0.73659	9.95766
	A1->Y (FR)	0.06059	0.72151	9.54806
	B0->Y (FR)	0.03208	0.65254	8.86999

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)	0.03938	0.55976	7.52071
	A1->Y (RF)	0.04880	0.55772	7.31321
	B0->Y (RF)	0.03029	0.60380	8.24932

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	0.01371	0.01674	0.05505
	A1	0.00000	0.00000	0.00000
	A1	0.01778	0.01891	0.05140
	B0	0.00796	0.01146	0.05044

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	0.00018	0.00179	0.02978
	A1	0.00000	0.00000	0.00000
	A1	0.00335	0.00461	0.03363
	B0	0.00106	0.00324	0.03166

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)	-0.00245	-0.00248	-0.00247
	(A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * Y)	-0.00622	-0.00631	-0.00629
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00639	-0.00642	-0.00639

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)	0.00259	0.00261	0.00252
	(A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * Y)	0.00626	0.00631	0.00629
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00655	0.00644	0.00641

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)	-0.00514	-0.00612	-0.00619
	(A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * Y)	-0.00619	-0.00629	-0.00625
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	-0.00632	-0.00633	-0.00633

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)	0.00617	0.00623	0.00622
	(A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * Y)	0.00622	0.00630	0.00625
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	0.00649	0.00640	0.00636

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)	-0.00513	-0.00516	-0.00522

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)	0.00521	0.00526	0.00524

SKY130_OSU_SC_18T_LS__OAI22

sky130_osu_sc_18T_ls_ff_1P95_100C.ccs
Cell Library: Process , Voltage 1.95,
Temp 100.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__oai22_1	15.38460

Pin Capacitance Information

Cell Name	Pin Cap(pf)				Max Cap(pf)
	A0	A1	B0	B1	Y
sky130_osu_sc_18T_ls__oai22_1	0.00553	0.00578	0.00592	0.00580	1.82907

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__oai22_1	0.00000	0.63742	1.41850

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)	0.06514	0.72504	9.55010
	A1->Y (FR)	0.05234	0.74311	9.97546
	B0->Y (FR)	0.03719	0.72914	9.97663
	B1->Y (FR)	0.05024	0.71037	9.55175

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)	0.07218	0.60874	7.74911
	A1->Y (RF)	0.05609	0.58448	7.62157
	B0->Y (RF)	0.04772	0.62483	8.33529
	B1->Y (RF)	0.06464	0.66296	8.63083

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	0.02362	0.02481	0.05442
	A1	0.01701	0.02024	0.06140
	B0	0.01048	0.01416	0.05454
	B1	0.01476	0.01601	0.04722

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__oai22_l	A0	0.00237	0.00360	0.03300
	A1	-0.00068	0.00096	0.02950
	B0	-0.00056	0.00176	0.03475
	B1	0.00238	0.00441	0.03621

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)	-0.00522	-0.00626	-0.00628
	(A1 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * B1 * !Y)	-0.00522	-0.00625	-0.00628
	(A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * !B1 * Y)	-0.00618	-0.00629	-0.00626
	(!A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * !B1 * Y)	-0.00633	-0.00637	-0.00634

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)	0.00625	0.00633	0.00630
	(A1 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * B1 * !Y)	0.00626	0.00634	0.00631
	(A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * !B1 * Y)	0.00623	0.00629	0.00626
	(!A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * !B1 * Y)	0.00652	0.00640	0.00637

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)	-0.00243	-0.00246	-0.00245
	(A0 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * B1 * !Y)	-0.00243	-0.00245	-0.00244
	(A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * !B1 * Y)	-0.00616	-0.00623	-0.00623
	(!A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * !B1 * Y)	-0.00631	-0.00635	-0.00632

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)	0.00257	0.00258	0.00249
	(A0 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * B1 * !Y)	0.00257	0.00259	0.00249
	(A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * !B1 * Y)	0.00620	0.00623	0.00623
	(!A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * !B1 * Y)	0.00651	0.00640	0.00636

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)	-0.00242	-0.00244	-0.00243
	(A0 * !A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B1 * !Y)	-0.00241	-0.00244	-0.00243
	(!A0 * !A1 * B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B1 * Y)	-0.00682	-0.00692	-0.00690
	(!A0 * !A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B1 * Y)	-0.00682	-0.00687	-0.00695

