sky130_osu_sc_12T_hs_tt_2P10_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_2P10_25C.ccs
Cell Library: Process , Voltage 2.10,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_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	0.01129	0.01129	0.00872	1.60072	0.71607	1.39964
sky130_osu_sc_12T_hs__addf_l	0.01130	0.01129	0.00873	1.05941	0.71559	1.39964

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_12T_hs__addf_1	0.00000	0.16748	0.20970
sky130_osu_sc_12T_hs__addf_l	0.00000	0.70907	1.29627

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)	0.10092	1.25186	20.71050
	B->CO (RR)	0.09836	1.24471	20.60730
	CI->CO (RR)	0.09482	1.30181	21.69080
	CON->CO (FR)	0.01832	0.60013	10.41290
sky130_osu_sc_12T_hs__addf_l	A->CO (RR)	0.10132	1.14849	16.28440
	B->CO (RR)	0.09891	1.15427	16.54090
	CI->CO (RR)	0.09523	1.20012	17.29350
	CON->CO (FR)	0.02188	0.64182	10.02030

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)	0.14721	1.65217	27.06890
	B->CO (FF)	0.13018	1.57542	25.91700
	CI->CO (FF)	0.12800	1.66641	27.68830
	CON->CO (RF)	0.01520	0.43517	7.53451
sky130_osu_sc_12T_hs__addf_l	A->CO (FF)	0.14418	1.44620	20.34470
	B->CO (FF)	0.12557	1.37175	19.65010
	CI->CO (FF)	0.12491	1.46149	20.99600
	CON->CO (RF)	0.01623	0.43853	6.79808

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)	0.12630	0.78159	9.50809
	B->CON (FR)	0.10671	0.73935	9.44190
	CI->CON (FR)	0.10707	0.79914	10.19320
sky130_osu_sc_12T_hs__addf_l	A->CON (FR)	0.11957	0.77501	9.49835
	B->CON (FR)	0.10081	0.73357	9.43266
	CI->CON (FR)	0.10032	0.79262	10.18270

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)	0.06510	0.41006	4.85170
	B->CON (RF)	0.06341	0.44513	5.44090
	CI->CON (RF)	0.05900	0.46392	5.80958
sky130_osu_sc_12T_hs__addf_l	A->CON (RF)	0.06308	0.40775	4.84683
	B->CON (RF)	0.06150	0.44307	5.43585
	CI->CON (RF)	0.05698	0.46172	5.80424

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)	0.21752	1.52012	21.56480
	B->S (-R)	0.22176	1.49737	20.78760
	CI->S (-R)	0.19653	1.53187	22.19550
	CON->S (RR)	0.05845	0.49091	6.19220
sky130_osu_sc_12T_hs__addf_l	A->S (-R)	0.20973	1.51382	21.55850
	B->S (-R)	0.21397	1.49174	20.78200
	CI->S (-R)	0.18874	1.52570	22.19090
	CON->S (RR)	0.05849	0.49090	6.19188

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)	0.16993	1.07210	14.28670
	B->S (-F)	0.16526	1.04676	14.29620
	CI->S (-F)	0.16352	1.12046	15.28000
	CON->S (FF)	0.07167	0.50960	6.21068
sky130_osu_sc_12T_hs__addf_l	A->S (-F)	0.16591	1.06908	14.28240
	B->S (-F)	0.16151	1.04408	14.29300
	CI->S (-F)	0.15949	1.11744	15.27670
	CON->S (FF)	0.07173	0.50955	6.21017

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	0.00350	0.00564	0.05237
	B	0.00506	0.00672	0.04751
	CI	0.00514	0.00741	0.05359
sky130_osu_sc_12T_hs__addf_l	A	0.00311	0.00478	0.03959
	B	0.00357	0.00511	0.03677
	CI	0.00474	0.00659	0.04122

Internal switching power(pJ) to CO falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__addf_1	A	0.01275	0.01724	0.11040
	B	0.01321	0.01689	0.09947
	CI	0.01082	0.01554	0.10994
sky130_osu_sc_12T_hs__addf_l	A	0.01239	0.01545	0.07550
	B	0.01286	0.01536	0.06875
	CI	0.01046	0.01378	0.07486

Internal switching power(pJ) to CON rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__addf_1	A	0.01274	0.01532	0.06273
	B	0.01319	0.01532	0.05807
	CI	0.01081	0.01366	0.06259
sky130_osu_sc_12T_hs__addf_l	A	0.01238	0.01471	0.05943
	B	0.01284	0.01474	0.05491
	CI	0.01045	0.01306	0.05909

Internal switching power(pJ) to CON falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__addf_1	A	0.00348	0.00487	0.03311
	B	0.00394	0.00516	0.03177
	CI	0.00512	0.00669	0.03635
sky130_osu_sc_12T_hs__addf_l	A	0.00309	0.00445	0.03252
	B	0.00355	0.00477	0.03123
	CI	0.00473	0.00627	0.03584

Internal switching power(pJ) to S rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__addf_1	A	-0.00029	-0.00072	0.08794
	B	0.00270	0.00235	0.08313
	CI	0.00457	0.00599	0.08761
sky130_osu_sc_12T_hs__addf_l	A	-0.00028	-0.00072	0.08792
	B	0.00270	0.00231	0.08311
	CI	0.00457	0.00599	0.08759

Internal switching power(pJ) to S falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__addf_1	A	0.02729	0.02899	0.10578
	B	0.02475	0.02652	0.10277
	CI	0.02050	0.02242	0.09287
sky130_osu_sc_12T_hs__addf_l	A	0.02729	0.02900	0.10579
	B	0.02479	0.02654	0.10279
	CI	0.02050	0.02242	0.09288

SKY130_OSU_SC_12T_HS__ADDHx

sky130_osu_sc_12T_hs_tt_2P10_25C.ccs
Cell Library: Process , Voltage 2.10,
Temp 25.00

Truth Table

INPUT		OUTPUT		
A	B	CO	CON	S
0	0	0	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	0.00561	0.00594	1.53326	1.58344	1.60976
sky130_osu_sc_12T_hs__addh_l	0.00547	0.00585	1.05338	1.58119	1.08568

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_12T_hs__addh_1	0.00000	0.17999	0.19245
sky130_osu_sc_12T_hs__addh_l	0.00000	1.27443	1.28646

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)	0.07740	0.53972	6.73571
	B->CO (RR)	0.08012	0.53002	6.78406
sky130_osu_sc_12T_hs__addh_l	A->CO (RR)	0.06801	0.53526	6.12516
	B->CO (RR)	0.07022	0.52418	6.10788

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)	0.06603	0.51644	6.58569
	B->CO (FF)	0.07056	0.53070	6.69070
sky130_osu_sc_12T_hs__addh_l	A->CO (FF)	0.05937	0.48633	5.80269
	B->CO (FF)	0.06322	0.49946	5.96350

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)	0.11009	0.55688	6.73387
	B->CON (RR)	0.11236	0.54593	6.79251
sky130_osu_sc_12T_hs__addh_l	A->CON (RR)	0.09092	0.49490	6.19901
	B->CON (RR)	0.09270	0.48215	6.21390

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)	0.09325	0.53901	6.73902
	B->CON (FF)	0.09149	0.54728	6.82222
sky130_osu_sc_12T_hs__addh_l	A->CON (FF)	0.07831	0.49135	6.42313
	B->CON (FF)	0.07685	0.49889	6.55309

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)	0.12572	1.13857	17.01160
	B->S (FR)	0.12385	1.14702	17.15130
	CON->S (FR)	0.02024	0.60911	10.58150
sky130_osu_sc_12T_hs__addh_l	A->S (FR)	0.11072	1.01977	13.46850
	B->S (FR)	0.10917	1.02811	13.61880
	CON->S (FR)	0.02263	0.65096	10.22400

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)	0.13781	1.10334	16.14410
	B->S (RF)	0.14007	1.09244	16.20650
	CON->S (RF)	0.01693	0.49884	8.66981
sky130_osu_sc_12T_hs__addh_l	A->S (RF)	0.11426	0.86543	10.66850
	B->S (RF)	0.11604	0.85262	10.66720
	CON->S (RF)	0.01584	0.44427	6.95189

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	0.00644	0.00709	0.03034
	B	0.00000	0.00000	0.00000
	B	0.00586	0.00636	0.03605
sky130_osu_sc_12T_hs__addh_l	A	0.00000	0.00000	0.00000
	A	0.00550	0.00667	0.04172
	B	0.00000	0.00000	0.00000
	B	0.00491	0.00596	0.04895

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	0.00894	0.00974	0.03936
	B	0.00000	0.00000	0.00000
	B	0.00945	0.01078	0.04240
sky130_osu_sc_12T_hs__addh_l	A	0.00000	0.00000	0.00000
	A	0.00806	0.00943	0.05036
	B	0.00000	0.00000	0.00000
	B	0.00854	0.01043	0.05463

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	0.00643	0.00710	0.03045
	B	0.00000	0.00000	0.00000
	B	0.00585	0.00635	0.03612
sky130_osu_sc_12T_hs__addh_l	A	0.00000	0.00000	0.00000
	A	0.00550	0.00669	0.04197
	B	0.00000	0.00000	0.00000
	B	0.00490	0.00600	0.04943

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	0.00894	0.00975	0.03951
	B	0.00000	0.00000	0.00000
	B	0.00944	0.01078	0.04272
sky130_osu_sc_12T_hs__addh_l	A	0.00000	0.00000	0.00000
	A	0.00806	0.00949	0.05135
	B	0.00000	0.00000	0.00000
	B	0.00854	0.01047	0.05555

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	0.00895	0.00975	0.03972
	B	0.00000	0.00000	0.00000
	B	0.00944	0.01079	0.04275
sky130_osu_sc_12T_hs__addh_l	A	0.00000	0.00000	0.00000
	A	0.00807	0.00948	0.05041
	B	0.00000	0.00000	0.00000
	B	0.00855	0.01045	0.05490

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	0.00644	0.00711	0.03112
	B	0.00000	0.00000	0.00000
	B	0.00585	0.00636	0.03664
sky130_osu_sc_12T_hs__addh_l	A	0.00000	0.00000	0.00000
	A	0.00549	0.00667	0.04112
	B	0.00000	0.00000	0.00000
	B	0.00490	0.00598	0.04858

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__addh_1	(!B * !CO * !CON * S)	0.00000	0.00000	0.00000
	(!B * !CO * !CON * S)	2.53557	2.43978	0.85228
sky130_osu_sc_12T_hs__addh_l	(!B * !CO * !CON * S)	0.00000	0.00000	0.00000
	(!B * !CO * !CON * S)	2.54338	2.44725	0.85434

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__addh_1	(!A * !CO * !CON * S)	0.00000	0.00000	0.00000
	(!A * !CO * !CON * S)	2.53550	2.44264	0.92349
sky130_osu_sc_12T_hs__addh_l	(!A * !CO * !CON * S)	0.00000	0.00000	0.00000
	(!A * !CO * !CON * S)	2.54335	2.45016	0.92528

SKY130_OSU_SC_12T_HS__AND2x

sky130_osu_sc_12T_hs_tt_2P10_25C.ccs
Cell Library: Process , Voltage 2.10,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_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	0.00296	0.00308	1.55819
sky130_osu_sc_12T_hs__and2_2	0.00296	0.00308	3.05803
sky130_osu_sc_12T_hs__and2_4	0.00296	0.00308	5.82720
sky130_osu_sc_12T_hs__and2_6	0.00299	0.00308	8.66477
sky130_osu_sc_12T_hs__and2_8	0.00296	0.00309	11.29030
sky130_osu_sc_12T_hs__and2_l	0.00227	0.00236	1.06044

