sky130_osu_sc_18T_ls_ff_1P95_150C.ccs Library

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

SKY130_OSU_SC_18T_LS__ADDFx

sky130_osu_sc_18T_ls_ff_1P95_150C.ccs
Cell Library: Process , Voltage 1.95,
Temp 150.00

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	0.02198	0.02183	0.01667	3.55221	1.70580	3.46920
sky130_osu_sc_18T_ls__addf_l	0.02197	0.02181	0.01666	2.46383	1.70423	2.45839

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__addf_1	0.00000	24.72210	28.58870
sky130_osu_sc_18T_ls__addf_l	0.00000	22.21890	26.08560

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)	0.12755	1.57904	26.70980
	B->CO (RR)	0.10622	1.50227	25.54840
	CI->CO (RR)	0.12220	1.62859	27.42130
	CON->CO (FR)	0.02263	0.63866	10.19880
sky130_osu_sc_18T_ls__addf_1	A->CO (RR)	0.12855	1.47274	21.64780
	B->CO (RR)	0.12693	1.43673	20.92910
	CI->CO (RR)	0.12319	1.52360	22.39090
	CON->CO (FR)	0.02515	0.69654	10.25660

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)	0.14400	1.73363	29.11730
	B->CO (FF)	0.12590	1.69079	28.41180
	CI->CO (FF)	0.12348	1.76084	29.74610
	CON->CO (RF)	0.02259	0.61304	10.04930
sky130_osu_sc_18T_ls__addf_1	A->CO (FF)	0.13966	1.56937	22.93650
	B->CO (FF)	0.12200	1.54025	22.63610
	CI->CO (FF)	0.11908	1.59777	23.59170
	CON->CO (RF)	0.02407	0.63113	9.43815

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)	0.10895	0.74930	9.07340
	B->CON (FR)	0.09146	0.74593	9.25829
	CI->CON (FR)	0.08840	0.78013	9.75309
sky130_osu_sc_18T_ls__addf_l	A->CON (FR)	0.10365	0.74437	9.06438
	B->CON (FR)	0.08661	0.74041	9.24809
	CI->CON (FR)	0.08309	0.77465	9.74157

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)	0.08891	0.62005	7.52228
	B->CON (RF)	0.08840	0.63265	7.67805
	CI->CON (RF)	0.08358	0.67236	8.32116
sky130_osu_sc_18T_ls__addf_l	A->CON (RF)	0.08553	0.61598	7.51288
	B->CON (RF)	0.08528	0.62972	7.67031
	CI->CON (RF)	0.08018	0.66884	8.31277

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)	0.21517	1.55603	23.19780
	B->S (-R)	0.20348	1.51730	22.27390
	CI->S (-R)	0.19312	1.58140	23.84200
	CON->S (RR)	0.07030	0.52446	7.10601
sky130_osu_sc_18T_ls__addf_l	A->S (-R)	0.20669	1.44756	19.18610
	B->S (-R)	0.19584	1.42609	18.74040
	CI->S (-R)	0.18463	1.47372	19.84280
	CON->S (RR)	0.07010	0.56689	7.07966

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)	0.20201	1.49508	22.12480
	B->S (-F)	0.19103	1.42472	21.20860
	CI->S (-F)	0.19604	1.54212	22.84580
	CON->S (FF)	0.07819	0.62653	8.24363
sky130_osu_sc_18T_ls__addf_l	A->S (-F)	0.19101	1.37320	18.01690
	B->S (-F)	0.18064	1.31599	17.42440
	CI->S (-F)	0.18498	1.42177	18.76340
	CON->S (FF)	0.07527	0.64899	7.92106

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	0.00632	0.01373	0.16515
	B	0.00692	0.01337	0.14921
	CI	0.00986	0.01750	0.16882
sky130_osu_sc_18T_ls__addf_l	A	0.00467	0.01034	0.11270
	B	0.00535	0.01035	0.10254
	CI	0.00820	0.01406	0.11608

Internal switching power(pJ) to CO falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__addf_1	A	0.02321	0.03187	0.21195
	B	0.02442	0.03178	0.19216
	CI	0.01945	0.02863	0.20941
sky130_osu_sc_18T_ls__addf_l	A	0.02154	0.02818	0.14921
	B	0.02273	0.02834	0.13708
	CI	0.01780	0.02496	0.14676

Internal switching power(pJ) to CON rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__addf_1	A	0.02301	0.02887	0.12632
	B	0.02326	0.02844	0.11731
	CI	0.01926	0.02563	0.12379
sky130_osu_sc_18T_ls__addf_l	A	0.02143	0.02686	0.11860
	B	0.02262	0.02725	0.11032
	CI	0.01770	0.02369	0.11564

Internal switching power(pJ) to CON falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__addf_1	A	0.00615	0.01133	0.09563
	B	0.00919	0.01325	0.09044
	CI	0.00967	0.01496	0.10008
sky130_osu_sc_18T_ls__addf_l	A	0.00455	0.00931	0.08792
	B	0.00768	0.01146	0.08338
	CI	0.00808	0.01310	0.09216

Internal switching power(pJ) to S rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__addf_1	A	-0.00042	0.00274	0.18027
	B	0.00644	0.00962	0.17608
	CI	0.00980	0.01616	0.18044
sky130_osu_sc_18T_ls__addf_l	A	-0.00290	0.00075	0.18094
	B	0.00394	0.00751	0.17641
	CI	0.00731	0.01418	0.18169

Internal switching power(pJ) to S falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__addf_1	A	0.05098	0.05752	0.21501
	B	0.04521	0.05302	0.22154
	CI	0.03854	0.04532	0.19170
sky130_osu_sc_18T_ls__addf_l	A	0.04883	0.05552	0.22028
	B	0.04303	0.05151	0.22409
	CI	0.03647	0.04340	0.19675

SKY130_OSU_SC_18T_LS__ADDHx

sky130_osu_sc_18T_ls_ff_1P95_150C.ccs
Cell Library: Process , Voltage 1.95,
Temp 150.00

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	0.01072	0.01175	3.50971	1.83469	3.60081
sky130_osu_sc_18T_ls__addh_l	0.01072	0.01175	2.05505	1.83475	2.09977

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__addh_1	0.00000	24.84390	27.50590
sky130_osu_sc_18T_ls__addh_l	0.00000	19.64230	23.00250

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)	0.08310	0.54431	7.06890
	B->CO (RR)	0.08626	0.53202	7.11877
sky130_osu_sc_18T_ls__addh_l	A->CO (RR)	0.08445	0.61586	7.09756
	B->CO (RR)	0.08761	0.60337	7.06638

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)	0.06705	0.58179	7.99615
	B->CO (FF)	0.07242	0.60003	8.14619
sky130_osu_sc_18T_ls__addh_l	A->CO (FF)	0.06701	0.62096	7.37959
	B->CO (FF)	0.07211	0.63915	7.53694

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	0.11389	0.45041	3.90054
	A->CON (FR)	!B	0.05768	0.72640	9.60747
	B->CON (RR)	A	0.11663	0.43729	3.94590
	B->CON (FR)	!A	0.07459	0.70728	9.11762
sky130_osu_sc_18T_ls__addh_l	A->CON (RR)	B	0.10216	0.43220	3.93597
	A->CON (FR)	!B	0.05150	0.71946	9.60059
	B->CON (RR)	A	0.10497	0.41918	3.90911
	B->CON (FR)	!A	0.06840	0.70030	9.10862

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	0.11064	0.62317	6.47601
	A->CON (RF)	!B	0.05207	0.64097	8.45380
	B->CON (FF)	A	0.10652	0.66045	7.03268
	B->CON (RF)	!A	0.06322	0.62306	8.03365
sky130_osu_sc_18T_ls__addh_l	A->CON (FF)	B	0.10052	0.59670	6.30904
	A->CON (RF)	!B	0.04788	0.63367	8.44853
	B->CON (FF)	A	0.09664	0.63568	6.86026
	B->CON (RF)	!A	0.05904	0.61979	8.02990

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	0.08728	1.56482	27.11760
	A->S (FR)	B	0.14732	1.53705	24.95600
	B->S (RR)	!A	0.09974	1.51290	25.87200
	B->S (FR)	A	0.14246	1.60970	26.33170
	CON->S (FR)	-	0.02549	0.66506	10.64510
sky130_osu_sc_18T_ls__addh_l	A->S (RR)	!B	0.08772	1.41976	20.26080
	A->S (FR)	B	0.14229	1.37332	17.98200
	B->S (RR)	!A	0.10057	1.38081	19.44240
	B->S (FR)	A	0.13723	1.43322	18.92420
	CON->S (FR)	-	0.02898	0.75269	10.65990

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	0.08859	1.61896	27.94770
	A->S (RF)	B	0.14250	1.15140	17.81910
	B->S (FF)	!A	0.10549	1.60314	27.51730
	B->S (RF)	A	0.14525	1.13798	17.84630
	CON->S (RF)	-	0.02155	0.59862	9.82190
sky130_osu_sc_18T_ls__addh_l	A->S (FF)	!B	0.08481	1.42468	20.31400
	A->S (RF)	B	0.13282	1.03703	13.01970
	B->S (FF)	!A	0.10172	1.40599	19.84080
	B->S (RF)	A	0.13563	1.02346	12.97480
	CON->S (RF)	-	0.02409	0.63551	9.12422

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	0.01052	0.01448	0.08341
	B	0.00000	0.00000	0.00000
	B	0.00916	0.01310	0.09627
sky130_osu_sc_18T_ls__addh_l	A	0.00000	0.00000	0.00000
	A	0.00850	0.01238	0.08218
	B	0.00000	0.00000	0.00000
	B	0.00713	0.01092	0.08977

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	0.01596	0.02117	0.12561
	B	0.00000	0.00000	0.00000
	B	0.01649	0.02316	0.13706
sky130_osu_sc_18T_ls__addh_l	A	0.00000	0.00000	0.00000
	A	0.01394	0.01833	0.10128
	B	0.00000	0.00000	0.00000
	B	0.01447	0.01987	0.10793

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	0.01042	0.01440	0.07960
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.01421	0.01809	0.07060
	B	A	0.00000	0.00000	0.00000
	B	A	0.00906	0.01295	0.09300
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01640	0.01943	0.07029
sky130_osu_sc_18T_ls__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.00840	0.01233	0.08149
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.01264	0.01563	0.05519
	B	A	0.00000	0.00000	0.00000
	B	A	0.00706	0.01081	0.08958
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01483	0.01696	0.05410

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	0.01592	0.02073	0.11039
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00257	0.00633	0.05554
	B	A	0.00000	0.00000	0.00000
	B	A	0.01646	0.02253	0.11907
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00398	0.00716	0.05514
sky130_osu_sc_18T_ls__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.01391	0.01827	0.10057
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00088	0.00310	0.03731
	B	A	0.00000	0.00000	0.00000
	B	A	0.01446	0.01960	0.10685
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00227	0.00457	0.03855

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	0.01609	0.02133	0.12697
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00283	0.00713	0.07155
	B	A	0.00000	0.00000	0.00000
	B	A	0.01664	0.02337	0.13820
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00423	0.00786	0.06670
sky130_osu_sc_18T_ls__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.01402	0.01839	0.10211
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00103	0.00376	0.03746
	B	A	0.00000	0.00000	0.00000
	B	A	0.01456	0.01999	0.10816
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00240	0.00467	0.03762