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)	0.00255	0.00257	0.00247
	(A0 * !A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B1 * !Y)	0.00255	0.00258	0.00247
	(!A0 * !A1 * B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B1 * Y)	0.00695	0.00702	0.00690
	(!A0 * !A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B1 * Y)	0.00695	0.00702	0.00699

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)	-0.00515	-0.00618	-0.00620
	(A0 * !A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B0 * !Y)	-0.00514	-0.00618	-0.00620
	(!A0 * !A1 * B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B0 * Y)	-0.00691	-0.00703	-0.00700
	(!A0 * !A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B0 * Y)	-0.00692	-0.00695	-0.00704

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)	0.00617	0.00625	0.00622
	(A0 * !A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B0 * !Y)	0.00618	0.00626	0.00623
	(!A0 * !A1 * B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B0 * Y)	0.00704	0.00710	0.00700
	(!A0 * !A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B0 * Y)	0.00704	0.00710	0.00707

SKY130_OSU_SC_18T_LS__OR2x

sky130_osu_sc_18T_ls_ff_1P95_100C.ccs
Cell Library: Process , Voltage 1.95,
Temp 100.00

Truth Table

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

Footprint

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

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	B	Y
sky130_osu_sc_18T_ls__or2_1	0.00595	0.00575	3.49379
sky130_osu_sc_18T_ls__or2_2	0.00596	0.00575	6.76281
sky130_osu_sc_18T_ls__or2_4	0.00596	0.00576	12.71516
sky130_osu_sc_18T_ls__or2_8	0.00598	0.00578	23.81519
sky130_osu_sc_18T_ls__or2_l	0.00465	0.00440	2.39494

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__or2_1	0.00000	0.85850	1.33325
sky130_osu_sc_18T_ls__or2_2	0.00000	1.26369	2.03534
sky130_osu_sc_18T_ls__or2_4	0.00000	2.08109	3.45356
sky130_osu_sc_18T_ls__or2_8	0.00000	3.71589	6.29000
sky130_osu_sc_18T_ls__or2_l	0.00000	0.58058	0.89608

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)	0.05912	0.46055	6.26489
	B->Y (RR)	0.05020	0.42989	6.15633
sky130_osu_sc_18T_ls__or2_2	A->Y (RR)	0.06567	0.40929	6.27374
	B->Y (RR)	0.05640	0.38171	6.15580
sky130_osu_sc_18T_ls__or2_4	A->Y (RR)	0.08505	0.40931	6.36697
	B->Y (RR)	0.07546	0.38559	6.24664
sky130_osu_sc_18T_ls__or2_8	A->Y (RR)	0.12365	0.46028	6.60259
	B->Y (RR)	0.11371	0.44096	6.48688
sky130_osu_sc_18T_ls__or2_l	A->Y (RR)	0.06390	0.50987	6.13864
	B->Y (RR)	0.05551	0.48275	6.02818

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)	0.08359	0.56910	7.61195
	B->Y (FF)	0.06684	0.56873	7.87353
sky130_osu_sc_18T_ls__or2_2	A->Y (FF)	0.09757	0.52980	7.59797
	B->Y (FF)	0.08089	0.53411	7.84024
sky130_osu_sc_18T_ls__or2_4	A->Y (FF)	0.13555	0.54680	7.62050
	B->Y (FF)	0.11892	0.55786	7.84725
sky130_osu_sc_18T_ls__or2_8	A->Y (FF)	0.21570	0.62914	7.63391
	B->Y (FF)	0.19919	0.64890	7.84617
sky130_osu_sc_18T_ls__or2_l	A->Y (FF)	0.08969	0.62161	7.48835
	B->Y (FF)	0.07349	0.62523	7.80177

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	0.01008	0.01678	0.13836
	B	0.00000	0.00000	0.00000
	B	0.00718	0.01575	0.15410
sky130_osu_sc_18T_ls__or2_2	A	0.00000	0.00000	0.00000
	A	0.01769	0.02480	0.14816
	B	0.00000	0.00000	0.00000
	B	0.01463	0.02332	0.16178
sky130_osu_sc_18T_ls__or2_4	A	0.00000	0.00000	0.00000
	A	0.03455	0.04234	0.16514
	B	0.00000	0.00000	0.00000
	B	0.03130	0.04053	0.17891
sky130_osu_sc_18T_ls__or2_8	A	0.00000	0.00000	0.00000
	A	0.07564	0.07930	0.19912
	B	0.00000	0.00000	0.00000
	B	0.07226	0.07804	0.20966
sky130_osu_sc_18T_ls__or2_l	A	0.00000	0.00000	0.00000
	A	0.00731	0.01233	0.10868
	B	0.00000	0.00000	0.00000
	B	0.00549	0.01217	0.12153

