sky130_osu_sc_12T_hs_ff_1P95_-40C.ccs Library

Cell Groups
SKY130_OSU_SC_12T_HS__ADDFx
SKY130_OSU_SC_12T_HS__ADDHx
SKY130_OSU_SC_12T_HS__AND2x
SKY130_OSU_SC_12T_HS__AOI21
SKY130_OSU_SC_12T_HS__AOI22
SKY130_OSU_SC_12T_HS__BUFx
SKY130_OSU_SC_12T_HS__DFFRx
SKY130_OSU_SC_12T_HS__DFFSRx
SKY130_OSU_SC_12T_HS__DFFSx
SKY130_OSU_SC_12T_HS__DFFx
SKY130_OSU_SC_12T_HS__INVx
SKY130_OSU_SC_12T_HS__MUX2
SKY130_OSU_SC_12T_HS__NAND2x
SKY130_OSU_SC_12T_HS__NOR2x
SKY130_OSU_SC_12T_HS__OAI21
SKY130_OSU_SC_12T_HS__OAI22
SKY130_OSU_SC_12T_HS__OR2x
SKY130_OSU_SC_12T_HS__TBUFIx
SKY130_OSU_SC_12T_HS__TNBUFIx
SKY130_OSU_SC_12T_HS__XNOR2
SKY130_OSU_SC_12T_HS__XOR2
SKY130_OSU_SC_12T_HS_x

SKY130_OSU_SC_12T_HS__ADDFx

sky130_osu_sc_12T_hs_ff_1P95_-40C.ccs
Cell Library: Process , Voltage 1.95,
Temp -40.00

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_12T_hs__addf_1	31.25760
sky130_osu_sc_12T_hs__addf_l	31.25760

Pin Capacitance Information

Cell Name	Pin Cap(pf)			Max Cap(pf)		
	A	**B**	**CI**	**CO**	**CON**	**S**
sky130_osu_sc_12T_hs__addf_1	0.01064	0.01061	0.00821	1.82282	0.80476	1.55363
sky130_osu_sc_12T_hs__addf_l	0.01064	0.01061	0.00821	1.18772	0.80354	1.55346

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_12T_hs__addf_1	0.00000	0.11747	0.15324
sky130_osu_sc_12T_hs__addf_l	0.00000	0.54759	1.01441

Delay Information

Delay(ns) to CO rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_hs__addf_1	A->CO (RR)	0.07698	1.08365	19.39830
	B->CO (RR)	0.07279	1.05503	18.90510
	CI->CO (RR)	0.07197	1.12158	20.19590
	CON->CO (FR)	0.01541	0.57310	10.64600
sky130_osu_sc_12T_hs__addf_l	A->CO (RR)	0.07723	0.98876	15.06530
	B->CO (RR)	0.07323	0.97398	15.02530
	CI->CO (RR)	0.07223	1.02802	15.90850
	CON->CO (FR)	0.01852	0.60471	10.07190

Delay(ns) to CO falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_hs__addf_1	A->CO (FF)	0.11922	1.50578	26.69020
	B->CO (FF)	0.10403	1.42831	25.43770
	CI->CO (FF)	0.10322	1.50681	27.02080
	CON->CO (RF)	0.01195	0.37202	6.91062
sky130_osu_sc_12T_hs__addf_l	A->CO (FF)	0.11874	1.32881	20.19660
	B->CO (FF)	0.10374	1.26473	19.37180
	CI->CO (FF)	0.10276	1.33129	20.57240
	CON->CO (RF)	0.01321	0.38369	6.30687

Delay(ns) to CON rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_hs__addf_1	A->CON (FR)	0.10831	0.75499	10.05020
	B->CON (FR)	0.09137	0.70610	9.62513
	CI->CON (FR)	0.09228	0.75950	10.46440
sky130_osu_sc_12T_hs__addf_l	A->CON (FR)	0.10278	0.74946	10.03520
	B->CON (FR)	0.08644	0.70107	9.61171
	CI->CON (FR)	0.08674	0.75394	10.45080

Delay(ns) to CON falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_hs__addf_1	A->CON (RF)	0.04758	0.33501	4.20366
	B->CON (RF)	0.04454	0.35083	4.47722
	CI->CON (RF)	0.04260	0.37544	4.93161
sky130_osu_sc_12T_hs__addf_l	A->CON (RF)	0.04636	0.33344	4.19659
	B->CON (RF)	0.04341	0.34933	4.47032
	CI->CON (RF)	0.04138	0.37382	4.92395

Delay(ns) to S rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_hs__addf_1	A->S (-R)	0.17641	1.37406	21.19590
	B->S (-R)	0.17407	1.33838	20.32670
	CI->S (-R)	0.15910	1.37347	21.53970
	CON->S (RR)	0.04689	0.42860	5.81344
sky130_osu_sc_12T_hs__addf_l	A->S (-R)	0.17036	1.36940	21.18910
	B->S (-R)	0.16823	1.33419	20.32060
	CI->S (-R)	0.15307	1.36880	21.53360
	CON->S (RR)	0.04691	0.42857	5.81222

Delay(ns) to S falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_hs__addf_1	A->S (-F)	0.12948	0.89458	12.89410
	B->S (-F)	0.12361	0.85952	12.64650
	CI->S (-F)	0.12416	0.93152	13.71300
	CON->S (FF)	0.05732	0.46013	6.21329
sky130_osu_sc_12T_hs__addf_l	A->S (-F)	0.12683	0.89289	12.89040
	B->S (-F)	0.12120	0.85763	12.64370
	CI->S (-F)	0.12151	0.92948	13.70890
	CON->S (FF)	0.05736	0.46008	6.20816

Power Information

Internal switching power(pJ) to CO rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__addf_1	A	0.00286	0.00449	0.04269
	B	0.00332	0.00469	0.03793
	CI	0.00407	0.00588	0.04376
sky130_osu_sc_12T_hs__addf_l	A	0.00258	0.00397	0.03291
	B	0.00305	0.00416	0.03062
	CI	0.00380	0.00523	0.03576

Internal switching power(pJ) to CO falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__addf_1	A	0.01014	0.01387	0.10060
	B	0.01041	0.01344	0.08936
	CI	0.00865	0.01266	0.10133
sky130_osu_sc_12T_hs__addf_l	A	0.00988	0.01240	0.06729
	B	0.01013	0.01217	0.06058
	CI	0.00839	0.01122	0.06870

Internal switching power(pJ) to CON rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__addf_1	A	0.01011	0.01224	0.05526
	B	0.01037	0.01210	0.05101
	CI	0.00864	0.01106	0.05700
sky130_osu_sc_12T_hs__addf_l	A	0.00985	0.01178	0.05237
	B	0.01011	0.01168	0.04848
	CI	0.00838	0.01060	0.05414

Internal switching power(pJ) to CON falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__addf_1	A	0.00284	0.00391	0.02702
	B	0.00330	0.00420	0.02623
	CI	0.00405	0.00528	0.03076
sky130_osu_sc_12T_hs__addf_l	A	0.00257	0.00365	0.02735
	B	0.00304	0.00396	0.02652
	CI	0.00378	0.00504	0.03127

Internal switching power(pJ) to S rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__addf_1	A	0.01013	0.01347	0.08784
	B	0.00198	0.00189	0.07396
	CI	0.00865	0.01228	0.08898
sky130_osu_sc_12T_hs__addf_l	A	-0.00022	-0.00056	0.07260
	B	0.00198	0.00189	0.07394
	CI	0.00348	0.00446	0.07349

Internal switching power(pJ) to S falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__addf_1	A	0.02162	0.02293	0.08367
	B	0.01959	0.02121	0.09280
	CI	0.01632	0.01783	0.07461
sky130_osu_sc_12T_hs__addf_l	A	0.02162	0.02293	0.08376
	B	0.01964	0.02122	0.09282
	CI	0.01633	0.01784	0.07461

SKY130_OSU_SC_12T_HS__ADDHx

sky130_osu_sc_12T_hs_ff_1P95_-40C.ccs
Cell Library: Process , Voltage 1.95,
Temp -40.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_12T_hs__addh_1	18.55920
sky130_osu_sc_12T_hs__addh_l	18.55920

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)		
	A	B	CO	CON	S
sky130_osu_sc_12T_hs__addh_1	0.00529	0.00561	1.73129	1.77688	1.80293
sky130_osu_sc_12T_hs__addh_l	0.00514	0.00551	1.17426	1.78212	1.21962

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_12T_hs__addh_1	0.00000	0.13960	0.14989
sky130_osu_sc_12T_hs__addh_l	0.00000	1.00128	1.01215

Delay Information

Delay(ns) to CO rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_hs__addh_1	A->CO (RR)	0.05942	0.45970	6.23816
	B->CO (RR)	0.06192	0.46176	6.38910
sky130_osu_sc_12T_hs__addh_l	A->CO (RR)	0.05223	0.45364	5.52509
	B->CO (RR)	0.05414	0.45198	5.59373

Delay(ns) to CO falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_hs__addh_1	A->CO (FF)	0.05304	0.47109	6.65872
	B->CO (FF)	0.05691	0.48244	6.69753
sky130_osu_sc_12T_hs__addh_l	A->CO (FF)	0.04861	0.45220	6.03094
	B->CO (FF)	0.05195	0.46355	6.12217

Delay(ns) to CON rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_hs__addh_1	A->CON (RR)	0.08561	0.47107	6.16803
	B->CON (RR)	0.08790	0.47214	6.32836
sky130_osu_sc_12T_hs__addh_l	A->CON (RR)	0.07126	0.41390	5.62224
	B->CON (RR)	0.07302	0.41193	5.73231

Delay(ns) to CON falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_hs__addh_1	A->CON (FF)	0.07457	0.48708	6.74943
	B->CON (FF)	0.07361	0.49395	6.76810
sky130_osu_sc_12T_hs__addh_l	A->CON (FF)	0.06266	0.44619	6.47643
	B->CON (FF)	0.06198	0.45251	6.53339

Delay(ns) to S rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_hs__addh_1	A->S (FR)	0.10232	1.03323	16.78940
	B->S (FR)	0.10153	1.04297	16.87330
	CON->S (FR)	0.01724	0.57961	10.72620
sky130_osu_sc_12T_hs__addh_l	A->S (FR)	0.08962	0.92981	13.43850
	B->S (FR)	0.08913	0.93714	13.51220
	CON->S (FR)	0.01927	0.61397	10.29510

Delay(ns) to S falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_hs__addh_1	A->S (RF)	0.10574	0.93403	14.74270
	B->S (RF)	0.10805	0.93534	14.89380
	CON->S (RF)	0.01337	0.43268	8.02918
sky130_osu_sc_12T_hs__addh_l	A->S (RF)	0.08891	0.73186	9.64147
	B->S (RF)	0.09069	0.72874	9.73440
	CON->S (RF)	0.01283	0.39001	6.47435

Power Information

Internal switching power(pJ) to CO rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__addh_1	A	0.00000	0.00000	0.00000
	A	0.00526	0.00566	0.02409
	B	0.00000	0.00000	0.00000
	B	0.00485	0.00505	0.02982
sky130_osu_sc_12T_hs__addh_l	A	0.00000	0.00000	0.00000
	A	0.00454	0.00541	0.03798
	B	0.00000	0.00000	0.00000
	B	0.00411	0.00496	0.04526

Internal switching power(pJ) to CO falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__addh_1	A	0.00000	0.00000	0.00000
	A	0.00717	0.00775	0.03335
	B	0.00000	0.00000	0.00000
	B	0.00761	0.00863	0.03548
sky130_osu_sc_12T_hs__addh_l	A	0.00000	0.00000	0.00000
	A	0.00649	0.00784	0.04818
	B	0.00000	0.00000	0.00000
	B	0.00691	0.00866	0.05105

Internal switching power(pJ) to CON rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__addh_1	A	0.00000	0.00000	0.00000
	A	0.00527	0.00566	0.02418
	B	0.00000	0.00000	0.00000
	B	0.00484	0.00505	0.02989
sky130_osu_sc_12T_hs__addh_l	A	0.00000	0.00000	0.00000
	A	0.00454	0.00543	0.03800
	B	0.00000	0.00000	0.00000
	B	0.00412	0.00499	0.04529

Internal switching power(pJ) to CON falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__addh_1	A	0.00000	0.00000	0.00000
	A	0.00717	0.00777	0.03339
	B	0.00000	0.00000	0.00000
	B	0.00762	0.00862	0.03557
sky130_osu_sc_12T_hs__addh_l	A	0.00000	0.00000	0.00000
	A	0.00648	0.00786	0.04912
	B	0.00000	0.00000	0.00000
	B	0.00691	0.00870	0.05201

Internal switching power(pJ) to S rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__addh_1	A	0.00000	0.00000	0.00000
	A	0.00717	0.00775	0.03386
	B	0.00000	0.00000	0.00000
	B	0.00762	0.00864	0.03581
sky130_osu_sc_12T_hs__addh_l	A	0.00000	0.00000	0.00000
	A	0.00650	0.00782	0.04841
	B	0.00000	0.00000	0.00000
	B	0.00692	0.00867	0.05120

Internal switching power(pJ) to S falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__addh_1	A	0.00000	0.00000	0.00000
	A	0.00527	0.00581	0.02446
	B	0.00000	0.00000	0.00000
	B	0.00484	0.00507	0.02983
sky130_osu_sc_12T_hs__addh_l	A	0.00000	0.00000	0.00000
	A	0.00454	0.00544	0.03774
	B	0.00000	0.00000	0.00000
	B	0.00411	0.00498	0.04521

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__addh_1	(!B * !CO * !CON * S)	0.00000	0.00000	0.00000
	(!B * !CO * !CON * S)	2.51936	2.42806	0.81678
sky130_osu_sc_12T_hs__addh_l	(!B * !CO * !CON * S)	0.00000	0.00000	0.00000
	(!B * !CO * !CON * S)	2.52463	2.43310	0.81814

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__addh_1	(!A * !CO * !CON * S)	0.00000	0.00000	0.00000
	(!A * !CO * !CON * S)	2.51912	2.42793	0.83775
sky130_osu_sc_12T_hs__addh_l	(!A * !CO * !CON * S)	0.00000	0.00000	0.00000
	(!A * !CO * !CON * S)	2.52444	2.43307	0.83886

