sky130_osu_sc_18T_ls_TT_1P8_25C.ccs Library

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

SKY130_OSU_SC_18T_LS__ADDFx

sky130_osu_sc_18T_ls_TT_1P8_25C.ccs
Cell Library: Process , Voltage 1.80,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__addf_1	46.88640
sky130_osu_sc_18T_ls__addf_l	46.88640

Pin Capacitance Information

Cell Name	Pin Cap(pf)			Max Cap(pf)		
	A	B	CI	CO	CON	S
sky130_osu_sc_18T_ls__addf_1	0.02177	0.02176	0.01671	0.17827	0.06902	0.17177
sky130_osu_sc_18T_ls__addf_l	0.02176	0.02175	0.01670	0.12182	0.07039	0.12154

Leakage Information

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

Delay Information

Delay(ns) to CO rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__addf_1	A->CO (RR)	0.15911	0.48009	1.98577
	B->CO (RR)	0.13854	0.44513	1.87872
	CI->CO (RR)	0.15222	0.48076	2.01966
	CON->CO (FR)	0.03298	0.18512	0.87781
sky130_osu_sc_18T_ls__addf_l	A->CO (RR)	0.15992	0.45290	1.63485
	B->CO (RR)	0.15091	0.43047	1.56249
	CI->CO (RR)	0.15300	0.45355	1.67077
	CON->CO (FR)	0.03707	0.19959	0.87371

Delay(ns) to CO falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__addf_1	A->CO (FF)	0.22632	0.63329	2.51324
	B->CO (FF)	0.20145	0.58669	2.40371
	CI->CO (FF)	0.19710	0.60075	2.49691
	CON->CO (RF)	0.02527	0.14019	0.66415
sky130_osu_sc_18T_ls__addf_l	A->CO (FF)	0.22074	0.57767	1.99558
	B->CO (FF)	0.19903	0.54539	1.91472
	CI->CO (FF)	0.19157	0.54578	1.97998
	CON->CO (RF)	0.02703	0.14451	0.63299

Delay(ns) to CON rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__addf_1	A->CON (FR)	0.17440	0.33404	0.88140
	B->CON (FR)	0.15070	0.29837	0.84306
	CI->CON (FR)	0.14510	0.30145	0.86729
sky130_osu_sc_18T_ls__addf_1	A->CON (FR)	0.16518	0.32626	0.88071
	B->CON (FR)	0.14218	0.29117	0.84239
	CI->CON (FR)	0.13585	0.29375	0.86661

Delay(ns) to CON falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__addf_1	A->CON (RF)	0.09336	0.18968	0.52662
	B->CON (RF)	0.08812	0.18550	0.53679
	CI->CON (RF)	0.08644	0.19062	0.56678
sky130_osu_sc_18T_ls__addf_1	A->CON (RF)	0.09002	0.18707	0.52806
	B->CON (RF)	0.08513	0.18322	0.53810
	CI->CON (RF)	0.08309	0.18798	0.56819

Delay(ns) to S rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__addf_1	A->S (-R)	0.32776	0.70635	2.28011
	B->S (-R)	0.33670	0.71166	2.26767
	CI->S (-R)	0.29639	0.67108	2.25955
	CON->S (RR)	0.09247	0.23343	0.74400
sky130_osu_sc_18T_ls__addf_1	A->S (-R)	0.31294	0.65407	1.93122
	B->S (-R)	0.32247	0.66291	1.93383
	CI->S (-R)	0.29312	0.63206	1.91272
	CON->S (RR)	0.09229	0.24053	0.72876

Delay(ns) to S falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__addf_1	A->S (-F)	0.26014	0.55321	1.71244
	B->S (-F)	0.26259	0.53479	1.64751
	CI->S (-F)	0.25277	0.55203	1.74400
	CON->S (FF)	0.11020	0.25691	0.76759
sky130_osu_sc_18T_ls__addf_l	A->S (-F)	0.24546	0.50837	1.43124
	B->S (-F)	0.24825	0.49103	1.38496
	CI->S (-F)	0.23798	0.50696	1.46299
	CON->S (FF)	0.10557	0.25411	0.73299

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	0.00466	0.00454	0.00457
	B	0.00632	0.00634	0.00648
	CI	0.00681	0.00701	0.00731
sky130_osu_sc_18T_ls__addf_l	A	0.00356	0.00334	0.00329
	B	0.00522	0.00511	0.00510
	CI	0.00570	0.00582	0.00592

Internal switching power(pJ) to CO falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__addf_1	A	0.01933	0.01941	0.01969
	B	0.01909	0.01941	0.01974
	CI	0.01665	0.01721	0.01760
sky130_osu_sc_18T_ls__addf_l	A	0.01824	0.01825	0.01836
	B	0.01798	0.01822	0.01839
	CI	0.01553	0.01598	0.01626

Internal switching power(pJ) to CON rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__addf_1	A	0.01929	0.01932	0.01932
	B	0.01905	0.01920	0.01928
	CI	0.01662	0.01694	0.01713
sky130_osu_sc_18T_ls__addf_l	A	0.01820	0.01820	0.01818
	B	0.01795	0.01809	0.01813
	CI	0.01550	0.01583	0.01599

Internal switching power(pJ) to CON falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__addf_1	A	0.00458	0.00443	0.00434
	B	0.00623	0.00615	0.00596
	CI	0.00678	0.00689	0.00692
sky130_osu_sc_18T_ls__addf_l	A	0.00349	0.00326	0.00315
	B	0.00515	0.00502	0.00479
	CI	0.00568	0.00575	0.00573

Internal switching power(pJ) to S rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__addf_1	A	0.01933	0.01940	0.01966
	B	0.01909	0.01940	0.01965
	CI	0.01664	0.01719	0.01757
sky130_osu_sc_18T_ls__addf_l	A	0.01824	0.01826	0.01837
	B	0.01799	0.01822	0.01839
	CI	0.01553	0.01598	0.01626

Internal switching power(pJ) to S falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__addf_1	A	0.04111	0.04139	0.04140
	B	0.03617	0.03575	0.03572
	CI	0.03298	0.03294	0.03294
sky130_osu_sc_18T_ls__addf_l	A	0.03967	0.03969	0.03971
	B	0.03477	0.03402	0.03426
	CI	0.03158	0.03143	0.03140

SKY130_OSU_SC_18T_LS__ADDHx

sky130_osu_sc_18T_ls_TT_1P8_25C.ccs
Cell Library: Process , Voltage 1.80,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__addh_1	27.83880
sky130_osu_sc_18T_ls__addh_l	27.83880

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)		
	A	B	CO	CON	S
sky130_osu_sc_18T_ls__addh_1	0.01070	0.01164	0.17434	0.08057	0.17769
sky130_osu_sc_18T_ls__addh_l	0.01070	0.01164	0.10098	0.08323	0.10210

Leakage Information

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

Delay Information

Delay(ns) to CO rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__addh_1	A->CO (RR)	0.10816	0.24858	0.75556
	B->CO (RR)	0.11210	0.24747	0.75222
sky130_osu_sc_18T_ls__addh_l	A->CO (RR)	0.11119	0.26363	0.74086
	B->CO (RR)	0.11515	0.26320	0.74018

Delay(ns) to CO falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__addh_1	A->CO (FF)	0.09662	0.23430	0.74505
	B->CO (FF)	0.10362	0.24273	0.75986
sky130_osu_sc_18T_ls__addh_l	A->CO (FF)	0.09532	0.23506	0.69293
	B->CO (FF)	0.10200	0.24310	0.70823

Delay(ns) to CON rising (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_18T_ls__addh_1	A->CON (RR)	B	0.15071	0.24704	0.51399
	A->CON (FR)	!B	0.09556	0.25544	0.85366
	B->CON (RR)	A	0.15476	0.24571	0.51034
	B->CON (FR)	!A	0.11907	0.28092	0.86630
sky130_osu_sc_18T_ls__addh_l	A->CON (RR)	B	0.13447	0.23088	0.49365
	A->CON (FR)	!B	0.08444	0.24603	0.85677
	B->CON (RR)	A	0.13854	0.23015	0.49252
	B->CON (FR)	!A	0.10797	0.27148	0.86940

Delay(ns) to CON falling (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_18T_ls__addh_1	A->CON (FF)	B	0.14238	0.26633	0.66816
	A->CON (RF)	!B	0.05538	0.16202	0.56159
	B->CON (FF)	A	0.14180	0.27254	0.69857
	B->CON (RF)	!A	0.06546	0.16786	0.55104
sky130_osu_sc_18T_ls__addh_l	A->CON (FF)	B	0.12904	0.25193	0.64465
	A->CON (RF)	!B	0.05124	0.15886	0.56587
	B->CON (FF)	A	0.12835	0.25844	0.67668
	B->CON (RF)	!A	0.06144	0.16553	0.55507

Delay(ns) to S rising (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_18T_ls__addh_1	A->S (RR)	!B	0.11392	0.42990	1.92300
	A->S (FR)	B	0.20102	0.52730	1.99962
	B->S (RR)	!A	0.12365	0.42478	1.84288
	B->S (FR)	A	0.20164	0.54536	2.09962
	CON->S (FR)	-	0.03688	0.19220	0.90265
sky130_osu_sc_18T_ls__addh_l	A->S (RR)	!B	0.11541	0.39699	1.48257
	A->S (FR)	B	0.19362	0.48583	1.54625
	B->S (RR)	!A	0.12548	0.39586	1.43700
	B->S (FR)	A	0.19399	0.50014	1.61284
	CON->S (FR)	-	0.04313	0.21750	0.90903

Delay(ns) to S falling (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_18T_ls__addh_1	A->S (FF)	!B	0.13978	0.51279	2.28392
	A->S (RF)	B	0.18876	0.43377	1.49788
	B->S (FF)	!A	0.16331	0.53860	2.29948
	B->S (RF)	A	0.19278	0.43240	1.49453
	CON->S (RF)	-	0.02365	0.13568	0.64460
sky130_osu_sc_18T_ls__addh_l	A->S (FF)	!B	0.13265	0.44192	1.64241
	A->S (RF)	B	0.17524	0.38510	1.09495
	B->S (FF)	!A	0.15615	0.46767	1.65623
	B->S (RF)	A	0.17931	0.38441	1.09455
	CON->S (RF)	-	0.02674	0.14379	0.60940

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	0.00828	0.00807	0.00791
	B	0.00000	0.00000	0.00000
	B	0.00741	0.00718	0.00691
sky130_osu_sc_18T_ls__addh_l	A	0.00000	0.00000	0.00000
	A	0.00674	0.00642	0.00631
	B	0.00000	0.00000	0.00000
	B	0.00587	0.00553	0.00530

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	0.01306	0.01268	0.01241
	B	0.00000	0.00000	0.00000
	B	0.01357	0.01367	0.01356
sky130_osu_sc_18T_ls__addh_l	A	0.00000	0.00000	0.00000
	A	0.01152	0.01110	0.01096
	B	0.00000	0.00000	0.00000
	B	0.01204	0.01200	0.01205

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	0.00827	0.00803	0.00795
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.01142	0.01139	0.01142
	B	A	0.00000	0.00000	0.00000
	B	A	0.00739	0.00713	0.00697
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01286	0.01283	0.01282
sky130_osu_sc_18T_ls__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.00673	0.00640	0.00628
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.01041	0.01034	0.01036
	B	A	0.00000	0.00000	0.00000
	B	A	0.00587	0.00551	0.00529
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01185	0.01177	0.01175

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	0.01306	0.01272	0.01261
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00164	0.00157	0.00153
	B	A	0.00000	0.00000	0.00000
	B	A	0.01357	0.01362	0.01372
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00285	0.00270	0.00264
sky130_osu_sc_18T_ls__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.01152	0.01111	0.01100
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00031	0.00022	0.00014
	B	A	0.00000	0.00000	0.00000
	B	A	0.01203	0.01199	0.01205
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00153	0.00136	0.00127

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	0.01308	0.01270	0.01259
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00166	0.00166	0.00175
	B	A	0.00000	0.00000	0.00000
	B	A	0.01358	0.01368	0.01382
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00288	0.00279	0.00278
sky130_osu_sc_18T_ls__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.01153	0.01112	0.01104
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00032	0.00023	0.00022
	B	A	0.00000	0.00000	0.00000
	B	A	0.01204	0.01200	0.01213
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00155	0.00138	0.00131

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	0.00828	0.00807	0.00792
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.01143	0.01150	0.01160
	B	A	0.00000	0.00000	0.00000
	B	A	0.00741	0.00718	0.00691
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01288	0.01293	0.01303
sky130_osu_sc_18T_ls__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.00674	0.00641	0.00636
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.01041	0.01037	0.01042
	B	A	0.00000	0.00000	0.00000
	B	A	0.00588	0.00552	0.00532
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01186	0.01181	0.01178

