sky130_osu_sc_15T_hs_ff_1P95_150C.ccs Library

Cell Groups
SKY130_OSU_SC_15T_HS__ADDFx
SKY130_OSU_SC_15T_HS__ADDHx
SKY130_OSU_SC_15T_HS__AND2x
SKY130_OSU_SC_15T_HS__AOI21
SKY130_OSU_SC_15T_HS__AOI22
SKY130_OSU_SC_15T_HS__BUFx
SKY130_OSU_SC_15T_HS__DFFRx
SKY130_OSU_SC_15T_HS__DFFSRx
SKY130_OSU_SC_15T_HS__DFFSx
SKY130_OSU_SC_15T_HS__DFFx
SKY130_OSU_SC_15T_HS__INVx
SKY130_OSU_SC_15T_HS__MUX2
SKY130_OSU_SC_15T_HS__NAND2x
SKY130_OSU_SC_15T_HS__NOR2x
SKY130_OSU_SC_15T_HS__OAI21
SKY130_OSU_SC_15T_HS__OAI22
SKY130_OSU_SC_15T_HS__OR2x
SKY130_OSU_SC_15T_HS__TBUFIx
SKY130_OSU_SC_15T_HS__TNBUFIx
SKY130_OSU_SC_15T_HS__XNOR2
SKY130_OSU_SC_15T_HS__XOR2
SKY130_OSU_SC_15T_HS_x

SKY130_OSU_SC_15T_HS__ADDFx

sky130_osu_sc_15T_hs_ff_1P95_150C.ccs
Cell Library: Process , Voltage 1.95, Temp 150.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_15T_hs__addf_1	39.07200
sky130_osu_sc_15T_hs__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_hs__addf_1	0.01525	0.01514	0.01168	2.63460	1.30767	2.59935
sky130_osu_sc_15T_hs__addf_l	0.01524	0.01513	0.01166	1.80603	1.31035	1.88646

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_15T_hs__addf_1	0.00000	1503.42000	1842.89000
sky130_osu_sc_15T_hs__addf_l	0.00000	1312.22000	1651.73000

Delay Information

Delay(ns) to CO rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_hs__addf_1	A->CO (RR)	0.10867	1.34084	23.98650
	B->CO (RR)	0.11125	1.33365	23.52350
	CI->CO (RR)	0.10343	1.39031	24.77700
	CON->CO (FR)	0.01643	0.53441	9.23228
sky130_osu_sc_15T_hs__addf_l	A->CO (RR)	0.10822	1.22571	18.95010
	B->CO (RR)	0.11088	1.23065	18.85770
	CI->CO (RR)	0.10300	1.27357	19.75510
	CON->CO (FR)	0.01874	0.57373	9.07200

Delay(ns) to CO falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_hs__addf_1	A->CO (FF)	0.11474	1.46403	26.13940
	B->CO (FF)	0.10025	1.43094	25.53690
	CI->CO (FF)	0.09866	1.49537	26.81210
	CON->CO (RF)	0.01889	0.53916	9.53841
sky130_osu_sc_15T_hs__addf_l	A->CO (FF)	0.11135	1.29018	19.89920
	B->CO (FF)	0.09713	1.26948	19.69020
	CI->CO (FF)	0.09526	1.32225	20.59410
	CON->CO (RF)	0.01886	0.52625	8.34771

Delay(ns) to CON rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_hs__addf_1	A->CON (FR)	0.08769	0.62084	8.15635
	B->CON (FR)	0.07350	0.62318	8.38251
	CI->CON (FR)	0.07161	0.65502	8.87117
sky130_osu_sc_15T_hs__addf_l	A->CON (FR)	0.08320	0.61715	8.16421
	B->CON (FR)	0.06941	0.61978	8.38931
	CI->CON (FR)	0.06711	0.65133	8.87775

Delay(ns) to CON falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_hs__addf_1	A->CON (RF)	0.07983	0.53694	6.98902
	B->CON (RF)	0.08276	0.56723	7.38633
	CI->CON (RF)	0.07464	0.58957	7.84041
sky130_osu_sc_15T_hs__addf_l	A->CON (RF)	0.07663	0.53427	6.99700
	B->CON (RF)	0.07969	0.56479	7.39383
	CI->CON (RF)	0.07140	0.58693	7.84830

Delay(ns) to S rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_hs__addf_1	A->S (-R)	0.17377	1.34031	21.86380
	B->S (-R)	0.19173	1.33664	20.96260
	CI->S (-R)	0.15688	1.37080	22.54200
	CON->S (RR)	0.05859	0.46321	6.99449
sky130_osu_sc_15T_hs__addf_l	A->S (-R)	0.16543	1.24454	18.12420
	B->S (-R)	0.15553	1.21425	17.52880
	CI->S (-R)	0.14846	1.27599	18.81930
	CON->S (RR)	0.05693	0.49213	6.83746

Delay(ns) to S falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_hs__addf_1	A->S (-F)	0.16971	1.34870	21.89810
	B->S (-F)	0.16677	1.29842	21.02740
	CI->S (-F)	0.16613	1.39944	22.68830
	CON->S (FF)	0.06368	0.57340	8.60498
sky130_osu_sc_15T_hs__addf_l	A->S (-F)	0.16048	1.20904	17.33730
	B->S (-F)	0.15816	1.17445	16.92720
	CI->S (-F)	0.15687	1.26128	18.15360
	CON->S (FF)	0.06039	0.55791	7.57766

Power Information

Internal switching power(pJ) to CO rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__addf_1	A	0.02677	0.04026	0.30882
	B	0.02946	0.04151	0.28166
	CI	0.02949	0.04316	0.31011
sky130_osu_sc_15T_hs__addf_l	A	0.02071	0.03119	0.21554
	B	0.02345	0.03306	0.19938
	CI	0.02340	0.03402	0.21663

Internal switching power(pJ) to CO falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__addf_1	A	0.04379	0.06028	0.38731
	B	0.03996	0.05403	0.34603
	CI	0.04147	0.05847	0.38532
sky130_osu_sc_15T_hs__addf_l	A	0.03443	0.04680	0.26327
	B	0.03115	0.04227	0.23815
	CI	0.03211	0.04508	0.26197

Internal switching power(pJ) to CON rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__addf_1	A	0.03356	0.04519	0.23459
	B	0.03074	0.04143	0.21932
	CI	0.03149	0.04360	0.23542
sky130_osu_sc_15T_hs__addf_l	A	0.03050	0.04112	0.21393
	B	0.02775	0.03751	0.20000
	CI	0.02837	0.03947	0.21402

Internal switching power(pJ) to CON falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__addf_1	A	0.01812	0.02796	0.19328
	B	0.01833	0.02729	0.18445
	CI	0.02112	0.03126	0.19682
sky130_osu_sc_15T_hs__addf_l	A	0.01519	0.02441	0.17700
	B	0.01553	0.02387	0.16877
	CI	0.01813	0.02760	0.17973

Internal switching power(pJ) to S rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__addf_1	A	0.02994	0.04148	0.35661
	B	0.03398	0.04376	0.32600
	CI	0.03531	0.04823	0.33153
sky130_osu_sc_15T_hs__addf_l	A	0.02755	0.03981	0.35744
	B	0.03154	0.04197	0.32649
	CI	0.03288	0.04648	0.33260

Internal switching power(pJ) to S falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__addf_1	A	0.08468	0.09865	0.37234
	B	0.07231	0.08500	0.33294
	CI	0.06263	0.07629	0.32769
sky130_osu_sc_15T_hs__addf_l	A	0.07207	0.08694	0.37026
	B	0.06049	0.07422	0.33174
	CI	0.05186	0.06628	0.32703

SKY130_OSU_SC_15T_HS__ADDHx

sky130_osu_sc_15T_hs_ff_1P95_150C.ccs
Cell Library: Process , Voltage 1.95, Temp 150.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_15T_hs__addh_1	23.19900
sky130_osu_sc_15T_hs__addh_l	23.19900

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)		
	A	B	CO	CON	S
sky130_osu_sc_15T_hs__addh_1	0.00766	0.00851	2.70343	1.43395	2.63203
sky130_osu_sc_15T_hs__addh_l	0.00776	0.00874	1.92613	1.43654	1.97717

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_15T_hs__addh_1	0.00000	1607.46000	1826.40000
sky130_osu_sc_15T_hs__addh_l	0.00000	1377.10000	1646.47000

Delay Information

Delay(ns) to CO rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_hs__addh_1	A->CO (RR)	0.07379	0.49437	7.22877
	B->CO (RR)	0.07606	0.48364	7.28187
sky130_osu_sc_15T_hs__addh_l	A->CO (RR)	0.05919	0.48090	6.60947
	B->CO (RR)	0.06158	0.46660	6.52982

Delay(ns) to CO falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_hs__addh_1	A->CO (FF)	0.05081	0.43255	6.35972
	B->CO (FF)	0.05445	0.45226	6.62677
sky130_osu_sc_15T_hs__addh_l	A->CO (FF)	0.04988	0.46522	6.36877
	B->CO (FF)	0.05432	0.48783	6.66247

Delay(ns) to CON rising (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_15T_hs__addh_1	A->CON (RR)	B	0.10006	0.40612	4.12189
	A->CON (FR)	!B	0.04756	0.61845	8.85912
	B->CON (RR)	A	0.10121	0.39486	4.16812
	B->CON (FR)	!A	0.06043	0.59337	8.33275
sky130_osu_sc_15T_hs__addh_l	A->CON (RR)	B	0.07893	0.35474	3.69630
	A->CON (FR)	!B	0.04373	0.61490	8.86568
	B->CON (RR)	A	0.08016	0.34140	3.65281
	B->CON (FR)	!A	0.05656	0.58975	8.33928

Delay(ns) to CON falling (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_15T_hs__addh_1	A->CON (FF)	B	0.08160	0.44472	4.86089
	A->CON (RF)	!B	0.03682	0.46876	6.68928
	B->CON (FF)	A	0.07892	0.47296	5.36396
	B->CON (RF)	!A	0.04407	0.45676	6.36975
sky130_osu_sc_15T_hs__addh_l	A->CON (FF)	B	0.07648	0.45219	5.18012
	A->CON (RF)	!B	0.03468	0.46643	6.69525
	B->CON (FF)	A	0.07481	0.48283	5.69264
	B->CON (RF)	!A	0.04192	0.45459	6.37541

Delay(ns) to S rising (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_15T_hs__addh_1	A->S (RR)	!B	0.06037	1.14244	20.75540
	A->S (FR)	B	0.10661	1.10830	18.73570
	B->S (RR)	!A	0.06889	1.11050	19.94180
	B->S (FR)	A	0.10343	1.15797	19.75590
	CON->S (FR)	-	0.01809	0.55062	9.46828
sky130_osu_sc_15T_hs__addh_l	A->S (RR)	!B	0.05906	1.08735	17.86760
	A->S (FR)	B	0.10244	1.06505	16.19040
	B->S (RR)	!A	0.06767	1.06141	17.23600
	B->S (FR)	A	0.10013	1.11214	17.04480
	CON->S (FR)	-	0.01910	0.58606	9.46531

Delay(ns) to S falling (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_15T_hs__addh_1	A->S (FF)	!B	0.07309	1.38612	25.25260
	A->S (RF)	B	0.12451	1.03778	17.10320
	B->S (FF)	!A	0.08598	1.36689	24.76780
	B->S (RF)	A	0.12565	1.02501	17.14470
	CON->S (RF)	-	0.01875	0.54101	9.57591
sky130_osu_sc_15T_hs__addh_l	A->S (FF)	!B	0.06874	1.27034	20.88960
	A->S (RF)	B	0.10236	0.91038	13.61610
	B->S (FF)	!A	0.08161	1.24859	20.39370
	B->S (RF)	A	0.10357	0.89525	13.54850
	CON->S (RF)	-	0.01795	0.53763	8.77292

Power Information

Internal switching power(pJ) to CO rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__addh_1	A	0.00000	0.00000	0.00000
	A	0.02472	0.03187	0.16085
	B	0.00000	0.00000	0.00000
	B	0.02386	0.03164	0.18327
sky130_osu_sc_15T_hs__addh_l	A	0.00000	0.00000	0.00000
	A	0.02150	0.02903	0.15950
	B	0.00000	0.00000	0.00000
	B	0.02054	0.02885	0.18049

Internal switching power(pJ) to CO falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__addh_1	A	0.00000	0.00000	0.00000
	A	0.02310	0.03169	0.19269
	B	0.00000	0.00000	0.00000
	B	0.02551	0.03568	0.21318
sky130_osu_sc_15T_hs__addh_l	A	0.00000	0.00000	0.00000
	A	0.02019	0.02903	0.18311
	B	0.00000	0.00000	0.00000
	B	0.02275	0.03296	0.20080

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

Cell Name	Input	When	Power(pJ)		
			first	mid	last
sky130_osu_sc_15T_hs__addh_1	A	B	0.00000	0.00000	0.00000
	A	B	0.01861	0.02570	0.14761
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.02721	0.03582	0.16246
	B	A	0.00000	0.00000	0.00000
	B	A	0.01782	0.02553	0.16984
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.02839	0.03606	0.15979
sky130_osu_sc_15T_hs__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.01611	0.02365	0.15261
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.02144	0.02874	0.13443
	B	A	0.00000	0.00000	0.00000
	B	A	0.01522	0.02353	0.17411
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.02270	0.02905	0.13247

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

Cell Name	Input	When	Power(pJ)		
			first	mid	last
sky130_osu_sc_15T_hs__addh_1	A	B	0.00000	0.00000	0.00000
	A	B	0.02109	0.02924	0.17325
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.02175	0.02875	0.12602
	B	A	0.00000	0.00000	0.00000
	B	A	0.02377	0.03325	0.18942
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01927	0.02571	0.12546
sky130_osu_sc_15T_hs__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.01890	0.02763	0.17735
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.01881	0.02478	0.10736
	B	A	0.00000	0.00000	0.00000
	B	A	0.02172	0.03174	0.19404
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01630	0.02185	0.10789

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

Cell Name	Input	When	Power(pJ)		
			first	mid	last
sky130_osu_sc_15T_hs__addh_1	A	B	0.00000	0.00000	0.00000
	A	B	0.02991	0.03848	0.19891
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.03534	0.04251	0.14596
	B	A	0.00000	0.00000	0.00000
	B	A	0.03400	0.04415	0.22125
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.03090	0.03732	0.13598
sky130_osu_sc_15T_hs__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.02570	0.03457	0.18960
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.02923	0.03517	0.11536
	B	A	0.00000	0.00000	0.00000
	B	A	0.02965	0.03990	0.20938
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.02517	0.03062	0.11088

