sky130_osu_sc_12T_hs_tt_1P62_25C.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_tt_1P62_25C.ccs
Cell Library: Process , Voltage 1.62,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_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	0.01080	0.01083	0.00832	1.10184	0.48039	0.97928
sky130_osu_sc_12T_hs__addf_l	0.01080	0.01083	0.00834	0.75869	0.48017	0.97928

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_12T_hs__addf_1	0.00000	0.04586	0.05556
sky130_osu_sc_12T_hs__addf_l	0.00000	0.15540	0.27637

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)	0.14201	1.56750	22.11800
	B->CO (RR)	0.13687	1.54061	21.85070
	CI->CO (RR)	0.13376	1.60183	22.84690
	CON->CO (FR)	0.02741	0.75488	11.58580
sky130_osu_sc_12T_hs__addf_l	A->CO (RR)	0.14076	1.44467	17.86690
	B->CO (RR)	0.13590	1.43115	17.92940
	CI->CO (RR)	0.13254	1.47961	18.62190
	CON->CO (FR)	0.03210	0.79627	11.09270

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)	0.23856	2.23137	30.91800
	B->CO (FF)	0.21241	2.13370	29.76650
	CI->CO (FF)	0.20958	2.20317	31.07890
	CON->CO (RF)	0.01905	0.49829	7.65392
sky130_osu_sc_12T_hs__addf_l	A->CO (FF)	0.23325	1.97537	23.93810
	B->CO (FF)	0.20777	1.89271	23.14010
	CI->CO (FF)	0.20429	1.94778	24.12600
	CON->CO (RF)	0.02049	0.50911	7.20081

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)	0.19376	1.06061	11.09120
	B->CON (FR)	0.16797	0.99995	10.74740
	CI->CON (FR)	0.16470	1.03407	11.30190
sky130_osu_sc_12T_hs__addf_l	A->CON (FR)	0.18422	1.05113	11.07870
	B->CON (FR)	0.15921	0.99112	10.73570
	CI->CON (FR)	0.15521	1.02472	11.29080

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)	0.08189	0.50588	5.45796
	B->CON (RF)	0.07851	0.52825	5.92117
	CI->CON (RF)	0.07367	0.54243	6.20606
sky130_osu_sc_12T_hs__addf_l	A->CON (RF)	0.07950	0.50334	5.45348
	B->CON (RF)	0.07624	0.52594	5.91666
	CI->CON (RF)	0.07126	0.53993	6.20137

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)	0.34400	2.10331	24.70330
	B->S (-R)	0.34242	2.07958	24.05690
	CI->S (-R)	0.31236	2.07061	24.86590
	CON->S (RR)	0.08329	0.67237	6.98351
sky130_osu_sc_12T_hs__addf_l	A->S (-R)	0.33160	2.09389	24.69440
	B->S (-R)	0.33040	2.07068	24.04860
	CI->S (-R)	0.30011	2.06129	24.85590
	CON->S (RR)	0.08332	0.67235	6.98314

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)	0.24736	1.31573	14.00710
	B->S (-F)	0.24376	1.27950	14.03510
	CI->S (-F)	0.23866	1.34692	14.74100
	CON->S (FF)	0.10868	0.62308	5.64336
sky130_osu_sc_12T_hs__addf_l	A->S (-F)	0.24186	1.31045	14.00390
	B->S (-F)	0.23849	1.27598	14.03260
	CI->S (-F)	0.23308	1.34286	14.73790
	CON->S (FF)	0.10870	0.62303	5.64319

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	0.00194	0.00209	0.00539
	B	0.00279	0.00286	0.00566
	CI	0.00280	0.00302	0.00635
sky130_osu_sc_12T_hs__addf_l	A	0.00173	0.00184	0.00444
	B	0.00258	0.00262	0.00490
	CI	0.00260	0.00277	0.00545

Internal switching power(pJ) to CO falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__addf_1	A	0.00699	0.00736	0.01587
	B	0.00733	0.00767	0.01517
	CI	0.00593	0.00634	0.01516
sky130_osu_sc_12T_hs__addf_l	A	0.00683	0.00709	0.01261
	B	0.00715	0.00740	0.01213
	CI	0.00577	0.00606	0.01187

Internal switching power(pJ) to CON rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__addf_1	A	0.00698	0.00716	0.01066
	B	0.00730	0.00740	0.01052
	CI	0.00644	0.00672	0.01002
sky130_osu_sc_12T_hs__addf_l	A	0.00683	0.00697	0.01036
	B	0.00713	0.00722	0.01024
	CI	0.00626	0.00654	0.00974

Internal switching power(pJ) to CON falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__addf_1	A	0.00231	0.00221	0.00361
	B	0.00277	0.00276	0.00441
	CI	0.00280	0.00293	0.00479
sky130_osu_sc_12T_hs__addf_l	A	0.00211	0.00200	0.00353
	B	0.00256	0.00256	0.00433
	CI	0.00259	0.00273	0.00473

Internal switching power(pJ) to S rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__addf_1	A	0.00699	0.00734	0.01485
	B	0.00732	0.00766	0.01416
	CI	0.00593	0.00630	0.01406
sky130_osu_sc_12T_hs__addf_l	A	0.00683	0.00715	0.01443
	B	0.00716	0.00746	0.01376
	CI	0.00577	0.00611	0.01364

Internal switching power(pJ) to S falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__addf_1	A	0.01518	0.01516	0.02024
	B	0.01394	0.01367	0.02140
	CI	0.01252	0.01234	0.01722
sky130_osu_sc_12T_hs__addf_l	A	0.01519	0.01516	0.02024
	B	0.01392	0.01367	0.02140
	CI	0.01252	0.01235	0.01722

SKY130_OSU_SC_12T_HS__ADDHx

sky130_osu_sc_12T_hs_tt_1P62_25C.ccs
Cell Library: Process , Voltage 1.62,
Temp 25.00

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	0.00540	0.00568	1.05681	1.08490	1.10434
sky130_osu_sc_12T_hs__addh_l	0.00527	0.00559	0.75891	1.08999	0.77363

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_12T_hs__addh_1	0.00000	0.04421	0.04682
sky130_osu_sc_12T_hs__addh_l	0.00000	0.26921	0.27196

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)	0.11798	0.74961	7.50335
	B->CO (RR)	0.12147	0.74715	7.58830
sky130_osu_sc_12T_hs__addh_l	A->CO (RR)	0.09736	0.71678	6.70481
	B->CO (RR)	0.10008	0.71022	6.73736

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)	0.10046	0.67075	6.51182
	B->CO (FF)	0.10568	0.68594	6.57216
sky130_osu_sc_12T_hs__addh_l	A->CO (FF)	0.08802	0.60639	5.56955
	B->CO (FF)	0.09289	0.62277	5.62727

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)	0.16484	0.77569	7.49189
	B->CON (RR)	0.16792	0.77226	7.57613
sky130_osu_sc_12T_hs__addh_l	A->CON (RR)	0.13157	0.67996	6.76620
	B->CON (RR)	0.13408	0.67115	6.80234

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)	0.13414	0.69683	6.61954
	B->CON (FF)	0.13271	0.70596	6.67233
sky130_osu_sc_12T_hs__addh_l	A->CON (FF)	0.11000	0.60374	5.89897
	B->CON (FF)	0.10944	0.61521	5.94952

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)	0.18776	1.46806	17.75120
	B->S (FR)	0.18639	1.47841	17.85390
	CON->S (FR)	0.02974	0.76470	11.74330
sky130_osu_sc_12T_hs__addh_l	A->S (FR)	0.15986	1.27893	13.79680
	B->S (FR)	0.15943	1.29013	13.86870
	CON->S (FR)	0.03278	0.80347	11.25250

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)	0.21238	1.47745	17.62990
	B->S (RF)	0.21550	1.47265	17.71360
	CON->S (RF)	0.02234	0.58832	9.09440
sky130_osu_sc_12T_hs__addh_l	A->S (RF)	0.16941	1.13977	11.56410
	B->S (RF)	0.17186	1.13042	11.59850
	CON->S (RF)	0.02001	0.51005	7.31302

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	0.00372	0.00356	0.00486
	B	0.00000	0.00000	0.00000
	B	0.00342	0.00326	0.00454
sky130_osu_sc_12T_hs__addh_l	A	0.00000	0.00000	0.00000
	A	0.00319	0.00304	0.00631
	B	0.00000	0.00000	0.00000
	B	0.00289	0.00271	0.00568

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	0.00518	0.00502	0.00675
	B	0.00000	0.00000	0.00000
	B	0.00543	0.00548	0.00723
sky130_osu_sc_12T_hs__addh_l	A	0.00000	0.00000	0.00000
	A	0.00468	0.00458	0.00809
	B	0.00000	0.00000	0.00000
	B	0.00492	0.00501	0.00858

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	0.00373	0.00356	0.00487
	B	0.00000	0.00000	0.00000
	B	0.00342	0.00326	0.00453
sky130_osu_sc_12T_hs__addh_l	A	0.00000	0.00000	0.00000
	A	0.00319	0.00304	0.00664
	B	0.00000	0.00000	0.00000
	B	0.00289	0.00271	0.00566

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	0.00518	0.00502	0.00670
	B	0.00000	0.00000	0.00000
	B	0.00543	0.00549	0.00719
sky130_osu_sc_12T_hs__addh_l	A	0.00000	0.00000	0.00000
	A	0.00468	0.00457	0.00803
	B	0.00000	0.00000	0.00000
	B	0.00492	0.00501	0.00848

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	0.00519	0.00503	0.00688
	B	0.00000	0.00000	0.00000
	B	0.00543	0.00548	0.00734
sky130_osu_sc_12T_hs__addh_l	A	0.00000	0.00000	0.00000
	A	0.00468	0.00459	0.00809
	B	0.00000	0.00000	0.00000
	B	0.00492	0.00501	0.00858

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	0.00373	0.00356	0.00493
	B	0.00000	0.00000	0.00000
	B	0.00342	0.00326	0.00455
sky130_osu_sc_12T_hs__addh_l	A	0.00000	0.00000	0.00000
	A	0.00319	0.00304	0.00586
	B	0.00000	0.00000	0.00000
	B	0.00289	0.00272	0.00569

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)	0.93010	0.89032	0.26611
sky130_osu_sc_12T_hs__addh_l	(!B * !CO * !CON * S)	0.00000	0.00000	0.00000
	(!B * !CO * !CON * S)	0.93284	0.89295	0.26681

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)	0.92999	0.88997	0.27174
sky130_osu_sc_12T_hs__addh_l	(!A * !CO * !CON * S)	0.00000	0.00000	0.00000
	(!A * !CO * !CON * S)	0.93276	0.89261	0.27230

SKY130_OSU_SC_12T_HS__AND2x

sky130_osu_sc_12T_hs_tt_1P62_25C.ccs
Cell Library: Process , Voltage 1.62,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_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	0.00283	0.00295	1.06574
sky130_osu_sc_12T_hs__and2_2	0.00283	0.00295	2.12140
sky130_osu_sc_12T_hs__and2_4	0.00283	0.00295	4.09947
sky130_osu_sc_12T_hs__and2_6	0.00287	0.00295	6.11076
sky130_osu_sc_12T_hs__and2_8	0.00283	0.00295	7.94772
sky130_osu_sc_12T_hs__and2_l	0.00219	0.00227	0.76170

