sky130_osu_sc_18T_hs_tt_1P50_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_1P50_25C.ccs
Cell Library: Process , Voltage 1.50,
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	0.02003	0.02003	0.01539	2.17575	0.98260	2.08647
sky130_osu_sc_18T_hs__addf_l	0.02002	0.02002	0.01541	1.48185	0.98407	1.48097

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__addf_1	0.00000	0.22147	0.29323
sky130_osu_sc_18T_hs__addf_l	0.00000	0.19785	0.26961

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)	0.16076	1.78654	24.95390
	B->CO (RR)	0.14182	1.69861	23.85560
	CI->CO (RR)	0.15328	1.81718	25.49730
	CON->CO (FR)	0.03274	0.81971	11.73630
sky130_osu_sc_18T_hs__addf_l	A->CO (RR)	0.16336	1.67439	20.37720
	B->CO (RR)	0.14479	1.59935	19.62600
	CI->CO (RR)	0.15584	1.70571	20.95060
	CON->CO (FR)	0.03770	0.89506	11.74580

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)	0.24116	2.38029	32.81200
	B->CO (FF)	0.21528	2.28217	31.58860
	CI->CO (FF)	0.20939	2.32648	32.57840
	CON->CO (RF)	0.02477	0.60728	8.70411
sky130_osu_sc_18T_hs__addf_l	A->CO (FF)	0.23705	2.12240	25.45730
	B->CO (FF)	0.21144	2.03899	24.60910
	CI->CO (FF)	0.20510	2.06864	25.25640
	CON->CO (RF)	0.02645	0.62607	8.26127

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)	0.18533	1.12098	11.62250
	B->CON (FR)	0.16057	1.06190	11.25970
	CI->CON (FR)	0.15361	1.06793	11.45400
sky130_osu_sc_18T_hs__addf_l	A->CON (FR)	0.17596	1.11236	11.62490
	B->CON (FR)	0.15196	1.05372	11.26110
	CI->CON (FR)	0.14420	1.05921	11.45550

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)	0.09309	0.62870	6.64062
	B->CON (RF)	0.08724	0.62665	6.76523
	CI->CON (RF)	0.08558	0.66186	7.25552
sky130_osu_sc_18T_hs__addf_l	A->CON (RF)	0.08960	0.62543	6.64265
	B->CON (RF)	0.08408	0.62382	6.76718
	CI->CON (RF)	0.08207	0.65864	7.25758

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)	0.34785	2.22324	26.05670
	B->S (-R)	0.34905	2.20862	25.34040
	CI->S (-R)	0.31348	2.16302	25.82570
	CON->S (RR)	0.09353	0.70133	7.19309
sky130_osu_sc_18T_hs__addf_l	A->S (-R)	0.33421	2.07007	21.95230
	B->S (-R)	0.33587	2.06507	21.50830
	CI->S (-R)	0.29963	2.01047	21.73910
	CON->S (RR)	0.09462	0.76029	7.20776

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)	0.26728	1.58172	17.39910
	B->S (-F)	0.27140	1.52166	16.76440
	CI->S (-F)	0.25910	1.60787	17.93910
	CON->S (FF)	0.11420	0.72527	6.67428
sky130_osu_sc_18T_hs__addf_l	A->S (-F)	0.25343	1.44517	14.40090
	B->S (-F)	0.24550	1.37500	14.02570
	CI->S (-F)	0.24509	1.47270	14.96530
	CON->S (FF)	0.10982	0.73094	6.35894

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	0.00278	0.00297	0.00719
	B	0.00433	0.00437	0.00758
	CI	0.00440	0.00467	0.00897
sky130_osu_sc_18T_hs__addf_l	A	0.00210	0.00218	0.00508
	B	0.00366	0.00357	0.00579
	CI	0.00372	0.00386	0.00662

Internal switching power(pJ) to CO falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__addf_1	A	0.01158	0.01193	0.02024
	B	0.01229	0.01265	0.01960
	CI	0.00973	0.01005	0.01877
sky130_osu_sc_18T_hs__addf_l	A	0.01091	0.01110	0.01639
	B	0.01161	0.01183	0.01607
	CI	0.01007	0.01055	0.01514

Internal switching power(pJ) to CON rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__addf_1	A	0.01157	0.01176	0.01491
	B	0.01226	0.01250	0.01489
	CI	0.01074	0.01119	0.01404
sky130_osu_sc_18T_hs__addf_l	A	0.01090	0.01103	0.01422
	B	0.01159	0.01178	0.01416
	CI	0.01006	0.01048	0.01333

Internal switching power(pJ) to CON falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__addf_1	A	0.00277	0.00288	0.00483
	B	0.00428	0.00422	0.00587
	CI	0.00439	0.00456	0.00668
sky130_osu_sc_18T_hs__addf_l	A	0.00209	0.00214	0.00400
	B	0.00361	0.00349	0.00505
	CI	0.00371	0.00381	0.00585

Internal switching power(pJ) to S rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__addf_1	A	0.01158	0.01188	0.01986
	B	0.01228	0.01264	0.01916
	CI	0.00973	0.01004	0.01826
sky130_osu_sc_18T_hs__addf_l	A	0.01091	0.01110	0.01643
	B	0.01161	0.01183	0.01611
	CI	0.01007	0.01055	0.01511

Internal switching power(pJ) to S falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__addf_1	A	0.02599	0.02616	0.02940
	B	0.02326	0.02299	0.03207
	CI	0.02111	0.02115	0.02471
sky130_osu_sc_18T_hs__addf_l	A	0.02506	0.02504	0.02834
	B	0.02234	0.02203	0.03143
	CI	0.02018	0.02018	0.02379

SKY130_OSU_SC_18T_HS__ADDHx

sky130_osu_sc_18T_hs_tt_1P50_25C.ccs
Cell Library: Process , Voltage 1.50,
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	0.00983	0.01076	2.10787	1.05024	2.15076
sky130_osu_sc_18T_hs__addh_l	0.00983	0.01076	1.29456	1.04007	1.29340

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__addh_1	0.00000	0.25173	0.28922
sky130_osu_sc_18T_hs__addh_l	0.00000	0.17456	0.22833

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)	0.11104	0.71347	6.97007
	B->CO (RR)	0.11507	0.71147	7.04254
sky130_osu_sc_18T_hs__addh_l	A->CO (RR)	0.11178	0.79683	7.01310
	B->CO (RR)	0.11588	0.79842	7.08244

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)	0.09832	0.69573	6.63550
	B->CO (FF)	0.10499	0.70989	6.66429
sky130_osu_sc_18T_hs__addh_l	A->CO (FF)	0.09635	0.72036	6.27373
	B->CO (FF)	0.10288	0.73498	6.30222

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	0.15347	0.59111	3.57789
	A->CON (FR)	!B	0.10350	1.00245	11.40610
	B->CON (RR)	A	0.15739	0.58884	3.65359
	B->CON (FR)	!A	0.12804	1.05251	11.66320
sky130_osu_sc_18T_hs__addh_l	A->CON (RR)	B	0.13751	0.56129	3.47225
	A->CON (FR)	!B	0.09176	0.98668	11.30840
	B->CON (RR)	A	0.14148	0.56207	3.54254
	B->CON (FR)	!A	0.11631	1.03659	11.58340

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	0.14453	0.73676	5.63861
	A->CON (RF)	!B	0.05591	0.62827	7.30924
	B->CON (FF)	A	0.14528	0.76993	5.94910
	B->CON (RF)	!A	0.06540	0.61657	6.99806
sky130_osu_sc_18T_hs__addh_l	A->CON (FF)	B	0.13093	0.70258	5.43233
	A->CON (RF)	!B	0.05161	0.62166	7.26433
	B->CON (FF)	A	0.13159	0.73641	5.74028
	B->CON (RF)	!A	0.06121	0.61019	6.95531

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	0.11618	1.72058	24.65920
	A->S (FR)	B	0.20512	1.80985	22.61870
	B->S (RR)	!A	0.12535	1.66505	23.53710
	B->S (FR)	A	0.20707	1.89129	23.75380
	CON->S (FR)	-	0.03650	0.83899	11.95660
sky130_osu_sc_18T_hs__addh_l	A->S (RR)	!B	0.11565	1.58360	19.11060
	A->S (FR)	B	0.19545	1.65064	17.05090
	B->S (RR)	!A	0.12509	1.53855	18.39230
	B->S (FR)	A	0.19711	1.71694	17.79040
	CON->S (FR)	-	0.04179	0.93483	11.85880

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	0.15074	2.12641	30.42940
	A->S (RF)	B	0.19343	1.37478	16.22990
	B->S (FF)	!A	0.17542	2.18244	30.74090
	B->S (RF)	A	0.19736	1.37207	16.30040
	CON->S (RF)	-	0.02323	0.59226	8.44472
sky130_osu_sc_18T_hs__addh_l	A->S (FF)	!B	0.14263	1.83169	22.08850
	A->S (RF)	B	0.17985	1.20354	11.42700
	B->S (FF)	!A	0.16742	1.88602	22.36230
	B->S (RF)	A	0.18381	1.20394	11.48970
	CON->S (RF)	-	0.02595	0.62879	8.06622

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	0.00535	0.00511	0.00674
	B	0.00000	0.00000	0.00000
	B	0.00483	0.00457	0.00621
sky130_osu_sc_18T_hs__addh_l	A	0.00000	0.00000	0.00000
	A	0.00439	0.00409	0.00678
	B	0.00000	0.00000	0.00000
	B	0.00387	0.00354	0.00599

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	0.00851	0.00831	0.01169
	B	0.00000	0.00000	0.00000
	B	0.00879	0.00898	0.01249
sky130_osu_sc_18T_hs__addh_l	A	0.00000	0.00000	0.00000
	A	0.00754	0.00733	0.01087
	B	0.00000	0.00000	0.00000
	B	0.00782	0.00793	0.01153

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	0.00534	0.00511	0.00721
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00735	0.00740	0.00837
	B	A	0.00000	0.00000	0.00000
	B	A	0.00483	0.00458	0.00665
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00822	0.00818	0.00848
sky130_osu_sc_18T_hs__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.00438	0.00408	0.00663
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00670	0.00671	0.00680
	B	A	0.00000	0.00000	0.00000
	B	A	0.00387	0.00353	0.00599
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00757	0.00748	0.00768

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	0.00850	0.00834	0.01190
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00122	0.00122	0.00150
	B	A	0.00000	0.00000	0.00000
	B	A	0.00879	0.00895	0.01243
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00207	0.00200	0.00234
sky130_osu_sc_18T_hs__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.00754	0.00733	0.01085
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00040	0.00038	0.00064
	B	A	0.00000	0.00000	0.00000
	B	A	0.00783	0.00793	0.01149
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00126	0.00115	0.00134

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	0.00852	0.00833	0.01184
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00123	0.00129	0.00181
	B	A	0.00000	0.00000	0.00000
	B	A	0.00880	0.00899	0.01270
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00210	0.00204	0.00241
sky130_osu_sc_18T_hs__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.00754	0.00735	0.01013
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00041	0.00039	0.00071
	B	A	0.00000	0.00000	0.00000
	B	A	0.00783	0.00794	0.01173
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00128	0.00115	0.00103

