sky130_osu_sc_18T_hs_tt_1P80_150C.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_150C.ccs
Cell Library: Process , Voltage 1.80, Temp 150.00

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	0.02226	0.02206	0.01683	3.24473	1.53367	3.14906
sky130_osu_sc_18T_hs__addf_l	0.02225	0.02205	0.01682	2.25552	1.53766	2.28538

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__addf_1	0.00000	328.16200	402.12100
sky130_osu_sc_18T_hs__addf_l	0.00000	278.47400	352.43300

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)	0.13808	1.61511	26.28310
	B->CO (RR)	0.13818	1.58436	25.40700
	CI->CO (RR)	0.13213	1.67237	27.11190
	CON->CO (FR)	0.02355	0.63180	9.90315
sky130_osu_sc_18T_hs__addf_l	A->CO (RR)	0.13869	1.50538	21.30790
	B->CO (RR)	0.13898	1.48717	20.87020
	CI->CO (RR)	0.13272	1.56316	22.15540
	CON->CO (FR)	0.02600	0.68471	9.84924

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)	0.15717	1.80038	29.23850
	B->CO (FF)	0.13877	1.75291	28.53840
	CI->CO (FF)	0.13539	1.81798	29.74430
	CON->CO (RF)	0.02450	0.63511	10.14030
sky130_osu_sc_18T_hs__addf_l	A->CO (FF)	0.15479	1.64392	23.21150
	B->CO (FF)	0.13661	1.60824	22.86480
	CI->CO (FF)	0.13304	1.66327	23.75290
	CON->CO (RF)	0.02611	0.66758	9.64722

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)	0.11621	0.74899	8.72736
	B->CON (FR)	0.09863	0.74289	8.87897
	CI->CON (FR)	0.09444	0.77208	9.31073
sky130_osu_sc_18T_hs__addf_l	A->CON (FR)	0.11004	0.74441	8.73763
	B->CON (FR)	0.09291	0.73791	8.88781
	CI->CON (FR)	0.08825	0.76701	9.31961

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)	0.09983	0.64688	7.53151
	B->CON (RF)	0.10074	0.67238	7.85848
	CI->CON (RF)	0.09387	0.70647	8.41691
sky130_osu_sc_18T_hs__addf_l	A->CON (RF)	0.09560	0.64394	7.54152
	B->CON (RF)	0.09683	0.66921	7.86761
	CI->CON (RF)	0.08966	0.70300	8.42668

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)	0.23316	1.62343	23.48230
	B->S (-R)	0.25435	1.62311	22.56750
	CI->S (-R)	0.20945	1.63850	23.99610
	CON->S (RR)	0.07528	0.55922	7.33385
sky130_osu_sc_18T_hs__addf_l	A->S (-R)	0.22311	1.50926	19.54650
	B->S (-R)	0.21385	1.48275	19.02090
	CI->S (-R)	0.19936	1.52611	20.08810
	CON->S (RR)	0.07486	0.59718	7.28456

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)	0.22070	1.53795	21.75630
	B->S (-F)	0.20791	1.46371	20.91040
	CI->S (-F)	0.21482	1.59459	22.59550
	CON->S (FF)	0.08549	0.62522	7.88045
sky130_osu_sc_18T_hs__addf_l	A->S (-F)	0.21052	1.42531	18.02160
	B->S (-F)	0.20579	1.37983	17.59510
	CI->S (-F)	0.20456	1.48236	18.87510
	CON->S (FF)	0.08352	0.65030	7.62500

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	0.01013	0.01753	0.16153
	B	0.01125	0.01785	0.14784
	CI	0.01335	0.02096	0.16451
sky130_osu_sc_18T_hs__addf_l	A	0.00736	0.01287	0.10625
	B	0.00855	0.01345	0.09810
	CI	0.01056	0.01627	0.10901

Internal switching power(pJ) to CO falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__addf_1	A	0.02588	0.03462	0.21085
	B	0.02602	0.03329	0.19253
	CI	0.02266	0.03194	0.20992
sky130_osu_sc_18T_hs__addf_l	A	0.02275	0.02931	0.14538
	B	0.02303	0.02853	0.13392
	CI	0.01954	0.02665	0.14458

Internal switching power(pJ) to CON rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__addf_1	A	0.02344	0.02916	0.12384
	B	0.02317	0.02849	0.11708
	CI	0.02030	0.02657	0.12350
sky130_osu_sc_18T_hs__addf_l	A	0.02148	0.02677	0.11390
	B	0.02125	0.02617	0.10790
	CI	0.01833	0.02427	0.11356

Internal switching power(pJ) to CON falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__addf_1	A	0.00791	0.01292	0.09335
	B	0.01035	0.01443	0.08877
	CI	0.01116	0.01641	0.09711
sky130_osu_sc_18T_hs__addf_l	A	0.00598	0.01056	0.08219
	B	0.00684	0.01086	0.07704
	CI	0.00921	0.01393	0.08560

Internal switching power(pJ) to S rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__addf_1	A	0.00662	0.00905	0.17376
	B	0.00314	0.00965	0.13964
	CI	0.01470	0.02005	0.17020
sky130_osu_sc_18T_hs__addf_l	A	0.00429	0.00735	0.17422
	B	-0.00029	0.00673	0.14691
	CI	0.01233	0.01829	0.17096

Internal switching power(pJ) to S falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__addf_1	A	0.05376	0.06035	0.20955
	B	0.04592	0.05383	0.21428
	CI	0.04016	0.04702	0.18545
sky130_osu_sc_18T_hs__addf_l	A	0.05017	0.05717	0.21230
	B	0.04111	0.04985	0.21419
	CI	0.03677	0.04387	0.18782

SKY130_OSU_SC_18T_HS__ADDHx

sky130_osu_sc_18T_hs_tt_1P80_150C.ccs
Cell Library: Process , Voltage 1.80, Temp 150.00

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	0.01078	0.01186	3.17046	1.61842	3.25686
sky130_osu_sc_18T_hs__addh_l	0.01078	0.01186	1.92401	1.61563	1.95872

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__addh_1	0.00000	353.88000	401.14400
sky130_osu_sc_18T_hs__addh_l	0.00000	284.72900	345.96000

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)	0.09043	0.58613	7.36262
	B->CO (RR)	0.09388	0.56891	7.38719
sky130_osu_sc_18T_hs__addh_l	A->CO (RR)	0.09015	0.64710	7.34423
	B->CO (RR)	0.09359	0.63124	7.28294

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)	0.07317	0.57713	7.58576
	B->CO (FF)	0.07875	0.59663	7.78084
sky130_osu_sc_18T_hs__addh_l	A->CO (FF)	0.07312	0.61738	7.08891
	B->CO (FF)	0.07848	0.63773	7.29009

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	0.12340	0.48629	4.14691
	A->CON (FR)	!B	0.06246	0.71800	9.10275
	B->CON (RR)	A	0.12574	0.46859	4.17030
	B->CON (FR)	!A	0.08051	0.70487	8.68932
sky130_osu_sc_18T_hs__addh_l	A->CON (RR)	B	0.11040	0.46639	4.17793
	A->CON (FR)	!B	0.05531	0.70998	9.08457
	B->CON (RR)	A	0.11284	0.44967	4.12986
	B->CON (FR)	!A	0.07334	0.69620	8.67070

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	0.12181	0.62224	6.06442
	A->CON (RF)	!B	0.05843	0.66797	8.46338
	B->CON (FF)	A	0.11689	0.65891	6.62148
	B->CON (RF)	!A	0.07154	0.65578	8.10041
sky130_osu_sc_18T_hs__addh_l	A->CON (FF)	B	0.11012	0.59412	5.90431
	A->CON (RF)	!B	0.05337	0.66190	8.44745
	B->CON (FF)	A	0.10547	0.63076	6.45727
	B->CON (RF)	!A	0.06651	0.65016	8.08647

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	0.09408	1.60015	26.63040
	A->S (FR)	B	0.15877	1.54695	24.09150
	B->S (RR)	!A	0.10842	1.55707	25.54190
	B->S (FR)	A	0.15328	1.61497	25.37340
	CON->S (FR)	-	0.02637	0.65418	10.23570
sky130_osu_sc_18T_hs__addh_l	A->S (RR)	!B	0.09285	1.44992	20.13540
	A->S (FR)	B	0.15123	1.37693	17.47390
	B->S (RR)	!A	0.10749	1.41801	19.41880
	B->S (FR)	A	0.14567	1.43391	18.38530
	CON->S (FR)	-	0.02922	0.72531	10.08410

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	0.09818	1.67135	27.89670
	A->S (RF)	B	0.15618	1.22808	18.23330
	B->S (FF)	!A	0.11623	1.66473	27.56390
	B->S (RF)	A	0.15852	1.20923	18.25630
	CON->S (RF)	-	0.02344	0.62292	9.89101
sky130_osu_sc_18T_hs__addh_l	A->S (FF)	!B	0.09434	1.49001	20.72600
	A->S (RF)	B	0.14575	1.11884	13.75610
	B->S (FF)	!A	0.11234	1.47995	20.34510
	B->S (RF)	A	0.14818	1.10138	13.68680
	CON->S (RF)	-	0.02593	0.67419	9.41094

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	0.01248	0.01605	0.08218
	B	0.00000	0.00000	0.00000
	B	0.01128	0.01499	0.09553
sky130_osu_sc_18T_hs__addh_l	A	0.00000	0.00000	0.00000
	A	0.01020	0.01364	0.07979
	B	0.00000	0.00000	0.00000
	B	0.00900	0.01256	0.08862

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	0.01670	0.02206	0.12332
	B	0.00000	0.00000	0.00000
	B	0.01761	0.02430	0.13554
sky130_osu_sc_18T_hs__addh_l	A	0.00000	0.00000	0.00000
	A	0.01426	0.01864	0.09769
	B	0.00000	0.00000	0.00000
	B	0.01516	0.02047	0.10548

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	0.01105	0.01453	0.07812
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.01578	0.01966	0.07121
	B	A	0.00000	0.00000	0.00000
	B	A	0.00989	0.01357	0.09137
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01753	0.02053	0.06738
sky130_osu_sc_18T_hs__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.00896	0.01246	0.07831
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.01290	0.01595	0.05494
	B	A	0.00000	0.00000	0.00000
	B	A	0.00779	0.01139	0.08727
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01469	0.01678	0.05115

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	0.01621	0.02109	0.10761
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00701	0.01063	0.05820
	B	A	0.00000	0.00000	0.00000
	B	A	0.01720	0.02322	0.11671
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00741	0.01067	0.05706
sky130_osu_sc_18T_hs__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.01402	0.01835	0.09633
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00485	0.00721	0.03848
	B	A	0.00000	0.00000	0.00000
	B	A	0.01500	0.02030	0.10345
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00525	0.00733	0.03886

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	0.01843	0.02382	0.12643
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.01066	0.01487	0.07775
	B	A	0.00000	0.00000	0.00000
	B	A	0.01978	0.02655	0.13895
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01053	0.01417	0.07160
sky130_osu_sc_18T_hs__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.01528	0.01963	0.09823
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00687	0.00919	0.04018
	B	A	0.00000	0.00000	0.00000
	B	A	0.01645	0.02184	0.10717
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00698	0.00902	0.03928

