sky130_osu_sc_18T_ls_tt_2P10_25C.ccs Library

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

SKY130_OSU_SC_18T_LS__ADDFx

sky130_osu_sc_18T_ls_tt_2P10_25C.ccs
Cell Library: Process , Voltage 2.10,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__addf_1	46.88640
sky130_osu_sc_18T_ls__addf_l	46.88640

Pin Capacitance Information

Cell Name	Pin Cap(pf)			Max Cap(pf)		
	A	B	CI	CO	CON	S
sky130_osu_sc_18T_ls__addf_1	0.02264	0.02255	0.01727	3.17624	1.53126	3.07611
sky130_osu_sc_18T_ls__addf_l	0.02263	0.02254	0.01725	2.16963	1.53389	2.16779

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__addf_1	0.00000	0.01961	0.02393
sky130_osu_sc_18T_ls__addf_l	0.00000	0.01675	0.02280

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)	0.12774	1.55259	24.81200
	B->CO (RR)	0.10888	1.46921	23.56380
	CI->CO (RR)	0.12242	1.60086	25.54980
	CON->CO (FR)	0.02646	0.71701	11.16760
sky130_osu_sc_18T_ls__addf_1	A->CO (RR)	0.12841	1.44680	20.05130
	B->CO (RR)	0.12213	1.39130	19.24900
	CI->CO (RR)	0.12306	1.49641	20.82660
	CON->CO (FR)	0.02946	0.77755	11.12030

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)	0.16873	1.88432	29.69850
	B->CO (FF)	0.14837	1.82017	28.85820
	CI->CO (FF)	0.14545	1.89794	30.24120
	CON->CO (RF)	0.02187	0.57420	9.02795
sky130_osu_sc_18T_ls__addf_1	A->CO (FF)	0.16476	1.69729	23.22380
	B->CO (FF)	0.14473	1.64648	22.78640
	CI->CO (FF)	0.14148	1.71190	23.78160
	CON->CO (RF)	0.02322	0.59721	8.54605

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)	0.13320	0.88620	10.33200
	B->CON (FR)	0.11327	0.86281	10.38480
	CI->CON (FR)	0.10993	0.90215	10.92370
sky130_osu_sc_18T_ls__addf_1	A->CON (FR)	0.12600	0.88007	10.33670
	B->CON (FR)	0.10666	0.85685	10.38850
	CI->CON (FR)	0.10274	0.89565	10.92830

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)	0.08009	0.56685	6.63037
	B->CON (RF)	0.07630	0.57482	6.77954
	CI->CON (RF)	0.07479	0.61905	7.45549
sky130_osu_sc_18T_ls__addf_1	A->CON (RF)	0.07714	0.56355	6.63516
	B->CON (RF)	0.07367	0.57242	6.78399
	CI->CON (RF)	0.07183	0.61642	7.46028

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)	0.24729	1.71545	23.58700
	B->S (-R)	0.23020	1.66918	22.79180
	CI->S (-R)	0.22243	1.72626	24.13030
	CON->S (RR)	0.07415	0.55831	6.88145
sky130_osu_sc_18T_ls__addf_1	A->S (-R)	0.23619	1.59987	19.70620
	B->S (-R)	0.22010	1.57030	19.33220
	CI->S (-R)	0.21133	1.61135	20.26630
	CON->S (RR)	0.07389	0.60468	6.82536

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)	0.20502	1.39314	18.61430
	B->S (-F)	0.20347	1.33670	17.84400
	CI->S (-F)	0.19925	1.43864	19.36130
	CON->S (FF)	0.08587	0.63795	7.32900
sky130_osu_sc_18T_ls__addf_l	A->S (-F)	0.19394	1.27687	15.21330
	B->S (-F)	0.18732	1.22336	14.74370
	CI->S (-F)	0.18807	1.32304	15.98410
	CON->S (FF)	0.08268	0.65205	7.04616

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	0.00578	0.00769	0.05262
	B	0.00674	0.00847	0.04732
	CI	0.00978	0.01196	0.05760
sky130_osu_sc_18T_ls__addf_l	A	0.00415	0.00559	0.03582
	B	0.00758	0.00822	0.03317
	CI	0.00815	0.00971	0.03974

Internal switching power(pJ) to CO falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__addf_1	A	0.02601	0.02911	0.10066
	B	0.02726	0.02989	0.09273
	CI	0.02160	0.02504	0.09726
sky130_osu_sc_18T_ls__addf_l	A	0.02437	0.02653	0.07316
	B	0.02563	0.02742	0.06823
	CI	0.01996	0.02248	0.07046

Internal switching power(pJ) to CON rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__addf_1	A	0.02596	0.02779	0.06388
	B	0.02722	0.02863	0.06094
	CI	0.02156	0.02371	0.06106
sky130_osu_sc_18T_ls__addf_l	A	0.02432	0.02601	0.06036
	B	0.02558	0.02699	0.05683
	CI	0.01994	0.02190	0.05753

Internal switching power(pJ) to CON falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__addf_1	A	0.00651	0.00700	0.02646
	B	0.00912	0.00973	0.03150
	CI	0.00974	0.01131	0.03673
sky130_osu_sc_18T_ls__addf_l	A	0.00493	0.00511	0.02366
	B	0.00751	0.00795	0.02863
	CI	0.00810	0.00949	0.03348

Internal switching power(pJ) to S rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__addf_1	A	0.02600	0.02905	0.09795
	B	0.02725	0.02980	0.09049
	CI	0.02159	0.02497	0.09491
sky130_osu_sc_18T_ls__addf_l	A	0.02436	0.02655	0.07314
	B	0.00003	-0.00234	0.06786
	CI	0.00524	0.00549	0.07077

Internal switching power(pJ) to S falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__addf_1	A	0.05889	0.05987	0.11750
	B	0.05153	0.05349	0.12459
	CI	0.04747	0.04821	0.10725
sky130_osu_sc_18T_ls__addf_l	A	0.05671	0.05740	0.11772
	B	0.04943	0.05157	0.12473
	CI	0.04537	0.04615	0.10755

SKY130_OSU_SC_18T_LS__ADDHx

sky130_osu_sc_18T_ls_tt_2P10_25C.ccs
Cell Library: Process , Voltage 2.10,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__addh_1	27.83880
sky130_osu_sc_18T_ls__addh_l	27.83880

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)		
	A	B	CO	CON	S
sky130_osu_sc_18T_ls__addh_1	0.01105	0.01207	3.11488	1.65127	3.19442
sky130_osu_sc_18T_ls__addh_l	0.01105	0.01207	1.83517	1.65538	1.85786

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__addh_1	0.00000	0.01943	0.02275
sky130_osu_sc_18T_ls__addh_l	0.00000	0.03447	0.04072

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)	0.08516	0.56360	6.68527
	B->CO (RR)	0.08828	0.55648	6.72845
sky130_osu_sc_18T_ls__addh_l	A->CO (RR)	0.08728	0.64433	6.72330
	B->CO (RR)	0.09043	0.63928	6.73979

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)	0.07588	0.60621	7.24413
	B->CO (FF)	0.08207	0.62116	7.29466
sky130_osu_sc_18T_ls__addh_l	A->CO (FF)	0.07528	0.63746	6.77322
	B->CO (FF)	0.08120	0.65194	6.82390

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	0.11961	0.46335	3.43919
	A->CON (FR)	!B	0.07098	0.83731	10.78150
	B->CON (RR)	A	0.12286	0.45579	3.48410
	B->CON (FR)	!A	0.08990	0.83185	10.36360
sky130_osu_sc_18T_ls__addh_l	A->CON (RR)	B	0.10683	0.43988	3.42451
	A->CON (FR)	!B	0.06270	0.82939	10.78890
	B->CON (RR)	A	0.11006	0.43464	3.43955
	B->CON (FR)	!A	0.08163	0.82276	10.37120

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	0.11454	0.63255	5.97363
	A->CON (RF)	!B	0.04675	0.58681	7.53731
	B->CON (FF)	A	0.11272	0.66934	6.43701
	B->CON (RF)	!A	0.05558	0.56793	7.09958
sky130_osu_sc_18T_ls__addh_l	A->CON (FF)	B	0.10372	0.60310	5.80664
	A->CON (RF)	!B	0.04325	0.58284	7.54506
	B->CON (FF)	A	0.10202	0.64016	6.26621
	B->CON (RF)	!A	0.05211	0.56445	7.10691

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	0.08997	1.52829	24.99040
	A->S (FR)	B	0.15836	1.55301	23.07340
	B->S (RR)	!A	0.09901	1.46328	23.63370
	B->S (FR)	A	0.15706	1.63615	24.47130
	CON->S (FR)	-	0.02992	0.74264	11.56360
sky130_osu_sc_18T_ls__addh_l	A->S (RR)	!B	0.09089	1.40834	19.08520
	A->S (FR)	B	0.15219	1.41607	17.14250
	B->S (RR)	!A	0.10020	1.35868	18.20940
	B->S (FR)	A	0.15086	1.48419	18.06300
	CON->S (FR)	-	0.03409	0.84529	11.63720

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	0.10264	1.73139	28.22380
	A->S (RF)	B	0.14873	1.14359	16.22000
	B->S (FF)	!A	0.12157	1.72779	27.85620
	B->S (RF)	A	0.15191	1.13557	16.26310
	CON->S (RF)	-	0.02057	0.55602	8.78902
sky130_osu_sc_18T_ls__addh_l	A->S (FF)	!B	0.09788	1.51129	20.47260
	A->S (RF)	B	0.13844	1.00654	11.37370
	B->S (FF)	!A	0.11683	1.50594	20.06760
	B->S (RF)	A	0.14165	1.00079	11.37840
	CON->S (RF)	-	0.02298	0.59755	8.29134

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	0.01162	0.01240	0.03674
	B	0.00000	0.00000	0.00000
	B	0.01021	0.01066	0.04563
sky130_osu_sc_18T_ls__addh_l	A	0.00000	0.00000	0.00000
	A	0.00940	0.01011	0.03836
	B	0.00000	0.00000	0.00000
	B	0.00800	0.00831	0.03901

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	0.01825	0.01900	0.05524
	B	0.00000	0.00000	0.00000
	B	0.01896	0.02096	0.05966
sky130_osu_sc_18T_ls__addh_l	A	0.00000	0.00000	0.00000
	A	0.01604	0.01666	0.04927
	B	0.00000	0.00000	0.00000
	B	0.01675	0.01836	0.05190

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	0.01161	0.01239	0.03796
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.01612	0.01687	0.03261
	B	A	0.00000	0.00000	0.00000
	B	A	0.01021	0.01063	0.04084
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01836	0.01884	0.03219
sky130_osu_sc_18T_ls__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.00939	0.01011	0.03818
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.01459	0.01508	0.02665
	B	A	0.00000	0.00000	0.00000
	B	A	0.00799	0.00834	0.03931
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01684	0.01700	0.02623

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	0.01826	0.01898	0.05270
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00209	0.00286	0.01504
	B	A	0.00000	0.00000	0.00000
	B	A	0.01896	0.02081	0.05691
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00381	0.00431	0.01487
sky130_osu_sc_18T_ls__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.01604	0.01666	0.04929
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00020	0.00062	0.00865
	B	A	0.00000	0.00000	0.00000
	B	A	0.01674	0.01836	0.05229
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00194	0.00214	0.00973

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	0.01826	0.01902	0.05550
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00212	0.00301	0.01658
	B	A	0.00000	0.00000	0.00000
	B	A	0.01897	0.02102	0.06014
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00384	0.00441	0.01620
sky130_osu_sc_18T_ls__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.01605	0.01667	0.04934
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00021	0.00062	0.00903
	B	A	0.00000	0.00000	0.00000
	B	A	0.01675	0.01838	0.05260
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00195	0.00211	0.00919

