sky130_osu_sc_18T_hs_tt_2P10_25C.ccs Library

Cell Groups
SKY130_OSU_SC_18T_HS__ADDFx
SKY130_OSU_SC_18T_HS__ADDHx
SKY130_OSU_SC_18T_HS__AND2x
SKY130_OSU_SC_18T_HS__AOI21
SKY130_OSU_SC_18T_HS__AOI22
SKY130_OSU_SC_18T_HS__BUFx
SKY130_OSU_SC_18T_HS__DFFRx
SKY130_OSU_SC_18T_HS__DFFSRx
SKY130_OSU_SC_18T_HS__DFFSx
SKY130_OSU_SC_18T_HS__DFFx
SKY130_OSU_SC_18T_HS__INVx
SKY130_OSU_SC_18T_HS__MUX2
SKY130_OSU_SC_18T_HS__NAND2x
SKY130_OSU_SC_18T_HS__NOR2x
SKY130_OSU_SC_18T_HS__OAI21
SKY130_OSU_SC_18T_HS__OAI22
SKY130_OSU_SC_18T_HS__OR2x
SKY130_OSU_SC_18T_HS__TBUFIx
SKY130_OSU_SC_18T_HS__TNBUFIx
SKY130_OSU_SC_18T_HS__XNOR2
SKY130_OSU_SC_18T_HS__XOR2
SKY130_OSU_SC_18T_HS_x

SKY130_OSU_SC_18T_HS__ADDFx

sky130_osu_sc_18T_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_18T_hs__addf_1	46.88640
sky130_osu_sc_18T_hs__addf_l	46.88640

Pin Capacitance Information

Cell Name	Pin Cap(pf)			Max Cap(pf)		
	A	**B**	**CI**	**CO**	**CON**	**S**
sky130_osu_sc_18T_hs__addf_1	0.02169	0.02154	0.01644	3.68024	1.75932	3.55839
sky130_osu_sc_18T_hs__addf_l	0.02167	0.02152	0.01640	2.47541	1.76294	2.47009

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__addf_1	0.00000	1.58005	2.15037
sky130_osu_sc_18T_hs__addf_l	0.00000	1.26237	1.83269

Delay Information

Delay(ns) to CO rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__addf_1	A->CO (RR)	0.10298	1.33383	23.42100
	B->CO (RR)	0.08717	1.26568	22.28730
	CI->CO (RR)	0.09861	1.39115	24.28790
	CON->CO (FR)	0.02074	0.61209	10.22830
sky130_osu_sc_18T_hs__addf_l	A->CO (RR)	0.10396	1.24097	18.72820
	B->CO (RR)	0.09984	1.20901	18.13710
	CI->CO (RR)	0.09958	1.29937	19.63010
	CON->CO (FR)	0.02333	0.66893	10.22280

Delay(ns) to CO falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__addf_1	A->CO (FF)	0.12871	1.60420	27.81220
	B->CO (FF)	0.11216	1.54881	26.93380
	CI->CO (FF)	0.10995	1.61895	28.26640
	CON->CO (RF)	0.01870	0.52080	8.91034
sky130_osu_sc_18T_hs__addf_l	A->CO (FF)	0.12608	1.43929	21.49260
	B->CO (FF)	0.10981	1.39735	21.03570
	CI->CO (FF)	0.10729	1.45575	21.99130
	CON->CO (RF)	0.01975	0.53626	8.25527

Delay(ns) to CON rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__addf_1	A->CON (FR)	0.10339	0.74173	9.41285
	B->CON (FR)	0.08683	0.72399	9.41676
	CI->CON (FR)	0.08461	0.76122	9.95275
sky130_osu_sc_18T_hs__addf_l	A->CON (FR)	0.09779	0.73721	9.42059
	B->CON (FR)	0.08172	0.71967	9.42352
	CI->CON (FR)	0.07901	0.75640	9.96056

Delay(ns) to CON falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__addf_1	A->CON (RF)	0.06880	0.49166	6.17799
	B->CON (RF)	0.06607	0.50878	6.40549
	CI->CON (RF)	0.06444	0.55282	7.11304
sky130_osu_sc_18T_hs__addf_l	A->CON (RF)	0.06599	0.48909	6.18405
	B->CON (RF)	0.06357	0.50658	6.41205
	CI->CON (RF)	0.06162	0.55026	7.12000

Delay(ns) to S rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__addf_1	A->S (-R)	0.19046	1.44805	22.46900
	B->S (-R)	0.19888	1.42790	21.46240
	CI->S (-R)	0.17004	1.46075	22.93380
	CON->S (RR)	0.05964	0.45992	6.55499
sky130_osu_sc_18T_hs__addf_l	A->S (-R)	0.18262	1.34693	18.49980
	B->S (-R)	0.16914	1.30796	17.88460
	CI->S (-R)	0.16223	1.36114	18.99480
	CON->S (RR)	0.05976	0.50298	6.49024

Delay(ns) to S falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__addf_1	A->S (-F)	0.16372	1.23332	18.83390
	B->S (-F)	0.15924	1.17660	17.99890
	CI->S (-F)	0.15878	1.28880	19.70670
	CON->S (FF)	0.06770	0.56123	7.59271
sky130_osu_sc_18T_hs__addf_l	A->S (-F)	0.15540	1.11773	14.96140
	B->S (-F)	0.14928	1.07524	14.50490
	CI->S (-F)	0.15041	1.17366	15.86060
	CON->S (FF)	0.06556	0.57093	7.12020

Power Information

Internal switching power(pJ) to CO rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__addf_1	A	0.00604	0.01313	0.16335
	B	0.00676	0.01272	0.14398
	CI	0.00985	0.01735	0.16703
sky130_osu_sc_18T_hs__addf_l	A	0.00426	0.00950	0.10573
	B	0.00506	0.00938	0.09398
	CI	0.00807	0.01344	0.10917

Internal switching power(pJ) to CO falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__addf_1	A	0.02536	0.03449	0.24156
	B	0.02657	0.03394	0.21871
	CI	0.02119	0.03113	0.24310
sky130_osu_sc_18T_hs__addf_l	A	0.02353	0.03039	0.16663
	B	0.02475	0.03027	0.15284
	CI	0.01939	0.02724	0.16729

Internal switching power(pJ) to CON rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__addf_1	A	0.02531	0.03121	0.14319
	B	0.02560	0.03125	0.13645
	CI	0.02117	0.02812	0.14578
sky130_osu_sc_18T_hs__addf_l	A	0.02350	0.02913	0.13438
	B	0.02387	0.02922	0.12828
	CI	0.01937	0.02597	0.13682

Internal switching power(pJ) to CON falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__addf_1	A	0.00600	0.01090	0.09543
	B	0.00672	0.01085	0.08765
	CI	0.00981	0.01508	0.10238
sky130_osu_sc_18T_hs__addf_l	A	0.00512	0.00805	0.07282
	B	0.00502	0.00865	0.07762
	CI	0.00805	0.01275	0.09073

Internal switching power(pJ) to S rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__addf_1	A	-0.00300	-0.00058	0.19794
	B	-0.01031	-0.00310	0.14985
	CI	0.00871	0.01458	0.19889
sky130_osu_sc_18T_hs__addf_l	A	-0.00568	-0.00263	0.19952
	B	-0.01300	-0.00522	0.16638
	CI	0.00601	0.01258	0.20171

Internal switching power(pJ) to S falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__addf_1	A	0.05617	0.06320	0.23168
	B	0.04953	0.05888	0.26338
	CI	0.04172	0.04902	0.20640
sky130_osu_sc_18T_hs__addf_l	A	0.05382	0.06107	0.23877
	B	0.04719	0.05733	0.26707
	CI	0.03945	0.04694	0.21364

SKY130_OSU_SC_18T_HS__ADDHx

sky130_osu_sc_18T_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	1	0
0	1	0	0	1
1	0	0	0	1
1	1	1	1	0

Footprint

Cell Name	Area
sky130_osu_sc_18T_hs__addh_1	27.83880
sky130_osu_sc_18T_hs__addh_l	27.83880

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)		
	A	B	CO	CON	S
sky130_osu_sc_18T_hs__addh_1	0.01050	0.01159	3.60409	1.89685	3.73098
sky130_osu_sc_18T_hs__addh_l	0.01050	0.01159	2.11864	1.89116	2.17236

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__addh_1	0.00000	1.84570	2.13849
sky130_osu_sc_18T_hs__addh_l	0.00000	1.27127	1.68045

Delay Information

Delay(ns) to CO rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__addh_1	A->CO (RR)	0.06798	0.46692	6.42063
	B->CO (RR)	0.07054	0.45811	6.51120
sky130_osu_sc_18T_hs__addh_l	A->CO (RR)	0.06857	0.53132	6.39523
	B->CO (RR)	0.07113	0.52261	6.39402

Delay(ns) to CO falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__addh_1	A->CO (FF)	0.05919	0.52412	7.38561
	B->CO (FF)	0.06434	0.53954	7.50681
sky130_osu_sc_18T_hs__addh_l	A->CO (FF)	0.05877	0.54880	6.75606
	B->CO (FF)	0.06370	0.56403	6.88053

Delay(ns) to CON rising (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_18T_hs__addh_1	A->CON (RR)	B	0.09505	0.37685	3.29092
	A->CON (FR)	!B	0.05452	0.70889	9.75741
	B->CON (RR)	A	0.09733	0.36774	3.38990
	B->CON (FR)	!A	0.06971	0.69939	9.43603
sky130_osu_sc_18T_hs__addh_l	A->CON (RR)	B	0.08514	0.35983	3.32523
	A->CON (FR)	!B	0.04818	0.70115	9.74609
	B->CON (RR)	A	0.08744	0.35132	3.34512
	B->CON (FR)	!A	0.06337	0.69114	9.40923

Delay(ns) to CON falling (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_18T_hs__addh_1	A->CON (FF)	B	0.09212	0.53703	5.82055
	A->CON (RF)	!B	0.04015	0.52413	7.20443
	B->CON (FF)	A	0.09017	0.57169	6.34126
	B->CON (RF)	!A	0.04751	0.50304	6.73682
sky130_osu_sc_18T_hs__addh_l	A->CON (FF)	B	0.08329	0.51319	5.66233
	A->CON (RF)	!B	0.03701	0.51925	7.18531
	B->CON (FF)	A	0.08163	0.54783	6.17425
	B->CON (RF)	!A	0.04436	0.49875	6.72069

Delay(ns) to S rising (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_18T_hs__addh_1	A->S (RR)	!B	0.07168	1.33640	23.94060
	A->S (FR)	B	0.12438	1.33147	22.23510
	B->S (RR)	!A	0.07958	1.27795	22.62520
	B->S (FR)	A	0.12262	1.40472	23.64010
	CON->S (FR)	-	0.02359	0.63819	10.68740
sky130_osu_sc_18T_hs__addh_l	A->S (RR)	!B	0.07135	1.21434	17.96270
	A->S (FR)	B	0.11860	1.19566	16.23290
	B->S (RR)	!A	0.07947	1.16896	17.11270
	B->S (FR)	A	0.11691	1.25618	17.16530
	CON->S (FR)	-	0.02629	0.71101	10.52380

Delay(ns) to S falling (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_18T_hs__addh_1	A->S (FF)	!B	0.07826	1.48384	26.44610
	A->S (RF)	B	0.11775	0.98674	15.89530
	B->S (FF)	!A	0.09346	1.47864	26.18780
	B->S (RF)	A	0.12003	0.97671	15.98830
	CON->S (RF)	-	0.01766	0.50657	8.70606
sky130_osu_sc_18T_hs__addh_l	A->S (FF)	!B	0.07462	1.29877	19.18250
	A->S (RF)	B	0.10990	0.87166	11.27710
	B->S (FF)	!A	0.08982	1.29143	18.86170
	B->S (RF)	A	0.11220	0.86232	11.27660
	CON->S (RF)	-	0.01934	0.53971	8.04192

Power Information

Internal switching power(pJ) to CO rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__addh_1	A	0.00000	0.00000	0.00000
	A	0.01118	0.01501	0.09329
	B	0.00000	0.00000	0.00000
	B	0.00982	0.01388	0.11570
sky130_osu_sc_18T_hs__addh_l	A	0.00000	0.00000	0.00000
	A	0.00896	0.01289	0.09816
	B	0.00000	0.00000	0.00000
	B	0.00760	0.01166	0.11221

Internal switching power(pJ) to CO falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__addh_1	A	0.00000	0.00000	0.00000
	A	0.01755	0.02346	0.14772
	B	0.00000	0.00000	0.00000
	B	0.01822	0.02608	0.16267
sky130_osu_sc_18T_hs__addh_l	A	0.00000	0.00000	0.00000
	A	0.01536	0.02060	0.12391
	B	0.00000	0.00000	0.00000
	B	0.01601	0.02269	0.13292

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

Cell Name	Input	When	Power(pJ)		
			first	mid	last
sky130_osu_sc_18T_hs__addh_1	A	B	0.00000	0.00000	0.00000
	A	B	0.01116	0.01494	0.09237
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.01561	0.01993	0.07647
	B	A	0.00000	0.00000	0.00000
	B	A	0.00980	0.01383	0.11402
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01780	0.02038	0.07030
sky130_osu_sc_18T_hs__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.00895	0.01283	0.09767
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.01396	0.01747	0.06351
	B	A	0.00000	0.00000	0.00000
	B	A	0.00759	0.01162	0.11193
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01614	0.01801	0.05581

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

Cell Name	Input	When	Power(pJ)		
			first	mid	last
sky130_osu_sc_18T_hs__addh_1	A	B	0.00000	0.00000	0.00000
	A	B	0.01755	0.02316	0.13395
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00210	0.00569	0.05502
	B	A	0.00000	0.00000	0.00000
	B	A	0.01821	0.02551	0.14576
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00383	0.00685	0.05406
sky130_osu_sc_18T_hs__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.01536	0.02057	0.12338
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00028	0.00263	0.03483
	B	A	0.00000	0.00000	0.00000
	B	A	0.01601	0.02263	0.13225
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00201	0.00394	0.03639

