sky130_osu_sc_15T_ls_tt_2P10_25C.ccs Library

Cell Groups
SKY130_OSU_SC_15T_LS__ADDFx
SKY130_OSU_SC_15T_LS__ADDHx
SKY130_OSU_SC_15T_LS__AND2x
SKY130_OSU_SC_15T_LS__AOI21
SKY130_OSU_SC_15T_LS__AOI22
SKY130_OSU_SC_15T_LS__BUFx
SKY130_OSU_SC_15T_LS__DFFRx
SKY130_OSU_SC_15T_LS__DFFSRx
SKY130_OSU_SC_15T_LS__DFFSx
SKY130_OSU_SC_15T_LS__DFFx
SKY130_OSU_SC_15T_LS__INVx
SKY130_OSU_SC_15T_LS__MUX2
SKY130_OSU_SC_15T_LS__NAND2x
SKY130_OSU_SC_15T_LS__NOR2x
SKY130_OSU_SC_15T_LS__OAI21
SKY130_OSU_SC_15T_LS__OAI22
SKY130_OSU_SC_15T_LS__OR2x
SKY130_OSU_SC_15T_LS__TBUFIx
SKY130_OSU_SC_15T_LS__TNBUFIx
SKY130_OSU_SC_15T_LS__XNOR2
SKY130_OSU_SC_15T_LS__XOR2
SKY130_OSU_SC_15T_LS_x

SKY130_OSU_SC_15T_LS__ADDFx

sky130_osu_sc_15T_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_15T_ls__addf_1	39.07200
sky130_osu_sc_15T_ls__addf_l	39.07200

Pin Capacitance Information

Cell Name	Pin Cap(pf)			Max Cap(pf)		
	A	B	CI	CO	CON	S
sky130_osu_sc_15T_ls__addf_1	0.01635	0.01631	0.01263	2.18106	1.04609	2.08125
sky130_osu_sc_15T_ls__addf_l	0.01634	0.01630	0.01263	1.31449	1.04793	1.33682

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_15T_ls__addf_1	0.00000	0.01257	0.01567
sky130_osu_sc_15T_ls__addf_l	0.00000	0.04428	0.07364

Delay Information

Delay(ns) to CO rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_ls__addf_1	A->CO (RR)	0.12365	1.49383	23.53890
	B->CO (RR)	0.11980	1.45333	22.79570
	CI->CO (RR)	0.11746	1.53392	24.22800
	CON->CO (FR)	0.02387	0.69994	11.15790
sky130_osu_sc_15T_ls__addf_1	A->CO (RR)	0.12819	1.38521	18.10910
	B->CO (RR)	0.12429	1.36181	17.90820
	CI->CO (RR)	0.12200	1.42682	18.84630
	CON->CO (FR)	0.03017	0.79500	11.21400

Delay(ns) to CO falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_ls__addf_1	A->CO (FF)	0.17071	1.87006	29.08620
	B->CO (FF)	0.15189	1.79842	28.18940
	CI->CO (FF)	0.14885	1.87893	29.62010
	CON->CO (RF)	0.01982	0.53419	8.53717
sky130_osu_sc_15T_ls__addf_1	A->CO (FF)	0.16523	1.57674	20.34590
	B->CO (FF)	0.14688	1.52533	20.00740
	CI->CO (FF)	0.14334	1.58683	20.91120
	CON->CO (RF)	0.02129	0.52765	7.43655

Delay(ns) to CON rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_ls__addf_1	A->CON (FR)	0.13751	0.88578	10.34290
	B->CON (FR)	0.11896	0.85651	10.36710
	CI->CON (FR)	0.11565	0.89725	10.92470
sky130_osu_sc_15T_ls__addf_l	A->CON (FR)	0.12957	0.87859	10.34720
	B->CON (FR)	0.11164	0.84976	10.37120
	CI->CON (FR)	0.10769	0.89020	10.92830

Delay(ns) to CON falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_ls__addf_1	A->CON (RF)	0.07764	0.53286	6.23678
	B->CON (RF)	0.07545	0.54985	6.54492
	CI->CON (RF)	0.07145	0.57604	7.00047
sky130_osu_sc_15T_ls__addf_l	A->CON (RF)	0.07436	0.52983	6.24220
	B->CON (RF)	0.07238	0.54714	6.54890
	CI->CON (RF)	0.06813	0.57313	7.00466

Delay(ns) to S rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_ls__addf_1	A->S (-R)	0.24991	1.72171	23.42450
	B->S (-R)	0.23503	1.67077	22.64150
	CI->S (-R)	0.22651	1.72761	23.95890
	CON->S (RR)	0.07009	0.55445	6.72764
sky130_osu_sc_15T_ls__addf_l	A->S (-R)	0.24003	1.58719	18.77730
	B->S (-R)	0.22592	1.55574	18.50470
	CI->S (-R)	0.21657	1.59378	19.33700
	CON->S (RR)	0.07190	0.62066	6.66138

Delay(ns) to S falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_ls__addf_1	A->S (-F)	0.20139	1.31881	17.18070
	B->S (-F)	0.19853	1.27313	16.71780
	CI->S (-F)	0.19474	1.35657	17.87760
	CON->S (FF)	0.08365	0.60525	6.85311
sky130_osu_sc_15T_ls__addf_l	A->S (-F)	0.18796	1.16273	13.08020
	B->S (-F)	0.18615	1.13667	13.06720
	CI->S (-F)	0.18131	1.20155	13.82360
	CON->S (FF)	0.07904	0.59915	6.17757

Power Information

Internal switching power(pJ) to CO rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__addf_1	A	0.00447	0.00573	0.03521
	B	0.00528	0.00647	0.03318
	CI	0.00715	0.00862	0.03866
sky130_osu_sc_15T_ls__addf_l	A	0.00322	0.00400	0.02267
	B	0.00567	0.00608	0.02341
	CI	0.00590	0.00685	0.02629

Internal switching power(pJ) to CO falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__addf_1	A	0.01854	0.02102	0.07420
	B	0.01932	0.02133	0.06874
	CI	0.01554	0.01814	0.07231
sky130_osu_sc_15T_ls__addf_l	A	0.01732	0.01892	0.04996
	B	0.01811	0.01934	0.04672
	CI	0.01432	0.01608	0.04813

Internal switching power(pJ) to CON rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__addf_1	A	0.01851	0.01995	0.04680
	B	0.01930	0.02046	0.04407
	CI	0.01552	0.01715	0.04489
sky130_osu_sc_15T_ls__addf_l	A	0.01730	0.01860	0.04426
	B	0.01809	0.01913	0.04169
	CI	0.01430	0.01583	0.04238

Internal switching power(pJ) to CON falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__addf_1	A	0.00513	0.00539	0.01995
	B	0.00682	0.00733	0.02354
	CI	0.00712	0.00817	0.02586
sky130_osu_sc_15T_ls__addf_l	A	0.00389	0.00400	0.01774
	B	0.00562	0.00593	0.02108
	CI	0.00587	0.00675	0.02326

Internal switching power(pJ) to S rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__addf_1	A	0.01853	0.02093	0.07148
	B	0.01931	0.02125	0.06633
	CI	0.01554	0.01809	0.06964
sky130_osu_sc_15T_ls__addf_l	A	0.01731	0.01894	0.05036
	B	0.00064	-0.00103	0.05104
	CI	0.00395	0.00415	0.05260

Internal switching power(pJ) to S falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__addf_1	A	0.04132	0.04186	0.08616
	B	0.03651	0.03753	0.08843
	CI	0.03358	0.03385	0.07656
sky130_osu_sc_15T_ls__addf_l	A	0.03961	0.03988	0.08592
	B	0.03485	0.03590	0.08868
	CI	0.03191	0.03230	0.07676

SKY130_OSU_SC_15T_LS__ADDHx

sky130_osu_sc_15T_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_15T_ls__addh_1	23.19900
sky130_osu_sc_15T_ls__addh_l	23.19900

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)		
	A	B	CO	CON	S
sky130_osu_sc_15T_ls__addh_1	0.00799	0.00884	2.13473	1.13313	2.18245
sky130_osu_sc_15T_ls__addh_l	0.00799	0.00884	1.37142	1.12837	1.38704

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_15T_ls__addh_1	0.00000	0.01261	0.01489
sky130_osu_sc_15T_ls__addh_l	0.00000	0.05216	0.07329

Delay Information

Delay(ns) to CO rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_ls__addh_1	A->CO (RR)	0.08325	0.56801	6.65300
	B->CO (RR)	0.08614	0.55940	6.69296
sky130_osu_sc_15T_ls__addh_l	A->CO (RR)	0.08664	0.64089	6.71764
	B->CO (RR)	0.08953	0.63358	6.71918

Delay(ns) to CO falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_ls__addh_1	A->CO (FF)	0.07364	0.57456	6.76454
	B->CO (FF)	0.07923	0.58939	6.83119
sky130_osu_sc_15T_ls__addh_l	A->CO (FF)	0.06989	0.53187	5.44709
	B->CO (FF)	0.07517	0.54601	5.51280

Delay(ns) to CON rising (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_15T_ls__addh_1	A->CON (RR)	B	0.11850	0.46295	3.38857
	A->CON (FR)	!B	0.07346	0.83193	10.77490
	B->CON (RR)	A	0.12129	0.45360	3.43073
	B->CON (FR)	!A	0.09075	0.82328	10.34650
sky130_osu_sc_15T_ls__addh_l	A->CON (RR)	B	0.10880	0.44621	3.37085
	A->CON (FR)	!B	0.06638	0.82320	10.73910
	B->CON (RR)	A	0.11163	0.43810	3.38007
	B->CON (FR)	!A	0.08366	0.81455	10.31040

Delay(ns) to CON falling (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_15T_ls__addh_1	A->CON (FF)	B	0.11233	0.60468	5.66353
	A->CON (RF)	!B	0.04537	0.55170	7.17033
	B->CON (FF)	A	0.11017	0.63244	6.00269
	B->CON (RF)	!A	0.05514	0.54304	6.86592
sky130_osu_sc_15T_ls__addh_l	A->CON (FF)	B	0.10438	0.58753	5.57921
	A->CON (RF)	!B	0.04240	0.54752	7.14755
	B->CON (FF)	A	0.10226	0.61503	5.91701
	B->CON (RF)	!A	0.05219	0.53909	6.84381

Delay(ns) to S rising (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_15T_ls__addh_1	A->S (RR)	!B	0.08632	1.47028	23.80430
	A->S (FR)	B	0.15418	1.50924	22.00020
	B->S (RR)	!A	0.09659	1.43077	22.86910
	B->S (FR)	A	0.15230	1.57057	22.99070
	CON->S (FR)	-	0.02624	0.71679	11.41060
sky130_osu_sc_15T_ls__addh_l	A->S (RR)	!B	0.08783	1.37318	19.00170
	A->S (FR)	B	0.15087	1.40169	17.19480
	B->S (RR)	!A	0.09826	1.34246	18.36550
	B->S (FR)	A	0.14887	1.45279	17.89890
	CON->S (FR)	-	0.03063	0.80119	11.45390

Delay(ns) to S falling (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_15T_ls__addh_1	A->S (FF)	!B	0.10362	1.71096	27.57370
	A->S (RF)	B	0.14626	1.12724	15.59240
	B->S (FF)	!A	0.12093	1.70596	27.19260
	B->S (RF)	A	0.14905	1.11762	15.61970
	CON->S (RF)	-	0.01870	0.52108	8.35965
sky130_osu_sc_15T_ls__addh_l	A->S (FF)	!B	0.09821	1.48323	20.49360
	A->S (RF)	B	0.13776	0.98420	11.13600
	B->S (FF)	!A	0.11556	1.47865	20.07970
	B->S (RF)	A	0.14058	0.97639	11.13640
	CON->S (RF)	-	0.02011	0.52960	7.58188

Power Information

Internal switching power(pJ) to CO rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__addh_1	A	0.00000	0.00000	0.00000
	A	0.00858	0.00904	0.02841
	B	0.00000	0.00000	0.00000
	B	0.00762	0.00785	0.03062
sky130_osu_sc_15T_ls__addh_l	A	0.00000	0.00000	0.00000
	A	0.00740	0.00783	0.02970
	B	0.00000	0.00000	0.00000
	B	0.00645	0.00659	0.02964

Internal switching power(pJ) to CO falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__addh_1	A	0.00000	0.00000	0.00000
	A	0.01297	0.01343	0.03964
	B	0.00000	0.00000	0.00000
	B	0.01354	0.01482	0.04263
sky130_osu_sc_15T_ls__addh_l	A	0.00000	0.00000	0.00000
	A	0.01184	0.01222	0.03685
	B	0.00000	0.00000	0.00000
	B	0.01242	0.01347	0.03874

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

Cell Name	Input	When	Power(pJ)		
			first	mid	last
sky130_osu_sc_15T_ls__addh_1	A	B	0.00000	0.00000	0.00000
	A	B	0.00857	0.00906	0.02815
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.01160	0.01237	0.02411
	B	A	0.00000	0.00000	0.00000
	B	A	0.00762	0.00785	0.03060
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01315	0.01347	0.02371
sky130_osu_sc_15T_ls__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.00739	0.00782	0.02857
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.01077	0.01137	0.02114
	B	A	0.00000	0.00000	0.00000
	B	A	0.00644	0.00657	0.02954
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01233	0.01247	0.02059

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

Cell Name	Input	When	Power(pJ)		
			first	mid	last
sky130_osu_sc_15T_ls__addh_1	A	B	0.00000	0.00000	0.00000
	A	B	0.01296	0.01342	0.03846
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00161	0.00215	0.01036
	B	A	0.00000	0.00000	0.00000
	B	A	0.01353	0.01473	0.04055
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00282	0.00313	0.01123
sky130_osu_sc_15T_ls__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.01184	0.01223	0.03648
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00056	0.00094	0.00742
	B	A	0.00000	0.00000	0.00000
	B	A	0.01241	0.01346	0.03832
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00177	0.00192	0.00846