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_12T_hs__and2_1	0.00000	0.08453	0.13408
sky130_osu_sc_12T_hs__and2_2	0.00000	0.13401	0.14049
sky130_osu_sc_12T_hs__and2_4	0.00000	0.23296	0.26174
sky130_osu_sc_12T_hs__and2_6	0.00000	0.33192	0.38941
sky130_osu_sc_12T_hs__and2_8	0.00000	0.43087	0.51707
sky130_osu_sc_12T_hs__and2_l	0.00000	1.44024	2.30380

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)	0.05191	0.44928	6.26832
	B->Y (RR)	0.05526	0.43804	5.97543
sky130_osu_sc_12T_hs__and2_2	A->Y (RR)	0.05803	0.38908	6.23887
	B->Y (RR)	0.06139	0.37429	5.93267
sky130_osu_sc_12T_hs__and2_4	A->Y (RR)	0.07970	0.38159	6.27353
	B->Y (RR)	0.08306	0.36271	5.97005
sky130_osu_sc_12T_hs__and2_6	A->Y (RR)	0.10302	0.40424	6.43766
	B->Y (RR)	0.10629	0.38066	6.12955
sky130_osu_sc_12T_hs__and2_8	A->Y (RR)	0.12581	0.43215	6.52743
	B->Y (RR)	0.12917	0.40451	6.21340
sky130_osu_sc_12T_hs__and2_1	A->Y (RR)	0.05394	0.50540	6.28936
	B->Y (RR)	0.05734	0.49267	5.98376

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)**	0.04847	0.44043	5.95707
	B->Y (FF)	0.04971	0.44662	6.03906
sky130_osu_sc_12T_hs__and2_2	**A->Y (FF)**	0.05502	0.40950	5.98400
	B->Y (FF)	0.05578	0.41341	6.07625
sky130_osu_sc_12T_hs__and2_4	**A->Y (FF)**	0.07701	0.42201	6.07042
	B->Y (FF)	0.07585	0.42139	6.15819
sky130_osu_sc_12T_hs__and2_6	**A->Y (FF)**	0.10096	0.45160	6.22711
	B->Y (FF)	0.09790	0.44795	6.30486
sky130_osu_sc_12T_hs__and2_8	**A->Y (FF)**	0.12361	0.48008	6.26467
	B->Y (FF)	0.11893	0.47402	6.33444
sky130_osu_sc_12T_hs__and2_1	**A->Y (FF)**	0.04882	0.43467	5.31655
	B->Y (FF)	0.05295	0.44839	5.45755

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	0.00402	0.00826	0.12502
	B	0.00000	0.00000	0.00000
	B	0.00407	0.00690	0.09469
sky130_osu_sc_12T_hs__and2_2	A	0.00000	0.00000	0.00000
	A	0.00804	0.01200	0.12920
	B	0.00000	0.00000	0.00000
	B	0.00810	0.01091	0.09911
sky130_osu_sc_12T_hs__and2_4	A	0.00000	0.00000	0.00000
	A	0.01791	0.02156	0.13671
	B	0.00000	0.00000	0.00000
	B	0.01798	0.02007	0.10782
sky130_osu_sc_12T_hs__and2_6	A	0.00000	0.00000	0.00000
	A	0.03025	0.03153	0.14462
	B	0.00000	0.00000	0.00000
	B	0.03033	0.03053	0.11702
sky130_osu_sc_12T_hs__and2_8	A	0.00000	0.00000	0.00000
	A	0.04418	0.04153	0.15232
	B	0.00000	0.00000	0.00000
	B	0.04424	0.04071	0.12591
sky130_osu_sc_12T_hs__and2_l	A	0.00000	0.00000	0.00000
	A	0.00321	0.00748	0.12388
	B	0.00000	0.00000	0.00000
	B	0.00327	0.00644	0.10371

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	0.01086	0.01614	0.11590
	B	0.00000	0.00000	0.00000
	B	0.01227	0.01723	0.11637
sky130_osu_sc_12T_hs__and2_2	A	0.00000	0.00000	0.00000
	A	0.01415	0.01950	0.11933
	B	0.00000	0.00000	0.00000
	B	0.01555	0.02037	0.12024
sky130_osu_sc_12T_hs__and2_4	A	0.00000	0.00000	0.00000
	A	0.02402	0.02797	0.12770
	B	0.00000	0.00000	0.00000
	B	0.02515	0.02853	0.12841
sky130_osu_sc_12T_hs__and2_6	A	0.00000	0.00000	0.00000
	A	0.03628	0.03639	0.13615
	B	0.00000	0.00000	0.00000
	B	0.03686	0.03715	0.13670
sky130_osu_sc_12T_hs__and2_8	A	0.00000	0.00000	0.00000
	A	0.05107	0.04613	0.14529
	B	0.00000	0.00000	0.00000
	B	0.05104	0.04605	0.14450
sky130_osu_sc_12T_hs__and2_l	A	0.00000	0.00000	0.00000
	A	0.00830	0.01385	0.11836
	B	0.00000	0.00000	0.00000
	B	0.00941	0.01477	0.11847

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)	-0.00385	-0.00386	-0.00389
sky130_osu_sc_12T_hs__and2_2	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00385	-0.00386	-0.00389
sky130_osu_sc_12T_hs__and2_4	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00384	-0.00386	-0.00388
sky130_osu_sc_12T_hs__and2_6	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00388	-0.00390	-0.00392
sky130_osu_sc_12T_hs__and2_8	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00384	-0.00386	-0.00388
sky130_osu_sc_12T_hs__and2_l	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00270	-0.00271	-0.00272

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)	0.00388	0.00392	0.00390
sky130_osu_sc_12T_hs__and2_2	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00388	0.00393	0.00390
sky130_osu_sc_12T_hs__and2_4	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00388	0.00392	0.00390
sky130_osu_sc_12T_hs__and2_6	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00392	0.00396	0.00394
sky130_osu_sc_12T_hs__and2_8	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00388	0.00391	0.00390
sky130_osu_sc_12T_hs__and2_l	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00274	0.00277	0.00275

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)	-0.00367	-0.00369	-0.00368
sky130_osu_sc_12T_hs__and2_2	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00366	-0.00370	-0.00368
sky130_osu_sc_12T_hs__and2_4	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00366	-0.00368	-0.00368
sky130_osu_sc_12T_hs__and2_6	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00366	-0.00370	-0.00368
sky130_osu_sc_12T_hs__and2_8	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00366	-0.00369	-0.00368
sky130_osu_sc_12T_hs__and2_l	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00257	-0.00259	-0.00258

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)	0.00378	0.00372	0.00369
sky130_osu_sc_12T_hs__and2_2	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00379	0.00372	0.00369
sky130_osu_sc_12T_hs__and2_4	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00379	0.00372	0.00369
sky130_osu_sc_12T_hs__and2_6	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00379	0.00370	0.00369
sky130_osu_sc_12T_hs__and2_8	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00379	0.00371	0.00370
sky130_osu_sc_12T_hs__and2_l	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00268	0.00261	0.00260

SKY130_OSU_SC_12T_HS__AOI21

sky130_osu_sc_12T_hs_tt_2P10_25C.ccs
Cell Library: Process , Voltage 2.10,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_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	0.00273	0.00290	0.00288	0.65719

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_12T_hs__aoi21_l	0.00000	0.03424	0.06383

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)	0.06327	0.71959	9.20526
	A1->Y (FR)	0.05000	0.65379	8.59341
	B0->Y (FR)	0.04728	0.74898	10.03290

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)	0.03261	0.35878	4.42667
	A1->Y (RF)	0.02993	0.39681	5.07822
	B0->Y (RF)	0.01914	0.36760	4.87054

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	0.00939	0.00990	0.03848
	A1	0.00000	0.00000	0.00000
	A1	0.00787	0.00839	0.03592
	B0	0.00563	0.00724	0.04314

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	0.00185	0.00230	0.02504
	A1	0.00000	0.00000	0.00000
	A1	0.00193	0.00269	0.02672
	B0	-0.00087	0.00024	0.02392

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)	-0.00261	-0.00321	-0.00320
	(!A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !Y)	-0.00322	-0.00323	-0.00323
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00323	-0.00325	-0.00323

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)	0.00319	0.00322	0.00320
	(!A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !Y)	0.00322	0.00323	0.00324
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00334	0.00326	0.00324

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)	-0.00260	-0.00321	-0.00320
	(!A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !Y)	-0.00323	-0.00325	-0.00324
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	-0.00354	-0.00355	-0.00357

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)	0.00317	0.00322	0.00320
	(!A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !Y)	0.00323	0.00327	0.00325
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	0.00356	0.00362	0.00357

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)	-0.00140	-0.00141	-0.00140

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)	0.00151	0.00152	0.00143

SKY130_OSU_SC_12T_HS__AOI22

sky130_osu_sc_12T_hs_tt_2P10_25C.ccs
Cell Library: Process , Voltage 2.10,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_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	0.00273	0.00289	0.00302	0.00284	0.64187

Leakage Information

Cell Name	Leakage(nW)		
	Min.	**Avg**	**Max.**
sky130_osu_sc_12T_hs__aoi22_l	0.00000	0.04074	0.12766

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)	0.08053	0.73598	9.12734
	A1->Y (FR)	0.07205	0.72281	9.06710
	B0->Y (FR)	0.04970	0.74531	9.91187
	B1->Y (FR)	0.05857	0.75967	9.99133

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)	0.04263	0.36790	4.36487
	A1->Y (RF)	0.03982	0.40680	5.00886
	B0->Y (RF)	0.02197	0.38190	4.97752
	B1->Y (RF)	0.02529	0.34409	4.33541

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	0.01144	0.01185	0.04117
	A1	0.00993	0.01028	0.03923
	B0	0.00609	0.00768	0.04532
	B1	0.00767	0.00908	0.04572

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__aoi22_l	A0	0.00385	0.00429	0.02838
	A1	0.00389	0.00455	0.02959
	B0	-0.00063	0.00049	0.02463
	B1	-0.00053	0.00028	0.02300

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)	-0.00262	-0.00318	-0.00319
	(!A1 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * B1 * !Y)	-0.00322	-0.00324	-0.00323
	(!A1 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !B1 * Y)	-0.00323	-0.00324	-0.00323
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00323	-0.00324	-0.00323

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)	0.00318	0.00322	0.00319
	(!A1 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * B1 * !Y)	0.00322	0.00324	0.00324
	(!A1 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !B1 * Y)	0.00333	0.00325	0.00324
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00333	0.00325	0.00324

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)	-0.00261	-0.00321	-0.00320
	(!A0 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * B1 * !Y)	-0.00323	-0.00325	-0.00324
	(!A0 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !B1 * Y)	-0.00353	-0.00353	-0.00355
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	-0.00353	-0.00353	-0.00355

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)	0.00318	0.00321	0.00320
	(!A0 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * B1 * !Y)	0.00323	0.00326	0.00325
	(!A0 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !B1 * Y)	0.00354	0.00360	0.00356
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	0.00354	0.00360	0.00356