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	0.00535	0.00511	0.00682
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00734	0.00747	0.00841
	B	A	0.00000	0.00000	0.00000
	B	A	0.00483	0.00457	0.00618
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00823	0.00826	0.00875
sky130_osu_sc_18T_hs__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.00439	0.00408	0.00669
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00670	0.00671	0.00755
	B	A	0.00000	0.00000	0.00000
	B	A	0.00387	0.00354	0.00656
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00757	0.00750	0.00775

SKY130_OSU_SC_18T_HS__AND2x

sky130_osu_sc_18T_hs_tt_1P50_25C.ccs
Cell Library: Process , Voltage 1.50,
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	0.00530	0.00542	2.14420
sky130_osu_sc_18T_hs__and2_2	0.00530	0.00542	4.15214
sky130_osu_sc_18T_hs__and2_4	0.00531	0.00543	7.96893
sky130_osu_sc_18T_hs__and2_6	0.00534	0.00542	11.64477
sky130_osu_sc_18T_hs__and2_8	0.00532	0.00544	15.05837
sky130_osu_sc_18T_hs__and2_l	0.00413	0.00424	1.48357

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__and2_1	0.00000	0.12038	0.19191
sky130_osu_sc_18T_hs__and2_2	0.00000	0.19182	0.19606
sky130_osu_sc_18T_hs__and2_4	0.00000	0.33471	0.37967
sky130_osu_sc_18T_hs__and2_6	0.00000	0.47761	0.56743
sky130_osu_sc_18T_hs__and2_8	0.00000	0.62050	0.75519
sky130_osu_sc_18T_hs__and2_l	0.00000	0.09067	0.14416

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)	0.08468	0.64187	6.78378
	B->Y (RR)	0.08980	0.64885	6.78957
sky130_osu_sc_18T_hs__and2_2	A->Y (RR)	0.09738	0.59247	6.88023
	B->Y (RR)	0.10247	0.59253	6.88643
sky130_osu_sc_18T_hs__and2_4	A->Y (RR)	0.13382	0.61728	7.25136
	B->Y (RR)	0.13892	0.60677	7.25519
sky130_osu_sc_18T_hs__and2_6	A->Y (RR)	0.16860	0.65805	7.49368
	B->Y (RR)	0.17355	0.64319	7.49625
sky130_osu_sc_18T_hs__and2_8	A->Y (RR)	0.20323	0.70554	7.75410
	B->Y (RR)	0.20827	0.68662	7.74772
sky130_osu_sc_18T_hs__and2_l	A->Y (RR)	0.09375	0.73278	6.90496
	B->Y (RR)	0.09905	0.73607	6.92542

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)**	0.07518	0.61786	6.19406
	B->Y (FF)	0.08007	0.63538	6.24933
sky130_osu_sc_18T_hs__and2_2	**A->Y (FF)**	0.08706	0.60172	6.30983
	B->Y (FF)	0.09264	0.61547	6.36824
sky130_osu_sc_18T_hs__and2_4	**A->Y (FF)**	0.12094	0.63855	6.65270
	B->Y (FF)	0.12661	0.64879	6.70712
sky130_osu_sc_18T_hs__and2_6	**A->Y (FF)**	0.15768	0.68317	6.89901
	B->Y (FF)	0.16321	0.69173	6.94978
sky130_osu_sc_18T_hs__and2_8	**A->Y (FF)**	0.19136	0.72260	7.03551
	B->Y (FF)	0.19714	0.73046	7.08284
sky130_osu_sc_18T_hs__and2_l	**A->Y (FF)**	0.08179	0.66578	6.01109
	B->Y (FF)	0.08787	0.68417	6.08609

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	0.00410	0.00375	0.01456
	B	0.00000	0.00000	0.00000
	B	0.00418	0.00361	0.00989
sky130_osu_sc_18T_hs__and2_2	A	0.00000	0.00000	0.00000
	A	0.00811	0.00811	0.01786
	B	0.00000	0.00000	0.00000
	B	0.00820	0.00797	0.01365
sky130_osu_sc_18T_hs__and2_4	A	0.00000	0.00000	0.00000
	A	0.01682	0.01729	0.02539
	B	0.00000	0.00000	0.00000
	B	0.01688	0.01727	0.02260
sky130_osu_sc_18T_hs__and2_6	A	0.00000	0.00000	0.00000
	A	0.02565	0.02650	0.03515
	B	0.00000	0.00000	0.00000
	B	0.02579	0.02668	0.03217
sky130_osu_sc_18T_hs__and2_8	A	0.00000	0.00000	0.00000
	A	0.03467	0.03564	0.04495
	B	0.00000	0.00000	0.00000
	B	0.03461	0.03569	0.04239
sky130_osu_sc_18T_hs__and2_l	A	0.00000	0.00000	0.00000
	A	0.00304	0.00303	0.00913
	B	0.00000	0.00000	0.00000
	B	0.00312	0.00290	0.00663

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	0.01019	0.01072	0.02183
	B	0.00000	0.00000	0.00000
	B	0.01148	0.01183	0.02227
sky130_osu_sc_18T_hs__and2_2	A	0.00000	0.00000	0.00000
	A	0.01287	0.01385	0.02472
	B	0.00000	0.00000	0.00000
	B	0.01417	0.01494	0.02520
sky130_osu_sc_18T_hs__and2_4	A	0.00000	0.00000	0.00000
	A	0.01957	0.02142	0.03223
	B	0.00000	0.00000	0.00000
	B	0.02090	0.02241	0.03249
sky130_osu_sc_18T_hs__and2_6	A	0.00000	0.00000	0.00000
	A	0.02639	0.02913	0.04006
	B	0.00000	0.00000	0.00000
	B	0.02774	0.02999	0.04007
sky130_osu_sc_18T_hs__and2_8	A	0.00000	0.00000	0.00000
	A	0.03352	0.03651	0.04790
	B	0.00000	0.00000	0.00000
	B	0.03453	0.03721	0.04746
sky130_osu_sc_18T_hs__and2_l	A	0.00000	0.00000	0.00000
	A	0.00792	0.00818	0.01492
	B	0.00000	0.00000	0.00000
	B	0.00889	0.00903	0.01546

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)	-0.00383	-0.00386	-0.00387
sky130_osu_sc_18T_hs__and2_2	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00383	-0.00386	-0.00387
sky130_osu_sc_18T_hs__and2_4	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00383	-0.00386	-0.00387
sky130_osu_sc_18T_hs__and2_6	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00385	-0.00388	-0.00388
sky130_osu_sc_18T_hs__and2_8	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00382	-0.00386	-0.00386
sky130_osu_sc_18T_hs__and2_l	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00285	-0.00287	-0.00287

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)	0.00386	0.00390	0.00388
sky130_osu_sc_18T_hs__and2_2	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00386	0.00389	0.00388
sky130_osu_sc_18T_hs__and2_4	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00386	0.00389	0.00388
sky130_osu_sc_18T_hs__and2_6	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00388	0.00391	0.00390
sky130_osu_sc_18T_hs__and2_8	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00386	0.00389	0.00389
sky130_osu_sc_18T_hs__and2_l	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00286	0.00289	0.00288

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)	-0.00363	-0.00365	-0.00364
sky130_osu_sc_18T_hs__and2_2	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00363	-0.00365	-0.00364
sky130_osu_sc_18T_hs__and2_4	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00363	-0.00364	-0.00364
sky130_osu_sc_18T_hs__and2_6	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00363	-0.00366	-0.00363
sky130_osu_sc_18T_hs__and2_8	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00363	-0.00364	-0.00363
sky130_osu_sc_18T_hs__and2_l	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00270	-0.00272	-0.00270

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)	0.00370	0.00369	0.00365
sky130_osu_sc_18T_hs__and2_2	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00370	0.00369	0.00365
sky130_osu_sc_18T_hs__and2_4	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00370	0.00369	0.00365
sky130_osu_sc_18T_hs__and2_6	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00370	0.00369	0.00366
sky130_osu_sc_18T_hs__and2_8	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00371	0.00369	0.00366
sky130_osu_sc_18T_hs__and2_l	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00276	0.00274	0.00272

SKY130_OSU_SC_18T_HS__AOI21

sky130_osu_sc_18T_hs_tt_1P50_25C.ccs
Cell Library: Process , Voltage 1.50,
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	0.00504	0.00523	0.00506	0.97172

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__aoi21_l	0.00000	0.04663	0.09388

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)	0.09911	1.03249	11.48800
	A1->Y (FR)	0.08546	0.98561	11.14610
	B0->Y (FR)	0.07125	0.98347	11.29890

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)	0.05028	0.56095	6.29366
	A1->Y (RF)	0.04543	0.58322	6.68744
	B0->Y (RF)	0.03090	0.55717	6.61808

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	0.00891	0.00880	0.00909
	A1	0.00000	0.00000	0.00000
	A1	0.00751	0.00733	0.00765
	B0	0.00697	0.00690	0.00665

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	0.00205	0.00176	0.00204
	A1	0.00000	0.00000	0.00000
	A1	0.00208	0.00177	0.00231
	B0	-0.00088	-0.00094	-0.00053

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)	-0.00301	-0.00338	-0.00338
	(!A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !Y)	-0.00343	-0.00346	-0.00344
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00343	-0.00344	-0.00343

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)	0.00335	0.00339	0.00338
	(!A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !Y)	0.00343	0.00346	0.00345
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00350	0.00346	0.00345

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)	-0.00300	-0.00334	-0.00334
	(!A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !Y)	-0.00339	-0.00340	-0.00340
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	-0.00366	-0.00369	-0.00369

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)	0.00332	0.00336	0.00334
	(!A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !Y)	0.00339	0.00344	0.00341
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	0.00369	0.00371	0.00370

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)	-0.00172	-0.00173	-0.00173

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)	0.00192	0.00193	0.00178

SKY130_OSU_SC_18T_HS__AOI22

sky130_osu_sc_18T_hs_tt_1P50_25C.ccs
Cell Library: Process , Voltage 1.50,
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	0.00504	0.00523	0.00540	0.00518	0.94369

Leakage Information

Cell Name	Leakage(nW)		
	Min.	**Avg**	**Max.**
sky130_osu_sc_18T_hs__aoi22_l	0.00000	0.05129	0.18776

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)	0.12591	1.06731	11.48050
	A1->Y (FR)	0.11270	1.03676	11.30480
	B0->Y (FR)	0.07503	0.97578	11.13290
	B1->Y (FR)	0.08841	1.00648	11.35640

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)	0.06556	0.57331	6.20707
	A1->Y (RF)	0.06076	0.59529	6.59796
	B0->Y (RF)	0.03520	0.56401	6.56737
	B1->Y (RF)	0.04010	0.54181	6.17723

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	0.01083	0.01072	0.01104
	A1	0.00944	0.00931	0.00963
	B0	0.00746	0.00735	0.00904
	B1	0.00879	0.00846	0.01042

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__aoi22_l	A0	0.00415	0.00385	0.00409
	A1	0.00419	0.00387	0.00436
	B0	-0.00054	-0.00063	-0.00001
	B1	-0.00046	-0.00059	-0.00023

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)	-0.00306	-0.00337	-0.00338
	(!A1 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * B1 * !Y)	-0.00343	-0.00344	-0.00344
	(!A1 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !B1 * Y)	-0.00343	-0.00344	-0.00343
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00343	-0.00344	-0.00343

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)	0.00336	0.00339	0.00338
	(!A1 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * B1 * !Y)	0.00343	0.00346	0.00345
	(!A1 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !B1 * Y)	0.00350	0.00346	0.00344
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00350	0.00346	0.00344