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

Cell Name	Input	When	Power(pJ)		
			first	mid	last
sky130_osu_sc_18T_hs__addh_1	A	B	0.00000	0.00000	0.00000
	A	B	0.01758	0.02362	0.14966
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00215	0.00599	0.06901
	B	A	0.00000	0.00000	0.00000
	B	A	0.01824	0.02618	0.16588
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00389	0.00715	0.06285
sky130_osu_sc_18T_hs__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.01538	0.02063	0.12472
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00031	0.00265	0.03548
	B	A	0.00000	0.00000	0.00000
	B	A	0.01602	0.02271	0.13359
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00204	0.00388	0.03622

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

Cell Name	Input	When	Power(pJ)		
			first	mid	last
sky130_osu_sc_18T_hs__addh_1	A	B	0.00000	0.00000	0.00000
	A	B	0.01119	0.01505	0.09408
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.01564	0.02007	0.08676
	B	A	0.00000	0.00000	0.00000
	B	A	0.00983	0.01392	0.11649
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01783	0.02093	0.08012
sky130_osu_sc_18T_hs__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.00896	0.01289	0.09827
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.01397	0.01741	0.06261
	B	A	0.00000	0.00000	0.00000
	B	A	0.00760	0.01165	0.11209
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01615	0.01810	0.05487

SKY130_OSU_SC_18T_HS__AND2x

sky130_osu_sc_18T_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_18T_hs__and2_1	12.45420
sky130_osu_sc_18T_hs__and2_2	15.38460
sky130_osu_sc_18T_hs__and2_4	21.24540
sky130_osu_sc_18T_hs__and2_6	27.10620
sky130_osu_sc_18T_hs__and2_8	32.96700
sky130_osu_sc_18T_hs__and2_l	12.45420

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	B	Y
sky130_osu_sc_18T_hs__and2_1	0.00570	0.00583	3.67742
sky130_osu_sc_18T_hs__and2_2	0.00570	0.00583	6.96941
sky130_osu_sc_18T_hs__and2_4	0.00571	0.00584	13.02890
sky130_osu_sc_18T_hs__and2_6	0.00575	0.00585	19.10941
sky130_osu_sc_18T_hs__and2_8	0.00573	0.00587	24.85570
sky130_osu_sc_18T_hs__and2_l	0.00438	0.00450	2.45747

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__and2_1	0.00000	0.89054	1.42324
sky130_osu_sc_18T_hs__and2_2	0.00000	1.42272	1.43551
sky130_osu_sc_18T_hs__and2_4	0.00000	2.48709	2.83422
sky130_osu_sc_18T_hs__and2_6	0.00000	3.55146	4.24520
sky130_osu_sc_18T_hs__and2_8	0.00000	4.61582	5.65618
sky130_osu_sc_18T_hs__and2_l	0.00000	0.49412	0.78870

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__and2_1	A->Y (RR)	0.05216	0.42485	6.54692
	B->Y (RR)	0.05531	0.41057	6.18679
sky130_osu_sc_18T_hs__and2_2	A->Y (RR)	0.06001	0.37791	6.46181
	B->Y (RR)	0.06323	0.36123	6.07983
sky130_osu_sc_18T_hs__and2_4	A->Y (RR)	0.08318	0.38342	6.49610
	B->Y (RR)	0.08644	0.36325	6.11913
sky130_osu_sc_18T_hs__and2_6	A->Y (RR)	0.10777	0.41174	6.62853
	B->Y (RR)	0.11095	0.38781	6.24760
sky130_osu_sc_18T_hs__and2_8	A->Y (RR)	0.13214	0.44730	6.83381
	B->Y (RR)	0.13541	0.41988	6.43692
sky130_osu_sc_18T_hs__and2_1	A->Y (RR)	0.05706	0.47974	6.35395
	B->Y (RR)	0.06036	0.46546	6.03604

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__and2_1	**A->Y (FF)**	0.04719	0.47169	6.90658
	B->Y (FF)	0.04988	0.48273	7.00066
sky130_osu_sc_18T_hs__and2_2	**A->Y (FF)**	0.05256	0.42662	6.73263
	B->Y (FF)	0.05577	0.43818	6.85096
sky130_osu_sc_18T_hs__and2_4	**A->Y (FF)**	0.07160	0.43150	6.70681
	B->Y (FF)	0.07480	0.44105	6.82986
sky130_osu_sc_18T_hs__and2_6	**A->Y (FF)**	0.09339	0.45953	6.78621
	B->Y (FF)	0.09640	0.46753	6.90968
sky130_osu_sc_18T_hs__and2_8	**A->Y (FF)**	0.11361	0.48668	6.78764
	B->Y (FF)	0.11676	0.49390	6.90606
sky130_osu_sc_18T_hs__and2_1	**A->Y (FF)**	0.05079	0.50730	6.50430
	B->Y (FF)	0.05428	0.52078	6.62744

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__and2_1	A	0.00000	0.00000	0.00000
	A	0.00768	0.02242	0.31606
	B	0.00000	0.00000	0.00000
	B	0.00768	0.01828	0.23660
sky130_osu_sc_18T_hs__and2_2	A	0.00000	0.00000	0.00000
	A	0.01666	0.03029	0.32679
	B	0.00000	0.00000	0.00000
	B	0.01671	0.02668	0.24306
sky130_osu_sc_18T_hs__and2_4	A	0.00000	0.00000	0.00000
	A	0.03774	0.04947	0.33999
	B	0.00000	0.00000	0.00000
	B	0.03786	0.04627	0.25641
sky130_osu_sc_18T_hs__and2_6	A	0.00000	0.00000	0.00000
	A	0.06607	0.07129	0.35379
	B	0.00000	0.00000	0.00000
	B	0.06618	0.07000	0.27079
sky130_osu_sc_18T_hs__and2_8	A	0.00000	0.00000	0.00000
	A	0.09775	0.09568	0.37546
	B	0.00000	0.00000	0.00000
	B	0.09788	0.09081	0.27990
sky130_osu_sc_18T_hs__and2_l	A	0.00000	0.00000	0.00000
	A	0.00559	0.01469	0.20401
	B	0.00000	0.00000	0.00000
	B	0.00566	0.01243	0.16040

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__and2_1	A	0.00000	0.00000	0.00000
	A	0.02084	0.03846	0.28972
	B	0.00000	0.00000	0.00000
	B	0.02335	0.04042	0.28268
sky130_osu_sc_18T_hs__and2_2	A	0.00000	0.00000	0.00000
	A	0.02789	0.04478	0.29763
	B	0.00000	0.00000	0.00000
	B	0.03035	0.04673	0.29003
sky130_osu_sc_18T_hs__and2_4	A	0.00000	0.00000	0.00000
	A	0.05031	0.06153	0.31302
	B	0.00000	0.00000	0.00000
	B	0.05245	0.06293	0.30375
sky130_osu_sc_18T_hs__and2_6	A	0.00000	0.00000	0.00000
	A	0.07359	0.07918	0.32953
	B	0.00000	0.00000	0.00000
	B	0.07566	0.08019	0.31874
sky130_osu_sc_18T_hs__and2_8	A	0.00000	0.00000	0.00000
	A	0.10609	0.09866	0.34760
	B	0.00000	0.00000	0.00000
	B	0.10791	0.09850	0.33240
sky130_osu_sc_18T_hs__and2_l	A	0.00000	0.00000	0.00000
	A	0.01602	0.02710	0.18198
	B	0.00000	0.00000	0.00000
	B	0.01796	0.02883	0.18167

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__and2_1	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00823	-0.00828	-0.00828
sky130_osu_sc_18T_hs__and2_2	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00822	-0.00828	-0.00828
sky130_osu_sc_18T_hs__and2_4	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00821	-0.00827	-0.00827
sky130_osu_sc_18T_hs__and2_6	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00824	-0.00829	-0.00829
sky130_osu_sc_18T_hs__and2_8	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00818	-0.00824	-0.00824
sky130_osu_sc_18T_hs__and2_l	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00603	-0.00606	-0.00607

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__and2_1	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00827	0.00834	0.00831
sky130_osu_sc_18T_hs__and2_2	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00828	0.00835	0.00832
sky130_osu_sc_18T_hs__and2_4	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00829	0.00836	0.00833
sky130_osu_sc_18T_hs__and2_6	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00834	0.00841	0.00838
sky130_osu_sc_18T_hs__and2_8	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00831	0.00838	0.00836
sky130_osu_sc_18T_hs__and2_l	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00606	0.00611	0.00609

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__and2_1	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00781	-0.00788	-0.00783
sky130_osu_sc_18T_hs__and2_2	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00781	-0.00787	-0.00783
sky130_osu_sc_18T_hs__and2_4	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00780	-0.00786	-0.00782
sky130_osu_sc_18T_hs__and2_6	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00779	-0.00785	-0.00780
sky130_osu_sc_18T_hs__and2_8	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00778	-0.00784	-0.00779
sky130_osu_sc_18T_hs__and2_l	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00573	-0.00578	-0.00575

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__and2_1	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00800	0.00791	0.00787
sky130_osu_sc_18T_hs__and2_2	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00801	0.00791	0.00788
sky130_osu_sc_18T_hs__and2_4	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00802	0.00792	0.00789
sky130_osu_sc_18T_hs__and2_6	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00803	0.00793	0.00790
sky130_osu_sc_18T_hs__and2_8	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00804	0.00794	0.00792
sky130_osu_sc_18T_hs__and2_l	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00587	0.00578	0.00577

SKY130_OSU_SC_18T_HS__AOI21

sky130_osu_sc_18T_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_18T_hs__aoi21_l	12.45420

Pin Capacitance Information

Cell Name	Pin Cap(pf)			Max Cap(pf)
	A0	A1	B0	Y
sky130_osu_sc_18T_hs__aoi21_l	0.00546	0.00563	0.00543	1.72010

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__aoi21_l	0.00000	0.32830	0.70549

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__aoi21_l	A0->Y (FR)	0.05529	0.68862	9.25503
	A1->Y (FR)	0.04768	0.65520	8.87472
	B0->Y (FR)	0.03887	0.70887	9.77388

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__aoi21_l	A0->Y (RF)	0.03709	0.43330	5.69915
	A1->Y (RF)	0.03379	0.47131	6.28715
	B0->Y (RF)	0.02290	0.46830	6.47174

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__aoi21_l	A0	0.00000	0.00000	0.00000
	A0	0.01914	0.02147	0.07969
	A1	0.00000	0.00000	0.00000
	A1	0.01610	0.01854	0.07559
	B0	0.01103	0.01689	0.09509

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__aoi21_l	A0	0.00000	0.00000	0.00000
	A0	0.00382	0.00561	0.04769
	A1	0.00000	0.00000	0.00000
	A1	0.00394	0.00656	0.05303
	B0	-0.00223	0.00068	0.04119

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__aoi21_l	(A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * !Y)	-0.00615	-0.00739	-0.00738
	(!A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !Y)	-0.00742	-0.00749	-0.00744
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00742	-0.00749	-0.00744

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__aoi21_l	(A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * !Y)	0.00733	0.00739	0.00739
	(!A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !Y)	0.00744	0.00754	0.00747
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00760	0.00749	0.00746

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__aoi21_l	(A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * B0 * !Y)	-0.00608	-0.00732	-0.00731
	(!A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !Y)	-0.00734	-0.00740	-0.00736
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	-0.00790	-0.00794	-0.00794

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__aoi21_l	(A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * B0 * !Y)	0.00726	0.00734	0.00732
	(!A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !Y)	0.00735	0.00740	0.00739
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	0.00792	0.00800	0.00796

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__aoi21_l	(A0 * A1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !Y)	-0.00321	-0.00324	-0.00323

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__aoi21_l	(A0 * A1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !Y)	0.00345	0.00347	0.00329

SKY130_OSU_SC_18T_HS__AOI22

sky130_osu_sc_18T_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_18T_hs__aoi22_l	15.38460

Pin Capacitance Information

Cell Name	Pin Cap(pf)				Max Cap(pf)
	A0	A1	B0	B1	Y
sky130_osu_sc_18T_hs__aoi22_l	0.00546	0.00563	0.00579	0.00559	1.65188

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__aoi22_l	0.00000	0.36062	1.41096

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__aoi22_l	A0->Y (FR)	0.06941	0.70609	9.21432
	A1->Y (FR)	0.06218	0.68567	9.01411
	B0->Y (FR)	0.04065	0.70301	9.57009
	B1->Y (FR)	0.04787	0.73032	9.86141

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__aoi22_l	A0->Y (RF)	0.04940	0.44098	5.54480
	A1->Y (RF)	0.04612	0.47930	6.12772
	B0->Y (RF)	0.02412	0.44928	6.10424
	B1->Y (RF)	0.02743	0.41206	5.52270

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__aoi22_l	A0	0.02376	0.02599	0.08843
	A1	0.02076	0.02295	0.08427
	B0	0.01195	0.01904	0.10875
	B1	0.01495	0.02157	0.10943

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__aoi22_l	A0	0.00830	0.01006	0.05556
	A1	0.00843	0.01103	0.06106
	B0	-0.00163	0.00182	0.05058
	B1	-0.00160	0.00104	0.04454

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__aoi22_l	(A1 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * B1 * !Y)	-0.00610	-0.00738	-0.00738
	(!A1 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * B1 * !Y)	-0.00741	-0.00748	-0.00743
	(!A1 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !B1 * Y)	-0.00742	-0.00746	-0.00744
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00742	-0.00748	-0.00744

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__aoi22_l	(A1 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * B1 * !Y)	0.00734	0.00743	0.00739
	(!A1 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * B1 * !Y)	0.00745	0.00754	0.00748
	(!A1 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !B1 * Y)	0.00760	0.00748	0.00746
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00760	0.00748	0.00746

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__aoi22_l	(A0 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * B0 * B1 * !Y)	-0.00603	-0.00730	-0.00730
	(!A0 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * B1 * !Y)	-0.00734	-0.00740	-0.00735
	(!A0 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !B1 * Y)	-0.00789	-0.00794	-0.00794
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	-0.00786	-0.00794	-0.00794

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__aoi22_l	(A0 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * B0 * B1 * !Y)	0.00726	0.00731	0.00732
	(!A0 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * B1 * !Y)	0.00736	0.00741	0.00740
	(!A0 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !B1 * Y)	0.00791	0.00799	0.00796
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	0.00791	0.00799	0.00796

