sky130_osu_sc_18T_hs_ss_1P60_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_ss_1P60_150C.ccs
Cell Library: Process , Voltage 1.60, 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	0.02305	0.02293	0.01749	2.15892	1.02265	2.10816
sky130_osu_sc_18T_hs__addf_l	0.02305	0.02293	0.01751	1.65027	1.02546	1.66902

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__addf_1	0.00000	15.56080	18.95450
sky130_osu_sc_18T_hs__addf_l	0.00000	15.73080	19.12450

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)	0.20863	2.03329	27.06120
	B->CO (RR)	0.20871	1.99655	26.36570
	CI->CO (RR)	0.19966	2.08247	27.81020
	CON->CO (FR)	0.03570	0.79071	10.75500
sky130_osu_sc_18T_hs__addf_l	A->CO (RR)	0.20347	1.89894	22.89160
	B->CO (RR)	0.20394	1.87403	22.51290
	CI->CO (RR)	0.19450	1.94853	23.65140
	CON->CO (FR)	0.03647	0.81752	10.44050

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)	0.25927	2.34345	30.93360
	B->CO (FF)	0.23272	2.26868	30.26450
	CI->CO (FF)	0.22506	2.32855	31.24140
	CON->CO (RF)	0.03248	0.71448	9.70562
sky130_osu_sc_18T_hs__addf_l	A->CO (FF)	0.26342	2.31560	27.71150
	B->CO (FF)	0.23644	2.24475	27.21120
	CI->CO (FF)	0.22910	2.30100	28.03940
	CON->CO (RF)	0.03719	0.83346	10.64670

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)	0.18914	1.01583	9.80571
	B->CON (FR)	0.16422	0.98105	9.85618
	CI->CON (FR)	0.15509	1.00389	10.18690
sky130_osu_sc_18T_hs__addf_l	A->CON (FR)	0.17858	1.00614	9.81478
	B->CON (FR)	0.15422	0.97218	9.86389
	CI->CON (FR)	0.14448	0.99455	10.19470

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)	0.14121	0.79048	7.77290
	B->CON (RF)	0.14268	0.81525	8.15773
	CI->CON (RF)	0.13227	0.84199	8.57696
sky130_osu_sc_18T_hs__addf_l	A->CON (RF)	0.13519	0.78367	7.78293
	B->CON (RF)	0.13693	0.81039	8.16476
	CI->CON (RF)	0.12619	0.83681	8.58444

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)	0.38052	2.19639	25.20070
	B->S (-R)	0.41346	2.23029	24.63670
	CI->S (-R)	0.34374	2.17655	25.50810
	CON->S (RR)	0.11262	0.75447	7.78543
sky130_osu_sc_18T_hs__addf_l	A->S (-R)	0.35647	2.04668	21.83250
	B->S (-R)	0.38975	2.08761	21.43810
	CI->S (-R)	0.31958	2.02660	22.15720
	CON->S (RR)	0.10725	0.76259	7.50414

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)	0.34044	1.86798	20.20940
	B->S (-F)	0.33700	1.79671	19.68700
	CI->S (-F)	0.33075	1.91290	20.97080
	CON->S (FF)	0.13269	0.75636	6.86696
sky130_osu_sc_18T_hs__addf_l	A->S (-F)	0.33173	1.84029	18.76730
	B->S (-F)	0.32519	1.77730	18.49160
	CI->S (-F)	0.32185	1.88479	19.53740
	CON->S (FF)	0.13533	0.85039	7.79303

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	0.00383	0.00532	0.03242
	B	0.00613	0.00716	0.03082
	CI	0.00626	0.00791	0.03524
sky130_osu_sc_18T_hs__addf_l	A	0.00275	0.00381	0.02296
	B	0.00507	0.00572	0.02243
	CI	0.00518	0.00640	0.02546

Internal switching power(pJ) to CO falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__addf_1	A	0.01588	0.01790	0.05562
	B	0.01691	0.01859	0.05265
	CI	0.01324	0.01538	0.05390
sky130_osu_sc_18T_hs__addf_l	A	0.01481	0.01626	0.04325
	B	0.01583	0.01708	0.04111
	CI	0.01217	0.01382	0.04157

Internal switching power(pJ) to CON rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__addf_1	A	0.01577	0.01692	0.03562
	B	0.01621	0.01724	0.03508
	CI	0.01314	0.01446	0.03428
sky130_osu_sc_18T_hs__addf_l	A	0.01471	0.01575	0.03319
	B	0.01517	0.01609	0.03274
	CI	0.01208	0.01329	0.03188

Internal switching power(pJ) to CON falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__addf_1	A	0.00371	0.00462	0.01911
	B	0.00598	0.00651	0.01984
	CI	0.00614	0.00719	0.02183
sky130_osu_sc_18T_hs__addf_l	A	0.00265	0.00343	0.01668
	B	0.00495	0.00535	0.01745
	CI	0.00508	0.00600	0.01928

Internal switching power(pJ) to S rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__addf_1	A	0.01584	0.01782	0.05459
	B	0.01687	0.01852	0.05168
	CI	0.01320	0.01531	0.05282
sky130_osu_sc_18T_hs__addf_l	A	0.01477	0.01623	0.04341
	B	0.01580	0.01706	0.04122
	CI	0.01213	0.01379	0.04183

Internal switching power(pJ) to S falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__addf_1	A	0.03553	0.03621	0.06762
	B	0.03167	0.03278	0.07096
	CI	0.02884	0.02930	0.05961
sky130_osu_sc_18T_hs__addf_l	A	0.03417	0.03467	0.06739
	B	0.03029	0.03157	0.07065
	CI	0.02748	0.02797	0.05909

SKY130_OSU_SC_18T_HS__ADDHx

sky130_osu_sc_18T_hs_ss_1P60_150C.ccs
Cell Library: Process , Voltage 1.60, 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	0.01127	0.01228	2.12524	1.08410	2.16147
sky130_osu_sc_18T_hs__addh_l	0.01127	0.01228	1.34191	1.08244	1.34656

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__addh_1	0.00000	16.71230	18.94620
sky130_osu_sc_18T_hs__addh_l	0.00000	10.40720	13.82320

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)	0.14053	0.79791	7.82341
	B->CO (RR)	0.14574	0.77504	7.78722
sky130_osu_sc_18T_hs__addh_l	A->CO (RR)	0.13905	0.86242	7.73663
	B->CO (RR)	0.14422	0.84148	7.67811

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)	0.11537	0.71088	6.70123
	B->CO (FF)	0.12277	0.72935	6.79155
sky130_osu_sc_18T_hs__addh_l	A->CO (FF)	0.11890	0.81020	7.12361
	B->CO (FF)	0.12628	0.82940	7.21273

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	0.19274	0.67824	4.48483
	A->CON (FR)	!B	0.10529	0.93943	10.13690
	B->CON (RR)	A	0.19656	0.65431	4.45422
	B->CON (FR)	!A	0.13276	0.95182	9.87057
sky130_osu_sc_18T_hs__addh_l	A->CON (RR)	B	0.17100	0.64501	4.43484
	A->CON (FR)	!B	0.09248	0.92525	10.11310
	B->CON (RR)	A	0.17503	0.62380	4.38694
	B->CON (FR)	!A	0.11998	0.93736	9.84646

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	0.18713	0.81017	5.94837
	A->CON (RF)	!B	0.08269	0.78938	8.65160
	B->CON (FF)	A	0.18027	0.84264	6.32619
	B->CON (RF)	!A	0.10287	0.78982	8.38840
sky130_osu_sc_18T_hs__addh_l	A->CON (FF)	B	0.16813	0.76713	5.75215
	A->CON (RF)	!B	0.07525	0.78052	8.63548
	B->CON (FF)	A	0.16156	0.80085	6.13369
	B->CON (RF)	!A	0.09545	0.78187	8.36736

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	0.14482	1.98286	27.31120
	A->S (FR)	B	0.25067	1.99140	24.44100
	B->S (RR)	!A	0.16616	1.95031	26.41660
	B->S (FR)	A	0.24340	2.05842	25.44460
	CON->S (FR)	-	0.03924	0.80980	10.99640
sky130_osu_sc_18T_hs__addh_l	A->S (RR)	!B	0.14184	1.81038	21.22490
	A->S (FR)	B	0.23652	1.79133	18.23510
	B->S (RR)	!A	0.16355	1.79035	20.63160
	B->S (FR)	A	0.22916	1.84755	18.94520
	CON->S (FR)	-	0.04320	0.89450	10.85520

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	0.16463	2.15617	29.68560
	A->S (RF)	B	0.24449	1.57018	18.28560
	B->S (FF)	!A	0.19209	2.17355	29.49280
	B->S (RF)	A	0.24829	1.54612	18.25560
	CON->S (RF)	-	0.03100	0.69951	9.50198
sky130_osu_sc_18T_hs__addh_l	A->S (FF)	!B	0.16371	2.00921	23.44730
	A->S (RF)	B	0.23125	1.49612	14.72220
	B->S (FF)	!A	0.19123	2.02419	23.21040
	B->S (RF)	A	0.23522	1.47308	14.66440
	CON->S (RF)	-	0.03753	0.82902	10.11470

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	0.00711	0.00748	0.02171
	B	0.00000	0.00000	0.00000
	B	0.00627	0.00645	0.02271
sky130_osu_sc_18T_hs__addh_l	A	0.00000	0.00000	0.00000
	A	0.00569	0.00595	0.02070
	B	0.00000	0.00000	0.00000
	B	0.00484	0.00491	0.02094

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	0.01132	0.01188	0.03172
	B	0.00000	0.00000	0.00000
	B	0.01161	0.01285	0.03403
sky130_osu_sc_18T_hs__addh_l	A	0.00000	0.00000	0.00000
	A	0.00989	0.01024	0.02710
	B	0.00000	0.00000	0.00000
	B	0.01019	0.01111	0.02863

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	0.00704	0.00738	0.02152
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00983	0.01052	0.01944
	B	A	0.00000	0.00000	0.00000
	B	A	0.00619	0.00637	0.02260
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01125	0.01160	0.01888
sky130_osu_sc_18T_hs__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.00564	0.00588	0.02046
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00873	0.00920	0.01545
	B	A	0.00000	0.00000	0.00000
	B	A	0.00478	0.00486	0.02048
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01016	0.01024	0.01491

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	0.01131	0.01180	0.02996
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00181	0.00239	0.00938
	B	A	0.00000	0.00000	0.00000
	B	A	0.01160	0.01270	0.03165
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00284	0.00314	0.01011
sky130_osu_sc_18T_hs__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.00988	0.01022	0.02699
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00058	0.00090	0.00518
	B	A	0.00000	0.00000	0.00000
	B	A	0.01018	0.01106	0.02849
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00160	0.00165	0.00542

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	0.01143	0.01198	0.03219
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00201	0.00271	0.01147
	B	A	0.00000	0.00000	0.00000
	B	A	0.01173	0.01298	0.03455
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00301	0.00343	0.01159
sky130_osu_sc_18T_hs__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.00994	0.01029	0.02740
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00068	0.00098	0.00520
	B	A	0.00000	0.00000	0.00000
	B	A	0.01025	0.01117	0.02896
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00168	0.00174	0.00561

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	0.00715	0.00751	0.02162
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00993	0.01083	0.02162
	B	A	0.00000	0.00000	0.00000
	B	A	0.00630	0.00649	0.02254
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01137	0.01196	0.02176
sky130_osu_sc_18T_hs__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.00570	0.00596	0.02047
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00876	0.00922	0.01514
	B	A	0.00000	0.00000	0.00000
	B	A	0.00485	0.00493	0.02066
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01018	0.01032	0.01484