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

Cell Name	Input	When	Power(pJ)		
			first	mid	last
sky130_osu_sc_15T_ls__addh_1	A	B	0.00000	0.00000	0.00000
	A	B	0.01298	0.01345	0.04019
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00163	0.00227	0.01184
	B	A	0.00000	0.00000	0.00000
	B	A	0.01355	0.01486	0.04305
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00286	0.00322	0.01152
sky130_osu_sc_15T_ls__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.01186	0.01222	0.03688
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00058	0.00096	0.00783
	B	A	0.00000	0.00000	0.00000
	B	A	0.01242	0.01347	0.03914
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00179	0.00192	0.00777

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

Cell Name	Input	When	Power(pJ)		
			first	mid	last
sky130_osu_sc_15T_ls__addh_1	A	B	0.00000	0.00000	0.00000
	A	B	0.00858	0.00910	0.02879
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.01161	0.01258	0.02733
	B	A	0.00000	0.00000	0.00000
	B	A	0.00763	0.00785	0.03125
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01317	0.01382	0.02722
sky130_osu_sc_15T_ls__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.00740	0.00786	0.02945
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.01078	0.01138	0.02119
	B	A	0.00000	0.00000	0.00000
	B	A	0.00645	0.00658	0.03028
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01234	0.01256	0.02063

SKY130_OSU_SC_15T_LS__AND2x

sky130_osu_sc_15T_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_15T_ls__and2_1	10.37850
sky130_osu_sc_15T_ls__and2_2	12.82050
sky130_osu_sc_15T_ls__and2_4	17.70450
sky130_osu_sc_15T_ls__and2_6	22.58850
sky130_osu_sc_15T_ls__and2_8	27.47250
sky130_osu_sc_15T_ls__and2_l	10.37850

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	**B**	**Y**
sky130_osu_sc_15T_ls__and2_1	0.00431	0.00442	2.15635
sky130_osu_sc_15T_ls__and2_2	0.00431	0.00442	4.17118
sky130_osu_sc_15T_ls__and2_4	0.00431	0.00443	7.99611
sky130_osu_sc_15T_ls__and2_6	0.00435	0.00443	11.75352
sky130_osu_sc_15T_ls__and2_8	0.00432	0.00443	15.23373
sky130_osu_sc_15T_ls__and2_l	0.00325	0.00336	1.30930

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_15T_ls__and2_1	0.00000	0.00616	0.00974
sky130_osu_sc_15T_ls__and2_2	0.00000	0.00976	0.01011
sky130_osu_sc_15T_ls__and2_4	0.00000	0.01698	0.01911
sky130_osu_sc_15T_ls__and2_6	0.00000	0.02419	0.02848
sky130_osu_sc_15T_ls__and2_8	0.00000	0.03140	0.03785
sky130_osu_sc_15T_ls__and2_l	0.00000	0.04570	0.07299

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_ls__and2_1	A->Y (RR)	0.06385	0.51196	6.58942
	B->Y (RR)	0.06779	0.50829	6.42998
sky130_osu_sc_15T_ls__and2_2	A->Y (RR)	0.07296	0.45805	6.56083
	B->Y (RR)	0.07695	0.44978	6.39649
sky130_osu_sc_15T_ls__and2_4	A->Y (RR)	0.10013	0.46914	6.76785
	B->Y (RR)	0.10413	0.45375	6.61141
sky130_osu_sc_15T_ls__and2_6	A->Y (RR)	0.12723	0.50212	6.93974
	B->Y (RR)	0.13112	0.48096	6.77945
sky130_osu_sc_15T_ls__and2_8	A->Y (RR)	0.15426	0.53996	7.08501
	B->Y (RR)	0.15823	0.51423	6.92486
sky130_osu_sc_15T_ls__and2_l	A->Y (RR)	0.07239	0.59788	6.43169
	B->Y (RR)	0.07649	0.59294	6.26869

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_ls__and2_1	A->Y (FF)	0.05734	0.51726	6.39877
	B->Y (FF)	0.06092	0.52915	6.46507
sky130_osu_sc_15T_ls__and2_2	A->Y (FF)	0.06585	0.48601	6.38299
	B->Y (FF)	0.06977	0.49687	6.46034
sky130_osu_sc_15T_ls__and2_4	A->Y (FF)	0.09110	0.50738	6.52851
	B->Y (FF)	0.09454	0.51504	6.59908
sky130_osu_sc_15T_ls__and2_6	A->Y (FF)	0.11899	0.54489	6.66708
	B->Y (FF)	0.12179	0.55046	6.73116
sky130_osu_sc_15T_ls__and2_8	A->Y (FF)	0.14502	0.57921	6.71069
	B->Y (FF)	0.14750	0.58375	6.76262
sky130_osu_sc_15T_ls__and2_l	A->Y (FF)	0.06517	0.55133	5.83936
	B->Y (FF)	0.07032	0.56651	5.92731

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__and2_1	A	0.00000	0.00000	0.00000
	A	0.00607	0.00837	0.08203
	B	0.00000	0.00000	0.00000
	B	0.00616	0.00730	0.05878
sky130_osu_sc_15T_ls__and2_2	A	0.00000	0.00000	0.00000
	A	0.01227	0.01464	0.08732
	B	0.00000	0.00000	0.00000
	B	0.01240	0.01377	0.06520
sky130_osu_sc_15T_ls__and2_4	A	0.00000	0.00000	0.00000
	A	0.02625	0.02884	0.09762
	B	0.00000	0.00000	0.00000
	B	0.02639	0.02816	0.07757
sky130_osu_sc_15T_ls__and2_6	A	0.00000	0.00000	0.00000
	A	0.04175	0.04370	0.10945
	B	0.00000	0.00000	0.00000
	B	0.04184	0.04277	0.09010
sky130_osu_sc_15T_ls__and2_8	A	0.00000	0.00000	0.00000
	A	0.05829	0.05869	0.12494
	B	0.00000	0.00000	0.00000
	B	0.05840	0.05709	0.10389
sky130_osu_sc_15T_ls__and2_l	A	0.00000	0.00000	0.00000
	A	0.00436	0.00588	0.05640
	B	0.00000	0.00000	0.00000
	B	0.00447	0.00519	0.04035

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__and2_1	A	0.00000	0.00000	0.00000
	A	0.01579	0.01974	0.08279
	B	0.00000	0.00000	0.00000
	B	0.01783	0.02125	0.08096
sky130_osu_sc_15T_ls__and2_2	A	0.00000	0.00000	0.00000
	A	0.02037	0.02455	0.08742
	B	0.00000	0.00000	0.00000
	B	0.02244	0.02593	0.08586
sky130_osu_sc_15T_ls__and2_4	A	0.00000	0.00000	0.00000
	A	0.03269	0.03651	0.09881
	B	0.00000	0.00000	0.00000
	B	0.03464	0.03776	0.09725
sky130_osu_sc_15T_ls__and2_6	A	0.00000	0.00000	0.00000
	A	0.04575	0.04937	0.11105
	B	0.00000	0.00000	0.00000
	B	0.04770	0.05036	0.10904
sky130_osu_sc_15T_ls__and2_8	A	0.00000	0.00000	0.00000
	A	0.06154	0.06194	0.12350
	B	0.00000	0.00000	0.00000
	B	0.06292	0.06234	0.12044
sky130_osu_sc_15T_ls__and2_l	A	0.00000	0.00000	0.00000
	A	0.01197	0.01441	0.05508
	B	0.00000	0.00000	0.00000
	B	0.01341	0.01539	0.05405

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__and2_1	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00600	-0.00602	-0.00604
sky130_osu_sc_15T_ls__and2_2	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00600	-0.00601	-0.00604
sky130_osu_sc_15T_ls__and2_4	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00600	-0.00603	-0.00603
sky130_osu_sc_15T_ls__and2_6	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00604	-0.00606	-0.00607
sky130_osu_sc_15T_ls__and2_8	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00600	-0.00602	-0.00603
sky130_osu_sc_15T_ls__and2_l	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00423	-0.00425	-0.00425

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__and2_1	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00602	0.00604	0.00605
sky130_osu_sc_15T_ls__and2_2	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00602	0.00604	0.00605
sky130_osu_sc_15T_ls__and2_4	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00602	0.00604	0.00605
sky130_osu_sc_15T_ls__and2_6	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00606	0.00606	0.00609
sky130_osu_sc_15T_ls__and2_8	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00602	0.00615	0.00605
sky130_osu_sc_15T_ls__and2_l	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00425	0.00425	0.00427

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__and2_1	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00569	-0.00573	-0.00571
sky130_osu_sc_15T_ls__and2_2	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00570	-0.00573	-0.00571
sky130_osu_sc_15T_ls__and2_4	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00570	-0.00573	-0.00572
sky130_osu_sc_15T_ls__and2_6	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00570	-0.00574	-0.00571
sky130_osu_sc_15T_ls__and2_8	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00570	-0.00575	-0.00571
sky130_osu_sc_15T_ls__and2_l	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00403	-0.00407	-0.00404

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__and2_1	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00577	0.00576	0.00573
sky130_osu_sc_15T_ls__and2_2	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00577	0.00576	0.00573
sky130_osu_sc_15T_ls__and2_4	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00577	0.00577	0.00573
sky130_osu_sc_15T_ls__and2_6	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00577	0.00577	0.00573
sky130_osu_sc_15T_ls__and2_8	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00577	0.00577	0.00573
sky130_osu_sc_15T_ls__and2_l	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00409	0.00408	0.00405

SKY130_OSU_SC_15T_LS__AOI21

sky130_osu_sc_15T_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_15T_ls__aoi21_l	10.37850

Pin Capacitance Information

Cell Name	Pin Cap(pf)			Max Cap(pf)
	A0	A1	B0	Y
sky130_osu_sc_15T_ls__aoi21_l	0.00408	0.00424	0.00411	1.01452

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_15T_ls__aoi21_l	0.00000	0.00274	0.00469

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_ls__aoi21_l	A0->Y (FR)	0.07219	0.82883	10.30680
	A1->Y (FR)	0.06012	0.78053	9.89328
	B0->Y (FR)	0.05234	0.84224	10.89050

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_ls__aoi21_l	A0->Y (RF)	0.04203	0.47464	5.84676
	A1->Y (RF)	0.03823	0.50693	6.38507
	B0->Y (RF)	0.02501	0.48417	6.31142

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__aoi21_l	A0	0.00000	0.00000	0.00000
	A0	0.01439	0.01434	0.02479
	A1	0.00000	0.00000	0.00000
	A1	0.01209	0.01169	0.02213
	B0	0.00845	0.00913	0.02453

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__aoi21_l	A0	0.00000	0.00000	0.00000
	A0	0.00254	0.00232	0.01189
	A1	0.00000	0.00000	0.00000
	A1	0.00261	0.00278	0.01398
	B0	-0.00154	-0.00078	0.01087

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__aoi21_l	(A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * !Y)	-0.00476	-0.00527	-0.00525
	(!A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !Y)	-0.00531	-0.00536	-0.00532
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00531	-0.00535	-0.00533

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__aoi21_l	(A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * !Y)	0.00522	0.00527	0.00525
	(!A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !Y)	0.00532	0.00539	0.00534
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00539	0.00539	0.00534

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__aoi21_l	(A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * B0 * !Y)	-0.00473	-0.00519	-0.00517
	(!A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !Y)	-0.00524	-0.00524	-0.00524
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	-0.00566	-0.00570	-0.00569

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__aoi21_l	(A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * B0 * !Y)	0.00514	0.00519	0.00517
	(!A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !Y)	0.00524	0.00527	0.00526
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	0.00567	0.00573	0.00571

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__aoi21_l	(A0 * A1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !Y)	-0.00221	-0.00225	-0.00221

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__aoi21_l	(A0 * A1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !Y)	0.00237	0.00240	0.00225

SKY130_OSU_SC_15T_LS__AOI22

sky130_osu_sc_15T_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_15T_ls__aoi22_l	12.82050

Pin Capacitance Information

Cell Name	Pin Cap(pf)				Max Cap(pf)
	A0	A1	B0	B1	Y
sky130_osu_sc_15T_ls__aoi22_l	0.00407	0.00421	0.00437	0.00418	1.03525

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_15T_ls__aoi22_l	0.00000	0.00340	0.00937

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_ls__aoi22_l	A0->Y (FR)	0.08815	0.84036	10.28680
	A1->Y (FR)	0.07852	0.82188	10.17730
	B0->Y (FR)	0.05354	0.82631	10.72760
	B1->Y (FR)	0.06341	0.84972	10.90160

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_ls__aoi22_l	A0->Y (RF)	0.05628	0.49469	5.94635
	A1->Y (RF)	0.05240	0.52644	6.48954
	B0->Y (RF)	0.02752	0.49526	6.46058
	B1->Y (RF)	0.03142	0.46362	5.92000

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__aoi22_l	A0	0.01779	0.01771	0.02822
	A1	0.01551	0.01539	0.02550
	B0	0.00922	0.00986	0.02597
	B1	0.01148	0.01226	0.02772

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__aoi22_l	A0	0.00556	0.00533	0.01525
	A1	0.00562	0.00575	0.01738
	B0	-0.00106	-0.00035	0.01115
	B1	-0.00094	-0.00073	0.00911

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__aoi22_l	(A1 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * B1 * !Y)	-0.00492	-0.00528	-0.00525
	(!A1 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * B1 * !Y)	-0.00531	-0.00535	-0.00533
	(!A1 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !B1 * Y)	-0.00531	-0.00536	-0.00533
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00531	-0.00534	-0.00533

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__aoi22_l	(A1 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * B1 * !Y)	0.00522	0.00528	0.00525
	(!A1 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * B1 * !Y)	0.00532	0.00539	0.00534
	(!A1 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !B1 * Y)	0.00539	0.00539	0.00534
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00539	0.00539	0.00534

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__aoi22_l	(A0 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * B0 * B1 * !Y)	-0.00488	-0.00521	-0.00517
	(!A0 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * B1 * !Y)	-0.00522	-0.00525	-0.00524
	(!A0 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !B1 * Y)	-0.00565	-0.00569	-0.00568
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	-0.00565	-0.00569	-0.00568

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__aoi22_l	(A0 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * B0 * B1 * !Y)	0.00514	0.00521	0.00517
	(!A0 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * B1 * !Y)	0.00522	0.00529	0.00526
	(!A0 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !B1 * Y)	0.00566	0.00572	0.00570
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	0.00566	0.00572	0.00570