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	0.01352	0.01710	0.08392
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.01788	0.02224	0.08579
	B	A	0.00000	0.00000	0.00000
	B	A	0.01231	0.01607	0.09739
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01971	0.02327	0.08401
sky130_osu_sc_18T_hs__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.01046	0.01393	0.08002
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.01348	0.01650	0.05470
	B	A	0.00000	0.00000	0.00000
	B	A	0.00924	0.01282	0.08892
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01530	0.01747	0.05206

SKY130_OSU_SC_18T_HS__AND2x

sky130_osu_sc_18T_hs_tt_1P80_150C.ccs
Cell Library: Process , Voltage 1.80, Temp 150.00

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	0.00583	0.00598	3.19740
sky130_osu_sc_18T_hs__and2_2	0.00583	0.00598	6.14244
sky130_osu_sc_18T_hs__and2_4	0.00583	0.00599	11.62002
sky130_osu_sc_18T_hs__and2_6	0.00587	0.00599	17.10613
sky130_osu_sc_18T_hs__and2_8	0.00585	0.00601	21.74946
sky130_osu_sc_18T_hs__and2_l	0.00448	0.00461	2.25331

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__and2_1	0.00000	167.14000	266.62500
sky130_osu_sc_18T_hs__and2_2	0.00000	266.71600	268.20800
sky130_osu_sc_18T_hs__and2_4	0.00000	466.25000	531.62400
sky130_osu_sc_18T_hs__and2_6	0.00000	665.77900	796.53000
sky130_osu_sc_18T_hs__and2_8	0.00000	865.27700	1061.38000
sky130_osu_sc_18T_hs__and2_l	0.00000	105.15400	167.58300

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)	0.06936	0.53578	7.42477
	B->Y (RR)	0.07361	0.51249	7.01910
sky130_osu_sc_18T_hs__and2_2	A->Y (RR)	0.08020	0.49259	7.40487
	B->Y (RR)	0.08456	0.46553	6.97349
sky130_osu_sc_18T_hs__and2_4	A->Y (RR)	0.11186	0.50845	7.48968
	B->Y (RR)	0.11629	0.47646	7.05113
sky130_osu_sc_18T_hs__and2_6	A->Y (RR)	0.14535	0.54592	7.64370
	B->Y (RR)	0.14967	0.50916	7.19229
sky130_osu_sc_18T_hs__and2_8	A->Y (RR)	0.17818	0.58632	7.68978
	B->Y (RR)	0.18267	0.54582	7.21317
sky130_osu_sc_18T_hs__and2_l	A->Y (RR)	0.07458	0.59096	7.32235
	B->Y (RR)	0.07912	0.56891	6.95846

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)**	0.05825	0.51617	7.12591
	B->Y (FF)	0.06110	0.53109	7.27178
sky130_osu_sc_18T_hs__and2_2	**A->Y (FF)**	0.06465	0.46137	6.99746
	B->Y (FF)	0.06822	0.47639	7.16523
sky130_osu_sc_18T_hs__and2_4	**A->Y (FF)**	0.08836	0.46629	6.99689
	B->Y (FF)	0.09202	0.47844	7.17045
sky130_osu_sc_18T_hs__and2_6	**A->Y (FF)**	0.11515	0.49907	7.09387
	B->Y (FF)	0.11870	0.50957	7.25477
sky130_osu_sc_18T_hs__and2_8	**A->Y (FF)**	0.14035	0.52898	6.94848
	B->Y (FF)	0.14411	0.53872	7.11498
sky130_osu_sc_18T_hs__and2_l	**A->Y (FF)**	0.06198	0.56614	6.89612
	B->Y (FF)	0.06553	0.58249	7.06260

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	0.01331	0.02571	0.24127
	B	0.00000	0.00000	0.00000
	B	0.01326	0.02305	0.20051
sky130_osu_sc_18T_hs__and2_2	A	0.00000	0.00000	0.00000
	A	0.02075	0.03210	0.24973
	B	0.00000	0.00000	0.00000
	B	0.02074	0.02978	0.20461
sky130_osu_sc_18T_hs__and2_4	A	0.00000	0.00000	0.00000
	A	0.03930	0.04789	0.26152
	B	0.00000	0.00000	0.00000
	B	0.03933	0.04561	0.21488
sky130_osu_sc_18T_hs__and2_6	A	0.00000	0.00000	0.00000
	A	0.06510	0.06651	0.28156
	B	0.00000	0.00000	0.00000
	B	0.06509	0.06437	0.22837
sky130_osu_sc_18T_hs__and2_8	A	0.00000	0.00000	0.00000
	A	0.09471	0.08881	0.30153
	B	0.00000	0.00000	0.00000
	B	0.09478	0.08416	0.23904
sky130_osu_sc_18T_hs__and2_l	A	0.00000	0.00000	0.00000
	A	0.00897	0.01677	0.15680
	B	0.00000	0.00000	0.00000
	B	0.00900	0.01520	0.13395

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	0.01933	0.03346	0.23016
	B	0.00000	0.00000	0.00000
	B	0.02130	0.03523	0.22937
sky130_osu_sc_18T_hs__and2_2	A	0.00000	0.00000	0.00000
	A	0.02810	0.04138	0.23718
	B	0.00000	0.00000	0.00000
	B	0.03004	0.04301	0.23584
sky130_osu_sc_18T_hs__and2_4	A	0.00000	0.00000	0.00000
	A	0.05198	0.06092	0.25212
	B	0.00000	0.00000	0.00000
	B	0.05380	0.06240	0.25015
sky130_osu_sc_18T_hs__and2_6	A	0.00000	0.00000	0.00000
	A	0.07798	0.08180	0.26849
	B	0.00000	0.00000	0.00000
	B	0.07978	0.08228	0.26619
sky130_osu_sc_18T_hs__and2_8	A	0.00000	0.00000	0.00000
	A	0.11004	0.10285	0.28575
	B	0.00000	0.00000	0.00000
	B	0.11176	0.10378	0.28046
sky130_osu_sc_18T_hs__and2_l	A	0.00000	0.00000	0.00000
	A	0.01436	0.02328	0.14755
	B	0.00000	0.00000	0.00000
	B	0.01585	0.02473	0.14890

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)	-0.00511	-0.00516	-0.00519
sky130_osu_sc_18T_hs__and2_2	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00396	-0.00401	-0.00404
sky130_osu_sc_18T_hs__and2_4	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00166	-0.00171	-0.00174
sky130_osu_sc_18T_hs__and2_6	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00061	0.00056	0.00053
sky130_osu_sc_18T_hs__and2_8	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00294	0.00289	0.00286
sky130_osu_sc_18T_hs__and2_l	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00385	-0.00389	-0.00391

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)	0.00750	0.00755	0.00753
sky130_osu_sc_18T_hs__and2_2	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00866	0.00870	0.00868
sky130_osu_sc_18T_hs__and2_4	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.01097	0.01101	0.01099
sky130_osu_sc_18T_hs__and2_6	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.01331	0.01335	0.01333
sky130_osu_sc_18T_hs__and2_8	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.01559	0.01563	0.01562
sky130_osu_sc_18T_hs__and2_l	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00537	0.00540	0.00538

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)	-0.00483	-0.00488	-0.00485
sky130_osu_sc_18T_hs__and2_2	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00369	-0.00373	-0.00370
sky130_osu_sc_18T_hs__and2_4	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00139	-0.00142	-0.00140
sky130_osu_sc_18T_hs__and2_6	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00091	0.00087	0.00090
sky130_osu_sc_18T_hs__and2_8	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00321	0.00317	0.00320
sky130_osu_sc_18T_hs__and2_l	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00365	-0.00368	-0.00366

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)	0.00741	0.00730	0.00721
sky130_osu_sc_18T_hs__and2_2	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00857	0.00846	0.00837
sky130_osu_sc_18T_hs__and2_4	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.01088	0.01077	0.01068
sky130_osu_sc_18T_hs__and2_6	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.01319	0.01308	0.01299
sky130_osu_sc_18T_hs__and2_8	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.01550	0.01539	0.01530
sky130_osu_sc_18T_hs__and2_l	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00532	0.00522	0.00516

SKY130_OSU_SC_18T_HS__AOI21

sky130_osu_sc_18T_hs_tt_1P80_150C.ccs
Cell Library: Process , Voltage 1.80, Temp 150.00

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	0.00562	0.00576	0.00557	1.50309

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__aoi21_l	0.00000	70.31330	141.46900

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)	0.06299	0.69219	8.57812
	A1->Y (FR)	0.05483	0.66215	8.27289
	B0->Y (FR)	0.04384	0.71508	9.13564

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)	0.05558	0.57316	7.00620
	A1->Y (RF)	0.05133	0.62116	7.71534
	B0->Y (RF)	0.03067	0.58286	7.50023

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	0.01486	0.01748	0.06771
	A1	0.00000	0.00000	0.00000
	A1	0.01256	0.01510	0.06390
	B0	0.00855	0.01327	0.07106

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	0.00645	0.00852	0.04949
	A1	0.00000	0.00000	0.00000
	A1	0.00665	0.00924	0.05146
	B0	0.00119	0.00416	0.04138

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)	-0.00384	-0.00495	-0.00458
	(!A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !Y)	-0.00455	-0.00460	-0.00457
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00568	-0.00572	-0.00569

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)	0.00692	0.00693	0.00675
	(!A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !Y)	0.00686	0.00691	0.00689
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00598	0.00584	0.00577

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)	-0.00379	-0.00492	-0.00452
	(!A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !Y)	-0.00450	-0.00454	-0.00451
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	-0.00600	-0.00605	-0.00608

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)	0.00685	0.00684	0.00670
	(!A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !Y)	0.00680	0.00685	0.00683
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	0.00611	0.00616	0.00613

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)	-0.00218	-0.00220	-0.00211

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)	0.00396	0.00395	0.00338

SKY130_OSU_SC_18T_HS__AOI22

sky130_osu_sc_18T_hs_tt_1P80_150C.ccs
Cell Library: Process , Voltage 1.80, Temp 150.00

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	0.00563	0.00577	0.00593	0.00572	1.43233

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__aoi22_l	0.00000	78.92810	264.38500

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)	0.07852	0.70653	8.45688
	A1->Y (FR)	0.07075	0.68696	8.29723
	B0->Y (FR)	0.04568	0.70754	8.89624
	B1->Y (FR)	0.05340	0.73231	9.14100

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)	0.07493	0.58375	6.79884
	A1->Y (RF)	0.07070	0.63041	7.50833
	B0->Y (RF)	0.03490	0.59129	7.47088
	B1->Y (RF)	0.03920	0.54262	6.76008

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	0.01855	0.02101	0.07482
	A1	0.01627	0.01872	0.07075
	B0	0.00924	0.01459	0.08161
	B1	0.01151	0.01674	0.08440

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__aoi22_l	A0	0.01028	0.01232	0.05666
	A1	0.01049	0.01305	0.05849
	B0	0.00474	0.00791	0.05112
	B1	0.00456	0.00727	0.04880

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)	-0.00330	-0.00456	-0.00356
	(!A1 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * B1 * !Y)	-0.00340	-0.00344	-0.00342
	(!A1 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !B1 * Y)	-0.00568	-0.00572	-0.00569
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00568	-0.00572	-0.00569

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)	0.00811	0.00811	0.00766
	(!A1 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * B1 * !Y)	0.00801	0.00802	0.00803
	(!A1 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !B1 * Y)	0.00598	0.00584	0.00577
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00598	0.00585	0.00577