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_12T_hs__and2_1	0.00000	0.02174	0.03412
sky130_osu_sc_12T_hs__and2_2	0.00000	0.03413	0.03737
sky130_osu_sc_12T_hs__and2_4	0.00000	0.05891	0.06499
sky130_osu_sc_12T_hs__and2_6	0.00000	0.08369	0.09586
sky130_osu_sc_12T_hs__and2_8	0.00000	0.10847	0.12674
sky130_osu_sc_12T_hs__and2_l	0.00000	0.29647	0.47402

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)	0.07536	0.61063	6.64940
	B->Y (RR)	0.07987	0.60977	6.59575
sky130_osu_sc_12T_hs__and2_2	A->Y (RR)	0.08370	0.54439	6.74405
	B->Y (RR)	0.08820	0.53781	6.68862
sky130_osu_sc_12T_hs__and2_4	A->Y (RR)	0.11342	0.54508	6.97678
	B->Y (RR)	0.11789	0.53004	6.91143
sky130_osu_sc_12T_hs__and2_6	A->Y (RR)	0.14313	0.57579	7.26104
	B->Y (RR)	0.14751	0.55507	7.17342
sky130_osu_sc_12T_hs__and2_8	A->Y (RR)	0.17176	0.60778	7.40953
	B->Y (RR)	0.17622	0.58533	7.31472
sky130_osu_sc_12T_hs__and2_1	A->Y (RR)	0.07771	0.66874	6.78201
	B->Y (RR)	0.08220	0.66744	6.68195

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)**	0.07069	0.53415	5.42491
	B->Y (FF)	0.07321	0.54705	5.49223
sky130_osu_sc_12T_hs__and2_2	**A->Y (FF)**	0.08253	0.52347	5.62224
	B->Y (FF)	0.08428	0.53113	5.67354
sky130_osu_sc_12T_hs__and2_4	**A->Y (FF)**	0.11636	0.55927	5.93229
	B->Y (FF)	0.11582	0.56088	5.96265
sky130_osu_sc_12T_hs__and2_6	**A->Y (FF)**	0.15220	0.60252	6.22208
	B->Y (FF)	0.14911	0.60107	6.24868
sky130_osu_sc_12T_hs__and2_8	**A->Y (FF)**	0.18585	0.63934	6.37256
	B->Y (FF)	0.18057	0.63567	6.38983
sky130_osu_sc_12T_hs__and2_1	**A->Y (FF)**	0.07067	0.52539	4.92838
	B->Y (FF)	0.07692	0.54353	4.98080

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	0.00246	0.00231	0.01313
	B	0.00000	0.00000	0.00000
	B	0.00251	0.00217	0.00919
sky130_osu_sc_12T_hs__and2_2	A	0.00000	0.00000	0.00000
	A	0.00460	0.00465	0.01476
	B	0.00000	0.00000	0.00000
	B	0.00465	0.00454	0.01117
sky130_osu_sc_12T_hs__and2_4	A	0.00000	0.00000	0.00000
	A	0.00955	0.00993	0.01904
	B	0.00000	0.00000	0.00000
	B	0.00962	0.00990	0.01598
sky130_osu_sc_12T_hs__and2_6	A	0.00000	0.00000	0.00000
	A	0.01469	0.01517	0.02435
	B	0.00000	0.00000	0.00000
	B	0.01474	0.01520	0.02168
sky130_osu_sc_12T_hs__and2_8	A	0.00000	0.00000	0.00000
	A	0.01988	0.02047	0.02967
	B	0.00000	0.00000	0.00000
	B	0.01998	0.02043	0.02687
sky130_osu_sc_12T_hs__and2_l	A	0.00000	0.00000	0.00000
	A	0.00193	0.00195	0.01612
	B	0.00000	0.00000	0.00000
	B	0.00198	0.00182	0.01234

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	0.00630	0.00662	0.01664
	B	0.00000	0.00000	0.00000
	B	0.00714	0.00731	0.01693
sky130_osu_sc_12T_hs__and2_2	A	0.00000	0.00000	0.00000
	A	0.00791	0.00851	0.01848
	B	0.00000	0.00000	0.00000
	B	0.00879	0.00917	0.01874
sky130_osu_sc_12T_hs__and2_4	A	0.00000	0.00000	0.00000
	A	0.01202	0.01309	0.02301
	B	0.00000	0.00000	0.00000
	B	0.01289	0.01376	0.02317
sky130_osu_sc_12T_hs__and2_6	A	0.00000	0.00000	0.00000
	A	0.01643	0.01793	0.02769
	B	0.00000	0.00000	0.00000
	B	0.01726	0.01843	0.02772
sky130_osu_sc_12T_hs__and2_8	A	0.00000	0.00000	0.00000
	A	0.02099	0.02273	0.03230
	B	0.00000	0.00000	0.00000
	B	0.02175	0.02283	0.03214
sky130_osu_sc_12T_hs__and2_l	A	0.00000	0.00000	0.00000
	A	0.00485	0.00538	0.01907
	B	0.00000	0.00000	0.00000
	B	0.00549	0.00601	0.01920

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)	-0.00216	-0.00217	-0.00219
sky130_osu_sc_12T_hs__and2_2	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00216	-0.00217	-0.00219
sky130_osu_sc_12T_hs__and2_4	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00216	-0.00217	-0.00219
sky130_osu_sc_12T_hs__and2_6	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00218	-0.00221	-0.00221
sky130_osu_sc_12T_hs__and2_8	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00217	-0.00218	-0.00219
sky130_osu_sc_12T_hs__and2_l	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00153	-0.00153	-0.00154

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)	0.00218	0.00221	0.00219
sky130_osu_sc_12T_hs__and2_2	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00218	0.00221	0.00219
sky130_osu_sc_12T_hs__and2_4	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00218	0.00221	0.00219
sky130_osu_sc_12T_hs__and2_6	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00221	0.00223	0.00222
sky130_osu_sc_12T_hs__and2_8	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00218	0.00220	0.00219
sky130_osu_sc_12T_hs__and2_l	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00154	0.00156	0.00155

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)	-0.00206	-0.00207	-0.00206
sky130_osu_sc_12T_hs__and2_2	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00206	-0.00208	-0.00206
sky130_osu_sc_12T_hs__and2_4	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00206	-0.00207	-0.00206
sky130_osu_sc_12T_hs__and2_6	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00206	-0.00207	-0.00206
sky130_osu_sc_12T_hs__and2_8	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00206	-0.00207	-0.00206
sky130_osu_sc_12T_hs__and2_l	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00146	-0.00146	-0.00146

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)	0.00211	0.00210	0.00207
sky130_osu_sc_12T_hs__and2_2	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00212	0.00210	0.00207
sky130_osu_sc_12T_hs__and2_4	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00212	0.00210	0.00207
sky130_osu_sc_12T_hs__and2_6	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00212	0.00210	0.00207
sky130_osu_sc_12T_hs__and2_8	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00212	0.00210	0.00207
sky130_osu_sc_12T_hs__and2_l	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00150	0.00148	0.00146

SKY130_OSU_SC_12T_HS__AOI21

sky130_osu_sc_12T_hs_tt_1P62_25C.ccs
Cell Library: Process , Voltage 1.62,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_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	0.00259	0.00277	0.00276	0.45982

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_12T_hs__aoi21_l	0.00000	0.00918	0.01544

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)	0.09825	0.97830	10.96660
	A1->Y (FR)	0.07911	0.89803	10.37230
	B0->Y (FR)	0.07514	0.96111	11.28030

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)	0.04097	0.45139	5.19976
	A1->Y (RF)	0.03749	0.47889	5.72393
	B0->Y (RF)	0.02464	0.43750	5.41081

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	0.00527	0.00520	0.00598
	A1	0.00000	0.00000	0.00000
	A1	0.00443	0.00432	0.00512
	B0	0.00330	0.00335	0.00514

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	0.00113	0.00096	0.00178
	A1	0.00000	0.00000	0.00000
	A1	0.00116	0.00100	0.00207
	B0	-0.00041	-0.00038	0.00058

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)	-0.00156	-0.00177	-0.00177
	(!A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !Y)	-0.00179	-0.00180	-0.00180
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00179	-0.00181	-0.00180

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)	0.00176	0.00178	0.00177
	(!A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !Y)	0.00179	0.00181	0.00180
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00185	0.00181	0.00180

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)	-0.00155	-0.00178	-0.00177
	(!A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !Y)	-0.00180	-0.00181	-0.00180
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	-0.00198	-0.00199	-0.00200

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)	0.00176	0.00178	0.00177
	(!A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !Y)	0.00180	0.00181	0.00181
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	0.00199	0.00204	0.00200

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)	-0.00087	-0.00087	-0.00087

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)	0.00096	0.00096	0.00089

SKY130_OSU_SC_12T_HS__AOI22

sky130_osu_sc_12T_hs_tt_1P62_25C.ccs
Cell Library: Process , Voltage 1.62,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_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	0.00259	0.00277	0.00290	0.00272	0.45314

Leakage Information

Cell Name	Leakage(nW)		
	Min.	**Avg**	**Max.**
sky130_osu_sc_12T_hs__aoi22_l	0.00000	0.01123	0.03087

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)	0.12526	1.00784	10.93800
	A1->Y (FR)	0.11199	0.98891	10.88160
	B0->Y (FR)	0.07880	0.96009	11.19000
	B1->Y (FR)	0.09249	0.97790	11.25980

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)	0.05321	0.46376	5.17115
	A1->Y (RF)	0.04967	0.49167	5.69311
	B0->Y (RF)	0.02975	0.46626	5.66177
	B1->Y (RF)	0.03367	0.43908	5.14232

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	0.00633	0.00625	0.00697
	A1	0.00549	0.00533	0.00609
	B0	0.00356	0.00357	0.00565
	B1	0.00540	0.00539	0.00702

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__aoi22_l	A0	0.00225	0.00208	0.00291
	A1	0.00228	0.00215	0.00320
	B0	-0.00026	-0.00027	0.00085
	B1	-0.00021	-0.00028	0.00059

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)	-0.00159	-0.00176	-0.00177
	(!A1 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * B1 * !Y)	-0.00179	-0.00180	-0.00180
	(!A1 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !B1 * Y)	-0.00179	-0.00180	-0.00179
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00179	-0.00180	-0.00179

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)	0.00176	0.00176	0.00177
	(!A1 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * B1 * !Y)	0.00179	0.00181	0.00180
	(!A1 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !B1 * Y)	0.00185	0.00181	0.00180
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00185	0.00181	0.00180

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)	-0.00159	-0.00177	-0.00177
	(!A0 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * B1 * !Y)	-0.00180	-0.00181	-0.00180
	(!A0 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !B1 * Y)	-0.00197	-0.00198	-0.00199
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	-0.00197	-0.00198	-0.00199

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)	0.00176	0.00180	0.00177
	(!A0 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * B1 * !Y)	0.00180	0.00181	0.00181
	(!A0 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !B1 * Y)	0.00198	0.00201	0.00199
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	0.00198	0.00201	0.00199

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)	-0.00086	-0.00087	-0.00086
	(A0 * A1 * !B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B1 * !Y)	-0.00086	-0.00086	-0.00086
	(!A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B1 * Y)	-0.00206	-0.00208	-0.00209
	(!A0 * A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B1 * Y)	-0.00206	-0.00208	-0.00209