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)	-0.00304	-0.00334	-0.00334
	(!A0 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * B1 * !Y)	-0.00339	-0.00340	-0.00339
	(!A0 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !B1 * Y)	-0.00365	-0.00369	-0.00369
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	-0.00366	-0.00369	-0.00369

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)	0.00331	0.00335	0.00334
	(!A0 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * B1 * !Y)	0.00339	0.00344	0.00341
	(!A0 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !B1 * Y)	0.00368	0.00371	0.00370
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	0.00368	0.00371	0.00370

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)	-0.00173	-0.00174	-0.00174
	(A0 * A1 * !B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B1 * !Y)	-0.00173	-0.00174	-0.00173
	(!A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B1 * Y)	-0.00375	-0.00377	-0.00379
	(!A0 * A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B1 * Y)	-0.00375	-0.00378	-0.00379

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)	0.00201	0.00201	0.00181
	(A0 * A1 * !B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B1 * !Y)	0.00173	0.00174	0.00173
	(!A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B1 * Y)	0.00378	0.00382	0.00380
	(!A0 * A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B1 * Y)	0.00378	0.00382	0.00380

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)	-0.00174	-0.00175	-0.00175
	(A0 * A1 * !B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B0 * !Y)	-0.00173	-0.00175	-0.00174
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00348	-0.00350	-0.00349
	(!A0 * A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B0 * Y)	-0.00348	-0.00350	-0.00349

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)	0.00202	0.00202	0.00182
	(A0 * A1 * !B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B0 * !Y)	0.00174	0.00175	0.00174
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00355	0.00351	0.00350
	(!A0 * A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B0 * Y)	0.00355	0.00352	0.00350

SKY130_OSU_SC_18T_HS__BUFx

sky130_osu_sc_18T_hs_tt_1P50_25C.ccs
Cell Library: Process , Voltage 1.50,
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	0.00541	2.12251
sky130_osu_sc_18T_hs__buf_2	0.00541	4.19564
sky130_osu_sc_18T_hs__buf_4	0.00541	8.04939
sky130_osu_sc_18T_hs__buf_6	0.00096	1.80000
sky130_osu_sc_18T_hs__buf_8	0.00542	15.34365
sky130_osu_sc_18T_hs__buf_l	0.00427	1.47628

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__buf_1	0.00000	0.09803	0.09803
sky130_osu_sc_18T_hs__buf_2	0.00000	0.14704	0.19191
sky130_osu_sc_18T_hs__buf_4	0.00000	0.24507	0.37967
sky130_osu_sc_18T_hs__buf_6	0.00000	0.00000	0.00000
sky130_osu_sc_18T_hs__buf_8	0.00000	0.44113	0.75519
sky130_osu_sc_18T_hs__buf_l	0.00000	0.07441	0.07441

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)**	0.06515	0.60477	6.62624
sky130_osu_sc_18T_hs__buf_2	**A->Y (RR)**	0.07221	0.54739	6.79598
sky130_osu_sc_18T_hs__buf_4	**A->Y (RR)**	0.09729	0.55185	7.08735
sky130_osu_sc_18T_hs__buf_8	**A->Y (RR)**	0.14486	0.61271	7.54205
sky130_osu_sc_18T_hs__buf_l	**A->Y (RR)**	0.07292	0.69049	6.73844

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)**	0.07161	0.60708	6.11949
sky130_osu_sc_18T_hs__buf_2	**A->Y (FF)**	0.08432	0.59753	6.35383
sky130_osu_sc_18T_hs__buf_4	**A->Y (FF)**	0.11834	0.63461	6.68386
sky130_osu_sc_18T_hs__buf_8	**A->Y (FF)**	0.18887	0.72077	7.11213
sky130_osu_sc_18T_hs__buf_l	**A->Y (FF)**	0.07915	0.65744	5.96288

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	0.00383	0.00340	0.01197
sky130_osu_sc_18T_hs__buf_2	A	0.00000	0.00000	0.00000
	A	0.00784	0.00769	0.01549
sky130_osu_sc_18T_hs__buf_4	A	0.00000	0.00000	0.00000
	A	0.01653	0.01695	0.02436
sky130_osu_sc_18T_hs__buf_8	A	0.00000	0.00000	0.00000
	A	0.03383	0.03528	0.04325
sky130_osu_sc_18T_hs__buf_l	A	0.00000	0.00000	0.00000
	A	0.00292	0.00251	0.00795

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	0.00984	0.01025	0.02125
sky130_osu_sc_18T_hs__buf_2	A	0.00000	0.00000	0.00000
	A	0.01250	0.01332	0.02398
sky130_osu_sc_18T_hs__buf_4	A	0.00000	0.00000	0.00000
	A	0.01923	0.02083	0.03132
sky130_osu_sc_18T_hs__buf_8	A	0.00000	0.00000	0.00000
	A	0.03310	0.03574	0.04642
sky130_osu_sc_18T_hs__buf_l	A	0.00000	0.00000	0.00000
	A	0.00773	0.00789	0.01462

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
	-0.00053	-0.00053	-0.00053

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
	0.00053	0.00053	0.00053

SKY130_OSU_SC_18T_HS__DFFRx

sky130_osu_sc_18T_hs_tt_1P50_25C.ccs
Cell Library: Process , Voltage 1.50,
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	0.00518	0.00514	0.01508	2.09351	2.07397
sky130_osu_sc_18T_hs__dffr_l	0.00518	0.00514	0.01508	1.48187	1.47854

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__dffr_1	0.00000	0.31469	0.47143
sky130_osu_sc_18T_hs__dffr_l	0.00000	0.29107	0.44781

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)	0.34469	1.47193	15.34020
	QN->Q (FR)	0.03785	0.90382	12.85260
sky130_osu_sc_18T_hs__dffr_l	CK->Q (RR)	0.33864	1.55918	14.75440
	QN->Q (FR)	0.04111	0.95762	12.57390

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)	0.33331	1.48966	15.97530
	QN->Q (RF)	0.02856	0.70078	9.92444
	RN->Q (FF)	0.24295	1.55517	17.73800
sky130_osu_sc_18T_hs__dffr_l	CK->Q (RF)	0.33882	1.61664	15.63990
	QN->Q (RF)	0.02910	0.70135	9.26415
	RN->Q (FF)	0.24904	1.68205	17.38910

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)	0.29522	0.86524	6.87836
	RN->QN (FR)	0.20478	0.93024	8.63814
sky130_osu_sc_18T_hs__dffr_l	CK->QN (RR)	0.29657	0.93025	6.92070
	RN->QN (FR)	0.20659	0.99531	8.67181

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)**	0.29038	0.73906	4.74295
sky130_osu_sc_18T_hs__dffr_l	**CK->QN (RF)**	0.27918	0.74173	4.42416

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)	-0.06717	-0.09364	-0.29223
	setup	CK (R)	0.27281	0.31080	1.48859
sky130_osu_sc_18T_hs__dffr_l	hold	CK (R)	-0.06926	-0.09256	-0.29351
	setup	CK (R)	0.27275	0.31261	1.50551

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)	-0.14367	-0.43988	-3.36004
	setup	CK (R)	0.17346	0.45332	4.17961
sky130_osu_sc_18T_hs__dffr_l	hold	CK (R)	-0.14132	-0.44068	-3.22772
	setup	CK (R)	0.17335	0.45332	4.17956

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)	-0.06717	-0.09364	-0.29223
	setup	CK (R)	0.27281	0.31080	1.48859
sky130_osu_sc_18T_hs__dffr_l	hold	CK (R)	-0.06926	-0.09256	-0.29351
	setup	CK (R)	0.27275	0.31261	1.50551

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)	-0.14367	-0.43988	-3.36004
	setup	CK (R)	0.17346	0.45332	4.17961
sky130_osu_sc_18T_hs__dffr_l	hold	CK (R)	-0.14132	-0.44068	-3.22772
	setup	CK (R)	0.17335	0.45332	4.17956

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)	0.22543	0.26249	1.49886
	removal	CK (R)	-0.04343	-0.05174	-0.12541
sky130_osu_sc_18T_hs__dffr_l	recovery	CK (R)	0.22909	0.26423	1.50009
	removal	CK (R)	-0.04343	-0.05174	-0.12541

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)	0.22543	0.26249	1.49886
	removal	CK (R)	-0.04343	-0.05174	-0.12541
sky130_osu_sc_18T_hs__dffr_l	recovery	CK (R)	0.22909	0.26423	1.50009
	removal	CK (R)	-0.04343	-0.05174	-0.12541

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 ()	0.14542	0.50781	13.33370
	min_pulse_width	RN ()	0.14542	0.50781	13.33370
sky130_osu_sc_18T_hs__dffr_l	min_pulse_width	RN ()	0.14542	0.50781	13.33370
	min_pulse_width	RN ()	0.14160	0.50781	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 ()	0.15686	0.50781	13.33370
	min_pulse_width	CK ()	0.17593	0.50781	13.33370
sky130_osu_sc_18T_hs__dffr_l	min_pulse_width	CK ()	0.14542	0.50781	13.33370
	min_pulse_width	CK ()	0.17212	0.50781	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 ()	0.34759	0.50781	13.33370
	min_pulse_width	CK ()	0.14160	0.50781	13.33370
sky130_osu_sc_18T_hs__dffr_l	min_pulse_width	CK ()	0.34759	0.50781	13.33370
	min_pulse_width	CK ()	0.14160	0.50781	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	0.01009	0.00720	0.00000
sky130_osu_sc_18T_hs__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.00902	0.00691	-0.00478

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	0.01130	0.00977	0.00000
	RN	-0.00132	-0.07776	-1.17759
	RN	0.02584	0.02451	0.01315
sky130_osu_sc_18T_hs__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.01020	0.00910	0.00550
	RN	-0.00132	-0.06320	-0.83355
	RN	0.02473	0.02384	0.02095

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	0.01130	0.00977	0.00000
	RN	-0.00132	-0.07732	-1.16658
	RN	0.02584	0.02452	0.01332
sky130_osu_sc_18T_hs__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.01020	0.00910	0.00552
	RN	-0.00132	-0.06311	-0.83168
	RN	0.02473	0.02386	0.02097

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	0.01004	0.00717	0.00000
sky130_osu_sc_18T_hs__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.00895	0.00685	-0.00458

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	-0.00285	-0.00333	-0.00337
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.01217	0.01151	0.01536
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.00563	0.00504	0.00908
sky130_osu_sc_18T_hs__dffr_l	CK	0.00000	0.00000	0.00000
	CK	-0.00285	-0.00333	-0.00337
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.01217	0.01151	0.01536
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.00563	0.00504	0.00908

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	0.00334	0.00337	0.00337
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.02013	0.01980	0.02410
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.00926	0.00897	0.01321
sky130_osu_sc_18T_hs__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.00334	0.00337	0.00337
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.02013	0.01980	0.02410
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.00926	0.00897	0.01321

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)	0.00402	0.00352	0.01422
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.01075	0.00998	0.02042
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)	0.00402	0.00352	0.01422
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.01075	0.00998	0.02042

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)	0.00908	0.00904	0.02137
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.01956	0.01914	0.03107
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)	0.00908	0.00904	0.02137
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.01956	0.01914	0.03107

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)	-0.00057	-0.00112	0.00919
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.00568	0.00435	0.01498
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	-0.00101	-0.00168	0.00869
sky130_osu_sc_18T_hs__dffr_l	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	-0.00057	-0.00112	0.00919
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.00568	0.00435	0.01498
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	-0.00101	-0.00168	0.00869