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)	-0.00325	-0.00452	-0.00351
	(!A0 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * B1 * !Y)	-0.00335	-0.00339	-0.00336
	(!A0 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !B1 * Y)	-0.00600	-0.00605	-0.00607
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	-0.00600	-0.00605	-0.00607

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)	0.00804	0.00805	0.00761
	(!A0 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * B1 * !Y)	0.00795	0.00803	0.00797
	(!A0 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !B1 * Y)	0.00609	0.00615	0.00612
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	0.00609	0.00615	0.00613

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)	-0.00218	-0.00220	-0.00212
	(A0 * A1 * !B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B1 * !Y)	-0.00093	-0.00099	-0.00098
	(!A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B1 * Y)	-0.00613	-0.00617	-0.00621
	(!A0 * A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B1 * Y)	-0.00613	-0.00618	-0.00622

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)	0.00405	0.00405	0.00342
	(A0 * A1 * !B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B1 * !Y)	0.00348	0.00350	0.00340
	(!A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B1 * Y)	0.00623	0.00630	0.00626
	(!A0 * A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B1 * Y)	0.00625	0.00634	0.00626

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)	-0.00219	-0.00221	-0.00213
	(A0 * A1 * !B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B0 * !Y)	-0.00095	-0.00098	-0.00099
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00576	-0.00579	-0.00577
	(!A0 * A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B0 * Y)	-0.00576	-0.00579	-0.00577

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)	0.00406	0.00406	0.00344
	(A0 * A1 * !B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B0 * !Y)	0.00350	0.00350	0.00342
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00605	0.00594	0.00585
	(!A0 * A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B0 * Y)	0.00605	0.00594	0.00585

SKY130_OSU_SC_18T_HS__BUFx

sky130_osu_sc_18T_hs_tt_1P80_150C.ccs
Cell Library: Process , Voltage 1.80, Temp 150.00

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	0.00596	3.23455
sky130_osu_sc_18T_hs__buf_2	0.00596	6.21757
sky130_osu_sc_18T_hs__buf_4	0.00596	11.82197
sky130_osu_sc_18T_hs__buf_6	0.00097	1.80000
sky130_osu_sc_18T_hs__buf_8	0.00598	22.55919
sky130_osu_sc_18T_hs__buf_l	0.00464	2.29550

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__buf_1	0.00000	134.48200	134.49200
sky130_osu_sc_18T_hs__buf_2	0.00000	201.39500	266.74500
sky130_osu_sc_18T_hs__buf_4	0.00000	335.53200	531.70800
sky130_osu_sc_18T_hs__buf_6	0.00000	0.00000	0.00000
sky130_osu_sc_18T_hs__buf_8	0.00000	603.78700	1061.60000
sky130_osu_sc_18T_hs__buf_l	0.00000	84.79410	84.79850

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)**	0.05351	0.48520	6.93992
sky130_osu_sc_18T_hs__buf_2	**A->Y (RR)**	0.05965	0.43172	6.84646
sky130_osu_sc_18T_hs__buf_4	**A->Y (RR)**	0.08012	0.43453	6.91229
sky130_osu_sc_18T_hs__buf_8	**A->Y (RR)**	0.12356	0.49197	7.13557
sky130_osu_sc_18T_hs__buf_l	**A->Y (RR)**	0.05824	0.54264	6.90083

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)**	0.05541	0.52303	7.41291
sky130_osu_sc_18T_hs__buf_2	**A->Y (FF)**	0.06252	0.46990	7.32960
sky130_osu_sc_18T_hs__buf_4	**A->Y (FF)**	0.08635	0.47286	7.33875
sky130_osu_sc_18T_hs__buf_8	**A->Y (FF)**	0.13829	0.53599	7.39244
sky130_osu_sc_18T_hs__buf_l	**A->Y (FF)**	0.05986	0.57508	7.22664

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	0.00926	0.02161	0.21360
sky130_osu_sc_18T_hs__buf_2	A	0.00000	0.00000	0.00000
	A	0.01604	0.02853	0.21938
sky130_osu_sc_18T_hs__buf_4	A	0.00000	0.00000	0.00000
	A	0.03189	0.04374	0.23485
sky130_osu_sc_18T_hs__buf_8	A	0.00000	0.00000	0.00000
	A	0.07455	0.08065	0.26486
sky130_osu_sc_18T_hs__buf_l	A	0.00000	0.00000	0.00000
	A	0.00652	0.01454	0.14339

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	0.01863	0.03410	0.24274
sky130_osu_sc_18T_hs__buf_2	A	0.00000	0.00000	0.00000
	A	0.02732	0.04199	0.24858
sky130_osu_sc_18T_hs__buf_4	A	0.00000	0.00000	0.00000
	A	0.05099	0.06108	0.26376
sky130_osu_sc_18T_hs__buf_8	A	0.00000	0.00000	0.00000
	A	0.10967	0.10364	0.29333
sky130_osu_sc_18T_hs__buf_l	A	0.00000	0.00000	0.00000
	A	0.01394	0.02380	0.15615

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
	-0.00081	-0.00082	-0.00079

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
	0.00081	0.00082	0.00079

SKY130_OSU_SC_18T_HS__DFFRx

sky130_osu_sc_18T_hs_tt_1P80_150C.ccs
Cell Library: Process , Voltage 1.80, Temp 150.00

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	0.00579	0.00567	0.01619	3.12116	3.08694
sky130_osu_sc_18T_hs__dffr_l	0.00579	0.00567	0.01619	2.30202	2.28069

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__dffr_1	0.00000	445.95100	696.32800
sky130_osu_sc_18T_hs__dffr_l	0.00000	396.26500	646.64700

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)	0.23957	1.26962	16.99510
	QN->Q (FR)	0.02736	0.71063	11.08580
sky130_osu_sc_18T_hs__dffr_l	CK->Q (RR)	0.23672	1.37201	16.85750
	QN->Q (FR)	0.02859	0.74999	10.88310

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)	0.25106	1.26977	17.12170
	QN->Q (RF)	0.02771	0.72667	11.42650
	RN->Q (FF)	0.18902	1.24872	17.55560
sky130_osu_sc_18T_hs__dffr_l	CK->Q (RF)	0.25298	1.38796	17.11950
	QN->Q (RF)	0.02830	0.74673	10.90490
	RN->Q (FF)	0.19135	1.36753	17.54910

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)	0.22012	0.66754	6.73708
	RN->QN (FR)	0.15805	0.64701	7.16652
sky130_osu_sc_18T_hs__dffr_l	CK->QN (RR)	0.21918	0.71064	6.74620
	RN->QN (FR)	0.15749	0.69043	7.17212

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)**	0.20836	0.69107	7.02964
sky130_osu_sc_18T_hs__dffr_l	**CK->QN (RF)**	0.20187	0.71582	6.82157

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)	-0.06990	-0.06648	0.16123
	setup	CK (R)	0.19087	0.22353	1.23644
sky130_osu_sc_18T_hs__dffr_l	hold	CK (R)	-0.07121	-0.06653	0.16093
	setup	CK (R)	0.19020	0.22078	1.39635

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)	-0.09823	-0.24218	-0.24608
	setup	CK (R)	0.12188	0.25656	3.11982
sky130_osu_sc_18T_hs__dffr_l	hold	CK (R)	-0.09937	-0.24308	0.12566
	setup	CK (R)	0.12188	0.25656	3.12081

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)	-0.06990	-0.06648	0.16123
	setup	CK (R)	0.19087	0.22353	1.23644
sky130_osu_sc_18T_hs__dffr_l	hold	CK (R)	-0.07121	-0.06653	0.16093
	setup	CK (R)	0.19020	0.22078	1.39635

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)	-0.09823	-0.24218	-0.24608
	setup	CK (R)	0.12188	0.25656	3.11982
sky130_osu_sc_18T_hs__dffr_l	hold	CK (R)	-0.09937	-0.24308	0.12566
	setup	CK (R)	0.12188	0.25656	3.12081

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)	0.14975	0.19567	1.16495
	removal	CK (R)	-0.03136	-0.04000	-0.10545
sky130_osu_sc_18T_hs__dffr_l	recovery	CK (R)	0.14933	0.19647	1.13743
	removal	CK (R)	-0.03136	-0.04000	-0.10545

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)	0.14975	0.19567	1.16495
	removal	CK (R)	-0.03136	-0.04000	-0.10545
sky130_osu_sc_18T_hs__dffr_l	recovery	CK (R)	0.14933	0.19647	1.13743
	removal	CK (R)	-0.03136	-0.04000	-0.10545

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 ()	0.10988	0.53345	13.33370
	min_pulse_width	RN ()	0.10988	0.53345	13.33370
sky130_osu_sc_18T_hs__dffr_l	min_pulse_width	RN ()	0.10589	0.53345	13.33370
	min_pulse_width	RN ()	0.10589	0.53345	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 ()	0.11787	0.53345	13.33370
	min_pulse_width	CK ()	0.12986	0.53345	13.33370
sky130_osu_sc_18T_hs__dffr_l	min_pulse_width	CK ()	0.10988	0.53345	13.33370
	min_pulse_width	CK ()	0.12587	0.53345	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 ()	0.24175	0.53345	13.33370
	min_pulse_width	CK ()	0.10189	0.53345	13.33370
sky130_osu_sc_18T_hs__dffr_l	min_pulse_width	CK ()	0.24175	0.53345	13.33370
	min_pulse_width	CK ()	0.10189	0.53345	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	0.02620	0.03415	0.13918
sky130_osu_sc_18T_hs__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.02313	0.03255	0.16794

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	0.02772	0.03137	0.11005
	RN	-0.00188	-0.14157	-2.52789
	RN	0.04684	0.05177	0.13474
sky130_osu_sc_18T_hs__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.02475	0.02989	0.13622
	RN	-0.00188	-0.11794	-1.86451
	RN	0.04394	0.05032	0.16102

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	0.02543	0.02910	0.10826
	RN	-0.00188	-0.14064	-2.49608
	RN	0.04562	0.05051	0.13327
sky130_osu_sc_18T_hs__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.02291	0.02799	0.13431
	RN	-0.00188	-0.11728	-1.84569
	RN	0.04305	0.04945	0.15951

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	0.02352	0.03146	0.13664
sky130_osu_sc_18T_hs__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.02056	0.03005	0.16412

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	0.00082	-0.00019	0.00035
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.02454	0.03253	0.21585
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.01279	0.02081	0.19613
sky130_osu_sc_18T_hs__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.00039	-0.00062	-0.00008
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.02410	0.03210	0.21541
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.01236	0.02038	0.19570

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	0.01179	0.01184	0.01159
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.03819	0.04724	0.23242
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.01724	0.02607	0.20443
sky130_osu_sc_18T_hs__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.01136	0.01140	0.01116
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.03776	0.04681	0.23199
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.01681	0.02564	0.20399

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)	0.01057	0.02469	0.27534
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.02087	0.03515	0.29790
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)	0.01014	0.02425	0.27491
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.02044	0.03472	0.29747

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)	0.01687	0.03316	0.28575
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.03548	0.05132	0.31363
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)	0.01644	0.03273	0.28532
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.03505	0.05089	0.31320

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)	0.00364	0.01738	0.26686
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.01220	0.02578	0.29416
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.00273	0.01651	0.26507
sky130_osu_sc_18T_hs__dffr_1	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.00321	0.01695	0.26642
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.01177	0.02535	0.29373
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.00230	0.01617	0.26464