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)	0.00100	0.00100	0.00090
	(A0 * A1 * !B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B1 * !Y)	0.00086	0.00086	0.00086
	(!A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B1 * Y)	0.00208	0.00209	0.00209
	(!A0 * A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B1 * Y)	0.00208	0.00209	0.00209

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)	-0.00088	-0.00088	-0.00088
	(A0 * A1 * !B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B0 * !Y)	-0.00087	-0.00088	-0.00087
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00190	-0.00190	-0.00190
	(!A0 * A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B0 * Y)	-0.00190	-0.00190	-0.00190

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)	0.00101	0.00101	0.00091
	(A0 * A1 * !B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B0 * !Y)	0.00087	0.00088	0.00087
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00195	0.00190	0.00190
	(!A0 * A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B0 * Y)	0.00195	0.00190	0.00190

SKY130_OSU_SC_12T_HS__BUFx

sky130_osu_sc_12T_hs_tt_1P62_25C.ccs
Cell Library: Process , Voltage 1.62,
Temp 25.00

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	0.00295	0.99552
sky130_osu_sc_12T_hs__buf_2	0.00295	2.04798
sky130_osu_sc_12T_hs__buf_4	0.00295	4.05657
sky130_osu_sc_12T_hs__buf_6	0.00083	1.80000
sky130_osu_sc_12T_hs__buf_8	0.00295	8.00185
sky130_osu_sc_12T_hs__buf_l	0.00223	0.75990

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_12T_hs__buf_1	0.00000	0.01869	0.01869
sky130_osu_sc_12T_hs__buf_2	0.00000	0.02803	0.03412
sky130_osu_sc_12T_hs__buf_4	0.00000	0.04671	0.06499
sky130_osu_sc_12T_hs__buf_6	0.00000	0.00000	0.00000
sky130_osu_sc_12T_hs__buf_8	0.00000	0.08408	0.12674
sky130_osu_sc_12T_hs__buf_l	0.00000	0.23777	0.23777

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)**	0.05887	0.59215	6.48536
sky130_osu_sc_12T_hs__buf_2	**A->Y (RR)**	0.06146	0.50517	6.52386
sky130_osu_sc_12T_hs__buf_4	**A->Y (RR)**	0.08146	0.48763	6.77690
sky130_osu_sc_12T_hs__buf_8	**A->Y (RR)**	0.12098	0.52710	7.19203
sky130_osu_sc_12T_hs__buf_l	**A->Y (RR)**	0.06025	0.63496	6.55338

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)**	0.06649	0.51567	5.16925
sky130_osu_sc_12T_hs__buf_2	**A->Y (FF)**	0.07834	0.51209	5.49248
sky130_osu_sc_12T_hs__buf_4	**A->Y (FF)**	0.11219	0.55175	5.88741
sky130_osu_sc_12T_hs__buf_8	**A->Y (FF)**	0.18102	0.63629	6.39614
sky130_osu_sc_12T_hs__buf_l	**A->Y (FF)**	0.06838	0.52066	4.93996

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	0.00236	0.00216	0.00966
sky130_osu_sc_12T_hs__buf_2	A	0.00000	0.00000	0.00000
	A	0.00448	0.00443	0.01190
sky130_osu_sc_12T_hs__buf_4	A	0.00000	0.00000	0.00000
	A	0.00937	0.00977	0.02274
sky130_osu_sc_12T_hs__buf_8	A	0.00000	0.00000	0.00000
	A	0.01934	0.02017	0.02799
sky130_osu_sc_12T_hs__buf_l	A	0.00000	0.00000	0.00000
	A	0.00187	0.00184	0.01409

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	0.00611	0.00636	0.01590
sky130_osu_sc_12T_hs__buf_2	A	0.00000	0.00000	0.00000
	A	0.00771	0.00815	0.01758
sky130_osu_sc_12T_hs__buf_4	A	0.00000	0.00000	0.00000
	A	0.01184	0.01264	0.02191
sky130_osu_sc_12T_hs__buf_8	A	0.00000	0.00000	0.00000
	A	0.02079	0.02173	0.03078
sky130_osu_sc_12T_hs__buf_l	A	0.00000	0.00000	0.00000
	A	0.00479	0.00529	0.01924

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
	-0.00054	-0.00054	-0.00052

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
	0.00054	0.00054	0.00052

SKY130_OSU_SC_12T_HS__DFFRx

sky130_osu_sc_12T_hs_tt_1P62_25C.ccs
Cell Library: Process , Voltage 1.62,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_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	0.00271	0.00270	0.00859	1.05957	1.05468
sky130_osu_sc_12T_hs__dffr_l	0.00271	0.00270	0.00859	0.75558	0.75746

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_12T_hs__dffr_1	0.00000	0.18179	0.37399
sky130_osu_sc_12T_hs__dffr_l	0.00000	0.40088	0.59308

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)	0.31907	1.32694	13.53210
	QN->Q (FR)	0.03156	0.82738	12.58870
sky130_osu_sc_12T_hs__dffr_l	CK->Q (RR)	0.31214	1.37298	12.62180
	QN->Q (FR)	0.03448	0.84720	11.77250

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)	0.31424	1.36411	14.46830
	QN->Q (RF)	0.02065	0.53790	8.23950
	RN->Q (FF)	0.23092	1.42306	16.35020
sky130_osu_sc_12T_hs__dffr_l	CK->Q (RF)	0.31696	1.46941	14.06260
	QN->Q (RF)	0.02168	0.54397	7.76313
	RN->Q (FF)	0.23408	1.52789	15.93420

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)	0.28281	0.82541	6.72890
	RN->QN (FR)	0.19940	0.88438	8.60734
sky130_osu_sc_12T_hs__dffr_l	CK->QN (RR)	0.28140	0.87984	6.66458
	RN->QN (FR)	0.19836	0.93812	8.53246

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)**	0.26966	0.64185	3.74076
sky130_osu_sc_12T_hs__dffr_l	**CK->QN (RF)**	0.26070	0.64151	3.45663

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)	-0.05519	-0.06958	-0.04108
	setup	CK (R)	0.24424	0.26650	1.33950
sky130_osu_sc_12T_hs__dffr_l	hold	CK (R)	-0.05617	-0.07150	-0.04455
	setup	CK (R)	0.24114	0.26794	1.33034

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)	-0.13498	-0.35585	-3.09216
	setup	CK (R)	0.15890	0.36514	4.32507
sky130_osu_sc_12T_hs__dffr_l	hold	CK (R)	-0.13686	-0.35591	-3.29559
	setup	CK (R)	0.15886	0.36522	4.61517

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)	-0.05519	-0.06958	-0.04108
	setup	CK (R)	0.24424	0.26650	1.33950
sky130_osu_sc_12T_hs__dffr_l	hold	CK (R)	-0.05617	-0.07150	-0.04455
	setup	CK (R)	0.24114	0.26794	1.33034

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)	-0.13498	-0.35585	-3.09216
	setup	CK (R)	0.15890	0.36514	4.32507
sky130_osu_sc_12T_hs__dffr_l	hold	CK (R)	-0.13686	-0.35591	-3.29559
	setup	CK (R)	0.15886	0.36522	4.61517

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)	0.21217	0.24121	1.43887
	removal	CK (R)	-0.04407	-0.05181	-0.07848
sky130_osu_sc_12T_hs__dffr_l	recovery	CK (R)	0.21413	0.24176	1.40792
	removal	CK (R)	-0.04266	-0.05173	-0.07706

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)	0.21217	0.24121	1.43887
	removal	CK (R)	-0.04407	-0.05181	-0.07848
sky130_osu_sc_12T_hs__dffr_l	recovery	CK (R)	0.21413	0.24176	1.40792
	removal	CK (R)	-0.04266	-0.05173	-0.07706

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 ()	0.14240	0.40649	13.33370
	min_pulse_width	RN ()	0.14547	0.40649	13.33370
sky130_osu_sc_12T_hs__dffr_l	min_pulse_width	RN ()	0.13933	0.40649	13.33370
	min_pulse_width	RN ()	0.14240	0.40649	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 ()	0.14240	0.40649	13.33370
	min_pulse_width	CK ()	0.16390	0.40649	13.33370
sky130_osu_sc_12T_hs__dffr_l	min_pulse_width	CK ()	0.13319	0.40649	13.33370
	min_pulse_width	CK ()	0.16083	0.40649	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 ()	0.31952	0.41322	13.33370
	min_pulse_width	CK ()	0.13012	0.40649	13.33370
sky130_osu_sc_12T_hs__dffr_l	min_pulse_width	CK ()	0.31952	0.41322	13.33370
	min_pulse_width	CK ()	0.13012	0.40649	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	0.00630	0.00513	0.00015
sky130_osu_sc_12T_hs__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.00572	0.00482	0.00611

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	0.00713	0.00617	0.00117
	RN	-0.00080	-0.04651	-0.69519
	RN	0.01619	0.01550	0.01080
sky130_osu_sc_12T_hs__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.00653	0.00584	0.00601
	RN	-0.00080	-0.03797	-0.49574
	RN	0.01559	0.01516	0.01556

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	0.00713	0.00618	0.00122
	RN	-0.00080	-0.04638	-0.69198
	RN	0.01620	0.01550	0.01077
sky130_osu_sc_12T_hs__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.00653	0.00584	0.00602
	RN	-0.00080	-0.03802	-0.49697
	RN	0.01559	0.01517	0.01555

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	0.00627	0.00511	0.00002
sky130_osu_sc_12T_hs__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.00568	0.00478	0.00572

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	-0.00149	-0.00178	-0.00179
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00787	0.00748	0.01351
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.00317	0.00286	0.00900
sky130_osu_sc_12T_hs__dffr_l	CK	0.00000	0.00000	0.00000
	CK	-0.00148	-0.00178	-0.00179
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00787	0.00749	0.01351
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.00317	0.00286	0.00900

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	0.00178	0.00180	0.00179
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.01176	0.01152	0.01784
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.00577	0.00557	0.01172
sky130_osu_sc_12T_hs__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.00178	0.00180	0.00179
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.01176	0.01152	0.01785
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.00578	0.00557	0.01172

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)	0.00246	0.00221	0.01307
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.00735	0.00690	0.01809
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)	0.00246	0.00220	0.01307
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.00736	0.00691	0.01809

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)	0.00632	0.00635	0.01775
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.01242	0.01223	0.02367
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)	0.00633	0.00636	0.01775
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.01242	0.01223	0.02368

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)	-0.00042	-0.00087	0.00996
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.00399	0.00311	0.01407
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	-0.00046	-0.00080	0.00995
sky130_osu_sc_12T_hs__dffr_l	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	-0.00042	-0.00087	0.00997
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.00399	0.00312	0.01407
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	-0.00045	-0.00080	0.00996

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)	0.00964	0.00958	0.02113
	(D * RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * RN * !Q * QN)	0.01952	0.01903	0.03138
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.01460	0.01441	0.02567
	(!D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * Q * !QN)	0.01909	0.01894	0.03951
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.01028	0.01018	0.02150
sky130_osu_sc_12T_hs__dffr_l	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.00964	0.00958	0.02113
	(D * RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * RN * !Q * QN)	0.01952	0.01903	0.03139
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.01460	0.01441	0.02568
	(!D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * Q * !QN)	0.01910	0.01895	0.03952
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.01028	0.01018	0.02150