SKY130_OSU_SC_18T_HS__AND2x

sky130_osu_sc_18T_hs_ss_1P60_150C.ccs
Cell Library: Process , Voltage 1.60, 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	0.00608	0.00621	2.14453
sky130_osu_sc_18T_hs__and2_2	0.00608	0.00621	4.21149
sky130_osu_sc_18T_hs__and2_4	0.00608	0.00621	8.04779
sky130_osu_sc_18T_hs__and2_6	0.00611	0.00621	11.88066
sky130_osu_sc_18T_hs__and2_8	0.00609	0.00623	15.37394
sky130_osu_sc_18T_hs__and2_l	0.00458	0.00471	1.67488

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__and2_1	0.00000	7.79983	12.00700
sky130_osu_sc_18T_hs__and2_2	0.00000	12.03400	12.38210
sky130_osu_sc_18T_hs__and2_4	0.00000	20.87230	23.49990
sky130_osu_sc_18T_hs__and2_6	0.00000	29.71060	34.98540
sky130_osu_sc_18T_hs__and2_8	0.00000	38.54880	46.47080
sky130_osu_sc_18T_hs__and2_l	0.00000	8.13054	12.67990

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)	0.10780	0.71801	7.70956
	B->Y (RR)	0.11430	0.70247	7.50841
sky130_osu_sc_18T_hs__and2_2	A->Y (RR)	0.12358	0.67584	7.83108
	B->Y (RR)	0.13018	0.65290	7.61905
sky130_osu_sc_18T_hs__and2_4	A->Y (RR)	0.16889	0.71108	8.04224
	B->Y (RR)	0.17545	0.67922	7.81752
sky130_osu_sc_18T_hs__and2_6	A->Y (RR)	0.21473	0.76864	8.28906
	B->Y (RR)	0.22124	0.73020	8.05022
sky130_osu_sc_18T_hs__and2_8	A->Y (RR)	0.26065	0.82676	8.48273
	B->Y (RR)	0.26722	0.78510	8.22046
sky130_osu_sc_18T_hs__and2_1	A->Y (RR)	0.11769	0.79710	7.89138
	B->Y (RR)	0.12525	0.78148	7.71812

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)**	0.08905	0.62378	6.27111
	B->Y (FF)	0.09437	0.64261	6.37073
sky130_osu_sc_18T_hs__and2_2	**A->Y (FF)**	0.10192	0.59612	6.38708
	B->Y (FF)	0.10800	0.61197	6.48041
sky130_osu_sc_18T_hs__and2_4	**A->Y (FF)**	0.14157	0.63583	6.59980
	B->Y (FF)	0.14775	0.64801	6.69460
sky130_osu_sc_18T_hs__and2_6	**A->Y (FF)**	0.18526	0.69380	6.83391
	B->Y (FF)	0.19130	0.70373	6.92382
sky130_osu_sc_18T_hs__and2_8	**A->Y (FF)**	0.22626	0.74193	6.91878
	B->Y (FF)	0.23252	0.75287	7.00353
sky130_osu_sc_18T_hs__and2_l	**A->Y (FF)**	0.09269	0.72739	7.00539
	B->Y (FF)	0.09770	0.74539	7.09636

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	0.00557	0.00715	0.05682
	B	0.00000	0.00000	0.00000
	B	0.00565	0.00637	0.04621
sky130_osu_sc_18T_hs__and2_2	A	0.00000	0.00000	0.00000
	A	0.01122	0.01278	0.06136
	B	0.00000	0.00000	0.00000
	B	0.01133	0.01217	0.05123
sky130_osu_sc_18T_hs__and2_4	A	0.00000	0.00000	0.00000
	A	0.02405	0.02548	0.07099
	B	0.00000	0.00000	0.00000
	B	0.02411	0.02480	0.06219
sky130_osu_sc_18T_hs__and2_6	A	0.00000	0.00000	0.00000
	A	0.03875	0.03880	0.08078
	B	0.00000	0.00000	0.00000
	B	0.03900	0.03783	0.07285
sky130_osu_sc_18T_hs__and2_8	A	0.00000	0.00000	0.00000
	A	0.05510	0.05169	0.09275
	B	0.00000	0.00000	0.00000
	B	0.05522	0.05109	0.08386
sky130_osu_sc_18T_hs__and2_l	A	0.00000	0.00000	0.00000
	A	0.00416	0.00482	0.03321
	B	0.00000	0.00000	0.00000
	B	0.00426	0.00435	0.02715

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	0.01333	0.01619	0.06262
	B	0.00000	0.00000	0.00000
	B	0.01499	0.01754	0.06308
sky130_osu_sc_18T_hs__and2_2	A	0.00000	0.00000	0.00000
	A	0.01707	0.02023	0.06632
	B	0.00000	0.00000	0.00000
	B	0.01875	0.02161	0.06674
sky130_osu_sc_18T_hs__and2_4	A	0.00000	0.00000	0.00000
	A	0.02739	0.03042	0.07576
	B	0.00000	0.00000	0.00000
	B	0.02901	0.03150	0.07606
sky130_osu_sc_18T_hs__and2_6	A	0.00000	0.00000	0.00000
	A	0.03845	0.04052	0.08564
	B	0.00000	0.00000	0.00000
	B	0.04011	0.04138	0.08535
sky130_osu_sc_18T_hs__and2_8	A	0.00000	0.00000	0.00000
	A	0.05176	0.05125	0.09556
	B	0.00000	0.00000	0.00000
	B	0.05327	0.05139	0.09467
sky130_osu_sc_18T_hs__and2_l	A	0.00000	0.00000	0.00000
	A	0.01014	0.01167	0.03839
	B	0.00000	0.00000	0.00000
	B	0.01134	0.01269	0.03896

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)	-0.00514	-0.00520	-0.00522
sky130_osu_sc_18T_hs__and2_2	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00510	-0.00515	-0.00517
sky130_osu_sc_18T_hs__and2_4	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00500	-0.00502	-0.00507
sky130_osu_sc_18T_hs__and2_6	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00492	-0.00493	-0.00499
sky130_osu_sc_18T_hs__and2_8	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00480	-0.00485	-0.00487
sky130_osu_sc_18T_hs__and2_l	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00369	-0.00372	-0.00374

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)	0.00531	0.00537	0.00534
sky130_osu_sc_18T_hs__and2_2	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00536	0.00542	0.00539
sky130_osu_sc_18T_hs__and2_4	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00546	0.00551	0.00549
sky130_osu_sc_18T_hs__and2_6	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00559	0.00564	0.00561
sky130_osu_sc_18T_hs__and2_8	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00566	0.00571	0.00569
sky130_osu_sc_18T_hs__and2_l	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00384	0.00389	0.00386

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)	-0.00495	-0.00496	-0.00495
sky130_osu_sc_18T_hs__and2_2	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00490	-0.00492	-0.00490
sky130_osu_sc_18T_hs__and2_4	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00480	-0.00482	-0.00480
sky130_osu_sc_18T_hs__and2_6	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00470	-0.00472	-0.00470
sky130_osu_sc_18T_hs__and2_8	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00460	-0.00462	-0.00460
sky130_osu_sc_18T_hs__and2_l	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00355	-0.00357	-0.00355

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)	0.00521	0.00515	0.00508
sky130_osu_sc_18T_hs__and2_2	**(!A * !Y)**	0.00000	0.00000	0.00000
	(!A * !Y)	0.00526	0.00520	0.00513
sky130_osu_sc_18T_hs__and2_4	**(!A * !Y)**	0.00000	0.00000	0.00000
	(!A * !Y)	0.00536	0.00530	0.00523
sky130_osu_sc_18T_hs__and2_6	**(!A * !Y)**	0.00000	0.00000	0.00000
	(!A * !Y)	0.00546	0.00540	0.00533
sky130_osu_sc_18T_hs__and2_8	**(!A * !Y)**	0.00000	0.00000	0.00000
	(!A * !Y)	0.00556	0.00550	0.00543
sky130_osu_sc_18T_hs__and2_l	**(!A * !Y)**	0.00000	0.00000	0.00000
	(!A * !Y)	0.00377	0.00373	0.00368

SKY130_OSU_SC_18T_HS__AOI21

sky130_osu_sc_18T_hs_ss_1P60_150C.ccs
Cell Library: Process , Voltage 1.60, 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	0.00583	0.00600	0.00579	1.01889

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__aoi21_l	0.00000	3.37940	6.17514

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)	0.10182	0.92736	9.72184
	A1->Y (FR)	0.08909	0.88982	9.46263
	B0->Y (FR)	0.07130	0.91039	10.06240

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)	0.07951	0.70419	7.39353
	A1->Y (RF)	0.07346	0.74716	8.07993
	B0->Y (RF)	0.04574	0.71836	8.15215

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	0.01217	0.01218	0.01937
	A1	0.00000	0.00000	0.00000
	A1	0.01036	0.01039	0.01755
	B0	0.00722	0.00767	0.01476

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	0.00305	0.00281	0.00946
	A1	0.00000	0.00000	0.00000
	A1	0.00308	0.00304	0.01027
	B0	-0.00122	-0.00089	0.00363

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)	-0.00368	-0.00455	-0.00468
	(!A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !Y)	-0.00473	-0.00475	-0.00473
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00477	-0.00478	-0.00477

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)	0.00476	0.00481	0.00481
	(!A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !Y)	0.00482	0.00488	0.00484
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00493	0.00486	0.00480

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)	-0.00365	-0.00451	-0.00464
	(!A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !Y)	-0.00468	-0.00472	-0.00468
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	-0.00500	-0.00502	-0.00507

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)	0.00473	0.00478	0.00476
	(!A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !Y)	0.00477	0.00485	0.00480
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	0.00506	0.00512	0.00509

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)	-0.00209	-0.00212	-0.00210

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)	0.00237	0.00238	0.00219

SKY130_OSU_SC_18T_HS__AOI22

sky130_osu_sc_18T_hs_ss_1P60_150C.ccs
Cell Library: Process , Voltage 1.60, 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	0.00584	0.00600	0.00617	0.00596	0.98034

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__aoi22_l	0.00000	3.81361	11.48290

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)	0.12726	0.95445	9.61625
	A1->Y (FR)	0.11502	0.92926	9.48192
	B0->Y (FR)	0.07470	0.90341	9.86291
	B1->Y (FR)	0.08715	0.93356	10.05320

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)	0.10830	0.72515	7.24609
	A1->Y (RF)	0.10227	0.76770	7.93735
	B0->Y (RF)	0.05186	0.71005	7.88163
	B1->Y (RF)	0.05798	0.67030	7.19045

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	0.01510	0.01507	0.02265
	A1	0.01332	0.01327	0.02064
	B0	0.00782	0.00840	0.01988
	B1	0.00961	0.01033	0.02227

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__aoi22_l	A0	0.00612	0.00585	0.01283
	A1	0.00616	0.00612	0.01369
	B0	-0.00068	-0.00004	0.00728
	B1	-0.00059	-0.00047	0.00648

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)	-0.00348	-0.00446	-0.00463
	(!A1 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * B1 * !Y)	-0.00468	-0.00469	-0.00468
	(!A1 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !B1 * Y)	-0.00476	-0.00478	-0.00476
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00476	-0.00478	-0.00476