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	0.01060	0.01464	0.08460
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.01438	0.01880	0.08602
	B	A	0.00000	0.00000	0.00000
	B	A	0.00923	0.01322	0.10013
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01658	0.02033	0.08533
sky130_osu_sc_18T_ls__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.00851	0.01243	0.08245
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.01269	0.01582	0.05528
	B	A	0.00000	0.00000	0.00000
	B	A	0.00715	0.01095	0.08981
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01488	0.01710	0.05377

SKY130_OSU_SC_18T_LS__AND2x

sky130_osu_sc_18T_ls_ff_1P95_150C.ccs
Cell Library: Process , Voltage 1.95,
Temp 150.00

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	0.00580	0.00593	3.58450
sky130_osu_sc_18T_ls__and2_2	0.00580	0.00593	6.76701
sky130_osu_sc_18T_ls__and2_4	0.00581	0.00594	12.76857
sky130_osu_sc_18T_ls__and2_6	0.00584	0.00594	18.87818
sky130_osu_sc_18T_ls__and2_8	0.00583	0.00596	23.87082
sky130_osu_sc_18T_ls__and2_l	0.00447	0.00459	2.43949

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__and2_1	0.00000	11.29310	17.34160
sky130_osu_sc_18T_ls__and2_2	0.00000	17.29850	18.98950
sky130_osu_sc_18T_ls__and2_4	0.00000	29.80360	32.85710
sky130_osu_sc_18T_ls__and2_6	0.00000	42.30870	48.37230
sky130_osu_sc_18T_ls__and2_8	0.00000	54.81360	63.88720
sky130_osu_sc_18T_ls__and2_l	0.00000	8.57682	13.23350

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)	0.06369	0.49671	7.17631
	B->Y (RR)	0.06757	0.47952	6.81282
sky130_osu_sc_18T_ls__and2_2	A->Y (RR)	0.07397	0.45156	7.05265
	B->Y (RR)	0.07796	0.43140	6.67545
sky130_osu_sc_18T_ls__and2_4	A->Y (RR)	0.10292	0.46656	7.15698
	B->Y (RR)	0.10698	0.44153	6.77977
sky130_osu_sc_18T_ls__and2_6	A->Y (RR)	0.13321	0.50257	7.35369
	B->Y (RR)	0.13718	0.47398	6.97327
sky130_osu_sc_18T_ls__and2_8	A->Y (RR)	0.16315	0.54078	7.38701
	B->Y (RR)	0.16720	0.50870	6.98725
sky130_osu_sc_18T_ls__and2_l	A->Y (RR)	0.06906	0.54251	6.95090
	B->Y (RR)	0.07334	0.52585	6.60854

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)	0.05383	0.52553	7.56897
	B->Y (FF)	0.05652	0.53852	7.69244
sky130_osu_sc_18T_ls__and2_2	A->Y (FF)	0.05963	0.46700	7.33838
	B->Y (FF)	0.06305	0.48054	7.47001
sky130_osu_sc_18T_ls__and2_4	A->Y (FF)	0.08094	0.46876	7.33107
	B->Y (FF)	0.08445	0.47969	7.47571
sky130_osu_sc_18T_ls__and2_6	A->Y (FF)	0.10515	0.49847	7.45956
	B->Y (FF)	0.10851	0.50773	7.60037
sky130_osu_sc_18T_ls__and2_8	A->Y (FF)	0.12785	0.52408	7.27283
	B->Y (FF)	0.13145	0.53302	7.41075
sky130_osu_sc_18T_ls__and2_l	A->Y (FF)	0.05738	0.57997	7.41091
	B->Y (FF)	0.06093	0.59571	7.54667

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	0.00760	0.02088	0.24881
	B	0.00000	0.00000	0.00000
	B	0.00761	0.01786	0.19467
sky130_osu_sc_18T_ls__and2_2	A	0.00000	0.00000	0.00000
	A	0.01589	0.02870	0.25702
	B	0.00000	0.00000	0.00000
	B	0.01597	0.02577	0.20101
sky130_osu_sc_18T_ls__and2_4	A	0.00000	0.00000	0.00000
	A	0.03609	0.04646	0.27020
	B	0.00000	0.00000	0.00000
	B	0.03622	0.04393	0.21145
sky130_osu_sc_18T_ls__and2_6	A	0.00000	0.00000	0.00000
	A	0.06385	0.06698	0.28884
	B	0.00000	0.00000	0.00000
	B	0.06387	0.06419	0.22710
sky130_osu_sc_18T_ls__and2_8	A	0.00000	0.00000	0.00000
	A	0.09555	0.08894	0.30712
	B	0.00000	0.00000	0.00000
	B	0.09554	0.08482	0.23907
sky130_osu_sc_18T_ls__and2_l	A	0.00000	0.00000	0.00000
	A	0.00556	0.01597	0.19013
	B	0.00000	0.00000	0.00000
	B	0.00561	0.01364	0.15696

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	0.01883	0.03302	0.23343
	B	0.00000	0.00000	0.00000
	B	0.02111	0.03498	0.22762
sky130_osu_sc_18T_ls__and2_2	A	0.00000	0.00000	0.00000
	A	0.02554	0.03915	0.23947
	B	0.00000	0.00000	0.00000
	B	0.02779	0.04103	0.23389
sky130_osu_sc_18T_ls__and2_4	A	0.00000	0.00000	0.00000
	A	0.04580	0.05530	0.25277
	B	0.00000	0.00000	0.00000
	B	0.04779	0.05636	0.24674
sky130_osu_sc_18T_ls__and2_6	A	0.00000	0.00000	0.00000
	A	0.06731	0.07227	0.26730
	B	0.00000	0.00000	0.00000
	B	0.06923	0.07295	0.26050
sky130_osu_sc_18T_ls__and2_8	A	0.00000	0.00000	0.00000
	A	0.09629	0.09265	0.28350
	B	0.00000	0.00000	0.00000
	B	0.09812	0.09233	0.27380
sky130_osu_sc_18T_ls__and2_l	A	0.00000	0.00000	0.00000
	A	0.01452	0.02518	0.17453
	B	0.00000	0.00000	0.00000
	B	0.01630	0.02678	0.17218

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)	-0.00715	-0.00718	-0.00720
sky130_osu_sc_18T_ls__and2_2	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00708	-0.00712	-0.00714
sky130_osu_sc_18T_ls__and2_4	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00692	-0.00698	-0.00700
sky130_osu_sc_18T_ls__and2_6	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00685	-0.00688	-0.00690
sky130_osu_sc_18T_ls__and2_8	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00665	-0.00671	-0.00673
sky130_osu_sc_18T_ls__and2_l	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00519	-0.00523	-0.00525

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)	0.00736	0.00739	0.00737
sky130_osu_sc_18T_ls__and2_2	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00742	0.00746	0.00744
sky130_osu_sc_18T_ls__and2_4	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00756	0.00759	0.00757
sky130_osu_sc_18T_ls__and2_6	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00772	0.00776	0.00774
sky130_osu_sc_18T_ls__and2_8	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00783	0.00786	0.00784
sky130_osu_sc_18T_ls__and2_l	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00536	0.00539	0.00538

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)	-0.00678	-0.00682	-0.00678
sky130_osu_sc_18T_ls__and2_2	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00671	-0.00675	-0.00672
sky130_osu_sc_18T_ls__and2_4	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00658	-0.00660	-0.00658
sky130_osu_sc_18T_ls__and2_6	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00644	-0.00648	-0.00645
sky130_osu_sc_18T_ls__and2_8	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00631	-0.00635	-0.00631
sky130_osu_sc_18T_ls__and2_l	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00493	-0.00495	-0.00493

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)	0.00720	0.00706	0.00698
sky130_osu_sc_18T_ls__and2_2	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00727	0.00713	0.00705
sky130_osu_sc_18T_ls__and2_4	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00741	0.00726	0.00718
sky130_osu_sc_18T_ls__and2_6	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00754	0.00739	0.00732
sky130_osu_sc_18T_ls__and2_8	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00768	0.00753	0.00745
sky130_osu_sc_18T_ls__and2_l	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00525	0.00513	0.00508

SKY130_OSU_SC_18T_LS__AOI21

sky130_osu_sc_18T_ls_ff_1P95_150C.ccs
Cell Library: Process , Voltage 1.95,
Temp 150.00

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	0.00556	0.00573	0.00556	1.68508

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__aoi21_l	0.00000	5.26817	9.87214

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)	0.06001	0.69789	8.98358
	A1->Y (FR)	0.05191	0.66565	8.63075
	B0->Y (FR)	0.04175	0.72964	9.68016

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)	0.04976	0.55111	7.01039
	A1->Y (RF)	0.04576	0.58942	7.58687
	B0->Y (RF)	0.02832	0.55167	7.33245

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	0.01752	0.01998	0.07093
	A1	0.00000	0.00000	0.00000
	A1	0.01481	0.01728	0.06720
	B0	0.00987	0.01540	0.07953

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	0.00407	0.00648	0.05246
	A1	0.00000	0.00000	0.00000
	A1	0.00417	0.00743	0.05695
	B0	-0.00163	0.00274	0.05627

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)	-0.00520	-0.00627	-0.00640
	(!A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !Y)	-0.00644	-0.00648	-0.00645
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00648	-0.00653	-0.00649

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)	0.00651	0.00656	0.00657
	(!A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !Y)	0.00658	0.00667	0.00661
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00680	0.00664	0.00657

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)	-0.00514	-0.00620	-0.00633
	(!A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !Y)	-0.00638	-0.00636	-0.00638
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	-0.00689	-0.00694	-0.00697

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)	0.00644	0.00649	0.00650
	(!A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !Y)	0.00651	0.00655	0.00654
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	0.00698	0.00704	0.00701

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)	-0.00239	-0.00242	-0.00240

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)	0.00273	0.00274	0.00253

SKY130_OSU_SC_18T_LS__AOI22

sky130_osu_sc_18T_ls_ff_1P95_150C.ccs
Cell Library: Process , Voltage 1.95,
Temp 150.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__aoi22_l	15.38460

Pin Capacitance Information

Cell Name	Pin Cap(pf)				Max Cap(pf)
	A0	**A1**	**B0**	**B1**	**Y**
sky130_osu_sc_18T_ls__aoi22_l	0.00557	0.00574	0.00590	0.00567	1.58323

Leakage Information

Cell Name	Leakage(nW)		
	Min.	**Avg**	**Max.**
sky130_osu_sc_18T_ls__aoi22_l	0.00000	6.16989	15.51290

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)	0.07537	0.71045	8.79213
	A1->Y (FR)	0.06765	0.68964	8.60759
	B0->Y (FR)	0.04405	0.71543	9.30692
	B1->Y (FR)	0.05176	0.74296	9.57863

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)	0.06671	0.55695	6.72525
	A1->Y (RF)	0.06279	0.59484	7.30280
	B0->Y (RF)	0.03158	0.55875	7.27229
	B1->Y (RF)	0.03557	0.52004	6.69469

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	0.02201	0.02428	0.07987
	A1	0.01932	0.02158	0.07446
	B0	0.01076	0.01620	0.08140
	B1	0.01345	0.01803	0.08332

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__aoi22_l	A0	0.00824	0.01067	0.06064
	A1	0.00836	0.01161	0.06510
	B0	-0.00082	0.00316	0.05543
	B1	-0.00080	0.00246	0.05061

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)	-0.00486	-0.00617	-0.00633
	(!A1 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * B1 * !Y)	-0.00637	-0.00641	-0.00639
	(!A1 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !B1 * Y)	-0.00648	-0.00652	-0.00649
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00648	-0.00652	-0.00649

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)	0.00660	0.00666	0.00664
	(!A1 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * B1 * !Y)	0.00664	0.00674	0.00667
	(!A1 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !B1 * Y)	0.00680	0.00664	0.00657
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00680	0.00665	0.00658

