sky130_osu_sc_18T_hs_tt_1P80_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_1P80_25C.ccs
Cell Library: Process , Voltage 1.80,
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	0.02098	0.02090	0.01603	3.04521	1.44057	2.94788
sky130_osu_sc_18T_hs__addf_l	0.02097	0.02089	0.01601	2.06995	1.43810	2.06885

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__addf_1	0.00000	0.61322	0.82681
sky130_osu_sc_18T_hs__addf_l	0.00000	0.51524	0.72883

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)	0.12218	1.51380	24.40580
	B->CO (RR)	0.10506	1.43647	23.24530
	CI->CO (RR)	0.11658	1.55896	25.12690
	CON->CO (FR)	0.02458	0.68735	10.90240
sky130_osu_sc_18T_hs__addf_l	A->CO (RR)	0.12389	1.41484	19.75100
	B->CO (RR)	0.11770	1.36313	19.02540
	CI->CO (RR)	0.11827	1.46119	20.50940
	CON->CO (FR)	0.02782	0.75174	10.92510

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)	0.16224	1.87417	29.86880
	B->CO (FF)	0.14250	1.78604	28.70510
	CI->CO (FF)	0.13924	1.85917	30.00340
	CON->CO (RF)	0.02076	0.55647	8.89679
sky130_osu_sc_18T_hs__addf_l	A->CO (FF)	0.15951	1.68227	23.24580
	B->CO (FF)	0.13997	1.60764	22.47910
	CI->CO (FF)	0.13649	1.66879	23.41910
	CON->CO (RF)	0.02204	0.57502	8.34872

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)	0.12884	0.88018	10.42840
	B->CON (FR)	0.10941	0.82974	10.14600
	CI->CON (FR)	0.10588	0.86885	10.64240
sky130_osu_sc_18T_hs__addf_l	A->CON (FR)	0.12196	0.87300	10.41000
	B->CON (FR)	0.10305	0.82126	10.12860
	CI->CON (FR)	0.09896	0.86190	10.62500

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)	0.07743	0.54888	6.46819
	B->CON (RF)	0.07335	0.55718	6.63937
	CI->CON (RF)	0.07182	0.59741	7.26881
sky130_osu_sc_18T_hs__addf_l	A->CON (RF)	0.07441	0.54536	6.45703
	B->CON (RF)	0.07064	0.55410	6.62885
	CI->CON (RF)	0.06879	0.59404	7.25744

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)	0.23846	1.69754	23.89230
	B->S (-R)	0.24506	1.68243	22.97830
	CI->S (-R)	0.21353	1.67947	24.02440
	CON->S (RR)	0.07084	0.53774	6.76580
sky130_osu_sc_18T_hs__addf_l	A->S (-R)	0.22892	1.58128	19.87550
	B->S (-R)	0.23603	1.57694	19.28930
	CI->S (-R)	0.20394	1.56453	20.04580
	CON->S (RR)	0.07124	0.58489	6.72253

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)	0.19662	1.35424	18.33160
	B->S (-F)	0.19502	1.29714	17.58180
	CI->S (-F)	0.19045	1.39673	19.05420
	CON->S (FF)	0.08199	0.61169	7.17169
sky130_osu_sc_18T_hs__addf_l	A->S (-F)	0.18681	1.23449	14.82510
	B->S (-F)	0.17996	1.18142	14.40180
	CI->S (-F)	0.18051	1.27734	15.57920
	CON->S (FF)	0.07931	0.61952	6.77850

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	0.00407	0.00583	0.04456
	B	0.00465	0.00625	0.04022
	CI	0.00666	0.00859	0.04775
sky130_osu_sc_18T_hs__addf_l	A	0.00298	0.00424	0.02946
	B	0.00358	0.00459	0.02647
	CI	0.00557	0.00700	0.03212

Internal switching power(pJ) to CO falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__addf_1	A	0.01756	0.01995	0.08076
	B	0.01854	0.02040	0.07449
	CI	0.01467	0.01731	0.07979
sky130_osu_sc_18T_hs__addf_l	A	0.01647	0.01816	0.05793
	B	0.01693	0.01838	0.05386
	CI	0.01358	0.01555	0.05788

Internal switching power(pJ) to CON rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__addf_1	A	0.01753	0.01887	0.04839
	B	0.01797	0.01904	0.04709
	CI	0.01465	0.01625	0.04875
sky130_osu_sc_18T_hs__addf_l	A	0.01645	0.01770	0.04621
	B	0.01692	0.01778	0.04489
	CI	0.01356	0.01509	0.04662

Internal switching power(pJ) to CON falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__addf_1	A	0.00403	0.00518	0.02539
	B	0.00462	0.00555	0.02396
	CI	0.00662	0.00795	0.02944
sky130_osu_sc_18T_hs__addf_l	A	0.00295	0.00394	0.02264
	B	0.00356	0.00433	0.02110
	CI	0.00554	0.00670	0.02640

Internal switching power(pJ) to S rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__addf_1	A	0.01756	0.01990	0.07858
	B	0.01854	0.02035	0.07249
	CI	0.01467	0.01726	0.07758
sky130_osu_sc_18T_hs__addf_l	A	0.01647	0.01816	0.05785
	B	-0.00891	-0.00817	0.04347
	CI	0.01358	0.01555	0.05776

Internal switching power(pJ) to S falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__addf_1	A	0.03948	0.04014	0.08266
	B	0.03499	0.03720	0.10001
	CI	0.03200	0.03259	0.07506
sky130_osu_sc_18T_hs__addf_l	A	0.03798	0.03845	0.08253
	B	0.03357	0.03592	0.10066
	CI	0.03056	0.03121	0.07544

SKY130_OSU_SC_18T_HS__ADDHx

sky130_osu_sc_18T_hs_tt_1P80_25C.ccs
Cell Library: Process , Voltage 1.80,
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	0.01022	0.01124	3.01298	1.53234	3.05072
sky130_osu_sc_18T_hs__addh_l	0.01022	0.01124	1.78716	1.56050	1.80110

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__addh_1	0.00000	0.70979	0.81980
sky130_osu_sc_18T_hs__addh_l	0.00000	0.48792	0.64349

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)	0.08225	0.54644	6.61369
	B->CO (RR)	0.08543	0.53942	6.68460
sky130_osu_sc_18T_hs__addh_l	A->CO (RR)	0.08297	0.61511	6.56012
	B->CO (RR)	0.08618	0.60978	6.58471

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)	0.07154	0.58215	7.13751
	B->CO (FF)	0.07713	0.59600	7.17533
sky130_osu_sc_18T_hs__addh_l	A->CO (FF)	0.07079	0.60479	6.58171
	B->CO (FF)	0.07619	0.61843	6.61843

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	0.11455	0.44140	3.27541
	A->CON (FR)	!B	0.06932	0.80622	10.45190
	B->CON (RR)	A	0.11752	0.43404	3.35405
	B->CON (FR)	!A	0.08763	0.82545	10.39000
sky130_osu_sc_18T_hs__addh_l	A->CON (RR)	B	0.10254	0.42235	3.34141
	A->CON (FR)	!B	0.06125	0.80286	10.56240
	B->CON (RR)	A	0.10556	0.41654	3.37327
	B->CON (FR)	!A	0.07956	0.82211	10.50260

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	0.10915	0.60183	5.73595
	A->CON (RF)	!B	0.04548	0.56507	7.29833
	B->CON (FF)	A	0.10794	0.63569	6.14482
	B->CON (RF)	!A	0.05380	0.54794	6.89230
sky130_osu_sc_18T_hs__addh_l	A->CON (FF)	B	0.09887	0.57754	5.66273
	A->CON (RF)	!B	0.04195	0.56440	7.37968
	B->CON (FF)	A	0.09777	0.61174	6.07292
	B->CON (RF)	!A	0.05032	0.54736	6.96995

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	0.08648	1.48882	24.53240
	A->S (FR)	B	0.15058	1.50601	22.61280
	B->S (RR)	!A	0.09493	1.42744	23.26370
	B->S (FR)	A	0.15000	1.58310	23.90630
	CON->S (FR)	-	0.02788	0.71059	11.26120
sky130_osu_sc_18T_hs__addh_l	A->S (RR)	!B	0.08616	1.35787	18.64400
	A->S (FR)	B	0.14372	1.35859	16.72290
	B->S (RR)	!A	0.09481	1.31180	17.82270
	B->S (FR)	A	0.14308	1.42244	17.56740
	CON->S (FR)	-	0.03131	0.79247	11.13520

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	0.09940	1.70070	27.99830
	A->S (RF)	B	0.14247	1.11391	15.93590
	B->S (FF)	!A	0.11774	1.72236	28.01140
	B->S (RF)	A	0.14543	1.10486	16.01330
	CON->S (RF)	-	0.01948	0.53778	8.65156
sky130_osu_sc_18T_hs__addh_l	A->S (FF)	!B	0.09475	1.48092	20.34520
	A->S (RF)	B	0.13282	0.97839	11.24630
	B->S (FF)	!A	0.11310	1.50066	20.30470
	B->S (RF)	A	0.13583	0.97220	11.26940
	CON->S (RF)	-	0.02155	0.57583	8.11094

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	0.00792	0.00839	0.02871
	B	0.00000	0.00000	0.00000
	B	0.00703	0.00728	0.03309
sky130_osu_sc_18T_hs__addh_l	A	0.00000	0.00000	0.00000
	A	0.00644	0.00689	0.03129
	B	0.00000	0.00000	0.00000
	B	0.00556	0.00575	0.03332

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	0.01255	0.01349	0.04668
	B	0.00000	0.00000	0.00000
	B	0.01300	0.01477	0.05009
sky130_osu_sc_18T_hs__addh_l	A	0.00000	0.00000	0.00000
	A	0.01108	0.01188	0.04201
	B	0.00000	0.00000	0.00000
	B	0.01152	0.01299	0.04399

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	0.00790	0.00839	0.02936
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.01100	0.01160	0.02438
	B	A	0.00000	0.00000	0.00000
	B	A	0.00702	0.00728	0.03382
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01245	0.01267	0.02095
sky130_osu_sc_18T_hs__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.00643	0.00689	0.03093
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00997	0.01041	0.02103
	B	A	0.00000	0.00000	0.00000
	B	A	0.00555	0.00576	0.03313
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01142	0.01149	0.01782

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	0.01255	0.01343	0.04424
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00158	0.00217	0.01121
	B	A	0.00000	0.00000	0.00000
	B	A	0.01300	0.01464	0.04716
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00286	0.00323	0.01136
sky130_osu_sc_18T_hs__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.01107	0.01188	0.04177
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00035	0.00068	0.00423
	B	A	0.00000	0.00000	0.00000
	B	A	0.01152	0.01298	0.04384
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00162	0.00177	0.00709

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	0.01257	0.01355	0.04692
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00162	0.00235	0.01345
	B	A	0.00000	0.00000	0.00000
	B	A	0.01301	0.01481	0.05037
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00289	0.00339	0.01291
sky130_osu_sc_18T_hs__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.01109	0.01190	0.04244
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00037	0.00074	0.00694
	B	A	0.00000	0.00000	0.00000
	B	A	0.01153	0.01301	0.04415
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00164	0.00175	0.00735