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__aoi22_l	(A0 * A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * B1 * !Y)	-0.00323	-0.00326	-0.00324
	(A0 * A1 * !B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B1 * !Y)	-0.00320	-0.00323	-0.00323
	(!A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B1 * Y)	-0.00807	-0.00810	-0.00813
	(!A0 * A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B1 * Y)	-0.00806	-0.00810	-0.00813

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__aoi22_l	(A0 * A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * B1 * !Y)	0.00356	0.00358	0.00332
	(A0 * A1 * !B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B1 * !Y)	0.00322	0.00323	0.00323
	(!A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B1 * Y)	0.00810	0.00818	0.00815
	(!A0 * A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B1 * Y)	0.00810	0.00819	0.00814

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__aoi22_l	(A0 * A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * B0 * !Y)	-0.00324	-0.00327	-0.00326
	(A0 * A1 * !B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B0 * !Y)	-0.00322	-0.00326	-0.00325
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00753	-0.00758	-0.00754
	(!A0 * A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B0 * Y)	-0.00753	-0.00758	-0.00754

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__aoi22_l	(A0 * A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * B0 * !Y)	0.00358	0.00359	0.00334
	(A0 * A1 * !B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B0 * !Y)	0.00325	0.00326	0.00325
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00770	0.00759	0.00757
	(!A0 * A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B0 * Y)	0.00770	0.00758	0.00757

SKY130_OSU_SC_18T_HS__BUFx

sky130_osu_sc_18T_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_18T_hs__buf_1	9.52380
sky130_osu_sc_18T_hs__buf_2	12.45420
sky130_osu_sc_18T_hs__buf_4	18.31500
sky130_osu_sc_18T_hs__buf_6	24.17580
sky130_osu_sc_18T_hs__buf_8	30.03660
sky130_osu_sc_18T_hs__buf_l	9.52380

Pin Capacitance Information

Cell Name	Pin Cap(pf)	Max Cap(pf)
	A	Y
sky130_osu_sc_18T_hs__buf_1	0.00581	3.62502
sky130_osu_sc_18T_hs__buf_2	0.00581	6.95726
sky130_osu_sc_18T_hs__buf_4	0.00581	13.28918
sky130_osu_sc_18T_hs__buf_6	0.00097	1.80000
sky130_osu_sc_18T_hs__buf_8	0.00584	25.23150
sky130_osu_sc_18T_hs__buf_l	0.00453	2.46581

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__buf_1	0.00000	0.71776	0.71776
sky130_osu_sc_18T_hs__buf_2	0.00000	1.07663	1.42325
sky130_osu_sc_18T_hs__buf_4	0.00000	1.79439	2.83423
sky130_osu_sc_18T_hs__buf_6	0.00000	0.00000	0.00000
sky130_osu_sc_18T_hs__buf_8	0.00000	3.22989	5.65619
sky130_osu_sc_18T_hs__buf_l	0.00000	0.40008	0.40008

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__buf_1	**A->Y (RR)**	0.04264	0.38788	6.01620
sky130_osu_sc_18T_hs__buf_2	**A->Y (RR)**	0.04752	0.33644	5.93902
sky130_osu_sc_18T_hs__buf_4	**A->Y (RR)**	0.06400	0.33565	6.06519
sky130_osu_sc_18T_hs__buf_8	**A->Y (RR)**	0.09871	0.38301	6.27598
sky130_osu_sc_18T_hs__buf_l	**A->Y (RR)**	0.04704	0.44485	5.94565

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__buf_1	**A->Y (FF)**	0.04477	0.46900	6.94927
sky130_osu_sc_18T_hs__buf_2	**A->Y (FF)**	0.05081	0.42875	6.88863
sky130_osu_sc_18T_hs__buf_4	**A->Y (FF)**	0.06988	0.43495	6.96174
sky130_osu_sc_18T_hs__buf_8	**A->Y (FF)**	0.11173	0.48900	7.00948
sky130_osu_sc_18T_hs__buf_l	**A->Y (FF)**	0.04898	0.50907	6.64870

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__buf_1	A	0.00000	0.00000	0.00000
	A	0.00713	0.02074	0.25543
sky130_osu_sc_18T_hs__buf_2	A	0.00000	0.00000	0.00000
	A	0.01570	0.02909	0.26571
sky130_osu_sc_18T_hs__buf_4	A	0.00000	0.00000	0.00000
	A	0.03500	0.04841	0.28709
sky130_osu_sc_18T_hs__buf_8	A	0.00000	0.00000	0.00000
	A	0.08471	0.09280	0.32222
sky130_osu_sc_18T_hs__buf_l	A	0.00000	0.00000	0.00000
	A	0.00534	0.01406	0.17564

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__buf_1	A	0.00000	0.00000	0.00000
	A	0.01974	0.03807	0.29648
sky130_osu_sc_18T_hs__buf_2	A	0.00000	0.00000	0.00000
	A	0.02665	0.04422	0.30215
sky130_osu_sc_18T_hs__buf_4	A	0.00000	0.00000	0.00000
	A	0.04851	0.06073	0.31812
sky130_osu_sc_18T_hs__buf_8	A	0.00000	0.00000	0.00000
	A	0.10433	0.09677	0.34700
sky130_osu_sc_18T_hs__buf_l	A	0.00000	0.00000	0.00000
	A	0.01538	0.02706	0.18838

Passive power(pJ) for A rising :

Cell Name	Power(pJ)		
	first	mid	last
sky130_osu_sc_18T_hs__buf_6	0.00000	0.00000	0.00000
	-0.00106	-0.00107	-0.00104

Passive power(pJ) for A falling :

Cell Name	Power(pJ)		
	first	mid	last
sky130_osu_sc_18T_hs__buf_6	0.00000	0.00000	0.00000
	0.00106	0.00107	0.00104

SKY130_OSU_SC_18T_HS__DFFRx

sky130_osu_sc_18T_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_18T_hs__dffr_1	63.73620
sky130_osu_sc_18T_hs__dffr_l	63.73620

Pin Capacitance Information

Cell Name	Pin Cap(pf)			Max Cap(pf)	
	D	**RN**	**CK**	**Q**	**QN**
sky130_osu_sc_18T_hs__dffr_1	0.00562	0.00554	0.01572	3.48832	3.47904
sky130_osu_sc_18T_hs__dffr_l	0.00562	0.00554	0.01572	2.47471	2.47731

Leakage Information

Cell Name	Leakage(nW)		
	Min.	**Avg**	**Max.**
sky130_osu_sc_18T_hs__dffr_1	0.00000	2.16231	3.36466
sky130_osu_sc_18T_hs__dffr_l	0.00000	1.84463	3.04698

Delay Information

Delay(ns) to Q rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__dffr_1	CK->Q (RR)	0.19028	1.02060	14.66600
	QN->Q (FR)	0.02459	0.69703	11.58130
sky130_osu_sc_18T_hs__dffr_l	CK->Q (RR)	0.18730	1.09948	14.16820
	QN->Q (FR)	0.02586	0.73276	11.23560

Delay(ns) to Q falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__dffr_1	CK->Q (RF)	0.19791	1.01792	14.76440
	QN->Q (RF)	0.02177	0.62050	10.38590
	RN->Q (FF)	0.15025	1.09888	16.52810
sky130_osu_sc_18T_hs__dffr_l	CK->Q (RF)	0.20004	1.11737	14.48770
	QN->Q (RF)	0.02183	0.62177	9.53155
	RN->Q (FF)	0.15269	1.19815	16.25080

Delay(ns) to QN rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__dffr_1	CK->QN (RR)	0.17564	0.53952	5.98103
	RN->QN (FR)	0.12800	0.62032	7.74035
sky130_osu_sc_18T_hs__dffr_l	CK->QN (RR)	0.17584	0.59042	6.04955
	RN->QN (FR)	0.12847	0.67099	7.80447

Delay(ns) to QN falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__dffr_1	**CK->QN (RF)**	0.16215	0.50456	5.21970
sky130_osu_sc_18T_hs__dffr_l	**CK->QN (RF)**	0.15618	0.51613	4.83797

Constraint Information

Constraints(ns) for D rising :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_hs__dffr_1	hold	CK (R)	-0.05015	-0.04663	0.25000
	setup	CK (R)	0.15100	0.18085	0.17532
sky130_osu_sc_18T_hs__dffr_l	hold	CK (R)	-0.05126	-0.04663	0.24944
	setup	CK (R)	0.15153	0.18158	0.17443

Constraints(ns) for D falling :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_hs__dffr_1	hold	CK (R)	-0.08277	-0.25235	-3.29103
	setup	CK (R)	0.10298	0.26255	4.17388
sky130_osu_sc_18T_hs__dffr_l	hold	CK (R)	-0.08080	-0.25226	-3.30089
	setup	CK (R)	0.10298	0.26255	4.17388

Constraints(ns) for D rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_hs__dffr_1	hold	CK (R)	-0.05015	-0.04663	0.25000
	setup	CK (R)	0.15100	0.18085	0.17532
sky130_osu_sc_18T_hs__dffr_l	hold	CK (R)	-0.05126	-0.04663	0.24944
	setup	CK (R)	0.15153	0.18158	0.17443

Constraints(ns) for D falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_hs__dffr_1	hold	CK (R)	-0.08277	-0.25235	-3.29103
	setup	CK (R)	0.10298	0.26255	4.17388
sky130_osu_sc_18T_hs__dffr_l	hold	CK (R)	-0.08080	-0.25226	-3.30089
	setup	CK (R)	0.10298	0.26255	4.17388

Constraints(ns) for RN rising :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_hs__dffr_1	recovery	CK (R)	0.12327	0.16388	0.75565
	removal	CK (R)	-0.02856	-0.03231	-0.09524
sky130_osu_sc_18T_hs__dffr_l	recovery	CK (R)	0.12350	0.16431	0.75338
	removal	CK (R)	-0.02856	-0.03231	-0.09524

Constraints(ns) for RN rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_hs__dffr_1	recovery	CK (R)	0.12327	0.16388	0.75565
	removal	CK (R)	-0.02856	-0.03231	-0.09524
sky130_osu_sc_18T_hs__dffr_l	recovery	CK (R)	0.12350	0.16431	0.75338
	removal	CK (R)	-0.02856	-0.03231	-0.09524

Constraints(ns) for RN falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_hs__dffr_1	min_pulse_width	RN ()	0.08789	0.48706	13.33370
	min_pulse_width	RN ()	0.08789	0.48706	13.33370
sky130_osu_sc_18T_hs__dffr_l	min_pulse_width	RN ()	0.08789	0.48706	13.33370
	min_pulse_width	RN ()	0.08423	0.48706	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_18T_hs__dffr_1	min_pulse_width	CK ()	0.09155	0.48706	13.33370
	min_pulse_width	CK ()	0.10254	0.48706	13.33370
sky130_osu_sc_18T_hs__dffr_l	min_pulse_width	CK ()	0.08423	0.48706	13.33370
	min_pulse_width	CK ()	0.09888	0.48706	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_18T_hs__dffr_1	min_pulse_width	CK ()	0.19409	0.48706	13.33370
	min_pulse_width	CK ()	0.08423	0.48706	13.33370
sky130_osu_sc_18T_hs__dffr_l	min_pulse_width	CK ()	0.19409	0.48706	13.33370
	min_pulse_width	CK ()	0.08057	0.48706	13.33370

Power Information

Internal switching power(pJ) to Q rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__dffr_1	CK	0.00000	0.00000	0.00000
	CK	0.02036	0.02517	0.09626
sky130_osu_sc_18T_hs__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.01784	0.02590	0.16936

Internal switching power(pJ) to Q falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__dffr_1	CK	0.00000	0.00000	0.00000
	CK	0.02332	0.02546	0.10213
	RN	-0.00246	-0.20286	-3.84576
	RN	0.05393	0.05810	0.14194
sky130_osu_sc_18T_hs__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.02093	0.02564	0.15398
	RN	-0.00246	-0.16509	-2.72834
	RN	0.05150	0.05823	0.19357

Internal switching power(pJ) to QN rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__dffr_1	CK	0.00000	0.00000	0.00000
	CK	0.02330	0.02550	0.10245
	RN	-0.00246	-0.20253	-3.83418
	RN	0.05390	0.05814	0.14150
sky130_osu_sc_18T_hs__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.02091	0.02560	0.15443
	RN	-0.00246	-0.16520	-2.73098
	RN	0.05147	0.05818	0.19286

Internal switching power(pJ) to QN falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__dffr_1	CK	0.00000	0.00000	0.00000
	CK	0.02029	0.02520	0.09553
sky130_osu_sc_18T_hs__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.01776	0.02587	0.16577

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__dffr_1	CK	0.00000	0.00000	0.00000
	CK	-0.00602	-0.00720	-0.00731
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.02527	0.03374	0.25443
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.01132	0.02007	0.23685
sky130_osu_sc_18T_hs__dffr_l	CK	0.00000	0.00000	0.00000
	CK	-0.00602	-0.00721	-0.00731
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.02527	0.03374	0.25443
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.01132	0.02007	0.23684

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__dffr_1	CK	0.00000	0.00000	0.00000
	CK	0.00733	0.00740	0.00739
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.04290	0.05270	0.27718
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.01993	0.02943	0.24718
sky130_osu_sc_18T_hs__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.00733	0.00740	0.00739
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.04290	0.05270	0.27718
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.01993	0.02943	0.24717

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__dffr_1	(CK * !Q * QN) + (!CK * !D * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !Q * QN) + (!CK * !D * !Q * QN)	0.00760	0.02441	0.36447
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.02162	0.03820	0.39087
sky130_osu_sc_18T_hs__dffr_l	(CK * !Q * QN) + (!CK * !D * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !Q * QN) + (!CK * !D * !Q * QN)	0.00760	0.02440	0.36447
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.02162	0.03820	0.39087

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__dffr_1	(CK * !Q * QN) + (!CK * !D * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !Q * QN) + (!CK * !D * !Q * QN)	0.01856	0.03891	0.37950
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.04088	0.06091	0.41392
sky130_osu_sc_18T_hs__dffr_l	(CK * !Q * QN) + (!CK * !D * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !Q * QN) + (!CK * !D * !Q * QN)	0.01856	0.03890	0.37950
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.04088	0.06090	0.41391