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	0.01163	0.01241	0.03816
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.01613	0.01740	0.03658
	B	A	0.00000	0.00000	0.00000
	B	A	0.01022	0.01065	0.04068
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01840	0.01919	0.03666
sky130_osu_sc_18T_ls__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.00941	0.01009	0.03891
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.01460	0.01531	0.02659
	B	A	0.00000	0.00000	0.00000
	B	A	0.00800	0.00830	0.03994
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01687	0.01712	0.02614

SKY130_OSU_SC_18T_LS__AND2x

sky130_osu_sc_18T_ls_tt_2P10_25C.ccs
Cell Library: Process , Voltage 2.10,
Temp 25.00

Truth Table

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

Footprint

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

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	**B**	**Y**
sky130_osu_sc_18T_ls__and2_1	0.00596	0.00607	3.16127
sky130_osu_sc_18T_ls__and2_2	0.00597	0.00608	6.07441
sky130_osu_sc_18T_ls__and2_4	0.00597	0.00608	11.47475
sky130_osu_sc_18T_ls__and2_6	0.00601	0.00609	16.84959
sky130_osu_sc_18T_ls__and2_8	0.00599	0.00611	21.56129
sky130_osu_sc_18T_ls__and2_l	0.00454	0.00465	2.16387

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__and2_1	0.00000	0.00941	0.01488
sky130_osu_sc_18T_ls__and2_2	0.00000	0.01487	0.01581
sky130_osu_sc_18T_ls__and2_4	0.00000	0.02580	0.02882
sky130_osu_sc_18T_ls__and2_6	0.00000	0.03672	0.04276
sky130_osu_sc_18T_ls__and2_8	0.00000	0.04764	0.05669
sky130_osu_sc_18T_ls__and2_l	0.00000	0.00616	0.00974

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)	0.06547	0.50356	6.60529
	B->Y (RR)	0.06929	0.50068	6.44896
sky130_osu_sc_18T_ls__and2_2	A->Y (RR)	0.07530	0.45718	6.58816
	B->Y (RR)	0.07917	0.44953	6.42742
sky130_osu_sc_18T_ls__and2_4	A->Y (RR)	0.10311	0.47466	6.75349
	B->Y (RR)	0.10701	0.45999	6.59954
sky130_osu_sc_18T_ls__and2_6	A->Y (RR)	0.13015	0.51183	6.95107
	B->Y (RR)	0.13400	0.49177	6.79401
sky130_osu_sc_18T_ls__and2_8	A->Y (RR)	0.15777	0.55286	7.08647
	B->Y (RR)	0.16170	0.52834	6.92481
sky130_osu_sc_18T_ls__and2_l	A->Y (RR)	0.07243	0.57032	6.56340
	B->Y (RR)	0.07659	0.56666	6.41242

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)	0.05962	0.54089	6.76255
	B->Y (FF)	0.06342	0.55297	6.83030
sky130_osu_sc_18T_ls__and2_2	A->Y (FF)	0.06774	0.50768	6.72595
	B->Y (FF)	0.07222	0.51855	6.80449
sky130_osu_sc_18T_ls__and2_4	A->Y (FF)	0.09236	0.52874	6.85673
	B->Y (FF)	0.09685	0.53764	6.93032
sky130_osu_sc_18T_ls__and2_6	A->Y (FF)	0.12047	0.56777	7.01233
	B->Y (FF)	0.12474	0.57471	7.07124
sky130_osu_sc_18T_ls__and2_8	A->Y (FF)	0.14627	0.60169	6.98673
	B->Y (FF)	0.15069	0.60833	7.04541
sky130_osu_sc_18T_ls__and2_l	A->Y (FF)	0.06360	0.58640	6.60590
	B->Y (FF)	0.06838	0.60084	6.69416

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	0.00836	0.01179	0.11143
	B	0.00000	0.00000	0.00000
	B	0.00844	0.01025	0.07866
sky130_osu_sc_18T_ls__and2_2	A	0.00000	0.00000	0.00000
	A	0.01746	0.02095	0.11959
	B	0.00000	0.00000	0.00000
	B	0.01757	0.01970	0.08797
sky130_osu_sc_18T_ls__and2_4	A	0.00000	0.00000	0.00000
	A	0.03739	0.04138	0.13415
	B	0.00000	0.00000	0.00000
	B	0.03744	0.04058	0.10566
sky130_osu_sc_18T_ls__and2_6	A	0.00000	0.00000	0.00000
	A	0.05926	0.06198	0.15450
	B	0.00000	0.00000	0.00000
	B	0.05954	0.06103	0.17129
sky130_osu_sc_18T_ls__and2_8	A	0.00000	0.00000	0.00000
	A	0.08264	0.08327	0.17287
	B	0.00000	0.00000	0.00000
	B	0.08297	0.08198	0.14586
sky130_osu_sc_18T_ls__and2_l	A	0.00000	0.00000	0.00000
	A	0.00608	0.00842	0.07974
	B	0.00000	0.00000	0.00000
	B	0.00619	0.00735	0.05907

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	0.02182	0.02721	0.10909
	B	0.00000	0.00000	0.00000
	B	0.02455	0.03014	0.10701
sky130_osu_sc_18T_ls__and2_2	A	0.00000	0.00000	0.00000
	A	0.02840	0.03407	0.11663
	B	0.00000	0.00000	0.00000
	B	0.03114	0.03694	0.11469
sky130_osu_sc_18T_ls__and2_4	A	0.00000	0.00000	0.00000
	A	0.04645	0.05174	0.13344
	B	0.00000	0.00000	0.00000
	B	0.04902	0.05312	0.13114
sky130_osu_sc_18T_ls__and2_6	A	0.00000	0.00000	0.00000
	A	0.06427	0.06892	0.15122
	B	0.00000	0.00000	0.00000
	B	0.06680	0.07044	0.14736
sky130_osu_sc_18T_ls__and2_8	A	0.00000	0.00000	0.00000
	A	0.08679	0.08667	0.16949
	B	0.00000	0.00000	0.00000
	B	0.08912	0.08807	0.16310
sky130_osu_sc_18T_ls__and2_l	A	0.00000	0.00000	0.00000
	A	0.01669	0.02040	0.07699
	B	0.00000	0.00000	0.00000
	B	0.01875	0.02201	0.07715

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)	-0.00866	-0.00873	-0.00871
sky130_osu_sc_18T_ls__and2_2	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00866	-0.00873	-0.00871
sky130_osu_sc_18T_ls__and2_4	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00866	-0.00873	-0.00871
sky130_osu_sc_18T_ls__and2_6	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00870	-0.00876	-0.00875
sky130_osu_sc_18T_ls__and2_8	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00866	-0.00873	-0.00871
sky130_osu_sc_18T_ls__and2_l	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00626	-0.00630	-0.00630

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)	0.00868	0.00878	0.00874
sky130_osu_sc_18T_ls__and2_2	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00869	0.00878	0.00874
sky130_osu_sc_18T_ls__and2_4	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00869	0.00877	0.00874
sky130_osu_sc_18T_ls__and2_6	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00872	0.00881	0.00878
sky130_osu_sc_18T_ls__and2_8	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00869	0.00877	0.00874
sky130_osu_sc_18T_ls__and2_l	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00627	0.00634	0.00631

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)	-0.00823	-0.00828	-0.00825
sky130_osu_sc_18T_ls__and2_2	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00823	-0.00828	-0.00826
sky130_osu_sc_18T_ls__and2_4	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00824	-0.00825	-0.00826
sky130_osu_sc_18T_ls__and2_6	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00823	-0.00827	-0.00826
sky130_osu_sc_18T_ls__and2_8	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00823	-0.00827	-0.00826
sky130_osu_sc_18T_ls__and2_l	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00595	-0.00599	-0.00596

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)	0.00831	0.00831	0.00828
sky130_osu_sc_18T_ls__and2_2	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00830	0.00831	0.00828
sky130_osu_sc_18T_ls__and2_4	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00830	0.00831	0.00828
sky130_osu_sc_18T_ls__and2_6	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00830	0.00831	0.00828
sky130_osu_sc_18T_ls__and2_8	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00830	0.00831	0.00828
sky130_osu_sc_18T_ls__and2_l	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00599	0.00599	0.00597

SKY130_OSU_SC_18T_LS__AOI21

sky130_osu_sc_18T_ls_tt_2P10_25C.ccs
Cell Library: Process , Voltage 2.10,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__aoi21_l	12.45420

Pin Capacitance Information

Cell Name	Pin Cap(pf)			Max Cap(pf)
	A0	A1	B0	Y
sky130_osu_sc_18T_ls__aoi21_l	0.00568	0.00587	0.00569	1.51567

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__aoi21_l	0.00000	0.00397	0.00697

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)	0.07165	0.82255	10.23930
	A1->Y (FR)	0.06138	0.78228	9.83745
	B0->Y (FR)	0.05128	0.83690	10.81560

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)	0.04415	0.50422	6.20509
	A1->Y (RF)	0.04028	0.53670	6.71689
	B0->Y (RF)	0.02705	0.52846	6.85756

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	0.02033	0.02037	0.03413
	A1	0.00000	0.00000	0.00000
	A1	0.01719	0.01727	0.03066
	B0	0.01186	0.01236	0.03103

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	0.00354	0.00336	0.01593
	A1	0.00000	0.00000	0.00000
	A1	0.00364	0.00390	0.01883
	B0	-0.00242	-0.00150	0.01235

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)	-0.00721	-0.00780	-0.00774
	(!A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !Y)	-0.00783	-0.00790	-0.00785
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00784	-0.00787	-0.00785

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)	0.00769	0.00780	0.00774
	(!A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !Y)	0.00783	0.00791	0.00788
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00790	0.00790	0.00788

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)	-0.00718	-0.00773	-0.00767
	(!A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !Y)	-0.00776	-0.00777	-0.00777
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	-0.00832	-0.00837	-0.00837

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)	0.00763	0.00773	0.00767
	(!A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !Y)	0.00776	0.00784	0.00779
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	0.00834	0.00843	0.00839

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)	-0.00327	-0.00329	-0.00328

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)	0.00354	0.00355	0.00335

SKY130_OSU_SC_18T_LS__AOI22

sky130_osu_sc_18T_ls_tt_2P10_25C.ccs
Cell Library: Process , Voltage 2.10,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__aoi22_1	15.38460

Pin Capacitance Information

Cell Name	Pin Cap(pf)				Max Cap(pf)
	A0	A1	B0	B1	Y
sky130_osu_sc_18T_ls__aoi22_1	0.00569	0.00588	0.00606	0.00583	1.45346

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__aoi22_1	0.00000	0.00526	0.01394

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)	0.09051	0.84596	10.17350
	A1->Y (FR)	0.08067	0.82039	9.96951
	B0->Y (FR)	0.05401	0.82718	10.55680
	B1->Y (FR)	0.06404	0.86215	10.84240

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)	0.05906	0.51338	6.04942
	A1->Y (RF)	0.05522	0.54638	6.55552
	B0->Y (RF)	0.02880	0.51208	6.52818
	B1->Y (RF)	0.03283	0.48023	6.02474

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	0.02532	0.02527	0.03916
	A1	0.02221	0.02210	0.03602
	B0	0.01287	0.01360	0.03591
	B1	0.01596	0.01700	0.03826

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__aoi22_l	A0	0.00799	0.00774	0.02122
	A1	0.00810	0.00828	0.02414
	B0	-0.00165	-0.00068	0.01507
	B1	-0.00151	-0.00107	0.01229

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)	-0.00736	-0.00777	-0.00774
	(!A1 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * B1 * !Y)	-0.00783	-0.00783	-0.00785
	(!A1 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !B1 * Y)	-0.00783	-0.00788	-0.00785
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00784	-0.00787	-0.00785

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)	0.00770	0.00777	0.00774
	(!A1 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * B1 * !Y)	0.00783	0.00791	0.00788
	(!A1 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !B1 * Y)	0.00790	0.00790	0.00787
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00790	0.00790	0.00787