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)	0.00483	0.00484	0.00486
	(!A1 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * B1 * !Y)	0.00487	0.00493	0.00489
	(!A1 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !B1 * Y)	0.00493	0.00486	0.00480
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00493	0.00486	0.00480

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)	-0.00345	-0.00444	-0.00458
	(!A0 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * B1 * !Y)	-0.00463	-0.00466	-0.00463
	(!A0 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !B1 * Y)	-0.00499	-0.00502	-0.00506
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	-0.00499	-0.00502	-0.00506

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)	0.00478	0.00481	0.00482
	(!A0 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * B1 * !Y)	0.00482	0.00490	0.00485
	(!A0 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !B1 * Y)	0.00506	0.00512	0.00509
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	0.00506	0.00512	0.00509

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)	-0.00211	-0.00213	-0.00211
	(A0 * A1 * !B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B1 * !Y)	-0.00199	-0.00201	-0.00204
	(!A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B1 * Y)	-0.00510	-0.00515	-0.00517
	(!A0 * A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B1 * Y)	-0.00510	-0.00515	-0.00517

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)	0.00247	0.00249	0.00222
	(A0 * A1 * !B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B1 * !Y)	0.00213	0.00214	0.00214
	(!A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B1 * Y)	0.00517	0.00526	0.00520
	(!A0 * A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B1 * Y)	0.00517	0.00526	0.00520

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)	-0.00212	-0.00214	-0.00212
	(A0 * A1 * !B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B0 * !Y)	-0.00200	-0.00203	-0.00205
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00482	-0.00483	-0.00483
	(!A0 * A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B0 * Y)	-0.00482	-0.00483	-0.00483

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)	0.00249	0.00250	0.00224
	(A0 * A1 * !B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B0 * !Y)	0.00215	0.00216	0.00216
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00499	0.00492	0.00486
	(!A0 * A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B0 * Y)	0.00499	0.00492	0.00486

SKY130_OSU_SC_18T_HS__BUFx

sky130_osu_sc_18T_hs_ss_1P60_150C.ccs
Cell Library: Process , Voltage 1.60, 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	0.00619	2.13751
sky130_osu_sc_18T_hs__buf_2	0.00619	4.17600
sky130_osu_sc_18T_hs__buf_4	0.00619	8.13962
sky130_osu_sc_18T_hs__buf_6	0.00098	1.80000
sky130_osu_sc_18T_hs__buf_8	0.00620	15.59271
sky130_osu_sc_18T_hs__buf_l	0.00473	1.65845

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__buf_1	0.00000	6.48675	6.48680
sky130_osu_sc_18T_hs__buf_2	0.00000	9.43456	12.00740
sky130_osu_sc_18T_hs__buf_4	0.00000	15.62570	23.49300
sky130_osu_sc_18T_hs__buf_6	0.00000	0.00000	0.00000
sky130_osu_sc_18T_hs__buf_8	0.00000	28.00800	46.46390
sky130_osu_sc_18T_hs__buf_l	0.00000	6.65681	6.65686

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)	0.07872	0.65995	7.36843
sky130_osu_sc_18T_hs__buf_2	A->Y (RR)	0.08687	0.59967	7.39979
sky130_osu_sc_18T_hs__buf_4	A->Y (RR)	0.11530	0.61336	7.68715
sky130_osu_sc_18T_hs__buf_8	A->Y (RR)	0.17084	0.68812	8.02669
sky130_osu_sc_18T_hs__buf_l	A->Y (RR)	0.08547	0.73314	7.49818

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)	0.08501	0.61588	6.33620
sky130_osu_sc_18T_hs__buf_2	A->Y (FF)	0.09875	0.59014	6.43815
sky130_osu_sc_18T_hs__buf_4	A->Y (FF)	0.13862	0.63277	6.73535
sky130_osu_sc_18T_hs__buf_8	A->Y (FF)	0.22328	0.74167	7.05142
sky130_osu_sc_18T_hs__buf_l	A->Y (FF)	0.08974	0.71749	7.00346

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	0.00508	0.00680	0.05143
sky130_osu_sc_18T_hs__buf_2	A	0.00000	0.00000	0.00000
	A	0.01057	0.01245	0.05601
sky130_osu_sc_18T_hs__buf_4	A	0.00000	0.00000	0.00000
	A	0.02262	0.02497	0.06822
sky130_osu_sc_18T_hs__buf_8	A	0.00000	0.00000	0.00000
	A	0.04918	0.05072	0.09147
sky130_osu_sc_18T_hs__buf_l	A	0.00000	0.00000	0.00000
	A	0.00384	0.00459	0.03019

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	0.01284	0.01583	0.06410
sky130_osu_sc_18T_hs__buf_2	A	0.00000	0.00000	0.00000
	A	0.01654	0.01971	0.06747
sky130_osu_sc_18T_hs__buf_4	A	0.00000	0.00000	0.00000
	A	0.02673	0.02972	0.07665
sky130_osu_sc_18T_hs__buf_8	A	0.00000	0.00000	0.00000
	A	0.05108	0.04977	0.09606
sky130_osu_sc_18T_hs__buf_l	A	0.00000	0.00000	0.00000
	A	0.00987	0.01145	0.03946

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
	-0.00063	-0.00064	-0.00062

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
	0.00063	0.00064	0.00062

SKY130_OSU_SC_18T_HS__DFFRx

sky130_osu_sc_18T_hs_ss_1P60_150C.ccs
Cell Library: Process , Voltage 1.60, 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	0.00599	0.00592	0.01691	2.09424	2.09473
sky130_osu_sc_18T_hs__dffr_l	0.00599	0.00592	0.01691	1.67699	1.67410

Leakage Information

Cell Name	Leakage(nW)		
	Min.	**Avg**	**Max.**
sky130_osu_sc_18T_hs__dffr_1	0.00000	23.42940	31.68010
sky130_osu_sc_18T_hs__dffr_l	0.00000	23.59950	31.85010

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)	0.37684	1.63900	17.09650
	QN->Q (FR)	0.04029	0.86135	11.63720
sky130_osu_sc_18T_hs__dffr_l	CK->Q (RR)	0.37674	1.82279	18.36100
	QN->Q (FR)	0.03957	0.88160	11.32560

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)	0.40098	1.68714	17.68660
	QN->Q (RF)	0.03645	0.80103	10.78880
	RN->Q (FF)	0.30064	1.63205	17.94180
sky130_osu_sc_18T_hs__dffr_l	CK->Q (RF)	0.39903	1.88723	19.08990
	QN->Q (RF)	0.03992	0.91170	11.71530
	RN->Q (FF)	0.29930	1.83227	19.33470

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)	0.35245	0.96555	7.54656
	RN->QN (FR)	0.25205	0.91010	7.80108
sky130_osu_sc_18T_hs__dffr_l	CK->QN (RR)	0.34275	0.98086	7.34245
	RN->QN (FR)	0.24294	0.92569	7.59076

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)**	0.32292	0.88477	6.51676
sky130_osu_sc_18T_hs__dffr_l	**CK->QN (RF)**	0.32107	0.97745	7.43104

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)	-0.09990	-0.10361	-0.00567
	setup	CK (R)	0.29564	0.32288	0.72141
sky130_osu_sc_18T_hs__dffr_l	hold	CK (R)	-0.10182	-0.10514	-0.00536
	setup	CK (R)	0.29505	0.32326	0.72487

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)	-0.16192	-0.37303	-2.60622
	setup	CK (R)	0.20260	0.38828	2.65693
sky130_osu_sc_18T_hs__dffr_l	hold	CK (R)	-0.16190	-0.37024	-2.60418
	setup	CK (R)	0.20268	0.38828	2.65693

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)	-0.09990	-0.10361	-0.00567
	setup	CK (R)	0.29564	0.32288	0.72141
sky130_osu_sc_18T_hs__dffr_l	hold	CK (R)	-0.10182	-0.10514	-0.00536
	setup	CK (R)	0.29505	0.32326	0.72487

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)	-0.16192	-0.37303	-2.60622
	setup	CK (R)	0.20260	0.38828	2.65693
sky130_osu_sc_18T_hs__dffr_l	hold	CK (R)	-0.16190	-0.37024	-2.60418
	setup	CK (R)	0.20268	0.38828	2.65693

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)	0.23279	0.26975	1.00843
	removal	CK (R)	-0.04339	-0.04951	-0.08717
sky130_osu_sc_18T_hs__dffr_l	recovery	CK (R)	0.23246	0.27029	1.00952
	removal	CK (R)	-0.04376	-0.04948	-0.09102

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)	0.23279	0.26975	1.00843
	removal	CK (R)	-0.04339	-0.04951	-0.08717
sky130_osu_sc_18T_hs__dffr_l	recovery	CK (R)	0.23246	0.27029	1.00952
	removal	CK (R)	-0.04376	-0.04948	-0.09102

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 ()	0.17862	0.56519	13.33370
	min_pulse_width	RN ()	0.18073	0.56519	13.33370
sky130_osu_sc_18T_hs__dffr_l	min_pulse_width	RN ()	0.17439	0.56519	13.33370
	min_pulse_width	RN ()	0.17228	0.56519	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 ()	0.17651	0.56519	13.33370
	min_pulse_width	CK ()	0.21030	0.56519	13.33370
sky130_osu_sc_18T_hs__dffr_l	min_pulse_width	CK ()	0.16806	0.56519	13.33370
	min_pulse_width	CK ()	0.20397	0.56519	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 ()	0.37929	0.56519	13.33370
	min_pulse_width	CK ()	0.16806	0.56519	13.33370
sky130_osu_sc_18T_hs__dffr_l	min_pulse_width	CK ()	0.37929	0.56519	13.33370
	min_pulse_width	CK ()	0.16806	0.56519	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	0.01337	0.01263	0.02261
sky130_osu_sc_18T_hs__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.01180	0.01192	0.03558

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	0.01529	0.01457	0.02153
	RN	-0.00161	-0.09099	-1.34027
	RN	0.03426	0.03388	0.04140
sky130_osu_sc_18T_hs__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.01378	0.01343	0.02826
	RN	-0.00161	-0.07964	-1.07325
	RN	0.03272	0.03273	0.04912

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	0.01520	0.01448	0.02131
	RN	-0.00161	-0.09101	-1.33996
	RN	0.03420	0.03383	0.04138
sky130_osu_sc_18T_hs__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.01364	0.01330	0.02798
	RN	-0.00161	-0.07955	-1.07015
	RN	0.03263	0.03264	0.04803

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	0.01318	0.01246	0.02187
sky130_osu_sc_18T_hs__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.01164	0.01172	0.03500

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	-0.00342	-0.00428	-0.00442
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.01644	0.01650	0.05158
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.00763	0.00776	0.04295
sky130_osu_sc_18T_hs__dffr_l	CK	0.00000	0.00000	0.00000
	CK	-0.00342	-0.00427	-0.00442
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.01644	0.01650	0.05159
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.00764	0.00776	0.04295

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	0.00499	0.00506	0.00502
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.02772	0.02806	0.06494
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.01289	0.01333	0.04934
sky130_osu_sc_18T_hs__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.00499	0.00506	0.00502
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.02772	0.02806	0.06495
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.01289	0.01333	0.04934

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)	0.00512	0.00669	0.06090
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.01383	0.01513	0.07004
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)	0.00513	0.00670	0.06090
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.01383	0.01513	0.07004

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)	0.01180	0.01433	0.06961
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.02594	0.02797	0.08367
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)	0.01180	0.01433	0.06961
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.02594	0.02797	0.08367