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

Cell Name	Input	When	Power(pJ)		
			first	mid	last
sky130_osu_sc_15T_hs__addh_1	A	B	0.00000	0.00000	0.00000
	A	B	0.02943	0.03662	0.16646
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.03623	0.04561	0.19629
	B	A	0.00000	0.00000	0.00000
	B	A	0.02853	0.03635	0.18806
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.03763	0.04631	0.19626
sky130_osu_sc_15T_hs__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.02302	0.03062	0.16192
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.02487	0.03218	0.13971
	B	A	0.00000	0.00000	0.00000
	B	A	0.02204	0.03040	0.18260
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.02629	0.03281	0.13907

SKY130_OSU_SC_15T_HS__AND2x

sky130_osu_sc_15T_hs_ff_1P95_150C.ccs
Cell Library: Process , Voltage 1.95, Temp 150.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_15T_hs__and2_1	10.37850
sky130_osu_sc_15T_hs__and2_2	12.82050
sky130_osu_sc_15T_hs__and2_4	17.70450
sky130_osu_sc_15T_hs__and2_6	22.58850
sky130_osu_sc_15T_hs__and2_8	27.47250
sky130_osu_sc_15T_hs__and2_l	10.37850

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	B	Y
sky130_osu_sc_15T_hs__and2_1	0.00397	0.00412	2.63140
sky130_osu_sc_15T_hs__and2_2	0.00396	0.00411	5.15251
sky130_osu_sc_15T_hs__and2_4	0.00397	0.00413	9.84294
sky130_osu_sc_15T_hs__and2_6	0.00401	0.00413	14.55753
sky130_osu_sc_15T_hs__and2_8	0.00398	0.00414	18.69056
sky130_osu_sc_15T_hs__and2_l	0.00314	0.00328	1.79177

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_15T_hs__and2_1	0.00000	762.56400	1215.21000
sky130_osu_sc_15T_hs__and2_2	0.00000	1216.56000	1237.00000
sky130_osu_sc_15T_hs__and2_4	0.00000	2123.60000	2411.88000
sky130_osu_sc_15T_hs__and2_6	0.00000	3030.71000	3606.44000
sky130_osu_sc_15T_hs__and2_8	0.00000	3937.25000	4800.26000
sky130_osu_sc_15T_hs__and2_l	0.00000	531.41500	847.71300

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_hs__and2_1	A->Y (RR)	0.05267	0.44831	7.10531
	B->Y (RR)	0.05592	0.42211	6.61588
sky130_osu_sc_15T_hs__and2_2	A->Y (RR)	0.06105	0.40129	7.12296
	B->Y (RR)	0.06429	0.37240	6.58983
sky130_osu_sc_15T_hs__and2_4	A->Y (RR)	0.08855	0.40774	7.25860
	B->Y (RR)	0.09197	0.37682	6.70727
sky130_osu_sc_15T_hs__and2_6	A->Y (RR)	0.11635	0.43216	7.37964
	B->Y (RR)	0.11971	0.39944	6.81768
sky130_osu_sc_15T_hs__and2_8	A->Y (RR)	0.14322	0.45995	7.41304
	B->Y (RR)	0.14670	0.42564	6.82194
sky130_osu_sc_15T_hs__and2_1	A->Y (RR)	0.05163	0.48373	6.85965
	B->Y (RR)	0.05523	0.45649	6.32840

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_hs__and2_1	A->Y (FF)	0.04360	0.47950	7.71101
	B->Y (FF)	0.04489	0.49143	7.87761
sky130_osu_sc_15T_hs__and2_2	A->Y (FF)	0.04690	0.40914	7.51032
	B->Y (FF)	0.04864	0.42280	7.71455
sky130_osu_sc_15T_hs__and2_4	A->Y (FF)	0.06496	0.40111	7.67242
	B->Y (FF)	0.06657	0.41216	7.88052
sky130_osu_sc_15T_hs__and2_6	A->Y (FF)	0.08443	0.41706	7.75290
	B->Y (FF)	0.08570	0.42621	7.95763
sky130_osu_sc_15T_hs__and2_8	A->Y (FF)	0.10292	0.43423	7.60592
	B->Y (FF)	0.10415	0.44236	7.80339
sky130_osu_sc_15T_hs__and2_l	A->Y (FF)	0.04511	0.46151	6.39645
	B->Y (FF)	0.04734	0.47642	6.58471

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__and2_1	A	0.00000	0.00000	0.00000
	A	0.03669	0.05871	0.41951
	B	0.00000	0.00000	0.00000
	B	0.03630	0.05469	0.36372
sky130_osu_sc_15T_hs__and2_2	A	0.00000	0.00000	0.00000
	A	0.04438	0.06687	0.44738
	B	0.00000	0.00000	0.00000
	B	0.04399	0.06249	0.38366
sky130_osu_sc_15T_hs__and2_4	A	0.00000	0.00000	0.00000
	A	0.06445	0.08222	0.45690
	B	0.00000	0.00000	0.00000
	B	0.06404	0.07732	0.38756
sky130_osu_sc_15T_hs__and2_6	A	0.00000	0.00000	0.00000
	A	0.09416	0.10246	0.48822
	B	0.00000	0.00000	0.00000
	B	0.09369	0.09687	0.40551
sky130_osu_sc_15T_hs__and2_8	A	0.00000	0.00000	0.00000
	A	0.12927	0.12698	0.52068
	B	0.00000	0.00000	0.00000
	B	0.12888	0.11791	0.42342
sky130_osu_sc_15T_hs__and2_l	A	0.00000	0.00000	0.00000
	A	0.02593	0.04303	0.32508
	B	0.00000	0.00000	0.00000
	B	0.02568	0.03926	0.26931

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__and2_1	A	0.00000	0.00000	0.00000
	A	0.02951	0.05134	0.38077
	B	0.00000	0.00000	0.00000
	B	0.03077	0.05244	0.37694
sky130_osu_sc_15T_hs__and2_2	A	0.00000	0.00000	0.00000
	A	0.04959	0.07146	0.42383
	B	0.00000	0.00000	0.00000
	B	0.05095	0.07270	0.41980
sky130_osu_sc_15T_hs__and2_4	A	0.00000	0.00000	0.00000
	A	0.10000	0.11505	0.42970
	B	0.00000	0.00000	0.00000
	B	0.10135	0.11640	0.42390
sky130_osu_sc_15T_hs__and2_6	A	0.00000	0.00000	0.00000
	A	0.15337	0.16128	0.46419
	B	0.00000	0.00000	0.00000
	B	0.15474	0.16225	0.45686
sky130_osu_sc_15T_hs__and2_8	A	0.00000	0.00000	0.00000
	A	0.21052	0.20742	0.49836
	B	0.00000	0.00000	0.00000
	B	0.21199	0.20785	0.49021
sky130_osu_sc_15T_hs__and2_l	A	0.00000	0.00000	0.00000
	A	0.01975	0.03713	0.29829
	B	0.00000	0.00000	0.00000
	B	0.02093	0.03788	0.29560

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__and2_1	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00042	0.00041	0.00034
sky130_osu_sc_15T_hs__and2_2	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00563	0.00564	0.00554
sky130_osu_sc_15T_hs__and2_4	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.01601	0.01600	0.01592
sky130_osu_sc_15T_hs__and2_6	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.02636	0.02636	0.02627
sky130_osu_sc_15T_hs__and2_8	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.03677	0.03678	0.03668
sky130_osu_sc_15T_hs__and2_l	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00024	0.00023	0.00018

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__and2_1	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.01018	0.01028	0.01021
sky130_osu_sc_15T_hs__and2_2	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.01539	0.01549	0.01541
sky130_osu_sc_15T_hs__and2_4	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.02582	0.02592	0.02585
sky130_osu_sc_15T_hs__and2_6	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.03627	0.03637	0.03631
sky130_osu_sc_15T_hs__and2_8	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.04665	0.04676	0.04670
sky130_osu_sc_15T_hs__and2_l	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00717	0.00725	0.00719

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__and2_1	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00067	0.00064	0.00063
sky130_osu_sc_15T_hs__and2_2	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00586	0.00585	0.00582
sky130_osu_sc_15T_hs__and2_4	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.01624	0.01622	0.01620
sky130_osu_sc_15T_hs__and2_6	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.02661	0.02655	0.02658
sky130_osu_sc_15T_hs__and2_8	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.03698	0.03692	0.03695
sky130_osu_sc_15T_hs__and2_1	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00042	0.00040	0.00040

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__and2_1	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.01026	0.01016	0.01016
sky130_osu_sc_15T_hs__and2_2	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.01547	0.01537	0.01537
sky130_osu_sc_15T_hs__and2_4	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.02591	0.02580	0.02580
sky130_osu_sc_15T_hs__and2_6	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.03633	0.03622	0.03622
sky130_osu_sc_15T_hs__and2_8	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.04674	0.04664	0.04663
sky130_osu_sc_15T_hs__and2_l	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00721	0.00714	0.00707

SKY130_OSU_SC_15T_HS__AOI21

sky130_osu_sc_15T_hs_ff_1P95_150C.ccs
Cell Library: Process , Voltage 1.95, Temp 150.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_15T_hs__aoi21_l	10.37850

Pin Capacitance Information

Cell Name	Pin Cap(pf)			Max Cap(pf)
	A0	A1	B0	Y
sky130_osu_sc_15T_hs__aoi21_l	0.00380	0.00392	0.00395	1.22649

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_15T_hs__aoi21_l	0.00000	316.53900	615.86000

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_hs__aoi21_l	A0->Y (FR)	0.04608	0.57943	7.96954
	A1->Y (FR)	0.03951	0.54959	7.60832
	B0->Y (FR)	0.03197	0.61946	8.73303

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_hs__aoi21_l	A0->Y (RF)	0.04367	0.47669	6.42465
	A1->Y (RF)	0.04035	0.51316	7.02223
	B0->Y (RF)	0.02265	0.45594	6.43777

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__aoi21_l	A0	0.00000	0.00000	0.00000
	A0	0.01211	0.01886	0.13678
	A1	0.00000	0.00000	0.00000
	A1	0.01047	0.01709	0.13001
	B0	0.00693	0.01696	0.15765

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__aoi21_l	A0	0.00000	0.00000	0.00000
	A0	0.01617	0.02177	0.11921
	A1	0.00000	0.00000	0.00000
	A1	0.01677	0.02324	0.12321
	B0	0.01094	0.01820	0.11562

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__aoi21_l	(A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * !Y)	-0.00216	-0.00292	0.00021
	(!A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !Y)	0.00083	0.00078	0.00081
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00412	-0.00416	-0.00416

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__aoi21_l	(A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * !Y)	0.00962	0.00956	0.00873
	(!A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !Y)	0.00956	0.00961	0.00956
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00478	0.00467	0.00467

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__aoi21_l	(A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * B0 * !Y)	-0.00209	-0.00286	0.00028
	(!A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !Y)	0.00090	0.00084	0.00087
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	-0.00439	-0.00442	-0.00449

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__aoi21_l	(A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * B0 * !Y)	0.00956	0.00950	0.00867
	(!A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !Y)	0.00948	0.00956	0.00948
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	0.00473	0.00472	0.00475

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__aoi21_l	(A0 * A1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !Y)	-0.00135	-0.00134	-0.00058

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__aoi21_l	(A0 * A1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !Y)	0.00812	0.00794	0.00517

SKY130_OSU_SC_15T_HS__AOI22

sky130_osu_sc_15T_hs_ff_1P95_150C.ccs
Cell Library: Process , Voltage 1.95, Temp 150.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_15T_hs__aoi22_l	12.82050

Pin Capacitance Information

Cell Name	Pin Cap(pf)				Max Cap(pf)
	A0	A1	B0	B1	Y
sky130_osu_sc_15T_hs__aoi22_l	0.00379	0.00389	0.00402	0.00384	1.25259

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_15T_hs__aoi22_l	0.00000	358.23600	1183.15000

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_hs__aoi22_l	A0->Y (FR)	0.05452	0.58257	7.93720
	A1->Y (FR)	0.04964	0.57089	7.82375
	B0->Y (FR)	0.03168	0.60303	8.54405
	B1->Y (FR)	0.03648	0.61955	8.72044

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_hs__aoi22_l	A0->Y (RF)	0.05837	0.49928	6.58154
	A1->Y (RF)	0.05516	0.53486	7.17097
	B0->Y (RF)	0.02717	0.50385	7.13192
	B1->Y (RF)	0.03036	0.46761	6.53533

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__aoi22_l	A0	0.01483	0.02169	0.14512
	A1	0.01321	0.01984	0.13829
	B0	0.00768	0.01711	0.15000
	B1	0.00925	0.01868	0.15364

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__aoi22_l	A0	0.02008	0.02588	0.12951
	A1	0.02065	0.02719	0.13177
	B0	0.02651	0.03349	0.12887
	B1	0.02559	0.03166	0.12462

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__aoi22_l	(A1 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * B1 * !Y)	-0.00159	-0.00226	0.00421
	(!A1 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * B1 * !Y)	0.00593	0.00586	0.00591
	(!A1 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !B1 * Y)	-0.00405	-0.00409	-0.00409
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00401	-0.00405	-0.00405

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__aoi22_l	(A1 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * B1 * !Y)	0.01474	0.01453	0.01260
	(!A1 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * B1 * !Y)	0.01466	0.01472	0.01464
	(!A1 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !B1 * Y)	0.00483	0.00474	0.00475
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00487	0.00478	0.00478

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__aoi22_l	(A0 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * B0 * B1 * !Y)	-0.00151	-0.00220	0.00429
	(!A0 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * B1 * !Y)	0.00597	0.00591	0.00597
	(!A0 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !B1 * Y)	-0.00430	-0.00433	-0.00440
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	-0.00426	-0.00429	-0.00436

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__aoi22_l	(A0 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * B0 * B1 * !Y)	0.01469	0.01449	0.01255
	(!A0 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * B1 * !Y)	0.01460	0.01463	0.01455
	(!A0 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !B1 * Y)	0.00479	0.00489	0.00481
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	0.00483	0.00492	0.00485

