sky130_osu_sc_18T_hs_tt_1P35_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_1P35_25C.ccs
Cell Library: Process , Voltage 1.35,
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	0.01944	0.01947	0.01496	1.63699	0.71905	1.59262
sky130_osu_sc_18T_hs__addf_l	0.01943	0.01946	0.01493	1.11767	0.72173	1.13059

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__addf_1	0.00000	0.12975	0.16954
sky130_osu_sc_18T_hs__addf_l	0.00000	0.11991	0.15970

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)	0.19688	1.96987	24.48770
	B->CO (RR)	0.17680	1.87977	23.50500
	CI->CO (RR)	0.18783	1.99206	24.92180
	CON->CO (FR)	0.04084	0.92147	12.11830
sky130_osu_sc_18T_hs__addf_l	A->CO (RR)	0.20023	1.85289	20.18880
	B->CO (RR)	0.18062	1.77684	19.51590
	CI->CO (RR)	0.19118	1.87555	20.64420
	CON->CO (FR)	0.04771	1.00594	12.12930

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)	0.32761	2.81822	34.43650
	B->CO (FF)	0.29555	2.71010	33.32700
	CI->CO (FF)	0.28665	2.73922	34.00680
	CON->CO (RF)	0.02821	0.64221	8.44325
sky130_osu_sc_18T_hs__addf_l	A->CO (FF)	0.32192	2.50280	26.69840
	B->CO (FF)	0.29040	2.41031	25.91130
	CI->CO (FF)	0.28086	2.42407	26.28840
	CON->CO (RF)	0.03024	0.66135	8.08323

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)	0.24580	1.32413	12.30590
	B->CON (FR)	0.21608	1.25865	11.97710
	CI->CON (FR)	0.20501	1.24545	11.93120
sky130_osu_sc_18T_hs__addf_l	A->CON (FR)	0.23415	1.31394	12.31530
	B->CON (FR)	0.20510	1.24896	11.98860
	CI->CON (FR)	0.19330	1.23550	11.94610

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)	0.10697	0.68246	6.66846
	B->CON (RF)	0.09976	0.67627	6.76934
	CI->CON (RF)	0.09790	0.70732	7.16691
sky130_osu_sc_18T_hs__addf_l	A->CON (RF)	0.10300	0.67913	6.67705
	B->CON (RF)	0.09616	0.67346	6.77763
	CI->CON (RF)	0.09388	0.70404	7.17571

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)	0.46576	2.73740	28.20340
	B->S (-R)	0.46108	2.71061	27.68720
	CI->S (-R)	0.42142	2.65075	27.75660
	CON->S (RR)	0.11500	0.84067	7.79493
sky130_osu_sc_18T_hs__addf_l	A->S (-R)	0.44748	2.53600	23.76810
	B->S (-R)	0.44346	2.51776	23.45650
	CI->S (-R)	0.40299	2.44807	23.33610
	CON->S (RR)	0.11691	0.90989	7.80201

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)	0.33858	1.77695	17.11340
	B->S (-F)	0.34885	1.71115	16.53600
	CI->S (-F)	0.32872	1.79388	17.54230
	CON->S (FF)	0.14242	0.82834	6.76488
sky130_osu_sc_18T_hs__addf_l	A->S (-F)	0.32069	1.62065	14.27170
	B->S (-F)	0.31265	1.53448	13.89300
	CI->S (-F)	0.31067	1.63752	14.72070
	CON->S (FF)	0.13666	0.83336	6.48177

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	0.00279	0.00263	0.00313
	B	0.00345	0.00343	0.00399
	CI	0.00350	0.00360	0.00441
sky130_osu_sc_18T_hs__addf_l	A	0.00226	0.00204	0.00239
	B	0.00292	0.00282	0.00323
	CI	0.00296	0.00301	0.00354

Internal switching power(pJ) to CO falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__addf_1	A	0.00982	0.00985	0.01118
	B	0.00969	0.00987	0.01123
	CI	0.00849	0.00884	0.01028
sky130_osu_sc_18T_hs__addf_l	A	0.00929	0.00927	0.01006
	B	0.00915	0.00929	0.01008
	CI	0.00795	0.00825	0.00912