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)	-0.00083	0.00041	0.05427
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.00752	0.00821	0.06416
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	-0.00131	-0.00006	0.05341
sky130_osu_sc_18T_hs__dffr_l	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	-0.00082	0.00042	0.05427
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.00752	0.00821	0.06417
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	-0.00131	-0.00006	0.05341

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)	0.01799	0.02063	0.07586
	(D * RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * RN * !Q * QN)	0.04062	0.04185	0.10567
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.03139	0.03340	0.08923
	(!D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * Q * !QN)	0.03976	0.04415	0.13657
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.02118	0.02355	0.07784
sky130_osu_sc_18T_hs__dffr_l	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.01799	0.02063	0.07586
	(D * RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * RN * !Q * QN)	0.04062	0.04186	0.10567
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.03139	0.03341	0.08923
	(!D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * Q * !QN)	0.03976	0.04415	0.13657
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.02118	0.02356	0.07785

SKY130_OSU_SC_18T_HS__DFFSRx

sky130_osu_sc_18T_hs_ss_1P60_150C.ccs
Cell Library: Process , Voltage 1.60, 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	0.00595	0.00592	0.01264	0.01715	2.16655	2.17334
sky130_osu_sc_18T_hs__dffsr_l	0.00595	0.00592	0.01263	0.01715	1.67269	1.67611

Leakage Information

Cell Name	Leakage(nW)		
	Min.	**Avg**	**Max.**
sky130_osu_sc_18T_hs__dffsr_1	0.00000	24.60410	32.38970
sky130_osu_sc_18T_hs__dffsr_l	0.00000	24.77410	32.55970

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)	0.40484	1.65920	17.15210
	QN->Q (FR)	0.03861	0.84527	11.53050
	RN->Q (RR)	0.31891	1.58236	17.08370
	SN->Q (FR)	0.29287	1.59416	17.47040
sky130_osu_sc_18T_hs__dffsr_l	CK->Q (RR)	0.41301	1.86353	18.36750
	QN->Q (FR)	0.03950	0.87895	11.27840
	RN->Q (RR)	0.32727	1.78714	18.30010
	SN->Q (FR)	0.30057	1.79688	18.68920

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)	0.45804	1.74158	17.76870
	QN->Q (RF)	0.03380	0.76321	10.36590
	RN->Q (FF)	0.30923	1.63774	18.00400
sky130_osu_sc_18T_hs__dffsr_l	CK->Q (RF)	0.46061	1.95520	19.10160
	QN->Q (RF)	0.03985	0.90979	11.68470
	RN->Q (FF)	0.31211	1.85389	19.33180

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)	0.40990	1.03271	7.69147
	RN->QN (FR)	0.26207	0.93076	7.92853
sky130_osu_sc_18T_hs__dffsr_l	CK->QN (RR)	0.40282	1.05168	7.41616
	RN->QN (FR)	0.25556	0.95008	7.64865

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)	0.35322	0.91399	6.54191
	RN->QN (RF)	0.26756	0.83698	6.47377
	SN->QN (FF)	0.24168	0.84904	6.86029
sky130_osu_sc_18T_hs__dffsr_l	CK->QN (RF)	0.35793	1.02259	7.50950
	RN->QN (RF)	0.27224	0.94619	7.43784
	SN->QN (FF)	0.24585	0.95578	7.83157

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)	-0.11641	-0.12394	-0.07980
	setup	CK (R)	0.31074	0.33470	0.77342
sky130_osu_sc_18T_hs__dffsr_l	hold	CK (R)	-0.11996	-0.12456	-0.08153
	setup	CK (R)	0.30933	0.33318	0.76852

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)	-0.18274	-0.38864	-2.62105
	setup	CK (R)	0.23301	0.40455	2.67011
sky130_osu_sc_18T_hs__dffsr_l	hold	CK (R)	-0.17983	-0.38752	-2.62170
	setup	CK (R)	0.23289	0.40455	2.66988

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)	-0.11641	-0.12394	-0.07980
	setup	CK (R)	0.31074	0.33470	0.77342
sky130_osu_sc_18T_hs__dffsr_l	hold	CK (R)	-0.11996	-0.12456	-0.08153
	setup	CK (R)	0.30933	0.33318	0.76852

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)	-0.18274	-0.38864	-2.62105
	setup	CK (R)	0.23301	0.40455	2.67011
sky130_osu_sc_18T_hs__dffsr_l	hold	CK (R)	-0.17983	-0.38752	-2.62170
	setup	CK (R)	0.23289	0.40455	2.66988

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)	0.21666	0.24555	0.95573
	removal	CK (R)	-0.03063	-0.03611	-0.06087
	hold	SN (R)	-0.22517	-0.39902	-1.44076
	setup	SN (R)	0.26074	0.45577	3.72691
sky130_osu_sc_18T_hs__dffsr_l	recovery	CK (R)	0.21371	0.24465	0.95054
	removal	CK (R)	-0.02853	-0.03657	-0.06046
	hold	SN (R)	-0.22560	-0.39646	-1.39662
	setup	SN (R)	0.25821	0.45366	3.65039

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)	0.21666	0.24555	0.95573
	removal	CK (R)	-0.03063	-0.03611	-0.06087
	hold	SN (R)	-0.22517	-0.39902	-1.44076
	hold	SN (R)	-0.22621	-0.40232	-1.45100
	setup	SN (R)	0.26074	0.45175	3.48642
	setup	SN (R)	0.25478	0.45577	3.72691
sky130_osu_sc_18T_hs__dffsr_l	recovery	CK (R)	0.21371	0.24465	0.95054
	removal	CK (R)	-0.02853	-0.03657	-0.06046
	hold	SN (R)	-0.22560	-0.39646	-1.43144
	hold	SN (R)	-0.22684	-0.39928	-1.39662
	setup	SN (R)	0.25821	0.45175	3.45097
	setup	SN (R)	0.24339	0.45366	3.65039

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 ()	0.20608	0.56519	13.33370
	min_pulse_width	RN ()	0.20819	0.56519	13.33370
sky130_osu_sc_18T_hs__dffsr_l	min_pulse_width	RN ()	0.20608	0.56519	13.33370
	min_pulse_width	RN ()	0.20186	0.56519	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)	0.07163	0.11107	3.43116
	removal	CK (R)	-0.03243	-0.08265	-0.35673
sky130_osu_sc_18T_hs__dffsr_l	recovery	CK (R)	0.07142	0.11095	3.28854
	removal	CK (R)	-0.03243	-0.08265	-0.35968

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)	0.07163	0.11107	3.43116
	removal	CK (R)	-0.03243	-0.08265	-0.35673
sky130_osu_sc_18T_hs__dffsr_l	recovery	CK (R)	0.07142	0.11095	3.28854
	removal	CK (R)	-0.03243	-0.08265	-0.35968

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 ()	0.23143	0.56519	13.33370
	min_pulse_width	SN ()	0.23143	0.56519	13.33370
sky130_osu_sc_18T_hs__dffsr_l	min_pulse_width	SN ()	0.23143	0.56519	13.33370
	min_pulse_width	SN ()	0.21875	0.56519	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 ()	0.19129	0.56519	13.33370
	min_pulse_width	CK ()	0.22298	0.56519	13.33370
sky130_osu_sc_18T_hs__dffsr_l	min_pulse_width	CK ()	0.18496	0.56519	13.33370
	min_pulse_width	CK ()	0.21875	0.56519	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 ()	0.39619	0.56519	13.33370
	min_pulse_width	CK ()	0.20608	0.56519	13.33370
sky130_osu_sc_18T_hs__dffsr_l	min_pulse_width	CK ()	0.39408	0.56519	13.33370
	min_pulse_width	CK ()	0.20608	0.56519	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	0.01680	0.01690	0.03779
	RN	0.03041	0.02995	0.03887
	SN	-0.00161	-0.09286	-1.38659
	SN	0.03417	0.03295	0.04205
sky130_osu_sc_18T_hs__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.01534	0.01537	0.03928
	RN	0.02895	0.02844	0.04043
	SN	-0.00161	-0.07951	-1.07052
	SN	0.03271	0.03149	0.04336

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	0.01796	0.01762	0.02827
	RN	-0.00161	-0.09286	-1.38656
	RN	0.03551	0.03524	0.04677
sky130_osu_sc_18T_hs__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.01656	0.01635	0.03166
	RN	-0.00161	-0.07951	-1.07050
	RN	0.03408	0.03395	0.05019

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	0.01787	0.01750	0.02807
	RN	-0.00161	-0.09304	-1.39052
	RN	0.03543	0.03516	0.04689
sky130_osu_sc_18T_hs__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.01641	0.01621	0.03118
	RN	-0.00161	-0.07961	-1.07143
	RN	0.03396	0.03384	0.05017

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	0.01660	0.01670	0.03690
	RN	0.03021	0.02975	0.03831
	SN	-0.00161	-0.09304	-1.39071
	SN	0.03397	0.03277	0.04192
sky130_osu_sc_18T_hs__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.01518	0.01522	0.03860
	RN	0.02878	0.02828	0.04005
	SN	-0.00161	-0.07961	-1.07257
	SN	0.03254	0.03128	0.04351

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	-0.00438	-0.00442	-0.00443
	(!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)	0.02089	0.02096	0.05599
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.00875	0.00886	0.04373
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.00868	0.00880	0.04382
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.00875	0.00887	0.04378
sky130_osu_sc_18T_hs__dffsr_1	CK	0.00000	0.00000	0.00000
	CK	-0.00438	-0.00442	-0.00443
	(!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)	0.02089	0.02096	0.05599
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.00876	0.00886	0.04373
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.00868	0.00881	0.04382
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.00876	0.00887	0.04378

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	0.00509	0.00501	0.00496
	(!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)	0.03179	0.03203	0.06833
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.01335	0.01381	0.04965
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.01380	0.01414	0.04970
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.01331	0.01377	0.04958
sky130_osu_sc_18T_hs__dffsr_1	CK	0.00000	0.00000	0.00000
	CK	0.00509	0.00502	0.00496
	(!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)	0.03178	0.03203	0.06833
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.01334	0.01381	0.04964
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.01379	0.01413	0.04970
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.01330	0.01377	0.04958

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)	0.00417	0.00564	0.05972
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.01642	0.01758	0.07230
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)	0.00417	0.00565	0.05973
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.01642	0.01758	0.07231

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)	0.01231	0.01504	0.07066
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.02711	0.02910	0.08501
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)	0.01230	0.01502	0.07065
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.02710	0.02909	0.08500

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)	-0.01011	-0.01015	-0.01025
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	-0.00850	-0.01022	-0.01047
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	-0.00912	-0.00998	-0.01010
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.00795	0.00851	0.04346
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)	-0.01010	-0.01016	-0.01025
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	-0.00848	-0.01020	-0.01045
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	-0.00912	-0.00997	-0.01010
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.00796	0.00850	0.04347

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)	0.01068	0.01080	0.01073
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.01096	0.01106	0.01103
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	0.01060	0.01068	0.01067
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.02129	0.02131	0.05571
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)	0.01068	0.01080	0.01073
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.01094	0.01105	0.01101
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	0.01059	0.01068	0.01066
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.02128	0.02126	0.05570

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)	-0.00082	0.00042	0.05429
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.00860	0.00937	0.06513
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.00813	0.00894	0.06491
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	-0.00111	0.00013	0.05364
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.00612	0.00820	0.10651
sky130_osu_sc_18T_hs__dffsr_1	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	-0.00082	0.00042	0.05429
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.00859	0.00937	0.06512
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.00812	0.00894	0.06490
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	-0.00111	0.00013	0.05364
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.00612	0.00820	0.10651