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__aoi22_l	(A0 * A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * B1 * !Y)	-0.00221	-0.00227	-0.00222
	(A0 * A1 * !B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B1 * !Y)	-0.00220	-0.00222	-0.00221
	(!A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B1 * Y)	-0.00583	-0.00587	-0.00587
	(!A0 * A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B1 * Y)	-0.00583	-0.00584	-0.00587

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__aoi22_l	(A0 * A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * B1 * !Y)	0.00246	0.00249	0.00228
	(A0 * A1 * !B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B1 * !Y)	0.00220	0.00222	0.00221
	(!A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B1 * Y)	0.00585	0.00590	0.00588
	(!A0 * A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B1 * Y)	0.00585	0.00590	0.00588

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__aoi22_l	(A0 * A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * B0 * !Y)	-0.00222	-0.00228	-0.00224
	(A0 * A1 * !B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B0 * !Y)	-0.00222	-0.00224	-0.00223
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00541	-0.00545	-0.00542
	(!A0 * A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B0 * Y)	-0.00541	-0.00542	-0.00542

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__aoi22_l	(A0 * A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * B0 * !Y)	0.00249	0.00251	0.00230
	(A0 * A1 * !B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B0 * !Y)	0.00223	0.00224	0.00223
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00547	0.00545	0.00544
	(!A0 * A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B0 * Y)	0.00547	0.00545	0.00543

SKY130_OSU_SC_15T_LS__BUFx

sky130_osu_sc_15T_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_15T_ls__buf_1	7.93650
sky130_osu_sc_15T_ls__buf_2	10.37850
sky130_osu_sc_15T_ls__buf_4	15.26250
sky130_osu_sc_15T_ls__buf_6	20.14650
sky130_osu_sc_15T_ls__buf_8	25.03050
sky130_osu_sc_15T_ls__buf_l	7.93650

Pin Capacitance Information

Cell Name	Pin Cap(pf)	Max Cap(pf)
	A	Y
sky130_osu_sc_15T_ls__buf_1	0.00441	2.10772
sky130_osu_sc_15T_ls__buf_2	0.00445	4.15429
sky130_osu_sc_15T_ls__buf_4	0.00444	8.12313
sky130_osu_sc_15T_ls__buf_6	0.00092	1.80000
sky130_osu_sc_15T_ls__buf_8	0.00446	15.47223
sky130_osu_sc_15T_ls__buf_l	0.00338	1.30368

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_15T_ls__buf_1	0.00000	0.00506	0.00506
sky130_osu_sc_15T_ls__buf_2	0.00000	0.00759	0.00974
sky130_osu_sc_15T_ls__buf_4	0.00000	0.01264	0.01911
sky130_osu_sc_15T_ls__buf_6	0.00000	0.00000	0.00000
sky130_osu_sc_15T_ls__buf_8	0.00000	0.02276	0.03785
sky130_osu_sc_15T_ls__buf_l	0.00000	0.03677	0.03677

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_ls__buf_1	**A->Y (RR)**	0.05017	0.48126	6.28175
sky130_osu_sc_15T_ls__buf_2	**A->Y (RR)**	0.05705	0.42263	6.30319
sky130_osu_sc_15T_ls__buf_4	**A->Y (RR)**	0.07703	0.42318	6.58967
sky130_osu_sc_15T_ls__buf_8	**A->Y (RR)**	0.11606	0.47405	6.83095
sky130_osu_sc_15T_ls__buf_l	**A->Y (RR)**	0.05748	0.56095	6.11142

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_ls__buf_1	**A->Y (FF)**	0.05400	0.50584	6.33268
sky130_osu_sc_15T_ls__buf_2	**A->Y (FF)**	0.06401	0.49308	6.64422
sky130_osu_sc_15T_ls__buf_4	**A->Y (FF)**	0.08957	0.51681	6.97180
sky130_osu_sc_15T_ls__buf_8	**A->Y (FF)**	0.14357	0.58765	7.18972
sky130_osu_sc_15T_ls__buf_l	**A->Y (FF)**	0.06228	0.54426	5.87235

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__buf_1	A	0.00000	0.00000	0.00000
	A	0.00564	0.00791	0.06548
sky130_osu_sc_15T_ls__buf_2	A	0.00000	0.00000	0.00000
	A	0.01173	0.01382	0.06999
sky130_osu_sc_15T_ls__buf_4	A	0.00000	0.00000	0.00000
	A	0.02537	0.02817	0.08314
sky130_osu_sc_15T_ls__buf_8	A	0.00000	0.00000	0.00000
	A	0.05477	0.05693	0.11026
sky130_osu_sc_15T_ls__buf_l	A	0.00000	0.00000	0.00000
	A	0.00421	0.00572	0.04739

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__buf_1	A	0.00000	0.00000	0.00000
	A	0.01509	0.01871	0.08189
sky130_osu_sc_15T_ls__buf_2	A	0.00000	0.00000	0.00000
	A	0.01976	0.02359	0.07971
sky130_osu_sc_15T_ls__buf_4	A	0.00000	0.00000	0.00000
	A	0.03186	0.03538	0.09229
sky130_osu_sc_15T_ls__buf_8	A	0.00000	0.00000	0.00000
	A	0.06001	0.06008	0.11662
sky130_osu_sc_15T_ls__buf_l	A	0.00000	0.00000	0.00000
	A	0.01152	0.01370	0.05507

Passive power(pJ) for A rising :

Cell Name	Power(pJ)		
	first	mid	last
sky130_osu_sc_15T_ls__buf_6	0.00000	0.00000	0.00000
	-0.00097	-0.00097	-0.00097

Passive power(pJ) for A falling :

Cell Name	Power(pJ)		
	first	mid	last
sky130_osu_sc_15T_ls__buf_6	0.00000	0.00000	0.00000
	0.00097	0.00097	0.00097

SKY130_OSU_SC_15T_LS__DFFRx

sky130_osu_sc_15T_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_15T_ls__dffr_1	53.11350
sky130_osu_sc_15T_ls__dffr_l	53.11350

Pin Capacitance Information

Cell Name	Pin Cap(pf)			Max Cap(pf)	
	D	**RN**	**CK**	**Q**	**QN**
sky130_osu_sc_15T_ls__dffr_1	0.00419	0.00417	0.01211	1.95156	1.94867
sky130_osu_sc_15T_ls__dffr_l	0.00419	0.00417	0.01210	1.31919	1.30397

Leakage Information

Cell Name	Leakage(nW)		
	Min.	**Avg**	**Max.**
sky130_osu_sc_15T_ls__dffr_1	0.00000	0.05283	0.08382
sky130_osu_sc_15T_ls__dffr_l	0.00000	0.08453	0.11553

Delay Information

Delay(ns) to Q rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_ls__dffr_1	CK->Q (RR)	0.26397	1.20014	14.15000
	QN->Q (FR)	0.03021	0.81978	12.75390
sky130_osu_sc_15T_ls__dffr_l	CK->Q (RR)	0.25687	1.29902	13.69370
	QN->Q (FR)	0.03354	0.87715	12.39950

Delay(ns) to Q falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_ls__dffr_1	CK->Q (RF)	0.25222	1.19311	14.44200
	QN->Q (RF)	0.02236	0.58859	9.15203
	RN->Q (FF)	0.18771	1.26373	16.34030
sky130_osu_sc_15T_ls__dffr_l	CK->Q (RF)	0.25698	1.32037	14.12140
	QN->Q (RF)	0.02283	0.58415	8.29613
	RN->Q (FF)	0.19285	1.39036	16.01270

Delay(ns) to QN rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_ls__dffr_1	CK->QN (RR)	0.22534	0.68605	6.37231
	RN->QN (FR)	0.16078	0.75617	8.26722
sky130_osu_sc_15T_ls__dffr_l	CK->QN (RR)	0.22746	0.76215	6.47593
	RN->QN (FR)	0.16322	0.83224	8.37840

Delay(ns) to QN falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_ls__dffr_1	**CK->QN (RF)**	0.22415	0.58395	4.39084
sky130_osu_sc_15T_ls__dffr_l	**CK->QN (RF)**	0.21170	0.58196	3.90863

Constraint Information

Constraints(ns) for D rising :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_15T_ls__dffr_1	hold	CK (R)	-0.06651	-0.07409	0.04087
	setup	CK (R)	0.20933	0.24302	0.64967
sky130_osu_sc_15T_ls__dffr_l	hold	CK (R)	-0.06754	-0.07433	0.04118
	setup	CK (R)	0.21268	0.24399	0.64800

Constraints(ns) for D falling :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_15T_ls__dffr_1	hold	CK (R)	-0.10200	-0.29970	-3.70426
	setup	CK (R)	0.12344	0.31223	3.85031
sky130_osu_sc_15T_ls__dffr_l	hold	CK (R)	-0.10193	-0.30098	-3.71687
	setup	CK (R)	0.12344	0.31223	3.85031

Constraints(ns) for D rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_15T_ls__dffr_1	hold	CK (R)	-0.06651	-0.07409	0.04087
	setup	CK (R)	0.20933	0.24302	0.64967
sky130_osu_sc_15T_ls__dffr_l	hold	CK (R)	-0.06754	-0.07433	0.04118
	setup	CK (R)	0.21268	0.24399	0.64800

Constraints(ns) for D falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_15T_ls__dffr_1	hold	CK (R)	-0.10200	-0.29970	-3.70426
	setup	CK (R)	0.12344	0.31223	3.85031
sky130_osu_sc_15T_ls__dffr_l	hold	CK (R)	-0.10193	-0.30098	-3.71687
	setup	CK (R)	0.12344	0.31223	3.85031

Constraints(ns) for RN rising :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_15T_ls__dffr_1	recovery	CK (R)	0.17791	0.21150	0.93260
	removal	CK (R)	-0.04333	-0.05382	-0.11101
sky130_osu_sc_15T_ls__dffr_l	recovery	CK (R)	0.17851	0.21264	0.93227
	removal	CK (R)	-0.04333	-0.05382	-0.11101

Constraints(ns) for RN rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_15T_ls__dffr_1	recovery	CK (R)	0.17791	0.21150	0.93260
	removal	CK (R)	-0.04333	-0.05382	-0.11101
sky130_osu_sc_15T_ls__dffr_l	recovery	CK (R)	0.17851	0.21264	0.93227
	removal	CK (R)	-0.04333	-0.05382	-0.11101

Constraints(ns) for RN falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_15T_ls__dffr_1	min_pulse_width	RN ()	0.10934	0.45898	13.33370
	min_pulse_width	RN ()	0.10934	0.45898	13.33370
sky130_osu_sc_15T_ls__dffr_l	min_pulse_width	RN ()	0.10588	0.45898	13.33370
	min_pulse_width	RN ()	0.10588	0.45898	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_15T_ls__dffr_1	min_pulse_width	CK ()	0.12665	0.45898	13.33370
	min_pulse_width	CK ()	0.12665	0.45898	13.33370
sky130_osu_sc_15T_ls__dffr_l	min_pulse_width	CK ()	0.11626	0.45898	13.33370
	min_pulse_width	CK ()	0.12319	0.45898	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_15T_ls__dffr_1	min_pulse_width	CK ()	0.26512	0.45898	13.33370
	min_pulse_width	CK ()	0.10242	0.45898	13.33370
sky130_osu_sc_15T_ls__dffr_l	min_pulse_width	CK ()	0.26512	0.45898	13.33370
	min_pulse_width	CK ()	0.10242	0.45898	13.33370

Power Information

Internal switching power(pJ) to Q rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__dffr_1	CK	0.00000	0.00000	0.00000
	CK	0.01484	0.01289	0.00797
sky130_osu_sc_15T_ls__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.01290	0.01243	0.03967

Internal switching power(pJ) to Q falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__dffr_1	CK	0.00000	0.00000	0.00000
	CK	0.01755	0.01432	-0.00797
	RN	-0.00194	-0.13022	-2.15158
	RN	0.04065	0.03792	0.01594
sky130_osu_sc_15T_ls__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.01568	0.01431	0.02688
	RN	-0.00194	-0.10295	-1.45440
	RN	0.03875	0.03791	0.05148

Internal switching power(pJ) to QN rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__dffr_1	CK	0.00000	0.00000	0.00000
	CK	0.01754	0.01431	-0.00752
	RN	-0.00194	-0.13011	-2.14839
	RN	0.04063	0.03790	0.01589
sky130_osu_sc_15T_ls__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.01568	0.01434	0.02720
	RN	-0.00194	-0.10224	-1.43762
	RN	0.03874	0.03791	0.05337

Internal switching power(pJ) to QN falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__dffr_1	CK	0.00000	0.00000	0.00000
	CK	0.01479	0.01289	0.00752
sky130_osu_sc_15T_ls__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.01285	0.01246	0.03945

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__dffr_1	CK	0.00000	0.00000	0.00000
	CK	-0.00456	-0.00522	-0.00521
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.01857	0.01891	0.07292
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.00794	0.00844	0.06232
sky130_osu_sc_15T_ls__dffr_l	CK	0.00000	0.00000	0.00000
	CK	-0.00456	-0.00522	-0.00521
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.01856	0.01891	0.07292
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.00794	0.00844	0.06232

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__dffr_1	CK	0.00000	0.00000	0.00000
	CK	0.00517	0.00522	0.00521
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.03139	0.03205	0.08720
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.01505	0.01572	0.06967
sky130_osu_sc_15T_ls__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.00517	0.00522	0.00521
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.03139	0.03205	0.08720
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.01506	0.01577	0.06967

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__dffr_1	(CK * !Q * QN) + (!CK * !D * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !Q * QN) + (!CK * !D * !Q * QN)	0.00542	0.00743	0.08785
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.01652	0.01815	0.09971
sky130_osu_sc_15T_ls__dffr_l	(CK * !Q * QN) + (!CK * !D * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !Q * QN) + (!CK * !D * !Q * QN)	0.00542	0.00741	0.08786
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.01652	0.01814	0.09971

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__dffr_1	(CK * !Q * QN) + (!CK * !D * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !Q * QN) + (!CK * !D * !Q * QN)	0.01447	0.01757	0.09785
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.03062	0.03339	0.11435
sky130_osu_sc_15T_ls__dffr_l	(CK * !Q * QN) + (!CK * !D * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !Q * QN) + (!CK * !D * !Q * QN)	0.01446	0.01757	0.09784
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.03062	0.03336	0.11440