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)	-0.00731	-0.00769	-0.00767
	(!A0 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * B1 * !Y)	-0.00776	-0.00781	-0.00777
	(!A0 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !B1 * Y)	-0.00832	-0.00837	-0.00836
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	-0.00832	-0.00837	-0.00836

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)	0.00762	0.00769	0.00767
	(!A0 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * B1 * !Y)	0.00776	0.00784	0.00780
	(!A0 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !B1 * Y)	0.00834	0.00843	0.00839
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	0.00834	0.00842	0.00839

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)	-0.00328	-0.00331	-0.00330
	(A0 * A1 * !B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B1 * !Y)	-0.00327	-0.00330	-0.00329
	(!A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B1 * Y)	-0.00849	-0.00854	-0.00855
	(!A0 * A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B1 * Y)	-0.00849	-0.00855	-0.00856

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)	0.00366	0.00368	0.00339
	(A0 * A1 * !B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B1 * !Y)	0.00327	0.00330	0.00329
	(!A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B1 * Y)	0.00852	0.00862	0.00857
	(!A0 * A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B1 * Y)	0.00852	0.00868	0.00857

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)	-0.00330	-0.00333	-0.00332
	(A0 * A1 * !B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B0 * !Y)	-0.00329	-0.00332	-0.00331
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00794	-0.00797	-0.00796
	(!A0 * A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B0 * Y)	-0.00794	-0.00795	-0.00796

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)	0.00368	0.00369	0.00341
	(A0 * A1 * !B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B0 * !Y)	0.00330	0.00332	0.00331
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00800	0.00800	0.00798
	(!A0 * A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B0 * Y)	0.00800	0.00801	0.00798

SKY130_OSU_SC_18T_LS__BUFx

sky130_osu_sc_18T_ls_tt_2P10_25C.ccs
Cell Library: Process , Voltage 2.10,
Temp 25.00

Truth Table

INPUT	OUTPUT
A	Y
0	0
1	1

Footprint

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

Pin Capacitance Information

Cell Name	Pin Cap(pf)	Max Cap(pf)
	A	Y
sky130_osu_sc_18T_ls__buf_1	0.00607	3.13551
sky130_osu_sc_18T_ls__buf_2	0.00607	6.11937
sky130_osu_sc_18T_ls__buf_4	0.00607	11.68365
sky130_osu_sc_18T_ls__buf_6	0.00098	1.80000
sky130_osu_sc_18T_ls__buf_8	0.00610	22.27276
sky130_osu_sc_18T_ls__buf_l	0.00468	2.16849

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__buf_1	0.00000	0.00791	0.00791
sky130_osu_sc_18T_ls__buf_2	0.00000	0.01186	0.01488
sky130_osu_sc_18T_ls__buf_4	0.00000	0.01977	0.02882
sky130_osu_sc_18T_ls__buf_6	0.00000	0.00000	0.00000
sky130_osu_sc_18T_ls__buf_8	0.00000	0.03558	0.05669
sky130_osu_sc_18T_ls__buf_l	0.00000	0.00506	0.00506

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)**	0.05261	0.47211	6.33391
sky130_osu_sc_18T_ls__buf_2	**A->Y (RR)**	0.05865	0.41850	6.36578
sky130_osu_sc_18T_ls__buf_4	**A->Y (RR)**	0.07877	0.42304	6.54980
sky130_osu_sc_18T_ls__buf_8	**A->Y (RR)**	0.11738	0.48123	6.87639
sky130_osu_sc_18T_ls__buf_l	**A->Y (RR)**	0.05821	0.53659	6.31202

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)**	0.05652	0.53159	6.75326
sky130_osu_sc_18T_ls__buf_2	**A->Y (FF)**	0.06541	0.50451	6.83836
sky130_osu_sc_18T_ls__buf_4	**A->Y (FF)**	0.09012	0.52637	6.99609
sky130_osu_sc_18T_ls__buf_8	**A->Y (FF)**	0.14382	0.60153	7.18889
sky130_osu_sc_18T_ls__buf_l	**A->Y (FF)**	0.06121	0.58141	6.66657

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	0.00771	0.01127	0.08962
sky130_osu_sc_18T_ls__buf_2	A	0.00000	0.00000	0.00000
	A	0.01674	0.02069	0.09962
sky130_osu_sc_18T_ls__buf_4	A	0.00000	0.00000	0.00000
	A	0.03621	0.04105	0.11966
sky130_osu_sc_18T_ls__buf_8	A	0.00000	0.00000	0.00000
	A	0.07784	0.08225	0.15873
sky130_osu_sc_18T_ls__buf_l	A	0.00000	0.00000	0.00000
	A	0.00575	0.00817	0.06867

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	0.02082	0.02706	0.10753
sky130_osu_sc_18T_ls__buf_2	A	0.00000	0.00000	0.00000
	A	0.02734	0.03353	0.11400
sky130_osu_sc_18T_ls__buf_4	A	0.00000	0.00000	0.00000
	A	0.04515	0.05020	0.13085
sky130_osu_sc_18T_ls__buf_8	A	0.00000	0.00000	0.00000
	A	0.08553	0.08420	0.16385
sky130_osu_sc_18T_ls__buf_l	A	0.00000	0.00000	0.00000
	A	0.01607	0.02036	0.07756

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
	-0.00104	-0.00105	-0.00104

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
	0.00104	0.00105	0.00104

SKY130_OSU_SC_18T_LS__DFFRx

sky130_osu_sc_18T_ls_tt_2P10_25C.ccs
Cell Library: Process , Voltage 2.10,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__dffr_1	63.73620
sky130_osu_sc_18T_ls__dffr_l	63.73620

Pin Capacitance Information

Cell Name	Pin Cap(pf)			Max Cap(pf)	
	D	RN	CK	Q	QN
sky130_osu_sc_18T_ls__dffr_1	0.00584	0.00580	0.01654	3.03723	3.03023
sky130_osu_sc_18T_ls__dffr_l	0.00584	0.00580	0.01654	2.17648	2.16725

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__dffr_1	0.00000	0.02910	0.03834
sky130_osu_sc_18T_ls__dffr_l	0.00000	0.02625	0.03549

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)	0.24354	1.20467	15.42950
	QN->Q (FR)	0.03102	0.80647	12.46850
sky130_osu_sc_18T_ls__dffr_l	CK->Q (RR)	0.23855	1.30404	15.15910
	QN->Q (FR)	0.03247	0.84372	12.11750

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)	0.25092	1.20914	15.51820
	QN->Q (RF)	0.02546	0.67968	10.52200
	RN->Q (FF)	0.18929	1.29121	17.40240
sky130_osu_sc_18T_ls__dffr_l	CK->Q (RF)	0.25316	1.32553	15.37470
	QN->Q (RF)	0.02576	0.68196	9.80808
	RN->Q (FF)	0.19190	1.40810	17.25300

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)	0.22248	0.66692	6.42521
	RN->QN (FR)	0.16088	0.74896	8.30809
sky130_osu_sc_18T_ls__dffr_l	CK->QN (RR)	0.22225	0.72154	6.46996
	RN->QN (FR)	0.16096	0.80375	8.34704

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)**	0.20489	0.58800	5.13903
sky130_osu_sc_18T_ls__dffr_l	**CK->QN (RF)**	0.19664	0.60460	4.89909

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)	-0.05959	-0.07003	0.05026
	setup	CK (R)	0.19127	0.23014	0.62815
sky130_osu_sc_18T_ls__dffr_l	hold	CK (R)	-0.05953	-0.07015	0.04996
	setup	CK (R)	0.19156	0.23480	0.62397

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)	-0.10523	-0.31997	-3.24208
	setup	CK (R)	0.12964	0.32936	3.83291
sky130_osu_sc_18T_ls__dffr_l	hold	CK (R)	-0.10325	-0.31748	-3.29465
	setup	CK (R)	0.13057	0.32936	3.83291

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)	-0.05959	-0.07003	0.05026
	setup	CK (R)	0.19127	0.23014	0.62815
sky130_osu_sc_18T_ls__dffr_l	hold	CK (R)	-0.05953	-0.07015	0.04996
	setup	CK (R)	0.19156	0.23480	0.62397

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)	-0.10523	-0.31997	-3.24208
	setup	CK (R)	0.12964	0.32936	3.83291
sky130_osu_sc_18T_ls__dffr_l	hold	CK (R)	-0.10325	-0.31748	-3.29465
	setup	CK (R)	0.13057	0.32936	3.83291

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)	0.15654	0.19747	0.87824
	removal	CK (R)	-0.03260	-0.03784	-0.08417
sky130_osu_sc_18T_ls__dffr_l	recovery	CK (R)	0.15691	0.19855	0.87281
	removal	CK (R)	-0.03260	-0.03784	-0.08417

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)	0.15654	0.19747	0.87824
	removal	CK (R)	-0.03260	-0.03784	-0.08417
sky130_osu_sc_18T_ls__dffr_l	recovery	CK (R)	0.15691	0.19855	0.87281
	removal	CK (R)	-0.03260	-0.03784	-0.08417

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 ()	0.11108	0.50781	13.33370
	min_pulse_width	RN ()	0.11108	0.50781	13.33370
sky130_osu_sc_18T_ls__dffr_l	min_pulse_width	RN ()	0.11108	0.50781	13.33370
	min_pulse_width	RN ()	0.10727	0.50781	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 ()	0.11490	0.50781	13.33370
	min_pulse_width	CK ()	0.12634	0.50781	13.33370
sky130_osu_sc_18T_ls__dffr_l	min_pulse_width	CK ()	0.10727	0.50781	13.33370
	min_pulse_width	CK ()	0.12253	0.50781	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 ()	0.24841	0.50781	13.33370
	min_pulse_width	CK ()	0.10346	0.50781	13.33370
sky130_osu_sc_18T_ls__dffr_l	min_pulse_width	CK ()	0.25223	0.50781	13.33370
	min_pulse_width	CK ()	0.10346	0.50781	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	0.02018	0.01548	0.00000
sky130_osu_sc_18T_ls__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.01767	0.01573	0.02657

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	0.02422	0.02103	0.00000
	RN	-0.00265	-0.19248	-3.34850
	RN	0.05639	0.05424	0.03444
sky130_osu_sc_18T_ls__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.02174	0.02035	0.03721
	RN	-0.00265	-0.15760	-2.39955
	RN	0.05388	0.05362	0.07274

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	0.02421	0.02105	0.00000
	RN	-0.00265	-0.19221	-3.34030
	RN	0.05637	0.05427	0.03439
sky130_osu_sc_18T_ls__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.02173	0.02036	0.03724
	RN	-0.00265	-0.15719	-2.38927
	RN	0.05387	0.05358	0.07218

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	0.02012	0.01543	0.00000
sky130_osu_sc_18T_ls__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.01761	0.01580	0.02566

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	-0.00686	-0.00771	-0.00770
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.02546	0.02633	0.10074
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.01146	0.01254	0.08693
sky130_osu_sc_18T_ls__dffr_l	CK	0.00000	0.00000	0.00000
	CK	-0.00686	-0.00771	-0.00770
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.02546	0.02633	0.10074
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.01146	0.01254	0.08693

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	0.00765	0.00773	0.00770
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.04494	0.04606	0.12183
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.02102	0.02229	0.09674
sky130_osu_sc_18T_ls__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.00765	0.00773	0.00770
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.04494	0.04606	0.12183
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.02102	0.02226	0.09674

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)	0.00755	0.01115	0.12343
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.02205	0.02521	0.13914
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)	0.00755	0.01115	0.12343
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.02205	0.02521	0.13914

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)	0.01917	0.02397	0.13646
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.04230	0.04631	0.15995
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)	0.01916	0.02397	0.13646
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.04230	0.04631	0.15995

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)	-0.00210	0.00102	0.11245
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.01233	0.01382	0.12829
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	-0.00291	0.00053	0.11109
sky130_osu_sc_18T_ls__dffr_l	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	-0.00210	0.00102	0.11245
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.01233	0.01382	0.12831
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	-0.00291	0.00054	0.11109