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)	0.01430	0.01436	0.02662
	(D * RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * RN * !Q * QN)	0.03078	0.02993	0.04232
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.02356	0.02320	0.03497
	(!D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * Q * !QN)	0.03037	0.03029	0.05258
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.01595	0.01598	0.02786
sky130_osu_sc_18T_hs__dffr_l	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.01430	0.01435	0.02662
	(D * RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * RN * !Q * QN)	0.03078	0.02993	0.04232
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.02356	0.02320	0.03497
	(!D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * Q * !QN)	0.03037	0.03029	0.05258
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.01595	0.01597	0.02786

SKY130_OSU_SC_18T_HS__DFFSRx

sky130_osu_sc_18T_hs_tt_1P50_25C.ccs
Cell Library: Process , Voltage 1.50,
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	0.00514	0.00515	0.01107	0.01534	2.18005	2.16075
sky130_osu_sc_18T_hs__dffsr_l	0.00514	0.00515	0.01106	0.01534	1.50196	1.48100

Leakage Information

Cell Name	Leakage(nW)		
	Min.	**Avg**	**Max.**
sky130_osu_sc_18T_hs__dffsr_1	0.00000	0.34044	0.46870
sky130_osu_sc_18T_hs__dffsr_l	0.00000	0.31682	0.44508

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)	0.35267	1.46791	15.32280
	QN->Q (FR)	0.03598	0.88403	12.69040
	RN->Q (RR)	0.27974	1.40482	15.30860
	SN->Q (FR)	0.26514	1.56252	17.56570
sky130_osu_sc_18T_hs__dffsr_l	CK->Q (RR)	0.35626	1.59466	15.01410
	QN->Q (FR)	0.04104	0.95954	12.64110
	RN->Q (RR)	0.28380	1.53229	14.99530
	SN->Q (FR)	0.26889	1.68789	17.23250

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)	0.37463	1.52067	16.02960
	QN->Q (RF)	0.02610	0.66214	9.46134
	RN->Q (FF)	0.25108	1.55480	17.79210
sky130_osu_sc_18T_hs__dffsr_l	CK->Q (RF)	0.38503	1.67579	15.88710
	QN->Q (RF)	0.02905	0.70342	9.31724
	RN->Q (FF)	0.26149	1.71019	17.64900

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)	0.33747	0.90955	6.98302
	RN->QN (FR)	0.21461	0.94405	8.74828
sky130_osu_sc_18T_hs__dffsr_l	CK->QN (RR)	0.34206	0.98123	6.98210
	RN->QN (FR)	0.21908	1.01548	8.73949

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)	0.30214	0.75061	4.75450
	RN->QN (RF)	0.22954	0.68811	4.73984
	SN->QN (FF)	0.21513	0.84581	6.99433
sky130_osu_sc_18T_hs__dffsr_l	CK->QN (RF)	0.29849	0.77031	4.50562
	RN->QN (RF)	0.22621	0.70838	4.48706
	SN->QN (FF)	0.21149	0.86406	6.72545

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)	-0.07429	-0.10057	-0.36197
	setup	CK (R)	0.26866	0.30150	1.45958
sky130_osu_sc_18T_hs__dffsr_l	hold	CK (R)	-0.07346	-0.10127	-0.35914
	setup	CK (R)	0.26818	0.30065	1.45938

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)	-0.16155	-0.45835	-3.92464
	setup	CK (R)	0.19890	0.47182	4.26766
sky130_osu_sc_18T_hs__dffsr_l	hold	CK (R)	-0.16142	-0.45662	-3.95442
	setup	CK (R)	0.20095	0.46961	4.26702

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)	-0.07429	-0.10057	-0.36197
	setup	CK (R)	0.26866	0.30150	1.45958
sky130_osu_sc_18T_hs__dffsr_l	hold	CK (R)	-0.07346	-0.10127	-0.35914
	setup	CK (R)	0.26818	0.30065	1.45938

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)	-0.16155	-0.45835	-3.92464
	setup	CK (R)	0.19890	0.47182	4.26766
sky130_osu_sc_18T_hs__dffsr_l	hold	CK (R)	-0.16142	-0.45662	-3.95442
	setup	CK (R)	0.20095	0.46961	4.26702

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)	0.19867	0.23044	1.33783
	removal	CK (R)	-0.02321	-0.03109	-0.08558
	hold	SN (R)	-0.20227	-0.40543	-2.01747
	setup	SN (R)	0.23079	0.45269	6.51177
sky130_osu_sc_18T_hs__dffsr_l	recovery	CK (R)	0.19997	0.22827	1.34260
	removal	CK (R)	-0.02556	-0.03106	-0.08521
	hold	SN (R)	-0.19830	-0.39859	-1.97412
	setup	SN (R)	0.23163	0.44497	6.45185

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)	0.19867	0.23044	1.33783
	removal	CK (R)	-0.02321	-0.03109	-0.08558
	hold	SN (R)	-0.20227	-0.40543	-2.01747
	hold	SN (R)	-0.20484	-0.40593	-2.02652
	setup	SN (R)	0.23079	0.44860	6.37568
	setup	SN (R)	0.22354	0.45269	6.51177
sky130_osu_sc_18T_hs__dffsr_l	recovery	CK (R)	0.19997	0.22827	1.34260
	removal	CK (R)	-0.02556	-0.03106	-0.08521
	hold	SN (R)	-0.20237	-0.39859	-1.97412
	hold	SN (R)	-0.19830	-0.39912	-1.98611
	setup	SN (R)	0.23163	0.44329	6.26673
	setup	SN (R)	0.21571	0.44497	6.45185

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 ()	0.16830	0.50781	13.33370
	min_pulse_width	RN ()	0.16830	0.50781	13.33370
sky130_osu_sc_18T_hs__dffsr_l	min_pulse_width	RN ()	0.16830	0.50781	13.33370
	min_pulse_width	RN ()	0.16449	0.50781	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)	0.04843	0.08628	5.56285
	removal	CK (R)	-0.01817	-0.06252	-0.35761
sky130_osu_sc_18T_hs__dffsr_l	recovery	CK (R)	0.04382	0.08600	5.40153
	removal	CK (R)	-0.01817	-0.06252	-0.36160

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)	0.04843	0.08628	5.56285
	removal	CK (R)	-0.01817	-0.06252	-0.35761
sky130_osu_sc_18T_hs__dffsr_l	recovery	CK (R)	0.04382	0.08600	5.40153
	removal	CK (R)	-0.01817	-0.06252	-0.36160

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 ()	0.21408	0.50781	13.33370
	min_pulse_width	SN ()	0.21408	0.50781	13.33370
sky130_osu_sc_18T_hs__dffsr_l	min_pulse_width	SN ()	0.21408	0.50781	13.33370
	min_pulse_width	SN ()	0.20264	0.50781	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 ()	0.16068	0.50781	13.33370
	min_pulse_width	CK ()	0.19119	0.50781	13.33370
sky130_osu_sc_18T_hs__dffsr_l	min_pulse_width	CK ()	0.15305	0.50781	13.33370
	min_pulse_width	CK ()	0.18738	0.50781	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 ()	0.34378	0.50781	13.33370
	min_pulse_width	CK ()	0.17212	0.50781	13.33370
sky130_osu_sc_18T_hs__dffsr_l	min_pulse_width	CK ()	0.34378	0.50781	13.33370
	min_pulse_width	CK ()	0.17212	0.50781	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	0.01251	0.01049	-0.00231
	RN	0.02289	0.02106	0.00156
	SN	-0.00132	-0.07967	-1.22628
	SN	0.02537	0.02346	0.00096
sky130_osu_sc_18T_hs__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.01152	0.00945	-0.00226
	RN	0.02189	0.01998	0.00483
	SN	-0.00132	-0.06371	-0.84485
	SN	0.02437	0.02243	0.00487

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	0.01317	0.01193	0.00231
	RN	-0.00132	-0.07967	-1.22628
	RN	0.02659	0.02540	0.01655
sky130_osu_sc_18T_hs__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.01218	0.01118	0.00773
	RN	-0.00132	-0.06371	-0.84485
	RN	0.02558	0.02462	0.02203

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	0.01316	0.01194	0.00248
	RN	-0.00132	-0.07925	-1.21541
	RN	0.02659	0.02540	0.01671
sky130_osu_sc_18T_hs__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.01217	0.01119	0.00780
	RN	-0.00132	-0.06318	-0.83306
	RN	0.02557	0.02463	0.02202

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	0.01244	0.01044	-0.00248
	RN	0.02281	0.02099	0.00149
	SN	-0.00132	-0.07925	-1.21532
	SN	0.02529	0.02340	0.00176
sky130_osu_sc_18T_hs__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.01145	0.00940	-0.00201
	RN	0.02181	0.01992	0.00518
	SN	-0.00132	-0.06318	-0.83298
	SN	0.02429	0.02238	0.00577

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	-0.00328	-0.00336	-0.00335
	(!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)	0.01545	0.01482	0.01866
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.00628	0.00570	0.00962
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.00624	0.00567	0.00962
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.00630	0.00573	0.00966
sky130_osu_sc_18T_hs__dffsr_1	CK	0.00000	0.00000	0.00000
	CK	-0.00328	-0.00336	-0.00335
	(!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)	0.01545	0.01482	0.01866
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.00628	0.00570	0.00962
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.00624	0.00567	0.00962
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.00630	0.00573	0.00966

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	0.00340	0.00337	0.00335
	(!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)	0.02300	0.02265	0.02648
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.00973	0.00952	0.01368
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.00983	0.00959	0.01370
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.00968	0.00948	0.01364
sky130_osu_sc_18T_hs__dffsr_1	CK	0.00000	0.00000	0.00000
	CK	0.00339	0.00337	0.00335
	(!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)	0.02299	0.02264	0.02648
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.00972	0.00952	0.01368
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.00982	0.00958	0.01370
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.00968	0.00947	0.01363

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)	0.00349	0.00306	0.01346
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.01285	0.01209	0.02223
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)	0.00349	0.00306	0.01347
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.01285	0.01210	0.02224

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)	0.00968	0.00975	0.02222
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.02056	0.02012	0.03210
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)	0.00967	0.00974	0.02222
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.02055	0.02011	0.03210

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)	-0.00761	-0.00767	-0.00768
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	-0.00729	-0.00787	-0.00789
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	-0.00727	-0.00762	-0.00758
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.00531	0.00474	0.00960
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)	-0.00761	-0.00767	-0.00768
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	-0.00728	-0.00786	-0.00787
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	-0.00727	-0.00761	-0.00757
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.00531	0.00475	0.00961

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)	0.00767	0.00773	0.00770
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00784	0.00793	0.00790
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	0.00755	0.00762	0.00760
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.01570	0.01530	0.01905
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)	0.00767	0.00773	0.00770
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00783	0.00792	0.00789
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	0.00755	0.00761	0.00760
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.01569	0.01529	0.01905

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)	-0.00057	-0.00113	0.00918
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.00641	0.00512	0.01576
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.00627	0.00499	0.01569
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	-0.00083	-0.00150	0.00887
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.00470	0.00344	0.02408
sky130_osu_sc_18T_hs__dffsr_1	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	-0.00057	-0.00113	0.00918
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.00640	0.00511	0.01575
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.00626	0.00499	0.01568
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	-0.00083	-0.00150	0.00887
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.00470	0.00344	0.02408

