sky130_osu_sc_18T_ls_tt_1P50_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_1P50_25C.ccs
Cell Library: Process , Voltage 1.50,
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	0.02061	0.02068	0.01592	1.55576	0.71144	1.52030
sky130_osu_sc_18T_ls__addf_l	0.02059	0.02068	0.01590	1.09037	0.71237	1.07054

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__addf_1	0.00000	0.00153	0.00161
sky130_osu_sc_18T_ls__addf_l	0.00000	0.00125	0.00139

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)	0.22474	2.12879	25.21130
	B->CO (RR)	0.20191	2.02877	24.16620
	CI->CO (RR)	0.21497	2.14692	25.59540
	CON->CO (FR)	0.04774	1.00826	12.65590
sky130_osu_sc_18T_ls__addf_1	A->CO (RR)	0.22594	2.01143	21.10010
	B->CO (RR)	0.20366	1.92663	20.38010
	CI->CO (RR)	0.21600	2.02999	21.51080
	CON->CO (FR)	0.05466	1.09792	12.72410

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)	0.37111	2.99798	34.78490
	B->CO (FF)	0.33675	2.86240	33.64920
	CI->CO (FF)	0.32759	2.94127	34.75410
	CON->CO (RF)	0.03171	0.68878	8.64685
sky130_osu_sc_18T_ls__addf_1	A->CO (FF)	0.36097	2.68553	27.47600
	B->CO (FF)	0.32699	2.56513	26.65110
	CI->CO (FF)	0.31728	2.62811	27.45750
	CON->CO (RF)	0.03414	0.71509	8.40768

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)	0.27584	1.42627	12.67860
	B->CON (FR)	0.24610	1.35732	12.31860
	CI->CON (FR)	0.23263	1.36968	12.67360
sky130_osu_sc_18T_ls__addf_1	A->CON (FR)	0.26193	1.41287	12.67460
	B->CON (FR)	0.23291	1.34459	12.31420
	CI->CON (FR)	0.21857	1.35628	12.66960

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)	0.11916	0.74599	7.07102
	B->CON (RF)	0.11160	0.73321	7.12250
	CI->CON (RF)	0.10940	0.76685	7.52854
sky130_osu_sc_18T_ls__addf_1	A->CON (RF)	0.11488	0.74184	7.07090
	B->CON (RF)	0.10773	0.72967	7.12250
	CI->CON (RF)	0.10510	0.76336	7.52835

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)	0.52586	2.96346	28.82900
	B->S (-R)	0.52699	2.93523	28.38740
	CI->S (-R)	0.47912	2.89961	28.76950
	CON->S (RR)	0.13160	0.93266	8.27858
sky130_osu_sc_18T_ls__addf_1	A->S (-R)	0.50208	2.72804	24.14180
	B->S (-R)	0.50417	2.71126	23.88690
	CI->S (-R)	0.45513	2.66276	24.10180
	CON->S (RR)	0.13190	0.99674	8.14846

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)	0.38497	1.93938	17.95800
	B->S (-F)	0.39792	1.87181	17.39400
	CI->S (-F)	0.37455	1.95394	18.32910
	CON->S (FF)	0.16926	0.90953	7.32046
sky130_osu_sc_18T_ls__addf_l	A->S (-F)	0.36177	1.76559	14.92720
	B->S (-F)	0.37544	1.71077	14.57100
	CI->S (-F)	0.35123	1.77750	15.33220
	CON->S (FF)	0.15415	0.92085	7.04352

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	0.00343	0.00328	0.00332
	B	0.00436	0.00437	0.00449
	CI	0.00459	0.00471	0.00495
sky130_osu_sc_18T_ls__addf_l	A	0.00270	0.00246	0.00248
	B	0.00364	0.00354	0.00359
	CI	0.00386	0.00389	0.00401

Internal switching power(pJ) to CO falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__addf_1	A	0.01287	0.01285	0.01332
	B	0.01271	0.01287	0.01337
	CI	0.01111	0.01149	0.01198
sky130_osu_sc_18T_ls__addf_l	A	0.01214	0.01208	0.01236
	B	0.01198	0.01208	0.01237
	CI	0.01037	0.01070	0.01096

Internal switching power(pJ) to CON rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__addf_1	A	0.01285	0.01284	0.01295
	B	0.01269	0.01283	0.01294
	CI	0.01110	0.01144	0.01154
sky130_osu_sc_18T_ls__addf_l	A	0.01213	0.01208	0.01218
	B	0.01197	0.01207	0.01217
	CI	0.01036	0.01068	0.01078

Internal switching power(pJ) to CON falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__addf_1	A	0.00339	0.00323	0.00317
	B	0.00432	0.00429	0.00418
	CI	0.00459	0.00468	0.00468
sky130_osu_sc_18T_ls__addf_l	A	0.00266	0.00244	0.00234
	B	0.00360	0.00349	0.00338
	CI	0.00385	0.00387	0.00387

Internal switching power(pJ) to S rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__addf_1	A	0.01287	0.01285	0.01329
	B	0.01271	0.01287	0.01331
	CI	0.01111	0.01149	0.01191
sky130_osu_sc_18T_ls__addf_l	A	0.01214	0.01209	0.01237
	B	0.01198	0.01208	0.01236
	CI	0.01037	0.01070	0.01099

Internal switching power(pJ) to S falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__addf_1	A	0.02704	0.02731	0.02721
	B	0.02411	0.02363	0.02430
	CI	0.02184	0.02192	0.02197
sky130_osu_sc_18T_ls__addf_l	A	0.02605	0.02607	0.02605
	B	0.02316	0.02255	0.02324
	CI	0.02089	0.02087	0.02084

SKY130_OSU_SC_18T_LS__ADDHx

sky130_osu_sc_18T_ls_tt_1P50_25C.ccs
Cell Library: Process , Voltage 1.50,
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	0.01020	0.01106	1.56053	0.76306	1.56740
sky130_osu_sc_18T_ls__addh_l	0.01020	0.01106	0.89221	0.76275	0.88856

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__addh_1	0.00000	0.00119	0.00123
sky130_osu_sc_18T_ls__addh_l	0.00000	0.00118	0.00146

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)	0.15713	0.95459	8.21129
	B->CO (RR)	0.16225	0.95651	8.36027
sky130_osu_sc_18T_ls__addh_l	A->CO (RR)	0.16276	1.07896	8.18482
	B->CO (RR)	0.16793	1.08393	8.34056

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)	0.14518	0.87826	7.44895
	B->CO (FF)	0.15432	0.89315	7.51739
sky130_osu_sc_18T_ls__addh_l	A->CO (FF)	0.14168	0.89704	6.90645
	B->CO (FF)	0.15033	0.91201	6.98110

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	0.21760	0.80883	4.55593
	A->CON (FR)	!B	0.15804	1.28251	12.69530
	B->CON (RR)	A	0.22290	0.81014	4.71005
	B->CON (FR)	!A	0.19207	1.33066	12.74990
sky130_osu_sc_18T_ls__addh_l	A->CON (RR)	B	0.19425	0.77374	4.44339
	A->CON (FR)	!B	0.14022	1.26371	12.67310
	B->CON (RR)	A	0.19953	0.77823	4.58933
	B->CON (FR)	!A	0.17416	1.31168	12.72760

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	0.20540	0.94516	6.68031
	A->CON (RF)	!B	0.07269	0.72762	7.58621
	B->CON (FF)	A	0.20788	0.97869	6.99232
	B->CON (RF)	!A	0.08451	0.71930	7.33482
sky130_osu_sc_18T_ls__addh_l	A->CON (FF)	B	0.18592	0.90802	6.46343
	A->CON (RF)	!B	0.06723	0.72167	7.57831
	B->CON (FF)	A	0.18791	0.94212	6.78158
	B->CON (RF)	!A	0.07925	0.71371	7.32712

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	0.16474	2.05222	25.17520
	A->S (FR)	B	0.29744	2.23881	23.90580
	B->S (RR)	!A	0.17541	1.98754	24.13660
	B->S (FR)	A	0.30182	2.32882	25.01230
	CON->S (FR)	-	0.05222	1.03416	12.98150
sky130_osu_sc_18T_ls__addh_l	A->S (RR)	!B	0.16818	1.89504	19.37770
	A->S (FR)	B	0.28702	2.06451	18.08830
	B->S (RR)	!A	0.17943	1.84982	18.76600
	B->S (FR)	A	0.29087	2.13396	18.78290
	CON->S (FR)	-	0.06398	1.18390	13.04860

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	0.23657	2.71641	33.22660
	A->S (RF)	B	0.27798	1.74870	17.47740
	B->S (FF)	!A	0.27090	2.76753	33.31440
	B->S (RF)	A	0.28331	1.74954	17.62310
	CON->S (RF)	-	0.02982	0.67434	8.50125
sky130_osu_sc_18T_ls__addh_l	A->S (FF)	!B	0.22303	2.26294	22.97610
	A->S (RF)	B	0.25727	1.49540	11.73970
	B->S (FF)	!A	0.25695	2.30838	23.04160
	B->S (RF)	A	0.26262	1.49927	11.88610
	CON->S (RF)	-	0.03392	0.71053	8.06840

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	0.00564	0.00535	0.00501
	B	0.00000	0.00000	0.00000
	B	0.00513	0.00485	0.00457
sky130_osu_sc_18T_ls__addh_l	A	0.00000	0.00000	0.00000
	A	0.00462	0.00424	0.00432
	B	0.00000	0.00000	0.00000
	B	0.00411	0.00374	0.00358

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	0.00887	0.00852	0.00819
	B	0.00000	0.00000	0.00000
	B	0.00917	0.00919	0.00889
sky130_osu_sc_18T_ls__addh_l	A	0.00000	0.00000	0.00000
	A	0.00783	0.00746	0.00741
	B	0.00000	0.00000	0.00000
	B	0.00814	0.00808	0.00809

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	0.00563	0.00534	0.00550
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00765	0.00762	0.00761
	B	A	0.00000	0.00000	0.00000
	B	A	0.00512	0.00485	0.00495
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00851	0.00847	0.00841
sky130_osu_sc_18T_ls__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.00461	0.00424	0.00433
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00698	0.00693	0.00690
	B	A	0.00000	0.00000	0.00000
	B	A	0.00410	0.00374	0.00376
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00783	0.00777	0.00770

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	0.00886	0.00856	0.00841
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00130	0.00126	0.00118
	B	A	0.00000	0.00000	0.00000
	B	A	0.00917	0.00919	0.00926
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00214	0.00202	0.00183
sky130_osu_sc_18T_ls__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.00783	0.00746	0.00737
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00042	0.00036	0.00025
	B	A	0.00000	0.00000	0.00000
	B	A	0.00814	0.00808	0.00815
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00126	0.00112	0.00095

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	0.00887	0.00854	0.00843
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00130	0.00133	0.00121
	B	A	0.00000	0.00000	0.00000
	B	A	0.00918	0.00920	0.00922
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00216	0.00207	0.00193
sky130_osu_sc_18T_ls__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.00784	0.00747	0.00733
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00042	0.00037	0.00029
	B	A	0.00000	0.00000	0.00000
	B	A	0.00815	0.00808	0.00809
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00128	0.00113	0.00103

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	0.00564	0.00534	0.00499
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00765	0.00769	0.00766
	B	A	0.00000	0.00000	0.00000
	B	A	0.00513	0.00484	0.00435
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00851	0.00854	0.00846
sky130_osu_sc_18T_ls__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.00461	0.00423	0.00447
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00698	0.00696	0.00693
	B	A	0.00000	0.00000	0.00000
	B	A	0.00411	0.00374	0.00380
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00784	0.00778	0.00774