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	0.00792	0.00839	0.02911
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.01101	0.01190	0.02512
	B	A	0.00000	0.00000	0.00000
	B	A	0.00704	0.00728	0.03373
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01247	0.01295	0.02324
sky130_osu_sc_18T_hs__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.00644	0.00689	0.03118
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00997	0.01061	0.02062
	B	A	0.00000	0.00000	0.00000
	B	A	0.00556	0.00575	0.03368
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01143	0.01154	0.01769

SKY130_OSU_SC_18T_HS__AND2x

sky130_osu_sc_18T_hs_tt_1P80_25C.ccs
Cell Library: Process , Voltage 1.80,
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	0.00553	0.00566	3.02538
sky130_osu_sc_18T_hs__and2_2	0.00553	0.00566	5.78235
sky130_osu_sc_18T_hs__and2_4	0.00554	0.00567	10.98743
sky130_osu_sc_18T_hs__and2_6	0.00558	0.00567	16.13469
sky130_osu_sc_18T_hs__and2_8	0.00556	0.00569	20.59485
sky130_osu_sc_18T_hs__and2_l	0.00427	0.00439	2.07682

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__and2_1	0.00000	0.34131	0.54504
sky130_osu_sc_18T_hs__and2_2	0.00000	0.54480	0.55227
sky130_osu_sc_18T_hs__and2_4	0.00000	0.95176	1.08283
sky130_osu_sc_18T_hs__and2_6	0.00000	1.35873	1.62063
sky130_osu_sc_18T_hs__and2_8	0.00000	1.76569	2.15843
sky130_osu_sc_18T_hs__and2_l	0.00000	0.21889	0.34890

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)	0.06296	0.48668	6.53658
	B->Y (RR)	0.06691	0.48286	6.31415
sky130_osu_sc_18T_hs__and2_2	A->Y (RR)	0.07233	0.44070	6.48699
	B->Y (RR)	0.07630	0.43293	6.26553
sky130_osu_sc_18T_hs__and2_4	A->Y (RR)	0.09914	0.45870	6.66172
	B->Y (RR)	0.10310	0.44461	6.45147
sky130_osu_sc_18T_hs__and2_6	A->Y (RR)	0.12566	0.49578	6.83920
	B->Y (RR)	0.12955	0.47594	6.63185
sky130_osu_sc_18T_hs__and2_8	A->Y (RR)	0.15262	0.53572	6.95063
	B->Y (RR)	0.15659	0.51222	6.74150
sky130_osu_sc_18T_hs__and2_l	A->Y (RR)	0.06922	0.55688	6.51402
	B->Y (RR)	0.07330	0.55139	6.33173

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)**	0.05606	0.51691	6.60371
	B->Y (FF)	0.05951	0.52936	6.66160
sky130_osu_sc_18T_hs__and2_2	**A->Y (FF)**	0.06316	0.48306	6.52086
	B->Y (FF)	0.06721	0.49442	6.59421
sky130_osu_sc_18T_hs__and2_4	**A->Y (FF)**	0.08572	0.50327	6.65418
	B->Y (FF)	0.08975	0.51246	6.72788
sky130_osu_sc_18T_hs__and2_6	**A->Y (FF)**	0.11159	0.54034	6.79380
	B->Y (FF)	0.11541	0.54700	6.86534
sky130_osu_sc_18T_hs__and2_8	**A->Y (FF)**	0.13525	0.57195	6.75092
	B->Y (FF)	0.13920	0.57819	6.81609
sky130_osu_sc_18T_hs__and2_l	**A->Y (FF)**	0.06050	0.55983	6.34321
	B->Y (FF)	0.06488	0.57447	6.40961

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	0.00574	0.00827	0.09764
	B	0.00000	0.00000	0.00000
	B	0.00581	0.00692	0.06794
sky130_osu_sc_18T_hs__and2_2	A	0.00000	0.00000	0.00000
	A	0.01186	0.01416	0.10256
	B	0.00000	0.00000	0.00000
	B	0.01195	0.01315	0.07319
sky130_osu_sc_18T_hs__and2_4	A	0.00000	0.00000	0.00000
	A	0.02539	0.02788	0.11112
	B	0.00000	0.00000	0.00000
	B	0.02548	0.02700	0.08291
sky130_osu_sc_18T_hs__and2_6	A	0.00000	0.00000	0.00000
	A	0.04083	0.04233	0.12040
	B	0.00000	0.00000	0.00000
	B	0.04089	0.04138	0.09232
sky130_osu_sc_18T_hs__and2_8	A	0.00000	0.00000	0.00000
	A	0.05732	0.05668	0.13270
	B	0.00000	0.00000	0.00000
	B	0.05735	0.05590	0.10248
sky130_osu_sc_18T_hs__and2_l	A	0.00000	0.00000	0.00000
	A	0.00422	0.00570	0.06099
	B	0.00000	0.00000	0.00000
	B	0.00431	0.00485	0.04497

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	0.01497	0.01968	0.09707
	B	0.00000	0.00000	0.00000
	B	0.01686	0.02113	0.09484
sky130_osu_sc_18T_hs__and2_2	A	0.00000	0.00000	0.00000
	A	0.01930	0.02418	0.10154
	B	0.00000	0.00000	0.00000
	B	0.02121	0.02549	0.09957
sky130_osu_sc_18T_hs__and2_4	A	0.00000	0.00000	0.00000
	A	0.03130	0.03579	0.11267
	B	0.00000	0.00000	0.00000
	B	0.03311	0.03674	0.11034
sky130_osu_sc_18T_hs__and2_6	A	0.00000	0.00000	0.00000
	A	0.04359	0.04727	0.12400
	B	0.00000	0.00000	0.00000
	B	0.04526	0.04843	0.12114
sky130_osu_sc_18T_hs__and2_8	A	0.00000	0.00000	0.00000
	A	0.05897	0.05896	0.13541
	B	0.00000	0.00000	0.00000
	B	0.06060	0.06022	0.13166
sky130_osu_sc_18T_hs__and2_l	A	0.00000	0.00000	0.00000
	A	0.01158	0.01443	0.06143
	B	0.00000	0.00000	0.00000
	B	0.01301	0.01554	0.06145

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)	-0.00582	-0.00586	-0.00587
sky130_osu_sc_18T_hs__and2_2	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00582	-0.00586	-0.00587
sky130_osu_sc_18T_hs__and2_4	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00582	-0.00586	-0.00586
sky130_osu_sc_18T_hs__and2_6	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00584	-0.00588	-0.00588
sky130_osu_sc_18T_hs__and2_8	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00580	-0.00585	-0.00585
sky130_osu_sc_18T_hs__and2_l	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00429	-0.00431	-0.00432

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)	0.00586	0.00590	0.00589
sky130_osu_sc_18T_hs__and2_2	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00587	0.00591	0.00589
sky130_osu_sc_18T_hs__and2_4	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00587	0.00591	0.00589
sky130_osu_sc_18T_hs__and2_6	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00590	0.00593	0.00593
sky130_osu_sc_18T_hs__and2_8	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00587	0.00591	0.00590
sky130_osu_sc_18T_hs__and2_l	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00431	0.00434	0.00433

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)	-0.00552	-0.00555	-0.00554
sky130_osu_sc_18T_hs__and2_2	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00552	-0.00555	-0.00554
sky130_osu_sc_18T_hs__and2_4	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00552	-0.00555	-0.00553
sky130_osu_sc_18T_hs__and2_6	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00551	-0.00554	-0.00553
sky130_osu_sc_18T_hs__and2_8	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00551	-0.00554	-0.00552
sky130_osu_sc_18T_hs__and2_l	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00407	-0.00411	-0.00408

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)	0.00564	0.00558	0.00556
sky130_osu_sc_18T_hs__and2_2	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00564	0.00558	0.00556
sky130_osu_sc_18T_hs__and2_4	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00565	0.00558	0.00557
sky130_osu_sc_18T_hs__and2_6	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00565	0.00559	0.00557
sky130_osu_sc_18T_hs__and2_8	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00566	0.00559	0.00558
sky130_osu_sc_18T_hs__and2_l	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00417	0.00414	0.00410

SKY130_OSU_SC_18T_HS__AOI21

sky130_osu_sc_18T_hs_tt_1P80_25C.ccs
Cell Library: Process , Voltage 1.80,
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	0.00528	0.00546	0.00528	1.42219

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__aoi21_l	0.00000	0.12797	0.26890

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)	0.06884	0.81814	10.31690
	A1->Y (FR)	0.05941	0.77902	9.93722
	B0->Y (FR)	0.04881	0.80870	10.51610

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)	0.04197	0.48784	6.05697
	A1->Y (RF)	0.03806	0.51857	6.56188
	B0->Y (RF)	0.02633	0.50891	6.63794

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	0.01355	0.01355	0.02277
	A1	0.00000	0.00000	0.00000
	A1	0.01141	0.01142	0.02048
	B0	0.00801	0.00864	0.02621

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	0.00293	0.00270	0.00965
	A1	0.00000	0.00000	0.00000
	A1	0.00298	0.00302	0.01166
	B0	-0.00152	-0.00114	0.00589

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)	-0.00444	-0.00517	-0.00519
	(!A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !Y)	-0.00523	-0.00527	-0.00525
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00523	-0.00525	-0.00525

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)	0.00515	0.00517	0.00519
	(!A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !Y)	0.00524	0.00529	0.00527
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00535	0.00531	0.00526

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)	-0.00441	-0.00515	-0.00513
	(!A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !Y)	-0.00518	-0.00522	-0.00519
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	-0.00557	-0.00562	-0.00562

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)	0.00511	0.00517	0.00513
	(!A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !Y)	0.00518	0.00522	0.00521
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	0.00560	0.00564	0.00563

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)	-0.00242	-0.00243	-0.00243

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)	0.00264	0.00265	0.00248

SKY130_OSU_SC_18T_HS__AOI22

sky130_osu_sc_18T_hs_tt_1P80_25C.ccs
Cell Library: Process , Voltage 1.80,
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	0.00528	0.00546	0.00563	0.00541	1.34210

Leakage Information

Cell Name	Leakage(nW)		
	Min.	**Avg**	**Max.**
sky130_osu_sc_18T_hs__aoi22_l	0.00000	0.14053	0.53779

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)	0.08687	0.83497	10.13820
	A1->Y (FR)	0.07779	0.80855	9.94973
	B0->Y (FR)	0.05115	0.79235	10.17030
	B1->Y (FR)	0.06028	0.82081	10.43310

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)	0.05565	0.49354	5.83673
	A1->Y (RF)	0.05181	0.52430	6.33523
	B0->Y (RF)	0.02853	0.49567	6.30907
	B1->Y (RF)	0.03245	0.46508	5.81275

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	0.01667	0.01663	0.02659
	A1	0.01456	0.01448	0.02423
	B0	0.00870	0.00947	0.03110
	B1	0.01080	0.01187	0.03307

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__aoi22_l	A0	0.00612	0.00585	0.01325
	A1	0.00618	0.00618	0.01546
	B0	-0.00105	-0.00057	0.00875
	B1	-0.00094	-0.00077	0.00663

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)	-0.00447	-0.00519	-0.00519
	(!A1 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * B1 * !Y)	-0.00523	-0.00527	-0.00525
	(!A1 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !B1 * Y)	-0.00523	-0.00524	-0.00524
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00523	-0.00528	-0.00524

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)	0.00515	0.00519	0.00519
	(!A1 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * B1 * !Y)	0.00525	0.00530	0.00527
	(!A1 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !B1 * Y)	0.00535	0.00529	0.00526
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00535	0.00529	0.00526