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)	0.02495	0.04139	0.29263
	(D * RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * RN * !Q * QN)	0.05326	0.06810	0.38821
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.04166	0.05665	0.32199
	(!D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * Q * !QN)	0.05211	0.08081	0.47185
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.02867	0.04436	0.29453
sky130_osu_sc_18T_hs__dffr_l	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.02451	0.04096	0.29219
	(D * RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * RN * !Q * QN)	0.05282	0.06767	0.38778
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.04122	0.05622	0.32155
	(!D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * Q * !QN)	0.05167	0.08038	0.47142
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.02824	0.04392	0.29409

SKY130_OSU_SC_18T_HS__DFFSRx

sky130_osu_sc_18T_hs_tt_1P80_150C.ccs
Cell Library: Process , Voltage 1.80, Temp 150.00

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	0.00574	0.00568	0.01220	0.01643	3.26503	3.26409
sky130_osu_sc_18T_hs__dffsr_l	0.00574	0.00568	0.01218	0.01643	2.27004	2.28492

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__dffsr_1	0.00000	509.66500	696.17900
sky130_osu_sc_18T_hs__dffsr_l	0.00000	459.97300	646.48800

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)	0.24953	1.26789	17.12140
	QN->Q (FR)	0.02603	0.69356	10.92620
	RN->Q (RR)	0.19978	1.22634	17.16930
	SN->Q (FR)	0.17841	1.23445	17.52380
sky130_osu_sc_18T_hs__dffsr_l	CK->Q (RR)	0.25278	1.37554	16.61730
	QN->Q (FR)	0.02853	0.74417	10.74940
	RN->Q (RR)	0.20335	1.33579	16.66370
	SN->Q (FR)	0.18173	1.34170	17.01990

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)	0.29109	1.30423	17.22870
	QN->Q (RF)	0.02562	0.68862	10.96850
	RN->Q (FF)	0.18653	1.23928	17.66110
sky130_osu_sc_18T_hs__dffsr_l	CK->Q (RF)	0.29681	1.42894	16.92220
	QN->Q (RF)	0.02826	0.74462	10.79110
	RN->Q (FF)	0.19173	1.36473	17.35390

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)	0.26072	0.71497	6.90304
	RN->QN (FR)	0.15677	0.65097	7.33433
sky130_osu_sc_18T_hs__dffsr_l	CK->QN (RR)	0.26228	0.76118	6.79719
	RN->QN (FR)	0.15784	0.69704	7.22648

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)	0.21951	0.69528	7.10379
	RN->QN (RF)	0.16993	0.65449	7.15285
	SN->QN (FF)	0.14863	0.66195	7.50697
sky130_osu_sc_18T_hs__dffsr_l	CK->QN (RF)	0.21836	0.73033	6.84199
	RN->QN (RF)	0.16908	0.69019	6.88726
	SN->QN (FF)	0.14759	0.69581	7.24505

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)	-0.07552	-0.07302	0.13505
	setup	CK (R)	0.19313	0.22391	1.33739
sky130_osu_sc_18T_hs__dffsr_l	hold	CK (R)	-0.07366	-0.07151	0.13687
	setup	CK (R)	0.19129	0.22501	1.31557

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)	-0.11265	-0.25673	-0.03709
	setup	CK (R)	0.14211	0.26961	3.13951
sky130_osu_sc_18T_hs__dffsr_l	hold	CK (R)	-0.11136	-0.25580	-0.10018
	setup	CK (R)	0.14158	0.26961	3.13896

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)	-0.07552	-0.07302	0.13505
	setup	CK (R)	0.19313	0.22391	1.33739
sky130_osu_sc_18T_hs__dffsr_l	hold	CK (R)	-0.07366	-0.07151	0.13687
	setup	CK (R)	0.19129	0.22501	1.31557

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)	-0.11265	-0.25673	-0.03709
	setup	CK (R)	0.14211	0.26961	3.13951
sky130_osu_sc_18T_hs__dffsr_l	hold	CK (R)	-0.11136	-0.25580	-0.10018
	setup	CK (R)	0.14158	0.26961	3.13896

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)	0.13564	0.17691	1.14623
	removal	CK (R)	-0.01812	-0.02221	-0.04839
	hold	SN (R)	-0.13624	-0.26009	-0.94532
	setup	SN (R)	0.16449	0.31148	4.45526
sky130_osu_sc_18T_hs__dffsr_l	recovery	CK (R)	0.13524	0.17617	1.17475
	removal	CK (R)	-0.01941	-0.02221	-0.04839
	hold	SN (R)	-0.13429	-0.25570	-0.91871
	setup	SN (R)	0.16610	0.30703	4.40361

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)	0.13564	0.17691	1.14623
	removal	CK (R)	-0.01812	-0.02221	-0.04839
	hold	SN (R)	-0.13624	-0.26009	-0.96239
	hold	SN (R)	-0.13648	-0.26308	-0.94532
	setup	SN (R)	0.16449	0.30830	4.24177
	setup	SN (R)	0.16021	0.31148	4.45526
sky130_osu_sc_18T_hs__dffsr_l	recovery	CK (R)	0.13524	0.17617	1.17475
	removal	CK (R)	-0.01941	-0.02221	-0.04839
	hold	SN (R)	-0.13429	-0.25570	-0.94914
	hold	SN (R)	-0.13759	-0.25656	-0.91871
	setup	SN (R)	0.16610	0.30461	4.20751
	setup	SN (R)	0.15457	0.30703	4.40361

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 ()	0.12587	0.53345	13.33370
	min_pulse_width	RN ()	0.12587	0.53345	13.33370
sky130_osu_sc_18T_hs__dffsr_l	min_pulse_width	RN ()	0.12587	0.53345	13.33370
	min_pulse_width	RN ()	0.12187	0.53345	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)	0.04571	0.08235	4.07280
	removal	CK (R)	-0.02268	-0.05870	-0.31022
sky130_osu_sc_18T_hs__dffsr_l	recovery	CK (R)	0.04614	0.08195	3.90915
	removal	CK (R)	-0.02451	-0.06088	-0.30804

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)	0.04571	0.08235	4.07280
	removal	CK (R)	-0.02268	-0.05870	-0.31022
sky130_osu_sc_18T_hs__dffsr_l	recovery	CK (R)	0.04614	0.08195	3.90915
	removal	CK (R)	-0.02451	-0.06088	-0.30804

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 ()	0.14185	0.53345	13.33370
	min_pulse_width	SN ()	0.14185	0.53345	13.33370
sky130_osu_sc_18T_hs__dffsr_l	min_pulse_width	SN ()	0.14185	0.53345	13.33370
	min_pulse_width	SN ()	0.13386	0.53345	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 ()	0.12187	0.53345	13.33370
	min_pulse_width	CK ()	0.14585	0.53345	13.33370
sky130_osu_sc_18T_hs__dffsr_l	min_pulse_width	CK ()	0.11787	0.53345	13.33370
	min_pulse_width	CK ()	0.14185	0.53345	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 ()	0.24574	0.53345	13.33370
	min_pulse_width	CK ()	0.12587	0.53345	13.33370
sky130_osu_sc_18T_hs__dffsr_l	min_pulse_width	CK ()	0.24574	0.53345	13.33370
	min_pulse_width	CK ()	0.12587	0.53345	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	0.03019	0.03957	0.17399
	RN	0.04679	0.05216	0.15900
	SN	-0.00188	-0.14545	-2.64452
	SN	0.04108	0.04582	0.15320
sky130_osu_sc_18T_hs__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.02728	0.03649	0.17283
	RN	0.04391	0.04913	0.15721
	SN	-0.00188	-0.11695	-1.83865
	SN	0.03825	0.04285	0.15117

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	0.03333	0.03746	0.12643
	RN	-0.00188	-0.14545	-2.64447
	RN	0.05124	0.05677	0.15527
sky130_osu_sc_18T_hs__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.03032	0.03544	0.14406
	RN	-0.00188	-0.11695	-1.83861
	RN	0.04838	0.05483	0.17235

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	0.03062	0.03477	0.12296
	RN	-0.00188	-0.14542	-2.64089
	RN	0.04910	0.05462	0.15298
sky130_osu_sc_18T_hs__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.02808	0.03320	0.14068
	RN	-0.00188	-0.11741	-1.84910
	RN	0.04665	0.05312	0.17024

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	0.02760	0.03704	0.17092
	RN	0.04418	0.04961	0.15522
	SN	-0.00188	-0.14542	-2.64338
	SN	0.03943	0.04418	0.15137
sky130_osu_sc_18T_hs__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.02484	0.03407	0.16953
	RN	0.04145	0.04669	0.15264
	SN	-0.00188	-0.11741	-1.85043
	SN	0.03678	0.04137	0.14964

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	0.00032	0.00027	0.00032
	(!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)	0.03010	0.03787	0.22375
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.01430	0.02216	0.19772
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.01451	0.02233	0.19720
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.01552	0.02335	0.19851
sky130_osu_sc_18T_hs__dffsr_1	CK	0.00000	0.00000	0.00000
	CK	-0.00011	-0.00016	-0.00011
	(!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)	0.02967	0.03744	0.22301
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.01387	0.02173	0.19728
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.01408	0.02190	0.19677
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.01508	0.02292	0.19808

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	0.01188	0.01180	0.01168
	(!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)	0.04328	0.05183	0.23778
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.01926	0.02788	0.20537
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.01879	0.02722	0.20509
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.01960	0.02826	0.20614
sky130_osu_sc_18T_hs__dffsr_1	CK	0.00000	0.00000	0.00000
	CK	0.01145	0.01137	0.01125
	(!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)	0.04283	0.05139	0.23734
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.01882	0.02744	0.20492
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.01834	0.02677	0.20465
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.01916	0.02782	0.20570

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)	0.01058	0.02461	0.27516
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.02445	0.03871	0.30518
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)	0.01015	0.02419	0.27474
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.02402	0.03828	0.30475

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)	0.01736	0.03403	0.28756
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.03710	0.05302	0.31824
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)	0.01691	0.03359	0.28711
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.03665	0.05257	0.31780

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)	-0.00750	-0.00752	-0.00766
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	-0.00664	-0.00893	-0.00824
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	-0.00635	-0.00754	-0.00714
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.01465	0.02206	0.19314
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)	-0.00793	-0.00795	-0.00809
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	-0.00705	-0.00934	-0.00866
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	-0.00674	-0.00797	-0.00757
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.01423	0.02164	0.19272

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)	0.01755	0.01767	0.01761
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.01761	0.01760	0.01730
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	0.01778	0.01785	0.01765
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.02940	0.03610	0.20917
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)	0.01711	0.01724	0.01718
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.01716	0.01715	0.01685
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	0.01734	0.01741	0.01721
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.02896	0.03566	0.20872

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)	0.00365	0.01739	0.26704
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.01392	0.02753	0.29565
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.01481	0.02835	0.29643
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00415	0.01802	0.26667
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.01301	0.03716	0.47588
sky130_osu_sc_18T_hs__dffsr_1	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.00322	0.01696	0.26661
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.01348	0.02708	0.29521
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.01437	0.02791	0.29599
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00372	0.01759	0.26624
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.01258	0.03673	0.47545