Internal switching power(pJ) to CON rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__addf_1	A	0.00980	0.00980	0.01020
	B	0.00967	0.00981	0.01019
	CI	0.00848	0.00875	0.00923
sky130_osu_sc_18T_hs__addf_l	A	0.00928	0.00925	0.00965
	B	0.00914	0.00926	0.00964
	CI	0.00794	0.00820	0.00867

Internal switching power(pJ) to CON falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__addf_1	A	0.00274	0.00257	0.00270
	B	0.00340	0.00333	0.00352
	CI	0.00349	0.00357	0.00393
sky130_osu_sc_18T_hs__addf_l	A	0.00221	0.00200	0.00217
	B	0.00288	0.00275	0.00294
	CI	0.00295	0.00298	0.00333

Internal switching power(pJ) to S rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__addf_1	A	0.00982	0.00985	0.01111
	B	0.00968	0.00987	0.01121
	CI	0.00849	0.00883	0.01018
sky130_osu_sc_18T_hs__addf_l	A	0.00929	0.00928	0.01012
	B	0.00916	0.00929	0.01011
	CI	0.00796	0.00825	0.00914

Internal switching power(pJ) to S falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__addf_1	A	0.02038	0.02055	0.02076
	B	0.01834	0.01799	0.02009
	CI	0.01654	0.01663	0.01696
sky130_osu_sc_18T_hs__addf_l	A	0.01963	0.01963	0.01978
	B	0.01760	0.01713	0.01939
	CI	0.01582	0.01581	0.01616

SKY130_OSU_SC_18T_HS__ADDHx

sky130_osu_sc_18T_hs_tt_1P35_25C.ccs
Cell Library: Process , Voltage 1.35,
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	0.00958	0.01046	1.61355	0.76833	1.62008
sky130_osu_sc_18T_hs__addh_l	0.00958	0.01046	0.97952	0.75491	0.98884

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__addh_1	0.00000	0.14550	0.16656
sky130_osu_sc_18T_hs__addh_l	0.00000	0.10185	0.13231

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)	0.13822	0.86015	7.63459
	B->CO (RR)	0.14292	0.86021	7.76134
sky130_osu_sc_18T_hs__addh_l	A->CO (RR)	0.13900	0.94487	7.48892
	B->CO (RR)	0.14365	0.94721	7.61795

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)	0.12561	0.79070	6.74817
	B->CO (FF)	0.13348	0.80454	6.80720
sky130_osu_sc_18T_hs__addh_l	A->CO (FF)	0.12235	0.81052	6.34232
	B->CO (FF)	0.13004	0.82491	6.40428

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	0.19045	0.71705	4.07534
	A->CON (FR)	!B	0.14087	1.17051	11.95230
	B->CON (RR)	A	0.19505	0.71652	4.19351
	B->CON (FR)	!A	0.17175	1.24076	12.37730
sky130_osu_sc_18T_hs__addh_l	A->CON (RR)	B	0.17093	0.68359	3.90645
	A->CON (FR)	!B	0.12545	1.14698	11.81140
	B->CON (RR)	A	0.17557	0.68537	4.03209
	B->CON (FR)	!A	0.15638	1.21709	12.23850

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	0.17992	0.84367	5.87606
	A->CON (RF)	!B	0.06537	0.67070	7.21701
	B->CON (FF)	A	0.18259	0.87506	6.15808
	B->CON (RF)	!A	0.07562	0.66321	6.96990
sky130_osu_sc_18T_hs__addh_l	A->CON (FF)	B	0.16281	0.80667	5.63046
	A->CON (RF)	!B	0.06032	0.66167	7.14763
	B->CON (FF)	A	0.16523	0.83851	5.91257
	B->CON (RF)	!A	0.07073	0.65495	6.90211

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	0.14430	1.89213	24.17810
	A->S (FR)	B	0.25939	2.03910	22.47440
	B->S (RR)	!A	0.15405	1.83475	23.20030
	B->S (FR)	A	0.26357	2.12040	23.49310
	CON->S (FR)	-	0.04486	0.94017	12.30870
sky130_osu_sc_18T_hs__addh_l	A->S (RR)	!B	0.14340	1.74596	19.04840
	A->S (FR)	B	0.24668	1.87531	17.30820
	B->S (RR)	!A	0.15357	1.70407	18.42980
	B->S (FR)	A	0.25032	1.94089	17.97790
	CON->S (FR)	-	0.05211	1.04580	12.22010