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)	-0.00139	-0.00141	-0.00140
	(A0 * A1 * !B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B1 * !Y)	-0.00139	-0.00139	-0.00139
	(!A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B1 * Y)	-0.00368	-0.00370	-0.00371
	(!A0 * A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B1 * Y)	-0.00368	-0.00371	-0.00371

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)	0.00156	0.00156	0.00143
	(A0 * A1 * !B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B1 * !Y)	0.00139	0.00139	0.00139
	(!A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B1 * Y)	0.00370	0.00373	0.00372
	(!A0 * A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B1 * Y)	0.00370	0.00373	0.00372

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)	-0.00142	-0.00143	-0.00142
	(A0 * A1 * !B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B0 * !Y)	-0.00141	-0.00142	-0.00142
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00339	-0.00342	-0.00340
	(!A0 * A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B0 * Y)	-0.00339	-0.00342	-0.00340

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)	0.00157	0.00158	0.00146
	(A0 * A1 * !B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B0 * !Y)	0.00141	0.00142	0.00142
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00350	0.00343	0.00341
	(!A0 * A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B0 * Y)	0.00350	0.00343	0.00341

SKY130_OSU_SC_12T_HS__BUFx

sky130_osu_sc_12T_hs_tt_2P10_25C.ccs
Cell Library: Process , Voltage 2.10,
Temp 25.00

Truth Table

INPUT	OUTPUT
A	Y
0	0
1	1

Footprint

Cell Name	Area
sky130_osu_sc_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	0.00307	1.44152
sky130_osu_sc_12T_hs__buf_2	0.00307	2.94780
sky130_osu_sc_12T_hs__buf_4	0.00307	5.86078
sky130_osu_sc_12T_hs__buf_6	0.00083	1.80000
sky130_osu_sc_12T_hs__buf_8	0.00308	11.48425
sky130_osu_sc_12T_hs__buf_l	0.00232	1.07468

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_12T_hs__buf_1	0.00000	0.07025	0.07025
sky130_osu_sc_12T_hs__buf_2	0.00000	0.10537	0.13408
sky130_osu_sc_12T_hs__buf_4	0.00000	0.17562	0.26174
sky130_osu_sc_12T_hs__buf_6	0.00000	0.00000	0.00000
sky130_osu_sc_12T_hs__buf_8	0.00000	0.31611	0.51707
sky130_osu_sc_12T_hs__buf_l	0.00000	1.15342	1.15342

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)**	0.04209	0.42877	5.77226
sky130_osu_sc_12T_hs__buf_2	**A->Y (RR)**	0.04458	0.35407	5.71022
sky130_osu_sc_12T_hs__buf_4	**A->Y (RR)**	0.05955	0.33877	5.89335
sky130_osu_sc_12T_hs__buf_8	**A->Y (RR)**	0.09111	0.37048	6.12790
sky130_osu_sc_12T_hs__buf_l	**A->Y (RR)**	0.04323	0.47608	5.94141

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)**	0.04504	0.42438	5.71955
sky130_osu_sc_12T_hs__buf_2	**A->Y (FF)**	0.05180	0.40234	5.95530
sky130_osu_sc_12T_hs__buf_4	**A->Y (FF)**	0.07350	0.41920	6.22591
sky130_osu_sc_12T_hs__buf_8	**A->Y (FF)**	0.11920	0.47849	6.45656
sky130_osu_sc_12T_hs__buf_l	**A->Y (FF)**	0.04701	0.43873	5.52656

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	0.00381	0.00730	0.08410
sky130_osu_sc_12T_hs__buf_2	A	0.00000	0.00000	0.00000
	A	0.00764	0.01126	0.08935
sky130_osu_sc_12T_hs__buf_4	A	0.00000	0.00000	0.00000
	A	0.01674	0.02112	0.09830
sky130_osu_sc_12T_hs__buf_8	A	0.00000	0.00000	0.00000
	A	0.03855	0.04094	0.12367
sky130_osu_sc_12T_hs__buf_l	A	0.00000	0.00000	0.00000
	A	0.00304	0.00717	0.11203

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__buf_1	A	0.00000	0.00000	0.00000
	A	0.01032	0.01534	0.11349
sky130_osu_sc_12T_hs__buf_2	A	0.00000	0.00000	0.00000
	A	0.01351	0.01839	0.11688
sky130_osu_sc_12T_hs__buf_4	A	0.00000	0.00000	0.00000
	A	0.02310	0.02652	0.12467
sky130_osu_sc_12T_hs__buf_8	A	0.00000	0.00000	0.00000
	A	0.04968	0.04399	0.14102
sky130_osu_sc_12T_hs__buf_l	A	0.00000	0.00000	0.00000
	A	0.00809	0.01399	0.12339

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
	-0.00091	-0.00092	-0.00088

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
	0.00091	0.00092	0.00088

SKY130_OSU_SC_12T_HS__DFFRx

sky130_osu_sc_12T_hs_tt_2P10_25C.ccs
Cell Library: Process , Voltage 2.10,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_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	0.00285	0.00282	0.00877	1.54027	1.52696
sky130_osu_sc_12T_hs__dffr_l	0.00285	0.00282	0.00876	1.06574	1.06726

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_12T_hs__dffr_1	0.00000	0.80817	1.73209
sky130_osu_sc_12T_hs__dffr_l	0.00000	1.89135	2.81527

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)	0.20593	1.01378	12.91720
	QN->Q (FR)	0.02148	0.67735	11.64280
sky130_osu_sc_12T_hs__dffr_l	CK->Q (RR)	0.20288	1.05599	11.83660
	QN->Q (FR)	0.02377	0.69507	10.86080

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)	0.20962	1.02014	13.33730
	QN->Q (RF)	0.01655	0.47993	8.23679
	RN->Q (FF)	0.15762	1.09753	15.58260
sky130_osu_sc_12T_hs__dffr_l	CK->Q (RF)	0.21202	1.10538	12.75890
	QN->Q (RF)	0.01720	0.47959	7.51375
	RN->Q (FF)	0.16024	1.18173	15.00240

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)	0.18974	0.58386	5.88504
	RN->QN (FR)	0.13767	0.66029	8.13381
sky130_osu_sc_12T_hs__dffr_l	CK->QN (RR)	0.18977	0.63767	5.87857
	RN->QN (FR)	0.13793	0.71340	8.11917

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)**	0.17599	0.47423	3.73841
sky130_osu_sc_12T_hs__dffr_l	**CK->QN (RF)**	0.17064	0.47368	3.27127

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)	-0.04792	-0.04682	0.23128
	setup	CK (R)	0.15841	0.18009	0.20479
sky130_osu_sc_12T_hs__dffr_l	hold	CK (R)	-0.04547	-0.04698	0.23054
	setup	CK (R)	0.15864	0.18063	0.20121

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)	-0.08967	-0.23629	-4.33605
	setup	CK (R)	0.10623	0.24407	4.37241
sky130_osu_sc_12T_hs__dffr_l	hold	CK (R)	-0.08751	-0.23337	-4.33604
	setup	CK (R)	0.10623	0.24407	4.37248

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)	-0.04792	-0.04682	0.23128
	setup	CK (R)	0.15841	0.18009	0.20479
sky130_osu_sc_12T_hs__dffr_l	hold	CK (R)	-0.04547	-0.04698	0.23054
	setup	CK (R)	0.15864	0.18063	0.20121

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)	-0.08967	-0.23629	-4.33605
	setup	CK (R)	0.10623	0.24407	4.37241
sky130_osu_sc_12T_hs__dffr_l	hold	CK (R)	-0.08751	-0.23337	-4.33604
	setup	CK (R)	0.10623	0.24407	4.37248

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)	0.13514	0.16715	0.69388
	removal	CK (R)	-0.03267	-0.03550	-0.03600
sky130_osu_sc_12T_hs__dffr_l	recovery	CK (R)	0.13570	0.16746	0.69494
	removal	CK (R)	-0.03267	-0.03550	-0.03600

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)	0.13514	0.16715	0.69388
	removal	CK (R)	-0.03267	-0.03550	-0.03600
sky130_osu_sc_12T_hs__dffr_l	recovery	CK (R)	0.13570	0.16746	0.69494
	removal	CK (R)	-0.03267	-0.03550	-0.03600

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 ()	0.09451	0.37964	13.33370
	min_pulse_width	RN ()	0.09739	0.37964	13.33370
sky130_osu_sc_12T_hs__dffr_l	min_pulse_width	RN ()	0.09451	0.37964	13.33370
	min_pulse_width	RN ()	0.09451	0.37964	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 ()	0.09739	0.37964	13.33370
	min_pulse_width	CK ()	0.10891	0.37964	13.33370
sky130_osu_sc_12T_hs__dffr_l	min_pulse_width	CK ()	0.09163	0.37964	13.33370
	min_pulse_width	CK ()	0.10603	0.37964	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 ()	0.20683	0.37964	13.33370
	min_pulse_width	CK ()	0.08587	0.37964	13.33370
sky130_osu_sc_12T_hs__dffr_l	min_pulse_width	CK ()	0.20683	0.37964	13.33370
	min_pulse_width	CK ()	0.08587	0.37964	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	0.01090	0.01206	0.06236
sky130_osu_sc_12T_hs__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.00980	0.01196	0.08393

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	0.01234	0.01213	0.04514
	RN	-0.00131	-0.09648	-1.69814
	RN	0.02815	0.02869	0.06308
sky130_osu_sc_12T_hs__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.01132	0.01213	0.06616
	RN	-0.00131	-0.07735	-1.17498
	RN	0.02712	0.02864	0.08382

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	0.01234	0.01218	0.04550
	RN	-0.00131	-0.09598	-1.68347
	RN	0.02814	0.02871	0.06331
sky130_osu_sc_12T_hs__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.01131	0.01211	0.06593
	RN	-0.00131	-0.07741	-1.17665
	RN	0.02712	0.02863	0.08385

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	0.01086	0.01210	0.06272
sky130_osu_sc_12T_hs__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.00975	0.01196	0.08298

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	-0.00259	-0.00321	-0.00323
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.01365	0.01595	0.11303
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.00544	0.00793	0.10253
sky130_osu_sc_12T_hs__dffr_l	CK	0.00000	0.00000	0.00000
	CK	-0.00258	-0.00320	-0.00322
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.01366	0.01597	0.11304
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.00546	0.00794	0.10254

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	0.00321	0.00323	0.00323
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.02079	0.02361	0.12176
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.01024	0.01297	0.10777
sky130_osu_sc_12T_hs__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.00322	0.00324	0.00324
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.02081	0.02362	0.12178
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.01025	0.01298	0.10778

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)	0.00407	0.00846	0.13940
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.01251	0.01687	0.15368
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)	0.00409	0.00848	0.13941
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.01252	0.01689	0.15370

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)	0.01089	0.01620	0.14767
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.02166	0.02674	0.16349
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)	0.01091	0.01621	0.14768
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.02169	0.02676	0.16351

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)	-0.00096	0.00307	0.13689
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.00692	0.01032	0.15031
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	-0.00097	0.00303	0.13667
sky130_osu_sc_12T_hs__dffr_l	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	-0.00095	0.00308	0.13689
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.00694	0.01030	0.15032
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	-0.00096	0.00304	0.13668