SKY130_OSU_SC_12T_HS__AND2x

sky130_osu_sc_12T_hs_ff_1P95_-40C.ccs
Cell Library: Process , Voltage 1.95,
Temp -40.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_12T_hs__and2_1	8.30280
sky130_osu_sc_12T_hs__and2_2	10.25640
sky130_osu_sc_12T_hs__and2_4	14.16360
sky130_osu_sc_12T_hs__and2_6	18.07080
sky130_osu_sc_12T_hs__and2_8	21.97800
sky130_osu_sc_12T_hs__and2_l	8.30280

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	B	Y
sky130_osu_sc_12T_hs__and2_1	0.00279	0.00290	1.74977
sky130_osu_sc_12T_hs__and2_2	0.00278	0.00290	3.40667
sky130_osu_sc_12T_hs__and2_4	0.00278	0.00291	6.57152
sky130_osu_sc_12T_hs__and2_6	0.00282	0.00291	9.70778
sky130_osu_sc_12T_hs__and2_8	0.00279	0.00291	12.61596
sky130_osu_sc_12T_hs__and2_l	0.00219	0.00227	1.19176

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_12T_hs__and2_1	0.00000	0.06325	0.10099
sky130_osu_sc_12T_hs__and2_2	0.00000	0.10096	0.10229
sky130_osu_sc_12T_hs__and2_4	0.00000	0.17637	0.20068
sky130_osu_sc_12T_hs__and2_6	0.00000	0.25179	0.30036
sky130_osu_sc_12T_hs__and2_8	0.00000	0.32721	0.40005
sky130_osu_sc_12T_hs__and2_l	0.00000	1.13908	1.82242

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_hs__and2_1	A->Y (RR)	0.03975	0.37637	5.72008
	B->Y (RR)	0.04259	0.37243	5.45310
sky130_osu_sc_12T_hs__and2_2	A->Y (RR)	0.04423	0.31531	5.62741
	B->Y (RR)	0.04705	0.30978	5.36218
sky130_osu_sc_12T_hs__and2_4	A->Y (RR)	0.06037	0.30464	5.73835
	B->Y (RR)	0.06319	0.29592	5.47904
sky130_osu_sc_12T_hs__and2_6	A->Y (RR)	0.07759	0.31888	5.84379
	B->Y (RR)	0.08033	0.30767	5.59089
sky130_osu_sc_12T_hs__and2_8	A->Y (RR)	0.09457	0.33961	5.92072
	B->Y (RR)	0.09739	0.32598	5.66420
sky130_osu_sc_12T_hs__and2_1	A->Y (RR)	0.04302	0.44125	5.95483
	B->Y (RR)	0.04597	0.43445	5.67273

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_hs__and2_1	**A->Y (FF)**	0.03901	0.40199	5.94755
	B->Y (FF)	0.04001	0.40614	5.97431
sky130_osu_sc_12T_hs__and2_2	**A->Y (FF)**	0.04417	0.37441	5.94335
	B->Y (FF)	0.04465	0.37654	5.97937
sky130_osu_sc_12T_hs__and2_4	**A->Y (FF)**	0.06140	0.38500	6.07857
	B->Y (FF)	0.06020	0.38409	6.10599
sky130_osu_sc_12T_hs__and2_6	**A->Y (FF)**	0.08029	0.40935	6.19047
	B->Y (FF)	0.07734	0.40529	6.21592
sky130_osu_sc_12T_hs__and2_8	**A->Y (FF)**	0.09803	0.43256	6.20467
	B->Y (FF)	0.09368	0.42628	6.21724
sky130_osu_sc_12T_hs__and2_1	**A->Y (FF)**	0.04019	0.39751	5.37184
	B->Y (FF)	0.04369	0.40882	5.44039

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__and2_1	A	0.00000	0.00000	0.00000
	A	0.00319	0.00681	0.12100
	B	0.00000	0.00000	0.00000
	B	0.00323	0.00540	0.08295
sky130_osu_sc_12T_hs__and2_2	A	0.00000	0.00000	0.00000
	A	0.00627	0.00953	0.12491
	B	0.00000	0.00000	0.00000
	B	0.00631	0.00847	0.08580
sky130_osu_sc_12T_hs__and2_4	A	0.00000	0.00000	0.00000
	A	0.01365	0.01643	0.12950
	B	0.00000	0.00000	0.00000
	B	0.01370	0.01570	0.09126
sky130_osu_sc_12T_hs__and2_6	A	0.00000	0.00000	0.00000
	A	0.02260	0.02431	0.13480
	B	0.00000	0.00000	0.00000
	B	0.02268	0.02361	0.09747
sky130_osu_sc_12T_hs__and2_8	A	0.00000	0.00000	0.00000
	A	0.03260	0.03259	0.14786
	B	0.00000	0.00000	0.00000
	B	0.03266	0.03155	0.10247
sky130_osu_sc_12T_hs__and2_1	A	0.00000	0.00000	0.00000
	A	0.00259	0.00684	0.12931
	B	0.00000	0.00000	0.00000
	B	0.00264	0.00552	0.10227

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__and2_1	A	0.00000	0.00000	0.00000
	A	0.00874	0.01367	0.10756
	B	0.00000	0.00000	0.00000
	B	0.00993	0.01452	0.10476
sky130_osu_sc_12T_hs__and2_2	A	0.00000	0.00000	0.00000
	A	0.01146	0.01630	0.11069
	B	0.00000	0.00000	0.00000
	B	0.01266	0.01714	0.10838
sky130_osu_sc_12T_hs__and2_4	A	0.00000	0.00000	0.00000
	A	0.01949	0.02336	0.11727
	B	0.00000	0.00000	0.00000
	B	0.02042	0.02362	0.11505
sky130_osu_sc_12T_hs__and2_6	A	0.00000	0.00000	0.00000
	A	0.02935	0.03025	0.12438
	B	0.00000	0.00000	0.00000
	B	0.02980	0.03058	0.12197
sky130_osu_sc_12T_hs__and2_8	A	0.00000	0.00000	0.00000
	A	0.04129	0.03775	0.13157
	B	0.00000	0.00000	0.00000
	B	0.04124	0.03774	0.12920
sky130_osu_sc_12T_hs__and2_l	A	0.00000	0.00000	0.00000
	A	0.00684	0.01237	0.12055
	B	0.00000	0.00000	0.00000
	B	0.00775	0.01307	0.11720

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__and2_1	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00300	-0.00302	-0.00303
sky130_osu_sc_12T_hs__and2_2	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00301	-0.00303	-0.00303
sky130_osu_sc_12T_hs__and2_4	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00300	-0.00302	-0.00303
sky130_osu_sc_12T_hs__and2_6	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00303	-0.00306	-0.00306
sky130_osu_sc_12T_hs__and2_8	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00299	-0.00303	-0.00303
sky130_osu_sc_12T_hs__and2_l	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00214	-0.00216	-0.00217

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__and2_1	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00303	0.00306	0.00304
sky130_osu_sc_12T_hs__and2_2	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00303	0.00306	0.00304
sky130_osu_sc_12T_hs__and2_4	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00303	0.00306	0.00304
sky130_osu_sc_12T_hs__and2_6	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00306	0.00309	0.00308
sky130_osu_sc_12T_hs__and2_8	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00303	0.00306	0.00304
sky130_osu_sc_12T_hs__and2_l	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00218	0.00220	0.00219

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__and2_1	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00284	-0.00287	-0.00285
sky130_osu_sc_12T_hs__and2_2	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00284	-0.00287	-0.00285
sky130_osu_sc_12T_hs__and2_4	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00284	-0.00286	-0.00285
sky130_osu_sc_12T_hs__and2_6	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00284	-0.00286	-0.00284
sky130_osu_sc_12T_hs__and2_8	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00284	-0.00285	-0.00284
sky130_osu_sc_12T_hs__and2_l	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00203	-0.00204	-0.00203

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__and2_1	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00293	0.00287	0.00285
sky130_osu_sc_12T_hs__and2_2	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00293	0.00287	0.00286
sky130_osu_sc_12T_hs__and2_4	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00293	0.00286	0.00286
sky130_osu_sc_12T_hs__and2_6	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00293	0.00287	0.00286
sky130_osu_sc_12T_hs__and2_8	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00293	0.00287	0.00286
sky130_osu_sc_12T_hs__and2_l	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00210	0.00206	0.00205

SKY130_OSU_SC_12T_HS__AOI21

sky130_osu_sc_12T_hs_ff_1P95_-40C.ccs
Cell Library: Process , Voltage 1.95,
Temp -40.00

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_12T_hs__aoi21_l	8.30280

Pin Capacitance Information

Cell Name	Pin Cap(pf)			Max Cap(pf)
	A0	A1	B0	Y
sky130_osu_sc_12T_hs__aoi21_l	0.00255	0.00272	0.00272	0.74802

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_12T_hs__aoi21_l	0.00000	0.02428	0.04984

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_hs__aoi21_l	A0->Y (FR)	0.05403	0.70991	9.88499
	A1->Y (FR)	0.04179	0.63665	9.14919
	B0->Y (FR)	0.04102	0.72411	10.43850

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_hs__aoi21_l	A0->Y (RF)	0.02322	0.29585	3.84912
	A1->Y (RF)	0.02082	0.31508	4.19910
	B0->Y (RF)	0.01531	0.31904	4.44441

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__aoi21_l	A0	0.00000	0.00000	0.00000
	A0	0.00742	0.00781	0.02984
	A1	0.00000	0.00000	0.00000
	A1	0.00613	0.00628	0.02844
	B0	0.00447	0.00584	0.03745

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__aoi21_l	A0	0.00000	0.00000	0.00000
	A0	0.00145	0.00171	0.01719
	A1	0.00000	0.00000	0.00000
	A1	0.00150	0.00200	0.02048
	B0	-0.00064	0.00007	0.01615

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__aoi21_l	(A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * !Y)	-0.00207	-0.00242	-0.00243
	(!A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !Y)	-0.00245	-0.00248	-0.00246
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00246	-0.00247	-0.00246

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__aoi21_l	(A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * !Y)	0.00242	0.00245	0.00243
	(!A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !Y)	0.00245	0.00248	0.00247
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00254	0.00247	0.00247

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__aoi21_l	(A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * B0 * !Y)	-0.00205	-0.00245	-0.00244
	(!A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !Y)	-0.00246	-0.00247	-0.00246
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	-0.00274	-0.00275	-0.00276

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__aoi21_l	(A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * B0 * !Y)	0.00242	0.00245	0.00244
	(!A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !Y)	0.00246	0.00247	0.00247
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	0.00275	0.00279	0.00276

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__aoi21_l	(A0 * A1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !Y)	-0.00111	-0.00112	-0.00111

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__aoi21_l	(A0 * A1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !Y)	0.00120	0.00120	0.00113

SKY130_OSU_SC_12T_HS__AOI22

sky130_osu_sc_12T_hs_ff_1P95_-40C.ccs
Cell Library: Process , Voltage 1.95,
Temp -40.00

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_12T_hs__aoi22_l	10.25640

Pin Capacitance Information

Cell Name	Pin Cap(pf)				Max Cap(pf)
	A0	**A1**	**B0**	**B1**	**Y**
sky130_osu_sc_12T_hs__aoi22_l	0.00255	0.00272	0.00285	0.00267	0.71327

Leakage Information

Cell Name	Leakage(nW)		
	Min.	**Avg**	**Max.**
sky130_osu_sc_12T_hs__aoi22_l	0.00000	0.02783	0.09969

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_hs__aoi22_l	A0->Y (FR)	0.06924	0.71726	9.65556
	A1->Y (FR)	0.06155	0.70417	9.59133
	B0->Y (FR)	0.04296	0.71496	10.18880
	B1->Y (FR)	0.05101	0.72908	10.27500

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_hs__aoi22_l	A0->Y (RF)	0.02962	0.29897	3.70578
	A1->Y (RF)	0.02717	0.31823	4.04618
	B0->Y (RF)	0.01603	0.29986	4.02572
	B1->Y (RF)	0.01887	0.28173	3.68591

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__aoi22_l	A0	0.00895	0.00923	0.03285
	A1	0.00766	0.00792	0.03095
	B0	0.00482	0.00633	0.04306
	B1	0.00616	0.00718	0.04260

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__aoi22_l	A0	0.00296	0.00321	0.02013
	A1	0.00301	0.00347	0.02301
	B0	-0.00043	0.00039	0.01923
	B1	-0.00035	0.00017	0.01609

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__aoi22_l	(A1 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * B1 * !Y)	-0.00212	-0.00244	-0.00243
	(!A1 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * B1 * !Y)	-0.00245	-0.00247	-0.00246
	(!A1 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !B1 * Y)	-0.00245	-0.00247	-0.00246
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00245	-0.00247	-0.00246

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__aoi22_l	(A1 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * B1 * !Y)	0.00242	0.00244	0.00243
	(!A1 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * B1 * !Y)	0.00245	0.00248	0.00247
	(!A1 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !B1 * Y)	0.00254	0.00248	0.00247
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00254	0.00248	0.00247

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__aoi22_l	(A0 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * B0 * B1 * !Y)	-0.00211	-0.00243	-0.00244
	(!A0 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * B1 * !Y)	-0.00246	-0.00247	-0.00247
	(!A0 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !B1 * Y)	-0.00272	-0.00274	-0.00275
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	-0.00272	-0.00274	-0.00275

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__aoi22_l	(A0 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * B0 * B1 * !Y)	0.00243	0.00245	0.00244
	(!A0 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * B1 * !Y)	0.00246	0.00250	0.00247
	(!A0 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !B1 * Y)	0.00274	0.00278	0.00275
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	0.00274	0.00278	0.00275

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__aoi22_l	(A0 * A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * B1 * !Y)	-0.00111	-0.00111	-0.00111
	(A0 * A1 * !B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B1 * !Y)	-0.00110	-0.00110	-0.00111
	(!A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B1 * Y)	-0.00286	-0.00288	-0.00289
	(!A0 * A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B1 * Y)	-0.00286	-0.00288	-0.00289

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__aoi22_l	(A0 * A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * B1 * !Y)	0.00123	0.00123	0.00114
	(A0 * A1 * !B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B1 * !Y)	0.00110	0.00111	0.00111
	(!A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B1 * Y)	0.00287	0.00292	0.00289
	(!A0 * A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B1 * Y)	0.00287	0.00294	0.00289

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__aoi22_l	(A0 * A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * B0 * !Y)	-0.00113	-0.00115	-0.00113
	(A0 * A1 * !B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B0 * !Y)	-0.00112	-0.00113	-0.00112
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00260	-0.00261	-0.00260
	(!A0 * A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B0 * Y)	-0.00260	-0.00261	-0.00261