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)	0.03425	0.03344	0.04580
	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.01434	0.01446	0.02665
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.02396	0.02358	0.03538
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.02402	0.02368	0.03549
	(!D * RN * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * Q * !QN)	0.03320	0.03293	0.05500
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.01580	0.01583	0.02771
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.01874	0.01883	0.04226
sky130_osu_sc_18T_hs__dffsr_l	**(D * RN * SN * !Q * QN)**	0.00000	0.00000	0.00000
	(D * RN * SN * !Q * QN)	0.03425	0.03345	0.04580
	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.01434	0.01446	0.02665
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.02396	0.02358	0.03538
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.02402	0.02368	0.03549
	(!D * RN * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * Q * !QN)	0.03319	0.03293	0.05501
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.01580	0.01583	0.02771
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.01873	0.01883	0.04225

SKY130_OSU_SC_18T_HS__DFFSx

sky130_osu_sc_18T_hs_tt_1P50_25C.ccs
Cell Library: Process , Voltage 1.50,
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	0.00517	0.00888	0.01510	2.07746	2.10103
sky130_osu_sc_18T_hs__dffs_l	0.00517	0.00888	0.01510	1.48931	1.48781

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__dffs_1	0.00000	0.31709	0.48217
sky130_osu_sc_18T_hs__dffs_l	0.00000	0.29346	0.45855

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)	0.25158	1.35553	15.06060
	QN->Q (FR)	0.03766	0.89358	12.69860
	SN->Q (FR)	0.19718	1.50303	17.07770
sky130_osu_sc_18T_hs__dffs_l	CK->Q (RR)	0.25174	1.46080	14.68330
	QN->Q (FR)	0.04089	0.95435	12.54280
	SN->Q (FR)	0.19623	1.60198	16.67770

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)	0.36711	1.51997	15.82660
	QN->Q (RF)	0.02835	0.69589	9.84089
sky130_osu_sc_18T_hs__dffs_l	CK->Q (RF)	0.37096	1.65317	15.69930
	QN->Q (RF)	0.02893	0.69969	9.25725

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)	0.32769	0.90516	6.96434
sky130_osu_sc_18T_hs__dffs_l	CK->QN (RR)	0.32751	0.96606	6.96920

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)	0.20286	0.63406	4.68128
	SN->QN (FF)	0.14802	0.78249	6.70461
sky130_osu_sc_18T_hs__dffs_l	CK->QN (RF)	0.19784	0.64507	4.34009
	SN->QN (FF)	0.14193	0.78709	6.33795

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)	-0.04864	-0.07733	-0.24671
	setup	CK (R)	0.17937	0.22310	1.54315
sky130_osu_sc_18T_hs__dffs_l	hold	CK (R)	-0.04949	-0.07650	-0.24667
	setup	CK (R)	0.17564	0.22314	1.59175

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)	-0.14329	-0.44044	-2.24904
	setup	CK (R)	0.19087	0.45813	4.19271
sky130_osu_sc_18T_hs__dffs_l	hold	CK (R)	-0.14402	-0.44044	-2.22257
	setup	CK (R)	0.19087	0.45813	4.19338

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)	-0.04864	-0.07733	-0.24671
	setup	CK (R)	0.17937	0.22310	1.54315
sky130_osu_sc_18T_hs__dffs_l	hold	CK (R)	-0.04949	-0.07650	-0.24667
	setup	CK (R)	0.17564	0.22314	1.59175

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)	-0.14329	-0.44044	-2.24904
	setup	CK (R)	0.19087	0.45813	4.19271
sky130_osu_sc_18T_hs__dffs_l	hold	CK (R)	-0.14402	-0.44044	-2.22257
	setup	CK (R)	0.19087	0.45813	4.19338

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)	0.05077	0.09031	4.82471
	removal	CK (R)	-0.01624	-0.06252	-0.50208
sky130_osu_sc_18T_hs__dffs_l	recovery	CK (R)	0.05028	0.09029	4.56866
	removal	CK (R)	-0.01624	-0.06252	-0.50208

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)	0.05077	0.09031	4.82471
	removal	CK (R)	-0.01624	-0.06252	-0.50208
sky130_osu_sc_18T_hs__dffs_l	recovery	CK (R)	0.05028	0.09029	4.56866
	removal	CK (R)	-0.01624	-0.06252	-0.50208

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 ()	0.13397	0.50781	13.33370
	min_pulse_width	SN ()	0.13397	0.50781	13.33370
sky130_osu_sc_18T_hs__dffs_l	min_pulse_width	SN ()	0.13016	0.50781	13.33370
	min_pulse_width	SN ()	0.13016	0.50781	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 ()	0.10727	0.50781	13.33370
	min_pulse_width	CK ()	0.18356	0.50781	13.33370
sky130_osu_sc_18T_hs__dffs_l	min_pulse_width	CK ()	0.09964	0.50781	13.33370
	min_pulse_width	CK ()	0.17975	0.50781	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 ()	0.25223	0.50781	13.33370
	min_pulse_width	CK ()	0.16068	0.50781	13.33370
sky130_osu_sc_18T_hs__dffs_l	min_pulse_width	CK ()	0.25223	0.50781	13.33370
	min_pulse_width	CK ()	0.16068	0.50781	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	0.01014	0.00720	0.00000
	SN	-0.00132	-0.07740	-1.16857
	SN	0.02172	0.01895	-0.01005
sky130_osu_sc_18T_hs__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.00905	0.00690	-0.00453
	SN	-0.00132	-0.06339	-0.83774
	SN	0.02063	0.01865	0.00415

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	0.01122	0.00981	0.00000
sky130_osu_sc_18T_hs__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.01012	0.00911	0.00601

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	0.01122	0.00981	0.00000
sky130_osu_sc_18T_hs__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.01012	0.00914	0.00599

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	0.01009	0.00719	0.00000
	SN	-0.00132	-0.07793	-1.18167
	SN	0.02167	0.01889	-0.01074
sky130_osu_sc_18T_hs__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.00899	0.00686	-0.00436
	SN	-0.00132	-0.06335	-0.83682
	SN	0.02057	0.01861	0.00497

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	-0.00332	-0.00340	-0.00339
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.01176	0.01108	0.01496
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.00550	0.00492	0.00890
sky130_osu_sc_18T_hs__dffs_l	CK	0.00000	0.00000	0.00000
	CK	-0.00332	-0.00340	-0.00339
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.01176	0.01108	0.01496
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.00550	0.00492	0.00890

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	0.00343	0.00343	0.00339
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.01948	0.01909	0.02325
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.00934	0.00910	0.01342
sky130_osu_sc_18T_hs__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.00343	0.00343	0.00339
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.01948	0.01907	0.02325
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.00934	0.00910	0.01342

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)	-0.00570	-0.00573	-0.00574
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.00416	0.00375	0.00885
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)	-0.00570	-0.00573	-0.00574
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.00416	0.00375	0.00885

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)	0.00577	0.00580	0.00575
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.01110	0.01083	0.01724
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)	0.00577	0.00580	0.00575
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.01110	0.01083	0.01724

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)	-0.00059	-0.00114	0.00918
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	-0.00093	-0.00155	0.00879
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.00389	0.00263	0.02368
sky130_osu_sc_18T_hs__dffs_l	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	-0.00059	-0.00113	0.00918
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	-0.00093	-0.00155	0.00879
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.00389	0.00263	0.02368

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)	0.03044	0.02967	0.04227
	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.01430	0.01436	0.02663
	(!D * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * SN * Q * !QN)	0.02964	0.02931	0.05167
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	0.01585	0.01589	0.02777
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.01827	0.01837	0.04207
sky130_osu_sc_18T_hs__dffs_l	(D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * SN * !Q * QN)	0.03044	0.02967	0.04227
	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.01430	0.01442	0.02663
	(!D * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * SN * Q * !QN)	0.02964	0.02942	0.05167
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	0.01585	0.01584	0.02777
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.01827	0.01839	0.04207

SKY130_OSU_SC_18T_HS__DFFx

sky130_osu_sc_18T_hs_tt_1P50_25C.ccs
Cell Library: Process , Voltage 1.50,
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	0.00532	0.01496	2.18036	2.17078
sky130_osu_sc_18T_hs__dff_l	0.00532	0.01494	1.48088	1.46871

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__dff_1	0.00000	0.31012	0.39092
sky130_osu_sc_18T_hs__dff_l	0.00000	0.28650	0.36729

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)	0.22225	1.31184	15.08690
	QN->Q (FR)	0.03571	0.87946	12.63600
sky130_osu_sc_18T_hs__dff_l	CK->Q (RR)	0.23007	1.44377	14.66490
	QN->Q (FR)	0.04169	0.96737	12.69240

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)	0.31450	1.45130	15.91190
	QN->Q (RF)	0.02598	0.65972	9.43231
sky130_osu_sc_18T_hs__dff_l	CK->Q (RF)	0.32675	1.61030	15.70520
	QN->Q (RF)	0.02900	0.69861	9.23021

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)	0.27863	0.84305	6.91464
sky130_osu_sc_18T_hs__dff_l	CK->QN (RR)	0.28462	0.92073	6.92832

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)	0.17719	0.59880	4.56503
sky130_osu_sc_18T_hs__dff_l	CK->QN (RF)	0.17714	0.62267	4.26563

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)	-0.04590	-0.07293	-0.26548
	setup	CK (R)	0.14442	0.19507	1.65095
sky130_osu_sc_18T_hs__dff_l	hold	CK (R)	-0.04706	-0.07582	-0.26834
	setup	CK (R)	0.14547	0.19368	1.62257

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)	-0.13307	-0.43788	-1.92311
	setup	CK (R)	0.16267	0.45408	4.19426
sky130_osu_sc_18T_hs__dff_l	hold	CK (R)	-0.13352	-0.43815	-2.01331
	setup	CK (R)	0.16272	0.45399	4.19430

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 ()	0.09583	0.50781	13.33370
	min_pulse_width	CK ()	0.16830	0.50781	13.33370
sky130_osu_sc_18T_hs__dff_l	min_pulse_width	CK ()	0.09201	0.50781	13.33370
	min_pulse_width	CK ()	0.16449	0.50781	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 ()	0.22171	0.50781	13.33370
	min_pulse_width	CK ()	0.12634	0.50781	13.33370
sky130_osu_sc_18T_hs__dff_l	min_pulse_width	CK ()	0.22171	0.50781	13.33370
	min_pulse_width	CK ()	0.12634	0.50781	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	0.01065	0.00853	-0.00119
sky130_osu_sc_18T_hs__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.00966	0.00747	-0.00377

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	0.01144	0.01021	0.00119
sky130_osu_sc_18T_hs__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.01046	0.00938	0.00532

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	0.01144	0.01021	0.00126
sky130_osu_sc_18T_hs__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.01046	0.00938	0.00539

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	0.01059	0.00846	-0.00126
sky130_osu_sc_18T_hs__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.00960	0.00745	-0.00332

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	-0.00285	-0.00332	-0.00337
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.01101	0.01043	0.01445
sky130_osu_sc_18T_hs__dff_l	CK	0.00000	0.00000	0.00000
	CK	-0.00285	-0.00332	-0.00337
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.01102	0.01043	0.01446

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	0.00333	0.00337	0.00337
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.02010	0.01969	0.02409
sky130_osu_sc_18T_hs__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.00333	0.00337	0.00337
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.02010	0.01970	0.02409