SKY130_OSU_SC_18T_LS__AND2x

sky130_osu_sc_18T_ls_TT_1P8_25C.ccs
Cell Library: Process , Voltage 1.80,
Temp 25.00

Truth Table

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

Footprint

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

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	B	Y
sky130_osu_sc_18T_ls__and2_1	0.00575	0.00585	0.17713
sky130_osu_sc_18T_ls__and2_2	0.00575	0.00585	0.34466
sky130_osu_sc_18T_ls__and2_4	0.00575	0.00585	0.65668
sky130_osu_sc_18T_ls__and2_6	0.00352	0.00353	1.80000
sky130_osu_sc_18T_ls__and2_8	0.00573	0.00585	1.20759
sky130_osu_sc_18T_ls__and2_l	0.00440	0.00449	0.12251

Leakage Information

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

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__and2_1	A->Y (RR)	0.08280	0.21236	0.68670
	B->Y (RR)	0.08769	0.21332	0.69103
sky130_osu_sc_18T_ls__and2_2	A->Y (RR)	0.09549	0.21937	0.73921
	B->Y (RR)	0.10037	0.21877	0.73746
sky130_osu_sc_18T_ls__and2_4	A->Y (RR)	0.13128	0.25632	0.83901
	B->Y (RR)	0.13614	0.25567	0.82788
sky130_osu_sc_18T_ls__and2_8	A->Y (RR)	0.19886	0.32942	0.97693
	B->Y (RR)	0.20374	0.32970	0.95613
sky130_osu_sc_18T_ls__and2_l	A->Y (RR)	0.09180	0.23272	0.69438
	B->Y (RR)	0.09699	0.23350	0.69882

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__and2_1	A->Y (FF)	0.07455	0.20310	0.66758
	B->Y (FF)	0.07945	0.20959	0.68540
sky130_osu_sc_18T_ls__and2_2	A->Y (FF)	0.08637	0.21026	0.71672
	B->Y (FF)	0.09185	0.21662	0.73116
sky130_osu_sc_18T_ls__and2_4	A->Y (FF)	0.11933	0.24410	0.80149
	B->Y (FF)	0.12497	0.24994	0.81263
sky130_osu_sc_18T_ls__and2_8	A->Y (FF)	0.18852	0.31706	0.91368
	B->Y (FF)	0.19421	0.32286	0.92166
sky130_osu_sc_18T_ls__and2_l	A->Y (FF)	0.07988	0.21568	0.66668
	B->Y (FF)	0.08601	0.22254	0.68648

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__and2_1	A	0.00000	0.00000	0.00000
	A	0.00630	0.00570	0.00591
	B	0.00000	0.00000	0.00000
	B	0.00641	0.00565	0.00552
sky130_osu_sc_18T_ls__and2_2	A	0.00000	0.00000	0.00000
	A	0.01270	0.01251	0.01269
	B	0.00000	0.00000	0.00000
	B	0.01282	0.01254	0.01244
sky130_osu_sc_18T_ls__and2_4	A	0.00000	0.00000	0.00000
	A	0.02646	0.02697	0.02746
	B	0.00000	0.00000	0.00000
	B	0.02658	0.02706	0.02732
sky130_osu_sc_18T_ls__and2_8	A	0.00000	0.00000	0.00000
	A	0.05430	0.05504	0.05698
	B	0.00000	0.00000	0.00000
	B	0.05448	0.05513	0.05683
sky130_osu_sc_18T_ls__and2_l	A	0.00000	0.00000	0.00000
	A	0.00461	0.00414	0.00427
	B	0.00000	0.00000	0.00000
	B	0.00472	0.00409	0.00403

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__and2_1	A	0.00000	0.00000	0.00000
	A	0.01571	0.01567	0.01621
	B	0.00000	0.00000	0.00000
	B	0.01762	0.01738	0.01783
sky130_osu_sc_18T_ls__and2_2	A	0.00000	0.00000	0.00000
	A	0.01998	0.02080	0.02147
	B	0.00000	0.00000	0.00000
	B	0.02193	0.02241	0.02295
sky130_osu_sc_18T_ls__and2_4	A	0.00000	0.00000	0.00000
	A	0.03074	0.03233	0.03396
	B	0.00000	0.00000	0.00000
	B	0.03258	0.03382	0.03498
sky130_osu_sc_18T_ls__and2_8	A	0.00000	0.00000	0.00000
	A	0.05253	0.05440	0.05911
	B	0.00000	0.00000	0.00000
	B	0.05451	0.05565	0.05916
sky130_osu_sc_18T_ls__and2_1	A	0.00000	0.00000	0.00000
	A	0.01204	0.01189	0.01228
	B	0.00000	0.00000	0.00000
	B	0.01349	0.01325	0.01353

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)	-0.00611	-0.00613	-0.00612
sky130_osu_sc_18T_ls__and2_2	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00611	-0.00613	-0.00612
sky130_osu_sc_18T_ls__and2_4	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00611	-0.00613	-0.00611
sky130_osu_sc_18T_ls__and2_6	B	0.00000	0.00000	0.00000
	B	-0.00046	-0.00046	-0.00046
	!B	0.00000	0.00000	0.00000
	!B	-0.00038	-0.00038	-0.00038
sky130_osu_sc_18T_ls__and2_8	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00611	-0.00613	-0.00611
sky130_osu_sc_18T_ls__and2_1	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00443	-0.00444	-0.00443

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__and2_1	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00611	0.00613	0.00612
sky130_osu_sc_18T_ls__and2_2	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00611	0.00613	0.00612
sky130_osu_sc_18T_ls__and2_4	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00611	0.00613	0.00611
sky130_osu_sc_18T_ls__and2_6	B	0.00000	0.00000	0.00000
	B	0.00046	0.00046	0.00046
	!B	0.00000	0.00000	0.00000
	!B	0.00038	0.00038	0.00038
sky130_osu_sc_18T_ls__and2_8	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00611	0.00613	0.00611
sky130_osu_sc_18T_ls__and2_l	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00443	0.00444	0.00443

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__and2_1	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00578	-0.00579	-0.00578
sky130_osu_sc_18T_ls__and2_2	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00577	-0.00579	-0.00578
sky130_osu_sc_18T_ls__and2_4	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00577	-0.00579	-0.00578
sky130_osu_sc_18T_ls__and2_6	A	0.00000	0.00000	0.00000
	A	-0.00045	-0.00045	-0.00045
	!A	0.00000	0.00000	0.00000
	!A	-0.00038	-0.00038	-0.00038
sky130_osu_sc_18T_ls__and2_8	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00577	-0.00579	-0.00578
sky130_osu_sc_18T_ls__and2_l	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00418	-0.00420	-0.00419

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)	0.00578	0.00579	0.00579
sky130_osu_sc_18T_ls__and2_2	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00578	0.00579	0.00579
sky130_osu_sc_18T_ls__and2_4	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00579	0.00579	0.00579
sky130_osu_sc_18T_ls__and2_6	A	0.00000	0.00000	0.00000
	A	0.00045	0.00045	0.00045
	!A	0.00000	0.00000	0.00000
	!A	0.00038	0.00038	0.00038
sky130_osu_sc_18T_ls__and2_8	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00577	0.00579	0.00578
sky130_osu_sc_18T_ls__and2_l	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00418	0.00420	0.00419

SKY130_OSU_SC_18T_LS__AOI21

sky130_osu_sc_18T_ls_TT_1P8_25C.ccs
Cell Library: Process , Voltage 1.80,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__aoi21_l	12.45420

Pin Capacitance Information

Cell Name	Pin Cap(pf)			Max Cap(pf)
	A0	A1	B0	Y
sky130_osu_sc_18T_ls__aoi21_l	0.00544	0.00563	0.00550	0.08029

Leakage Information

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

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__aoi21_l	A0->Y (FR)	0.09357	0.26447	0.87109
	A1->Y (FR)	0.08005	0.24341	0.83082
	B0->Y (FR)	0.06788	0.23502	0.86003

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__aoi21_l	A0->Y (RF)	0.05162	0.15074	0.50674
	A1->Y (RF)	0.04691	0.15031	0.53197
	B0->Y (RF)	0.03191	0.13363	0.51428

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	0.01416	0.01402	0.01399
	A1	0.00000	0.00000	0.00000
	A1	0.01205	0.01189	0.01183
	B0	0.01085	0.01059	0.01060

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	0.00230	0.00191	0.00168
	A1	0.00000	0.00000	0.00000
	A1	0.00235	0.00193	0.00174
	B0	-0.00143	-0.00148	-0.00152

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)	-0.00518	-0.00536	-0.00537
	(!A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !Y)	-0.00548	-0.00550	-0.00549
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00548	-0.00550	-0.00549

Passive power(pJ) for A0 falling (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__aoi21_l	(A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * !Y)	0.00538	0.00538	0.00537
	(!A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !Y)	0.00548	0.00550	0.00549
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00548	0.00550	0.00549

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)	-0.00513	-0.00530	-0.00532
	(!A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !Y)	-0.00543	-0.00544	-0.00542
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	-0.00586	-0.00588	-0.00587

Passive power(pJ) for A1 falling (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__aoi21_l	(A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * B0 * !Y)	0.00531	0.00533	0.00532
	(!A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !Y)	0.00543	0.00544	0.00544
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	0.00586	0.00588	0.00587

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__aoi21_l	(A0 * A1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !Y)	-0.00247	-0.00248	-0.00247

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)	0.00254	0.00254	0.00251

SKY130_OSU_SC_18T_LS__AOI22

sky130_osu_sc_18T_ls_TT_1P8_25C.ccs
Cell Library: Process , Voltage 1.80,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__aoi22_l	15.38460

Pin Capacitance Information

Cell Name	Pin Cap(pf)				Max Cap(pf)
	A0	A1	B0	B1	Y
sky130_osu_sc_18T_ls__aoi22_l	0.00544	0.00563	0.00585	0.00562	0.07609

Leakage Information

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

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__aoi22_l	A0->Y (FR)	0.11872	0.29102	0.88652
	A1->Y (FR)	0.10565	0.27353	0.85934
	B0->Y (FR)	0.07186	0.23453	0.83835
	B1->Y (FR)	0.08495	0.25191	0.86832

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__aoi22_l	A0->Y (RF)	0.06830	0.16597	0.51235
	A1->Y (RF)	0.06362	0.16544	0.53765
	B0->Y (RF)	0.03518	0.13483	0.50079
	B1->Y (RF)	0.03998	0.13488	0.47626

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	0.01749	0.01733	0.01726
	A1	0.01539	0.01521	0.01515
	B0	0.01162	0.01126	0.01127
	B1	0.01362	0.01334	0.01333

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__aoi22_l	A0	0.00527	0.00489	0.00457
	A1	0.00533	0.00491	0.00462
	B0	-0.00087	-0.00092	-0.00098
	B1	-0.00077	-0.00089	-0.00098

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)	-0.00519	-0.00535	-0.00536
	(!A1 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * B1 * !Y)	-0.00548	-0.00550	-0.00549
	(!A1 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !B1 * Y)	-0.00548	-0.00549	-0.00549
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00548	-0.00549	-0.00549

Passive power(pJ) for A0 falling (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__aoi22_l	(A1 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * B1 * !Y)	0.00537	0.00537	0.00536
	(!A1 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * B1 * !Y)	0.00548	0.00550	0.00549
	(!A1 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !B1 * Y)	0.00548	0.00549	0.00549
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00548	0.00549	0.00549

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)	-0.00514	-0.00530	-0.00532
	(!A0 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * B1 * !Y)	-0.00543	-0.00542	-0.00543
	(!A0 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !B1 * Y)	-0.00585	-0.00588	-0.00586
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	-0.00585	-0.00588	-0.00587

Passive power(pJ) for A1 falling (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__aoi22_l	(A0 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * B0 * B1 * !Y)	0.00531	0.00532	0.00532
	(!A0 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * B1 * !Y)	0.00543	0.00544	0.00544
	(!A0 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !B1 * Y)	0.00585	0.00588	0.00587
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	0.00585	0.00588	0.00587

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__aoi22_l	(A0 * A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * B1 * !Y)	-0.00248	-0.00249	-0.00248
	(A0 * A1 * !B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B1 * !Y)	-0.00248	-0.00248	-0.00248
	(!A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B1 * Y)	-0.00600	-0.00601	-0.00599
	(!A0 * A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B1 * Y)	-0.00600	-0.00601	-0.00598