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)	0.04551	0.04686	0.11020
	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.01804	0.02071	0.07592
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.03218	0.03423	0.09012
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.03227	0.03436	0.09003
	(!D * RN * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * Q * !QN)	0.04375	0.04784	0.14025
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.02108	0.02345	0.07774
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.02397	0.02851	0.12897
sky130_osu_sc_18T_hs__dffsr_l	**(D * RN * SN * !Q * QN)**	0.00000	0.00000	0.00000
	(D * RN * SN * !Q * QN)	0.04551	0.04686	0.11020
	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.01804	0.02071	0.07592
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.03219	0.03423	0.09012
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.03227	0.03436	0.09003
	(!D * RN * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * Q * !QN)	0.04374	0.04783	0.14025
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.02108	0.02345	0.07774
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.02396	0.02850	0.12896

SKY130_OSU_SC_18T_HS__DFFSx

sky130_osu_sc_18T_hs_ss_1P60_150C.ccs
Cell Library: Process , Voltage 1.60, 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	0.00598	0.00978	0.01692	2.12040	2.10797
sky130_osu_sc_18T_hs__dffs_l	0.00598	0.00978	0.01692	1.66682	1.68089

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__dffs_1	0.00000	24.48980	38.78340
sky130_osu_sc_18T_hs__dffs_l	0.00000	24.65990	38.95340

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)	0.28962	1.53951	17.13130
	QN->Q (FR)	0.04010	0.85990	11.65410
	SN->Q (FR)	0.20946	1.53551	17.14460
sky130_osu_sc_18T_hs__dffs_l	CK->Q (RR)	0.29249	1.71754	18.10010
	QN->Q (FR)	0.03940	0.87557	11.22240
	SN->Q (FR)	0.21304	1.70772	18.08650

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)	0.45653	1.76320	17.91460
	QN->Q (RF)	0.03621	0.80067	10.82880
sky130_osu_sc_18T_hs__dffs_l	CK->Q (RF)	0.45032	1.94351	18.99540
	QN->Q (RF)	0.03972	0.90428	11.63630

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)	0.40556	1.03505	7.62796
sky130_osu_sc_18T_hs__dffs_l	CK->QN (RR)	0.39140	1.04362	7.40614

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)	0.23952	0.78226	6.41935
	SN->QN (FF)	0.15913	0.77783	6.43238
sky130_osu_sc_18T_hs__dffs_l	CK->QN (RF)	0.24052	0.88154	7.33350
	SN->QN (FF)	0.16093	0.87237	7.32315

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)	-0.08004	-0.08647	0.01976
	setup	CK (R)	0.20754	0.24144	0.71446
sky130_osu_sc_18T_hs__dffs_l	hold	CK (R)	-0.07815	-0.08498	0.02154
	setup	CK (R)	0.20708	0.24123	0.71357

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)	-0.16834	-0.37401	-2.61093
	setup	CK (R)	0.22720	0.39048	2.66792
sky130_osu_sc_18T_hs__dffs_l	hold	CK (R)	-0.16683	-0.37234	-2.61221
	setup	CK (R)	0.22765	0.39048	2.66792

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)	-0.08004	-0.08647	0.01976
	setup	CK (R)	0.20754	0.24144	0.71446
sky130_osu_sc_18T_hs__dffs_l	hold	CK (R)	-0.07815	-0.08498	0.02154
	setup	CK (R)	0.20708	0.24123	0.71357

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)	-0.16834	-0.37401	-2.61093
	setup	CK (R)	0.22720	0.39048	2.66792
sky130_osu_sc_18T_hs__dffs_l	hold	CK (R)	-0.16683	-0.37234	-2.61221
	setup	CK (R)	0.22765	0.39048	2.66792

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)	0.07751	0.13147	2.60929
	removal	CK (R)	-0.03857	-0.10480	-0.85754
sky130_osu_sc_18T_hs__dffs_l	recovery	CK (R)	0.08073	0.13147	2.46996
	removal	CK (R)	-0.03857	-0.10480	-0.85859

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)	0.07751	0.13147	2.60929
	removal	CK (R)	-0.03857	-0.10480	-0.85754
sky130_osu_sc_18T_hs__dffs_l	recovery	CK (R)	0.08073	0.13147	2.46996
	removal	CK (R)	-0.03857	-0.10480	-0.85859

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 ()	0.13003	0.56519	13.33370
	min_pulse_width	SN ()	0.13215	0.56519	13.33370
sky130_osu_sc_18T_hs__dffs_l	min_pulse_width	SN ()	0.13215	0.56519	13.33370
	min_pulse_width	SN ()	0.12792	0.56519	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 ()	0.13003	0.56519	13.33370
	min_pulse_width	CK ()	0.22720	0.56519	13.33370
sky130_osu_sc_18T_hs__dffs_l	min_pulse_width	CK ()	0.12581	0.56519	13.33370
	min_pulse_width	CK ()	0.22087	0.56519	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 ()	0.29269	0.56519	13.33370
	min_pulse_width	CK ()	0.20186	0.56519	13.33370
sky130_osu_sc_18T_hs__dffs_l	min_pulse_width	CK ()	0.29269	0.56519	13.33370
	min_pulse_width	CK ()	0.20186	0.56519	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	0.01325	0.01264	0.02269
	SN	-0.00161	-0.09167	-1.35705
	SN	0.02841	0.02671	0.02147
sky130_osu_sc_18T_hs__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.01170	0.01190	0.03602
	SN	-0.00161	-0.07935	-1.06676
	SN	0.02686	0.02593	0.03503

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	0.01532	0.01470	0.02261
sky130_osu_sc_18T_hs__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.01379	0.01355	0.02953

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	0.01520	0.01457	0.02270
sky130_osu_sc_18T_hs__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.01362	0.01339	0.02900

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	0.01310	0.01255	0.02210
	SN	-0.00161	-0.09135	-1.34880
	SN	0.02825	0.02655	0.02132
sky130_osu_sc_18T_hs__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.01159	0.01176	0.03501
	SN	-0.00161	-0.07975	-1.07563
	SN	0.02673	0.02580	0.03445

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	-0.00437	-0.00441	-0.00442
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.01541	0.01549	0.05166
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.00745	0.00757	0.04274
sky130_osu_sc_18T_hs__dffs_l	CK	0.00000	0.00000	0.00000
	CK	-0.00437	-0.00441	-0.00441
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.01541	0.01549	0.05166
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.00745	0.00757	0.04275

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	0.00519	0.00511	0.00506
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.02660	0.02686	0.06340
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.01278	0.01329	0.04946
sky130_osu_sc_18T_hs__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.00519	0.00512	0.00506
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.02660	0.02686	0.06340
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.01278	0.01329	0.04947

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)	-0.00736	-0.00742	-0.00741
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.00606	0.00619	0.03228
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)	-0.00736	-0.00742	-0.00741
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.00606	0.00614	0.03228

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)	0.00786	0.00781	0.00778
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.01457	0.01505	0.04282
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)	0.00786	0.00782	0.00778
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.01457	0.01506	0.04282

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)	-0.00090	0.00035	0.05425
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	-0.00115	0.00014	0.05364
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.00476	0.00699	0.10595
sky130_osu_sc_18T_hs__dffs_l	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	-0.00090	0.00035	0.05426
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	-0.00115	0.00014	0.05364
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.00476	0.00699	0.10595

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)	0.03997	0.04132	0.10603
	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.01795	0.02059	0.07586
	(!D * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * SN * Q * !QN)	0.03841	0.04263	0.13490
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	0.02115	0.02353	0.07786
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.02331	0.02800	0.12900
sky130_osu_sc_18T_hs__dffs_l	(D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * SN * !Q * QN)	0.03997	0.04122	0.10603
	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.01795	0.02059	0.07587
	(!D * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * SN * Q * !QN)	0.03841	0.04263	0.13498
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	0.02115	0.02353	0.07787
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.02331	0.02801	0.12900

SKY130_OSU_SC_18T_HS__DFFx

sky130_osu_sc_18T_hs_ss_1P60_150C.ccs
Cell Library: Process , Voltage 1.60, 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	0.00613	0.01690	2.18016	2.18048
sky130_osu_sc_18T_hs__dff_l	0.00613	0.01690	1.66158	1.65708

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__dff_1	0.00000	21.70540	26.00460
sky130_osu_sc_18T_hs__dff_l	0.00000	21.87540	26.17460

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)	0.27466	1.50941	17.05250
	QN->Q (FR)	0.03840	0.84367	11.53390
sky130_osu_sc_18T_hs__dff_l	CK->Q (RR)	0.28363	1.71500	18.14710
	QN->Q (FR)	0.04009	0.88614	11.37470

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)	0.36909	1.64100	17.73720
	QN->Q (RF)	0.03367	0.76184	10.37700
sky130_osu_sc_18T_hs__dff_l	CK->Q (RF)	0.37504	1.86131	18.99030
	QN->Q (RF)	0.03981	0.90319	11.61410

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)	0.32322	0.93104	7.58942
sky130_osu_sc_18T_hs__dff_l	CK->QN (RR)	0.31939	0.95641	7.31010

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)	0.22696	0.76288	6.38111
sky130_osu_sc_18T_hs__dff_l	CK->QN (RF)	0.23187	0.87211	7.25971

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)	-0.07647	-0.08788	-0.02172
	setup	CK (R)	0.19046	0.22410	0.71299
sky130_osu_sc_18T_hs__dff_l	hold	CK (R)	-0.07688	-0.08849	-0.02195
	setup	CK (R)	0.18947	0.22233	0.70584

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)	-0.14870	-0.36961	-2.57799
	setup	CK (R)	0.17701	0.38044	2.62887
sky130_osu_sc_18T_hs__dff_l	hold	CK (R)	-0.14629	-0.36979	-2.57784
	setup	CK (R)	0.17375	0.38044	2.62666

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 ()	0.12792	0.56519	13.33370
	min_pulse_width	CK ()	0.19129	0.56519	13.33370
sky130_osu_sc_18T_hs__dff_l	min_pulse_width	CK ()	0.12581	0.56519	13.33370
	min_pulse_width	CK ()	0.18707	0.56519	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 ()	0.27368	0.56519	13.33370
	min_pulse_width	CK ()	0.13637	0.56519	13.33370
sky130_osu_sc_18T_hs__dff_l	min_pulse_width	CK ()	0.27368	0.56519	13.33370
	min_pulse_width	CK ()	0.13637	0.56519	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	0.01395	0.01415	0.03659
sky130_osu_sc_18T_hs__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.01252	0.01271	0.03806

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	0.01548	0.01517	0.02673
sky130_osu_sc_18T_hs__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.01411	0.01377	0.02827

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	0.01541	0.01508	0.02654
sky130_osu_sc_18T_hs__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.01399	0.01365	0.02785

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	0.01380	0.01406	0.03574
sky130_osu_sc_18T_hs__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.01240	0.01257	0.03740

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	-0.00348	-0.00432	-0.00447
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.01477	0.01498	0.05196
sky130_osu_sc_18T_hs__dff_l	CK	0.00000	0.00000	0.00000
	CK	-0.00348	-0.00432	-0.00447
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.01478	0.01499	0.05196

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	0.00493	0.00500	0.00496
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.02748	0.02790	0.06567
sky130_osu_sc_18T_hs__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.00493	0.00500	0.00496
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.02749	0.02791	0.06567