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)	-0.00442	-0.00515	-0.00513
	(!A0 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * B1 * !Y)	-0.00518	-0.00522	-0.00519
	(!A0 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !B1 * Y)	-0.00557	-0.00561	-0.00561
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	-0.00557	-0.00561	-0.00561

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)	0.00510	0.00515	0.00513
	(!A0 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * B1 * !Y)	0.00519	0.00523	0.00521
	(!A0 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !B1 * Y)	0.00560	0.00565	0.00563
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	0.00560	0.00565	0.00563

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)	-0.00243	-0.00245	-0.00244
	(A0 * A1 * !B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B1 * !Y)	-0.00242	-0.00243	-0.00243
	(!A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B1 * Y)	-0.00571	-0.00572	-0.00576
	(!A0 * A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B1 * Y)	-0.00571	-0.00574	-0.00576

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)	0.00274	0.00275	0.00251
	(A0 * A1 * !B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B1 * !Y)	0.00242	0.00243	0.00243
	(!A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B1 * Y)	0.00574	0.00579	0.00576
	(!A0 * A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B1 * Y)	0.00574	0.00579	0.00576

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)	-0.00244	-0.00246	-0.00245
	(A0 * A1 * !B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B0 * !Y)	-0.00243	-0.00245	-0.00245
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00531	-0.00534	-0.00532
	(!A0 * A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B0 * Y)	-0.00531	-0.00535	-0.00532

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)	0.00275	0.00276	0.00253
	(A0 * A1 * !B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B0 * !Y)	0.00244	0.00245	0.00245
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00542	0.00535	0.00534
	(!A0 * A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B0 * Y)	0.00542	0.00535	0.00534

SKY130_OSU_SC_18T_HS__BUFx

sky130_osu_sc_18T_hs_tt_1P80_25C.ccs
Cell Library: Process , Voltage 1.80,
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	0.00564	2.99969
sky130_osu_sc_18T_hs__buf_2	0.00564	5.85212
sky130_osu_sc_18T_hs__buf_4	0.00564	11.10472
sky130_osu_sc_18T_hs__buf_6	0.00097	1.80000
sky130_osu_sc_18T_hs__buf_8	0.00566	21.36889
sky130_osu_sc_18T_hs__buf_l	0.00442	2.08442

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__buf_1	0.00000	0.27614	0.27614
sky130_osu_sc_18T_hs__buf_2	0.00000	0.41420	0.54504
sky130_osu_sc_18T_hs__buf_4	0.00000	0.69034	1.08283
sky130_osu_sc_18T_hs__buf_6	0.00000	0.00000	0.00000
sky130_osu_sc_18T_hs__buf_8	0.00000	1.24261	2.15843
sky130_osu_sc_18T_hs__buf_l	0.00000	0.17817	0.17817

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)	0.05022	0.45512	6.21223
sky130_osu_sc_18T_hs__buf_2	A->Y (RR)	0.05593	0.40341	6.23824
sky130_osu_sc_18T_hs__buf_4	A->Y (RR)	0.07523	0.40661	6.34339
sky130_osu_sc_18T_hs__buf_8	A->Y (RR)	0.11251	0.46483	6.71515
sky130_osu_sc_18T_hs__buf_l	A->Y (RR)	0.05571	0.52496	6.26012

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)	0.05333	0.50986	6.61078
sky130_osu_sc_18T_hs__buf_2	A->Y (FF)	0.06115	0.48195	6.66784
sky130_osu_sc_18T_hs__buf_4	A->Y (FF)	0.08380	0.50081	6.76706
sky130_osu_sc_18T_hs__buf_8	A->Y (FF)	0.13319	0.57283	6.98924
sky130_osu_sc_18T_hs__buf_l	A->Y (FF)	0.05844	0.55555	6.41031

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	0.00534	0.00778	0.07742
sky130_osu_sc_18T_hs__buf_2	A	0.00000	0.00000	0.00000
	A	0.01135	0.01403	0.08300
sky130_osu_sc_18T_hs__buf_4	A	0.00000	0.00000	0.00000
	A	0.02453	0.02767	0.09521
sky130_osu_sc_18T_hs__buf_8	A	0.00000	0.00000	0.00000
	A	0.05324	0.05557	0.11567
sky130_osu_sc_18T_hs__buf_l	A	0.00000	0.00000	0.00000
	A	0.00403	0.00541	0.05142

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	0.01432	0.01910	0.09710
sky130_osu_sc_18T_hs__buf_2	A	0.00000	0.00000	0.00000
	A	0.01862	0.02338	0.10099
sky130_osu_sc_18T_hs__buf_4	A	0.00000	0.00000	0.00000
	A	0.03048	0.03523	0.11165
sky130_osu_sc_18T_hs__buf_8	A	0.00000	0.00000	0.00000
	A	0.05817	0.05774	0.13298
sky130_osu_sc_18T_hs__buf_l	A	0.00000	0.00000	0.00000
	A	0.01120	0.01411	0.06209

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
	-0.00077	-0.00077	-0.00076

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
	0.00077	0.00077	0.00076

SKY130_OSU_SC_18T_HS__DFFRx

sky130_osu_sc_18T_hs_tt_1P80_25C.ccs
Cell Library: Process , Voltage 1.80,
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	0.00543	0.00537	0.01546	2.93664	2.90056
sky130_osu_sc_18T_hs__dffr_l	0.00543	0.00537	0.01544	2.09701	2.07374

Leakage Information

Cell Name	Leakage(nW)		
	Min.	**Avg**	**Max.**
sky130_osu_sc_18T_hs__dffr_1	0.00000	0.85271	1.30524
sky130_osu_sc_18T_hs__dffr_l	0.00000	0.75474	1.20727

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)	0.23781	1.18400	15.27890
	QN->Q (FR)	0.02890	0.77572	12.26870
sky130_osu_sc_18T_hs__dffr_l	CK->Q (RR)	0.23400	1.27006	14.79360
	QN->Q (FR)	0.03073	0.81927	11.98470

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)	0.24118	1.18127	15.36220
	QN->Q (RF)	0.02409	0.65589	10.36700
	RN->Q (FF)	0.18022	1.25733	17.21540
sky130_osu_sc_18T_hs__dffr_l	CK->Q (RF)	0.24430	1.29233	15.13200
	QN->Q (RF)	0.02435	0.65554	9.61291
	RN->Q (FF)	0.18374	1.36848	16.96990

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)	0.21384	0.64194	6.22778
	RN->QN (FR)	0.15292	0.71807	8.06996
sky130_osu_sc_18T_hs__dffr_l	CK->QN (RR)	0.21435	0.69901	6.27889
	RN->QN (FR)	0.15375	0.77279	8.11525

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)**	0.20098	0.57578	5.00813
sky130_osu_sc_18T_hs__dffr_l	**CK->QN (RF)**	0.19359	0.58553	4.66084

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)	-0.05750	-0.06727	0.03656
	setup	CK (R)	0.18665	0.23024	0.54129
sky130_osu_sc_18T_hs__dffr_l	hold	CK (R)	-0.05765	-0.06727	0.03620
	setup	CK (R)	0.18835	0.23108	0.53737

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)	-0.09884	-0.31110	-3.37946
	setup	CK (R)	0.12355	0.32280	3.83323
sky130_osu_sc_18T_hs__dffr_l	hold	CK (R)	-0.09970	-0.31207	-3.41508
	setup	CK (R)	0.12331	0.32280	3.83323

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)	-0.05750	-0.06727	0.03656
	setup	CK (R)	0.18665	0.23024	0.54129
sky130_osu_sc_18T_hs__dffr_l	hold	CK (R)	-0.05765	-0.06727	0.03620
	setup	CK (R)	0.18835	0.23108	0.53737

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)	-0.09884	-0.31110	-3.37946
	setup	CK (R)	0.12355	0.32280	3.83323
sky130_osu_sc_18T_hs__dffr_l	hold	CK (R)	-0.09970	-0.31207	-3.41508
	setup	CK (R)	0.12331	0.32280	3.83323

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)	0.15670	0.19459	0.88497
	removal	CK (R)	-0.03043	-0.03942	-0.10149
sky130_osu_sc_18T_hs__dffr_l	recovery	CK (R)	0.15474	0.19530	0.88219
	removal	CK (R)	-0.03043	-0.03942	-0.10149

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)	0.15670	0.19459	0.88497
	removal	CK (R)	-0.03043	-0.03942	-0.10149
sky130_osu_sc_18T_hs__dffr_l	recovery	CK (R)	0.15474	0.19530	0.88219
	removal	CK (R)	-0.03043	-0.03942	-0.10149

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 ()	0.10597	0.48584	13.33370
	min_pulse_width	RN ()	0.10597	0.48584	13.33370
sky130_osu_sc_18T_hs__dffr_l	min_pulse_width	RN ()	0.10597	0.48584	13.33370
	min_pulse_width	RN ()	0.10232	0.48584	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 ()	0.10963	0.48584	13.33370
	min_pulse_width	CK ()	0.12423	0.48584	13.33370
sky130_osu_sc_18T_hs__dffr_l	min_pulse_width	CK ()	0.10232	0.48584	13.33370
	min_pulse_width	CK ()	0.12058	0.48584	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 ()	0.24112	0.48584	13.33370
	min_pulse_width	CK ()	0.10232	0.48584	13.33370
sky130_osu_sc_18T_hs__dffr_l	min_pulse_width	CK ()	0.24112	0.48584	13.33370
	min_pulse_width	CK ()	0.10232	0.48584	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	0.01462	0.01181	-0.00881
sky130_osu_sc_18T_hs__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.01296	0.01192	0.03033

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	0.01666	0.01462	0.01514
	RN	-0.00185	-0.13572	-2.37864
	RN	0.03852	0.03740	0.03856
sky130_osu_sc_18T_hs__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.01501	0.01417	0.03878
	RN	-0.00185	-0.11089	-1.69856
	RN	0.03684	0.03693	0.06386

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	0.01664	0.01463	0.01461
	RN	-0.00185	-0.13471	-2.34909
	RN	0.03850	0.03739	0.03932
sky130_osu_sc_18T_hs__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.01500	0.01446	0.03919
	RN	-0.00185	-0.11015	-1.67967
	RN	0.03683	0.03695	0.06371

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	0.01455	0.01186	-0.00785
sky130_osu_sc_18T_hs__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.01289	0.01196	0.03093

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	-0.00426	-0.00508	-0.00516
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.01818	0.01849	0.07057
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.00827	0.00874	0.06094
sky130_osu_sc_18T_hs__dffr_l	CK	0.00000	0.00000	0.00000
	CK	-0.00426	-0.00508	-0.00516
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.01818	0.01849	0.07056
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.00827	0.00874	0.06094

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	0.00514	0.00520	0.00519
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.03046	0.03115	0.08509
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.01411	0.01490	0.06784
sky130_osu_sc_18T_hs__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.00514	0.00520	0.00519
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.03046	0.03115	0.08509
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.01411	0.01490	0.06784

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)	0.00566	0.00822	0.10722
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.01571	0.01793	0.11869
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)	0.00566	0.00822	0.10722
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.01571	0.01792	0.11869

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)	0.01342	0.01784	0.11776
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.02922	0.03319	0.13487
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)	0.01342	0.01784	0.11776
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.02922	0.03319	0.13487