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)	0.01613	0.02199	0.15621
	(D * RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * RN * !Q * QN)	0.03373	0.03868	0.20617
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.02530	0.03030	0.17019
	(!D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * Q * !QN)	0.03268	0.04305	0.25494
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.01768	0.02329	0.15681
sky130_osu_sc_12T_hs__dffr_l	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.01614	0.02197	0.15622
	(D * RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * RN * !Q * QN)	0.03375	0.03870	0.20619
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.02531	0.03032	0.17020
	(!D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * Q * !QN)	0.03270	0.04302	0.25496
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.01769	0.02330	0.15682

SKY130_OSU_SC_12T_HS__DFFSRx

sky130_osu_sc_12T_hs_tt_2P10_25C.ccs
Cell Library: Process , Voltage 2.10,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_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	0.00281	0.00283	0.00658	0.00889	1.60416	1.60918
sky130_osu_sc_12T_hs__dffsr_l	0.00281	0.00283	0.00658	0.00888	1.07381	1.06837

Leakage Information

Cell Name	Leakage(nW)		
	Min.	**Avg**	**Max.**
sky130_osu_sc_12T_hs__dffsr_1	0.00000	0.25681	0.34156
sky130_osu_sc_12T_hs__dffsr_l	0.00000	1.33998	1.42473

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)	0.21971	1.03565	13.23600
	QN->Q (FR)	0.02009	0.65001	11.29400
	RN->Q (RR)	0.17819	1.00617	13.37230
	SN->Q (FR)	0.16499	1.09973	15.62940
sky130_osu_sc_12T_hs__dffsr_l	CK->Q (RR)	0.21999	1.08232	11.96870
	QN->Q (FR)	0.02372	0.69700	10.91070
	RN->Q (RR)	0.17813	1.05232	12.09820
	SN->Q (FR)	0.16522	1.14586	14.36090

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)	0.24021	1.05986	13.65850
	QN->Q (RF)	0.01641	0.48653	8.43847
	RN->Q (FF)	0.16635	1.11398	15.90690
sky130_osu_sc_12T_hs__dffsr_l	CK->Q (RF)	0.24391	1.14599	12.89350
	QN->Q (RF)	0.01710	0.48029	7.54082
	RN->Q (FF)	0.17020	1.20051	15.13410

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)	0.22015	0.61654	5.99736
	RN->QN (FR)	0.14627	0.67141	8.24608
sky130_osu_sc_12T_hs__dffsr_l	CK->QN (RR)	0.22163	0.67418	5.92239
	RN->QN (FR)	0.14800	0.72884	8.16301

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)	0.19090	0.50142	4.01006
	RN->QN (RF)	0.14988	0.47263	4.14686
	SN->QN (FF)	0.13675	0.56548	6.40765
sky130_osu_sc_12T_hs__dffsr_l	CK->QN (RF)	0.18807	0.49589	3.31103
	RN->QN (RF)	0.14704	0.46779	3.44573
	SN->QN (FF)	0.13389	0.55934	5.70582

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)	-0.05230	-0.05458	0.19542
	setup	CK (R)	0.16892	0.18856	0.26351
sky130_osu_sc_12T_hs__dffsr_l	hold	CK (R)	-0.05165	-0.05458	0.19501
	setup	CK (R)	0.16487	0.18832	0.26340

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)	-0.09939	-0.24825	-4.35696
	setup	CK (R)	0.12101	0.25928	4.39549
sky130_osu_sc_12T_hs__dffsr_l	hold	CK (R)	-0.10033	-0.24658	-4.35648
	setup	CK (R)	0.12101	0.25928	4.39549

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)	-0.05230	-0.05458	0.19542
	setup	CK (R)	0.16892	0.18856	0.26351
sky130_osu_sc_12T_hs__dffsr_l	hold	CK (R)	-0.05165	-0.05458	0.19501
	setup	CK (R)	0.16487	0.18832	0.26340

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)	-0.09939	-0.24825	-4.35696
	setup	CK (R)	0.12101	0.25928	4.39549
sky130_osu_sc_12T_hs__dffsr_l	hold	CK (R)	-0.10033	-0.24658	-4.35648
	setup	CK (R)	0.12101	0.25928	4.39549

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)	0.12986	0.15934	0.71782
	removal	CK (R)	-0.02485	-0.02711	-0.02215
	hold	SN (R)	-0.12850	-0.22244	-0.91420
	setup	SN (R)	0.15006	0.24941	2.26526
sky130_osu_sc_12T_hs__dffsr_l	recovery	CK (R)	0.13265	0.15998	0.71458
	removal	CK (R)	-0.02485	-0.02711	-0.02215
	hold	SN (R)	-0.12485	-0.21531	-0.89585
	setup	SN (R)	0.14931	0.24568	2.22482

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)	0.12986	0.15934	0.71782
	removal	CK (R)	-0.02485	-0.02711	-0.02215
	hold	SN (R)	-0.12850	-0.22244	-0.91528
	hold	SN (R)	-0.13053	-0.22347	-0.91420
	setup	SN (R)	0.15000	0.24749	2.09411
	setup	SN (R)	0.15006	0.24941	2.26526
sky130_osu_sc_12T_hs__dffsr_l	recovery	CK (R)	0.13265	0.15998	0.71458
	removal	CK (R)	-0.02485	-0.02711	-0.02215
	hold	SN (R)	-0.12485	-0.21531	-0.90384
	hold	SN (R)	-0.12820	-0.21987	-0.89585
	setup	SN (R)	0.14931	0.24425	2.03959
	setup	SN (R)	0.14353	0.24568	2.22482

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 ()	0.11179	0.37964	13.33370
	min_pulse_width	RN ()	0.11467	0.37964	13.33370
sky130_osu_sc_12T_hs__dffsr_l	min_pulse_width	RN ()	0.11179	0.37964	13.33370
	min_pulse_width	RN ()	0.11179	0.37964	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)	0.02768	0.05356	2.74546
	removal	CK (R)	-0.01564	-0.04352	-0.31304
sky130_osu_sc_12T_hs__dffsr_l	recovery	CK (R)	0.02729	0.05356	2.62588
	removal	CK (R)	-0.01564	-0.04352	-0.31304

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)	0.02768	0.05356	2.74546
	removal	CK (R)	-0.01564	-0.04352	-0.31304
sky130_osu_sc_12T_hs__dffsr_l	recovery	CK (R)	0.02729	0.05356	2.62588
	removal	CK (R)	-0.01564	-0.04352	-0.31304

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 ()	0.13195	0.37964	13.33370
	min_pulse_width	SN ()	0.13771	0.37964	13.33370
sky130_osu_sc_12T_hs__dffsr_l	min_pulse_width	SN ()	0.13195	0.37964	13.33370
	min_pulse_width	SN ()	0.12907	0.37964	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 ()	0.10027	0.37964	13.33370
	min_pulse_width	CK ()	0.12331	0.37964	13.33370
sky130_osu_sc_12T_hs__dffsr_l	min_pulse_width	CK ()	0.09451	0.37964	13.33370
	min_pulse_width	CK ()	0.12043	0.37964	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 ()	0.21547	0.37964	13.33370
	min_pulse_width	CK ()	0.10315	0.37964	13.33370
sky130_osu_sc_12T_hs__dffsr_l	min_pulse_width	CK ()	0.21547	0.37964	13.33370
	min_pulse_width	CK ()	0.10315	0.37964	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	0.01361	0.01460	0.06401
	RN	0.02468	0.02442	0.05408
	SN	-0.00131	-0.09886	-1.76859
	SN	0.02415	0.02318	0.05761
sky130_osu_sc_12T_hs__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.01259	0.01459	0.08570
	RN	0.02365	0.02442	0.07594
	SN	-0.00131	-0.07770	-1.18388
	SN	0.02313	0.02320	0.08051

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	0.01431	0.01481	0.05855
	RN	-0.00131	-0.09886	-1.76858
	RN	0.02923	0.03049	0.07702
sky130_osu_sc_12T_hs__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.01328	0.01413	0.06847
	RN	-0.00131	-0.07770	-1.18387
	RN	0.02818	0.02984	0.08726

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	0.01431	0.01479	0.05861
	RN	-0.00131	-0.09904	-1.77411
	RN	0.02922	0.03047	0.07693
sky130_osu_sc_12T_hs__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.01328	0.01413	0.06841
	RN	-0.00131	-0.07746	-1.17788
	RN	0.02818	0.02985	0.08709

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	0.01357	0.01458	0.06258
	RN	0.02463	0.02438	0.05321
	SN	-0.00131	-0.09904	-1.77397
	SN	0.02411	0.02315	0.05835
sky130_osu_sc_12T_hs__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.01253	0.01456	0.08487
	RN	0.02359	0.02438	0.07569
	SN	-0.00131	-0.07746	-1.17781
	SN	0.02308	0.02316	0.08076

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	-0.00319	-0.00324	-0.00324
	(!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)	0.01723	0.01946	0.11587
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.00602	0.00840	0.10266
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.00596	0.00834	0.10267
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.00602	0.00840	0.10269
sky130_osu_sc_12T_hs__dffsr_1	CK	0.00000	0.00000	0.00000
	CK	-0.00318	-0.00323	-0.00324
	(!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)	0.01724	0.01947	0.11588
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.00603	0.00841	0.10267
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.00597	0.00835	0.10268
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.00603	0.00841	0.10270

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	0.00334	0.00327	0.00324
	(!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)	0.02395	0.02650	0.12385
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.01105	0.01370	0.10828
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.01117	0.01378	0.10824
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.01100	0.01365	0.10822
sky130_osu_sc_12T_hs__dffsr_1	CK	0.00000	0.00000	0.00000
	CK	0.00335	0.00328	0.00325
	(!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)	0.02396	0.02651	0.12386
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.01106	0.01371	0.10829
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.01118	0.01379	0.10825
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.01101	0.01366	0.10823

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)	0.00304	0.00730	0.13811
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.01466	0.01869	0.15414
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)	0.00305	0.00731	0.13813
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.01467	0.01870	0.15415

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)	0.01176	0.01722	0.14888
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.02289	0.02800	0.16436
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)	0.01176	0.01723	0.14889
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.02290	0.02801	0.16437

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)	-0.00815	-0.00816	-0.00820
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	-0.00758	-0.00886	-0.00883
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	-0.00760	-0.00822	-0.00822
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.00403	0.00611	0.09674
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)	-0.00814	-0.00815	-0.00819
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	-0.00757	-0.00886	-0.00882
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	-0.00759	-0.00821	-0.00821
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.00404	0.00612	0.09675

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)	0.00818	0.00831	0.00821
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00879	0.00886	0.00884
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	0.00820	0.00831	0.00824
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.01864	0.02022	0.11010
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)	0.00819	0.00832	0.00822
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00879	0.00887	0.00885
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	0.00821	0.00832	0.00825
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.01865	0.02023	0.11011

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)	-0.00105	0.00295	0.13676
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.00807	0.01138	0.15126
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.00791	0.01123	0.15116
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	-0.00079	0.00319	0.13683
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.00375	0.01101	0.24597
sky130_osu_sc_12T_hs__dffsr_1	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	-0.00104	0.00296	0.13677
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.00808	0.01139	0.15127
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.00792	0.01124	0.15117
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	-0.00078	0.00320	0.13684
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.00376	0.01102	0.24598