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)	0.02927	0.03447	0.14640
	(D * RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * RN * !Q * QN)	0.06663	0.07019	0.20642
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.05142	0.05531	0.16834
	(!D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * Q * !QN)	0.06489	0.07343	0.25238
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.03479	0.03944	0.14933
sky130_osu_sc_18T_ls__dffr_l	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.02927	0.03447	0.14640
	(D * RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * RN * !Q * QN)	0.06663	0.07019	0.20642
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.05142	0.05531	0.16834
	(!D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * Q * !QN)	0.06489	0.07342	0.25238
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.03479	0.03944	0.14933

SKY130_OSU_SC_18T_LS__DFFSRx

sky130_osu_sc_18T_ls_tt_2P10_25C.ccs
Cell Library: Process , Voltage 2.10,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__dffsr_1	69.59700
sky130_osu_sc_18T_ls__dffsr_l	69.59700

Pin Capacitance Information

Cell Name	Pin Cap(pf)				Max Cap(pf)	
	D	**RN**	**SN**	**CK**	**Q**	**QN**
sky130_osu_sc_18T_ls__dffsr_1	0.00580	0.00581	0.01237	0.01678	3.19785	3.17133
sky130_osu_sc_18T_ls__dffsr_l	0.00580	0.00581	0.01236	0.01678	2.17900	2.16753

Leakage Information

Cell Name	Leakage(nW)		
	Min.	**Avg**	**Max.**
sky130_osu_sc_18T_ls__dffsr_1	0.00000	0.03070	0.03921
sky130_osu_sc_18T_ls__dffsr_l	0.00000	0.02785	0.03636

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)	0.25325	1.20590	15.51590
	QN->Q (FR)	0.02944	0.78695	12.32690
	RN->Q (RR)	0.20306	1.16713	15.56680
	SN->Q (FR)	0.18910	1.29231	17.57560
sky130_osu_sc_18T_ls__dffsr_l	CK->Q (RR)	0.25553	1.32685	15.19260
	QN->Q (FR)	0.03239	0.84144	12.08880
	RN->Q (RR)	0.20453	1.28702	15.23040
	SN->Q (FR)	0.19164	1.41016	17.22800

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)	0.28075	1.23000	15.64770
	QN->Q (RF)	0.02319	0.63568	9.98837
	RN->Q (FF)	0.19447	1.29172	17.53510
sky130_osu_sc_18T_ls__dffsr_l	CK->Q (RF)	0.28694	1.36303	15.41800
	QN->Q (RF)	0.02570	0.68002	9.80180
	RN->Q (FF)	0.20045	1.42456	17.30060

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)	0.25340	0.69827	6.52441
	RN->QN (FR)	0.16119	0.75370	8.41204
sky130_osu_sc_18T_ls__dffsr_l	CK->QN (RR)	0.25581	0.75840	6.50069
	RN->QN (FR)	0.16947	0.81996	8.39519

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)	0.21686	0.59703	5.11103
	RN->QN (RF)	0.16710	0.55876	5.16860
	SN->QN (FF)	0.15323	0.68319	7.16799
sky130_osu_sc_18T_ls__dffsr_l	CK->QN (RF)	0.21443	0.62803	4.92388
	RN->QN (RF)	0.16517	0.59057	4.97793
	SN->QN (FF)	0.15099	0.71109	6.97160

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)	-0.06388	-0.07563	0.01472
	setup	CK (R)	0.19439	0.23589	0.69333
sky130_osu_sc_18T_ls__dffsr_l	hold	CK (R)	-0.06298	-0.07619	0.01448
	setup	CK (R)	0.19334	0.23135	0.69301

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)	-0.11350	-0.33335	-3.15255
	setup	CK (R)	0.14313	0.34604	3.87455
sky130_osu_sc_18T_ls__dffsr_l	hold	CK (R)	-0.11497	-0.33341	-3.15226
	setup	CK (R)	0.14313	0.34604	3.87455

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)	-0.06388	-0.07563	0.01472
	setup	CK (R)	0.19439	0.23589	0.69333
sky130_osu_sc_18T_ls__dffsr_l	hold	CK (R)	-0.06298	-0.07619	0.01448
	setup	CK (R)	0.19334	0.23135	0.69301

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)	-0.11350	-0.33335	-3.15255
	setup	CK (R)	0.14313	0.34604	3.87455
sky130_osu_sc_18T_ls__dffsr_l	hold	CK (R)	-0.11497	-0.33341	-3.15226
	setup	CK (R)	0.14313	0.34604	3.87455

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)	0.14324	0.18288	0.85420
	removal	CK (R)	-0.01704	-0.02212	-0.04757
	hold	SN (R)	-0.14491	-0.28142	-1.07535
	setup	SN (R)	0.16791	0.32853	3.64197
sky130_osu_sc_18T_ls__dffsr_l	recovery	CK (R)	0.14319	0.18220	0.85578
	removal	CK (R)	-0.01704	-0.02212	-0.04757
	hold	SN (R)	-0.13943	-0.27307	-1.04373
	setup	SN (R)	0.16591	0.31829	3.50860

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)	0.14324	0.18288	0.85420
	removal	CK (R)	-0.01704	-0.02212	-0.04757
	hold	SN (R)	-0.14491	-0.28143	-1.07535
	hold	SN (R)	-0.14664	-0.28142	-1.07915
	setup	SN (R)	0.16791	0.32724	3.32159
	setup	SN (R)	0.16328	0.32853	3.64197
sky130_osu_sc_18T_ls__dffsr_l	recovery	CK (R)	0.14319	0.18220	0.85578
	removal	CK (R)	-0.01704	-0.02212	-0.04757
	hold	SN (R)	-0.14325	-0.27307	-1.04373
	hold	SN (R)	-0.13943	-0.27516	-1.04542
	setup	SN (R)	0.16591	0.31699	3.18658
	setup	SN (R)	0.15460	0.31829	3.50860

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 ()	0.13016	0.50781	13.33370
	min_pulse_width	RN ()	0.13016	0.50781	13.33370
sky130_osu_sc_18T_ls__dffsr_l	min_pulse_width	RN ()	0.13016	0.50781	13.33370
	min_pulse_width	RN ()	0.12634	0.50781	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)	0.03938	0.07616	4.87587
	removal	CK (R)	-0.01716	-0.06045	-0.29890
sky130_osu_sc_18T_ls__dffsr_l	recovery	CK (R)	0.03535	0.07598	4.76611
	removal	CK (R)	-0.01716	-0.06045	-0.29890

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)	0.03938	0.07616	4.87587
	removal	CK (R)	-0.01716	-0.06045	-0.29890
sky130_osu_sc_18T_ls__dffsr_l	recovery	CK (R)	0.03535	0.07598	4.76611
	removal	CK (R)	-0.01716	-0.06045	-0.29890

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 ()	0.15305	0.50781	13.33370
	min_pulse_width	SN ()	0.14923	0.50781	13.33370
sky130_osu_sc_18T_ls__dffsr_l	min_pulse_width	SN ()	0.15305	0.50781	13.33370
	min_pulse_width	SN ()	0.14160	0.50781	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 ()	0.11490	0.50781	13.33370
	min_pulse_width	CK ()	0.14160	0.50781	13.33370
sky130_osu_sc_18T_ls__dffsr_l	min_pulse_width	CK ()	0.11108	0.50781	13.33370
	min_pulse_width	CK ()	0.13779	0.50781	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 ()	0.25223	0.50781	13.33370
	min_pulse_width	CK ()	0.12253	0.50781	13.33370
sky130_osu_sc_18T_ls__dffsr_l	min_pulse_width	CK ()	0.25223	0.50781	13.33370
	min_pulse_width	CK ()	0.12253	0.50781	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	0.02595	0.02386	0.01678
	RN	0.04848	0.04470	0.01223
	SN	-0.00265	-0.19852	-3.52563
	SN	0.04623	0.04133	0.01243
sky130_osu_sc_18T_ls__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.02360	0.02160	0.03285
	RN	0.04612	0.04261	0.02825
	SN	-0.00265	-0.15771	-2.40235
	SN	0.04389	0.03915	0.02869

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	0.02796	0.02569	0.01386
	RN	-0.00265	-0.19852	-3.52561
	RN	0.05787	0.05630	0.04720
sky130_osu_sc_18T_ls__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.02565	0.02453	0.04235
	RN	-0.00265	-0.15771	-2.40233
	RN	0.05553	0.05517	0.07551

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	0.02794	0.02568	0.01440
	RN	-0.00265	-0.19753	-3.49620
	RN	0.05786	0.05631	0.04745
sky130_osu_sc_18T_ls__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.02563	0.02452	0.04236
	RN	-0.00265	-0.15721	-2.38958
	RN	0.05552	0.05514	0.07751

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	0.02588	0.02386	0.01596
	RN	0.04842	0.04489	0.01224
	SN	-0.00265	-0.19753	-3.49608
	SN	0.04617	0.04131	0.00688
sky130_osu_sc_18T_ls__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.02354	0.02163	0.03170
	RN	0.04606	0.04263	0.02835
	SN	-0.00265	-0.15721	-2.38947
	SN	0.04384	0.03914	0.02887

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	-0.00749	-0.00773	-0.00770
	(!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)	0.03340	0.03424	0.10833
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.01319	0.01421	0.08823
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.01312	0.01415	0.08816
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.01326	0.01429	0.08830
sky130_osu_sc_18T_ls__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	-0.00749	-0.00773	-0.00770
	(!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)	0.03340	0.03424	0.10834
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.01319	0.01421	0.08823
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.01312	0.01415	0.08816
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.01326	0.01429	0.08831

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	0.00772	0.00774	0.00770
	(!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)	0.05093	0.05177	0.12653
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.02217	0.02340	0.09726
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.02223	0.02345	0.09727
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.02209	0.02332	0.09718
sky130_osu_sc_18T_ls__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.00772	0.00774	0.00770
	(!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)	0.05091	0.05175	0.12652
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.02216	0.02339	0.09725
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.02221	0.02344	0.09726
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.02207	0.02331	0.09717

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)	0.00564	0.00906	0.12123
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.02622	0.02909	0.14279
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)	0.00564	0.00915	0.12124
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.02622	0.02902	0.14280

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)	0.02055	0.02563	0.13869
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.04476	0.04870	0.16373
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)	0.02053	0.02561	0.13867
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.04474	0.04869	0.16371

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)	-0.01721	-0.01732	-0.01731
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	-0.01702	-0.01781	-0.01769
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	-0.01673	-0.01716	-0.01709
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.01107	0.01245	0.09035
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)	-0.01721	-0.01732	-0.01731
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	-0.01699	-0.01778	-0.01767
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	-0.01672	-0.01711	-0.01708
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.01108	0.01247	0.09037

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)	0.01726	0.01743	0.01736
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.01762	0.01782	0.01769
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	0.01704	0.01728	0.01711
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.03482	0.03519	0.10889
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)	0.01726	0.01743	0.01736
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.01759	0.01779	0.01767
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	0.01703	0.01711	0.01710
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.03480	0.03515	0.10888

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)	-0.00210	0.00102	0.11253
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.01385	0.01547	0.12976
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.01373	0.01534	0.12968
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	-0.00256	0.00094	0.11152
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.00877	0.01489	0.21588
sky130_osu_sc_18T_ls__dffsr_l	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	-0.00210	0.00102	0.11253
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.01384	0.01545	0.12974
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.01372	0.01538	0.12966
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	-0.00256	0.00094	0.11152
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.00877	0.01490	0.21589