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)	-0.00124	0.00121	0.09923
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.00848	0.00953	0.11182
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	-0.00182	0.00074	0.09812
sky130_osu_sc_18T_hs__dffr_l	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	-0.00124	0.00121	0.09923
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.00848	0.00953	0.11182
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	-0.00183	0.00074	0.09812

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)	0.02066	0.02528	0.12481
	(D * RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * RN * !Q * QN)	0.04580	0.04875	0.17046
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.03517	0.03892	0.14103
	(!D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * Q * !QN)	0.04479	0.05271	0.21404
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.02363	0.02787	0.12636
sky130_osu_sc_18T_hs__dffr_l	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.02066	0.02528	0.12480
	(D * RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * RN * !Q * QN)	0.04580	0.04875	0.17046
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.03517	0.03893	0.14103
	(!D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * Q * !QN)	0.04479	0.05271	0.21403
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.02363	0.02787	0.12635

SKY130_OSU_SC_18T_HS__DFFSRx

sky130_osu_sc_18T_hs_tt_1P80_25C.ccs
Cell Library: Process , Voltage 1.80,
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	0.00539	0.00538	0.01155	0.01577	3.09926	3.05466
sky130_osu_sc_18T_hs__dffsr_l	0.00539	0.00538	0.01154	0.01577	2.08043	2.07972

Leakage Information

Cell Name	Leakage(nW)		
	Min.	**Avg**	**Max.**
sky130_osu_sc_18T_hs__dffsr_1	0.00000	0.93911	1.30165
sky130_osu_sc_18T_hs__dffsr_l	0.00000	0.84114	1.20368

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)	0.24606	1.18386	15.39300
	QN->Q (FR)	0.02740	0.75783	12.13100
	RN->Q (RR)	0.19654	1.14286	15.41280
	SN->Q (FR)	0.18281	1.27442	17.46470
sky130_osu_sc_18T_hs__dffsr_l	CK->Q (RR)	0.24924	1.28475	14.68800
	QN->Q (FR)	0.03067	0.81444	11.88800
	RN->Q (RR)	0.20008	1.24386	14.71750
	SN->Q (FR)	0.18594	1.37217	16.75930

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)	0.27103	1.20354	15.52750
	QN->Q (RF)	0.02197	0.61542	9.88311
	RN->Q (FF)	0.18490	1.25750	17.36850
sky130_osu_sc_18T_hs__dffsr_l	CK->Q (RF)	0.27808	1.32485	15.03620
	QN->Q (RF)	0.02430	0.65275	9.55443
	RN->Q (FF)	0.19167	1.37814	16.86400

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)	0.24465	0.67437	6.34548
	RN->QN (FR)	0.15884	0.72844	8.18204
sky130_osu_sc_18T_hs__dffsr_l	CK->QN (RR)	0.24781	0.73484	6.32810
	RN->QN (FR)	0.16169	0.78838	8.15953

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)	0.21146	0.58381	5.02697
	RN->QN (RF)	0.16232	0.54340	5.05893
	SN->QN (FF)	0.14866	0.67400	7.10201
sky130_osu_sc_18T_hs__dffsr_l	CK->QN (RF)	0.20962	0.60659	4.70658
	RN->QN (RF)	0.16083	0.56693	4.73575
	SN->QN (FF)	0.14689	0.69413	6.77739

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)	-0.05931	-0.07138	0.00760
	setup	CK (R)	0.18854	0.22964	0.61615
sky130_osu_sc_18T_hs__dffsr_l	hold	CK (R)	-0.05990	-0.07138	0.00624
	setup	CK (R)	0.18756	0.22529	0.61580

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)	-0.11346	-0.32555	-3.18026
	setup	CK (R)	0.14165	0.33692	3.86364
sky130_osu_sc_18T_hs__dffsr_l	hold	CK (R)	-0.11344	-0.32610	-3.17798
	setup	CK (R)	0.13847	0.33692	3.86364

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)	-0.05931	-0.07138	0.00760
	setup	CK (R)	0.18854	0.22964	0.61615
sky130_osu_sc_18T_hs__dffsr_l	hold	CK (R)	-0.05990	-0.07138	0.00624
	setup	CK (R)	0.18756	0.22529	0.61580

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)	-0.11346	-0.32555	-3.18026
	setup	CK (R)	0.14165	0.33692	3.86364
sky130_osu_sc_18T_hs__dffsr_l	hold	CK (R)	-0.11344	-0.32610	-3.17798
	setup	CK (R)	0.13847	0.33692	3.86364

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)	0.13773	0.17536	0.86983
	removal	CK (R)	-0.01646	-0.02293	-0.05516
	hold	SN (R)	-0.13813	-0.27463	-1.14916
	setup	SN (R)	0.16450	0.32295	3.87429
sky130_osu_sc_18T_hs__dffsr_l	recovery	CK (R)	0.14061	0.17504	0.87028
	removal	CK (R)	-0.01646	-0.02293	-0.05516
	hold	SN (R)	-0.13622	-0.26870	-1.12412
	setup	SN (R)	0.16189	0.31745	3.78991

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)	0.13773	0.17536	0.86983
	removal	CK (R)	-0.01646	-0.02293	-0.05516
	hold	SN (R)	-0.13813	-0.27481	-1.14916
	hold	SN (R)	-0.13918	-0.27463	-1.15307
	setup	SN (R)	0.16450	0.32142	3.61459
	setup	SN (R)	0.15693	0.32295	3.87429
sky130_osu_sc_18T_hs__dffsr_l	recovery	CK (R)	0.14061	0.17504	0.87028
	removal	CK (R)	-0.01646	-0.02293	-0.05516
	hold	SN (R)	-0.13892	-0.26870	-1.13104
	hold	SN (R)	-0.13622	-0.27057	-1.12412
	setup	SN (R)	0.16189	0.31367	3.50353
	setup	SN (R)	0.15302	0.31745	3.78991

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 ()	0.12423	0.48584	13.33370
	min_pulse_width	RN ()	0.12423	0.48584	13.33370
sky130_osu_sc_18T_hs__dffsr_l	min_pulse_width	RN ()	0.12423	0.48584	13.33370
	min_pulse_width	RN ()	0.12058	0.48584	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)	0.03514	0.07344	4.48635
	removal	CK (R)	-0.01490	-0.05851	-0.25299
sky130_osu_sc_18T_hs__dffsr_l	recovery	CK (R)	0.03467	0.07308	4.39578
	removal	CK (R)	-0.01490	-0.05851	-0.25299

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)	0.03514	0.07344	4.48635
	removal	CK (R)	-0.01490	-0.05851	-0.25299
sky130_osu_sc_18T_hs__dffsr_l	recovery	CK (R)	0.03467	0.07308	4.39578
	removal	CK (R)	-0.01490	-0.05851	-0.25299

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 ()	0.14615	0.48584	13.33370
	min_pulse_width	SN ()	0.14615	0.48584	13.33370
sky130_osu_sc_18T_hs__dffsr_l	min_pulse_width	SN ()	0.14615	0.48584	13.33370
	min_pulse_width	SN ()	0.13884	0.48584	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 ()	0.10963	0.48584	13.33370
	min_pulse_width	CK ()	0.13884	0.48584	13.33370
sky130_osu_sc_18T_hs__dffsr_l	min_pulse_width	CK ()	0.10597	0.48584	13.33370
	min_pulse_width	CK ()	0.13519	0.48584	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 ()	0.24477	0.48584	13.33370
	min_pulse_width	CK ()	0.12058	0.48584	13.33370
sky130_osu_sc_18T_hs__dffsr_l	min_pulse_width	CK ()	0.24477	0.48584	13.33370
	min_pulse_width	CK ()	0.12058	0.48584	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	0.01841	0.01725	0.02452
	RN	0.03374	0.03150	0.01841
	SN	-0.00185	-0.14018	-2.51040
	SN	0.03181	0.02855	0.00892
sky130_osu_sc_18T_hs__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.01687	0.01580	0.03524
	RN	0.03220	0.03000	0.03251
	SN	-0.00185	-0.11036	-1.68515
	SN	0.03028	0.02705	0.02278

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	0.01944	0.01798	0.02358
	RN	-0.00185	-0.14018	-2.51038
	RN	0.03974	0.03901	0.04771
sky130_osu_sc_18T_hs__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.01792	0.01724	0.04276
	RN	-0.00185	-0.11036	-1.68514
	RN	0.03819	0.03828	0.06688

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	0.01942	0.01799	0.02450
	RN	-0.00185	-0.13896	-2.47413
	RN	0.03971	0.03901	0.04805
sky130_osu_sc_18T_hs__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.01791	0.01723	0.04284
	RN	-0.00185	-0.11034	-1.68451
	RN	0.03817	0.03823	0.06637

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	0.01833	0.01734	0.02482
	RN	0.03365	0.03152	0.02359
	SN	-0.00185	-0.13896	-2.47403
	SN	0.03175	0.02850	0.01409
sky130_osu_sc_18T_hs__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.01679	0.01578	0.03462
	RN	0.03211	0.02993	0.03327
	SN	-0.00185	-0.11034	-1.68439
	SN	0.03022	0.02698	0.02290

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	-0.00504	-0.00515	-0.00515
	(!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)	0.02323	0.02351	0.07547
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.00933	0.00975	0.06159
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.00927	0.00969	0.06160
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.00934	0.00978	0.06164
sky130_osu_sc_18T_hs__dffsr_1	CK	0.00000	0.00000	0.00000
	CK	-0.00504	-0.00515	-0.00515
	(!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)	0.02323	0.02351	0.07547
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.00933	0.00975	0.06159
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.00927	0.00969	0.06160
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.00934	0.00978	0.06164

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	0.00522	0.00517	0.00515
	(!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)	0.03477	0.03527	0.08845
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.01476	0.01560	0.06821
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.01499	0.01573	0.06820
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.01469	0.01550	0.06812
sky130_osu_sc_18T_hs__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.00522	0.00517	0.00515
	(!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)	0.03476	0.03526	0.08847
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.01474	0.01559	0.06820
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.01497	0.01572	0.06819
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.01468	0.01549	0.06811

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)	0.00451	0.00718	0.10583
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.01865	0.02090	0.12194
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)	0.00451	0.00718	0.10584
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.01865	0.02090	0.12195

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)	0.01421	0.01896	0.11918
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.03066	0.03468	0.13690
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)	0.01419	0.01894	0.11916
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.03065	0.03466	0.13689

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)	-0.01156	-0.01165	-0.01165
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	-0.01061	-0.01201	-0.01196
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	-0.01082	-0.01148	-0.01151
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.00800	0.00859	0.06406
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)	-0.01156	-0.01165	-0.01165
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	-0.01059	-0.01199	-0.01194
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	-0.01081	-0.01148	-0.01150
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.00800	0.00861	0.06407

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)	0.01164	0.01171	0.01169
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.01195	0.01207	0.01200
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	0.01149	0.01159	0.01156
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.02380	0.02392	0.07724
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)	0.01164	0.01171	0.01169
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.01192	0.01205	0.01198
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	0.01148	0.01158	0.01155
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.02380	0.02395	0.07720

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)	-0.00123	0.00120	0.09928
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.00959	0.01075	0.11294
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.00931	0.01050	0.11278
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	-0.00157	0.00097	0.09844
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.00643	0.01101	0.18785
sky130_osu_sc_18T_hs__dffsr_1	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	-0.00123	0.00120	0.09928
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.00958	0.01074	0.11289
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.00929	0.01049	0.11277
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	-0.00157	0.00096	0.09844
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.00643	0.01101	0.18786

