sky130_osu_sc_18T_hs_tt_1P62_25C.ccs Library

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

SKY130_OSU_SC_18T_HS__ADDFx

sky130_osu_sc_18T_hs_tt_1P62_25C.ccs
Cell Library: Process , Voltage 1.62,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_hs__addf_1	46.88640
sky130_osu_sc_18T_hs__addf_l	46.88640

Pin Capacitance Information

Cell Name	Pin Cap(pf)			Max Cap(pf)		
	A	B	CI	CO	CON	S
sky130_osu_sc_18T_hs__addf_1	0.02045	0.02041	0.01571	2.53643	1.17920	2.45997
sky130_osu_sc_18T_hs__addf_l	0.02044	0.02040	0.01572	1.74206	1.18021	1.75313

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__addf_1	0.00000	0.33561	0.44814
sky130_osu_sc_18T_hs__addf_l	0.00000	0.29222	0.40475

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)	0.14175	1.65812	24.69930
	B->CO (RR)	0.12358	1.57424	23.56560
	CI->CO (RR)	0.13506	1.69489	25.32200
	CON->CO (FR)	0.02867	0.75652	11.34220
sky130_osu_sc_18T_hs__addf_l	A->CO (RR)	0.14394	1.55879	20.24470
	B->CO (RR)	0.13593	1.49573	19.47670
	CI->CO (RR)	0.13726	1.59633	20.89600
	CON->CO (FR)	0.03274	0.82887	11.41790

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)	0.20042	2.12900	31.32790
	B->CO (FF)	0.17810	2.03686	30.07930
	CI->CO (FF)	0.17303	2.09109	31.24500
	CON->CO (RF)	0.02286	0.58202	8.77894
sky130_osu_sc_18T_hs__addf_l	A->CO (FF)	0.19711	1.91225	24.54050
	B->CO (FF)	0.17513	1.83493	23.66490
	CI->CO (FF)	0.16972	1.87519	24.49120
	CON->CO (RF)	0.02435	0.60307	8.33331

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)	0.15641	1.00760	11.11470
	B->CON (FR)	0.13435	0.95198	10.73510
	CI->CON (FR)	0.12914	0.97190	11.10430
sky130_osu_sc_18T_hs__addf_l	A->CON (FR)	0.14834	1.00000	11.11280
	B->CON (FR)	0.12692	0.94490	10.73340
	CI->CON (FR)	0.12095	0.96435	11.10240

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)	0.08551	0.59354	6.58327
	B->CON (RF)	0.08049	0.59532	6.72844
	CI->CON (RF)	0.07890	0.63314	7.28109
sky130_osu_sc_18T_hs__addf_l	A->CON (RF)	0.08225	0.59034	6.58441
	B->CON (RF)	0.07757	0.59241	6.72847
	CI->CON (RF)	0.07563	0.63000	7.28110

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)	0.29167	1.95995	25.03720
	B->S (-R)	0.29577	1.94778	24.21630
	CI->S (-R)	0.26201	1.91721	24.95470
	CON->S (RR)	0.08230	0.62154	6.96285
sky130_osu_sc_18T_hs__addf_l	A->S (-R)	0.28013	1.83279	21.12960
	B->S (-R)	0.28474	1.83021	20.59840
	CI->S (-R)	0.25044	1.79093	21.07220
	CON->S (RR)	0.08304	0.67679	7.01161

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)	0.23173	1.47301	17.78980
	B->S (-F)	0.23291	1.41439	17.10730
	CI->S (-F)	0.22443	1.50551	18.40990
	CON->S (FF)	0.09773	0.66955	6.83490
sky130_osu_sc_18T_hs__addf_l	A->S (-F)	0.21990	1.34930	14.67790
	B->S (-F)	0.21239	1.28683	14.27580
	CI->S (-F)	0.21249	1.38353	15.32450
	CON->S (FF)	0.09425	0.67821	6.53440

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	0.00324	0.00376	0.01555
	B	0.00514	0.00535	0.01451
	CI	0.00522	0.00585	0.01786
sky130_osu_sc_18T_hs__addf_l	A	0.00242	0.00273	0.01086
	B	0.00433	0.00435	0.01092
	CI	0.00440	0.00480	0.01267

Internal switching power(pJ) to CO falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__addf_1	A	0.01379	0.01456	0.03558
	B	0.01461	0.01526	0.03342
	CI	0.01154	0.01240	0.03418
sky130_osu_sc_18T_hs__addf_l	A	0.01297	0.01348	0.02725
	B	0.01379	0.01424	0.02597
	CI	0.01072	0.01133	0.02604

Internal switching power(pJ) to CON rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__addf_1	A	0.01377	0.01416	0.02332
	B	0.01422	0.01457	0.02308
	CI	0.01277	0.01350	0.02217
sky130_osu_sc_18T_hs__addf_l	A	0.01296	0.01330	0.02237
	B	0.01342	0.01371	0.02213
	CI	0.01072	0.01117	0.02144

Internal switching power(pJ) to CON falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__addf_1	A	0.00322	0.00354	0.00942
	B	0.00368	0.00395	0.00896
	CI	0.00521	0.00559	0.01183
sky130_osu_sc_18T_hs__addf_l	A	0.00240	0.00264	0.00815
	B	0.00287	0.00304	0.00791
	CI	0.00439	0.00469	0.01056

Internal switching power(pJ) to S rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__addf_1	A	0.01379	0.01454	0.03484
	B	0.01461	0.01523	0.03285
	CI	0.01154	0.01238	0.03338
sky130_osu_sc_18T_hs__addf_l	A	0.01297	0.01348	0.02732
	B	0.01379	0.01425	0.02602
	CI	0.01072	0.01134	0.02612

Internal switching power(pJ) to S falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__addf_1	A	0.03101	0.03122	0.04284
	B	0.02763	0.02782	0.05044
	CI	0.02515	0.02518	0.03697
sky130_osu_sc_18T_hs__addf_l	A	0.02990	0.02990	0.04175
	B	0.02655	0.02672	0.04993
	CI	0.02406	0.02405	0.03631

SKY130_OSU_SC_18T_HS__ADDHx

sky130_osu_sc_18T_hs_tt_1P62_25C.ccs
Cell Library: Process , Voltage 1.62,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_hs__addh_1	27.83880
sky130_osu_sc_18T_hs__addh_l	27.83880

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)		
	A	B	CO	CON	S
sky130_osu_sc_18T_hs__addh_1	0.01000	0.01097	2.49842	1.24497	2.53380
sky130_osu_sc_18T_hs__addh_l	0.01000	0.01097	1.49949	1.24417	1.51109

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__addh_1	0.00000	0.38474	0.44311
sky130_osu_sc_18T_hs__addh_l	0.00000	0.26547	0.34867

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)	0.09679	0.63216	6.75169
	B->CO (RR)	0.10043	0.62782	6.81723
sky130_osu_sc_18T_hs__addh_l	A->CO (RR)	0.09753	0.70668	6.71121
	B->CO (RR)	0.10120	0.70407	6.75182

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)	0.08480	0.64148	6.80803
	B->CO (FF)	0.09092	0.65494	6.82460
sky130_osu_sc_18T_hs__addh_l	A->CO (FF)	0.08349	0.66328	6.33541
	B->CO (FF)	0.08944	0.67723	6.34976

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	0.13419	0.51574	3.34332
	A->CON (FR)	!B	0.08587	0.90653	10.92300
	B->CON (RR)	A	0.13769	0.51149	3.41414
	B->CON (FR)	!A	0.10735	0.94108	11.04480
sky130_osu_sc_18T_hs__addh_l	A->CON (RR)	B	0.12017	0.49035	3.30821
	A->CON (FR)	!B	0.07600	0.89589	10.90790
	B->CON (RR)	A	0.12372	0.48794	3.35416
	B->CON (FR)	!A	0.09744	0.93030	11.03170

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	0.12679	0.67012	5.60045
	A->CON (RF)	!B	0.05083	0.59816	7.28181
	B->CON (FF)	A	0.12657	0.70338	5.93822
	B->CON (RF)	!A	0.05980	0.58431	6.92975
sky130_osu_sc_18T_hs__addh_l	A->CON (FF)	B	0.11492	0.63943	5.44190
	A->CON (RF)	!B	0.04690	0.59353	7.27390
	B->CON (FF)	A	0.11467	0.67311	5.77681
	B->CON (RF)	!A	0.05598	0.58023	6.92266

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	0.10153	1.61731	24.67720
	A->S (FR)	B	0.17777	1.66672	22.63090
	B->S (RR)	!A	0.11034	1.55569	23.48570
	B->S (FR)	A	0.17850	1.74674	23.82840
	CON->S (FR)	-	0.03223	0.77882	11.65590
sky130_osu_sc_18T_hs__addh_l	A->S (RR)	!B	0.10108	1.47963	18.95500
	A->S (FR)	B	0.16960	1.51197	16.90600
	B->S (RR)	!A	0.11016	1.43343	18.18640
	B->S (FR)	A	0.17010	1.57767	17.67600
	CON->S (FR)	-	0.03656	0.86814	11.55010

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	0.12391	1.91591	29.27710
	A->S (RF)	B	0.16798	1.24636	16.02050
	B->S (FF)	!A	0.14545	1.95661	29.47680
	B->S (RF)	A	0.17145	1.24134	16.08880
	CON->S (RF)	-	0.02142	0.56820	8.54542
sky130_osu_sc_18T_hs__addh_l	A->S (FF)	!B	0.11781	1.65965	21.26890
	A->S (RF)	B	0.15636	1.09255	11.27330
	B->S (FF)	!A	0.13927	1.69731	21.41260
	B->S (RF)	A	0.15988	1.08931	11.31880
	CON->S (RF)	-	0.02385	0.60093	8.09837

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	0.00631	0.00617	0.01450
	B	0.00000	0.00000	0.00000
	B	0.00565	0.00540	0.01225
sky130_osu_sc_18T_hs__addh_l	A	0.00000	0.00000	0.00000
	A	0.00516	0.00492	0.01466
	B	0.00000	0.00000	0.00000
	B	0.00451	0.00418	0.01220

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	0.01002	0.00999	0.02012
	B	0.00000	0.00000	0.00000
	B	0.01036	0.01094	0.02144
sky130_osu_sc_18T_hs__addh_l	A	0.00000	0.00000	0.00000
	A	0.00887	0.00880	0.01872
	B	0.00000	0.00000	0.00000
	B	0.00922	0.00966	0.01951

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	0.00629	0.00617	0.01273
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00869	0.00889	0.01212
	B	A	0.00000	0.00000	0.00000
	B	A	0.00565	0.00540	0.01297
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00979	0.00978	0.01131
sky130_osu_sc_18T_hs__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.00514	0.00492	0.01273
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00792	0.00808	0.01084
	B	A	0.00000	0.00000	0.00000
	B	A	0.00450	0.00418	0.01239
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00901	0.00894	0.01006

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	0.01002	0.00999	0.02005
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00136	0.00145	0.00324
	B	A	0.00000	0.00000	0.00000
	B	A	0.01036	0.01090	0.02079
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00237	0.00233	0.00391
sky130_osu_sc_18T_hs__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.00887	0.00880	0.01875
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00039	0.00040	0.00155
	B	A	0.00000	0.00000	0.00000
	B	A	0.00921	0.00966	0.01959
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00140	0.00131	0.00238

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	0.01003	0.01000	0.02067
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00139	0.00156	0.00382
	B	A	0.00000	0.00000	0.00000
	B	A	0.01037	0.01097	0.02207
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00240	0.00242	0.00425
sky130_osu_sc_18T_hs__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.00888	0.00881	0.01896
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00040	0.00043	0.00181
	B	A	0.00000	0.00000	0.00000
	B	A	0.00922	0.00969	0.01987
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00142	0.00131	0.00226

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	0.00631	0.00618	0.01251
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00871	0.00896	0.01206
	B	A	0.00000	0.00000	0.00000
	B	A	0.00565	0.00542	0.01292
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00981	0.00991	0.01198
sky130_osu_sc_18T_hs__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.00516	0.00493	0.01291
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00792	0.00807	0.01079
	B	A	0.00000	0.00000	0.00000
	B	A	0.00451	0.00418	0.01255
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00901	0.00897	0.01012