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)	-0.00090	0.00035	0.05427
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	-0.00125	0.00005	0.05356
sky130_osu_sc_18T_hs__dff_l	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	-0.00090	0.00035	0.05427
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	-0.00124	0.00005	0.05356

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)	0.01789	0.02057	0.07582
	(D * !Q * QN)	0.00000	0.00000	0.00000
	(D * !Q * QN)	0.03939	0.04076	0.10571
	(!D * Q * !QN)	0.00000	0.00000	0.00000
	(!D * Q * !QN)	0.03915	0.04355	0.13725
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.02096	0.02334	0.07768
sky130_osu_sc_18T_hs__dff_l	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.01789	0.02057	0.07582
	(D * !Q * QN)	0.00000	0.00000	0.00000
	(D * !Q * QN)	0.03939	0.04077	0.10572
	(!D * Q * !QN)	0.00000	0.00000	0.00000
	(!D * Q * !QN)	0.03916	0.04355	0.13726
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.02096	0.02334	0.07769

SKY130_OSU_SC_18T_HS__INVx

sky130_osu_sc_18T_hs_ss_1P60_150C.ccs
Cell Library: Process , Voltage 1.60, 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	0.00596	2.04877
sky130_osu_sc_18T_hs__inv_10	0.05658	18.36403
sky130_osu_sc_18T_hs__inv_2	0.01151	4.02261
sky130_osu_sc_18T_hs__inv_3	0.01717	5.85443
sky130_osu_sc_18T_hs__inv_4	0.02275	7.78843
sky130_osu_sc_18T_hs__inv_6	0.03411	11.40142
sky130_osu_sc_18T_hs__inv_8	0.04535	15.03025
sky130_osu_sc_18T_hs__inv_l	0.00448	1.56594

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__inv_1	0.00000	3.24334	5.96489
sky130_osu_sc_18T_hs__inv_10	0.00000	30.95480	57.42600
sky130_osu_sc_18T_hs__inv_2	0.00000	6.19106	11.48540
sky130_osu_sc_18T_hs__inv_3	0.00000	9.43432	17.45010
sky130_osu_sc_18T_hs__inv_4	0.00000	12.38200	22.97070
sky130_osu_sc_18T_hs__inv_6	0.00000	18.57300	34.45590
sky130_osu_sc_18T_hs__inv_8	0.00000	24.76390	45.94100
sky130_osu_sc_18T_hs__inv_l	0.00000	3.32836	6.33106

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)**	0.03679	0.77961	10.46990
sky130_osu_sc_18T_hs__inv_10	**A->Y (FR)**	0.05174	0.51703	10.33210
sky130_osu_sc_18T_hs__inv_2	**A->Y (FR)**	0.03016	0.66672	10.40480
sky130_osu_sc_18T_hs__inv_3	**A->Y (FR)**	0.03324	0.62650	10.44600
sky130_osu_sc_18T_hs__inv_4	**A->Y (FR)**	0.03418	0.59156	10.38160
sky130_osu_sc_18T_hs__inv_6	**A->Y (FR)**	0.03839	0.55062	10.32740
sky130_osu_sc_18T_hs__inv_8	**A->Y (FR)**	0.04464	0.52898	10.33270
sky130_osu_sc_18T_hs__inv_l	**A->Y (FR)**	0.03751	0.80683	10.17810

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)**	0.03094	0.68204	9.17292
sky130_osu_sc_18T_hs__inv_10	**A->Y (RF)**	0.04818	0.44561	8.90937
sky130_osu_sc_18T_hs__inv_2	**A->Y (RF)**	0.02597	0.58885	9.10840
sky130_osu_sc_18T_hs__inv_3	**A->Y (RF)**	0.02835	0.54920	9.14869
sky130_osu_sc_18T_hs__inv_4	**A->Y (RF)**	0.02845	0.51680	9.09713
sky130_osu_sc_18T_hs__inv_6	**A->Y (RF)**	0.03546	0.48050	9.03595
sky130_osu_sc_18T_hs__inv_8	**A->Y (RF)**	0.04166	0.45921	9.01440
sky130_osu_sc_18T_hs__inv_l	**A->Y (RF)**	0.03652	0.81287	10.29430

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	0.00678	0.00773	0.01699
sky130_osu_sc_18T_hs__inv_10	A	0.00000	0.00000	0.00000
	A	0.05969	0.07654	0.16627
sky130_osu_sc_18T_hs__inv_2	A	0.00000	0.00000	0.00000
	A	0.01225	0.01390	0.03277
sky130_osu_sc_18T_hs__inv_3	A	0.00000	0.00000	0.00000
	A	0.01870	0.02339	0.04961
sky130_osu_sc_18T_hs__inv_4	A	0.00000	0.00000	0.00000
	A	0.02420	0.03001	0.06560
sky130_osu_sc_18T_hs__inv_6	A	0.00000	0.00000	0.00000
	A	0.03592	0.04540	0.09863
sky130_osu_sc_18T_hs__inv_8	A	0.00000	0.00000	0.00000
	A	0.04770	0.06049	0.13226
sky130_osu_sc_18T_hs__inv_l	A	0.00000	0.00000	0.00000
	A	0.00516	0.00558	0.01001

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	-0.00144	-0.00059	0.00498
sky130_osu_sc_18T_hs__inv_10	**A**	0.00000	0.00000	0.00000
	A	-0.02129	-0.01399	0.04673
sky130_osu_sc_18T_hs__inv_2	**A**	0.00000	0.00000	0.00000
	A	-0.00461	-0.00266	0.00863
sky130_osu_sc_18T_hs__inv_3	**A**	0.00000	0.00000	0.00000
	A	-0.00610	-0.00354	0.01389
sky130_osu_sc_18T_hs__inv_4	**A**	0.00000	0.00000	0.00000
	A	-0.00923	-0.00602	0.01774
sky130_osu_sc_18T_hs__inv_6	**A**	0.00000	0.00000	0.00000
	A	-0.01413	-0.00878	0.02714
sky130_osu_sc_18T_hs__inv_8	**A**	0.00000	0.00000	0.00000
	A	-0.01843	-0.01078	0.03658
sky130_osu_sc_18T_hs__inv_l	**A**	0.00000	0.00000	0.00000
	A	-0.00097	-0.00060	0.00246

SKY130_OSU_SC_18T_HS__MUX2

sky130_osu_sc_18T_hs_ss_1P60_150C.ccs
Cell Library: Process , Voltage 1.60, 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	0.04676	0.04655	0.01209	0.03734

Leakage Information

Cell Name	Leakage(nW)		
	Min.	**Avg**	**Max.**
sky130_osu_sc_18T_hs__mux2_1	0.00000	6.73042	6.73042

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)	-	0.02032	0.10964	0.32895
	A1->Y (RR)	-	0.02204	0.11074	0.32907
	S0->Y (RR)	(!A0 * A1)	0.06308	0.23334	0.52848
	S0->Y (FR)	(A0 * !A1)	0.05199	0.23882	1.03194

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)	-	0.01829	0.11827	0.35474
	A1->Y (FF)	-	0.01753	0.11720	0.35409
	S0->Y (FF)	(!A0 * A1)	0.08261	0.26577	0.78486
	S0->Y (RF)	(A0 * !A1)	0.03624	0.20366	0.78177

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	-	-0.00706	-0.00708	-0.00708
	A1	-	0.00000	0.00000	0.00000
	A1	-	-0.00489	-0.00491	-0.00491
	S0	(A0 * !A1)	0.00000	0.00000	0.00000
	S0	(A0 * !A1)	0.00736	0.01052	0.06695
	S0	(!A0 * A1)	0.00000	0.00000	0.00000
	S0	(!A0 * A1)	-0.00498	-0.00316	0.05183

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	-	0.00709	0.00709	0.00710
	A1	-	0.00000	0.00000	0.00000
	A1	-	0.00517	0.00517	0.00518
	S0	(A0 * !A1)	0.00000	0.00000	0.00000
	S0	(A0 * !A1)	0.00155	0.00378	0.05967
	S0	(!A0 * A1)	0.00000	0.00000	0.00000
	S0	(!A0 * A1)	0.01821	0.02097	0.07646

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)	-0.00172	-0.00171	-0.00171

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)	0.00182	0.00181	0.00181

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)	-0.00208	-0.00207	-0.00207

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)	0.00208	0.00208	0.00208

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)	-0.00172	0.00042	0.05566
	(!A0 * !A1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !Y)	-0.00168	0.00029	0.05593

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)	0.01360	0.01654	0.07215
	(!A0 * !A1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !Y)	0.01201	0.01526	0.07142

SKY130_OSU_SC_18T_HS__NAND2x

sky130_osu_sc_18T_hs_ss_1P60_150C.ccs
Cell Library: Process , Voltage 1.60, 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	0.00598	0.00596	1.53419
sky130_osu_sc_18T_hs__nand2_l	0.00449	0.00448	1.02905

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__nand2_1	0.00000	3.19562	11.48510
sky130_osu_sc_18T_hs__nand2_l	0.00000	3.30072	12.35410

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)	0.03799	0.71420	8.89153
	B->Y (FR)	0.04433	0.71488	8.83054
sky130_osu_sc_18T_hs__nand2_l	A->Y (FR)	0.03825	0.70525	8.07888
	B->Y (FR)	0.04459	0.70847	8.05452

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)	0.04787	0.82922	10.31220
	B->Y (RF)	0.05394	0.78670	9.66421
sky130_osu_sc_18T_hs__nand2_l	A->Y (RF)	0.05717	0.95413	10.73830
	B->Y (RF)	0.06365	0.91952	10.14780

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	0.00723	0.00814	0.01799
	B	0.00000	0.00000	0.00000
	B	0.00906	0.00987	0.01980
sky130_osu_sc_18T_hs__nand2_1	A	0.00000	0.00000	0.00000
	A	0.00544	0.00586	0.01142
	B	0.00000	0.00000	0.00000
	B	0.00672	0.00709	0.01275

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	-0.00082	-0.00053	0.00559
	B	0.00000	0.00000	0.00000
	B	-0.00076	-0.00063	0.00493
sky130_osu_sc_18T_hs__nand2_1	A	0.00000	0.00000	0.00000
	A	-0.00051	-0.00030	0.00317
	B	0.00000	0.00000	0.00000
	B	-0.00046	-0.00046	0.00279

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)	-0.00512	-0.00517	-0.00519
sky130_osu_sc_18T_hs__nand2_l	(!B * Y)	0.00000	0.00000	0.00000
	(!B * Y)	-0.00365	-0.00369	-0.00371

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)	0.00518	0.00524	0.00521
sky130_osu_sc_18T_hs__nand2_l	(!B * Y)	0.00000	0.00000	0.00000
	(!B * Y)	0.00370	0.00374	0.00372

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)	-0.00486	-0.00489	-0.00486
sky130_osu_sc_18T_hs__nand2_l	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00347	-0.00349	-0.00347

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)	0.00502	0.00496	0.00489
sky130_osu_sc_18T_hs__nand2_l	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00358	0.00354	0.00349

SKY130_OSU_SC_18T_HS__NOR2x

sky130_osu_sc_18T_hs_ss_1P60_150C.ccs
Cell Library: Process , Voltage 1.60, 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	0.00597	0.00628	1.08616
sky130_osu_sc_18T_hs__nor2_l	0.00441	0.00475	0.80473