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)	0.05117	0.05428	0.17461
	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.02068	0.02533	0.12492
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.03586	0.03978	0.14147
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.03593	0.03966	0.14209
	(!D * RN * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * Q * !QN)	0.04899	0.05643	0.21813
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.02344	0.02766	0.12622
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.02730	0.03526	0.21434
sky130_osu_sc_18T_hs__dffsr_l	**(D * RN * SN * !Q * QN)**	0.00000	0.00000	0.00000
	(D * RN * SN * !Q * QN)	0.05117	0.05428	0.17462
	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.02068	0.02533	0.12492
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.03586	0.03977	0.14147
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.03593	0.03966	0.14209
	(!D * RN * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * Q * !QN)	0.04898	0.05640	0.21811
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.02343	0.02766	0.12622
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.02729	0.03525	0.21433

SKY130_OSU_SC_18T_HS__DFFSx

sky130_osu_sc_18T_hs_tt_1P80_25C.ccs
Cell Library: Process , Voltage 1.80,
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	0.00542	0.00917	0.01555	2.92136	2.93481
sky130_osu_sc_18T_hs__dffs_l	0.00542	0.00917	0.01555	2.08308	2.09129

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__dffs_1	0.00000	0.84284	1.24713
sky130_osu_sc_18T_hs__dffs_l	0.00000	0.74486	1.14916

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)	0.18367	1.11218	15.04890
	QN->Q (FR)	0.02873	0.76868	12.11860
	SN->Q (FR)	0.14249	1.24973	17.03080
sky130_osu_sc_18T_hs__dffs_l	CK->Q (RR)	0.18360	1.20308	14.57490
	QN->Q (FR)	0.03057	0.81305	11.85630
	SN->Q (FR)	0.14317	1.33649	16.53610

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)	0.26304	1.20208	15.24810
	QN->Q (RF)	0.02391	0.64899	10.28070
sky130_osu_sc_18T_hs__dffs_l	CK->Q (RF)	0.26521	1.31059	15.00060
	QN->Q (RF)	0.02420	0.65130	9.53660

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)	0.23518	0.66943	6.28923
sky130_osu_sc_18T_hs__dffs_l	CK->QN (RR)	0.23470	0.72214	6.32820

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)	0.14987	0.51292	4.97131
	SN->QN (FF)	0.10879	0.64976	6.95679
sky130_osu_sc_18T_hs__dffs_l	CK->QN (RF)	0.14631	0.52789	4.61337
	SN->QN (FF)	0.10522	0.65968	6.58103

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)	-0.03999	-0.05242	0.05874
	setup	CK (R)	0.12963	0.17759	0.46943
sky130_osu_sc_18T_hs__dffs_l	hold	CK (R)	-0.04123	-0.05242	0.06274
	setup	CK (R)	0.12938	0.17770	0.46627

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)	-0.10156	-0.31066	-3.66964
	setup	CK (R)	0.13250	0.32280	3.84348
sky130_osu_sc_18T_hs__dffs_l	hold	CK (R)	-0.09978	-0.31066	-3.65082
	setup	CK (R)	0.13240	0.32280	3.84340

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)	-0.03999	-0.05242	0.05874
	setup	CK (R)	0.12963	0.17759	0.46943
sky130_osu_sc_18T_hs__dffs_l	hold	CK (R)	-0.04123	-0.05242	0.06274
	setup	CK (R)	0.12938	0.17770	0.46627

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)	-0.10156	-0.31066	-3.66964
	setup	CK (R)	0.13250	0.32280	3.84348
sky130_osu_sc_18T_hs__dffs_l	hold	CK (R)	-0.09978	-0.31066	-3.65082
	setup	CK (R)	0.13240	0.32280	3.84340

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)	0.03656	0.07397	3.13978
	removal	CK (R)	-0.01440	-0.05649	-0.37956
sky130_osu_sc_18T_hs__dffs_l	recovery	CK (R)	0.03664	0.07374	3.00288
	removal	CK (R)	-0.01440	-0.05649	-0.37956

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)	0.03656	0.07397	3.13978
	removal	CK (R)	-0.01440	-0.05649	-0.37956
sky130_osu_sc_18T_hs__dffs_l	recovery	CK (R)	0.03664	0.07374	3.00288
	removal	CK (R)	-0.01440	-0.05649	-0.37956

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 ()	0.09501	0.48584	13.33370
	min_pulse_width	SN ()	0.09867	0.48584	13.33370
sky130_osu_sc_18T_hs__dffs_l	min_pulse_width	SN ()	0.09501	0.48584	13.33370
	min_pulse_width	SN ()	0.09136	0.48584	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 ()	0.08040	0.48584	13.33370
	min_pulse_width	CK ()	0.13154	0.48584	13.33370
sky130_osu_sc_18T_hs__dffs_l	min_pulse_width	CK ()	0.07675	0.48584	13.33370
	min_pulse_width	CK ()	0.12789	0.48584	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 ()	0.18633	0.48584	13.33370
	min_pulse_width	CK ()	0.10963	0.48584	13.33370
sky130_osu_sc_18T_hs__dffs_l	min_pulse_width	CK ()	0.18633	0.48584	13.33370
	min_pulse_width	CK ()	0.10963	0.48584	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	0.01462	0.01190	-0.00624
	SN	-0.00185	-0.13529	-2.36630
	SN	0.02632	0.02270	-0.01212
sky130_osu_sc_18T_hs__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.01297	0.01197	0.03200
	SN	-0.00185	-0.11045	-1.68729
	SN	0.02469	0.02285	0.02600

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	0.01653	0.01471	0.01778
sky130_osu_sc_18T_hs__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.01487	0.01419	0.04088

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	0.01652	0.01470	0.01719
sky130_osu_sc_18T_hs__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.01486	0.01419	0.04083

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	0.01454	0.01186	-0.00715
	SN	-0.00185	-0.13567	-2.37676
	SN	0.02627	0.02263	-0.01312
sky130_osu_sc_18T_hs__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.01290	0.01197	0.03154
	SN	-0.00185	-0.11071	-1.69377
	SN	0.02464	0.02277	0.02537

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	-0.00509	-0.00521	-0.00521
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.01735	0.01771	0.07133
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.00809	0.00853	0.06078
sky130_osu_sc_18T_hs__dffs_l	CK	0.00000	0.00000	0.00000
	CK	-0.00509	-0.00521	-0.00520
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.01735	0.01771	0.07133
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.00809	0.00853	0.06078

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	0.00528	0.00523	0.00521
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.02938	0.02999	0.08379
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.01416	0.01502	0.06818
sky130_osu_sc_18T_hs__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.00528	0.00523	0.00520
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.02938	0.02999	0.08379
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.01416	0.01502	0.06818

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)	-0.00857	-0.00865	-0.00863
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.00622	0.00687	0.06020
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)	-0.00857	-0.00865	-0.00863
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.00622	0.00687	0.06020

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)	0.00871	0.00870	0.00866
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.01656	0.01808	0.07350
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)	0.00871	0.00870	0.00866
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.01656	0.01808	0.07350

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)	-0.00126	0.00120	0.09937
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	-0.00171	0.00080	0.09841
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.00513	0.00989	0.18787
sky130_osu_sc_18T_hs__dffs_l	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	-0.00126	0.00120	0.09937
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	-0.00171	0.00088	0.09841
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.00513	0.00988	0.18787

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)	0.04517	0.04829	0.17129
	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.02066	0.02530	0.12497
	(!D * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * SN * Q * !QN)	0.04355	0.05115	0.21280
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	0.02350	0.02774	0.12638
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.02662	0.03473	0.21475
sky130_osu_sc_18T_hs__dffs_l	(D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * SN * !Q * QN)	0.04517	0.04829	0.17129
	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.02066	0.02530	0.12497
	(!D * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * SN * Q * !QN)	0.04354	0.05115	0.21280
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	0.02350	0.02775	0.12638
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.02662	0.03473	0.21475

SKY130_OSU_SC_18T_HS__DFFx

sky130_osu_sc_18T_hs_tt_1P80_25C.ccs
Cell Library: Process , Voltage 1.80,
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	0.00557	0.01529	3.09453	3.08511
sky130_osu_sc_18T_hs__dff_l	0.00557	0.01529	2.06854	2.04639

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__dff_1	0.00000	0.86271	1.10200
sky130_osu_sc_18T_hs__dff_l	0.00000	0.76474	1.00402

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)	0.16339	1.08265	15.19620
	QN->Q (FR)	0.02719	0.75278	12.05500
sky130_osu_sc_18T_hs__dff_l	CK->Q (RR)	0.16902	1.19215	14.54560
	QN->Q (FR)	0.03120	0.82523	12.02690

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)	0.22620	1.14943	15.41020
	QN->Q (RF)	0.02187	0.61275	9.83500
sky130_osu_sc_18T_hs__dff_l	CK->Q (RF)	0.23438	1.27953	15.00770
	QN->Q (RF)	0.02426	0.64953	9.49753

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)	0.20037	0.62481	6.33332
sky130_osu_sc_18T_hs__dff_l	CK->QN (RR)	0.20452	0.68780	6.25702

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)	0.13193	0.48810	4.93496
sky130_osu_sc_18T_hs__dff_l	CK->QN (RF)	0.13219	0.51017	4.48677

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)	-0.03579	-0.05044	0.04182
	setup	CK (R)	0.10740	0.16272	0.46072
sky130_osu_sc_18T_hs__dff_l	hold	CK (R)	-0.03584	-0.05044	0.04182
	setup	CK (R)	0.10764	0.16145	0.46797

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)	-0.08998	-0.30666	-3.66085
	setup	CK (R)	0.11265	0.31877	3.82725
sky130_osu_sc_18T_hs__dff_l	hold	CK (R)	-0.09023	-0.30666	-3.65811
	setup	CK (R)	0.11265	0.31877	3.82740

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 ()	0.07310	0.48584	13.33370
	min_pulse_width	CK ()	0.11693	0.48584	13.33370
sky130_osu_sc_18T_hs__dff_l	min_pulse_width	CK ()	0.06945	0.48584	13.33370
	min_pulse_width	CK ()	0.11328	0.48584	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 ()	0.16441	0.48584	13.33370
	min_pulse_width	CK ()	0.08771	0.48584	13.33370
sky130_osu_sc_18T_hs__dff_l	min_pulse_width	CK ()	0.16441	0.48584	13.33370
	min_pulse_width	CK ()	0.08771	0.48584	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	0.01535	0.01436	0.02489
sky130_osu_sc_18T_hs__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.01385	0.01294	0.03462

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	0.01687	0.01552	0.02356
sky130_osu_sc_18T_hs__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.01539	0.01459	0.03845

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	0.01686	0.01552	0.02375
sky130_osu_sc_18T_hs__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.01538	0.01461	0.03893

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	0.01529	0.01432	0.02441
sky130_osu_sc_18T_hs__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.01378	0.01290	0.03473

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	-0.00427	-0.00508	-0.00515
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.01617	0.01686	0.07129
sky130_osu_sc_18T_hs__dff_l	CK	0.00000	0.00000	0.00000
	CK	-0.00427	-0.00508	-0.00515
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.01618	0.01687	0.07129

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	0.00513	0.00514	0.00517
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.03026	0.03100	0.08551
sky130_osu_sc_18T_hs__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.00513	0.00514	0.00517
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.03026	0.03100	0.08551