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__aoi22_l	(A0 * A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * B0 * !Y)	0.00125	0.00125	0.00116
	(A0 * A1 * !B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B0 * !Y)	0.00112	0.00113	0.00112
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00268	0.00262	0.00261
	(!A0 * A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B0 * Y)	0.00268	0.00263	0.00261

SKY130_OSU_SC_12T_HS__BUFx

sky130_osu_sc_12T_hs_ff_1P95_-40C.ccs
Cell Library: Process , Voltage 1.95,
Temp -40.00

Truth Table

INPUT	OUTPUT
A	Y
0	0
1	1

Footprint

Cell Name	Area
sky130_osu_sc_12T_hs__buf_1	6.34920
sky130_osu_sc_12T_hs__buf_2	8.30280
sky130_osu_sc_12T_hs__buf_4	12.21000
sky130_osu_sc_12T_hs__buf_6	16.11720
sky130_osu_sc_12T_hs__buf_8	20.02440
sky130_osu_sc_12T_hs__buf_l	6.34920

Pin Capacitance Information

Cell Name	Pin Cap(pf)	Max Cap(pf)
	A	Y
sky130_osu_sc_12T_hs__buf_1	0.00290	1.58312
sky130_osu_sc_12T_hs__buf_2	0.00290	3.28754
sky130_osu_sc_12T_hs__buf_4	0.00290	6.47760
sky130_osu_sc_12T_hs__buf_6	0.00082	1.80000
sky130_osu_sc_12T_hs__buf_8	0.00291	12.62434
sky130_osu_sc_12T_hs__buf_l	0.00223	1.17817

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_12T_hs__buf_1	0.00000	0.05114	0.05114
sky130_osu_sc_12T_hs__buf_2	0.00000	0.07671	0.10099
sky130_osu_sc_12T_hs__buf_4	0.00000	0.12786	0.20068
sky130_osu_sc_12T_hs__buf_6	0.00000	0.00000	0.00000
sky130_osu_sc_12T_hs__buf_8	0.00000	0.23014	0.40005
sky130_osu_sc_12T_hs__buf_l	0.00000	0.91139	0.91139

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_hs__buf_1	**A->Y (RR)**	0.03386	0.36264	5.18778
sky130_osu_sc_12T_hs__buf_2	**A->Y (RR)**	0.03576	0.29379	5.17073
sky130_osu_sc_12T_hs__buf_4	**A->Y (RR)**	0.04784	0.27496	5.27804
sky130_osu_sc_12T_hs__buf_8	**A->Y (RR)**	0.07299	0.29892	5.47772
sky130_osu_sc_12T_hs__buf_l	**A->Y (RR)**	0.03562	0.41331	5.49392

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_hs__buf_1	**A->Y (FF)**	0.03611	0.38384	5.60124
sky130_osu_sc_12T_hs__buf_2	**A->Y (FF)**	0.04145	0.36699	5.87398
sky130_osu_sc_12T_hs__buf_4	**A->Y (FF)**	0.05830	0.38058	6.09735
sky130_osu_sc_12T_hs__buf_8	**A->Y (FF)**	0.09405	0.42944	6.28124
sky130_osu_sc_12T_hs__buf_l	**A->Y (FF)**	0.03863	0.39594	5.42824

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__buf_1	A	0.00000	0.00000	0.00000
	A	0.00301	0.00566	0.07250
sky130_osu_sc_12T_hs__buf_2	A	0.00000	0.00000	0.00000
	A	0.00599	0.00886	0.07658
sky130_osu_sc_12T_hs__buf_4	A	0.00000	0.00000	0.00000
	A	0.01299	0.01600	0.08578
sky130_osu_sc_12T_hs__buf_8	A	0.00000	0.00000	0.00000
	A	0.02956	0.03150	0.10148
sky130_osu_sc_12T_hs__buf_l	A	0.00000	0.00000	0.00000
	A	0.00243	0.00625	0.11203

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__buf_1	A	0.00000	0.00000	0.00000
	A	0.00829	0.01275	0.10176
sky130_osu_sc_12T_hs__buf_2	A	0.00000	0.00000	0.00000
	A	0.01094	0.01529	0.10494
sky130_osu_sc_12T_hs__buf_4	A	0.00000	0.00000	0.00000
	A	0.01873	0.02181	0.11139
sky130_osu_sc_12T_hs__buf_8	A	0.00000	0.00000	0.00000
	A	0.04027	0.03610	0.12461
sky130_osu_sc_12T_hs__buf_l	A	0.00000	0.00000	0.00000
	A	0.00665	0.01235	0.12347

Passive power(pJ) for A rising :

Cell Name	Power(pJ)		
	first	mid	last
sky130_osu_sc_12T_hs__buf_6	0.00000	0.00000	0.00000
	-0.00078	-0.00078	-0.00074

Passive power(pJ) for A falling :

Cell Name	Power(pJ)		
	first	mid	last
sky130_osu_sc_12T_hs__buf_6	0.00000	0.00000	0.00000
	0.00078	0.00078	0.00074

SKY130_OSU_SC_12T_HS__DFFRx

sky130_osu_sc_12T_hs_ff_1P95_-40C.ccs
Cell Library: Process , Voltage 1.95,
Temp -40.00

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_12T_hs__dffr_1	42.49080
sky130_osu_sc_12T_hs__dffr_l	42.49080

Pin Capacitance Information

Cell Name	Pin Cap(pf)			Max Cap(pf)	
	D	RN	CK	Q	QN
sky130_osu_sc_12T_hs__dffr_1	0.00267	0.00265	0.00834	1.72759	1.71341
sky130_osu_sc_12T_hs__dffr_l	0.00267	0.00265	0.00832	1.19628	1.18564

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_12T_hs__dffr_1	0.00000	0.61209	1.33122
sky130_osu_sc_12T_hs__dffr_l	0.00000	1.47233	2.19146

Delay Information

Delay(ns) to Q rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_hs__dffr_1	CK->Q (RR)	0.16304	0.84862	11.65250
	QN->Q (FR)	0.01844	0.65395	11.99620
sky130_osu_sc_12T_hs__dffr_l	CK->Q (RR)	0.16303	0.90075	10.82560
	QN->Q (FR)	0.02031	0.65958	11.01230

Delay(ns) to Q falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_hs__dffr_1	CK->Q (RF)	0.16871	0.85668	12.04380
	QN->Q (RF)	0.01320	0.42231	7.72593
	RN->Q (FF)	0.12869	0.98181	15.08930
sky130_osu_sc_12T_hs__dffr_l	CK->Q (RF)	0.17148	0.94887	11.76370
	QN->Q (RF)	0.01412	0.42951	7.15245
	RN->Q (FF)	0.13162	1.07271	14.80010

Delay(ns) to QN rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_hs__dffr_1	CK->QN (RR)	0.15418	0.49254	5.37881
	RN->QN (FR)	0.11414	0.61703	8.42044
sky130_osu_sc_12T_hs__dffr_l	CK->QN (RR)	0.15442	0.54241	5.33422
	RN->QN (FR)	0.11460	0.66571	8.36865

Delay(ns) to QN falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_hs__dffr_1	**CK->QN (RF)**	0.13732	0.36226	2.77830
sky130_osu_sc_12T_hs__dffr_l	**CK->QN (RF)**	0.13563	0.37057	2.44894

Constraint Information

Constraints(ns) for D rising :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_12T_hs__dffr_1	hold	CK (R)	-0.02994	-0.03282	0.17074
	setup	CK (R)	0.12443	0.15414	0.03389
sky130_osu_sc_12T_hs__dffr_l	hold	CK (R)	-0.03115	-0.03282	0.17410
	setup	CK (R)	0.12570	0.15320	0.03405

Constraints(ns) for D falling :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_12T_hs__dffr_1	hold	CK (R)	-0.07366	-0.22875	-4.98314
	setup	CK (R)	0.09017	0.23724	5.02225
sky130_osu_sc_12T_hs__dffr_l	hold	CK (R)	-0.07464	-0.22880	-4.98419
	setup	CK (R)	0.09017	0.23724	5.02225

Constraints(ns) for D rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_12T_hs__dffr_1	hold	CK (R)	-0.02994	-0.03282	0.17074
	setup	CK (R)	0.12443	0.15414	0.03389
sky130_osu_sc_12T_hs__dffr_l	hold	CK (R)	-0.03115	-0.03282	0.17410
	setup	CK (R)	0.12570	0.15320	0.03405

Constraints(ns) for D falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_12T_hs__dffr_1	hold	CK (R)	-0.07366	-0.22875	-4.98314
	setup	CK (R)	0.09017	0.23724	5.02225
sky130_osu_sc_12T_hs__dffr_l	hold	CK (R)	-0.07464	-0.22880	-4.98419
	setup	CK (R)	0.09017	0.23724	5.02225

Constraints(ns) for RN rising :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_12T_hs__dffr_1	recovery	CK (R)	0.11153	0.14447	0.52336
	removal	CK (R)	-0.02172	-0.02649	-0.01141
sky130_osu_sc_12T_hs__dffr_l	recovery	CK (R)	0.11236	0.14341	0.52440
	removal	CK (R)	-0.02400	-0.02798	-0.01087

Constraints(ns) for RN rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_12T_hs__dffr_1	recovery	CK (R)	0.11153	0.14447	0.52336
	removal	CK (R)	-0.02172	-0.02649	-0.01141
sky130_osu_sc_12T_hs__dffr_l	recovery	CK (R)	0.11236	0.14341	0.52440
	removal	CK (R)	-0.02400	-0.02798	-0.01087

Constraints(ns) for RN falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_12T_hs__dffr_1	min_pulse_width	RN ()	0.07944	0.35278	13.33370
	min_pulse_width	RN ()	0.08212	0.35278	13.33370
sky130_osu_sc_12T_hs__dffr_l	min_pulse_width	RN ()	0.07944	0.35278	13.33370
	min_pulse_width	RN ()	0.07944	0.35278	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_12T_hs__dffr_1	min_pulse_width	CK ()	0.07408	0.35278	13.33370
	min_pulse_width	CK ()	0.08748	0.35278	13.33370
sky130_osu_sc_12T_hs__dffr_l	min_pulse_width	CK ()	0.06872	0.35278	13.33370
	min_pulse_width	CK ()	0.08480	0.35278	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_12T_hs__dffr_1	min_pulse_width	CK ()	0.16520	0.35278	13.33370
	min_pulse_width	CK ()	0.07140	0.35278	13.33370
sky130_osu_sc_12T_hs__dffr_l	min_pulse_width	CK ()	0.16520	0.35278	13.33370
	min_pulse_width	CK ()	0.07140	0.35278	13.33370

Power Information

Internal switching power(pJ) to Q rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__dffr_1	CK	0.00000	0.00000	0.00000
	CK	0.00890	0.00930	0.04523
sky130_osu_sc_12T_hs__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.00810	0.00973	0.07306

Internal switching power(pJ) to Q falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__dffr_1	CK	0.00000	0.00000	0.00000
	CK	0.00994	0.00946	0.03789
	RN	-0.00107	-0.08746	-1.64229
	RN	0.02272	0.02289	0.05212
sky130_osu_sc_12T_hs__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.00918	0.00965	0.05994
	RN	-0.00107	-0.07016	-1.13721
	RN	0.02196	0.02309	0.07364

Internal switching power(pJ) to QN rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__dffr_1	CK	0.00000	0.00000	0.00000
	CK	0.00994	0.00945	0.03810
	RN	-0.00107	-0.08703	-1.62881
	RN	0.02272	0.02288	0.05218
sky130_osu_sc_12T_hs__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.00918	0.00968	0.05989
	RN	-0.00107	-0.06978	-1.12710
	RN	0.02196	0.02309	0.07454

Internal switching power(pJ) to QN falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__dffr_1	CK	0.00000	0.00000	0.00000
	CK	0.00886	0.00928	0.04386
sky130_osu_sc_12T_hs__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.00806	0.00971	0.07192

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__dffr_1	CK	0.00000	0.00000	0.00000
	CK	-0.00202	-0.00244	-0.00246
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.01124	0.01301	0.09545
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.00442	0.00634	0.08657
sky130_osu_sc_12T_hs__dffr_l	CK	0.00000	0.00000	0.00000
	CK	-0.00201	-0.00244	-0.00245
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.01125	0.01302	0.09546
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.00443	0.00636	0.08658

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__dffr_1	CK	0.00000	0.00000	0.00000
	CK	0.00244	0.00247	0.00246
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.01638	0.01852	0.10182
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.00814	0.01026	0.09035
sky130_osu_sc_12T_hs__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.00245	0.00247	0.00247
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.01640	0.01854	0.10183
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.00815	0.01027	0.09035

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__dffr_1	(CK * !Q * QN) + (!CK * !D * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !Q * QN) + (!CK * !D * !Q * QN)	0.00337	0.00709	0.13423
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.01040	0.01412	0.14860
sky130_osu_sc_12T_hs__dffr_l	(CK * !Q * QN) + (!CK * !D * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !Q * QN) + (!CK * !D * !Q * QN)	0.00338	0.00710	0.13424
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.01042	0.01414	0.14862

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__dffr_1	(CK * !Q * QN) + (!CK * !D * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !Q * QN) + (!CK * !D * !Q * QN)	0.00899	0.01382	0.14106
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.01750	0.02225	0.15620
sky130_osu_sc_12T_hs__dffr_l	(CK * !Q * QN) + (!CK * !D * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !Q * QN) + (!CK * !D * !Q * QN)	0.00900	0.01383	0.14106
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.01752	0.02227	0.15622

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__dffr_1	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	-0.00073	0.00280	0.13317
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.00582	0.00871	0.14642
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	-0.00073	0.00295	0.13309
sky130_osu_sc_12T_hs__dffr_l	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	-0.00072	0.00281	0.13318
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.00582	0.00870	0.14639
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	-0.00073	0.00296	0.13310

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__dffr_1	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.01325	0.01863	0.14909
	(D * RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * RN * !Q * QN)	0.02726	0.03182	0.20018
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.02024	0.02486	0.16240
	(!D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * Q * !QN)	0.02629	0.03589	0.24155
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.01415	0.01938	0.14933
sky130_osu_sc_12T_hs__dffr_l	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.01326	0.01862	0.14909
	(D * RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * RN * !Q * QN)	0.02727	0.03187	0.20019
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.02025	0.02487	0.16241
	(!D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * Q * !QN)	0.02630	0.03584	0.24157
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.01416	0.01939	0.14933