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)	0.00257	0.00257	0.00253
	(A0 * A1 * !B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B1 * !Y)	0.00248	0.00248	0.00248
	(!A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B1 * Y)	0.00600	0.00601	0.00599
	(!A0 * A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B1 * Y)	0.00600	0.00601	0.00598

Passive power(pJ) for B1 rising (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__aoi22_l	(A0 * A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * B0 * !Y)	-0.00250	-0.00250	-0.00249
	(A0 * A1 * !B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B0 * !Y)	-0.00249	-0.00250	-0.00249
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00557	-0.00557	-0.00555
	(!A0 * A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B0 * Y)	-0.00557	-0.00557	-0.00555

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)	0.00258	0.00258	0.00254
	(A0 * A1 * !B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B0 * !Y)	0.00249	0.00250	0.00249
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00557	0.00557	0.00555
	(!A0 * A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B0 * Y)	0.00557	0.00557	0.00555

SKY130_OSU_SC_18T_LS__BUFx

sky130_osu_sc_18T_ls_TT_1P8_25C.ccs
Cell Library: Process , Voltage 1.80,
Temp 25.00

Truth Table

INPUT	OUTPUT
A	Y
0	0
1	1

Footprint

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

Pin Capacitance Information

Cell Name	Pin Cap(pf)	Max Cap(pf)
	A	Y
sky130_osu_sc_18T_ls__buf_1	0.00585	0.17651
sky130_osu_sc_18T_ls__buf_2	0.00585	0.34588
sky130_osu_sc_18T_ls__buf_4	0.00584	0.66108
sky130_osu_sc_18T_ls__buf_6	0.00098	1.80000
sky130_osu_sc_18T_ls__buf_8	0.00586	1.23864
sky130_osu_sc_18T_ls__buf_l	0.00453	0.12201

Leakage Information

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

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__buf_1	**A->Y (RR)**	0.06463	0.19081	0.65190
sky130_osu_sc_18T_ls__buf_2	**A->Y (RR)**	0.07206	0.19044	0.69639
sky130_osu_sc_18T_ls__buf_4	**A->Y (RR)**	0.09709	0.21562	0.77752
sky130_osu_sc_18T_ls__buf_8	**A->Y (RR)**	0.14429	0.26588	0.89231
sky130_osu_sc_18T_ls__buf_l	**A->Y (RR)**	0.07185	0.20916	0.65456

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__buf_1	**A->Y (FF)**	0.07078	0.19827	0.65601
sky130_osu_sc_18T_ls__buf_2	**A->Y (FF)**	0.08324	0.20703	0.71185
sky130_osu_sc_18T_ls__buf_4	**A->Y (FF)**	0.11652	0.24065	0.79791
sky130_osu_sc_18T_ls__buf_8	**A->Y (FF)**	0.18564	0.31424	0.91792
sky130_osu_sc_18T_ls__buf_l	**A->Y (FF)**	0.07705	0.21127	0.65692

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__buf_1	A	0.00000	0.00000	0.00000
	A	0.00578	0.00507	0.00534
sky130_osu_sc_18T_ls__buf_2	A	0.00000	0.00000	0.00000
	A	0.01223	0.01190	0.01211
sky130_osu_sc_18T_ls__buf_4	A	0.00000	0.00000	0.00000
	A	0.02599	0.02656	0.02691
sky130_osu_sc_18T_ls__buf_8	A	0.00000	0.00000	0.00000
	A	0.05340	0.05492	0.05638
sky130_osu_sc_18T_ls__buf_l	A	0.00000	0.00000	0.00000
	A	0.00436	0.00377	0.00395

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__buf_1	A	0.00000	0.00000	0.00000
	A	0.01512	0.01492	0.01548
sky130_osu_sc_18T_ls__buf_2	A	0.00000	0.00000	0.00000
	A	0.01938	0.01981	0.02050
sky130_osu_sc_18T_ls__buf_4	A	0.00000	0.00000	0.00000
	A	0.03008	0.03134	0.03264
sky130_osu_sc_18T_ls__buf_8	A	0.00000	0.00000	0.00000
	A	0.05199	0.05334	0.05707
sky130_osu_sc_18T_ls__buf_l	A	0.00000	0.00000	0.00000
	A	0.01170	0.01146	0.01187

Passive power(pJ) for A rising :

Cell Name	Power(pJ)		
	first	mid	last
sky130_osu_sc_18T_ls__buf_6	0.00000	0.00000	0.00000
	-0.00076	-0.00076	-0.00076

Passive power(pJ) for A falling :

Cell Name	Power(pJ)		
	first	mid	last
sky130_osu_sc_18T_ls__buf_6	0.00000	0.00000	0.00000
	0.00076	0.00076	0.00076

SKY130_OSU_SC_18T_LS__DFFRx

sky130_osu_sc_18T_ls_TT_1P8_25C.ccs
Cell Library: Process , Voltage 1.80,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__dffr_1	63.73620
sky130_osu_sc_18T_ls__dffr_l	63.73620

Pin Capacitance Information

Cell Name	Pin Cap(pf)			Max Cap(pf)	
	D	RN	CK	Q	QN
sky130_osu_sc_18T_ls__dffr_1	0.00560	0.00559	0.01603	0.17032	0.16568
sky130_osu_sc_18T_ls__dffr_l	0.00560	0.00559	0.01602	0.12148	0.11761

Leakage Information

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

Delay Information

Delay(ns) to Q rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__dffr_1	CK->Q (RR)	0.32264	0.57602	1.55817
	QN->Q (FR)	0.03821	0.20499	0.96240
sky130_osu_sc_18T_ls__dffr_l	CK->Q (RR)	0.31534	0.58390	1.51460
	QN->Q (FR)	0.04046	0.21427	0.93734

Delay(ns) to Q falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__dffr_1	CK->Q (RF)	0.32133	0.56590	1.57789
	QN->Q (RF)	0.02928	0.16262	0.76125
	RN->Q (FF)	0.23789	0.50831	1.65022
sky130_osu_sc_18T_ls__dffr_l	CK->Q (RF)	0.32480	0.58935	1.55957
	QN->Q (RF)	0.02984	0.16278	0.71300
	RN->Q (FF)	0.24188	0.53255	1.63239

Delay(ns) to QN rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__dffr_1	CK->QN (RR)	0.28470	0.41701	0.87907
	RN->QN (FR)	0.20123	0.35872	0.95152
sky130_osu_sc_18T_ls__dffr_l	CK->QN (RR)	0.28456	0.42551	0.87430
	RN->QN (FR)	0.20152	0.36802	0.94686

Delay(ns) to QN falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__dffr_1	**CK->QN (RF)**	0.27054	0.39416	0.74352
sky130_osu_sc_18T_ls__dffr_l	**CK->QN (RF)**	0.25897	0.38340	0.70751

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)	-0.06829	-0.07182	-0.10697
	setup	CK (R)	0.25444	0.24652	0.34782
sky130_osu_sc_18T_ls__dffr_l	hold	CK (R)	-0.07210	-0.07207	-0.10702
	setup	CK (R)	0.25499	0.24733	0.35005

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)	-0.13286	-0.20418	-0.62002
	setup	CK (R)	0.16405	0.21766	0.63389
sky130_osu_sc_18T_ls__dffr_l	hold	CK (R)	-0.13325	-0.20316	-0.61835
	setup	CK (R)	0.16496	0.21766	0.63389

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)	-0.06829	-0.07182	-0.10697
	setup	CK (R)	0.25444	0.24652	0.34782
sky130_osu_sc_18T_ls__dffr_l	hold	CK (R)	-0.07210	-0.07207	-0.10702
	setup	CK (R)	0.25499	0.24733	0.35005

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)	-0.13286	-0.20418	-0.62002
	setup	CK (R)	0.16405	0.21766	0.63389
sky130_osu_sc_18T_ls__dffr_l	hold	CK (R)	-0.13325	-0.20316	-0.61835
	setup	CK (R)	0.16496	0.21766	0.63389

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)	0.21101	0.20735	0.29945
	removal	CK (R)	-0.03954	-0.04471	-0.04732
sky130_osu_sc_18T_ls__dffr_l	recovery	CK (R)	0.21089	0.20839	0.30074
	removal	CK (R)	-0.03954	-0.04471	-0.04732

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)	0.21101	0.20735	0.29945
	removal	CK (R)	-0.03954	-0.04471	-0.04732
sky130_osu_sc_18T_ls__dffr_l	recovery	CK (R)	0.21089	0.20839	0.30074
	removal	CK (R)	-0.03954	-0.04471	-0.04732

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 ()	0.14135	0.18498	0.97290
	min_pulse_width	RN ()	0.14135	0.18498	0.97290
sky130_osu_sc_18T_ls__dffr_l	min_pulse_width	RN ()	0.13897	0.18173	0.97290
	min_pulse_width	RN ()	0.13646	0.18173	0.97290

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 ()	0.14680	0.16228	0.97290
	min_pulse_width	CK ()	0.16202	0.15255	0.97290
sky130_osu_sc_18T_ls__dffr_l	min_pulse_width	CK ()	0.13680	0.15579	0.97290
	min_pulse_width	CK ()	0.15878	0.14931	0.97290

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 ()	0.32748	0.33737	0.97290
	min_pulse_width	CK ()	0.13394	0.18173	0.97290
sky130_osu_sc_18T_ls__dffr_l	min_pulse_width	CK ()	0.32748	0.33737	0.97290
	min_pulse_width	CK ()	0.13394	0.18173	0.97290

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	0.01448	0.01315	0.00910
sky130_osu_sc_18T_ls__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.01273	0.01157	0.00934

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	0.01731	0.01653	0.01431
	RN	-0.00199	-0.02533	-0.13796
	RN	0.04009	0.03955	0.03731
sky130_osu_sc_18T_ls__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.01553	0.01485	0.01367
	RN	-0.00199	-0.02068	-0.09840
	RN	0.03830	0.03786	0.03660

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	0.01730	0.01653	0.01436
	RN	-0.00199	-0.02491	-0.13420
	RN	0.04009	0.03956	0.03734
sky130_osu_sc_18T_ls__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.01553	0.01486	0.01373
	RN	-0.00199	-0.02028	-0.09527
	RN	0.03830	0.03786	0.03668

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	0.01444	0.01313	0.00909
sky130_osu_sc_18T_ls__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.01269	0.01153	0.00928

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	-0.00506	-0.00534	-0.00534
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.01801	0.01736	0.01684
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.00808	0.00748	0.00709
sky130_osu_sc_18T_ls__dffr_l	CK	0.00000	0.00000	0.00000
	CK	-0.00506	-0.00534	-0.00534
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.01801	0.01736	0.01684
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.00808	0.00748	0.00709

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__dffr_1	CK	0.00000	0.00000	0.00000
	CK	0.00533	0.00536	0.00534
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.03145	0.03115	0.03075
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.01467	0.01441	0.01426
sky130_osu_sc_18T_ls__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.00533	0.00536	0.00534
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.03145	0.03115	0.03075
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.01467	0.01441	0.01426

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)	0.00558	0.00489	0.00496
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.01601	0.01511	0.01489
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)	0.00558	0.00489	0.00496
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.01601	0.01511	0.01489

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)	0.01370	0.01326	0.01369
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.03003	0.02939	0.02940
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)	0.01370	0.01326	0.01369
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.03003	0.02939	0.02940

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)	-0.00140	-0.00219	-0.00221
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.00865	0.00730	0.00659
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	-0.00189	-0.00271	-0.00269
sky130_osu_sc_18T_ls__dffr_l	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	-0.00140	-0.00219	-0.00221
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.00865	0.00730	0.00659
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	-0.00189	-0.00271	-0.00269

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)	0.02130	0.02076	0.02119
	(D * RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * RN * !Q * QN)	0.04739	0.04646	0.04427
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.03646	0.03586	0.03560
	(!D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * Q * !QN)	0.04642	0.04520	0.04562
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.02489	0.02443	0.02467
sky130_osu_sc_18T_ls__dffr_l	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.02129	0.02076	0.02119
	(D * RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * RN * !Q * QN)	0.04739	0.04646	0.04427
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.03646	0.03586	0.03560
	(!D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * Q * !QN)	0.04642	0.04520	0.04562
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.02489	0.02443	0.02467

SKY130_OSU_SC_18T_LS__DFFSRx

sky130_osu_sc_18T_ls_TT_1P8_25C.ccs
Cell Library: Process , Voltage 1.80,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__dffsr_1	69.59700
sky130_osu_sc_18T_ls__dffsr_l	69.59700