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)	-0.00127	0.00120	0.09937
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	-0.00170	0.00083	0.09844
sky130_osu_sc_18T_hs__dff_l	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	-0.00127	0.00120	0.09937
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	-0.00170	0.00083	0.09844

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)	0.02059	0.02523	0.12490
	(D * !Q * QN)	0.00000	0.00000	0.00000
	(D * !Q * QN)	0.04410	0.04737	0.17086
	(!D * Q * !QN)	0.00000	0.00000	0.00000
	(!D * Q * !QN)	0.04420	0.05213	0.21604
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.02340	0.02767	0.12629
sky130_osu_sc_18T_hs__dff_l	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.02059	0.02523	0.12490
	(D * !Q * QN)	0.00000	0.00000	0.00000
	(D * !Q * QN)	0.04411	0.04738	0.17086
	(!D * Q * !QN)	0.00000	0.00000	0.00000
	(!D * Q * !QN)	0.04421	0.05214	0.21605
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.02340	0.02767	0.12629

SKY130_OSU_SC_18T_HS__INVx

sky130_osu_sc_18T_hs_tt_1P80_25C.ccs
Cell Library: Process , Voltage 1.80,
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	0.00541	2.89075
sky130_osu_sc_18T_hs__inv_10	0.05110	24.93568
sky130_osu_sc_18T_hs__inv_2	0.01041	5.58639
sky130_osu_sc_18T_hs__inv_3	0.01552	8.01247
sky130_osu_sc_18T_hs__inv_4	0.02055	10.61024
sky130_osu_sc_18T_hs__inv_6	0.03081	15.78866
sky130_osu_sc_18T_hs__inv_8	0.04096	20.78317
sky130_osu_sc_18T_hs__inv_l	0.00417	1.98637

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__inv_1	0.00000	0.13807	0.26890
sky130_osu_sc_18T_hs__inv_10	0.00000	1.38067	2.68899
sky130_osu_sc_18T_hs__inv_2	0.00000	0.27614	0.53780
sky130_osu_sc_18T_hs__inv_3	0.00000	0.41420	0.80670
sky130_osu_sc_18T_hs__inv_4	0.00000	0.55227	1.07560
sky130_osu_sc_18T_hs__inv_6	0.00000	0.82840	1.61339
sky130_osu_sc_18T_hs__inv_8	0.00000	1.10454	2.15119
sky130_osu_sc_18T_hs__inv_l	0.00000	0.08908	0.17073

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)**	0.02559	0.68058	10.65080
sky130_osu_sc_18T_hs__inv_10	**A->Y (FR)**	0.04227	0.47108	10.53290
sky130_osu_sc_18T_hs__inv_2	**A->Y (FR)**	0.02161	0.58770	10.53410
sky130_osu_sc_18T_hs__inv_3	**A->Y (FR)**	0.02441	0.55650	10.57910
sky130_osu_sc_18T_hs__inv_4	**A->Y (FR)**	0.02569	0.52559	10.46510
sky130_osu_sc_18T_hs__inv_6	**A->Y (FR)**	0.02979	0.49636	10.55910
sky130_osu_sc_18T_hs__inv_8	**A->Y (FR)**	0.03560	0.48040	10.58430
sky130_osu_sc_18T_hs__inv_l	**A->Y (FR)**	0.02883	0.74684	10.74690

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)**	0.01947	0.52731	8.32064
sky130_osu_sc_18T_hs__inv_10	**A->Y (RF)**	0.03427	0.31388	7.95744
sky130_osu_sc_18T_hs__inv_2	**A->Y (RF)**	0.01678	0.44097	8.19158
sky130_osu_sc_18T_hs__inv_3	**A->Y (RF)**	0.01874	0.40595	8.20988
sky130_osu_sc_18T_hs__inv_4	**A->Y (RF)**	0.01909	0.37549	8.12682
sky130_osu_sc_18T_hs__inv_6	**A->Y (RF)**	0.02453	0.34669	8.16606
sky130_osu_sc_18T_hs__inv_8	**A->Y (RF)**	0.02920	0.32832	8.14670
sky130_osu_sc_18T_hs__inv_l	**A->Y (RF)**	0.02144	0.56419	8.12642

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	0.00748	0.00914	0.02480
sky130_osu_sc_18T_hs__inv_10	A	0.00000	0.00000	0.00000
	A	0.06648	0.09189	0.25110
sky130_osu_sc_18T_hs__inv_2	A	0.00000	0.00000	0.00000
	A	0.01346	0.01675	0.04870
sky130_osu_sc_18T_hs__inv_3	A	0.00000	0.00000	0.00000
	A	0.02057	0.02672	0.07361
sky130_osu_sc_18T_hs__inv_4	A	0.00000	0.00000	0.00000
	A	0.02665	0.03662	0.09801
sky130_osu_sc_18T_hs__inv_6	A	0.00000	0.00000	0.00000
	A	0.03948	0.05496	0.14667
sky130_osu_sc_18T_hs__inv_8	A	0.00000	0.00000	0.00000
	A	0.05263	0.07260	0.19297
sky130_osu_sc_18T_hs__inv_l	A	0.00000	0.00000	0.00000
	A	0.00578	0.00666	0.01648

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	-0.00179	-0.00116	0.00564
sky130_osu_sc_18T_hs__inv_10	**A**	0.00000	0.00000	0.00000
	A	-0.02233	-0.01625	0.05353
sky130_osu_sc_18T_hs__inv_2	**A**	0.00000	0.00000	0.00000
	A	-0.00547	-0.00388	0.00984
sky130_osu_sc_18T_hs__inv_3	**A**	0.00000	0.00000	0.00000
	A	-0.00724	-0.00441	0.01587
sky130_osu_sc_18T_hs__inv_4	**A**	0.00000	0.00000	0.00000
	A	-0.01078	-0.00734	0.02005
sky130_osu_sc_18T_hs__inv_6	**A**	0.00000	0.00000	0.00000
	A	-0.01641	-0.01088	0.03019
sky130_osu_sc_18T_hs__inv_8	**A**	0.00000	0.00000	0.00000
	A	-0.02074	-0.01293	0.04116
sky130_osu_sc_18T_hs__inv_l	**A**	0.00000	0.00000	0.00000
	A	-0.00128	-0.00093	0.00373

SKY130_OSU_SC_18T_HS__MUX2

sky130_osu_sc_18T_hs_tt_1P80_25C.ccs
Cell Library: Process , Voltage 1.80,
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	0.89684	0.89820	0.01100	0.94161

Leakage Information

Cell Name	Leakage(nW)		
	Min.	**Avg**	**Max.**
sky130_osu_sc_18T_hs__mux2_1	0.00000	0.27731	0.27731

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)	-	0.01182	0.23002	2.58008
	A1->Y (RR)	-	0.01293	0.23005	2.57607
	S0->Y (RR)	(!A0 * A1)	0.03967	0.24949	1.66059
	S0->Y (FR)	(A0 * !A1)	0.03895	0.37824	3.92688

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)	-	0.01106	0.24746	2.83899
	A1->Y (FF)	-	0.01106	0.24647	2.82777
	S0->Y (FF)	(!A0 * A1)	0.05509	0.35753	3.13589
	S0->Y (RF)	(A0 * !A1)	0.02371	0.28082	2.71548

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	-	-0.00803	-0.00806	-0.00806
	A1	-	0.00000	0.00000	0.00000
	A1	-	-0.00552	-0.00552	-0.00554
	S0	(A0 * !A1)	0.00000	0.00000	0.00000
	S0	(A0 * !A1)	0.00858	0.01376	0.11477
	S0	(!A0 * A1)	0.00000	0.00000	0.00000
	S0	(!A0 * A1)	-0.00552	-0.00188	0.09742

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	-	0.00803	0.00806	0.00806
	A1	-	0.00000	0.00000	0.00000
	A1	-	0.00552	0.00554	0.00554
	S0	(A0 * !A1)	0.00000	0.00000	0.00000
	S0	(A0 * !A1)	0.00155	0.00531	0.10588
	S0	(!A0 * A1)	0.00000	0.00000	0.00000
	S0	(!A0 * A1)	0.02043	0.02546	0.12502

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)	-0.00201	-0.00200	-0.00200

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)	0.00201	0.00200	0.00200

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)	-0.00237	-0.00236	-0.00237

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)	0.00237	0.00236	0.00237

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)	-0.00202	0.00163	0.10131
	(!A0 * !A1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !Y)	-0.00199	0.00156	0.10166

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)	0.01525	0.02032	0.11995
	(!A0 * !A1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !Y)	0.01375	0.01924	0.11944

SKY130_OSU_SC_18T_HS__NAND2x

sky130_osu_sc_18T_hs_tt_1P80_25C.ccs
Cell Library: Process , Voltage 1.80,
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	0.00543	0.00542	2.73384
sky130_osu_sc_18T_hs__nand2_l	0.00418	0.00417	1.94564

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__nand2_1	0.00000	0.13783	0.53780
sky130_osu_sc_18T_hs__nand2_l	0.00000	0.08898	0.34147

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)	0.02607	0.67207	10.39910
	B->Y (FR)	0.03073	0.66905	10.27400
sky130_osu_sc_18T_hs__nand2_l	A->Y (FR)	0.02928	0.74647	10.68070
	B->Y (FR)	0.03492	0.74765	10.62750

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)	0.02657	0.63958	10.02980
	B->Y (RF)	0.03026	0.61082	9.56178
sky130_osu_sc_18T_hs__nand2_l	A->Y (RF)	0.02932	0.69756	9.98816
	B->Y (RF)	0.03274	0.66460	9.46182

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	0.00798	0.00870	0.02405
	B	0.00000	0.00000	0.00000
	B	0.01016	0.01077	0.02642
sky130_osu_sc_18T_hs__nand2_1	A	0.00000	0.00000	0.00000
	A	0.00612	0.00690	0.01559
	B	0.00000	0.00000	0.00000
	B	0.00772	0.00841	0.01724

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	-0.00128	-0.00086	0.00530
	B	0.00000	0.00000	0.00000
	B	-0.00122	-0.00105	0.00376
sky130_osu_sc_18T_hs__nand2_1	A	0.00000	0.00000	0.00000
	A	-0.00097	-0.00072	0.00341
	B	0.00000	0.00000	0.00000
	B	-0.00093	-0.00082	0.00263

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)	-0.00573	-0.00577	-0.00578
sky130_osu_sc_18T_hs__nand2_l	(!B * Y)	0.00000	0.00000	0.00000
	(!B * Y)	-0.00419	-0.00420	-0.00422

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)	0.00577	0.00581	0.00579
sky130_osu_sc_18T_hs__nand2_l	(!B * Y)	0.00000	0.00000	0.00000
	(!B * Y)	0.00421	0.00423	0.00423

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)	-0.00535	-0.00539	-0.00537
sky130_osu_sc_18T_hs__nand2_l	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00391	-0.00394	-0.00392

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)	0.00546	0.00540	0.00538
sky130_osu_sc_18T_hs__nand2_l	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00400	0.00395	0.00393

SKY130_OSU_SC_18T_HS__NOR2x

sky130_osu_sc_18T_hs_tt_1P80_25C.ccs
Cell Library: Process , Voltage 1.80,
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	0.00543	0.00573	1.56323
sky130_osu_sc_18T_hs__nor2_l	0.00410	0.00444	1.06957