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)	0.07471	0.07837	0.21392
	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.02936	0.03457	0.14655
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.05265	0.05670	0.16938
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.05281	0.05658	0.16917
	(!D * RN * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * Q * !QN)	0.07078	0.07880	0.25821
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.03452	0.03915	0.14913
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.03955	0.04816	0.24978
sky130_osu_sc_18T_ls__dffsr_l	**(D * RN * SN * !Q * QN)**	0.00000	0.00000	0.00000
	(D * RN * SN * !Q * QN)	0.07471	0.07837	0.21392
	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.02936	0.03457	0.14655
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.05265	0.05670	0.16938
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.05281	0.05658	0.16917
	(!D * RN * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * Q * !QN)	0.07077	0.07878	0.25834
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.03452	0.03915	0.14913
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.03953	0.04815	0.24977

SKY130_OSU_SC_18T_LS__DFFSx

sky130_osu_sc_18T_ls_tt_2P10_25C.ccs
Cell Library: Process , Voltage 2.10,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__dffs_1	57.87540
sky130_osu_sc_18T_ls__dffs_l	57.87540

Pin Capacitance Information

Cell Name	Pin Cap(pf)			Max Cap(pf)	
	D	SN	CK	Q	QN
sky130_osu_sc_18T_ls__dffs_1	0.00582	0.00969	0.01655	3.05905	3.04432
sky130_osu_sc_18T_ls__dffs_l	0.00582	0.00969	0.01655	2.18163	2.17155

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__dffs_1	0.00000	0.02869	0.03629
sky130_osu_sc_18T_ls__dffs_l	0.00000	0.02584	0.03343

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)	0.19066	1.14085	15.39890
	QN->Q (FR)	0.03084	0.80131	12.41450
	SN->Q (FR)	0.14977	1.28763	17.45910
sky130_osu_sc_18T_ls__dffs_l	CK->Q (RR)	0.18991	1.24446	15.08230
	QN->Q (FR)	0.03230	0.84099	12.05630
	SN->Q (FR)	0.14908	1.38556	17.12100

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)	0.27424	1.23892	15.59510
	QN->Q (RF)	0.02526	0.67571	10.51380
sky130_osu_sc_18T_ls__dffs_l	CK->Q (RF)	0.27519	1.35097	15.38760
	QN->Q (RF)	0.02560	0.68178	9.78263

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)	0.24527	0.69454	6.44213
sky130_osu_sc_18T_ls__dffs_l	CK->QN (RR)	0.24376	0.74673	6.47779

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)	0.15522	0.52594	5.07219
	SN->QN (FF)	0.11407	0.67112	7.13499
sky130_osu_sc_18T_ls__dffs_l	CK->QN (RF)	0.15115	0.54831	4.82753
	SN->QN (FF)	0.10999	0.68860	6.86596

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)	-0.04540	-0.05506	0.06654
	setup	CK (R)	0.13659	0.18406	0.55729
sky130_osu_sc_18T_ls__dffs_l	hold	CK (R)	-0.04209	-0.05437	0.06610
	setup	CK (R)	0.13591	0.18439	0.55425

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)	-0.10356	-0.31685	-3.45447
	setup	CK (R)	0.13468	0.33144	3.84132
sky130_osu_sc_18T_ls__dffs_l	hold	CK (R)	-0.10425	-0.31685	-3.46427
	setup	CK (R)	0.13460	0.33144	3.84132

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)	-0.04540	-0.05506	0.06654
	setup	CK (R)	0.13659	0.18406	0.55729
sky130_osu_sc_18T_ls__dffs_l	hold	CK (R)	-0.04209	-0.05437	0.06610
	setup	CK (R)	0.13591	0.18439	0.55425

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)	-0.10356	-0.31685	-3.45447
	setup	CK (R)	0.13468	0.33144	3.84132
sky130_osu_sc_18T_ls__dffs_l	hold	CK (R)	-0.10425	-0.31685	-3.46427
	setup	CK (R)	0.13460	0.33144	3.84132

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)	0.03830	0.07410	3.36320
	removal	CK (R)	-0.01798	-0.05628	-0.33000
sky130_osu_sc_18T_ls__dffs_l	recovery	CK (R)	0.03848	0.07386	3.23756
	removal	CK (R)	-0.01798	-0.05628	-0.33000

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)	0.03830	0.07410	3.36320
	removal	CK (R)	-0.01798	-0.05628	-0.33000
sky130_osu_sc_18T_ls__dffs_l	recovery	CK (R)	0.03848	0.07386	3.23756
	removal	CK (R)	-0.01798	-0.05628	-0.33000

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 ()	0.09964	0.50781	13.33370
	min_pulse_width	SN ()	0.10346	0.50781	13.33370
sky130_osu_sc_18T_ls__dffs_l	min_pulse_width	SN ()	0.09964	0.50781	13.33370
	min_pulse_width	SN ()	0.09583	0.50781	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 ()	0.08438	0.50781	13.33370
	min_pulse_width	CK ()	0.13397	0.50781	13.33370
sky130_osu_sc_18T_ls__dffs_l	min_pulse_width	CK ()	0.08057	0.50781	13.33370
	min_pulse_width	CK ()	0.13016	0.50781	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 ()	0.19501	0.50781	13.33370
	min_pulse_width	CK ()	0.11108	0.50781	13.33370
sky130_osu_sc_18T_ls__dffs_l	min_pulse_width	CK ()	0.19501	0.50781	13.33370
	min_pulse_width	CK ()	0.11108	0.50781	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	0.02011	0.01541	-0.00321
	SN	-0.00265	-0.19331	-3.37260
	SN	0.03755	0.03172	-0.03473
sky130_osu_sc_18T_ls__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.01763	0.01598	0.02781
	SN	-0.00265	-0.15782	-2.40524
	SN	0.03509	0.03207	0.02510

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	0.02406	0.02110	0.00321
sky130_osu_sc_18T_ls__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.02157	0.02039	0.03998

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	0.02405	0.02113	0.00371
sky130_osu_sc_18T_ls__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.02155	0.02038	0.03997

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	0.02006	0.01567	-0.00371
	SN	-0.00265	-0.19275	-3.35578
	SN	0.03750	0.03172	-0.03551
sky130_osu_sc_18T_ls__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.01757	0.01601	0.02714
	SN	-0.00265	-0.15738	-2.39389
	SN	0.03505	0.03205	0.02419

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	-0.00757	-0.00780	-0.00777
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.02417	0.02506	0.10111
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.01119	0.01229	0.08683
sky130_osu_sc_18T_ls__dffs_l	CK	0.00000	0.00000	0.00000
	CK	-0.00757	-0.00780	-0.00777
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.02417	0.02506	0.10111
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.01119	0.01229	0.08683

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	0.00780	0.00781	0.00777
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.04358	0.04455	0.12015
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.02133	0.02261	0.09727
sky130_osu_sc_18T_ls__dffs_1	CK	0.00000	0.00000	0.00000
	CK	0.00780	0.00781	0.00777
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.04358	0.04455	0.12015
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.02132	0.02261	0.09727

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)	-0.01249	-0.01262	-0.01256
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.00935	0.01068	0.08100
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)	-0.01249	-0.01262	-0.01256
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.00935	0.01068	0.08100

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)	0.01257	0.01267	0.01260
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.02340	0.02524	0.09637
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)	0.01257	0.01267	0.01260
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.02340	0.02524	0.09637

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)	-0.00213	0.00100	0.11262
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	-0.00276	0.00070	0.11146
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.00667	0.01300	0.21533
sky130_osu_sc_18T_ls__dffs_l	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	-0.00213	0.00100	0.11262
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	-0.00276	0.00070	0.11146
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.00666	0.01299	0.21533

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)	0.06532	0.06890	0.20740
	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.02928	0.03450	0.14661
	(!D * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * SN * Q * !QN)	0.06332	0.07157	0.25055
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	0.03460	0.03927	0.14934
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.03854	0.04751	0.25040
sky130_osu_sc_18T_ls__dffs_l	(D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * SN * !Q * QN)	0.06532	0.06890	0.20740
	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.02928	0.03449	0.14661
	(!D * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * SN * Q * !QN)	0.06332	0.07156	0.25055
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	0.03460	0.03927	0.14934
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.03854	0.04751	0.25040

SKY130_OSU_SC_18T_LS__DFFx

sky130_osu_sc_18T_ls_tt_2P10_25C.ccs
Cell Library: Process , Voltage 2.10,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__dff_1	48.35160
sky130_osu_sc_18T_ls__dff_l	48.35160

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)	
	D	CK	Q	QN
sky130_osu_sc_18T_ls__dff_1	0.00598	0.01653	3.20984	3.18222
sky130_osu_sc_18T_ls__dff_l	0.00598	0.01653	2.14469	2.13079

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__dff_1	0.00000	0.02839	0.03176
sky130_osu_sc_18T_ls__dff_l	0.00000	0.02554	0.02891

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)	0.17001	1.10700	15.42380
	QN->Q (FR)	0.02923	0.78313	12.29210
sky130_osu_sc_18T_ls__dff_l	CK->Q (RR)	0.17527	1.22912	14.90470
	QN->Q (FR)	0.03294	0.84945	12.14950

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)	0.23494	1.17839	15.60860
	QN->Q (RF)	0.02307	0.63284	9.97355
sky130_osu_sc_18T_ls__dff_l	CK->Q (RF)	0.24253	1.31151	15.22510
	QN->Q (RF)	0.02566	0.67786	9.68165

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)	0.20808	0.64697	6.47073
sky130_osu_sc_18T_ls__dff_l	CK->QN (RR)	0.21176	0.71062	6.41869

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)	0.13694	0.50087	5.00967
sky130_osu_sc_18T_ls__dff_l	CK->QN (RF)	0.13700	0.53248	4.72073

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)	-0.04014	-0.05403	0.04746
	setup	CK (R)	0.11384	0.16505	0.54570
sky130_osu_sc_18T_ls__dff_l	hold	CK (R)	-0.04014	-0.05403	0.04938
	setup	CK (R)	0.11364	0.16407	0.54570

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)	-0.09436	-0.31685	-3.43644
	setup	CK (R)	0.11420	0.32936	3.83571
sky130_osu_sc_18T_ls__dff_l	hold	CK (R)	-0.09503	-0.31685	-3.42573
	setup	CK (R)	0.11582	0.32936	3.83571

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 ()	0.07294	0.50781	13.33370
	min_pulse_width	CK ()	0.11871	0.50781	13.33370
sky130_osu_sc_18T_ls__dff_l	min_pulse_width	CK ()	0.07294	0.50781	13.33370
	min_pulse_width	CK ()	0.11871	0.50781	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 ()**	0.17212	0.50781	13.33370
	min_pulse_width	**CK ()**	0.08820	0.50781	13.33370
sky130_osu_sc_18T_ls__dff_l	**min_pulse_width**	**CK ()**	0.17212	0.50781	13.33370
	min_pulse_width	**CK ()**	0.08820	0.50781	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	0.02127	0.01946	0.01545
sky130_osu_sc_18T_ls__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.01896	0.01743	0.03185

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	0.02457	0.02242	0.01362
sky130_osu_sc_18T_ls__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.02231	0.02099	0.03658

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	0.02456	0.02245	0.01435
sky130_osu_sc_18T_ls__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.02230	0.02103	0.03687

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	0.02122	0.01952	0.01469
sky130_osu_sc_18T_ls__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.01891	0.01739	0.03163

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	-0.00686	-0.00770	-0.00768
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.02257	0.02401	0.10002
sky130_osu_sc_18T_ls__dff_l	CK	0.00000	0.00000	0.00000
	CK	-0.00686	-0.00770	-0.00768
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.02257	0.02402	0.10003

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	0.00764	0.00772	0.00768
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.04480	0.04594	0.12353
sky130_osu_sc_18T_ls__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.00764	0.00772	0.00768
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.04481	0.04594	0.12353

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)	-0.00215	0.00100	0.11262
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	-0.00274	0.00076	0.11150
sky130_osu_sc_18T_ls__dff_l	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	-0.00215	0.00100	0.11262
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	-0.00274	0.00076	0.11150