SKY130_OSU_SC_18T_HS__AND2x

sky130_osu_sc_18T_hs_tt_1P62_25C.ccs
Cell Library: Process , Voltage 1.62,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_hs__and2_1	12.45420
sky130_osu_sc_18T_hs__and2_2	15.38460
sky130_osu_sc_18T_hs__and2_4	21.24540
sky130_osu_sc_18T_hs__and2_6	27.10620
sky130_osu_sc_18T_hs__and2_8	32.96700
sky130_osu_sc_18T_hs__and2_l	12.45420

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	B	Y
sky130_osu_sc_18T_hs__and2_1	0.00540	0.00552	2.52351
sky130_osu_sc_18T_hs__and2_2	0.00540	0.00553	4.86252
sky130_osu_sc_18T_hs__and2_4	0.00541	0.00553	9.27535
sky130_osu_sc_18T_hs__and2_6	0.00544	0.00553	13.57863
sky130_osu_sc_18T_hs__and2_8	0.00542	0.00554	17.49351
sky130_osu_sc_18T_hs__and2_l	0.00419	0.00431	1.73611

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__and2_1	0.00000	0.18445	0.29429
sky130_osu_sc_18T_hs__and2_2	0.00000	0.29416	0.29950
sky130_osu_sc_18T_hs__and2_4	0.00000	0.51358	0.58338
sky130_osu_sc_18T_hs__and2_6	0.00000	0.73299	0.87247
sky130_osu_sc_18T_hs__and2_8	0.00000	0.95241	1.16155
sky130_osu_sc_18T_hs__and2_l	0.00000	0.13008	0.20707

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)	0.07391	0.56327	6.62067
	B->Y (RR)	0.07851	0.56645	6.52080
sky130_osu_sc_18T_hs__and2_2	A->Y (RR)	0.08494	0.51778	6.64023
	B->Y (RR)	0.08952	0.51499	6.54679
sky130_osu_sc_18T_hs__and2_4	A->Y (RR)	0.11654	0.54045	6.89697
	B->Y (RR)	0.12109	0.52930	6.81441
sky130_osu_sc_18T_hs__and2_6	A->Y (RR)	0.14667	0.58066	7.10267
	B->Y (RR)	0.15115	0.56336	7.02343
sky130_osu_sc_18T_hs__and2_8	A->Y (RR)	0.17699	0.62591	7.31557
	B->Y (RR)	0.18155	0.60441	7.23108
sky130_osu_sc_18T_hs__and2_l	A->Y (RR)	0.08157	0.64318	6.65534
	B->Y (RR)	0.08632	0.64326	6.58587

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)	0.06553	0.56818	6.33849
	B->Y (FF)	0.06971	0.58285	6.37980
sky130_osu_sc_18T_hs__and2_2	A->Y (FF)	0.07494	0.54337	6.35838
	B->Y (FF)	0.07974	0.55678	6.41177
sky130_osu_sc_18T_hs__and2_4	A->Y (FF)	0.10274	0.57481	6.59223
	B->Y (FF)	0.10753	0.58459	6.64434
sky130_osu_sc_18T_hs__and2_6	A->Y (FF)	0.13370	0.61489	6.78298
	B->Y (FF)	0.13833	0.62340	6.82964
sky130_osu_sc_18T_hs__and2_8	A->Y (FF)	0.16195	0.65210	6.84054
	B->Y (FF)	0.16670	0.65971	6.88981
sky130_osu_sc_18T_hs__and2_l	A->Y (FF)	0.07098	0.61263	6.09379
	B->Y (FF)	0.07629	0.63007	6.16464

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	0.00473	0.00489	0.03473
	B	0.00000	0.00000	0.00000
	B	0.00481	0.00439	0.02330
sky130_osu_sc_18T_hs__and2_2	A	0.00000	0.00000	0.00000
	A	0.00949	0.00981	0.03811
	B	0.00000	0.00000	0.00000
	B	0.00958	0.00949	0.02715
sky130_osu_sc_18T_hs__and2_4	A	0.00000	0.00000	0.00000
	A	0.01989	0.02133	0.04624
	B	0.00000	0.00000	0.00000
	B	0.01999	0.02062	0.03586
sky130_osu_sc_18T_hs__and2_6	A	0.00000	0.00000	0.00000
	A	0.03082	0.03174	0.05528
	B	0.00000	0.00000	0.00000
	B	0.03090	0.03167	0.04555
sky130_osu_sc_18T_hs__and2_8	A	0.00000	0.00000	0.00000
	A	0.04216	0.04286	0.06556
	B	0.00000	0.00000	0.00000
	B	0.04230	0.04266	0.05567
sky130_osu_sc_18T_hs__and2_l	A	0.00000	0.00000	0.00000
	A	0.00348	0.00345	0.02150
	B	0.00000	0.00000	0.00000
	B	0.00358	0.00315	0.01530

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	0.01198	0.01334	0.04118
	B	0.00000	0.00000	0.00000
	B	0.01350	0.01490	0.04096
sky130_osu_sc_18T_hs__and2_2	A	0.00000	0.00000	0.00000
	A	0.01523	0.01735	0.04464
	B	0.00000	0.00000	0.00000
	B	0.01676	0.01849	0.04445
sky130_osu_sc_18T_hs__and2_4	A	0.00000	0.00000	0.00000
	A	0.02354	0.02618	0.05327
	B	0.00000	0.00000	0.00000
	B	0.02505	0.02731	0.05286
sky130_osu_sc_18T_hs__and2_6	A	0.00000	0.00000	0.00000
	A	0.03194	0.03555	0.06222
	B	0.00000	0.00000	0.00000
	B	0.03340	0.03646	0.06140
sky130_osu_sc_18T_hs__and2_8	A	0.00000	0.00000	0.00000
	A	0.04131	0.04467	0.07153
	B	0.00000	0.00000	0.00000
	B	0.04263	0.04525	0.07000
sky130_osu_sc_18T_hs__and2_l	A	0.00000	0.00000	0.00000
	A	0.00929	0.01002	0.02680
	B	0.00000	0.00000	0.00000
	B	0.01044	0.01121	0.02724

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)	-0.00458	-0.00461	-0.00462
sky130_osu_sc_18T_hs__and2_2	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00458	-0.00461	-0.00462
sky130_osu_sc_18T_hs__and2_4	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00458	-0.00461	-0.00462
sky130_osu_sc_18T_hs__and2_6	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00460	-0.00463	-0.00464
sky130_osu_sc_18T_hs__and2_8	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00457	-0.00460	-0.00461
sky130_osu_sc_18T_hs__and2_l	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00339	-0.00341	-0.00342

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)	0.00461	0.00465	0.00463
sky130_osu_sc_18T_hs__and2_2	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00461	0.00465	0.00463
sky130_osu_sc_18T_hs__and2_4	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00461	0.00465	0.00464
sky130_osu_sc_18T_hs__and2_6	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00463	0.00468	0.00466
sky130_osu_sc_18T_hs__and2_8	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00461	0.00466	0.00464
sky130_osu_sc_18T_hs__and2_l	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00341	0.00344	0.00343

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)	-0.00434	-0.00436	-0.00435
sky130_osu_sc_18T_hs__and2_2	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00434	-0.00435	-0.00435
sky130_osu_sc_18T_hs__and2_4	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00434	-0.00435	-0.00435
sky130_osu_sc_18T_hs__and2_6	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00434	-0.00435	-0.00434
sky130_osu_sc_18T_hs__and2_8	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00434	-0.00435	-0.00434
sky130_osu_sc_18T_hs__and2_l	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00322	-0.00323	-0.00322

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)	0.00443	0.00440	0.00437
sky130_osu_sc_18T_hs__and2_2	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00443	0.00440	0.00437
sky130_osu_sc_18T_hs__and2_4	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00443	0.00440	0.00437
sky130_osu_sc_18T_hs__and2_6	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00443	0.00441	0.00437
sky130_osu_sc_18T_hs__and2_8	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00444	0.00441	0.00438
sky130_osu_sc_18T_hs__and2_l	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00329	0.00325	0.00323

SKY130_OSU_SC_18T_HS__AOI21

sky130_osu_sc_18T_hs_tt_1P62_25C.ccs
Cell Library: Process , Voltage 1.62,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_hs__aoi21_l	12.45420

Pin Capacitance Information

Cell Name	Pin Cap(pf)			Max Cap(pf)
	A0	A1	B0	Y
sky130_osu_sc_18T_hs__aoi21_l	0.00514	0.00533	0.00516	1.18507

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__aoi21_l	0.00000	0.07036	0.14455

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)	0.08363	0.93819	11.10930
	A1->Y (FR)	0.07212	0.89465	10.73900
	B0->Y (FR)	0.05964	0.90523	11.09060

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)	0.04635	0.53226	6.27384
	A1->Y (RF)	0.04186	0.55767	6.71948
	B0->Y (RF)	0.02866	0.53921	6.70741

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	0.01065	0.01055	0.01209
	A1	0.00000	0.00000	0.00000
	A1	0.00897	0.00886	0.01046
	B0	0.00641	0.00653	0.01096

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	0.00239	0.00206	0.00340
	A1	0.00000	0.00000	0.00000
	A1	0.00242	0.00214	0.00412
	B0	-0.00112	-0.00111	0.00039

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)	-0.00356	-0.00405	-0.00406
	(!A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !Y)	-0.00411	-0.00414	-0.00412
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00411	-0.00414	-0.00411

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)	0.00404	0.00407	0.00406
	(!A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !Y)	0.00411	0.00414	0.00413
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00419	0.00414	0.00413

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)	-0.00353	-0.00400	-0.00401
	(!A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !Y)	-0.00406	-0.00408	-0.00407
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	-0.00437	-0.00441	-0.00441

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)	0.00398	0.00402	0.00401
	(!A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !Y)	0.00406	0.00411	0.00408
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	0.00440	0.00444	0.00442

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)	-0.00199	-0.00201	-0.00200

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)	0.00219	0.00220	0.00205

SKY130_OSU_SC_18T_HS__AOI22

sky130_osu_sc_18T_hs_tt_1P62_25C.ccs
Cell Library: Process , Voltage 1.62,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_hs__aoi22_l	15.38460

Pin Capacitance Information

Cell Name	Pin Cap(pf)				Max Cap(pf)
	A0	**A1**	**B0**	**B1**	**Y**
sky130_osu_sc_18T_hs__aoi22_l	0.00515	0.00533	0.00550	0.00528	1.12066

Leakage Information

Cell Name	Leakage(nW)		
	Min.	**Avg**	**Max.**
sky130_osu_sc_18T_hs__aoi22_l	0.00000	0.07733	0.28908

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)	0.10592	0.95960	10.92540
	A1->Y (FR)	0.09483	0.93191	10.74240
	B0->Y (FR)	0.06269	0.89011	10.73230
	B1->Y (FR)	0.07390	0.92123	10.97410

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)	0.06095	0.53856	6.07485
	A1->Y (RF)	0.05654	0.56444	6.51469
	B0->Y (RF)	0.03188	0.53497	6.48715
	B1->Y (RF)	0.03637	0.50867	6.04925

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	0.01300	0.01289	0.01440
	A1	0.01136	0.01120	0.01272
	B0	0.00697	0.00726	0.01311
	B1	0.00861	0.00824	0.01385

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__aoi22_l	A0	0.00491	0.00454	0.00593
	A1	0.00494	0.00462	0.00666
	B0	-0.00073	-0.00072	0.00143
	B1	-0.00063	-0.00076	0.00076

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)	-0.00361	-0.00404	-0.00406
	(!A1 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * B1 * !Y)	-0.00411	-0.00413	-0.00411
	(!A1 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !B1 * Y)	-0.00410	-0.00414	-0.00411
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00410	-0.00414	-0.00411

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)	0.00404	0.00407	0.00406
	(!A1 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * B1 * !Y)	0.00411	0.00414	0.00413
	(!A1 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !B1 * Y)	0.00419	0.00414	0.00413
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00419	0.00414	0.00413