SKY130_OSU_SC_12T_HS__DFFSRx

sky130_osu_sc_12T_hs_tt_1P62_25C.ccs
Cell Library: Process , Voltage 1.62,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_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	0.00267	0.00271	0.00632	0.00867	1.11390	1.09808
sky130_osu_sc_12T_hs__dffsr_l	0.00267	0.00271	0.00632	0.00867	0.75351	0.75722

Leakage Information

Cell Name	Leakage(nW)		
	Min.	**Avg**	**Max.**
sky130_osu_sc_12T_hs__dffsr_1	0.00000	0.06999	0.08993
sky130_osu_sc_12T_hs__dffsr_l	0.00000	0.28907	0.30902

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)	0.34283	1.37413	14.06970
	QN->Q (FR)	0.02970	0.80642	12.40680
	RN->Q (RR)	0.27531	1.31638	14.09030
	SN->Q (FR)	0.26181	1.43127	16.21060
sky130_osu_sc_12T_hs__dffsr_l	CK->Q (RR)	0.34080	1.41254	12.67810
	QN->Q (FR)	0.03441	0.84586	11.74590
	RN->Q (RR)	0.27402	1.35692	12.70120
	SN->Q (FR)	0.25963	1.46897	14.80020

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)	0.36153	1.42625	14.93590
	QN->Q (RF)	0.02050	0.54601	8.45145
	RN->Q (FF)	0.24447	1.45250	16.82850
sky130_osu_sc_12T_hs__dffsr_l	CK->Q (RF)	0.36556	1.52157	14.08060
	QN->Q (RF)	0.02155	0.54292	7.74512
	RN->Q (FF)	0.24927	1.54762	15.95480

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)	0.32964	0.87444	6.82225
	RN->QN (FR)	0.21314	0.90060	8.70240
sky130_osu_sc_12T_hs__dffsr_l	CK->QN (RR)	0.32938	0.93399	6.72674
	RN->QN (FR)	0.21355	0.96062	8.59492

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)	0.29570	0.68524	3.98303
	RN->QN (RF)	0.22928	0.62994	4.00978
	SN->QN (FF)	0.21516	0.74326	6.11876
sky130_osu_sc_12T_hs__dffsr_l	CK->QN (RF)	0.29045	0.68342	3.54808
	RN->QN (RF)	0.22401	0.62881	3.57054
	SN->QN (FF)	0.20977	0.74090	5.67038

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)	-0.06675	-0.08350	-0.13240
	setup	CK (R)	0.25807	0.27459	1.70790
sky130_osu_sc_12T_hs__dffsr_l	hold	CK (R)	-0.06684	-0.08215	-0.13478
	setup	CK (R)	0.25805	0.27486	1.77219

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)	-0.15661	-0.37403	-1.43529
	setup	CK (R)	0.18826	0.38331	3.93580
sky130_osu_sc_12T_hs__dffsr_l	hold	CK (R)	-0.15609	-0.37461	-1.43427
	setup	CK (R)	0.18813	0.38331	3.93575

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)	-0.06675	-0.08350	-0.13240
	setup	CK (R)	0.25807	0.27459	1.70790
sky130_osu_sc_12T_hs__dffsr_l	hold	CK (R)	-0.06684	-0.08215	-0.13478
	setup	CK (R)	0.25805	0.27486	1.77219

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)	-0.15661	-0.37403	-1.43529
	setup	CK (R)	0.18826	0.38331	3.93580
sky130_osu_sc_12T_hs__dffsr_l	hold	CK (R)	-0.15609	-0.37461	-1.43427
	setup	CK (R)	0.18813	0.38331	3.93575

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)	0.20558	0.22578	1.46909
	removal	CK (R)	-0.03032	-0.04115	-0.08742
	hold	SN (R)	-0.20469	-0.34955	-1.64913
	setup	SN (R)	0.23037	0.38001	7.77001
sky130_osu_sc_12T_hs__dffsr_l	recovery	CK (R)	0.20575	0.22603	1.46507
	removal	CK (R)	-0.03032	-0.04115	-0.08742
	hold	SN (R)	-0.19683	-0.34136	-1.61053
	setup	SN (R)	0.22988	0.37198	7.57714

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)	0.20558	0.22578	1.46909
	removal	CK (R)	-0.03032	-0.04115	-0.08742
	hold	SN (R)	-0.20469	-0.34955	-1.64913
	hold	SN (R)	-0.20806	-0.35107	-1.65679
	setup	SN (R)	0.23037	0.37843	7.77001
	setup	SN (R)	0.23025	0.38001	7.53505
sky130_osu_sc_12T_hs__dffsr_l	recovery	CK (R)	0.20575	0.22603	1.46507
	removal	CK (R)	-0.03032	-0.04115	-0.08742
	hold	SN (R)	-0.19754	-0.34136	-1.61053
	hold	SN (R)	-0.19683	-0.34280	-1.61905
	setup	SN (R)	0.22988	0.37198	7.53411
	setup	SN (R)	0.22065	0.37183	7.57714

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 ()	0.16390	0.40649	13.33370
	min_pulse_width	RN ()	0.17004	0.40649	13.33370
sky130_osu_sc_12T_hs__dffsr_l	min_pulse_width	RN ()	0.16390	0.40649	13.33370
	min_pulse_width	RN ()	0.16697	0.40649	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)	0.04002	0.06802	7.12526
	removal	CK (R)	-0.01552	-0.04886	-0.30088
sky130_osu_sc_12T_hs__dffsr_l	recovery	CK (R)	0.03888	0.06793	6.98844
	removal	CK (R)	-0.01552	-0.04886	-0.30088

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)	0.04002	0.06802	7.12526
	removal	CK (R)	-0.01552	-0.04886	-0.30088
sky130_osu_sc_12T_hs__dffsr_l	recovery	CK (R)	0.03888	0.06793	6.98844
	removal	CK (R)	-0.01552	-0.04886	-0.30088

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 ()	0.20996	0.40649	13.33370
	min_pulse_width	SN ()	0.21610	0.40649	13.33370
sky130_osu_sc_12T_hs__dffsr_l	min_pulse_width	SN ()	0.20996	0.40649	13.33370
	min_pulse_width	SN ()	0.20689	0.40649	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 ()	0.15161	0.40649	13.33370
	min_pulse_width	CK ()	0.18539	0.40649	13.33370
sky130_osu_sc_12T_hs__dffsr_l	min_pulse_width	CK ()	0.14854	0.40649	13.33370
	min_pulse_width	CK ()	0.18232	0.40649	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 ()	0.33420	0.41995	13.33370
	min_pulse_width	CK ()	0.16083	0.40649	13.33370
sky130_osu_sc_12T_hs__dffsr_l	min_pulse_width	CK ()	0.33559	0.41771	13.33370
	min_pulse_width	CK ()	0.16083	0.40649	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	0.00779	0.00662	0.00060
	RN	0.01425	0.01317	0.00395
	SN	-0.00080	-0.04792	-0.73083
	SN	0.01584	0.01464	0.00486
sky130_osu_sc_12T_hs__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.00724	0.00637	0.00751
	RN	0.01369	0.01292	0.01081
	SN	-0.00080	-0.03790	-0.49438
	SN	0.01528	0.01439	0.01168

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	0.00827	0.00757	0.00536
	RN	-0.00080	-0.04792	-0.73083
	RN	0.01702	0.01651	0.01430
sky130_osu_sc_12T_hs__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.00768	0.00705	0.00730
	RN	-0.00080	-0.03790	-0.49438
	RN	0.01642	0.01597	0.01646

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	0.00827	0.00757	0.00524
	RN	-0.00080	-0.04751	-0.72045
	RN	0.01703	0.01651	0.01442
sky130_osu_sc_12T_hs__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.00768	0.00705	0.00726
	RN	-0.00080	-0.03802	-0.49681
	RN	0.01643	0.01597	0.01640

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	0.00775	0.00660	0.00084
	RN	0.01421	0.01314	0.00404
	SN	-0.00080	-0.04751	-0.72040
	SN	0.01580	0.01460	0.00485
sky130_osu_sc_12T_hs__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.00720	0.00633	0.00710
	RN	0.01365	0.01287	0.01051
	SN	-0.00080	-0.03802	-0.49679
	SN	0.01524	0.01435	0.01148

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	-0.00176	-0.00180	-0.00180
	(!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)	0.00984	0.00948	0.01543
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.00347	0.00317	0.00918
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.00343	0.00313	0.00916
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.00347	0.00318	0.00920
sky130_osu_sc_12T_hs__dffsr_1	CK	0.00000	0.00000	0.00000
	CK	-0.00176	-0.00180	-0.00180
	(!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)	0.00984	0.00948	0.01543
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.00347	0.00317	0.00918
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.00343	0.00313	0.00917
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.00347	0.00318	0.00920

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	0.00184	0.00181	0.00180
	(!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)	0.01356	0.01333	0.01929
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.00626	0.00610	0.01218
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.00631	0.00613	0.01219
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.00624	0.00608	0.01216
sky130_osu_sc_12T_hs__dffsr_1	CK	0.00000	0.00000	0.00000
	CK	0.00184	0.00181	0.00180
	(!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)	0.01356	0.01333	0.01930
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.00626	0.00611	0.01218
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.00631	0.00614	0.01219
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.00624	0.00608	0.01216

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)	0.00202	0.00175	0.01248
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.00867	0.00816	0.01887
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)	0.00202	0.00175	0.01248
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.00867	0.00816	0.01887

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)	0.00687	0.00720	0.01843
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.01314	0.01293	0.02426
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)	0.00687	0.00720	0.01843
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.01314	0.01293	0.02426

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)	-0.00459	-0.00461	-0.00463
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	-0.00456	-0.00498	-0.00500
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	-0.00442	-0.00465	-0.00464
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.00226	0.00195	0.00849
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)	-0.00459	-0.00461	-0.00463
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	-0.00456	-0.00498	-0.00500
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	-0.00442	-0.00465	-0.00464
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.00226	0.00195	0.00849

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)	0.00462	0.00472	0.00464
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00499	0.00502	0.00500
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	0.00464	0.00468	0.00465
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.01059	0.01029	0.01596
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)	0.00462	0.00473	0.00464
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00499	0.00503	0.00500
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	0.00464	0.00468	0.00465
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.01059	0.01029	0.01596

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)	-0.00048	-0.00093	0.00990
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.00465	0.00380	0.01474
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.00458	0.00373	0.01470
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	-0.00034	-0.00068	0.01004
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.00238	0.00166	0.02237
sky130_osu_sc_12T_hs__dffsr_1	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	-0.00047	-0.00092	0.00990
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.00465	0.00381	0.01474
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.00458	0.00374	0.01470
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	-0.00034	-0.00068	0.01004
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.00238	0.00166	0.02237