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__dffr_1	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	-0.00202	0.01409	0.35178
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.01181	0.02697	0.38525
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	-0.00274	0.01348	0.34990
sky130_osu_sc_18T_hs__dffr_l	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	-0.00202	0.01409	0.35178
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.01181	0.02697	0.38525
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	-0.00274	0.01348	0.34990

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__dffr_1	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.02815	0.04867	0.38734
	(D * RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * RN * !Q * QN)	0.06383	0.08219	0.51945
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.04916	0.06791	0.42511
	(!D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * Q * !QN)	0.06189	0.09746	0.61866
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.03281	0.05259	0.38977
sky130_osu_sc_18T_hs__dffr_l	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.02814	0.04867	0.38734
	(D * RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * RN * !Q * QN)	0.06382	0.08219	0.51944
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.04916	0.06791	0.42511
	(!D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * Q * !QN)	0.06188	0.09751	0.61865
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.03281	0.05259	0.38976

SKY130_OSU_SC_18T_HS__DFFSRx

sky130_osu_sc_18T_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_18T_hs__dffsr_1	69.59700
sky130_osu_sc_18T_hs__dffsr_l	69.59700

Pin Capacitance Information

Cell Name	Pin Cap(pf)				Max Cap(pf)	
	D	**RN**	**SN**	**CK**	**Q**	**QN**
sky130_osu_sc_18T_hs__dffsr_1	0.00557	0.00554	0.01190	0.01610	3.74935	3.69569
sky130_osu_sc_18T_hs__dffsr_l	0.00557	0.00554	0.01189	0.01610	2.48156	2.48299

Leakage Information

Cell Name	Leakage(nW)		
	Min.	**Avg**	**Max.**
sky130_osu_sc_18T_hs__dffsr_1	0.00000	2.41622	3.36055
sky130_osu_sc_18T_hs__dffsr_l	0.00000	2.09854	3.04287

Delay Information

Delay(ns) to Q rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__dffsr_1	CK->Q (RR)	0.19681	1.02501	15.06210
	QN->Q (FR)	0.02325	0.68241	11.53050
	RN->Q (RR)	0.15878	1.00115	15.22730
	SN->Q (FR)	0.14581	1.10987	17.06320
sky130_osu_sc_18T_hs__dffsr_l	CK->Q (RR)	0.19950	1.11189	14.19520
	QN->Q (FR)	0.02579	0.73079	11.21600
	RN->Q (RR)	0.16074	1.08665	14.34270
	SN->Q (FR)	0.14856	1.19585	16.18700

Delay(ns) to Q falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__dffsr_1	CK->Q (RF)	0.22209	1.04220	15.15260
	QN->Q (RF)	0.01986	0.58644	9.98056
	RN->Q (FF)	0.14871	1.09838	16.91830
sky130_osu_sc_18T_hs__dffsr_l	CK->Q (RF)	0.22753	1.14936	14.54650
	QN->Q (RF)	0.02180	0.62154	9.53507
	RN->Q (FF)	0.15365	1.20458	16.31360

Delay(ns) to QN rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__dffsr_1	CK->QN (RR)	0.20068	0.56614	6.11754
	RN->QN (FR)	0.12742	0.62200	7.88465
sky130_osu_sc_18T_hs__dffsr_l	CK->QN (RR)	0.20321	0.62135	6.08289
	RN->QN (FR)	0.12946	0.67647	7.84558

Delay(ns) to QN falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__dffsr_1	CK->QN (RF)	0.17011	0.50668	5.26821
	RN->QN (RF)	0.13239	0.48305	5.42650
	SN->QN (FF)	0.11946	0.59095	7.26497
sky130_osu_sc_18T_hs__dffsr_l	CK->QN (RF)	0.16887	0.52843	4.85660
	RN->QN (RF)	0.13150	0.50545	5.01340
	SN->QN (FF)	0.11832	0.61131	6.85170

Constraint Information

Constraints(ns) for D rising :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_hs__dffsr_1	hold	CK (R)	-0.05087	-0.05247	0.22410
	setup	CK (R)	0.14988	0.18554	0.22948
sky130_osu_sc_18T_hs__dffsr_l	hold	CK (R)	-0.05269	-0.05247	0.22762
	setup	CK (R)	0.15132	0.18499	0.23023

Constraints(ns) for D falling :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_hs__dffsr_1	hold	CK (R)	-0.09123	-0.26259	-3.28033
	setup	CK (R)	0.11437	0.27466	4.19175
sky130_osu_sc_18T_hs__dffsr_l	hold	CK (R)	-0.08925	-0.26259	-3.28184
	setup	CK (R)	0.11328	0.27466	4.19169

Constraints(ns) for D rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_hs__dffsr_1	hold	CK (R)	-0.05087	-0.05247	0.22410
	setup	CK (R)	0.14988	0.18554	0.22948
sky130_osu_sc_18T_hs__dffsr_l	hold	CK (R)	-0.05269	-0.05247	0.22762
	setup	CK (R)	0.15132	0.18499	0.23023

Constraints(ns) for D falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_hs__dffsr_1	hold	CK (R)	-0.09123	-0.26259	-3.28033
	setup	CK (R)	0.11437	0.27466	4.19175
sky130_osu_sc_18T_hs__dffsr_l	hold	CK (R)	-0.08925	-0.26259	-3.28184
	setup	CK (R)	0.11328	0.27466	4.19169

Constraints(ns) for RN rising :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_hs__dffsr_1	recovery	CK (R)	0.11056	0.15403	0.75051
	removal	CK (R)	-0.01499	-0.02020	-0.04986
	hold	SN (R)	-0.11190	-0.21610	-0.95746
	setup	SN (R)	0.13253	0.25851	2.82225
sky130_osu_sc_18T_hs__dffsr_l	recovery	CK (R)	0.11281	0.15358	0.74982
	removal	CK (R)	-0.01499	-0.02020	-0.04986
	hold	SN (R)	-0.10824	-0.21206	-0.93531
	setup	SN (R)	0.13368	0.25451	2.77537

Constraints(ns) for RN rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_hs__dffsr_1	recovery	CK (R)	0.11056	0.15403	0.75051
	removal	CK (R)	-0.01499	-0.02020	-0.04986
	hold	SN (R)	-0.11297	-0.21610	-0.96320
	hold	SN (R)	-0.11190	-0.21812	-0.95746
	setup	SN (R)	0.13253	0.25851	2.62897
	setup	SN (R)	0.13056	0.25851	2.82225
sky130_osu_sc_18T_hs__dffsr_l	recovery	CK (R)	0.11281	0.15358	0.74982
	removal	CK (R)	-0.01499	-0.02020	-0.04986
	hold	SN (R)	-0.11127	-0.21206	-0.94888
	hold	SN (R)	-0.10824	-0.21206	-0.93531
	setup	SN (R)	0.13368	0.25008	2.57706
	setup	SN (R)	0.12320	0.25451	2.77537

Constraints(ns) for RN falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_hs__dffsr_1	min_pulse_width	RN ()	0.10254	0.48706	13.33370
	min_pulse_width	RN ()	0.10254	0.48706	13.33370
sky130_osu_sc_18T_hs__dffsr_l	min_pulse_width	RN ()	0.10254	0.48706	13.33370
	min_pulse_width	RN ()	0.09888	0.48706	13.33370

Constraints(ns) for SN rising :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_hs__dffsr_1	recovery	CK (R)	0.03028	0.06863	3.06248
	removal	CK (R)	-0.01532	-0.05049	-0.31666
sky130_osu_sc_18T_hs__dffsr_l	recovery	CK (R)	0.03169	0.06463	2.98179
	removal	CK (R)	-0.01532	-0.05049	-0.31773

Constraints(ns) for SN rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_hs__dffsr_1	recovery	CK (R)	0.03028	0.06863	3.06248
	removal	CK (R)	-0.01532	-0.05049	-0.31666
sky130_osu_sc_18T_hs__dffsr_l	recovery	CK (R)	0.03169	0.06463	2.98179
	removal	CK (R)	-0.01532	-0.05049	-0.31773

Constraints(ns) for SN falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_hs__dffsr_1	min_pulse_width	SN ()	0.11719	0.48706	13.33370
	min_pulse_width	SN ()	0.11719	0.48706	13.33370
sky130_osu_sc_18T_hs__dffsr_l	min_pulse_width	SN ()	0.11719	0.48706	13.33370
	min_pulse_width	SN ()	0.10986	0.48706	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_18T_hs__dffsr_1	min_pulse_width	CK ()	0.09155	0.48706	13.33370
	min_pulse_width	CK ()	0.11353	0.48706	13.33370
sky130_osu_sc_18T_hs__dffsr_l	min_pulse_width	CK ()	0.08789	0.48706	13.33370
	min_pulse_width	CK ()	0.10986	0.48706	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_18T_hs__dffsr_1	min_pulse_width	CK ()	0.19775	0.48706	13.33370
	min_pulse_width	CK ()	0.09521	0.48706	13.33370
sky130_osu_sc_18T_hs__dffsr_l	min_pulse_width	CK ()	0.19775	0.48706	13.33370
	min_pulse_width	CK ()	0.09521	0.48706	13.33370

Power Information

Internal switching power(pJ) to Q rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__dffsr_1	CK	0.00000	0.00000	0.00000
	CK	0.02578	0.03331	0.15823
	RN	0.04702	0.04985	0.13502
	SN	-0.00246	-0.21183	-4.13365
	SN	0.04477	0.04621	0.11955
sky130_osu_sc_18T_hs__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.02342	0.03111	0.17429
	RN	0.04470	0.04757	0.15224
	SN	-0.00246	-0.16537	-2.73591
	SN	0.04245	0.04406	0.13532

Internal switching power(pJ) to Q falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__dffsr_1	CK	0.00000	0.00000	0.00000
	CK	0.02720	0.03019	0.11888
	RN	-0.00246	-0.21183	-4.13361
	RN	0.05456	0.05964	0.16248
sky130_osu_sc_18T_hs__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.02491	0.02971	0.16046
	RN	-0.00246	-0.16537	-2.73588
	RN	0.05232	0.05916	0.20366

Internal switching power(pJ) to QN rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__dffsr_1	CK	0.00000	0.00000	0.00000
	CK	0.02717	0.03025	0.12097
	RN	-0.00246	-0.21001	-4.07384
	RN	0.05454	0.05965	0.16265
sky130_osu_sc_18T_hs__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.02489	0.02972	0.16087
	RN	-0.00246	-0.16542	-2.73724
	RN	0.05231	0.05912	0.20228

Internal switching power(pJ) to QN falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__dffsr_1	CK	0.00000	0.00000	0.00000
	CK	0.02568	0.03339	0.15769
	RN	0.04691	0.04980	0.13551
	SN	-0.00246	-0.21001	-4.07398
	SN	0.04469	0.04623	0.12178
sky130_osu_sc_18T_hs__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.02334	0.03111	0.17205
	RN	0.04460	0.04752	0.15067
	SN	-0.00246	-0.16542	-2.73713
	SN	0.04238	0.04400	0.13478

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__dffsr_1	CK	0.00000	0.00000	0.00000
	CK	-0.00718	-0.00731	-0.00732
	(!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)	0.03249	0.04072	0.26303
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.01289	0.02136	0.23754
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.01281	0.02132	0.23764
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.01290	0.02139	0.23753
sky130_osu_sc_18T_hs__dffsr_1	CK	0.00000	0.00000	0.00000
	CK	-0.00718	-0.00731	-0.00732
	(!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)	0.03249	0.04072	0.26303
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.01288	0.02136	0.23755
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.01281	0.02132	0.23764
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.01289	0.02139	0.23753

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__dffsr_1	CK	0.00000	0.00000	0.00000
	CK	0.00746	0.00741	0.00734
	(!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)	0.04889	0.05805	0.28311
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.02080	0.03017	0.24757
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.02124	0.03041	0.24750
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.02071	0.03008	0.24748
sky130_osu_sc_18T_hs__dffsr_1	CK	0.00000	0.00000	0.00000
	CK	0.00746	0.00741	0.00733
	(!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)	0.04887	0.05804	0.28310
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.02078	0.03015	0.24756
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.02122	0.03039	0.24748
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.02069	0.03006	0.24747

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_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)	0.00564	0.02226	0.36244
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.02551	0.04181	0.39861
sky130_osu_sc_18T_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)	0.00564	0.02226	0.36245
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.02551	0.04181	0.39862

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_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)	0.01958	0.04052	0.38154
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.04290	0.06313	0.41936
sky130_osu_sc_18T_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)	0.01955	0.04050	0.38153
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.04288	0.06310	0.41935

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_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)	-0.01634	-0.01643	-0.01644
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	-0.01453	-0.01692	-0.01686
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	-0.01506	-0.01627	-0.01625
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.01120	0.01950	0.23670
sky130_osu_sc_18T_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)	-0.01634	-0.01644	-0.01644
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	-0.01451	-0.01690	-0.01684
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	-0.01503	-0.01626	-0.01624
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.01120	0.01951	0.23670

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_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)	0.01643	0.01657	0.01652
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.01684	0.01704	0.01697
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	0.01626	0.01650	0.01636
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.03361	0.04069	0.25695
sky130_osu_sc_18T_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)	0.01643	0.01657	0.01652
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.01681	0.01701	0.01694
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	0.01624	0.01649	0.01635
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.03359	0.04068	0.25694

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__dffsr_1	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	-0.00201	0.01409	0.35213
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.01349	0.02856	0.38660
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.01298	0.02809	0.38638
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	-0.00239	0.01383	0.35063
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.00844	0.03680	0.62776
sky130_osu_sc_18T_hs__dffsr_1	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	-0.00201	0.01409	0.35213
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.01347	0.02854	0.38659
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.01296	0.02807	0.38637
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	-0.00239	0.01383	0.35062
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.00843	0.03680	0.62777