Pin Capacitance Information

Cell Name	Pin Cap(pf)				Max Cap(pf)	
	D	**RN**	**SN**	**CK**	**Q**	**QN**
sky130_osu_sc_18T_ls__dffsr_1	0.00556	0.00560	0.01170	0.01631	0.17824	0.17291
sky130_osu_sc_18T_ls__dffsr_l	0.00556	0.00560	0.01171	0.01631	0.12221	0.11739

Leakage Information

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

Delay Information

Delay(ns) to Q rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__dffsr_1	CK->Q (RR)	0.33251	0.58267	1.57649
	QN->Q (FR)	0.03635	0.19966	0.95171
	RN->Q (RR)	0.26547	0.52042	1.52261
	SN->Q (FR)	0.25072	0.52128	1.66522
sky130_osu_sc_18T_ls__dffsr_l	CK->Q (RR)	0.33474	0.60417	1.54982
	QN->Q (FR)	0.04039	0.21418	0.93816
	RN->Q (RR)	0.26831	0.54275	1.49622
	SN->Q (FR)	0.25365	0.54350	1.63648

Delay(ns) to Q falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__dffsr_1	CK->Q (RF)	0.35993	0.60499	1.62523
	QN->Q (RF)	0.02671	0.15252	0.72379
	RN->Q (FF)	0.24571	0.51306	1.67190
sky130_osu_sc_18T_ls__dffsr_l	CK->Q (RF)	0.36806	0.63610	1.61326
	QN->Q (RF)	0.02978	0.16282	0.71438
	RN->Q (FF)	0.25374	0.54457	1.65954

Delay(ns) to QN rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__dffsr_1	CK->QN (RR)	0.32444	0.45940	0.92908
	RN->QN (FR)	0.21065	0.36723	0.97549
sky130_osu_sc_18T_ls__dffsr_l	CK->QN (RR)	0.32735	0.47090	0.92045
	RN->QN (FR)	0.21337	0.37915	0.96688

Delay(ns) to QN falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__dffsr_1	CK->QN (RF)	0.28384	0.40558	0.76235
	RN->QN (RF)	0.21731	0.34297	0.70843
	SN->QN (FF)	0.20265	0.34381	0.85217
sky130_osu_sc_18T_ls__dffsr_l	CK->QN (RF)	0.27968	0.40419	0.73741
	RN->QN (RF)	0.21367	0.34245	0.68468
	SN->QN (FF)	0.19891	0.34321	0.82493

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)	-0.07336	-0.07430	-0.11710
	setup	CK (R)	0.25366	0.24661	0.34796
sky130_osu_sc_18T_ls__dffsr_l	hold	CK (R)	-0.07391	-0.07500	-0.11865
	setup	CK (R)	0.25328	0.24634	0.34757

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)	-0.15221	-0.21813	-0.64857
	setup	CK (R)	0.18782	0.23248	0.66062
sky130_osu_sc_18T_ls__dffsr_l	hold	CK (R)	-0.15155	-0.21562	-0.64788
	setup	CK (R)	0.18702	0.23238	0.66083

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)	-0.07336	-0.07430	-0.11710
	setup	CK (R)	0.25366	0.24661	0.34796
sky130_osu_sc_18T_ls__dffsr_l	hold	CK (R)	-0.07391	-0.07500	-0.11865
	setup	CK (R)	0.25328	0.24634	0.34757

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)	-0.15221	-0.21813	-0.64857
	setup	CK (R)	0.18782	0.23248	0.66062
sky130_osu_sc_18T_ls__dffsr_l	hold	CK (R)	-0.15155	-0.21562	-0.64788
	setup	CK (R)	0.18702	0.23238	0.66083

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)	0.19071	0.18696	0.27234
	removal	CK (R)	-0.02078	-0.02632	-0.02629
	hold	SN (R)	-0.19153	-0.23145	-0.51263
	setup	SN (R)	0.21917	0.25584	0.63685
sky130_osu_sc_18T_ls__dffsr_l	recovery	CK (R)	0.19026	0.18666	0.27210
	removal	CK (R)	-0.02078	-0.02632	-0.02629
	hold	SN (R)	-0.18766	-0.22603	-0.49856
	setup	SN (R)	0.21518	0.25584	0.62096

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)	0.19071	0.18696	0.27234
	removal	CK (R)	-0.02078	-0.02632	-0.02629
	hold	SN (R)	-0.19206	-0.23145	-0.51263
	hold	SN (R)	-0.19153	-0.23500	-0.51398
	setup	SN (R)	0.21917	0.25584	0.63148
	setup	SN (R)	0.21460	0.25345	0.63685
sky130_osu_sc_18T_ls__dffsr_l	recovery	CK (R)	0.19026	0.18666	0.27210
	removal	CK (R)	-0.02078	-0.02632	-0.02629
	hold	SN (R)	-0.18766	-0.22603	-0.49856
	hold	SN (R)	-0.18934	-0.22699	-0.50258
	setup	SN (R)	0.21518	0.25584	0.61863
	setup	SN (R)	0.20365	0.24301	0.62096

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 ()	0.16195	0.19795	0.97290
	min_pulse_width	RN ()	0.16472	0.19795	0.97290
sky130_osu_sc_18T_ls__dffsr_l	min_pulse_width	RN ()	0.16195	0.19795	0.97290
	min_pulse_width	RN ()	0.15937	0.19470	0.97290

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)	0.04589	0.05066	0.12499
	removal	CK (R)	-0.01888	-0.03021	-0.09504
sky130_osu_sc_18T_ls__dffsr_l	recovery	CK (R)	0.04553	0.05046	0.12298
	removal	CK (R)	-0.01888	-0.03021	-0.09504

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)	0.04589	0.05066	0.12499
	removal	CK (R)	-0.01888	-0.03021	-0.09504
sky130_osu_sc_18T_ls__dffsr_l	recovery	CK (R)	0.04553	0.05046	0.12298
	removal	CK (R)	-0.01888	-0.03021	-0.09504

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 ()	0.19972	0.24982	0.97290
	min_pulse_width	SN ()	0.19718	0.24658	0.97290
sky130_osu_sc_18T_ls__dffsr_l	min_pulse_width	SN ()	0.20071	0.24658	0.97290
	min_pulse_width	SN ()	0.18621	0.23686	0.97290

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 ()	0.14823	0.15904	0.97290
	min_pulse_width	CK ()	0.18056	0.16876	0.97290
sky130_osu_sc_18T_ls__dffsr_l	min_pulse_width	CK ()	0.14313	0.15579	0.97290
	min_pulse_width	CK ()	0.17732	0.16552	0.97290

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 ()	0.32500	0.33737	0.97290
	min_pulse_width	CK ()	0.15937	0.19470	0.97290
sky130_osu_sc_18T_ls__dffsr_l	min_pulse_width	CK ()	0.32500	0.33737	0.97290
	min_pulse_width	CK ()	0.15937	0.19470	0.97290

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	0.01841	0.01743	0.01460
	RN	0.03465	0.03405	0.03110
	SN	-0.00199	-0.02603	-0.14437
	SN	0.03889	0.03837	0.03521
sky130_osu_sc_18T_ls__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.01678	0.01570	0.01344
	RN	0.03301	0.03230	0.02993
	SN	-0.00199	-0.02076	-0.09899
	SN	0.03725	0.03662	0.03399

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	0.01982	0.01919	0.01731
	RN	-0.00199	-0.02603	-0.14437
	RN	0.04114	0.04066	0.03868
sky130_osu_sc_18T_ls__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.01820	0.01761	0.01648
	RN	-0.00199	-0.02076	-0.09899
	RN	0.03949	0.03904	0.03767

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	0.01981	0.01919	0.01740
	RN	-0.00199	-0.02556	-0.14005
	RN	0.04114	0.04066	0.03861
sky130_osu_sc_18T_ls__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.01819	0.01760	0.01654
	RN	-0.00199	-0.02026	-0.09509
	RN	0.03948	0.03904	0.03775

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	0.01836	0.01739	0.01462
	RN	0.03460	0.03401	0.03108
	SN	-0.00199	-0.02556	-0.14001
	SN	0.03884	0.03833	0.03521
sky130_osu_sc_18T_ls__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.01672	0.01566	0.01341
	RN	0.03296	0.03226	0.02993
	SN	-0.00199	-0.02026	-0.09505
	SN	0.03720	0.03659	0.03402

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	-0.00512	-0.00533	-0.00534
	(!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)	0.02341	0.02278	0.02221
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.00925	0.00868	0.00829
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.00921	0.00863	0.00823
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.00931	0.00874	0.00835
sky130_osu_sc_18T_ls__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	-0.00512	-0.00533	-0.00534
	(!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)	0.02341	0.02278	0.02222
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.00925	0.00868	0.00829
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.00921	0.00863	0.00823
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.00931	0.00874	0.00834

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	0.00533	0.00536	0.00534
	(!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)	0.03542	0.03512	0.03446
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.01555	0.01532	0.01514
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.01560	0.01537	0.01519
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.01549	0.01526	0.01509
sky130_osu_sc_18T_ls__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.00533	0.00536	0.00534
	(!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)	0.03541	0.03511	0.03445
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.01554	0.01531	0.01513
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.01559	0.01536	0.01518
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.01548	0.01525	0.01507

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)	0.00423	0.00352	0.00353
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.01888	0.01794	0.01761
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)	0.00423	0.00352	0.00354
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.01888	0.01795	0.01761

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__dffsr_1	(CK * SN * !Q * QN) + (!CK * !D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * SN * !Q * QN) + (!CK * !D * SN * !Q * QN)	0.01485	0.01438	0.01484
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.03187	0.03117	0.03104
sky130_osu_sc_18T_ls__dffsr_l	(CK * SN * !Q * QN) + (!CK * !D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * SN * !Q * QN) + (!CK * !D * SN * !Q * QN)	0.01483	0.01436	0.01483
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.03186	0.03115	0.03103

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)	-0.01214	-0.01218	-0.01214
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	-0.01225	-0.01240	-0.01238
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	-0.01193	-0.01198	-0.01196
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.00737	0.00674	0.00632
sky130_osu_sc_18T_ls__dffsr_l	(CK * RN * Q * !QN) + (!CK * D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(CK * RN * Q * !QN) + (!CK * D * RN * Q * !QN)	-0.01214	-0.01218	-0.01214
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	-0.01223	-0.01238	-0.01236
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	-0.01192	-0.01198	-0.01195
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.00737	0.00675	0.00633

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__dffsr_1	(CK * RN * Q * !QN) + (!CK * D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(CK * RN * Q * !QN) + (!CK * D * RN * Q * !QN)	0.01214	0.01218	0.01214
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.01237	0.01240	0.01238
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	0.01197	0.01198	0.01196
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.02453	0.02413	0.02386
sky130_osu_sc_18T_ls__dffsr_l	(CK * RN * Q * !QN) + (!CK * D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(CK * RN * Q * !QN) + (!CK * D * RN * Q * !QN)	0.01214	0.01218	0.01214
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.01235	0.01238	0.01236
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	0.01196	0.01198	0.01195
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.02452	0.02412	0.02385

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)	-0.00140	-0.00219	-0.00222
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.00980	0.00852	0.00784
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.00971	0.00844	0.00777
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	-0.00164	-0.00245	-0.00243
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.00655	0.00492	0.00487
sky130_osu_sc_18T_ls__dffsr_l	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	-0.00140	-0.00219	-0.00222
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.00979	0.00851	0.00783
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.00970	0.00842	0.00776
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	-0.00164	-0.00245	-0.00243
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.00655	0.00492	0.00487

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)	0.05288	0.05198	0.04964
	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.02135	0.02082	0.02125
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.03726	0.03668	0.03646
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.03737	0.03681	0.03656
	(!D * RN * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * Q * !QN)	0.05032	0.04904	0.04913
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.02468	0.02422	0.02445
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.02864	0.02754	0.02830
sky130_osu_sc_18T_ls__dffsr_l	**(D * RN * SN * !Q * QN)**	0.00000	0.00000	0.00000
	(D * RN * SN * !Q * QN)	0.05288	0.05198	0.04964
	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.02135	0.02082	0.02125
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.03726	0.03668	0.03646
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.03737	0.03681	0.03656
	(!D * RN * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * Q * !QN)	0.05031	0.04902	0.04912
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.02468	0.02422	0.02446
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.02863	0.02752	0.02829

SKY130_OSU_SC_18T_LS__DFFSx

sky130_osu_sc_18T_ls_TT_1P8_25C.ccs
Cell Library: Process , Voltage 1.80,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__dffs_1	57.87540
sky130_osu_sc_18T_ls__dffs_l	57.87540