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__nor2_1	0.00000	2.66956	5.96403
sky130_osu_sc_18T_hs__nor2_l	0.00000	2.88348	6.32967

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)	0.07898	0.89631	9.82835
	B->Y (FR)	0.05778	0.89043	10.10430
sky130_osu_sc_18T_hs__nor2_l	A->Y (FR)	0.07921	0.93488	9.44133
	B->Y (FR)	0.06284	0.95064	9.95588

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)	0.04336	0.58091	6.49371
	B->Y (RF)	0.03309	0.56362	6.46837
sky130_osu_sc_18T_hs__nor2_l	A->Y (RF)	0.04965	0.67401	7.22424
	B->Y (RF)	0.03893	0.65760	7.20242

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	0.01004	0.01016	0.01811
	B	0.00000	0.00000	0.00000
	B	0.00730	0.00818	0.02018
sky130_osu_sc_18T_hs__nor2_l	A	0.00000	0.00000	0.00000
	A	0.00717	0.00720	0.01143
	B	0.00000	0.00000	0.00000
	B	0.00547	0.00580	0.01191

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	0.00133	0.00148	0.00973
	B	0.00000	0.00000	0.00000
	B	-0.00109	-0.00054	0.00746
sky130_osu_sc_18T_hs__nor2_l	A	0.00000	0.00000	0.00000
	A	0.00092	0.00103	0.00554
	B	0.00000	0.00000	0.00000
	B	-0.00069	-0.00027	0.00401

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)	-0.00369	-0.00451	-0.00466
sky130_osu_sc_18T_hs__nor2_l	(B * !Y)	0.00000	0.00000	0.00000
	(B * !Y)	-0.00263	-0.00316	-0.00323

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)	0.00477	0.00481	0.00480
sky130_osu_sc_18T_hs__nor2_l	(B * !Y)	0.00000	0.00000	0.00000
	(B * !Y)	0.00335	0.00337	0.00337

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)	-0.00210	-0.00212	-0.00211
sky130_osu_sc_18T_hs__nor2_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	-0.00155	-0.00156	-0.00155

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)	0.00224	0.00226	0.00216
sky130_osu_sc_18T_hs__nor2_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00166	0.00167	0.00160

SKY130_OSU_SC_18T_HS__OAI21

sky130_osu_sc_18T_hs_ss_1P60_150C.ccs
Cell Library: Process , Voltage 1.60, 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	0.00604	0.00612	0.00497	1.07622

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__oai21_l	0.00000	3.95802	12.29460

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)	0.07786	0.91239	10.09880
	A1->Y (FR)	0.10312	0.91999	9.83220
	B0->Y (FR)	0.04770	0.72077	8.23973

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)	0.06675	0.72796	7.96867
	A1->Y (RF)	0.08498	0.73328	7.80733
	B0->Y (RF)	0.05129	0.77138	8.76059

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	0.01004	0.01062	0.02093
	A1	0.00000	0.00000	0.00000
	A1	0.01277	0.01258	0.01989
	B0	0.00866	0.00941	0.01914

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	0.00049	0.00051	0.00669
	A1	0.00000	0.00000	0.00000
	A1	0.00287	0.00265	0.00894
	B0	0.00100	0.00132	0.00826

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)	-0.00205	-0.00207	-0.00206
	(A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * Y)	-0.00470	-0.00474	-0.00472
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00478	-0.00479	-0.00479

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)	0.00230	0.00231	0.00222
	(A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * Y)	0.00470	0.00475	0.00472
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00489	0.00485	0.00481

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)	-0.00357	-0.00440	-0.00454
	(A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * Y)	-0.00467	-0.00471	-0.00469
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	-0.00474	-0.00477	-0.00475

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)	0.00476	0.00480	0.00480
	(A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * Y)	0.00467	0.00473	0.00469
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	0.00485	0.00483	0.00478

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)	-0.00369	-0.00373	-0.00381

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)	0.00381	0.00388	0.00383

SKY130_OSU_SC_18T_HS__OAI22

sky130_osu_sc_18T_hs_ss_1P60_150C.ccs
Cell Library: Process , Voltage 1.60, 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	0.00590	0.00616	0.00628	0.00615	1.07989

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__oai22_l	0.00000	3.82034	11.49330

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)	0.10692	0.92546	9.83189
	A1->Y (FR)	0.09019	0.92185	10.10700
	B0->Y (FR)	0.06652	0.89676	10.09460
	B1->Y (FR)	0.08829	0.90852	9.82304

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)	0.12273	0.80316	8.16136
	A1->Y (RF)	0.09497	0.76569	8.04795
	B0->Y (RF)	0.08143	0.80441	8.81971
	B1->Y (RF)	0.11056	0.85510	9.03191

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	0.01675	0.01655	0.02357
	A1	0.01402	0.01456	0.02479
	B0	0.00778	0.00810	0.01947
	B1	0.01336	0.01344	0.02016

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__oai22_l	A0	0.00474	0.00449	0.01070
	A1	-0.00034	-0.00032	0.00595
	B0	-0.00035	0.00029	0.00719
	B1	0.00199	0.00199	0.00917

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)	-0.00368	-0.00451	-0.00466
	(A1 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * B1 * !Y)	-0.00365	-0.00449	-0.00463
	(A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * !B1 * Y)	-0.00469	-0.00469	-0.00470
	(!A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * !B1 * Y)	-0.00474	-0.00476	-0.00475

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)	0.00478	0.00482	0.00480
	(A1 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * B1 * !Y)	0.00480	0.00484	0.00483
	(A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * !B1 * Y)	0.00469	0.00469	0.00470
	(!A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * !B1 * Y)	0.00488	0.00483	0.00479

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)	-0.00209	-0.00211	-0.00209
	(A0 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * B1 * !Y)	-0.00206	-0.00209	-0.00207
	(A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * !B1 * Y)	-0.00466	-0.00469	-0.00468
	(!A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * !B1 * Y)	-0.00473	-0.00476	-0.00474

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)	0.00223	0.00225	0.00215
	(A0 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * B1 * !Y)	0.00225	0.00227	0.00217
	(A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * !B1 * Y)	0.00466	0.00469	0.00468
	(!A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * !B1 * Y)	0.00487	0.00482	0.00478

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)	-0.00208	-0.00212	-0.00208
	(A0 * !A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B1 * !Y)	-0.00205	-0.00210	-0.00206
	(!A0 * !A1 * B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B1 * Y)	-0.00507	-0.00511	-0.00511
	(!A0 * !A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B1 * Y)	-0.00499	-0.00503	-0.00515

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)	0.00222	0.00224	0.00214
	(A0 * !A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B1 * !Y)	0.00224	0.00224	0.00216
	(!A0 * !A1 * B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B1 * Y)	0.00514	0.00518	0.00511
	(!A0 * !A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B1 * Y)	0.00516	0.00525	0.00518

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)	-0.00364	-0.00445	-0.00460
	(A0 * !A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B0 * !Y)	-0.00361	-0.00443	-0.00458
	(!A0 * !A1 * B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B0 * Y)	-0.00515	-0.00516	-0.00518
	(!A0 * !A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B0 * Y)	-0.00505	-0.00510	-0.00521

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)	0.00473	0.00476	0.00475
	(A0 * !A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B0 * !Y)	0.00475	0.00477	0.00477
	(!A0 * !A1 * B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B0 * Y)	0.00520	0.00526	0.00518
	(!A0 * !A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B0 * Y)	0.00521	0.00527	0.00524

SKY130_OSU_SC_18T_HS__OR2x

sky130_osu_sc_18T_hs_ss_1P60_150C.ccs
Cell Library: Process , Voltage 1.60, 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	0.00630	0.00611	2.13156
sky130_osu_sc_18T_hs__or2_2	0.00630	0.00611	4.15905
sky130_osu_sc_18T_hs__or2_4	0.00631	0.00611	8.05953
sky130_osu_sc_18T_hs__or2_8	0.00632	0.00613	15.48142
sky130_osu_sc_18T_hs__or2_l	0.00481	0.00458	1.65221

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__or2_1	0.00000	4.55647	6.86186
sky130_osu_sc_18T_hs__or2_2	0.00000	6.21788	12.38270
sky130_osu_sc_18T_hs__or2_4	0.00000	9.76189	23.86850
sky130_osu_sc_18T_hs__or2_8	0.00000	16.84990	46.84000
sky130_osu_sc_18T_hs__or2_l	0.00000	4.71469	6.86872

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)	0.09508	0.70684	7.31944
	B->Y (RR)	0.08116	0.66179	7.21833
sky130_osu_sc_18T_hs__or2_2	A->Y (RR)	0.10382	0.64221	7.37436
	B->Y (RR)	0.08948	0.60273	7.26587
sky130_osu_sc_18T_hs__or2_4	A->Y (RR)	0.13287	0.64860	7.66093
	B->Y (RR)	0.11800	0.61643	7.55854
sky130_osu_sc_18T_hs__or2_8	A->Y (RR)	0.18885	0.71837	8.08018
	B->Y (RR)	0.17322	0.69234	7.98765
sky130_osu_sc_18T_hs__or2_l	A->Y (RR)	0.10333	0.78605	7.57777
	B->Y (RR)	0.08840	0.74088	7.43718

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)	0.15131	0.71222	6.63494
	B->Y (FF)	0.12422	0.68988	6.68149
sky130_osu_sc_18T_hs__or2_2	A->Y (FF)	0.18085	0.69817	6.73602
	B->Y (FF)	0.15397	0.68527	6.77821
sky130_osu_sc_18T_hs__or2_4	A->Y (FF)	0.25630	0.76600	7.05657
	B->Y (FF)	0.22955	0.76242	7.10527
sky130_osu_sc_18T_hs__or2_8	A->Y (FF)	0.41270	0.93501	7.46300
	B->Y (FF)	0.38604	0.93165	7.53570
sky130_osu_sc_18T_hs__or2_l	A->Y (FF)	0.15855	0.81367	7.27858
	B->Y (FF)	0.13498	0.80147	7.34545

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	0.00788	0.00869	0.04213
	B	0.00000	0.00000	0.00000
	B	0.00557	0.00710	0.04803
sky130_osu_sc_18T_hs__or2_2	A	0.00000	0.00000	0.00000
	A	0.01340	0.01455	0.04778
	B	0.00000	0.00000	0.00000
	B	0.01105	0.01285	0.05289
sky130_osu_sc_18T_hs__or2_4	A	0.00000	0.00000	0.00000
	A	0.02556	0.02718	0.06127
	B	0.00000	0.00000	0.00000
	B	0.02310	0.02547	0.06453
sky130_osu_sc_18T_hs__or2_8	A	0.00000	0.00000	0.00000
	A	0.05235	0.05278	0.08602
	B	0.00000	0.00000	0.00000
	B	0.04960	0.05149	0.08872
sky130_osu_sc_18T_hs__or2_l	A	0.00000	0.00000	0.00000
	A	0.00579	0.00599	0.02558
	B	0.00000	0.00000	0.00000
	B	0.00426	0.00489	0.02821