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)	0.05972	0.07456	0.39431
	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.02501	0.04142	0.29287
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.04312	0.05828	0.32316
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.04405	0.05924	0.32450
	(!D * RN * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * Q * !QN)	0.05752	0.08558	0.47913
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.02988	0.04556	0.29590
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.03154	0.05992	0.50250
sky130_osu_sc_18T_hs__dffsr_l	**(D * RN * SN * !Q * QN)**	0.00000	0.00000	0.00000
	(D * RN * SN * !Q * QN)	0.05929	0.07413	0.39388
	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.02457	0.04099	0.29243
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.04269	0.05785	0.32273
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.04362	0.05881	0.32407
	(!D * RN * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * Q * !QN)	0.05707	0.08517	0.47868
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.02945	0.04513	0.29547
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.03110	0.05948	0.50206

SKY130_OSU_SC_18T_HS__DFFSx

sky130_osu_sc_18T_hs_tt_1P80_150C.ccs
Cell Library: Process , Voltage 1.80, Temp 150.00

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	0.00577	0.00961	0.01620	3.12906	3.10746
sky130_osu_sc_18T_hs__dffs_l	0.00577	0.00961	0.01620	2.27455	2.29834

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__dffs_1	0.00000	450.21000	604.14600
sky130_osu_sc_18T_hs__dffs_l	0.00000	400.52700	554.45600

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)	0.19220	1.20919	16.87470
	QN->Q (FR)	0.02719	0.70623	11.00600
	SN->Q (FR)	0.13954	1.21896	17.35160
sky130_osu_sc_18T_hs__dffs_l	CK->Q (RR)	0.19239	1.30695	16.51260
	QN->Q (FR)	0.02844	0.74270	10.72540
	SN->Q (FR)	0.14003	1.31407	16.97930

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)	0.27825	1.30544	17.15120
	QN->Q (RF)	0.02753	0.72486	11.39640
sky130_osu_sc_18T_hs__dffs_l	CK->Q (RF)	0.27894	1.41205	16.91150
	QN->Q (RF)	0.02816	0.74345	10.78060

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)	0.24644	0.70370	6.78019
sky130_osu_sc_18T_hs__dffs_l	CK->QN (RR)	0.24426	0.74478	6.80210

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)	0.16258	0.63327	6.95325
	SN->QN (FF)	0.10977	0.64406	7.42871
sky130_osu_sc_18T_hs__dffs_l	CK->QN (RF)	0.15942	0.66334	6.76068
	SN->QN (FF)	0.10713	0.67052	7.22717

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)	-0.05334	-0.05038	0.18194
	setup	CK (R)	0.14122	0.17966	2.29052
sky130_osu_sc_18T_hs__dffs_l	hold	CK (R)	-0.05200	-0.05143	0.18037
	setup	CK (R)	0.14123	0.17978	2.41597

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)	-0.10037	-0.24352	1.25369
	setup	CK (R)	0.13068	0.25656	3.14346
sky130_osu_sc_18T_hs__dffs_l	hold	CK (R)	-0.09975	-0.24352	1.14766
	setup	CK (R)	0.13068	0.25656	3.14346

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)	-0.05334	-0.05038	0.18194
	setup	CK (R)	0.14122	0.17966	2.29052
sky130_osu_sc_18T_hs__dffs_l	hold	CK (R)	-0.05200	-0.05143	0.18037
	setup	CK (R)	0.14123	0.17978	2.41597

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)	-0.10037	-0.24352	1.25369
	setup	CK (R)	0.13068	0.25656	3.14346
sky130_osu_sc_18T_hs__dffs_l	hold	CK (R)	-0.09975	-0.24352	1.14766
	setup	CK (R)	0.13068	0.25656	3.14346

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)	0.04358	0.08246	2.90996
	removal	CK (R)	-0.02268	-0.06305	-0.51976
sky130_osu_sc_18T_hs__dffs_l	recovery	CK (R)	0.04352	0.08238	2.84006
	removal	CK (R)	-0.02268	-0.06305	-0.51976

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)	0.04358	0.08246	2.90996
	removal	CK (R)	-0.02268	-0.06305	-0.51976
sky130_osu_sc_18T_hs__dffs_l	recovery	CK (R)	0.04352	0.08238	2.84006
	removal	CK (R)	-0.02268	-0.06305	-0.51976

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 ()	0.09390	0.53345	13.33370
	min_pulse_width	SN ()	0.09390	0.53345	13.33370
sky130_osu_sc_18T_hs__dffs_l	min_pulse_width	SN ()	0.09390	0.53345	13.33370
	min_pulse_width	SN ()	0.08990	0.53345	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 ()	0.08990	0.53345	13.33370
	min_pulse_width	CK ()	0.14185	0.53345	13.33370
sky130_osu_sc_18T_hs__dffs_l	min_pulse_width	CK ()	0.08990	0.53345	13.33370
	min_pulse_width	CK ()	0.13386	0.53345	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 ()	0.19380	0.53345	13.33370
	min_pulse_width	CK ()	0.11388	0.53345	13.33370
sky130_osu_sc_18T_hs__dffs_l	min_pulse_width	CK ()	0.19380	0.53345	13.33370
	min_pulse_width	CK ()	0.11388	0.53345	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	0.02342	0.03147	0.13790
	SN	-0.00188	-0.14178	-2.53437
	SN	0.03215	0.03596	0.10201
sky130_osu_sc_18T_hs__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.02049	0.02992	0.16564
	SN	-0.00188	-0.11709	-1.84230
	SN	0.02931	0.03455	0.12952

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	0.02878	0.03261	0.11531
sky130_osu_sc_18T_hs__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.02556	0.03083	0.14065

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	0.02623	0.03006	0.11450
sky130_osu_sc_18T_hs__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.02364	0.02890	0.13781

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	0.02141	0.02957	0.13548
	SN	-0.00188	-0.14120	-2.51630
	SN	0.03110	0.03494	0.10103
sky130_osu_sc_18T_hs__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.01871	0.02816	0.16237
	SN	-0.00188	-0.11782	-1.86130
	SN	0.02849	0.03374	0.12788

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	-0.00046	-0.00051	-0.00047
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.02245	0.03112	0.21857
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.01169	0.01976	0.19611
sky130_osu_sc_18T_hs__dffs_l	CK	0.00000	0.00000	0.00000
	CK	-0.00090	-0.00095	-0.00090
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.02202	0.03069	0.21814
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.01126	0.01933	0.19568

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	0.01121	0.01113	0.01101
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.03635	0.04521	0.23052
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.01747	0.02639	0.20465
sky130_osu_sc_18T_hs__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.01077	0.01070	0.01057
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.03591	0.04478	0.23009
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.01704	0.02595	0.20422

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)	-0.00541	-0.00547	-0.00549
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.01139	0.01744	0.15724
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)	-0.00584	-0.00590	-0.00592
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.01096	0.01701	0.15680

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)	0.01324	0.01318	0.01309
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.02010	0.02757	0.17092
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)	0.01280	0.01275	0.01266
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.01967	0.02713	0.17048

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)	0.00244	0.01621	0.26608
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	0.00339	0.01723	0.26617
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.01033	0.03503	0.47535
sky130_osu_sc_18T_hs__dffs_l	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.00201	0.01578	0.26564
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	0.00296	0.01678	0.26573
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.00990	0.03460	0.47491

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)	0.05206	0.06715	0.38937
	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.02377	0.04026	0.29187
	(!D * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * SN * Q * !QN)	0.05027	0.07867	0.47030
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	0.02909	0.04479	0.29536
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.02963	0.05848	0.50250
sky130_osu_sc_18T_hs__dffs_l	(D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * SN * !Q * QN)	0.05162	0.06671	0.38893
	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.02334	0.03982	0.29144
	(!D * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * SN * Q * !QN)	0.04984	0.07824	0.46986
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	0.02866	0.04437	0.29493
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.02920	0.05804	0.50207

SKY130_OSU_SC_18T_HS__DFFx

sky130_osu_sc_18T_hs_tt_1P80_150C.ccs
Cell Library: Process , Voltage 1.80, Temp 150.00

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	0.00592	0.01618	3.32949	3.27992
sky130_osu_sc_18T_hs__dff_l	0.00592	0.01618	2.25470	2.24301

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__dff_1	0.00000	452.38900	560.88400
sky130_osu_sc_18T_hs__dff_l	0.00000	402.69600	511.19300

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)	0.17530	1.19353	17.30230
	QN->Q (FR)	0.02586	0.69526	11.01170
sky130_osu_sc_18T_hs__dff_l	CK->Q (RR)	0.18039	1.29675	16.46630
	QN->Q (FR)	0.02901	0.75319	10.87000

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)	0.23536	1.24848	17.46780
	QN->Q (RF)	0.02551	0.69341	11.07980
sky130_osu_sc_18T_hs__dff_l	CK->Q (RF)	0.24213	1.36874	16.86340
	QN->Q (RF)	0.02823	0.73801	10.71740

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)	0.20592	0.65012	6.85041
sky130_osu_sc_18T_hs__dff_l	CK->QN (RR)	0.20849	0.69925	6.70339

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)	0.14701	0.61294	7.01409
sky130_osu_sc_18T_hs__dff_l	CK->QN (RF)	0.14751	0.64592	6.60484

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)	-0.05091	-0.04832	0.15878
	setup	CK (R)	0.12323	0.16545	2.31056
sky130_osu_sc_18T_hs__dff_l	hold	CK (R)	-0.05012	-0.04853	0.16103
	setup	CK (R)	0.12211	0.16074	2.38889

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)	-0.08959	-0.24113	1.22310
	setup	CK (R)	0.10639	0.25621	3.10223
sky130_osu_sc_18T_hs__dff_l	hold	CK (R)	-0.09085	-0.23952	1.07338
	setup	CK (R)	0.10639	0.25621	3.10223

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 ()	0.08591	0.53345	13.33370
	min_pulse_width	CK ()	0.12187	0.53345	13.33370
sky130_osu_sc_18T_hs__dff_l	min_pulse_width	CK ()	0.08191	0.53345	13.33370
	min_pulse_width	CK ()	0.12187	0.53345	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 ()	0.17382	0.53345	13.33370
	min_pulse_width	CK ()	0.08591	0.53345	13.33370
sky130_osu_sc_18T_hs__dff_l	min_pulse_width	CK ()	0.17382	0.53345	13.33370
	min_pulse_width	CK ()	0.08591	0.53345	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	0.02422	0.03446	0.17302
sky130_osu_sc_18T_hs__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.02144	0.03139	0.17220

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	0.02797	0.03256	0.12368
sky130_osu_sc_18T_hs__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.02507	0.03023	0.13692

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	0.02572	0.03035	0.12147
sky130_osu_sc_18T_hs__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.02335	0.02852	0.13468

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	0.02215	0.03239	0.17124
sky130_osu_sc_18T_hs__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.01955	0.02947	0.16905

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	-0.00036	-0.00136	-0.00081
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.02125	0.03024	0.22303
sky130_osu_sc_18T_hs__dff_l	CK	0.00000	0.00000	0.00000
	CK	-0.00080	-0.00179	-0.00125
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.02083	0.02981	0.22259

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	0.01059	0.01065	0.01040
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.03693	0.04625	0.23769
sky130_osu_sc_18T_hs__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.01016	0.01021	0.00997
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.03650	0.04584	0.23727

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)	0.00243	0.01622	0.26605
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.00283	0.01675	0.26559
sky130_osu_sc_18T_hs__dff_l	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.00200	0.01579	0.26561
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.00240	0.01632	0.26516