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__dffr_1	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	-0.00147	0.00023	0.08066
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.00923	0.00983	0.09241
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	-0.00197	0.00039	0.07983
sky130_osu_sc_15T_ls__dffr_l	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	-0.00147	0.00023	0.08066
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.00924	0.00983	0.09237
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	-0.00197	0.00039	0.07984

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__dffr_1	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.02178	0.02485	0.10549
	(D * RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * RN * !Q * QN)	0.04805	0.04942	0.14827
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.03659	0.03897	0.12019
	(!D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * Q * !QN)	0.04665	0.05187	0.18142
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.02526	0.02791	0.10729
sky130_osu_sc_15T_ls__dffr_l	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.02178	0.02485	0.10549
	(D * RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * RN * !Q * QN)	0.04805	0.04942	0.14827
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.03659	0.03897	0.12019
	(!D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * Q * !QN)	0.04665	0.05187	0.18142
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.02526	0.02791	0.10729

SKY130_OSU_SC_15T_LS__DFFSRx

sky130_osu_sc_15T_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_15T_ls__dffsr_1	57.99750
sky130_osu_sc_15T_ls__dffsr_l	57.99750

Pin Capacitance Information

Cell Name	Pin Cap(pf)				Max Cap(pf)	
	D	**RN**	**SN**	**CK**	**Q**	**QN**
sky130_osu_sc_15T_ls__dffsr_1	0.00415	0.00418	0.00915	0.01236	2.19747	2.17664
sky130_osu_sc_15T_ls__dffsr_l	0.00415	0.00418	0.00914	0.01236	1.30713	1.30282

Leakage Information

Cell Name	Leakage(nW)		
	Min.	**Avg**	**Max.**
sky130_osu_sc_15T_ls__dffsr_1	0.00000	0.02013	0.02645
sky130_osu_sc_15T_ls__dffsr_l	0.00000	0.05184	0.05816

Delay Information

Delay(ns) to Q rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_ls__dffsr_1	CK->Q (RR)	0.25823	1.22345	15.30650
	QN->Q (FR)	0.02641	0.76094	12.20860
	RN->Q (RR)	0.20895	1.18763	15.38030
	SN->Q (FR)	0.19107	1.29365	17.37760
sky130_osu_sc_15T_ls__dffsr_l	CK->Q (RR)	0.25927	1.29866	13.54530
	QN->Q (FR)	0.03354	0.87241	12.30560
	RN->Q (RR)	0.20920	1.26161	13.61530
	SN->Q (FR)	0.19256	1.36680	15.60860

Delay(ns) to Q falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_ls__dffsr_1	CK->Q (RF)	0.28777	1.25382	15.53100
	QN->Q (RF)	0.02209	0.61470	9.86029
	RN->Q (FF)	0.19520	1.30026	17.42990
sky130_osu_sc_15T_ls__dffsr_l	CK->Q (RF)	0.29732	1.35913	14.03130
	QN->Q (RF)	0.02279	0.58185	8.24404
	RN->Q (FF)	0.20446	1.40561	15.92710

Delay(ns) to QN rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_ls__dffsr_1	CK->QN (RR)	0.26080	0.71770	6.54736
	RN->QN (FR)	0.16876	0.76385	8.44444
sky130_osu_sc_15T_ls__dffsr_l	CK->QN (RR)	0.26752	0.80668	6.51613
	RN->QN (FR)	0.17480	0.85304	8.42022

Delay(ns) to QN falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_ls__dffsr_1	CK->QN (RF)	0.22235	0.60314	4.95061
	RN->QN (RF)	0.17354	0.56839	5.02839
	SN->QN (FF)	0.15574	0.67431	7.02611
sky130_osu_sc_15T_ls__dffsr_l	CK->QN (RF)	0.21595	0.58813	3.90395
	RN->QN (RF)	0.16764	0.55339	3.97841
	SN->QN (FF)	0.14972	0.65643	5.96663

Constraint Information

Constraints(ns) for D rising :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_15T_ls__dffsr_1	hold	CK (R)	-0.06387	-0.07498	0.00807
	setup	CK (R)	0.20036	0.23067	0.70085
sky130_osu_sc_15T_ls__dffsr_l	hold	CK (R)	-0.06210	-0.07441	0.00996
	setup	CK (R)	0.20019	0.23042	0.70098

Constraints(ns) for D falling :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_15T_ls__dffsr_1	hold	CK (R)	-0.11898	-0.32018	-3.73991
	setup	CK (R)	0.14517	0.32929	3.90814
sky130_osu_sc_15T_ls__dffsr_l	hold	CK (R)	-0.11782	-0.32154	-3.74346
	setup	CK (R)	0.14517	0.32929	3.90814

Constraints(ns) for D rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_15T_ls__dffsr_1	hold	CK (R)	-0.06387	-0.07498	0.00807
	setup	CK (R)	0.20036	0.23067	0.70085
sky130_osu_sc_15T_ls__dffsr_l	hold	CK (R)	-0.06210	-0.07441	0.00996
	setup	CK (R)	0.20019	0.23042	0.70098

Constraints(ns) for D falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_15T_ls__dffsr_1	hold	CK (R)	-0.11898	-0.32018	-3.73991
	setup	CK (R)	0.14517	0.32929	3.90814
sky130_osu_sc_15T_ls__dffsr_l	hold	CK (R)	-0.11782	-0.32154	-3.74346
	setup	CK (R)	0.14517	0.32929	3.90814

Constraints(ns) for RN rising :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_15T_ls__dffsr_1	recovery	CK (R)	0.14900	0.18444	0.89027
	removal	CK (R)	-0.02205	-0.02651	-0.05627
	hold	SN (R)	-0.15178	-0.27848	-1.10745
	setup	SN (R)	0.17341	0.32239	3.84961
sky130_osu_sc_15T_ls__dffsr_l	recovery	CK (R)	0.14923	0.18343	0.88771
	removal	CK (R)	-0.02205	-0.02651	-0.05734
	hold	SN (R)	-0.14404	-0.27050	-1.05793
	setup	SN (R)	0.17208	0.31042	3.66077

Constraints(ns) for RN rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_15T_ls__dffsr_1	recovery	CK (R)	0.14900	0.18444	0.89027
	removal	CK (R)	-0.02205	-0.02651	-0.05627
	hold	SN (R)	-0.15178	-0.27848	-1.10745
	hold	SN (R)	-0.15297	-0.27848	-1.10932
	setup	SN (R)	0.17330	0.31787	3.50060
	setup	SN (R)	0.17341	0.32239	3.84961
sky130_osu_sc_15T_ls__dffsr_l	recovery	CK (R)	0.14923	0.18343	0.88771
	removal	CK (R)	-0.02205	-0.02651	-0.05734
	hold	SN (R)	-0.14404	-0.27050	-1.05793
	hold	SN (R)	-0.14526	-0.27050	-1.06671
	setup	SN (R)	0.17208	0.31042	3.30992
	setup	SN (R)	0.16486	0.31030	3.66077

Constraints(ns) for RN falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_15T_ls__dffsr_1	min_pulse_width	RN ()	0.13011	0.45898	13.33370
	min_pulse_width	RN ()	0.13011	0.45898	13.33370
sky130_osu_sc_15T_ls__dffsr_l	min_pulse_width	RN ()	0.13011	0.45898	13.33370
	min_pulse_width	RN ()	0.12665	0.45898	13.33370

Constraints(ns) for SN rising :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_15T_ls__dffsr_1	recovery	CK (R)	0.03834	0.07474	5.03085
	removal	CK (R)	-0.01627	-0.05782	-0.31694
sky130_osu_sc_15T_ls__dffsr_l	recovery	CK (R)	0.03751	0.07475	4.94225
	removal	CK (R)	-0.01930	-0.05782	-0.31694

Constraints(ns) for SN rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_15T_ls__dffsr_1	recovery	CK (R)	0.03834	0.07474	5.03085
	removal	CK (R)	-0.01627	-0.05782	-0.31694
sky130_osu_sc_15T_ls__dffsr_l	recovery	CK (R)	0.03751	0.07475	4.94225
	removal	CK (R)	-0.01930	-0.05782	-0.31694

Constraints(ns) for SN falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_15T_ls__dffsr_1	min_pulse_width	SN ()	0.15434	0.45898	13.33370
	min_pulse_width	SN ()	0.15434	0.45898	13.33370
sky130_osu_sc_15T_ls__dffsr_l	min_pulse_width	SN ()	0.15088	0.45898	13.33370
	min_pulse_width	SN ()	0.14742	0.45898	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_15T_ls__dffsr_1	min_pulse_width	CK ()	0.11626	0.45898	13.33370
	min_pulse_width	CK ()	0.14742	0.45898	13.33370
sky130_osu_sc_15T_ls__dffsr_l	min_pulse_width	CK ()	0.10934	0.45898	13.33370
	min_pulse_width	CK ()	0.14396	0.45898	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_15T_ls__dffsr_1	min_pulse_width	CK ()	0.25474	0.45898	13.33370
	min_pulse_width	CK ()	0.12319	0.45898	13.33370
sky130_osu_sc_15T_ls__dffsr_l	min_pulse_width	CK ()	0.25474	0.45898	13.33370
	min_pulse_width	CK ()	0.12319	0.45898	13.33370

Power Information

Internal switching power(pJ) to Q rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__dffsr_1	CK	0.00000	0.00000	0.00000
	CK	0.01892	0.01644	0.00125
	RN	0.03512	0.03165	-0.00182
	SN	-0.00194	-0.13983	-2.42272
	SN	0.03365	0.02921	-0.00100
sky130_osu_sc_15T_ls__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.01720	0.01668	0.04416
	RN	0.03339	0.03185	0.04144
	SN	-0.00194	-0.10239	-1.44111
	SN	0.03195	0.02947	0.04154

Internal switching power(pJ) to Q falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__dffsr_1	CK	0.00000	0.00000	0.00000
	CK	0.02026	0.01875	0.01723
	RN	-0.00194	-0.13983	-2.42270
	RN	0.04227	0.04104	0.04168
sky130_osu_sc_15T_ls__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.01848	0.01731	0.03051
	RN	-0.00194	-0.10239	-1.44111
	RN	0.03996	0.03913	0.05445

Internal switching power(pJ) to QN rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__dffsr_1	CK	0.00000	0.00000	0.00000
	CK	0.02024	0.01876	0.01766
	RN	-0.00194	-0.13904	-2.39963
	RN	0.04226	0.04104	0.04171
sky130_osu_sc_15T_ls__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.01848	0.01732	0.03053
	RN	-0.00194	-0.10218	-1.43635
	RN	0.03996	0.03914	0.05459

Internal switching power(pJ) to QN falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__dffsr_1	CK	0.00000	0.00000	0.00000
	CK	0.01887	0.01645	0.00107
	RN	0.03507	0.03165	-0.00126
	SN	-0.00194	-0.13904	-2.39952
	SN	0.03361	0.02927	-0.00037
sky130_osu_sc_15T_ls__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.01715	0.01666	0.04336
	RN	0.03333	0.03181	0.04134
	SN	-0.00194	-0.10218	-1.43625
	SN	0.03190	0.02946	0.04158

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__dffsr_1	CK	0.00000	0.00000	0.00000
	CK	-0.00508	-0.00522	-0.00521
	(!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)	0.02448	0.02478	0.07855
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.00916	0.00964	0.06326
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.00913	0.00961	0.06321
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.00923	0.00971	0.06334
sky130_osu_sc_15T_ls__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	-0.00508	-0.00522	-0.00521
	(!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)	0.02448	0.02479	0.07855
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.00916	0.00964	0.06326
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.00913	0.00961	0.06321
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.00923	0.00971	0.06334

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__dffsr_1	CK	0.00000	0.00000	0.00000
	CK	0.00525	0.00522	0.00521
	(!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)	0.03593	0.03634	0.09032
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.01611	0.01676	0.07022
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.01613	0.01680	0.07016
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.01603	0.01669	0.07014
sky130_osu_sc_15T_ls__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.00525	0.00522	0.00521
	(!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)	0.03591	0.03633	0.09030
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.01610	0.01675	0.07021
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.01612	0.01680	0.07015
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.01602	0.01669	0.07013

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__dffsr_1	(CK * SN * !Q * QN) + (!CK * !D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * SN * !Q * QN) + (!CK * !D * SN * !Q * QN)	0.00423	0.00610	0.08631
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.01996	0.02141	0.10309
sky130_osu_sc_15T_ls__dffsr_l	(CK * SN * !Q * QN) + (!CK * !D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * SN * !Q * QN) + (!CK * !D * SN * !Q * QN)	0.00423	0.00610	0.08632
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.01996	0.02141	0.10310

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_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)	0.01569	0.01893	0.09947
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.03260	0.03540	0.11690
sky130_osu_sc_15T_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)	0.01567	0.01891	0.09946
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.03257	0.03538	0.11688

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_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)	-0.01191	-0.01199	-0.01197
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	-0.01194	-0.01262	-0.01258
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	-0.01167	-0.01204	-0.01200
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.00732	0.00807	0.06408
sky130_osu_sc_15T_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)	-0.01191	-0.01199	-0.01197
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	-0.01191	-0.01259	-0.01256
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	-0.01166	-0.01203	-0.01199
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.00733	0.00807	0.06409

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_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)	0.01194	0.01201	0.01201
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.01251	0.01262	0.01259
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	0.01197	0.01213	0.01202
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.02557	0.02564	0.07857
sky130_osu_sc_15T_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)	0.01194	0.01201	0.01201
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.01249	0.01259	0.01256
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	0.01197	0.01212	0.01201
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.02556	0.02563	0.07856

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__dffsr_1	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	-0.00147	0.00022	0.08068
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.01056	0.01128	0.09374
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.01048	0.01114	0.09367
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	-0.00169	0.00025	0.08018
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.00603	0.00922	0.15496
sky130_osu_sc_15T_ls__dffsr_l	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	-0.00147	0.00022	0.08068
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.01055	0.01126	0.09373
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.01046	0.01113	0.09365
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	-0.00169	0.00025	0.08018
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.00603	0.00922	0.15497