SKY130_OSU_SC_18T_LS__AND2x

sky130_osu_sc_18T_ls_tt_1P50_25C.ccs
Cell Library: Process , Voltage 1.50,
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	0.00547	0.00556	1.57313
sky130_osu_sc_18T_ls__and2_2	0.00547	0.00557	3.08532
sky130_osu_sc_18T_ls__and2_4	0.00547	0.00557	5.94459
sky130_osu_sc_18T_ls__and2_6	0.00550	0.00556	8.64359
sky130_osu_sc_18T_ls__and2_8	0.00548	0.00557	11.27015
sky130_osu_sc_18T_ls__and2_l	0.00420	0.00430	1.07661

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__and2_1	0.00000	0.00048	0.00068
sky130_osu_sc_18T_ls__and2_2	0.00000	0.00069	0.00109
sky130_osu_sc_18T_ls__and2_4	0.00000	0.00110	0.00189
sky130_osu_sc_18T_ls__and2_6	0.00000	0.00151	0.00270
sky130_osu_sc_18T_ls__and2_8	0.00000	0.00192	0.00351
sky130_osu_sc_18T_ls__and2_l	0.00000	0.00027	0.00038

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)	0.11999	0.86894	7.79672
	B->Y (RR)	0.12654	0.88119	7.97215
sky130_osu_sc_18T_ls__and2_2	A->Y (RR)	0.13850	0.80658	8.06496
	B->Y (RR)	0.14498	0.80938	8.21636
sky130_osu_sc_18T_ls__and2_4	A->Y (RR)	0.19147	0.82708	8.59133
	B->Y (RR)	0.19789	0.82181	8.70632
sky130_osu_sc_18T_ls__and2_6	A->Y (RR)	0.24213	0.87477	8.89219
	B->Y (RR)	0.24844	0.86198	8.97197
sky130_osu_sc_18T_ls__and2_8	A->Y (RR)	0.29291	0.93077	9.26257
	B->Y (RR)	0.29933	0.91588	9.31485
sky130_osu_sc_18T_ls__and2_l	A->Y (RR)	0.13323	0.95942	7.72854
	B->Y (RR)	0.14020	0.97144	7.89882

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)	0.10949	0.79190	6.87092
	B->Y (FF)	0.11700	0.81209	6.99467
sky130_osu_sc_18T_ls__and2_2	A->Y (FF)	0.13032	0.78098	7.17670
	B->Y (FF)	0.13881	0.79642	7.27864
sky130_osu_sc_18T_ls__and2_4	A->Y (FF)	0.18569	0.82583	7.68416
	B->Y (FF)	0.19404	0.83782	7.76200
sky130_osu_sc_18T_ls__and2_6	A->Y (FF)	0.24342	0.88087	7.99425
	B->Y (FF)	0.25183	0.89116	8.06498
sky130_osu_sc_18T_ls__and2_8	A->Y (FF)	0.29763	0.93617	8.23120
	B->Y (FF)	0.30640	0.94630	8.28800
sky130_osu_sc_18T_ls__and2_l	A->Y (FF)	0.11788	0.83697	6.73537
	B->Y (FF)	0.12715	0.85952	6.87532

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	0.00451	0.00391	0.00477
	B	0.00000	0.00000	0.00000
	B	0.00459	0.00395	0.00423
sky130_osu_sc_18T_ls__and2_2	A	0.00000	0.00000	0.00000
	A	0.00877	0.00847	0.00924
	B	0.00000	0.00000	0.00000
	B	0.00884	0.00855	0.00874
sky130_osu_sc_18T_ls__and2_4	A	0.00000	0.00000	0.00000
	A	0.01791	0.01826	0.01899
	B	0.00000	0.00000	0.00000
	B	0.01797	0.01841	0.01872
sky130_osu_sc_18T_ls__and2_6	A	0.00000	0.00000	0.00000
	A	0.02692	0.02786	0.02936
	B	0.00000	0.00000	0.00000
	B	0.02701	0.02818	0.02917
sky130_osu_sc_18T_ls__and2_8	A	0.00000	0.00000	0.00000
	A	0.03600	0.03741	0.03970
	B	0.00000	0.00000	0.00000
	B	0.03607	0.03764	0.03953
sky130_osu_sc_18T_ls__and2_l	A	0.00000	0.00000	0.00000
	A	0.00331	0.00286	0.00346
	B	0.00000	0.00000	0.00000
	B	0.00338	0.00290	0.00312

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	0.01067	0.01049	0.01133
	B	0.00000	0.00000	0.00000
	B	0.01198	0.01180	0.01254
sky130_osu_sc_18T_ls__and2_2	A	0.00000	0.00000	0.00000
	A	0.01348	0.01396	0.01479
	B	0.00000	0.00000	0.00000
	B	0.01483	0.01522	0.01595
sky130_osu_sc_18T_ls__and2_4	A	0.00000	0.00000	0.00000
	A	0.02037	0.02208	0.02317
	B	0.00000	0.00000	0.00000
	B	0.02171	0.02321	0.02414
sky130_osu_sc_18T_ls__and2_6	A	0.00000	0.00000	0.00000
	A	0.02728	0.03018	0.03179
	B	0.00000	0.00000	0.00000
	B	0.02859	0.03117	0.03254
sky130_osu_sc_18T_ls__and2_8	A	0.00000	0.00000	0.00000
	A	0.03410	0.03805	0.04019
	B	0.00000	0.00000	0.00000
	B	0.03539	0.03885	0.04069
sky130_osu_sc_18T_ls__and2_l	A	0.00000	0.00000	0.00000
	A	0.00821	0.00802	0.00861
	B	0.00000	0.00000	0.00000
	B	0.00920	0.00900	0.00951

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)	-0.00396	-0.00400	-0.00400
sky130_osu_sc_18T_ls__and2_2	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00396	-0.00396	-0.00400
sky130_osu_sc_18T_ls__and2_4	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00396	-0.00397	-0.00400
sky130_osu_sc_18T_ls__and2_6	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00397	-0.00398	-0.00402
sky130_osu_sc_18T_ls__and2_8	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00395	-0.00400	-0.00400
sky130_osu_sc_18T_ls__and2_l	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00288	-0.00292	-0.00292

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)	0.00399	0.00403	0.00401
sky130_osu_sc_18T_ls__and2_2	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00399	0.00403	0.00401
sky130_osu_sc_18T_ls__and2_4	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00399	0.00403	0.00401
sky130_osu_sc_18T_ls__and2_6	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00401	0.00405	0.00403
sky130_osu_sc_18T_ls__and2_8	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00399	0.00403	0.00401
sky130_osu_sc_18T_ls__and2_l	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00291	0.00294	0.00292

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)	-0.00376	-0.00378	-0.00376
sky130_osu_sc_18T_ls__and2_2	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00376	-0.00378	-0.00376
sky130_osu_sc_18T_ls__and2_4	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00376	-0.00377	-0.00376
sky130_osu_sc_18T_ls__and2_6	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00376	-0.00378	-0.00376
sky130_osu_sc_18T_ls__and2_8	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00376	-0.00378	-0.00376
sky130_osu_sc_18T_ls__and2_l	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00274	-0.00276	-0.00274

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)	0.00378	0.00384	0.00377
sky130_osu_sc_18T_ls__and2_2	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00378	0.00384	0.00378
sky130_osu_sc_18T_ls__and2_4	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00378	0.00383	0.00378
sky130_osu_sc_18T_ls__and2_6	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00378	0.00383	0.00378
sky130_osu_sc_18T_ls__and2_8	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00378	0.00383	0.00378
sky130_osu_sc_18T_ls__and2_l	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00275	0.00276	0.00275

SKY130_OSU_SC_18T_LS__AOI21

sky130_osu_sc_18T_ls_tt_1P50_25C.ccs
Cell Library: Process , Voltage 1.50,
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	0.00515	0.00536	0.00522	0.71590

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__aoi21_l	0.00000	0.00025	0.00057

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)	0.14706	1.30282	12.62720
	A1->Y (FR)	0.12636	1.24348	12.27810
	B0->Y (FR)	0.10913	1.25085	12.62170

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)	0.06503	0.67001	6.80923
	A1->Y (RF)	0.05888	0.67910	7.09474
	B0->Y (RF)	0.03968	0.64336	6.95220

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	0.00923	0.00914	0.00912
	A1	0.00000	0.00000	0.00000
	A1	0.00783	0.00771	0.00770
	B0	0.00729	0.00711	0.00713

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	0.00180	0.00150	0.00139
	A1	0.00000	0.00000	0.00000
	A1	0.00182	0.00148	0.00142
	B0	-0.00081	-0.00082	-0.00090

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)	-0.00336	-0.00350	-0.00348
	(!A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !Y)	-0.00355	-0.00358	-0.00356
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00355	-0.00357	-0.00356

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)	0.00346	0.00350	0.00348
	(!A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !Y)	0.00356	0.00360	0.00357
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00358	0.00359	0.00357

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)	-0.00333	-0.00347	-0.00344
	(!A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !Y)	-0.00351	-0.00353	-0.00352
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	-0.00377	-0.00380	-0.00382

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)	0.00342	0.00348	0.00344
	(!A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !Y)	0.00351	0.00357	0.00353
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	0.00382	0.00386	0.00383

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)	-0.00177	-0.00179	-0.00178

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)	0.00197	0.00199	0.00183

SKY130_OSU_SC_18T_LS__AOI22

sky130_osu_sc_18T_ls_tt_1P50_25C.ccs
Cell Library: Process , Voltage 1.50,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__aoi22_1	15.38460

Pin Capacitance Information

Cell Name	Pin Cap(pf)				Max Cap(pf)
	A0	A1	B0	B1	Y
sky130_osu_sc_18T_ls__aoi22_1	0.00515	0.00537	0.00557	0.00533	0.70386

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__aoi22_1	0.00000	0.00042	0.00081

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)	0.18744	1.35893	12.70030
	A1->Y (FR)	0.16725	1.31791	12.51720
	B0->Y (FR)	0.11627	1.24916	12.50370
	B1->Y (FR)	0.13667	1.29201	12.72020

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)	0.08407	0.68793	6.77794
	A1->Y (RF)	0.07799	0.69651	7.06220
	B0->Y (RF)	0.04647	0.66113	7.02106
	B1->Y (RF)	0.05266	0.65028	6.73740

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	0.01129	0.01117	0.01115
	A1	0.00993	0.00975	0.00972
	B0	0.00782	0.00757	0.00759
	B1	0.00916	0.00896	0.00897

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__aoi22_l	A0	0.00380	0.00351	0.00335
	A1	0.00383	0.00349	0.00337
	B0	-0.00040	-0.00042	-0.00049
	B1	-0.00035	-0.00040	-0.00048

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)	-0.00337	-0.00349	-0.00347
	(!A1 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * B1 * !Y)	-0.00355	-0.00358	-0.00356
	(!A1 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !B1 * Y)	-0.00355	-0.00358	-0.00356
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00355	-0.00358	-0.00356

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)	0.00345	0.00349	0.00347
	(!A1 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * B1 * !Y)	0.00356	0.00360	0.00357
	(!A1 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !B1 * Y)	0.00358	0.00359	0.00357
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00358	0.00358	0.00357

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)	-0.00333	-0.00346	-0.00344
	(!A0 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * B1 * !Y)	-0.00351	-0.00353	-0.00352
	(!A0 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !B1 * Y)	-0.00377	-0.00379	-0.00382
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	-0.00377	-0.00379	-0.00382

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)	0.00341	0.00346	0.00344
	(!A0 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * B1 * !Y)	0.00351	0.00357	0.00353
	(!A0 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !B1 * Y)	0.00382	0.00385	0.00383
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	0.00382	0.00385	0.00383