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)	0.02918	0.03436	0.14652
	(D * !Q * QN)	0.00000	0.00000	0.00000
	(D * !Q * QN)	0.06388	0.06762	0.20717
	(!D * Q * !QN)	0.00000	0.00000	0.00000
	(!D * Q * !QN)	0.06430	0.07272	0.25490
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.03448	0.03906	0.14921
sky130_osu_sc_18T_ls__dff_l	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.02918	0.03435	0.14652
	(D * !Q * QN)	0.00000	0.00000	0.00000
	(D * !Q * QN)	0.06389	0.06763	0.20720
	(!D * Q * !QN)	0.00000	0.00000	0.00000
	(!D * Q * !QN)	0.06430	0.07272	0.25491
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.03448	0.03906	0.14921

SKY130_OSU_SC_18T_LS__INVx

sky130_osu_sc_18T_ls_tt_2P10_25C.ccs
Cell Library: Process , Voltage 2.10,
Temp 25.00

Truth Table

INPUT	OUTPUT
A	Y
0	1
1	0

Footprint

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

Pin Capacitance Information

Cell Name	Pin Cap(pf)	Max Cap(pf)
	A	Y
sky130_osu_sc_18T_ls__inv_1	0.00585	3.09180
sky130_osu_sc_18T_ls__inv_10	0.05542	26.50180
sky130_osu_sc_18T_ls__inv_2	0.01127	5.96541
sky130_osu_sc_18T_ls__inv_3	0.01682	8.52686
sky130_osu_sc_18T_ls__inv_4	0.02228	11.44370
sky130_osu_sc_18T_ls__inv_6	0.03341	16.74024
sky130_osu_sc_18T_ls__inv_8	0.04442	21.87780
sky130_osu_sc_18T_ls__inv_l	0.00443	2.07712

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__inv_1	0.00000	0.00396	0.00697
sky130_osu_sc_18T_ls__inv_10	0.00000	0.03954	0.06969
sky130_osu_sc_18T_ls__inv_2	0.00000	0.00791	0.01394
sky130_osu_sc_18T_ls__inv_3	0.00000	0.01186	0.02091
sky130_osu_sc_18T_ls__inv_4	0.00000	0.01581	0.02788
sky130_osu_sc_18T_ls__inv_6	0.00000	0.02372	0.04182
sky130_osu_sc_18T_ls__inv_8	0.00000	0.03163	0.05576
sky130_osu_sc_18T_ls__inv_l	0.00000	0.00253	0.00469

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)**	0.02751	0.71557	11.07630
sky130_osu_sc_18T_ls__inv_10	**A->Y (FR)**	0.04549	0.49830	10.88970
sky130_osu_sc_18T_ls__inv_2	**A->Y (FR)**	0.02347	0.61930	10.92090
sky130_osu_sc_18T_ls__inv_3	**A->Y (FR)**	0.02639	0.58446	10.95530
sky130_osu_sc_18T_ls__inv_4	**A->Y (FR)**	0.02782	0.55538	10.91820
sky130_osu_sc_18T_ls__inv_6	**A->Y (FR)**	0.03212	0.52282	10.90490
sky130_osu_sc_18T_ls__inv_8	**A->Y (FR)**	0.03836	0.50543	10.88740
sky130_osu_sc_18T_ls__inv_l	**A->Y (FR)**	0.03053	0.77156	10.91890

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)**	0.02052	0.54839	8.55925
sky130_osu_sc_18T_ls__inv_10	**A->Y (RF)**	0.03769	0.32981	8.16945
sky130_osu_sc_18T_ls__inv_2	**A->Y (RF)**	0.01795	0.45910	8.41654
sky130_osu_sc_18T_ls__inv_3	**A->Y (RF)**	0.02007	0.42301	8.42948
sky130_osu_sc_18T_ls__inv_4	**A->Y (RF)**	0.02060	0.39349	8.41024
sky130_osu_sc_18T_ls__inv_6	**A->Y (RF)**	0.02660	0.36185	8.36680
sky130_osu_sc_18T_ls__inv_8	**A->Y (RF)**	0.03188	0.34287	8.31284
sky130_osu_sc_18T_ls__inv_l	**A->Y (RF)**	0.02264	0.58544	8.29973

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	0.01103	0.01303	0.02897
sky130_osu_sc_18T_ls__inv_10	A	0.00000	0.00000	0.00000
	A	0.09873	0.12776	0.28854
sky130_osu_sc_18T_ls__inv_2	A	0.00000	0.00000	0.00000
	A	0.02001	0.02554	0.05647
sky130_osu_sc_18T_ls__inv_3	A	0.00000	0.00000	0.00000
	A	0.03057	0.03973	0.08536
sky130_osu_sc_18T_ls__inv_4	A	0.00000	0.00000	0.00000
	A	0.03965	0.04910	0.11267
sky130_osu_sc_18T_ls__inv_6	A	0.00000	0.00000	0.00000
	A	0.05873	0.07720	0.17070
sky130_osu_sc_18T_ls__inv_8	A	0.00000	0.00000	0.00000
	A	0.07826	0.10671	0.23060
sky130_osu_sc_18T_ls__inv_l	A	0.00000	0.00000	0.00000
	A	0.00838	0.00962	0.02168

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	-0.00286	-0.00164	0.01028
sky130_osu_sc_18T_ls__inv_10	A	0.00000	0.00000	0.00000
	A	-0.03175	-0.02076	0.10074
sky130_osu_sc_18T_ls__inv_2	A	0.00000	0.00000	0.00000
	A	-0.00824	-0.00531	0.01852
sky130_osu_sc_18T_ls__inv_3	A	0.00000	0.00000	0.00000
	A	-0.01101	-0.00587	0.02924
sky130_osu_sc_18T_ls__inv_4	A	0.00000	0.00000	0.00000
	A	-0.01599	-0.00995	0.03710
sky130_osu_sc_18T_ls__inv_6	A	0.00000	0.00000	0.00000
	A	-0.02444	-0.01442	0.05746
sky130_osu_sc_18T_ls__inv_8	A	0.00000	0.00000	0.00000
	A	-0.03035	-0.01634	0.07860
sky130_osu_sc_18T_ls__inv_l	A	0.00000	0.00000	0.00000
	A	-0.00198	-0.00122	0.00775

SKY130_OSU_SC_18T_LS__MUX2

sky130_osu_sc_18T_ls_tt_2P10_25C.ccs
Cell Library: Process , Voltage 2.10,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__mux2_1	18.31500

Pin Capacitance Information

Cell Name	Pin Cap(pf)			Max Cap(pf)
	A0	A1	S0	Y
sky130_osu_sc_18T_ls__mux2_1	0.02771	0.02750	0.01186	0.01869

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__mux2_1	0.00000	0.01147	0.02083

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)	-	0.01288	0.04087	0.08055
	A1->Y (RR)	-	0.01401	0.04111	0.08021
	S0->Y (RR)	(!A0 * A1)	0.04179	0.09775	-0.56072
	S0->Y (FR)	(A0 * !A1)	0.04188	0.21343	1.44391

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)	-	0.01155	0.05145	0.08539
	A1->Y (FF)	-	0.01161	0.05105	0.08487
	S0->Y (FF)	(!A0 * A1)	0.05917	0.23919	1.35328
	S0->Y (RF)	(A0 * !A1)	0.02548	0.06524	-0.51735

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	-	-0.01132	-0.01135	-0.01137
	A1	-	0.00000	0.00000	0.00000
	A1	-	-0.00784	-0.00785	-0.00786
	S0	(A0 * !A1)	0.00000	0.00000	0.00000
	S0	(A0 * !A1)	0.01246	0.01896	0.13228
	S0	(!A0 * A1)	0.00000	0.00000	0.00000
	S0	(!A0 * A1)	-0.00814	-0.00344	0.10848

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	-	0.01132	0.01135	0.01137
	A1	-	0.00000	0.00000	0.00000
	A1	-	0.00784	0.00786	0.00786
	S0	(A0 * !A1)	0.00000	0.00000	0.00000
	S0	(A0 * !A1)	0.00196	0.00698	0.12106
	S0	(!A0 * A1)	0.00000	0.00000	0.00000
	S0	(!A0 * A1)	0.02986	0.03556	0.14683

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)	-0.00281	-0.00280	-0.00280

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)	0.00281	0.00280	0.00280

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)	-0.00336	-0.00334	-0.00334

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)	0.00336	0.00334	0.00334

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)	-0.00313	0.00162	0.11478
	(!A0 * !A1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !Y)	-0.00310	0.00201	0.11500

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)	0.02254	0.02763	0.14010
	(!A0 * !A1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !Y)	0.01976	0.02548	0.13925

SKY130_OSU_SC_18T_LS__NAND2x

sky130_osu_sc_18T_ls_tt_2P10_25C.ccs
Cell Library: Process , Voltage 2.10,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__nand2_1	9.52380
sky130_osu_sc_18T_ls__nand2_l	9.52380

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	B	Y
sky130_osu_sc_18T_ls__nand2_1	0.00586	0.00583	2.82417
sky130_osu_sc_18T_ls__nand2_l	0.00444	0.00442	1.93870

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__nand2_1	0.00000	0.00395	0.01394
sky130_osu_sc_18T_ls__nand2_l	0.00000	0.00255	0.00937

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)	0.02819	0.70120	10.58650
	B->Y (FR)	0.03334	0.69879	10.45950
sky130_osu_sc_18T_ls__nand2_l	A->Y (FR)	0.03116	0.75857	10.54110
	B->Y (FR)	0.03740	0.76060	10.48980

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)	0.02766	0.65226	10.03900
	B->Y (RF)	0.03128	0.62170	9.56796
sky130_osu_sc_18T_ls__nand2_l	A->Y (RF)	0.03102	0.71154	9.92652
	B->Y (RF)	0.03452	0.68049	9.43170

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	0.01178	0.01351	0.02918
	B	0.00000	0.00000	0.00000
	B	0.01497	0.01656	0.03256
sky130_osu_sc_18T_ls__nand2_l	A	0.00000	0.00000	0.00000
	A	0.00889	0.00999	0.02148
	B	0.00000	0.00000	0.00000
	B	0.01123	0.01219	0.02366

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	-0.00204	-0.00117	0.00987
	B	0.00000	0.00000	0.00000
	B	-0.00200	-0.00151	0.00773
sky130_osu_sc_18T_ls__nand2_l	A	0.00000	0.00000	0.00000
	A	-0.00146	-0.00090	0.00723
	B	0.00000	0.00000	0.00000
	B	-0.00142	-0.00114	0.00571

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)	-0.00854	-0.00860	-0.00858
sky130_osu_sc_18T_ls__nand2_l	(!B * Y)	0.00000	0.00000	0.00000
	(!B * Y)	-0.00612	-0.00616	-0.00615

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)	0.00857	0.00865	0.00861
sky130_osu_sc_18T_ls__nand2_l	(!B * Y)	0.00000	0.00000	0.00000
	(!B * Y)	0.00613	0.00619	0.00617

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)	-0.00800	-0.00804	-0.00802
sky130_osu_sc_18T_ls__nand2_l	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00571	-0.00574	-0.00573

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)	0.00806	0.00809	0.00804
sky130_osu_sc_18T_ls__nand2_l	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00576	0.00578	0.00575

SKY130_OSU_SC_18T_LS__NOR2x

sky130_osu_sc_18T_ls_tt_2P10_25C.ccs
Cell Library: Process , Voltage 2.10,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__nor2_1	9.52380
sky130_osu_sc_18T_ls__nor2_l	9.52380

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	B	Y
sky130_osu_sc_18T_ls__nor2_1	0.00584	0.00617	1.67510
sky130_osu_sc_18T_ls__nor2_l	0.00436	0.00471	1.15024

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__nor2_1	0.00000	0.00408	0.00697
sky130_osu_sc_18T_ls__nor2_l	0.00000	0.00263	0.00469