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)	0.03774	0.04271	0.20941
	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.01644	0.02232	0.15650
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.02573	0.03090	0.17055
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.02577	0.03092	0.17052
	(!D * RN * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * Q * !QN)	0.03595	0.04587	0.25871
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.01768	0.02313	0.15681
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.02205	0.03218	0.26723
sky130_osu_sc_12T_hs__dffsr_l	**(D * RN * SN * !Q * QN)**	0.00000	0.00000	0.00000
	(D * RN * SN * !Q * QN)	0.03775	0.04272	0.20942
	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.01645	0.02233	0.15651
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.02574	0.03091	0.17056
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.02578	0.03093	0.17053
	(!D * RN * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * Q * !QN)	0.03596	0.04587	0.25872
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.01769	0.02313	0.15682
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.02206	0.03219	0.26724

SKY130_OSU_SC_12T_HS__DFFSx

sky130_osu_sc_12T_hs_tt_2P10_25C.ccs
Cell Library: Process , Voltage 2.10,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_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	0.00283	0.00545	0.00877	1.54551	1.53160
sky130_osu_sc_12T_hs__dffs_l	0.00283	0.00545	0.00877	1.06964	1.07428

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_12T_hs__dffs_1	0.00000	1.70644	4.75353
sky130_osu_sc_12T_hs__dffs_l	0.00000	2.78961	5.83670

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)	0.15948	0.95497	12.84800
	QN->Q (FR)	0.02144	0.67524	11.61760
	SN->Q (FR)	0.12596	1.06284	15.20550
sky130_osu_sc_12T_hs__dffs_l	CK->Q (RR)	0.15942	1.00244	11.77970
	QN->Q (FR)	0.02373	0.69440	10.85180
	SN->Q (FR)	0.12609	1.10809	14.11090

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)	0.22802	1.04343	13.37810
	QN->Q (RF)	0.01648	0.47882	8.22641
sky130_osu_sc_12T_hs__dffs_l	CK->Q (RF)	0.22922	1.12686	12.80910
	QN->Q (RF)	0.01715	0.47879	7.50997

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)	0.20797	0.60621	5.90807
sky130_osu_sc_12T_hs__dffs_l	CK->QN (RR)	0.20681	0.65871	5.92819

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)	0.13219	0.41655	3.65702
	SN->QN (FF)	0.09827	0.52394	6.00434
sky130_osu_sc_12T_hs__dffs_l	CK->QN (RF)	0.12966	0.42081	3.20842
	SN->QN (FF)	0.09614	0.52580	5.54548

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)	-0.03278	-0.03481	0.23648
	setup	CK (R)	0.11464	0.14524	0.17338
sky130_osu_sc_12T_hs__dffs_l	hold	CK (R)	-0.03208	-0.03481	0.23648
	setup	CK (R)	0.11434	0.14498	0.17128

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)	-0.08830	-0.23641	-4.35174
	setup	CK (R)	0.11305	0.24663	4.38810
sky130_osu_sc_12T_hs__dffs_l	hold	CK (R)	-0.08820	-0.23641	-4.35166
	setup	CK (R)	0.11305	0.24663	4.38810

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)	-0.03278	-0.03481	0.23648
	setup	CK (R)	0.11464	0.14524	0.17338
sky130_osu_sc_12T_hs__dffs_l	hold	CK (R)	-0.03208	-0.03481	0.23648
	setup	CK (R)	0.11434	0.14498	0.17128

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)	-0.08830	-0.23641	-4.35174
	setup	CK (R)	0.11305	0.24663	4.38810
sky130_osu_sc_12T_hs__dffs_l	hold	CK (R)	-0.08820	-0.23641	-4.35166
	setup	CK (R)	0.11305	0.24663	4.38810

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)	0.02770	0.05356	1.84352
	removal	CK (R)	-0.01820	-0.04352	-0.45580
sky130_osu_sc_12T_hs__dffs_l	recovery	CK (R)	0.02753	0.05356	1.71769
	removal	CK (R)	-0.01820	-0.04352	-0.45580

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)	0.02770	0.05356	1.84352
	removal	CK (R)	-0.01820	-0.04352	-0.45580
sky130_osu_sc_12T_hs__dffs_l	recovery	CK (R)	0.02753	0.05356	1.71769
	removal	CK (R)	-0.01820	-0.04352	-0.45580

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 ()	0.08875	0.37964	13.33370
	min_pulse_width	SN ()	0.09163	0.37964	13.33370
sky130_osu_sc_12T_hs__dffs_l	min_pulse_width	SN ()	0.08875	0.37964	13.33370
	min_pulse_width	SN ()	0.08587	0.37964	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 ()	0.06859	0.37964	13.33370
	min_pulse_width	CK ()	0.11467	0.37964	13.33370
sky130_osu_sc_12T_hs__dffs_l	min_pulse_width	CK ()	0.06571	0.37964	13.33370
	min_pulse_width	CK ()	0.11179	0.37964	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 ()	0.16363	0.37964	13.33370
	min_pulse_width	CK ()	0.09451	0.37964	13.33370
sky130_osu_sc_12T_hs__dffs_l	min_pulse_width	CK ()	0.16363	0.37964	13.33370
	min_pulse_width	CK ()	0.09451	0.37964	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	0.01076	0.01213	0.06416
	SN	-0.00131	-0.09667	-1.70392
	SN	0.01971	0.02178	0.08870
sky130_osu_sc_12T_hs__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.00969	0.01200	0.08419
	SN	-0.00131	-0.07752	-1.17928
	SN	0.01864	0.02171	0.10838

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	0.01231	0.01217	0.04662
sky130_osu_sc_12T_hs__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.01127	0.01213	0.06699

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	0.01230	0.01218	0.04667
sky130_osu_sc_12T_hs__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.01127	0.01211	0.06710

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	0.01071	0.01210	0.06347
	SN	-0.00131	-0.09615	-1.68844
	SN	0.01968	0.02177	0.08775
sky130_osu_sc_12T_hs__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.00964	0.01196	0.08317
	SN	-0.00131	-0.07772	-1.18433
	SN	0.01861	0.02166	0.10784

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	-0.00320	-0.00324	-0.00326
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.01330	0.01585	0.11587
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.00541	0.00788	0.10253
sky130_osu_sc_12T_hs__dffs_l	CK	0.00000	0.00000	0.00000
	CK	-0.00319	-0.00324	-0.00325
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.01331	0.01586	0.11588
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.00542	0.00789	0.10254

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	0.00342	0.00335	0.00333
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.02053	0.02321	0.12191
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.01023	0.01300	0.10804
sky130_osu_sc_12T_hs__dffs_1	CK	0.00000	0.00000	0.00000
	CK	0.00343	0.00336	0.00334
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.02054	0.02322	0.12192
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.01024	0.01301	0.10805

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)	-0.00598	-0.00603	-0.00602
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.00396	0.00679	0.11893
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)	-0.00596	-0.00601	-0.00600
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.00397	0.00679	0.11895

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)	0.00607	0.00604	0.00603
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.01292	0.01703	0.13083
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)	0.00607	0.00604	0.00604
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.01292	0.01704	0.13083

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)	-0.00097	0.00307	0.13700
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	-0.00085	0.00316	0.13694
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.00323	0.01075	0.24645
sky130_osu_sc_12T_hs__dffs_l	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	-0.00096	0.00308	0.13701
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	-0.00084	0.00317	0.13695
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.00324	0.01076	0.24646

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)	0.03359	0.03857	0.20732
	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.01612	0.02201	0.15634
	(!D * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * SN * Q * !QN)	0.03218	0.04224	0.25498
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	0.01759	0.02312	0.15687
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.02089	0.03136	0.26703
sky130_osu_sc_12T_hs__dffs_l	(D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * SN * !Q * QN)	0.03360	0.03858	0.20733
	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.01613	0.02203	0.15635
	(!D * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * SN * Q * !QN)	0.03219	0.04227	0.25499
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	0.01760	0.02312	0.15688
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.02090	0.03138	0.26704

SKY130_OSU_SC_12T_HS__DFFx

sky130_osu_sc_12T_hs_tt_2P10_25C.ccs
Cell Library: Process , Voltage 2.10,
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	0.00298	0.00857	1.36777
sky130_osu_sc_12T_hs__dff_l	0.00298	0.00854	0.99474

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_12T_hs__dff_1	0.00000	0.23299	0.27967
sky130_osu_sc_12T_hs__dff_l	0.00000	1.31616	1.36284

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)**	0.13475	0.53311	5.58246
sky130_osu_sc_12T_hs__dff_l	**CK->Q (RR)**	0.13432	0.58542	5.62688

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)**	0.19692	0.46421	3.43927
sky130_osu_sc_12T_hs__dff_l	**CK->Q (RF)**	0.19760	0.47903	3.17840

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)	-0.03106	-0.03064	0.23011
	setup	CK (R)	0.09028	0.12901	0.13799
sky130_osu_sc_12T_hs__dff_l	hold	CK (R)	-0.03106	-0.03064	0.22994
	setup	CK (R)	0.09035	0.12914	0.14186

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)	-0.08150	-0.23641	-4.34954
	setup	CK (R)	0.09730	0.24663	4.38351
sky130_osu_sc_12T_hs__dff_l	hold	CK (R)	-0.08318	-0.23641	-4.34954
	setup	CK (R)	0.09730	0.24663	4.38351

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 ()	0.05707	0.37964	13.33370
	min_pulse_width	CK ()	0.10315	0.37964	13.33370
sky130_osu_sc_12T_hs__dff_l	min_pulse_width	CK ()	0.05707	0.37964	13.33370
	min_pulse_width	CK ()	0.10315	0.37964	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 ()	0.14059	0.37964	13.33370
	min_pulse_width	CK ()	0.07723	0.37964	13.33370
sky130_osu_sc_12T_hs__dff_l	min_pulse_width	CK ()	0.14059	0.37964	13.33370
	min_pulse_width	CK ()	0.07723	0.37964	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	0.02244	0.02938	0.21607
sky130_osu_sc_12T_hs__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.02026	0.02728	0.21373

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	0.02482	0.02830	0.16871
sky130_osu_sc_12T_hs__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.02282	0.02636	0.16673

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	-0.00258	-0.00317	-0.00321
	!CK	0.00000	0.00000	0.00000
	!CK	0.01185	0.01431	0.11297
sky130_osu_sc_12T_hs__dff_l	CK	0.00000	0.00000	0.00000
	CK	-0.00257	-0.00316	-0.00320
	!CK	0.00000	0.00000	0.00000
	!CK	0.01186	0.01432	0.11298

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	0.00319	0.00320	0.00321
	!CK	0.00000	0.00000	0.00000
	!CK	0.02113	0.02385	0.12270
sky130_osu_sc_12T_hs__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.00320	0.00321	0.00322
	!CK	0.00000	0.00000	0.00000
	!CK	0.02114	0.02386	0.12271

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)	-0.00101	0.00306	0.13700
	(!D * !Q)	0.00000	0.00000	0.00000
	(!D * !Q)	-0.00089	0.00315	0.13693
sky130_osu_sc_12T_hs__dff_l	(D * Q)	0.00000	0.00000	0.00000
	(D * Q)	-0.00101	0.00306	0.13700
	(!D * !Q)	0.00000	0.00000	0.00000
	(!D * !Q)	-0.00088	0.00315	0.13694