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__aoi22_l	(A0 * A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * B1 * !Y)	-0.00128	-0.00127	-0.00074
	(A0 * A1 * !B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B1 * !Y)	0.00385	0.00381	0.00385
	(!A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B1 * Y)	-0.00444	-0.00447	-0.00453
	(!A0 * A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B1 * Y)	-0.00448	-0.00452	-0.00457

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__aoi22_l	(A0 * A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * B1 * !Y)	0.00834	0.00817	0.00549
	(A0 * A1 * !B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B1 * !Y)	0.00721	0.00721	0.00691
	(!A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B1 * Y)	0.00499	0.00502	0.00502
	(!A0 * A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B1 * Y)	0.00496	0.00498	0.00498

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__aoi22_l	(A0 * A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * B0 * !Y)	-0.00130	-0.00129	-0.00076
	(A0 * A1 * !B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B0 * !Y)	0.00384	0.00380	0.00384
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00409	-0.00413	-0.00413
	(!A0 * A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B0 * Y)	-0.00413	-0.00417	-0.00417

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__aoi22_l	(A0 * A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * B0 * !Y)	0.00835	0.00818	0.00551
	(A0 * A1 * !B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B0 * !Y)	0.00723	0.00723	0.00693
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00495	0.00486	0.00486
	(!A0 * A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B0 * Y)	0.00491	0.00477	0.00483

SKY130_OSU_SC_15T_HS__BUFx

sky130_osu_sc_15T_hs_ff_1P95_150C.ccs
Cell Library: Process , Voltage 1.95, Temp 150.00

Truth Table

INPUT	OUTPUT
A	Y
0	0
1	1

Footprint

Cell Name	Area
sky130_osu_sc_15T_hs__buf_1	7.93650
sky130_osu_sc_15T_hs__buf_2	10.37850
sky130_osu_sc_15T_hs__buf_4	15.26250
sky130_osu_sc_15T_hs__buf_6	20.14650
sky130_osu_sc_15T_hs__buf_8	25.03050
sky130_osu_sc_15T_hs__buf_l	7.93650

Pin Capacitance Information

Cell Name	Pin Cap(pf)	Max Cap(pf)
	A	Y
sky130_osu_sc_15T_hs__buf_1	0.00412	2.63602
sky130_osu_sc_15T_hs__buf_2	0.00413	5.15694
sky130_osu_sc_15T_hs__buf_4	0.00412	9.91059
sky130_osu_sc_15T_hs__buf_6	0.00089	1.80000
sky130_osu_sc_15T_hs__buf_8	0.00414	19.44889
sky130_osu_sc_15T_hs__buf_l	0.00329	1.81474

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_15T_hs__buf_1	0.00000	619.51400	619.79300
sky130_osu_sc_15T_hs__buf_2	0.00000	929.28200	1218.10000
sky130_osu_sc_15T_hs__buf_4	0.00000	1548.52000	2414.09000
sky130_osu_sc_15T_hs__buf_6	0.00000	0.00000	0.00000
sky130_osu_sc_15T_hs__buf_8	0.00000	2786.66000	4805.44000
sky130_osu_sc_15T_hs__buf_l	0.00000	428.67800	428.85200

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_hs__buf_1	**A->Y (RR)**	0.04166	0.39664	6.43219
sky130_osu_sc_15T_hs__buf_2	**A->Y (RR)**	0.04713	0.34384	6.35933
sky130_osu_sc_15T_hs__buf_4	**A->Y (RR)**	0.06561	0.33900	6.42023
sky130_osu_sc_15T_hs__buf_8	**A->Y (RR)**	0.10453	0.38213	6.69677
sky130_osu_sc_15T_hs__buf_l	**A->Y (RR)**	0.04199	0.43342	6.17832

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_hs__buf_1	**A->Y (FF)**	0.04116	0.49027	8.02637
sky130_osu_sc_15T_hs__buf_2	**A->Y (FF)**	0.04563	0.42918	8.02816
sky130_osu_sc_15T_hs__buf_4	**A->Y (FF)**	0.06320	0.41355	8.06794
sky130_osu_sc_15T_hs__buf_8	**A->Y (FF)**	0.10119	0.44732	8.22439
sky130_osu_sc_15T_hs__buf_l	**A->Y (FF)**	0.04282	0.47413	6.75602

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__buf_1	A	0.00000	0.00000	0.00000
	A	0.02056	0.04173	0.36884
sky130_osu_sc_15T_hs__buf_2	A	0.00000	0.00000	0.00000
	A	0.02672	0.04831	0.38137
sky130_osu_sc_15T_hs__buf_4	A	0.00000	0.00000	0.00000
	A	0.04273	0.06456	0.40427
sky130_osu_sc_15T_hs__buf_8	A	0.00000	0.00000	0.00000
	A	0.09231	0.10462	0.44688
sky130_osu_sc_15T_hs__buf_l	A	0.00000	0.00000	0.00000
	A	0.01456	0.03042	0.27977

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__buf_1	A	0.00000	0.00000	0.00000
	A	0.02895	0.05227	0.40000
sky130_osu_sc_15T_hs__buf_2	A	0.00000	0.00000	0.00000
	A	0.05036	0.07245	0.41585
sky130_osu_sc_15T_hs__buf_4	A	0.00000	0.00000	0.00000
	A	0.09954	0.11597	0.44761
sky130_osu_sc_15T_hs__buf_8	A	0.00000	0.00000	0.00000
	A	0.21432	0.21102	0.51124
sky130_osu_sc_15T_hs__buf_l	A	0.00000	0.00000	0.00000
	A	0.01936	0.03768	0.31273

Passive power(pJ) for A rising :

Cell Name	Power(pJ)		
	first	mid	last
sky130_osu_sc_15T_hs__buf_6	0.00000	0.00000	0.00000
	-0.00086	-0.00087	-0.00083

Passive power(pJ) for A falling :

Cell Name	Power(pJ)		
	first	mid	last
sky130_osu_sc_15T_hs__buf_6	0.00000	0.00000	0.00000
	0.00086	0.00087	0.00083

SKY130_OSU_SC_15T_HS__DFFRx

sky130_osu_sc_15T_hs_ff_1P95_150C.ccs
Cell Library: Process , Voltage 1.95, Temp 150.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_15T_hs__dffr_1	53.11350
sky130_osu_sc_15T_hs__dffr_l	53.11350

Pin Capacitance Information

Cell Name	Pin Cap(pf)			Max Cap(pf)	
	D	RN	CK	Q	QN
sky130_osu_sc_15T_hs__dffr_1	0.00391	0.00383	0.01118	2.44180	2.40589
sky130_osu_sc_15T_hs__dffr_l	0.00391	0.00383	0.01118	1.69461	1.70545

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_15T_hs__dffr_1	0.00000	2075.93000	3114.97000
sky130_osu_sc_15T_hs__dffr_l	0.00000	1880.77000	2920.09000

Delay Information

Delay(ns) to Q rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_hs__dffr_1	CK->Q (RR)	0.17642	1.05066	15.62450
	QN->Q (FR)	0.02067	0.64799	11.04080
sky130_osu_sc_15T_hs__dffr_l	CK->Q (RR)	0.17874	1.17702	15.64780
	QN->Q (FR)	0.02064	0.62915	9.79482

Delay(ns) to Q falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_hs__dffr_1	CK->Q (RF)	0.20244	1.04404	15.28400
	QN->Q (RF)	0.02064	0.58292	10.03710
	RN->Q (FF)	0.15512	1.05841	16.00550
sky130_osu_sc_15T_hs__dffr_l	CK->Q (RF)	0.20168	1.18406	15.63080
	QN->Q (RF)	0.02356	0.66981	10.48920
	RN->Q (FF)	0.15445	1.19857	16.34850

Delay(ns) to QN rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_hs__dffr_1	CK->QN (RR)	0.18094	0.55580	6.22558
	RN->QN (FR)	0.13358	0.57067	6.94759
sky130_osu_sc_15T_hs__dffr_l	CK->QN (RR)	0.17479	0.57353	5.86713
	RN->QN (FR)	0.12745	0.58784	6.58187

Delay(ns) to QN falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_hs__dffr_1	**CK->QN (RF)**	0.15333	0.55357	6.40394
sky130_osu_sc_15T_hs__dffr_l	**CK->QN (RF)**	0.15466	0.64185	7.08773

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_hs__dffr_1	hold	CK (R)	-0.04639	-0.03484	0.12595
	setup	CK (R)	0.13593	0.17653	1.73371
sky130_osu_sc_15T_hs__dffr_l	hold	CK (R)	-0.04716	-0.03484	0.12575
	setup	CK (R)	0.13510	0.17300	1.65724

Constraints(ns) for D falling :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_15T_hs__dffr_1	hold	CK (R)	-0.07486	-0.20716	0.15707
	setup	CK (R)	0.09895	0.22155	4.08277
sky130_osu_sc_15T_hs__dffr_l	hold	CK (R)	-0.07445	-0.20715	0.18148
	setup	CK (R)	0.09894	0.22157	4.08183

Constraints(ns) for D rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_15T_hs__dffr_1	hold	CK (R)	-0.04639	-0.03484	0.12595
	setup	CK (R)	0.13593	0.17653	1.73371
sky130_osu_sc_15T_hs__dffr_l	hold	CK (R)	-0.04716	-0.03484	0.12575
	setup	CK (R)	0.13510	0.17300	1.65724

Constraints(ns) for D falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_15T_hs__dffr_1	hold	CK (R)	-0.07486	-0.20716	0.15707
	setup	CK (R)	0.09895	0.22155	4.08277
sky130_osu_sc_15T_hs__dffr_l	hold	CK (R)	-0.07445	-0.20715	0.18148
	setup	CK (R)	0.09894	0.22157	4.08183

Constraints(ns) for RN rising :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_15T_hs__dffr_1	recovery	CK (R)	0.11379	0.16761	1.28100
	removal	CK (R)	-0.02228	-0.02464	-0.05623
sky130_osu_sc_15T_hs__dffr_l	recovery	CK (R)	0.11280	0.16736	1.24053
	removal	CK (R)	-0.02228	-0.02464	-0.05623

Constraints(ns) for RN rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_15T_hs__dffr_1	recovery	CK (R)	0.11379	0.16761	1.28100
	removal	CK (R)	-0.02228	-0.02464	-0.05623
sky130_osu_sc_15T_hs__dffr_l	recovery	CK (R)	0.11280	0.16736	1.24053
	removal	CK (R)	-0.02228	-0.02464	-0.05623

Constraints(ns) for RN falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_15T_hs__dffr_1	min_pulse_width	RN ()	0.09059	0.46509	13.33370
	min_pulse_width	RN ()	0.09409	0.46509	13.33370
sky130_osu_sc_15T_hs__dffr_l	min_pulse_width	RN ()	0.08709	0.46509	13.33370
	min_pulse_width	RN ()	0.08709	0.46509	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_hs__dffr_1	min_pulse_width	CK ()	0.09059	0.46509	13.33370
	min_pulse_width	CK ()	0.10809	0.46509	13.33370
sky130_osu_sc_15T_hs__dffr_l	min_pulse_width	CK ()	0.08359	0.46509	13.33370
	min_pulse_width	CK ()	0.10459	0.46509	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_hs__dffr_1	min_pulse_width	CK ()	0.17459	0.46509	13.33370
	min_pulse_width	CK ()	0.08359	0.46509	13.33370
sky130_osu_sc_15T_hs__dffr_l	min_pulse_width	CK ()	0.17109	0.46509	13.33370
	min_pulse_width	CK ()	0.08359	0.46509	13.33370

Power Information

Internal switching power(pJ) to Q rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__dffr_1	CK	0.00000	0.00000	0.00000
	CK	0.05699	0.07558	0.34070
sky130_osu_sc_15T_hs__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.05007	0.07071	0.36858

Internal switching power(pJ) to Q falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__dffr_1	CK	0.00000	0.00000	0.00000
	CK	0.05763	0.06701	0.23433
	RN	-0.00146	-0.12150	-2.32063
	RN	0.06320	0.07335	0.25110
sky130_osu_sc_15T_hs__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.05330	0.06452	0.26754
	RN	-0.00146	-0.09759	-1.61052
	RN	0.05865	0.07061	0.28261

Internal switching power(pJ) to QN rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__dffr_1	CK	0.00000	0.00000	0.00000
	CK	0.04802	0.05742	0.22609
	RN	-0.00146	-0.12043	-2.28532
	RN	0.05538	0.06550	0.24308
sky130_osu_sc_15T_hs__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.04217	0.05337	0.25543
	RN	-0.00146	-0.09796	-1.61837
	RN	0.04978	0.06169	0.27277

Internal switching power(pJ) to QN falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__dffr_1	CK	0.00000	0.00000	0.00000
	CK	0.04527	0.06392	0.32848
sky130_osu_sc_15T_hs__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.04293	0.06356	0.36067

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__dffr_1	CK	0.00000	0.00000	0.00000
	CK	0.01930	0.01867	0.02213
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.03401	0.05317	0.41803
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.02475	0.04232	0.37109
sky130_osu_sc_15T_hs__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.01761	0.01698	0.02044
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.03231	0.05147	0.41633
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.02305	0.04062	0.36939

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__dffr_1	CK	0.00000	0.00000	0.00000
	CK	0.03152	0.03143	0.03061
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.04726	0.06700	0.42737
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.01924	0.03836	0.37753
sky130_osu_sc_15T_hs__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.02983	0.02973	0.02892
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.04557	0.06531	0.42567
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.01754	0.03666	0.37583

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__dffr_1	(CK * !Q * QN) + (!CK * !D * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !Q * QN) + (!CK * !D * !Q * QN)	0.02731	0.05277	0.47957
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.03203	0.05928	0.52537
sky130_osu_sc_15T_hs__dffr_l	(CK * !Q * QN) + (!CK * !D * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !Q * QN) + (!CK * !D * !Q * QN)	0.02561	0.05108	0.47787
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.03033	0.05758	0.52367

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__dffr_1	(CK * !Q * QN) + (!CK * !D * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !Q * QN) + (!CK * !D * !Q * QN)	0.02345	0.05052	0.48661
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.04335	0.07054	0.53371
sky130_osu_sc_15T_hs__dffr_l	(CK * !Q * QN) + (!CK * !D * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !Q * QN) + (!CK * !D * !Q * QN)	0.02175	0.04880	0.48491
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.04164	0.06884	0.53200

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__dffr_1	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.02158	0.04682	0.47569
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.02000	0.04731	0.53117
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.02068	0.04566	0.47519
sky130_osu_sc_15T_hs__dffr_l	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.01989	0.04512	0.47398
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.01830	0.04562	0.52947
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.01898	0.04396	0.47349