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)	-0.00177	-0.00180	-0.00178
	(A0 * A1 * !B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B1 * !Y)	-0.00177	-0.00179	-0.00178
	(!A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B1 * Y)	-0.00388	-0.00391	-0.00392
	(!A0 * A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B1 * Y)	-0.00388	-0.00391	-0.00392

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)	0.00207	0.00208	0.00186
	(A0 * A1 * !B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B1 * !Y)	0.00178	0.00179	0.00178
	(!A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B1 * Y)	0.00391	0.00398	0.00393
	(!A0 * A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B1 * Y)	0.00391	0.00398	0.00393

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)	-0.00179	-0.00180	-0.00179
	(A0 * A1 * !B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B0 * !Y)	-0.00178	-0.00180	-0.00179
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00361	-0.00363	-0.00361
	(!A0 * A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B0 * Y)	-0.00361	-0.00363	-0.00361

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)	0.00208	0.00209	0.00187
	(A0 * A1 * !B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B0 * !Y)	0.00178	0.00180	0.00179
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00362	0.00365	0.00362
	(!A0 * A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B0 * Y)	0.00362	0.00365	0.00362

SKY130_OSU_SC_18T_LS__BUFx

sky130_osu_sc_18T_ls_tt_1P50_25C.ccs
Cell Library: Process , Voltage 1.50,
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	0.00557	1.54933
sky130_osu_sc_18T_ls__buf_2	0.00557	3.09714
sky130_osu_sc_18T_ls__buf_4	0.00557	5.96017
sky130_osu_sc_18T_ls__buf_6	0.00098	1.80000
sky130_osu_sc_18T_ls__buf_8	0.00557	11.41882
sky130_osu_sc_18T_ls__buf_l	0.00435	1.08686

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__buf_1	0.00000	0.00055	0.00055
sky130_osu_sc_18T_ls__buf_2	0.00000	0.00082	0.00095
sky130_osu_sc_18T_ls__buf_4	0.00000	0.00136	0.00176
sky130_osu_sc_18T_ls__buf_6	0.00000	0.00000	0.00000
sky130_osu_sc_18T_ls__buf_8	0.00000	0.00245	0.00337
sky130_osu_sc_18T_ls__buf_l	0.00000	0.00027	0.00027

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)**	0.09011	0.82033	7.62736
sky130_osu_sc_18T_ls__buf_2	**A->Y (RR)**	0.09941	0.74772	7.98294
sky130_osu_sc_18T_ls__buf_4	**A->Y (RR)**	0.13425	0.74469	8.42257
sky130_osu_sc_18T_ls__buf_8	**A->Y (RR)**	0.20092	0.81151	9.01467
sky130_osu_sc_18T_ls__buf_l	**A->Y (RR)**	0.10102	0.91446	7.67866

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)**	0.10397	0.77744	6.74350
sky130_osu_sc_18T_ls__buf_2	**A->Y (FF)**	0.12581	0.77433	7.16330
sky130_osu_sc_18T_ls__buf_4	**A->Y (FF)**	0.18135	0.81992	7.66203
sky130_osu_sc_18T_ls__buf_8	**A->Y (FF)**	0.29361	0.93241	8.26429
sky130_osu_sc_18T_ls__buf_l	**A->Y (FF)**	0.11384	0.82954	6.71846

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	0.00414	0.00345	0.00429
sky130_osu_sc_18T_ls__buf_2	A	0.00000	0.00000	0.00000
	A	0.00844	0.00800	0.00877
sky130_osu_sc_18T_ls__buf_4	A	0.00000	0.00000	0.00000
	A	0.01765	0.01781	0.01846
sky130_osu_sc_18T_ls__buf_8	A	0.00000	0.00000	0.00000
	A	0.03569	0.03708	0.03893
sky130_osu_sc_18T_ls__buf_l	A	0.00000	0.00000	0.00000
	A	0.00313	0.00259	0.00318

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	0.01035	0.01013	0.01094
sky130_osu_sc_18T_ls__buf_2	A	0.00000	0.00000	0.00000
	A	0.01315	0.01350	0.01427
sky130_osu_sc_18T_ls__buf_4	A	0.00000	0.00000	0.00000
	A	0.02005	0.02154	0.02253
sky130_osu_sc_18T_ls__buf_8	A	0.00000	0.00000	0.00000
	A	0.03373	0.03734	0.03920
sky130_osu_sc_18T_ls__buf_l	A	0.00000	0.00000	0.00000
	A	0.00804	0.00779	0.00838

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
	-0.00053	-0.00054	-0.00053

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
	0.00053	0.00054	0.00053

SKY130_OSU_SC_18T_LS__DFFRx

sky130_osu_sc_18T_ls_tt_1P50_25C.ccs
Cell Library: Process , Voltage 1.50,
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	0.00530	0.00531	0.01550	1.52388	1.52256
sky130_osu_sc_18T_ls__dffr_l	0.00530	0.00531	0.01550	1.08686	1.08409

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__dffr_1	0.00000	0.00216	0.00249
sky130_osu_sc_18T_ls__dffr_l	0.00000	0.00189	0.00222

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)	0.51455	1.88045	15.95180
	QN->Q (FR)	0.05413	1.09279	13.68880
sky130_osu_sc_18T_ls__dffr_l	CK->Q (RR)	0.50078	1.98781	15.60200
	QN->Q (FR)	0.05872	1.15706	13.41200

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)	0.48515	1.93472	17.34070
	QN->Q (RF)	0.03654	0.78066	9.77536
	RN->Q (FF)	0.34928	1.98052	19.48650
sky130_osu_sc_18T_ls__dffr_l	CK->Q (RF)	0.49206	2.09714	17.19000
	QN->Q (RF)	0.03755	0.79016	9.26236
	RN->Q (FF)	0.35666	2.14340	19.32870

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)	0.42924	1.19545	8.20865
	RN->QN (FR)	0.29304	1.23932	10.35190
sky130_osu_sc_18T_ls__dffr_l	CK->QN (RR)	0.42973	1.27076	8.22564
	RN->QN (FR)	0.29391	1.31484	10.35860

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)**	0.43178	0.99062	5.06668
sky130_osu_sc_18T_ls__dffr_l	**CK->QN (RF)**	0.41144	0.98924	4.85303

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)	-0.09457	-0.12776	-0.63704
	setup	CK (R)	0.40043	0.42416	1.84490
sky130_osu_sc_18T_ls__dffr_l	hold	CK (R)	-0.09480	-0.12790	-0.63788
	setup	CK (R)	0.40438	0.42202	1.85651

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)	-0.21458	-0.60476	-5.97228
	setup	CK (R)	0.25587	0.62069	6.02271
sky130_osu_sc_18T_ls__dffr_l	hold	CK (R)	-0.21251	-0.60165	-5.96918
	setup	CK (R)	0.25555	0.62069	6.02266

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)	-0.09457	-0.12776	-0.63704
	setup	CK (R)	0.40043	0.42416	1.84490
sky130_osu_sc_18T_ls__dffr_l	hold	CK (R)	-0.09480	-0.12790	-0.63788
	setup	CK (R)	0.40438	0.42202	1.85651

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)	-0.21458	-0.60476	-5.97228
	setup	CK (R)	0.25587	0.62069	6.02271
sky130_osu_sc_18T_ls__dffr_l	hold	CK (R)	-0.21251	-0.60165	-5.96918
	setup	CK (R)	0.25555	0.62069	6.02266

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)	0.34012	0.35925	1.63795
	removal	CK (R)	-0.05736	-0.06773	-0.11100
sky130_osu_sc_18T_ls__dffr_l	recovery	CK (R)	0.34192	0.36158	1.64737
	removal	CK (R)	-0.05736	-0.06773	-0.11100

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)	0.34012	0.35925	1.63795
	removal	CK (R)	-0.05736	-0.06773	-0.11100
sky130_osu_sc_18T_ls__dffr_l	recovery	CK (R)	0.34192	0.36158	1.64737
	removal	CK (R)	-0.05736	-0.06773	-0.11100

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 ()	0.21265	0.56586	13.33370
	min_pulse_width	RN ()	0.21053	0.56586	13.33370
sky130_osu_sc_18T_ls__dffr_l	min_pulse_width	RN ()	0.20768	0.56369	13.33370
	min_pulse_width	RN ()	0.20558	0.56369	13.33370

Constraints(ns) for CK rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_ls__dffr_1	min_pulse_width	CK ()	0.22793	0.56152	13.33370
	min_pulse_width	CK ()	0.25730	0.56152	13.33370
sky130_osu_sc_18T_ls__dffr_l	min_pulse_width	CK ()	0.21114	0.56152	13.33370
	min_pulse_width	CK ()	0.25101	0.56152	13.33370

Constraints(ns) for CK falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_ls__dffr_1	min_pulse_width	CK ()	0.51479	0.62221	13.33370
	min_pulse_width	CK ()	0.20695	0.56152	13.33370
sky130_osu_sc_18T_ls__dffr_l	min_pulse_width	CK ()	0.51599	0.62654	13.33370
	min_pulse_width	CK ()	0.20485	0.56152	13.33370

Power Information

Internal switching power(pJ) to Q rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__dffr_1	CK	0.00000	0.00000	0.00000
	CK	0.01017	0.00778	-0.00164
sky130_osu_sc_18T_ls__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.00899	0.00713	-0.00399

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	0.01178	0.01064	0.00164
	RN	-0.00142	-0.06615	-0.85718
	RN	0.02678	0.02574	0.01650
sky130_osu_sc_18T_ls__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.01058	0.00968	0.00509
	RN	-0.00142	-0.05401	-0.61136
	RN	0.02556	0.02478	0.01995

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	0.01178	0.01065	0.00163
	RN	-0.00142	-0.06612	-0.85644
	RN	0.02678	0.02574	0.01648
sky130_osu_sc_18T_ls__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.01058	0.00969	0.00510
	RN	-0.00142	-0.05393	-0.60980
	RN	0.02556	0.02478	0.01993

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	0.01014	0.00776	-0.00163
sky130_osu_sc_18T_ls__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.00896	0.00711	-0.00438

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	-0.00321	-0.00348	-0.00346
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.01215	0.01150	0.01144
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.00556	0.00496	0.00498
sky130_osu_sc_18T_ls__dffr_l	CK	0.00000	0.00000	0.00000
	CK	-0.00321	-0.00348	-0.00346
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.01215	0.01150	0.01144
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.00556	0.00496	0.00498

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	0.00344	0.00348	0.00346
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.02072	0.02040	0.02015
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.00960	0.00939	0.00938
sky130_osu_sc_18T_ls__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.00344	0.00348	0.00346
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.02072	0.02040	0.02015
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.00960	0.00939	0.00938

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)	0.00402	0.00334	0.00388
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.01096	0.01002	0.01033
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)	0.00402	0.00334	0.00388
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.01096	0.01002	0.01033

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)	0.00926	0.00888	0.00965
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.02003	0.01937	0.01972
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)	0.00926	0.00888	0.00965
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.02003	0.01937	0.01972

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)	-0.00055	-0.00136	-0.00088
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.00594	0.00453	0.00458
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	-0.00100	-0.00182	-0.00135
sky130_osu_sc_18T_ls__dffr_l	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	-0.00055	-0.00136	-0.00088
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.00594	0.00453	0.00458
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	-0.00100	-0.00182	-0.00135