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)	-0.00479	-0.00611	-0.00626
	(!A0 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * B1 * !Y)	-0.00632	-0.00631	-0.00632
	(!A0 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !B1 * Y)	-0.00689	-0.00694	-0.00696
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	-0.00688	-0.00693	-0.00696

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)	0.00651	0.00659	0.00657
	(!A0 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * B1 * !Y)	0.00657	0.00663	0.00661
	(!A0 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !B1 * Y)	0.00698	0.00704	0.00701
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	0.00698	0.00704	0.00701

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)	-0.00241	-0.00243	-0.00242
	(A0 * A1 * !B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B1 * !Y)	-0.00222	-0.00225	-0.00230
	(!A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B1 * Y)	-0.00704	-0.00708	-0.00712
	(!A0 * A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B1 * Y)	-0.00704	-0.00709	-0.00712

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)	0.00285	0.00287	0.00256
	(A0 * A1 * !B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B1 * !Y)	0.00245	0.00247	0.00247
	(!A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B1 * Y)	0.00714	0.00721	0.00718
	(!A0 * A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B1 * Y)	0.00714	0.00721	0.00717

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)	-0.00243	-0.00245	-0.00244
	(A0 * A1 * !B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B0 * !Y)	-0.00223	-0.00226	-0.00231
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00657	-0.00661	-0.00658
	(!A0 * A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B0 * Y)	-0.00657	-0.00661	-0.00658

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)	0.00287	0.00288	0.00258
	(A0 * A1 * !B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B0 * !Y)	0.00247	0.00246	0.00248
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00689	0.00674	0.00667
	(!A0 * A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B0 * Y)	0.00689	0.00675	0.00666

SKY130_OSU_SC_18T_LS__BUFx

sky130_osu_sc_18T_ls_ff_1P95_150C.ccs
Cell Library: Process , Voltage 1.95,
Temp 150.00

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	0.00592	3.54007
sky130_osu_sc_18T_ls__buf_2	0.00592	6.74290
sky130_osu_sc_18T_ls__buf_4	0.00592	12.94167
sky130_osu_sc_18T_ls__buf_6	0.00097	1.80000
sky130_osu_sc_18T_ls__buf_8	0.00595	24.63620
sky130_osu_sc_18T_ls__buf_l	0.00462	2.46819

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__buf_1	0.00000	9.88395	9.88402
sky130_osu_sc_18T_ls__buf_2	0.00000	14.43670	17.34200
sky130_osu_sc_18T_ls__buf_4	0.00000	23.93150	32.85750
sky130_osu_sc_18T_ls__buf_6	0.00000	0.00000	0.00000
sky130_osu_sc_18T_ls__buf_8	0.00000	42.92090	63.88830
sky130_osu_sc_18T_ls__buf_l	0.00000	7.38102	7.38106

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)**	0.04962	0.44680	6.59177
sky130_osu_sc_18T_ls__buf_2	**A->Y (RR)**	0.05578	0.39389	6.46726
sky130_osu_sc_18T_ls__buf_4	**A->Y (RR)**	0.07526	0.39881	6.62119
sky130_osu_sc_18T_ls__buf_8	**A->Y (RR)**	0.11574	0.45443	6.86678
sky130_osu_sc_18T_ls__buf_l	**A->Y (RR)**	0.05458	0.49589	6.51198

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)**	0.05096	0.52379	7.66468
sky130_osu_sc_18T_ls__buf_2	**A->Y (FF)**	0.05746	0.47033	7.52771
sky130_osu_sc_18T_ls__buf_4	**A->Y (FF)**	0.07881	0.47211	7.60253
sky130_osu_sc_18T_ls__buf_8	**A->Y (FF)**	0.12563	0.52903	7.64620
sky130_osu_sc_18T_ls__buf_l	**A->Y (FF)**	0.05516	0.58585	7.67462

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	0.00675	0.01988	0.21495
sky130_osu_sc_18T_ls__buf_2	A	0.00000	0.00000	0.00000
	A	0.01451	0.02766	0.22411
sky130_osu_sc_18T_ls__buf_4	A	0.00000	0.00000	0.00000
	A	0.03224	0.04599	0.24068
sky130_osu_sc_18T_ls__buf_8	A	0.00000	0.00000	0.00000
	A	0.07892	0.08509	0.27189
sky130_osu_sc_18T_ls__buf_l	A	0.00000	0.00000	0.00000
	A	0.00506	0.01553	0.17630

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	0.01788	0.03317	0.24292
sky130_osu_sc_18T_ls__buf_2	A	0.00000	0.00000	0.00000
	A	0.02445	0.03896	0.24774
sky130_osu_sc_18T_ls__buf_4	A	0.00000	0.00000	0.00000
	A	0.04427	0.05448	0.26111
sky130_osu_sc_18T_ls__buf_8	A	0.00000	0.00000	0.00000
	A	0.09479	0.08986	0.28729
sky130_osu_sc_18T_ls__buf_l	A	0.00000	0.00000	0.00000
	A	0.01392	0.02553	0.18444

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
	-0.00094	-0.00094	-0.00091

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
	0.00094	0.00094	0.00091

SKY130_OSU_SC_18T_LS__DFFRx

sky130_osu_sc_18T_ls_ff_1P95_150C.ccs
Cell Library: Process , Voltage 1.95,
Temp 150.00

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	0.00573	0.00564	0.01608	3.41267	3.39625
sky130_osu_sc_18T_ls__dffr_l	0.00573	0.00564	0.01608	2.49487	2.46005

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__dffr_1	0.00000	34.88600	48.20840
sky130_osu_sc_18T_ls__dffr_l	0.00000	32.38310	45.70540

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)	0.21771	1.21271	17.15250
	QN->Q (FR)	0.02659	0.72416	11.52930
sky130_osu_sc_18T_ls__dffr_l	CK->Q (RR)	0.21374	1.32384	17.14300
	QN->Q (FR)	0.02776	0.76220	11.31610

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)	0.22956	1.18628	16.68270
	QN->Q (RF)	0.02577	0.70896	11.47750
	RN->Q (FF)	0.17382	1.20585	17.55350
sky130_osu_sc_18T_ls__dffr_l	CK->Q (RF)	0.23107	1.29876	16.62280
	QN->Q (RF)	0.02617	0.71558	10.71570
	RN->Q (FF)	0.17565	1.31769	17.48610

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)	0.20207	0.61866	6.52815
	RN->QN (FR)	0.14630	0.63815	7.39657
sky130_osu_sc_18T_ls__dffr_l	CK->QN (RR)	0.20185	0.66868	6.61514
	RN->QN (FR)	0.14640	0.68818	7.47913

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)**	0.18696	0.63862	6.91776
sky130_osu_sc_18T_ls__dffr_l	**CK->QN (RF)**	0.17956	0.66542	6.71222

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)	-0.06284	-0.06377	0.10945
	setup	CK (R)	0.17453	0.20477	5.88241
sky130_osu_sc_18T_ls__dffr_l	hold	CK (R)	-0.06584	-0.06377	0.11306
	setup	CK (R)	0.17591	0.20593	10.58120

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)	-0.08751	-0.24485	2.62403
	setup	CK (R)	0.11136	0.26033	3.39794
sky130_osu_sc_18T_ls__dffr_l	hold	CK (R)	-0.08682	-0.24698	2.47633
	setup	CK (R)	0.11136	0.26033	3.39654

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)	-0.06284	-0.06377	0.10945
	setup	CK (R)	0.17453	0.20477	5.88241
sky130_osu_sc_18T_ls__dffr_l	hold	CK (R)	-0.06584	-0.06377	0.11306
	setup	CK (R)	0.17591	0.20593	10.58120

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)	-0.08751	-0.24485	2.62403
	setup	CK (R)	0.11136	0.26033	3.39794
sky130_osu_sc_18T_ls__dffr_l	hold	CK (R)	-0.08682	-0.24698	2.47633
	setup	CK (R)	0.11136	0.26033	3.39654

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)	0.13567	0.17901	15.80690
	removal	CK (R)	-0.03098	-0.03688	-0.11560
sky130_osu_sc_18T_ls__dffr_l	recovery	CK (R)	0.13704	0.18012	18.11520
	removal	CK (R)	-0.03098	-0.03688	-0.11560

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)	0.13567	0.17901	15.80690
	removal	CK (R)	-0.03098	-0.03688	-0.11560
sky130_osu_sc_18T_ls__dffr_l	recovery	CK (R)	0.13704	0.18012	18.11520
	removal	CK (R)	-0.03098	-0.03688	-0.11560

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 ()	0.10132	0.52978	13.33370
	min_pulse_width	RN ()	0.10132	0.52978	13.33370
sky130_osu_sc_18T_ls__dffr_l	min_pulse_width	RN ()	0.09735	0.52978	13.33370
	min_pulse_width	RN ()	0.09735	0.52978	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 ()	0.10925	0.52978	13.33370
	min_pulse_width	CK ()	0.11719	0.52978	13.33370
sky130_osu_sc_18T_ls__dffr_l	min_pulse_width	CK ()	0.10132	0.52978	13.33370
	min_pulse_width	CK ()	0.11322	0.52978	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 ()	0.22034	0.52978	13.33370
	min_pulse_width	CK ()	0.09338	0.52978	13.33370
sky130_osu_sc_18T_ls__dffr_l	min_pulse_width	CK ()	0.22430	0.52978	13.33370
	min_pulse_width	CK ()	0.09338	0.52978	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	0.01932	0.02620	0.11177
sky130_osu_sc_18T_ls__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.01706	0.02627	0.16016

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	0.02207	0.02487	0.08432
	RN	-0.00220	-0.17528	-3.24405
	RN	0.04914	0.05284	0.12010
sky130_osu_sc_18T_ls__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.01992	0.02479	0.12668
	RN	-0.00220	-0.14525	-2.37165
	RN	0.04695	0.05282	0.16176

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	0.02189	0.02472	0.08495
	RN	-0.00220	-0.17477	-3.22338
	RN	0.04900	0.05273	0.12009
sky130_osu_sc_18T_ls__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.01977	0.02467	0.12709
	RN	-0.00220	-0.14402	-2.33705
	RN	0.04684	0.05272	0.16191

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	0.01910	0.02607	0.11188
sky130_osu_sc_18T_ls__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.01684	0.02609	0.16017

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	-0.00482	-0.00587	-0.00600
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.02377	0.03259	0.23172
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.01058	0.01958	0.21302
sky130_osu_sc_18T_ls__dffr_l	CK	0.00000	0.00000	0.00000
	CK	-0.00484	-0.00589	-0.00602
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.02375	0.03257	0.23169
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.01056	0.01956	0.21300

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	0.00686	0.00690	0.00689
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.03915	0.04870	0.25191
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.01864	0.02777	0.22167
sky130_osu_sc_18T_ls__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.00683	0.00688	0.00687
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.03913	0.04868	0.25189
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.01862	0.02775	0.22165

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)	0.00674	0.02196	0.28789
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.01972	0.03498	0.31331
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)	0.00672	0.02193	0.28786
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.01970	0.03496	0.31329

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)	0.01684	0.03344	0.29868
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.03671	0.05309	0.33049
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)	0.01682	0.03342	0.29866
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.03669	0.05307	0.33047

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)	-0.00124	0.01348	0.27794
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.01153	0.02557	0.30693
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	-0.00194	0.01319	0.27614
sky130_osu_sc_18T_ls__dffr_l	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	-0.00127	0.01346	0.27792
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.01151	0.02555	0.30690
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	-0.00196	0.01317	0.27611