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__dffr_1	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.03454	0.06169	0.49562
	(D * RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * RN * !Q * QN)	0.05744	0.08558	0.68722
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.04815	0.07523	0.55057
	(!D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * Q * !QN)	0.05898	0.10654	0.77639
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.03735	0.06380	0.49781
sky130_osu_sc_15T_hs__dffr_l	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.03284	0.05999	0.49391
	(D * RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * RN * !Q * QN)	0.05574	0.08388	0.68552
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.04645	0.07353	0.54887
	(!D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * Q * !QN)	0.05728	0.10484	0.77468
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.03564	0.06210	0.49611

SKY130_OSU_SC_15T_HS__DFFSRx

sky130_osu_sc_15T_hs_ff_1P95_150C.ccs
Cell Library: Process , Voltage 1.95, Temp 150.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_15T_hs__dffsr_1	57.99750
sky130_osu_sc_15T_hs__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_hs__dffsr_1	0.00387	0.00384	0.00853	0.01142	2.62955	2.60396
sky130_osu_sc_15T_hs__dffsr_l	0.00387	0.00384	0.00852	0.01142	1.71572	1.70317

Leakage Information

Cell Name	Leakage(nW)		
	Min.	**Avg**	**Max.**
sky130_osu_sc_15T_hs__dffsr_1	0.00000	2321.75000	3141.92000
sky130_osu_sc_15T_hs__dffsr_l	0.00000	2126.18000	2946.36000

Delay Information

Delay(ns) to Q rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_hs__dffsr_1	CK->Q (RR)	0.18605	1.06224	16.18890
	QN->Q (FR)	0.01807	0.58782	10.12970
	RN->Q (RR)	0.15399	1.04570	16.43420
	SN->Q (FR)	0.13166	1.06634	16.86740
sky130_osu_sc_15T_hs__dffsr_l	CK->Q (RR)	0.19258	1.19629	15.85590
	QN->Q (FR)	0.02061	0.63070	9.85260
	RN->Q (RR)	0.16052	1.17906	16.08510
	SN->Q (FR)	0.13804	1.20111	16.53620

Delay(ns) to Q falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_hs__dffsr_1	CK->Q (RF)	0.22492	1.07479	15.81330
	QN->Q (RF)	0.02031	0.60222	10.63290
	RN->Q (FF)	0.15405	1.07002	16.62090
sky130_osu_sc_15T_hs__dffsr_l	CK->Q (RF)	0.22740	1.22087	15.84750
	QN->Q (RF)	0.02353	0.67259	10.57490
	RN->Q (FF)	0.15627	1.21517	16.64160

Delay(ns) to QN rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_hs__dffsr_1	CK->QN (RR)	0.20299	0.56645	6.10749
	RN->QN (FR)	0.13227	0.56132	6.91341
sky130_osu_sc_15T_hs__dffsr_l	CK->QN (RR)	0.20012	0.60287	5.87955
	RN->QN (FR)	0.12930	0.59726	6.67299

Delay(ns) to QN falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_hs__dffsr_1	CK->QN (RF)	0.16478	0.57998	6.97180
	RN->QN (RF)	0.13298	0.56271	7.20265
	SN->QN (FF)	0.11064	0.58365	7.64063
sky130_osu_sc_15T_hs__dffsr_l	CK->QN (RF)	0.16872	0.65457	7.09467
	RN->QN (RF)	0.13681	0.63731	7.32707
	SN->QN (FF)	0.11435	0.65896	7.77726

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_hs__dffsr_1	hold	CK (R)	-0.05386	-0.04553	0.08871
	setup	CK (R)	0.14322	0.18352	1.78898
sky130_osu_sc_15T_hs__dffsr_l	hold	CK (R)	-0.05181	-0.04553	0.09260
	setup	CK (R)	0.14253	0.18139	1.76117

Constraints(ns) for D falling :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_15T_hs__dffsr_1	hold	CK (R)	-0.07952	-0.20941	0.58601
	setup	CK (R)	0.10576	0.22670	4.03770
sky130_osu_sc_15T_hs__dffsr_l	hold	CK (R)	-0.08115	-0.21118	0.49238
	setup	CK (R)	0.10474	0.22670	4.03755

Constraints(ns) for D rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_15T_hs__dffsr_1	hold	CK (R)	-0.05386	-0.04553	0.08871
	setup	CK (R)	0.14322	0.18352	1.78898
sky130_osu_sc_15T_hs__dffsr_l	hold	CK (R)	-0.05181	-0.04553	0.09260
	setup	CK (R)	0.14253	0.18139	1.76117

Constraints(ns) for D falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_15T_hs__dffsr_1	hold	CK (R)	-0.07952	-0.20941	0.58601
	setup	CK (R)	0.10576	0.22670	4.03770
sky130_osu_sc_15T_hs__dffsr_l	hold	CK (R)	-0.08115	-0.21118	0.49238
	setup	CK (R)	0.10474	0.22670	4.03755

Constraints(ns) for RN rising :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_15T_hs__dffsr_1	recovery	CK (R)	0.10348	0.16119	1.66667
	removal	CK (R)	-0.01434	-0.01563	-0.01213
	hold	SN (R)	-0.10356	-0.20325	-0.79574
	setup	SN (R)	0.12932	0.25435	7.64414
sky130_osu_sc_15T_hs__dffsr_l	recovery	CK (R)	0.10329	0.15945	1.66983
	removal	CK (R)	-0.01434	-0.01563	-0.01213
	hold	SN (R)	-0.10533	-0.19934	-0.77026
	setup	SN (R)	0.12692	0.25415	7.65902

Constraints(ns) for RN rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_15T_hs__dffsr_1	recovery	CK (R)	0.10348	0.16119	1.66667
	removal	CK (R)	-0.01434	-0.01563	-0.01213
	hold	SN (R)	-0.10356	-0.20325	-0.80155
	hold	SN (R)	-0.10372	-0.20325	-0.79574
	setup	SN (R)	0.12821	0.25291	7.61026
	setup	SN (R)	0.12932	0.25435	7.64414
sky130_osu_sc_15T_hs__dffsr_l	recovery	CK (R)	0.10329	0.15945	1.66983
	removal	CK (R)	-0.01434	-0.01563	-0.01213
	hold	SN (R)	-0.10747	-0.19934	-0.80270
	hold	SN (R)	-0.10533	-0.19934	-0.77026
	setup	SN (R)	0.12692	0.25015	7.61432
	setup	SN (R)	0.12193	0.25415	7.65902

Constraints(ns) for RN falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_15T_hs__dffsr_1	min_pulse_width	RN ()	0.10459	0.46509	13.33370
	min_pulse_width	RN ()	0.10809	0.46509	13.33370
sky130_osu_sc_15T_hs__dffsr_l	min_pulse_width	RN ()	0.10459	0.46509	13.33370
	min_pulse_width	RN ()	0.10109	0.46509	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_hs__dffsr_1	recovery	CK (R)	0.03855	0.06985	5.66229
	removal	CK (R)	-0.02007	-0.04690	-0.28919
sky130_osu_sc_15T_hs__dffsr_l	recovery	CK (R)	0.03899	0.06983	5.55655
	removal	CK (R)	-0.02007	-0.04690	-0.28919

Constraints(ns) for SN rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_15T_hs__dffsr_1	recovery	CK (R)	0.03855	0.06985	5.66229
	removal	CK (R)	-0.02007	-0.04690	-0.28919
sky130_osu_sc_15T_hs__dffsr_l	recovery	CK (R)	0.03899	0.06983	5.55655
	removal	CK (R)	-0.02007	-0.04690	-0.28919

Constraints(ns) for SN falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_15T_hs__dffsr_1	min_pulse_width	SN ()	0.10459	0.46509	13.33370
	min_pulse_width	SN ()	0.10459	0.46509	13.33370
sky130_osu_sc_15T_hs__dffsr_l	min_pulse_width	SN ()	0.10459	0.46509	13.33370
	min_pulse_width	SN ()	0.10109	0.46509	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_hs__dffsr_1	min_pulse_width	CK ()	0.09409	0.46509	13.33370
	min_pulse_width	CK ()	0.11509	0.46509	13.33370
sky130_osu_sc_15T_hs__dffsr_l	min_pulse_width	CK ()	0.09059	0.46509	13.33370
	min_pulse_width	CK ()	0.11159	0.46509	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_hs__dffsr_1	min_pulse_width	CK ()	0.17809	0.46509	13.33370
	min_pulse_width	CK ()	0.09409	0.46509	13.33370
sky130_osu_sc_15T_hs__dffsr_l	min_pulse_width	CK ()	0.17809	0.46509	13.33370
	min_pulse_width	CK ()	0.09409	0.46509	13.33370

Power Information

Internal switching power(pJ) to Q rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__dffsr_1	CK	0.00000	0.00000	0.00000
	CK	0.06021	0.07854	0.34288
	RN	0.07381	0.08666	0.32337
	SN	-0.00146	-0.12702	-2.49907
	SN	0.05719	0.07139	0.30130
sky130_osu_sc_15T_hs__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.05416	0.07460	0.37674
	RN	0.06793	0.08304	0.35414
	SN	-0.00146	-0.09831	-1.63059
	SN	0.05151	0.06778	0.33136

Internal switching power(pJ) to Q falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__dffsr_1	CK	0.00000	0.00000	0.00000
	CK	0.07077	0.08185	0.28563
	RN	-0.00146	-0.12702	-2.49905
	RN	0.07740	0.08977	0.31990
sky130_osu_sc_15T_hs__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.06577	0.07678	0.28076
	RN	-0.00146	-0.09831	-1.63058
	RN	0.07236	0.08463	0.31460

Internal switching power(pJ) to QN rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__dffsr_1	CK	0.00000	0.00000	0.00000
	CK	0.05621	0.06729	0.27102
	RN	-0.00146	-0.12628	-2.47052
	RN	0.06563	0.07804	0.30577
sky130_osu_sc_15T_hs__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.05154	0.06255	0.26608
	RN	-0.00146	-0.09788	-1.61619
	RN	0.06106	0.07336	0.30161

Internal switching power(pJ) to QN falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__dffsr_1	CK	0.00000	0.00000	0.00000
	CK	0.05099	0.06934	0.33626
	RN	0.06471	0.07767	0.31308
	SN	-0.00146	-0.12628	-2.47452
	SN	0.05125	0.06545	0.29511
sky130_osu_sc_15T_hs__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.04660	0.06709	0.36801
	RN	0.06038	0.07550	0.34505
	SN	-0.00146	-0.09788	-1.61857
	SN	0.04680	0.06309	0.32595

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__dffsr_1	CK	0.00000	0.00000	0.00000
	CK	0.02269	0.02266	0.02265
	(!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)	0.04043	0.05931	0.43478
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.02551	0.04285	0.37492
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.02752	0.04460	0.37246
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.03211	0.04930	0.37889
sky130_osu_sc_15T_hs__dffsr_1	CK	0.00000	0.00000	0.00000
	CK	0.02098	0.02095	0.02095
	(!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)	0.03873	0.05761	0.43308
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.02381	0.04115	0.37322
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.02582	0.04290	0.37077
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.03041	0.04759	0.37719

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__dffsr_1	CK	0.00000	0.00000	0.00000
	CK	0.03150	0.03140	0.03140
	(!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)	0.05222	0.07173	0.44331
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.02730	0.04582	0.38093
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.02122	0.03980	0.37907
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.02915	0.04781	0.38497
sky130_osu_sc_15T_hs__dffsr_1	CK	0.00000	0.00000	0.00000
	CK	0.02980	0.02970	0.02970
	(!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)	0.05051	0.07001	0.44160
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.02559	0.04411	0.37921
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.01951	0.03809	0.37736
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.02744	0.04610	0.38326

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__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)	0.03237	0.05749	0.48237
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.03730	0.06469	0.53743
sky130_osu_sc_15T_hs__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)	0.03066	0.05580	0.48068
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.03560	0.06299	0.53574

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__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)	0.02394	0.05127	0.48877
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.04585	0.07307	0.54189
sky130_osu_sc_15T_hs__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)	0.02222	0.04956	0.48706
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.04413	0.07136	0.54017

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__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)	0.01279	0.01271	0.01257
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00547	0.00396	0.01015
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	0.01154	0.01072	0.01384
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.03141	0.04737	0.36494
sky130_osu_sc_15T_hs__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)	0.01109	0.01101	0.01087
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00379	0.00228	0.00847
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	0.00985	0.00902	0.01215
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.02973	0.04568	0.36324

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__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)	0.03208	0.03227	0.03212
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.03202	0.03186	0.03025
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	0.03418	0.03415	0.03330
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.03601	0.05192	0.37877
sky130_osu_sc_15T_hs__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)	0.03037	0.03056	0.03041
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.03030	0.03013	0.02852
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	0.03247	0.03244	0.03159
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.03428	0.05020	0.37705

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__dffsr_1	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.02182	0.04705	0.47621
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.02211	0.04933	0.53333
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.03015	0.05726	0.53930
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.02551	0.05050	0.48021
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.03318	0.07781	0.83294
sky130_osu_sc_15T_hs__dffsr_1	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.02012	0.04535	0.47449
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.02040	0.04762	0.53162
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.02843	0.05555	0.53759
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.02381	0.04880	0.47850
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.03147	0.07612	0.83122

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

Cell Name	When	Power(pJ)		
		first	mid	last

sky130_osu_sc_15T_hs__dffsr_1	**(D * RN * SN * !Q * QN)**	0.00000	0.00000	0.00000
	(D * RN * SN * !Q * QN)	0.06410	0.09218	0.69474
	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.03484	0.06202	0.49620
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.05073	0.07773	0.55223
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.05522	0.08236	0.55891
	(!D * RN * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * Q * !QN)	0.06619	0.11346	0.78715
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.04194	0.06837	0.50259
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.03772	0.08550	0.85255
sky130_osu_sc_15T_hs__dffsr_l	**(D * RN * SN * !Q * QN)**	0.00000	0.00000	0.00000
	(D * RN * SN * !Q * QN)	0.06240	0.09048	0.69294
	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.03314	0.06031	0.49448
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.04903	0.07603	0.55053
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.05352	0.08066	0.55721
	(!D * RN * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * Q * !QN)	0.06447	0.11173	0.78540
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.04023	0.06666	0.50088
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.03600	0.08379	0.85081