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)	0.01480	0.01438	0.01501
	(D * RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * RN * !Q * QN)	0.03181	0.03073	0.03038
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.02440	0.02388	0.02382
	(!D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * Q * !QN)	0.03144	0.03036	0.03169
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.01671	0.01634	0.01693
sky130_osu_sc_18T_ls__dffr_l	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.01480	0.01438	0.01501
	(D * RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * RN * !Q * QN)	0.03181	0.03073	0.03038
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.02440	0.02388	0.02382
	(!D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * Q * !QN)	0.03144	0.03036	0.03169
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.01671	0.01634	0.01693

SKY130_OSU_SC_18T_LS__DFFSRx

sky130_osu_sc_18T_ls_tt_1P50_25C.ccs
Cell Library: Process , Voltage 1.50,
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	0.00526	0.00532	0.01132	0.01575	1.55358	1.56563
sky130_osu_sc_18T_ls__dffsr_l	0.00526	0.00532	0.01131	0.01575	1.08563	1.08612

Leakage Information

Cell Name	Leakage(nW)		
	Min.	**Avg**	**Max.**
sky130_osu_sc_18T_ls__dffsr_1	0.00000	0.00229	0.00285
sky130_osu_sc_18T_ls__dffsr_l	0.00000	0.00202	0.00258

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)	0.52015	1.86164	15.71890
	QN->Q (FR)	0.05173	1.06854	13.44370
	RN->Q (RR)	0.41540	1.77297	15.78800
	SN->Q (FR)	0.39832	1.92070	18.52880
sky130_osu_sc_18T_ls__dffsr_l	CK->Q (RR)	0.52131	2.01818	15.68600
	QN->Q (FR)	0.05865	1.15584	13.37480
	RN->Q (RR)	0.41741	1.93011	15.76240
	SN->Q (FR)	0.39966	2.07762	18.46530

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)	0.54333	1.97321	17.15860
	QN->Q (RF)	0.03340	0.73720	9.28140
	RN->Q (FF)	0.36386	1.97437	19.35830
sky130_osu_sc_18T_ls__dffsr_l	CK->Q (RF)	0.55613	2.16630	17.23570
	QN->Q (RF)	0.03747	0.78863	9.24829
	RN->Q (FF)	0.37722	2.16946	19.41970

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)	0.48856	1.25650	8.29145
	RN->QN (FR)	0.31007	1.25820	10.48200
sky130_osu_sc_18T_ls__dffsr_l	CK->QN (RR)	0.49270	1.34041	8.30970
	RN->QN (FR)	0.31449	1.34264	10.49160

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)	0.44375	1.00042	5.07138
	RN->QN (RF)	0.33933	0.91260	5.14167
	SN->QN (FF)	0.32241	1.06043	7.87683
sky130_osu_sc_18T_ls__dffsr_l	CK->QN (RF)	0.43484	1.02300	4.97428
	RN->QN (RF)	0.33098	0.93593	5.04290
	SN->QN (FF)	0.31378	1.08339	7.74045

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)	-0.10002	-0.13741	-0.72527
	setup	CK (R)	0.39045	0.40560	1.83081
sky130_osu_sc_18T_ls__dffsr_l	hold	CK (R)	-0.10026	-0.13793	-0.72413
	setup	CK (R)	0.39022	0.40508	1.83213

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)	-0.24209	-0.62934	-6.17551
	setup	CK (R)	0.29696	0.64219	6.20690
sky130_osu_sc_18T_ls__dffsr_l	hold	CK (R)	-0.24036	-0.62930	-6.17663
	setup	CK (R)	0.29258	0.64219	6.20690

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)	-0.10002	-0.13741	-0.72527
	setup	CK (R)	0.39045	0.40560	1.83081
sky130_osu_sc_18T_ls__dffsr_l	hold	CK (R)	-0.10026	-0.13793	-0.72413
	setup	CK (R)	0.39022	0.40508	1.83213

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)	-0.24209	-0.62934	-6.17551
	setup	CK (R)	0.29696	0.64219	6.20690
sky130_osu_sc_18T_ls__dffsr_l	hold	CK (R)	-0.24036	-0.62930	-6.17663
	setup	CK (R)	0.29258	0.64219	6.20690

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)	0.30170	0.31444	1.55439
	removal	CK (R)	-0.03367	-0.03558	-0.07623
	hold	SN (R)	-0.31206	-0.58473	-3.93037
	setup	SN (R)	0.33873	0.63570	6.05114
sky130_osu_sc_18T_ls__dffsr_l	recovery	CK (R)	0.30092	0.31428	1.55416
	removal	CK (R)	-0.03367	-0.03558	-0.07623
	hold	SN (R)	-0.30120	-0.57135	-3.84528
	setup	SN (R)	0.34143	0.62640	5.93960

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)	0.30170	0.31444	1.55439
	removal	CK (R)	-0.03367	-0.03558	-0.07623
	hold	SN (R)	-0.31388	-0.58473	-3.93037
	hold	SN (R)	-0.31206	-0.58636	-3.93811
	setup	SN (R)	0.33873	0.63243	5.91495
	setup	SN (R)	0.33320	0.63570	6.05114
sky130_osu_sc_18T_ls__dffsr_l	recovery	CK (R)	0.30092	0.31428	1.55416
	removal	CK (R)	-0.03367	-0.03558	-0.07623
	hold	SN (R)	-0.30794	-0.57135	-3.84528
	hold	SN (R)	-0.30120	-0.57357	-3.85833
	setup	SN (R)	0.34143	0.62085	5.77243
	setup	SN (R)	0.31790	0.62640	5.93960

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 ()	0.23860	0.58970	13.33370
	min_pulse_width	RN ()	0.24302	0.58970	13.33370
sky130_osu_sc_18T_ls__dffsr_l	min_pulse_width	RN ()	0.23998	0.58753	13.33370
	min_pulse_width	RN ()	0.23778	0.58753	13.33370

Constraints(ns) for SN rising :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_ls__dffsr_1	recovery	CK (R)	0.06057	0.09918	2.79920
	removal	CK (R)	-0.01902	-0.07026	-0.59534
sky130_osu_sc_18T_ls__dffsr_l	recovery	CK (R)	0.05974	0.09910	2.66239
	removal	CK (R)	-0.01902	-0.07026	-0.59429

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)	0.06057	0.09918	2.79920
	removal	CK (R)	-0.01902	-0.07026	-0.59534
sky130_osu_sc_18T_ls__dffsr_l	recovery	CK (R)	0.05974	0.09910	2.66239
	removal	CK (R)	-0.01902	-0.07026	-0.59429

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 ()	0.31827	0.67855	13.33370
	min_pulse_width	SN ()	0.31764	0.68289	13.33370
sky130_osu_sc_18T_ls__dffsr_l	min_pulse_width	SN ()	0.31994	0.66555	13.33370
	min_pulse_width	SN ()	0.30177	0.66988	13.33370

Constraints(ns) for CK rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_ls__dffsr_1	min_pulse_width	CK ()	0.23422	0.56152	13.33370
	min_pulse_width	CK ()	0.27618	0.56152	13.33370
sky130_osu_sc_18T_ls__dffsr_l	min_pulse_width	CK ()	0.22373	0.56152	13.33370
	min_pulse_width	CK ()	0.27409	0.56152	13.33370

Constraints(ns) for CK falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_ls__dffsr_1	min_pulse_width	CK ()	0.50590	0.61137	13.33370
	min_pulse_width	CK ()	0.25101	0.56152	13.33370
sky130_osu_sc_18T_ls__dffsr_l	min_pulse_width	CK ()	0.50538	0.61354	13.33370
	min_pulse_width	CK ()	0.24891	0.56152	13.33370

Power Information

Internal switching power(pJ) to Q rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__dffsr_1	CK	0.00000	0.00000	0.00000
	CK	0.01263	0.01091	-0.00329
	RN	0.02356	0.02218	0.00600
	SN	-0.00142	-0.06692	-0.87389
	SN	0.02601	0.02471	0.00985
sky130_osu_sc_18T_ls__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.01155	0.00976	-0.00140
	RN	0.02247	0.02102	0.00897
	SN	-0.00142	-0.05398	-0.61067
	SN	0.02491	0.02356	0.01153

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	0.01353	0.01261	0.00517
	RN	-0.00142	-0.06692	-0.87389
	RN	0.02753	0.02657	0.01895
sky130_osu_sc_18T_ls__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.01243	0.01164	0.00719
	RN	-0.00142	-0.05398	-0.61067
	RN	0.02641	0.02558	0.02091

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	0.01353	0.01261	0.00507
	RN	-0.00142	-0.06724	-0.88067
	RN	0.02753	0.02657	0.01887
sky130_osu_sc_18T_ls__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.01244	0.01165	0.00718
	RN	-0.00142	-0.05399	-0.61094
	RN	0.02641	0.02558	0.02090

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	0.01259	0.01088	-0.00328
	RN	0.02352	0.02214	0.00730
	SN	-0.00142	-0.06724	-0.88060
	SN	0.02597	0.02467	0.00969
sky130_osu_sc_18T_ls__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.01151	0.00973	-0.00170
	RN	0.02243	0.02098	0.00886
	SN	-0.00142	-0.05399	-0.61089
	SN	0.02487	0.02352	0.01138

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	-0.00334	-0.00348	-0.00346
	(!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)	0.01562	0.01501	0.01497
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.00628	0.00571	0.00573
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.00624	0.00569	0.00569
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.00632	0.00575	0.00577
sky130_osu_sc_18T_ls__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	-0.00334	-0.00348	-0.00346
	(!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)	0.01562	0.01501	0.01497
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.00628	0.00573	0.00573
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.00624	0.00569	0.00569
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.00632	0.00575	0.00577

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	0.00346	0.00348	0.00346
	(!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)	0.02348	0.02316	0.02274
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.01018	0.00999	0.01000
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.01022	0.01004	0.01001
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.01014	0.00995	0.00995
sky130_osu_sc_18T_ls__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.00346	0.00348	0.00346
	(!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)	0.02347	0.02315	0.02273
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.01018	0.00998	0.00999
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.01021	0.01003	0.01001
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.01013	0.00994	0.00994

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)	0.00360	0.00289	0.00331
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.01320	0.01219	0.01240
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)	0.00360	0.00289	0.00331
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.01321	0.01220	0.01240

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)	0.01005	0.00965	0.01045
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.02127	0.02046	0.02079
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)	0.01004	0.00964	0.01043
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.02126	0.02051	0.02078

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)	-0.00784	-0.00789	-0.00793
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	-0.00802	-0.00816	-0.00811
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	-0.00775	-0.00783	-0.00782
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.00513	0.00447	0.00454
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)	-0.00784	-0.00788	-0.00793
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	-0.00797	-0.00814	-0.00810
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	-0.00775	-0.00782	-0.00782
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.00513	0.00448	0.00455

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)	0.00793	0.00801	0.00796
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00806	0.00819	0.00811
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	0.00779	0.00791	0.00783
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.01608	0.01574	0.01573
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)	0.00793	0.00801	0.00796
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00805	0.00817	0.00810
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	0.00779	0.00791	0.00782
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.01607	0.01574	0.01573

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)	-0.00055	-0.00136	-0.00088
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.00669	0.00539	0.00539
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.00662	0.00532	0.00535
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	-0.00083	-0.00167	-0.00117
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.00495	0.00333	0.00440
sky130_osu_sc_18T_ls__dffsr_l	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	-0.00055	-0.00136	-0.00089
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.00668	0.00538	0.00538
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.00661	0.00531	0.00534
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	-0.00083	-0.00167	-0.00117
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.00495	0.00333	0.00440