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)	0.02174	0.02129	0.03352
	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.00981	0.00974	0.02128
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.01483	0.01467	0.02591
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.01486	0.01467	0.02599
	(!D * RN * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * Q * !QN)	0.02096	0.02070	0.04108
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.01028	0.01018	0.02148
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.01303	0.01295	0.03468
sky130_osu_sc_12T_hs__dffsr_l	**(D * RN * SN * !Q * QN)**	0.00000	0.00000	0.00000
	(D * RN * SN * !Q * QN)	0.02174	0.02129	0.03352
	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.00982	0.00975	0.02128
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.01483	0.01467	0.02591
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.01486	0.01467	0.02599
	(!D * RN * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * Q * !QN)	0.02096	0.02071	0.04108
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.01028	0.01019	0.02148
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.01304	0.01295	0.03468

SKY130_OSU_SC_12T_HS__DFFSx

sky130_osu_sc_12T_hs_tt_1P62_25C.ccs
Cell Library: Process , Voltage 1.62,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_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	0.00269	0.00528	0.00853	1.06776	1.06843
sky130_osu_sc_12T_hs__dffs_l	0.00269	0.00528	0.00853	0.75695	0.76019

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_12T_hs__dffs_1	0.00000	0.36179	0.98842
sky130_osu_sc_12T_hs__dffs_l	0.00000	0.58087	1.20750

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)	0.23315	1.22707	13.51230
	QN->Q (FR)	0.03155	0.82655	12.60260
	SN->Q (FR)	0.18652	1.33103	15.30340
sky130_osu_sc_12T_hs__dffs_l	CK->Q (RR)	0.23192	1.27826	12.53050
	QN->Q (FR)	0.03444	0.84555	11.75410
	SN->Q (FR)	0.18522	1.37914	14.29610

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)	0.34498	1.40245	14.58610
	QN->Q (RF)	0.02056	0.53708	8.24954
sky130_osu_sc_12T_hs__dffs_l	CK->Q (RF)	0.34514	1.50090	14.09770
	QN->Q (RF)	0.02161	0.54267	7.75288

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)	0.31265	0.86327	6.83312
sky130_osu_sc_12T_hs__dffs_l	CK->QN (RR)	0.30876	0.91158	6.70681

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)	0.18936	0.54383	3.68133
	SN->QN (FF)	0.14183	0.64837	5.47275
sky130_osu_sc_12T_hs__dffs_l	CK->QN (RF)	0.18547	0.54959	3.36838
	SN->QN (FF)	0.13809	0.65089	5.13477

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)	-0.04282	-0.05669	-0.01597
	setup	CK (R)	0.16699	0.20001	1.14927
sky130_osu_sc_12T_hs__dffs_l	hold	CK (R)	-0.04092	-0.05739	-0.01289
	setup	CK (R)	0.16644	0.19671	1.14642

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)	-0.14072	-0.35569	-3.73396
	setup	CK (R)	0.17472	0.36978	4.31626
sky130_osu_sc_12T_hs__dffs_l	hold	CK (R)	-0.13848	-0.35838	-3.74518
	setup	CK (R)	0.17473	0.36977	4.27399

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)	-0.04282	-0.05669	-0.01597
	setup	CK (R)	0.16699	0.20001	1.14927
sky130_osu_sc_12T_hs__dffs_l	hold	CK (R)	-0.04092	-0.05739	-0.01289
	setup	CK (R)	0.16644	0.19671	1.14642

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)	-0.14072	-0.35569	-3.73396
	setup	CK (R)	0.17472	0.36978	4.31626
sky130_osu_sc_12T_hs__dffs_l	hold	CK (R)	-0.13848	-0.35838	-3.74518
	setup	CK (R)	0.17473	0.36977	4.27399

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)	0.04072	0.06848	7.38932
	removal	CK (R)	-0.01946	-0.04886	-0.41624
sky130_osu_sc_12T_hs__dffs_l	recovery	CK (R)	0.04087	0.06834	7.45657
	removal	CK (R)	-0.01946	-0.04886	-0.41624

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)	0.04072	0.06848	7.38932
	removal	CK (R)	-0.01946	-0.04886	-0.41624
sky130_osu_sc_12T_hs__dffs_l	recovery	CK (R)	0.04087	0.06834	7.45657
	removal	CK (R)	-0.01946	-0.04886	-0.41624

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 ()	0.13012	0.40649	13.33370
	min_pulse_width	SN ()	0.13319	0.40649	13.33370
sky130_osu_sc_12T_hs__dffs_l	min_pulse_width	SN ()	0.12705	0.40649	13.33370
	min_pulse_width	SN ()	0.12705	0.40649	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 ()	0.09327	0.40649	13.33370
	min_pulse_width	CK ()	0.17311	0.40649	13.33370
sky130_osu_sc_12T_hs__dffs_l	min_pulse_width	CK ()	0.09020	0.40649	13.33370
	min_pulse_width	CK ()	0.16697	0.40649	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 ()	0.24374	0.40649	13.33370
	min_pulse_width	CK ()	0.14854	0.40649	13.33370
sky130_osu_sc_12T_hs__dffs_l	min_pulse_width	CK ()	0.24374	0.40649	13.33370
	min_pulse_width	CK ()	0.14854	0.40649	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	0.00631	0.00514	0.00036
	SN	-0.00080	-0.04672	-0.70056
	SN	0.01355	0.01267	0.01167
sky130_osu_sc_12T_hs__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.00572	0.00481	0.00621
	SN	-0.00080	-0.03801	-0.49664
	SN	0.01295	0.01236	0.01772

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	0.00708	0.00619	0.00139
sky130_osu_sc_12T_hs__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.00649	0.00584	0.00614

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	0.00708	0.00618	0.00141
sky130_osu_sc_12T_hs__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.00649	0.00584	0.00618

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	0.00628	0.00511	0.00013
	SN	-0.00080	-0.04674	-0.70094
	SN	0.01352	0.01264	0.01152
sky130_osu_sc_12T_hs__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.00568	0.00480	0.00585
	SN	-0.00080	-0.03811	-0.49873
	SN	0.01291	0.01232	0.01732

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	-0.00178	-0.00182	-0.00183
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00772	0.00733	0.01379
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.00315	0.00284	0.00894
sky130_osu_sc_12T_hs__dffs_l	CK	0.00000	0.00000	0.00000
	CK	-0.00178	-0.00182	-0.00182
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00772	0.00733	0.01379
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.00316	0.00284	0.00894

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	0.00188	0.00185	0.00183
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.01163	0.01136	0.01754
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.00579	0.00561	0.01182
sky130_osu_sc_12T_hs__dffs_1	CK	0.00000	0.00000	0.00000
	CK	0.00188	0.00185	0.00183
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.01163	0.01136	0.01755
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.00579	0.00562	0.01182

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)	-0.00340	-0.00342	-0.00342
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.00225	0.00197	0.01428
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)	-0.00340	-0.00341	-0.00341
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.00226	0.00197	0.01429

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)	0.00345	0.00346	0.00343
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.00744	0.00741	0.02122
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)	0.00344	0.00346	0.00343
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.00744	0.00741	0.02122

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)	-0.00043	-0.00085	0.00998
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	-0.00039	-0.00074	0.01003
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.00213	0.00143	0.02239
sky130_osu_sc_12T_hs__dffs_l	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	-0.00042	-0.00085	0.00999
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	-0.00039	-0.00074	0.01003
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.00213	0.00143	0.02239

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)	0.01946	0.01902	0.03161
	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.00963	0.00954	0.02113
	(!D * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * SN * Q * !QN)	0.01885	0.01858	0.03910
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	0.01021	0.01011	0.02144
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.01236	0.01234	0.03424
sky130_osu_sc_12T_hs__dffs_l	(D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * SN * !Q * QN)	0.01946	0.01902	0.03161
	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.00963	0.00954	0.02113
	(!D * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * SN * Q * !QN)	0.01885	0.01859	0.03910
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	0.01022	0.01012	0.02144
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.01236	0.01235	0.03424

SKY130_OSU_SC_12T_HS__DFFx

sky130_osu_sc_12T_hs_tt_1P62_25C.ccs
Cell Library: Process , Voltage 1.62,
Temp 25.00

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	0.00284	0.00846	0.97207
sky130_osu_sc_12T_hs__dff_l	0.00284	0.00845	0.70803

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_12T_hs__dff_1	0.00000	0.06293	0.07429
sky130_osu_sc_12T_hs__dff_l	0.00000	0.28202	0.29337

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)**	0.19879	0.74813	6.60345
sky130_osu_sc_12T_hs__dff_l	**CK->Q (RR)**	0.19720	0.79632	6.45990

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)**	0.29544	0.63440	3.50677
sky130_osu_sc_12T_hs__dff_l	**CK->Q (RF)**	0.29528	0.65021	3.30508

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)	-0.03873	-0.05723	-0.06415
	setup	CK (R)	0.13290	0.16877	1.12805
sky130_osu_sc_12T_hs__dff_l	hold	CK (R)	-0.04249	-0.05724	-0.06425
	setup	CK (R)	0.13276	0.16906	1.10626

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)	-0.13025	-0.35586	-3.76565
	setup	CK (R)	0.15374	0.36956	4.40800
sky130_osu_sc_12T_hs__dff_l	hold	CK (R)	-0.12862	-0.35509	-3.77291
	setup	CK (R)	0.15374	0.36955	4.42333

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 ()	0.08406	0.40649	13.33370
	min_pulse_width	CK ()	0.15776	0.40649	13.33370
sky130_osu_sc_12T_hs__dff_l	min_pulse_width	CK ()	0.08099	0.40649	13.33370
	min_pulse_width	CK ()	0.15469	0.40649	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 ()	0.20996	0.40649	13.33370
	min_pulse_width	CK ()	0.12091	0.40649	13.33370
sky130_osu_sc_12T_hs__dff_l	min_pulse_width	CK ()	0.20996	0.40649	13.33370
	min_pulse_width	CK ()	0.12091	0.40649	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	0.01325	0.01236	0.02961
sky130_osu_sc_12T_hs__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.01202	0.01114	0.02840

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	0.01441	0.01370	0.02455
sky130_osu_sc_12T_hs__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.01321	0.01249	0.02331

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	-0.00148	-0.00177	-0.00178
	!CK	0.00000	0.00000	0.00000
	!CK	0.00692	0.00655	0.01272
sky130_osu_sc_12T_hs__dff_l	CK	0.00000	0.00000	0.00000
	CK	-0.00148	-0.00177	-0.00178
	!CK	0.00000	0.00000	0.00000
	!CK	0.00692	0.00655	0.01272

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	0.00177	0.00178	0.00178
	!CK	0.00000	0.00000	0.00000
	!CK	0.01199	0.01175	0.01798
sky130_osu_sc_12T_hs__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.00177	0.00179	0.00178
	!CK	0.00000	0.00000	0.00000
	!CK	0.01200	0.01175	0.01798

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)	-0.00045	-0.00087	0.00997
	(!D * !Q)	0.00000	0.00000	0.00000
	(!D * !Q)	-0.00040	-0.00074	0.01003
sky130_osu_sc_12T_hs__dff_l	(D * Q)	0.00000	0.00000	0.00000
	(D * Q)	-0.00045	-0.00087	0.00997
	(!D * !Q)	0.00000	0.00000	0.00000
	(!D * !Q)	-0.00040	-0.00074	0.01003