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	0.02232	0.02773	0.14958
	B	0.00000	0.00000	0.00000
	B	0.01784	0.02788	0.19709
sky130_osu_sc_18T_ls__or2_2	A	0.00000	0.00000	0.00000
	A	0.02907	0.03350	0.15449
	B	0.00000	0.00000	0.00000
	B	0.02460	0.03342	0.19957
sky130_osu_sc_18T_ls__or2_4	A	0.00000	0.00000	0.00000
	A	0.05029	0.04827	0.16543
	B	0.00000	0.00000	0.00000
	B	0.04582	0.04894	0.20619
sky130_osu_sc_18T_ls__or2_8	A	0.00000	0.00000	0.00000
	A	0.10884	0.08356	0.19043
	B	0.00000	0.00000	0.00000
	B	0.10434	0.08286	0.22534
sky130_osu_sc_18T_ls__or2_l	A	0.00000	0.00000	0.00000
	A	0.01692	0.02109	0.11167
	B	0.00000	0.00000	0.00000
	B	0.01380	0.02137	0.15039

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)	-0.00525	-0.00625	-0.00631
sky130_osu_sc_18T_ls__or2_2	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00526	-0.00625	-0.00630
sky130_osu_sc_18T_ls__or2_4	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00525	-0.00625	-0.00630
sky130_osu_sc_18T_ls__or2_8	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00524	-0.00624	-0.00629
sky130_osu_sc_18T_ls__or2_l	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00371	-0.00441	-0.00443

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)	0.00629	0.00634	0.00633
sky130_osu_sc_18T_ls__or2_2	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00629	0.00631	0.00633
sky130_osu_sc_18T_ls__or2_4	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00630	0.00632	0.00634
sky130_osu_sc_18T_ls__or2_8	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00631	0.00636	0.00635
sky130_osu_sc_18T_ls__or2_l	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00441	0.00446	0.00445

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__or2_1	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00248	-0.00249	-0.00247
sky130_osu_sc_18T_ls__or2_2	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00247	-0.00248	-0.00247
sky130_osu_sc_18T_ls__or2_4	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00247	-0.00248	-0.00246
sky130_osu_sc_18T_ls__or2_8	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00246	-0.00247	-0.00245
sky130_osu_sc_18T_ls__or2_l	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00182	-0.00183	-0.00182

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__or2_1	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00262	0.00262	0.00252
sky130_osu_sc_18T_ls__or2_2	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00263	0.00262	0.00252
sky130_osu_sc_18T_ls__or2_4	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00263	0.00263	0.00253
sky130_osu_sc_18T_ls__or2_8	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00264	0.00264	0.00254
sky130_osu_sc_18T_ls__or2_l	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00192	0.00192	0.00185

SKY130_OSU_SC_18T_LS__TBUFIx

sky130_osu_sc_18T_ls_ff_1P95_100C.ccs
Cell Library: Process , Voltage 1.95,
Temp 100.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__tbufi_1	12.45420
sky130_osu_sc_18T_ls__tbufi_l	12.45420

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	OE	Y
sky130_osu_sc_18T_ls__tbufi_1	0.00592	0.00749	1.86282
sky130_osu_sc_18T_ls__tbufi_l	0.00459	0.00585	1.28082

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__tbufi_1	0.00000	0.63773	1.43224
sky130_osu_sc_18T_ls__tbufi_l	0.00000	0.43645	1.14964

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)	0.03254	0.72468	10.03260
	OE->Y (FR)	0.04265	0.39882	5.34327
	OE->Y (RR)	0.06422	0.52815	6.24734
sky130_osu_sc_18T_ls__tbufi_l	A->Y (FR)	0.03783	0.79740	10.01240
	OE->Y (FR)	0.04477	0.39863	5.34310
	OE->Y (RR)	0.06933	0.59366	6.13264

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)	0.02742	0.55864	7.69378
	OE->Y (FF)	0.04330	0.39883	5.34327
	OE->Y (RF)	0.02528	0.51963	7.16583
sky130_osu_sc_18T_ls__tbufi_l	A->Y (RF)	0.03038	0.58938	7.34190
	OE->Y (FF)	0.04547	0.39861	5.34307
	OE->Y (RF)	0.02891	0.55320	6.81981