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)	-0.00059	-0.00113	0.00919
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	-0.00092	-0.00158	0.00881
sky130_osu_sc_18T_hs__dff_l	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	-0.00059	-0.00113	0.00919
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	-0.00092	-0.00158	0.00881

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)	0.01425	0.01439	0.02659
	(D * !Q * QN)	0.00000	0.00000	0.00000
	(D * !Q * QN)	0.02974	0.02896	0.04179
	(!D * Q * !QN)	0.00000	0.00000	0.00000
	(!D * Q * !QN)	0.03008	0.02983	0.05234
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.01578	0.01581	0.02771
sky130_osu_sc_18T_hs__dff_l	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.01425	0.01439	0.02659
	(D * !Q * QN)	0.00000	0.00000	0.00000
	(D * !Q * QN)	0.02975	0.02897	0.04179
	(!D * Q * !QN)	0.00000	0.00000	0.00000
	(!D * Q * !QN)	0.03008	0.02984	0.05235
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.01578	0.01581	0.02771

SKY130_OSU_SC_18T_HS__INVx

sky130_osu_sc_18T_hs_tt_1P50_25C.ccs
Cell Library: Process , Voltage 1.50,
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	0.00519	2.06335
sky130_osu_sc_18T_hs__inv_10	0.04882	18.41060
sky130_osu_sc_18T_hs__inv_2	0.00995	4.05315
sky130_osu_sc_18T_hs__inv_3	0.01484	5.81572
sky130_osu_sc_18T_hs__inv_4	0.01964	7.81201
sky130_osu_sc_18T_hs__inv_6	0.02945	11.68145
sky130_osu_sc_18T_hs__inv_8	0.03914	15.21726
sky130_osu_sc_18T_hs__inv_l	0.00402	1.44064

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__inv_1	0.00000	0.04902	0.09388
sky130_osu_sc_18T_hs__inv_10	0.00000	0.49014	0.93880
sky130_osu_sc_18T_hs__inv_2	0.00000	0.09803	0.18776
sky130_osu_sc_18T_hs__inv_3	0.00000	0.14704	0.28164
sky130_osu_sc_18T_hs__inv_4	0.00000	0.19606	0.37552
sky130_osu_sc_18T_hs__inv_6	0.00000	0.29408	0.56328
sky130_osu_sc_18T_hs__inv_8	0.00000	0.39211	0.75104
sky130_osu_sc_18T_hs__inv_l	0.00000	0.03721	0.06976

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)**	0.03385	0.81002	11.45740
sky130_osu_sc_18T_hs__inv_10	**A->Y (FR)**	0.05287	0.57616	11.44860
sky130_osu_sc_18T_hs__inv_2	**A->Y (FR)**	0.02800	0.70396	11.41820
sky130_osu_sc_18T_hs__inv_3	**A->Y (FR)**	0.03134	0.66307	11.43030
sky130_osu_sc_18T_hs__inv_4	**A->Y (FR)**	0.03264	0.63432	11.41140
sky130_osu_sc_18T_hs__inv_6	**A->Y (FR)**	0.03755	0.60324	11.52230
sky130_osu_sc_18T_hs__inv_8	**A->Y (FR)**	0.04471	0.58506	11.46900
sky130_osu_sc_18T_hs__inv_l	**A->Y (FR)**	0.03880	0.89172	11.63360

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__inv_1	**A->Y (RF)**	0.02331	0.58206	8.22084
sky130_osu_sc_18T_hs__inv_10	**A->Y (RF)**	0.03847	0.37995	8.03860
sky130_osu_sc_18T_hs__inv_2	**A->Y (RF)**	0.01985	0.50134	8.17618
sky130_osu_sc_18T_hs__inv_3	**A->Y (RF)**	0.02185	0.46685	8.18661
sky130_osu_sc_18T_hs__inv_4	**A->Y (RF)**	0.02217	0.44109	8.17761
sky130_osu_sc_18T_hs__inv_6	**A->Y (RF)**	0.02808	0.41270	8.23087
sky130_osu_sc_18T_hs__inv_8	**A->Y (RF)**	0.03330	0.39245	8.16656
sky130_osu_sc_18T_hs__inv_l	**A->Y (RF)**	0.02582	0.61700	8.12452

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	0.00509	0.00518	0.00644
sky130_osu_sc_18T_hs__inv_10	A	0.00000	0.00000	0.00000
	A	0.04393	0.04698	0.06047
sky130_osu_sc_18T_hs__inv_2	A	0.00000	0.00000	0.00000
	A	0.00915	0.00960	0.01193
sky130_osu_sc_18T_hs__inv_3	A	0.00000	0.00000	0.00000
	A	0.01400	0.01494	0.01856
sky130_osu_sc_18T_hs__inv_4	A	0.00000	0.00000	0.00000
	A	0.01806	0.01892	0.02385
sky130_osu_sc_18T_hs__inv_6	A	0.00000	0.00000	0.00000
	A	0.02667	0.02778	0.03611
sky130_osu_sc_18T_hs__inv_8	A	0.00000	0.00000	0.00000
	A	0.03527	0.03856	0.04794
sky130_osu_sc_18T_hs__inv_l	A	0.00000	0.00000	0.00000
	A	0.00396	0.00399	0.00472

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	-0.00104	-0.00103	-0.00056
sky130_osu_sc_18T_hs__inv_10	**A**	0.00000	0.00000	0.00000
	A	-0.01760	-0.01708	-0.01015
sky130_osu_sc_18T_hs__inv_2	**A**	0.00000	0.00000	0.00000
	A	-0.00341	-0.00323	-0.00222
sky130_osu_sc_18T_hs__inv_3	**A**	0.00000	0.00000	0.00000
	A	-0.00452	-0.00431	-0.00263
sky130_osu_sc_18T_hs__inv_4	**A**	0.00000	0.00000	0.00000
	A	-0.00699	-0.00661	-0.00429
sky130_osu_sc_18T_hs__inv_6	**A**	0.00000	0.00000	0.00000
	A	-0.01070	-0.01005	-0.00634
sky130_osu_sc_18T_hs__inv_8	**A**	0.00000	0.00000	0.00000
	A	-0.01436	-0.01353	-0.00836
sky130_osu_sc_18T_hs__inv_l	**A**	0.00000	0.00000	0.00000
	A	-0.00075	-0.00074	-0.00046

SKY130_OSU_SC_18T_HS__MUX2

sky130_osu_sc_18T_hs_tt_1P50_25C.ccs
Cell Library: Process , Voltage 1.50,
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	0.35364	0.35362	0.01054	0.35142

Leakage Information

Cell Name	Leakage(nW)		
	Min.	**Avg**	**Max.**
sky130_osu_sc_18T_hs__mux2_1	0.00000	0.09819	0.09819

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)	-	0.01717	0.30317	2.85221
	A1->Y (RR)	-	0.01886	0.30448	2.85267
	S0->Y (RR)	(!A0 * A1)	0.05179	0.29384	0.98282
	S0->Y (FR)	(A0 * !A1)	0.04933	0.45045	3.52283

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)	-	0.01607	0.28097	2.64666
	A1->Y (FF)	-	0.01537	0.27889	2.63849
	S0->Y (FF)	(!A0 * A1)	0.07493	0.41457	2.47759
	S0->Y (RF)	(A0 * !A1)	0.02746	0.31046	2.17888

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	-	-0.00557	-0.00557	-0.00557
	A1	-	0.00000	0.00000	0.00000
	A1	-	-0.00386	-0.00387	-0.00387
	S0	(A0 * !A1)	0.00000	0.00000	0.00000
	S0	(A0 * !A1)	0.00593	0.00622	0.01936
	S0	(!A0 * A1)	0.00000	0.00000	0.00000
	S0	(!A0 * A1)	-0.00364	-0.00407	0.00759

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	-	0.00557	0.00557	0.00557
	A1	-	0.00000	0.00000	0.00000
	A1	-	0.00386	0.00387	0.00388
	S0	(A0 * !A1)	0.00000	0.00000	0.00000
	S0	(A0 * !A1)	0.00120	0.00086	0.01291
	S0	(!A0 * A1)	0.00000	0.00000	0.00000
	S0	(!A0 * A1)	0.01383	0.01397	0.02661

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)	-0.00145	-0.00144	-0.00144

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)	0.00145	0.00144	0.00144

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)	-0.00170	-0.00170	-0.00170

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)	0.00170	0.00170	0.00170

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)	-0.00124	-0.00164	0.01032
	(!A0 * !A1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !Y)	-0.00120	-0.00162	0.01039

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)	0.01030	0.01044	0.02323
	(!A0 * !A1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !Y)	0.00946	0.00967	0.02280

SKY130_OSU_SC_18T_HS__NAND2x

sky130_osu_sc_18T_hs_tt_1P50_25C.ccs
Cell Library: Process , Voltage 1.50,
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	0.00520	0.00518	2.03308
sky130_osu_sc_18T_hs__nand2_l	0.00403	0.00402	1.41351

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__nand2_1	0.00000	0.04893	0.18776
sky130_osu_sc_18T_hs__nand2_l	0.00000	0.03719	0.13951

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)	0.03480	0.81318	11.45100
	B->Y (FR)	0.04093	0.81113	11.33540
sky130_osu_sc_18T_hs__nand2_l	A->Y (FR)	0.03966	0.89168	11.56990
	B->Y (FR)	0.04694	0.89445	11.52200

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)	0.03327	0.72001	10.23020
	B->Y (RF)	0.03801	0.70416	9.87636
sky130_osu_sc_18T_hs__nand2_l	A->Y (RF)	0.03694	0.77726	10.05810
	B->Y (RF)	0.04138	0.75579	9.63564

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	0.00543	0.00550	0.00660
	B	0.00000	0.00000	0.00000
	B	0.00684	0.00683	0.00798
sky130_osu_sc_18T_hs__nand2_l	A	0.00000	0.00000	0.00000
	A	0.00419	0.00421	0.00492
	B	0.00000	0.00000	0.00000
	B	0.00522	0.00520	0.00590

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	-0.00065	-0.00068	-0.00027
	B	0.00000	0.00000	0.00000
	B	-0.00060	-0.00067	-0.00041
sky130_osu_sc_18T_hs__nand2_l	A	0.00000	0.00000	0.00000
	A	-0.00051	-0.00056	-0.00028
	B	0.00000	0.00000	0.00000
	B	-0.00049	-0.00055	-0.00036

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)	-0.00377	-0.00379	-0.00380
sky130_osu_sc_18T_hs__nand2_l	(!B * Y)	0.00000	0.00000	0.00000
	(!B * Y)	-0.00277	-0.00279	-0.00280

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)	0.00379	0.00383	0.00381
sky130_osu_sc_18T_hs__nand2_l	(!B * Y)	0.00000	0.00000	0.00000
	(!B * Y)	0.00279	0.00282	0.00280

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)	-0.00351	-0.00352	-0.00352
sky130_osu_sc_18T_hs__nand2_l	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00259	-0.00260	-0.00259

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)	0.00358	0.00356	0.00353
sky130_osu_sc_18T_hs__nand2_l	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00264	0.00262	0.00260

SKY130_OSU_SC_18T_HS__NOR2x

sky130_osu_sc_18T_hs_tt_1P50_25C.ccs
Cell Library: Process , Voltage 1.50,
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	0.00520	0.00551	1.03894
sky130_osu_sc_18T_hs__nor2_l	0.00396	0.00429	0.71940