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)	0.00960	0.00954	0.02112
	(D * !Q)	0.00000	0.00000	0.00000
	(D * !Q)	0.01865	0.01825	0.03093
	(!D * Q)	0.00000	0.00000	0.00000
	(!D * Q)	0.01908	0.01884	0.03955
	(!D * !Q)	0.00000	0.00000	0.00000
	(!D * !Q)	0.01015	0.01006	0.02139
sky130_osu_sc_12T_hs__dff_l	(D * Q)	0.00000	0.00000	0.00000
	(D * Q)	0.00961	0.00954	0.02112
	(D * !Q)	0.00000	0.00000	0.00000
	(D * !Q)	0.01865	0.01825	0.03093
	(!D * Q)	0.00000	0.00000	0.00000
	(!D * Q)	0.01908	0.01884	0.03955
	(!D * !Q)	0.00000	0.00000	0.00000
	(!D * !Q)	0.01015	0.01006	0.02139

SKY130_OSU_SC_12T_HS__INVx

sky130_osu_sc_12T_hs_tt_1P62_25C.ccs
Cell Library: Process , Voltage 1.62,
Temp 25.00

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	0.00274	0.97153
sky130_osu_sc_12T_hs__inv_10	0.02441	9.72362
sky130_osu_sc_12T_hs__inv_2	0.00508	2.00320
sky130_osu_sc_12T_hs__inv_3	0.00751	2.93269
sky130_osu_sc_12T_hs__inv_4	0.00988	3.96662
sky130_osu_sc_12T_hs__inv_6	0.01480	5.90451
sky130_osu_sc_12T_hs__inv_8	0.01960	7.80055
sky130_osu_sc_12T_hs__inv_l	0.00219	0.69062

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_12T_hs__inv_1	0.00000	0.00934	0.01544
sky130_osu_sc_12T_hs__inv_10	0.00000	0.09342	0.15436
sky130_osu_sc_12T_hs__inv_2	0.00000	0.01868	0.03087
sky130_osu_sc_12T_hs__inv_3	0.00000	0.02803	0.04631
sky130_osu_sc_12T_hs__inv_4	0.00000	0.03737	0.06174
sky130_osu_sc_12T_hs__inv_6	0.00000	0.05605	0.09262
sky130_osu_sc_12T_hs__inv_8	0.00000	0.07474	0.12349
sky130_osu_sc_12T_hs__inv_l	0.00000	0.11889	0.23625

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)**	0.03060	0.76478	11.39620
sky130_osu_sc_12T_hs__inv_10	**A->Y (FR)**	0.03384	0.49704	11.37100
sky130_osu_sc_12T_hs__inv_2	**A->Y (FR)**	0.02216	0.64136	11.33470
sky130_osu_sc_12T_hs__inv_3	**A->Y (FR)**	0.02367	0.59862	11.34210
sky130_osu_sc_12T_hs__inv_4	**A->Y (FR)**	0.02321	0.56364	11.33060
sky130_osu_sc_12T_hs__inv_6	**A->Y (FR)**	0.02563	0.52902	11.32520
sky130_osu_sc_12T_hs__inv_8	**A->Y (FR)**	0.02938	0.50820	11.30100
sky130_osu_sc_12T_hs__inv_l	**A->Y (FR)**	0.03463	0.79504	10.82940

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)**	0.01897	0.47512	7.12165
sky130_osu_sc_12T_hs__inv_10	**A->Y (RF)**	0.02425	0.30449	7.36997
sky130_osu_sc_12T_hs__inv_2	**A->Y (RF)**	0.01503	0.41264	7.26571
sky130_osu_sc_12T_hs__inv_3	**A->Y (RF)**	0.01617	0.38305	7.33740
sky130_osu_sc_12T_hs__inv_4	**A->Y (RF)**	0.01587	0.36133	7.35973
sky130_osu_sc_12T_hs__inv_6	**A->Y (RF)**	0.01868	0.33278	7.37999
sky130_osu_sc_12T_hs__inv_8	**A->Y (RF)**	0.02142	0.31608	7.37004
sky130_osu_sc_12T_hs__inv_l	**A->Y (RF)**	0.02055	0.49224	6.82150

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	0.00309	0.00322	0.00462
sky130_osu_sc_12T_hs__inv_10	A	0.00000	0.00000	0.00000
	A	0.02498	0.02740	0.04168
sky130_osu_sc_12T_hs__inv_2	A	0.00000	0.00000	0.00000
	A	0.00528	0.00505	0.00849
sky130_osu_sc_12T_hs__inv_3	A	0.00000	0.00000	0.00000
	A	0.00814	0.00850	0.01298
sky130_osu_sc_12T_hs__inv_4	A	0.00000	0.00000	0.00000
	A	0.01033	0.01060	0.01683
sky130_osu_sc_12T_hs__inv_6	A	0.00000	0.00000	0.00000
	A	0.01525	0.01699	0.02521
sky130_osu_sc_12T_hs__inv_8	A	0.00000	0.00000	0.00000
	A	0.02012	0.02154	0.03314
sky130_osu_sc_12T_hs__inv_l	A	0.00000	0.00000	0.00000
	A	0.00246	0.00264	0.00541

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	-0.00050	-0.00044	0.00031
sky130_osu_sc_12T_hs__inv_10	A	0.00000	0.00000	0.00000
	A	-0.00917	-0.00828	0.00068
sky130_osu_sc_12T_hs__inv_2	A	0.00000	0.00000	0.00000
	A	-0.00171	-0.00153	0.00003
sky130_osu_sc_12T_hs__inv_3	A	0.00000	0.00000	0.00000
	A	-0.00221	-0.00205	0.00044
sky130_osu_sc_12T_hs__inv_4	A	0.00000	0.00000	0.00000
	A	-0.00348	-0.00329	0.00016
sky130_osu_sc_12T_hs__inv_6	A	0.00000	0.00000	0.00000
	A	-0.00535	-0.00489	0.00030
sky130_osu_sc_12T_hs__inv_8	A	0.00000	0.00000	0.00000
	A	-0.00726	-0.00654	0.00048
sky130_osu_sc_12T_hs__inv_l	A	0.00000	0.00000	0.00000
	A	-0.00036	-0.00037	0.00035

SKY130_OSU_SC_12T_HS__MUX2

sky130_osu_sc_12T_hs_tt_1P62_25C.ccs
Cell Library: Process , Voltage 1.62,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_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	0.21275	0.21270	0.00566	0.21231

Leakage Information

Cell Name	Leakage(nW)		
	Min.	**Avg**	**Max.**
sky130_osu_sc_12T_hs__mux2_1	0.00000	0.01893	0.01893

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)	-	0.01185	0.22099	2.06089
	A1->Y (RR)	-	0.01430	0.22409	2.06235
	S0->Y (RR)	(!A0 * A1)	0.04247	0.26663	0.98039
	S0->Y (FR)	(A0 * !A1)	0.03281	0.38915	3.31509

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)	-	0.01415	0.22650	2.19882
	A1->Y (FF)	-	0.01241	0.22374	2.19242
	S0->Y (FF)	(!A0 * A1)	0.06499	0.36167	2.39228
	S0->Y (RF)	(A0 * !A1)	0.02089	0.25887	1.91717

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	-	-0.00312	-0.00311	-0.00313
	A1	-	0.00000	0.00000	0.00000
	A1	-	-0.00200	-0.00201	-0.00201
	S0	(A0 * !A1)	0.00000	0.00000	0.00000
	S0	(A0 * !A1)	0.00407	0.00432	0.01641
	S0	(!A0 * A1)	0.00000	0.00000	0.00000
	S0	(!A0 * A1)	-0.00194	-0.00218	0.00940

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	-	0.00312	0.00312	0.00313
	A1	-	0.00000	0.00000	0.00000
	A1	-	0.00200	0.00201	0.00201
	S0	(A0 * !A1)	0.00000	0.00000	0.00000
	S0	(A0 * !A1)	0.00056	0.00039	0.01220
	S0	(!A0 * A1)	0.00000	0.00000	0.00000
	S0	(!A0 * A1)	0.00838	0.00853	0.02029

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)	-0.00075	-0.00075	-0.00075

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)	0.00075	0.00075	0.00075

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)	-0.00089	-0.00089	-0.00089

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)	0.00089	0.00089	0.00089

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)	-0.00070	-0.00091	0.01083
	(!A0 * !A1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !Y)	-0.00068	-0.00093	0.01083

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)	0.00644	0.00653	0.01846
	(!A0 * !A1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !Y)	0.00601	0.00618	0.01830

SKY130_OSU_SC_12T_HS__NAND2x

sky130_osu_sc_12T_hs_tt_1P62_25C.ccs
Cell Library: Process , Voltage 1.62,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_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	0.00273	0.00273	0.96502
sky130_osu_sc_12T_hs__nand2_l	0.00215	0.00218	0.68907

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_12T_hs__nand2_1	0.00000	0.00935	0.03087
sky130_osu_sc_12T_hs__nand2_l	0.00000	0.11890	0.47250

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)	0.03192	0.76673	11.38890
	B->Y (FR)	0.03625	0.73887	10.92480
sky130_osu_sc_12T_hs__nand2_l	A->Y (FR)	0.03502	0.79592	10.83250
	B->Y (FR)	0.04212	0.80151	10.81810

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)	0.02791	0.59764	8.87160
	B->Y (RF)	0.03178	0.57669	8.32302
sky130_osu_sc_12T_hs__nand2_l	A->Y (RF)	0.02985	0.62009	8.48289
	B->Y (RF)	0.03361	0.59833	7.93972

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	0.00326	0.00337	0.00465
	B	0.00000	0.00000	0.00000
	B	0.00417	0.00423	0.00552
sky130_osu_sc_12T_hs__nand2_1	A	0.00000	0.00000	0.00000
	A	0.00249	0.00267	0.00510
	B	0.00000	0.00000	0.00000
	B	0.00318	0.00331	0.00578

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	-0.00031	-0.00029	0.00038
	B	0.00000	0.00000	0.00000
	B	-0.00029	-0.00037	0.00020
sky130_osu_sc_12T_hs__nand2_1	A	0.00000	0.00000	0.00000
	A	-0.00019	-0.00020	0.00041
	B	0.00000	0.00000	0.00000
	B	-0.00019	-0.00023	0.00026

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)	-0.00208	-0.00209	-0.00210
sky130_osu_sc_12T_hs__nand2_l	(!B * Y)	0.00000	0.00000	0.00000
	(!B * Y)	-0.00148	-0.00149	-0.00149

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)	0.00210	0.00212	0.00211
sky130_osu_sc_12T_hs__nand2_l	(!B * Y)	0.00000	0.00000	0.00000
	(!B * Y)	0.00149	0.00151	0.00150

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)	-0.00193	-0.00194	-0.00193
sky130_osu_sc_12T_hs__nand2_l	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00139	-0.00139	-0.00139

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)	0.00198	0.00196	0.00194
sky130_osu_sc_12T_hs__nand2_l	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00142	0.00140	0.00139

SKY130_OSU_SC_12T_HS__NOR2x

sky130_osu_sc_12T_hs_tt_1P62_25C.ccs
Cell Library: Process , Voltage 1.62,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_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	0.00269	0.00296	0.51275
sky130_osu_sc_12T_hs__nor2_l	0.00206	0.00228	0.37972

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_12T_hs__nor2_1	0.00000	0.00763	0.01544
sky130_osu_sc_12T_hs__nor2_l	0.00000	0.07986	0.23625