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)	0.02429	0.04102	0.30540
	(D * RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * RN * !Q * QN)	0.05757	0.07223	0.41939
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.04398	0.05933	0.33753
	(!D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * Q * !QN)	0.05503	0.08433	0.48755
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.02940	0.04527	0.30777
sky130_osu_sc_18T_ls__dffr_l	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.02427	0.04090	0.30537
	(D * RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * RN * !Q * QN)	0.05755	0.07237	0.41937
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.04396	0.05931	0.33751
	(!D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * Q * !QN)	0.05500	0.08431	0.48752
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.02938	0.04525	0.30774

SKY130_OSU_SC_18T_LS__DFFSRx

sky130_osu_sc_18T_ls_ff_1P95_150C.ccs
Cell Library: Process , Voltage 1.95,
Temp 150.00

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	0.00569	0.00565	0.01213	0.01632	3.66575	3.60300
sky130_osu_sc_18T_ls__dffsr_l	0.00569	0.00565	0.01212	0.01632	2.48764	2.46799

Leakage Information

Cell Name	Leakage(nW)		
	Min.	**Avg**	**Max.**
sky130_osu_sc_18T_ls__dffsr_1	0.00000	38.81870	50.65920
sky130_osu_sc_18T_ls__dffsr_l	0.00000	36.31570	48.15610

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)	0.22816	1.22409	17.68110
	QN->Q (FR)	0.02523	0.71122	11.52070
	RN->Q (RR)	0.18216	1.18740	17.75210
	SN->Q (FR)	0.16367	1.23158	18.55890
sky130_osu_sc_18T_ls__dffsr_l	CK->Q (RR)	0.23025	1.33658	17.07880
	QN->Q (FR)	0.02770	0.75935	11.25690
	RN->Q (RR)	0.18443	1.29962	17.13760
	SN->Q (FR)	0.16620	1.34171	17.93610

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)	0.26563	1.22679	17.16480
	QN->Q (RF)	0.02373	0.67300	11.14290
	RN->Q (FF)	0.17096	1.20712	18.03760
sky130_osu_sc_18T_ls__dffsr_l	CK->Q (RF)	0.27073	1.34137	16.60630
	QN->Q (RF)	0.02613	0.71393	10.68090
	RN->Q (FF)	0.17547	1.32270	17.47550

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)	0.23891	0.66052	6.69816
	RN->QN (FR)	0.14454	0.64200	7.56787
sky130_osu_sc_18T_ls__dffsr_l	CK->QN (RR)	0.24118	0.71375	6.67224
	RN->QN (FR)	0.14627	0.69520	7.53783

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)	0.19870	0.64469	6.99138
	RN->QN (RF)	0.15297	0.60804	7.06273
	SN->QN (FF)	0.13455	0.65207	7.86205
sky130_osu_sc_18T_ls__dffsr_l	CK->QN (RF)	0.19648	0.68191	6.72929
	RN->QN (RF)	0.15138	0.64604	6.79833
	SN->QN (FF)	0.13285	0.68622	7.58971

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)	-0.06579	-0.06729	0.09309
	setup	CK (R)	0.17558	0.21065	5.87843
sky130_osu_sc_18T_ls__dffsr_l	hold	CK (R)	-0.06659	-0.06729	0.09276
	setup	CK (R)	0.17539	0.21013	5.65643

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)	-0.10204	-0.26305	2.59621
	setup	CK (R)	0.12817	0.27552	3.45420
sky130_osu_sc_18T_ls__dffsr_l	hold	CK (R)	-0.10132	-0.26033	2.61429
	setup	CK (R)	0.13031	0.27552	3.45281

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)	-0.06579	-0.06729	0.09309
	setup	CK (R)	0.17558	0.21065	5.87843
sky130_osu_sc_18T_ls__dffsr_l	hold	CK (R)	-0.06659	-0.06729	0.09276
	setup	CK (R)	0.17539	0.21013	5.65643

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)	-0.10204	-0.26305	2.59621
	setup	CK (R)	0.12817	0.27552	3.45420
sky130_osu_sc_18T_ls__dffsr_l	hold	CK (R)	-0.10132	-0.26033	2.61429
	setup	CK (R)	0.13031	0.27552	3.45281

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)	0.12409	0.16628	2.77129
	removal	CK (R)	-0.01540	-0.02169	-0.06029
	hold	SN (R)	-0.12474	-0.24515	-0.89030
	setup	SN (R)	0.14868	0.29507	6.67448
sky130_osu_sc_18T_ls__dffsr_l	recovery	CK (R)	0.12448	0.16581	4.06182
	removal	CK (R)	-0.01757	-0.01953	-0.06246
	hold	SN (R)	-0.12259	-0.23647	-0.86586
	setup	SN (R)	0.14912	0.28874	6.65925

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)	0.12409	0.16628	2.77129
	removal	CK (R)	-0.01540	-0.02169	-0.06029
	hold	SN (R)	-0.12516	-0.24515	-0.89435
	hold	SN (R)	-0.12474	-0.24732	-0.89030
	setup	SN (R)	0.14868	0.29411	6.54415
	setup	SN (R)	0.14661	0.29507	6.67448
sky130_osu_sc_18T_ls__dffsr_l	recovery	CK (R)	0.12448	0.16581	4.06182
	removal	CK (R)	-0.01757	-0.01953	-0.06246
	hold	SN (R)	-0.12411	-0.23647	-0.86803
	hold	SN (R)	-0.12259	-0.23864	-0.86586
	setup	SN (R)	0.14912	0.28514	6.58567
	setup	SN (R)	0.14222	0.28874	6.65925

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 ()	0.11719	0.52978	13.33370
	min_pulse_width	RN ()	0.11719	0.52978	13.33370
sky130_osu_sc_18T_ls__dffsr_l	min_pulse_width	RN ()	0.11719	0.52978	13.33370
	min_pulse_width	RN ()	0.11322	0.52978	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)	0.03926	0.07342	6.09804
	removal	CK (R)	-0.02045	-0.05641	-0.30897
sky130_osu_sc_18T_ls__dffsr_l	recovery	CK (R)	0.03853	0.07342	5.93174
	removal	CK (R)	-0.02045	-0.05641	-0.30897

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)	0.03926	0.07342	6.09804
	removal	CK (R)	-0.02045	-0.05641	-0.30897
sky130_osu_sc_18T_ls__dffsr_l	recovery	CK (R)	0.03853	0.07342	5.93174
	removal	CK (R)	-0.02045	-0.05641	-0.30897

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 ()	0.13306	0.52978	13.33370
	min_pulse_width	SN ()	0.12909	0.52978	13.33370
sky130_osu_sc_18T_ls__dffsr_l	min_pulse_width	SN ()	0.13306	0.52978	13.33370
	min_pulse_width	SN ()	0.12512	0.52978	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 ()	0.10925	0.52978	13.33370
	min_pulse_width	CK ()	0.13306	0.52978	13.33370
sky130_osu_sc_18T_ls__dffsr_l	min_pulse_width	CK ()	0.10925	0.52978	13.33370
	min_pulse_width	CK ()	0.13306	0.52978	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 ()	0.22430	0.52978	13.33370
	min_pulse_width	CK ()	0.11322	0.52978	13.33370
sky130_osu_sc_18T_ls__dffsr_l	min_pulse_width	CK ()	0.22430	0.52978	13.33370
	min_pulse_width	CK ()	0.11322	0.52978	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	0.02435	0.03318	0.15715
	RN	0.04305	0.04750	0.13422
	SN	-0.00220	-0.18296	-3.48473
	SN	0.04094	0.04437	0.13660
sky130_osu_sc_18T_ls__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.02223	0.03098	0.16554
	RN	0.04095	0.04533	0.14418
	SN	-0.00220	-0.14499	-2.36480
	SN	0.03885	0.04231	0.14382

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	0.02585	0.02934	0.10048
	RN	-0.00220	-0.18296	-3.48468
	RN	0.04969	0.05440	0.13786
sky130_osu_sc_18T_ls__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.02376	0.02868	0.13252
	RN	-0.00220	-0.14499	-2.36477
	RN	0.04765	0.05380	0.16995

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	0.02561	0.02914	0.10116
	RN	-0.00220	-0.18108	-3.42169
	RN	0.04949	0.05421	0.13972
sky130_osu_sc_18T_ls__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.02357	0.02850	0.13246
	RN	-0.00220	-0.14430	-2.34458
	RN	0.04749	0.05365	0.17000

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	0.02411	0.03302	0.15752
	RN	0.04281	0.04727	0.13567
	SN	-0.00220	-0.18108	-3.42468
	SN	0.04074	0.04422	0.13727
sky130_osu_sc_18T_ls__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.02200	0.03084	0.16498
	RN	0.04072	0.04515	0.14368
	SN	-0.00220	-0.14430	-2.34588
	SN	0.03867	0.04218	0.14487

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	-0.00594	-0.00600	-0.00599
	(!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)	0.03022	0.03883	0.23872
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.01213	0.02091	0.21377
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.01197	0.02078	0.21386
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.01207	0.02087	0.21380
sky130_osu_sc_18T_ls__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	-0.00596	-0.00602	-0.00602
	(!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)	0.03020	0.03881	0.23872
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.01211	0.02089	0.21375
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.01195	0.02076	0.21384
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.01204	0.02084	0.21378

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	0.00708	0.00700	0.00686
	(!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)	0.04484	0.05374	0.25608
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.01931	0.02823	0.22192
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.01988	0.02858	0.22188
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.01924	0.02816	0.22185
sky130_osu_sc_18T_ls__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.00705	0.00698	0.00683
	(!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)	0.04480	0.05371	0.25605
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.01927	0.02820	0.22189
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.01985	0.02855	0.22185
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.01920	0.02814	0.22182

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)	0.00474	0.01989	0.28585
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.02295	0.03813	0.31912
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)	0.00472	0.01987	0.28583
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.02293	0.03811	0.31911

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)	0.01759	0.03470	0.30065
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.03843	0.05514	0.33532
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)	0.01755	0.03467	0.30062
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.03839	0.05510	0.33529

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)	-0.01395	-0.01407	-0.01411
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	-0.01204	-0.01415	-0.01440
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	-0.01261	-0.01372	-0.01385
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.01089	0.01967	0.21240
sky130_osu_sc_18T_ls__dffsr_l	(CK * RN * Q * !QN) + (!CK * D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(CK * RN * Q * !QN) + (!CK * D * RN * Q * !QN)	-0.01397	-0.01409	-0.01413
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	-0.01204	-0.01414	-0.01440
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	-0.01263	-0.01374	-0.01386
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.01087	0.01971	0.21239

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)	0.01477	0.01490	0.01484
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.01510	0.01521	0.01521
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	0.01460	0.01471	0.01468
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.03061	0.03741	0.22826
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)	0.01475	0.01488	0.01482
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.01505	0.01517	0.01517
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	0.01457	0.01468	0.01466
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.03058	0.03732	0.22823

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)	-0.00124	0.01350	0.27817
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.01304	0.02715	0.30805
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.01242	0.02649	0.30778
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	-0.00159	0.01354	0.27673
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.00789	0.03382	0.50074
sky130_osu_sc_18T_ls__dffsr_l	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	-0.00126	0.01347	0.27815
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.01300	0.02712	0.30801
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.01239	0.02645	0.30775
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	-0.00162	0.01352	0.27670
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.00787	0.03380	0.50072