Pin Capacitance Information

Cell Name	Pin Cap(pf)			Max Cap(pf)	
	D	SN	CK	Q	QN
sky130_osu_sc_18T_ls__dffs_1	0.00559	0.00940	0.01609	0.17176	0.16666
sky130_osu_sc_18T_ls__dffs_l	0.00559	0.00940	0.01609	0.12207	0.11824

Leakage Information

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

Delay Information

Delay(ns) to Q rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__dffs_1	CK->Q (RR)	0.24310	0.48511	1.47089
	QN->Q (FR)	0.03803	0.20413	0.95974
	SN->Q (FR)	0.19161	0.46216	1.62423
sky130_osu_sc_18T_ls__dffs_l	CK->Q (RR)	0.24219	0.50044	1.43343
	QN->Q (FR)	0.04029	0.21353	0.93475
	SN->Q (FR)	0.19109	0.47777	1.58117

Delay(ns) to Q falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__dffs_1	CK->Q (RF)	0.35388	0.60386	1.62124
	QN->Q (RF)	0.02905	0.16193	0.76092
sky130_osu_sc_18T_ls__dffs_l	CK->Q (RF)	0.35538	0.62400	1.59709
	QN->Q (RF)	0.02966	0.16221	0.71209

Delay(ns) to QN rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__dffs_1	CK->QN (RR)	0.31614	0.45391	0.91766
sky130_osu_sc_18T_ls__dffs_l	CK->QN (RR)	0.31409	0.45959	0.91004

Delay(ns) to QN falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__dffs_1	CK->QN (RF)	0.19601	0.30823	0.65393
	SN->QN (FF)	0.14413	0.28456	0.80897
sky130_osu_sc_18T_ls__dffs_l	CK->QN (RF)	0.19064	0.30468	0.62659
	SN->QN (FF)	0.13904	0.28159	0.77614

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)	-0.05103	-0.05774	-0.09193
	setup	CK (R)	0.17066	0.16780	0.28201
sky130_osu_sc_18T_ls__dffs_l	hold	CK (R)	-0.05195	-0.05650	-0.09065
	setup	CK (R)	0.17089	0.16768	0.28276

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)	-0.13647	-0.20505	-0.62121
	setup	CK (R)	0.17827	0.22087	0.63867
sky130_osu_sc_18T_ls__dffs_l	hold	CK (R)	-0.13413	-0.20343	-0.62121
	setup	CK (R)	0.17812	0.22087	0.63865

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)	-0.05103	-0.05774	-0.09193
	setup	CK (R)	0.17066	0.16780	0.28201
sky130_osu_sc_18T_ls__dffs_l	hold	CK (R)	-0.05195	-0.05650	-0.09065
	setup	CK (R)	0.17089	0.16768	0.28276

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)	-0.13647	-0.20505	-0.62121
	setup	CK (R)	0.17827	0.22087	0.63867
sky130_osu_sc_18T_ls__dffs_l	hold	CK (R)	-0.13413	-0.20343	-0.62121
	setup	CK (R)	0.17812	0.22087	0.63865

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)	0.04929	0.05496	0.11969
	removal	CK (R)	-0.01903	-0.03045	-0.08688
sky130_osu_sc_18T_ls__dffs_l	recovery	CK (R)	0.04913	0.05493	0.11907
	removal	CK (R)	-0.01903	-0.03045	-0.08688

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)	0.04929	0.05496	0.11969
	removal	CK (R)	-0.01903	-0.03045	-0.08688
sky130_osu_sc_18T_ls__dffs_l	recovery	CK (R)	0.04913	0.05493	0.11907
	removal	CK (R)	-0.01903	-0.03045	-0.08688

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 ()	0.12882	0.20767	0.97290
	min_pulse_width	SN ()	0.13174	0.20767	0.97290
sky130_osu_sc_18T_ls__dffs_l	min_pulse_width	SN ()	0.12788	0.20119	0.97290
	min_pulse_width	SN ()	0.12507	0.20119	0.97290

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 ()	0.10468	0.14282	0.97290
	min_pulse_width	CK ()	0.17173	0.16228	0.97290
sky130_osu_sc_18T_ls__dffs_l	min_pulse_width	CK ()	0.09705	0.14282	0.97290
	min_pulse_width	CK ()	0.16613	0.15904	0.97290

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 ()	0.24463	0.25955	0.97290
	min_pulse_width	CK ()	0.14905	0.18498	0.97290
sky130_osu_sc_18T_ls__dffs_l	min_pulse_width	CK ()	0.24463	0.25955	0.97290
	min_pulse_width	CK ()	0.14905	0.18498	0.97290

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	0.01449	0.01311	0.00906
	SN	-0.00199	-0.02546	-0.13912
	SN	0.03262	0.03161	0.02709
sky130_osu_sc_18T_ls__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.01272	0.01152	0.00934
	SN	-0.00199	-0.02074	-0.09888
	SN	0.03085	0.03001	0.02736

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	0.01720	0.01648	0.01440
sky130_osu_sc_18T_ls__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.01544	0.01480	0.01372

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	0.01719	0.01648	0.01446
sky130_osu_sc_18T_ls__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.01543	0.01480	0.01376

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	0.01445	0.01308	0.00908
	SN	-0.00199	-0.02500	-0.13494
	SN	0.03258	0.03158	0.02716
sky130_osu_sc_18T_ls__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.01268	0.01148	0.00932
	SN	-0.00199	-0.02035	-0.09574
	SN	0.03080	0.02998	0.02736

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	-0.00518	-0.00539	-0.00539
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.01715	0.01648	0.01593
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.00788	0.00728	0.00689
sky130_osu_sc_18T_ls__dffs_l	CK	0.00000	0.00000	0.00000
	CK	-0.00518	-0.00539	-0.00539
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.01715	0.01648	0.01593
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.00788	0.00728	0.00689

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	0.00539	0.00541	0.00539
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.03074	0.03043	0.03003
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.01495	0.01469	0.01451
sky130_osu_sc_18T_ls__dffs_1	CK	0.00000	0.00000	0.00000
	CK	0.00539	0.00541	0.00539
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.03074	0.03043	0.03003
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.01494	0.01469	0.01451

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)	-0.00884	-0.00888	-0.00885
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.00664	0.00610	0.00600
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)	-0.00884	-0.00888	-0.00885
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.00664	0.00610	0.00600

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)	0.00885	0.00888	0.00886
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.01663	0.01614	0.01616
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)	0.00885	0.00888	0.00886
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.01663	0.01614	0.01616

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)	-0.00142	-0.00221	-0.00224
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	-0.00178	-0.00259	-0.00257
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.00510	0.00346	0.00350
sky130_osu_sc_18T_ls__dffs_l	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	-0.00142	-0.00221	-0.00224
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	-0.00178	-0.00259	-0.00257
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.00510	0.00346	0.00350

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)	0.04647	0.04555	0.04478
	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.02130	0.02077	0.02121
	(!D * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * SN * Q * !QN)	0.04558	0.04424	0.04465
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	0.02475	0.02430	0.02453
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.02792	0.02683	0.02766
sky130_osu_sc_18T_ls__dffs_l	(D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * SN * !Q * QN)	0.04647	0.04555	0.04478
	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.02130	0.02077	0.02121
	(!D * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * SN * Q * !QN)	0.04558	0.04424	0.04465
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	0.02475	0.02430	0.02453
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.02792	0.02683	0.02766

SKY130_OSU_SC_18T_LS__DFFx

sky130_osu_sc_18T_ls_TT_1P8_25C.ccs
Cell Library: Process , Voltage 1.80,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__dff_1	48.35160
sky130_osu_sc_18T_ls__dff_l	48.35160

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)	
	D	CK	Q	QN
sky130_osu_sc_18T_ls__dff_1	0.00574	0.01601	0.17870	0.17380
sky130_osu_sc_18T_ls__dff_l	0.00574	0.01601	0.12063	0.11610

Leakage Information

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

Delay Information

Delay(ns) to Q rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__dff_1	CK->Q (RR)	0.21598	0.45166	1.44119
	QN->Q (FR)	0.03604	0.19912	0.94866
sky130_osu_sc_18T_ls__dff_l	CK->Q (RR)	0.22269	0.47858	1.41123
	QN->Q (FR)	0.04103	0.21599	0.94307

Delay(ns) to Q falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__dff_1	CK->Q (RF)	0.30229	0.54280	1.56172
	QN->Q (RF)	0.02658	0.15193	0.72217
sky130_osu_sc_18T_ls__dff_l	CK->Q (RF)	0.31247	0.57660	1.54498
	QN->Q (RF)	0.02972	0.16187	0.70761

Delay(ns) to QN rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__dff_1	CK->QN (RR)	0.26779	0.39807	0.86607
sky130_osu_sc_18T_ls__dff_l	CK->QN (RR)	0.27239	0.41259	0.85969

Delay(ns) to QN falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__dff_1	CK->QN (RF)	0.17226	0.27975	0.62835
sky130_osu_sc_18T_ls__dff_l	CK->QN (RF)	0.17196	0.28275	0.60483

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)	-0.05021	-0.05516	-0.09026
	setup	CK (R)	0.14107	0.13814	0.25785
sky130_osu_sc_18T_ls__dff_l	hold	CK (R)	-0.05006	-0.05536	-0.09411
	setup	CK (R)	0.14058	0.13708	0.25671

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)	-0.12539	-0.20272	-0.62306
	setup	CK (R)	0.15411	0.21546	0.63921
sky130_osu_sc_18T_ls__dff_l	hold	CK (R)	-0.12710	-0.20199	-0.62428
	setup	CK (R)	0.15397	0.21546	0.63921

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 ()	0.09323	0.14282	0.97290
	min_pulse_width	CK ()	0.15641	0.14931	0.97290
sky130_osu_sc_18T_ls__dff_l	min_pulse_width	CK ()	0.08942	0.14282	0.97290
	min_pulse_width	CK ()	0.15168	0.14931	0.97290

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 ()**	0.21727	0.23037	0.97290
	min_pulse_width	**CK ()**	0.11934	0.17849	0.97290
sky130_osu_sc_18T_ls__dff_l	**min_pulse_width**	**CK ()**	0.21423	0.22713	0.97290
	min_pulse_width	**CK ()**	0.11934	0.17849	0.97290

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	0.01533	0.01418	0.01147
sky130_osu_sc_18T_ls__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.01368	0.01244	0.01030

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	0.01754	0.01689	0.01507
sky130_osu_sc_18T_ls__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.01593	0.01528	0.01414

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	0.01753	0.01690	0.01513
sky130_osu_sc_18T_ls__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.01593	0.01529	0.01415

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	0.01528	0.01414	0.01140
sky130_osu_sc_18T_ls__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.01364	0.01240	0.01029

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	-0.00506	-0.00533	-0.00533
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.01608	0.01548	0.01509
sky130_osu_sc_18T_ls__dff_l	CK	0.00000	0.00000	0.00000
	CK	-0.00506	-0.00533	-0.00533
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.01609	0.01549	0.01511

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__dff_1	CK	0.00000	0.00000	0.00000
	CK	0.00532	0.00535	0.00533
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.03157	0.03121	0.03089
sky130_osu_sc_18T_ls__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.00532	0.00535	0.00533
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.03158	0.03122	0.03089

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)	-0.00143	-0.00222	-0.00224
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	-0.00176	-0.00257	-0.00255
sky130_osu_sc_18T_ls__dff_l	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	-0.00143	-0.00222	-0.00224
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	-0.00176	-0.00257	-0.00255

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)	0.02123	0.02070	0.02113
	(D * !Q * QN)	0.00000	0.00000	0.00000
	(D * !Q * QN)	0.04550	0.04460	0.04394
	(!D * Q * !QN)	0.00000	0.00000	0.00000
	(!D * Q * !QN)	0.04621	0.04493	0.04532
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.02465	0.02421	0.02444
sky130_osu_sc_18T_ls__dff_l	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.02123	0.02070	0.02113
	(D * !Q * QN)	0.00000	0.00000	0.00000
	(D * !Q * QN)	0.04551	0.04461	0.04395
	(!D * Q * !QN)	0.00000	0.00000	0.00000
	(!D * Q * !QN)	0.04622	0.04494	0.04533
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.02465	0.02421	0.02444

SKY130_OSU_SC_18T_LS__INVx

sky130_osu_sc_18T_ls_TT_1P8_25C.ccs
Cell Library: Process , Voltage 1.80,
Temp 25.00