SKY130_OSU_SC_12T_HS__DFFSRx

sky130_osu_sc_12T_hs_ff_1P95_-40C.ccs
Cell Library: Process , Voltage 1.95,
Temp -40.00

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_12T_hs__dffsr_1	46.39800
sky130_osu_sc_12T_hs__dffsr_l	46.39800

Pin Capacitance Information

Cell Name	Pin Cap(pf)				Max Cap(pf)	
	D	**RN**	**SN**	**CK**	**Q**	**QN**
sky130_osu_sc_12T_hs__dffsr_1	0.00264	0.00266	0.00623	0.00845	1.83411	1.81582
sky130_osu_sc_12T_hs__dffsr_l	0.00264	0.00266	0.00623	0.00844	1.18156	1.18336

Leakage Information

Cell Name	Leakage(nW)		
	Min.	**Avg**	**Max.**
sky130_osu_sc_12T_hs__dffsr_1	0.00000	0.18021	0.24724
sky130_osu_sc_12T_hs__dffsr_l	0.00000	1.04045	1.10748

Delay Information

Delay(ns) to Q rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_hs__dffsr_1	CK->Q (RR)	0.17554	0.87558	12.18040
	QN->Q (FR)	0.01712	0.62788	11.69000
	RN->Q (RR)	0.14240	0.85476	12.36610
	SN->Q (FR)	0.13346	1.00000	15.52130
sky130_osu_sc_12T_hs__dffsr_l	CK->Q (RR)	0.17811	0.91685	10.74070
	QN->Q (FR)	0.02026	0.65673	10.92540
	RN->Q (RR)	0.14495	0.89716	10.92200
	SN->Q (FR)	0.13587	1.04193	14.07320

Delay(ns) to Q falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_hs__dffsr_1	CK->Q (RF)	0.18815	0.88811	12.52930
	QN->Q (RF)	0.01308	0.43133	8.01668
	RN->Q (FF)	0.13563	1.00193	15.59820
sky130_osu_sc_12T_hs__dffsr_l	CK->Q (RF)	0.19218	0.96563	11.62560
	QN->Q (RF)	0.01402	0.42684	7.08546
	RN->Q (FF)	0.13534	1.07403	14.66080

Delay(ns) to QN rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_hs__dffsr_1	CK->QN (RR)	0.17357	0.51070	5.47315
	RN->QN (FR)	0.12105	0.62430	8.51796
sky130_osu_sc_12T_hs__dffsr_l	CK->QN (RR)	0.17521	0.56501	5.34509
	RN->QN (FR)	0.11835	0.67280	8.38422

Delay(ns) to QN falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_hs__dffsr_1	CK->QN (RF)	0.15085	0.38858	3.07796
	RN->QN (RF)	0.11868	0.36951	3.26563
	SN->QN (FF)	0.10947	0.51323	6.43130
sky130_osu_sc_12T_hs__dffsr_l	CK->QN (RF)	0.15097	0.39110	2.49707
	RN->QN (RF)	0.11860	0.37260	2.68363
	SN->QN (FF)	0.10933	0.51520	5.85037

Constraint Information

Constraints(ns) for D rising :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_12T_hs__dffsr_1	hold	CK (R)	-0.03553	-0.04149	0.13869
	setup	CK (R)	0.13525	0.16074	0.06714
sky130_osu_sc_12T_hs__dffsr_l	hold	CK (R)	-0.03555	-0.04270	0.13764
	setup	CK (R)	0.13617	0.16078	0.06914

Constraints(ns) for D falling :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_12T_hs__dffsr_1	hold	CK (R)	-0.07893	-0.23887	-4.98718
	setup	CK (R)	0.09940	0.24689	5.02716
sky130_osu_sc_12T_hs__dffsr_l	hold	CK (R)	-0.08139	-0.23875	-4.98770
	setup	CK (R)	0.09940	0.24689	5.02716

Constraints(ns) for D rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_12T_hs__dffsr_1	hold	CK (R)	-0.03553	-0.04149	0.13869
	setup	CK (R)	0.13525	0.16074	0.06714
sky130_osu_sc_12T_hs__dffsr_l	hold	CK (R)	-0.03555	-0.04270	0.13764
	setup	CK (R)	0.13617	0.16078	0.06914

Constraints(ns) for D falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_12T_hs__dffsr_1	hold	CK (R)	-0.07893	-0.23887	-4.98718
	setup	CK (R)	0.09940	0.24689	5.02716
sky130_osu_sc_12T_hs__dffsr_l	hold	CK (R)	-0.08139	-0.23875	-4.98770
	setup	CK (R)	0.09940	0.24689	5.02716

Constraints(ns) for RN rising :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_12T_hs__dffsr_1	recovery	CK (R)	0.11131	0.13800	0.53183
	removal	CK (R)	-0.01899	-0.02313	-0.01074
	hold	SN (R)	-0.10486	-0.18855	-0.91258
	setup	SN (R)	0.12296	0.21665	1.58806
sky130_osu_sc_12T_hs__dffsr_l	recovery	CK (R)	0.11065	0.13747	0.53353
	removal	CK (R)	-0.01899	-0.02313	-0.01074
	hold	SN (R)	-0.10381	-0.18576	-0.89622
	setup	SN (R)	0.12106	0.21499	1.58072

Constraints(ns) for RN rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_12T_hs__dffsr_1	recovery	CK (R)	0.11131	0.13800	0.53183
	removal	CK (R)	-0.01899	-0.02313	-0.01074
	hold	SN (R)	-0.10486	-0.18855	-0.91258
	hold	SN (R)	-0.10569	-0.19130	-0.91802
	setup	SN (R)	0.12267	0.21423	1.47256
	setup	SN (R)	0.12296	0.21665	1.58806
sky130_osu_sc_12T_hs__dffsr_l	recovery	CK (R)	0.11065	0.13747	0.53353
	removal	CK (R)	-0.01899	-0.02313	-0.01074
	hold	SN (R)	-0.10381	-0.18576	-0.91118
	hold	SN (R)	-0.10403	-0.18804	-0.89622
	setup	SN (R)	0.12106	0.21172	1.45103
	setup	SN (R)	0.11519	0.21499	1.58072

Constraints(ns) for RN falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_12T_hs__dffsr_1	min_pulse_width	RN ()	0.09284	0.35278	13.33370
	min_pulse_width	RN ()	0.09552	0.35278	13.33370
sky130_osu_sc_12T_hs__dffsr_l	min_pulse_width	RN ()	0.09284	0.35278	13.33370
	min_pulse_width	RN ()	0.09552	0.35278	13.33370

Constraints(ns) for SN rising :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_12T_hs__dffsr_1	recovery	CK (R)	0.02358	0.04445	1.03726
	removal	CK (R)	-0.01137	-0.03480	-0.24617
sky130_osu_sc_12T_hs__dffsr_l	recovery	CK (R)	0.02312	0.04445	0.95811
	removal	CK (R)	-0.01137	-0.03480	-0.24617

Constraints(ns) for SN rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_12T_hs__dffsr_1	recovery	CK (R)	0.02358	0.04445	1.03726
	removal	CK (R)	-0.01137	-0.03480	-0.24617
sky130_osu_sc_12T_hs__dffsr_l	recovery	CK (R)	0.02312	0.04445	0.95811
	removal	CK (R)	-0.01137	-0.03480	-0.24617

Constraints(ns) for SN falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_12T_hs__dffsr_1	min_pulse_width	SN ()	0.10892	0.35278	13.33370
	min_pulse_width	SN ()	0.11160	0.35278	13.33370
sky130_osu_sc_12T_hs__dffsr_l	min_pulse_width	SN ()	0.10892	0.35278	13.33370
	min_pulse_width	SN ()	0.10624	0.35278	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_12T_hs__dffsr_1	min_pulse_width	CK ()	0.07676	0.35278	13.33370
	min_pulse_width	CK ()	0.09820	0.35278	13.33370
sky130_osu_sc_12T_hs__dffsr_l	min_pulse_width	CK ()	0.07408	0.35278	13.33370
	min_pulse_width	CK ()	0.09552	0.35278	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_12T_hs__dffsr_1	min_pulse_width	CK ()	0.17591	0.35278	13.33370
	min_pulse_width	CK ()	0.08212	0.35278	13.33370
sky130_osu_sc_12T_hs__dffsr_l	min_pulse_width	CK ()	0.17591	0.35278	13.33370
	min_pulse_width	CK ()	0.08212	0.35278	13.33370

Power Information

Internal switching power(pJ) to Q rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__dffsr_1	CK	0.00000	0.00000	0.00000
	CK	0.01102	0.01115	0.04323
	RN	0.01989	0.01862	0.03350
	SN	-0.00107	-0.09066	-1.74355
	SN	0.01948	0.01766	0.02790
sky130_osu_sc_12T_hs__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.01029	0.01176	0.07457
	RN	0.01914	0.01926	0.06511
	SN	-0.00107	-0.06964	-1.12322
	SN	0.01874	0.01827	0.05962

Internal switching power(pJ) to Q falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__dffsr_1	CK	0.00000	0.00000	0.00000
	CK	0.01147	0.01157	0.05274
	RN	-0.00107	-0.09066	-1.74355
	RN	0.02366	0.02444	0.06517
sky130_osu_sc_12T_hs__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.01071	0.01122	0.06194
	RN	-0.00107	-0.06964	-1.12322
	RN	0.02289	0.02409	0.07710

Internal switching power(pJ) to QN rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__dffsr_1	CK	0.00000	0.00000	0.00000
	CK	0.01147	0.01158	0.05013
	RN	-0.00107	-0.09012	-1.72616
	RN	0.02366	0.02443	0.06541
sky130_osu_sc_12T_hs__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.01072	0.01123	0.06186
	RN	-0.00107	-0.06970	-1.12493
	RN	0.02289	0.02411	0.07761

Internal switching power(pJ) to QN falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__dffsr_1	CK	0.00000	0.00000	0.00000
	CK	0.01098	0.01116	0.04212
	RN	0.01984	0.01866	0.03310
	SN	-0.00107	-0.09012	-1.72608
	SN	0.01944	0.01764	0.02911
sky130_osu_sc_12T_hs__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.01024	0.01175	0.07294
	RN	0.01909	0.01922	0.06413
	SN	-0.00107	-0.06970	-1.12490
	SN	0.01870	0.01824	0.05983

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__dffsr_1	CK	0.00000	0.00000	0.00000
	CK	-0.00241	-0.00248	-0.00248
	(!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)	0.01405	0.01576	0.09744
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.00477	0.00662	0.08655
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.00473	0.00659	0.08654
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.00477	0.00664	0.08658
sky130_osu_sc_12T_hs__dffsr_1	CK	0.00000	0.00000	0.00000
	CK	-0.00241	-0.00247	-0.00247
	(!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)	0.01406	0.01579	0.09745
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.00478	0.00663	0.08656
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.00473	0.00660	0.08655
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.00478	0.00665	0.08659

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__dffsr_1	CK	0.00000	0.00000	0.00000
	CK	0.00255	0.00249	0.00248
	(!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)	0.01887	0.02082	0.10297
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.00883	0.01088	0.09075
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.00890	0.01093	0.09073
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.00879	0.01085	0.09070
sky130_osu_sc_12T_hs__dffsr_1	CK	0.00000	0.00000	0.00000
	CK	0.00255	0.00250	0.00248
	(!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)	0.01887	0.02083	0.10297
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.00883	0.01089	0.09076
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.00891	0.01094	0.09074
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.00880	0.01086	0.09071

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_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)	0.00252	0.00615	0.13314
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.01216	0.01554	0.14756
sky130_osu_sc_12T_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)	0.00253	0.00615	0.13315
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.01217	0.01555	0.14757

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_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)	0.00975	0.01471	0.14205
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.01849	0.02325	0.15573
sky130_osu_sc_12T_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)	0.00975	0.01471	0.14205
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.01849	0.02325	0.15573

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_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)	-0.00639	-0.00637	-0.00643
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	-0.00617	-0.00700	-0.00696
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	-0.00605	-0.00646	-0.00644
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.00298	0.00473	0.08510
sky130_osu_sc_12T_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)	-0.00638	-0.00637	-0.00643
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	-0.00616	-0.00699	-0.00695
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	-0.00604	-0.00645	-0.00643
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.00299	0.00473	0.08512

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_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)	0.00642	0.00651	0.00645
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00695	0.00700	0.00697
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	0.00643	0.00647	0.00645
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.01505	0.01627	0.09521
sky130_osu_sc_12T_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)	0.00642	0.00652	0.00646
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00695	0.00701	0.00697
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	0.00644	0.00647	0.00646
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.01506	0.01628	0.09522

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__dffsr_1	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	-0.00080	0.00269	0.13309
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.00677	0.00966	0.14714
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.00667	0.00952	0.14711
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	-0.00056	0.00311	0.13325
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.00297	0.00991	0.23983
sky130_osu_sc_12T_hs__dffsr_1	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	-0.00080	0.00269	0.13310
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.00678	0.00966	0.14715
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.00668	0.00953	0.14712
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	-0.00056	0.00311	0.13326
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.00297	0.00992	0.23983

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

Cell Name	When	Power(pJ)		
		first	mid	last

sky130_osu_sc_12T_hs__dffsr_1	**(D * RN * SN * !Q * QN)**	0.00000	0.00000	0.00000
	(D * RN * SN * !Q * QN)	0.03043	0.03505	0.20241
	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.01352	0.01901	0.14935
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.02051	0.02516	0.16246
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.02053	0.02519	0.16249
	(!D * RN * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * Q * !QN)	0.02887	0.03832	0.24380
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.01416	0.01934	0.14934
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.01800	0.02767	0.25721
sky130_osu_sc_12T_hs__dffsr_l	**(D * RN * SN * !Q * QN)**	0.00000	0.00000	0.00000
	(D * RN * SN * !Q * QN)	0.03044	0.03506	0.20242
	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.01352	0.01899	0.14936
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.02051	0.02517	0.16247
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.02054	0.02519	0.16249
	(!D * RN * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * Q * !QN)	0.02888	0.03828	0.24381
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.01416	0.01935	0.14935
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.01801	0.02767	0.25722

SKY130_OSU_SC_12T_HS__DFFSx

sky130_osu_sc_12T_hs_ff_1P95_-40C.ccs
Cell Library: Process , Voltage 1.95,
Temp -40.00