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)	0.06461	0.07951	0.42562
	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.02437	0.04099	0.30569
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.04498	0.06051	0.33858
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.04508	0.06059	0.33867
	(!D * RN * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * Q * !QN)	0.06049	0.08892	0.49464
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.02932	0.04515	0.30788
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.03312	0.06175	0.52885
sky130_osu_sc_18T_ls__dffsr_l	**(D * RN * SN * !Q * QN)**	0.00000	0.00000	0.00000
	(D * RN * SN * !Q * QN)	0.06459	0.07920	0.42561
	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.02435	0.04097	0.30567
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.04496	0.06049	0.33856
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.04506	0.06057	0.33865
	(!D * RN * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * Q * !QN)	0.06045	0.08889	0.49460
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.02930	0.04513	0.30786
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.03309	0.06172	0.52882

SKY130_OSU_SC_18T_LS__DFFSx

sky130_osu_sc_18T_ls_ff_1P95_150C.ccs
Cell Library: Process , Voltage 1.95,
Temp 150.00

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	0.00572	0.00955	0.01609	3.44040	3.42143
sky130_osu_sc_18T_ls__dffs_l	0.00572	0.00955	0.01609	2.47423	2.47227

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__dffs_1	0.00000	34.02550	47.09830
sky130_osu_sc_18T_ls__dffs_l	0.00000	31.52250	44.59520

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)	0.17696	1.16355	17.13180
	QN->Q (FR)	0.02642	0.72079	11.48050
	SN->Q (FR)	0.13035	1.22423	18.21200
sky130_osu_sc_18T_ls__dffs_l	CK->Q (RR)	0.17659	1.27189	16.87350
	QN->Q (FR)	0.02761	0.75621	11.17680
	SN->Q (FR)	0.13047	1.32650	17.92450

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)	0.25322	1.21933	16.79060
	QN->Q (RF)	0.02559	0.70810	11.48520
sky130_osu_sc_18T_ls__dffs_l	CK->Q (RF)	0.25367	1.32048	16.47430
	QN->Q (RF)	0.02604	0.71060	10.61410

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)	0.22513	0.64968	6.56708
sky130_osu_sc_18T_ls__dffs_l	CK->QN (RR)	0.22394	0.69707	6.64637

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)	0.14809	0.59036	6.86312
	SN->QN (FF)	0.10100	0.65029	7.93370
sky130_osu_sc_18T_ls__dffs_l	CK->QN (RF)	0.14447	0.62199	6.64770
	SN->QN (FF)	0.09788	0.67610	7.69354

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)	-0.04792	-0.05207	0.12437
	setup	CK (R)	0.12924	0.17057	3.66732
sky130_osu_sc_18T_ls__dffs_l	hold	CK (R)	-0.04894	-0.05207	0.12423
	setup	CK (R)	0.12941	0.17075	3.41974

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)	-0.09211	-0.24722	1.49187
	setup	CK (R)	0.11898	0.26033	3.42439
sky130_osu_sc_18T_ls__dffs_l	hold	CK (R)	-0.08921	-0.24720	1.34693
	setup	CK (R)	0.11897	0.26033	3.42365

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)	-0.04792	-0.05207	0.12437
	setup	CK (R)	0.12924	0.17057	3.66732
sky130_osu_sc_18T_ls__dffs_l	hold	CK (R)	-0.04894	-0.05207	0.12423
	setup	CK (R)	0.12941	0.17075	3.41974

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)	-0.09211	-0.24722	1.49187
	setup	CK (R)	0.11898	0.26033	3.42439
sky130_osu_sc_18T_ls__dffs_l	hold	CK (R)	-0.08921	-0.24720	1.34693
	setup	CK (R)	0.11897	0.26033	3.42365

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)	0.03603	0.06542	4.91806
	removal	CK (R)	-0.01818	-0.04556	-0.24507
sky130_osu_sc_18T_ls__dffs_l	recovery	CK (R)	0.03515	0.06208	4.91771
	removal	CK (R)	-0.01818	-0.04556	-0.24507

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)	0.03603	0.06542	4.91806
	removal	CK (R)	-0.01818	-0.04556	-0.24507
sky130_osu_sc_18T_ls__dffs_l	recovery	CK (R)	0.03515	0.06208	4.91771
	removal	CK (R)	-0.01818	-0.04556	-0.24507

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 ()	0.08942	0.52978	13.33370
	min_pulse_width	SN ()	0.08942	0.52978	13.33370
sky130_osu_sc_18T_ls__dffs_l	min_pulse_width	SN ()	0.08942	0.52978	13.33370
	min_pulse_width	SN ()	0.08545	0.52978	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 ()	0.08545	0.52978	13.33370
	min_pulse_width	CK ()	0.12512	0.52978	13.33370
sky130_osu_sc_18T_ls__dffs_l	min_pulse_width	CK ()	0.08148	0.52978	13.33370
	min_pulse_width	CK ()	0.12115	0.52978	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 ()	0.17670	0.52978	13.33370
	min_pulse_width	CK ()	0.10132	0.52978	13.33370
sky130_osu_sc_18T_ls__dffs_l	min_pulse_width	CK ()	0.17670	0.52978	13.33370
	min_pulse_width	CK ()	0.10132	0.52978	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	0.01884	0.02598	0.11247
	SN	-0.00220	-0.17613	-3.27050
	SN	0.03293	0.03662	0.09351
sky130_osu_sc_18T_ls__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.01668	0.02607	0.16138
	SN	-0.00220	-0.14452	-2.35205
	SN	0.03079	0.03672	0.14047

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	0.02215	0.02520	0.09029
sky130_osu_sc_18T_ls__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.01994	0.02499	0.13094

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	0.02194	0.02499	0.09038
sky130_osu_sc_18T_ls__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.01976	0.02485	0.13083

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	0.01867	0.02579	0.11305
	SN	-0.00220	-0.17555	-3.25181
	SN	0.03280	0.03651	0.09242
sky130_osu_sc_18T_ls__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.01652	0.02589	0.16032
	SN	-0.00220	-0.14445	-2.34995
	SN	0.03067	0.03660	0.13927

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	-0.00603	-0.00610	-0.00609
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.02213	0.03158	0.23510
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.01037	0.01938	0.21312
sky130_osu_sc_18T_ls__dffs_l	CK	0.00000	0.00000	0.00000
	CK	-0.00606	-0.00612	-0.00611
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.02210	0.03156	0.23508
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.01035	0.01936	0.21310

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	0.00711	0.00704	0.00689
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.03783	0.04714	0.25030
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.01852	0.02779	0.22239
sky130_osu_sc_18T_ls__dffs_1	CK	0.00000	0.00000	0.00000
	CK	0.00709	0.00702	0.00687
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.03781	0.04712	0.25028
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.01850	0.02777	0.22237

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)	-0.01024	-0.01031	-0.01031
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.00834	0.01668	0.19445
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)	-0.01026	-0.01035	-0.01033
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.00832	0.01666	0.19442

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)	0.01102	0.01099	0.01087
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.02079	0.02975	0.20771
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)	0.01100	0.01097	0.01085
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.02077	0.02973	0.20768

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)	-0.00136	0.01340	0.27832
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	-0.00175	0.01342	0.27684
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.00607	0.03254	0.50116
sky130_osu_sc_18T_ls__dffs_l	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	-0.00138	0.01338	0.27830
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	-0.00178	0.01341	0.27681
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.00605	0.03252	0.50114

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)	0.05647	0.07153	0.42073
	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.02421	0.04098	0.30581
	(!D * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * SN * Q * !QN)	0.05333	0.08245	0.48643
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	0.02929	0.04511	0.30816
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.03219	0.06160	0.53015
sky130_osu_sc_18T_ls__dffs_l	(D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * SN * !Q * QN)	0.05645	0.07154	0.42071
	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.02419	0.04086	0.30579
	(!D * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * SN * Q * !QN)	0.05331	0.08243	0.48641
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	0.02927	0.04508	0.30813
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.03217	0.06158	0.53013

SKY130_OSU_SC_18T_LS__DFFx

sky130_osu_sc_18T_ls_ff_1P95_150C.ccs
Cell Library: Process , Voltage 1.95,
Temp 150.00

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	0.00587	0.01607	3.67721	3.62054
sky130_osu_sc_18T_ls__dff_l	0.00587	0.01607	2.44901	2.41969

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__dff_1	0.00000	34.00120	39.62800
sky130_osu_sc_18T_ls__dff_l	0.00000	31.49820	37.12500

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)	0.15990	1.14735	17.59910
	QN->Q (FR)	0.02504	0.70658	11.47970
sky130_osu_sc_18T_ls__dff_l	CK->Q (RR)	0.16476	1.26099	16.79820
	QN->Q (FR)	0.02817	0.76682	11.32520

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)	0.21485	1.16793	17.12350
	QN->Q (RF)	0.02362	0.67373	11.12810
sky130_osu_sc_18T_ls__dff_l	CK->Q (RF)	0.22112	1.28205	16.40130
	QN->Q (RF)	0.02610	0.70800	10.53920

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)	0.18877	0.60197	6.65063
sky130_osu_sc_18T_ls__dff_l	CK->QN (RR)	0.19198	0.65858	6.57834

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)	0.13254	0.57027	6.91796
sky130_osu_sc_18T_ls__dff_l	CK->QN (RF)	0.13284	0.60587	6.49680

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)	-0.04188	-0.04642	0.10933
	setup	CK (R)	0.11071	0.15559	3.17833
sky130_osu_sc_18T_ls__dff_l	hold	CK (R)	-0.04576	-0.04658	0.10875
	setup	CK (R)	0.10883	0.15209	3.34770

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)	-0.08122	-0.24766	1.33403
	setup	CK (R)	0.09879	0.26033	3.40876
sky130_osu_sc_18T_ls__dff_l	hold	CK (R)	-0.08101	-0.24766	1.29244
	setup	CK (R)	0.09873	0.26033	3.40892

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 ()	0.07751	0.52978	13.33370
	min_pulse_width	CK ()	0.11322	0.52978	13.33370
sky130_osu_sc_18T_ls__dff_l	min_pulse_width	CK ()	0.07355	0.52978	13.33370
	min_pulse_width	CK ()	0.10925	0.52978	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** ()	0.16083	0.52978	13.33370
	min_pulse_width	**CK** ()	0.07751	0.52978	13.33370
sky130_osu_sc_18T_ls__dff_l	**min_pulse_width**	**CK** ()	0.16083	0.52978	13.33370
	min_pulse_width	**CK** ()	0.07751	0.52978	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	0.01973	0.02947	0.15904
sky130_osu_sc_18T_ls__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.01774	0.02749	0.16722

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	0.02236	0.02633	0.10204
sky130_osu_sc_18T_ls__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.02040	0.02535	0.12703

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	0.02219	0.02622	0.10220
sky130_osu_sc_18T_ls__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.02026	0.02525	0.12724

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	0.01955	0.02938	0.15872
sky130_osu_sc_18T_ls__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.01755	0.02727	0.16636

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	-0.00489	-0.00593	-0.00606
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.02079	0.03061	0.23604
sky130_osu_sc_18T_ls__dff_l	CK	0.00000	0.00000	0.00000
	CK	-0.00492	-0.00595	-0.00608
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.02078	0.03060	0.23603

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	0.00676	0.00682	0.00680
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.03894	0.04861	0.25495
sky130_osu_sc_18T_ls__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.00674	0.00679	0.00678
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.03893	0.04859	0.25494

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)	-0.00136	0.01342	0.27829
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	-0.00181	0.01338	0.27675
sky130_osu_sc_18T_ls__dff_l	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	-0.00138	0.01339	0.27827
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	-0.00183	0.01336	0.27673