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

Cell Name	When	Power(pJ)		
		first	mid	last

sky130_osu_sc_15T_ls__dffsr_1	**(D * RN * SN * !Q * QN)**	0.00000	0.00000	0.00000
	(D * RN * SN * !Q * QN)	0.05412	0.05571	0.15424
	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.02186	0.02491	0.10559
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.03746	0.03991	0.12107
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.03759	0.03995	0.12161
	(!D * RN * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * Q * !QN)	0.05109	0.05566	0.18592
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.02505	0.02770	0.10710
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.02961	0.03479	0.18036
sky130_osu_sc_15T_ls__dffsr_l	**(D * RN * SN * !Q * QN)**	0.00000	0.00000	0.00000
	(D * RN * SN * !Q * QN)	0.05412	0.05571	0.15424
	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.02186	0.02491	0.10559
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.03746	0.03991	0.12107
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.03759	0.03995	0.12161
	(!D * RN * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * Q * !QN)	0.05107	0.05564	0.18591
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.02505	0.02769	0.10710
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.02960	0.03477	0.18035

SKY130_OSU_SC_15T_LS__DFFSx

sky130_osu_sc_15T_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_15T_ls__dffs_1	48.22950
sky130_osu_sc_15T_ls__dffs_l	48.22950

Pin Capacitance Information

Cell Name	Pin Cap(pf)			Max Cap(pf)	
	D	SN	CK	Q	QN
sky130_osu_sc_15T_ls__dffs_1	0.00417	0.00721	0.01211	1.95984	1.96087
sky130_osu_sc_15T_ls__dffs_l	0.00417	0.00721	0.01211	1.31179	1.31529

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_15T_ls__dffs_1	0.00000	0.06310	0.15585
sky130_osu_sc_15T_ls__dffs_l	0.00000	0.09481	0.18756

Delay Information

Delay(ns) to Q rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_ls__dffs_1	CK->Q (RR)	0.20795	1.13213	14.09290
	QN->Q (FR)	0.03018	0.81718	12.71820
	SN->Q (FR)	0.16627	1.28142	16.40920
sky130_osu_sc_15T_ls__dffs_l	CK->Q (RR)	0.20613	1.23338	13.50470
	QN->Q (FR)	0.03349	0.87176	12.30920
	SN->Q (FR)	0.16476	1.37657	15.79430

Delay(ns) to Q falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_ls__dffs_1	CK->Q (RF)	0.27740	1.22367	14.49200
	QN->Q (RF)	0.02224	0.58972	9.13765
sky130_osu_sc_15T_ls__dffs_l	CK->Q (RF)	0.28093	1.34286	14.03920
	QN->Q (RF)	0.02274	0.57762	8.24369

Delay(ns) to QN rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_ls__dffs_1	CK->QN (RR)	0.24996	0.71652	6.41746
sky130_osu_sc_15T_ls__dffs_l	CK->QN (RR)	0.25105	0.79132	6.54417

Delay(ns) to QN falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_ls__dffs_1	CK->QN (RF)	0.17164	0.51820	4.33177
	SN->QN (FF)	0.12978	0.66710	6.64773
sky130_osu_sc_15T_ls__dffs_l	CK->QN (RF)	0.16456	0.52418	3.86704
	SN->QN (FF)	0.12268	0.66688	6.15285

Constraint Information

Constraints(ns) for D rising :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_15T_ls__dffs_1	hold	CK (R)	-0.04728	-0.06195	0.04713
	setup	CK (R)	0.15626	0.19506	0.58984
sky130_osu_sc_15T_ls__dffs_l	hold	CK (R)	-0.05079	-0.06209	0.04685
	setup	CK (R)	0.15652	0.19509	0.58722

Constraints(ns) for D falling :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_15T_ls__dffs_1	hold	CK (R)	-0.10542	-0.30290	-3.78113
	setup	CK (R)	0.13428	0.31372	3.86182
sky130_osu_sc_15T_ls__dffs_l	hold	CK (R)	-0.10555	-0.30285	-3.78033
	setup	CK (R)	0.13400	0.31372	3.86182

Constraints(ns) for D rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_15T_ls__dffs_1	hold	CK (R)	-0.04728	-0.06195	0.04713
	setup	CK (R)	0.15626	0.19506	0.58984
sky130_osu_sc_15T_ls__dffs_l	hold	CK (R)	-0.05079	-0.06209	0.04685
	setup	CK (R)	0.15652	0.19509	0.58722

Constraints(ns) for D falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_15T_ls__dffs_1	hold	CK (R)	-0.10542	-0.30290	-3.78113
	setup	CK (R)	0.13428	0.31372	3.86182
sky130_osu_sc_15T_ls__dffs_l	hold	CK (R)	-0.10555	-0.30285	-3.78033
	setup	CK (R)	0.13400	0.31372	3.86182

Constraints(ns) for SN rising :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_15T_ls__dffs_1	recovery	CK (R)	0.03636	0.06489	3.32638
	removal	CK (R)	-0.01867	-0.05011	-0.18007
sky130_osu_sc_15T_ls__dffs_l	recovery	CK (R)	0.03658	0.06445	3.16308
	removal	CK (R)	-0.01867	-0.05011	-0.18007

Constraints(ns) for SN rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_15T_ls__dffs_1	recovery	CK (R)	0.03636	0.06489	3.32638
	removal	CK (R)	-0.01867	-0.05011	-0.18007
sky130_osu_sc_15T_ls__dffs_l	recovery	CK (R)	0.03658	0.06445	3.16308
	removal	CK (R)	-0.01867	-0.05011	-0.18007

Constraints(ns) for SN falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_15T_ls__dffs_1	min_pulse_width	SN ()	0.11626	0.45898	13.33370
	min_pulse_width	SN ()	0.12319	0.45898	13.33370
sky130_osu_sc_15T_ls__dffs_l	min_pulse_width	SN ()	0.11626	0.45898	13.33370
	min_pulse_width	SN ()	0.11280	0.45898	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_15T_ls__dffs_1	min_pulse_width	CK ()	0.09203	0.45898	13.33370
	min_pulse_width	CK ()	0.13703	0.45898	13.33370
sky130_osu_sc_15T_ls__dffs_l	min_pulse_width	CK ()	0.08511	0.45898	13.33370
	min_pulse_width	CK ()	0.13357	0.45898	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_15T_ls__dffs_1	min_pulse_width	CK ()	0.20973	0.45898	13.33370
	min_pulse_width	CK ()	0.11280	0.45898	13.33370
sky130_osu_sc_15T_ls__dffs_l	min_pulse_width	CK ()	0.20973	0.45898	13.33370
	min_pulse_width	CK ()	0.11280	0.45898	13.33370

Power Information

Internal switching power(pJ) to Q rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__dffs_1	CK	0.00000	0.00000	0.00000
	CK	0.01475	0.01291	0.00875
	SN	-0.00194	-0.13055	-2.16072
	SN	0.02744	0.02472	0.00419
sky130_osu_sc_15T_ls__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.01285	0.01248	0.04043
	SN	-0.00194	-0.10261	-1.44625
	SN	0.03098	0.02968	0.03600

Internal switching power(pJ) to Q falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__dffs_1	CK	0.00000	0.00000	0.00000
	CK	0.01746	0.01435	-0.00723
sky130_osu_sc_15T_ls__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.01559	0.01433	0.02819

Internal switching power(pJ) to QN rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__dffs_1	CK	0.00000	0.00000	0.00000
	CK	0.01745	0.01434	-0.00747
sky130_osu_sc_15T_ls__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.01558	0.01434	0.02806

Internal switching power(pJ) to QN falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__dffs_1	CK	0.00000	0.00000	0.00000
	CK	0.01470	0.01302	0.00838
	SN	-0.00194	-0.13059	-2.16165
	SN	0.02740	0.02474	0.00319
sky130_osu_sc_15T_ls__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.01280	0.01252	0.03988
	SN	-0.00194	-0.10277	-1.45001
	SN	0.03093	0.02966	0.03503

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__dffs_1	CK	0.00000	0.00000	0.00000
	CK	-0.00516	-0.00530	-0.00529
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.01782	0.01814	0.07304
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.00777	0.00829	0.06227
sky130_osu_sc_15T_ls__dffs_l	CK	0.00000	0.00000	0.00000
	CK	-0.00516	-0.00530	-0.00529
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.01782	0.01814	0.07304
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.00777	0.00829	0.06227

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__dffs_1	CK	0.00000	0.00000	0.00000
	CK	0.00533	0.00530	0.00529
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.03087	0.03134	0.08607
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.01537	0.01608	0.07006
sky130_osu_sc_15T_ls__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.00533	0.00530	0.00529
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.03087	0.03134	0.08607
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.01537	0.01608	0.07006

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__dffs_1	(CK * Q * !QN) + (!CK * D * Q * !QN)	0.00000	0.00000	0.00000
	(CK * Q * !QN) + (!CK * D * Q * !QN)	-0.00856	-0.00858	-0.00859
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.00647	0.00720	0.05515
sky130_osu_sc_15T_ls__dffs_l	(CK * Q * !QN) + (!CK * D * Q * !QN)	0.00000	0.00000	0.00000
	(CK * Q * !QN) + (!CK * D * Q * !QN)	-0.00855	-0.00859	-0.00859
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.00647	0.00719	0.05515

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__dffs_1	(CK * Q * !QN) + (!CK * D * Q * !QN)	0.00000	0.00000	0.00000
	(CK * Q * !QN) + (!CK * D * Q * !QN)	0.00861	0.00865	0.00861
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.01734	0.01812	0.06534
sky130_osu_sc_15T_ls__dffs_l	(CK * Q * !QN) + (!CK * D * Q * !QN)	0.00000	0.00000	0.00000
	(CK * Q * !QN) + (!CK * D * Q * !QN)	0.00861	0.00865	0.00861
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.01733	0.01813	0.06534

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__dffs_1	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	-0.00151	0.00019	0.08072
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	-0.00190	0.00049	0.08001
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.00464	0.00793	0.15450
sky130_osu_sc_15T_ls__dffs_l	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	-0.00151	0.00019	0.08072
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	-0.00190	0.00047	0.08001
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.00464	0.00793	0.15450

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__dffs_1	(D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * SN * !Q * QN)	0.04742	0.04894	0.14922
	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.02180	0.02488	0.10562
	(!D * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * SN * Q * !QN)	0.04592	0.05074	0.18045
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	0.02516	0.02785	0.10729
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.02873	0.03412	0.18063
sky130_osu_sc_15T_ls__dffs_l	(D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * SN * !Q * QN)	0.04742	0.04894	0.14922
	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.02180	0.02487	0.10562
	(!D * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * SN * Q * !QN)	0.04592	0.05075	0.18045
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	0.02516	0.02785	0.10729
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.02873	0.03412	0.18063

SKY130_OSU_SC_15T_LS__DFFx

sky130_osu_sc_15T_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_15T_ls__dff_1	40.29300
sky130_osu_sc_15T_ls__dff_l	40.29300

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)	
	D	CK	Q	QN
sky130_osu_sc_15T_ls__dff_1	0.00433	0.01200	2.21758	2.19159
sky130_osu_sc_15T_ls__dff_l	0.00433	0.01200	1.18340	1.17967

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_15T_ls__dff_1	0.00000	0.01826	0.02069
sky130_osu_sc_15T_ls__dff_l	0.00000	0.04997	0.05240

Delay Information

Delay(ns) to Q rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_ls__dff_1	CK->Q (RR)	0.17030	1.12216	15.30500
	QN->Q (FR)	0.02624	0.76091	12.23430
sky130_osu_sc_15T_ls__dff_l	CK->Q (RR)	0.17741	1.18159	12.62630
	QN->Q (FR)	0.03768	0.93180	12.78640

Delay(ns) to Q falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_ls__dff_1	CK->Q (RF)	0.23990	1.20332	15.58900
	QN->Q (RF)	0.02201	0.61504	9.87930
sky130_osu_sc_15T_ls__dff_l	CK->Q (RF)	0.25338	1.29611	13.23050
	QN->Q (RF)	0.02285	0.56149	7.76983

Delay(ns) to QN rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_ls__dff_1	CK->QN (RR)	0.21347	0.66476	6.51968
sky130_osu_sc_15T_ls__dff_l	CK->QN (RR)	0.22386	0.76715	6.32668

Delay(ns) to QN falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_ls__dff_1	CK->QN (RF)	0.13818	0.50191	4.86267
sky130_osu_sc_15T_ls__dff_l	CK->QN (RF)	0.13582	0.47384	3.38029

Constraint Information

Constraints(ns) for D rising :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_15T_ls__dff_1	hold	CK (R)	-0.04122	-0.05397	0.04138
	setup	CK (R)	0.11371	0.16277	0.54967
sky130_osu_sc_15T_ls__dff_l	hold	CK (R)	-0.04225	-0.05397	0.04136
	setup	CK (R)	0.11279	0.16142	0.55183

Constraints(ns) for D falling :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_15T_ls__dff_1	hold	CK (R)	-0.09839	-0.30333	-3.80572
	setup	CK (R)	0.11862	0.31609	3.86962
sky130_osu_sc_15T_ls__dff_l	hold	CK (R)	-0.09890	-0.30406	-3.80805
	setup	CK (R)	0.11834	0.31609	3.86962

Constraints(ns) for CK rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_15T_ls__dff_1	min_pulse_width	CK ()	0.07472	0.45898	13.33370
	min_pulse_width	CK ()	0.12319	0.45898	13.33370
sky130_osu_sc_15T_ls__dff_l	min_pulse_width	CK ()	0.07126	0.45898	13.33370
	min_pulse_width	CK ()	0.11972	0.45898	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_15T_ls__dff_1	**min_pulse_width**	**CK ()**	0.17165	0.45898	13.33370
	min_pulse_width	**CK ()**	0.09203	0.45898	13.33370
sky130_osu_sc_15T_ls__dff_l	**min_pulse_width**	**CK ()**	0.16819	0.45898	13.33370
	min_pulse_width	**CK ()**	0.09203	0.45898	13.33370

Power Information

Internal switching power(pJ) to Q rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__dff_1	CK	0.00000	0.00000	0.00000
	CK	0.01559	0.01340	-0.00055
sky130_osu_sc_15T_ls__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.01393	0.01371	0.04606

Internal switching power(pJ) to Q falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__dff_1	CK	0.00000	0.00000	0.00000
	CK	0.01779	0.01635	0.01605
sky130_osu_sc_15T_ls__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.01599	0.01379	0.01652

Internal switching power(pJ) to QN rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__dff_1	CK	0.00000	0.00000	0.00000
	CK	0.01778	0.01637	0.01667
sky130_osu_sc_15T_ls__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.01599	0.01380	0.01654