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)	-0.00357	-0.00399	-0.00401
	(!A0 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * B1 * !Y)	-0.00406	-0.00407	-0.00407
	(!A0 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !B1 * Y)	-0.00437	-0.00441	-0.00441
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	-0.00437	-0.00441	-0.00441

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)	0.00398	0.00400	0.00401
	(!A0 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * B1 * !Y)	0.00406	0.00411	0.00408
	(!A0 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !B1 * Y)	0.00440	0.00443	0.00442
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	0.00440	0.00443	0.00442

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)	-0.00200	-0.00201	-0.00201
	(A0 * A1 * !B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B1 * !Y)	-0.00199	-0.00201	-0.00200
	(!A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B1 * Y)	-0.00448	-0.00451	-0.00453
	(!A0 * A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B1 * Y)	-0.00448	-0.00451	-0.00453

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)	0.00229	0.00229	0.00208
	(A0 * A1 * !B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B1 * !Y)	0.00199	0.00201	0.00200
	(!A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B1 * Y)	0.00451	0.00456	0.00453
	(!A0 * A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B1 * Y)	0.00451	0.00456	0.00453

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)	-0.00201	-0.00203	-0.00202
	(A0 * A1 * !B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B0 * !Y)	-0.00200	-0.00202	-0.00201
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00417	-0.00419	-0.00418
	(!A0 * A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B0 * Y)	-0.00417	-0.00419	-0.00418

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)	0.00230	0.00230	0.00209
	(A0 * A1 * !B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B0 * !Y)	0.00201	0.00202	0.00201
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00425	0.00421	0.00419
	(!A0 * A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B0 * Y)	0.00425	0.00421	0.00419

SKY130_OSU_SC_18T_HS__BUFx

sky130_osu_sc_18T_hs_tt_1P62_25C.ccs
Cell Library: Process , Voltage 1.62,
Temp 25.00

Truth Table

INPUT	OUTPUT
A	Y
0	0
1	1

Footprint

Cell Name	Area
sky130_osu_sc_18T_hs__buf_1	9.52380
sky130_osu_sc_18T_hs__buf_2	12.45420
sky130_osu_sc_18T_hs__buf_4	18.31500
sky130_osu_sc_18T_hs__buf_6	24.17580
sky130_osu_sc_18T_hs__buf_8	30.03660
sky130_osu_sc_18T_hs__buf_l	9.52380

Pin Capacitance Information

Cell Name	Pin Cap(pf)	Max Cap(pf)
	A	Y
sky130_osu_sc_18T_hs__buf_1	0.00551	2.50304
sky130_osu_sc_18T_hs__buf_2	0.00551	4.88626
sky130_osu_sc_18T_hs__buf_4	0.00551	9.40498
sky130_osu_sc_18T_hs__buf_6	0.00097	1.80000
sky130_osu_sc_18T_hs__buf_8	0.00553	17.87156
sky130_osu_sc_18T_hs__buf_l	0.00434	1.73405

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__buf_1	0.00000	0.14975	0.14975
sky130_osu_sc_18T_hs__buf_2	0.00000	0.22463	0.29429
sky130_osu_sc_18T_hs__buf_4	0.00000	0.37438	0.58338
sky130_osu_sc_18T_hs__buf_6	0.00000	0.00000	0.00000
sky130_osu_sc_18T_hs__buf_8	0.00000	0.67388	1.16156
sky130_osu_sc_18T_hs__buf_l	0.00000	0.10636	0.10636

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)	0.05782	0.53032	6.40635
sky130_osu_sc_18T_hs__buf_2	A->Y (RR)	0.06425	0.47573	6.45673
sky130_osu_sc_18T_hs__buf_4	A->Y (RR)	0.08647	0.48263	6.71654
sky130_osu_sc_18T_hs__buf_8	A->Y (RR)	0.12859	0.54306	7.07327
sky130_osu_sc_18T_hs__buf_l	A->Y (RR)	0.06445	0.61045	6.46358

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)	0.06240	0.55829	6.30077
sky130_osu_sc_18T_hs__buf_2	A->Y (FF)	0.07255	0.53971	6.41352
sky130_osu_sc_18T_hs__buf_4	A->Y (FF)	0.10049	0.57166	6.66523
sky130_osu_sc_18T_hs__buf_8	A->Y (FF)	0.15959	0.65089	6.94884
sky130_osu_sc_18T_hs__buf_l	A->Y (FF)	0.06868	0.60562	6.07512

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	0.00438	0.00454	0.02758
sky130_osu_sc_18T_hs__buf_2	A	0.00000	0.00000	0.00000
	A	0.00916	0.00958	0.03174
sky130_osu_sc_18T_hs__buf_4	A	0.00000	0.00000	0.00000
	A	0.01946	0.02042	0.04049
sky130_osu_sc_18T_hs__buf_8	A	0.00000	0.00000	0.00000
	A	0.04054	0.04248	0.06140
sky130_osu_sc_18T_hs__buf_l	A	0.00000	0.00000	0.00000
	A	0.00334	0.00367	0.01824

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	0.01152	0.01312	0.04048
sky130_osu_sc_18T_hs__buf_2	A	0.00000	0.00000	0.00000
	A	0.01475	0.01665	0.04367
sky130_osu_sc_18T_hs__buf_4	A	0.00000	0.00000	0.00000
	A	0.02308	0.02554	0.05214
sky130_osu_sc_18T_hs__buf_8	A	0.00000	0.00000	0.00000
	A	0.04097	0.04366	0.06920
sky130_osu_sc_18T_hs__buf_l	A	0.00000	0.00000	0.00000
	A	0.00903	0.00988	0.02647

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
	-0.00062	-0.00062	-0.00061

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
	0.00062	0.00062	0.00061

SKY130_OSU_SC_18T_HS__DFFRx

sky130_osu_sc_18T_hs_tt_1P62_25C.ccs
Cell Library: Process , Voltage 1.62,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_hs__dffr_1	63.73620
sky130_osu_sc_18T_hs__dffr_l	63.73620

Pin Capacitance Information

Cell Name	Pin Cap(pf)			Max Cap(pf)	
	D	RN	CK	Q	QN
sky130_osu_sc_18T_hs__dffr_1	0.00529	0.00524	0.01526	2.45676	2.43311
sky130_osu_sc_18T_hs__dffr_l	0.00529	0.00524	0.01525	1.74305	1.73715

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__dffr_1	0.00000	0.47240	0.71429
sky130_osu_sc_18T_hs__dffr_l	0.00000	0.42900	0.67090

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)	0.29002	1.33177	15.34090
	QN->Q (FR)	0.03344	0.84337	12.61480
sky130_osu_sc_18T_hs__dffr_l	CK->Q (RR)	0.28513	1.41699	14.76480
	QN->Q (FR)	0.03594	0.89230	12.31910

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)	0.28668	1.33855	15.66280
	QN->Q (RF)	0.02641	0.68160	10.14200
	RN->Q (FF)	0.21146	1.40973	17.46580
sky130_osu_sc_18T_hs__dffr_l	CK->Q (RF)	0.29098	1.45630	15.32840
	QN->Q (RF)	0.02683	0.68248	9.42777
	RN->Q (FF)	0.21622	1.52587	17.12300

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)	0.25409	0.75428	6.52997
	RN->QN (FR)	0.17881	0.82574	8.32935
sky130_osu_sc_18T_hs__dffr_l	CK->QN (RR)	0.25498	0.81399	6.57120
	RN->QN (FR)	0.18011	0.88539	8.36689

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)**	0.24445	0.65467	4.83453
sky130_osu_sc_18T_hs__dffr_l	**CK->QN (RF)**	0.23523	0.66098	4.50205

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)	-0.06037	-0.07858	-0.11183
	setup	CK (R)	0.22734	0.27210	1.17541
sky130_osu_sc_18T_hs__dffr_l	hold	CK (R)	-0.06082	-0.08258	-0.11079
	setup	CK (R)	0.22824	0.27343	1.14029

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)	-0.12053	-0.37951	-2.57728
	setup	CK (R)	0.15017	0.39353	3.85118
sky130_osu_sc_18T_hs__dffr_l	hold	CK (R)	-0.12024	-0.37630	-2.71719
	setup	CK (R)	0.14638	0.39353	3.85107

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)	-0.06037	-0.07858	-0.11183
	setup	CK (R)	0.22734	0.27210	1.17541
sky130_osu_sc_18T_hs__dffr_l	hold	CK (R)	-0.06082	-0.08258	-0.11079
	setup	CK (R)	0.22824	0.27343	1.14029

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)	-0.12053	-0.37951	-2.57728
	setup	CK (R)	0.15017	0.39353	3.85118
sky130_osu_sc_18T_hs__dffr_l	hold	CK (R)	-0.12024	-0.37630	-2.71719
	setup	CK (R)	0.14638	0.39353	3.85107

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)	0.18906	0.22934	1.28609
	removal	CK (R)	-0.03547	-0.04608	-0.11329
sky130_osu_sc_18T_hs__dffr_l	recovery	CK (R)	0.19193	0.23076	1.27922
	removal	CK (R)	-0.03547	-0.04608	-0.11329

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)	0.18906	0.22934	1.28609
	removal	CK (R)	-0.03547	-0.04608	-0.11329
sky130_osu_sc_18T_hs__dffr_l	recovery	CK (R)	0.19193	0.23076	1.27922
	removal	CK (R)	-0.03547	-0.04608	-0.11329

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 ()	0.12394	0.49683	13.33370
	min_pulse_width	RN ()	0.12394	0.49683	13.33370
sky130_osu_sc_18T_hs__dffr_l	min_pulse_width	RN ()	0.12394	0.49683	13.33370
	min_pulse_width	RN ()	0.12394	0.49683	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 ()	0.13140	0.49683	13.33370
	min_pulse_width	CK ()	0.15004	0.49683	13.33370
sky130_osu_sc_18T_hs__dffr_l	min_pulse_width	CK ()	0.12394	0.49683	13.33370
	min_pulse_width	CK ()	0.14631	0.49683	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 ()	0.29547	0.49683	13.33370
	min_pulse_width	CK ()	0.12021	0.49683	13.33370
sky130_osu_sc_18T_hs__dffr_l	min_pulse_width	CK ()	0.29547	0.49683	13.33370
	min_pulse_width	CK ()	0.12021	0.49683	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	0.01178	0.00828	0.00000
sky130_osu_sc_18T_hs__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.01049	0.00815	0.00078

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	0.01332	0.01133	0.00000
	RN	-0.00152	-0.09939	-1.61186
	RN	0.03060	0.02915	0.01769
sky130_osu_sc_18T_hs__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.01202	0.01072	0.01219
	RN	-0.00152	-0.08090	-1.14361
	RN	0.02928	0.02855	0.03067

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	0.01332	0.01133	0.00000
	RN	-0.00152	-0.09882	-1.59628
	RN	0.03059	0.02916	0.01744
sky130_osu_sc_18T_hs__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.01201	0.01074	0.01207
	RN	-0.00152	-0.08073	-1.13973
	RN	0.02928	0.02853	0.03080

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	0.01171	0.00827	0.00000
sky130_osu_sc_18T_hs__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.01043	0.00811	0.00094

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	-0.00338	-0.00400	-0.00404
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.01444	0.01377	0.02731
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.00663	0.00607	0.01987
sky130_osu_sc_18T_hs__dffr_l	CK	0.00000	0.00000	0.00000
	CK	-0.00338	-0.00400	-0.00404
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.01444	0.01377	0.02731
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.00663	0.00607	0.01987

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	0.00401	0.00406	0.00405
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.02400	0.02365	0.03832
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.01108	0.01083	0.02509
sky130_osu_sc_18T_hs__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.00401	0.00406	0.00405
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.02400	0.02365	0.03832
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.01108	0.01083	0.02509

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)	0.00464	0.00468	0.03615
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.01262	0.01230	0.04379
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)	0.00464	0.00468	0.03614
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.01262	0.01230	0.04379

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)	0.01072	0.01158	0.04466
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.02318	0.02356	0.05655
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)	0.01072	0.01158	0.04466
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.02318	0.02356	0.05655