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)	0.02415	0.04082	0.30570
	(D * !Q * QN)	0.00000	0.00000	0.00000
	(D * !Q * QN)	0.05525	0.07043	0.42151
	(!D * Q * !QN)	0.00000	0.00000	0.00000
	(!D * Q * !QN)	0.05428	0.08396	0.49587
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.02912	0.04503	0.30793
sky130_osu_sc_18T_ls__dff_l	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.02412	0.04080	0.30568
	(D * !Q * QN)	0.00000	0.00000	0.00000
	(D * !Q * QN)	0.05524	0.07042	0.42148
	(!D * Q * !QN)	0.00000	0.00000	0.00000
	(!D * Q * !QN)	0.05426	0.08395	0.49586
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.02909	0.04501	0.30790

SKY130_OSU_SC_18T_LS__INVx

sky130_osu_sc_18T_ls_ff_1P95_150C.ccs
Cell Library: Process , Voltage 1.95,
Temp 150.00

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	0.00568	3.35478
sky130_osu_sc_18T_ls__inv_10	0.05381	28.54506
sky130_osu_sc_18T_ls__inv_2	0.01095	6.39049
sky130_osu_sc_18T_ls__inv_3	0.01634	9.17062
sky130_osu_sc_18T_ls__inv_4	0.02163	12.25348
sky130_osu_sc_18T_ls__inv_6	0.03244	17.99772
sky130_osu_sc_18T_ls__inv_8	0.04313	23.63349
sky130_osu_sc_18T_ls__inv_l	0.00436	2.27447

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__inv_1	0.00000	4.94191	8.05741
sky130_osu_sc_18T_ls__inv_10	0.00000	47.47160	77.57430
sky130_osu_sc_18T_ls__inv_2	0.00000	9.49447	15.51510
sky130_osu_sc_18T_ls__inv_3	0.00000	14.43630	23.57230
sky130_osu_sc_18T_ls__inv_4	0.00000	18.98880	31.03010
sky130_osu_sc_18T_ls__inv_6	0.00000	28.48320	46.54490
sky130_osu_sc_18T_ls__inv_8	0.00000	37.97750	62.05970
sky130_osu_sc_18T_ls__inv_l	0.00000	3.69045	6.26766

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)**	0.02345	0.63050	9.92684
sky130_osu_sc_18T_ls__inv_10	**A->Y (FR)**	0.03814	0.41536	9.71788
sky130_osu_sc_18T_ls__inv_2	**A->Y (FR)**	0.02010	0.53900	9.70148
sky130_osu_sc_18T_ls__inv_3	**A->Y (FR)**	0.02241	0.50339	9.76841
sky130_osu_sc_18T_ls__inv_4	**A->Y (FR)**	0.02345	0.47256	9.71576
sky130_osu_sc_18T_ls__inv_6	**A->Y (FR)**	0.02710	0.44075	9.71514
sky130_osu_sc_18T_ls__inv_8	**A->Y (FR)**	0.03215	0.42370	9.72784
sky130_osu_sc_18T_ls__inv_l	**A->Y (FR)**	0.02602	0.68309	9.84418

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)**	0.02143	0.57966	9.31678
sky130_osu_sc_18T_ls__inv_10	**A->Y (RF)**	0.03761	0.33757	8.75832
sky130_osu_sc_18T_ls__inv_2	**A->Y (RF)**	0.01852	0.47840	9.07622
sky130_osu_sc_18T_ls__inv_3	**A->Y (RF)**	0.02053	0.43787	9.06694
sky130_osu_sc_18T_ls__inv_4	**A->Y (RF)**	0.02097	0.40560	9.03266
sky130_osu_sc_18T_ls__inv_6	**A->Y (RF)**	0.02636	0.37211	8.99125
sky130_osu_sc_18T_ls__inv_8	**A->Y (RF)**	0.03165	0.35211	8.94593
sky130_osu_sc_18T_ls__inv_l	**A->Y (RF)**	0.02355	0.61106	8.89994

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	0.00919	0.01489	0.06943
sky130_osu_sc_18T_ls__inv_10	A	0.00000	0.00000	0.00000
	A	0.08604	0.17625	0.64382
sky130_osu_sc_18T_ls__inv_2	A	0.00000	0.00000	0.00000
	A	0.01671	0.03078	0.11553
sky130_osu_sc_18T_ls__inv_3	A	0.00000	0.00000	0.00000
	A	0.02553	0.04690	0.20482
sky130_osu_sc_18T_ls__inv_4	A	0.00000	0.00000	0.00000
	A	0.03313	0.06406	0.27247
sky130_osu_sc_18T_ls__inv_6	A	0.00000	0.00000	0.00000
	A	0.04976	0.09958	0.38009
sky130_osu_sc_18T_ls__inv_8	A	0.00000	0.00000	0.00000
	A	0.06708	0.13461	0.50977
sky130_osu_sc_18T_ls__inv_l	A	0.00000	0.00000	0.00000
	A	0.00702	0.01159	0.05650

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	-0.00198	0.00253	0.04596
sky130_osu_sc_18T_ls__inv_10	**A**	0.00000	0.00000	0.00000
	A	-0.01545	0.04467	0.46299
sky130_osu_sc_18T_ls__inv_2	**A**	0.00000	0.00000	0.00000
	A	-0.00603	0.00467	0.09169
sky130_osu_sc_18T_ls__inv_3	**A**	0.00000	0.00000	0.00000
	A	-0.00774	0.01020	0.13713
sky130_osu_sc_18T_ls__inv_4	**A**	0.00000	0.00000	0.00000
	A	-0.01115	0.01352	0.18305
sky130_osu_sc_18T_ls__inv_6	**A**	0.00000	0.00000	0.00000
	A	-0.01672	0.02152	0.27396
sky130_osu_sc_18T_ls__inv_8	**A**	0.00000	0.00000	0.00000
	A	-0.01877	0.03379	0.36371
sky130_osu_sc_18T_ls__inv_l	**A**	0.00000	0.00000	0.00000
	A	-0.00140	0.00199	0.03777

SKY130_OSU_SC_18T_LS__MUX2

sky130_osu_sc_18T_ls_ff_1P95_150C.ccs
Cell Library: Process , Voltage 1.95,
Temp 150.00

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	0.54393	0.54418	0.01154	0.55265

Leakage Information

Cell Name	Leakage(nW)		
	Min.	**Avg**	**Max.**
sky130_osu_sc_18T_ls__mux2_1	0.00000	10.17880	10.17880

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)	-	0.01209	0.14461	1.24007
	A1->Y (RR)	-	0.01281	0.14464	1.23711
	S0->Y (RR)	(!A0 * A1)	0.04046	0.19976	1.00992
	S0->Y (FR)	(A0 * !A1)	0.03513	0.27908	2.48774

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)	-	0.01034	0.15375	1.34060
	A1->Y (FF)	-	0.01038	0.15353	1.33975
	S0->Y (FF)	(!A0 * A1)	0.04992	0.27834	2.00555
	S0->Y (RF)	(A0 * !A1)	0.02662	0.22676	1.77246

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	-	-0.00958	-0.00960	-0.00957
	A1	-	0.00000	0.00000	0.00000
	A1	-	-0.00643	-0.00645	-0.00643
	S0	(A0 * !A1)	0.00000	0.00000	0.00000
	S0	(A0 * !A1)	0.00993	0.02779	0.29210
	S0	(!A0 * A1)	0.00000	0.00000	0.00000
	S0	(!A0 * A1)	-0.00662	0.00992	0.27269

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	-	0.00966	0.00970	0.00969
	A1	-	0.00000	0.00000	0.00000
	A1	-	0.00682	0.00684	0.00683
	S0	(A0 * !A1)	0.00000	0.00000	0.00000
	S0	(A0 * !A1)	0.00209	0.01924	0.28342
	S0	(!A0 * A1)	0.00000	0.00000	0.00000
	S0	(!A0 * A1)	0.02503	0.04140	0.30432

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)	-0.00229	-0.00228	-0.00227

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)	0.00242	0.00241	0.00242

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__mux2_1	(A0 * !S0 * Y) + (!A0 * !S0 * !Y)	0.00000	0.00000	0.00000
	(A0 * !S0 * Y) + (!A0 * !S0 * !Y)	-0.00278	-0.00277	-0.00277

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)	0.00280	0.00280	0.00280

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)	-0.00229	0.01452	0.27798
	(!A0 * !A1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !Y)	-0.00231	0.01451	0.27840

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)	0.01878	0.03546	0.29869
	(!A0 * !A1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !Y)	0.01619	0.03394	0.29797

SKY130_OSU_SC_18T_LS__NAND2x

sky130_osu_sc_18T_ls_ff_1P95_150C.ccs
Cell Library: Process , Voltage 1.95,
Temp 150.00

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	0.00570	0.00568	2.32913
sky130_osu_sc_18T_ls__nand2_l	0.00437	0.00436	1.66633

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__nand2_1	0.00000	4.79330	15.51490
sky130_osu_sc_18T_ls__nand2_l	0.00000	3.59763	12.12000

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)	0.02413	0.56526	8.08167
	B->Y (FR)	0.02813	0.56384	7.99562
sky130_osu_sc_18T_ls__nand2_l	A->Y (FR)	0.02664	0.61973	8.24135
	B->Y (FR)	0.03161	0.62208	8.20887

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)	0.02998	0.64607	9.42423
	B->Y (RF)	0.03360	0.60962	8.90521
sky130_osu_sc_18T_ls__nand2_l	A->Y (RF)	0.03286	0.69171	9.24124
	B->Y (RF)	0.03652	0.65884	8.73695

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	0.00985	0.01541	0.07324
	B	0.00000	0.00000	0.00000
	B	0.01257	0.01811	0.07872
sky130_osu_sc_18T_ls__nand2_l	A	0.00000	0.00000	0.00000
	A	0.00748	0.01150	0.05718
	B	0.00000	0.00000	0.00000
	B	0.00953	0.01356	0.06101

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	-0.00114	0.00296	0.04815
	B	0.00000	0.00000	0.00000
	B	-0.00117	0.00222	0.04591
sky130_osu_sc_18T_ls__nand2_l	A	0.00000	0.00000	0.00000
	A	-0.00082	0.00226	0.03797
	B	0.00000	0.00000	0.00000
	B	-0.00083	0.00163	0.03590

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)	-0.00711	-0.00714	-0.00716
sky130_osu_sc_18T_ls__nand2_l	(!B * Y)	0.00000	0.00000	0.00000
	(!B * Y)	-0.00515	-0.00516	-0.00518

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)	0.00717	0.00721	0.00719
sky130_osu_sc_18T_ls__nand2_l	(!B * Y)	0.00000	0.00000	0.00000
	(!B * Y)	0.00518	0.00521	0.00520

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)	-0.00664	-0.00667	-0.00664
sky130_osu_sc_18T_ls__nand2_l	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00479	-0.00482	-0.00479

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)	0.00693	0.00680	0.00671
sky130_osu_sc_18T_ls__nand2_l	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00500	0.00490	0.00483

SKY130_OSU_SC_18T_LS__NOR2x

sky130_osu_sc_18T_ls_ff_1P95_150C.ccs
Cell Library: Process , Voltage 1.95,
Temp 150.00

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	0.00571	0.00600	1.86803
sky130_osu_sc_18T_ls__nor2_l	0.00430	0.00463	1.28999

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__nor2_1	0.00000	4.37425	8.05670
sky130_osu_sc_18T_ls__nor2_l	0.00000	3.25182	6.26704