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)	0.02370	0.04020	0.29179
	(D * !Q * QN)	0.00000	0.00000	0.00000
	(D * !Q * QN)	0.05098	0.06617	0.39020
	(!D * Q * !QN)	0.00000	0.00000	0.00000
	(!D * Q * !QN)	0.05095	0.08016	0.47926
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.02842	0.04410	0.29466
sky130_osu_sc_18T_hs__dff_l	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.02327	0.03977	0.29136
	(D * !Q * QN)	0.00000	0.00000	0.00000
	(D * !Q * QN)	0.05055	0.06574	0.38977
	(!D * Q * !QN)	0.00000	0.00000	0.00000
	(!D * Q * !QN)	0.05052	0.07972	0.47883
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.02799	0.04367	0.29423

SKY130_OSU_SC_18T_HS__INVx

sky130_osu_sc_18T_hs_tt_1P80_150C.ccs
Cell Library: Process , Voltage 1.80, Temp 150.00

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	0.00571	3.00503
sky130_osu_sc_18T_hs__inv_10	0.05409	25.56410
sky130_osu_sc_18T_hs__inv_2	0.01101	5.70909
sky130_osu_sc_18T_hs__inv_3	0.01642	8.41837
sky130_osu_sc_18T_hs__inv_4	0.02175	10.97452
sky130_osu_sc_18T_hs__inv_6	0.03262	16.21719
sky130_osu_sc_18T_hs__inv_8	0.04336	21.09281
sky130_osu_sc_18T_hs__inv_l	0.00437	2.10678

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__inv_1	0.00000	67.23600	132.73700
sky130_osu_sc_18T_hs__inv_10	0.00000	670.52300	1324.52000
sky130_osu_sc_18T_hs__inv_2	0.00000	134.13500	264.96600
sky130_osu_sc_18T_hs__inv_3	0.00000	201.34700	397.65600
sky130_osu_sc_18T_hs__inv_4	0.00000	268.24700	529.88500
sky130_osu_sc_18T_hs__inv_6	0.00000	402.35200	794.79100
sky130_osu_sc_18T_hs__inv_8	0.00000	536.45200	1059.69000
sky130_osu_sc_18T_hs__inv_l	0.00000	42.39370	83.17280

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)**	0.02438	0.62085	9.50551
sky130_osu_sc_18T_hs__inv_10	**A->Y (FR)**	0.03797	0.39271	9.24692
sky130_osu_sc_18T_hs__inv_2	**A->Y (FR)**	0.02054	0.52332	9.28954
sky130_osu_sc_18T_hs__inv_3	**A->Y (FR)**	0.02291	0.48937	9.46221
sky130_osu_sc_18T_hs__inv_4	**A->Y (FR)**	0.02380	0.45343	9.27279
sky130_osu_sc_18T_hs__inv_6	**A->Y (FR)**	0.02731	0.42101	9.30454
sky130_osu_sc_18T_hs__inv_8	**A->Y (FR)**	0.03219	0.40131	9.25410
sky130_osu_sc_18T_hs__inv_l	**A->Y (FR)**	0.02689	0.67447	9.51588

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)**	0.02331	0.60234	9.32334
sky130_osu_sc_18T_hs__inv_10	**A->Y (RF)**	0.03929	0.35793	8.74646
sky130_osu_sc_18T_hs__inv_2	**A->Y (RF)**	0.01989	0.49993	9.06242
sky130_osu_sc_18T_hs__inv_3	**A->Y (RF)**	0.02191	0.46332	9.19976
sky130_osu_sc_18T_hs__inv_4	**A->Y (RF)**	0.02217	0.42678	9.01934
sky130_osu_sc_18T_hs__inv_6	**A->Y (RF)**	0.02792	0.39392	9.00998
sky130_osu_sc_18T_hs__inv_8	**A->Y (RF)**	0.03329	0.37254	8.90875
sky130_osu_sc_18T_hs__inv_l	**A->Y (RF)**	0.02553	0.64934	9.20003

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	0.00799	0.01401	0.07171
sky130_osu_sc_18T_hs__inv_10	A	0.00000	0.00000	0.00000
	A	0.07446	0.16289	0.72175
sky130_osu_sc_18T_hs__inv_2	A	0.00000	0.00000	0.00000
	A	0.01451	0.02871	0.14256
sky130_osu_sc_18T_hs__inv_3	A	0.00000	0.00000	0.00000
	A	0.02218	0.04429	0.21070
sky130_osu_sc_18T_hs__inv_4	A	0.00000	0.00000	0.00000
	A	0.02875	0.06037	0.28548
sky130_osu_sc_18T_hs__inv_6	A	0.00000	0.00000	0.00000
	A	0.04324	0.09475	0.42210
sky130_osu_sc_18T_hs__inv_8	A	0.00000	0.00000	0.00000
	A	0.05823	0.12800	0.57265
sky130_osu_sc_18T_hs__inv_l	A	0.00000	0.00000	0.00000
	A	0.00616	0.00958	0.04594

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	0.00157	0.00531	0.04183
sky130_osu_sc_18T_hs__inv_10	**A**	0.00000	0.00000	0.00000
	A	0.01706	0.06934	0.42678
sky130_osu_sc_18T_hs__inv_2	**A**	0.00000	0.00000	0.00000
	A	0.00112	0.01013	0.08359
sky130_osu_sc_18T_hs__inv_3	**A**	0.00000	0.00000	0.00000
	A	0.00297	0.01789	0.12378
sky130_osu_sc_18T_hs__inv_4	**A**	0.00000	0.00000	0.00000
	A	0.00291	0.02375	0.16731
sky130_osu_sc_18T_hs__inv_6	**A**	0.00000	0.00000	0.00000
	A	0.00439	0.03706	0.24905
sky130_osu_sc_18T_hs__inv_8	**A**	0.00000	0.00000	0.00000
	A	0.00861	0.05401	0.33837
sky130_osu_sc_18T_hs__inv_l	**A**	0.00000	0.00000	0.00000
	A	0.00075	0.00300	0.02755

SKY130_OSU_SC_18T_HS__MUX2

sky130_osu_sc_18T_hs_tt_1P80_150C.ccs
Cell Library: Process , Voltage 1.80, Temp 150.00

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	0.03311	0.03290	0.01160	0.02392

Leakage Information

Cell Name	Leakage(nW)		
	Min.	**Avg**	**Max.**
sky130_osu_sc_18T_hs__mux2_1	0.00000	134.69200	134.69200

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)	-	0.01269	0.03773	0.07846
	A1->Y (RR)	-	0.01339	0.03782	0.07836
	S0->Y (RR)	(!A0 * A1)	0.04354	0.12962	0.08267
	S0->Y (FR)	(A0 * !A1)	0.03602	0.13584	0.59343

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)	-	0.01130	0.03900	0.07993
	A1->Y (FF)	-	0.01120	0.03889	0.07980
	S0->Y (FF)	(!A0 * A1)	0.05286	0.16700	0.58565
	S0->Y (RF)	(A0 * !A1)	0.02843	0.10954	0.20498

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	-	-0.00838	-0.00839	-0.00842
	A1	-	0.00000	0.00000	0.00000
	A1	-	-0.00280	-0.00283	-0.00286
	S0	(A0 * !A1)	0.00000	0.00000	0.00000
	S0	(A0 * !A1)	0.00854	0.02612	0.27702
	S0	(!A0 * A1)	0.00000	0.00000	0.00000
	S0	(!A0 * A1)	-0.00526	0.00995	0.25892

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	-	0.00847	0.00848	0.00849
	A1	-	0.00000	0.00000	0.00000
	A1	-	0.00892	0.00893	0.00894
	S0	(A0 * !A1)	0.00000	0.00000	0.00000
	S0	(A0 * !A1)	0.00278	0.01911	0.26917
	S0	(!A0 * A1)	0.00000	0.00000	0.00000
	S0	(!A0 * A1)	0.02173	0.03794	0.28810

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)	-0.00089	-0.00088	-0.00088

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)	0.00319	0.00318	0.00319

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)	-0.00236	-0.00235	-0.00235

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)	0.00238	0.00238	0.00238

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)	-0.00091	0.01487	0.26378
	(!A0 * !A1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !Y)	-0.00092	0.01494	0.26430

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)	0.01622	0.03300	0.28293
	(!A0 * !A1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !Y)	0.01417	0.03179	0.28227

SKY130_OSU_SC_18T_HS__NAND2x

sky130_osu_sc_18T_hs_tt_1P80_150C.ccs
Cell Library: Process , Voltage 1.80, Temp 150.00

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	0.00573	0.00572	2.07626
sky130_osu_sc_18T_hs__nand2_l	0.00438	0.00438	1.52489

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__nand2_1	0.00000	67.14370	264.88800
sky130_osu_sc_18T_hs__nand2_l	0.00000	42.36340	165.96000

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)	0.02494	0.54875	7.65299
	B->Y (FR)	0.02900	0.54820	7.58118
sky130_osu_sc_18T_hs__nand2_l	A->Y (FR)	0.02731	0.60622	7.87068
	B->Y (FR)	0.03217	0.60845	7.84162

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)	0.03318	0.67691	9.52877
	B->Y (RF)	0.03715	0.63085	8.86381
sky130_osu_sc_18T_hs__nand2_l	A->Y (RF)	0.03631	0.74091	9.64548
	B->Y (RF)	0.04014	0.69564	8.95894

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	0.00852	0.01415	0.07478
	B	0.00000	0.00000	0.00000
	B	0.01082	0.01645	0.08006
sky130_osu_sc_18T_hs__nand2_1	A	0.00000	0.00000	0.00000
	A	0.00650	0.00974	0.04778
	B	0.00000	0.00000	0.00000
	B	0.00821	0.01138	0.05087

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	0.00590	0.00912	0.04640
	B	0.00000	0.00000	0.00000
	B	0.00575	0.00849	0.04565
sky130_osu_sc_18T_hs__nand2_1	A	0.00000	0.00000	0.00000
	A	0.00354	0.00559	0.02980
	B	0.00000	0.00000	0.00000
	B	0.00347	0.00510	0.02997

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)	-0.00617	-0.00622	-0.00625
sky130_osu_sc_18T_hs__nand2_l	(!B * Y)	0.00000	0.00000	0.00000
	(!B * Y)	-0.00447	-0.00450	-0.00453

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)	0.00625	0.00630	0.00628
sky130_osu_sc_18T_hs__nand2_l	(!B * Y)	0.00000	0.00000	0.00000
	(!B * Y)	0.00453	0.00456	0.00455

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)	-0.00581	-0.00585	-0.00583
sky130_osu_sc_18T_hs__nand2_l	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00421	-0.00423	-0.00422

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)	0.00608	0.00598	0.00588
sky130_osu_sc_18T_hs__nand2_l	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00442	0.00435	0.00427

SKY130_OSU_SC_18T_HS__NOR2x

sky130_osu_sc_18T_hs_tt_1P80_150C.ccs
Cell Library: Process , Voltage 1.80, Temp 150.00

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	0.00574	0.00603	1.66326
sky130_osu_sc_18T_hs__nor2_l	0.00431	0.00465	1.15154

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__nor2_1	0.00000	54.81700	132.55700
sky130_osu_sc_18T_hs__nor2_l	0.00000	36.88510	83.07000

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)	0.04874	0.67994	8.85147
	B->Y (FR)	0.03501	0.70012	9.27629
sky130_osu_sc_18T_hs__nor2_l	A->Y (FR)	0.05280	0.74136	8.71835
	B->Y (FR)	0.04074	0.77020	9.26729

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)	0.03289	0.49716	6.40602
	B->Y (RF)	0.02506	0.48402	6.37813
sky130_osu_sc_18T_hs__nor2_l	A->Y (RF)	0.03441	0.53292	6.30711
	B->Y (RF)	0.02735	0.52219	6.28269