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	0.00921	0.01261	0.05184
	OE	0.00000	0.00000	0.00000
	OE	0.01014	0.02128	0.20336
sky130_osu_sc_18T_ls__tbufi_l	A	0.00000	0.00000	0.00000
	A	0.00701	0.00962	0.04109
	OE	0.00000	0.00000	0.00000
	OE	0.00722	0.01595	0.15982

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	-0.00161	0.00097	0.03229
	OE	0.00000	0.00000	0.00000
	OE	0.00638	0.01832	0.22536
sky130_osu_sc_18T_ls__tbufi_l	A	0.00000	0.00000	0.00000
	A	-0.00106	0.00082	0.02611
	OE	0.00000	0.00000	0.00000
	OE	0.00444	0.01364	0.17105

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)	-0.00454	-0.00457	-0.00456
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	-0.00376	-0.00379	-0.00378
sky130_osu_sc_18T_ls__tbufi_l	(!OE * Y)	0.00000	0.00000	0.00000
	(!OE * Y)	-0.00344	-0.00345	-0.00345
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	-0.00291	-0.00297	-0.00292

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)	0.00454	0.00457	0.00456
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	0.00385	0.00388	0.00382
sky130_osu_sc_18T_ls__tbufi_l	(!OE * Y)	0.00000	0.00000	0.00000
	(!OE * Y)	0.00344	0.00345	0.00345
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	0.00297	0.00299	0.00295

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)	0.00396	0.01649	0.22717
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00350	0.01606	0.22667
sky130_osu_sc_18T_ls__tbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00270	0.01237	0.17348
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00236	0.01203	0.17305

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)	0.01077	0.02323	0.23331
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.01076	0.02340	0.23345
sky130_osu_sc_18T_ls__tbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00842	0.01794	0.17854
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00844	0.01804	0.17863

SKY130_OSU_SC_18T_LS__TNBUFIx

sky130_osu_sc_18T_ls_ff_1P95_100C.ccs
Cell Library: Process , Voltage 1.95,
Temp 100.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__tnbufi_1	12.45420
sky130_osu_sc_18T_ls__tnbufi_l	12.45420

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	OE	Y
sky130_osu_sc_18T_ls__tnbufi_1	0.00591	0.00934	1.86290
sky130_osu_sc_18T_ls__tnbufi_l	0.00458	0.00697	1.28091

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__tnbufi_1	0.00000	0.77281	1.02701
sky130_osu_sc_18T_ls__tnbufi_l	0.00000	0.57391	0.73725

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)	0.03259	0.72467	10.03260
	OE->Y (RR)	0.02665	0.39996	5.34437
	OE->Y (FR)	0.04423	0.70398	9.53869
sky130_osu_sc_18T_ls__tnbufi_l	A->Y (FR)	0.03799	0.79735	10.01230
	OE->Y (RR)	0.02776	0.40023	5.34467
	OE->Y (FR)	0.04857	0.77274	9.47262

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)	0.02710	0.55853	7.69415
	OE->Y (RF)	0.02645	0.39996	5.34439
	OE->Y (FF)	0.04461	0.48663	5.95698
sky130_osu_sc_18T_ls__tnbufi_l	A->Y (RF)	0.02999	0.58923	7.34223
	OE->Y (RF)	0.02765	0.40024	5.34468
	OE->Y (FF)	0.04988	0.53663	5.83811

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	0.00943	0.01281	0.05202
	OE	0.00000	0.00000	0.00000
	OE	0.02404	0.03794	0.24606
sky130_osu_sc_18T_ls__tnbufi_l	A	0.00000	0.00000	0.00000
	A	0.00723	0.00982	0.04130
	OE	0.00000	0.00000	0.00000
	OE	0.01782	0.02829	0.18821

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	-0.00191	0.00069	0.03204
	OE	0.00000	0.00000	0.00000
	OE	0.02068	0.03384	0.21591
sky130_osu_sc_18T_ls__tnbufi_l	A	0.00000	0.00000	0.00000
	A	-0.00136	0.00055	0.02585
	OE	0.00000	0.00000	0.00000
	OE	0.01535	0.02503	0.16042