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)	-0.00079	-0.00107	0.03012
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.00674	0.00556	0.03747
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	-0.00134	-0.00153	0.02936
sky130_osu_sc_18T_hs__dffr_l	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	-0.00079	-0.00107	0.03012
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.00674	0.00556	0.03747
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	-0.00135	-0.00153	0.02936

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)	0.01670	0.01792	0.05068
	(D * RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * RN * !Q * QN)	0.03642	0.03631	0.07340
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.02794	0.02835	0.06109
	(!D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * Q * !QN)	0.03580	0.03761	0.09401
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.01884	0.01959	0.05197
sky130_osu_sc_18T_hs__dffr_l	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.01670	0.01788	0.05068
	(D * RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * RN * !Q * QN)	0.03642	0.03631	0.07340
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.02794	0.02835	0.06109
	(!D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * Q * !QN)	0.03580	0.03765	0.09401
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.01884	0.01959	0.05197

SKY130_OSU_SC_18T_HS__DFFSRx

sky130_osu_sc_18T_hs_tt_1P62_25C.ccs
Cell Library: Process , Voltage 1.62,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_hs__dffsr_1	69.59700
sky130_osu_sc_18T_hs__dffsr_l	69.59700

Pin Capacitance Information

Cell Name	Pin Cap(pf)				Max Cap(pf)	
	D	RN	SN	CK	Q	QN
sky130_osu_sc_18T_hs__dffsr_1	0.00525	0.00525	0.01128	0.01554	2.57850	2.55090
sky130_osu_sc_18T_hs__dffsr_l	0.00525	0.00525	0.01127	0.01553	1.74527	1.74031

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__dffsr_1	0.00000	0.51495	0.71120
sky130_osu_sc_18T_hs__dffsr_l	0.00000	0.47155	0.66781

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)	0.29846	1.33140	15.40130
	QN->Q (FR)	0.03175	0.82611	12.47680
	RN->Q (RR)	0.23672	1.27811	15.38060
	SN->Q (FR)	0.22301	1.42917	17.52510
sky130_osu_sc_18T_hs__dffsr_l	CK->Q (RR)	0.30181	1.44255	14.82740
	QN->Q (FR)	0.03587	0.89012	12.29300
	RN->Q (RR)	0.24058	1.39033	14.79860
	SN->Q (FR)	0.22652	1.53833	16.91880

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)	0.32227	1.36573	15.78440
	QN->Q (RF)	0.02412	0.64215	9.67348
	RN->Q (FF)	0.21779	1.41100	17.57980
sky130_osu_sc_18T_hs__dffsr_l	CK->Q (RF)	0.33095	1.50049	15.38130
	QN->Q (RF)	0.02678	0.68107	9.42307
	RN->Q (FF)	0.22614	1.54443	17.17210

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)	0.29061	0.79280	6.65100
	RN->QN (FR)	0.18662	0.83868	8.44385
sky130_osu_sc_18T_hs__dffsr_l	CK->QN (RR)	0.29443	0.85827	6.62545
	RN->QN (FR)	0.19024	0.90371	8.41169

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)	0.25592	0.66678	4.85417
	RN->QN (RF)	0.19513	0.61550	4.83844
	SN->QN (FF)	0.18095	0.76552	6.97340
sky130_osu_sc_18T_hs__dffsr_l	CK->QN (RF)	0.25320	0.68750	4.56530
	RN->QN (RF)	0.19277	0.63752	4.54627
	SN->QN (FF)	0.17827	0.78427	6.67377

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)	-0.06694	-0.08829	-0.14703
	setup	CK (R)	0.22893	0.26507	1.37091
sky130_osu_sc_18T_hs__dffsr_l	hold	CK (R)	-0.06475	-0.08716	-0.14456
	setup	CK (R)	0.22794	0.26461	1.37745

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)	-0.13580	-0.39506	-2.10971
	setup	CK (R)	0.16898	0.40769	3.90971
sky130_osu_sc_18T_hs__dffsr_l	hold	CK (R)	-0.13529	-0.39499	-2.06975
	setup	CK (R)	0.16898	0.40769	3.90880

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)	-0.06694	-0.08829	-0.14703
	setup	CK (R)	0.22893	0.26507	1.37091
sky130_osu_sc_18T_hs__dffsr_l	hold	CK (R)	-0.06475	-0.08716	-0.14456
	setup	CK (R)	0.22794	0.26461	1.37745

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)	-0.13580	-0.39506	-2.10971
	setup	CK (R)	0.16898	0.40769	3.90971
sky130_osu_sc_18T_hs__dffsr_l	hold	CK (R)	-0.13529	-0.39499	-2.06975
	setup	CK (R)	0.16898	0.40769	3.90880

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)	0.17003	0.20495	1.25148
	removal	CK (R)	-0.02261	-0.02624	-0.07122
	hold	SN (R)	-0.17228	-0.33997	-1.49683
	setup	SN (R)	0.19406	0.39385	6.53718
sky130_osu_sc_18T_hs__dffsr_l	recovery	CK (R)	0.16999	0.20232	1.25052
	removal	CK (R)	-0.02299	-0.02624	-0.07122
	hold	SN (R)	-0.16884	-0.33349	-1.46026
	setup	SN (R)	0.19417	0.38729	6.51107

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)	0.17003	0.20495	1.25148
	removal	CK (R)	-0.02261	-0.02624	-0.07122
	hold	SN (R)	-0.17228	-0.33997	-1.49683
	hold	SN (R)	-0.17332	-0.34227	-1.50223
	setup	SN (R)	0.19406	0.39176	6.37245
	setup	SN (R)	0.19017	0.39385	6.53718
sky130_osu_sc_18T_hs__dffsr_l	recovery	CK (R)	0.16999	0.20232	1.25052
	removal	CK (R)	-0.02299	-0.02624	-0.07122
	hold	SN (R)	-0.16884	-0.33349	-1.46026
	hold	SN (R)	-0.16916	-0.33595	-1.47028
	setup	SN (R)	0.19417	0.38474	6.23512
	setup	SN (R)	0.18432	0.38729	6.51107

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 ()	0.14631	0.49683	13.33370
	min_pulse_width	RN ()	0.14631	0.49683	13.33370
sky130_osu_sc_18T_hs__dffsr_l	min_pulse_width	RN ()	0.14631	0.49683	13.33370
	min_pulse_width	RN ()	0.14258	0.49683	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)	0.04033	0.08215	6.97650
	removal	CK (R)	-0.01512	-0.06154	-0.27519
sky130_osu_sc_18T_hs__dffsr_l	recovery	CK (R)	0.03986	0.08181	7.01287
	removal	CK (R)	-0.01512	-0.06154	-0.27519

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)	0.04033	0.08215	6.97650
	removal	CK (R)	-0.01512	-0.06154	-0.27519
sky130_osu_sc_18T_hs__dffsr_l	recovery	CK (R)	0.03986	0.08181	7.01287
	removal	CK (R)	-0.01512	-0.06154	-0.27519

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 ()	0.17987	0.49683	13.33370
	min_pulse_width	SN ()	0.17987	0.49683	13.33370
sky130_osu_sc_18T_hs__dffsr_l	min_pulse_width	SN ()	0.17987	0.49683	13.33370
	min_pulse_width	SN ()	0.16869	0.49683	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 ()	0.13513	0.49683	13.33370
	min_pulse_width	CK ()	0.16496	0.49683	13.33370
sky130_osu_sc_18T_hs__dffsr_l	min_pulse_width	CK ()	0.13140	0.49683	13.33370
	min_pulse_width	CK ()	0.16123	0.49683	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 ()	0.29174	0.49683	13.33370
	min_pulse_width	CK ()	0.14631	0.49683	13.33370
sky130_osu_sc_18T_hs__dffsr_l	min_pulse_width	CK ()	0.29174	0.49683	13.33370
	min_pulse_width	CK ()	0.14258	0.49683	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	0.01471	0.01243	-0.00273
	RN	0.02696	0.02465	0.00251
	SN	-0.00152	-0.10232	-1.69175
	SN	0.03006	0.02741	0.00036
sky130_osu_sc_18T_hs__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.01352	0.01121	0.00393
	RN	0.02577	0.02350	0.00887
	SN	-0.00152	-0.08096	-1.14507
	SN	0.02886	0.02619	0.00514

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	0.01553	0.01392	0.00493
	RN	-0.00152	-0.10232	-1.69175
	RN	0.03151	0.03034	0.02259
sky130_osu_sc_18T_hs__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.01435	0.01316	0.01496
	RN	-0.00152	-0.08096	-1.14507
	RN	0.03030	0.02952	0.03211

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	0.01553	0.01393	0.00547
	RN	-0.00152	-0.10166	-1.67361
	RN	0.03149	0.03033	0.02252
sky130_osu_sc_18T_hs__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.01435	0.01316	0.01507
	RN	-0.00152	-0.08082	-1.14180
	RN	0.03029	0.02954	0.03203

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	0.01464	0.01240	-0.00151
	RN	0.02688	0.02455	0.00355
	SN	-0.00152	-0.10166	-1.67350
	SN	0.02998	0.02733	0.00121
sky130_osu_sc_18T_hs__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.01345	0.01118	0.00397
	RN	0.02569	0.02343	0.00918
	SN	-0.00152	-0.08082	-1.14171
	SN	0.02878	0.02614	0.00733

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	-0.00394	-0.00402	-0.00403
	(!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)	0.01838	0.01775	0.03119
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.00744	0.00687	0.02044
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.00738	0.00684	0.02045
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.00745	0.00690	0.02049
sky130_osu_sc_18T_hs__dffsr_1	CK	0.00000	0.00000	0.00000
	CK	-0.00394	-0.00402	-0.00403
	(!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)	0.01838	0.01775	0.03119
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.00744	0.00687	0.02044
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.00738	0.00684	0.02045
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.00745	0.00690	0.02049

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	0.00408	0.00405	0.00403
	(!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)	0.02742	0.02701	0.04094
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.01162	0.01143	0.02553
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.01176	0.01150	0.02551
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.01156	0.01138	0.02544
sky130_osu_sc_18T_hs__dffsr_1	CK	0.00000	0.00000	0.00000
	CK	0.00408	0.00405	0.00403
	(!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)	0.02741	0.02700	0.04093
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.01161	0.01141	0.02552
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.01175	0.01149	0.02550
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.01155	0.01137	0.02543

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)	0.00389	0.00375	0.03518
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.01504	0.01454	0.04596
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)	0.00389	0.00376	0.03519
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.01504	0.01454	0.04597

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)	0.01138	0.01239	0.04575
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.02435	0.02474	0.05783
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)	0.01137	0.01238	0.04574
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.02433	0.02473	0.05782

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)	-0.00909	-0.00916	-0.00917
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	-0.00855	-0.00938	-0.00941
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	-0.00861	-0.00905	-0.00905
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.00633	0.00588	0.02142
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)	-0.00909	-0.00917	-0.00917
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	-0.00854	-0.00936	-0.00940
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	-0.00861	-0.00904	-0.00905
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.00633	0.00585	0.02143

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)	0.00916	0.00922	0.00920
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00937	0.00947	0.00944
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	0.00904	0.00905	0.00908
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.01874	0.01830	0.03203
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)	0.00916	0.00922	0.00920
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00936	0.00945	0.00942
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	0.00903	0.00904	0.00908
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.01873	0.01829	0.03202

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)	-0.00079	-0.00107	0.03012
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.00760	0.00655	0.03836
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.00742	0.00634	0.03827
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	-0.00114	-0.00132	0.02957
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.00536	0.00489	0.06353
sky130_osu_sc_18T_hs__dffsr_l	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	-0.00079	-0.00107	0.03012
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.00760	0.00654	0.03835
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.00741	0.00633	0.03826
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	-0.00114	-0.00132	0.02957
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.00536	0.00489	0.06354