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	0.20865	2.51734	32.07030
	A->S (RF)	B	0.24343	1.59538	16.60740
	B->S (FF)	!A	0.23974	2.59271	32.54780
	B->S (RF)	A	0.24796	1.59463	16.73450
	CON->S (RF)	-	0.02652	0.62598	8.23183
sky130_osu_sc_18T_hs__addh_l	A->S (FF)	!B	0.19703	2.15645	23.32640
	A->S (RF)	B	0.22604	1.40004	11.83740
	B->S (FF)	!A	0.22798	2.22937	23.77050
	B->S (RF)	A	0.23067	1.40154	11.95510
	CON->S (RF)	-	0.02973	0.66552	7.96081

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	0.00428	0.00411	0.00423
	B	0.00000	0.00000	0.00000
	B	0.00391	0.00375	0.00370
sky130_osu_sc_18T_hs__addh_l	A	0.00000	0.00000	0.00000
	A	0.00352	0.00324	0.00362
	B	0.00000	0.00000	0.00000
	B	0.00315	0.00289	0.00327

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	0.00679	0.00655	0.00696
	B	0.00000	0.00000	0.00000
	B	0.00701	0.00703	0.00746
sky130_osu_sc_18T_hs__addh_l	A	0.00000	0.00000	0.00000
	A	0.00602	0.00575	0.00631
	B	0.00000	0.00000	0.00000
	B	0.00624	0.00621	0.00685

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	0.00427	0.00406	0.00434
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00584	0.00583	0.00598
	B	A	0.00000	0.00000	0.00000
	B	A	0.00390	0.00371	0.00405
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00648	0.00645	0.00646
sky130_osu_sc_18T_hs__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.00351	0.00323	0.00361
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00532	0.00528	0.00542
	B	A	0.00000	0.00000	0.00000
	B	A	0.00314	0.00288	0.00305
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00596	0.00590	0.00589

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	0.00679	0.00657	0.00710
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00104	0.00102	0.00094
	B	A	0.00000	0.00000	0.00000
	B	A	0.00701	0.00701	0.00745
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00173	0.00164	0.00165
sky130_osu_sc_18T_hs__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.00602	0.00576	0.00635
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00040	0.00037	0.00025
	B	A	0.00000	0.00000	0.00000
	B	A	0.00624	0.00620	0.00691
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00108	0.00099	0.00097

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	0.00680	0.00656	0.00717
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00105	0.00107	0.00107
	B	A	0.00000	0.00000	0.00000
	B	A	0.00701	0.00703	0.00773
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00175	0.00169	0.00165
sky130_osu_sc_18T_hs__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.00603	0.00577	0.00643
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00041	0.00038	0.00036
	B	A	0.00000	0.00000	0.00000
	B	A	0.00625	0.00621	0.00674
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00110	0.00100	0.00101

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	0.00428	0.00406	0.00411
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00584	0.00588	0.00603
	B	A	0.00000	0.00000	0.00000
	B	A	0.00391	0.00371	0.00366
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00648	0.00649	0.00653
sky130_osu_sc_18T_hs__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.00351	0.00324	0.00361
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00531	0.00530	0.00545
	B	A	0.00000	0.00000	0.00000
	B	A	0.00314	0.00288	0.00322
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00596	0.00591	0.00592

SKY130_OSU_SC_18T_HS__AND2x

sky130_osu_sc_18T_hs_tt_1P35_25C.ccs
Cell Library: Process , Voltage 1.35,
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	0.00515	0.00527	1.60508
sky130_osu_sc_18T_hs__and2_2	0.00516	0.00527	3.18064
sky130_osu_sc_18T_hs__and2_4	0.00515	0.00527	6.05303
sky130_osu_sc_18T_hs__and2_6	0.00519	0.00527	8.97610
sky130_osu_sc_18T_hs__and2_8	0.00517	0.00528	11.62181
sky130_osu_sc_18T_hs__and2_l	0.00403	0.00415	1.11934