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__nor2_1	0.00000	0.03484	0.09388
sky130_osu_sc_18T_hs__nor2_l	0.00000	0.02824	0.06976

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)	0.07462	0.99199	11.52380
	B->Y (FR)	0.05655	0.94914	11.25880
sky130_osu_sc_18T_hs__nor2_l	A->Y (FR)	0.08416	1.09251	11.50120
	B->Y (FR)	0.06827	1.05745	11.40210

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)	0.03037	0.48296	5.69266
	B->Y (RF)	0.02458	0.47087	5.67220
sky130_osu_sc_18T_hs__nor2_l	A->Y (RF)	0.03235	0.50992	5.62137
	B->Y (RF)	0.02710	0.50248	5.60428

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	0.00725	0.00709	0.00750
	B	0.00000	0.00000	0.00000
	B	0.00552	0.00554	0.00646
sky130_osu_sc_18T_hs__nor2_l	A	0.00000	0.00000	0.00000
	A	0.00534	0.00527	0.00550
	B	0.00000	0.00000	0.00000
	B	0.00423	0.00404	0.00525

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	0.00087	0.00066	0.00125
	B	0.00000	0.00000	0.00000
	B	-0.00083	-0.00084	-0.00021
sky130_osu_sc_18T_hs__nor2_l	A	0.00000	0.00000	0.00000
	A	0.00058	0.00043	0.00085
	B	0.00000	0.00000	0.00000
	B	-0.00056	-0.00057	-0.00016

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)	-0.00288	-0.00334	-0.00338
sky130_osu_sc_18T_hs__nor2_l	(B * !Y)	0.00000	0.00000	0.00000
	(B * !Y)	-0.00208	-0.00240	-0.00242

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)	0.00336	0.00337	0.00338
sky130_osu_sc_18T_hs__nor2_l	(B * !Y)	0.00000	0.00000	0.00000
	(B * !Y)	0.00240	0.00243	0.00242

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)	-0.00173	-0.00174	-0.00173
sky130_osu_sc_18T_hs__nor2_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	-0.00128	-0.00129	-0.00129

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)	0.00183	0.00185	0.00177
sky130_osu_sc_18T_hs__nor2_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00135	0.00136	0.00131

SKY130_OSU_SC_18T_HS__OAI21

sky130_osu_sc_18T_hs_tt_1P50_25C.ccs
Cell Library: Process , Voltage 1.50,
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	0.00527	0.00532	0.00447	1.06154

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__oai21_l	0.00000	0.04500	0.16364

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)	0.07700	0.98424	11.50260
	A1->Y (FR)	0.09962	1.03194	11.76080
	B0->Y (FR)	0.04893	0.81187	9.85036

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)	0.04726	0.59493	6.91116
	A1->Y (RF)	0.05551	0.59334	6.78706
	B0->Y (RF)	0.03682	0.62588	7.52968

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	0.00757	0.00749	0.00907
	A1	0.00000	0.00000	0.00000
	A1	0.00931	0.00917	0.00950
	B0	0.00634	0.00627	0.00754

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	0.00034	0.00022	0.00053
	A1	0.00000	0.00000	0.00000
	A1	0.00202	0.00175	0.00206
	B0	0.00267	0.00258	0.00303

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)	-0.00173	-0.00175	-0.00174
	(A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * Y)	-0.00332	-0.00339	-0.00338
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00344	-0.00346	-0.00345

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)	0.00184	0.00185	0.00177
	(A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * Y)	0.00337	0.00339	0.00338
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00346	0.00349	0.00346

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)	-0.00282	-0.00329	-0.00333
	(A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * Y)	-0.00330	-0.00334	-0.00336
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	-0.00341	-0.00343	-0.00342

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)	0.00330	0.00335	0.00333
	(A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * Y)	0.00334	0.00334	0.00336
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	0.00343	0.00346	0.00343

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)	-0.00282	-0.00285	-0.00289

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)	0.00288	0.00291	0.00289

SKY130_OSU_SC_18T_HS__OAI22

sky130_osu_sc_18T_hs_tt_1P50_25C.ccs
Cell Library: Process , Voltage 1.50,
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	0.00510	0.00538	0.00550	0.00538	1.06336

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__oai22_l	0.00000	0.05197	0.18776

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)	0.10763	1.03798	11.73510
	A1->Y (FR)	0.08953	0.99254	11.48440
	B0->Y (FR)	0.06399	0.96627	11.47420
	B1->Y (FR)	0.08264	1.01322	11.72820

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)	0.07855	0.64258	7.04704
	A1->Y (RF)	0.06294	0.61793	6.96098
	B0->Y (RF)	0.05248	0.64456	7.56373
	B1->Y (RF)	0.06945	0.67604	7.78059

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	0.01204	0.01190	0.01223
	A1	0.01029	0.00993	0.01174
	B0	0.00768	0.00742	0.00923
	B1	0.00951	0.00937	0.00971

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__oai22_l	A0	0.00323	0.00297	0.00321
	A1	0.00166	0.00150	0.00175
	B0	0.00164	0.00151	0.00199
	B1	0.00326	0.00299	0.00345

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)	-0.00287	-0.00334	-0.00338
	(A1 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * B1 * !Y)	-0.00287	-0.00334	-0.00338
	(A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * !B1 * Y)	-0.00331	-0.00338	-0.00337
	(!A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * !B1 * Y)	-0.00342	-0.00344	-0.00343

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)	0.00335	0.00337	0.00338
	(A1 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * B1 * !Y)	0.00335	0.00337	0.00338
	(A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * !B1 * Y)	0.00334	0.00338	0.00337
	(!A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * !B1 * Y)	0.00343	0.00346	0.00344

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)	-0.00172	-0.00173	-0.00173
	(A0 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * B1 * !Y)	-0.00172	-0.00173	-0.00172
	(A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * !B1 * Y)	-0.00328	-0.00335	-0.00335
	(!A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * !B1 * Y)	-0.00341	-0.00343	-0.00342

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)	0.00182	0.00184	0.00176
	(A0 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * B1 * !Y)	0.00182	0.00184	0.00176
	(A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * !B1 * Y)	0.00333	0.00335	0.00335
	(!A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * !B1 * Y)	0.00342	0.00345	0.00343

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)	-0.00171	-0.00172	-0.00172
	(A0 * !A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B1 * !Y)	-0.00171	-0.00172	-0.00171
	(!A0 * !A1 * B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B1 * Y)	-0.00365	-0.00372	-0.00370
	(!A0 * !A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B1 * Y)	-0.00368	-0.00369	-0.00377

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)	0.00181	0.00183	0.00175
	(A0 * !A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B1 * !Y)	0.00181	0.00183	0.00175
	(!A0 * !A1 * B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B1 * Y)	0.00370	0.00372	0.00370
	(!A0 * !A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B1 * Y)	0.00377	0.00380	0.00379

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)	-0.00283	-0.00330	-0.00333
	(A0 * !A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B0 * !Y)	-0.00283	-0.00330	-0.00333
	(!A0 * !A1 * B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B0 * Y)	-0.00370	-0.00378	-0.00377
	(!A0 * !A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B0 * Y)	-0.00373	-0.00376	-0.00382

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)	0.00330	0.00332	0.00333
	(A0 * !A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B0 * !Y)	0.00330	0.00334	0.00333
	(!A0 * !A1 * B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B0 * Y)	0.00375	0.00378	0.00377
	(!A0 * !A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B0 * Y)	0.00382	0.00385	0.00384

SKY130_OSU_SC_18T_HS__OR2x

sky130_osu_sc_18T_hs_tt_1P50_25C.ccs
Cell Library: Process , Voltage 1.50,
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	0.00553	0.00532	2.12156
sky130_osu_sc_18T_hs__or2_2	0.00554	0.00533	4.13878
sky130_osu_sc_18T_hs__or2_4	0.00554	0.00533	7.93332
sky130_osu_sc_18T_hs__or2_8	0.00553	0.00534	15.03345
sky130_osu_sc_18T_hs__or2_l	0.00436	0.00411	1.45965

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__or2_1	0.00000	0.06142	0.10218
sky130_osu_sc_18T_hs__or2_2	0.00000	0.08800	0.19606
sky130_osu_sc_18T_hs__or2_4	0.00000	0.14116	0.38382
sky130_osu_sc_18T_hs__or2_8	0.00000	0.24749	0.75933
sky130_osu_sc_18T_hs__or2_l	0.00000	0.04917	0.07906

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)	0.07492	0.64160	6.64736
	B->Y (RR)	0.06683	0.60998	6.59570
sky130_osu_sc_18T_hs__or2_2	A->Y (RR)	0.08254	0.57749	6.77033
	B->Y (RR)	0.07405	0.55021	6.71375
sky130_osu_sc_18T_hs__or2_4	A->Y (RR)	0.10808	0.57742	7.10995
	B->Y (RR)	0.09934	0.55578	7.04275
sky130_osu_sc_18T_hs__or2_8	A->Y (RR)	0.15555	0.63228	7.58252
	B->Y (RR)	0.14660	0.61654	7.51740
sky130_osu_sc_18T_hs__or2_l	A->Y (RR)	0.08280	0.72893	6.82024
	B->Y (RR)	0.07515	0.69902	6.73965

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)	0.13452	0.72653	6.60788
	B->Y (FF)	0.11040	0.66934	6.31189
sky130_osu_sc_18T_hs__or2_2	A->Y (FF)	0.16318	0.72218	6.82005
	B->Y (FF)	0.13926	0.67666	6.49141
sky130_osu_sc_18T_hs__or2_4	A->Y (FF)	0.23108	0.78550	7.23598
	B->Y (FF)	0.20725	0.74707	6.89667
sky130_osu_sc_18T_hs__or2_8	A->Y (FF)	0.36841	0.93616	7.72566
	B->Y (FF)	0.34468	0.89326	7.39964
sky130_osu_sc_18T_hs__or2_l	A->Y (FF)	0.14864	0.76983	6.38283
	B->Y (FF)	0.12485	0.72137	6.12152

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	0.00576	0.00517	0.01008
	B	0.00000	0.00000	0.00000
	B	0.00413	0.00380	0.01220
sky130_osu_sc_18T_hs__or2_2	A	0.00000	0.00000	0.00000
	A	0.00980	0.00954	0.01932
	B	0.00000	0.00000	0.00000
	B	0.00811	0.00818	0.01581
sky130_osu_sc_18T_hs__or2_4	A	0.00000	0.00000	0.00000
	A	0.01849	0.01883	0.02397
	B	0.00000	0.00000	0.00000
	B	0.01679	0.01760	0.02488
sky130_osu_sc_18T_hs__or2_8	A	0.00000	0.00000	0.00000
	A	0.03598	0.03730	0.04437
	B	0.00000	0.00000	0.00000
	B	0.03414	0.03616	0.04447
sky130_osu_sc_18T_hs__or2_l	A	0.00000	0.00000	0.00000
	A	0.00428	0.00383	0.00708
	B	0.00000	0.00000	0.00000
	B	0.00320	0.00291	0.00815