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)	0.05422	0.79747	10.41890
	B->Y (FR)	0.03987	0.80959	10.84030
sky130_osu_sc_18T_ls__nor2_l	A->Y (FR)	0.05920	0.87509	10.35640
	B->Y (FR)	0.04643	0.89025	10.79710

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)	0.02824	0.45176	5.84702
	B->Y (RF)	0.02194	0.43923	5.82466
sky130_osu_sc_18T_ls__nor2_l	A->Y (RF)	0.03000	0.48407	5.72979
	B->Y (RF)	0.02415	0.47293	5.71046

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	0.01665	0.01697	0.03165
	B	0.00000	0.00000	0.00000
	B	0.01197	0.01245	0.03428
sky130_osu_sc_18T_ls__nor2_l	A	0.00000	0.00000	0.00000
	A	0.01204	0.01218	0.02304
	B	0.00000	0.00000	0.00000
	B	0.00897	0.01006	0.02512

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	0.00122	0.00177	0.01795
	B	0.00000	0.00000	0.00000
	B	-0.00217	-0.00103	0.01461
sky130_osu_sc_18T_ls__nor2_l	A	0.00000	0.00000	0.00000
	A	0.00077	0.00123	0.01313
	B	0.00000	0.00000	0.00000
	B	-0.00142	-0.00065	0.01085

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)	-0.00690	-0.00777	-0.00772
sky130_osu_sc_18T_ls__nor2_l	(B * !Y)	0.00000	0.00000	0.00000
	(B * !Y)	-0.00483	-0.00541	-0.00537

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)	0.00768	0.00777	0.00772
sky130_osu_sc_18T_ls__nor2_l	(B * !Y)	0.00000	0.00000	0.00000
	(B * !Y)	0.00535	0.00541	0.00537

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)	-0.00328	-0.00330	-0.00329
sky130_osu_sc_18T_ls__nor2_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	-0.00233	-0.00235	-0.00235

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)	0.00342	0.00345	0.00334
sky130_osu_sc_18T_ls__nor2_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00243	0.00245	0.00238

SKY130_OSU_SC_18T_LS__OAI21

sky130_osu_sc_18T_ls_tt_2P10_25C.ccs
Cell Library: Process , Voltage 2.10,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__oai21_l	12.45420

Pin Capacitance Information

Cell Name	Pin Cap(pf)			Max Cap(pf)
	A0	A1	B0	Y
sky130_osu_sc_18T_ls__oai21_l	0.00592	0.00597	0.00491	1.66453

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__oai21_l	0.00000	0.00412	0.01166

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)	0.05362	0.82578	10.87410
	A1->Y (FR)	0.07174	0.81897	10.46230
	B0->Y (FR)	0.03807	0.72035	9.56995

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)	0.03945	0.54058	6.99915
	A1->Y (RF)	0.04794	0.53980	6.83009
	B0->Y (RF)	0.03022	0.58976	7.82164

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	0.01655	0.01701	0.03489
	A1	0.00000	0.00000	0.00000
	A1	0.02120	0.02126	0.03442
	B0	0.01431	0.01572	0.03258

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	-0.00002	0.00024	0.01174
	A1	0.00000	0.00000	0.00000
	A1	0.00345	0.00329	0.01502
	B0	0.00111	0.00174	0.01396

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)	-0.00329	-0.00332	-0.00330
	(A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * Y)	-0.00757	-0.00779	-0.00776
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00788	-0.00788	-0.00788

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)	0.00343	0.00345	0.00335
	(A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * Y)	0.00773	0.00779	0.00776
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00789	0.00792	0.00790

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)	-0.00682	-0.00760	-0.00761
	(A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * Y)	-0.00753	-0.00772	-0.00771
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	-0.00781	-0.00786	-0.00782

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)	0.00757	0.00760	0.00761
	(A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * Y)	0.00767	0.00772	0.00771
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	0.00782	0.00789	0.00784

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)	-0.00623	-0.00628	-0.00632

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)	0.00631	0.00636	0.00634

SKY130_OSU_SC_18T_LS__OAI22

sky130_osu_sc_18T_ls_tt_2P10_25C.ccs
Cell Library: Process , Voltage 2.10,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__oai22_1	15.38460

Pin Capacitance Information

Cell Name	Pin Cap(pf)				Max Cap(pf)
	A0	A1	B0	B1	Y
sky130_osu_sc_18T_ls__oai22_1	0.00574	0.00602	0.00616	0.00602	1.64127

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__oai22_1	0.00000	0.00608	0.01394

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)	0.07763	0.81695	10.31890
	A1->Y (FR)	0.06341	0.82969	10.74220
	B0->Y (FR)	0.04428	0.81161	10.74090
	B1->Y (FR)	0.06007	0.80075	10.32200

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)	0.07176	0.58411	7.08333
	A1->Y (RF)	0.05564	0.55974	6.97653
	B0->Y (RF)	0.04713	0.60522	7.78427
	B1->Y (RF)	0.06423	0.64435	8.07031

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	0.02794	0.02801	0.04040
	A1	0.02329	0.02373	0.04155
	B0	0.01282	0.01442	0.03280
	B1	0.02236	0.02251	0.03462

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__oai22_l	A0	0.00617	0.00592	0.01759
	A1	-0.00105	-0.00077	0.01091
	B0	-0.00100	-0.00021	0.01410
	B1	0.00229	0.00259	0.01642

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)	-0.00689	-0.00776	-0.00771
	(A1 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * B1 * !Y)	-0.00689	-0.00776	-0.00771
	(A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * !B1 * Y)	-0.00752	-0.00776	-0.00772
	(!A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * !B1 * Y)	-0.00781	-0.00787	-0.00783

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)	0.00768	0.00776	0.00771
	(A1 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * B1 * !Y)	0.00768	0.00776	0.00771
	(A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * !B1 * Y)	0.00768	0.00776	0.00772
	(!A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * !B1 * Y)	0.00781	0.00788	0.00786

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)	-0.00326	-0.00328	-0.00328
	(A0 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * B1 * !Y)	-0.00326	-0.00328	-0.00328
	(A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * !B1 * Y)	-0.00750	-0.00771	-0.00769
	(!A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * !B1 * Y)	-0.00780	-0.00785	-0.00782

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)	0.00340	0.00343	0.00332
	(A0 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * B1 * !Y)	0.00340	0.00343	0.00332
	(A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * !B1 * Y)	0.00764	0.00771	0.00769
	(!A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * !B1 * Y)	0.00780	0.00787	0.00784

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)	-0.00324	-0.00327	-0.00326
	(A0 * !A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B1 * !Y)	-0.00324	-0.00327	-0.00326
	(!A0 * !A1 * B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B1 * Y)	-0.00824	-0.00845	-0.00842
	(!A0 * !A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B1 * Y)	-0.00839	-0.00838	-0.00852

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)	0.00338	0.00341	0.00330
	(A0 * !A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B1 * !Y)	0.00338	0.00341	0.00330
	(!A0 * !A1 * B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B1 * Y)	0.00843	0.00850	0.00842
	(!A0 * !A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B1 * Y)	0.00852	0.00859	0.00855

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)	-0.00679	-0.00767	-0.00763
	(A0 * !A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B0 * !Y)	-0.00680	-0.00768	-0.00763
	(!A0 * !A1 * B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B0 * Y)	-0.00834	-0.00862	-0.00854
	(!A0 * !A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B0 * Y)	-0.00850	-0.00856	-0.00862

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)	0.00759	0.00767	0.00763
	(A0 * !A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B0 * !Y)	0.00759	0.00768	0.00763
	(!A0 * !A1 * B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B0 * Y)	0.00856	0.00864	0.00854
	(!A0 * !A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B0 * Y)	0.00862	0.00869	0.00865

SKY130_OSU_SC_18T_LS__OR2x

sky130_osu_sc_18T_ls_tt_2P10_25C.ccs
Cell Library: Process , Voltage 2.10,
Temp 25.00

Truth Table

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

Footprint

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

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	B	Y
sky130_osu_sc_18T_ls__or2_1	0.00618	0.00599	3.12105
sky130_osu_sc_18T_ls__or2_2	0.00618	0.00599	6.04268
sky130_osu_sc_18T_ls__or2_4	0.00618	0.00600	11.46614
sky130_osu_sc_18T_ls__or2_8	0.00619	0.00602	21.57425
sky130_osu_sc_18T_ls__or2_l	0.00476	0.00453	2.12376

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__or2_1	0.00000	0.00653	0.00885
sky130_osu_sc_18T_ls__or2_2	0.00000	0.00897	0.01581
sky130_osu_sc_18T_ls__or2_4	0.00000	0.01386	0.02975
sky130_osu_sc_18T_ls__or2_8	0.00000	0.02365	0.05763
sky130_osu_sc_18T_ls__or2_l	0.00000	0.00408	0.00543

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)	0.06284	0.50422	6.27710
	B->Y (RR)	0.05441	0.47256	6.17040
sky130_osu_sc_18T_ls__or2_2	A->Y (RR)	0.06955	0.44746	6.28256
	B->Y (RR)	0.06069	0.41928	6.17747
sky130_osu_sc_18T_ls__or2_4	A->Y (RR)	0.09022	0.44824	6.47140
	B->Y (RR)	0.08110	0.42468	6.36882
sky130_osu_sc_18T_ls__or2_8	A->Y (RR)	0.12889	0.50073	6.78603
	B->Y (RR)	0.11955	0.48324	6.68693
sky130_osu_sc_18T_ls__or2_l	A->Y (RR)	0.06855	0.56895	6.23122
	B->Y (RR)	0.06061	0.54038	6.13092

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)	0.09686	0.58970	6.96235
	B->Y (FF)	0.07803	0.58396	7.09999
sky130_osu_sc_18T_ls__or2_2	A->Y (FF)	0.11491	0.56776	6.98815
	B->Y (FF)	0.09621	0.56859	7.12447
sky130_osu_sc_18T_ls__or2_4	A->Y (FF)	0.16067	0.60542	7.17291
	B->Y (FF)	0.14206	0.61600	7.29259
sky130_osu_sc_18T_ls__or2_8	A->Y (FF)	0.25681	0.71199	7.34376
	B->Y (FF)	0.23830	0.72893	7.47044
sky130_osu_sc_18T_ls__or2_l	A->Y (FF)	0.10441	0.63655	6.79254
	B->Y (FF)	0.08624	0.63371	6.95907

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	0.01175	0.01409	0.07769
	B	0.00000	0.00000	0.00000
	B	0.00861	0.01238	0.08660
sky130_osu_sc_18T_ls__or2_2	A	0.00000	0.00000	0.00000
	A	0.02083	0.02369	0.08960
	B	0.00000	0.00000	0.00000
	B	0.01759	0.02212	0.09691
sky130_osu_sc_18T_ls__or2_4	A	0.00000	0.00000	0.00000
	A	0.04039	0.04374	0.11068
	B	0.00000	0.00000	0.00000
	B	0.03705	0.04266	0.11735
sky130_osu_sc_18T_ls__or2_8	A	0.00000	0.00000	0.00000
	A	0.08226	0.08591	0.14913
	B	0.00000	0.00000	0.00000
	B	0.07868	0.08458	0.15630
sky130_osu_sc_18T_ls__or2_l	A	0.00000	0.00000	0.00000
	A	0.00851	0.01001	0.05700
	B	0.00000	0.00000	0.00000
	B	0.00656	0.00927	0.06463

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	0.02641	0.02776	0.08641
	B	0.00000	0.00000	0.00000
	B	0.02130	0.02665	0.11738
sky130_osu_sc_18T_ls__or2_2	A	0.00000	0.00000	0.00000
	A	0.03328	0.03477	0.09312
	B	0.00000	0.00000	0.00000
	B	0.02815	0.03342	0.12081
sky130_osu_sc_18T_ls__or2_4	A	0.00000	0.00000	0.00000
	A	0.05303	0.05218	0.10891
	B	0.00000	0.00000	0.00000
	B	0.04789	0.05014	0.13175
sky130_osu_sc_18T_ls__or2_8	A	0.00000	0.00000	0.00000
	A	0.10344	0.08735	0.14132
	B	0.00000	0.00000	0.00000
	B	0.09920	0.08709	0.15887
sky130_osu_sc_18T_ls__or2_l	A	0.00000	0.00000	0.00000
	A	0.01982	0.02069	0.06188
	B	0.00000	0.00000	0.00000
	B	0.01627	0.01989	0.08529