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)	0.06988	0.92485	11.07710
	B->Y (FR)	0.05571	0.90708	11.19140
sky130_osu_sc_12T_hs__nor2_l	A->Y (FR)	0.07360	0.98145	10.79870
	B->Y (FR)	0.06257	0.95432	10.72750

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)	0.02438	0.39680	4.91681
	B->Y (RF)	0.02008	0.38703	4.90186
sky130_osu_sc_12T_hs__nor2_l	A->Y (RF)	0.02471	0.41236	4.81897
	B->Y (RF)	0.02143	0.40491	4.80635

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	0.00427	0.00418	0.00505
	B	0.00000	0.00000	0.00000
	B	0.00337	0.00329	0.00510
sky130_osu_sc_12T_hs__nor2_l	A	0.00000	0.00000	0.00000
	A	0.00314	0.00309	0.00446
	B	0.00000	0.00000	0.00000
	B	0.00258	0.00250	0.00631

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	0.00050	0.00036	0.00152
	B	0.00000	0.00000	0.00000
	B	-0.00039	-0.00032	0.00076
sky130_osu_sc_12T_hs__nor2_l	A	0.00000	0.00000	0.00000
	A	0.00037	0.00029	0.00132
	B	0.00000	0.00000	0.00000
	B	-0.00024	-0.00018	0.00077

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)	-0.00148	-0.00179	-0.00180
sky130_osu_sc_12T_hs__nor2_l	(B * !Y)	0.00000	0.00000	0.00000
	(B * !Y)	-0.00096	-0.00119	-0.00123

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)	0.00179	0.00181	0.00180
sky130_osu_sc_12T_hs__nor2_l	(B * !Y)	0.00000	0.00000	0.00000
	(B * !Y)	0.00123	0.00124	0.00123

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)	-0.00087	-0.00088	-0.00087
sky130_osu_sc_12T_hs__nor2_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	-0.00061	-0.00061	-0.00061

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)	0.00092	0.00092	0.00088
sky130_osu_sc_12T_hs__nor2_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00064	0.00065	0.00062

SKY130_OSU_SC_12T_HS__OAI21

sky130_osu_sc_12T_hs_tt_1P62_25C.ccs
Cell Library: Process , Voltage 1.62,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_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	0.00274	0.00283	0.00240	0.50984

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_12T_hs__oai21_l	0.00000	0.09360	0.25169

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)	0.07936	0.93352	11.20330
	A1->Y (FR)	0.09681	0.95302	11.09100
	B0->Y (FR)	0.04399	0.71609	9.14013

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)	0.03855	0.47037	5.61790
	A1->Y (RF)	0.04506	0.47048	5.55149
	B0->Y (RF)	0.03011	0.50227	6.37120

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	0.00473	0.00471	0.00619
	A1	0.00000	0.00000	0.00000
	A1	0.00567	0.00556	0.00634
	B0	0.00379	0.00397	0.00777

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	0.00024	0.00018	0.00094
	A1	0.00000	0.00000	0.00000
	A1	0.00114	0.00097	0.00174
	B0	0.00050	0.00052	0.00148

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)	-0.00087	-0.00088	-0.00087
	(A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * Y)	-0.00180	-0.00181	-0.00182
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00185	-0.00185	-0.00186

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)	0.00092	0.00093	0.00089
	(A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * Y)	0.00181	0.00181	0.00182
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00188	0.00187	0.00186

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)	-0.00142	-0.00173	-0.00174
	(A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * Y)	-0.00177	-0.00181	-0.00181
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	-0.00183	-0.00184	-0.00183

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)	0.00172	0.00174	0.00174
	(A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * Y)	0.00179	0.00181	0.00181
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	0.00185	0.00185	0.00184

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)	-0.00155	-0.00155	-0.00159

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)	0.00158	0.00162	0.00159

SKY130_OSU_SC_12T_HS__OAI22

sky130_osu_sc_12T_hs_tt_1P62_25C.ccs
Cell Library: Process , Voltage 1.62,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_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	0.00257	0.00270	0.00286	0.00283	0.53529

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_12T_hs__oai22_l	0.00000	0.01131	0.03087

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)	0.10197	0.95025	11.13510
	A1->Y (FR)	0.08815	0.93438	11.26560
	B0->Y (FR)	0.05930	0.90407	11.24300
	B1->Y (FR)	0.07463	0.92252	11.11520

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)	0.06027	0.50828	5.84086
	A1->Y (RF)	0.04950	0.49386	5.80739
	B0->Y (RF)	0.04170	0.52672	6.57289
	B1->Y (RF)	0.05309	0.53976	6.63354

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	0.00718	0.00709	0.00783
	A1	0.00624	0.00624	0.00767
	B0	0.00450	0.00445	0.00595
	B1	0.00551	0.00540	0.00615

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__oai22_l	A0	0.00172	0.00157	0.00228
	A1	0.00089	0.00083	0.00154
	B0	-0.00012	-0.00007	0.00091
	B1	0.00173	0.00159	0.00252

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)	-0.00145	-0.00177	-0.00176
	(A1 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * B1 * !Y)	-0.00145	-0.00177	-0.00176
	(A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * !B1 * Y)	-0.00172	-0.00176	-0.00175
	(!A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * !B1 * Y)	-0.00178	-0.00178	-0.00177

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)	0.00174	0.00177	0.00176
	(A1 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * B1 * !Y)	0.00174	0.00177	0.00176
	(A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * !B1 * Y)	0.00174	0.00176	0.00175
	(!A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * !B1 * Y)	0.00179	0.00179	0.00178

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)	-0.00085	-0.00085	-0.00085
	(A0 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * B1 * !Y)	-0.00085	-0.00085	-0.00085
	(A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * !B1 * Y)	-0.00171	-0.00174	-0.00174
	(!A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * !B1 * Y)	-0.00177	-0.00178	-0.00177

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)	0.00090	0.00090	0.00086
	(A0 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * B1 * !Y)	0.00090	0.00090	0.00086
	(A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * !B1 * Y)	0.00173	0.00174	0.00174
	(!A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * !B1 * Y)	0.00178	0.00179	0.00178

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)	-0.00086	-0.00087	-0.00086
	(A0 * !A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B1 * !Y)	-0.00085	-0.00087	-0.00086
	(!A0 * !A1 * B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B1 * Y)	-0.00202	-0.00206	-0.00205
	(!A0 * !A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B1 * Y)	-0.00202	-0.00203	-0.00208

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)	0.00090	0.00091	0.00087
	(A0 * !A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B1 * !Y)	0.00090	0.00091	0.00087
	(!A0 * !A1 * B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B1 * Y)	0.00205	0.00206	0.00205
	(!A0 * !A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B1 * Y)	0.00208	0.00212	0.00209

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)	-0.00144	-0.00173	-0.00174
	(A0 * !A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B0 * !Y)	-0.00144	-0.00173	-0.00174
	(!A0 * !A1 * B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B0 * Y)	-0.00206	-0.00210	-0.00210
	(!A0 * !A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B0 * Y)	-0.00206	-0.00207	-0.00212

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)	0.00174	0.00176	0.00174
	(A0 * !A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B0 * !Y)	0.00174	0.00175	0.00174
	(!A0 * !A1 * B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B0 * Y)	0.00209	0.00211	0.00210
	(!A0 * !A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B0 * Y)	0.00212	0.00214	0.00213

SKY130_OSU_SC_12T_HS__OR2x

sky130_osu_sc_12T_hs_tt_1P62_25C.ccs
Cell Library: Process , Voltage 1.62,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_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	0.00304	0.00280	0.99147
sky130_osu_sc_12T_hs__or2_2	0.00304	0.00280	2.04694
sky130_osu_sc_12T_hs__or2_4	0.00305	0.00280	4.03781
sky130_osu_sc_12T_hs__or2_8	0.00304	0.00281	7.88941
sky130_osu_sc_12T_hs__or2_l	0.00232	0.00217	0.71384

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_12T_hs__or2_1	0.00000	0.01392	0.02193
sky130_osu_sc_12T_hs__or2_2	0.00000	0.02022	0.03737
sky130_osu_sc_12T_hs__or2_4	0.00000	0.03281	0.06824
sky130_osu_sc_12T_hs__or2_8	0.00000	0.05799	0.12998
sky130_osu_sc_12T_hs__or2_l	0.00000	0.14006	0.23929

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)	0.06716	0.62038	6.49494
	B->Y (RR)	0.05998	0.59575	6.42455
sky130_osu_sc_12T_hs__or2_2	A->Y (RR)	0.07044	0.53214	6.57132
	B->Y (RR)	0.06286	0.51044	6.49688
sky130_osu_sc_12T_hs__or2_4	A->Y (RR)	0.09067	0.51042	6.81595
	B->Y (RR)	0.08283	0.49288	6.74956
sky130_osu_sc_12T_hs__or2_8	A->Y (RR)	0.13023	0.54318	7.19572
	B->Y (RR)	0.12226	0.52821	7.13963
sky130_osu_sc_12T_hs__or2_l	A->Y (RR)	0.06901	0.67288	6.42084
	B->Y (RR)	0.06293	0.65089	6.42244

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)	0.12723	0.60262	5.48513
	B->Y (FF)	0.10605	0.57891	5.41222
sky130_osu_sc_12T_hs__or2_2	A->Y (FF)	0.15311	0.61026	5.82905
	B->Y (FF)	0.13222	0.59290	5.75715
sky130_osu_sc_12T_hs__or2_4	A->Y (FF)	0.21768	0.67346	6.26957
	B->Y (FF)	0.19684	0.66155	6.18326
sky130_osu_sc_12T_hs__or2_8	A->Y (FF)	0.34918	0.81976	6.80777
	B->Y (FF)	0.32828	0.80270	6.74403
sky130_osu_sc_12T_hs__or2_l	A->Y (FF)	0.13248	0.60698	5.08348
	B->Y (FF)	0.11345	0.58084	5.01308

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	0.00338	0.00302	0.00873
	B	0.00000	0.00000	0.00000
	B	0.00250	0.00244	0.00961
sky130_osu_sc_12T_hs__or2_2	A	0.00000	0.00000	0.00000
	A	0.00553	0.00538	0.01119
	B	0.00000	0.00000	0.00000
	B	0.00462	0.00482	0.01195
sky130_osu_sc_12T_hs__or2_4	A	0.00000	0.00000	0.00000
	A	0.01043	0.01071	0.01642
	B	0.00000	0.00000	0.00000
	B	0.00950	0.01020	0.01701
sky130_osu_sc_12T_hs__or2_8	A	0.00000	0.00000	0.00000
	A	0.02043	0.02120	0.02736
	B	0.00000	0.00000	0.00000
	B	0.01952	0.02081	0.02832
sky130_osu_sc_12T_hs__or2_l	A	0.00000	0.00000	0.00000
	A	0.00260	0.00243	0.00846
	B	0.00000	0.00000	0.00000
	B	0.00201	0.00205	0.01153