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)	0.01607	0.02206	0.15632
	(D * !Q)	0.00000	0.00000	0.00000
	(D * !Q)	0.03215	0.03726	0.20659
	(!D * Q)	0.00000	0.00000	0.00000
	(!D * Q)	0.03261	0.04311	0.25847
	(!D * !Q)	0.00000	0.00000	0.00000
	(!D * !Q)	0.01746	0.02312	0.15675
sky130_osu_sc_12T_hs__dff_l	(D * Q)	0.00000	0.00000	0.00000
	(D * Q)	0.01608	0.02208	0.15633
	(D * !Q)	0.00000	0.00000	0.00000
	(D * !Q)	0.03216	0.03727	0.20661
	(!D * Q)	0.00000	0.00000	0.00000
	(!D * Q)	0.03262	0.04312	0.25850
	(!D * !Q)	0.00000	0.00000	0.00000
	(!D * !Q)	0.01747	0.02313	0.15676

SKY130_OSU_SC_12T_HS__INVx

sky130_osu_sc_12T_hs_tt_2P10_25C.ccs
Cell Library: Process , Voltage 2.10,
Temp 25.00

Truth Table

INPUT	OUTPUT
A	Y
0	1
1	0

Footprint

Cell Name	Area
sky130_osu_sc_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	0.00286	1.37194
sky130_osu_sc_12T_hs__inv_10	0.02563	13.37477
sky130_osu_sc_12T_hs__inv_2	0.00532	2.78206
sky130_osu_sc_12T_hs__inv_3	0.00788	4.09127
sky130_osu_sc_12T_hs__inv_4	0.01037	5.50273
sky130_osu_sc_12T_hs__inv_6	0.01553	8.19157
sky130_osu_sc_12T_hs__inv_8	0.02058	10.84459
sky130_osu_sc_12T_hs__inv_l	0.00227	0.92920

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_12T_hs__inv_1	0.00000	0.03512	0.06383
sky130_osu_sc_12T_hs__inv_10	0.00000	0.35123	0.63832
sky130_osu_sc_12T_hs__inv_2	0.00000	0.07025	0.12766
sky130_osu_sc_12T_hs__inv_3	0.00000	0.10537	0.19150
sky130_osu_sc_12T_hs__inv_4	0.00000	0.14049	0.25533
sky130_osu_sc_12T_hs__inv_6	0.00000	0.21074	0.38299
sky130_osu_sc_12T_hs__inv_8	0.00000	0.28099	0.51065
sky130_osu_sc_12T_hs__inv_l	0.00000	0.57671	1.15039

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)**	0.02066	0.60777	10.16400
sky130_osu_sc_12T_hs__inv_10	**A->Y (FR)**	0.02527	0.38251	9.98515
sky130_osu_sc_12T_hs__inv_2	**A->Y (FR)**	0.01542	0.50761	9.97584
sky130_osu_sc_12T_hs__inv_3	**A->Y (FR)**	0.01679	0.47309	10.02870
sky130_osu_sc_12T_hs__inv_4	**A->Y (FR)**	0.01672	0.44366	9.97349
sky130_osu_sc_12T_hs__inv_6	**A->Y (FR)**	0.01876	0.41265	9.97556
sky130_osu_sc_12T_hs__inv_8	**A->Y (FR)**	0.02173	0.39359	9.97330
sky130_osu_sc_12T_hs__inv_l	**A->Y (FR)**	0.02384	0.63715	9.62305

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)**	0.01518	0.40888	6.77584
sky130_osu_sc_12T_hs__inv_10	**A->Y (RF)**	0.02045	0.23276	6.95458
sky130_osu_sc_12T_hs__inv_2	**A->Y (RF)**	0.01212	0.34121	6.86745
sky130_osu_sc_12T_hs__inv_3	**A->Y (RF)**	0.01325	0.31286	6.98195
sky130_osu_sc_12T_hs__inv_4	**A->Y (RF)**	0.01309	0.28864	6.97874
sky130_osu_sc_12T_hs__inv_6	**A->Y (RF)**	0.01568	0.26167	7.00534
sky130_osu_sc_12T_hs__inv_8	**A->Y (RF)**	0.01800	0.24424	7.00517
sky130_osu_sc_12T_hs__inv_l	**A->Y (RF)**	0.01622	0.41623	6.20398

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	0.00527	0.00789	0.04004
sky130_osu_sc_12T_hs__inv_10	A	0.00000	0.00000	0.00000
	A	0.04388	0.07809	0.37984
sky130_osu_sc_12T_hs__inv_2	A	0.00000	0.00000	0.00000
	A	0.00904	0.01500	0.07711
sky130_osu_sc_12T_hs__inv_3	A	0.00000	0.00000	0.00000
	A	0.01393	0.02275	0.11451
sky130_osu_sc_12T_hs__inv_4	A	0.00000	0.00000	0.00000
	A	0.01772	0.02954	0.15194
sky130_osu_sc_12T_hs__inv_6	A	0.00000	0.00000	0.00000
	A	0.02625	0.04494	0.22709
sky130_osu_sc_12T_hs__inv_8	A	0.00000	0.00000	0.00000
	A	0.03488	0.06393	0.30269
sky130_osu_sc_12T_hs__inv_l	A	0.00000	0.00000	0.00000
	A	0.00417	0.00662	0.04691

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	-0.00103	0.00015	0.02063
sky130_osu_sc_12T_hs__inv_10	**A**	0.00000	0.00000	0.00000
	A	-0.01542	0.00436	0.19830
sky130_osu_sc_12T_hs__inv_2	**A**	0.00000	0.00000	0.00000
	A	-0.00327	-0.00027	0.03995
sky130_osu_sc_12T_hs__inv_3	**A**	0.00000	0.00000	0.00000
	A	-0.00428	0.00104	0.05996
sky130_osu_sc_12T_hs__inv_4	**A**	0.00000	0.00000	0.00000
	A	-0.00657	0.00033	0.07946
sky130_osu_sc_12T_hs__inv_6	**A**	0.00000	0.00000	0.00000
	A	-0.01004	0.00114	0.11876
sky130_osu_sc_12T_hs__inv_8	**A**	0.00000	0.00000	0.00000
	A	-0.01319	0.00427	0.15798
sky130_osu_sc_12T_hs__inv_l	**A**	0.00000	0.00000	0.00000
	A	-0.00073	0.00012	0.01735

SKY130_OSU_SC_12T_HS__MUX2

sky130_osu_sc_12T_hs_tt_2P10_25C.ccs
Cell Library: Process , Voltage 2.10,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_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	0.50607	0.50639	0.00590	0.52714

Leakage Information

Cell Name	Leakage(nW)		
	Min.	**Avg**	**Max.**
sky130_osu_sc_12T_hs__mux2_1	0.00000	0.07478	0.08159

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)	-	0.00794	0.15002	1.69652
	A1->Y (RR)	-	0.00910	0.15114	1.69213
	S0->Y (RR)	(!A0 * A1)	0.03085	0.21133	1.38950
	S0->Y (FR)	(A0 * !A1)	0.02305	0.31029	3.69307

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)	-	0.00937	0.17689	1.99358
	A1->Y (FF)	-	0.00858	0.17505	1.98725
	S0->Y (FF)	(!A0 * A1)	0.04226	0.30248	3.11636
	S0->Y (RF)	(A0 * !A1)	0.01698	0.21132	2.05989

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	-	-0.00524	-0.00524	-0.00524
	A1	-	0.00000	0.00000	0.00000
	A1	-	-0.00330	-0.00330	-0.00330
	S0	(A0 * !A1)	0.00000	0.00000	0.00000
	S0	(A0 * !A1)	0.00685	0.01304	0.14539
	S0	(!A0 * A1)	0.00000	0.00000	0.00000
	S0	(!A0 * A1)	-0.00344	0.00144	0.13315

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	-	0.00524	0.00524	0.00524
	A1	-	0.00000	0.00000	0.00000
	A1	-	0.00330	0.00330	0.00330
	S0	(A0 * !A1)	0.00000	0.00000	0.00000
	S0	(A0 * !A1)	0.00075	0.00599	0.13822
	S0	(!A0 * A1)	0.00000	0.00000	0.00000
	S0	(!A0 * A1)	0.01438	0.02014	0.15165

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)	-0.00119	-0.00119	-0.00119

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)	0.00119	0.00119	0.00119

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)	-0.00143	-0.00143	-0.00143

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)	0.00143	0.00143	0.00143

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)	-0.00136	0.00373	0.13536
	(!A0 * !A1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !Y)	-0.00132	0.00369	0.13548

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)	0.01107	0.01705	0.14849
	(!A0 * !A1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !Y)	0.01017	0.01647	0.14826

SKY130_OSU_SC_12T_HS__NAND2x

sky130_osu_sc_12T_hs_tt_2P10_25C.ccs
Cell Library: Process , Voltage 2.10,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_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	0.00285	0.00286	1.36214
sky130_osu_sc_12T_hs__nand2_l	0.00223	0.00227	0.93258

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_12T_hs__nand2_1	0.00000	0.03505	0.12766
sky130_osu_sc_12T_hs__nand2_l	0.00000	0.57668	2.30076

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)	0.02155	0.60834	10.14120
	B->Y (FR)	0.02447	0.58300	9.63816
sky130_osu_sc_12T_hs__nand2_l	A->Y (FR)	0.02404	0.63920	9.63047
	B->Y (FR)	0.02920	0.64275	9.61849

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)	0.02123	0.51454	8.48726
	B->Y (RF)	0.02415	0.47666	7.76392
sky130_osu_sc_12T_hs__nand2_l	A->Y (RF)	0.02247	0.52462	7.81815
	B->Y (RF)	0.02535	0.48822	7.09593

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	0.00561	0.00779	0.03480
	B	0.00000	0.00000	0.00000
	B	0.00721	0.00893	0.03802
sky130_osu_sc_12T_hs__nand2_1	A	0.00000	0.00000	0.00000
	A	0.00425	0.00604	0.03944
	B	0.00000	0.00000	0.00000
	B	0.00547	0.00728	0.04190

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	-0.00074	0.00008	0.01734
	B	0.00000	0.00000	0.00000
	B	-0.00074	-0.00002	0.01730
sky130_osu_sc_12T_hs__nand2_1	A	0.00000	0.00000	0.00000
	A	-0.00044	0.00020	0.01438
	B	0.00000	0.00000	0.00000
	B	-0.00043	0.00008	0.01417

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)	-0.00371	-0.00372	-0.00375
sky130_osu_sc_12T_hs__nand2_l	(!B * Y)	0.00000	0.00000	0.00000
	(!B * Y)	-0.00262	-0.00263	-0.00265

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)	0.00374	0.00378	0.00375
sky130_osu_sc_12T_hs__nand2_l	(!B * Y)	0.00000	0.00000	0.00000
	(!B * Y)	0.00264	0.00267	0.00265

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)	-0.00345	-0.00347	-0.00346
sky130_osu_sc_12T_hs__nand2_l	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00246	-0.00248	-0.00247

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)	0.00356	0.00350	0.00347
sky130_osu_sc_12T_hs__nand2_l	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00253	0.00248	0.00247

SKY130_OSU_SC_12T_HS__NOR2x

sky130_osu_sc_12T_hs_tt_2P10_25C.ccs
Cell Library: Process , Voltage 2.10,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_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	0.00281	0.00308	0.77530
sky130_osu_sc_12T_hs__nor2_l	0.00214	0.00236	0.55320

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_12T_hs__nor2_1	0.00000	0.02822	0.06383
sky130_osu_sc_12T_hs__nor2_l	0.00000	0.38184	1.15034

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)	0.04422	0.69332	9.58992
	B->Y (FR)	0.03375	0.71074	10.10490
sky130_osu_sc_12T_hs__nor2_l	A->Y (FR)	0.04736	0.74150	9.29651
	B->Y (FR)	0.03894	0.75543	9.73757