SKY130_OSU_SC_15T_HS__DFFSx

sky130_osu_sc_15T_hs_ff_1P95_150C.ccs
Cell Library: Process , Voltage 1.95, Temp 150.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_15T_hs__dffs_1	48.22950
sky130_osu_sc_15T_hs__dffs_l	48.22950

Pin Capacitance Information

Cell Name	Pin Cap(pf)			Max Cap(pf)	
	D	SN	CK	Q	QN
sky130_osu_sc_15T_hs__dffs_1	0.00390	0.00669	0.01119	2.45338	2.42178
sky130_osu_sc_15T_hs__dffs_l	0.00390	0.00668	0.01119	1.72041	1.70706

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_15T_hs__dffs_1	0.00000	2104.58000	2952.14000
sky130_osu_sc_15T_hs__dffs_l	0.00000	1909.43000	2756.40000

Delay Information

Delay(ns) to Q rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_hs__dffs_1	CK->Q (RR)	0.14937	1.01437	15.50920
	QN->Q (FR)	0.02061	0.64539	11.00580
	SN->Q (FR)	0.10983	1.03243	16.04570
sky130_osu_sc_15T_hs__dffs_l	CK->Q (RR)	0.15292	1.15088	15.70590
	QN->Q (FR)	0.02056	0.62999	9.84483
	SN->Q (FR)	0.11385	1.16663	16.26540

Delay(ns) to Q falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_hs__dffs_1	CK->Q (RF)	0.22639	1.07689	15.37030
	QN->Q (RF)	0.02054	0.58202	10.03570
sky130_osu_sc_15T_hs__dffs_l	CK->Q (RF)	0.22309	1.22015	15.89130
	QN->Q (RF)	0.02349	0.67237	10.57970

Delay(ns) to QN rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_hs__dffs_1	CK->QN (RR)	0.20459	0.58811	6.28594
sky130_osu_sc_15T_hs__dffs_l	CK->QN (RR)	0.19557	0.60087	5.89569

Delay(ns) to QN falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_hs__dffs_1	CK->QN (RF)	0.12741	0.51873	6.28428
	SN->QN (FF)	0.08769	0.53551	6.83103
sky130_osu_sc_15T_hs__dffs_l	CK->QN (RF)	0.12977	0.60847	6.93776
	SN->QN (FF)	0.09052	0.62395	7.48689

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_hs__dffs_1	hold	CK (R)	-0.03857	-0.02784	0.17332
	setup	CK (R)	0.11151	0.15846	0.70342
sky130_osu_sc_15T_hs__dffs_l	hold	CK (R)	-0.03597	-0.02776	0.17473
	setup	CK (R)	0.11261	0.15722	0.63237

Constraints(ns) for D falling :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_15T_hs__dffs_1	hold	CK (R)	-0.07697	-0.20715	-1.54862
	setup	CK (R)	0.10577	0.22279	4.14466
sky130_osu_sc_15T_hs__dffs_l	hold	CK (R)	-0.07912	-0.20715	-1.54858
	setup	CK (R)	0.10577	0.22279	4.14538

Constraints(ns) for D rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_15T_hs__dffs_1	hold	CK (R)	-0.03857	-0.02784	0.17332
	setup	CK (R)	0.11151	0.15846	0.70342
sky130_osu_sc_15T_hs__dffs_l	hold	CK (R)	-0.03597	-0.02776	0.17473
	setup	CK (R)	0.11261	0.15722	0.63237

Constraints(ns) for D falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_15T_hs__dffs_1	hold	CK (R)	-0.07697	-0.20715	-1.54862
	setup	CK (R)	0.10577	0.22279	4.14466
sky130_osu_sc_15T_hs__dffs_l	hold	CK (R)	-0.07912	-0.20715	-1.54858
	setup	CK (R)	0.10577	0.22279	4.14538

Constraints(ns) for SN rising :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_15T_hs__dffs_1	recovery	CK (R)	0.04444	0.09624	4.98019
	removal	CK (R)	-0.03369	-0.07817	-1.04600
sky130_osu_sc_15T_hs__dffs_l	recovery	CK (R)	0.04450	0.09639	4.88082
	removal	CK (R)	-0.03369	-0.07817	-1.04600

Constraints(ns) for SN rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_15T_hs__dffs_1	recovery	CK (R)	0.04444	0.09624	4.98019
	removal	CK (R)	-0.03369	-0.07817	-1.04600
sky130_osu_sc_15T_hs__dffs_l	recovery	CK (R)	0.04450	0.09639	4.88082
	removal	CK (R)	-0.03369	-0.07817	-1.04600

Constraints(ns) for SN falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_15T_hs__dffs_1	min_pulse_width	SN ()	0.07309	0.46509	13.33370
	min_pulse_width	SN ()	0.07309	0.46509	13.33370
sky130_osu_sc_15T_hs__dffs_l	min_pulse_width	SN ()	0.07309	0.46509	13.33370
	min_pulse_width	SN ()	0.06959	0.46509	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_hs__dffs_1	min_pulse_width	CK ()	0.06959	0.46509	13.33370
	min_pulse_width	CK ()	0.11859	0.46509	13.33370
sky130_osu_sc_15T_hs__dffs_l	min_pulse_width	CK ()	0.06959	0.46509	13.33370
	min_pulse_width	CK ()	0.11159	0.46509	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_hs__dffs_1	min_pulse_width	CK ()	0.14659	0.46509	13.33370
	min_pulse_width	CK ()	0.09409	0.46509	13.33370
sky130_osu_sc_15T_hs__dffs_l	min_pulse_width	CK ()	0.14659	0.46509	13.33370
	min_pulse_width	CK ()	0.09409	0.46509	13.33370

Power Information

Internal switching power(pJ) to Q rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__dffs_1	CK	0.00000	0.00000	0.00000
	CK	0.04604	0.06483	0.32831
	SN	-0.00146	-0.12185	-2.33166
	SN	0.04101	0.05364	0.23483
sky130_osu_sc_15T_hs__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.04006	0.06069	0.35485
	SN	-0.00146	-0.09848	-1.63505
	SN	0.03537	0.04977	0.26398

Internal switching power(pJ) to Q falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__dffs_1	CK	0.00000	0.00000	0.00000
	CK	0.06444	0.07360	0.24471
sky130_osu_sc_15T_hs__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.06049	0.07158	0.27613

Internal switching power(pJ) to QN rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__dffs_1	CK	0.00000	0.00000	0.00000
	CK	0.05339	0.06258	0.23406
sky130_osu_sc_15T_hs__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.04697	0.05802	0.26237

Internal switching power(pJ) to QN falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__dffs_1	CK	0.00000	0.00000	0.00000
	CK	0.03717	0.05595	0.31860
	SN	-0.00146	-0.12090	-2.30142
	SN	0.03626	0.04889	0.23300
sky130_osu_sc_15T_hs__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.03445	0.05505	0.34958
	SN	-0.00146	-0.09802	-1.62227
	SN	0.03264	0.04704	0.26081

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__dffs_1	CK	0.00000	0.00000	0.00000
	CK	0.02129	0.02126	0.02126
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.03161	0.05165	0.42284
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.01894	0.03669	0.36968
sky130_osu_sc_15T_hs__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.01959	0.01956	0.01955
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.02991	0.04994	0.42113
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.01724	0.03500	0.36798

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__dffs_1	CK	0.00000	0.00000	0.00000
	CK	0.03024	0.03014	0.03014
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.04591	0.06548	0.42935
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.02122	0.04017	0.37632
sky130_osu_sc_15T_hs__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.02853	0.02844	0.02844
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.04420	0.06378	0.42765
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.01952	0.03847	0.37462

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__dffs_1	(CK * Q * !QN) + (!CK * D * Q * !QN)	0.00000	0.00000	0.00000
	(CK * Q * !QN) + (!CK * D * Q * !QN)	0.00999	0.00992	0.00992
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.02651	0.03759	0.27158
sky130_osu_sc_15T_hs__dffs_l	(CK * Q * !QN) + (!CK * D * Q * !QN)	0.00000	0.00000	0.00000
	(CK * Q * !QN) + (!CK * D * Q * !QN)	0.00830	0.00823	0.00824
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.02482	0.03590	0.26989

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__dffs_1	(CK * Q * !QN) + (!CK * D * Q * !QN)	0.00000	0.00000	0.00000
	(CK * Q * !QN) + (!CK * D * Q * !QN)	0.02415	0.02415	0.02406
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.02386	0.03736	0.28297
sky130_osu_sc_15T_hs__dffs_l	(CK * Q * !QN) + (!CK * D * Q * !QN)	0.00000	0.00000	0.00000
	(CK * Q * !QN) + (!CK * D * Q * !QN)	0.02244	0.02244	0.02236
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.02215	0.03565	0.28127

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__dffs_1	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.01627	0.04154	0.47100
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	0.02408	0.04920	0.47917
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.02653	0.07180	0.82871
sky130_osu_sc_15T_hs__dffs_l	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.01457	0.03985	0.46928
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	0.02238	0.04750	0.47746
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.02483	0.07011	0.82699

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__dffs_1	(D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * SN * !Q * QN)	0.05539	0.08418	0.69130
	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.02928	0.05651	0.49098
	(!D * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * SN * Q * !QN)	0.05769	0.10504	0.77471
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	0.04060	0.06711	0.50164
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.03151	0.07991	0.84882
sky130_osu_sc_15T_hs__dffs_l	(D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * SN * !Q * QN)	0.05369	0.08248	0.68958
	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.02758	0.05481	0.48926
	(!D * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * SN * Q * !QN)	0.05599	0.10334	0.77299
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	0.03890	0.06540	0.49994
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.02981	0.07821	0.84710

SKY130_OSU_SC_15T_HS__DFFx

sky130_osu_sc_15T_hs_ff_1P95_150C.ccs
Cell Library: Process , Voltage 1.95, Temp 150.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_15T_hs__dff_1	40.29300
sky130_osu_sc_15T_hs__dff_l	40.29300

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)	
	D	CK	Q	QN
sky130_osu_sc_15T_hs__dff_1	0.00406	0.01117	2.62629	2.61154
sky130_osu_sc_15T_hs__dff_l	0.00406	0.01117	1.63242	1.59387

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_15T_hs__dff_1	0.00000	2076.46000	2545.75000
sky130_osu_sc_15T_hs__dff_l	0.00000	1885.14000	2354.32000

Delay Information

Delay(ns) to Q rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_hs__dff_1	CK->Q (RR)	0.13285	1.00487	16.06470
	QN->Q (FR)	0.01797	0.58495	10.08950
sky130_osu_sc_15T_hs__dff_l	CK->Q (RR)	0.13444	1.00091	13.20200
	QN->Q (FR)	0.02402	0.70732	10.90980

Delay(ns) to Q falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_hs__dff_1	CK->Q (RF)	0.18194	1.02372	15.73060
	QN->Q (RF)	0.02025	0.60048	10.59970
sky130_osu_sc_15T_hs__dff_l	CK->Q (RF)	0.18573	1.06638	13.73670
	QN->Q (RF)	0.02007	0.55346	8.51876

Delay(ns) to QN rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_hs__dff_1	CK->QN (RR)	0.16039	0.51648	6.06425
sky130_osu_sc_15T_hs__dff_l	CK->QN (RR)	0.16410	0.58172	6.03019

Delay(ns) to QN falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_hs__dff_1	CK->QN (RF)	0.11304	0.52491	6.89251
sky130_osu_sc_15T_hs__dff_l	CK->QN (RF)	0.11054	0.47568	4.86085

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_hs__dff_1	hold	CK (R)	-0.03721	-0.03127	0.07280
	setup	CK (R)	0.09574	0.13977	1.31665
sky130_osu_sc_15T_hs__dff_l	hold	CK (R)	-0.03490	-0.03127	0.07152
	setup	CK (R)	0.09526	0.13970	1.20842

Constraints(ns) for D falling :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_15T_hs__dff_1	hold	CK (R)	-0.06370	-0.20125	-0.09155
	setup	CK (R)	0.08276	0.21497	4.01048
sky130_osu_sc_15T_hs__dff_l	hold	CK (R)	-0.06376	-0.20125	-0.19948
	setup	CK (R)	0.07876	0.21497	4.01062

Constraints(ns) for CK rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_15T_hs__dff_1	min_pulse_width	CK ()	0.06609	0.46509	13.33370
	min_pulse_width	CK ()	0.09759	0.46509	13.33370
sky130_osu_sc_15T_hs__dff_l	min_pulse_width	CK ()	0.06259	0.46509	13.33370
	min_pulse_width	CK ()	0.09759	0.46509	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_hs__dff_1	**min_pulse_width**	**CK ()**	0.12909	0.46509	13.33370
	min_pulse_width	**CK ()**	0.06259	0.46509	13.33370
sky130_osu_sc_15T_hs__dff_l	**min_pulse_width**	**CK ()**	0.12909	0.46509	13.33370
	min_pulse_width	**CK ()**	0.06259	0.46509	13.33370

Power Information

Internal switching power(pJ) to Q rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__dff_1	CK	0.00000	0.00000	0.00000
	CK	0.04669	0.06656	0.33981
sky130_osu_sc_15T_hs__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.04054	0.06114	0.34972

Internal switching power(pJ) to Q falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__dff_1	CK	0.00000	0.00000	0.00000
	CK	0.05723	0.06914	0.27615
sky130_osu_sc_15T_hs__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.04700	0.05738	0.24656

Internal switching power(pJ) to QN rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__dff_1	CK	0.00000	0.00000	0.00000
	CK	0.04578	0.05770	0.26463
sky130_osu_sc_15T_hs__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.04313	0.05356	0.24394

Internal switching power(pJ) to QN falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__dff_1	CK	0.00000	0.00000	0.00000
	CK	0.03975	0.05966	0.33209
sky130_osu_sc_15T_hs__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.03014	0.05071	0.33778

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__dff_1	CK	0.00000	0.00000	0.00000
	CK	0.01434	0.01372	0.01719
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.02917	0.04991	0.43473
sky130_osu_sc_15T_hs__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.01267	0.01206	0.01552
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.02752	0.04825	0.43307

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__dff_1	CK	0.00000	0.00000	0.00000
	CK	0.02656	0.02646	0.02564
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.04308	0.06336	0.44371
sky130_osu_sc_15T_hs__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.02489	0.02480	0.02398
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.04142	0.06170	0.44205

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__dff_1	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.01659	0.04188	0.47127
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.01993	0.04497	0.47505
sky130_osu_sc_15T_hs__dff_l	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.01492	0.04022	0.46959
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.01826	0.04331	0.47338