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)	0.04584	0.68236	9.20985
	B->Y (FR)	0.03294	0.70839	9.71387
sky130_osu_sc_18T_ls__nor2_l	A->Y (FR)	0.04989	0.74996	9.20300
	B->Y (FR)	0.03828	0.77931	9.72239

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)	0.03020	0.47436	6.33836
	B->Y (RF)	0.02310	0.46205	6.31171
sky130_osu_sc_18T_ls__nor2_l	A->Y (RF)	0.03189	0.49889	6.06070
	B->Y (RF)	0.02529	0.48836	6.03565

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	0.01435	0.01759	0.07397
	B	0.00000	0.00000	0.00000
	B	0.01001	0.01589	0.08124
sky130_osu_sc_18T_ls__nor2_1	A	0.00000	0.00000	0.00000
	A	0.01041	0.01253	0.05943
	B	0.00000	0.00000	0.00000
	B	0.00756	0.01181	0.06393

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	0.00166	0.00597	0.06215
	B	0.00000	0.00000	0.00000
	B	-0.00141	0.00309	0.05680
sky130_osu_sc_18T_ls__nor2_1	A	0.00000	0.00000	0.00000
	A	0.00106	0.00435	0.04961
	B	0.00000	0.00000	0.00000
	B	-0.00092	0.00248	0.04547

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)	-0.00522	-0.00623	-0.00636
sky130_osu_sc_18T_ls__nor2_l	(B * !Y)	0.00000	0.00000	0.00000
	(B * !Y)	-0.00369	-0.00438	-0.00446

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)	0.00652	0.00660	0.00655
sky130_osu_sc_18T_ls__nor2_l	(B * !Y)	0.00000	0.00000	0.00000
	(B * !Y)	0.00458	0.00464	0.00460

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)	-0.00241	-0.00244	-0.00242
sky130_osu_sc_18T_ls__nor2_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	-0.00175	-0.00177	-0.00175

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__nor2_1	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00258	0.00260	0.00248
sky130_osu_sc_18T_ls__nor2_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00187	0.00188	0.00180

SKY130_OSU_SC_18T_LS__OAI21

sky130_osu_sc_18T_ls_ff_1P95_150C.ccs
Cell Library: Process , Voltage 1.95,
Temp 150.00

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	0.00576	0.00585	0.00481	1.81847

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__oai21_l	0.00000	5.21799	14.32390

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)	0.04369	0.71472	9.59306
	A1->Y (FR)	0.05985	0.69309	9.10374
	B0->Y (FR)	0.03174	0.63499	8.58239

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)	0.04201	0.58681	7.84594
	A1->Y (RF)	0.05278	0.58504	7.62356
	B0->Y (RF)	0.03245	0.63261	8.62413

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	0.01402	0.01834	0.07173
	A1	0.00000	0.00000	0.00000
	A1	0.01829	0.02086	0.06953
	B0	0.00814	0.01246	0.06729

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	0.00047	0.00320	0.04459
	A1	0.00000	0.00000	0.00000
	A1	0.00370	0.00604	0.04931
	B0	0.00125	0.00458	0.04582

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)	-0.00238	-0.00239	-0.00237
	(A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * Y)	-0.00642	-0.00650	-0.00648
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00652	-0.00656	-0.00653

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)	0.00266	0.00265	0.00255
	(A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * Y)	0.00644	0.00651	0.00648
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00679	0.00663	0.00659

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)	-0.00507	-0.00607	-0.00622
	(A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * Y)	-0.00639	-0.00644	-0.00643
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	-0.00646	-0.00650	-0.00647

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)	0.00648	0.00654	0.00652
	(A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * Y)	0.00640	0.00648	0.00643
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	0.00674	0.00661	0.00653

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)	-0.00519	-0.00524	-0.00531

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)	0.00532	0.00537	0.00535

SKY130_OSU_SC_18T_LS__OAI22

sky130_osu_sc_18T_ls_ff_1P95_150C.ccs
Cell Library: Process , Voltage 1.95,
Temp 150.00

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_l	15.38460

Pin Capacitance Information

Cell Name	Pin Cap(pf)				Max Cap(pf)
	A0	A1	B0	B1	Y
sky130_osu_sc_18T_ls__oai22_l	0.00563	0.00587	0.00600	0.00589	1.83029

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__oai22_l	0.00000	6.18414	15.52690

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)	0.06433	0.69617	9.09469
	A1->Y (FR)	0.05147	0.71954	9.60958
	B0->Y (FR)	0.03664	0.70767	9.60836
	B1->Y (FR)	0.04969	0.68215	9.09373

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)	0.07783	0.63816	8.07950
	A1->Y (RF)	0.06041	0.61269	7.94397
	B0->Y (RF)	0.05180	0.66051	8.71340
	B1->Y (RF)	0.06998	0.69719	9.00765

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	0.02167	0.02421	0.07247
	A1	0.01740	0.02162	0.08069
	B0	0.01074	0.01573	0.07311
	B1	0.01522	0.01789	0.06449

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__oai22_l	A0	0.00264	0.00498	0.04930
	A1	-0.00050	0.00228	0.04497
	B0	-0.00033	0.00338	0.05055
	B1	0.00266	0.00596	0.05212

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)	-0.00518	-0.00623	-0.00636
	(A1 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * B1 * !Y)	-0.00515	-0.00619	-0.00632
	(A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * !B1 * Y)	-0.00636	-0.00644	-0.00643
	(!A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * !B1 * Y)	-0.00646	-0.00649	-0.00647

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)	0.00652	0.00661	0.00656
	(A1 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * B1 * !Y)	0.00655	0.00664	0.00660
	(A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * !B1 * Y)	0.00643	0.00648	0.00646
	(!A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * !B1 * Y)	0.00682	0.00661	0.00656

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)	-0.00239	-0.00242	-0.00240
	(A0 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * B1 * !Y)	-0.00235	-0.00238	-0.00236
	(A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * !B1 * Y)	-0.00635	-0.00642	-0.00642
	(!A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * !B1 * Y)	-0.00644	-0.00647	-0.00645

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)	0.00256	0.00258	0.00247
	(A0 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * B1 * !Y)	0.00260	0.00262	0.00251
	(A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * !B1 * Y)	0.00640	0.00645	0.00643
	(!A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * !B1 * Y)	0.00681	0.00662	0.00654

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)	-0.00237	-0.00240	-0.00238
	(A0 * !A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B1 * !Y)	-0.00234	-0.00237	-0.00234
	(!A0 * !A1 * B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B1 * Y)	-0.00700	-0.00708	-0.00708
	(!A0 * !A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B1 * Y)	-0.00694	-0.00699	-0.00710

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__oai22_l	(A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * B1 * !Y)	0.00255	0.00257	0.00245
	(A0 * !A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B1 * !Y)	0.00259	0.00261	0.00249
	(!A0 * !A1 * B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B1 * Y)	0.00717	0.00719	0.00710
	(!A0 * !A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B1 * Y)	0.00711	0.00718	0.00715

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)	-0.00512	-0.00616	-0.00628
	(A0 * !A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B0 * !Y)	-0.00508	-0.00612	-0.00624
	(!A0 * !A1 * B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B0 * Y)	-0.00709	-0.00718	-0.00716
	(!A0 * !A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B0 * Y)	-0.00704	-0.00707	-0.00718

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)	0.00644	0.00652	0.00648
	(A0 * !A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B0 * !Y)	0.00647	0.00655	0.00652
	(!A0 * !A1 * B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B0 * Y)	0.00726	0.00731	0.00720
	(!A0 * !A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B0 * Y)	0.00719	0.00726	0.00723

SKY130_OSU_SC_18T_LS__OR2x

sky130_osu_sc_18T_ls_ff_1P95_150C.ccs
Cell Library: Process , Voltage 1.95,
Temp 150.00

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	0.00604	0.00584	3.53144
sky130_osu_sc_18T_ls__or2_2	0.00604	0.00584	6.72498
sky130_osu_sc_18T_ls__or2_4	0.00605	0.00585	12.90408
sky130_osu_sc_18T_ls__or2_8	0.00608	0.00587	23.97838
sky130_osu_sc_18T_ls__or2_l	0.00471	0.00446	2.39553

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__or2_1	0.00000	7.76454	11.53180
sky130_osu_sc_18T_ls__or2_2	0.00000	10.86480	18.99020
sky130_osu_sc_18T_ls__or2_4	0.00000	17.34930	34.50650
sky130_osu_sc_18T_ls__or2_8	0.00000	30.31830	65.53890
sky130_osu_sc_18T_ls__or2_l	0.00000	5.65967	8.35573

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)	0.06137	0.47202	6.47077
	B->Y (RR)	0.05159	0.43958	6.32862
sky130_osu_sc_18T_ls__or2_2	A->Y (RR)	0.06813	0.41940	6.36480
	B->Y (RR)	0.05799	0.38845	6.21213
sky130_osu_sc_18T_ls__or2_4	A->Y (RR)	0.08825	0.42218	6.57305
	B->Y (RR)	0.07766	0.39608	6.41428
sky130_osu_sc_18T_ls__or2_8	A->Y (RR)	0.12916	0.47290	6.73279
	B->Y (RR)	0.11805	0.45114	6.58272
sky130_osu_sc_18T_ls__or2_l	A->Y (RR)	0.06632	0.51600	6.25640
	B->Y (RR)	0.05699	0.48702	6.11209

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)	0.08456	0.57540	7.88336
	B->Y (FF)	0.06785	0.57973	8.18468
sky130_osu_sc_18T_ls__or2_2	A->Y (FF)	0.09875	0.52610	7.74039
	B->Y (FF)	0.08210	0.53466	8.03357
sky130_osu_sc_18T_ls__or2_4	A->Y (FF)	0.13764	0.54093	7.85743
	B->Y (FF)	0.12106	0.55654	8.13952
sky130_osu_sc_18T_ls__or2_8	A->Y (FF)	0.21966	0.61859	7.77697
	B->Y (FF)	0.20309	0.64325	8.04931
sky130_osu_sc_18T_ls__or2_l	A->Y (FF)	0.09073	0.63184	7.73043
	B->Y (FF)	0.07456	0.64046	8.09126

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	0.01057	0.02059	0.18317
	B	0.00000	0.00000	0.00000
	B	0.00759	0.01940	0.19825
sky130_osu_sc_18T_ls__or2_2	A	0.00000	0.00000	0.00000
	A	0.01859	0.02891	0.19250
	B	0.00000	0.00000	0.00000
	B	0.01538	0.02723	0.20588
sky130_osu_sc_18T_ls__or2_4	A	0.00000	0.00000	0.00000
	A	0.03670	0.04719	0.20844
	B	0.00000	0.00000	0.00000
	B	0.03321	0.04544	0.22007
sky130_osu_sc_18T_ls__or2_8	A	0.00000	0.00000	0.00000
	A	0.08423	0.08705	0.24208
	B	0.00000	0.00000	0.00000
	B	0.08008	0.08635	0.25351
sky130_osu_sc_18T_ls__or2_l	A	0.00000	0.00000	0.00000
	A	0.00765	0.01518	0.14472
	B	0.00000	0.00000	0.00000
	B	0.00578	0.01501	0.15685

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	0.02319	0.03186	0.20069
	B	0.00000	0.00000	0.00000
	B	0.01852	0.03230	0.24760
sky130_osu_sc_18T_ls__or2_2	A	0.00000	0.00000	0.00000
	A	0.03087	0.03796	0.20562
	B	0.00000	0.00000	0.00000
	B	0.02619	0.03799	0.25034
sky130_osu_sc_18T_ls__or2_4	A	0.00000	0.00000	0.00000
	A	0.05548	0.05403	0.21652
	B	0.00000	0.00000	0.00000
	B	0.05077	0.05459	0.25801
sky130_osu_sc_18T_ls__or2_8	A	0.00000	0.00000	0.00000
	A	0.12484	0.09246	0.24154
	B	0.00000	0.00000	0.00000
	B	0.12027	0.09380	0.27858
sky130_osu_sc_18T_ls__or2_l	A	0.00000	0.00000	0.00000
	A	0.01753	0.02422	0.15088
	B	0.00000	0.00000	0.00000
	B	0.01428	0.02480	0.18960