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)	0.03539	0.03434	0.03396
	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.01484	0.01443	0.01505
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.02489	0.02445	0.02438
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.02494	0.02452	0.02447
	(!D * RN * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * Q * !QN)	0.03415	0.03304	0.03407
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.01656	0.01613	0.01679
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.01960	0.01873	0.02017
sky130_osu_sc_18T_ls__dffsr_l	**(D * RN * SN * !Q * QN)**	0.00000	0.00000	0.00000
	(D * RN * SN * !Q * QN)	0.03539	0.03434	0.03396
	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.01484	0.01443	0.01505
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.02489	0.02445	0.02438
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.02494	0.02452	0.02447
	(!D * RN * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * Q * !QN)	0.03414	0.03303	0.03407
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.01656	0.01613	0.01679
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.01959	0.01873	0.02017

SKY130_OSU_SC_18T_LS__DFFSx

sky130_osu_sc_18T_ls_tt_1P50_25C.ccs
Cell Library: Process , Voltage 1.50,
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	0.00528	0.00901	0.01554	1.54299	1.53471
sky130_osu_sc_18T_ls__dffs_l	0.00528	0.00901	0.01554	1.09453	1.08696

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__dffs_1	0.00000	0.00178	0.00231
sky130_osu_sc_18T_ls__dffs_l	0.00000	0.00151	0.00204

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)	0.36159	1.71316	15.93240
	QN->Q (FR)	0.05395	1.08510	13.70280
	SN->Q (FR)	0.28806	1.85705	18.65280
sky130_osu_sc_18T_ls__dffs_l	CK->Q (RR)	0.35977	1.83364	15.52960
	QN->Q (FR)	0.05853	1.15568	13.40590
	SN->Q (FR)	0.28525	1.97502	18.18850

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)	0.53772	1.99946	17.53270
	QN->Q (RF)	0.03625	0.78120	9.79779
sky130_osu_sc_18T_ls__dffs_l	CK->Q (RF)	0.54097	2.15455	17.30890
	QN->Q (RF)	0.03732	0.78904	9.26547

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)	0.47955	1.25332	8.28537
sky130_osu_sc_18T_ls__dffs_l	CK->QN (RR)	0.47670	1.32237	8.27009

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)	0.28883	0.82324	4.93727
	SN->QN (FF)	0.21498	0.96886	7.64382
sky130_osu_sc_18T_ls__dffs_l	CK->QN (RF)	0.28000	0.83618	4.71438
	SN->QN (FF)	0.20480	0.97762	7.36925

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)	-0.07283	-0.10940	-0.59827
	setup	CK (R)	0.25176	0.28311	1.78323
sky130_osu_sc_18T_ls__dffs_l	hold	CK (R)	-0.06978	-0.10936	-0.59812
	setup	CK (R)	0.25476	0.28358	1.79441

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)	-0.21668	-0.60583	-6.00029
	setup	CK (R)	0.28249	0.62834	6.06096
sky130_osu_sc_18T_ls__dffs_l	hold	CK (R)	-0.21568	-0.60729	-5.99964
	setup	CK (R)	0.28212	0.62834	6.06096

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)	-0.07283	-0.10940	-0.59827
	setup	CK (R)	0.25176	0.28311	1.78323
sky130_osu_sc_18T_ls__dffs_l	hold	CK (R)	-0.06978	-0.10936	-0.59812
	setup	CK (R)	0.25476	0.28358	1.79441

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)	-0.21668	-0.60583	-6.00029
	setup	CK (R)	0.28249	0.62834	6.06096
sky130_osu_sc_18T_ls__dffs_l	hold	CK (R)	-0.21568	-0.60729	-5.99964
	setup	CK (R)	0.28212	0.62834	6.06096

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)	0.07068	0.10709	2.16875
	removal	CK (R)	-0.02056	-0.06668	-0.55083
sky130_osu_sc_18T_ls__dffs_l	recovery	CK (R)	0.07013	0.10709	2.02961
	removal	CK (R)	-0.02056	-0.06668	-0.55083

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)	0.07068	0.10709	2.16875
	removal	CK (R)	-0.02056	-0.06668	-0.55083
sky130_osu_sc_18T_ls__dffs_l	recovery	CK (R)	0.07013	0.10709	2.02961
	removal	CK (R)	-0.02056	-0.06668	-0.55083

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 ()	0.19682	0.64604	13.33370
	min_pulse_width	SN ()	0.20168	0.64604	13.33370
sky130_osu_sc_18T_ls__dffs_l	min_pulse_width	SN ()	0.19201	0.62871	13.33370
	min_pulse_width	SN ()	0.18846	0.63304	13.33370

Constraints(ns) for CK rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_ls__dffs_1	min_pulse_width	CK ()	0.14400	0.56152	13.33370
	min_pulse_width	CK ()	0.26989	0.56152	13.33370
sky130_osu_sc_18T_ls__dffs_l	min_pulse_width	CK ()	0.13981	0.56152	13.33370
	min_pulse_width	CK ()	0.26150	0.56152	13.33370

Constraints(ns) for CK falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_ls__dffs_1	min_pulse_width	CK ()	0.36640	0.56152	13.33370
	min_pulse_width	CK ()	0.24052	0.56152	13.33370
sky130_osu_sc_18T_ls__dffs_l	min_pulse_width	CK ()	0.36640	0.56152	13.33370
	min_pulse_width	CK ()	0.24052	0.56152	13.33370

Power Information

Internal switching power(pJ) to Q rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__dffs_1	CK	0.00000	0.00000	0.00000
	CK	0.01018	0.00771	-0.00205
	SN	-0.00142	-0.06665	-0.86793
	SN	0.02217	0.01994	-0.00190
sky130_osu_sc_18T_ls__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.00899	0.00708	-0.00399
	SN	-0.00142	-0.05424	-0.61567
	SN	0.02097	0.01931	0.00743

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	0.01173	0.01067	0.00205
sky130_osu_sc_18T_ls__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.01054	0.00971	0.00531

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	0.01173	0.01068	0.00207
sky130_osu_sc_18T_ls__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.01054	0.00971	0.00538

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	0.01015	0.00768	-0.00207
	SN	-0.00142	-0.06644	-0.86320
	SN	0.02213	0.01992	-0.00147
sky130_osu_sc_18T_ls__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.00895	0.00705	-0.00414
	SN	-0.00142	-0.05402	-0.61137
	SN	0.02093	0.01929	0.00755

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	-0.00337	-0.00352	-0.00350
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.01175	0.01107	0.01091
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.00542	0.00485	0.00484
sky130_osu_sc_18T_ls__dffs_l	CK	0.00000	0.00000	0.00000
	CK	-0.00337	-0.00352	-0.00350
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.01175	0.01107	0.01091
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.00542	0.00485	0.00484

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	0.00349	0.00352	0.00350
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.02026	0.01993	0.01971
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.00978	0.00959	0.00959
sky130_osu_sc_18T_ls__dffs_1	CK	0.00000	0.00000	0.00000
	CK	0.00349	0.00352	0.00350
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.02026	0.01993	0.01971
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.00978	0.00959	0.00959

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)	-0.00578	-0.00582	-0.00582
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.00443	0.00388	0.00416
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)	-0.00578	-0.00582	-0.00582
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.00443	0.00388	0.00416

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)	0.00581	0.00590	0.00583
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.01115	0.01069	0.01105
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)	0.00581	0.00590	0.00583
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.01115	0.01069	0.01106

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)	-0.00057	-0.00137	-0.00090
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	-0.00092	-0.00174	-0.00127
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.00407	0.00242	0.00357
sky130_osu_sc_18T_ls__dffs_l	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	-0.00057	-0.00137	-0.00090
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	-0.00092	-0.00174	-0.00127
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.00407	0.00242	0.00357

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)	0.03137	0.03034	0.02992
	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.01481	0.01438	0.01501
	(!D * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * SN * Q * !QN)	0.03090	0.02969	0.03107
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	0.01661	0.01623	0.01684
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.01913	0.01826	0.01976
sky130_osu_sc_18T_ls__dffs_l	(D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * SN * !Q * QN)	0.03137	0.03037	0.02992
	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.01481	0.01438	0.01501
	(!D * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * SN * Q * !QN)	0.03090	0.02970	0.03107
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	0.01661	0.01622	0.01684
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.01913	0.01826	0.01976

SKY130_OSU_SC_18T_LS__DFFx

sky130_osu_sc_18T_ls_tt_1P50_25C.ccs
Cell Library: Process , Voltage 1.50,
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	0.00544	0.01544	1.59671	1.58919
sky130_osu_sc_18T_ls__dff_l	0.00544	0.01543	1.08158	1.08243

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__dff_1	0.00000	0.00208	0.00246
sky130_osu_sc_18T_ls__dff_l	0.00000	0.00181	0.00219

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)	0.31836	1.64829	15.82610
	QN->Q (FR)	0.05134	1.07509	13.60690
sky130_osu_sc_18T_ls__dff_l	CK->Q (RR)	0.32782	1.80228	15.43410
	QN->Q (FR)	0.05944	1.16460	13.47940

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)	0.46086	1.90017	17.46210
	QN->Q (RF)	0.03325	0.74208	9.37386
sky130_osu_sc_18T_ls__dff_l	CK->Q (RF)	0.47734	2.08815	17.17710
	QN->Q (RF)	0.03740	0.78520	9.21426

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)	0.40805	1.17105	8.27468
sky130_osu_sc_18T_ls__dff_l	CK->QN (RR)	0.41511	1.26051	8.25373

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)	0.25126	0.77620	4.86256
sky130_osu_sc_18T_ls__dff_l	CK->QN (RF)	0.24965	0.80661	4.70420

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)	-0.06991	-0.11016	-0.63541
	setup	CK (R)	0.20875	0.24067	1.78452
sky130_osu_sc_18T_ls__dff_l	hold	CK (R)	-0.06987	-0.11021	-0.63566
	setup	CK (R)	0.20770	0.23931	1.78833

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)	-0.20383	-0.60854	-6.04834
	setup	CK (R)	0.24735	0.62675	6.11624
sky130_osu_sc_18T_ls__dff_l	hold	CK (R)	-0.20617	-0.60835	-6.05275
	setup	CK (R)	0.24708	0.62673	6.11619

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 ()	0.13142	0.56152	13.33370
	min_pulse_width	CK ()	0.24681	0.56152	13.33370
sky130_osu_sc_18T_ls__dff_l	min_pulse_width	CK ()	0.12932	0.56152	13.33370
	min_pulse_width	CK ()	0.24052	0.56152	13.33370

Constraints(ns) for CK falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_ls__dff_1	**min_pulse_width**	**CK ()**	0.32024	0.56152	13.33370
	min_pulse_width	**CK ()**	0.19436	0.56152	13.33370
sky130_osu_sc_18T_ls__dff_l	**min_pulse_width**	**CK ()**	0.32024	0.56152	13.33370
	min_pulse_width	**CK ()**	0.19226	0.56152	13.33370

Power Information

Internal switching power(pJ) to Q rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__dff_1	CK	0.00000	0.00000	0.00000
	CK	0.01073	0.00883	-0.00359
sky130_osu_sc_18T_ls__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.00964	0.00771	-0.00334

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	0.01195	0.01101	0.00359
sky130_osu_sc_18T_ls__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.01087	0.01000	0.00512

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	0.01195	0.01101	0.00365
sky130_osu_sc_18T_ls__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.01088	0.01001	0.00515

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	0.01070	0.00879	-0.00365
sky130_osu_sc_18T_ls__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.00960	0.00767	-0.00357

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	-0.00322	-0.00346	-0.00345
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.01110	0.01051	0.01042
sky130_osu_sc_18T_ls__dff_l	CK	0.00000	0.00000	0.00000
	CK	-0.00322	-0.00346	-0.00345
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.01111	0.01051	0.01043