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	0.01192	0.01182	0.01574
	B	0.00000	0.00000	0.00000
	B	0.00993	0.01043	0.02156
sky130_osu_sc_18T_hs__or2_2	A	0.00000	0.00000	0.00000
	A	0.01456	0.01503	0.01873
	B	0.00000	0.00000	0.00000
	B	0.01259	0.01352	0.02401
sky130_osu_sc_18T_hs__or2_4	A	0.00000	0.00000	0.00000
	A	0.02137	0.02270	0.02623
	B	0.00000	0.00000	0.00000
	B	0.01937	0.02103	0.03088
sky130_osu_sc_18T_hs__or2_8	A	0.00000	0.00000	0.00000
	A	0.03625	0.03747	0.04156
	B	0.00000	0.00000	0.00000
	B	0.03439	0.03555	0.04548
sky130_osu_sc_18T_hs__or2_l	A	0.00000	0.00000	0.00000
	A	0.00910	0.00896	0.01164
	B	0.00000	0.00000	0.00000
	B	0.00770	0.00797	0.01481

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)	-0.00289	-0.00336	-0.00340
sky130_osu_sc_18T_hs__or2_2	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00289	-0.00336	-0.00339
sky130_osu_sc_18T_hs__or2_4	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00289	-0.00336	-0.00340
sky130_osu_sc_18T_hs__or2_8	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00289	-0.00337	-0.00340
sky130_osu_sc_18T_hs__or2_l	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00210	-0.00241	-0.00243

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)	0.00337	0.00340	0.00340
sky130_osu_sc_18T_hs__or2_2	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00337	0.00340	0.00339
sky130_osu_sc_18T_hs__or2_4	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00337	0.00340	0.00340
sky130_osu_sc_18T_hs__or2_8	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00337	0.00340	0.00340
sky130_osu_sc_18T_hs__or2_l	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00241	0.00243	0.00243

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)	-0.00173	-0.00175	-0.00174
sky130_osu_sc_18T_hs__or2_2	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00173	-0.00175	-0.00174
sky130_osu_sc_18T_hs__or2_4	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00173	-0.00175	-0.00174
sky130_osu_sc_18T_hs__or2_8	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00173	-0.00175	-0.00174
sky130_osu_sc_18T_hs__or2_l	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00131	-0.00131	-0.00131

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)	0.00186	0.00186	0.00178
sky130_osu_sc_18T_hs__or2_2	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00184	0.00186	0.00178
sky130_osu_sc_18T_hs__or2_4	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00185	0.00186	0.00178
sky130_osu_sc_18T_hs__or2_8	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00185	0.00186	0.00178
sky130_osu_sc_18T_hs__or2_l	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00139	0.00139	0.00133

SKY130_OSU_SC_18T_HS__TBUFIx

sky130_osu_sc_18T_hs_tt_1P50_25C.ccs
Cell Library: Process , Voltage 1.50,
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	0.00551	0.00697	1.03997
sky130_osu_sc_18T_hs__tbufi_l	0.00431	0.00547	0.71841

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__tbufi_1	0.00000	0.05087	0.18776
sky130_osu_sc_18T_hs__tbufi_l	0.00000	0.03946	0.13951

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)	0.05423	0.94733	11.25970
	OE->Y (FR)	0.05436	0.32734	4.44579
	OE->Y (RR)	0.09531	0.77017	6.73652
sky130_osu_sc_18T_hs__tbufi_l	A->Y (FR)	0.06585	1.05938	11.40570
	OE->Y (FR)	0.05893	0.32713	4.44566
	OE->Y (RR)	0.10572	0.88762	6.89849

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)	0.03225	0.57708	6.93269
	OE->Y (FF)	0.05509	0.32731	4.44572
	OE->Y (RF)	0.03113	0.54983	6.52888
sky130_osu_sc_18T_hs__tbufi_l	A->Y (RF)	0.03633	0.61015	6.83294
	OE->Y (FF)	0.05984	0.32716	4.44561
	OE->Y (RF)	0.03557	0.58528	6.36636

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	0.00520	0.00522	0.00598
	OE	0.00000	0.00000	0.00000
	OE	0.00524	0.00492	0.01558
sky130_osu_sc_18T_hs__tbufi_l	A	0.00000	0.00000	0.00000
	A	0.00401	0.00398	0.00493
	OE	0.00000	0.00000	0.00000
	OE	0.00377	0.00346	0.01010

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	-0.00083	-0.00085	-0.00027
	OE	0.00000	0.00000	0.00000
	OE	0.00371	0.00335	0.01554
sky130_osu_sc_18T_hs__tbufi_l	A	0.00000	0.00000	0.00000
	A	-0.00057	-0.00055	-0.00020
	OE	0.00000	0.00000	0.00000
	OE	0.00261	0.00229	0.00958

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)	-0.00277	-0.00280	-0.00278
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	-0.00249	-0.00252	-0.00251
sky130_osu_sc_18T_hs__tbufi_l	(!OE * Y)	0.00000	0.00000	0.00000
	(!OE * Y)	-0.00213	-0.00215	-0.00213
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	-0.00195	-0.00198	-0.00196

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)	0.00277	0.00280	0.00278
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	0.00257	0.00259	0.00255
sky130_osu_sc_18T_hs__tbufi_l	(!OE * Y)	0.00000	0.00000	0.00000
	(!OE * Y)	0.00213	0.00215	0.00213
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	0.00200	0.00201	0.00198

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)	0.00217	0.00188	0.01422
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00197	0.00163	0.01395
sky130_osu_sc_18T_hs__tbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00150	0.00121	0.00860
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00134	0.00103	0.00840

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)	0.00607	0.00597	0.01902
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00609	0.00606	0.01911
sky130_osu_sc_18T_hs__tbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00481	0.00462	0.01253
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00485	0.00472	0.01261

SKY130_OSU_SC_18T_HS__TNBUFIx

sky130_osu_sc_18T_hs_tt_1P50_25C.ccs
Cell Library: Process , Voltage 1.50,
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	0.00550	0.00861	1.03997
sky130_osu_sc_18T_hs__tnbufi_l	0.00430	0.00650	0.71839

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__tnbufi_1	0.00000	0.08078	0.09803
sky130_osu_sc_18T_hs__tnbufi_l	0.00000	0.06116	0.07441

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)	0.05482	0.94739	11.25970
	OE->Y (RR)	0.02869	0.32757	4.44680
	OE->Y (FR)	0.07020	0.98735	11.52700
sky130_osu_sc_18T_hs__tnbufi_l	A->Y (FR)	0.06653	1.05936	11.40550
	OE->Y (RR)	0.02984	0.32785	4.44716
	OE->Y (FR)	0.07948	1.08820	11.50460

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)	0.03178	0.57691	6.93252
	OE->Y (RF)	0.02842	0.32755	4.44677
	OE->Y (FF)	0.06109	0.55013	4.85899
sky130_osu_sc_18T_hs__tnbufi_l	A->Y (RF)	0.03575	0.60994	6.83261
	OE->Y (RF)	0.02955	0.32785	4.44717
	OE->Y (FF)	0.06897	0.59612	4.68060

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	0.00533	0.00535	0.00611
	OE	0.00000	0.00000	0.00000
	OE	0.01291	0.01322	0.02716
sky130_osu_sc_18T_hs__tnbufi_l	A	0.00000	0.00000	0.00000
	A	0.00414	0.00411	0.00506
	OE	0.00000	0.00000	0.00000
	OE	0.00970	0.00987	0.01828

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	-0.00101	-0.00101	-0.00043
	OE	0.00000	0.00000	0.00000
	OE	0.01160	0.01222	0.02460
sky130_osu_sc_18T_hs__tnbufi_l	A	0.00000	0.00000	0.00000
	A	-0.00073	-0.00071	-0.00036
	OE	0.00000	0.00000	0.00000
	OE	0.00870	0.00899	0.01641

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)	-0.00239	-0.00242	-0.00240
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	-0.00214	-0.00217	-0.00215
sky130_osu_sc_18T_hs__tnbufi_l	(OE * Y)	0.00000	0.00000	0.00000
	(OE * Y)	-0.00177	-0.00179	-0.00177
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	-0.00160	-0.00162	-0.00161

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)	0.00239	0.00242	0.00240
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	0.00221	0.00223	0.00219
sky130_osu_sc_18T_hs__tnbufi_l	(OE * Y)	0.00000	0.00000	0.00000
	(OE * Y)	0.00177	0.00179	0.00177
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	0.00165	0.00166	0.00163

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)	-0.00387	-0.00459	0.00840
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00388	-0.00444	0.00844
sky130_osu_sc_18T_hs__tnbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	-0.00278	-0.00334	0.00444
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00277	-0.00324	0.00446

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)	0.00980	0.01033	0.02408
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00966	0.01018	0.02394
sky130_osu_sc_18T_hs__tnbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00742	0.00764	0.01594
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00731	0.00753	0.01588

SKY130_OSU_SC_18T_HS__XNOR2

sky130_osu_sc_18T_hs_tt_1P50_25C.ccs
Cell Library: Process , Voltage 1.50,
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	0.01089	0.00991	1.08222

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__xnor2_l	0.00000	0.16668	0.28579

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	0.12111	0.82617	7.08000
	A->Y (FR)	!B	0.07115	0.97657	11.51360
	B->Y (RR)	A	0.09495	0.79621	7.03866
	B->Y (FR)	!A	0.09634	1.02201	11.77390

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	0.10468	0.65602	5.38044
	A->Y (RF)	!B	0.04737	0.58375	6.85347
	B->Y (FF)	A	0.09447	0.64520	5.37685
	B->Y (RF)	!A	0.05687	0.59693	6.86151

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	0.00505	0.00456	0.01475
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.01256	0.01285	0.02717
	B	A	0.00000	0.00000	0.00000
	B	A	0.00173	0.00152	0.01336
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01384	0.01372	0.02724

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	0.01618	0.01602	0.02833
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00377	0.00324	0.01523
	B	A	0.00000	0.00000	0.00000
	B	A	0.01454	0.01509	0.02786
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00502	0.00437	0.01632

SKY130_OSU_SC_18T_HS__XOR2

sky130_osu_sc_18T_hs_tt_1P50_25C.ccs
Cell Library: Process , Voltage 1.50,
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	0.01087	0.00996	1.06375

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__xor2_1	0.00000	0.16668	0.25971

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	0.11465	0.80293	6.95484
	A->Y (FR)	B	0.08790	1.01273	11.71790
	B->Y (RR)	!A	0.09834	0.79531	6.96557
	B->Y (FR)	A	0.09440	1.01903	11.70610

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	0.09411	0.63344	5.14568
	A->Y (RF)	B	0.04418	0.60068	7.03603
	B->Y (FF)	!A	0.08806	0.62784	5.17956
	B->Y (RF)	A	0.05278	0.57993	6.63474

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	0.01487	0.01495	0.02862
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00259	0.00151	0.01300
	B	A	0.00000	0.00000	0.00000
	B	A	0.01520	0.01531	0.02890
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00153	0.00122	0.01310

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	0.00341	0.00267	0.01496
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.01646	0.01685	0.02868
	B	A	0.00000	0.00000	0.00000
	B	A	0.00343	0.00272	0.01482
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01476	0.01537	0.02828

SKY130_OSU_SC_18T_HS_x

sky130_osu_sc_18T_hs_tt_1P50_25C.ccs
Cell Library: Process , Voltage 1.50,
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	0.53675
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	200060.00000	400120.00000
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
	-0.00226	0.04562	0.61720

Passive power(pJ) for A falling :

Cell Name	Power(pJ)		
	first	mid	last
sky130_osu_sc_18T_hs__ant	0.00000	0.00000	0.00000
	3.48186	3.29155	0.77180