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)	0.02037	0.33280	4.49176
	B->Y (RF)	0.01620	0.32502	4.47162
sky130_osu_sc_12T_hs__nor2_l	A->Y (RF)	0.02022	0.34489	4.25207
	B->Y (RF)	0.01712	0.33868	4.23234

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	0.00758	0.00838	0.03783
	B	0.00000	0.00000	0.00000
	B	0.00573	0.00737	0.04389
sky130_osu_sc_12T_hs__nor2_l	A	0.00000	0.00000	0.00000
	A	0.00554	0.00644	0.03760
	B	0.00000	0.00000	0.00000
	B	0.00435	0.00638	0.04843

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	0.00075	0.00168	0.02753
	B	0.00000	0.00000	0.00000
	B	-0.00079	0.00047	0.02460
sky130_osu_sc_12T_hs__nor2_l	A	0.00000	0.00000	0.00000
	A	0.00053	0.00126	0.02336
	B	0.00000	0.00000	0.00000
	B	-0.00049	0.00044	0.02087

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)	-0.00256	-0.00323	-0.00324
sky130_osu_sc_12T_hs__nor2_l	(B * !Y)	0.00000	0.00000	0.00000
	(B * !Y)	-0.00166	-0.00216	-0.00219

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)	0.00321	0.00325	0.00324
sky130_osu_sc_12T_hs__nor2_l	(B * !Y)	0.00000	0.00000	0.00000
	(B * !Y)	0.00222	0.00223	0.00222

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)	-0.00140	-0.00142	-0.00141
sky130_osu_sc_12T_hs__nor2_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	-0.00100	-0.00100	-0.00099

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)	0.00146	0.00147	0.00143
sky130_osu_sc_12T_hs__nor2_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00103	0.00103	0.00100

SKY130_OSU_SC_12T_HS__OAI21

sky130_osu_sc_12T_hs_tt_2P10_25C.ccs
Cell Library: Process , Voltage 2.10,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_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	0.00286	0.00297	0.00249	0.75351

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_12T_hs__oai21_l	0.00000	0.44778	1.21422

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)	0.04889	0.71951	9.94992
	A1->Y (FR)	0.06149	0.70521	9.44386
	B0->Y (FR)	0.02953	0.59186	8.48886

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)	0.02974	0.38133	5.00255
	A1->Y (RF)	0.03535	0.38170	4.93577
	B0->Y (RF)	0.02280	0.43190	5.97587

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	0.00821	0.00947	0.04039
	A1	0.00000	0.00000	0.00000
	A1	0.01009	0.01064	0.03736
	B0	0.00480	0.00718	0.05652

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	0.00023	0.00090	0.02117
	A1	0.00000	0.00000	0.00000
	A1	0.00182	0.00221	0.02379
	B0	0.00068	0.00158	0.02359

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)	-0.00140	-0.00144	-0.00141
	(A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * Y)	-0.00326	-0.00329	-0.00329
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00332	-0.00334	-0.00333

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)	0.00148	0.00149	0.00144
	(A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * Y)	0.00327	0.00329	0.00329
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00340	0.00335	0.00334

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)	-0.00246	-0.00313	-0.00313
	(A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * Y)	-0.00321	-0.00328	-0.00326
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	-0.00328	-0.00330	-0.00329

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)	0.00313	0.00317	0.00315
	(A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * Y)	0.00324	0.00328	0.00326
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	0.00335	0.00331	0.00330

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)	-0.00274	-0.00276	-0.00281

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)	0.00279	0.00284	0.00281

SKY130_OSU_SC_12T_HS__OAI22

sky130_osu_sc_12T_hs_tt_2P10_25C.ccs
Cell Library: Process , Voltage 2.10,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_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	0.00270	0.00282	0.00299	0.00295	0.81145

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_12T_hs__oai22_l	0.00000	0.04201	0.12766

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)	0.06395	0.70224	9.55354
	A1->Y (FR)	0.05432	0.72133	10.10370
	B0->Y (FR)	0.03486	0.70299	10.08850
	B1->Y (FR)	0.04569	0.68419	9.53938

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)	0.04878	0.41851	5.35417
	A1->Y (RF)	0.03950	0.40653	5.31594
	B0->Y (RF)	0.03340	0.45777	6.31340
	B1->Y (RF)	0.04320	0.47257	6.38806

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	0.01292	0.01347	0.03833
	A1	0.01013	0.01149	0.04478
	B0	0.00602	0.00757	0.04021
	B1	0.00805	0.00869	0.03470

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_12T_hs__oai22_l	A0	0.00115	0.00159	0.02334
	A1	-0.00029	0.00038	0.02083
	B0	-0.00036	0.00072	0.02249
	B1	0.00114	0.00182	0.02420

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)	-0.00254	-0.00313	-0.00317
	(A1 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * B1 * !Y)	-0.00254	-0.00313	-0.00317
	(A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * !B1 * Y)	-0.00312	-0.00316	-0.00317
	(!A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * !B1 * Y)	-0.00319	-0.00321	-0.00319

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)	0.00316	0.00320	0.00318
	(A1 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * B1 * !Y)	0.00316	0.00320	0.00318
	(A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * !B1 * Y)	0.00316	0.00318	0.00317
	(!A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * !B1 * Y)	0.00323	0.00322	0.00320

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)	-0.00137	-0.00138	-0.00137
	(A0 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * B1 * !Y)	-0.00137	-0.00138	-0.00137
	(A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * !B1 * Y)	-0.00311	-0.00317	-0.00315
	(!A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * !B1 * Y)	-0.00318	-0.00319	-0.00319

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)	0.00143	0.00144	0.00139
	(A0 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * B1 * !Y)	0.00143	0.00144	0.00139
	(A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * !B1 * Y)	0.00313	0.00317	0.00315
	(!A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * !B1 * Y)	0.00323	0.00322	0.00320

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)	-0.00138	-0.00140	-0.00139
	(A0 * !A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B1 * !Y)	-0.00138	-0.00140	-0.00139
	(!A0 * !A1 * B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B1 * Y)	-0.00363	-0.00369	-0.00367
	(!A0 * !A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B1 * Y)	-0.00363	-0.00364	-0.00371

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)	0.00144	0.00145	0.00141
	(A0 * !A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B1 * !Y)	0.00144	0.00146	0.00141
	(!A0 * !A1 * B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B1 * Y)	0.00368	0.00370	0.00367
	(!A0 * !A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B1 * Y)	0.00370	0.00376	0.00372

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)	-0.00251	-0.00315	-0.00315
	(A0 * !A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B0 * !Y)	-0.00251	-0.00314	-0.00315
	(!A0 * !A1 * B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B0 * Y)	-0.00369	-0.00377	-0.00375
	(!A0 * !A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B0 * Y)	-0.00369	-0.00371	-0.00377

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)	0.00313	0.00317	0.00315
	(A0 * !A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B0 * !Y)	0.00313	0.00314	0.00315
	(!A0 * !A1 * B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B0 * Y)	0.00375	0.00380	0.00375
	(!A0 * !A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B0 * Y)	0.00377	0.00382	0.00379

SKY130_OSU_SC_12T_HS__OR2x

sky130_osu_sc_12T_hs_tt_2P10_25C.ccs
Cell Library: Process , Voltage 2.10,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_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	0.00317	0.00293	1.42540
sky130_osu_sc_12T_hs__or2_2	0.00317	0.00293	2.93293
sky130_osu_sc_12T_hs__or2_4	0.00317	0.00293	5.80554
sky130_osu_sc_12T_hs__or2_8	0.00317	0.00294	11.19950
sky130_osu_sc_12T_hs__or2_l	0.00240	0.00225	0.98995

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_12T_hs__or2_1	0.00000	0.04899	0.07666
sky130_osu_sc_12T_hs__or2_2	0.00000	0.06976	0.14049
sky130_osu_sc_12T_hs__or2_4	0.00000	0.11130	0.26816
sky130_osu_sc_12T_hs__or2_8	0.00000	0.19437	0.52348
sky130_osu_sc_12T_hs__or2_l	0.00000	0.67171	1.15644

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)	0.04960	0.44610	5.61324
	B->Y (RR)	0.04304	0.42463	5.46253
sky130_osu_sc_12T_hs__or2_2	A->Y (RR)	0.05272	0.37255	5.61620
	B->Y (RR)	0.04579	0.35301	5.45495
sky130_osu_sc_12T_hs__or2_4	A->Y (RR)	0.06799	0.35564	5.78589
	B->Y (RR)	0.06085	0.33854	5.63672
sky130_osu_sc_12T_hs__or2_8	A->Y (RR)	0.09976	0.38362	5.96312
	B->Y (RR)	0.09239	0.37004	5.82517
sky130_osu_sc_12T_hs__or2_l	A->Y (RR)	0.05080	0.49657	5.54217
	B->Y (RR)	0.04550	0.47826	5.44533

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)	0.08003	0.46908	5.91050
	B->Y (FF)	0.06538	0.47464	6.20121
sky130_osu_sc_12T_hs__or2_2	A->Y (FF)	0.09447	0.45474	6.17753
	B->Y (FF)	0.08000	0.46530	6.45746
sky130_osu_sc_12T_hs__or2_4	A->Y (FF)	0.13417	0.48528	6.45500
	B->Y (FF)	0.11972	0.50303	6.72378
sky130_osu_sc_12T_hs__or2_8	A->Y (FF)	0.21677	0.57055	6.65033
	B->Y (FF)	0.20244	0.59131	6.91412
sky130_osu_sc_12T_hs__or2_l	A->Y (FF)	0.08480	0.47975	5.50331
	B->Y (FF)	0.07146	0.48481	5.77112

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	0.00564	0.00797	0.06817
	B	0.00000	0.00000	0.00000
	B	0.00418	0.00737	0.07435
sky130_osu_sc_12T_hs__or2_2	A	0.00000	0.00000	0.00000
	A	0.00957	0.01234	0.07410
	B	0.00000	0.00000	0.00000
	B	0.00801	0.01166	0.07954
sky130_osu_sc_12T_hs__or2_4	A	0.00000	0.00000	0.00000
	A	0.01878	0.02153	0.08397
	B	0.00000	0.00000	0.00000
	B	0.01712	0.02111	0.08993
sky130_osu_sc_12T_hs__or2_8	A	0.00000	0.00000	0.00000
	A	0.04094	0.04174	0.11124
	B	0.00000	0.00000	0.00000
	B	0.03904	0.04132	0.10902
sky130_osu_sc_12T_hs__or2_l	A	0.00000	0.00000	0.00000
	A	0.00433	0.00651	0.06739
	B	0.00000	0.00000	0.00000
	B	0.00335	0.00655	0.08058

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	0.01278	0.01487	0.08712
	B	0.00000	0.00000	0.00000
	B	0.01052	0.01473	0.11186
sky130_osu_sc_12T_hs__or2_2	A	0.00000	0.00000	0.00000
	A	0.01663	0.01806	0.09086
	B	0.00000	0.00000	0.00000
	B	0.01434	0.01786	0.11394
sky130_osu_sc_12T_hs__or2_4	A	0.00000	0.00000	0.00000
	A	0.02922	0.02628	0.09812
	B	0.00000	0.00000	0.00000
	B	0.02692	0.02618	0.11887
sky130_osu_sc_12T_hs__or2_8	A	0.00000	0.00000	0.00000
	A	0.06816	0.04587	0.11379
	B	0.00000	0.00000	0.00000
	B	0.06584	0.04554	0.13127
sky130_osu_sc_12T_hs__or2_l	A	0.00000	0.00000	0.00000
	A	0.00963	0.01208	0.08242
	B	0.00000	0.00000	0.00000
	B	0.00809	0.01259	0.10686