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)	-0.00519	-0.00625	-0.00637
sky130_osu_sc_18T_ls__or2_2	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00517	-0.00623	-0.00636
sky130_osu_sc_18T_ls__or2_4	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00514	-0.00620	-0.00633
sky130_osu_sc_18T_ls__or2_8	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00508	-0.00615	-0.00627
sky130_osu_sc_18T_ls__or2_l	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00367	-0.00438	-0.00447

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)	0.00656	0.00662	0.00660
sky130_osu_sc_18T_ls__or2_2	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00657	0.00663	0.00661
sky130_osu_sc_18T_ls__or2_4	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00660	0.00666	0.00664
sky130_osu_sc_18T_ls__or2_8	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00666	0.00672	0.00670
sky130_osu_sc_18T_ls__or2_l	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00461	0.00466	0.00463

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)	-0.00241	-0.00243	-0.00241
sky130_osu_sc_18T_ls__or2_2	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00240	-0.00241	-0.00240
sky130_osu_sc_18T_ls__or2_4	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00237	-0.00239	-0.00237
sky130_osu_sc_18T_ls__or2_8	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00231	-0.00233	-0.00231
sky130_osu_sc_18T_ls__or2_l	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00178	-0.00179	-0.00178

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)	0.00263	0.00263	0.00251
sky130_osu_sc_18T_ls__or2_2	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00265	0.00265	0.00253
sky130_osu_sc_18T_ls__or2_4	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00268	0.00268	0.00256
sky130_osu_sc_18T_ls__or2_8	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00274	0.00274	0.00262
sky130_osu_sc_18T_ls__or2_l	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00193	0.00193	0.00185

SKY130_OSU_SC_18T_LS__TBUFIx

sky130_osu_sc_18T_ls_ff_1P95_150C.ccs
Cell Library: Process , Voltage 1.95,
Temp 150.00

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	0.00600	0.00758	1.86583
sky130_osu_sc_18T_ls__tbufi_l	0.00465	0.00591	1.28186

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__tbufi_1	0.00000	5.91044	16.11380
sky130_osu_sc_18T_ls__tbufi_l	0.00000	4.32138	12.53450

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)	0.03213	0.70445	9.66264
	OE->Y (FR)	0.04292	0.40568	5.34331
	OE->Y (RR)	0.06522	0.53510	6.36044
sky130_osu_sc_18T_ls__tbufi_l	A->Y (FR)	0.03736	0.77510	9.65609
	OE->Y (FR)	0.04506	0.40547	5.34309
	OE->Y (RR)	0.07038	0.59781	6.22211

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)	0.02967	0.59278	8.10196
	OE->Y (FF)	0.04372	0.40567	5.34331
	OE->Y (RF)	0.02677	0.54160	7.44085
sky130_osu_sc_18T_ls__tbufi_l	A->Y (RF)	0.03281	0.62123	7.70225
	OE->Y (FF)	0.04575	0.40545	5.34308
	OE->Y (RF)	0.03059	0.57546	7.04378

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	0.00965	0.01459	0.06884
	OE	0.00000	0.00000	0.00000
	OE	0.01069	0.02594	0.26006
sky130_osu_sc_18T_ls__tbufi_l	A	0.00000	0.00000	0.00000
	A	0.00732	0.01098	0.05453
	OE	0.00000	0.00000	0.00000
	OE	0.00761	0.01972	0.20478

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	-0.00127	0.00255	0.04719
	OE	0.00000	0.00000	0.00000
	OE	0.00687	0.02337	0.28643
sky130_osu_sc_18T_ls__tbufi_l	A	0.00000	0.00000	0.00000
	A	-0.00080	0.00201	0.03819
	OE	0.00000	0.00000	0.00000
	OE	0.00480	0.01750	0.21822

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)	-0.00460	-0.00463	-0.00461
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	-0.00371	-0.00379	-0.00372
sky130_osu_sc_18T_ls__tbufi_l	(!OE * Y)	0.00000	0.00000	0.00000
	(!OE * Y)	-0.00348	-0.00350	-0.00349
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	-0.00287	-0.00293	-0.00289

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)	0.00460	0.00463	0.00461
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	0.00384	0.00388	0.00381
sky130_osu_sc_18T_ls__tbufi_l	(!OE * Y)	0.00000	0.00000	0.00000
	(!OE * Y)	0.00348	0.00350	0.00349
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	0.00297	0.00299	0.00294

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)	0.00431	0.02152	0.28903
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00374	0.02088	0.28835
sky130_osu_sc_18T_ls__tbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00294	0.01627	0.22154
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00253	0.01579	0.22101

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)	0.01110	0.02852	0.29531
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.01097	0.02851	0.29532
sky130_osu_sc_18T_ls__tbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00864	0.02193	0.22660
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00857	0.02194	0.22661

SKY130_OSU_SC_18T_LS__TNBUFIx

sky130_osu_sc_18T_ls_ff_1P95_150C.ccs
Cell Library: Process , Voltage 1.95,
Temp 150.00

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	0.00600	0.00950	1.86580
sky130_osu_sc_18T_ls__tnbufi_l	0.00464	0.00708	1.28189

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__tnbufi_1	0.00000	7.98748	9.88302
sky130_osu_sc_18T_ls__tnbufi_l	0.00000	6.03955	7.38022

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)	0.03217	0.70451	9.66030
	OE->Y (RR)	0.02827	0.40693	5.34449
	OE->Y (FR)	0.04367	0.67184	9.03966
sky130_osu_sc_18T_ls__tnbufi_l	A->Y (FR)	0.03751	0.77498	9.65558
	OE->Y (RR)	0.02959	0.40722	5.34486
	OE->Y (FR)	0.04800	0.74003	8.97979

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)	0.02932	0.59264	8.10215
	OE->Y (RF)	0.02805	0.40695	5.34446
	OE->Y (FF)	0.04577	0.49855	6.15050
sky130_osu_sc_18T_ls__tnbufi_l	A->Y (RF)	0.03240	0.62107	7.70228
	OE->Y (RF)	0.02936	0.40723	5.34486
	OE->Y (FF)	0.05123	0.55283	6.03154

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	0.00970	0.01469	0.06850
	OE	0.00000	0.00000	0.00000
	OE	0.02468	0.04331	0.30743
sky130_osu_sc_18T_ls__tnbufi_l	A	0.00000	0.00000	0.00000
	A	0.00741	0.01100	0.05462
	OE	0.00000	0.00000	0.00000
	OE	0.01824	0.03234	0.23557

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	-0.00172	0.00213	0.04680
	OE	0.00000	0.00000	0.00000
	OE	0.02125	0.03872	0.27604
sky130_osu_sc_18T_ls__tnbufi_l	A	0.00000	0.00000	0.00000
	A	-0.00121	0.00161	0.03774
	OE	0.00000	0.00000	0.00000
	OE	0.01573	0.02870	0.20634

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)	-0.00397	-0.00400	-0.00398
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	-0.00305	-0.00308	-0.00307
sky130_osu_sc_18T_ls__tnbufi_l	(OE * Y)	0.00000	0.00000	0.00000
	(OE * Y)	-0.00289	-0.00290	-0.00289
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	-0.00225	-0.00230	-0.00226

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)	0.00397	0.00400	0.00398
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	0.00329	0.00331	0.00326
sky130_osu_sc_18T_ls__tnbufi_l	(OE * Y)	0.00000	0.00000	0.00000
	(OE * Y)	0.00289	0.00290	0.00289
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	0.00242	0.00244	0.00240

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)	-0.00750	0.00967	0.27779
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00764	0.00967	0.27780
sky130_osu_sc_18T_ls__tnbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	-0.00521	0.00809	0.21377
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00530	0.00806	0.21379

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)	0.01834	0.03781	0.30616
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.01804	0.03752	0.30588
sky130_osu_sc_18T_ls__tnbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.01364	0.02829	0.23410
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.01339	0.02816	0.23394

SKY130_OSU_SC_18T_LS__XNOR2

sky130_osu_sc_18T_ls_ff_1P95_150C.ccs
Cell Library: Process , Voltage 1.95,
Temp 150.00

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	0.01188	0.01094	1.91309

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__xnor2_l	0.00000	17.80420	25.42980

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	0.08178	0.56855	6.56210
	A->Y (FR)	!B	0.04097	0.71347	9.72070
	B->Y (RR)	A	0.06498	0.55761	6.73425
	B->Y (FR)	!A	0.05899	0.69556	9.26753

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	0.08469	0.58119	6.69697
	A->Y (RF)	!B	0.04153	0.58715	7.97011
	B->Y (FF)	A	0.07124	0.56957	6.71563
	B->Y (RF)	!A	0.05433	0.60127	7.95524

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	0.01111	0.02555	0.25796
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.02309	0.04354	0.34914
	B	A	0.00000	0.00000	0.00000
	B	A	0.00302	0.01990	0.28663
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.02655	0.04532	0.33875

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	0.02986	0.04546	0.30375
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00697	0.02518	0.32036
	B	A	0.00000	0.00000	0.00000
	B	A	0.02727	0.04456	0.31071
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00879	0.02678	0.31806

SKY130_OSU_SC_18T_LS__XOR2

sky130_osu_sc_18T_ls_ff_1P95_150C.ccs
Cell Library: Process , Voltage 1.95,
Temp 150.00

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	0.01187	0.01099	1.90239

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__xor2_l	0.00000	17.80430	25.83580

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	0.07567	0.55851	6.66863
	A->Y (FR)	B	0.05406	0.69625	9.36844
	B->Y (RR)	!A	0.06683	0.55711	6.70825
	B->Y (FR)	A	0.05770	0.69792	9.32554

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	0.06956	0.55419	6.34445
	A->Y (RF)	B	0.04340	0.61415	8.19133
	B->Y (FF)	!A	0.06615	0.55539	6.53535
	B->Y (RF)	A	0.05099	0.58148	7.67597

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	0.02827	0.04825	0.35575
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00451	0.01918	0.28174
	B	A	0.00000	0.00000	0.00000
	B	A	0.02926	0.04916	0.35070
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00230	0.01905	0.28894

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	0.00582	0.02485	0.33191
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.03029	0.04653	0.28308
	B	A	0.00000	0.00000	0.00000
	B	A	0.00586	0.02408	0.32221
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.02769	0.04545	0.31468

SKY130_OSU_SC_18T_LS_x

sky130_osu_sc_18T_ls_ff_1P95_150C.ccs
Cell Library: Process , Voltage 1.95,
Temp 150.00

Truth Table

INPUT
A
x

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__ant	6.59340
sky130_osu_sc_18T_ls__tiehi	6.59340
sky130_osu_sc_18T_ls__tielo	6.59340

Pin Capacitance Information

Cell Name	Pin Cap(pf)
	A
sky130_osu_sc_18T_ls__ant	1.26700
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	559015.00000	1118030.00000
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
	-0.00065	0.18866	2.44210

Passive power(pJ) for A falling :

Cell Name	Power(pJ)		
	first	mid	last
sky130_osu_sc_18T_ls__ant	0.00000	0.00000	0.00000
	9.72527	9.22097	2.86571