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	0.00343	0.00346	0.00345
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.02089	0.02049	0.02025
sky130_osu_sc_18T_ls__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.00343	0.00346	0.00345
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.02090	0.02049	0.02026

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)	-0.00057	-0.00138	-0.00090
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	-0.00091	-0.00173	-0.00125
sky130_osu_sc_18T_ls__dff_l	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	-0.00057	-0.00138	-0.00090
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	-0.00091	-0.00173	-0.00125

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)	0.01475	0.01435	0.01496
	(D * !Q * QN)	0.00000	0.00000	0.00000
	(D * !Q * QN)	0.03076	0.02975	0.02942
	(!D * Q * !QN)	0.00000	0.00000	0.00000
	(!D * Q * !QN)	0.03135	0.03017	0.03150
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.01655	0.01611	0.01677
sky130_osu_sc_18T_ls__dff_l	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.01475	0.01435	0.01496
	(D * !Q * QN)	0.00000	0.00000	0.00000
	(D * !Q * QN)	0.03077	0.02976	0.02942
	(!D * Q * !QN)	0.00000	0.00000	0.00000
	(!D * Q * !QN)	0.03136	0.03018	0.03151
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.01655	0.01618	0.01677

SKY130_OSU_SC_18T_LS__INVx

sky130_osu_sc_18T_ls_tt_1P50_25C.ccs
Cell Library: Process , Voltage 1.50,
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	0.00535	1.55230
sky130_osu_sc_18T_ls__inv_10	0.05050	14.14832
sky130_osu_sc_18T_ls__inv_2	0.01029	3.03114
sky130_osu_sc_18T_ls__inv_3	0.01535	4.34107
sky130_osu_sc_18T_ls__inv_4	0.02031	5.98198
sky130_osu_sc_18T_ls__inv_6	0.03046	8.70920
sky130_osu_sc_18T_ls__inv_8	0.04049	11.59936
sky130_osu_sc_18T_ls__inv_l	0.00410	1.06155

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__inv_1	0.00000	0.00027	0.00040
sky130_osu_sc_18T_ls__inv_10	0.00000	0.00272	0.00404
sky130_osu_sc_18T_ls__inv_2	0.00000	0.00054	0.00081
sky130_osu_sc_18T_ls__inv_3	0.00000	0.00082	0.00121
sky130_osu_sc_18T_ls__inv_4	0.00000	0.00109	0.00162
sky130_osu_sc_18T_ls__inv_6	0.00000	0.00163	0.00242
sky130_osu_sc_18T_ls__inv_8	0.00000	0.00217	0.00323
sky130_osu_sc_18T_ls__inv_l	0.00000	0.00014	0.00016

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)**	0.04907	1.01255	12.69250
sky130_osu_sc_18T_ls__inv_10	**A->Y (FR)**	0.07218	0.72258	12.72740
sky130_osu_sc_18T_ls__inv_2	**A->Y (FR)**	0.04005	0.87586	12.57210
sky130_osu_sc_18T_ls__inv_3	**A->Y (FR)**	0.04405	0.82464	12.55220
sky130_osu_sc_18T_ls__inv_4	**A->Y (FR)**	0.04552	0.78841	12.71090
sky130_osu_sc_18T_ls__inv_6	**A->Y (FR)**	0.05169	0.74970	12.62570
sky130_osu_sc_18T_ls__inv_8	**A->Y (FR)**	0.06121	0.73129	12.73330
sky130_osu_sc_18T_ls__inv_l	**A->Y (FR)**	0.05593	1.09315	12.58100

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)**	0.02988	0.66928	8.42891
sky130_osu_sc_18T_ls__inv_10	**A->Y (RF)**	0.04831	0.47185	8.33402
sky130_osu_sc_18T_ls__inv_2	**A->Y (RF)**	0.02545	0.59042	8.36264
sky130_osu_sc_18T_ls__inv_3	**A->Y (RF)**	0.02777	0.55700	8.35293
sky130_osu_sc_18T_ls__inv_4	**A->Y (RF)**	0.02811	0.53173	8.45487
sky130_osu_sc_18T_ls__inv_6	**A->Y (RF)**	0.03501	0.50002	8.39868
sky130_osu_sc_18T_ls__inv_8	**A->Y (RF)**	0.04162	0.48582	8.42785
sky130_osu_sc_18T_ls__inv_l	**A->Y (RF)**	0.03337	0.70620	8.29237

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	0.00538	0.00532	0.00217
sky130_osu_sc_18T_ls__inv_10	A	0.00000	0.00000	0.00000
	A	0.04668	0.04743	0.02331
sky130_osu_sc_18T_ls__inv_2	A	0.00000	0.00000	0.00000
	A	0.00972	0.00975	0.00276
sky130_osu_sc_18T_ls__inv_3	A	0.00000	0.00000	0.00000
	A	0.01485	0.01485	0.00606
sky130_osu_sc_18T_ls__inv_4	A	0.00000	0.00000	0.00000
	A	0.01920	0.01916	0.00851
sky130_osu_sc_18T_ls__inv_6	A	0.00000	0.00000	0.00000
	A	0.02845	0.02866	0.00993
sky130_osu_sc_18T_ls__inv_8	A	0.00000	0.00000	0.00000
	A	0.03763	0.03819	0.03234
sky130_osu_sc_18T_ls__inv_l	A	0.00000	0.00000	0.00000
	A	0.00412	0.00406	0.00151

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	-0.00101	-0.00105	-0.00101
sky130_osu_sc_18T_ls__inv_10	**A**	0.00000	0.00000	0.00000
	A	-0.01848	-0.01767	-0.01491
sky130_osu_sc_18T_ls__inv_2	**A**	0.00000	0.00000	0.00000
	A	-0.00334	-0.00330	-0.00276
sky130_osu_sc_18T_ls__inv_3	**A**	0.00000	0.00000	0.00000
	A	-0.00446	-0.00441	-0.00400
sky130_osu_sc_18T_ls__inv_4	**A**	0.00000	0.00000	0.00000
	A	-0.00695	-0.00681	-0.00606
sky130_osu_sc_18T_ls__inv_6	**A**	0.00000	0.00000	0.00000
	A	-0.01057	-0.01040	-0.00905
sky130_osu_sc_18T_ls__inv_8	**A**	0.00000	0.00000	0.00000
	A	-0.01453	-0.01397	-0.01199
sky130_osu_sc_18T_ls__inv_l	**A**	0.00000	0.00000	0.00000
	A	-0.00070	-0.00075	-0.00073

SKY130_OSU_SC_18T_LS__MUX2

sky130_osu_sc_18T_ls_tt_1P50_25C.ccs
Cell Library: Process , Voltage 1.50,
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	0.08893	0.08873	0.01088	0.08037

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__mux2_1	0.00000	0.00066	0.00067

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)	-	0.02785	0.39343	3.35799
	A1->Y (RR)	-	0.02997	0.39508	3.35987
	S0->Y (RR)	(!A0 * A1)	0.07271	0.35391	0.93211
	S0->Y (FR)	(A0 * !A1)	0.06838	0.54474	3.76034

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)	-	0.02356	0.31387	2.45737
	A1->Y (FF)	-	0.02227	0.31057	2.45364
	S0->Y (FF)	(!A0 * A1)	0.11037	0.53048	3.06995
	S0->Y (RF)	(A0 * !A1)	0.03496	0.32469	1.78808

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	-	-0.00572	-0.00572	-0.00574
	A1	-	0.00000	0.00000	0.00000
	A1	-	-0.00406	-0.00406	-0.00407
	S0	(A0 * !A1)	0.00000	0.00000	0.00000
	S0	(A0 * !A1)	0.00627	0.00586	0.00682
	S0	(!A0 * A1)	0.00000	0.00000	0.00000
	S0	(!A0 * A1)	-0.00373	-0.00445	-0.00373

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	-	0.00572	0.00572	0.00575
	A1	-	0.00000	0.00000	0.00000
	A1	-	0.00406	0.00406	0.00407
	S0	(A0 * !A1)	0.00000	0.00000	0.00000
	S0	(A0 * !A1)	0.00133	0.00069	0.00138
	S0	(!A0 * A1)	0.00000	0.00000	0.00000
	S0	(!A0 * A1)	0.01440	0.01400	0.01481

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)	-0.00153	-0.00152	-0.00152

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)	0.00153	0.00152	0.00152

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)	-0.00181	-0.00180	-0.00180

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)	0.00181	0.00180	0.00180

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)	-0.00123	-0.00192	-0.00118
	(!A0 * !A1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !Y)	-0.00118	-0.00191	-0.00119

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)	0.01081	0.01042	0.01126
	(!A0 * !A1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !Y)	0.00985	0.00948	0.01043

SKY130_OSU_SC_18T_LS__NAND2x

sky130_osu_sc_18T_ls_tt_1P50_25C.ccs
Cell Library: Process , Voltage 1.50,
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	0.00537	0.00533	1.53404
sky130_osu_sc_18T_ls__nand2_l	0.00411	0.00408	1.05111

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__nand2_1	0.00000	0.00028	0.00040
sky130_osu_sc_18T_ls__nand2_l	0.00000	0.00015	0.00022

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)	0.05116	1.01710	12.69280
	B->Y (FR)	0.06003	1.01731	12.58560
sky130_osu_sc_18T_ls__nand2_l	A->Y (FR)	0.05775	1.09642	12.56850
	B->Y (FR)	0.06813	1.10270	12.55870

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)	0.04417	0.83593	10.48020
	B->Y (RF)	0.05025	0.82861	10.23880
sky130_osu_sc_18T_ls__nand2_l	A->Y (RF)	0.04998	0.90313	10.33180
	B->Y (RF)	0.05584	0.89516	10.08610

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	0.00574	0.00566	0.00257
	B	0.00000	0.00000	0.00000
	B	0.00714	0.00702	0.00346
sky130_osu_sc_18T_ls__nand2_l	A	0.00000	0.00000	0.00000
	A	0.00435	0.00429	0.00170
	B	0.00000	0.00000	0.00000
	B	0.00538	0.00529	0.00530

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	-0.00054	-0.00065	-0.00061
	B	0.00000	0.00000	0.00000
	B	-0.00050	-0.00060	-0.00059
sky130_osu_sc_18T_ls__nand2_l	A	0.00000	0.00000	0.00000
	A	-0.00041	-0.00049	-0.00049
	B	0.00000	0.00000	0.00000
	B	-0.00039	-0.00045	-0.00047

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)	-0.00390	-0.00393	-0.00393
sky130_osu_sc_18T_ls__nand2_l	(!B * Y)	0.00000	0.00000	0.00000
	(!B * Y)	-0.00282	-0.00284	-0.00284

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)	0.00393	0.00396	0.00394
sky130_osu_sc_18T_ls__nand2_l	(!B * Y)	0.00000	0.00000	0.00000
	(!B * Y)	0.00284	0.00287	0.00285

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)	-0.00363	-0.00366	-0.00364
sky130_osu_sc_18T_ls__nand2_l	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00262	-0.00264	-0.00263

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)	0.00365	0.00369	0.00366
sky130_osu_sc_18T_ls__nand2_l	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00263	0.00267	0.00264

SKY130_OSU_SC_18T_LS__NOR2x

sky130_osu_sc_18T_ls_tt_1P50_25C.ccs
Cell Library: Process , Voltage 1.50,
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	0.00534	0.00567	0.76241
sky130_osu_sc_18T_ls__nor2_l	0.00402	0.00437	0.52064

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__nor2_1	0.00000	0.00029	0.00081
sky130_osu_sc_18T_ls__nor2_l	0.00000	0.00015	0.00032