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__nor2_1	0.00000	0.09537	0.26890
sky130_osu_sc_18T_hs__nor2_l	0.00000	0.06565	0.17073

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)	0.05197	0.79317	10.47520
	B->Y (FR)	0.03837	0.78295	10.54070
sky130_osu_sc_18T_hs__nor2_l	A->Y (FR)	0.05784	0.87185	10.41280
	B->Y (FR)	0.04578	0.87148	10.62490

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)	0.02639	0.43250	5.65850
	B->Y (RF)	0.02072	0.42073	5.63775
sky130_osu_sc_18T_hs__nor2_l	A->Y (RF)	0.02785	0.46178	5.51690
	B->Y (RF)	0.02273	0.45240	5.49973

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	0.01101	0.01118	0.02119
	B	0.00000	0.00000	0.00000
	B	0.00809	0.00935	0.02991
sky130_osu_sc_18T_hs__nor2_l	A	0.00000	0.00000	0.00000
	A	0.00804	0.00811	0.01488
	B	0.00000	0.00000	0.00000
	B	0.00617	0.00674	0.01931

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	0.00116	0.00141	0.01077
	B	0.00000	0.00000	0.00000
	B	-0.00136	-0.00072	0.00840
sky130_osu_sc_18T_hs__nor2_l	A	0.00000	0.00000	0.00000
	A	0.00077	0.00093	0.00744
	B	0.00000	0.00000	0.00000
	B	-0.00093	-0.00059	0.00580

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)	-0.00431	-0.00516	-0.00518
sky130_osu_sc_18T_hs__nor2_l	(B * !Y)	0.00000	0.00000	0.00000
	(B * !Y)	-0.00312	-0.00368	-0.00368

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)	0.00514	0.00518	0.00519
sky130_osu_sc_18T_hs__nor2_l	(B * !Y)	0.00000	0.00000	0.00000
	(B * !Y)	0.00365	0.00370	0.00368

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)	-0.00242	-0.00244	-0.00243
sky130_osu_sc_18T_hs__nor2_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	-0.00180	-0.00182	-0.00181

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)	0.00254	0.00256	0.00247
sky130_osu_sc_18T_hs__nor2_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00188	0.00189	0.00184

SKY130_OSU_SC_18T_HS__OAI21

sky130_osu_sc_18T_hs_tt_1P80_25C.ccs
Cell Library: Process , Voltage 1.80,
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	0.00550	0.00557	0.00463	1.51884

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__oai21_l	0.00000	0.11412	0.43963

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)	0.05163	0.79200	10.42830
	A1->Y (FR)	0.06899	0.80749	10.37050
	B0->Y (FR)	0.03621	0.68712	9.20379

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)	0.03816	0.51698	6.67939
	A1->Y (RF)	0.04581	0.51575	6.53258
	B0->Y (RF)	0.02932	0.56315	7.48221

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	0.01126	0.01232	0.02966
	A1	0.00000	0.00000	0.00000
	A1	0.01417	0.01417	0.02312
	B0	0.00957	0.01060	0.02479

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	0.00022	0.00029	0.00669
	A1	0.00000	0.00000	0.00000
	A1	0.00277	0.00257	0.00910
	B0	0.00091	0.00124	0.00879

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)	-0.00242	-0.00243	-0.00244
	(A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * Y)	-0.00513	-0.00523	-0.00519
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00527	-0.00529	-0.00527

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)	0.00255	0.00256	0.00248
	(A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * Y)	0.00517	0.00523	0.00519
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00530	0.00530	0.00528

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)	-0.00424	-0.00509	-0.00510
	(A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * Y)	-0.00507	-0.00520	-0.00516
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	-0.00521	-0.00524	-0.00522

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)	0.00507	0.00513	0.00511
	(A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * Y)	0.00513	0.00520	0.00516
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	0.00525	0.00525	0.00524

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)	-0.00426	-0.00430	-0.00434

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)	0.00433	0.00437	0.00435

SKY130_OSU_SC_18T_HS__OAI22

sky130_osu_sc_18T_hs_tt_1P80_25C.ccs
Cell Library: Process , Voltage 1.80,
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	0.00534	0.00561	0.00573	0.00561	1.55454

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__oai22_l	0.00000	0.14249	0.53780

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)	0.07393	0.81670	10.48000
	A1->Y (FR)	0.06044	0.80033	10.54510
	B0->Y (FR)	0.04240	0.78314	10.54420
	B1->Y (FR)	0.05771	0.80155	10.48460

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)	0.06716	0.56536	6.93507
	A1->Y (RF)	0.05257	0.54217	6.83581
	B0->Y (RF)	0.04413	0.58499	7.62335
	B1->Y (RF)	0.05976	0.62036	7.89251

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	0.01848	0.01844	0.02662
	A1	0.01558	0.01602	0.03331
	B0	0.00866	0.00940	0.02813
	B1	0.01174	0.01180	0.02032

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__oai22_l	A0	0.00469	0.00444	0.01074
	A1	-0.00061	-0.00053	0.00589
	B0	-0.00062	-0.00021	0.00808
	B1	0.00188	0.00195	0.00995

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)	-0.00431	-0.00516	-0.00518
	(A1 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * B1 * !Y)	-0.00431	-0.00516	-0.00518
	(A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * !B1 * Y)	-0.00509	-0.00515	-0.00516
	(!A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * !B1 * Y)	-0.00522	-0.00526	-0.00523

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)	0.00515	0.00518	0.00519
	(A1 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * B1 * !Y)	0.00515	0.00518	0.00519
	(A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * !B1 * Y)	0.00513	0.00515	0.00516
	(!A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * !B1 * Y)	0.00525	0.00526	0.00525

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)	-0.00241	-0.00243	-0.00242
	(A0 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * B1 * !Y)	-0.00241	-0.00243	-0.00242
	(A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * !B1 * Y)	-0.00507	-0.00515	-0.00514
	(!A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * !B1 * Y)	-0.00520	-0.00525	-0.00522

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)	0.00253	0.00254	0.00246
	(A0 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * B1 * !Y)	0.00253	0.00254	0.00246
	(A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * !B1 * Y)	0.00511	0.00515	0.00514
	(!A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * !B1 * Y)	0.00523	0.00525	0.00523

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)	-0.00239	-0.00241	-0.00241
	(A0 * !A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B1 * !Y)	-0.00239	-0.00241	-0.00241
	(!A0 * !A1 * B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B1 * Y)	-0.00558	-0.00565	-0.00565
	(!A0 * !A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B1 * Y)	-0.00562	-0.00567	-0.00573

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)	0.00251	0.00253	0.00244
	(A0 * !A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B1 * !Y)	0.00251	0.00253	0.00244
	(!A0 * !A1 * B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B1 * Y)	0.00564	0.00568	0.00565
	(!A0 * !A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B1 * Y)	0.00572	0.00576	0.00575

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)	-0.00424	-0.00510	-0.00511
	(A0 * !A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B0 * !Y)	-0.00424	-0.00510	-0.00511
	(!A0 * !A1 * B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B0 * Y)	-0.00566	-0.00579	-0.00574
	(!A0 * !A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B0 * Y)	-0.00570	-0.00573	-0.00580

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)	0.00508	0.00511	0.00512
	(A0 * !A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B0 * !Y)	0.00508	0.00514	0.00512
	(!A0 * !A1 * B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B0 * Y)	0.00574	0.00580	0.00574
	(!A0 * !A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B0 * Y)	0.00580	0.00583	0.00582

SKY130_OSU_SC_18T_HS__OR2x

sky130_osu_sc_18T_hs_tt_1P80_25C.ccs
Cell Library: Process , Voltage 1.80,
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	0.00577	0.00556	2.99077
sky130_osu_sc_18T_hs__or2_2	0.00577	0.00556	5.79500
sky130_osu_sc_18T_hs__or2_4	0.00577	0.00556	10.95347
sky130_osu_sc_18T_hs__or2_8	0.00577	0.00559	20.62563
sky130_osu_sc_18T_hs__or2_l	0.00451	0.00426	2.02777

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__or2_1	0.00000	0.16802	0.28337
sky130_osu_sc_18T_hs__or2_2	0.00000	0.24067	0.55227
sky130_osu_sc_18T_hs__or2_4	0.00000	0.38597	1.09007
sky130_osu_sc_18T_hs__or2_8	0.00000	0.67658	2.16566
sky130_osu_sc_18T_hs__or2_l	0.00000	0.11391	0.18560

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)	0.05943	0.48377	6.03838
	B->Y (RR)	0.05173	0.45613	6.04529
sky130_osu_sc_18T_hs__or2_2	A->Y (RR)	0.06575	0.43017	6.07645
	B->Y (RR)	0.05767	0.40507	6.06093
sky130_osu_sc_18T_hs__or2_4	A->Y (RR)	0.08548	0.43034	6.23898
	B->Y (RR)	0.07717	0.40969	6.20704
sky130_osu_sc_18T_hs__or2_8	A->Y (RR)	0.12289	0.48286	6.56428
	B->Y (RR)	0.11433	0.46653	6.51478
sky130_osu_sc_18T_hs__or2_l	A->Y (RR)	0.06490	0.55297	6.07213
	B->Y (RR)	0.05771	0.52727	6.04395

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)	0.09312	0.57968	6.88427
	B->Y (FF)	0.07498	0.56004	6.97383
sky130_osu_sc_18T_hs__or2_2	A->Y (FF)	0.10986	0.56000	6.92091
	B->Y (FF)	0.09186	0.54434	6.97475
sky130_osu_sc_18T_hs__or2_4	A->Y (FF)	0.15312	0.59668	7.07477
	B->Y (FF)	0.13516	0.58859	7.09218
sky130_osu_sc_18T_hs__or2_8	A->Y (FF)	0.24391	0.69960	7.24891
	B->Y (FF)	0.22603	0.69489	7.24320
sky130_osu_sc_18T_hs__or2_l	A->Y (FF)	0.10212	0.61888	6.55548
	B->Y (FF)	0.08425	0.60669	6.66186

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	0.00830	0.00963	0.05454
	B	0.00000	0.00000	0.00000
	B	0.00590	0.00859	0.07276
sky130_osu_sc_18T_hs__or2_2	A	0.00000	0.00000	0.00000
	A	0.01439	0.01606	0.06255
	B	0.00000	0.00000	0.00000
	B	0.01189	0.01493	0.07870
sky130_osu_sc_18T_hs__or2_4	A	0.00000	0.00000	0.00000
	A	0.02756	0.02989	0.07767
	B	0.00000	0.00000	0.00000
	B	0.02505	0.02879	0.09150
sky130_osu_sc_18T_hs__or2_8	A	0.00000	0.00000	0.00000
	A	0.05645	0.05847	0.10344
	B	0.00000	0.00000	0.00000
	B	0.05393	0.05760	0.11561
sky130_osu_sc_18T_hs__or2_l	A	0.00000	0.00000	0.00000
	A	0.00612	0.00671	0.03667
	B	0.00000	0.00000	0.00000
	B	0.00455	0.00615	0.04700