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__dff_1	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.02950	0.05674	0.49115
	(D * !Q * QN)	0.00000	0.00000	0.00000
	(D * !Q * QN)	0.05309	0.08228	0.69854
	(!D * Q * !QN)	0.00000	0.00000	0.00000
	(!D * Q * !QN)	0.05691	0.10569	0.78969
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.03633	0.06283	0.49738
sky130_osu_sc_15T_hs__dff_l	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.02784	0.05507	0.48946
	(D * !Q * QN)	0.00000	0.00000	0.00000
	(D * !Q * QN)	0.05143	0.08065	0.69703
	(!D * Q * !QN)	0.00000	0.00000	0.00000
	(!D * Q * !QN)	0.05525	0.10403	0.78801
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.03467	0.06116	0.49572

SKY130_OSU_SC_15T_HS__INVx

sky130_osu_sc_15T_hs_ff_1P95_150C.ccs
Cell Library: Process , Voltage 1.95, Temp 150.00

Truth Table

INPUT	OUTPUT
A	Y
0	1
1	0

Footprint

Cell Name	Area
sky130_osu_sc_15T_hs__inv_1	5.49450
sky130_osu_sc_15T_hs__inv_10	27.47250
sky130_osu_sc_15T_hs__inv_2	7.93650
sky130_osu_sc_15T_hs__inv_3	10.37850
sky130_osu_sc_15T_hs__inv_4	12.82050
sky130_osu_sc_15T_hs__inv_6	17.70450
sky130_osu_sc_15T_hs__inv_8	22.58850
sky130_osu_sc_15T_hs__inv_l	5.49450

Pin Capacitance Information

Cell Name	Pin Cap(pf)	Max Cap(pf)
	A	Y
sky130_osu_sc_15T_hs__inv_1	0.00387	2.45912
sky130_osu_sc_15T_hs__inv_10	0.03556	21.59312
sky130_osu_sc_15T_hs__inv_2	0.00732	4.73198
sky130_osu_sc_15T_hs__inv_3	0.01088	6.82584
sky130_osu_sc_15T_hs__inv_4	0.01437	9.11898
sky130_osu_sc_15T_hs__inv_6	0.02153	13.50059
sky130_osu_sc_15T_hs__inv_8	0.02853	17.80279
sky130_osu_sc_15T_hs__inv_l	0.00303	1.45223

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_15T_hs__inv_1	0.00000	309.58900	598.04500
sky130_osu_sc_15T_hs__inv_10	0.00000	3091.29000	5971.88000
sky130_osu_sc_15T_hs__inv_2	0.00000	618.88600	1195.63000
sky130_osu_sc_15T_hs__inv_3	0.00000	927.95300	1792.63000
sky130_osu_sc_15T_hs__inv_4	0.00000	1237.26000	2390.24000
sky130_osu_sc_15T_hs__inv_6	0.00000	1855.51000	3584.60000
sky130_osu_sc_15T_hs__inv_8	0.00000	2473.67000	4778.77000
sky130_osu_sc_15T_hs__inv_l	0.00000	214.06200	419.88000

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_hs__inv_1	**A->Y (FR)**	0.01714	0.53230	9.01994
sky130_osu_sc_15T_hs__inv_10	**A->Y (FR)**	0.02578	0.32736	8.79825
sky130_osu_sc_15T_hs__inv_2	**A->Y (FR)**	0.01422	0.44442	8.81989
sky130_osu_sc_15T_hs__inv_3	**A->Y (FR)**	0.01574	0.41068	8.84543
sky130_osu_sc_15T_hs__inv_4	**A->Y (FR)**	0.01612	0.38236	8.79027
sky130_osu_sc_15T_hs__inv_6	**A->Y (FR)**	0.01805	0.35248	8.81562
sky130_osu_sc_15T_hs__inv_8	**A->Y (FR)**	0.02179	0.33656	8.82825
sky130_osu_sc_15T_hs__inv_l	**A->Y (FR)**	0.02045	0.56444	8.41805

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_hs__inv_1	**A->Y (RF)**	0.01863	0.52267	9.05779
sky130_osu_sc_15T_hs__inv_10	**A->Y (RF)**	0.02717	0.29162	8.66845
sky130_osu_sc_15T_hs__inv_2	**A->Y (RF)**	0.01528	0.42627	8.87108
sky130_osu_sc_15T_hs__inv_3	**A->Y (RF)**	0.01671	0.38997	8.90109
sky130_osu_sc_15T_hs__inv_4	**A->Y (RF)**	0.01651	0.35843	8.85901
sky130_osu_sc_15T_hs__inv_6	**A->Y (RF)**	0.01946	0.32615	8.86238
sky130_osu_sc_15T_hs__inv_8	**A->Y (RF)**	0.02342	0.30724	8.83807
sky130_osu_sc_15T_hs__inv_l	**A->Y (RF)**	0.01856	0.47917	7.15740

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__inv_1	A	0.00000	0.00000	0.00000
	A	0.00678	0.01753	0.14003
sky130_osu_sc_15T_hs__inv_10	A	0.00000	0.00000	0.00000
	A	0.06465	0.21352	1.35090
sky130_osu_sc_15T_hs__inv_2	A	0.00000	0.00000	0.00000
	A	0.01224	0.03667	0.27552
sky130_osu_sc_15T_hs__inv_3	A	0.00000	0.00000	0.00000
	A	0.01875	0.05730	0.40671
sky130_osu_sc_15T_hs__inv_4	A	0.00000	0.00000	0.00000
	A	0.02426	0.07818	0.54091
sky130_osu_sc_15T_hs__inv_6	A	0.00000	0.00000	0.00000
	A	0.03667	0.12231	0.80823
sky130_osu_sc_15T_hs__inv_8	A	0.00000	0.00000	0.00000
	A	0.05004	0.16850	1.07512
sky130_osu_sc_15T_hs__inv_l	A	0.00000	0.00000	0.00000
	A	0.00500	0.01367	0.12876

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__inv_1	**A**	0.00000	0.00000	0.00000
	A	0.01514	0.02341	0.11195
sky130_osu_sc_15T_hs__inv_10	**A**	0.00000	0.00000	0.00000
	A	0.15138	0.27250	1.11149
sky130_osu_sc_15T_hs__inv_2	**A**	0.00000	0.00000	0.00000
	A	0.02871	0.04833	0.22392
sky130_osu_sc_15T_hs__inv_3	**A**	0.00000	0.00000	0.00000
	A	0.04407	0.07446	0.33158
sky130_osu_sc_15T_hs__inv_4	**A**	0.00000	0.00000	0.00000
	A	0.05819	0.10191	0.44240
sky130_osu_sc_15T_hs__inv_6	**A**	0.00000	0.00000	0.00000
	A	0.08741	0.15699	0.66229
sky130_osu_sc_15T_hs__inv_8	**A**	0.00000	0.00000	0.00000
	A	0.11892	0.21518	0.87847
sky130_osu_sc_15T_hs__inv_l	**A**	0.00000	0.00000	0.00000
	A	0.00832	0.01411	0.09174

SKY130_OSU_SC_15T_HS__MUX2

sky130_osu_sc_15T_hs_ff_1P95_150C.ccs
Cell Library: Process , Voltage 1.95, Temp 150.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_15T_hs__mux2_1	15.26250

Pin Capacitance Information

Cell Name	Pin Cap(pf)			Max Cap(pf)
	A0	**A1**	**S0**	**Y**
sky130_osu_sc_15T_hs__mux2_1	1.10328	1.10530	0.00790	1.28198

Leakage Information

Cell Name	Leakage(nW)		
	Min.	**Avg**	**Max.**
sky130_osu_sc_15T_hs__mux2_1	0.00000	618.49900	619.15400

Delay Information

Delay(ns) to Y rising (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_15T_hs__mux2_1	A0->Y (RR)	-	0.00870	0.18717	2.67513
	A1->Y (RR)	-	0.00932	0.18756	2.67288
	S0->Y (RR)	(!A0 * A1)	0.03394	0.25143	2.90480
	S0->Y (FR)	(A0 * !A1)	0.02266	0.30956	4.12018

Delay(ns) to Y falling (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_15T_hs__mux2_1	A0->Y (FF)	-	0.00830	0.19574	2.80146
	A1->Y (FF)	-	0.00796	0.19516	2.80081
	S0->Y (FF)	(!A0 * A1)	0.03609	0.32735	4.02383
	S0->Y (RF)	(A0 * !A1)	0.02175	0.28321	3.71136

Power Information

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

Cell Name	Input	When	Power(pJ)		
			first	mid	last
sky130_osu_sc_15T_hs__mux2_1	A0	-	0.00000	0.00000	0.00000
	A0	-	-0.00588	-0.00590	-0.00591
	A1	-	0.00000	0.00000	0.00000
	A1	-	0.01099	0.01098	0.01098
	S0	(A0 * !A1)	0.00000	0.00000	0.00000
	S0	(A0 * !A1)	0.00732	0.03556	0.46661
	S0	(!A0 * A1)	0.00000	0.00000	0.00000
	S0	(!A0 * A1)	0.00450	0.03112	0.45665

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

Cell Name	Input	When	Power(pJ)		
			first	mid	last
sky130_osu_sc_15T_hs__mux2_1	A0	-	0.00000	0.00000	0.00000
	A0	-	0.00696	0.00697	0.00697
	A1	-	0.00000	0.00000	0.00000
	A1	-	0.01908	0.01909	0.01908
	S0	(A0 * !A1)	0.00000	0.00000	0.00000
	S0	(A0 * !A1)	0.01203	0.03934	0.46557
	S0	(!A0 * A1)	0.00000	0.00000	0.00000
	S0	(!A0 * A1)	0.01747	0.04469	0.47505

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__mux2_1	(A1 * S0 * Y) + (!A1 * S0 * !Y)	0.00000	0.00000	0.00000
	(A1 * S0 * Y) + (!A1 * S0 * !Y)	0.00371	0.00371	0.00371

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__mux2_1	(A1 * S0 * Y) + (!A1 * S0 * !Y)	0.00000	0.00000	0.00000
	(A1 * S0 * Y) + (!A1 * S0 * !Y)	0.00669	0.00669	0.00669

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__mux2_1	(A0 * !S0 * Y) + (!A0 * !S0 * !Y)	0.00000	0.00000	0.00000
	(A0 * !S0 * Y) + (!A0 * !S0 * !Y)	-0.00154	-0.00154	-0.00155

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__mux2_1	(A0 * !S0 * Y) + (!A0 * !S0 * !Y)	0.00000	0.00000	0.00000
	(A0 * !S0 * Y) + (!A0 * !S0 * !Y)	0.00190	0.00190	0.00190

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__mux2_1	(A0 * A1 * Y)	0.00000	0.00000	0.00000
	(A0 * A1 * Y)	0.00359	0.03070	0.45553
	(!A0 * !A1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !Y)	0.00360	0.03089	0.45601

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__mux2_1	(A0 * A1 * Y)	0.00000	0.00000	0.00000
	(A0 * A1 * Y)	0.01315	0.04073	0.47021
	(!A0 * !A1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !Y)	0.01151	0.03990	0.46966

SKY130_OSU_SC_15T_HS__NAND2x

sky130_osu_sc_15T_hs_ff_1P95_150C.ccs
Cell Library: Process , Voltage 1.95, Temp 150.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_15T_hs__nand2_1	7.93650
sky130_osu_sc_15T_hs__nand2_l	7.93650

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	B	Y
sky130_osu_sc_15T_hs__nand2_1	0.00387	0.00386	1.66664
sky130_osu_sc_15T_hs__nand2_l	0.00303	0.00304	1.42228

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_15T_hs__nand2_1	0.00000	308.33800	1193.74000
sky130_osu_sc_15T_hs__nand2_l	0.00000	213.79400	838.56800

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_hs__nand2_1	A->Y (FR)	0.01759	0.46104	7.08316
	B->Y (FR)	0.02009	0.45741	6.97914
sky130_osu_sc_15T_hs__nand2_l	A->Y (FR)	0.02101	0.55746	8.25775
	B->Y (FR)	0.02501	0.56045	8.24835

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_hs__nand2_1	A->Y (RF)	0.02583	0.56613	8.75059
	B->Y (RF)	0.02871	0.53230	8.20808
sky130_osu_sc_15T_hs__nand2_l	A->Y (RF)	0.02503	0.59504	8.82570
	B->Y (RF)	0.02799	0.55907	8.23283

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__nand2_1	A	0.00000	0.00000	0.00000
	A	0.00705	0.01698	0.14375
	B	0.00000	0.00000	0.00000
	B	0.00860	0.01901	0.15478
sky130_osu_sc_15T_hs__nand2_1	A	0.00000	0.00000	0.00000
	A	0.00528	0.01250	0.10852
	B	0.00000	0.00000	0.00000
	B	0.00669	0.01413	0.11502

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__nand2_1	A	0.00000	0.00000	0.00000
	A	0.03167	0.03864	0.12596
	B	0.00000	0.00000	0.00000
	B	0.03088	0.03725	0.12618
sky130_osu_sc_15T_hs__nand2_1	A	0.00000	0.00000	0.00000
	A	0.02195	0.02652	0.08661
	B	0.00000	0.00000	0.00000
	B	0.02145	0.02582	0.08879

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__nand2_1	(!B * Y)	0.00000	0.00000	0.00000
	(!B * Y)	-0.00467	-0.00470	-0.00475
sky130_osu_sc_15T_hs__nand2_l	(!B * Y)	0.00000	0.00000	0.00000
	(!B * Y)	-0.00327	-0.00331	-0.00334

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__nand2_1	(!B * Y)	0.00000	0.00000	0.00000
	(!B * Y)	0.00484	0.00495	0.00487
sky130_osu_sc_15T_hs__nand2_l	(!B * Y)	0.00000	0.00000	0.00000
	(!B * Y)	0.00337	0.00344	0.00339

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__nand2_1	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00433	-0.00437	-0.00438
sky130_osu_sc_15T_hs__nand2_l	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00304	-0.00306	-0.00305

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__nand2_1	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00484	0.00474	0.00474
sky130_osu_sc_15T_hs__nand2_l	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00333	0.00325	0.00321

SKY130_OSU_SC_15T_HS__NOR2x

sky130_osu_sc_15T_hs_ff_1P95_150C.ccs
Cell Library: Process , Voltage 1.95, Temp 150.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_15T_hs__nor2_1	7.93650
sky130_osu_sc_15T_hs__nor2_l	7.93650