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)	0.04060	0.04046	0.07742
	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.01675	0.01791	0.05073
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.02844	0.02889	0.06159
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.02849	0.02885	0.06159
	(!D * RN * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * Q * !QN)	0.03917	0.04072	0.09696
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.01868	0.01942	0.05181
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.02198	0.02395	0.08489
sky130_osu_sc_18T_hs__dffsr_l	**(D * RN * SN * !Q * QN)**	0.00000	0.00000	0.00000
	(D * RN * SN * !Q * QN)	0.04060	0.04046	0.07743
	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.01675	0.01791	0.05073
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.02844	0.02889	0.06159
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.02849	0.02885	0.06159
	(!D * RN * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * Q * !QN)	0.03916	0.04069	0.09697
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.01868	0.01942	0.05181
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.02197	0.02394	0.08491

SKY130_OSU_SC_18T_HS__DFFSx

sky130_osu_sc_18T_hs_tt_1P62_25C.ccs
Cell Library: Process , Voltage 1.62,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_hs__dffs_1	57.87540
sky130_osu_sc_18T_hs__dffs_l	57.87540

Pin Capacitance Information

Cell Name	Pin Cap(pf)			Max Cap(pf)	
	D	SN	CK	Q	QN
sky130_osu_sc_18T_hs__dffs_1	0.00528	0.00901	0.01530	2.44331	2.45932
sky130_osu_sc_18T_hs__dffs_l	0.00528	0.00901	0.01530	1.74722	1.75538

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__dffs_1	0.00000	0.47241	0.71111
sky130_osu_sc_18T_hs__dffs_l	0.00000	0.42901	0.66771

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)	0.21742	1.23888	15.10090
	QN->Q (FR)	0.03325	0.83547	12.47020
	SN->Q (FR)	0.16933	1.38563	17.05860
sky130_osu_sc_18T_hs__dffs_l	CK->Q (RR)	0.21754	1.33752	14.66690
	QN->Q (FR)	0.03577	0.88902	12.26270
	SN->Q (FR)	0.16892	1.47786	16.60250

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)	0.31449	1.36500	15.54190
	QN->Q (RF)	0.02621	0.67668	10.06480
sky130_osu_sc_18T_hs__dffs_l	CK->Q (RF)	0.31743	1.48611	15.34090
	QN->Q (RF)	0.02668	0.67969	9.40616

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)	0.28094	0.78776	6.59237
sky130_osu_sc_18T_hs__dffs_l	CK->QN (RR)	0.28054	0.84574	6.64106

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)	0.17621	0.57254	4.77983
	SN->QN (FF)	0.12810	0.71969	6.73744
sky130_osu_sc_18T_hs__dffs_l	CK->QN (RF)	0.17194	0.58643	4.45230
	SN->QN (FF)	0.12299	0.72694	6.38542

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)	-0.04336	-0.06622	-0.06838
	setup	CK (R)	0.15609	0.20304	0.98498
sky130_osu_sc_18T_hs__dffs_l	hold	CK (R)	-0.04310	-0.06469	-0.06540
	setup	CK (R)	0.15255	0.20297	0.97913

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)	-0.12175	-0.37906	-3.15293
	setup	CK (R)	0.16117	0.39292	3.86476
sky130_osu_sc_18T_hs__dffs_l	hold	CK (R)	-0.12168	-0.37904	-3.19663
	setup	CK (R)	0.16104	0.39292	3.86487

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)	-0.04336	-0.06622	-0.06838
	setup	CK (R)	0.15609	0.20304	0.98498
sky130_osu_sc_18T_hs__dffs_l	hold	CK (R)	-0.04310	-0.06469	-0.06540
	setup	CK (R)	0.15255	0.20297	0.97913

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)	-0.12175	-0.37906	-3.15293
	setup	CK (R)	0.16117	0.39292	3.86476
sky130_osu_sc_18T_hs__dffs_l	hold	CK (R)	-0.12168	-0.37904	-3.19663
	setup	CK (R)	0.16104	0.39292	3.86487

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)	0.04269	0.08208	6.11848
	removal	CK (R)	-0.01556	-0.06154	-0.41663
sky130_osu_sc_18T_hs__dffs_l	recovery	CK (R)	0.04242	0.08186	6.02408
	removal	CK (R)	-0.01556	-0.06154	-0.41663

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)	0.04269	0.08208	6.11848
	removal	CK (R)	-0.01556	-0.06154	-0.41663
sky130_osu_sc_18T_hs__dffs_l	recovery	CK (R)	0.04242	0.08186	6.02408
	removal	CK (R)	-0.01556	-0.06154	-0.41663

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 ()	0.11275	0.49683	13.33370
	min_pulse_width	SN ()	0.11648	0.49683	13.33370
sky130_osu_sc_18T_hs__dffs_l	min_pulse_width	SN ()	0.11275	0.49683	13.33370
	min_pulse_width	SN ()	0.10902	0.49683	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 ()	0.09411	0.49683	13.33370
	min_pulse_width	CK ()	0.15750	0.49683	13.33370
sky130_osu_sc_18T_hs__dffs_l	min_pulse_width	CK ()	0.09038	0.49683	13.33370
	min_pulse_width	CK ()	0.15377	0.49683	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 ()	0.22089	0.49683	13.33370
	min_pulse_width	CK ()	0.13513	0.49683	13.33370
sky130_osu_sc_18T_hs__dffs_l	min_pulse_width	CK ()	0.21716	0.49683	13.33370
	min_pulse_width	CK ()	0.13513	0.49683	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	0.01182	0.00837	-0.00056
	SN	-0.00152	-0.09907	-1.60305
	SN	0.02559	0.02226	-0.01515
sky130_osu_sc_18T_hs__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.01053	0.00819	0.00133
	SN	-0.00152	-0.08101	-1.14635
	SN	0.02429	0.02209	0.00808

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	0.01322	0.01138	0.00056
sky130_osu_sc_18T_hs__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.01192	0.01073	0.01320

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	0.01321	0.01139	0.00022
sky130_osu_sc_18T_hs__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.01191	0.01072	0.01281

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	0.01177	0.00834	-0.00022
	SN	-0.00152	-0.09946	-1.61332
	SN	0.02552	0.02218	-0.01591
sky130_osu_sc_18T_hs__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.01047	0.00814	0.00118
	SN	-0.00152	-0.08124	-1.15160
	SN	0.02422	0.02202	0.00780

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	-0.00399	-0.00408	-0.00407
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.01388	0.01316	0.02705
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.00649	0.00592	0.01967
sky130_osu_sc_18T_hs__dffs_l	CK	0.00000	0.00000	0.00000
	CK	-0.00399	-0.00408	-0.00407
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.01388	0.01316	0.02705
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.00649	0.00592	0.01967

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	0.00413	0.00410	0.00407
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.02319	0.02278	0.03710
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.01115	0.01096	0.02530
sky130_osu_sc_18T_hs__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.00413	0.00410	0.00407
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.02319	0.02278	0.03709
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.01115	0.01096	0.02529

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)	-0.00677	-0.00681	-0.00682
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.00495	0.00456	0.02055
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)	-0.00677	-0.00681	-0.00682
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.00494	0.00456	0.02055

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)	0.00688	0.00689	0.00685
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.01316	0.01305	0.03093
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)	0.00688	0.00689	0.00685
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.01316	0.01305	0.03093

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)	-0.00081	-0.00109	0.03014
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	-0.00125	-0.00144	0.02949
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.00437	0.00395	0.06323
sky130_osu_sc_18T_hs__dffs_l	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	-0.00081	-0.00109	0.03014
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	-0.00125	-0.00144	0.02949
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.00437	0.00395	0.06323

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)	0.03598	0.03589	0.07367
	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.01670	0.01789	0.05072
	(!D * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * SN * Q * !QN)	0.03488	0.03648	0.09294
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	0.01873	0.01964	0.05190
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.02142	0.02346	0.08491
sky130_osu_sc_18T_hs__dffs_l	(D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * SN * !Q * QN)	0.03598	0.03589	0.07367
	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.01670	0.01789	0.05072
	(!D * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * SN * Q * !QN)	0.03488	0.03650	0.09294
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	0.01873	0.01949	0.05190
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.02142	0.02315	0.08491

SKY130_OSU_SC_18T_HS__DFFx

sky130_osu_sc_18T_hs_tt_1P62_25C.ccs
Cell Library: Process , Voltage 1.62,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_hs__dff_1	48.35160
sky130_osu_sc_18T_hs__dff_l	48.35160

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)	
	D	CK	Q	QN
sky130_osu_sc_18T_hs__dff_1	0.00543	0.01509	2.58335	2.55924
sky130_osu_sc_18T_hs__dff_l	0.00543	0.01506	1.73156	1.72257

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__dff_1	0.00000	0.47092	0.59735
sky130_osu_sc_18T_hs__dff_l	0.00000	0.42753	0.55396

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)	0.19285	1.20411	15.22330
	QN->Q (FR)	0.03151	0.82124	12.43170
sky130_osu_sc_18T_hs__dff_l	CK->Q (RR)	0.19955	1.32120	14.60380
	QN->Q (FR)	0.03646	0.90016	12.40210

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)	0.26974	1.30574	15.70520
	QN->Q (RF)	0.02402	0.64019	9.65100
sky130_osu_sc_18T_hs__dff_l	CK->Q (RF)	0.27989	1.44711	15.30770
	QN->Q (RF)	0.02673	0.67751	9.35907

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)	0.23898	0.73399	6.58186
sky130_osu_sc_18T_hs__dff_l	CK->QN (RR)	0.24404	0.80507	6.57399

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)	0.15454	0.54234	4.68792
sky130_osu_sc_18T_hs__dff_l	CK->QN (RF)	0.15467	0.56664	4.34246

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)	-0.04189	-0.06096	-0.10622
	setup	CK (R)	0.12784	0.17966	0.96774
sky130_osu_sc_18T_hs__dff_l	hold	CK (R)	-0.04081	-0.06165	-0.10515
	setup	CK (R)	0.12741	0.17826	0.96951

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)	-0.11406	-0.37556	-3.33263
	setup	CK (R)	0.13504	0.39125	3.85746
sky130_osu_sc_18T_hs__dff_l	hold	CK (R)	-0.11280	-0.37556	-3.30489
	setup	CK (R)	0.13512	0.39106	3.85981

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 ()	0.08292	0.49683	13.33370
	min_pulse_width	CK ()	0.14258	0.49683	13.33370
sky130_osu_sc_18T_hs__dff_l	min_pulse_width	CK ()	0.08292	0.49683	13.33370
	min_pulse_width	CK ()	0.13886	0.49683	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 ()	0.19106	0.49683	13.33370
	min_pulse_width	CK ()	0.10529	0.49683	13.33370
sky130_osu_sc_18T_hs__dff_l	min_pulse_width	CK ()	0.19106	0.49683	13.33370
	min_pulse_width	CK ()	0.10529	0.49683	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	0.01243	0.01009	-0.00302
sky130_osu_sc_18T_hs__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.01124	0.00885	0.00248

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	0.01348	0.01191	0.00403
sky130_osu_sc_18T_hs__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.01232	0.01102	0.01193

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	0.01348	0.01192	0.00442
sky130_osu_sc_18T_hs__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.01232	0.01103	0.01199

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	0.01237	0.01010	-0.00268
sky130_osu_sc_18T_hs__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.01118	0.00882	0.00273

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	-0.00338	-0.00398	-0.00404
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.01296	0.01241	0.02651
sky130_osu_sc_18T_hs__dff_l	CK	0.00000	0.00000	0.00000
	CK	-0.00338	-0.00398	-0.00404
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.01297	0.01241	0.02652

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	0.00400	0.00405	0.00404
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.02390	0.02347	0.03798
sky130_osu_sc_18T_hs__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.00400	0.00405	0.00404
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.02391	0.02348	0.03798

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)	-0.00082	-0.00109	0.03015
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	-0.00124	-0.00141	0.02953
sky130_osu_sc_18T_hs__dff_l	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	-0.00082	-0.00109	0.03015
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	-0.00124	-0.00141	0.02953