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)	-0.00698	-0.00773	-0.00775
sky130_osu_sc_18T_ls__or2_2	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00698	-0.00773	-0.00775
sky130_osu_sc_18T_ls__or2_4	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00698	-0.00773	-0.00775
sky130_osu_sc_18T_ls__or2_8	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00697	-0.00773	-0.00775
sky130_osu_sc_18T_ls__or2_l	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00486	-0.00543	-0.00540

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)	0.00770	0.00773	0.00775
sky130_osu_sc_18T_ls__or2_2	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00770	0.00773	0.00775
sky130_osu_sc_18T_ls__or2_4	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00770	0.00773	0.00775
sky130_osu_sc_18T_ls__or2_8	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00770	0.00773	0.00775
sky130_osu_sc_18T_ls__or2_l	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00537	0.00543	0.00540

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)	-0.00329	-0.00332	-0.00331
sky130_osu_sc_18T_ls__or2_2	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00329	-0.00332	-0.00331
sky130_osu_sc_18T_ls__or2_4	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00329	-0.00333	-0.00331
sky130_osu_sc_18T_ls__or2_8	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00329	-0.00333	-0.00331
sky130_osu_sc_18T_ls__or2_l	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00238	-0.00240	-0.00239

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)	0.00344	0.00346	0.00335
sky130_osu_sc_18T_ls__or2_2	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00344	0.00346	0.00335
sky130_osu_sc_18T_ls__or2_4	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00344	0.00346	0.00335
sky130_osu_sc_18T_ls__or2_8	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00344	0.00347	0.00335
sky130_osu_sc_18T_ls__or2_l	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00248	0.00249	0.00242

SKY130_OSU_SC_18T_LS__TBUFIx

sky130_osu_sc_18T_ls_tt_2P10_25C.ccs
Cell Library: Process , Voltage 2.10,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__tbufi_1	12.45420
sky130_osu_sc_18T_ls__tbufi_l	12.45420

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	OE	Y
sky130_osu_sc_18T_ls__tbufi_1	0.00617	0.00775	1.67678
sky130_osu_sc_18T_ls__tbufi_l	0.00472	0.00597	1.14725

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__tbufi_1	0.00000	0.00437	0.01394
sky130_osu_sc_18T_ls__tbufi_l	0.00000	0.00271	0.00937

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)	0.03868	0.80954	10.83330
	OE->Y (FR)	0.04989	0.40814	5.55699
	OE->Y (RR)	0.07187	0.58409	6.32031
sky130_osu_sc_18T_ls__tbufi_l	A->Y (FR)	0.04520	0.88921	10.78700
	OE->Y (FR)	0.05231	0.40789	5.55677
	OE->Y (RR)	0.07805	0.66787	6.30135

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)	0.02722	0.53766	7.15898
	OE->Y (FF)	0.05035	0.40813	5.55705
	OE->Y (RF)	0.02524	0.49993	6.62104
sky130_osu_sc_18T_ls__tbufi_l	A->Y (RF)	0.03079	0.58376	7.05584
	OE->Y (FF)	0.05257	0.40788	5.55679
	OE->Y (RF)	0.02938	0.54513	6.49659

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	0.01129	0.01300	0.03086
	OE	0.00000	0.00000	0.00000
	OE	0.01193	0.01638	0.11378
sky130_osu_sc_18T_ls__tbufi_l	A	0.00000	0.00000	0.00000
	A	0.00850	0.00948	0.02261
	OE	0.00000	0.00000	0.00000
	OE	0.00846	0.01166	0.08425

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	-0.00223	-0.00119	0.01256
	OE	0.00000	0.00000	0.00000
	OE	0.00757	0.01217	0.12534
sky130_osu_sc_18T_ls__tbufi_l	A	0.00000	0.00000	0.00000
	A	-0.00145	-0.00081	0.00928
	OE	0.00000	0.00000	0.00000
	OE	0.00526	0.00851	0.08954

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)	-0.00562	-0.00566	-0.00564
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	-0.00479	-0.00490	-0.00482
sky130_osu_sc_18T_ls__tbufi_l	(!OE * Y)	0.00000	0.00000	0.00000
	(!OE * Y)	-0.00420	-0.00426	-0.00421
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	-0.00364	-0.00372	-0.00366

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)	0.00562	0.00566	0.00564
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	0.00490	0.00494	0.00486
sky130_osu_sc_18T_ls__tbufi_l	(!OE * Y)	0.00000	0.00000	0.00000
	(!OE * Y)	0.00420	0.00426	0.00421
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	0.00371	0.00373	0.00368

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)	0.00452	0.00942	0.12451
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00405	0.00892	0.12404
sky130_osu_sc_18T_ls__tbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00306	0.00653	0.08925
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00273	0.00677	0.08894

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)	0.01274	0.01787	0.13264
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.01307	0.01828	0.13284
sky130_osu_sc_18T_ls__tbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00990	0.01338	0.09578
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.01016	0.01370	0.09595

SKY130_OSU_SC_18T_LS__TNBUFIx

sky130_osu_sc_18T_ls_tt_2P10_25C.ccs
Cell Library: Process , Voltage 2.10,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__tnbufi_1	12.45420
sky130_osu_sc_18T_ls__tnbufi_l	12.45420

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	OE	Y
sky130_osu_sc_18T_ls__tnbufi_1	0.00616	0.00979	1.67665
sky130_osu_sc_18T_ls__tnbufi_l	0.00471	0.00721	1.14721

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__tnbufi_1	0.00000	0.00638	0.00791
sky130_osu_sc_18T_ls__tnbufi_l	0.00000	0.00415	0.00506

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)	0.03877	0.80949	10.83260
	OE->Y (RR)	0.02707	0.40913	5.55796
	OE->Y (FR)	0.05177	0.79533	10.38840
sky130_osu_sc_18T_ls__tnbufi_l	A->Y (FR)	0.04540	0.88912	10.78650
	OE->Y (RR)	0.02832	0.40934	5.55818
	OE->Y (FR)	0.05696	0.87305	10.31740

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)	0.02690	0.53753	7.15855
	OE->Y (RF)	0.02689	0.40906	5.55794
	OE->Y (FF)	0.04798	0.48395	5.42442
sky130_osu_sc_18T_ls__tnbufi_l	A->Y (RF)	0.03040	0.58361	7.05558
	OE->Y (RF)	0.02813	0.40931	5.55819
	OE->Y (FF)	0.05399	0.53519	5.36048

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	0.01155	0.01325	0.03110
	OE	0.00000	0.00000	0.00000
	OE	0.02906	0.03572	0.15062
sky130_osu_sc_18T_ls__tnbufi_l	A	0.00000	0.00000	0.00000
	A	0.00876	0.00973	0.02286
	OE	0.00000	0.00000	0.00000
	OE	0.02136	0.02586	0.10858

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	-0.00257	-0.00150	0.01226
	OE	0.00000	0.00000	0.00000
	OE	0.02513	0.03136	0.12564
sky130_osu_sc_18T_ls__tnbufi_l	A	0.00000	0.00000	0.00000
	A	-0.00178	-0.00113	0.00897
	OE	0.00000	0.00000	0.00000
	OE	0.01847	0.02273	0.08851

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)	-0.00484	-0.00488	-0.00486
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	-0.00410	-0.00419	-0.00412
sky130_osu_sc_18T_ls__tnbufi_l	(OE * Y)	0.00000	0.00000	0.00000
	(OE * Y)	-0.00347	-0.00352	-0.00348
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	-0.00297	-0.00297	-0.00298

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)	0.00484	0.00488	0.00486
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	0.00419	0.00422	0.00416
sky130_osu_sc_18T_ls__tnbufi_l	(OE * Y)	0.00000	0.00000	0.00000
	(OE * Y)	0.00347	0.00352	0.00348
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	0.00302	0.00304	0.00300

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)	-0.00970	-0.00522	0.11122
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00940	-0.00505	0.11132
sky130_osu_sc_18T_ls__tnbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	-0.00669	-0.00346	0.08016
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00648	-0.00306	0.08022

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)	0.02166	0.02867	0.14511
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.02136	0.02865	0.14488
sky130_osu_sc_18T_ls__tnbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.01597	0.02076	0.10431
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.01576	0.02072	0.10415

SKY130_OSU_SC_18T_LS__XNOR2

sky130_osu_sc_18T_ls_tt_2P10_25C.ccs
Cell Library: Process , Voltage 2.10,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__xnor2_l	21.24540

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	B	Y
sky130_osu_sc_18T_ls__xnor2_l	0.01220	0.01122	1.74409

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__xnor2_l	0.00000	0.01255	0.02185

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	0.09052	0.62716	6.63684
	A->Y (FR)	!B	0.05058	0.82942	11.03670
	B->Y (RR)	A	0.07163	0.61103	6.70437
	B->Y (FR)	!A	0.07129	0.82216	10.64030

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	0.08695	0.57531	5.99576
	A->Y (RF)	!B	0.03921	0.53747	7.06317
	B->Y (FF)	A	0.07571	0.56620	6.00386
	B->Y (RF)	!A	0.05024	0.55102	7.05808

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	0.01170	0.01562	0.11149
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.02758	0.03354	0.16070
	B	A	0.00000	0.00000	0.00000
	B	A	0.00299	0.00789	0.12155
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.03131	0.03654	0.15618

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	0.03428	0.03795	0.14749
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00717	0.01170	0.13223
	B	A	0.00000	0.00000	0.00000
	B	A	0.03166	0.03727	0.15080
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00878	0.01288	0.13188

SKY130_OSU_SC_18T_LS__XOR2

sky130_osu_sc_18T_ls_tt_2P10_25C.ccs
Cell Library: Process , Voltage 2.10,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__xor2_l	21.24540

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	B	Y
sky130_osu_sc_18T_ls__xor2_l	0.01217	0.01127	1.68685

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__xor2_l	0.00000	0.01255	0.01582

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	0.08565	0.60563	6.47867
	A->Y (FR)	B	0.06386	0.80978	10.51360
	B->Y (RR)	!A	0.07425	0.60255	6.50714
	B->Y (FR)	A	0.06922	0.81402	10.48320

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	0.07328	0.54644	5.58381
	A->Y (RF)	B	0.03809	0.55722	7.18489
	B->Y (FF)	!A	0.06941	0.54395	5.69310
	B->Y (RF)	A	0.04677	0.52728	6.67950

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	0.03288	0.03884	0.16453
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00498	0.00733	0.11831
	B	A	0.00000	0.00000	0.00000
	B	A	0.03405	0.04004	0.16263
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00239	0.00699	0.12232

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	0.00536	0.00971	0.13647
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.03533	0.04104	0.13483
	B	A	0.00000	0.00000	0.00000
	B	A	0.00542	0.00946	0.13169
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.03222	0.03837	0.15295

SKY130_OSU_SC_18T_LS_x

sky130_osu_sc_18T_ls_tt_2P10_25C.ccs
Cell Library: Process , Voltage 2.10,
Temp 25.00

Truth Table

INPUT
A
x

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__ant	6.59340
sky130_osu_sc_18T_ls__tiehi	6.59340
sky130_osu_sc_18T_ls__tielo	6.59340

Pin Capacitance Information

Cell Name	Pin Cap(pf)
	A
sky130_osu_sc_18T_ls__ant	0.92302
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	548361.00000	1096720.00000
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
	-0.00283	0.15615	2.07102

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
	9.54143	9.04530	2.48912