Internal switching power(pJ) to QN falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__dff_1	CK	0.00000	0.00000	0.00000
	CK	0.01555	0.01340	-0.00036
sky130_osu_sc_15T_ls__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.01389	0.01380	0.04499

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__dff_1	CK	0.00000	0.00000	0.00000
	CK	-0.00456	-0.00520	-0.00519
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.01652	0.01722	0.07223
sky130_osu_sc_15T_ls__dff_l	CK	0.00000	0.00000	0.00000
	CK	-0.00456	-0.00520	-0.00519
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.01652	0.01723	0.07224

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__dff_1	CK	0.00000	0.00000	0.00000
	CK	0.00516	0.00521	0.00519
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.03183	0.03245	0.08721
sky130_osu_sc_15T_ls__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.00517	0.00521	0.00519
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.03184	0.03246	0.08722

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__dff_1	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	-0.00151	0.00021	0.08075
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	-0.00188	0.00051	0.08008
sky130_osu_sc_15T_ls__dff_l	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	-0.00151	0.00021	0.08075
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	-0.00188	0.00050	0.08009

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__dff_1	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.02168	0.02477	0.10552
	(D * !Q * QN)	0.00000	0.00000	0.00000
	(D * !Q * QN)	0.04616	0.04787	0.14941
	(!D * Q * !QN)	0.00000	0.00000	0.00000
	(!D * Q * !QN)	0.04662	0.05168	0.18364
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.02502	0.02768	0.10718
sky130_osu_sc_15T_ls__dff_l	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.02168	0.02477	0.10552
	(D * !Q * QN)	0.00000	0.00000	0.00000
	(D * !Q * QN)	0.04617	0.04788	0.14941
	(!D * Q * !QN)	0.00000	0.00000	0.00000
	(!D * Q * !QN)	0.04663	0.05169	0.18365
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.02502	0.02770	0.10718

SKY130_OSU_SC_15T_LS__INVx

sky130_osu_sc_15T_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_15T_ls__inv_1	5.49450
sky130_osu_sc_15T_ls__inv_10	27.47250
sky130_osu_sc_15T_ls__inv_2	7.93650
sky130_osu_sc_15T_ls__inv_3	10.37850
sky130_osu_sc_15T_ls__inv_4	12.82050
sky130_osu_sc_15T_ls__inv_6	17.70450
sky130_osu_sc_15T_ls__inv_8	22.58850
sky130_osu_sc_15T_ls__inv_l	5.49450

Pin Capacitance Information

Cell Name	Pin Cap(pf)	Max Cap(pf)
	A	Y
sky130_osu_sc_15T_ls__inv_1	0.00422	2.04149
sky130_osu_sc_15T_ls__inv_10	0.03916	18.51838
sky130_osu_sc_15T_ls__inv_2	0.00802	4.08342
sky130_osu_sc_15T_ls__inv_3	0.01194	5.89105
sky130_osu_sc_15T_ls__inv_4	0.01578	7.90566
sky130_osu_sc_15T_ls__inv_6	0.02364	11.57669
sky130_osu_sc_15T_ls__inv_8	0.03141	15.24522
sky130_osu_sc_15T_ls__inv_l	0.00314	1.16403

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_15T_ls__inv_1	0.00000	0.00253	0.00469
sky130_osu_sc_15T_ls__inv_10	0.00000	0.02528	0.04685
sky130_osu_sc_15T_ls__inv_2	0.00000	0.00506	0.00937
sky130_osu_sc_15T_ls__inv_3	0.00000	0.00759	0.01406
sky130_osu_sc_15T_ls__inv_4	0.00000	0.01011	0.01874
sky130_osu_sc_15T_ls__inv_6	0.00000	0.01517	0.02811
sky130_osu_sc_15T_ls__inv_8	0.00000	0.02023	0.03748
sky130_osu_sc_15T_ls__inv_l	0.00000	0.01838	0.03623

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_ls__inv_1	**A->Y (FR)**	0.02514	0.69689	10.92820
sky130_osu_sc_15T_ls__inv_10	**A->Y (FR)**	0.03699	0.47047	10.84850
sky130_osu_sc_15T_ls__inv_2	**A->Y (FR)**	0.02060	0.60045	10.92070
sky130_osu_sc_15T_ls__inv_3	**A->Y (FR)**	0.02288	0.56298	10.97100
sky130_osu_sc_15T_ls__inv_4	**A->Y (FR)**	0.02352	0.53338	10.92700
sky130_osu_sc_15T_ls__inv_6	**A->Y (FR)**	0.02678	0.50104	10.88470
sky130_osu_sc_15T_ls__inv_8	**A->Y (FR)**	0.03152	0.48184	10.88580
sky130_osu_sc_15T_ls__inv_l	**A->Y (FR)**	0.03278	0.80002	10.94870

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_ls__inv_1	**A->Y (RF)**	0.01953	0.52234	8.21396
sky130_osu_sc_15T_ls__inv_10	**A->Y (RF)**	0.03051	0.31604	8.16113
sky130_osu_sc_15T_ls__inv_2	**A->Y (RF)**	0.01632	0.44332	8.25876
sky130_osu_sc_15T_ls__inv_3	**A->Y (RF)**	0.01812	0.41236	8.36160
sky130_osu_sc_15T_ls__inv_4	**A->Y (RF)**	0.01822	0.38182	8.33070
sky130_osu_sc_15T_ls__inv_6	**A->Y (RF)**	0.02258	0.35001	8.29916
sky130_osu_sc_15T_ls__inv_8	**A->Y (RF)**	0.02645	0.33109	8.28483
sky130_osu_sc_15T_ls__inv_l	**A->Y (RF)**	0.02087	0.50326	6.86793

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__inv_1	A	0.00000	0.00000	0.00000
	A	0.00794	0.00901	0.02137
sky130_osu_sc_15T_ls__inv_10	A	0.00000	0.00000	0.00000
	A	0.06850	0.09590	0.20669
sky130_osu_sc_15T_ls__inv_2	A	0.00000	0.00000	0.00000
	A	0.01407	0.01714	0.04059
sky130_osu_sc_15T_ls__inv_3	A	0.00000	0.00000	0.00000
	A	0.02161	0.02603	0.06116
sky130_osu_sc_15T_ls__inv_4	A	0.00000	0.00000	0.00000
	A	0.02781	0.03723	0.08064
sky130_osu_sc_15T_ls__inv_6	A	0.00000	0.00000	0.00000
	A	0.04115	0.05198	0.12169
sky130_osu_sc_15T_ls__inv_8	A	0.00000	0.00000	0.00000
	A	0.05464	0.07132	0.16328
sky130_osu_sc_15T_ls__inv_l	A	0.00000	0.00000	0.00000
	A	0.00590	0.00650	0.01594

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__inv_1	**A**	0.00000	0.00000	0.00000
	A	-0.00187	-0.00105	0.00795
sky130_osu_sc_15T_ls__inv_10	**A**	0.00000	0.00000	0.00000
	A	-0.02551	-0.01392	0.07506
sky130_osu_sc_15T_ls__inv_2	**A**	0.00000	0.00000	0.00000
	A	-0.00552	-0.00365	0.01419
sky130_osu_sc_15T_ls__inv_3	**A**	0.00000	0.00000	0.00000
	A	-0.00739	-0.00455	0.02231
sky130_osu_sc_15T_ls__inv_4	**A**	0.00000	0.00000	0.00000
	A	-0.01106	-0.00631	0.02880
sky130_osu_sc_15T_ls__inv_6	**A**	0.00000	0.00000	0.00000
	A	-0.01685	-0.00936	0.04346
sky130_osu_sc_15T_ls__inv_8	**A**	0.00000	0.00000	0.00000
	A	-0.02200	-0.01294	0.05835
sky130_osu_sc_15T_ls__inv_l	**A**	0.00000	0.00000	0.00000
	A	-0.00116	-0.00061	0.00733

SKY130_OSU_SC_15T_LS__MUX2

sky130_osu_sc_15T_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_15T_ls__mux2_1	15.26250

Pin Capacitance Information

Cell Name	Pin Cap(pf)			Max Cap(pf)
	A0	A1	S0	Y
sky130_osu_sc_15T_ls__mux2_1	0.02524	0.02508	0.00862	0.01885

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_15T_ls__mux2_1	0.00000	0.00747	0.01399

Delay Information

Delay(ns) to Y rising (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_15T_ls__mux2_1	A0->Y (RR)	-	0.01200	0.04760	0.10939
	A1->Y (RR)	-	0.01326	0.04817	0.10916
	S0->Y (RR)	(!A0 * A1)	0.04029	0.10297	-0.53017
	S0->Y (FR)	(A0 * !A1)	0.03315	0.21275	1.56761

Delay(ns) to Y falling (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_15T_ls__mux2_1	A0->Y (FF)	-	0.01206	0.05994	0.11810
	A1->Y (FF)	-	0.01144	0.05898	0.11752
	S0->Y (FF)	(!A0 * A1)	0.05427	0.23359	1.39903
	S0->Y (RF)	(A0 * !A1)	0.02279	0.07337	-0.43188

Power Information

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

Cell Name	Input	When	Power(pJ)		
			first	mid	last
sky130_osu_sc_15T_ls__mux2_1	A0	-	0.00000	0.00000	0.00000
	A0	-	-0.00793	-0.00793	-0.00796
	A1	-	0.00000	0.00000	0.00000
	A1	-	-0.00531	-0.00531	-0.00533
	S0	(A0 * !A1)	0.00000	0.00000	0.00000
	S0	(A0 * !A1)	0.00952	0.01339	0.09519
	S0	(!A0 * A1)	0.00000	0.00000	0.00000
	S0	(!A0 * A1)	-0.00554	-0.00271	0.07790

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

Cell Name	Input	When	Power(pJ)		
			first	mid	last
sky130_osu_sc_15T_ls__mux2_1	A0	-	0.00000	0.00000	0.00000
	A0	-	0.00793	0.00795	0.00796
	A1	-	0.00000	0.00000	0.00000
	A1	-	0.00531	0.00532	0.00533
	S0	(A0 * !A1)	0.00000	0.00000	0.00000
	S0	(A0 * !A1)	0.00122	0.00448	0.08627
	S0	(!A0 * A1)	0.00000	0.00000	0.00000
	S0	(!A0 * A1)	0.02145	0.02528	0.10517

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__mux2_1	(A1 * S0 * Y) + (!A1 * S0 * !Y)	0.00000	0.00000	0.00000
	(A1 * S0 * Y) + (!A1 * S0 * !Y)	-0.00191	-0.00191	-0.00191

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__mux2_1	(A1 * S0 * Y) + (!A1 * S0 * !Y)	0.00000	0.00000	0.00000
	(A1 * S0 * Y) + (!A1 * S0 * !Y)	0.00191	0.00191	0.00191

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__mux2_1	(A0 * !S0 * Y) + (!A0 * !S0 * !Y)	0.00000	0.00000	0.00000
	(A0 * !S0 * Y) + (!A0 * !S0 * !Y)	-0.00230	-0.00229	-0.00229

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__mux2_1	(A0 * !S0 * Y) + (!A0 * !S0 * !Y)	0.00000	0.00000	0.00000
	(A0 * !S0 * Y) + (!A0 * !S0 * !Y)	0.00230	0.00229	0.00229

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__mux2_1	(A0 * A1 * Y)	0.00000	0.00000	0.00000
	(A0 * A1 * Y)	-0.00220	0.00053	0.08203
	(!A0 * !A1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !Y)	-0.00214	0.00050	0.08223

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__mux2_1	(A0 * A1 * Y)	0.00000	0.00000	0.00000
	(A0 * A1 * Y)	0.01638	0.01950	0.10058
	(!A0 * !A1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !Y)	0.01457	0.01817	0.09997

SKY130_OSU_SC_15T_LS__NAND2x

sky130_osu_sc_15T_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_15T_ls__nand2_1	7.93650
sky130_osu_sc_15T_ls__nand2_l	7.93650

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	B	Y
sky130_osu_sc_15T_ls__nand2_1	0.00422	0.00420	1.94214
sky130_osu_sc_15T_ls__nand2_l	0.00314	0.00314	1.15545

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_15T_ls__nand2_1	0.00000	0.00255	0.00937
sky130_osu_sc_15T_ls__nand2_l	0.00000	0.01840	0.07245

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_ls__nand2_1	A->Y (FR)	0.02609	0.69012	10.66810
	B->Y (FR)	0.03098	0.68443	10.49080
sky130_osu_sc_15T_ls__nand2_l	A->Y (FR)	0.03392	0.80115	10.93310
	B->Y (FR)	0.04085	0.80591	10.90740

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_ls__nand2_1	A->Y (RF)	0.02719	0.63548	9.94158
	B->Y (RF)	0.03096	0.60999	9.44747
sky130_osu_sc_15T_ls__nand2_l	A->Y (RF)	0.02931	0.62994	8.56878
	B->Y (RF)	0.03262	0.60122	7.99120

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__nand2_1	A	0.00000	0.00000	0.00000
	A	0.00847	0.00952	0.02090
	B	0.00000	0.00000	0.00000
	B	0.01081	0.01159	0.02349
sky130_osu_sc_15T_ls__nand2_l	A	0.00000	0.00000	0.00000
	A	0.00624	0.00686	0.01501
	B	0.00000	0.00000	0.00000
	B	0.00788	0.00829	0.01674

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__nand2_1	A	0.00000	0.00000	0.00000
	A	-0.00129	-0.00075	0.00750
	B	0.00000	0.00000	0.00000
	B	-0.00123	-0.00103	0.00587
sky130_osu_sc_15T_ls__nand2_l	A	0.00000	0.00000	0.00000
	A	-0.00083	-0.00023	0.00642
	B	0.00000	0.00000	0.00000
	B	-0.00079	-0.00065	0.00539

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__nand2_1	(!B * Y)	0.00000	0.00000	0.00000
	(!B * Y)	-0.00589	-0.00588	-0.00592
sky130_osu_sc_15T_ls__nand2_l	(!B * Y)	0.00000	0.00000	0.00000
	(!B * Y)	-0.00407	-0.00409	-0.00409