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__and2_1	0.00000	0.06931	0.11034
sky130_osu_sc_18T_hs__and2_2	0.00000	0.11030	0.11343
sky130_osu_sc_18T_hs__and2_4	0.00000	0.19229	0.21760
sky130_osu_sc_18T_hs__and2_6	0.00000	0.27427	0.32485
sky130_osu_sc_18T_hs__and2_8	0.00000	0.35625	0.43210
sky130_osu_sc_18T_hs__and2_l	0.00000	0.05680	0.09014

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)	0.10530	0.77587	7.18596
	B->Y (RR)	0.11132	0.78562	7.31999
sky130_osu_sc_18T_hs__and2_2	A->Y (RR)	0.12101	0.72509	7.50796
	B->Y (RR)	0.12696	0.72661	7.62692
sky130_osu_sc_18T_hs__and2_4	A->Y (RR)	0.16694	0.74290	7.89877
	B->Y (RR)	0.17283	0.73516	7.99202
sky130_osu_sc_18T_hs__and2_6	A->Y (RR)	0.21108	0.78882	8.29595
	B->Y (RR)	0.21691	0.77596	8.37051
sky130_osu_sc_18T_hs__and2_8	A->Y (RR)	0.25483	0.84118	8.59338
	B->Y (RR)	0.26072	0.82483	8.63926
sky130_osu_sc_18T_hs__and2_1	A->Y (RR)	0.11713	0.87769	7.41390
	B->Y (RR)	0.12337	0.88388	7.54019

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)	0.09474	0.70612	6.15679
	B->Y (FF)	0.10099	0.72375	6.25207
sky130_osu_sc_18T_hs__and2_2	A->Y (FF)	0.11186	0.69807	6.47590
	B->Y (FF)	0.11885	0.71254	6.56138
sky130_osu_sc_18T_hs__and2_4	A->Y (FF)	0.15821	0.74069	6.91639
	B->Y (FF)	0.16554	0.75162	6.98438
sky130_osu_sc_18T_hs__and2_6	A->Y (FF)	0.20712	0.79315	7.29792
	B->Y (FF)	0.21436	0.80250	7.35476
sky130_osu_sc_18T_hs__and2_8	A->Y (FF)	0.25260	0.83948	7.49415
	B->Y (FF)	0.26030	0.84891	7.55261
sky130_osu_sc_18T_hs__and2_l	A->Y (FF)	0.10366	0.75281	6.04195
	B->Y (FF)	0.11151	0.77221	6.15482

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	0.00338	0.00297	0.00499
	B	0.00000	0.00000	0.00000
	B	0.00344	0.00298	0.00397
sky130_osu_sc_18T_hs__and2_2	A	0.00000	0.00000	0.00000
	A	0.00655	0.00683	0.00832
	B	0.00000	0.00000	0.00000
	B	0.00661	0.00685	0.00757
sky130_osu_sc_18T_hs__and2_4	A	0.00000	0.00000	0.00000
	A	0.01341	0.01376	0.01575
	B	0.00000	0.00000	0.00000
	B	0.01346	0.01392	0.01493
sky130_osu_sc_18T_hs__and2_6	A	0.00000	0.00000	0.00000
	A	0.02022	0.02098	0.02250
	B	0.00000	0.00000	0.00000
	B	0.02031	0.02112	0.02375
sky130_osu_sc_18T_hs__and2_8	A	0.00000	0.00000	0.00000
	A	0.02712	0.02793	0.02990
	B	0.00000	0.00000	0.00000
	B	0.02719	0.02827	0.02965
sky130_osu_sc_18T_hs__and2_l	A	0.00000	0.00000	0.00000
	A	0.00251	0.00217	0.00340
	B	0.00000	0.00000	0.00000
	B	0.00257	0.00219	0.00278