Truth Table

INPUT	OUTPUT
A	Y
0	1
1	0

Footprint

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

Pin Capacitance Information

Cell Name	Pin Cap(pf)	Max Cap(pf)
	A	Y
sky130_osu_sc_18T_ls__inv_1	0.00564	0.17311
sky130_osu_sc_18T_ls__inv_10	0.05288	1.52447
sky130_osu_sc_18T_ls__inv_2	0.01086	0.34466
sky130_osu_sc_18T_ls__inv_3	0.01619	0.49436
sky130_osu_sc_18T_ls__inv_4	0.02144	0.65198
sky130_osu_sc_18T_ls__inv_6	0.03208	0.95877
sky130_osu_sc_18T_ls__inv_8	0.04253	1.27814
sky130_osu_sc_18T_ls__inv_l	0.00429	0.11736

Leakage Information

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

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__inv_1	**A->Y (FR)**	0.03414	0.18524	0.87005
sky130_osu_sc_18T_ls__inv_10	**A->Y (FR)**	0.05445	0.15874	0.89243
sky130_osu_sc_18T_ls__inv_2	**A->Y (FR)**	0.02876	0.16237	0.87163
sky130_osu_sc_18T_ls__inv_3	**A->Y (FR)**	0.03215	0.15772	0.87852
sky130_osu_sc_18T_ls__inv_4	**A->Y (FR)**	0.03371	0.15247	0.86954
sky130_osu_sc_18T_ls__inv_6	**A->Y (FR)**	0.03872	0.15032	0.87568
sky130_osu_sc_18T_ls__inv_8	**A->Y (FR)**	0.04610	0.15325	0.89131
sky130_osu_sc_18T_ls__inv_l	**A->Y (FR)**	0.03820	0.19893	0.86195

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__inv_1	**A->Y (RF)**	0.02374	0.13421	0.63233
sky130_osu_sc_18T_ls__inv_10	**A->Y (RF)**	0.04094	0.11364	0.63624
sky130_osu_sc_18T_ls__inv_2	**A->Y (RF)**	0.02048	0.11728	0.63303
sky130_osu_sc_18T_ls__inv_3	**A->Y (RF)**	0.02264	0.11309	0.63727
sky130_osu_sc_18T_ls__inv_4	**A->Y (RF)**	0.02313	0.10783	0.63125
sky130_osu_sc_18T_ls__inv_6	**A->Y (RF)**	0.02959	0.10722	0.63554
sky130_osu_sc_18T_ls__inv_8	**A->Y (RF)**	0.03525	0.10996	0.64433
sky130_osu_sc_18T_ls__inv_l	**A->Y (RF)**	0.02636	0.14229	0.61862

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__inv_1	A	0.00000	0.00000	0.00000
	A	0.00796	0.00796	0.00807
sky130_osu_sc_18T_ls__inv_10	A	0.00000	0.00000	0.00000
	A	0.06949	0.07110	0.07372
sky130_osu_sc_18T_ls__inv_2	A	0.00000	0.00000	0.00000
	A	0.01442	0.01443	0.01496
sky130_osu_sc_18T_ls__inv_3	A	0.00000	0.00000	0.00000
	A	0.02202	0.02218	0.02286
sky130_osu_sc_18T_ls__inv_4	A	0.00000	0.00000	0.00000
	A	0.02851	0.02867	0.02970
sky130_osu_sc_18T_ls__inv_6	A	0.00000	0.00000	0.00000
	A	0.04216	0.04286	0.04448
sky130_osu_sc_18T_ls__inv_8	A	0.00000	0.00000	0.00000
	A	0.05579	0.05716	0.05914
sky130_osu_sc_18T_ls__inv_l	A	0.00000	0.00000	0.00000
	A	0.00607	0.00597	0.00608

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__inv_1	**A**	0.00000	0.00000	0.00000
	A	-0.00185	-0.00184	-0.00174
sky130_osu_sc_18T_ls__inv_10	**A**	0.00000	0.00000	0.00000
	A	-0.02743	-0.02876	-0.02400
sky130_osu_sc_18T_ls__inv_2	**A**	0.00000	0.00000	0.00000
	A	-0.00562	-0.00539	-0.00501
sky130_osu_sc_18T_ls__inv_3	**A**	0.00000	0.00000	0.00000
	A	-0.00758	-0.00734	-0.00653
sky130_osu_sc_18T_ls__inv_4	**A**	0.00000	0.00000	0.00000
	A	-0.01140	-0.01115	-0.00983
sky130_osu_sc_18T_ls__inv_6	**A**	0.00000	0.00000	0.00000
	A	-0.01741	-0.01709	-0.01465
sky130_osu_sc_18T_ls__inv_8	**A**	0.00000	0.00000	0.00000
	A	-0.02309	-0.02292	-0.01930
sky130_osu_sc_18T_ls__inv_l	**A**	0.00000	0.00000	0.00000
	A	-0.00126	-0.00130	-0.00126

SKY130_OSU_SC_18T_LS__MUX2

sky130_osu_sc_18T_ls_TT_1P8_25C.ccs
Cell Library: Process , Voltage 1.80,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__mux2_1	18.31500

Pin Capacitance Information

Cell Name	Pin Cap(pf)			Max Cap(pf)
	A0	A1	S0	Y
sky130_osu_sc_18T_ls__mux2_1	0.03441	0.03422	0.01144	0.02615

Leakage Information

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

Delay Information

Delay(ns) to Y rising (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_18T_ls__mux2_1	A0->Y (RR)	-	0.01766	0.07108	0.20988
	A1->Y (RR)	-	0.01906	0.07228	0.21049
	S0->Y (RR)	(!A0 * A1)	0.05175	0.11377	0.21298
	S0->Y (FR)	(A0 * !A1)	0.05050	0.13460	0.37273

Delay(ns) to Y falling (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_18T_ls__mux2_1	A0->Y (FF)	-	0.01546	0.06605	0.19617
	A1->Y (FF)	-	0.01525	0.06534	0.19465
	S0->Y (FF)	(!A0 * A1)	0.07509	0.15200	0.36121
	S0->Y (RF)	(A0 * !A1)	0.02849	0.08621	0.22219

Power Information

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

Cell Name	Input	When	Power(pJ)		
			first	mid	last
sky130_osu_sc_18T_ls__mux2_1	A0	-	0.00000	0.00000	0.00000
	A0	-	-0.00831	-0.00831	-0.00831
	A1	-	0.00000	0.00000	0.00000
	A1	-	-0.00582	-0.00582	-0.00582
	S0	(A0 * !A1)	0.00000	0.00000	0.00000
	S0	(A0 * !A1)	0.00911	0.00865	0.00926
	S0	(!A0 * A1)	0.00000	0.00000	0.00000
	S0	(!A0 * A1)	-0.00577	-0.00647	-0.00626

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

Cell Name	Input	When	Power(pJ)		
			first	mid	last
sky130_osu_sc_18T_ls__mux2_1	A0	-	0.00000	0.00000	0.00000
	A0	-	0.00831	0.00831	0.00832
	A1	-	0.00000	0.00000	0.00000
	A1	-	0.00582	0.00582	0.00582
	S0	(A0 * !A1)	0.00000	0.00000	0.00000
	S0	(A0 * !A1)	0.00159	0.00094	0.00124
	S0	(!A0 * A1)	0.00000	0.00000	0.00000
	S0	(!A0 * A1)	0.02147	0.02100	0.02145

Passive power(pJ) for A0 rising (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__mux2_1	(A1 * S0 * Y) + (!A1 * S0 * !Y)	0.00000	0.00000	0.00000
	(A1 * S0 * Y) + (!A1 * S0 * !Y)	-0.00213	-0.00211	-0.00212

Passive power(pJ) for A0 falling (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__mux2_1	(A1 * S0 * Y) + (!A1 * S0 * !Y)	0.00000	0.00000	0.00000
	(A1 * S0 * Y) + (!A1 * S0 * !Y)	0.00213	0.00211	0.00212

Passive power(pJ) for A1 rising (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__mux2_1	(A0 * !S0 * Y) + (!A0 * !S0 * !Y)	0.00000	0.00000	0.00000
	(A0 * !S0 * Y) + (!A0 * !S0 * !Y)	-0.00253	-0.00252	-0.00252

Passive power(pJ) for A1 falling (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__mux2_1	(A0 * !S0 * Y) + (!A0 * !S0 * !Y)	0.00000	0.00000	0.00000
	(A0 * !S0 * Y) + (!A0 * !S0 * !Y)	0.00253	0.00252	0.00252

Passive power(pJ) for S0 rising (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__mux2_1	(A0 * A1 * Y)	0.00000	0.00000	0.00000
	(A0 * A1 * Y)	-0.00213	-0.00279	-0.00251
	(!A0 * !A1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !Y)	-0.00207	-0.00277	-0.00254

Passive power(pJ) for S0 falling (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__mux2_1	(A0 * A1 * Y)	0.00000	0.00000	0.00000
	(A0 * A1 * Y)	0.01616	0.01574	0.01618
	(!A0 * !A1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !Y)	0.01440	0.01399	0.01456

SKY130_OSU_SC_18T_LS__NAND2x

sky130_osu_sc_18T_ls_TT_1P8_25C.ccs
Cell Library: Process , Voltage 1.80,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__nand2_1	9.52380
sky130_osu_sc_18T_ls__nand2_l	9.52380

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	B	Y
sky130_osu_sc_18T_ls__nand2_1	0.00566	0.00562	0.16932
sky130_osu_sc_18T_ls__nand2_l	0.00430	0.00428	0.11564

Leakage Information

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

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__nand2_1	A->Y (FR)	0.03513	0.18630	0.86723
	B->Y (FR)	0.04147	0.19092	0.86387
sky130_osu_sc_18T_ls__nand2_l	A->Y (FR)	0.03914	0.20014	0.86046
	B->Y (FR)	0.04666	0.20688	0.86378

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__nand2_1	A->Y (RF)	0.03316	0.16738	0.78430
	B->Y (RF)	0.03774	0.16802	0.76262
sky130_osu_sc_18T_ls__nand2_l	A->Y (RF)	0.03735	0.18145	0.77311
	B->Y (RF)	0.04175	0.18164	0.75038

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__nand2_1	A	0.00000	0.00000	0.00000
	A	0.00850	0.00848	0.00860
	B	0.00000	0.00000	0.00000
	B	0.01063	0.01050	0.01055
sky130_osu_sc_18T_ls__nand2_l	A	0.00000	0.00000	0.00000
	A	0.00642	0.00633	0.00643
	B	0.00000	0.00000	0.00000
	B	0.00799	0.00788	0.00790

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__nand2_1	A	0.00000	0.00000	0.00000
	A	-0.00119	-0.00127	-0.00119
	B	0.00000	0.00000	0.00000
	B	-0.00112	-0.00123	-0.00118
sky130_osu_sc_18T_ls__nand2_l	A	0.00000	0.00000	0.00000
	A	-0.00085	-0.00090	-0.00092
	B	0.00000	0.00000	0.00000
	B	-0.00081	-0.00090	-0.00091

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)	-0.00602	-0.00603	-0.00602
sky130_osu_sc_18T_ls__nand2_l	(!B * Y)	0.00000	0.00000	0.00000
	(!B * Y)	-0.00432	-0.00433	-0.00433

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__nand2_1	(!B * Y)	0.00000	0.00000	0.00000
	(!B * Y)	0.00602	0.00603	0.00602
sky130_osu_sc_18T_ls__nand2_l	(!B * Y)	0.00000	0.00000	0.00000
	(!B * Y)	0.00432	0.00433	0.00433

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__nand2_1	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00561	-0.00562	-0.00561
sky130_osu_sc_18T_ls__nand2_l	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00403	-0.00403	-0.00402

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)	0.00561	0.00562	0.00562
sky130_osu_sc_18T_ls__nand2_l	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00403	0.00403	0.00403

SKY130_OSU_SC_18T_LS__NOR2x

sky130_osu_sc_18T_ls_TT_1P8_25C.ccs
Cell Library: Process , Voltage 1.80,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__nor2_1	9.52380
sky130_osu_sc_18T_ls__nor2_l	9.52380

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	B	Y
sky130_osu_sc_18T_ls__nor2_1	0.00561	0.00596	0.08947
sky130_osu_sc_18T_ls__nor2_l	0.00420	0.00457	0.06218

Leakage Information

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

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__nor2_1	A->Y (FR)	0.07080	0.23932	0.86726
	B->Y (FR)	0.05313	0.21935	0.85945
sky130_osu_sc_18T_ls__nor2_l	A->Y (FR)	0.07799	0.25926	0.86801
	B->Y (FR)	0.06250	0.24134	0.86325

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__nor2_1	A->Y (RF)	0.03204	0.12333	0.46001
	B->Y (RF)	0.02522	0.11343	0.44678
sky130_osu_sc_18T_ls__nor2_l	A->Y (RF)	0.03413	0.12879	0.45487
	B->Y (RF)	0.02788	0.12069	0.44273