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__nand2_1	(!B * Y)	0.00000	0.00000	0.00000
	(!B * Y)	0.00590	0.00592	0.00594
sky130_osu_sc_15T_ls__nand2_l	(!B * Y)	0.00000	0.00000	0.00000
	(!B * Y)	0.00408	0.00418	0.00411

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__nand2_1	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00549	-0.00552	-0.00549
sky130_osu_sc_15T_ls__nand2_l	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00380	-0.00383	-0.00381

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__nand2_1	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00555	0.00554	0.00551
sky130_osu_sc_15T_ls__nand2_l	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00385	0.00383	0.00382

SKY130_OSU_SC_15T_LS__NOR2x

sky130_osu_sc_15T_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_15T_ls__nor2_1	7.93650
sky130_osu_sc_15T_ls__nor2_l	7.93650

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	B	Y
sky130_osu_sc_15T_ls__nor2_1	0.00419	0.00448	1.12976
sky130_osu_sc_15T_ls__nor2_l	0.00304	0.00336	0.70827

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_15T_ls__nor2_1	0.00000	0.00263	0.00469
sky130_osu_sc_15T_ls__nor2_l	0.00000	0.01882	0.03623

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_ls__nor2_1	A->Y (FR)	0.05223	0.79051	10.38390
	B->Y (FR)	0.03933	0.80317	10.80750
sky130_osu_sc_15T_ls__nor2_l	A->Y (FR)	0.06264	0.90678	10.44550
	B->Y (FR)	0.05101	0.92597	10.97830

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_ls__nor2_1	A->Y (RF)	0.02717	0.43111	5.66393
	B->Y (RF)	0.02097	0.42241	5.64470
sky130_osu_sc_15T_ls__nor2_l	A->Y (RF)	0.02682	0.42822	4.94225
	B->Y (RF)	0.02212	0.41882	4.92540

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__nor2_1	A	0.00000	0.00000	0.00000
	A	0.01175	0.01185	0.02276
	B	0.00000	0.00000	0.00000
	B	0.00865	0.00929	0.02473
sky130_osu_sc_15T_ls__nor2_l	A	0.00000	0.00000	0.00000
	A	0.00822	0.00831	0.01722
	B	0.00000	0.00000	0.00000
	B	0.00633	0.00677	0.01802

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__nor2_1	A	0.00000	0.00000	0.00000
	A	0.00091	0.00165	0.01328
	B	0.00000	0.00000	0.00000
	B	-0.00143	-0.00063	0.01096
sky130_osu_sc_15T_ls__nor2_l	A	0.00000	0.00000	0.00000
	A	0.00057	0.00085	0.01105
	B	0.00000	0.00000	0.00000
	B	-0.00085	-0.00023	0.00942

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__nor2_1	(B * !Y)	0.00000	0.00000	0.00000
	(B * !Y)	-0.00457	-0.00524	-0.00522
sky130_osu_sc_15T_ls__nor2_l	(B * !Y)	0.00000	0.00000	0.00000
	(B * !Y)	-0.00310	-0.00350	-0.00349

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__nor2_1	(B * !Y)	0.00000	0.00000	0.00000
	(B * !Y)	0.00518	0.00526	0.00522
sky130_osu_sc_15T_ls__nor2_l	(B * !Y)	0.00000	0.00000	0.00000
	(B * !Y)	0.00348	0.00350	0.00349

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__nor2_1	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	-0.00221	-0.00227	-0.00222
sky130_osu_sc_15T_ls__nor2_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	-0.00152	-0.00155	-0.00152

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__nor2_1	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00231	0.00234	0.00225
sky130_osu_sc_15T_ls__nor2_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00158	0.00159	0.00154

SKY130_OSU_SC_15T_LS__OAI21

sky130_osu_sc_15T_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_15T_ls__oai21_l	10.37850

Pin Capacitance Information

Cell Name	Pin Cap(pf)			Max Cap(pf)
	A0	A1	B0	Y
sky130_osu_sc_15T_ls__oai21_l	0.00423	0.00430	0.00356	1.10225

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_15T_ls__oai21_l	0.00000	0.01504	0.04092

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_ls__oai21_l	A0->Y (FR)	0.05565	0.82746	10.86190
	A1->Y (FR)	0.07204	0.82024	10.46030
	B0->Y (FR)	0.03982	0.75548	10.13900

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_ls__oai21_l	A0->Y (RF)	0.03794	0.50659	6.49832
	A1->Y (RF)	0.04565	0.50272	6.34139
	B0->Y (RF)	0.02921	0.55368	7.38537

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__oai21_l	A0	0.00000	0.00000	0.00000
	A0	0.01200	0.01267	0.02577
	A1	0.00000	0.00000	0.00000
	A1	0.01512	0.01507	0.02503
	B0	0.01005	0.01057	0.02123

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__oai21_l	A0	0.00000	0.00000	0.00000
	A0	0.00008	0.00022	0.00891
	A1	0.00000	0.00000	0.00000
	A1	0.00246	0.00225	0.01120
	B0	0.00093	0.00139	0.01025

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__oai21_l	(A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * !Y)	-0.00224	-0.00226	-0.00223
	(A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * Y)	-0.00514	-0.00526	-0.00527
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00535	-0.00538	-0.00535

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__oai21_l	(A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * !Y)	0.00233	0.00235	0.00226
	(A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * Y)	0.00525	0.00526	0.00527
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00535	0.00539	0.00537

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__oai21_l	(A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * B0 * !Y)	-0.00447	-0.00515	-0.00512
	(A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * Y)	-0.00510	-0.00525	-0.00522
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	-0.00528	-0.00531	-0.00529

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__oai21_l	(A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * B0 * !Y)	0.00509	0.00515	0.00512
	(A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * Y)	0.00520	0.00525	0.00522
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	0.00529	0.00532	0.00530

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__oai21_l	(!A0 * !A1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * Y)	-0.00419	-0.00420	-0.00425

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__oai21_l	(!A0 * !A1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * Y)	0.00424	0.00428	0.00426

SKY130_OSU_SC_15T_LS__OAI22

sky130_osu_sc_15T_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_15T_ls__oai22_1	12.82050

Pin Capacitance Information

Cell Name	Pin Cap(pf)				Max Cap(pf)
	A0	A1	B0	B1	Y
sky130_osu_sc_15T_ls__oai22_1	0.00409	0.00432	0.00444	0.00433	1.12052

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_15T_ls__oai22_1	0.00000	0.00395	0.00937

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_ls__oai22_l	A0->Y (FR)	0.07800	0.81553	10.36740
	A1->Y (FR)	0.06503	0.82657	10.79180
	B0->Y (FR)	0.04314	0.80560	10.78120
	B1->Y (FR)	0.05860	0.79715	10.35740

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_ls__oai22_l	A0->Y (RF)	0.06641	0.54689	6.64774
	A1->Y (RF)	0.05262	0.52806	6.59110
	B0->Y (RF)	0.04476	0.57652	7.48816
	B1->Y (RF)	0.05908	0.59582	7.59929

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__oai22_l	A0	0.01984	0.01980	0.02927
	A1	0.01669	0.01725	0.03051
	B0	0.00914	0.00992	0.02403
	B1	0.01245	0.01245	0.02231

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__oai22_l	A0	0.00424	0.00400	0.01281
	A1	-0.00058	-0.00048	0.00839
	B0	-0.00061	-0.00006	0.01069
	B1	0.00166	0.00216	0.01232

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__oai22_l	(A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * !Y)	-0.00456	-0.00522	-0.00522
	(A1 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * B1 * !Y)	-0.00456	-0.00522	-0.00522
	(A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * !B1 * Y)	-0.00509	-0.00525	-0.00523
	(!A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * !B1 * Y)	-0.00529	-0.00534	-0.00531

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__oai22_l	(A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * !Y)	0.00519	0.00522	0.00522
	(A1 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * B1 * !Y)	0.00519	0.00522	0.00522
	(A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * !B1 * Y)	0.00520	0.00525	0.00523
	(!A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * !B1 * Y)	0.00530	0.00534	0.00532

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__oai22_l	(A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * B0 * !Y)	-0.00219	-0.00225	-0.00221
	(A0 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * B1 * !Y)	-0.00220	-0.00225	-0.00221
	(A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * !B1 * Y)	-0.00506	-0.00520	-0.00519
	(!A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * !B1 * Y)	-0.00526	-0.00529	-0.00527

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__oai22_l	(A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * B0 * !Y)	0.00229	0.00232	0.00224
	(A0 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * B1 * !Y)	0.00229	0.00232	0.00224
	(A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * !B1 * Y)	0.00517	0.00520	0.00519
	(!A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * !B1 * Y)	0.00526	0.00529	0.00528

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__oai22_l	(A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * B1 * !Y)	-0.00218	-0.00223	-0.00219
	(A0 * !A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B1 * !Y)	-0.00217	-0.00223	-0.00219
	(!A0 * !A1 * B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B1 * Y)	-0.00564	-0.00581	-0.00576
	(!A0 * !A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B1 * Y)	-0.00573	-0.00577	-0.00583

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__oai22_l	(A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * B1 * !Y)	0.00227	0.00230	0.00222
	(A0 * !A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B1 * !Y)	0.00227	0.00229	0.00222
	(!A0 * !A1 * B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B1 * Y)	0.00579	0.00581	0.00576
	(!A0 * !A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B1 * Y)	0.00581	0.00585	0.00585

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__oai22_l	(A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * !Y)	-0.00450	-0.00515	-0.00513
	(A0 * !A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B0 * !Y)	-0.00450	-0.00516	-0.00513
	(!A0 * !A1 * B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B0 * Y)	-0.00575	-0.00590	-0.00588
	(!A0 * !A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B0 * Y)	-0.00584	-0.00586	-0.00593

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__oai22_l	(A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * !Y)	0.00510	0.00516	0.00513
	(A0 * !A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B0 * !Y)	0.00510	0.00516	0.00513
	(!A0 * !A1 * B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B0 * Y)	0.00589	0.00595	0.00588
	(!A0 * !A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B0 * Y)	0.00594	0.00598	0.00596

SKY130_OSU_SC_15T_LS__OR2x

sky130_osu_sc_15T_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_15T_ls__or2_1	10.37850
sky130_osu_sc_15T_ls__or2_2	12.82050
sky130_osu_sc_15T_ls__or2_4	17.70450
sky130_osu_sc_15T_ls__or2_8	27.47250
sky130_osu_sc_15T_ls__or2_l	10.37850

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	B	Y
sky130_osu_sc_15T_ls__or2_1	0.00454	0.00432	2.10622
sky130_osu_sc_15T_ls__or2_2	0.00455	0.00432	4.13365
sky130_osu_sc_15T_ls__or2_4	0.00455	0.00432	7.94850
sky130_osu_sc_15T_ls__or2_8	0.00455	0.00433	15.28769
sky130_osu_sc_15T_ls__or2_l	0.00344	0.00320	1.18304

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_15T_ls__or2_1	0.00000	0.00408	0.00543
sky130_osu_sc_15T_ls__or2_2	0.00000	0.00553	0.01011
sky130_osu_sc_15T_ls__or2_4	0.00000	0.00843	0.01948
sky130_osu_sc_15T_ls__or2_8	0.00000	0.01423	0.03822
sky130_osu_sc_15T_ls__or2_l	0.00000	0.02829	0.03731

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_ls__or2_1	A->Y (RR)	0.06172	0.51533	6.27472
	B->Y (RR)	0.05350	0.48746	6.16967
sky130_osu_sc_15T_ls__or2_2	A->Y (RR)	0.06776	0.45126	6.27385
	B->Y (RR)	0.05918	0.42581	6.17216
sky130_osu_sc_15T_ls__or2_4	A->Y (RR)	0.08810	0.44653	6.48088
	B->Y (RR)	0.07933	0.42559	6.38023
sky130_osu_sc_15T_ls__or2_8	A->Y (RR)	0.12716	0.49414	6.83874
	B->Y (RR)	0.11839	0.47807	6.74116
sky130_osu_sc_15T_ls__or2_l	A->Y (RR)	0.06829	0.60311	5.98741
	B->Y (RR)	0.06073	0.57783	5.85722

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_ls__or2_1	A->Y (FF)	0.09634	0.57799	6.73775
	B->Y (FF)	0.07919	0.57425	6.91171
sky130_osu_sc_15T_ls__or2_2	A->Y (FF)	0.11462	0.55710	6.85359
	B->Y (FF)	0.09756	0.55956	7.00510
sky130_osu_sc_15T_ls__or2_4	A->Y (FF)	0.16170	0.59627	7.12987
	B->Y (FF)	0.14469	0.60767	7.27149
sky130_osu_sc_15T_ls__or2_8	A->Y (FF)	0.25933	0.70240	7.43165
	B->Y (FF)	0.24239	0.71862	7.57899
sky130_osu_sc_15T_ls__or2_l	A->Y (FF)	0.11222	0.58835	5.69615
	B->Y (FF)	0.09312	0.59071	5.88608

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__or2_1	A	0.00000	0.00000	0.00000
	A	0.00831	0.00903	0.05405
	B	0.00000	0.00000	0.00000
	B	0.00623	0.00839	0.06092
sky130_osu_sc_15T_ls__or2_2	A	0.00000	0.00000	0.00000
	A	0.01455	0.01571	0.06249
	B	0.00000	0.00000	0.00000
	B	0.01234	0.01517	0.06818
sky130_osu_sc_15T_ls__or2_4	A	0.00000	0.00000	0.00000
	A	0.02824	0.03000	0.07719
	B	0.00000	0.00000	0.00000
	B	0.02598	0.02953	0.08275
sky130_osu_sc_15T_ls__or2_8	A	0.00000	0.00000	0.00000
	A	0.05762	0.05967	0.10517
	B	0.00000	0.00000	0.00000
	B	0.05542	0.05879	0.11683
sky130_osu_sc_15T_ls__or2_l	A	0.00000	0.00000	0.00000
	A	0.00602	0.00671	0.03799
	B	0.00000	0.00000	0.00000
	B	0.00464	0.00610	0.03789