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	0.01220	0.01548	0.07046
	B	0.00000	0.00000	0.00000
	B	0.00864	0.01439	0.08293
sky130_osu_sc_18T_hs__nor2_l	A	0.00000	0.00000	0.00000
	A	0.00886	0.01083	0.04797
	B	0.00000	0.00000	0.00000
	B	0.00657	0.00989	0.05334

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	0.00285	0.00640	0.05561
	B	0.00000	0.00000	0.00000
	B	0.00115	0.00494	0.05137
sky130_osu_sc_18T_hs__nor2_l	A	0.00000	0.00000	0.00000
	A	0.00194	0.00419	0.03740
	B	0.00000	0.00000	0.00000
	B	0.00060	0.00292	0.03432

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)	-0.00415	-0.00510	-0.00456
sky130_osu_sc_18T_hs__nor2_l	(B * !Y)	0.00000	0.00000	0.00000
	(B * !Y)	-0.00301	-0.00362	-0.00331

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)	0.00689	0.00690	0.00669
sky130_osu_sc_18T_hs__nor2_l	(B * !Y)	0.00000	0.00000	0.00000
	(B * !Y)	0.00476	0.00478	0.00466

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)	-0.00225	-0.00227	-0.00221
sky130_osu_sc_18T_hs__nor2_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	-0.00168	-0.00170	-0.00165

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)	0.00315	0.00316	0.00284
sky130_osu_sc_18T_hs__nor2_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00233	0.00234	0.00213

SKY130_OSU_SC_18T_HS__OAI21

sky130_osu_sc_18T_hs_tt_1P80_150C.ccs
Cell Library: Process , Voltage 1.80, Temp 150.00

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	0.00580	0.00590	0.00484	1.60935

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__oai21_l	0.00000	59.26810	215.63000

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)	0.04659	0.70339	9.10362
	A1->Y (FR)	0.06364	0.68899	8.69657
	B0->Y (FR)	0.03284	0.62063	8.09530

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)	0.04669	0.60438	7.75181
	A1->Y (RF)	0.05903	0.60476	7.55199
	B0->Y (RF)	0.03606	0.65906	8.61804

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	0.01211	0.01650	0.07324
	A1	0.00000	0.00000	0.00000
	A1	0.01561	0.01828	0.06632
	B0	0.00712	0.01157	0.06519

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	0.00544	0.00769	0.04395
	A1	0.00000	0.00000	0.00000
	A1	0.00675	0.00872	0.04728
	B0	0.00311	0.00599	0.04259

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)	-0.00153	-0.00155	-0.00149
	(A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * Y)	-0.00571	-0.00575	-0.00572
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00572	-0.00572	-0.00572

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)	0.00388	0.00388	0.00356
	(A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * Y)	0.00573	0.00580	0.00575
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00596	0.00583	0.00578

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)	-0.00332	-0.00430	-0.00377
	(A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * Y)	-0.00568	-0.00571	-0.00567
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	-0.00567	-0.00571	-0.00568

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)	0.00754	0.00755	0.00734
	(A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * Y)	0.00568	0.00575	0.00571
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	0.00591	0.00581	0.00573

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)	-0.00452	-0.00456	-0.00465

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)	0.00466	0.00471	0.00468

SKY130_OSU_SC_18T_HS__OAI22

sky130_osu_sc_18T_hs_tt_1P80_150C.ccs
Cell Library: Process , Voltage 1.80, Temp 150.00

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	0.00568	0.00591	0.00603	0.00592	1.61591

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__oai22_l	0.00000	81.93640	264.52500

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)	0.06806	0.69133	8.68249
	A1->Y (FR)	0.05437	0.71075	9.11627
	B0->Y (FR)	0.03869	0.69605	9.11032
	B1->Y (FR)	0.05259	0.67664	8.67577

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)	0.08629	0.65959	7.95976
	A1->Y (RF)	0.06686	0.63157	7.83083
	B0->Y (RF)	0.05735	0.68572	8.69208
	B1->Y (RF)	0.07755	0.72037	8.95509

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	0.01854	0.02120	0.06957
	A1	0.01503	0.01972	0.08151
	B0	0.00929	0.01417	0.07481
	B1	0.01298	0.01569	0.06247

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__oai22_l	A0	0.00728	0.00910	0.04707
	A1	0.00552	0.00771	0.04379
	B0	0.00270	0.00577	0.04659
	B1	0.00427	0.00709	0.04778

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)	-0.00406	-0.00503	-0.00450
	(A1 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * B1 * !Y)	-0.00347	-0.00444	-0.00392
	(A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * !B1 * Y)	-0.00566	-0.00571	-0.00566
	(!A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * !B1 * Y)	-0.00566	-0.00570	-0.00567

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)	0.00695	0.00696	0.00676
	(A1 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * B1 * !Y)	0.00754	0.00755	0.00735
	(A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * !B1 * Y)	0.00571	0.00575	0.00573
	(!A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * !B1 * Y)	0.00599	0.00581	0.00576

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)	-0.00217	-0.00219	-0.00212
	(A0 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * B1 * !Y)	-0.00158	-0.00161	-0.00154
	(A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * !B1 * Y)	-0.00565	-0.00569	-0.00565
	(!A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * !B1 * Y)	-0.00565	-0.00568	-0.00566

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)	0.00321	0.00321	0.00289
	(A0 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * B1 * !Y)	0.00379	0.00379	0.00347
	(A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * !B1 * Y)	0.00569	0.00573	0.00572
	(!A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * !B1 * Y)	0.00598	0.00582	0.00574

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)	-0.00215	-0.00218	-0.00211
	(A0 * !A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B1 * !Y)	-0.00157	-0.00161	-0.00153
	(!A0 * !A1 * B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B1 * Y)	-0.00618	-0.00625	-0.00619
	(!A0 * !A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B1 * Y)	-0.00603	-0.00605	-0.00619

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)	0.00319	0.00320	0.00288
	(A0 * !A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B1 * !Y)	0.00378	0.00379	0.00346
	(!A0 * !A1 * B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B1 * Y)	0.00633	0.00634	0.00627
	(!A0 * !A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B1 * Y)	0.00622	0.00627	0.00624

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)	-0.00401	-0.00496	-0.00443
	(A0 * !A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B0 * !Y)	-0.00342	-0.00438	-0.00385
	(!A0 * !A1 * B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B0 * Y)	-0.00627	-0.00631	-0.00625
	(!A0 * !A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B0 * Y)	-0.00609	-0.00614	-0.00627

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)	0.00688	0.00689	0.00670
	(A0 * !A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B0 * !Y)	0.00747	0.00753	0.00728
	(!A0 * !A1 * B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B0 * Y)	0.00640	0.00647	0.00635
	(!A0 * !A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B0 * Y)	0.00627	0.00634	0.00631

SKY130_OSU_SC_18T_HS__OR2x

sky130_osu_sc_18T_hs_tt_1P80_150C.ccs
Cell Library: Process , Voltage 1.80, Temp 150.00

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	0.00609	0.00588	3.21699
sky130_osu_sc_18T_hs__or2_2	0.00610	0.00588	6.13531
sky130_osu_sc_18T_hs__or2_4	0.00610	0.00589	11.66155
sky130_osu_sc_18T_hs__or2_8	0.00613	0.00591	21.90567
sky130_osu_sc_18T_hs__or2_l	0.00473	0.00448	2.22393

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__or2_1	0.00000	89.31370	136.06700
sky130_osu_sc_18T_hs__or2_2	0.00000	123.55600	268.32400
sky130_osu_sc_18T_hs__or2_4	0.00000	192.28000	533.29900
sky130_osu_sc_18T_hs__or2_8	0.00000	329.71900	1063.21000
sky130_osu_sc_18T_hs__or2_l	0.00000	58.89760	86.28850

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)	0.06605	0.50860	6.70271
	B->Y (RR)	0.05546	0.47421	6.59311
sky130_osu_sc_18T_hs__or2_2	A->Y (RR)	0.07280	0.45399	6.60443
	B->Y (RR)	0.06185	0.42268	6.48186
sky130_osu_sc_18T_hs__or2_4	A->Y (RR)	0.09404	0.45606	6.71882
	B->Y (RR)	0.08250	0.42913	6.59119
sky130_osu_sc_18T_hs__or2_8	A->Y (RR)	0.13805	0.51027	6.91466
	B->Y (RR)	0.12575	0.48779	6.78544
sky130_osu_sc_18T_hs__or2_l	A->Y (RR)	0.07061	0.56430	6.62058
	B->Y (RR)	0.06054	0.53291	6.48586

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)	0.09287	0.58291	7.65733
	B->Y (FF)	0.07507	0.58343	7.93938
sky130_osu_sc_18T_hs__or2_2	A->Y (FF)	0.10876	0.53451	7.51886
	B->Y (FF)	0.09100	0.53843	7.79204
sky130_osu_sc_18T_hs__or2_4	A->Y (FF)	0.15248	0.55263	7.57096
	B->Y (FF)	0.13476	0.56458	7.83404
sky130_osu_sc_18T_hs__or2_8	A->Y (FF)	0.24447	0.64249	7.56850
	B->Y (FF)	0.22683	0.66208	7.82413
sky130_osu_sc_18T_hs__or2_l	A->Y (FF)	0.10020	0.62721	7.28071
	B->Y (FF)	0.08316	0.63249	7.59557

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	0.01119	0.01987	0.16881
	B	0.00000	0.00000	0.00000
	B	0.00994	0.02080	0.19177
sky130_osu_sc_18T_hs__or2_2	A	0.00000	0.00000	0.00000
	A	0.01827	0.02745	0.17652
	B	0.00000	0.00000	0.00000
	B	0.01675	0.02780	0.19740
sky130_osu_sc_18T_hs__or2_4	A	0.00000	0.00000	0.00000
	A	0.03464	0.04404	0.19054
	B	0.00000	0.00000	0.00000
	B	0.03269	0.04361	0.20968
sky130_osu_sc_18T_hs__or2_8	A	0.00000	0.00000	0.00000
	A	0.07829	0.08145	0.22502
	B	0.00000	0.00000	0.00000
	B	0.07549	0.08181	0.23700
sky130_osu_sc_18T_hs__or2_l	A	0.00000	0.00000	0.00000
	A	0.00813	0.01372	0.11372
	B	0.00000	0.00000	0.00000
	B	0.00710	0.01408	0.12581

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	0.02301	0.03161	0.19016
	B	0.00000	0.00000	0.00000
	B	0.01917	0.03268	0.23536
sky130_osu_sc_18T_hs__or2_2	A	0.00000	0.00000	0.00000
	A	0.03296	0.03961	0.19597
	B	0.00000	0.00000	0.00000
	B	0.02912	0.04037	0.23984
sky130_osu_sc_18T_hs__or2_4	A	0.00000	0.00000	0.00000
	A	0.06181	0.05925	0.20918
	B	0.00000	0.00000	0.00000
	B	0.05803	0.05993	0.25079
sky130_osu_sc_18T_hs__or2_8	A	0.00000	0.00000	0.00000
	A	0.14019	0.10538	0.23758
	B	0.00000	0.00000	0.00000
	B	0.13640	0.10716	0.27602
sky130_osu_sc_18T_hs__or2_l	A	0.00000	0.00000	0.00000
	A	0.01681	0.02235	0.12533
	B	0.00000	0.00000	0.00000
	B	0.01417	0.02264	0.15333