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	0.00816	0.00809	0.01072
	B	0.00000	0.00000	0.00000
	B	0.00917	0.00910	0.01152
sky130_osu_sc_18T_hs__and2_2	A	0.00000	0.00000	0.00000
	A	0.01028	0.01065	0.01317
	B	0.00000	0.00000	0.00000
	B	0.01131	0.01162	0.01393
sky130_osu_sc_18T_hs__and2_4	A	0.00000	0.00000	0.00000
	A	0.01553	0.01679	0.01936
	B	0.00000	0.00000	0.00000
	B	0.01655	0.01766	0.02001
sky130_osu_sc_18T_hs__and2_6	A	0.00000	0.00000	0.00000
	A	0.02087	0.02292	0.02574
	B	0.00000	0.00000	0.00000
	B	0.02184	0.02374	0.02624
sky130_osu_sc_18T_hs__and2_8	A	0.00000	0.00000	0.00000
	A	0.02614	0.02884	0.03198
	B	0.00000	0.00000	0.00000
	B	0.02704	0.02955	0.03234
sky130_osu_sc_18T_hs__and2_l	A	0.00000	0.00000	0.00000
	A	0.00636	0.00627	0.00788
	B	0.00000	0.00000	0.00000
	B	0.00713	0.00701	0.00851

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)	-0.00299	-0.00302	-0.00303
sky130_osu_sc_18T_hs__and2_2	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00299	-0.00302	-0.00303
sky130_osu_sc_18T_hs__and2_4	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00299	-0.00302	-0.00302
sky130_osu_sc_18T_hs__and2_6	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00300	-0.00303	-0.00304
sky130_osu_sc_18T_hs__and2_8	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00299	-0.00301	-0.00302
sky130_osu_sc_18T_hs__and2_l	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00223	-0.00225	-0.00226

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)	0.00302	0.00305	0.00303
sky130_osu_sc_18T_hs__and2_2	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00302	0.00305	0.00303
sky130_osu_sc_18T_hs__and2_4	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00302	0.00304	0.00304
sky130_osu_sc_18T_hs__and2_6	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00304	0.00306	0.00305
sky130_osu_sc_18T_hs__and2_8	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00302	0.00305	0.00304
sky130_osu_sc_18T_hs__and2_l	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00225	0.00227	0.00226

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)	-0.00283	-0.00285	-0.00284
sky130_osu_sc_18T_hs__and2_2	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00283	-0.00285	-0.00284
sky130_osu_sc_18T_hs__and2_4	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00283	-0.00285	-0.00284
sky130_osu_sc_18T_hs__and2_6	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00283	-0.00285	-0.00284
sky130_osu_sc_18T_hs__and2_8	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00283	-0.00285	-0.00283
sky130_osu_sc_18T_hs__and2_l	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00212	-0.00213	-0.00212

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)	0.00288	0.00288	0.00285
sky130_osu_sc_18T_hs__and2_2	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00288	0.00288	0.00285
sky130_osu_sc_18T_hs__and2_4	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00288	0.00288	0.00285
sky130_osu_sc_18T_hs__and2_6	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00288	0.00288	0.00285
sky130_osu_sc_18T_hs__and2_8	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00289	0.00288	0.00285
sky130_osu_sc_18T_hs__and2_l	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00216	0.00214	0.00213

SKY130_OSU_SC_18T_HS__AOI21

sky130_osu_sc_18T_hs_tt_1P35_25C.ccs
Cell Library: Process , Voltage 1.35,
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	0.00488	0.00508	0.00492	0.71699

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__aoi21_l	0.00000	0.02751	0.05363

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)	0.13153	1.21043	12.19820
	A1->Y (FR)	0.11356	1.15918	11.88970
	B0->Y (FR)	0.09561	1.13541	11.82450

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)	0.05726	0.61173	6.39180
	A1->Y (RF)	0.05164	0.62370	6.71263
	B0->Y (RF)	0.03501	0.58867	6.56684

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	0.00694	0.00688	0.00691
	A1	0.00000	0.00000	0.00000
	A1	0.00586	0.00577	0.00580
	B0	0.00552	0.00539	0.00561

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	0.00164	0.00142	0.00137
	A1	0.00000	0.00000	0.00000
	A1	0.00166	0.00142	0.00142
	B0	-0.00062	-0.00068	-0.00066

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)	-0.00241	-0.00263	-0.00262
	(!A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !Y)	-0.00267	-0.00267	-0.00268
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00267	-0.00269	-0.00267

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)	0.00260	0.00263	0.00262
	(!A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !Y)	0.00267	0.00267	0.00268
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00271	0.00269	0.00268