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)	0.01664	0.01765	0.05068
	(D * !Q * QN)	0.00000	0.00000	0.00000
	(D * !Q * QN)	0.03513	0.03509	0.07327
	(!D * Q * !QN)	0.00000	0.00000	0.00000
	(!D * Q * !QN)	0.03541	0.03681	0.09416
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.01865	0.01951	0.05183
sky130_osu_sc_18T_hs__dff_l	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.01664	0.01765	0.05068
	(D * !Q * QN)	0.00000	0.00000	0.00000
	(D * !Q * QN)	0.03514	0.03509	0.07328
	(!D * Q * !QN)	0.00000	0.00000	0.00000
	(!D * Q * !QN)	0.03541	0.03682	0.09419
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.01865	0.01951	0.05183

SKY130_OSU_SC_18T_HS__INVx

sky130_osu_sc_18T_hs_tt_1P62_25C.ccs
Cell Library: Process , Voltage 1.62,
Temp 25.00

Truth Table

INPUT	OUTPUT
A	Y
0	1
1	0

Footprint

Cell Name	Area
sky130_osu_sc_18T_hs__inv_1	6.59340
sky130_osu_sc_18T_hs__inv_10	32.96700
sky130_osu_sc_18T_hs__inv_2	9.52380
sky130_osu_sc_18T_hs__inv_3	12.45420
sky130_osu_sc_18T_hs__inv_4	15.38460
sky130_osu_sc_18T_hs__inv_6	21.24540
sky130_osu_sc_18T_hs__inv_8	27.10620
sky130_osu_sc_18T_hs__inv_l	6.59340

Pin Capacitance Information

Cell Name	Pin Cap(pf)	Max Cap(pf)
	A	Y
sky130_osu_sc_18T_hs__inv_1	0.00529	2.47643
sky130_osu_sc_18T_hs__inv_10	0.04982	21.40784
sky130_osu_sc_18T_hs__inv_2	0.01016	4.75643
sky130_osu_sc_18T_hs__inv_3	0.01514	6.79170
sky130_osu_sc_18T_hs__inv_4	0.02004	9.14098
sky130_osu_sc_18T_hs__inv_6	0.03005	13.55073
sky130_osu_sc_18T_hs__inv_8	0.03994	17.58653
sky130_osu_sc_18T_hs__inv_l	0.00409	1.65574

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__inv_1	0.00000	0.07488	0.14455
sky130_osu_sc_18T_hs__inv_10	0.00000	0.74875	1.44543
sky130_osu_sc_18T_hs__inv_2	0.00000	0.14975	0.28909
sky130_osu_sc_18T_hs__inv_3	0.00000	0.22463	0.43363
sky130_osu_sc_18T_hs__inv_4	0.00000	0.29950	0.57817
sky130_osu_sc_18T_hs__inv_6	0.00000	0.44925	0.86726
sky130_osu_sc_18T_hs__inv_8	0.00000	0.59900	1.15635
sky130_osu_sc_18T_hs__inv_l	0.00000	0.05318	0.10071

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)**	0.02975	0.75498	11.26400
sky130_osu_sc_18T_hs__inv_10	**A->Y (FR)**	0.04769	0.52918	11.09040
sky130_osu_sc_18T_hs__inv_2	**A->Y (FR)**	0.02486	0.65241	11.08170
sky130_osu_sc_18T_hs__inv_3	**A->Y (FR)**	0.02799	0.61466	11.07970
sky130_osu_sc_18T_hs__inv_4	**A->Y (FR)**	0.02926	0.58739	11.07020
sky130_osu_sc_18T_hs__inv_6	**A->Y (FR)**	0.03381	0.55644	11.13440
sky130_osu_sc_18T_hs__inv_8	**A->Y (FR)**	0.04031	0.53697	11.06940
sky130_osu_sc_18T_hs__inv_l	**A->Y (FR)**	0.03386	0.81937	11.14600

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)**	0.02146	0.56206	8.38938
sky130_osu_sc_18T_hs__inv_10	**A->Y (RF)**	0.03630	0.35087	8.05205
sky130_osu_sc_18T_hs__inv_2	**A->Y (RF)**	0.01837	0.47630	8.23774
sky130_osu_sc_18T_hs__inv_3	**A->Y (RF)**	0.02035	0.44167	8.22984
sky130_osu_sc_18T_hs__inv_4	**A->Y (RF)**	0.02068	0.41384	8.23006
sky130_osu_sc_18T_hs__inv_6	**A->Y (RF)**	0.02639	0.38362	8.24738
sky130_osu_sc_18T_hs__inv_8	**A->Y (RF)**	0.03130	0.36441	8.16147
sky130_osu_sc_18T_hs__inv_l	**A->Y (RF)**	0.02372	0.59214	8.08521

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	0.00599	0.00640	0.01021
sky130_osu_sc_18T_hs__inv_10	A	0.00000	0.00000	0.00000
	A	0.05212	0.06007	0.08755
sky130_osu_sc_18T_hs__inv_2	A	0.00000	0.00000	0.00000
	A	0.01078	0.01210	0.01646
sky130_osu_sc_18T_hs__inv_3	A	0.00000	0.00000	0.00000
	A	0.01648	0.01904	0.02560
sky130_osu_sc_18T_hs__inv_4	A	0.00000	0.00000	0.00000
	A	0.02127	0.02397	0.03290
sky130_osu_sc_18T_hs__inv_6	A	0.00000	0.00000	0.00000
	A	0.03145	0.03622	0.05054
sky130_osu_sc_18T_hs__inv_8	A	0.00000	0.00000	0.00000
	A	0.04167	0.05023	0.07898
sky130_osu_sc_18T_hs__inv_l	A	0.00000	0.00000	0.00000
	A	0.00466	0.00481	0.00404

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	-0.00132	-0.00120	0.00030
sky130_osu_sc_18T_hs__inv_10	**A**	0.00000	0.00000	0.00000
	A	-0.02014	-0.01940	-0.00143
sky130_osu_sc_18T_hs__inv_2	**A**	0.00000	0.00000	0.00000
	A	-0.00420	-0.00380	-0.00062
sky130_osu_sc_18T_hs__inv_3	**A**	0.00000	0.00000	0.00000
	A	-0.00558	-0.00493	-0.00006
sky130_osu_sc_18T_hs__inv_4	**A**	0.00000	0.00000	0.00000
	A	-0.00850	-0.00763	-0.00099
sky130_osu_sc_18T_hs__inv_6	**A**	0.00000	0.00000	0.00000
	A	-0.01293	-0.01143	-0.00140
sky130_osu_sc_18T_hs__inv_8	**A**	0.00000	0.00000	0.00000
	A	-0.01710	-0.01532	-0.00157
sky130_osu_sc_18T_hs__inv_l	**A**	0.00000	0.00000	0.00000
	A	-0.00095	-0.00088	0.00015

SKY130_OSU_SC_18T_HS__MUX2

sky130_osu_sc_18T_hs_tt_1P62_25C.ccs
Cell Library: Process , Voltage 1.62,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_hs__mux2_1	18.31500

Pin Capacitance Information

Cell Name	Pin Cap(pf)			Max Cap(pf)
	A0	A1	S0	Y
sky130_osu_sc_18T_hs__mux2_1	0.55724	0.55754	0.01074	0.56636

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__mux2_1	0.00000	0.15010	0.15010

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)	-	0.01455	0.26600	2.65230
	A1->Y (RR)	-	0.01592	0.26583	2.65859
	S0->Y (RR)	(!A0 * A1)	0.04577	0.26949	1.21651
	S0->Y (FR)	(A0 * !A1)	0.04426	0.41363	3.64710

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)	-	0.01367	0.26737	2.72476
	A1->Y (FF)	-	0.01339	0.26567	2.71440
	S0->Y (FF)	(!A0 * A1)	0.06506	0.38275	2.66753
	S0->Y (RF)	(A0 * !A1)	0.02558	0.29647	2.38998

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	-	-0.00651	-0.00651	-0.00653
	A1	-	0.00000	0.00000	0.00000
	A1	-	-0.00451	-0.00451	-0.00452
	S0	(A0 * !A1)	0.00000	0.00000	0.00000
	S0	(A0 * !A1)	0.00693	0.00841	0.04267
	S0	(!A0 * A1)	0.00000	0.00000	0.00000
	S0	(!A0 * A1)	-0.00436	-0.00411	0.02863

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	-	0.00651	0.00651	0.00653
	A1	-	0.00000	0.00000	0.00000
	A1	-	0.00451	0.00451	0.00452
	S0	(A0 * !A1)	0.00000	0.00000	0.00000
	S0	(A0 * !A1)	0.00133	0.00163	0.03515
	S0	(!A0 * A1)	0.00000	0.00000	0.00000
	S0	(!A0 * A1)	0.01632	0.01748	0.05094

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)	-0.00166	-0.00165	-0.00165

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)	0.00166	0.00165	0.00165

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)	-0.00196	-0.00195	-0.00196

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)	0.00196	0.00195	0.00196

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)	-0.00155	-0.00128	0.03192
	(!A0 * !A1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !Y)	-0.00150	-0.00120	0.03211

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)	0.01216	0.01330	0.04701
	(!A0 * !A1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !Y)	0.01108	0.01243	0.04657

SKY130_OSU_SC_18T_HS__NAND2x

sky130_osu_sc_18T_hs_tt_1P62_25C.ccs
Cell Library: Process , Voltage 1.62,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_hs__nand2_1	9.52380
sky130_osu_sc_18T_hs__nand2_l	9.52380

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	B	Y
sky130_osu_sc_18T_hs__nand2_1	0.00530	0.00529	2.40146
sky130_osu_sc_18T_hs__nand2_l	0.00410	0.00409	1.63540

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__nand2_1	0.00000	0.07474	0.28909
sky130_osu_sc_18T_hs__nand2_l	0.00000	0.05313	0.20142

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)	0.03046	0.75414	11.15250
	B->Y (FR)	0.03582	0.75148	11.03430
sky130_osu_sc_18T_hs__nand2_l	A->Y (FR)	0.03439	0.82116	11.12950
	B->Y (FR)	0.04090	0.82388	11.09340

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)	0.02999	0.69195	10.34610
	B->Y (RF)	0.03427	0.66920	9.94454
sky130_osu_sc_18T_hs__nand2_l	A->Y (RF)	0.03324	0.73756	10.01620
	B->Y (RF)	0.03720	0.71364	9.54837

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	0.00640	0.00674	0.00891
	B	0.00000	0.00000	0.00000
	B	0.00808	0.00835	0.01187
sky130_osu_sc_18T_hs__nand2_1	A	0.00000	0.00000	0.00000
	A	0.00492	0.00505	0.00399
	B	0.00000	0.00000	0.00000
	B	0.00616	0.00626	0.00745

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	-0.00089	-0.00087	0.00053
	B	0.00000	0.00000	0.00000
	B	-0.00082	-0.00088	0.00008
sky130_osu_sc_18T_hs__nand2_1	A	0.00000	0.00000	0.00000
	A	-0.00068	-0.00067	0.00028
	B	0.00000	0.00000	0.00000
	B	-0.00064	-0.00068	0.00001

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)	-0.00451	-0.00453	-0.00454
sky130_osu_sc_18T_hs__nand2_l	(!B * Y)	0.00000	0.00000	0.00000
	(!B * Y)	-0.00330	-0.00332	-0.00333

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)	0.00453	0.00457	0.00455
sky130_osu_sc_18T_hs__nand2_l	(!B * Y)	0.00000	0.00000	0.00000
	(!B * Y)	0.00332	0.00335	0.00334

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)	-0.00421	-0.00422	-0.00421
sky130_osu_sc_18T_hs__nand2_l	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00308	-0.00310	-0.00309

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)	0.00428	0.00426	0.00422
sky130_osu_sc_18T_hs__nand2_l	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00315	0.00313	0.00310

SKY130_OSU_SC_18T_HS__NOR2x

sky130_osu_sc_18T_hs_tt_1P62_25C.ccs
Cell Library: Process , Voltage 1.62,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_hs__nor2_1	9.52380
sky130_osu_sc_18T_hs__nor2_l	9.52380

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	B	Y
sky130_osu_sc_18T_hs__nor2_1	0.00530	0.00561	1.25243
sky130_osu_sc_18T_hs__nor2_l	0.00402	0.00436	0.86203

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__nor2_1	0.00000	0.05249	0.14455
sky130_osu_sc_18T_hs__nor2_l	0.00000	0.03981	0.10071