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	B	Y
sky130_osu_sc_15T_hs__nor2_1	0.00386	0.00413	1.42842
sky130_osu_sc_15T_hs__nor2_l	0.00294	0.00325	0.98320

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_15T_hs__nor2_1	0.00000	250.42100	594.24900
sky130_osu_sc_15T_hs__nor2_l	0.00000	190.42100	417.85600

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_hs__nor2_1	A->Y (FR)	0.03443	0.57184	8.36131
	B->Y (FR)	0.02466	0.60124	8.89907
sky130_osu_sc_15T_hs__nor2_l	A->Y (FR)	0.03664	0.61017	8.03160
	B->Y (FR)	0.02914	0.64945	8.70367

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_hs__nor2_1	A->Y (RF)	0.02691	0.42473	6.13935
	B->Y (RF)	0.02004	0.41327	6.09844
sky130_osu_sc_15T_hs__nor2_l	A->Y (RF)	0.02424	0.41315	5.40993
	B->Y (RF)	0.01983	0.40484	5.36506

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__nor2_1	A	0.00000	0.00000	0.00000
	A	0.01056	0.01867	0.14629
	B	0.00000	0.00000	0.00000
	B	0.00779	0.01794	0.15575
sky130_osu_sc_15T_hs__nor2_l	A	0.00000	0.00000	0.00000
	A	0.00722	0.01401	0.12629
	B	0.00000	0.00000	0.00000
	B	0.00554	0.01340	0.12933

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__nor2_1	A	0.00000	0.00000	0.00000
	A	0.00782	0.01608	0.13251
	B	0.00000	0.00000	0.00000
	B	0.01113	0.01945	0.12607
sky130_osu_sc_15T_hs__nor2_l	A	0.00000	0.00000	0.00000
	A	0.00576	0.01176	0.10454
	B	0.00000	0.00000	0.00000
	B	0.00708	0.01302	0.09733

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__nor2_1	(B * !Y)	0.00000	0.00000	0.00000
	(B * !Y)	-0.00267	-0.00331	0.00018
sky130_osu_sc_15T_hs__nor2_l	(B * !Y)	0.00000	0.00000	0.00000
	(B * !Y)	-0.00173	-0.00205	0.00037

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__nor2_1	(B * !Y)	0.00000	0.00000	0.00000
	(B * !Y)	0.00958	0.00952	0.00868
sky130_osu_sc_15T_hs__nor2_l	(B * !Y)	0.00000	0.00000	0.00000
	(B * !Y)	0.00655	0.00652	0.00604

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__nor2_1	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	-0.00151	-0.00151	-0.00103
sky130_osu_sc_15T_hs__nor2_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	-0.00094	-0.00094	-0.00041

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__nor2_1	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00501	0.00491	0.00343
sky130_osu_sc_15T_hs__nor2_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00399	0.00392	0.00279

SKY130_OSU_SC_15T_HS__OAI21

sky130_osu_sc_15T_hs_ff_1P95_150C.ccs
Cell Library: Process , Voltage 1.95, Temp 150.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_15T_hs__oai21_l	10.37850

Pin Capacitance Information

Cell Name	Pin Cap(pf)			Max Cap(pf)
	A0	A1	B0	Y
sky130_osu_sc_15T_hs__oai21_l	0.00390	0.00402	0.00326	1.34744

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_15T_hs__oai21_l	0.00000	289.30600	1011.24000

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_hs__oai21_l	A0->Y (FR)	0.03370	0.60269	8.67374
	A1->Y (FR)	0.04616	0.58027	8.18128
	B0->Y (FR)	0.02340	0.52136	7.56224

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_hs__oai21_l	A0->Y (RF)	0.03519	0.49817	7.07703
	A1->Y (RF)	0.04466	0.49614	6.90358
	B0->Y (RF)	0.02717	0.54864	7.95321

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__oai21_l	A0	0.00000	0.00000	0.00000
	A0	0.01014	0.01826	0.13384
	A1	0.00000	0.00000	0.00000
	A1	0.01290	0.01966	0.13234
	B0	0.00597	0.01519	0.14158

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__oai21_l	A0	0.00000	0.00000	0.00000
	A0	0.02493	0.03040	0.11386
	A1	0.00000	0.00000	0.00000
	A1	0.01973	0.02518	0.11768
	B0	0.01102	0.01819	0.11490

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__oai21_l	(A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * !Y)	0.00213	0.00215	0.00263
	(A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * Y)	-0.00423	-0.00426	-0.00422
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00422	-0.00424	-0.00425

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__oai21_l	(A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * !Y)	0.00866	0.00856	0.00708
	(A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * Y)	0.00458	0.00462	0.00460
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00481	0.00465	0.00462

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__oai21_l	(A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * B0 * !Y)	0.00111	0.00047	0.00391
	(A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * Y)	-0.00418	-0.00418	-0.00417
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	-0.00416	-0.00419	-0.00420

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__oai21_l	(A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * B0 * !Y)	0.01313	0.01309	0.01222
	(A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * Y)	0.00454	0.00458	0.00455
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	0.00475	0.00452	0.00457

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__oai21_l	(!A0 * !A1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * Y)	-0.00306	-0.00307	-0.00322

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__oai21_l	(!A0 * !A1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * Y)	0.00346	0.00347	0.00348

SKY130_OSU_SC_15T_HS__OAI22

sky130_osu_sc_15T_hs_ff_1P95_150C.ccs
Cell Library: Process , Voltage 1.95, Temp 150.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_15T_hs__oai22_l	12.82050

Pin Capacitance Information

Cell Name	Pin Cap(pf)				Max Cap(pf)
	A0	A1	B0	B1	Y
sky130_osu_sc_15T_hs__oai22_l	0.00381	0.00399	0.00408	0.00400	1.40635

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_15T_hs__oai22_l	0.00000	373.57000	1186.02000

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_hs__oai22_l	A0->Y (FR)	0.04828	0.57918	8.23822
	A1->Y (FR)	0.03831	0.60874	8.80089
	B0->Y (FR)	0.02706	0.59800	8.78643
	B1->Y (FR)	0.03749	0.56813	8.21962

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_hs__oai22_l	A0->Y (RF)	0.06346	0.54144	7.42689
	A1->Y (RF)	0.04997	0.52462	7.34222
	B0->Y (RF)	0.04347	0.57360	8.21385
	B1->Y (RF)	0.05693	0.59576	8.33711

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__oai22_l	A0	0.01522	0.02205	0.13516
	A1	0.01241	0.02137	0.14863
	B0	0.00826	0.01728	0.14093
	B1	0.01117	0.01794	0.12631

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__oai22_l	A0	0.02487	0.03003	0.11851
	A1	0.02783	0.03312	0.11479
	B0	0.01400	0.02073	0.11499
	B1	0.01042	0.01705	0.11418

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__oai22_l	(A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * !Y)	-0.00234	-0.00298	0.00050
	(A1 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * B1 * !Y)	0.00018	-0.00046	0.00301
	(A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * !B1 * Y)	-0.00400	-0.00401	-0.00400
	(!A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * !B1 * Y)	-0.00399	-0.00402	-0.00406

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__oai22_l	(A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * !Y)	0.00991	0.00985	0.00901
	(A1 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * B1 * !Y)	0.01242	0.01236	0.01152
	(A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * !B1 * Y)	0.00474	0.00477	0.00474
	(!A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * !B1 * Y)	0.00491	0.00472	0.00476

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__oai22_l	(A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * B0 * !Y)	-0.00116	-0.00116	-0.00068
	(A0 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * B1 * !Y)	0.00136	0.00136	0.00184
	(A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * !B1 * Y)	-0.00397	-0.00400	-0.00397
	(!A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * !B1 * Y)	-0.00396	-0.00401	-0.00403

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__oai22_l	(A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * B0 * !Y)	0.00532	0.00522	0.00374
	(A0 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * B1 * !Y)	0.00784	0.00774	0.00626
	(A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * !B1 * Y)	0.00470	0.00472	0.00471
	(!A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * !B1 * Y)	0.00488	0.00467	0.00473

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__oai22_l	(A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * B1 * !Y)	-0.00115	-0.00115	-0.00067
	(A0 * !A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B1 * !Y)	0.00137	0.00137	0.00185
	(!A0 * !A1 * B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B1 * Y)	-0.00470	-0.00471	-0.00466
	(!A0 * !A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B1 * Y)	-0.00435	-0.00438	-0.00455

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__oai22_l	(A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * B1 * !Y)	0.00531	0.00520	0.00372
	(A0 * !A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B1 * !Y)	0.00782	0.00773	0.00624
	(!A0 * !A1 * B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B1 * Y)	0.00523	0.00526	0.00521
	(!A0 * !A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B1 * Y)	0.00478	0.00480	0.00481

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__oai22_l	(A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * !Y)	-0.00228	-0.00291	0.00058
	(A0 * !A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B0 * !Y)	0.00024	-0.00039	0.00309
	(!A0 * !A1 * B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B0 * Y)	-0.00479	-0.00479	-0.00474
	(!A0 * !A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B0 * Y)	-0.00444	-0.00449	-0.00463

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__oai22_l	(A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * !Y)	0.00984	0.00977	0.00893
	(A0 * !A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B0 * !Y)	0.01236	0.01224	0.01144
	(!A0 * !A1 * B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B0 * Y)	0.00533	0.00534	0.00530
	(!A0 * !A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B0 * Y)	0.00487	0.00497	0.00490

SKY130_OSU_SC_15T_HS__OR2x

sky130_osu_sc_15T_hs_ff_1P95_150C.ccs
Cell Library: Process , Voltage 1.95, Temp 150.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_15T_hs__or2_1	10.37850
sky130_osu_sc_15T_hs__or2_2	12.82050
sky130_osu_sc_15T_hs__or2_4	17.70450
sky130_osu_sc_15T_hs__or2_8	27.47250
sky130_osu_sc_15T_hs__or2_l	10.37850

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	B	Y
sky130_osu_sc_15T_hs__or2_1	0.00425	0.00400	2.66393
sky130_osu_sc_15T_hs__or2_2	0.00425	0.00400	5.12060
sky130_osu_sc_15T_hs__or2_4	0.00426	0.00400	9.88262
sky130_osu_sc_15T_hs__or2_8	0.00427	0.00402	18.84323
sky130_osu_sc_15T_hs__or2_l	0.00338	0.00311	1.61062

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_15T_hs__or2_1	0.00000	416.04700	641.10100
sky130_osu_sc_15T_hs__or2_2	0.00000	581.54100	1239.74000
sky130_osu_sc_15T_hs__or2_4	0.00000	912.43700	2436.39000
sky130_osu_sc_15T_hs__or2_8	0.00000	1574.07000	4829.09000
sky130_osu_sc_15T_hs__or2_l	0.00000	301.64000	436.98100

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_hs__or2_1	A->Y (RR)	0.05272	0.40805	6.22087
	B->Y (RR)	0.04326	0.38038	6.06157
sky130_osu_sc_15T_hs__or2_2	A->Y (RR)	0.05878	0.35415	6.07485
	B->Y (RR)	0.04904	0.32597	5.89247
sky130_osu_sc_15T_hs__or2_4	A->Y (RR)	0.07776	0.34969	6.18958
	B->Y (RR)	0.06762	0.32488	6.00142
sky130_osu_sc_15T_hs__or2_8	A->Y (RR)	0.11693	0.39039	6.33094
	B->Y (RR)	0.10640	0.36961	6.14425
sky130_osu_sc_15T_hs__or2_l	A->Y (RR)	0.05169	0.44352	5.65117
	B->Y (RR)	0.04449	0.41891	5.44165

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_hs__or2_1	A->Y (FF)	0.06742	0.53960	8.41689
	B->Y (FF)	0.05467	0.55432	8.86363
sky130_osu_sc_15T_hs__or2_2	A->Y (FF)	0.07800	0.47842	8.29352
	B->Y (FF)	0.06524	0.49441	8.74351
sky130_osu_sc_15T_hs__or2_4	A->Y (FF)	0.10930	0.47210	8.38663
	B->Y (FF)	0.09657	0.49101	8.83623
sky130_osu_sc_15T_hs__or2_8	A->Y (FF)	0.17507	0.51895	8.37101
	B->Y (FF)	0.16237	0.54403	8.80094
sky130_osu_sc_15T_hs__or2_l	A->Y (FF)	0.07148	0.50213	6.48459
	B->Y (FF)	0.05948	0.52086	6.92005

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__or2_1	A	0.00000	0.00000	0.00000
	A	0.01633	0.03290	0.30864
	B	0.00000	0.00000	0.00000
	B	0.02113	0.04016	0.33392
sky130_osu_sc_15T_hs__or2_2	A	0.00000	0.00000	0.00000
	A	0.02297	0.04007	0.32051
	B	0.00000	0.00000	0.00000
	B	0.02726	0.04656	0.34109
sky130_osu_sc_15T_hs__or2_4	A	0.00000	0.00000	0.00000
	A	0.04005	0.05732	0.34702
	B	0.00000	0.00000	0.00000
	B	0.04358	0.06333	0.36456
sky130_osu_sc_15T_hs__or2_8	A	0.00000	0.00000	0.00000
	A	0.09112	0.10040	0.39857
	B	0.00000	0.00000	0.00000
	B	0.09311	0.10432	0.41192
sky130_osu_sc_15T_hs__or2_l	A	0.00000	0.00000	0.00000
	A	0.01264	0.02331	0.19707
	B	0.00000	0.00000	0.00000
	B	0.01493	0.02669	0.20589

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__or2_1	A	0.00000	0.00000	0.00000
	A	0.03353	0.04995	0.33930
	B	0.00000	0.00000	0.00000
	B	0.03054	0.05181	0.39577
sky130_osu_sc_15T_hs__or2_2	A	0.00000	0.00000	0.00000
	A	0.05659	0.07002	0.35423
	B	0.00000	0.00000	0.00000
	B	0.05379	0.07174	0.41085
sky130_osu_sc_15T_hs__or2_4	A	0.00000	0.00000	0.00000
	A	0.11292	0.11482	0.38361
	B	0.00000	0.00000	0.00000
	B	0.11039	0.11646	0.44031
sky130_osu_sc_15T_hs__or2_8	A	0.00000	0.00000	0.00000
	A	0.24972	0.21335	0.44304
	B	0.00000	0.00000	0.00000
	B	0.24768	0.21663	0.50139
sky130_osu_sc_15T_hs__or2_l	A	0.00000	0.00000	0.00000
	A	0.02116	0.03334	0.24974
	B	0.00000	0.00000	0.00000
	B	0.01926	0.03392	0.27443