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

Cell Name	When	Power(pJ)		
		first	mid	last

sky130_osu_sc_18T_hs__dffsr_1	**(D * RN * SN * !Q * QN)**	0.00000	0.00000	0.00000
	(D * RN * SN * !Q * QN)	0.07150	0.08988	0.52626
	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.02818	0.04874	0.38777
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.05021	0.06899	0.42621
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.05029	0.06902	0.42591
	(!D * RN * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * Q * !QN)	0.06776	0.10244	0.62741
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.03255	0.05229	0.38986
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.03746	0.07246	0.66491
sky130_osu_sc_18T_hs__dffsr_l	**(D * RN * SN * !Q * QN)**	0.00000	0.00000	0.00000
	(D * RN * SN * !Q * QN)	0.07150	0.08988	0.52626
	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.02818	0.04873	0.38777
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.05021	0.06900	0.42621
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.05029	0.06902	0.42591
	(!D * RN * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * Q * !QN)	0.06774	0.10242	0.62739
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.03255	0.05229	0.38986
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.03744	0.07245	0.66489

SKY130_OSU_SC_18T_HS__DFFSx

sky130_osu_sc_18T_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_18T_hs__dffs_1	57.87540
sky130_osu_sc_18T_hs__dffs_l	57.87540

Pin Capacitance Information

Cell Name	Pin Cap(pf)			Max Cap(pf)	
	D	SN	CK	Q	QN
sky130_osu_sc_18T_hs__dffs_1	0.00560	0.00939	0.01588	3.50941	3.51377
sky130_osu_sc_18T_hs__dffs_l	0.00560	0.00939	0.01588	2.50660	2.48987

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__dffs_1	0.00000	2.09909	3.00959
sky130_osu_sc_18T_hs__dffs_l	0.00000	1.78141	2.69191

Delay Information

Delay(ns) to Q rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__dffs_1	CK->Q (RR)	0.15115	0.97114	14.60520
	QN->Q (FR)	0.02441	0.69346	11.50550
	SN->Q (FR)	0.11730	1.09542	16.62800
sky130_osu_sc_18T_hs__dffs_l	CK->Q (RR)	0.15098	1.05804	14.21720
	QN->Q (FR)	0.02571	0.73084	11.24520
	SN->Q (FR)	0.11751	1.17899	16.23140

Delay(ns) to Q falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__dffs_1	CK->Q (RF)	0.21434	1.03945	14.82480
	QN->Q (RF)	0.02160	0.62010	10.37000
sky130_osu_sc_18T_hs__dffs_l	CK->Q (RF)	0.21567	1.14145	14.66170
	QN->Q (RF)	0.02174	0.62196	9.56978

Delay(ns) to QN rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__dffs_1	CK->QN (RR)	0.19186	0.56087	6.02454
sky130_osu_sc_18T_hs__dffs_l	CK->QN (RR)	0.19125	0.60959	6.07196

Delay(ns) to QN falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__dffs_1	CK->QN (RF)	0.12488	0.45642	5.17275
	SN->QN (FF)	0.09085	0.57982	7.19372
sky130_osu_sc_18T_hs__dffs_l	CK->QN (RF)	0.12187	0.47157	4.76749
	SN->QN (FF)	0.08816	0.59157	6.77754

Constraint Information

Constraints(ns) for D rising :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_hs__dffs_1	hold	CK (R)	-0.03598	-0.03433	0.26446
	setup	CK (R)	0.10964	0.14680	0.14613
sky130_osu_sc_18T_hs__dffs_l	hold	CK (R)	-0.03523	-0.03433	0.26446
	setup	CK (R)	0.10700	0.15000	0.14591

Constraints(ns) for D falling :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_hs__dffs_1	hold	CK (R)	-0.08131	-0.25050	-3.47784
	setup	CK (R)	0.10253	0.26255	4.18392
sky130_osu_sc_18T_hs__dffs_l	hold	CK (R)	-0.08017	-0.25042	-3.49473
	setup	CK (R)	0.10303	0.26255	4.18427

Constraints(ns) for D rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_hs__dffs_1	hold	CK (R)	-0.03598	-0.03433	0.26446
	setup	CK (R)	0.10964	0.14680	0.14613
sky130_osu_sc_18T_hs__dffs_l	hold	CK (R)	-0.03523	-0.03433	0.26446
	setup	CK (R)	0.10700	0.15000	0.14591

Constraints(ns) for D falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_hs__dffs_1	hold	CK (R)	-0.08131	-0.25050	-3.47784
	setup	CK (R)	0.10253	0.26255	4.18392
sky130_osu_sc_18T_hs__dffs_l	hold	CK (R)	-0.08017	-0.25042	-3.49473
	setup	CK (R)	0.10303	0.26255	4.18427

Constraints(ns) for SN rising :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_hs__dffs_1	recovery	CK (R)	0.02945	0.06463	2.03774
	removal	CK (R)	-0.01403	-0.05049	-0.43722
sky130_osu_sc_18T_hs__dffs_l	recovery	CK (R)	0.02884	0.06463	1.91548
	removal	CK (R)	-0.01403	-0.05049	-0.43722

Constraints(ns) for SN rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_hs__dffs_1	recovery	CK (R)	0.02945	0.06463	2.03774
	removal	CK (R)	-0.01403	-0.05049	-0.43722
sky130_osu_sc_18T_hs__dffs_l	recovery	CK (R)	0.02884	0.06463	1.91548
	removal	CK (R)	-0.01403	-0.05049	-0.43722

Constraints(ns) for SN falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_hs__dffs_1	min_pulse_width	SN ()	0.08057	0.48706	13.33370
	min_pulse_width	SN ()	0.08057	0.48706	13.33370
sky130_osu_sc_18T_hs__dffs_l	min_pulse_width	SN ()	0.08057	0.48706	13.33370
	min_pulse_width	SN ()	0.07690	0.48706	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_18T_hs__dffs_1	min_pulse_width	CK ()	0.06592	0.48706	13.33370
	min_pulse_width	CK ()	0.10620	0.48706	13.33370
sky130_osu_sc_18T_hs__dffs_l	min_pulse_width	CK ()	0.06226	0.48706	13.33370
	min_pulse_width	CK ()	0.10254	0.48706	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_18T_hs__dffs_1	min_pulse_width	CK ()	0.15381	0.48706	13.33370
	min_pulse_width	CK ()	0.08789	0.48706	13.33370
sky130_osu_sc_18T_hs__dffs_l	min_pulse_width	CK ()	0.15381	0.48706	13.33370
	min_pulse_width	CK ()	0.08789	0.48706	13.33370

Power Information

Internal switching power(pJ) to Q rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__dffs_1	CK	0.00000	0.00000	0.00000
	CK	0.02011	0.02507	0.09914
	SN	-0.00246	-0.20359	-3.86912
	SN	0.03657	0.03758	0.06041
sky130_osu_sc_18T_hs__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.01772	0.02566	0.16848
	SN	-0.00246	-0.16637	-2.76352
	SN	0.03420	0.03826	0.12893

Internal switching power(pJ) to Q falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__dffs_1	CK	0.00000	0.00000	0.00000
	CK	0.02320	0.02568	0.10947
sky130_osu_sc_18T_hs__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.02074	0.02562	0.15813

Internal switching power(pJ) to QN rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__dffs_1	CK	0.00000	0.00000	0.00000
	CK	0.02318	0.02568	0.10981
sky130_osu_sc_18T_hs__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.02072	0.02565	0.15948

Internal switching power(pJ) to QN falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__dffs_1	CK	0.00000	0.00000	0.00000
	CK	0.02002	0.02516	0.09703
	SN	-0.00246	-0.20374	-3.87299
	SN	0.03651	0.03752	0.05853
sky130_osu_sc_18T_hs__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.01764	0.02569	0.16663
	SN	-0.00246	-0.16570	-2.74472
	SN	0.03414	0.03822	0.12750

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__dffs_1	CK	0.00000	0.00000	0.00000
	CK	-0.00726	-0.00735	-0.00739
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.02393	0.03292	0.25873
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.01107	0.01984	0.23711
sky130_osu_sc_18T_hs__dffs_l	CK	0.00000	0.00000	0.00000
	CK	-0.00726	-0.00736	-0.00740
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.02393	0.03292	0.25924
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.01106	0.01984	0.23710

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__dffs_1	CK	0.00000	0.00000	0.00000
	CK	0.00754	0.00749	0.00741
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.04131	0.05084	0.27642
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.01995	0.02968	0.24830
sky130_osu_sc_18T_hs__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.00753	0.00749	0.00741
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.04131	0.05084	0.27641
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.01995	0.02968	0.24830

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__dffs_1	(CK * Q * !QN) + (!CK * D * Q * !QN)	0.00000	0.00000	0.00000
	(CK * Q * !QN) + (!CK * D * Q * !QN)	-0.01205	-0.01215	-0.01212
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.00873	0.01580	0.20792
sky130_osu_sc_18T_hs__dffs_l	(CK * Q * !QN) + (!CK * D * Q * !QN)	0.00000	0.00000	0.00000
	(CK * Q * !QN) + (!CK * D * Q * !QN)	-0.01205	-0.01216	-0.01212
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.00872	0.01572	0.20792

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__dffs_1	(CK * Q * !QN) + (!CK * D * Q * !QN)	0.00000	0.00000	0.00000
	(CK * Q * !QN) + (!CK * D * Q * !QN)	0.01222	0.01223	0.01218
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.02306	0.03219	0.22670
sky130_osu_sc_18T_hs__dffs_l	(CK * Q * !QN) + (!CK * D * Q * !QN)	0.00000	0.00000	0.00000
	(CK * Q * !QN) + (!CK * D * Q * !QN)	0.01221	0.01223	0.01217
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.02306	0.03219	0.22670

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__dffs_1	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	-0.00205	0.01411	0.35252
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	-0.00258	0.01370	0.35086
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.00653	0.03570	0.62914
sky130_osu_sc_18T_hs__dffs_l	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	-0.00206	0.01411	0.35251
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	-0.00258	0.01370	0.35086
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.00653	0.03570	0.62914

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__dffs_1	(D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * SN * !Q * QN)	0.06285	0.08137	0.52117
	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.02815	0.04874	0.38811
	(!D * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * SN * Q * !QN)	0.06004	0.09546	0.61825
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	0.03262	0.05244	0.39037
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.03644	0.07215	0.66690
sky130_osu_sc_18T_hs__dffs_l	(D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * SN * !Q * QN)	0.06285	0.08136	0.52116
	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.02815	0.04874	0.38811
	(!D * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * SN * Q * !QN)	0.06004	0.09541	0.61825
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	0.03262	0.05244	0.39036
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.03644	0.07215	0.66689

SKY130_OSU_SC_18T_HS__DFFx

sky130_osu_sc_18T_hs_tt_2P10_25C.ccs
Cell Library: Process , Voltage 2.10,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_hs__dff_1	48.35160
sky130_osu_sc_18T_hs__dff_l	48.35160

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)	
	D	CK	Q	QN
sky130_osu_sc_18T_hs__dff_1	0.00575	0.01571	3.77919	3.72012
sky130_osu_sc_18T_hs__dff_l	0.00575	0.01571	2.46447	2.44093

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__dff_1	0.00000	2.23012	2.86607
sky130_osu_sc_18T_hs__dff_l	0.00000	1.91244	2.54839

Delay Information

Delay(ns) to Q rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__dff_1	CK->Q (RR)	0.13474	0.95470	15.04480
	QN->Q (FR)	0.02308	0.68035	11.52630
sky130_osu_sc_18T_hs__dff_l	CK->Q (RR)	0.13926	1.04444	14.06880
	QN->Q (FR)	0.02627	0.74167	11.35690

Delay(ns) to Q falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__dff_1	CK->Q (RF)	0.18504	1.00214	15.20030
	QN->Q (RF)	0.01973	0.58578	9.99070
sky130_osu_sc_18T_hs__dff_l	CK->Q (RF)	0.19145	1.11138	14.51240
	QN->Q (RF)	0.02179	0.61833	9.46642

Delay(ns) to QN rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__dff_1	CK->QN (RR)	0.16386	0.52458	6.09897
sky130_osu_sc_18T_hs__dff_l	CK->QN (RR)	0.16726	0.58293	6.02884

Delay(ns) to QN falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__dff_1	CK->QN (RF)	0.11007	0.43628	5.19000
sky130_osu_sc_18T_hs__dff_l	CK->QN (RF)	0.11041	0.45684	4.65231

Constraint Information

Constraints(ns) for D rising :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_hs__dff_1	hold	CK (R)	-0.03125	-0.02831	0.25143
	setup	CK (R)	0.09073	0.13687	0.15567
sky130_osu_sc_18T_hs__dff_l	hold	CK (R)	-0.03140	-0.02831	0.25351
	setup	CK (R)	0.08975	0.13324	0.15819

Constraints(ns) for D falling :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_hs__dff_1	hold	CK (R)	-0.07372	-0.24979	-3.41751
	setup	CK (R)	0.09042	0.26053	4.14877
sky130_osu_sc_18T_hs__dff_l	hold	CK (R)	-0.07288	-0.25055	-3.39135
	setup	CK (R)	0.09042	0.26053	4.14877

Constraints(ns) for CK rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_hs__dff_1	min_pulse_width	CK ()	0.05859	0.48706	13.33370
	min_pulse_width	CK ()	0.09521	0.48706	13.33370
sky130_osu_sc_18T_hs__dff_l	min_pulse_width	CK ()	0.05859	0.48706	13.33370
	min_pulse_width	CK ()	0.09521	0.48706	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_18T_hs__dff_1	**min_pulse_width**	**CK ()**	0.13550	0.48706	13.33370
	min_pulse_width	**CK ()**	0.06958	0.48706	13.33370
sky130_osu_sc_18T_hs__dff_l	**min_pulse_width**	**CK ()**	0.13550	0.48706	13.33370
	min_pulse_width	**CK ()**	0.06958	0.48706	13.33370

Power Information

Internal switching power(pJ) to Q rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__dff_1	CK	0.00000	0.00000	0.00000
	CK	0.02110	0.02953	0.16074
sky130_osu_sc_18T_hs__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.01890	0.02734	0.17702

Internal switching power(pJ) to Q falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__dff_1	CK	0.00000	0.00000	0.00000
	CK	0.02366	0.02713	0.12057
sky130_osu_sc_18T_hs__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.02151	0.02629	0.15458

Internal switching power(pJ) to QN rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__dff_1	CK	0.00000	0.00000	0.00000
	CK	0.02364	0.02716	0.12281
sky130_osu_sc_18T_hs__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.02149	0.02625	0.15539