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	0.00732	0.00705	0.01238
	B	0.00000	0.00000	0.00000
	B	0.00614	0.00649	0.01601
sky130_osu_sc_12T_hs__or2_2	A	0.00000	0.00000	0.00000
	A	0.00898	0.00896	0.01412
	B	0.00000	0.00000	0.00000
	B	0.00777	0.00836	0.01742
sky130_osu_sc_12T_hs__or2_4	A	0.00000	0.00000	0.00000
	A	0.01333	0.01353	0.01850
	B	0.00000	0.00000	0.00000
	B	0.01215	0.01276	0.02133
sky130_osu_sc_12T_hs__or2_8	A	0.00000	0.00000	0.00000
	A	0.02447	0.02257	0.02759
	B	0.00000	0.00000	0.00000
	B	0.02280	0.02193	0.02996
sky130_osu_sc_12T_hs__or2_l	A	0.00000	0.00000	0.00000
	A	0.00553	0.00538	0.01188
	B	0.00000	0.00000	0.00000
	B	0.00472	0.00515	0.01768

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)	-0.00151	-0.00181	-0.00181
sky130_osu_sc_12T_hs__or2_2	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00150	-0.00181	-0.00181
sky130_osu_sc_12T_hs__or2_4	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00150	-0.00181	-0.00181
sky130_osu_sc_12T_hs__or2_8	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00150	-0.00181	-0.00181
sky130_osu_sc_12T_hs__or2_l	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00096	-0.00122	-0.00123

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)	0.00180	0.00183	0.00181
sky130_osu_sc_12T_hs__or2_2	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00180	0.00183	0.00181
sky130_osu_sc_12T_hs__or2_4	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00180	0.00183	0.00181
sky130_osu_sc_12T_hs__or2_8	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00180	0.00183	0.00181
sky130_osu_sc_12T_hs__or2_l	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00123	0.00124	0.00124

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)	-0.00087	-0.00088	-0.00087
sky130_osu_sc_12T_hs__or2_2	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00087	-0.00088	-0.00087
sky130_osu_sc_12T_hs__or2_4	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00087	-0.00088	-0.00087
sky130_osu_sc_12T_hs__or2_8	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00087	-0.00088	-0.00087
sky130_osu_sc_12T_hs__or2_l	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00059	-0.00060	-0.00060

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)	0.00092	0.00093	0.00089
sky130_osu_sc_12T_hs__or2_2	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00092	0.00093	0.00089
sky130_osu_sc_12T_hs__or2_4	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00092	0.00093	0.00089
sky130_osu_sc_12T_hs__or2_8	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00092	0.00093	0.00089
sky130_osu_sc_12T_hs__or2_l	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00063	0.00064	0.00061

SKY130_OSU_SC_12T_HS__TBUFIx

sky130_osu_sc_12T_hs_tt_1P62_25C.ccs
Cell Library: Process , Voltage 1.62,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_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	0.00293	0.00386	0.53256
sky130_osu_sc_12T_hs__tbufi_l	0.00229	0.00302	0.37174

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_12T_hs__tbufi_1	0.00000	0.01079	0.03087
sky130_osu_sc_12T_hs__tbufi_l	0.00000	0.11973	0.47250

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)	0.05157	0.89709	11.19980
	OE->Y (FR)	0.04829	0.29046	4.73314
	OE->Y (RR)	0.08256	0.73519	6.55761
sky130_osu_sc_12T_hs__tbufi_l	A->Y (FR)	0.06031	0.94266	10.58030
	OE->Y (FR)	0.04882	0.29026	4.73313
	OE->Y (RR)	0.08740	0.80814	6.52522

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)	0.02734	0.48838	6.23726
	OE->Y (FF)	0.04934	0.29043	4.73322
	OE->Y (RF)	0.02588	0.45577	5.68032
sky130_osu_sc_12T_hs__tbufi_l	A->Y (RF)	0.02955	0.50079	5.88745
	OE->Y (FF)	0.04953	0.29024	4.73313
	OE->Y (RF)	0.02801	0.46979	5.35998

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	0.00316	0.00314	0.00466
	OE	0.00000	0.00000	0.00000
	OE	0.00306	0.00291	0.01343
sky130_osu_sc_12T_hs__tbufi_l	A	0.00000	0.00000	0.00000
	A	0.00243	0.00244	0.00580
	OE	0.00000	0.00000	0.00000
	OE	0.00226	0.00229	0.01647

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	-0.00039	-0.00034	0.00060
	OE	0.00000	0.00000	0.00000
	OE	0.00196	0.00181	0.01384
sky130_osu_sc_12T_hs__tbufi_l	A	0.00000	0.00000	0.00000
	A	-0.00023	-0.00019	0.00066
	OE	0.00000	0.00000	0.00000
	OE	0.00138	0.00142	0.01695

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)	-0.00151	-0.00152	-0.00151
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	-0.00136	-0.00138	-0.00136
sky130_osu_sc_12T_hs__tbufi_l	(!OE * Y)	0.00000	0.00000	0.00000
	(!OE * Y)	-0.00109	-0.00109	-0.00109
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	-0.00099	-0.00099	-0.00099

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)	0.00151	0.00152	0.00151
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	0.00139	0.00140	0.00137
sky130_osu_sc_12T_hs__tbufi_l	(!OE * Y)	0.00000	0.00000	0.00000
	(!OE * Y)	0.00109	0.00109	0.00109
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	0.00101	0.00101	0.00099

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)	0.00115	0.00102	0.01319
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00103	0.00091	0.01304
sky130_osu_sc_12T_hs__tbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00082	0.00089	0.01657
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00070	0.00078	0.01643

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)	0.00382	0.00391	0.01613
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00388	0.00399	0.01620
sky130_osu_sc_12T_hs__tbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00295	0.00333	0.01920
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00296	0.00337	0.01925

SKY130_OSU_SC_12T_HS__TNBUFIx

sky130_osu_sc_12T_hs_tt_1P62_25C.ccs
Cell Library: Process , Voltage 1.62,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_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	0.00293	0.00434	0.53257
sky130_osu_sc_12T_hs__tnbufi_l	0.00219	0.00332	0.37125

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_12T_hs__tnbufi_1	0.00000	0.01486	0.01869
sky130_osu_sc_12T_hs__tnbufi_l	0.00000	0.19798	0.23776

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)	0.05207	0.89649	11.19980
	OE->Y (RR)	0.02445	0.29037	4.73335
	OE->Y (FR)	0.06216	0.90915	11.06420
sky130_osu_sc_12T_hs__tnbufi_l	A->Y (FR)	0.05920	0.94050	10.56850
	OE->Y (RR)	0.02592	0.29013	4.73314
	OE->Y (FR)	0.06714	0.96707	10.61660

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)	0.02674	0.48805	6.23714
	OE->Y (RF)	0.02408	0.29036	4.73337
	OE->Y (FF)	0.05531	0.47728	4.39591
sky130_osu_sc_12T_hs__tnbufi_l	A->Y (RF)	0.02805	0.49907	5.88160
	OE->Y (RF)	0.02568	0.29014	4.73315
	OE->Y (FF)	0.06019	0.47627	3.95050

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	0.00329	0.00323	0.00478
	OE	0.00000	0.00000	0.00000
	OE	0.00778	0.00809	0.02072
sky130_osu_sc_12T_hs__tnbufi_l	A	0.00000	0.00000	0.00000
	A	0.00250	0.00249	0.00587
	OE	0.00000	0.00000	0.00000
	OE	0.00599	0.00656	0.02269

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	-0.00056	-0.00049	0.00044
	OE	0.00000	0.00000	0.00000
	OE	0.00682	0.00726	0.01844
sky130_osu_sc_12T_hs__tnbufi_l	A	0.00000	0.00000	0.00000
	A	-0.00040	-0.00034	0.00050
	OE	0.00000	0.00000	0.00000
	OE	0.00525	0.00600	0.02088

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)	-0.00124	-0.00125	-0.00124
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	-0.00110	-0.00112	-0.00111
sky130_osu_sc_12T_hs__tnbufi_l	(OE * Y)	0.00000	0.00000	0.00000
	(OE * Y)	-0.00085	-0.00086	-0.00085
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	-0.00076	-0.00077	-0.00076

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)	0.00124	0.00125	0.00124
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	0.00113	0.00114	0.00111
sky130_osu_sc_12T_hs__tnbufi_l	(OE * Y)	0.00000	0.00000	0.00000
	(OE * Y)	0.00085	0.00086	0.00085
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	0.00077	0.00078	0.00077

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)	-0.00192	-0.00231	0.01010
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00192	-0.00227	0.01012
sky130_osu_sc_12T_hs__tnbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	-0.00128	-0.00142	0.01436
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00134	-0.00142	0.01436

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)	0.00586	0.00627	0.01886
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00578	0.00631	0.01881
sky130_osu_sc_12T_hs__tnbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00457	0.00527	0.02128
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00452	0.00514	0.02122

SKY130_OSU_SC_12T_HS__XNOR2

sky130_osu_sc_12T_hs_tt_1P62_25C.ccs
Cell Library: Process , Voltage 1.62,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_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	0.00589	0.00500	0.55541

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_12T_hs__xnor2_l	0.00000	0.03331	0.04956

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	0.10582	0.77862	6.82582
	A->Y (FR)	!B	0.06830	0.92060	11.39540
	B->Y (RR)	A	0.08605	0.75953	6.82990
	B->Y (FR)	!A	0.08364	0.93437	11.26020

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	0.09126	0.55788	4.75173
	A->Y (RF)	!B	0.03734	0.47283	5.84956
	B->Y (FF)	A	0.08175	0.54846	4.74401
	B->Y (RF)	!A	0.04437	0.48273	5.85790

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	0.00323	0.00296	0.01360
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00793	0.00803	0.02208
	B	A	0.00000	0.00000	0.00000
	B	A	0.00145	0.00141	0.01348
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00834	0.00843	0.02143

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	0.00950	0.00941	0.02124
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00221	0.00198	0.01451
	B	A	0.00000	0.00000	0.00000
	B	A	0.00857	0.00891	0.02107
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00291	0.00262	0.01517

SKY130_OSU_SC_12T_HS__XOR2

sky130_osu_sc_12T_hs_tt_1P62_25C.ccs
Cell Library: Process , Voltage 1.62,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_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	0.00590	0.00504	0.51397

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_12T_hs__xor2_1	0.00000	0.03331	0.04650

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	0.11010	0.77921	6.68430
	A->Y (FR)	B	0.08760	0.94113	11.12680
	B->Y (RR)	!A	0.09111	0.77013	6.68779
	B->Y (FR)	A	0.09431	0.94871	11.12520

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	0.08925	0.54512	4.48599
	A->Y (RF)	B	0.03752	0.49957	6.12216
	B->Y (FF)	!A	0.08472	0.54166	4.53464
	B->Y (RF)	A	0.04289	0.47069	5.57999

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	0.00927	0.00931	0.02208
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00198	0.00131	0.01279
	B	A	0.00000	0.00000	0.00000
	B	A	0.00935	0.00946	0.02214
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00138	0.00131	0.01307

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	0.00188	0.00150	0.01404
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00994	0.01015	0.02098
	B	A	0.00000	0.00000	0.00000
	B	A	0.00189	0.00154	0.01380
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00867	0.00905	0.02101

SKY130_OSU_SC_12T_HS_x

sky130_osu_sc_12T_hs_tt_1P62_25C.ccs
Cell Library: Process , Voltage 1.62,
Temp 25.00

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	0.28780
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	117249.00000	234498.00000
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
	-0.00143	0.02327	0.38477

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
	2.04155	1.94912	0.47541