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)	-0.00239	-0.00260	-0.00259
	(!A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !Y)	-0.00263	-0.00266	-0.00264
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	-0.00285	-0.00286	-0.00288

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)	0.00257	0.00260	0.00259
	(!A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !Y)	0.00264	0.00268	0.00265
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	0.00288	0.00290	0.00289

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)	-0.00141	-0.00143	-0.00142

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)	0.00160	0.00161	0.00147

SKY130_OSU_SC_18T_HS__AOI22

sky130_osu_sc_18T_hs_tt_1P35_25C.ccs
Cell Library: Process , Voltage 1.35,
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	0.00489	0.00508	0.00525	0.00503	0.69692

Leakage Information

Cell Name	Leakage(nW)		
	Min.	**Avg**	**Max.**
sky130_osu_sc_18T_hs__aoi22_l	0.00000	0.03029	0.10725

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)	0.16763	1.25377	12.17940
	A1->Y (FR)	0.15021	1.21903	12.02160
	B0->Y (FR)	0.10104	1.12862	11.63710
	B1->Y (FR)	0.11850	1.16522	11.83150

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)	0.07353	0.62558	6.32161
	A1->Y (RF)	0.06797	0.63791	6.64009
	B0->Y (RF)	0.04141	0.60467	6.60346
	B1->Y (RF)	0.04701	0.59183	6.28686

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	0.00855	0.00847	0.00848
	A1	0.00749	0.00736	0.00737
	B0	0.00592	0.00574	0.00605
	B1	0.00695	0.00681	0.00711

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__aoi22_l	A0	0.00327	0.00306	0.00296
	A1	0.00329	0.00306	0.00301
	B0	-0.00035	-0.00042	-0.00036
	B1	-0.00029	-0.00039	-0.00038

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)	-0.00244	-0.00263	-0.00262
	(!A1 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * B1 * !Y)	-0.00267	-0.00269	-0.00267
	(!A1 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !B1 * Y)	-0.00267	-0.00269	-0.00267
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00267	-0.00269	-0.00267

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)	0.00260	0.00263	0.00262
	(!A1 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * B1 * !Y)	0.00267	0.00271	0.00268
	(!A1 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !B1 * Y)	0.00271	0.00269	0.00268
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00271	0.00269	0.00268

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)	-0.00242	-0.00258	-0.00259
	(!A0 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * B1 * !Y)	-0.00263	-0.00266	-0.00264
	(!A0 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !B1 * Y)	-0.00284	-0.00286	-0.00288
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	-0.00285	-0.00285	-0.00288

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)	0.00257	0.00258	0.00259
	(!A0 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * B1 * !Y)	0.00264	0.00268	0.00265
	(!A0 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !B1 * Y)	0.00288	0.00290	0.00289
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	0.00288	0.00290	0.00289

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)	-0.00142	-0.00143	-0.00143
	(A0 * A1 * !B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B1 * !Y)	-0.00142	-0.00142	-0.00142
	(!A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B1 * Y)	-0.00293	-0.00295	-0.00296
	(!A0 * A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B1 * Y)	-0.00293	-0.00295	-0.00296

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)	0.00168	0.00169	0.00149
	(A0 * A1 * !B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B1 * !Y)	0.00142	0.00142	0.00142
	(!A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B1 * Y)	0.00295	0.00301	0.00297
	(!A0 * A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B1 * Y)	0.00295	0.00300	0.00297

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)	-0.00143	-0.00144	-0.00143
	(A0 * A1 * !B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B0 * !Y)	-0.00143	-0.00144	-0.00143
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00271	-0.00273	-0.00272
	(!A0 * A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B0 * Y)	-0.00271	-0.00272	-0.00272

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)	0.00169	0.00169	0.00150
	(A0 * A1 * !B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B0 * !Y)	0.00143	0.00144	0.00143
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00276	0.00273	0.00272
	(!A0 * A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B0 * Y)	0.00276	0.00275	0.00272

SKY130_OSU_SC_18T_HS__BUFx

sky130_osu_sc_18T_hs_tt_1P35_25C.ccs
Cell Library: Process , Voltage 1.35,
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	0.00526	1.61350
sky130_osu_sc_18T_hs__buf_2	0.00526	3.16714
sky130_osu_sc_18T_hs__buf_4	0.00525	6.13354
sky130_osu_sc_18T_hs__buf_6	0.00096	1.80000
sky130_osu_sc_18T_hs__buf_8	0.00526	11.72497
sky130_osu_sc_18T_hs__buf_l	0.00418	1.13012