Internal switching power(pJ) to QN falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__dff_1	CK	0.00000	0.00000	0.00000
	CK	0.02102	0.02956	0.16065
sky130_osu_sc_18T_hs__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.01882	0.02726	0.17483

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__dff_1	CK	0.00000	0.00000	0.00000
	CK	-0.00604	-0.00720	-0.00730
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.02231	0.03160	0.26135
sky130_osu_sc_18T_hs__dff_l	CK	0.00000	0.00000	0.00000
	CK	-0.00604	-0.00720	-0.00731
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.02232	0.03161	0.26136

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__dff_1	CK	0.00000	0.00000	0.00000
	CK	0.00731	0.00738	0.00737
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.04262	0.05249	0.28163
sky130_osu_sc_18T_hs__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.00731	0.00738	0.00736
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.04263	0.05249	0.28163

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__dff_1	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	-0.00207	0.01412	0.35244
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	-0.00257	0.01375	0.35081
sky130_osu_sc_18T_hs__dff_l	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	-0.00207	0.01411	0.35244
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	-0.00257	0.01375	0.35081

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__dff_1	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.02800	0.04864	0.38793
	(D * !Q * QN)	0.00000	0.00000	0.00000
	(D * !Q * QN)	0.06143	0.08028	0.52203
	(!D * Q * !QN)	0.00000	0.00000	0.00000
	(!D * Q * !QN)	0.06115	0.09739	0.63028
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.03250	0.05235	0.39015
sky130_osu_sc_18T_hs__dff_l	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.02799	0.04863	0.38793
	(D * !Q * QN)	0.00000	0.00000	0.00000
	(D * !Q * QN)	0.06144	0.08028	0.52201
	(!D * Q * !QN)	0.00000	0.00000	0.00000
	(!D * Q * !QN)	0.06116	0.09740	0.63030
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.03250	0.05234	0.39014

SKY130_OSU_SC_18T_HS__INVx

sky130_osu_sc_18T_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_18T_hs__inv_1	6.59340
sky130_osu_sc_18T_hs__inv_10	32.96700
sky130_osu_sc_18T_hs__inv_2	9.52380
sky130_osu_sc_18T_hs__inv_3	12.45420
sky130_osu_sc_18T_hs__inv_4	15.38460
sky130_osu_sc_18T_hs__inv_6	21.24540
sky130_osu_sc_18T_hs__inv_8	27.10620
sky130_osu_sc_18T_hs__inv_l	6.59340

Pin Capacitance Information

Cell Name	Pin Cap(pf)	Max Cap(pf)
	A	Y
sky130_osu_sc_18T_hs__inv_1	0.00558	3.44644
sky130_osu_sc_18T_hs__inv_10	0.05277	29.11001
sky130_osu_sc_18T_hs__inv_2	0.01075	6.62735
sky130_osu_sc_18T_hs__inv_3	0.01603	9.54357
sky130_osu_sc_18T_hs__inv_4	0.02122	12.55242
sky130_osu_sc_18T_hs__inv_6	0.03182	18.52263
sky130_osu_sc_18T_hs__inv_8	0.04230	24.42902
sky130_osu_sc_18T_hs__inv_l	0.00427	2.31707

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__inv_1	0.00000	0.35888	0.70549
sky130_osu_sc_18T_hs__inv_10	0.00000	3.58876	7.05489
sky130_osu_sc_18T_hs__inv_2	0.00000	0.71775	1.41098
sky130_osu_sc_18T_hs__inv_3	0.00000	1.07663	2.11647
sky130_osu_sc_18T_hs__inv_4	0.00000	1.43551	2.82196
sky130_osu_sc_18T_hs__inv_6	0.00000	2.15326	4.23294
sky130_osu_sc_18T_hs__inv_8	0.00000	2.87101	5.64392
sky130_osu_sc_18T_hs__inv_l	0.00000	0.20004	0.38863

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__inv_1	**A->Y (FR)**	0.02157	0.60432	9.91502
sky130_osu_sc_18T_hs__inv_10	**A->Y (FR)**	0.03748	0.40690	9.73695
sky130_osu_sc_18T_hs__inv_2	**A->Y (FR)**	0.01843	0.52001	9.78854
sky130_osu_sc_18T_hs__inv_3	**A->Y (FR)**	0.02088	0.48775	9.87385
sky130_osu_sc_18T_hs__inv_4	**A->Y (FR)**	0.02199	0.45710	9.72174
sky130_osu_sc_18T_hs__inv_6	**A->Y (FR)**	0.02568	0.42924	9.77090
sky130_osu_sc_18T_hs__inv_8	**A->Y (FR)**	0.03102	0.41496	9.81487
sky130_osu_sc_18T_hs__inv_l	**A->Y (FR)**	0.02423	0.66008	9.90892

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__inv_1	**A->Y (RF)**	0.01758	0.48737	8.20303
sky130_osu_sc_18T_hs__inv_10	**A->Y (RF)**	0.03272	0.27251	7.71179
sky130_osu_sc_18T_hs__inv_2	**A->Y (RF)**	0.01535	0.39811	8.04000
sky130_osu_sc_18T_hs__inv_3	**A->Y (RF)**	0.01725	0.36356	8.08605
sky130_osu_sc_18T_hs__inv_4	**A->Y (RF)**	0.01766	0.33206	7.96036
sky130_osu_sc_18T_hs__inv_6	**A->Y (RF)**	0.02272	0.30357	7.95891
sky130_osu_sc_18T_hs__inv_8	**A->Y (RF)**	0.02746	0.28646	7.94819
sky130_osu_sc_18T_hs__inv_l	**A->Y (RF)**	0.01922	0.52052	7.87862

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__inv_1	A	0.00000	0.00000	0.00000
	A	0.01028	0.01834	0.09614
sky130_osu_sc_18T_hs__inv_10	A	0.00000	0.00000	0.00000
	A	0.09788	0.20317	0.94302
sky130_osu_sc_18T_hs__inv_2	A	0.00000	0.00000	0.00000
	A	0.01865	0.03633	0.18777
sky130_osu_sc_18T_hs__inv_3	A	0.00000	0.00000	0.00000
	A	0.02856	0.05534	0.27853
sky130_osu_sc_18T_hs__inv_4	A	0.00000	0.00000	0.00000
	A	0.03704	0.07594	0.37465
sky130_osu_sc_18T_hs__inv_6	A	0.00000	0.00000	0.00000
	A	0.05559	0.11890	0.55774
sky130_osu_sc_18T_hs__inv_8	A	0.00000	0.00000	0.00000
	A	0.07550	0.15873	0.73887
sky130_osu_sc_18T_hs__inv_l	A	0.00000	0.00000	0.00000
	A	0.00792	0.01253	0.06205

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__inv_1	**A**	0.00000	0.00000	0.00000
	A	-0.00263	0.00115	0.04078
sky130_osu_sc_18T_hs__inv_10	**A**	0.00000	0.00000	0.00000
	A	-0.02009	0.02889	0.40925
sky130_osu_sc_18T_hs__inv_2	**A**	0.00000	0.00000	0.00000
	A	-0.00770	0.00120	0.07929
sky130_osu_sc_18T_hs__inv_3	**A**	0.00000	0.00000	0.00000
	A	-0.01001	0.00606	0.11887
sky130_osu_sc_18T_hs__inv_4	**A**	0.00000	0.00000	0.00000
	A	-0.01434	0.00728	0.15988
sky130_osu_sc_18T_hs__inv_6	**A**	0.00000	0.00000	0.00000
	A	-0.02156	0.01127	0.23854
sky130_osu_sc_18T_hs__inv_8	**A**	0.00000	0.00000	0.00000
	A	-0.02424	0.02150	0.31588
sky130_osu_sc_18T_hs__inv_l	**A**	0.00000	0.00000	0.00000
	A	-0.00191	0.00050	0.02804

SKY130_OSU_SC_18T_HS__MUX2

sky130_osu_sc_18T_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_18T_hs__mux2_1	18.31500

Pin Capacitance Information

Cell Name	Pin Cap(pf)			Max Cap(pf)
	A0	**A1**	**S0**	**Y**
sky130_osu_sc_18T_hs__mux2_1	0.02456	0.02435	0.01133	0.01613

Leakage Information

Cell Name	Leakage(nW)		
	Min.	**Avg**	**Max.**
sky130_osu_sc_18T_hs__mux2_1	0.00000	0.72498	0.73403

Delay Information

Delay(ns) to Y rising (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_18T_hs__mux2_1	A0->Y (RR)	-	0.00920	0.02200	0.03911
	A1->Y (RR)	-	0.00993	0.02191	0.03882
	S0->Y (RR)	(!A0 * A1)	0.03394	0.05747	-0.66809
	S0->Y (FR)	(A0 * !A1)	0.03329	0.15813	1.17033

Delay(ns) to Y falling (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_18T_hs__mux2_1	A0->Y (FF)	-	0.00888	0.02313	0.03934
	A1->Y (FF)	-	0.00894	0.02298	0.03904
	S0->Y (FF)	(!A0 * A1)	0.04559	0.18220	1.15933
	S0->Y (RF)	(A0 * !A1)	0.02213	0.03169	-0.66708

Power Information

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

Cell Name	Input	When	Power(pJ)		
			first	mid	last
sky130_osu_sc_18T_hs__mux2_1	A0	-	0.00000	0.00000	0.00000
	A0	-	-0.01092	-0.01096	-0.01097
	A1	-	0.00000	0.00000	0.00000
	A1	-	-0.00741	-0.00743	-0.00745
	S0	(A0 * !A1)	0.00000	0.00000	0.00000
	S0	(A0 * !A1)	0.01167	0.03343	0.37063
	S0	(!A0 * A1)	0.00000	0.00000	0.00000
	S0	(!A0 * A1)	-0.00768	0.01033	0.34601

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

Cell Name	Input	When	Power(pJ)		
			first	mid	last
sky130_osu_sc_18T_hs__mux2_1	A0	-	0.00000	0.00000	0.00000
	A0	-	0.01092	0.01096	0.01097
	A1	-	0.00000	0.00000	0.00000
	A1	-	0.00743	0.00745	0.00746
	S0	(A0 * !A1)	0.00000	0.00000	0.00000
	S0	(A0 * !A1)	0.00203	0.02206	0.35905
	S0	(!A0 * A1)	0.00000	0.00000	0.00000
	S0	(!A0 * A1)	0.02828	0.04837	0.38445

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__mux2_1	(A1 * S0 * Y) + (!A1 * S0 * !Y)	0.00000	0.00000	0.00000
	(A1 * S0 * Y) + (!A1 * S0 * !Y)	-0.00264	-0.00262	-0.00262

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__mux2_1	(A1 * S0 * Y) + (!A1 * S0 * !Y)	0.00000	0.00000	0.00000
	(A1 * S0 * Y) + (!A1 * S0 * !Y)	0.00265	0.00263	0.00264

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__mux2_1	(A0 * !S0 * Y) + (!A0 * !S0 * !Y)	0.00000	0.00000	0.00000
	(A0 * !S0 * Y) + (!A0 * !S0 * !Y)	-0.00314	-0.00313	-0.00313

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__mux2_1	(A0 * !S0 * Y) + (!A0 * !S0 * !Y)	0.00000	0.00000	0.00000
	(A0 * !S0 * Y) + (!A0 * !S0 * !Y)	0.00314	0.00313	0.00313

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__mux2_1	(A0 * A1 * Y)	0.00000	0.00000	0.00000
	(A0 * A1 * Y)	-0.00283	0.01649	0.35221
	(!A0 * !A1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !Y)	-0.00285	0.01616	0.35269

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__mux2_1	(A0 * A1 * Y)	0.00000	0.00000	0.00000
	(A0 * A1 * Y)	0.02115	0.04162	0.37778
	(!A0 * !A1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !Y)	0.01880	0.04041	0.37712

SKY130_OSU_SC_18T_HS__NAND2x

sky130_osu_sc_18T_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_18T_hs__nand2_1	9.52380
sky130_osu_sc_18T_hs__nand2_l	9.52380

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	B	Y
sky130_osu_sc_18T_hs__nand2_1	0.00560	0.00559	3.04930
sky130_osu_sc_18T_hs__nand2_l	0.00428	0.00428	2.17660

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__nand2_1	0.00000	0.35836	1.41098
sky130_osu_sc_18T_hs__nand2_l	0.00000	0.19979	0.77726

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__nand2_1	A->Y (FR)	0.02195	0.58430	9.28613
	B->Y (FR)	0.02582	0.58225	9.16676
sky130_osu_sc_18T_hs__nand2_l	A->Y (FR)	0.02452	0.64939	9.58867
	B->Y (FR)	0.02935	0.65028	9.53936

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__nand2_1	A->Y (RF)	0.02319	0.57435	9.36806
	B->Y (RF)	0.02612	0.53630	8.80302
sky130_osu_sc_18T_hs__nand2_l	A->Y (RF)	0.02545	0.62717	9.34745
	B->Y (RF)	0.02818	0.58704	8.72622

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__nand2_1	A	0.00000	0.00000	0.00000
	A	0.01102	0.01758	0.08932
	B	0.00000	0.00000	0.00000
	B	0.01407	0.02114	0.09508
sky130_osu_sc_18T_hs__nand2_1	A	0.00000	0.00000	0.00000
	A	0.00841	0.01240	0.05608
	B	0.00000	0.00000	0.00000
	B	0.01067	0.01460	0.05987

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__nand2_1	A	0.00000	0.00000	0.00000
	A	-0.00204	0.00130	0.03775
	B	0.00000	0.00000	0.00000
	B	-0.00209	0.00045	0.03417
sky130_osu_sc_18T_hs__nand2_1	A	0.00000	0.00000	0.00000
	A	-0.00153	0.00054	0.02460
	B	0.00000	0.00000	0.00000
	B	-0.00153	0.00005	0.02315

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__nand2_1	(!B * Y)	0.00000	0.00000	0.00000
	(!B * Y)	-0.00811	-0.00816	-0.00816
sky130_osu_sc_18T_hs__nand2_l	(!B * Y)	0.00000	0.00000	0.00000
	(!B * Y)	-0.00589	-0.00591	-0.00593