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)	0.06299	0.89676	11.03070
	B->Y (FR)	0.04712	0.86850	10.90840
sky130_osu_sc_18T_hs__nor2_l	A->Y (FR)	0.07061	0.98534	10.98500
	B->Y (FR)	0.05659	0.96680	11.01480

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)	0.02858	0.46032	5.66518
	B->Y (RF)	0.02272	0.44809	5.64501
sky130_osu_sc_18T_hs__nor2_l	A->Y (RF)	0.03026	0.48643	5.56124
	B->Y (RF)	0.02500	0.47927	5.54398

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	0.00866	0.00860	0.01036
	B	0.00000	0.00000	0.00000
	B	0.00649	0.00668	0.01231
sky130_osu_sc_18T_hs__nor2_l	A	0.00000	0.00000	0.00000
	A	0.00635	0.00628	0.00751
	B	0.00000	0.00000	0.00000
	B	0.00496	0.00507	0.00837

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	0.00100	0.00079	0.00296
	B	0.00000	0.00000	0.00000
	B	-0.00103	-0.00092	0.00121
sky130_osu_sc_18T_hs__nor2_l	A	0.00000	0.00000	0.00000
	A	0.00066	0.00056	0.00203
	B	0.00000	0.00000	0.00000
	B	-0.00070	-0.00066	0.00082

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)	-0.00341	-0.00401	-0.00406
sky130_osu_sc_18T_hs__nor2_l	(B * !Y)	0.00000	0.00000	0.00000
	(B * !Y)	-0.00247	-0.00286	-0.00289

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)	0.00402	0.00408	0.00406
sky130_osu_sc_18T_hs__nor2_l	(B * !Y)	0.00000	0.00000	0.00000
	(B * !Y)	0.00287	0.00290	0.00289

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)	-0.00199	-0.00201	-0.00200
sky130_osu_sc_18T_hs__nor2_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	-0.00148	-0.00149	-0.00149

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)	0.00210	0.00212	0.00204
sky130_osu_sc_18T_hs__nor2_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00156	0.00157	0.00151

SKY130_OSU_SC_18T_HS__OAI21

sky130_osu_sc_18T_hs_tt_1P62_25C.ccs
Cell Library: Process , Voltage 1.62,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_hs__oai21_l	12.45420

Pin Capacitance Information

Cell Name	Pin Cap(pf)			Max Cap(pf)
	A0	A1	B0	Y
sky130_osu_sc_18T_hs__oai21_l	0.00537	0.00543	0.00454	1.26948

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__oai21_l	0.00000	0.06578	0.24526

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)	0.06387	0.89488	11.08420
	A1->Y (FR)	0.08393	0.92860	11.21720
	B0->Y (FR)	0.04248	0.75198	9.62184

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)	0.04287	0.56202	6.86869
	A1->Y (RF)	0.05090	0.56060	6.72962
	B0->Y (RF)	0.03317	0.59820	7.56801

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	0.00895	0.00911	0.01390
	A1	0.00000	0.00000	0.00000
	A1	0.01113	0.01100	0.01257
	B0	0.00755	0.00716	0.01139

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	0.00032	0.00017	0.00147
	A1	0.00000	0.00000	0.00000
	A1	0.00232	0.00200	0.00329
	B0	0.00085	0.00085	0.00260

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)	-0.00200	-0.00201	-0.00201
	(A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * Y)	-0.00399	-0.00405	-0.00406
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00412	-0.00415	-0.00413

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)	0.00211	0.00212	0.00204
	(A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * Y)	0.00404	0.00405	0.00406
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00415	0.00417	0.00414

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)	-0.00335	-0.00395	-0.00399
	(A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * Y)	-0.00396	-0.00405	-0.00403
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	-0.00408	-0.00411	-0.00409

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)	0.00396	0.00397	0.00399
	(A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * Y)	0.00401	0.00406	0.00403
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	0.00411	0.00413	0.00411

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)	-0.00336	-0.00339	-0.00343

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)	0.00343	0.00345	0.00344

SKY130_OSU_SC_18T_HS__OAI22

sky130_osu_sc_18T_hs_tt_1P62_25C.ccs
Cell Library: Process , Voltage 1.62,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_hs__oai22_l	15.38460

Pin Capacitance Information

Cell Name	Pin Cap(pf)				Max Cap(pf)
	A0	A1	B0	B1	Y
sky130_osu_sc_18T_hs__oai22_l	0.00521	0.00548	0.00560	0.00548	1.26456

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__oai22_l	0.00000	0.07836	0.28909

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)	0.09036	0.92996	11.14760
	A1->Y (FR)	0.07450	0.89955	11.02310
	B0->Y (FR)	0.05362	0.87987	11.01820
	B1->Y (FR)	0.06982	0.91035	11.14580

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)	0.07328	0.60747	6.98592
	A1->Y (RF)	0.05806	0.58395	6.89353
	B0->Y (RF)	0.04850	0.61786	7.57645
	B1->Y (RF)	0.06494	0.64838	7.81594

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	0.01445	0.01433	0.01580
	A1	0.01227	0.01240	0.01711
	B0	0.00916	0.00940	0.01408
	B1	0.01143	0.01132	0.01282

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__oai22_l	A0	0.00380	0.00350	0.00468
	A1	-0.00036	-0.00049	0.00082
	B0	-0.00041	-0.00042	0.00158
	B1	0.00382	0.00357	0.00529

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)	-0.00340	-0.00401	-0.00406
	(A1 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * B1 * !Y)	-0.00340	-0.00401	-0.00406
	(A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * !B1 * Y)	-0.00397	-0.00405	-0.00404
	(!A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * !B1 * Y)	-0.00409	-0.00411	-0.00410

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)	0.00402	0.00408	0.00406
	(A1 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * B1 * !Y)	0.00402	0.00408	0.00406
	(A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * !B1 * Y)	0.00401	0.00406	0.00404
	(!A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * !B1 * Y)	0.00411	0.00414	0.00411

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)	-0.00198	-0.00200	-0.00199
	(A0 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * B1 * !Y)	-0.00198	-0.00200	-0.00199
	(A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * !B1 * Y)	-0.00396	-0.00403	-0.00402
	(!A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * !B1 * Y)	-0.00408	-0.00410	-0.00409

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)	0.00209	0.00211	0.00203
	(A0 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * B1 * !Y)	0.00209	0.00211	0.00203
	(A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * !B1 * Y)	0.00399	0.00403	0.00402
	(!A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * !B1 * Y)	0.00410	0.00412	0.00410

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)	-0.00197	-0.00199	-0.00198
	(A0 * !A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B1 * !Y)	-0.00197	-0.00199	-0.00198
	(!A0 * !A1 * B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B1 * Y)	-0.00437	-0.00444	-0.00443
	(!A0 * !A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B1 * Y)	-0.00441	-0.00440	-0.00451

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)	0.00208	0.00210	0.00201
	(A0 * !A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B1 * !Y)	0.00208	0.00210	0.00201
	(!A0 * !A1 * B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B1 * Y)	0.00442	0.00444	0.00443
	(!A0 * !A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B1 * Y)	0.00450	0.00454	0.00452

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)	-0.00336	-0.00396	-0.00400
	(A0 * !A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B0 * !Y)	-0.00336	-0.00396	-0.00400
	(!A0 * !A1 * B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B0 * Y)	-0.00444	-0.00452	-0.00450
	(!A0 * !A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B0 * Y)	-0.00447	-0.00450	-0.00456

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)	0.00397	0.00401	0.00400
	(A0 * !A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B0 * !Y)	0.00397	0.00401	0.00400
	(!A0 * !A1 * B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B0 * Y)	0.00449	0.00458	0.00450
	(!A0 * !A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B0 * Y)	0.00456	0.00459	0.00458

SKY130_OSU_SC_18T_HS__OR2x

sky130_osu_sc_18T_hs_tt_1P62_25C.ccs
Cell Library: Process , Voltage 1.62,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_hs__or2_1	12.45420
sky130_osu_sc_18T_hs__or2_2	15.38460
sky130_osu_sc_18T_hs__or2_4	21.24540
sky130_osu_sc_18T_hs__or2_8	32.96700
sky130_osu_sc_18T_hs__or2_l	12.45420

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	B	Y
sky130_osu_sc_18T_hs__or2_1	0.00564	0.00543	2.49498
sky130_osu_sc_18T_hs__or2_2	0.00564	0.00543	4.84934
sky130_osu_sc_18T_hs__or2_4	0.00564	0.00543	9.26126
sky130_osu_sc_18T_hs__or2_8	0.00564	0.00545	17.52202
sky130_osu_sc_18T_hs__or2_l	0.00443	0.00418	1.71242

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__or2_1	0.00000	0.09253	0.15496
sky130_osu_sc_18T_hs__or2_2	0.00000	0.13257	0.29950
sky130_osu_sc_18T_hs__or2_4	0.00000	0.21265	0.58859
sky130_osu_sc_18T_hs__or2_8	0.00000	0.37282	1.16676
sky130_osu_sc_18T_hs__or2_l	0.00000	0.06922	0.11200

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)	0.06732	0.56500	6.31948
	B->Y (RR)	0.05938	0.53324	6.32457
sky130_osu_sc_18T_hs__or2_2	A->Y (RR)	0.07435	0.50607	6.39146
	B->Y (RR)	0.06604	0.47932	6.37595
sky130_osu_sc_18T_hs__or2_4	A->Y (RR)	0.09704	0.50781	6.66985
	B->Y (RR)	0.08851	0.48630	6.63208
sky130_osu_sc_18T_hs__or2_8	A->Y (RR)	0.13915	0.56287	7.08663
	B->Y (RR)	0.13037	0.54680	7.04273
sky130_osu_sc_18T_hs__or2_l	A->Y (RR)	0.07399	0.64441	6.45322
	B->Y (RR)	0.06654	0.61630	6.42336

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)	0.11324	0.65570	6.64480
	B->Y (FF)	0.09209	0.61381	6.54278
sky130_osu_sc_18T_hs__or2_2	A->Y (FF)	0.13551	0.64465	6.77485
	B->Y (FF)	0.11455	0.61050	6.62638
sky130_osu_sc_18T_hs__or2_4	A->Y (FF)	0.19004	0.69591	7.07628
	B->Y (FF)	0.16910	0.67126	6.89567
sky130_osu_sc_18T_hs__or2_8	A->Y (FF)	0.30228	0.82002	7.42613
	B->Y (FF)	0.28141	0.79535	7.23102
sky130_osu_sc_18T_hs__or2_l	A->Y (FF)	0.12474	0.69809	6.39272
	B->Y (FF)	0.10382	0.66525	6.30850

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	0.00672	0.00637	0.02041
	B	0.00000	0.00000	0.00000
	B	0.00479	0.00501	0.02718
sky130_osu_sc_18T_hs__or2_2	A	0.00000	0.00000	0.00000
	A	0.01152	0.01153	0.02588
	B	0.00000	0.00000	0.00000
	B	0.00953	0.01017	0.03160
sky130_osu_sc_18T_hs__or2_4	A	0.00000	0.00000	0.00000
	A	0.02184	0.02259	0.03615
	B	0.00000	0.00000	0.00000
	B	0.01981	0.02144	0.04082
sky130_osu_sc_18T_hs__or2_8	A	0.00000	0.00000	0.00000
	A	0.04301	0.04441	0.05885
	B	0.00000	0.00000	0.00000
	B	0.04101	0.04334	0.06205
sky130_osu_sc_18T_hs__or2_l	A	0.00000	0.00000	0.00000
	A	0.00498	0.00456	0.01396
	B	0.00000	0.00000	0.00000
	B	0.00371	0.00374	0.01773