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__or2_1	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00246	-0.00311	0.00034
sky130_osu_sc_15T_hs__or2_2	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00228	-0.00293	0.00053
sky130_osu_sc_15T_hs__or2_4	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00191	-0.00256	0.00090
sky130_osu_sc_15T_hs__or2_8	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00117	-0.00182	0.00164
sky130_osu_sc_15T_hs__or2_l	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00163	-0.00198	0.00042

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__or2_1	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00981	0.00971	0.00889
sky130_osu_sc_15T_hs__or2_2	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00999	0.00990	0.00907
sky130_osu_sc_15T_hs__or2_4	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.01036	0.01027	0.00944
sky130_osu_sc_15T_hs__or2_8	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.01109	0.01100	0.01017
sky130_osu_sc_15T_hs__or2_l	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00665	0.00661	0.00613

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__or2_1	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00133	-0.00132	-0.00088
sky130_osu_sc_15T_hs__or2_2	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00115	-0.00114	-0.00070
sky130_osu_sc_15T_hs__or2_4	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00078	-0.00077	-0.00033
sky130_osu_sc_15T_hs__or2_8	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00004	-0.00003	0.00041
sky130_osu_sc_15T_hs__or2_l	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00092	-0.00093	-0.00040

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__or2_1	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00523	0.00514	0.00366
sky130_osu_sc_15T_hs__or2_2	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00541	0.00530	0.00384
sky130_osu_sc_15T_hs__or2_4	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00578	0.00566	0.00421
sky130_osu_sc_15T_hs__or2_8	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00651	0.00640	0.00494
sky130_osu_sc_15T_hs__or2_l	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00412	0.00405	0.00293

SKY130_OSU_SC_15T_HS__TBUFIx

sky130_osu_sc_15T_hs_ff_1P95_150C.ccs
Cell Library: Process , Voltage 1.95, Temp 150.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_15T_hs__tbufi_1	10.37850
sky130_osu_sc_15T_hs__tbufi_l	10.37850

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	OE	Y
sky130_osu_sc_15T_hs__tbufi_1	0.00411	0.00518	1.44325
sky130_osu_sc_15T_hs__tbufi_l	0.00325	0.00425	0.97456

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_15T_hs__tbufi_1	0.00000	321.85500	1190.78000
sky130_osu_sc_15T_hs__tbufi_l	0.00000	219.19000	837.00300

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_hs__tbufi_1	A->Y (FR)	0.02406	0.59241	8.79689
	OE->Y (FR)	0.03325	0.36552	5.34290
	OE->Y (RR)	0.05292	0.46653	6.11729
sky130_osu_sc_15T_hs__tbufi_l	A->Y (FR)	0.02843	0.63971	8.55184
	OE->Y (FR)	0.03484	0.36530	5.34268
	OE->Y (RR)	0.05229	0.50789	5.77668

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_hs__tbufi_1	A->Y (RF)	0.02574	0.53029	7.84740
	OE->Y (FF)	0.03376	0.36550	5.34290
	OE->Y (RF)	0.02243	0.46871	6.96464
sky130_osu_sc_15T_hs__tbufi_l	A->Y (RF)	0.02519	0.50781	6.73486
	OE->Y (FF)	0.03530	0.36530	5.34268
	OE->Y (RF)	0.02304	0.44465	5.76597

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__tbufi_1	A	0.00000	0.00000	0.00000
	A	0.02341	0.03167	0.14254
	OE	0.00000	0.00000	0.00000
	OE	0.02238	0.04691	0.43310
sky130_osu_sc_15T_hs__tbufi_l	A	0.00000	0.00000	0.00000
	A	0.01657	0.02304	0.11879
	OE	0.00000	0.00000	0.00000
	OE	0.01535	0.03332	0.31734

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__tbufi_1	A	0.00000	0.00000	0.00000
	A	0.02881	0.03540	0.12052
	OE	0.00000	0.00000	0.00000
	OE	0.03324	0.05933	0.47399
sky130_osu_sc_15T_hs__tbufi_l	A	0.00000	0.00000	0.00000
	A	0.01748	0.02235	0.09250
	OE	0.00000	0.00000	0.00000
	OE	0.02021	0.04006	0.35671

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__tbufi_1	(!OE * Y)	0.00000	0.00000	0.00000
	(!OE * Y)	-0.00326	-0.00330	-0.00319
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	-0.00242	-0.00245	-0.00223
sky130_osu_sc_15T_hs__tbufi_l	(!OE * Y)	0.00000	0.00000	0.00000
	(!OE * Y)	-0.00255	-0.00258	-0.00249
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	-0.00184	-0.00185	-0.00164

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__tbufi_1	(!OE * Y)	0.00000	0.00000	0.00000
	(!OE * Y)	0.00382	0.00381	0.00363
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	0.00400	0.00401	0.00370
sky130_osu_sc_15T_hs__tbufi_l	(!OE * Y)	0.00000	0.00000	0.00000
	(!OE * Y)	0.00288	0.00288	0.00271
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	0.00319	0.00319	0.00296

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__tbufi_1	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.01342	0.04071	0.46993
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00809	0.03553	0.46704
sky130_osu_sc_15T_hs__tbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00916	0.02981	0.35498
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00542	0.02615	0.35289

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__tbufi_1	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00840	0.03679	0.47466
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00770	0.03609	0.47187
sky130_osu_sc_15T_hs__tbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00655	0.02830	0.35957
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00602	0.02774	0.35755

SKY130_OSU_SC_15T_HS__TNBUFIx

sky130_osu_sc_15T_hs_ff_1P95_150C.ccs
Cell Library: Process , Voltage 1.95, Temp 150.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_15T_hs__tnbufi_1	10.37850
sky130_osu_sc_15T_hs__tnbufi_l	10.37850

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	**OE**	**Y**
sky130_osu_sc_15T_hs__tnbufi_1	0.00410	0.00643	1.44428
sky130_osu_sc_15T_hs__tnbufi_l	0.00324	0.00475	0.98866

Leakage Information

Cell Name	Leakage(nW)		
	Min.	**Avg**	**Max.**
sky130_osu_sc_15T_hs__tnbufi_1	0.00000	514.45500	615.14700
sky130_osu_sc_15T_hs__tnbufi_l	0.00000	356.68700	427.29300

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_hs__tnbufi_1	A->Y (FR)	0.02408	0.59267	8.79811
	OE->Y (RR)	0.02466	0.36624	5.34365
	OE->Y (FR)	0.03269	0.53954	7.87422
sky130_osu_sc_15T_hs__tnbufi_l	A->Y (FR)	0.02848	0.64322	8.63053
	OE->Y (RR)	0.02390	0.36619	5.34364
	OE->Y (FR)	0.03534	0.57845	7.47349

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_hs__tnbufi_1	A->Y (RF)	0.02538	0.53066	7.85263
	OE->Y (RF)	0.02438	0.36625	5.34362
	OE->Y (FF)	0.03670	0.46108	6.32639
sky130_osu_sc_15T_hs__tnbufi_l	A->Y (RF)	0.02479	0.51076	6.80555
	OE->Y (RF)	0.02361	0.36619	5.34358
	OE->Y (FF)	0.03977	0.44454	5.27806

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__tnbufi_1	A	0.00000	0.00000	0.00000
	A	0.00772	0.01615	0.12929
	OE	0.00000	0.00000	0.00000
	OE	0.01765	0.04652	0.47417
sky130_osu_sc_15T_hs__tnbufi_l	A	0.00000	0.00000	0.00000
	A	0.00552	0.01208	0.10861
	OE	0.00000	0.00000	0.00000
	OE	0.01272	0.03431	0.35594

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__tnbufi_1	A	0.00000	0.00000	0.00000
	A	0.01413	0.02081	0.10628
	OE	0.00000	0.00000	0.00000
	OE	0.02807	0.05465	0.44239
sky130_osu_sc_15T_hs__tnbufi_l	A	0.00000	0.00000	0.00000
	A	0.00840	0.01327	0.08306
	OE	0.00000	0.00000	0.00000
	OE	0.01859	0.03914	0.33923

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__tnbufi_1	(OE * Y)	0.00000	0.00000	0.00000
	(OE * Y)	0.00229	0.00224	0.00238
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	0.00312	0.00308	0.00330
sky130_osu_sc_15T_hs__tnbufi_l	(OE * Y)	0.00000	0.00000	0.00000
	(OE * Y)	0.00154	0.00151	0.00160
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	0.00225	0.00224	0.00243

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__tnbufi_1	(OE * Y)	0.00000	0.00000	0.00000
	(OE * Y)	0.00833	0.00833	0.00813
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	0.00854	0.00855	0.00823
sky130_osu_sc_15T_hs__tnbufi_l	(OE * Y)	0.00000	0.00000	0.00000
	(OE * Y)	0.00599	0.00598	0.00580
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	0.00629	0.00629	0.00606

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__tnbufi_1	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00083	0.02896	0.46310
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00010	0.02848	0.46010
sky130_osu_sc_15T_hs__tnbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00092	0.02202	0.35066
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00018	0.02168	0.34838

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__tnbufi_1	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.01800	0.04755	0.48231
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.01271	0.04277	0.47899
sky130_osu_sc_15T_hs__tnbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.01309	0.03539	0.36464
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00937	0.03207	0.36213

SKY130_OSU_SC_15T_HS__XNOR2

sky130_osu_sc_15T_hs_ff_1P95_150C.ccs
Cell Library: Process , Voltage 1.95, Temp 150.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_15T_hs__xnor2_l	17.70450

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	B	Y
sky130_osu_sc_15T_hs__xnor2_l	0.00815	0.00729	1.46580

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_15T_hs__xnor2_l	0.00000	1098.09000	1805.04000

Delay Information

Delay(ns) to Y rising (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_15T_hs__xnor2_1	A->Y (RR)	B	0.06452	0.48541	6.19917
	A->Y (FR)	!B	0.02976	0.59191	8.76241
	B->Y (RR)	A	0.05094	0.48423	6.45510
	B->Y (FR)	!A	0.04225	0.57202	8.29083

Delay(ns) to Y falling (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_15T_hs__xnor2_1	A->Y (FF)	B	0.06783	0.51850	6.68878
	A->Y (RF)	!B	0.03341	0.50839	7.45411
	B->Y (FF)	A	0.05653	0.51011	6.72508
	B->Y (RF)	!A	0.04311	0.51763	7.42769

Power Information

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

Cell Name	Input	When	Power(pJ)		
			first	mid	last
sky130_osu_sc_15T_hs__xnor2_l	A	B	0.00000	0.00000	0.00000
	A	B	0.03813	0.06258	0.45904
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.01731	0.05285	0.59209
	B	A	0.00000	0.00000	0.00000
	B	A	0.03300	0.06090	0.50222
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01931	0.05283	0.57144

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

Cell Name	Input	When	Power(pJ)		
			first	mid	last
sky130_osu_sc_15T_hs__xnor2_l	A	B	0.00000	0.00000	0.00000
	A	B	0.04931	0.07589	0.50345
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.04865	0.08021	0.58007
	B	A	0.00000	0.00000	0.00000
	B	A	0.05979	0.08744	0.52074
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.03702	0.06867	0.56827

SKY130_OSU_SC_15T_HS__XOR2

sky130_osu_sc_15T_hs_ff_1P95_150C.ccs
Cell Library: Process , Voltage 1.95, Temp 150.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_15T_hs__xor2_1	17.70450

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	B	Y
sky130_osu_sc_15T_hs__xor2_1	0.00820	0.00734	1.46889

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_15T_hs__xor2_1	0.00000	1097.93000	1848.05000

Delay Information

Delay(ns) to Y rising (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_15T_hs__xor2_1	A->Y (RR)	!B	0.05957	0.49050	6.50871
	A->Y (FR)	B	0.04108	0.58462	8.53891
	B->Y (RR)	!A	0.05318	0.49218	6.56326
	B->Y (FR)	A	0.04317	0.58289	8.46933

Delay(ns) to Y falling (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_15T_hs__xor2_1	A->Y (FF)	!B	0.05755	0.50713	6.50740
	A->Y (RF)	B	0.03793	0.54649	7.90948
	B->Y (FF)	!A	0.05495	0.51400	6.78372
	B->Y (RF)	A	0.04296	0.51830	7.43097

Power Information

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

Cell Name	Input	When	Power(pJ)		
			first	mid	last
sky130_osu_sc_15T_hs__xor2_l	A	B	0.00000	0.00000	0.00000
	A	B	0.03718	0.07083	0.59116
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.01942	0.04497	0.47134
	B	A	0.00000	0.00000	0.00000
	B	A	0.03731	0.07043	0.57856
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01860	0.04610	0.48476

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

Cell Name	Input	When	Power(pJ)		
			first	mid	last
sky130_osu_sc_15T_hs__xor2_l	A	B	0.00000	0.00000	0.00000
	A	B	0.05046	0.08231	0.58513
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.04862	0.07351	0.45589
	B	A	0.00000	0.00000	0.00000
	B	A	0.04921	0.07978	0.56861
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.04693	0.07452	0.50327

SKY130_OSU_SC_15T_HS_x

sky130_osu_sc_15T_hs_ff_1P95_150C.ccs
Cell Library: Process , Voltage 1.95, Temp 150.00

Truth Table

INPUT
A
x

Footprint

Cell Name	Area
sky130_osu_sc_15T_hs__ant	5.49450
sky130_osu_sc_15T_hs__tiehi	5.49450
sky130_osu_sc_15T_hs__tielo	5.49450

Pin Capacitance Information

Cell Name	Pin Cap(pf)
	A
sky130_osu_sc_15T_hs__ant	1.14926
sky130_osu_sc_15T_hs__tiehi	0.00000
sky130_osu_sc_15T_hs__tielo	0.00000

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_15T_hs__ant	0.00000	451978.00000	903955.00000
sky130_osu_sc_15T_hs__tiehi	0.00000	0.00000	0.00000
sky130_osu_sc_15T_hs__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_hs__ant	0.00000	0.00000	0.00000
	-0.00060	0.15354	2.20793

Passive power(pJ) for A falling :

Cell Name	Power(pJ)		
	first	mid	last
sky130_osu_sc_15T_hs__ant	0.00000	0.00000	0.00000
	7.86538	7.51175	2.55010