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_12T_hs__dffs_1	38.58360
sky130_osu_sc_12T_hs__dffs_l	38.58360

Pin Capacitance Information

Cell Name	Pin Cap(pf)			Max Cap(pf)	
	D	SN	CK	Q	QN
sky130_osu_sc_12T_hs__dffs_1	0.00265	0.00527	0.00837	1.71821	1.71619
sky130_osu_sc_12T_hs__dffs_l	0.00265	0.00527	0.00837	1.18206	1.19006

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_12T_hs__dffs_1	0.00000	1.33467	3.74869
sky130_osu_sc_12T_hs__dffs_l	0.00000	2.19491	4.60894

Delay Information

Delay(ns) to Q rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_hs__dffs_1	CK->Q (RR)	0.12623	0.79687	11.46600
	QN->Q (FR)	0.01840	0.64910	11.89630
	SN->Q (FR)	0.10336	0.94438	14.49070
sky130_osu_sc_12T_hs__dffs_l	CK->Q (RR)	0.12802	0.85059	10.58310
	QN->Q (FR)	0.02026	0.65496	10.89140
	SN->Q (FR)	0.10533	0.99580	13.60440

Delay(ns) to Q falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_hs__dffs_1	CK->Q (RF)	0.18048	0.86731	11.95830
	QN->Q (RF)	0.01313	0.41959	7.66768
sky130_osu_sc_12T_hs__dffs_l	CK->Q (RF)	0.18234	0.95472	11.60290
	QN->Q (RF)	0.01407	0.42615	7.07337

Delay(ns) to QN rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_hs__dffs_1	CK->QN (RR)	0.16600	0.50609	5.38260
sky130_osu_sc_12T_hs__dffs_l	CK->QN (RR)	0.16530	0.55504	5.35709

Delay(ns) to QN falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_hs__dffs_1	CK->QN (RF)	0.10306	0.31605	2.69551
	SN->QN (FF)	0.07971	0.46165	5.72886
sky130_osu_sc_12T_hs__dffs_l	CK->QN (RF)	0.10286	0.32765	2.37485
	SN->QN (FF)	0.07973	0.47163	5.40494

Constraint Information

Constraints(ns) for D rising :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_12T_hs__dffs_1	hold	CK (R)	-0.01943	-0.02531	0.18645
	setup	CK (R)	0.09188	0.12740	0.02851
sky130_osu_sc_12T_hs__dffs_l	hold	CK (R)	-0.02240	-0.02531	0.18612
	setup	CK (R)	0.09171	0.12719	0.02792

Constraints(ns) for D falling :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_12T_hs__dffs_1	hold	CK (R)	-0.07164	-0.23091	-4.99886
	setup	CK (R)	0.09276	0.24040	5.03994
sky130_osu_sc_12T_hs__dffs_l	hold	CK (R)	-0.07255	-0.23091	-4.99886
	setup	CK (R)	0.09469	0.24040	5.03994

Constraints(ns) for D rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_12T_hs__dffs_1	hold	CK (R)	-0.01943	-0.02531	0.18645
	setup	CK (R)	0.09188	0.12740	0.02851
sky130_osu_sc_12T_hs__dffs_l	hold	CK (R)	-0.02240	-0.02531	0.18612
	setup	CK (R)	0.09171	0.12719	0.02792

Constraints(ns) for D falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_12T_hs__dffs_1	hold	CK (R)	-0.07164	-0.23091	-4.99886
	setup	CK (R)	0.09276	0.24040	5.03994
sky130_osu_sc_12T_hs__dffs_l	hold	CK (R)	-0.07255	-0.23091	-4.99886
	setup	CK (R)	0.09469	0.24040	5.03994

Constraints(ns) for SN rising :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_12T_hs__dffs_1	recovery	CK (R)	0.02452	0.05061	1.01663
	removal	CK (R)	-0.01277	-0.04428	-0.61183
sky130_osu_sc_12T_hs__dffs_l	recovery	CK (R)	0.02417	0.05061	0.93959
	removal	CK (R)	-0.01277	-0.04428	-0.61183

Constraints(ns) for SN rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_12T_hs__dffs_1	recovery	CK (R)	0.02452	0.05061	1.01663
	removal	CK (R)	-0.01277	-0.04428	-0.61183
sky130_osu_sc_12T_hs__dffs_l	recovery	CK (R)	0.02417	0.05061	0.93959
	removal	CK (R)	-0.01277	-0.04428	-0.61183

Constraints(ns) for SN falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_12T_hs__dffs_1	min_pulse_width	SN ()	0.07140	0.35278	13.33370
	min_pulse_width	SN ()	0.07676	0.35278	13.33370
sky130_osu_sc_12T_hs__dffs_l	min_pulse_width	SN ()	0.07140	0.35278	13.33370
	min_pulse_width	SN ()	0.07140	0.35278	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_12T_hs__dffs_1	min_pulse_width	CK ()	0.04996	0.35278	13.33370
	min_pulse_width	CK ()	0.09284	0.35278	13.33370
sky130_osu_sc_12T_hs__dffs_l	min_pulse_width	CK ()	0.04996	0.35278	13.33370
	min_pulse_width	CK ()	0.09016	0.35278	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_12T_hs__dffs_1	min_pulse_width	CK ()	0.13304	0.35278	13.33370
	min_pulse_width	CK ()	0.07676	0.35278	13.33370
sky130_osu_sc_12T_hs__dffs_l	min_pulse_width	CK ()	0.13304	0.35278	13.33370
	min_pulse_width	CK ()	0.07676	0.35278	13.33370

Power Information

Internal switching power(pJ) to Q rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__dffs_1	CK	0.00000	0.00000	0.00000
	CK	0.00880	0.00914	0.04647
	SN	-0.00107	-0.08718	-1.63338
	SN	0.01616	0.01781	0.07667
sky130_osu_sc_12T_hs__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.00801	0.00975	0.07373
	SN	-0.00107	-0.06965	-1.12370
	SN	0.01537	0.01827	0.10384

Internal switching power(pJ) to Q falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__dffs_1	CK	0.00000	0.00000	0.00000
	CK	0.00991	0.00950	0.03950
sky130_osu_sc_12T_hs__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.00916	0.00970	0.06120

Internal switching power(pJ) to QN rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__dffs_1	CK	0.00000	0.00000	0.00000
	CK	0.00991	0.00951	0.03962
sky130_osu_sc_12T_hs__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.00916	0.00971	0.06077

Internal switching power(pJ) to QN falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__dffs_1	CK	0.00000	0.00000	0.00000
	CK	0.00876	0.00930	0.04499
	SN	-0.00107	-0.08712	-1.63137
	SN	0.01613	0.01779	0.07599
sky130_osu_sc_12T_hs__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.00797	0.00967	0.07218
	SN	-0.00107	-0.06994	-1.13126
	SN	0.01534	0.01823	0.10297

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__dffs_1	CK	0.00000	0.00000	0.00000
	CK	-0.00242	-0.00248	-0.00249
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.01106	0.01311	0.09884
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.00438	0.00632	0.08658
sky130_osu_sc_12T_hs__dffs_l	CK	0.00000	0.00000	0.00000
	CK	-0.00241	-0.00248	-0.00248
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.01107	0.01313	0.09885
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.00439	0.00633	0.08659

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__dffs_1	CK	0.00000	0.00000	0.00000
	CK	0.00261	0.00257	0.00254
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.01627	0.01830	0.10231
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.00815	0.01029	0.09058
sky130_osu_sc_12T_hs__dffs_1	CK	0.00000	0.00000	0.00000
	CK	0.00262	0.00258	0.00255
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.01628	0.01831	0.10232
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.00815	0.01030	0.09059

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__dffs_1	(CK * Q * !QN) + (!CK * D * Q * !QN)	0.00000	0.00000	0.00000
	(CK * Q * !QN) + (!CK * D * Q * !QN)	-0.00479	-0.00483	-0.00482
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.00301	0.00569	0.12447
sky130_osu_sc_12T_hs__dffs_1	(CK * Q * !QN) + (!CK * D * Q * !QN)	0.00000	0.00000	0.00000
	(CK * Q * !QN) + (!CK * D * Q * !QN)	-0.00478	-0.00481	-0.00480
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.00303	0.00569	0.12448

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__dffs_1	(CK * Q * !QN) + (!CK * D * Q * !QN)	0.00000	0.00000	0.00000
	(CK * Q * !QN) + (!CK * D * Q * !QN)	0.00486	0.00485	0.00483
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.01063	0.01493	0.13473
sky130_osu_sc_12T_hs__dffs_l	(CK * Q * !QN) + (!CK * D * Q * !QN)	0.00000	0.00000	0.00000
	(CK * Q * !QN) + (!CK * D * Q * !QN)	0.00486	0.00485	0.00483
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.01063	0.01493	0.13473

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__dffs_1	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	-0.00073	0.00280	0.13333
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	-0.00062	0.00306	0.13336
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.00266	0.00986	0.24049
sky130_osu_sc_12T_hs__dffs_l	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	-0.00073	0.00280	0.13334
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	-0.00061	0.00307	0.13337
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.00267	0.00986	0.24049

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__dffs_1	(D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * SN * !Q * QN)	0.02723	0.03187	0.20146
	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.01324	0.01871	0.14924
	(!D * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * SN * Q * !QN)	0.02598	0.03546	0.24180
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	0.01408	0.01937	0.14941
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.01702	0.02621	0.25714
sky130_osu_sc_12T_hs__dffs_l	(D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * SN * !Q * QN)	0.02724	0.03188	0.20150
	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.01325	0.01873	0.14925
	(!D * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * SN * Q * !QN)	0.02599	0.03549	0.24180
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	0.01408	0.01938	0.14942
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.01703	0.02621	0.25715

SKY130_OSU_SC_12T_HS__DFFx

sky130_osu_sc_12T_hs_ff_1P95_-40C.ccs
Cell Library: Process , Voltage 1.95,
Temp -40.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_12T_hs__dff_1	32.23440
sky130_osu_sc_12T_hs__dff_l	32.23440

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	D	CK	Q
sky130_osu_sc_12T_hs__dff_1	0.00280	0.00810	1.51543
sky130_osu_sc_12T_hs__dff_l	0.00280	0.00809	1.09329

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_12T_hs__dff_1	0.00000	0.16497	0.20423
sky130_osu_sc_12T_hs__dff_l	0.00000	1.02521	1.06448

Delay Information

Delay(ns) to Q rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_hs__dff_1	CK->Q (RR)	0.10540	0.44734	5.02652
sky130_osu_sc_12T_hs__dff_l	CK->Q (RR)	0.10659	0.49592	5.00938

Delay(ns) to Q falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_hs__dff_1	CK->Q (RF)	0.15641	0.35624	2.55871
sky130_osu_sc_12T_hs__dff_l	CK->Q (RF)	0.15784	0.37614	2.41208

Constraint Information

Constraints(ns) for D rising :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_12T_hs__dff_1	hold	CK (R)	-0.01823	-0.02131	0.16752
	setup	CK (R)	0.07048	0.11421	-0.00112
sky130_osu_sc_12T_hs__dff_l	hold	CK (R)	-0.01823	-0.02131	0.16826
	setup	CK (R)	0.07291	0.11394	0.00020

Constraints(ns) for D falling :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_12T_hs__dff_1	hold	CK (R)	-0.06460	-0.22575	-4.97585
	setup	CK (R)	0.07880	0.23408	5.01438
sky130_osu_sc_12T_hs__dff_l	hold	CK (R)	-0.06463	-0.22575	-4.97599
	setup	CK (R)	0.07880	0.23408	5.01438

Constraints(ns) for CK rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_12T_hs__dff_1	min_pulse_width	CK ()	0.04192	0.35278	13.33370
	min_pulse_width	CK ()	0.08212	0.35278	13.33370
sky130_osu_sc_12T_hs__dff_l	min_pulse_width	CK ()	0.04192	0.35278	13.33370
	min_pulse_width	CK ()	0.07944	0.35278	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_12T_hs__dff_1	min_pulse_width	CK ()	0.11160	0.35278	13.33370
	min_pulse_width	CK ()	0.06336	0.35278	13.33370
sky130_osu_sc_12T_hs__dff_l	min_pulse_width	CK ()	0.11160	0.35278	13.33370
	min_pulse_width	CK ()	0.06336	0.35278	13.33370

Power Information

Internal switching power(pJ) to Q rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__dff_1	CK	0.00000	0.00000	0.00000
	CK	0.01828	0.02444	0.20204
sky130_osu_sc_12T_hs__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.01666	0.02290	0.20041

Internal switching power(pJ) to Q falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__dff_1	CK	0.00000	0.00000	0.00000
	CK	0.01995	0.02291	0.16072
sky130_osu_sc_12T_hs__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.01846	0.02147	0.15952

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__dff_1	CK	0.00000	0.00000	0.00000
	CK	-0.00201	-0.00243	-0.00244
	!CK	0.00000	0.00000	0.00000
	!CK	0.00958	0.01163	0.09572
sky130_osu_sc_12T_hs__dff_l	CK	0.00000	0.00000	0.00000
	CK	-0.00200	-0.00242	-0.00244
	!CK	0.00000	0.00000	0.00000
	!CK	0.00959	0.01164	0.09573

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__dff_1	CK	0.00000	0.00000	0.00000
	CK	0.00242	0.00245	0.00244
	!CK	0.00000	0.00000	0.00000
	!CK	0.01667	0.01876	0.10277
sky130_osu_sc_12T_hs__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.00243	0.00246	0.00245
	!CK	0.00000	0.00000	0.00000
	!CK	0.01667	0.01877	0.10278

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__dff_1	(D * Q)	0.00000	0.00000	0.00000
	(D * Q)	-0.00077	0.00277	0.13331
	(!D * !Q)	0.00000	0.00000	0.00000
	(!D * !Q)	-0.00066	0.00306	0.13335
sky130_osu_sc_12T_hs__dff_l	(D * Q)	0.00000	0.00000	0.00000
	(D * Q)	-0.00077	0.00277	0.13332
	(!D * !Q)	0.00000	0.00000	0.00000
	(!D * !Q)	-0.00066	0.00306	0.13336