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)	0.11169	1.24923	12.66170
	B->Y (FR)	0.08699	1.21088	12.61250
sky130_osu_sc_18T_ls__nor2_l	A->Y (FR)	0.12470	1.35720	12.49360
	B->Y (FR)	0.10345	1.32356	12.46200

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)	0.03843	0.56906	6.12615
	B->Y (RF)	0.03150	0.55723	6.10456
sky130_osu_sc_18T_ls__nor2_l	A->Y (RF)	0.04131	0.59671	6.01463
	B->Y (RF)	0.03503	0.58529	5.99570

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	0.00759	0.00752	0.00750
	B	0.00000	0.00000	0.00000
	B	0.00586	0.00572	0.00577
sky130_osu_sc_18T_ls__nor2_l	A	0.00000	0.00000	0.00000
	A	0.00554	0.00547	0.00545
	B	0.00000	0.00000	0.00000
	B	0.00443	0.00430	0.00432

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	0.00075	0.00046	0.00043
	B	0.00000	0.00000	0.00000
	B	-0.00082	-0.00086	-0.00091
sky130_osu_sc_18T_ls__nor2_l	A	0.00000	0.00000	0.00000
	A	0.00048	0.00030	0.00027
	B	0.00000	0.00000	0.00000
	B	-0.00053	-0.00057	-0.00063

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)	-0.00323	-0.00349	-0.00347
sky130_osu_sc_18T_ls__nor2_l	(B * !Y)	0.00000	0.00000	0.00000
	(B * !Y)	-0.00227	-0.00244	-0.00243

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)	0.00346	0.00349	0.00347
sky130_osu_sc_18T_ls__nor2_l	(B * !Y)	0.00000	0.00000	0.00000
	(B * !Y)	0.00243	0.00244	0.00243

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)	-0.00177	-0.00179	-0.00178
sky130_osu_sc_18T_ls__nor2_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	-0.00126	-0.00127	-0.00126

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)	0.00188	0.00190	0.00182
sky130_osu_sc_18T_ls__nor2_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00133	0.00134	0.00129

SKY130_OSU_SC_18T_LS__OAI21

sky130_osu_sc_18T_ls_tt_1P50_25C.ccs
Cell Library: Process , Voltage 1.50,
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	0.00541	0.00544	0.00455	0.75497

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__oai21_l	0.00000	0.00033	0.00065

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)	0.11832	1.24364	12.62150
	A1->Y (FR)	0.14880	1.28803	12.68090
	B0->Y (FR)	0.07049	0.98533	10.56870

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)	0.06170	0.69893	7.22604
	A1->Y (RF)	0.07193	0.69773	7.12698
	B0->Y (RF)	0.04846	0.71209	7.68495

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	0.00786	0.00767	0.00769
	A1	0.00000	0.00000	0.00000
	A1	0.00962	0.00949	0.00945
	B0	0.00656	0.00620	0.00637

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	0.00038	0.00026	0.00019
	A1	0.00000	0.00000	0.00000
	A1	0.00193	0.00166	0.00159
	B0	0.00264	0.00250	0.00246

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)	-0.00178	-0.00180	-0.00179
	(A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * Y)	-0.00337	-0.00349	-0.00348
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00357	-0.00359	-0.00357

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)	0.00189	0.00190	0.00182
	(A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * Y)	0.00347	0.00349	0.00348
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00357	0.00363	0.00358

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)	-0.00318	-0.00343	-0.00341
	(A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * Y)	-0.00334	-0.00348	-0.00346
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	-0.00353	-0.00356	-0.00354

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)	0.00339	0.00343	0.00341
	(A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * Y)	0.00344	0.00348	0.00346
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	0.00354	0.00361	0.00355

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)	-0.00286	-0.00286	-0.00292

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)	0.00293	0.00298	0.00294

SKY130_OSU_SC_18T_LS__OAI22

sky130_osu_sc_18T_ls_tt_1P50_25C.ccs
Cell Library: Process , Voltage 1.50,
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	0.00521	0.00552	0.00567	0.00552	0.75643

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__oai22_1	0.00000	0.00042	0.00081

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)	0.16317	1.30117	12.67170
	A1->Y (FR)	0.13803	1.26025	12.62090
	B0->Y (FR)	0.09759	1.22016	12.59040
	B1->Y (FR)	0.12291	1.25855	12.64510

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)	0.10040	0.75431	7.36109
	A1->Y (RF)	0.08144	0.72705	7.27999
	B0->Y (RF)	0.06826	0.73795	7.72228
	B1->Y (RF)	0.08875	0.77433	7.90987

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	0.01246	0.01233	0.01230
	A1	0.01069	0.01047	0.01049
	B0	0.00805	0.00789	0.00790
	B1	0.00989	0.00977	0.00973

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__oai22_l	A0	0.00304	0.00278	0.00267
	A1	0.00159	0.00144	0.00132
	B0	0.00158	0.00145	0.00134
	B1	0.00305	0.00277	0.00268

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)	-0.00322	-0.00349	-0.00347
	(A1 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * B1 * !Y)	-0.00322	-0.00349	-0.00347
	(A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * !B1 * Y)	-0.00335	-0.00349	-0.00347
	(!A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * !B1 * Y)	-0.00354	-0.00356	-0.00355

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)	0.00346	0.00349	0.00347
	(A1 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * B1 * !Y)	0.00346	0.00349	0.00347
	(A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * !B1 * Y)	0.00344	0.00349	0.00347
	(!A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * !B1 * Y)	0.00355	0.00359	0.00356

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)	-0.00176	-0.00178	-0.00177
	(A0 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * B1 * !Y)	-0.00176	-0.00178	-0.00177
	(A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * !B1 * Y)	-0.00333	-0.00346	-0.00345
	(!A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * !B1 * Y)	-0.00353	-0.00356	-0.00354

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)	0.00187	0.00189	0.00181
	(A0 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * B1 * !Y)	0.00187	0.00189	0.00181
	(A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * !B1 * Y)	0.00342	0.00346	0.00345
	(!A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * !B1 * Y)	0.00354	0.00360	0.00355

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)	-0.00175	-0.00178	-0.00176
	(A0 * !A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B1 * !Y)	-0.00175	-0.00178	-0.00176
	(!A0 * !A1 * B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B1 * Y)	-0.00370	-0.00381	-0.00381
	(!A0 * !A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B1 * Y)	-0.00380	-0.00383	-0.00390

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)	0.00187	0.00188	0.00180
	(A0 * !A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B1 * !Y)	0.00187	0.00188	0.00180
	(!A0 * !A1 * B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B1 * Y)	0.00381	0.00381	0.00381
	(!A0 * !A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B1 * Y)	0.00390	0.00397	0.00392

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)	-0.00318	-0.00344	-0.00342
	(A0 * !A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B0 * !Y)	-0.00318	-0.00341	-0.00342
	(!A0 * !A1 * B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B0 * Y)	-0.00376	-0.00391	-0.00388
	(!A0 * !A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B0 * Y)	-0.00384	-0.00389	-0.00395

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)	0.00341	0.00345	0.00342
	(A0 * !A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B0 * !Y)	0.00341	0.00341	0.00342
	(!A0 * !A1 * B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B0 * Y)	0.00387	0.00391	0.00388
	(!A0 * !A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B0 * Y)	0.00395	0.00399	0.00397

SKY130_OSU_SC_18T_LS__OR2x

sky130_osu_sc_18T_ls_tt_1P50_25C.ccs
Cell Library: Process , Voltage 1.50,
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	0.00567	0.00549	1.56248
sky130_osu_sc_18T_ls__or2_2	0.00567	0.00549	3.07697
sky130_osu_sc_18T_ls__or2_4	0.00567	0.00549	5.91690
sky130_osu_sc_18T_ls__or2_8	0.00566	0.00550	11.21288
sky130_osu_sc_18T_ls__or2_l	0.00442	0.00419	1.06674

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__or2_1	0.00000	0.00063	0.00095
sky130_osu_sc_18T_ls__or2_2	0.00000	0.00097	0.00109
sky130_osu_sc_18T_ls__or2_4	0.00000	0.00164	0.00176
sky130_osu_sc_18T_ls__or2_8	0.00000	0.00299	0.00337
sky130_osu_sc_18T_ls__or2_l	0.00000	0.00030	0.00044

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)	0.10196	0.86396	7.90306
	B->Y (RR)	0.09252	0.82971	7.71012
sky130_osu_sc_18T_ls__or2_2	A->Y (RR)	0.11195	0.77900	8.11388
	B->Y (RR)	0.10193	0.75268	7.96303
sky130_osu_sc_18T_ls__or2_4	A->Y (RR)	0.14726	0.77359	8.53761
	B->Y (RR)	0.13695	0.75010	8.42042
sky130_osu_sc_18T_ls__or2_8	A->Y (RR)	0.21377	0.82941	9.07564
	B->Y (RR)	0.20320	0.81455	8.99315
sky130_osu_sc_18T_ls__or2_l	A->Y (RR)	0.11308	0.95051	7.83104
	B->Y (RR)	0.10410	0.92167	7.65602

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)	0.20330	0.91437	7.38174
	B->Y (FF)	0.17035	0.86400	6.95261
sky130_osu_sc_18T_ls__or2_2	A->Y (FF)	0.25269	0.92443	7.71788
	B->Y (FF)	0.22015	0.88216	7.34710
sky130_osu_sc_18T_ls__or2_4	A->Y (FF)	0.36563	1.02714	8.24677
	B->Y (FF)	0.33307	0.98307	7.95018
sky130_osu_sc_18T_ls__or2_8	A->Y (FF)	0.58998	1.26807	8.85877
	B->Y (FF)	0.55750	1.22313	8.66699
sky130_osu_sc_18T_ls__or2_l	A->Y (FF)	0.22116	0.96405	7.24011
	B->Y (FF)	0.18884	0.91742	6.82264

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	0.00593	0.00521	0.00565
	B	0.00000	0.00000	0.00000
	B	0.00444	0.00380	0.00465
sky130_osu_sc_18T_ls__or2_2	A	0.00000	0.00000	0.00000
	A	0.01024	0.00981	0.01021
	B	0.00000	0.00000	0.00000
	B	0.00869	0.00844	0.00926
sky130_osu_sc_18T_ls__or2_4	A	0.00000	0.00000	0.00000
	A	0.01945	0.01967	0.02005
	B	0.00000	0.00000	0.00000
	B	0.01789	0.01839	0.01915
sky130_osu_sc_18T_ls__or2_8	A	0.00000	0.00000	0.00000
	A	0.03750	0.03893	0.04054
	B	0.00000	0.00000	0.00000
	B	0.03594	0.03776	0.03953
sky130_osu_sc_18T_ls__or2_l	A	0.00000	0.00000	0.00000
	A	0.00435	0.00378	0.00411
	B	0.00000	0.00000	0.00000
	B	0.00338	0.00292	0.00353

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	0.01244	0.01242	0.01244
	B	0.00000	0.00000	0.00000
	B	0.01045	0.01043	0.01129
sky130_osu_sc_18T_ls__or2_2	A	0.00000	0.00000	0.00000
	A	0.01523	0.01584	0.01590
	B	0.00000	0.00000	0.00000
	B	0.01323	0.01379	0.01466
sky130_osu_sc_18T_ls__or2_4	A	0.00000	0.00000	0.00000
	A	0.02201	0.02387	0.02425
	B	0.00000	0.00000	0.00000
	B	0.02006	0.02169	0.02286
sky130_osu_sc_18T_ls__or2_8	A	0.00000	0.00000	0.00000
	A	0.03560	0.03905	0.04093
	B	0.00000	0.00000	0.00000
	B	0.03390	0.03693	0.03925
sky130_osu_sc_18T_ls__or2_l	A	0.00000	0.00000	0.00000
	A	0.00945	0.00933	0.00936
	B	0.00000	0.00000	0.00000
	B	0.00804	0.00797	0.00859