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)	-0.00259	-0.00327	-0.00327
sky130_osu_sc_12T_hs__or2_2	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00259	-0.00327	-0.00327
sky130_osu_sc_12T_hs__or2_4	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00260	-0.00327	-0.00327
sky130_osu_sc_12T_hs__or2_8	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00259	-0.00327	-0.00327
sky130_osu_sc_12T_hs__or2_l	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00165	-0.00216	-0.00220

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)	0.00325	0.00329	0.00327
sky130_osu_sc_12T_hs__or2_2	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00325	0.00329	0.00327
sky130_osu_sc_12T_hs__or2_4	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00325	0.00330	0.00327
sky130_osu_sc_12T_hs__or2_8	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00325	0.00330	0.00327
sky130_osu_sc_12T_hs__or2_l	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00222	0.00224	0.00224

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)	-0.00142	-0.00145	-0.00142
sky130_osu_sc_12T_hs__or2_2	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00142	-0.00141	-0.00142
sky130_osu_sc_12T_hs__or2_4	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00142	-0.00141	-0.00142
sky130_osu_sc_12T_hs__or2_8	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00142	-0.00141	-0.00142
sky130_osu_sc_12T_hs__or2_l	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00096	-0.00097	-0.00097

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)	0.00147	0.00148	0.00143
sky130_osu_sc_12T_hs__or2_2	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00147	0.00148	0.00143
sky130_osu_sc_12T_hs__or2_4	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00147	0.00149	0.00143
sky130_osu_sc_12T_hs__or2_8	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00147	0.00149	0.00144
sky130_osu_sc_12T_hs__or2_l	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00101	0.00102	0.00098

SKY130_OSU_SC_12T_HS__TBUFIx

sky130_osu_sc_12T_hs_tt_2P10_25C.ccs
Cell Library: Process , Voltage 2.10,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_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	0.00306	0.00401	0.81100
sky130_osu_sc_12T_hs__tbufi_l	0.00237	0.00312	0.55156

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_12T_hs__tbufi_1	0.00000	0.03793	0.12767
sky130_osu_sc_12T_hs__tbufi_l	0.00000	0.57822	2.30072

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)	0.03155	0.69915	10.06810
	OE->Y (FR)	0.03759	0.32270	5.55624
	OE->Y (RR)	0.05535	0.52133	5.72793
sky130_osu_sc_12T_hs__tbufi_l	A->Y (FR)	0.03798	0.75111	9.67063
	OE->Y (FR)	0.03834	0.32266	5.55622
	OE->Y (RR)	0.05917	0.59270	5.71603

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)	0.02097	0.41833	5.90863
	OE->Y (FF)	0.03794	0.32271	5.55622
	OE->Y (RF)	0.01935	0.37360	5.14773
sky130_osu_sc_12T_hs__tbufi_l	A->Y (RF)	0.02242	0.42587	5.39230
	OE->Y (FF)	0.03897	0.32263	5.55617
	OE->Y (RF)	0.02087	0.38191	4.66656

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	0.00541	0.00692	0.03763
	OE	0.00000	0.00000	0.00000
	OE	0.00538	0.01019	0.12600
sky130_osu_sc_12T_hs__tbufi_l	A	0.00000	0.00000	0.00000
	A	0.00418	0.00585	0.04225
	OE	0.00000	0.00000	0.00000
	OE	0.00396	0.00893	0.12623

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	-0.00079	0.00024	0.02058
	OE	0.00000	0.00000	0.00000
	OE	0.00322	0.00855	0.14234
sky130_osu_sc_12T_hs__tbufi_l	A	0.00000	0.00000	0.00000
	A	-0.00045	0.00030	0.01738
	OE	0.00000	0.00000	0.00000
	OE	0.00229	0.00765	0.13521

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)	-0.00254	-0.00257	-0.00256
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	-0.00223	-0.00228	-0.00224
sky130_osu_sc_12T_hs__tbufi_l	(!OE * Y)	0.00000	0.00000	0.00000
	(!OE * Y)	-0.00183	-0.00184	-0.00184
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	-0.00161	-0.00164	-0.00162

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)	0.00254	0.00257	0.00256
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	0.00226	0.00228	0.00224
sky130_osu_sc_12T_hs__tbufi_l	(!OE * Y)	0.00000	0.00000	0.00000
	(!OE * Y)	0.00183	0.00184	0.00184
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	0.00163	0.00164	0.00162

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)	0.00197	0.00758	0.14410
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00173	0.00767	0.14381
sky130_osu_sc_12T_hs__tbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00141	0.00700	0.13683
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00118	0.00677	0.13657

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)	0.00653	0.01261	0.14914
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00658	0.01273	0.14921
sky130_osu_sc_12T_hs__tbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00503	0.01135	0.14112
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00501	0.01140	0.14114

SKY130_OSU_SC_12T_HS__TNBUFIx

sky130_osu_sc_12T_hs_tt_2P10_25C.ccs
Cell Library: Process , Voltage 2.10,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_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	0.00305	0.00456	0.81145
sky130_osu_sc_12T_hs__tnbufi_l	0.00227	0.00346	0.55217

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_12T_hs__tnbufi_1	0.00000	0.05707	0.07025
sky130_osu_sc_12T_hs__tnbufi_l	0.00000	0.96067	1.15336

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)	0.03170	0.69917	10.07120
	OE->Y (RR)	0.02101	0.32290	5.55643
	OE->Y (FR)	0.03982	0.67649	9.40252
sky130_osu_sc_12T_hs__tnbufi_l	A->Y (FR)	0.03717	0.75033	9.67387
	OE->Y (RR)	0.02207	0.32266	5.55618
	OE->Y (FR)	0.04378	0.73104	9.01501

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)	0.02059	0.41828	5.91088
	OE->Y (RF)	0.02083	0.32287	5.55636
	OE->Y (FF)	0.03806	0.39939	4.83643
sky130_osu_sc_12T_hs__tnbufi_l	A->Y (RF)	0.02139	0.42528	5.39614
	OE->Y (RF)	0.02186	0.32268	5.55623
	OE->Y (FF)	0.04148	0.40488	4.40049

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	0.00562	0.00712	0.03781
	OE	0.00000	0.00000	0.00000
	OE	0.01365	0.02031	0.15472
sky130_osu_sc_12T_hs__tnbufi_l	A	0.00000	0.00000	0.00000
	A	0.00426	0.00593	0.04231
	OE	0.00000	0.00000	0.00000
	OE	0.01042	0.01703	0.14570

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	-0.00107	-0.00002	0.02026
	OE	0.00000	0.00000	0.00000
	OE	0.01172	0.01826	0.13628
sky130_osu_sc_12T_hs__tnbufi_l	A	0.00000	0.00000	0.00000
	A	-0.00074	0.00003	0.01711
	OE	0.00000	0.00000	0.00000
	OE	0.00897	0.01552	0.13411

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)	-0.00208	-0.00211	-0.00209
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	-0.00180	-0.00183	-0.00180
sky130_osu_sc_12T_hs__tnbufi_l	(OE * Y)	0.00000	0.00000	0.00000
	(OE * Y)	-0.00144	-0.00145	-0.00144
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	-0.00122	-0.00124	-0.00123

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)	0.00208	0.00211	0.00209
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	0.00182	0.00183	0.00180
sky130_osu_sc_12T_hs__tnbufi_l	(OE * Y)	0.00000	0.00000	0.00000
	(OE * Y)	0.00144	0.00145	0.00144
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	0.00126	0.00126	0.00125

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)	-0.00360	0.00187	0.13871
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00364	0.00185	0.13875
sky130_osu_sc_12T_hs__tnbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	-0.00238	0.00302	0.13289
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00251	0.00296	0.13287

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)	0.01021	0.01745	0.15433
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.01010	0.01722	0.15430
sky130_osu_sc_12T_hs__tnbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00792	0.01491	0.14490
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00781	0.01480	0.14489

SKY130_OSU_SC_12T_HS__XNOR2

sky130_osu_sc_12T_hs_tt_2P10_25C.ccs
Cell Library: Process , Voltage 2.10,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_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	0.00614	0.00526	0.84107

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_12T_hs__xnor2_l	0.00000	0.12146	0.19791

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	0.06989	0.54711	5.90061
	A->Y (FR)	!B	0.04173	0.70760	10.14870
	B->Y (RR)	A	0.05663	0.53933	6.04408
	B->Y (FR)	!A	0.05300	0.69140	9.62475

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	0.06513	0.45204	5.21061
	A->Y (RF)	!B	0.02827	0.39101	5.39572
	B->Y (FF)	A	0.05721	0.44548	5.21924
	B->Y (RF)	!A	0.03491	0.39931	5.39204

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	0.00564	0.01021	0.13262
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.01354	0.02075	0.18692
	B	A	0.00000	0.00000	0.00000
	B	A	0.00211	0.00782	0.14677
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01454	0.02119	0.17780

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	0.01623	0.02168	0.15680
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00360	0.00943	0.16367
	B	A	0.00000	0.00000	0.00000
	B	A	0.01485	0.02126	0.15971
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00465	0.01039	0.16303

SKY130_OSU_SC_12T_HS__XOR2

sky130_osu_sc_12T_hs_tt_2P10_25C.ccs
Cell Library: Process , Voltage 2.10,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_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	0.00614	0.00530	0.79157

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_12T_hs__xor2_1	0.00000	0.12146	0.18127

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_1	A->Y (RR)	!B	0.07193	0.55776	6.00988
	A->Y (FR)	B	0.05605	0.71344	9.78709
	B->Y (RR)	!A	0.05995	0.55556	6.03445
	B->Y (FR)	A	0.06047	0.71647	9.75961

Delay(ns) to Y falling (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_12T_hs__xor2_1	A->Y (FF)	!B	0.06127	0.44240	4.89156
	A->Y (RF)	B	0.02955	0.42642	5.78805
	B->Y (FF)	!A	0.05903	0.44435	5.07583
	B->Y (RF)	A	0.03425	0.38966	5.12728

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	0.01606	0.02230	0.17262
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00314	0.00698	0.13799
	B	A	0.00000	0.00000	0.00000
	B	A	0.01631	0.02255	0.16984
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00206	0.00725	0.14156

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	0.00285	0.00809	0.15533
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.01713	0.02288	0.13803
	B	A	0.00000	0.00000	0.00000
	B	A	0.00292	0.00803	0.15163
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01504	0.02126	0.15441

SKY130_OSU_SC_12T_HS_x

sky130_osu_sc_12T_hs_tt_2P10_25C.ccs
Cell Library: Process , Voltage 2.10,
Temp 25.00

Truth Table

INPUT
A
x

Footprint

Cell Name	Area
sky130_osu_sc_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	0.55429
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	298950.00000	597899.00000
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
	-0.00187	0.07276	1.23970

Passive power(pJ) for A falling :

Cell Name	Power(pJ)		
	first	mid	last
sky130_osu_sc_12T_hs__ant	0.00000	0.00000	0.00000
	5.20434	4.99398	1.46743