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__dff_1	(D * Q)	0.00000	0.00000	0.00000
	(D * Q)	0.01320	0.01843	0.14921
	(D * !Q)	0.00000	0.00000	0.00000
	(D * !Q)	0.02579	0.03051	0.20015
	(!D * Q)	0.00000	0.00000	0.00000
	(!D * Q)	0.02626	0.03552	0.24476
	(!D * !Q)	0.00000	0.00000	0.00000
	(!D * !Q)	0.01396	0.01926	0.14931
sky130_osu_sc_12T_hs__dff_l	(D * Q)	0.00000	0.00000	0.00000
	(D * Q)	0.01321	0.01844	0.14923
	(D * !Q)	0.00000	0.00000	0.00000
	(D * !Q)	0.02580	0.03052	0.20016
	(!D * Q)	0.00000	0.00000	0.00000
	(!D * Q)	0.02627	0.03553	0.24477
	(!D * !Q)	0.00000	0.00000	0.00000
	(!D * !Q)	0.01397	0.01926	0.14932

SKY130_OSU_SC_12T_HS__INVx

sky130_osu_sc_12T_hs_ff_1P95_-40C.ccs
Cell Library: Process , Voltage 1.95,
Temp -40.00

Truth Table

INPUT	OUTPUT
A	Y
0	1
1	0

Footprint

Cell Name	Area
sky130_osu_sc_12T_hs__inv_1	4.39560
sky130_osu_sc_12T_hs__inv_10	21.97800
sky130_osu_sc_12T_hs__inv_2	6.34920
sky130_osu_sc_12T_hs__inv_3	8.30280
sky130_osu_sc_12T_hs__inv_4	10.25640
sky130_osu_sc_12T_hs__inv_6	14.16360
sky130_osu_sc_12T_hs__inv_8	18.07080
sky130_osu_sc_12T_hs__inv_l	4.38570

Pin Capacitance Information

Cell Name	Pin Cap(pf)	Max Cap(pf)
	A	Y
sky130_osu_sc_12T_hs__inv_1	0.00269	1.54348
sky130_osu_sc_12T_hs__inv_10	0.02389	15.09536
sky130_osu_sc_12T_hs__inv_2	0.00497	3.15053
sky130_osu_sc_12T_hs__inv_3	0.00735	4.60775
sky130_osu_sc_12T_hs__inv_4	0.00968	6.20109
sky130_osu_sc_12T_hs__inv_6	0.01448	9.23079
sky130_osu_sc_12T_hs__inv_8	0.01918	12.25558
sky130_osu_sc_12T_hs__inv_l	0.00219	1.02558

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_12T_hs__inv_1	0.00000	0.02557	0.04984
sky130_osu_sc_12T_hs__inv_10	0.00000	0.25571	0.49845
sky130_osu_sc_12T_hs__inv_2	0.00000	0.05114	0.09969
sky130_osu_sc_12T_hs__inv_3	0.00000	0.07671	0.14953
sky130_osu_sc_12T_hs__inv_4	0.00000	0.10229	0.19938
sky130_osu_sc_12T_hs__inv_6	0.00000	0.15343	0.29907
sky130_osu_sc_12T_hs__inv_8	0.00000	0.20457	0.39876
sky130_osu_sc_12T_hs__inv_l	0.00000	0.45569	0.91104

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_hs__inv_1	**A->Y (FR)**	0.01754	0.58417	10.41960
sky130_osu_sc_12T_hs__inv_10	**A->Y (FR)**	0.02311	0.37439	10.27250
sky130_osu_sc_12T_hs__inv_2	**A->Y (FR)**	0.01321	0.48890	10.24200
sky130_osu_sc_12T_hs__inv_3	**A->Y (FR)**	0.01453	0.45543	10.28360
sky130_osu_sc_12T_hs__inv_4	**A->Y (FR)**	0.01459	0.42946	10.21940
sky130_osu_sc_12T_hs__inv_6	**A->Y (FR)**	0.01668	0.40055	10.22920
sky130_osu_sc_12T_hs__inv_8	**A->Y (FR)**	0.01961	0.38430	10.25150
sky130_osu_sc_12T_hs__inv_l	**A->Y (FR)**	0.02033	0.60015	9.63790

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_hs__inv_1	**A->Y (RF)**	0.01185	0.34587	6.10761
sky130_osu_sc_12T_hs__inv_10	**A->Y (RF)**	0.01690	0.18567	6.34243
sky130_osu_sc_12T_hs__inv_2	**A->Y (RF)**	0.00962	0.28491	6.23411
sky130_osu_sc_12T_hs__inv_3	**A->Y (RF)**	0.01062	0.25893	6.35005
sky130_osu_sc_12T_hs__inv_4	**A->Y (RF)**	0.01058	0.23677	6.34367
sky130_osu_sc_12T_hs__inv_6	**A->Y (RF)**	0.01282	0.21250	6.37843
sky130_osu_sc_12T_hs__inv_8	**A->Y (RF)**	0.01480	0.19704	6.39668
sky130_osu_sc_12T_hs__inv_l	**A->Y (RF)**	0.01317	0.36068	5.65021

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__inv_1	A	0.00000	0.00000	0.00000
	A	0.00412	0.00661	0.03786
sky130_osu_sc_12T_hs__inv_10	A	0.00000	0.00000	0.00000
	A	0.03456	0.06444	0.35280
sky130_osu_sc_12T_hs__inv_2	A	0.00000	0.00000	0.00000
	A	0.00706	0.01276	0.07298
sky130_osu_sc_12T_hs__inv_3	A	0.00000	0.00000	0.00000
	A	0.01089	0.01806	0.10788
sky130_osu_sc_12T_hs__inv_4	A	0.00000	0.00000	0.00000
	A	0.01383	0.02463	0.14208
sky130_osu_sc_12T_hs__inv_6	A	0.00000	0.00000	0.00000
	A	0.02049	0.04065	0.21178
sky130_osu_sc_12T_hs__inv_8	A	0.00000	0.00000	0.00000
	A	0.02732	0.05435	0.28134
sky130_osu_sc_12T_hs__inv_l	A	0.00000	0.00000	0.00000
	A	0.00336	0.00589	0.05040

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__inv_1	**A**	0.00000	0.00000	0.00000
	A	-0.00076	0.00006	0.01523
sky130_osu_sc_12T_hs__inv_10	**A**	0.00000	0.00000	0.00000
	A	-0.01146	0.00352	0.14364
sky130_osu_sc_12T_hs__inv_2	**A**	0.00000	0.00000	0.00000
	A	-0.00246	-0.00034	0.02899
sky130_osu_sc_12T_hs__inv_3	**A**	0.00000	0.00000	0.00000
	A	-0.00321	0.00100	0.04318
sky130_osu_sc_12T_hs__inv_4	**A**	0.00000	0.00000	0.00000
	A	-0.00495	0.00032	0.05718
sky130_osu_sc_12T_hs__inv_6	**A**	0.00000	0.00000	0.00000
	A	-0.00758	0.00032	0.08535
sky130_osu_sc_12T_hs__inv_8	**A**	0.00000	0.00000	0.00000
	A	-0.00990	0.00165	0.11398
sky130_osu_sc_12T_hs__inv_l	**A**	0.00000	0.00000	0.00000
	A	-0.00056	-0.00001	0.01224

SKY130_OSU_SC_12T_HS__MUX2

sky130_osu_sc_12T_hs_ff_1P95_-40C.ccs
Cell Library: Process , Voltage 1.95,
Temp -40.00

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_12T_hs__mux2_1	12.21000

Pin Capacitance Information

Cell Name	Pin Cap(pf)			Max Cap(pf)
	A0	A1	S0	Y
sky130_osu_sc_12T_hs__mux2_1	0.55990	0.56027	0.00555	0.57623

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_12T_hs__mux2_1	0.00000	0.05377	0.06003

Delay Information

Delay(ns) to Y rising (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_12T_hs__mux2_1	A0->Y (RR)	-	0.00587	0.11659	1.36630
	A1->Y (RR)	-	0.00693	0.11719	1.35874
	S0->Y (RR)	(!A0 * A1)	0.02437	0.16277	0.89529
	S0->Y (FR)	(A0 * !A1)	0.01989	0.29275	3.86775

Delay(ns) to Y falling (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_12T_hs__mux2_1	A0->Y (FF)	-	0.00746	0.14948	1.71766
	A1->Y (FF)	-	0.00695	0.14753	1.70766
	S0->Y (FF)	(!A0 * A1)	0.03473	0.28365	3.35776
	S0->Y (RF)	(A0 * !A1)	0.01354	0.16305	1.50478

Power Information

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

Cell Name	Input	When	Power(pJ)		
			first	mid	last
sky130_osu_sc_12T_hs__mux2_1	A0	-	0.00000	0.00000	0.00000
	A0	-	-0.00426	-0.00428	-0.00428
	A1	-	0.00000	0.00000	0.00000
	A1	-	-0.00260	-0.00260	-0.00260
	S0	(A0 * !A1)	0.00000	0.00000	0.00000
	S0	(A0 * !A1)	0.00557	0.01141	0.13886
	S0	(!A0 * A1)	0.00000	0.00000	0.00000
	S0	(!A0 * A1)	-0.00265	0.00181	0.12906

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

Cell Name	Input	When	Power(pJ)		
			first	mid	last
sky130_osu_sc_12T_hs__mux2_1	A0	-	0.00000	0.00000	0.00000
	A0	-	0.00427	0.00428	0.00428
	A1	-	0.00000	0.00000	0.00000
	A1	-	0.00260	0.00260	0.00261
	S0	(A0 * !A1)	0.00000	0.00000	0.00000
	S0	(A0 * !A1)	0.00060	0.00536	0.13311
	S0	(!A0 * A1)	0.00000	0.00000	0.00000
	S0	(!A0 * A1)	0.01148	0.01691	0.14377

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__mux2_1	(A1 * S0 * Y) + (!A1 * S0 * !Y)	0.00000	0.00000	0.00000
	(A1 * S0 * Y) + (!A1 * S0 * !Y)	-0.00096	-0.00096	-0.00096

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__mux2_1	(A1 * S0 * Y) + (!A1 * S0 * !Y)	0.00000	0.00000	0.00000
	(A1 * S0 * Y) + (!A1 * S0 * !Y)	0.00096	0.00096	0.00096

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__mux2_1	(A0 * !S0 * Y) + (!A0 * !S0 * !Y)	0.00000	0.00000	0.00000
	(A0 * !S0 * Y) + (!A0 * !S0 * !Y)	-0.00116	-0.00116	-0.00117

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__mux2_1	(A0 * !S0 * Y) + (!A0 * !S0 * !Y)	0.00000	0.00000	0.00000
	(A0 * !S0 * Y) + (!A0 * !S0 * !Y)	0.00116	0.00116	0.00117

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__mux2_1	(A0 * A1 * Y)	0.00000	0.00000	0.00000
	(A0 * A1 * Y)	-0.00105	0.00364	0.13089
	(!A0 * !A1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !Y)	-0.00101	0.00361	0.13093

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__mux2_1	(A0 * A1 * Y)	0.00000	0.00000	0.00000
	(A0 * A1 * Y)	0.00880	0.01424	0.14131
	(!A0 * !A1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !Y)	0.00824	0.01395	0.14122

SKY130_OSU_SC_12T_HS__NAND2x

sky130_osu_sc_12T_hs_ff_1P95_-40C.ccs
Cell Library: Process , Voltage 1.95,
Temp -40.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_12T_hs__nand2_1	6.34920
sky130_osu_sc_12T_hs__nand2_l	6.34920

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	**B**	**Y**
sky130_osu_sc_12T_hs__nand2_1	0.00267	0.00268	1.52555
sky130_osu_sc_12T_hs__nand2_l	0.00214	0.00218	1.00806

Leakage Information

Cell Name	Leakage(nW)		
	Min.	**Avg**	**Max.**
sky130_osu_sc_12T_hs__nand2_1	0.00000	0.02554	0.09969
sky130_osu_sc_12T_hs__nand2_l	0.00000	0.45571	1.82207

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_hs__nand2_1	A->Y (FR)	0.01825	0.58362	10.37940
	B->Y (FR)	0.02084	0.55413	9.80615
sky130_osu_sc_12T_hs__nand2_l	A->Y (FR)	0.02052	0.59695	9.52816
	B->Y (FR)	0.02521	0.59922	9.51528

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_hs__nand2_1	A->Y (RF)	0.01561	0.41600	7.31139
	B->Y (RF)	0.01810	0.39565	6.88287
sky130_osu_sc_12T_hs__nand2_l	A->Y (RF)	0.01741	0.43535	6.80237
	B->Y (RF)	0.01991	0.41502	6.35681

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__nand2_1	A	0.00000	0.00000	0.00000
	A	0.00440	0.00649	0.03334
	B	0.00000	0.00000	0.00000
	B	0.00577	0.00793	0.03650
sky130_osu_sc_12T_hs__nand2_1	A	0.00000	0.00000	0.00000
	A	0.00343	0.00535	0.04369
	B	0.00000	0.00000	0.00000
	B	0.00447	0.00664	0.04632

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__nand2_1	A	0.00000	0.00000	0.00000
	A	-0.00051	0.00012	0.01331
	B	0.00000	0.00000	0.00000
	B	-0.00051	-0.00006	0.01176
sky130_osu_sc_12T_hs__nand2_1	A	0.00000	0.00000	0.00000
	A	-0.00031	0.00013	0.01070
	B	0.00000	0.00000	0.00000
	B	-0.00031	-0.00002	0.00927

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__nand2_1	(!B * Y)	0.00000	0.00000	0.00000
	(!B * Y)	-0.00288	-0.00291	-0.00291
sky130_osu_sc_12T_hs__nand2_l	(!B * Y)	0.00000	0.00000	0.00000
	(!B * Y)	-0.00209	-0.00209	-0.00210

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__nand2_1	(!B * Y)	0.00000	0.00000	0.00000
	(!B * Y)	0.00291	0.00293	0.00292
sky130_osu_sc_12T_hs__nand2_l	(!B * Y)	0.00000	0.00000	0.00000
	(!B * Y)	0.00210	0.00212	0.00211

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__nand2_1	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00265	-0.00267	-0.00266
sky130_osu_sc_12T_hs__nand2_l	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00193	-0.00194	-0.00193

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__nand2_1	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00274	0.00268	0.00267
sky130_osu_sc_12T_hs__nand2_l	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00198	0.00194	0.00194

SKY130_OSU_SC_12T_HS__NOR2x

sky130_osu_sc_12T_hs_ff_1P95_-40C.ccs
Cell Library: Process , Voltage 1.95,
Temp -40.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_12T_hs__nor2_1	6.34920
sky130_osu_sc_12T_hs__nor2_l	6.34920