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)	-0.00327	-0.00348	-0.00348
sky130_osu_sc_18T_ls__or2_2	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00326	-0.00348	-0.00348
sky130_osu_sc_18T_ls__or2_4	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00326	-0.00348	-0.00348
sky130_osu_sc_18T_ls__or2_8	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00326	-0.00348	-0.00348
sky130_osu_sc_18T_ls__or2_l	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00230	-0.00245	-0.00244

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)	0.00346	0.00351	0.00348
sky130_osu_sc_18T_ls__or2_2	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00346	0.00349	0.00348
sky130_osu_sc_18T_ls__or2_4	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00346	0.00349	0.00348
sky130_osu_sc_18T_ls__or2_8	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00346	0.00350	0.00348
sky130_osu_sc_18T_ls__or2_l	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00243	0.00245	0.00244

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)	-0.00178	-0.00180	-0.00179
sky130_osu_sc_18T_ls__or2_2	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00178	-0.00180	-0.00179
sky130_osu_sc_18T_ls__or2_4	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00178	-0.00180	-0.00179
sky130_osu_sc_18T_ls__or2_8	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00178	-0.00180	-0.00179
sky130_osu_sc_18T_ls__or2_l	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00128	-0.00129	-0.00128

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)	0.00189	0.00191	0.00182
sky130_osu_sc_18T_ls__or2_2	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00189	0.00191	0.00182
sky130_osu_sc_18T_ls__or2_4	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00189	0.00191	0.00182
sky130_osu_sc_18T_ls__or2_8	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00189	0.00191	0.00182
sky130_osu_sc_18T_ls__or2_l	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00136	0.00137	0.00131

SKY130_OSU_SC_18T_LS__TBUFIx

sky130_osu_sc_18T_ls_tt_1P50_25C.ccs
Cell Library: Process , Voltage 1.50,
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	0.00567	0.00716	0.75668
sky130_osu_sc_18T_ls__tbufi_l	0.00438	0.00556	0.52577

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__tbufi_1	0.00000	0.00044	0.00055
sky130_osu_sc_18T_ls__tbufi_l	0.00000	0.00022	0.00027

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)	0.08300	1.20266	12.55050
	OE->Y (FR)	0.07614	0.43762	4.44589
	OE->Y (RR)	0.13663	1.04567	7.81263
sky130_osu_sc_18T_ls__tbufi_l	A->Y (FR)	0.09932	1.32469	12.54470
	OE->Y (FR)	0.08184	0.44533	4.44558
	OE->Y (RR)	0.15106	1.17366	7.86729

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)	0.04249	0.67025	7.26505
	OE->Y (FF)	0.07750	0.44158	4.44585
	OE->Y (RF)	0.04121	0.65220	6.96894
sky130_osu_sc_18T_ls__tbufi_l	A->Y (RF)	0.04880	0.71516	7.21654
	OE->Y (FF)	0.08286	0.44936	4.44557
	OE->Y (RF)	0.04805	0.69998	6.91857

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	0.00547	0.00534	0.00536
	OE	0.00000	0.00000	0.00000
	OE	0.00554	0.00486	0.00572
sky130_osu_sc_18T_ls__tbufi_l	A	0.00000	0.00000	0.00000
	A	0.00415	0.00403	0.00402
	OE	0.00000	0.00000	0.00000
	OE	0.00398	0.00347	0.00409

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	-0.00083	-0.00086	-0.00092
	OE	0.00000	0.00000	0.00000
	OE	0.00393	0.00326	0.00407
sky130_osu_sc_18T_ls__tbufi_l	A	0.00000	0.00000	0.00000
	A	-0.00053	-0.00057	-0.00063
	OE	0.00000	0.00000	0.00000
	OE	0.00276	0.00224	0.00284

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)	-0.00281	-0.00284	-0.00282
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	-0.00253	-0.00256	-0.00254
sky130_osu_sc_18T_ls__tbufi_l	(!OE * Y)	0.00000	0.00000	0.00000
	(!OE * Y)	-0.00211	-0.00213	-0.00212
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	-0.00192	-0.00194	-0.00192

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)	0.00281	0.00284	0.00282
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	0.00262	0.00265	0.00259
sky130_osu_sc_18T_ls__tbufi_l	(!OE * Y)	0.00000	0.00000	0.00000
	(!OE * Y)	0.00211	0.00213	0.00212
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	0.00198	0.00199	0.00195

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)	0.00224	0.00164	0.00238
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00202	0.00137	0.00214
sky130_osu_sc_18T_ls__tbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00155	0.00108	0.00162
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00138	0.00089	0.00145

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)	0.00616	0.00576	0.00652
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00640	0.00599	0.00668
sky130_osu_sc_18T_ls__tbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00484	0.00450	0.00504
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00502	0.00466	0.00515

SKY130_OSU_SC_18T_LS__TNBUFIx

sky130_osu_sc_18T_ls_tt_1P50_25C.ccs
Cell Library: Process , Voltage 1.50,
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	0.00567	0.00887	0.75315
sky130_osu_sc_18T_ls__tnbufi_l	0.00438	0.00660	0.52230

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__tnbufi_1	0.00000	0.00036	0.00081
sky130_osu_sc_18T_ls__tnbufi_l	0.00000	0.00020	0.00033

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)	0.08389	1.20064	12.51620
	OE->Y (RR)	0.03575	0.35465	4.44685
	OE->Y (FR)	0.10410	1.23609	12.56530
sky130_osu_sc_18T_ls__tnbufi_l	A->Y (FR)	0.10028	1.32121	12.49580
	OE->Y (RR)	0.03788	0.35487	4.44709
	OE->Y (FR)	0.11648	1.35292	12.52700

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)	0.04187	0.66909	7.24889
	OE->Y (RF)	0.03548	0.35466	4.44684
	OE->Y (FF)	0.08702	0.72579	5.52071
sky130_osu_sc_18T_ls__tnbufi_l	A->Y (RF)	0.04802	0.71342	7.19308
	OE->Y (RF)	0.03733	0.35487	4.44704
	OE->Y (FF)	0.09825	0.78251	5.50213

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	0.00561	0.00547	0.00550
	OE	0.00000	0.00000	0.00000
	OE	0.01354	0.01332	0.01443
sky130_osu_sc_18T_ls__tnbufi_l	A	0.00000	0.00000	0.00000
	A	0.00429	0.00416	0.00416
	OE	0.00000	0.00000	0.00000
	OE	0.01006	0.00984	0.01064

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	-0.00100	-0.00102	-0.00108
	OE	0.00000	0.00000	0.00000
	OE	0.01214	0.01188	0.01298
sky130_osu_sc_18T_ls__tnbufi_l	A	0.00000	0.00000	0.00000
	A	-0.00069	-0.00073	-0.00079
	OE	0.00000	0.00000	0.00000
	OE	0.00898	0.00877	0.00952

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)	-0.00244	-0.00246	-0.00245
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	-0.00218	-0.00221	-0.00219
sky130_osu_sc_18T_ls__tnbufi_l	(OE * Y)	0.00000	0.00000	0.00000
	(OE * Y)	-0.00175	-0.00176	-0.00175
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	-0.00157	-0.00159	-0.00158

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)	0.00244	0.00246	0.00245
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	0.00226	0.00228	0.00223
sky130_osu_sc_18T_ls__tnbufi_l	(OE * Y)	0.00000	0.00000	0.00000
	(OE * Y)	0.00175	0.00176	0.00175
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	0.00162	0.00164	0.00161

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)	-0.00412	-0.00510	-0.00423
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00394	-0.00499	-0.00419
sky130_osu_sc_18T_ls__tnbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	-0.00286	-0.00351	-0.00292
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00273	-0.00347	-0.00290

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)	0.01027	0.01001	0.01105
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.01005	0.00982	0.01086
sky130_osu_sc_18T_ls__tnbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00764	0.00747	0.00819
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00749	0.00730	0.00805

SKY130_OSU_SC_18T_LS__XNOR2

sky130_osu_sc_18T_ls_tt_1P50_25C.ccs
Cell Library: Process , Voltage 1.50,
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	0.01120	0.01020	0.76950

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__xnor2_l	0.00000	0.00104	0.00152

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	0.17503	1.10824	8.09283
	A->Y (FR)	!B	0.11178	1.23984	12.67110
	B->Y (RR)	A	0.13975	1.06959	8.01718
	B->Y (FR)	!A	0.14496	1.28183	12.71450

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	0.14673	0.84556	6.14254
	A->Y (RF)	!B	0.06287	0.68558	7.17422
	B->Y (FF)	A	0.13397	0.83167	6.13221
	B->Y (RF)	!A	0.07376	0.70020	7.18732

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	0.00541	0.00460	0.00534
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.01340	0.01280	0.01371
	B	A	0.00000	0.00000	0.00000
	B	A	0.00211	0.00143	0.00223
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01467	0.01422	0.01516

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	0.01659	0.01581	0.01640
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00394	0.00316	0.00384
	B	A	0.00000	0.00000	0.00000
	B	A	0.01520	0.01499	0.01586
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00482	0.00392	0.00456

SKY130_OSU_SC_18T_LS__XOR2

sky130_osu_sc_18T_ls_tt_1P50_25C.ccs
Cell Library: Process , Voltage 1.50,
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	0.01117	0.01024	0.76712

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__xor2_l	0.00000	0.00104	0.00135

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	0.16942	1.09207	8.04529
	A->Y (FR)	B	0.13113	1.26826	12.73980
	B->Y (RR)	!A	0.14367	1.07253	8.04188
	B->Y (FR)	A	0.14287	1.28261	12.74540

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	0.13508	0.82337	6.02171
	A->Y (RF)	B	0.05795	0.69682	7.33536
	B->Y (FF)	!A	0.12659	0.81475	5.98959
	B->Y (RF)	A	0.06817	0.68507	7.04306

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	0.01557	0.01508	0.01606
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00297	0.00161	0.00224
	B	A	0.00000	0.00000	0.00000
	B	A	0.01600	0.01561	0.01656
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00184	0.00113	0.00193

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	0.00332	0.00228	0.00292
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.01709	0.01680	0.01762
	B	A	0.00000	0.00000	0.00000
	B	A	0.00333	0.00237	0.00305
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01548	0.01537	0.01626

SKY130_OSU_SC_18T_LS_x

sky130_osu_sc_18T_ls_tt_1P50_25C.ccs
Cell Library: Process , Voltage 1.50,
Temp 25.00

Truth Table

INPUT
A
x

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__ant	6.59340
sky130_osu_sc_18T_ls__tiehi	6.59340
sky130_osu_sc_18T_ls__tielo	6.59340

Pin Capacitance Information

Cell Name	Pin Cap(pf)
	A
sky130_osu_sc_18T_ls__ant	0.29735
sky130_osu_sc_18T_ls__tiehi	0.00000
sky130_osu_sc_18T_ls__tielo	0.00000

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__ant	0.00000	135589.00000	271178.00000
sky130_osu_sc_18T_ls__tiehi	0.00000	0.00000	0.00000
sky130_osu_sc_18T_ls__tielo	0.00000	0.00000	0.00000

Passive Power Information

Passive power(pJ) for A rising :

Cell Name	Power(pJ)		
	first	mid	last
sky130_osu_sc_18T_ls__ant	0.00000	0.00000	0.00000
	-0.00285	0.02560	0.34169

Passive power(pJ) for A falling :

Cell Name	Power(pJ)		
	first	mid	last
sky130_osu_sc_18T_ls__ant	0.00000	0.00000	0.00000
	2.36043	2.21480	0.44906