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	0.01411	0.01404	0.02660
	B	0.00000	0.00000	0.00000
	B	0.01166	0.01312	0.04149
sky130_osu_sc_18T_hs__or2_2	A	0.00000	0.00000	0.00000
	A	0.01740	0.01781	0.03009
	B	0.00000	0.00000	0.00000
	B	0.01489	0.01672	0.04383
sky130_osu_sc_18T_hs__or2_4	A	0.00000	0.00000	0.00000
	A	0.02611	0.02685	0.03864
	B	0.00000	0.00000	0.00000
	B	0.02365	0.02537	0.05078
sky130_osu_sc_18T_hs__or2_8	A	0.00000	0.00000	0.00000
	A	0.04690	0.04470	0.05592
	B	0.00000	0.00000	0.00000
	B	0.04445	0.04417	0.06656
sky130_osu_sc_18T_hs__or2_l	A	0.00000	0.00000	0.00000
	A	0.01074	0.01060	0.01896
	B	0.00000	0.00000	0.00000
	B	0.00903	0.00986	0.02720

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)	-0.00343	-0.00403	-0.00408
sky130_osu_sc_18T_hs__or2_2	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00343	-0.00403	-0.00408
sky130_osu_sc_18T_hs__or2_4	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00343	-0.00403	-0.00408
sky130_osu_sc_18T_hs__or2_8	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00343	-0.00403	-0.00407
sky130_osu_sc_18T_hs__or2_l	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00249	-0.00288	-0.00290

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)	0.00404	0.00410	0.00408
sky130_osu_sc_18T_hs__or2_2	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00404	0.00410	0.00408
sky130_osu_sc_18T_hs__or2_4	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00404	0.00413	0.00408
sky130_osu_sc_18T_hs__or2_8	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00404	0.00410	0.00407
sky130_osu_sc_18T_hs__or2_l	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00288	0.00291	0.00290

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)	-0.00201	-0.00201	-0.00201
sky130_osu_sc_18T_hs__or2_2	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00200	-0.00202	-0.00201
sky130_osu_sc_18T_hs__or2_4	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00200	-0.00202	-0.00201
sky130_osu_sc_18T_hs__or2_8	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00200	-0.00202	-0.00201
sky130_osu_sc_18T_hs__or2_l	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00152	-0.00151	-0.00151

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)	0.00213	0.00213	0.00205
sky130_osu_sc_18T_hs__or2_2	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00212	0.00213	0.00205
sky130_osu_sc_18T_hs__or2_4	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00212	0.00214	0.00205
sky130_osu_sc_18T_hs__or2_8	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00212	0.00214	0.00205
sky130_osu_sc_18T_hs__or2_l	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00158	0.00160	0.00154

SKY130_OSU_SC_18T_HS__TBUFIx

sky130_osu_sc_18T_hs_tt_1P62_25C.ccs
Cell Library: Process , Voltage 1.62,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_hs__tbufi_1	12.45420
sky130_osu_sc_18T_hs__tbufi_l	12.45420

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	OE	Y
sky130_osu_sc_18T_hs__tbufi_1	0.00561	0.00709	1.25133
sky130_osu_sc_18T_hs__tbufi_l	0.00437	0.00554	0.86276

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__tbufi_1	0.00000	0.07714	0.28909
sky130_osu_sc_18T_hs__tbufi_l	0.00000	0.05584	0.20143

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)	0.04541	0.86510	10.89470
	OE->Y (FR)	0.04942	0.34185	4.73401
	OE->Y (RR)	0.08225	0.66960	6.45046
sky130_osu_sc_18T_hs__tbufi_l	A->Y (FR)	0.05474	0.96713	11.03220
	OE->Y (FR)	0.05327	0.34169	4.73371
	OE->Y (RR)	0.09073	0.77602	6.56717

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)	0.02922	0.55025	6.93020
	OE->Y (FF)	0.04984	0.34184	4.73385
	OE->Y (RF)	0.02794	0.51926	6.47776
sky130_osu_sc_18T_hs__tbufi_l	A->Y (RF)	0.03278	0.58831	6.80308
	OE->Y (FF)	0.05402	0.34168	4.73362
	OE->Y (RF)	0.03188	0.55428	6.29259

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	0.00613	0.00644	0.01136
	OE	0.00000	0.00000	0.00000
	OE	0.00623	0.00650	0.03561
sky130_osu_sc_18T_hs__tbufi_l	A	0.00000	0.00000	0.00000
	A	0.00471	0.00481	0.00783
	OE	0.00000	0.00000	0.00000
	OE	0.00446	0.00453	0.02261

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	-0.00105	-0.00097	0.00097
	OE	0.00000	0.00000	0.00000
	OE	0.00431	0.00461	0.03789
sky130_osu_sc_18T_hs__tbufi_l	A	0.00000	0.00000	0.00000
	A	-0.00071	-0.00067	0.00068
	OE	0.00000	0.00000	0.00000
	OE	0.00302	0.00309	0.02327

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)	-0.00324	-0.00330	-0.00326
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	-0.00289	-0.00293	-0.00290
sky130_osu_sc_18T_hs__tbufi_l	(!OE * Y)	0.00000	0.00000	0.00000
	(!OE * Y)	-0.00249	-0.00250	-0.00250
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	-0.00226	-0.00229	-0.00227

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)	0.00324	0.00330	0.00326
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	0.00297	0.00299	0.00294
sky130_osu_sc_18T_hs__tbufi_l	(!OE * Y)	0.00000	0.00000	0.00000
	(!OE * Y)	0.00249	0.00250	0.00250
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	0.00231	0.00232	0.00229

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__tbufi_1	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00255	0.00290	0.03688
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00229	0.00264	0.03654
sky130_osu_sc_18T_hs__tbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00175	0.00187	0.02241
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00156	0.00167	0.02217

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)	0.00716	0.00806	0.04232
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00716	0.00818	0.04244
sky130_osu_sc_18T_hs__tbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00566	0.00604	0.02691
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00569	0.00614	0.02700

SKY130_OSU_SC_18T_HS__TNBUFIx

sky130_osu_sc_18T_hs_tt_1P62_25C.ccs
Cell Library: Process , Voltage 1.62,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_hs__tnbufi_1	12.45420
sky130_osu_sc_18T_hs__tnbufi_l	12.45420

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	OE	Y
sky130_osu_sc_18T_hs__tnbufi_1	0.00560	0.00879	1.30052
sky130_osu_sc_18T_hs__tnbufi_l	0.00436	0.00662	0.86272

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__tnbufi_1	0.00000	0.12358	0.14975
sky130_osu_sc_18T_hs__tnbufi_l	0.00000	0.08753	0.10636

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)	0.04579	0.87794	11.15980
	OE->Y (RR)	0.02705	0.34280	4.73490
	OE->Y (FR)	0.05965	0.90631	11.28770
sky130_osu_sc_18T_hs__tnbufi_l	A->Y (FR)	0.05523	0.96710	11.03180
	OE->Y (RR)	0.02809	0.34308	4.73526
	OE->Y (FR)	0.06722	0.98432	11.00490

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)	0.02882	0.55797	7.09303
	OE->Y (RF)	0.02677	0.34279	4.73492
	OE->Y (FF)	0.05350	0.50947	5.13046
sky130_osu_sc_18T_hs__tnbufi_l	A->Y (RF)	0.03229	0.58812	6.80276
	OE->Y (RF)	0.02779	0.34308	4.73527
	OE->Y (FF)	0.06025	0.54602	4.77909

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	0.00628	0.00659	0.01150
	OE	0.00000	0.00000	0.00000
	OE	0.01535	0.01706	0.05223
sky130_osu_sc_18T_hs__tnbufi_l	A	0.00000	0.00000	0.00000
	A	0.00487	0.00496	0.00798
	OE	0.00000	0.00000	0.00000
	OE	0.01149	0.01239	0.03395

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	-0.00125	-0.00117	0.00074
	OE	0.00000	0.00000	0.00000
	OE	0.01369	0.01568	0.04648
sky130_osu_sc_18T_hs__tnbufi_l	A	0.00000	0.00000	0.00000
	A	-0.00091	-0.00086	0.00049
	OE	0.00000	0.00000	0.00000
	OE	0.01023	0.01135	0.02974

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)	-0.00280	-0.00284	-0.00281
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	-0.00248	-0.00251	-0.00249
sky130_osu_sc_18T_hs__tnbufi_l	(OE * Y)	0.00000	0.00000	0.00000
	(OE * Y)	-0.00207	-0.00210	-0.00207
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	-0.00186	-0.00188	-0.00187

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)	0.00280	0.00284	0.00281
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	0.00255	0.00257	0.00253
sky130_osu_sc_18T_hs__tnbufi_l	(OE * Y)	0.00000	0.00000	0.00000
	(OE * Y)	0.00207	0.00210	0.00207
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	0.00190	0.00191	0.00188

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)	-0.00471	-0.00473	0.03005
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00472	-0.00464	0.03009
sky130_osu_sc_18T_hs__tnbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	-0.00337	-0.00343	0.01756
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00336	-0.00347	0.01759

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)	0.01164	0.01355	0.04864
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.01146	0.01334	0.04847
sky130_osu_sc_18T_hs__tnbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00876	0.00979	0.03122
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00864	0.00964	0.03115

SKY130_OSU_SC_18T_HS__XNOR2

sky130_osu_sc_18T_hs_tt_1P62_25C.ccs
Cell Library: Process , Voltage 1.62,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_hs__xnor2_l	21.24540

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	B	Y
sky130_osu_sc_18T_hs__xnor2_l	0.01109	0.01012	1.30944

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__xnor2_l	0.00000	0.25335	0.43884

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	0.10410	0.72078	6.80319
	A->Y (FR)	!B	0.05906	0.88943	11.15710
	B->Y (RR)	A	0.08148	0.69635	6.80633
	B->Y (FR)	!A	0.08160	0.92454	11.29870

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	0.09316	0.60089	5.52505
	A->Y (RF)	!B	0.04269	0.55422	6.86158
	B->Y (FF)	A	0.08308	0.59163	5.52745
	B->Y (RF)	!A	0.05236	0.56728	6.86611

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	0.00600	0.00607	0.03576
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.01479	0.01647	0.05444
	B	A	0.00000	0.00000	0.00000
	B	A	0.00187	0.00228	0.03583
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01643	0.01750	0.05232

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	0.01908	0.01991	0.05256
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00432	0.00438	0.03789
	B	A	0.00000	0.00000	0.00000
	B	A	0.01718	0.01858	0.05253
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00575	0.00566	0.03903

SKY130_OSU_SC_18T_HS__XOR2

sky130_osu_sc_18T_hs_tt_1P62_25C.ccs
Cell Library: Process , Voltage 1.62,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_hs__xor2_1	21.24540

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	B	Y
sky130_osu_sc_18T_hs__xor2_1	0.01107	0.01017	1.27190

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__xor2_1	0.00000	0.25335	0.39576

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	0.09793	0.69549	6.62935
	A->Y (FR)	B	0.07434	0.91200	11.17570
	B->Y (RR)	!A	0.08453	0.69129	6.64772
	B->Y (FR)	A	0.07966	0.91713	11.15730

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	0.08198	0.57561	5.19078
	A->Y (RF)	B	0.04041	0.57153	7.00748
	B->Y (FF)	!A	0.07685	0.57151	5.27081
	B->Y (RF)	A	0.04875	0.54708	6.56359

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	0.01762	0.01885	0.05484
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00290	0.00216	0.03486
	B	A	0.00000	0.00000	0.00000
	B	A	0.01804	0.01935	0.05482
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00162	0.00190	0.03545

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	0.00382	0.00371	0.03861
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.01941	0.02107	0.05119
	B	A	0.00000	0.00000	0.00000
	B	A	0.00385	0.00369	0.03766
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01744	0.01937	0.05334

SKY130_OSU_SC_18T_HS_x

sky130_osu_sc_18T_hs_tt_1P62_25C.ccs
Cell Library: Process , Voltage 1.62,
Temp 25.00

Truth Table

INPUT
A
x

Footprint

Cell Name	Area
sky130_osu_sc_18T_hs__ant	6.59340
sky130_osu_sc_18T_hs__tiehi	6.59340
sky130_osu_sc_18T_hs__tielo	6.59340

Pin Capacitance Information

Cell Name	Pin Cap(pf)
	A
sky130_osu_sc_18T_hs__ant	0.68642
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	274720.00000	549440.00000
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
	-0.00227	0.06790	0.91955

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
	4.78079	4.52891	1.13028