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)	-0.00408	-0.00508	-0.00457
sky130_osu_sc_18T_hs__or2_2	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00407	-0.00507	-0.00455
sky130_osu_sc_18T_hs__or2_4	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00404	-0.00504	-0.00453
sky130_osu_sc_18T_hs__or2_8	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00397	-0.00498	-0.00447
sky130_osu_sc_18T_hs__or2_l	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00294	-0.00361	-0.00330

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)	0.00693	0.00695	0.00673
sky130_osu_sc_18T_hs__or2_2	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00694	0.00697	0.00675
sky130_osu_sc_18T_hs__or2_4	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00697	0.00700	0.00678
sky130_osu_sc_18T_hs__or2_8	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00702	0.00705	0.00683
sky130_osu_sc_18T_hs__or2_l	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00480	0.00483	0.00469

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)	-0.00226	-0.00226	-0.00220
sky130_osu_sc_18T_hs__or2_2	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00225	-0.00225	-0.00219
sky130_osu_sc_18T_hs__or2_4	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00221	-0.00222	-0.00216
sky130_osu_sc_18T_hs__or2_8	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00215	-0.00216	-0.00210
sky130_osu_sc_18T_hs__or2_l	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00171	-0.00171	-0.00167

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)	0.00320	0.00319	0.00287
sky130_osu_sc_18T_hs__or2_2	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00322	0.00321	0.00288
sky130_osu_sc_18T_hs__or2_4	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00325	0.00324	0.00291
sky130_osu_sc_18T_hs__or2_8	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00330	0.00329	0.00297
sky130_osu_sc_18T_hs__or2_l	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00240	0.00239	0.00218

SKY130_OSU_SC_18T_HS__TBUFIx

sky130_osu_sc_18T_hs_tt_1P80_150C.ccs
Cell Library: Process , Voltage 1.80, Temp 150.00

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	0.00603	0.00757	1.66632
sky130_osu_sc_18T_hs__tbufi_l	0.00466	0.00587	1.15073

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__tbufi_1	0.00000	68.42270	265.22600
sky130_osu_sc_18T_hs__tbufi_l	0.00000	43.53590	166.21200

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)	0.03422	0.69605	9.23254
	OE->Y (FR)	0.04503	0.38912	5.09403
	OE->Y (RR)	0.07056	0.57462	6.57316
sky130_osu_sc_18T_hs__tbufi_l	A->Y (FR)	0.03983	0.76751	9.23661
	OE->Y (FR)	0.04691	0.38889	5.09382
	OE->Y (RR)	0.07561	0.64758	6.50703

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)	0.03307	0.62250	8.22462
	OE->Y (FF)	0.04574	0.38911	5.09402
	OE->Y (RF)	0.02940	0.55998	7.40880
sky130_osu_sc_18T_hs__tbufi_l	A->Y (RF)	0.03647	0.66557	8.01476
	OE->Y (FF)	0.04757	0.38893	5.09382
	OE->Y (RF)	0.03341	0.60593	7.18614

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	0.01190	0.01669	0.07316
	OE	0.00000	0.00000	0.00000
	OE	0.01223	0.02652	0.25040
sky130_osu_sc_18T_hs__tbufi_l	A	0.00000	0.00000	0.00000
	A	0.00857	0.01136	0.04806
	OE	0.00000	0.00000	0.00000
	OE	0.00837	0.01755	0.16459

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	0.00495	0.00810	0.04597
	OE	0.00000	0.00000	0.00000
	OE	0.01193	0.02735	0.27420
sky130_osu_sc_18T_hs__tbufi_l	A	0.00000	0.00000	0.00000
	A	0.00290	0.00481	0.03058
	OE	0.00000	0.00000	0.00000
	OE	0.00772	0.01739	0.17620

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)	-0.00427	-0.00430	-0.00423
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	-0.00334	-0.00337	-0.00332
sky130_osu_sc_18T_hs__tbufi_l	(!OE * Y)	0.00000	0.00000	0.00000
	(!OE * Y)	-0.00327	-0.00329	-0.00325
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	-0.00263	-0.00264	-0.00262

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)	0.00427	0.00430	0.00423
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	0.00392	0.00395	0.00379
sky130_osu_sc_18T_hs__tbufi_l	(!OE * Y)	0.00000	0.00000	0.00000
	(!OE * Y)	0.00327	0.00329	0.00325
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	0.00308	0.00310	0.00299

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)	0.00614	0.02221	0.27426
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00447	0.02073	0.27305
sky130_osu_sc_18T_hs__tbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00403	0.01416	0.17661
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00299	0.01324	0.17583

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)	0.00993	0.02718	0.28065
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00940	0.02680	0.27987
sky130_osu_sc_18T_hs__tbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00773	0.01857	0.18188
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00738	0.01830	0.18139

SKY130_OSU_SC_18T_HS__TNBUFIx

sky130_osu_sc_18T_hs_tt_1P80_150C.ccs
Cell Library: Process , Voltage 1.80, Temp 150.00

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	0.00603	0.00961	1.66687
sky130_osu_sc_18T_hs__tnbufi_l	0.00465	0.00716	1.15113

Leakage Information

Cell Name	Leakage(nW)		
	Min.	**Avg**	**Max.**
sky130_osu_sc_18T_hs__tnbufi_1	0.00000	112.10000	134.27900
sky130_osu_sc_18T_hs__tnbufi_l	0.00000	70.72700	84.67810

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)	0.03430	0.69612	9.23382
	OE->Y (RR)	0.03008	0.39072	5.09564
	OE->Y (FR)	0.04612	0.66673	8.64934
sky130_osu_sc_18T_hs__tnbufi_l	A->Y (FR)	0.04002	0.76758	9.23794
	OE->Y (RR)	0.03107	0.39104	5.09600
	OE->Y (FR)	0.05050	0.72973	8.51921

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)	0.03266	0.62244	8.22669
	OE->Y (RF)	0.02982	0.39073	5.09564
	OE->Y (FF)	0.04932	0.49740	5.88608
sky130_osu_sc_18T_hs__tnbufi_l	A->Y (RF)	0.03599	0.66545	8.01674
	OE->Y (RF)	0.03082	0.39105	5.09594
	OE->Y (FF)	0.05481	0.53774	5.53027

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	0.00844	0.01326	0.07011
	OE	0.00000	0.00000	0.00000
	OE	0.02114	0.03939	0.29039
sky130_osu_sc_18T_hs__tnbufi_l	A	0.00000	0.00000	0.00000
	A	0.00650	0.00930	0.04620
	OE	0.00000	0.00000	0.00000
	OE	0.01564	0.02716	0.18971

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	0.00154	0.00471	0.04264
	OE	0.00000	0.00000	0.00000
	OE	0.02116	0.03855	0.26978
sky130_osu_sc_18T_hs__tnbufi_l	A	0.00000	0.00000	0.00000
	A	0.00074	0.00267	0.02848
	OE	0.00000	0.00000	0.00000
	OE	0.01527	0.02604	0.17184

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)	-0.00276	-0.00280	-0.00266
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	-0.00166	-0.00169	-0.00163
sky130_osu_sc_18T_hs__tnbufi_l	(OE * Y)	0.00000	0.00000	0.00000
	(OE * Y)	-0.00215	-0.00217	-0.00206
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	-0.00140	-0.00141	-0.00138

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)	0.00483	0.00488	0.00478
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	0.00453	0.00456	0.00441
sky130_osu_sc_18T_hs__tnbufi_l	(OE * Y)	0.00000	0.00000	0.00000
	(OE * Y)	0.00344	0.00346	0.00341
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	0.00328	0.00330	0.00319

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)	-0.00519	0.01112	0.26484
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00582	0.01079	0.26401
sky130_osu_sc_18T_hs__tnbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	-0.00377	0.00650	0.17004
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00421	0.00631	0.16950

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)	0.01719	0.03578	0.29017
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.01570	0.03496	0.28912
sky130_osu_sc_18T_hs__tnbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.01261	0.02431	0.18834
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.01169	0.02369	0.18762

SKY130_OSU_SC_18T_HS__XNOR2

sky130_osu_sc_18T_hs_tt_1P80_150C.ccs
Cell Library: Process , Voltage 1.80, Temp 150.00

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_1	21.24540

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	B	Y
sky130_osu_sc_18T_hs__xnor2_1	0.01195	0.01103	1.69126

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__xnor2_1	0.00000	239.66300	398.98900

Delay Information

Delay(ns) to Y rising (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_18T_hs__xnor2_1	A->Y (RR)	B	0.08801	0.60600	6.70973
	A->Y (FR)	!B	0.04326	0.70068	9.22881
	B->Y (RR)	A	0.06930	0.59468	6.88844
	B->Y (FR)	!A	0.06173	0.69078	8.85767

Delay(ns) to Y falling (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_18T_hs__xnor2_1	A->Y (FF)	B	0.09309	0.58397	6.38717
	A->Y (RF)	!B	0.04597	0.60503	7.88792
	B->Y (FF)	A	0.07778	0.57059	6.40207
	B->Y (RF)	!A	0.06019	0.62092	7.87676

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	0.01576	0.02914	0.25219
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.01981	0.04044	0.33827
	B	A	0.00000	0.00000	0.00000
	B	A	0.00885	0.02461	0.28036
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.02265	0.04135	0.32374

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	0.03189	0.04729	0.29211
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.01516	0.03196	0.30759
	B	A	0.00000	0.00000	0.00000
	B	A	0.03203	0.04893	0.29928
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01414	0.03091	0.30456

SKY130_OSU_SC_18T_HS__XOR2

sky130_osu_sc_18T_hs_tt_1P80_150C.ccs
Cell Library: Process , Voltage 1.80, Temp 150.00

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	0.01194	0.01107	1.70182

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__xor2_1	0.00000	239.67000	415.37800

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	0.08035	0.59842	6.89733
	A->Y (FR)	B	0.05707	0.69484	9.02556
	B->Y (RR)	!A	0.07105	0.59676	6.93038
	B->Y (FR)	A	0.06049	0.69631	8.98500

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	0.07581	0.55598	6.08954
	A->Y (RF)	B	0.04883	0.64643	8.32265
	B->Y (FF)	!A	0.07266	0.56071	6.30568
	B->Y (RF)	A	0.05640	0.60468	7.68267

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	0.02784	0.04760	0.34102
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00700	0.02108	0.27086
	B	A	0.00000	0.00000	0.00000
	B	A	0.02862	0.04832	0.33717
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00518	0.02087	0.27601

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	0.01476	0.03230	0.31853
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.03168	0.04762	0.27749
	B	A	0.00000	0.00000	0.00000
	B	A	0.01450	0.03150	0.31138
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.02939	0.04674	0.29974

SKY130_OSU_SC_18T_HS_x

sky130_osu_sc_18T_hs_tt_1P80_150C.ccs
Cell Library: Process , Voltage 1.80, Temp 150.00

Truth Table

INPUT
A
x

Footprint

Cell Name	Area
sky130_osu_sc_18T_hs__ant	6.59340
sky130_osu_sc_18T_hs__tiehi	6.59340
sky130_osu_sc_18T_hs__tielo	6.59340

Pin Capacitance Information

Cell Name	Pin Cap(pf)
	A
sky130_osu_sc_18T_hs__ant	1.22020
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	440167.00000	880333.00000
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
	-0.00091	0.15468	2.00000

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
	7.65824	7.26469	2.33476