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__or2_1	A	0.00000	0.00000	0.00000
	A	0.01905	0.01962	0.06000
	B	0.00000	0.00000	0.00000
	B	0.01549	0.01864	0.08340
sky130_osu_sc_15T_ls__or2_2	A	0.00000	0.00000	0.00000
	A	0.02388	0.02459	0.06536
	B	0.00000	0.00000	0.00000
	B	0.02027	0.02329	0.08611
sky130_osu_sc_15T_ls__or2_4	A	0.00000	0.00000	0.00000
	A	0.03774	0.03693	0.07728
	B	0.00000	0.00000	0.00000
	B	0.03400	0.03539	0.09403
sky130_osu_sc_15T_ls__or2_8	A	0.00000	0.00000	0.00000
	A	0.07413	0.06241	0.10071
	B	0.00000	0.00000	0.00000
	B	0.07037	0.06069	0.11389
sky130_osu_sc_15T_ls__or2_l	A	0.00000	0.00000	0.00000
	A	0.01391	0.01405	0.04502
	B	0.00000	0.00000	0.00000
	B	0.01154	0.01330	0.05494

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__or2_1	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00463	-0.00528	-0.00526
sky130_osu_sc_15T_ls__or2_2	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00463	-0.00528	-0.00525
sky130_osu_sc_15T_ls__or2_4	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00463	-0.00528	-0.00526
sky130_osu_sc_15T_ls__or2_8	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00463	-0.00527	-0.00525
sky130_osu_sc_15T_ls__or2_l	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00314	-0.00354	-0.00352

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__or2_1	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00523	0.00528	0.00526
sky130_osu_sc_15T_ls__or2_2	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00523	0.00528	0.00525
sky130_osu_sc_15T_ls__or2_4	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00523	0.00528	0.00526
sky130_osu_sc_15T_ls__or2_8	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00522	0.00527	0.00525
sky130_osu_sc_15T_ls__or2_l	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00350	0.00354	0.00352

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__or2_1	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00224	-0.00226	-0.00223
sky130_osu_sc_15T_ls__or2_2	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00224	-0.00226	-0.00223
sky130_osu_sc_15T_ls__or2_4	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00224	-0.00226	-0.00223
sky130_osu_sc_15T_ls__or2_8	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00224	-0.00227	-0.00223
sky130_osu_sc_15T_ls__or2_l	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00156	-0.00157	-0.00155

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__or2_1	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00233	0.00235	0.00227
sky130_osu_sc_15T_ls__or2_2	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00233	0.00236	0.00227
sky130_osu_sc_15T_ls__or2_4	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00233	0.00236	0.00227
sky130_osu_sc_15T_ls__or2_8	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00233	0.00236	0.00227
sky130_osu_sc_15T_ls__or2_l	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00162	0.00163	0.00157

SKY130_OSU_SC_15T_LS__TBUFIx

sky130_osu_sc_15T_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_15T_ls__tbufi_1	10.37850
sky130_osu_sc_15T_ls__tbufi_l	10.37850

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	OE	Y
sky130_osu_sc_15T_ls__tbufi_1	0.00447	0.00572	1.14084
sky130_osu_sc_15T_ls__tbufi_l	0.00336	0.00435	0.69654

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_15T_ls__tbufi_1	0.00000	0.00271	0.00937
sky130_osu_sc_15T_ls__tbufi_l	0.00000	0.01865	0.07246

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_ls__tbufi_1	A->Y (FR)	0.03758	0.79923	10.80180
	OE->Y (FR)	0.04567	0.37612	5.55657
	OE->Y (RR)	0.06945	0.59649	6.29890
sky130_osu_sc_15T_ls__tbufi_l	A->Y (FR)	0.04938	0.91866	10.86110
	OE->Y (FR)	0.05256	0.37591	5.55636
	OE->Y (RR)	0.07872	0.70190	6.11196

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_ls__tbufi_1	A->Y (RF)	0.02663	0.52229	7.03107
	OE->Y (FF)	0.04616	0.37610	5.55657
	OE->Y (RF)	0.02528	0.48734	6.47457
sky130_osu_sc_15T_ls__tbufi_l	A->Y (RF)	0.02908	0.52216	6.14471
	OE->Y (FF)	0.05317	0.37591	5.55634
	OE->Y (RF)	0.02706	0.48188	5.54911

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__tbufi_1	A	0.00000	0.00000	0.00000
	A	0.00813	0.00898	0.02218
	OE	0.00000	0.00000	0.00000
	OE	0.00834	0.01103	0.08189
sky130_osu_sc_15T_ls__tbufi_l	A	0.00000	0.00000	0.00000
	A	0.00599	0.00637	0.01614
	OE	0.00000	0.00000	0.00000
	OE	0.00579	0.00778	0.05645

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__tbufi_1	A	0.00000	0.00000	0.00000
	A	-0.00145	-0.00073	0.00936
	OE	0.00000	0.00000	0.00000
	OE	0.00514	0.00789	0.08922
sky130_osu_sc_15T_ls__tbufi_l	A	0.00000	0.00000	0.00000
	A	-0.00086	-0.00035	0.00819
	OE	0.00000	0.00000	0.00000
	OE	0.00347	0.00545	0.06162

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__tbufi_1	(!OE * Y)	0.00000	0.00000	0.00000
	(!OE * Y)	-0.00388	-0.00394	-0.00389
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	-0.00333	-0.00339	-0.00335
sky130_osu_sc_15T_ls__tbufi_l	(!OE * Y)	0.00000	0.00000	0.00000
	(!OE * Y)	-0.00283	-0.00285	-0.00284
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	-0.00247	-0.00251	-0.00249

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__tbufi_1	(!OE * Y)	0.00000	0.00000	0.00000
	(!OE * Y)	0.00388	0.00394	0.00389
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	0.00340	0.00345	0.00338
sky130_osu_sc_15T_ls__tbufi_l	(!OE * Y)	0.00000	0.00000	0.00000
	(!OE * Y)	0.00283	0.00285	0.00284
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	0.00252	0.00254	0.00249

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__tbufi_1	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00306	0.00601	0.08903
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00272	0.00573	0.08868
sky130_osu_sc_15T_ls__tbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00202	0.00412	0.06100
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00179	0.00392	0.06076

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__tbufi_1	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00940	0.01259	0.09523
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00964	0.01290	0.09537
sky130_osu_sc_15T_ls__tbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00712	0.00918	0.06541
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00733	0.00941	0.06551

SKY130_OSU_SC_15T_LS__TNBUFIx

sky130_osu_sc_15T_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_15T_ls__tnbufi_1	10.37850
sky130_osu_sc_15T_ls__tnbufi_l	10.37850

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	OE	Y
sky130_osu_sc_15T_ls__tnbufi_1	0.00446	0.00691	1.14080
sky130_osu_sc_15T_ls__tnbufi_l	0.00336	0.00496	0.69661

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_15T_ls__tnbufi_1	0.00000	0.00415	0.00506
sky130_osu_sc_15T_ls__tnbufi_l	0.00000	0.03054	0.03677

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_ls__tnbufi_1	A->Y (FR)	0.03781	0.79914	10.80300
	OE->Y (RR)	0.02595	0.37659	5.55699
	OE->Y (FR)	0.04911	0.78521	10.34340
sky130_osu_sc_15T_ls__tnbufi_l	A->Y (FR)	0.04965	0.91857	10.86150
	OE->Y (RR)	0.02587	0.37654	5.55697
	OE->Y (FR)	0.05997	0.89922	10.28690

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_ls__tnbufi_1	A->Y (RF)	0.02625	0.52218	7.03081
	OE->Y (RF)	0.02581	0.37654	5.55700
	OE->Y (FF)	0.04706	0.48012	5.33276
sky130_osu_sc_15T_ls__tnbufi_l	A->Y (RF)	0.02860	0.52198	6.14499
	OE->Y (RF)	0.02585	0.37651	5.55693
	OE->Y (FF)	0.05399	0.50582	4.87025

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__tnbufi_1	A	0.00000	0.00000	0.00000
	A	0.00836	0.00920	0.02273
	OE	0.00000	0.00000	0.00000
	OE	0.02072	0.02471	0.10763
sky130_osu_sc_15T_ls__tnbufi_l	A	0.00000	0.00000	0.00000
	A	0.00622	0.00659	0.01637
	OE	0.00000	0.00000	0.00000
	OE	0.01480	0.01746	0.07351

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__tnbufi_1	A	0.00000	0.00000	0.00000
	A	-0.00176	-0.00101	0.00908
	OE	0.00000	0.00000	0.00000
	OE	0.01783	0.02217	0.08758
sky130_osu_sc_15T_ls__tnbufi_l	A	0.00000	0.00000	0.00000
	A	-0.00115	-0.00062	0.00791
	OE	0.00000	0.00000	0.00000
	OE	0.01270	0.01545	0.06282

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__tnbufi_1	(OE * Y)	0.00000	0.00000	0.00000
	(OE * Y)	-0.00328	-0.00334	-0.00330
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	-0.00279	-0.00283	-0.00281
sky130_osu_sc_15T_ls__tnbufi_l	(OE * Y)	0.00000	0.00000	0.00000
	(OE * Y)	-0.00227	-0.00228	-0.00227
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	-0.00194	-0.00197	-0.00195

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__tnbufi_1	(OE * Y)	0.00000	0.00000	0.00000
	(OE * Y)	0.00328	0.00334	0.00330
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	0.00285	0.00288	0.00283
sky130_osu_sc_15T_ls__tnbufi_l	(OE * Y)	0.00000	0.00000	0.00000
	(OE * Y)	0.00227	0.00228	0.00227
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	0.00198	0.00200	0.00196

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__tnbufi_1	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	-0.00635	-0.00377	0.08006
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00617	-0.00367	0.08014
sky130_osu_sc_15T_ls__tnbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	-0.00413	-0.00229	0.05505
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00398	-0.00219	0.05509

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_ls__tnbufi_1	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.01544	0.01989	0.10369
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.01523	0.01993	0.10350
sky130_osu_sc_15T_ls__tnbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.01104	0.01384	0.07094
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.01089	0.01393	0.07081

SKY130_OSU_SC_15T_LS__XNOR2

sky130_osu_sc_15T_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_15T_ls__xnor2_l	17.70450

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	B	Y
sky130_osu_sc_15T_ls__xnor2_l	0.00886	0.00794	1.20130

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_15T_ls__xnor2_l	0.00000	0.00799	0.01443

Delay Information

Delay(ns) to Y rising (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_15T_ls__xnor2_l	A->Y (RR)	B	0.08721	0.63897	6.66230
	A->Y (FR)	!B	0.05039	0.82212	11.08950
	B->Y (RR)	A	0.06963	0.62342	6.73073
	B->Y (FR)	!A	0.06787	0.81506	10.68050

Delay(ns) to Y falling (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_15T_ls__xnor2_l	A->Y (FF)	B	0.08361	0.55669	5.78902
	A->Y (RF)	!B	0.03663	0.50783	6.73434
	B->Y (FF)	A	0.07209	0.54618	5.79244
	B->Y (RF)	!A	0.04665	0.52043	6.73530

Power Information

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

Cell Name	Input	When	Power(pJ)		
			first	mid	last
sky130_osu_sc_15T_ls__xnor2_l	A	B	0.00000	0.00000	0.00000
	A	B	0.00847	0.01079	0.08223
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.02007	0.02443	0.11832
	B	A	0.00000	0.00000	0.00000
	B	A	0.00258	0.00560	0.08928
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.02225	0.02561	0.11445

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

Cell Name	Input	When	Power(pJ)		
			first	mid	last
sky130_osu_sc_15T_ls__xnor2_l	A	B	0.00000	0.00000	0.00000
	A	B	0.02432	0.02659	0.10698
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00520	0.00798	0.09762
	B	A	0.00000	0.00000	0.00000
	B	A	0.02244	0.02610	0.10896
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00640	0.00891	0.09730

SKY130_OSU_SC_15T_LS__XOR2

sky130_osu_sc_15T_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_15T_ls__xor2_l	17.70450

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	B	Y
sky130_osu_sc_15T_ls__xor2_l	0.00887	0.00799	1.15440

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_15T_ls__xor2_l	0.00000	0.00799	0.01025

Delay Information

Delay(ns) to Y rising (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_15T_ls__xor2_l	A->Y (RR)	!B	0.08614	0.62672	6.56097
	A->Y (FR)	B	0.06318	0.80836	10.57280
	B->Y (RR)	!A	0.07358	0.62423	6.58425
	B->Y (FR)	A	0.06932	0.81344	10.54960

Delay(ns) to Y falling (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_15T_ls__xor2_l	A->Y (FF)	!B	0.07342	0.54236	5.52437
	A->Y (RF)	B	0.03824	0.54295	7.08945
	B->Y (FF)	!A	0.06955	0.54028	5.64599
	B->Y (RF)	A	0.04631	0.51484	6.56548

Power Information

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

Cell Name	Input	When	Power(pJ)		
			first	mid	last
sky130_osu_sc_15T_ls__xor2_l	A	B	0.00000	0.00000	0.00000
	A	B	0.02384	0.02730	0.11754
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00398	0.00506	0.08445
	B	A	0.00000	0.00000	0.00000
	B	A	0.02454	0.02807	0.11583
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00228	0.00505	0.08778

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

Cell Name	Input	When	Power(pJ)		
			first	mid	last
sky130_osu_sc_15T_ls__xor2_l	A	B	0.00000	0.00000	0.00000
	A	B	0.00385	0.00623	0.09733
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.02541	0.02885	0.09428
	B	A	0.00000	0.00000	0.00000
	B	A	0.00393	0.00619	0.09360
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.02282	0.02669	0.10879

SKY130_OSU_SC_15T_LS_x

sky130_osu_sc_15T_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_15T_ls__ant	5.49450
sky130_osu_sc_15T_ls__tiehi	5.49450
sky130_osu_sc_15T_ls__tielo	5.49450

Pin Capacitance Information

Cell Name	Pin Cap(pf)
	A
sky130_osu_sc_15T_ls__ant	0.63903
sky130_osu_sc_15T_ls__tiehi	0.00000
sky130_osu_sc_15T_ls__tielo	0.00000

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_15T_ls__ant	0.00000	377837.00000	755674.00000
sky130_osu_sc_15T_ls__tiehi	0.00000	0.00000	0.00000
sky130_osu_sc_15T_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_15T_ls__ant	0.00000	0.00000	0.00000
	-0.00270	0.09891	1.43210

Passive power(pJ) for A falling :

Cell Name	Power(pJ)		
	first	mid	last
sky130_osu_sc_15T_ls__ant	0.00000	0.00000	0.00000
	6.57637	6.25744	1.72134