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	B	Y
sky130_osu_sc_12T_hs__nor2_1	0.00264	0.00291	0.89289
sky130_osu_sc_12T_hs__nor2_l	0.00206	0.00227	0.61760

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_12T_hs__nor2_1	0.00000	0.01923	0.04984
sky130_osu_sc_12T_hs__nor2_l	0.00000	0.29514	0.91102

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_hs__nor2_1	A->Y (FR)	0.03689	0.67938	10.22910
	B->Y (FR)	0.02846	0.68172	10.44970
sky130_osu_sc_12T_hs__nor2_l	A->Y (FR)	0.03975	0.70835	9.59135
	B->Y (FR)	0.03284	0.70651	9.74034

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_hs__nor2_1	A->Y (RF)	0.01542	0.27788	3.95166
	B->Y (RF)	0.01262	0.27144	3.93563
sky130_osu_sc_12T_hs__nor2_l	A->Y (RF)	0.01613	0.29503	3.77149
	B->Y (RF)	0.01388	0.29032	3.75556

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__nor2_1	A	0.00000	0.00000	0.00000
	A	0.00590	0.00646	0.02914
	B	0.00000	0.00000	0.00000
	B	0.00453	0.00605	0.04035
sky130_osu_sc_12T_hs__nor2_l	A	0.00000	0.00000	0.00000
	A	0.00441	0.00520	0.03250
	B	0.00000	0.00000	0.00000
	B	0.00351	0.00569	0.05102

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__nor2_1	A	0.00000	0.00000	0.00000
	A	0.00057	0.00122	0.02025
	B	0.00000	0.00000	0.00000
	B	-0.00058	0.00031	0.01823
sky130_osu_sc_12T_hs__nor2_l	A	0.00000	0.00000	0.00000
	A	0.00042	0.00093	0.01707
	B	0.00000	0.00000	0.00000
	B	-0.00037	0.00025	0.01530

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__nor2_1	(B * !Y)	0.00000	0.00000	0.00000
	(B * !Y)	-0.00200	-0.00244	-0.00247
sky130_osu_sc_12T_hs__nor2_l	(B * !Y)	0.00000	0.00000	0.00000
	(B * !Y)	-0.00131	-0.00168	-0.00170

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__nor2_1	(B * !Y)	0.00000	0.00000	0.00000
	(B * !Y)	0.00246	0.00248	0.00247
sky130_osu_sc_12T_hs__nor2_l	(B * !Y)	0.00000	0.00000	0.00000
	(B * !Y)	0.00171	0.00172	0.00172

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__nor2_1	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	-0.00111	-0.00112	-0.00112
sky130_osu_sc_12T_hs__nor2_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	-0.00080	-0.00080	-0.00080

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__nor2_1	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00116	0.00117	0.00113
sky130_osu_sc_12T_hs__nor2_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00083	0.00083	0.00081

SKY130_OSU_SC_12T_HS__OAI21

sky130_osu_sc_12T_hs_ff_1P95_-40C.ccs
Cell Library: Process , Voltage 1.95,
Temp -40.00

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_12T_hs__oai21_l	8.30280

Pin Capacitance Information

Cell Name	Pin Cap(pf)			Max Cap(pf)
	A0	A1	B0	Y
sky130_osu_sc_12T_hs__oai21_l	0.00269	0.00279	0.00239	0.85665

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_12T_hs__oai21_l	0.00000	0.35169	0.96088

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_hs__oai21_l	A0->Y (FR)	0.04150	0.68603	10.22960
	A1->Y (FR)	0.05192	0.68705	10.00790
	B0->Y (FR)	0.02496	0.56295	8.66766

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_hs__oai21_l	A0->Y (RF)	0.02229	0.31542	4.39800
	A1->Y (RF)	0.02549	0.31557	4.33551
	B0->Y (RF)	0.01701	0.35336	5.14693

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__oai21_l	A0	0.00000	0.00000	0.00000
	A0	0.00660	0.00785	0.03756
	A1	0.00000	0.00000	0.00000
	A1	0.00800	0.00841	0.02905
	B0	0.00382	0.00664	0.06416

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__oai21_l	A0	0.00000	0.00000	0.00000
	A0	0.00025	0.00068	0.01459
	A1	0.00000	0.00000	0.00000
	A1	0.00145	0.00169	0.01651
	B0	0.00058	0.00131	0.01866

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__oai21_l	(A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * !Y)	-0.00111	-0.00114	-0.00112
	(A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * Y)	-0.00247	-0.00252	-0.00251
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00255	-0.00255	-0.00255

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__oai21_l	(A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * !Y)	0.00117	0.00118	0.00115
	(A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * Y)	0.00250	0.00252	0.00251
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00259	0.00256	0.00255

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__oai21_l	(A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * B0 * !Y)	-0.00191	-0.00238	-0.00237
	(A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * Y)	-0.00243	-0.00251	-0.00249
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	-0.00250	-0.00253	-0.00251

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__oai21_l	(A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * B0 * !Y)	0.00237	0.00240	0.00239
	(A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * Y)	0.00248	0.00251	0.00249
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	0.00255	0.00253	0.00252

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__oai21_l	(!A0 * !A1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * Y)	-0.00219	-0.00220	-0.00224

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__oai21_l	(!A0 * !A1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * Y)	0.00223	0.00226	0.00224

SKY130_OSU_SC_12T_HS__OAI22

sky130_osu_sc_12T_hs_ff_1P95_-40C.ccs
Cell Library: Process , Voltage 1.95,
Temp -40.00

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_12T_hs__oai22_l	10.25640

Pin Capacitance Information

Cell Name	Pin Cap(pf)				Max Cap(pf)
	A0	A1	B0	B1	Y
sky130_osu_sc_12T_hs__oai22_l	0.00253	0.00265	0.00281	0.00278	0.92297

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_12T_hs__oai22_l	0.00000	0.02877	0.09969

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_hs__oai22_l	A0->Y (FR)	0.05354	0.67936	10.06140
	A1->Y (FR)	0.04584	0.68318	10.32420
	B0->Y (FR)	0.02929	0.66766	10.31420
	B1->Y (FR)	0.03798	0.66429	10.05260

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_hs__oai22_l	A0->Y (RF)	0.03490	0.34443	4.72331
	A1->Y (RF)	0.02873	0.33553	4.69326
	B0->Y (RF)	0.02391	0.37441	5.46120
	B1->Y (RF)	0.03049	0.38611	5.54298

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__oai22_l	A0	0.00958	0.00999	0.03056
	A1	0.00820	0.00951	0.04191
	B0	0.00479	0.00620	0.03810
	B1	0.00630	0.00674	0.02686

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__oai22_l	A0	0.00092	0.00119	0.01625
	A1	-0.00017	0.00026	0.01444
	B0	-0.00023	0.00054	0.01704
	B1	0.00091	0.00142	0.01792

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__oai22_l	(A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * !Y)	-0.00198	-0.00240	-0.00241
	(A1 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * B1 * !Y)	-0.00198	-0.00240	-0.00241
	(A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * !B1 * Y)	-0.00235	-0.00241	-0.00241
	(!A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * !B1 * Y)	-0.00243	-0.00243	-0.00243

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__oai22_l	(A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * !Y)	0.00239	0.00243	0.00241
	(A1 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * B1 * !Y)	0.00239	0.00243	0.00241
	(A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * !B1 * Y)	0.00240	0.00242	0.00241
	(!A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * !B1 * Y)	0.00246	0.00244	0.00243

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__oai22_l	(A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * B0 * !Y)	-0.00108	-0.00109	-0.00109
	(A0 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * B1 * !Y)	-0.00108	-0.00109	-0.00109
	(A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * !B1 * Y)	-0.00235	-0.00240	-0.00239
	(!A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * !B1 * Y)	-0.00241	-0.00242	-0.00242

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__oai22_l	(A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * B0 * !Y)	0.00113	0.00114	0.00110
	(A0 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * B1 * !Y)	0.00113	0.00114	0.00110
	(A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * !B1 * Y)	0.00238	0.00240	0.00239
	(!A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * !B1 * Y)	0.00244	0.00245	0.00243

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__oai22_l	(A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * B1 * !Y)	-0.00110	-0.00110	-0.00110
	(A0 * !A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B1 * !Y)	-0.00110	-0.00111	-0.00110
	(!A0 * !A1 * B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B1 * Y)	-0.00280	-0.00286	-0.00286
	(!A0 * !A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B1 * Y)	-0.00282	-0.00283	-0.00288

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__oai22_l	(A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * B1 * !Y)	0.00114	0.00115	0.00112
	(A0 * !A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B1 * !Y)	0.00114	0.00115	0.00112
	(!A0 * !A1 * B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B1 * Y)	0.00288	0.00290	0.00286
	(!A0 * !A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B1 * Y)	0.00287	0.00292	0.00289

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__oai22_l	(A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * !Y)	-0.00195	-0.00239	-0.00239
	(A0 * !A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B0 * !Y)	-0.00196	-0.00239	-0.00239
	(!A0 * !A1 * B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B0 * Y)	-0.00286	-0.00291	-0.00292
	(!A0 * !A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B0 * Y)	-0.00287	-0.00289	-0.00294

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__oai22_l	(A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * !Y)	0.00237	0.00241	0.00239
	(A0 * !A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B0 * !Y)	0.00237	0.00240	0.00239
	(!A0 * !A1 * B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B0 * Y)	0.00293	0.00296	0.00292
	(!A0 * !A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B0 * Y)	0.00293	0.00298	0.00295

SKY130_OSU_SC_12T_HS__OR2x

sky130_osu_sc_12T_hs_ff_1P95_-40C.ccs
Cell Library: Process , Voltage 1.95,
Temp -40.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_12T_hs__or2_1	8.30280
sky130_osu_sc_12T_hs__or2_2	10.25640
sky130_osu_sc_12T_hs__or2_4	14.16360
sky130_osu_sc_12T_hs__or2_8	21.97800
sky130_osu_sc_12T_hs__or2_l	8.30280

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	B	Y
sky130_osu_sc_12T_hs__or2_1	0.00299	0.00276	1.58559
sky130_osu_sc_12T_hs__or2_2	0.00300	0.00276	3.25240
sky130_osu_sc_12T_hs__or2_4	0.00300	0.00276	6.41453
sky130_osu_sc_12T_hs__or2_8	0.00300	0.00276	12.44181
sky130_osu_sc_12T_hs__or2_l	0.00232	0.00217	1.09206

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_12T_hs__or2_1	0.00000	0.03267	0.05244
sky130_osu_sc_12T_hs__or2_2	0.00000	0.04610	0.10229
sky130_osu_sc_12T_hs__or2_4	0.00000	0.07297	0.20197
sky130_osu_sc_12T_hs__or2_8	0.00000	0.12671	0.40135
sky130_osu_sc_12T_hs__or2_l	0.00000	0.52316	0.91172

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_hs__or2_1	A->Y (RR)	0.03919	0.37883	5.04661
	B->Y (RR)	0.03465	0.36351	4.99517
sky130_osu_sc_12T_hs__or2_2	A->Y (RR)	0.04162	0.30701	5.00127
	B->Y (RR)	0.03679	0.29204	4.91960
sky130_osu_sc_12T_hs__or2_4	A->Y (RR)	0.05392	0.28808	5.15762
	B->Y (RR)	0.04898	0.27569	5.06394
sky130_osu_sc_12T_hs__or2_8	A->Y (RR)	0.07918	0.30997	5.36792
	B->Y (RR)	0.07419	0.30044	5.28018
sky130_osu_sc_12T_hs__or2_l	A->Y (RR)	0.04156	0.43345	5.08276
	B->Y (RR)	0.03776	0.42132	5.09820

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_hs__or2_1	A->Y (FF)	0.06390	0.42829	5.86620
	B->Y (FF)	0.05177	0.42718	6.14713
sky130_osu_sc_12T_hs__or2_2	A->Y (FF)	0.07493	0.41617	6.10396
	B->Y (FF)	0.06305	0.41760	6.35921
sky130_osu_sc_12T_hs__or2_4	A->Y (FF)	0.10562	0.44167	6.35689
	B->Y (FF)	0.09376	0.44825	6.58157
sky130_osu_sc_12T_hs__or2_8	A->Y (FF)	0.16974	0.51159	6.55832
	B->Y (FF)	0.15789	0.52142	6.74614
sky130_osu_sc_12T_hs__or2_l	A->Y (FF)	0.06940	0.43854	5.46481
	B->Y (FF)	0.05837	0.43618	5.72780

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__or2_1	A	0.00000	0.00000	0.00000
	A	0.00438	0.00604	0.05281
	B	0.00000	0.00000	0.00000
	B	0.00331	0.00607	0.07204
sky130_osu_sc_12T_hs__or2_2	A	0.00000	0.00000	0.00000
	A	0.00742	0.00931	0.05779
	B	0.00000	0.00000	0.00000
	B	0.00626	0.00926	0.06858
sky130_osu_sc_12T_hs__or2_4	A	0.00000	0.00000	0.00000
	A	0.01452	0.01667	0.06575
	B	0.00000	0.00000	0.00000
	B	0.01330	0.01656	0.07630
sky130_osu_sc_12T_hs__or2_8	A	0.00000	0.00000	0.00000
	A	0.03127	0.03231	0.08535
	B	0.00000	0.00000	0.00000
	B	0.02998	0.03250	0.09354
sky130_osu_sc_12T_hs__or2_l	A	0.00000	0.00000	0.00000
	A	0.00345	0.00511	0.05591
	B	0.00000	0.00000	0.00000
	B	0.00271	0.00558	0.07877

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__or2_1	A	0.00000	0.00000	0.00000
	A	0.01018	0.01170	0.06817
	B	0.00000	0.00000	0.00000
	B	0.00846	0.01214	0.10509
sky130_osu_sc_12T_hs__or2_2	A	0.00000	0.00000	0.00000
	A	0.01326	0.01432	0.07140
	B	0.00000	0.00000	0.00000
	B	0.01152	0.01476	0.10709
sky130_osu_sc_12T_hs__or2_4	A	0.00000	0.00000	0.00000
	A	0.02335	0.02100	0.07707
	B	0.00000	0.00000	0.00000
	B	0.02157	0.02147	0.11028
sky130_osu_sc_12T_hs__or2_8	A	0.00000	0.00000	0.00000
	A	0.05402	0.03619	0.09009
	B	0.00000	0.00000	0.00000
	B	0.05223	0.03687	0.11963
sky130_osu_sc_12T_hs__or2_l	A	0.00000	0.00000	0.00000
	A	0.00782	0.00987	0.07047
	B	0.00000	0.00000	0.00000
	B	0.00664	0.01099	0.10728