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)	-0.00387	-0.00389	-0.00388
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	-0.00316	-0.00319	-0.00317
sky130_osu_sc_18T_ls__tnbufi_l	(OE * Y)	0.00000	0.00000	0.00000
	(OE * Y)	-0.00281	-0.00282	-0.00282
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	-0.00232	-0.00238	-0.00233

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)	0.00387	0.00389	0.00388
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	0.00324	0.00327	0.00322
sky130_osu_sc_18T_ls__tnbufi_l	(OE * Y)	0.00000	0.00000	0.00000
	(OE * Y)	0.00281	0.00282	0.00282
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	0.00238	0.00240	0.00236

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__tnbufi_1	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	-0.00748	0.00488	0.21622
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00742	0.00497	0.21633
sky130_osu_sc_18T_ls__tnbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	-0.00522	0.00436	0.16596
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00517	0.00441	0.16602

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)	0.01782	0.03265	0.24377
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.01760	0.03280	0.24365
sky130_osu_sc_18T_ls__tnbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.01327	0.02441	0.18579
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.01309	0.02448	0.18571

SKY130_OSU_SC_18T_LS__XNOR2

sky130_osu_sc_18T_ls_ff_1P95_100C.ccs
Cell Library: Process , Voltage 1.95,
Temp 100.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__xnor2_l	21.24540

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	B	Y
sky130_osu_sc_18T_ls__xnor2_l	0.01171	0.01076	1.93095

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__xnor2_l	0.00000	1.85743	2.44597

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	0.08075	0.56477	6.52057
	A->Y (FR)	!B	0.04163	0.73906	10.17170
	B->Y (RR)	A	0.06396	0.55224	6.66192
	B->Y (FR)	!A	0.05991	0.72576	9.79032

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	0.08098	0.56860	6.53987
	A->Y (RF)	!B	0.03891	0.56199	7.69291
	B->Y (FF)	A	0.06888	0.55810	6.55497
	B->Y (RF)	!A	0.05064	0.57547	7.67978

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	0.01025	0.02055	0.20082
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.02253	0.03720	0.27406
	B	A	0.00000	0.00000	0.00000
	B	A	0.00260	0.01487	0.22470
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.02582	0.03840	0.26349

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	0.02888	0.03975	0.24198
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00629	0.01909	0.24669
	B	A	0.00000	0.00000	0.00000
	B	A	0.02624	0.03873	0.24765
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00819	0.02069	0.24446

SKY130_OSU_SC_18T_LS__XOR2

sky130_osu_sc_18T_ls_ff_1P95_100C.ccs
Cell Library: Process , Voltage 1.95,
Temp 100.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__xor2_l	21.24540

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	B	Y
sky130_osu_sc_18T_ls__xor2_l	0.01170	0.01081	1.89849

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__xor2_l	0.00000	1.85743	2.24261

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	0.07502	0.55042	6.53254
	A->Y (FR)	B	0.05466	0.72276	9.81066
	B->Y (RR)	!A	0.06600	0.54915	6.57072
	B->Y (FR)	A	0.05841	0.72461	9.76844

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	0.06743	0.54175	6.14187
	A->Y (RF)	B	0.03940	0.57961	7.77990
	B->Y (FF)	!A	0.06356	0.54043	6.30636
	B->Y (RF)	A	0.04750	0.55332	7.34386

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	0.02731	0.04095	0.27777
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00424	0.01426	0.22041
	B	A	0.00000	0.00000	0.00000
	B	A	0.02828	0.04183	0.27377
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00207	0.01418	0.22668

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	0.00514	0.01846	0.25633
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.02942	0.04151	0.22266
	B	A	0.00000	0.00000	0.00000
	B	A	0.00521	0.01782	0.24738
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.02678	0.03999	0.25148

SKY130_OSU_SC_18T_LS_x

sky130_osu_sc_18T_ls_ff_1P95_100C.ccs
Cell Library: Process , Voltage 1.95,
Temp 100.00

Truth Table

INPUT
A
x

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__ant	6.59340
sky130_osu_sc_18T_ls__tiehi	6.59340
sky130_osu_sc_18T_ls__tielo	6.59340

Pin Capacitance Information

Cell Name	Pin Cap(pf)
	A
sky130_osu_sc_18T_ls__ant	1.17681
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	549802.00000	1099600.00000
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
	-0.00107	0.17322	2.27254

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
	9.56524	9.06804	2.68924