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__nand2_1	(!B * Y)	0.00000	0.00000	0.00000
	(!B * Y)	0.00814	0.00821	0.00818
sky130_osu_sc_18T_hs__nand2_l	(!B * Y)	0.00000	0.00000	0.00000
	(!B * Y)	0.00591	0.00596	0.00594

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__nand2_1	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00759	-0.00765	-0.00760
sky130_osu_sc_18T_hs__nand2_l	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00552	-0.00554	-0.00552

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__nand2_1	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00775	0.00767	0.00763
sky130_osu_sc_18T_hs__nand2_l	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00564	0.00557	0.00554

SKY130_OSU_SC_18T_HS__NOR2x

sky130_osu_sc_18T_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_18T_hs__nor2_1	9.52380
sky130_osu_sc_18T_hs__nor2_l	9.52380

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	B	Y
sky130_osu_sc_18T_hs__nor2_1	0.00560	0.00590	1.93261
sky130_osu_sc_18T_hs__nor2_l	0.00421	0.00455	1.30142

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__nor2_1	0.00000	0.24507	0.70549
sky130_osu_sc_18T_hs__nor2_l	0.00000	0.14523	0.38863

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__nor2_1	A->Y (FR)	0.04183	0.67479	9.52821
	B->Y (FR)	0.03054	0.68837	9.88135
sky130_osu_sc_18T_hs__nor2_l	A->Y (FR)	0.04628	0.74031	9.40112
	B->Y (FR)	0.03615	0.76492	9.90497

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__nor2_1	A->Y (RF)	0.02398	0.39416	5.49431
	B->Y (RF)	0.01882	0.38357	5.46927
sky130_osu_sc_18T_hs__nor2_l	A->Y (RF)	0.02518	0.42083	5.27425
	B->Y (RF)	0.02050	0.41240	5.25252

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__nor2_1	A	0.00000	0.00000	0.00000
	A	0.01556	0.01885	0.08167
	B	0.00000	0.00000	0.00000
	B	0.01111	0.01802	0.10715
sky130_osu_sc_18T_hs__nor2_l	A	0.00000	0.00000	0.00000
	A	0.01129	0.01327	0.05648
	B	0.00000	0.00000	0.00000
	B	0.00843	0.01256	0.06909

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__nor2_1	A	0.00000	0.00000	0.00000
	A	0.00141	0.00498	0.05622
	B	0.00000	0.00000	0.00000
	B	-0.00195	0.00177	0.05048
sky130_osu_sc_18T_hs__nor2_l	A	0.00000	0.00000	0.00000
	A	0.00093	0.00330	0.03899
	B	0.00000	0.00000	0.00000
	B	-0.00134	0.00103	0.03491

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__nor2_1	(B * !Y)	0.00000	0.00000	0.00000
	(B * !Y)	-0.00611	-0.00737	-0.00735
sky130_osu_sc_18T_hs__nor2_l	(B * !Y)	0.00000	0.00000	0.00000
	(B * !Y)	-0.00438	-0.00521	-0.00520

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__nor2_1	(B * !Y)	0.00000	0.00000	0.00000
	(B * !Y)	0.00733	0.00739	0.00738
sky130_osu_sc_18T_hs__nor2_l	(B * !Y)	0.00000	0.00000	0.00000
	(B * !Y)	0.00518	0.00522	0.00521

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__nor2_1	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	-0.00322	-0.00325	-0.00323
sky130_osu_sc_18T_hs__nor2_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	-0.00240	-0.00242	-0.00242

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__nor2_1	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00335	0.00337	0.00327
sky130_osu_sc_18T_hs__nor2_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00249	0.00251	0.00244

SKY130_OSU_SC_18T_HS__OAI21

sky130_osu_sc_18T_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_18T_hs__oai21_l	12.45420

Pin Capacitance Information

Cell Name	Pin Cap(pf)			Max Cap(pf)
	A0	A1	B0	Y
sky130_osu_sc_18T_hs__oai21_l	0.00567	0.00575	0.00474	1.88998

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__oai21_l	0.00000	0.27225	1.09411

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__oai21_l	A0->Y (FR)	0.04069	0.69705	9.79132
	A1->Y (FR)	0.05534	0.68737	9.45909
	B0->Y (FR)	0.02963	0.61932	8.75722

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__oai21_l	A0->Y (RF)	0.03320	0.46712	6.49820
	A1->Y (RF)	0.04023	0.46714	6.34315
	B0->Y (RF)	0.02553	0.52447	7.43917

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__oai21_l	A0	0.00000	0.00000	0.00000
	A0	0.01564	0.02110	0.09220
	A1	0.00000	0.00000	0.00000
	A1	0.02003	0.02257	0.07664
	B0	0.00915	0.01485	0.08390

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__oai21_l	A0	0.00000	0.00000	0.00000
	A0	-0.00004	0.00205	0.03920
	A1	0.00000	0.00000	0.00000
	A1	0.00352	0.00520	0.04422
	B0	0.00102	0.00391	0.04331

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__oai21_l	(A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * !Y)	-0.00324	-0.00323	-0.00324
	(A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * Y)	-0.00728	-0.00741	-0.00738
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00747	-0.00749	-0.00747

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__oai21_l	(A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * !Y)	0.00336	0.00337	0.00328
	(A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * Y)	0.00734	0.00741	0.00738
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00754	0.00751	0.00749

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__oai21_l	(A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * B0 * !Y)	-0.00598	-0.00725	-0.00724
	(A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * Y)	-0.00723	-0.00736	-0.00733
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	-0.00739	-0.00741	-0.00741

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__oai21_l	(A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * B0 * !Y)	0.00722	0.00727	0.00728
	(A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * Y)	0.00729	0.00736	0.00733
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	0.00747	0.00746	0.00743

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__oai21_l	(!A0 * !A1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * Y)	-0.00601	-0.00605	-0.00610

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__oai21_l	(!A0 * !A1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * Y)	0.00609	0.00614	0.00611

SKY130_OSU_SC_18T_HS__OAI22

sky130_osu_sc_18T_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_18T_hs__oai22_l	15.38460

Pin Capacitance Information

Cell Name	Pin Cap(pf)				Max Cap(pf)
	A0	A1	B0	B1	Y
sky130_osu_sc_18T_hs__oai22_l	0.00553	0.00578	0.00590	0.00578	1.88504

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__oai22_l	0.00000	0.36656	1.41097

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__oai22_l	A0->Y (FR)	0.05899	0.68594	9.38754
	A1->Y (FR)	0.04774	0.70022	9.73887
	B0->Y (FR)	0.03383	0.68527	9.74722
	B1->Y (FR)	0.04521	0.67337	9.38953

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__oai22_l	A0->Y (RF)	0.05982	0.50608	6.63397
	A1->Y (RF)	0.04645	0.48560	6.52959
	B0->Y (RF)	0.03939	0.54280	7.45919
	B1->Y (RF)	0.05345	0.57649	7.76222

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__oai22_l	A0	0.02629	0.02846	0.07741
	A1	0.01934	0.02524	0.10158
	B0	0.01192	0.01753	0.09532
	B1	0.01655	0.01919	0.07063

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__oai22_l	A0	0.00230	0.00393	0.04412
	A1	-0.00116	0.00100	0.03932
	B0	-0.00098	0.00211	0.04524
	B1	0.00231	0.00504	0.04690

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__oai22_l	(A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * !Y)	-0.00607	-0.00737	-0.00735
	(A1 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * B1 * !Y)	-0.00607	-0.00736	-0.00735
	(A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * !B1 * Y)	-0.00723	-0.00736	-0.00734
	(!A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * !B1 * Y)	-0.00740	-0.00743	-0.00742

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__oai22_l	(A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * !Y)	0.00732	0.00744	0.00738
	(A1 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * B1 * !Y)	0.00733	0.00744	0.00738
	(A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * !B1 * Y)	0.00731	0.00736	0.00734
	(!A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * !B1 * Y)	0.00748	0.00746	0.00744

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__oai22_l	(A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * B0 * !Y)	-0.00320	-0.00323	-0.00322
	(A0 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * B1 * !Y)	-0.00320	-0.00322	-0.00321
	(A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * !B1 * Y)	-0.00721	-0.00737	-0.00731
	(!A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * !B1 * Y)	-0.00739	-0.00745	-0.00741

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__oai22_l	(A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * B0 * !Y)	0.00333	0.00335	0.00325
	(A0 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * B1 * !Y)	0.00333	0.00335	0.00326
	(A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * !B1 * Y)	0.00727	0.00737	0.00731
	(!A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * !B1 * Y)	0.00744	0.00745	0.00743

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__oai22_l	(A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * B1 * !Y)	-0.00318	-0.00320	-0.00320
	(A0 * !A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B1 * !Y)	-0.00318	-0.00320	-0.00319
	(!A0 * !A1 * B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B1 * Y)	-0.00792	-0.00806	-0.00802
	(!A0 * !A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B1 * Y)	-0.00796	-0.00803	-0.00810

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__oai22_l	(A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * B1 * !Y)	0.00331	0.00333	0.00323
	(A0 * !A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B1 * !Y)	0.00331	0.00333	0.00324
	(!A0 * !A1 * B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B1 * Y)	0.00803	0.00806	0.00802
	(!A0 * !A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B1 * Y)	0.00808	0.00815	0.00813

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__oai22_l	(A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * !Y)	-0.00601	-0.00728	-0.00726
	(A0 * !A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B0 * !Y)	-0.00602	-0.00728	-0.00726
	(!A0 * !A1 * B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B0 * Y)	-0.00803	-0.00820	-0.00813
	(!A0 * !A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B0 * Y)	-0.00808	-0.00811	-0.00820

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__oai22_l	(A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * !Y)	0.00723	0.00734	0.00729
	(A0 * !A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B0 * !Y)	0.00723	0.00734	0.00729
	(!A0 * !A1 * B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B0 * Y)	0.00814	0.00821	0.00813
	(!A0 * !A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B0 * Y)	0.00819	0.00826	0.00822

SKY130_OSU_SC_18T_HS__OR2x

sky130_osu_sc_18T_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_18T_hs__or2_1	12.45420
sky130_osu_sc_18T_hs__or2_2	15.38460
sky130_osu_sc_18T_hs__or2_4	21.24540
sky130_osu_sc_18T_hs__or2_8	32.96700
sky130_osu_sc_18T_hs__or2_l	12.45420

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	B	Y
sky130_osu_sc_18T_hs__or2_1	0.00594	0.00573	3.60161
sky130_osu_sc_18T_hs__or2_2	0.00594	0.00573	6.95151
sky130_osu_sc_18T_hs__or2_4	0.00594	0.00574	13.09576
sky130_osu_sc_18T_hs__or2_8	0.00596	0.00577	24.44010
sky130_osu_sc_18T_hs__or2_l	0.00462	0.00437	2.42044

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__or2_1	0.00000	0.43065	0.73002
sky130_osu_sc_18T_hs__or2_2	0.00000	0.61621	1.43551
sky130_osu_sc_18T_hs__or2_4	0.00000	0.98735	2.84649
sky130_osu_sc_18T_hs__or2_8	0.00000	1.72963	5.66845
sky130_osu_sc_18T_hs__or2_l	0.00000	0.25097	0.41152

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__or2_1	A->Y (RR)	0.05131	0.40563	5.77227
	B->Y (RR)	0.04410	0.37961	5.68844
sky130_osu_sc_18T_hs__or2_2	A->Y (RR)	0.05688	0.35622	5.78510
	B->Y (RR)	0.04925	0.33162	5.67977
sky130_osu_sc_18T_hs__or2_4	A->Y (RR)	0.07396	0.35326	5.87490
	B->Y (RR)	0.06599	0.33257	5.76141
sky130_osu_sc_18T_hs__or2_8	A->Y (RR)	0.10891	0.39765	6.06828
	B->Y (RR)	0.10064	0.38108	5.95688
sky130_osu_sc_18T_hs__or2_l	A->Y (RR)	0.05564	0.46558	5.75010
	B->Y (RR)	0.04898	0.44042	5.63734

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__or2_1	A->Y (FF)	0.07483	0.52064	7.19001
	B->Y (FF)	0.05969	0.52204	7.49292
sky130_osu_sc_18T_hs__or2_2	A->Y (FF)	0.08770	0.48690	7.16213
	B->Y (FF)	0.07259	0.49072	7.44631
sky130_osu_sc_18T_hs__or2_4	A->Y (FF)	0.12254	0.50423	7.21247
	B->Y (FF)	0.10751	0.51479	7.47039
sky130_osu_sc_18T_hs__or2_8	A->Y (FF)	0.19599	0.57992	7.21411
	B->Y (FF)	0.18102	0.59747	7.44655
sky130_osu_sc_18T_hs__or2_l	A->Y (FF)	0.08179	0.55693	6.82287
	B->Y (FF)	0.06707	0.56321	7.16147

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__or2_1	A	0.00000	0.00000	0.00000
	A	0.01129	0.02010	0.18646
	B	0.00000	0.00000	0.00000
	B	0.00806	0.02033	0.22953
sky130_osu_sc_18T_hs__or2_2	A	0.00000	0.00000	0.00000
	A	0.02009	0.02930	0.19655
	B	0.00000	0.00000	0.00000
	B	0.01664	0.02881	0.23583
sky130_osu_sc_18T_hs__or2_4	A	0.00000	0.00000	0.00000
	A	0.03966	0.04972	0.21388
	B	0.00000	0.00000	0.00000
	B	0.03604	0.04856	0.25102
sky130_osu_sc_18T_hs__or2_8	A	0.00000	0.00000	0.00000
	A	0.08980	0.09522	0.26590
	B	0.00000	0.00000	0.00000
	B	0.08590	0.09403	0.29347
sky130_osu_sc_18T_hs__or2_l	A	0.00000	0.00000	0.00000
	A	0.00825	0.01377	0.12723
	B	0.00000	0.00000	0.00000
	B	0.00618	0.01389	0.15127