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__or2_1	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00203	-0.00248	-0.00250
sky130_osu_sc_12T_hs__or2_2	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00203	-0.00250	-0.00249
sky130_osu_sc_12T_hs__or2_4	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00203	-0.00248	-0.00250
sky130_osu_sc_12T_hs__or2_8	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00203	-0.00248	-0.00250
sky130_osu_sc_12T_hs__or2_l	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00130	-0.00170	-0.00171

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__or2_1	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00248	0.00250	0.00250
sky130_osu_sc_12T_hs__or2_2	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00248	0.00250	0.00250
sky130_osu_sc_12T_hs__or2_4	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00248	0.00250	0.00250
sky130_osu_sc_12T_hs__or2_8	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00248	0.00250	0.00250
sky130_osu_sc_12T_hs__or2_l	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00172	0.00174	0.00173

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__or2_1	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00112	-0.00115	-0.00113
sky130_osu_sc_12T_hs__or2_2	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00112	-0.00115	-0.00113
sky130_osu_sc_12T_hs__or2_4	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00112	-0.00115	-0.00113
sky130_osu_sc_12T_hs__or2_8	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00112	-0.00115	-0.00113
sky130_osu_sc_12T_hs__or2_l	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00078	-0.00078	-0.00078

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__or2_1	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00117	0.00117	0.00114
sky130_osu_sc_12T_hs__or2_2	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00117	0.00118	0.00114
sky130_osu_sc_12T_hs__or2_4	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00117	0.00118	0.00114
sky130_osu_sc_12T_hs__or2_8	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00117	0.00118	0.00114
sky130_osu_sc_12T_hs__or2_l	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00081	0.00082	0.00079

SKY130_OSU_SC_12T_HS__TBUFIx

sky130_osu_sc_12T_hs_ff_1P95_-40C.ccs
Cell Library: Process , Voltage 1.95,
Temp -40.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_12T_hs__tbufi_1	8.30280
sky130_osu_sc_12T_hs__tbufi_l	8.30280

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	OE	Y
sky130_osu_sc_12T_hs__tbufi_1	0.00288	0.00384	0.92958
sky130_osu_sc_12T_hs__tbufi_l	0.00228	0.00305	0.62135

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_12T_hs__tbufi_1	0.00000	0.02611	0.09969
sky130_osu_sc_12T_hs__tbufi_l	0.00000	0.45592	1.82205

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_hs__tbufi_1	A->Y (FR)	0.02628	0.66637	10.34640
	OE->Y (FR)	0.03022	0.29213	5.34253
	OE->Y (RR)	0.04456	0.45590	5.39941
sky130_osu_sc_12T_hs__tbufi_l	A->Y (FR)	0.03188	0.70495	9.73373
	OE->Y (FR)	0.03123	0.29212	5.34249
	OE->Y (RR)	0.04881	0.52941	5.48591

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_hs__tbufi_1	A->Y (RF)	0.01528	0.33611	5.01589
	OE->Y (FF)	0.03030	0.29212	5.34255
	OE->Y (RF)	0.01490	0.31352	4.60817
sky130_osu_sc_12T_hs__tbufi_l	A->Y (RF)	0.01724	0.35563	4.69750
	OE->Y (FF)	0.03159	0.29211	5.34249
	OE->Y (RF)	0.01675	0.33163	4.28742

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__tbufi_1	A	0.00000	0.00000	0.00000
	A	0.00425	0.00564	0.03585
	OE	0.00000	0.00000	0.00000
	OE	0.00416	0.00852	0.11794
sky130_osu_sc_12T_hs__tbufi_l	A	0.00000	0.00000	0.00000
	A	0.00334	0.00516	0.04484
	OE	0.00000	0.00000	0.00000
	OE	0.00313	0.00805	0.12830

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__tbufi_1	A	0.00000	0.00000	0.00000
	A	-0.00059	0.00018	0.01585
	OE	0.00000	0.00000	0.00000
	OE	0.00251	0.00740	0.13640
sky130_osu_sc_12T_hs__tbufi_l	A	0.00000	0.00000	0.00000
	A	-0.00035	0.00017	0.01291
	OE	0.00000	0.00000	0.00000
	OE	0.00181	0.00713	0.13860

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__tbufi_1	(!OE * Y)	0.00000	0.00000	0.00000
	(!OE * Y)	-0.00204	-0.00206	-0.00205
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	-0.00182	-0.00183	-0.00183
sky130_osu_sc_12T_hs__tbufi_l	(!OE * Y)	0.00000	0.00000	0.00000
	(!OE * Y)	-0.00150	-0.00152	-0.00150
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	-0.00134	-0.00137	-0.00134

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__tbufi_1	(!OE * Y)	0.00000	0.00000	0.00000
	(!OE * Y)	0.00204	0.00206	0.00205
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	0.00185	0.00186	0.00183
sky130_osu_sc_12T_hs__tbufi_l	(!OE * Y)	0.00000	0.00000	0.00000
	(!OE * Y)	0.00150	0.00152	0.00150
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	0.00135	0.00137	0.00135

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__tbufi_1	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00150	0.00664	0.13945
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00134	0.00655	0.13930
sky130_osu_sc_12T_hs__tbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00109	0.00675	0.14147
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00092	0.00657	0.14132

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__tbufi_1	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00516	0.01082	0.14353
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00522	0.01095	0.14356
sky130_osu_sc_12T_hs__tbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00406	0.01043	0.14503
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00404	0.01045	0.14506

SKY130_OSU_SC_12T_HS__TNBUFIx

sky130_osu_sc_12T_hs_ff_1P95_-40C.ccs
Cell Library: Process , Voltage 1.95,
Temp -40.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_12T_hs__tnbufi_1	8.30280
sky130_osu_sc_12T_hs__tnbufi_l	8.30280

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	OE	Y
sky130_osu_sc_12T_hs__tnbufi_1	0.00288	0.00421	0.92960
sky130_osu_sc_12T_hs__tnbufi_l	0.00218	0.00327	0.62204

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_12T_hs__tnbufi_1	0.00000	0.04229	0.05114
sky130_osu_sc_12T_hs__tnbufi_l	0.00000	0.75949	0.91135

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_hs__tnbufi_1	A->Y (FR)	0.02643	0.66622	10.34610
	OE->Y (RR)	0.01641	0.29228	5.34268
	OE->Y (FR)	0.03341	0.66088	10.01110
sky130_osu_sc_12T_hs__tnbufi_l	A->Y (FR)	0.03115	0.70419	9.73854
	OE->Y (RR)	0.01795	0.29214	5.34250
	OE->Y (FR)	0.03688	0.70277	9.41182

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_12T_hs__tnbufi_1	A->Y (RF)	0.01498	0.33599	5.01605
	OE->Y (RF)	0.01621	0.29228	5.34268
	OE->Y (FF)	0.03075	0.35709	4.77989
sky130_osu_sc_12T_hs__tnbufi_l	A->Y (RF)	0.01637	0.35514	4.70120
	OE->Y (RF)	0.01780	0.29213	5.34250
	OE->Y (FF)	0.03447	0.36279	4.37131

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__tnbufi_1	A	0.00000	0.00000	0.00000
	A	0.00442	0.00581	0.03601
	OE	0.00000	0.00000	0.00000
	OE	0.01075	0.01681	0.14676
sky130_osu_sc_12T_hs__tnbufi_l	A	0.00000	0.00000	0.00000
	A	0.00342	0.00524	0.04513
	OE	0.00000	0.00000	0.00000
	OE	0.00840	0.01496	0.14824

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__tnbufi_1	A	0.00000	0.00000	0.00000
	A	-0.00083	-0.00005	0.01564
	OE	0.00000	0.00000	0.00000
	OE	0.00931	0.01504	0.12494
sky130_osu_sc_12T_hs__tnbufi_l	A	0.00000	0.00000	0.00000
	A	-0.00060	-0.00007	0.01268
	OE	0.00000	0.00000	0.00000
	OE	0.00730	0.01367	0.13470

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__tnbufi_1	(OE * Y)	0.00000	0.00000	0.00000
	(OE * Y)	-0.00165	-0.00166	-0.00166
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	-0.00145	-0.00146	-0.00145
sky130_osu_sc_12T_hs__tnbufi_l	(OE * Y)	0.00000	0.00000	0.00000
	(OE * Y)	-0.00116	-0.00117	-0.00116
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	-0.00100	-0.00101	-0.00101

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__tnbufi_1	(OE * Y)	0.00000	0.00000	0.00000
	(OE * Y)	0.00165	0.00166	0.00166
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	0.00147	0.00148	0.00146
sky130_osu_sc_12T_hs__tnbufi_l	(OE * Y)	0.00000	0.00000	0.00000
	(OE * Y)	0.00116	0.00117	0.00116
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	0.00103	0.00105	0.00103

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__tnbufi_1	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	-0.00272	0.00229	0.13530
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00272	0.00235	0.13538
sky130_osu_sc_12T_hs__tnbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	-0.00183	0.00351	0.13833
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00192	0.00351	0.13840

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__tnbufi_1	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00808	0.01480	0.14758
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00799	0.01444	0.14754
sky130_osu_sc_12T_hs__tnbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00641	0.01345	0.14806
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00633	0.01325	0.14804

SKY130_OSU_SC_12T_HS__XNOR2

sky130_osu_sc_12T_hs_ff_1P95_-40C.ccs
Cell Library: Process , Voltage 1.95,
Temp -40.00

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_12T_hs__xnor2_l	14.16360

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	B	Y
sky130_osu_sc_12T_hs__xnor2_l	0.00579	0.00491	0.96495

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_12T_hs__xnor2_l	0.00000	0.08687	0.15083

Delay Information

Delay(ns) to Y rising (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_12T_hs__xnor2_l	A->Y (RR)	B	0.05649	0.47706	5.55070
	A->Y (FR)	!B	0.03468	0.67124	10.39550
	B->Y (RR)	A	0.04586	0.46957	5.66521
	B->Y (FR)	!A	0.04444	0.67094	10.16950

Delay(ns) to Y falling (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_12T_hs__xnor2_l	A->Y (FF)	B	0.04935	0.39471	5.12749
	A->Y (RF)	!B	0.02106	0.32651	4.81826
	B->Y (FF)	A	0.04462	0.39092	5.13951
	B->Y (RF)	!A	0.02507	0.33252	4.80811

Power Information

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

Cell Name	Input	When	Power(pJ)		
			first	mid	last
sky130_osu_sc_12T_hs__xnor2_l	A	B	0.00000	0.00000	0.00000
	A	B	0.00443	0.00851	0.12570
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.01073	0.01765	0.17759
	B	A	0.00000	0.00000	0.00000
	B	A	0.00184	0.00702	0.14282
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01142	0.01733	0.16372

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

Cell Name	Input	When	Power(pJ)		
			first	mid	last
sky130_osu_sc_12T_hs__xnor2_l	A	B	0.00000	0.00000	0.00000
	A	B	0.01290	0.01791	0.14909
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00296	0.00807	0.15185
	B	A	0.00000	0.00000	0.00000
	B	A	0.01184	0.01760	0.15258
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00386	0.00891	0.15065

SKY130_OSU_SC_12T_HS__XOR2

sky130_osu_sc_12T_hs_ff_1P95_-40C.ccs
Cell Library: Process , Voltage 1.95,
Temp -40.00

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_12T_hs__xor2_1	14.16360

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	B	Y
sky130_osu_sc_12T_hs__xor2_1	0.00580	0.00495	0.90288

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_12T_hs__xor2_1	0.00000	0.08687	0.13815

Delay Information

Delay(ns) to Y rising (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_12T_hs__xor2_l	A->Y (RR)	!B	0.05967	0.48832	5.65064
	A->Y (FR)	B	0.04725	0.69561	10.37950
	B->Y (RR)	!A	0.04918	0.48795	5.68307
	B->Y (FR)	A	0.05116	0.69764	10.34060

Delay(ns) to Y falling (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_12T_hs__xor2_l	A->Y (FF)	!B	0.04893	0.39131	4.80723
	A->Y (RF)	B	0.02073	0.34098	4.87554
	B->Y (FF)	!A	0.04599	0.39037	5.00933
	B->Y (RF)	A	0.02490	0.32353	4.53361

Power Information

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

Cell Name	Input	When	Power(pJ)		
			first	mid	last
sky130_osu_sc_12T_hs__xor2_l	A	B	0.00000	0.00000	0.00000
	A	B	0.01274	0.01830	0.15875
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00271	0.00620	0.13160
	B	A	0.00000	0.00000	0.00000
	B	A	0.01293	0.01847	0.15512
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00180	0.00659	0.13606

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

Cell Name	Input	When	Power(pJ)		
			first	mid	last
sky130_osu_sc_12T_hs__xor2_l	A	B	0.00000	0.00000	0.00000
	A	B	0.00231	0.00696	0.14491
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.01376	0.01885	0.12545
	B	A	0.00000	0.00000	0.00000
	B	A	0.00237	0.00686	0.13898
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01197	0.01755	0.14628

SKY130_OSU_SC_12T_HS_x

sky130_osu_sc_12T_hs_ff_1P95_-40C.ccs
Cell Library: Process , Voltage 1.95,
Temp -40.00

Truth Table

INPUT
A
x

Footprint

Cell Name	Area
sky130_osu_sc_12T_hs__ant	4.39560
sky130_osu_sc_12T_hs__tiehi	4.39560
sky130_osu_sc_12T_hs__tielo	4.39560

Pin Capacitance Information

Cell Name	Pin Cap(pf)
	A
sky130_osu_sc_12T_hs__ant	0.59603
sky130_osu_sc_12T_hs__tiehi	0.00000
sky130_osu_sc_12T_hs__tielo	0.00000

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_12T_hs__ant	0.00000	296834.00000	593668.00000
sky130_osu_sc_12T_hs__tiehi	0.00000	0.00000	0.00000
sky130_osu_sc_12T_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_12T_hs__ant	0.00000	0.00000	0.00000
	-0.00144	0.06406	1.15365

Passive power(pJ) for A falling :

Cell Name	Power(pJ)		
	first	mid	last
sky130_osu_sc_12T_hs__ant	0.00000	0.00000	0.00000
	5.16726	4.96802	1.37856