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	0.01604	0.01679	0.05051
	B	0.00000	0.00000	0.00000
	B	0.01300	0.01575	0.06287
sky130_osu_sc_18T_hs__or2_2	A	0.00000	0.00000	0.00000
	A	0.02003	0.02099	0.05411
	B	0.00000	0.00000	0.00000
	B	0.01701	0.01970	0.06552
sky130_osu_sc_18T_hs__or2_4	A	0.00000	0.00000	0.00000
	A	0.03200	0.03166	0.06310
	B	0.00000	0.00000	0.00000
	B	0.02901	0.02989	0.07335
sky130_osu_sc_18T_hs__or2_8	A	0.00000	0.00000	0.00000
	A	0.06432	0.05311	0.08204
	B	0.00000	0.00000	0.00000
	B	0.06143	0.05066	0.09164
sky130_osu_sc_18T_hs__or2_l	A	0.00000	0.00000	0.00000
	A	0.01191	0.01223	0.03219
	B	0.00000	0.00000	0.00000
	B	0.00987	0.01134	0.03878

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)	-0.00368	-0.00452	-0.00467
sky130_osu_sc_18T_hs__or2_2	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00367	-0.00452	-0.00467
sky130_osu_sc_18T_hs__or2_4	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00366	-0.00451	-0.00466
sky130_osu_sc_18T_hs__or2_8	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00365	-0.00450	-0.00464
sky130_osu_sc_18T_hs__or2_l	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00262	-0.00316	-0.00324

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)	0.00479	0.00483	0.00482
sky130_osu_sc_18T_hs__or2_2	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00479	0.00484	0.00483
sky130_osu_sc_18T_hs__or2_4	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00481	0.00484	0.00484
sky130_osu_sc_18T_hs__or2_8	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00482	0.00486	0.00485
sky130_osu_sc_18T_hs__or2_l	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00337	0.00338	0.00338

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)	-0.00212	-0.00213	-0.00211
sky130_osu_sc_18T_hs__or2_2	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00211	-0.00212	-0.00211
sky130_osu_sc_18T_hs__or2_4	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00210	-0.00212	-0.00210
sky130_osu_sc_18T_hs__or2_8	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00208	-0.00210	-0.00208
sky130_osu_sc_18T_hs__or2_l	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00158	-0.00159	-0.00157

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)	0.00226	0.00228	0.00217
sky130_osu_sc_18T_hs__or2_2	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00226	0.00228	0.00218
sky130_osu_sc_18T_hs__or2_4	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00227	0.00229	0.00218
sky130_osu_sc_18T_hs__or2_8	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00228	0.00231	0.00220
sky130_osu_sc_18T_hs__or2_l	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00169	0.00171	0.00163

SKY130_OSU_SC_18T_HS__TBUFIx

sky130_osu_sc_18T_hs_ss_1P60_150C.ccs
Cell Library: Process , Voltage 1.60, 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	0.00628	0.00782	1.09372
sky130_osu_sc_18T_hs__tbufi_l	0.00476	0.00595	0.81018

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__tbufi_1	0.00000	3.65348	11.92870
sky130_osu_sc_18T_hs__tbufi_l	0.00000	3.61080	12.66040

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)	0.05581	0.88606	10.13200
	OE->Y (FR)	0.06328	0.37530	4.68902
	OE->Y (RR)	0.10917	0.79862	7.19476
sky130_osu_sc_18T_hs__tbufi_l	A->Y (FR)	0.06097	0.95288	10.00290
	OE->Y (FR)	0.06101	0.37502	4.68875
	OE->Y (RR)	0.11353	0.89616	7.44264

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)	0.04718	0.72949	8.38239
	OE->Y (FF)	0.06465	0.37532	4.68901
	OE->Y (RF)	0.04212	0.67843	7.66919
sky130_osu_sc_18T_hs__tbufi_l	A->Y (RF)	0.05705	0.86674	9.27766
	OE->Y (FF)	0.06189	0.37500	4.68875
	OE->Y (RF)	0.05230	0.82485	8.63988

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	0.00710	0.00746	0.01828
	OE	0.00000	0.00000	0.00000
	OE	0.00742	0.00942	0.06028
sky130_osu_sc_18T_hs__tbufi_l	A	0.00000	0.00000	0.00000
	A	0.00540	0.00571	0.01102
	OE	0.00000	0.00000	0.00000
	OE	0.00520	0.00616	0.03548

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	-0.00095	-0.00026	0.00632
	OE	0.00000	0.00000	0.00000
	OE	0.00508	0.00712	0.06287
sky130_osu_sc_18T_hs__tbufi_l	A	0.00000	0.00000	0.00000
	A	-0.00051	-0.00019	0.00349
	OE	0.00000	0.00000	0.00000
	OE	0.00359	0.00452	0.03639

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)	-0.00351	-0.00357	-0.00352
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	-0.00301	-0.00304	-0.00302
sky130_osu_sc_18T_hs__tbufi_l	(!OE * Y)	0.00000	0.00000	0.00000
	(!OE * Y)	-0.00266	-0.00270	-0.00266
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	-0.00232	-0.00235	-0.00233

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)	0.00351	0.00357	0.00352
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	0.00310	0.00314	0.00307
sky130_osu_sc_18T_hs__tbufi_l	(!OE * Y)	0.00000	0.00000	0.00000
	(!OE * Y)	0.00266	0.00270	0.00266
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	0.00240	0.00242	0.00237

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)	0.00317	0.00536	0.06146
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00268	0.00483	0.06094
sky130_osu_sc_18T_hs__tbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00214	0.00323	0.03530
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00180	0.00283	0.03495

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)	0.00820	0.01085	0.06715
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00805	0.01081	0.06715
sky130_osu_sc_18T_hs__tbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00632	0.00761	0.04008
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00622	0.00754	0.04006

SKY130_OSU_SC_18T_HS__TNBUFIx

sky130_osu_sc_18T_hs_ss_1P60_150C.ccs
Cell Library: Process , Voltage 1.60, 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	0.00627	0.01009	1.09753
sky130_osu_sc_18T_hs__tnbufi_l	0.00475	0.00739	0.81004

Leakage Information

Cell Name	Leakage(nW)		
	Min.	**Avg**	**Max.**
sky130_osu_sc_18T_hs__tnbufi_1	0.00000	5.46788	6.48576
sky130_osu_sc_18T_hs__tnbufi_l	0.00000	5.61265	6.67699

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)	0.05627	0.88745	10.15490
	OE->Y (RR)	0.03830	0.37683	4.69057
	OE->Y (FR)	0.07367	0.89412	9.83155
sky130_osu_sc_18T_hs__tnbufi_l	A->Y (FR)	0.06148	0.95281	10.00140
	OE->Y (RR)	0.04201	0.37712	4.69092
	OE->Y (FR)	0.07464	0.93383	9.45531

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)	0.04652	0.73009	8.39897
	OE->Y (RF)	0.03791	0.37685	4.69056
	OE->Y (FF)	0.07396	0.59583	5.40664
sky130_osu_sc_18T_hs__tnbufi_l	A->Y (RF)	0.05618	0.86632	9.27644
	OE->Y (RF)	0.04150	0.37712	4.69084
	OE->Y (FF)	0.08368	0.69852	5.65432

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	0.00711	0.00746	0.01827
	OE	0.00000	0.00000	0.00000
	OE	0.01747	0.02107	0.07832
sky130_osu_sc_18T_hs__tnbufi_l	A	0.00000	0.00000	0.00000
	A	0.00538	0.00569	0.01102
	OE	0.00000	0.00000	0.00000
	OE	0.01277	0.01464	0.04786

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	-0.00128	-0.00057	0.00600
	OE	0.00000	0.00000	0.00000
	OE	0.01539	0.01904	0.07221
sky130_osu_sc_18T_hs__tnbufi_l	A	0.00000	0.00000	0.00000
	A	-0.00085	-0.00052	0.00316
	OE	0.00000	0.00000	0.00000
	OE	0.01133	0.01325	0.04378

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)	-0.00310	-0.00315	-0.00311
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	-0.00255	-0.00259	-0.00256
sky130_osu_sc_18T_hs__tnbufi_l	(OE * Y)	0.00000	0.00000	0.00000
	(OE * Y)	-0.00228	-0.00228	-0.00229
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	-0.00187	-0.00190	-0.00188

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)	0.00310	0.00315	0.00311
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	0.00273	0.00276	0.00271
sky130_osu_sc_18T_hs__tnbufi_l	(OE * Y)	0.00000	0.00000	0.00000
	(OE * Y)	0.00228	0.00228	0.00229
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	0.00205	0.00207	0.00203

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)	-0.00533	-0.00322	0.05335
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00553	-0.00352	0.05335
sky130_osu_sc_18T_hs__tnbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	-0.00376	-0.00293	0.02972
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00390	-0.00300	0.02970

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)	0.01325	0.01706	0.07442
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.01293	0.01672	0.07411
sky130_osu_sc_18T_hs__tnbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00978	0.01186	0.04491
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00955	0.01158	0.04472

SKY130_OSU_SC_18T_HS__XNOR2

sky130_osu_sc_18T_hs_ss_1P60_150C.ccs
Cell Library: Process , Voltage 1.60, 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_l	21.24540

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	B	Y
sky130_osu_sc_18T_hs__xnor2_l	0.01245	0.01149	1.12591

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__xnor2_l	0.00000	11.35660	17.99410

Delay Information

Delay(ns) to Y rising (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_18T_hs__xnor2_l	A->Y (RR)	B	0.13692	0.84921	7.45617
	A->Y (FR)	!B	0.07253	0.91518	10.28830
	B->Y (RR)	A	0.10666	0.82028	7.50445
	B->Y (FR)	!A	0.09898	0.92545	10.04000

Delay(ns) to Y falling (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_18T_hs__xnor2_l	A->Y (FF)	B	0.14215	0.73165	5.95211
	A->Y (RF)	!B	0.06652	0.72191	8.03834
	B->Y (FF)	A	0.11795	0.70912	5.94272
	B->Y (RF)	!A	0.08677	0.74681	8.05494

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	0.00738	0.00898	0.05922
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.01664	0.01983	0.08551
	B	A	0.00000	0.00000	0.00000
	B	A	0.00206	0.00426	0.06020
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01882	0.02178	0.08351

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	0.02171	0.02374	0.07877
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00506	0.00694	0.06749
	B	A	0.00000	0.00000	0.00000
	B	A	0.01950	0.02263	0.07898
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00648	0.00821	0.06868

SKY130_OSU_SC_18T_HS__XOR2

sky130_osu_sc_18T_hs_ss_1P60_150C.ccs
Cell Library: Process , Voltage 1.60, 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	0.01242	0.01153	1.12358

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__xor2_1	0.00000	11.35660	18.00440

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	0.12503	0.83048	7.50290
	A->Y (FR)	B	0.09213	0.92007	10.08900
	B->Y (RR)	!A	0.10931	0.82290	7.51507
	B->Y (FR)	A	0.09814	0.92629	10.07470

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	0.11655	0.69380	5.70145
	A->Y (RF)	B	0.07138	0.76847	8.53551
	B->Y (FF)	!A	0.11140	0.69340	5.79733
	B->Y (RF)	A	0.08122	0.73032	7.88081

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	0.02006	0.02319	0.08633
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00313	0.00430	0.05965
	B	A	0.00000	0.00000	0.00000
	B	A	0.02068	0.02389	0.08647
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00164	0.00372	0.05993

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	0.00458	0.00640	0.06883
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.02165	0.02477	0.07719
	B	A	0.00000	0.00000	0.00000
	B	A	0.00461	0.00629	0.06751
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01971	0.02310	0.07967

SKY130_OSU_SC_18T_HS_x

sky130_osu_sc_18T_hs_ss_1P60_150C.ccs
Cell Library: Process , Voltage 1.60, 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	0.68590
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	219719.00000	439438.00000
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
	-0.00238	0.07027	0.88722

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
	3.82393	3.61047	1.05808