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__or2_1	A	0.00000	0.00000	0.00000
	A	0.02511	0.03399	0.20898
	B	0.00000	0.00000	0.00000
	B	0.02025	0.03649	0.30186
sky130_osu_sc_18T_hs__or2_2	A	0.00000	0.00000	0.00000
	A	0.03315	0.04027	0.21516
	B	0.00000	0.00000	0.00000
	B	0.02826	0.04257	0.30478
sky130_osu_sc_18T_hs__or2_4	A	0.00000	0.00000	0.00000
	A	0.06032	0.05704	0.22768
	B	0.00000	0.00000	0.00000
	B	0.05545	0.05924	0.31207
sky130_osu_sc_18T_hs__or2_8	A	0.00000	0.00000	0.00000
	A	0.13740	0.09608	0.25606
	B	0.00000	0.00000	0.00000
	B	0.13218	0.10034	0.33126
sky130_osu_sc_18T_hs__or2_l	A	0.00000	0.00000	0.00000
	A	0.01892	0.02470	0.13693
	B	0.00000	0.00000	0.00000
	B	0.01561	0.02583	0.19465

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__or2_1	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00610	-0.00740	-0.00738
sky130_osu_sc_18T_hs__or2_2	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00610	-0.00740	-0.00738
sky130_osu_sc_18T_hs__or2_4	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00610	-0.00740	-0.00738
sky130_osu_sc_18T_hs__or2_8	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00610	-0.00740	-0.00738
sky130_osu_sc_18T_hs__or2_l	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00439	-0.00523	-0.00522

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__or2_1	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00735	0.00745	0.00741
sky130_osu_sc_18T_hs__or2_2	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00735	0.00745	0.00741
sky130_osu_sc_18T_hs__or2_4	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00736	0.00746	0.00741
sky130_osu_sc_18T_hs__or2_8	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00736	0.00746	0.00741
sky130_osu_sc_18T_hs__or2_l	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00519	0.00527	0.00523

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__or2_1	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00325	-0.00324	-0.00325
sky130_osu_sc_18T_hs__or2_2	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00325	-0.00325	-0.00325
sky130_osu_sc_18T_hs__or2_4	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00325	-0.00325	-0.00325
sky130_osu_sc_18T_hs__or2_8	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00325	-0.00325	-0.00325
sky130_osu_sc_18T_hs__or2_l	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00246	-0.00245	-0.00246

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__or2_1	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00337	0.00339	0.00329
sky130_osu_sc_18T_hs__or2_2	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00337	0.00339	0.00329
sky130_osu_sc_18T_hs__or2_4	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00337	0.00339	0.00329
sky130_osu_sc_18T_hs__or2_8	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00337	0.00339	0.00329
sky130_osu_sc_18T_hs__or2_l	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00254	0.00255	0.00248

SKY130_OSU_SC_18T_HS__TBUFIx

sky130_osu_sc_18T_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_18T_hs__tbufi_1	12.45420
sky130_osu_sc_18T_hs__tbufi_l	12.45420

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	OE	Y
sky130_osu_sc_18T_hs__tbufi_1	0.00590	0.00744	1.93764
sky130_osu_sc_18T_hs__tbufi_l	0.00456	0.00577	1.29788

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__tbufi_1	0.00000	0.36381	1.41098
sky130_osu_sc_18T_hs__tbufi_l	0.00000	0.20500	0.77726

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__tbufi_1	A->Y (FR)	0.02984	0.68495	9.85519
	OE->Y (FR)	0.04108	0.39439	5.55697
	OE->Y (RR)	0.05729	0.48260	5.95870
sky130_osu_sc_18T_hs__tbufi_l	A->Y (FR)	0.03542	0.76289	9.87134
	OE->Y (FR)	0.04392	0.39422	5.55673
	OE->Y (RR)	0.06244	0.55563	5.84814

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__tbufi_1	A->Y (RF)	0.02308	0.47796	6.83259
	OE->Y (FF)	0.04148	0.39442	5.55696
	OE->Y (RF)	0.02105	0.43285	6.18771
sky130_osu_sc_18T_hs__tbufi_l	A->Y (RF)	0.02553	0.51031	6.52683
	OE->Y (FF)	0.04426	0.39418	5.55671
	OE->Y (RF)	0.02396	0.46269	5.84310

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__tbufi_1	A	0.00000	0.00000	0.00000
	A	0.01056	0.01633	0.09194
	OE	0.00000	0.00000	0.00000
	OE	0.01126	0.02809	0.31847
sky130_osu_sc_18T_hs__tbufi_l	A	0.00000	0.00000	0.00000
	A	0.00806	0.01167	0.05999
	OE	0.00000	0.00000	0.00000
	OE	0.00795	0.01881	0.21081

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__tbufi_1	A	0.00000	0.00000	0.00000
	A	-0.00201	0.00121	0.04279
	OE	0.00000	0.00000	0.00000
	OE	0.00726	0.02588	0.35834
sky130_osu_sc_18T_hs__tbufi_l	A	0.00000	0.00000	0.00000
	A	-0.00137	0.00063	0.02951
	OE	0.00000	0.00000	0.00000
	OE	0.00505	0.01668	0.22943

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__tbufi_1	(!OE * Y)	0.00000	0.00000	0.00000
	(!OE * Y)	-0.00550	-0.00553	-0.00552
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	-0.00473	-0.00480	-0.00476
sky130_osu_sc_18T_hs__tbufi_l	(!OE * Y)	0.00000	0.00000	0.00000
	(!OE * Y)	-0.00421	-0.00423	-0.00422
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	-0.00371	-0.00374	-0.00373

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__tbufi_1	(!OE * Y)	0.00000	0.00000	0.00000
	(!OE * Y)	0.00550	0.00553	0.00552
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	0.00482	0.00485	0.00479
sky130_osu_sc_18T_hs__tbufi_l	(!OE * Y)	0.00000	0.00000	0.00000
	(!OE * Y)	0.00421	0.00423	0.00422
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	0.00376	0.00378	0.00374

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__tbufi_1	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00455	0.02424	0.36642
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00403	0.02358	0.36584
sky130_osu_sc_18T_hs__tbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00308	0.01543	0.23542
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00273	0.01499	0.23498

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__tbufi_1	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.01236	0.03365	0.37555
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.01228	0.03373	0.37564
sky130_osu_sc_18T_hs__tbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00966	0.02289	0.24266
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00967	0.02301	0.24276

SKY130_OSU_SC_18T_HS__TNBUFIx

sky130_osu_sc_18T_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_18T_hs__tnbufi_1	12.45420
sky130_osu_sc_18T_hs__tnbufi_l	12.45420

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	OE	Y
sky130_osu_sc_18T_hs__tnbufi_1	0.00589	0.00934	1.93782
sky130_osu_sc_18T_hs__tnbufi_l	0.00455	0.00696	1.29879

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__tnbufi_1	0.00000	0.59488	0.71775
sky130_osu_sc_18T_hs__tnbufi_l	0.00000	0.33073	0.40007

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__tnbufi_1	A->Y (FR)	0.02982	0.68490	9.85517
	OE->Y (RR)	0.02365	0.39559	5.55817
	OE->Y (FR)	0.04013	0.66837	9.40724
sky130_osu_sc_18T_hs__tnbufi_l	A->Y (FR)	0.03547	0.76299	9.87525
	OE->Y (RR)	0.02439	0.39587	5.55828
	OE->Y (FR)	0.04482	0.73439	9.25840

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__tnbufi_1	A->Y (RF)	0.02283	0.47788	6.83314
	OE->Y (RF)	0.02350	0.39554	5.55828
	OE->Y (FF)	0.03867	0.43076	5.48089
sky130_osu_sc_18T_hs__tnbufi_l	A->Y (RF)	0.02523	0.51032	6.53016
	OE->Y (RF)	0.02431	0.39584	5.55839
	OE->Y (FF)	0.04337	0.46423	5.17659

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__tnbufi_1	A	0.00000	0.00000	0.00000
	A	0.01080	0.01655	0.09210
	OE	0.00000	0.00000	0.00000
	OE	0.02733	0.04994	0.38757
sky130_osu_sc_18T_hs__tnbufi_l	A	0.00000	0.00000	0.00000
	A	0.00831	0.01191	0.06019
	OE	0.00000	0.00000	0.00000
	OE	0.02021	0.03440	0.25258

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__tnbufi_1	A	0.00000	0.00000	0.00000
	A	-0.00236	0.00088	0.04249
	OE	0.00000	0.00000	0.00000
	OE	0.02381	0.04515	0.33782
sky130_osu_sc_18T_hs__tnbufi_l	A	0.00000	0.00000	0.00000
	A	-0.00171	0.00031	0.02920
	OE	0.00000	0.00000	0.00000
	OE	0.01764	0.03083	0.21173

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__tnbufi_1	(OE * Y)	0.00000	0.00000	0.00000
	(OE * Y)	-0.00473	-0.00476	-0.00475
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	-0.00404	-0.00408	-0.00406
sky130_osu_sc_18T_hs__tnbufi_l	(OE * Y)	0.00000	0.00000	0.00000
	(OE * Y)	-0.00348	-0.00350	-0.00350
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	-0.00304	-0.00306	-0.00305

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__tnbufi_1	(OE * Y)	0.00000	0.00000	0.00000
	(OE * Y)	0.00473	0.00476	0.00475
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	0.00411	0.00414	0.00409
sky130_osu_sc_18T_hs__tnbufi_l	(OE * Y)	0.00000	0.00000	0.00000
	(OE * Y)	0.00348	0.00350	0.00350
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	0.00308	0.00309	0.00306

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__tnbufi_1	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	-0.00888	0.01101	0.35396
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00892	0.01100	0.35399
sky130_osu_sc_18T_hs__tnbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	-0.00627	0.00616	0.22683
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00628	0.00621	0.22687

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__tnbufi_1	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.02059	0.04487	0.38746
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.02031	0.04422	0.38730
sky130_osu_sc_18T_hs__tnbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.01530	0.03046	0.25093
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.01513	0.03075	0.25078

SKY130_OSU_SC_18T_HS__XNOR2

sky130_osu_sc_18T_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_18T_hs__xnor2_l	21.24540

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	B	Y
sky130_osu_sc_18T_hs__xnor2_l	0.01169	0.01074	1.98100

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__xnor2_l	0.00000	1.19851	2.12872

Delay Information

Delay(ns) to Y rising (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_18T_hs__xnor2_1	A->Y (RR)	B	0.07153	0.51225	6.13722
	A->Y (FR)	!B	0.03779	0.69019	9.87402
	B->Y (RR)	A	0.05668	0.50307	6.30474
	B->Y (FR)	!A	0.05428	0.68675	9.57787

Delay(ns) to Y falling (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_18T_hs__xnor2_1	A->Y (FF)	B	0.06952	0.49899	5.98892
	A->Y (RF)	!B	0.03252	0.46928	6.63211
	B->Y (FF)	A	0.06079	0.49172	6.00990
	B->Y (RF)	!A	0.04193	0.48049	6.61380

Power Information

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

Cell Name	Input	When	Power(pJ)		
			first	mid	last
sky130_osu_sc_18T_hs__xnor2_l	A	B	0.00000	0.00000	0.00000
	A	B	0.01078	0.02639	0.31591
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.02546	0.04960	0.44161
	B	A	0.00000	0.00000	0.00000
	B	A	0.00259	0.02170	0.36283
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.02898	0.05073	0.41282

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

Cell Name	Input	When	Power(pJ)		
			first	mid	last
sky130_osu_sc_18T_hs__xnor2_l	A	B	0.00000	0.00000	0.00000
	A	B	0.03279	0.05159	0.37934
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00692	0.02623	0.38182
	B	A	0.00000	0.00000	0.00000
	B	A	0.03000	0.05091	0.39050
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00913	0.02811	0.37793

SKY130_OSU_SC_18T_HS__XOR2

sky130_osu_sc_18T_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_18T_hs__xor2_1	21.24540

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	B	Y
sky130_osu_sc_18T_hs__xor2_1	0.01167	0.01078	1.97042

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__xor2_1	0.00000	1.19852	1.87974

Delay Information

Delay(ns) to Y rising (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_18T_hs__xor2_1	A->Y (RR)	!B	0.06688	0.50201	6.23136
	A->Y (FR)	B	0.04906	0.68947	9.70595
	B->Y (RR)	!A	0.05861	0.50194	6.27675
	B->Y (FR)	A	0.05237	0.68971	9.64963

Delay(ns) to Y falling (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_18T_hs__xor2_1	A->Y (FF)	!B	0.05851	0.47713	5.63119
	A->Y (RF)	B	0.03177	0.49520	6.89349
	B->Y (FF)	!A	0.05568	0.47951	5.85192
	B->Y (RF)	A	0.03916	0.46189	6.33668

Power Information

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

Cell Name	Input	When	Power(pJ)		
			first	mid	last
sky130_osu_sc_18T_hs__xor2_l	A	B	0.00000	0.00000	0.00000
	A	B	0.03096	0.05458	0.43870
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00432	0.02054	0.35591
	B	A	0.00000	0.00000	0.00000
	B	A	0.03189	0.05525	0.42977
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00191	0.02092	0.36696

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

Cell Name	Input	When	Power(pJ)		
			first	mid	last
sky130_osu_sc_18T_hs__xor2_l	A	B	0.00000	0.00000	0.00000
	A	B	0.00551	0.02574	0.40078
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.03373	0.05391	0.34666
	B	A	0.00000	0.00000	0.00000
	B	A	0.00554	0.02497	0.38602
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.03064	0.05269	0.39642

SKY130_OSU_SC_18T_HS_x

sky130_osu_sc_18T_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_18T_hs__ant	6.59340
sky130_osu_sc_18T_hs__tiehi	6.59340
sky130_osu_sc_18T_hs__tielo	6.59340

Pin Capacitance Information

Cell Name	Pin Cap(pf)
	A
sky130_osu_sc_18T_hs__ant	1.29348
sky130_osu_sc_18T_hs__tiehi	0.00000
sky130_osu_sc_18T_hs__tielo	0.00000

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__ant	0.00000	685703.00000	1371410.00000
sky130_osu_sc_18T_hs__tiehi	0.00000	0.00000	0.00000
sky130_osu_sc_18T_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_18T_hs__ant	0.00000	0.00000	0.00000
	-0.00139	0.21078	2.89602

Passive power(pJ) for A falling :

Cell Name	Power(pJ)		
	first	mid	last
sky130_osu_sc_18T_hs__ant	0.00000	0.00000	0.00000
	11.93070	11.34410	3.41490