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	0.01783	0.01879	0.06288
	B	0.00000	0.00000	0.00000
	B	0.01458	0.01908	0.10018
sky130_osu_sc_18T_hs__or2_2	A	0.00000	0.00000	0.00000
	A	0.02236	0.02339	0.06701
	B	0.00000	0.00000	0.00000
	B	0.01904	0.02340	0.10238
sky130_osu_sc_18T_hs__or2_4	A	0.00000	0.00000	0.00000
	A	0.03582	0.03516	0.07742
	B	0.00000	0.00000	0.00000
	B	0.03260	0.03491	0.10933
sky130_osu_sc_18T_hs__or2_8	A	0.00000	0.00000	0.00000
	A	0.07161	0.05862	0.09847
	B	0.00000	0.00000	0.00000
	B	0.06834	0.05922	0.12591
sky130_osu_sc_18T_hs__or2_l	A	0.00000	0.00000	0.00000
	A	0.01352	0.01402	0.04255
	B	0.00000	0.00000	0.00000
	B	0.01125	0.01395	0.06441

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)	-0.00433	-0.00521	-0.00520
sky130_osu_sc_18T_hs__or2_2	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00433	-0.00521	-0.00520
sky130_osu_sc_18T_hs__or2_4	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00433	-0.00521	-0.00520
sky130_osu_sc_18T_hs__or2_8	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00433	-0.00521	-0.00520
sky130_osu_sc_18T_hs__or2_l	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00313	-0.00371	-0.00370

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)	0.00516	0.00522	0.00521
sky130_osu_sc_18T_hs__or2_2	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00516	0.00523	0.00521
sky130_osu_sc_18T_hs__or2_4	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00517	0.00522	0.00521
sky130_osu_sc_18T_hs__or2_8	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00517	0.00522	0.00521
sky130_osu_sc_18T_hs__or2_l	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00367	0.00371	0.00370

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)	-0.00245	-0.00244	-0.00244
sky130_osu_sc_18T_hs__or2_2	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00245	-0.00244	-0.00244
sky130_osu_sc_18T_hs__or2_4	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00245	-0.00244	-0.00244
sky130_osu_sc_18T_hs__or2_8	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00245	-0.00244	-0.00244
sky130_osu_sc_18T_hs__or2_l	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00185	-0.00184	-0.00184

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)	0.00257	0.00257	0.00248
sky130_osu_sc_18T_hs__or2_2	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00256	0.00257	0.00248
sky130_osu_sc_18T_hs__or2_4	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00256	0.00257	0.00248
sky130_osu_sc_18T_hs__or2_8	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00256	0.00257	0.00248
sky130_osu_sc_18T_hs__or2_l	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00192	0.00193	0.00187

SKY130_OSU_SC_18T_HS__TBUFIx

sky130_osu_sc_18T_hs_tt_1P80_25C.ccs
Cell Library: Process , Voltage 1.80,
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	0.00573	0.00724	1.56453
sky130_osu_sc_18T_hs__tbufi_l	0.00445	0.00564	1.06734

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__tbufi_1	0.00000	0.14110	0.53780
sky130_osu_sc_18T_hs__tbufi_l	0.00000	0.09246	0.34147

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)	0.03716	0.77650	10.53010
	OE->Y (FR)	0.04480	0.36067	5.09400
	OE->Y (RR)	0.06945	0.57551	6.28742
sky130_osu_sc_18T_hs__tbufi_l	A->Y (FR)	0.04437	0.86978	10.61740
	OE->Y (FR)	0.04805	0.36043	5.09376
	OE->Y (RR)	0.07613	0.66637	6.30150

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)	0.02607	0.51990	6.97255
	OE->Y (FF)	0.04520	0.36067	5.09398
	OE->Y (RF)	0.02454	0.48388	6.45095
sky130_osu_sc_18T_hs__tbufi_l	A->Y (RF)	0.02909	0.55550	6.77451
	OE->Y (FF)	0.04861	0.36044	5.09375
	OE->Y (RF)	0.02796	0.51721	6.20287

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	0.00766	0.00842	0.02672
	OE	0.00000	0.00000	0.00000
	OE	0.00791	0.01119	0.09753
sky130_osu_sc_18T_hs__tbufi_l	A	0.00000	0.00000	0.00000
	A	0.00586	0.00655	0.01749
	OE	0.00000	0.00000	0.00000
	OE	0.00564	0.00758	0.06268

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	-0.00140	-0.00091	0.00721
	OE	0.00000	0.00000	0.00000
	OE	0.00530	0.00890	0.10833
sky130_osu_sc_18T_hs__tbufi_l	A	0.00000	0.00000	0.00000
	A	-0.00094	-0.00063	0.00497
	OE	0.00000	0.00000	0.00000
	OE	0.00371	0.00577	0.06727

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)	-0.00402	-0.00409	-0.00404
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	-0.00353	-0.00357	-0.00355
sky130_osu_sc_18T_hs__tbufi_l	(!OE * Y)	0.00000	0.00000	0.00000
	(!OE * Y)	-0.00308	-0.00311	-0.00309
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	-0.00276	-0.00279	-0.00278

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)	0.00402	0.00409	0.00404
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	0.00362	0.00364	0.00359
sky130_osu_sc_18T_hs__tbufi_l	(!OE * Y)	0.00000	0.00000	0.00000
	(!OE * Y)	0.00308	0.00311	0.00309
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	0.00282	0.00283	0.00279

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)	0.00319	0.00702	0.10857
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00285	0.00673	0.10816
sky130_osu_sc_18T_hs__tbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00219	0.00439	0.06748
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00194	0.00418	0.06718

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)	0.00895	0.01367	0.11515
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00893	0.01379	0.11526
sky130_osu_sc_18T_hs__tbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00704	0.00973	0.07285
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00707	0.00983	0.07295

SKY130_OSU_SC_18T_HS__TNBUFIx

sky130_osu_sc_18T_hs_tt_1P80_25C.ccs
Cell Library: Process , Voltage 1.80,
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	0.00573	0.00903	1.56421
sky130_osu_sc_18T_hs__tnbufi_l	0.00444	0.00677	1.07261

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__tnbufi_1	0.00000	0.22832	0.27614
sky130_osu_sc_18T_hs__tnbufi_l	0.00000	0.14689	0.17816

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)	0.03735	0.77645	10.52870
	OE->Y (RR)	0.02532	0.36175	5.09506
	OE->Y (FR)	0.04951	0.79070	10.44530
sky130_osu_sc_18T_hs__tnbufi_l	A->Y (FR)	0.04468	0.87142	10.65060
	OE->Y (RR)	0.02625	0.36204	5.09538
	OE->Y (FR)	0.05550	0.87235	10.41720

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)	0.02574	0.51927	6.97156
	OE->Y (RF)	0.02503	0.36175	5.09507
	OE->Y (FF)	0.04593	0.46478	5.27638
sky130_osu_sc_18T_hs__tnbufi_l	A->Y (RF)	0.02868	0.55617	6.79603
	OE->Y (RF)	0.02596	0.36204	5.09539
	OE->Y (FF)	0.05160	0.50415	5.04178

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	0.00784	0.00860	0.02689
	OE	0.00000	0.00000	0.00000
	OE	0.01943	0.02531	0.12711
sky130_osu_sc_18T_hs__tnbufi_l	A	0.00000	0.00000	0.00000
	A	0.00605	0.00673	0.01777
	OE	0.00000	0.00000	0.00000
	OE	0.01446	0.01794	0.08147

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	-0.00165	-0.00110	0.00698
	OE	0.00000	0.00000	0.00000
	OE	0.01714	0.02293	0.11125
sky130_osu_sc_18T_hs__tnbufi_l	A	0.00000	0.00000	0.00000
	A	-0.00119	-0.00086	0.00472
	OE	0.00000	0.00000	0.00000
	OE	0.01278	0.01619	0.06937

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)	-0.00347	-0.00353	-0.00348
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	-0.00302	-0.00307	-0.00304
sky130_osu_sc_18T_hs__tnbufi_l	(OE * Y)	0.00000	0.00000	0.00000
	(OE * Y)	-0.00255	-0.00258	-0.00257
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	-0.00227	-0.00229	-0.00228

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)	0.00347	0.00353	0.00348
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	0.00310	0.00311	0.00308
sky130_osu_sc_18T_hs__tnbufi_l	(OE * Y)	0.00000	0.00000	0.00000
	(OE * Y)	0.00255	0.00258	0.00257
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	0.00231	0.00232	0.00229

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)	-0.00612	-0.00252	0.09985
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00614	-0.00239	0.09991
sky130_osu_sc_18T_hs__tnbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	-0.00436	-0.00231	0.06140
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00435	-0.00213	0.06147

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)	0.01467	0.02119	0.12351
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.01446	0.02106	0.12333
sky130_osu_sc_18T_hs__tnbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.01100	0.01480	0.07853
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.01085	0.01468	0.07842

SKY130_OSU_SC_18T_HS__XNOR2

sky130_osu_sc_18T_hs_tt_1P80_25C.ccs
Cell Library: Process , Voltage 1.80,
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	0.01135	0.01039	1.58607

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__xnor2_l	0.00000	0.46432	0.81393

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_l	A->Y (RR)	B	0.08746	0.60897	6.40876
	A->Y (FR)	!B	0.04782	0.79011	10.54640
	B->Y (RR)	A	0.06856	0.59098	6.47668
	B->Y (FR)	!A	0.06747	0.80746	10.50960

Delay(ns) to Y falling (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_18T_hs__xnor2_l	A->Y (FF)	B	0.08145	0.54413	5.71707
	A->Y (RF)	!B	0.03768	0.51345	6.74838
	B->Y (FF)	A	0.07168	0.53514	5.72507
	B->Y (RF)	!A	0.04743	0.52610	6.74562

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	0.00761	0.01037	0.09572
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.01850	0.02404	0.13846
	B	A	0.00000	0.00000	0.00000
	B	A	0.00210	0.00582	0.10648
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.02074	0.02551	0.12982

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	0.02382	0.02761	0.12519
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00522	0.00849	0.11087
	B	A	0.00000	0.00000	0.00000
	B	A	0.02155	0.02660	0.12742
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00694	0.01005	0.11149

SKY130_OSU_SC_18T_HS__XOR2

sky130_osu_sc_18T_hs_tt_1P80_25C.ccs
Cell Library: Process , Voltage 1.80,
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	0.01133	0.01043	1.59359

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__xor2_1	0.00000	0.46432	0.72699

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_l	A->Y (RR)	!B	0.08184	0.59738	6.51629
	A->Y (FR)	B	0.06128	0.80881	10.65170
	B->Y (RR)	!A	0.07115	0.59567	6.54528
	B->Y (FR)	A	0.06549	0.81105	10.61820

Delay(ns) to Y falling (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_18T_hs__xor2_l	A->Y (FF)	!B	0.06993	0.52438	5.45559
	A->Y (RF)	B	0.03623	0.54017	7.05639
	B->Y (FF)	!A	0.06583	0.52251	5.59584
	B->Y (RF)	A	0.04424	0.51168	6.55865

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	0.02218	0.02740	0.13637
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00341	0.00541	0.10432
	B	A	0.00000	0.00000	0.00000
	B	A	0.02277	0.02806	0.13475
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00173	0.00529	0.10681

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	0.00444	0.00763	0.11532
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.02429	0.02937	0.11705
	B	A	0.00000	0.00000	0.00000
	B	A	0.00449	0.00757	0.11146
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.02191	0.02741	0.12931

SKY130_OSU_SC_18T_HS_x

sky130_osu_sc_18T_hs_tt_1P80_25C.ccs
Cell Library: Process , Voltage 1.80,
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	0.91700
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	408733.00000	817467.00000
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
	-0.00220	0.11041	1.51341

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
	7.11240	6.75169	1.82473