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	0.01168	0.01158	0.01157
	B	0.00000	0.00000	0.00000
	B	0.00866	0.00846	0.00856
sky130_osu_sc_18T_ls__nor2_1	A	0.00000	0.00000	0.00000
	A	0.00847	0.00837	0.00835
	B	0.00000	0.00000	0.00000
	B	0.00652	0.00636	0.00638

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	0.00084	0.00049	0.00039
	B	0.00000	0.00000	0.00000
	B	-0.00145	-0.00153	-0.00153
sky130_osu_sc_18T_ls__nor2_1	A	0.00000	0.00000	0.00000
	A	0.00053	0.00033	0.00022
	B	0.00000	0.00000	0.00000
	B	-0.00093	-0.00100	-0.00105

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)	-0.00509	-0.00535	-0.00535
sky130_osu_sc_18T_ls__nor2_l	(B * !Y)	0.00000	0.00000	0.00000
	(B * !Y)	-0.00355	-0.00374	-0.00374

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__nor2_1	(B * !Y)	0.00000	0.00000	0.00000
	(B * !Y)	0.00535	0.00537	0.00535
sky130_osu_sc_18T_ls__nor2_l	(B * !Y)	0.00000	0.00000	0.00000
	(B * !Y)	0.00374	0.00374	0.00374

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__nor2_1	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	-0.00248	-0.00248	-0.00248
sky130_osu_sc_18T_ls__nor2_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	-0.00176	-0.00177	-0.00176

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)	0.00252	0.00252	0.00251
sky130_osu_sc_18T_ls__nor2_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00179	0.00179	0.00178

SKY130_OSU_SC_18T_LS__OAI21

sky130_osu_sc_18T_ls_TT_1P8_25C.ccs
Cell Library: Process , Voltage 1.80,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__oai21_l	12.45420

Pin Capacitance Information

Cell Name	Pin Cap(pf)			Max Cap(pf)
	A0	A1	B0	Y
sky130_osu_sc_18T_ls__oai21_l	0.00570	0.00574	0.00476	0.08545

Leakage Information

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

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__oai21_l	A0->Y (FR)	0.07186	0.23655	0.86093
	A1->Y (FR)	0.09395	0.26064	0.87270
	B0->Y (FR)	0.04767	0.18953	0.73552

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__oai21_l	A0->Y (RF)	0.04708	0.15105	0.53558
	A1->Y (RF)	0.05642	0.15972	0.53938
	B0->Y (RF)	0.03631	0.14724	0.57206

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	0.01167	0.01142	0.01142
	A1	0.00000	0.00000	0.00000
	A1	0.01471	0.01451	0.01446
	B0	0.01006	0.00985	0.00989

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__oai21_l	A0	0.00000	0.00000	0.00000
	A0	0.00026	0.00005	-0.00005
	A1	0.00000	0.00000	0.00000
	A1	0.00251	0.00214	0.00197
	B0	0.00360	0.00344	0.00336

Passive power(pJ) for A0 rising (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__oai21_l	(A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * !Y)	-0.00248	-0.00248	-0.00248
	(A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * Y)	-0.00511	-0.00535	-0.00537
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00551	-0.00552	-0.00550

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)	0.00253	0.00253	0.00251
	(A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * Y)	0.00539	0.00539	0.00537
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00551	0.00552	0.00551

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)	-0.00501	-0.00527	-0.00528
	(A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * Y)	-0.00514	-0.00534	-0.00536
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	-0.00546	-0.00547	-0.00546

Passive power(pJ) for A1 falling (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__oai21_l	(A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * B0 * !Y)	0.00527	0.00530	0.00528
	(A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * Y)	0.00535	0.00537	0.00536
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	0.00546	0.00547	0.00547

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)	-0.00445	-0.00446	-0.00446

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__oai21_l	(!A0 * !A1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * Y)	0.00445	0.00447	0.00446

SKY130_OSU_SC_18T_LS__OAI22

sky130_osu_sc_18T_ls_TT_1P8_25C.ccs
Cell Library: Process , Voltage 1.80,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__oai22_1	15.38460

Pin Capacitance Information

Cell Name	Pin Cap(pf)				Max Cap(pf)
	A0	A1	B0	B1	Y
sky130_osu_sc_18T_ls__oai22_1	0.00551	0.00581	0.00596	0.00579	0.08309

Leakage Information

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

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__oai22_l	A0->Y (FR)	0.10237	0.26660	0.86495
	A1->Y (FR)	0.08473	0.24603	0.85656
	B0->Y (FR)	0.06021	0.22149	0.83245
	B1->Y (FR)	0.07826	0.24192	0.84064

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__oai22_l	A0->Y (RF)	0.08237	0.19050	0.57620
	A1->Y (RF)	0.06490	0.17108	0.55148
	B0->Y (RF)	0.05459	0.16651	0.58598
	B1->Y (RF)	0.07341	0.18913	0.62088

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	0.01923	0.01902	0.01898
	A1	0.01619	0.01588	0.01588
	B0	0.01234	0.01209	0.01214
	B1	0.01550	0.01532	0.01524

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__oai22_l	A0	0.00418	0.00384	0.00361
	A1	0.00215	0.00192	0.00168
	B0	0.00212	0.00191	0.00173
	B1	0.00423	0.00385	0.00365

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)	-0.00506	-0.00535	-0.00535
	(A1 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * B1 * !Y)	-0.00506	-0.00535	-0.00535
	(A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * !B1 * Y)	-0.00513	-0.00535	-0.00536
	(!A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * !B1 * Y)	-0.00547	-0.00548	-0.00547

Passive power(pJ) for A0 falling (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__oai22_l	(A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * !Y)	0.00535	0.00537	0.00535
	(A1 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * B1 * !Y)	0.00535	0.00537	0.00535
	(A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * !B1 * Y)	0.00536	0.00538	0.00536
	(!A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * !B1 * Y)	0.00548	0.00548	0.00547

Passive power(pJ) for A1 rising (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__oai22_l	(A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * B0 * !Y)	-0.00246	-0.00247	-0.00246
	(A0 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * B1 * !Y)	-0.00246	-0.00247	-0.00246
	(A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * !B1 * Y)	-0.00507	-0.00530	-0.00530
	(!A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * !B1 * Y)	-0.00546	-0.00547	-0.00546

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)	0.00251	0.00251	0.00250
	(A0 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * B1 * !Y)	0.00251	0.00251	0.00250
	(A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * !B1 * Y)	0.00533	0.00534	0.00530
	(!A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * !B1 * Y)	0.00546	0.00547	0.00547

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__oai22_l	(A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * B1 * !Y)	-0.00245	-0.00246	-0.00245
	(A0 * !A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B1 * !Y)	-0.00245	-0.00246	-0.00245
	(!A0 * !A1 * B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B1 * Y)	-0.00560	-0.00583	-0.00582
	(!A0 * !A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B1 * Y)	-0.00598	-0.00599	-0.00598

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)	0.00250	0.00250	0.00248
	(A0 * !A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B1 * !Y)	0.00249	0.00250	0.00248
	(!A0 * !A1 * B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B1 * Y)	0.00586	0.00587	0.00582
	(!A0 * !A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B1 * Y)	0.00598	0.00599	0.00599

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)	-0.00502	-0.00528	-0.00529
	(A0 * !A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B0 * !Y)	-0.00502	-0.00528	-0.00529
	(!A0 * !A1 * B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B0 * Y)	-0.00574	-0.00594	-0.00594
	(!A0 * !A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B0 * Y)	-0.00605	-0.00606	-0.00605

Passive power(pJ) for B1 falling (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__oai22_l	(A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * !Y)	0.00528	0.00530	0.00529
	(A0 * !A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B0 * !Y)	0.00528	0.00530	0.00529
	(!A0 * !A1 * B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B0 * Y)	0.00595	0.00596	0.00594
	(!A0 * !A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B0 * Y)	0.00606	0.00606	0.00605

SKY130_OSU_SC_18T_LS__OR2x

sky130_osu_sc_18T_ls_TT_1P8_25C.ccs
Cell Library: Process , Voltage 1.80,
Temp 25.00

Truth Table

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

Footprint

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

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	B	Y
sky130_osu_sc_18T_ls__or2_1	0.00593	0.00577	0.17634
sky130_osu_sc_18T_ls__or2_2	0.00592	0.00578	0.34288
sky130_osu_sc_18T_ls__or2_4	0.00592	0.00578	0.65398
sky130_osu_sc_18T_ls__or2_8	0.00594	0.00579	1.21374
sky130_osu_sc_18T_ls__or2_l	0.00459	0.00438	0.12018

Leakage Information

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

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__or2_1	A->Y (RR)	0.07555	0.20770	0.69108
	B->Y (RR)	0.06662	0.19383	0.65655
sky130_osu_sc_18T_ls__or2_2	A->Y (RR)	0.08359	0.20544	0.72653
	B->Y (RR)	0.07421	0.19344	0.69751
sky130_osu_sc_18T_ls__or2_4	A->Y (RR)	0.10905	0.22870	0.80361
	B->Y (RR)	0.09952	0.21869	0.78036
sky130_osu_sc_18T_ls__or2_8	A->Y (RR)	0.15616	0.27775	0.91073
	B->Y (RR)	0.14641	0.26828	0.89306
sky130_osu_sc_18T_ls__or2_l	A->Y (RR)	0.08291	0.22578	0.69099
	B->Y (RR)	0.07448	0.21339	0.65996

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__or2_1	A->Y (FF)	0.12731	0.26146	0.74740
	B->Y (FF)	0.10402	0.23645	0.71659
sky130_osu_sc_18T_ls__or2_2	A->Y (FF)	0.15394	0.28571	0.80467
	B->Y (FF)	0.13101	0.26120	0.78603
sky130_osu_sc_18T_ls__or2_4	A->Y (FF)	0.21715	0.35279	0.91475
	B->Y (FF)	0.19421	0.32772	0.90592
sky130_osu_sc_18T_ls__or2_8	A->Y (FF)	0.34573	0.49075	1.09494
	B->Y (FF)	0.32293	0.46533	1.08607
sky130_osu_sc_18T_ls__or2_l	A->Y (FF)	0.13778	0.27706	0.74440
	B->Y (FF)	0.11544	0.25366	0.71757

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	0.00845	0.00773	0.00750
	B	0.00000	0.00000	0.00000
	B	0.00635	0.00588	0.00605
sky130_osu_sc_18T_ls__or2_2	A	0.00000	0.00000	0.00000
	A	0.01490	0.01460	0.01438
	B	0.00000	0.00000	0.00000
	B	0.01273	0.01284	0.01306
sky130_osu_sc_18T_ls__or2_4	A	0.00000	0.00000	0.00000
	A	0.02865	0.02911	0.02923
	B	0.00000	0.00000	0.00000
	B	0.02649	0.02738	0.02825
sky130_osu_sc_18T_ls__or2_8	A	0.00000	0.00000	0.00000
	A	0.05610	0.05749	0.05876
	B	0.00000	0.00000	0.00000
	B	0.05381	0.05589	0.05851
sky130_osu_sc_18T_ls__or2_l	A	0.00000	0.00000	0.00000
	A	0.00618	0.00559	0.00540
	B	0.00000	0.00000	0.00000
	B	0.00485	0.00451	0.00460

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__or2_1	A	0.00000	0.00000	0.00000
	A	0.01872	0.01861	0.01861
	B	0.00000	0.00000	0.00000
	B	0.01532	0.01541	0.01592
sky130_osu_sc_18T_ls__or2_2	A	0.00000	0.00000	0.00000
	A	0.02304	0.02352	0.02375
	B	0.00000	0.00000	0.00000
	B	0.01959	0.02023	0.02090
sky130_osu_sc_18T_ls__or2_4	A	0.00000	0.00000	0.00000
	A	0.03402	0.03464	0.03593
	B	0.00000	0.00000	0.00000
	B	0.03047	0.03124	0.03291
sky130_osu_sc_18T_ls__or2_8	A	0.00000	0.00000	0.00000
	A	0.05758	0.05639	0.05994
	B	0.00000	0.00000	0.00000
	B	0.05462	0.05310	0.05676
sky130_osu_sc_18T_ls__or2_l	A	0.00000	0.00000	0.00000
	A	0.01412	0.01394	0.01390
	B	0.00000	0.00000	0.00000
	B	0.01175	0.01175	0.01209

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)	-0.00511	-0.00537	-0.00538
sky130_osu_sc_18T_ls__or2_2	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00511	-0.00537	-0.00538
sky130_osu_sc_18T_ls__or2_4	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00511	-0.00537	-0.00538
sky130_osu_sc_18T_ls__or2_8	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00511	-0.00537	-0.00539
sky130_osu_sc_18T_ls__or2_l	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00358	-0.00375	-0.00376

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__or2_1	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00538	0.00540	0.00538
sky130_osu_sc_18T_ls__or2_2	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00537	0.00540	0.00538
sky130_osu_sc_18T_ls__or2_4	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00538	0.00540	0.00538
sky130_osu_sc_18T_ls__or2_8	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00538	0.00540	0.00539
sky130_osu_sc_18T_ls__or2_l	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00375	0.00377	0.00376

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	-0.00248	-0.00248
sky130_osu_sc_18T_ls__or2_2	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00248	-0.00248	-0.00248
sky130_osu_sc_18T_ls__or2_4	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00248	-0.00249	-0.00249
sky130_osu_sc_18T_ls__or2_8	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00248	-0.00249	-0.00249
sky130_osu_sc_18T_ls__or2_l	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00179	-0.00181	-0.00179

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)	0.00253	0.00253	0.00252
sky130_osu_sc_18T_ls__or2_2	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00253	0.00253	0.00252
sky130_osu_sc_18T_ls__or2_4	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00253	0.00253	0.00252
sky130_osu_sc_18T_ls__or2_8	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00253	0.00253	0.00253
sky130_osu_sc_18T_ls__or2_l	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00182	0.00182	0.00181

SKY130_OSU_SC_18T_LS__TBUFIx

sky130_osu_sc_18T_ls_TT_1P8_25C.ccs
Cell Library: Process , Voltage 1.80,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__tbufi_1	12.45420
sky130_osu_sc_18T_ls__tbufi_l	12.45420

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	OE	Y
sky130_osu_sc_18T_ls__tbufi_1	0.00596	0.00750	0.08994
sky130_osu_sc_18T_ls__tbufi_l	0.00458	0.00580	0.06299

Leakage Information

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

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__tbufi_1	A->Y (FR)	0.05109	0.21782	0.86000
	OE->Y (FR)	0.05719	0.12176	0.37318
	OE->Y (RR)	0.09127	0.23417	0.65512
sky130_osu_sc_18T_ls__tbufi_l	A->Y (FR)	0.06036	0.24088	0.86925
	OE->Y (FR)	0.06055	0.12545	0.37297
	OE->Y (RR)	0.09984	0.25810	0.66922

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__tbufi_1	A->Y (RF)	0.03222	0.13742	0.54338
	OE->Y (FF)	0.05755	0.12175	0.37318
	OE->Y (RF)	0.03066	0.13266	0.51272
sky130_osu_sc_18T_ls__tbufi_l	A->Y (RF)	0.03671	0.14807	0.54389
	OE->Y (FF)	0.06126	0.12558	0.37295
	OE->Y (RF)	0.03570	0.14427	0.51301

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__tbufi_1	A	0.00000	0.00000	0.00000
	A	0.00813	0.00795	0.00803
	OE	0.00000	0.00000	0.00000
	OE	0.00838	0.00770	0.00812
sky130_osu_sc_18T_ls__tbufi_l	A	0.00000	0.00000	0.00000
	A	0.00615	0.00600	0.00599
	OE	0.00000	0.00000	0.00000
	OE	0.00598	0.00548	0.00577

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__tbufi_1	A	0.00000	0.00000	0.00000
	A	-0.00148	-0.00155	-0.00154
	OE	0.00000	0.00000	0.00000
	OE	0.00558	0.00490	0.00526
sky130_osu_sc_18T_ls__tbufi_l	A	0.00000	0.00000	0.00000
	A	-0.00094	-0.00101	-0.00107
	OE	0.00000	0.00000	0.00000
	OE	0.00389	0.00338	0.00364

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__tbufi_1	(!OE * Y)	0.00000	0.00000	0.00000
	(!OE * Y)	-0.00410	-0.00411	-0.00410
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	-0.00358	-0.00359	-0.00358
sky130_osu_sc_18T_ls__tbufi_l	(!OE * Y)	0.00000	0.00000	0.00000
	(!OE * Y)	-0.00306	-0.00307	-0.00306
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	-0.00271	-0.00272	-0.00271

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__tbufi_1	(!OE * Y)	0.00000	0.00000	0.00000
	(!OE * Y)	0.00410	0.00411	0.00410
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	0.00364	0.00365	0.00364
sky130_osu_sc_18T_ls__tbufi_l	(!OE * Y)	0.00000	0.00000	0.00000
	(!OE * Y)	0.00306	0.00307	0.00306
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	0.00275	0.00276	0.00275

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__tbufi_1	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00325	0.00258	0.00293
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00290	0.00225	0.00259
sky130_osu_sc_18T_ls__tbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00222	0.00172	0.00197
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00198	0.00150	0.00173

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)	0.00908	0.00854	0.00903
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00944	0.00894	0.00936
sky130_osu_sc_18T_ls__tbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00709	0.00662	0.00696
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00736	0.00690	0.00719

SKY130_OSU_SC_18T_LS__TNBUFIx

sky130_osu_sc_18T_ls_TT_1P8_25C.ccs
Cell Library: Process , Voltage 1.80,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__tnbufi_1	12.45420
sky130_osu_sc_18T_ls__tnbufi_l	12.45420

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	OE	Y
sky130_osu_sc_18T_ls__tnbufi_1	0.00595	0.00935	0.08992
sky130_osu_sc_18T_ls__tnbufi_l	0.00457	0.00692	0.06062

Leakage Information

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

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__tnbufi_1	A->Y (FR)	0.05147	0.21796	0.85997
	OE->Y (RR)	0.03008	0.08228	0.37399
	OE->Y (FR)	0.06701	0.23702	0.86680
sky130_osu_sc_18T_ls__tnbufi_l	A->Y (FR)	0.06084	0.23768	0.84984
	OE->Y (RR)	0.03151	0.08258	0.37418
	OE->Y (FR)	0.07425	0.25475	0.85366

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__tnbufi_1	A->Y (RF)	0.03180	0.13725	0.54319
	OE->Y (RF)	0.02983	0.08216	0.37394
	OE->Y (FF)	0.05995	0.17457	0.51489
sky130_osu_sc_18T_ls__tnbufi_l	A->Y (RF)	0.03620	0.14628	0.53232
	OE->Y (RF)	0.03125	0.08257	0.37418
	OE->Y (FF)	0.06756	0.18846	0.51433

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__tnbufi_1	A	0.00000	0.00000	0.00000
	A	0.00832	0.00813	0.00822
	OE	0.00000	0.00000	0.00000
	OE	0.02055	0.02037	0.02118
sky130_osu_sc_18T_ls__tnbufi_l	A	0.00000	0.00000	0.00000
	A	0.00634	0.00618	0.00618
	OE	0.00000	0.00000	0.00000
	OE	0.01518	0.01495	0.01552

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__tnbufi_1	A	0.00000	0.00000	0.00000
	A	-0.00173	-0.00178	-0.00177
	OE	0.00000	0.00000	0.00000
	OE	0.01806	0.01786	0.01865
sky130_osu_sc_18T_ls__tnbufi_l	A	0.00000	0.00000	0.00000
	A	-0.00119	-0.00125	-0.00130
	OE	0.00000	0.00000	0.00000
	OE	0.01330	0.01310	0.01363

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__tnbufi_1	(OE * Y)	0.00000	0.00000	0.00000
	(OE * Y)	-0.00354	-0.00355	-0.00354
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	-0.00307	-0.00309	-0.00308
sky130_osu_sc_18T_ls__tnbufi_l	(OE * Y)	0.00000	0.00000	0.00000
	(OE * Y)	-0.00254	-0.00254	-0.00254
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	-0.00222	-0.00223	-0.00222

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__tnbufi_1	(OE * Y)	0.00000	0.00000	0.00000
	(OE * Y)	0.00354	0.00355	0.00354
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	0.00313	0.00314	0.00313
sky130_osu_sc_18T_ls__tnbufi_l	(OE * Y)	0.00000	0.00000	0.00000
	(OE * Y)	0.00254	0.00254	0.00254
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	0.00226	0.00226	0.00225

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)	-0.00675	-0.00775	-0.00740
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00640	-0.00748	-0.00725
sky130_osu_sc_18T_ls__tnbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	-0.00467	-0.00537	-0.00511
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00443	-0.00513	-0.00499

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__tnbufi_1	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.01542	0.01525	0.01602
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.01518	0.01498	0.01570
sky130_osu_sc_18T_ls__tnbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.01141	0.01122	0.01175
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.01124	0.01104	0.01155

SKY130_OSU_SC_18T_LS__XNOR2

sky130_osu_sc_18T_ls_TT_1P8_25C.ccs
Cell Library: Process , Voltage 1.80,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__xnor2_l	21.24540

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	B	Y
sky130_osu_sc_18T_ls__xnor2_l	0.01178	0.01079	0.08793

Leakage Information

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

Delay Information

Delay(ns) to Y rising (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_18T_ls__xnor2_l	A->Y (RR)	B	0.11582	0.26088	0.68473
	A->Y (FR)	!B	0.06786	0.23289	0.86277
	B->Y (RR)	A	0.09156	0.23715	0.65912
	B->Y (FR)	!A	0.09301	0.25928	0.87645

Delay(ns) to Y falling (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_18T_ls__xnor2_l	A->Y (FF)	B	0.10590	0.22917	0.60874
	A->Y (RF)	!B	0.04728	0.14921	0.53271
	B->Y (FF)	A	0.09358	0.21748	0.59750
	B->Y (RF)	!A	0.05850	0.16188	0.54795

Power Information

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

Cell Name	Input	When	Power(pJ)		
			first	mid	last
sky130_osu_sc_18T_ls__xnor2_l	A	B	0.00000	0.00000	0.00000
	A	B	0.00824	0.00747	0.00773
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.01978	0.01900	0.01956
	B	A	0.00000	0.00000	0.00000
	B	A	0.00261	0.00196	0.00229
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.02213	0.02153	0.02211

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	0.02434	0.02336	0.02346
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00546	0.00459	0.00481
	B	A	0.00000	0.00000	0.00000
	B	A	0.02268	0.02246	0.02308
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00632	0.00525	0.00540

SKY130_OSU_SC_18T_LS__XOR2

sky130_osu_sc_18T_ls_TT_1P8_25C.ccs
Cell Library: Process , Voltage 1.80,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__xor2_l	21.24540

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	B	Y
sky130_osu_sc_18T_ls__xor2_l	0.01172	0.01083	0.08796

Leakage Information

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

Delay Information

Delay(ns) to Y rising (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_18T_ls__xor2_l	A->Y (RR)	!B	0.11040	0.25062	0.67112
	A->Y (FR)	B	0.08356	0.24991	0.86997
	B->Y (RR)	!A	0.09476	0.23996	0.66309
	B->Y (FR)	A	0.09083	0.25796	0.87772

Delay(ns) to Y falling (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_18T_ls__xor2_l	A->Y (FF)	!B	0.09223	0.21504	0.58887
	A->Y (RF)	B	0.04515	0.15355	0.55725
	B->Y (FF)	!A	0.08660	0.20963	0.58282
	B->Y (RF)	A	0.05444	0.15700	0.53428

Power Information

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

Cell Name	Input	When	Power(pJ)		
			first	mid	last
sky130_osu_sc_18T_ls__xor2_l	A	B	0.00000	0.00000	0.00000
	A	B	0.02343	0.02289	0.02358
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00387	0.00231	0.00223
	B	A	0.00000	0.00000	0.00000
	B	A	0.02405	0.02361	0.02422
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00221	0.00151	0.00184

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	0.00401	0.00284	0.00292
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.02542	0.02516	0.02579
	B	A	0.00000	0.00000	0.00000
	B	A	0.00405	0.00293	0.00304
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.02305	0.02297	0.02368

SKY130_OSU_SC_18T_LS_x

sky130_osu_sc_18T_ls_TT_1P8_25C.ccs
Cell Library: Process , Voltage 1.80,
Temp 25.00

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__tiehi	6.59340
sky130_osu_sc_18T_ls__tielo	6.59340

Pin Capacitance Information

Cell Name	Max Cap(pf)
	Y
sky130_osu_sc_18T_ls__tiehi	0.46003
sky130_osu_sc_18T_ls__tielo	0.78669

Leakage Information

Cell Name	Leakage(nW)		
	Min.	**Avg**	**Max.**
sky130_osu_sc_18T_ls__tiehi	0.00000	0.00000	0.00000
sky130_osu_sc_18T_ls__tielo	0.00000	0.00000	0.00000