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__buf_1	0.00000	0.05672	0.05672
sky130_osu_sc_18T_hs__buf_2	0.00000	0.08507	0.11034
sky130_osu_sc_18T_hs__buf_4	0.00000	0.14179	0.21760
sky130_osu_sc_18T_hs__buf_6	0.00000	0.00000	0.00000
sky130_osu_sc_18T_hs__buf_8	0.00000	0.25522	0.43210
sky130_osu_sc_18T_hs__buf_l	0.00000	0.04688	0.04688

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)**	0.07917	0.73555	7.15978
sky130_osu_sc_18T_hs__buf_2	**A->Y (RR)**	0.08707	0.66697	7.37500
sky130_osu_sc_18T_hs__buf_4	**A->Y (RR)**	0.11729	0.66707	7.78608
sky130_osu_sc_18T_hs__buf_8	**A->Y (RR)**	0.17530	0.72733	8.32365
sky130_osu_sc_18T_hs__buf_l	**A->Y (RR)**	0.08923	0.83738	7.35420

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)**	0.09016	0.69720	6.12225
sky130_osu_sc_18T_hs__buf_2	**A->Y (FF)**	0.10814	0.69105	6.43656
sky130_osu_sc_18T_hs__buf_4	**A->Y (FF)**	0.15487	0.73682	6.93760
sky130_osu_sc_18T_hs__buf_8	**A->Y (FF)**	0.24968	0.83425	7.51849
sky130_osu_sc_18T_hs__buf_l	**A->Y (FF)**	0.10007	0.74682	6.02990

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	0.00315	0.00266	0.00444
sky130_osu_sc_18T_hs__buf_2	A	0.00000	0.00000	0.00000
	A	0.00634	0.00608	0.00764
sky130_osu_sc_18T_hs__buf_4	A	0.00000	0.00000	0.00000
	A	0.01322	0.01353	0.01549
sky130_osu_sc_18T_hs__buf_8	A	0.00000	0.00000	0.00000
	A	0.02676	0.02807	0.02937
sky130_osu_sc_18T_hs__buf_l	A	0.00000	0.00000	0.00000
	A	0.00241	0.00200	0.00313

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	0.00791	0.00781	0.01040
sky130_osu_sc_18T_hs__buf_2	A	0.00000	0.00000	0.00000
	A	0.01002	0.01028	0.01275
sky130_osu_sc_18T_hs__buf_4	A	0.00000	0.00000	0.00000
	A	0.01529	0.01640	0.01886
sky130_osu_sc_18T_hs__buf_8	A	0.00000	0.00000	0.00000
	A	0.02580	0.02827	0.03125
sky130_osu_sc_18T_hs__buf_l	A	0.00000	0.00000	0.00000
	A	0.00622	0.00609	0.00769

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
	-0.00043	-0.00043	-0.00042

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
	0.00043	0.00043	0.00042

SKY130_OSU_SC_18T_HS__DFFRx

sky130_osu_sc_18T_hs_tt_1P35_25C.ccs
Cell Library: Process , Voltage 1.35,
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	0.00502	0.00499	0.01479	1.58417	1.58957
sky130_osu_sc_18T_hs__dffr_l	0.00502	0.00499	0.01478	1.11924	1.13323

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__dffr_1	0.00000	0.18688	0.27634
sky130_osu_sc_18T_hs__dffr_l	0.00000	0.17704	0.26650

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)	0.45848	1.71879	15.22450
	QN->Q (FR)	0.04649	1.00182	13.05640
sky130_osu_sc_18T_hs__dffr_l	CK->Q (RR)	0.44946	1.80921	14.67730
	QN->Q (FR)	0.05146	1.06622	12.85040

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)	0.42795	1.75935	16.51130
	QN->Q (RF)	0.03241	0.72894	9.50782
	RN->Q (FF)	0.30574	1.80567	18.29400
sky130_osu_sc_18T_hs__dffr_l	CK->Q (RF)	0.43621	1.90395	16.20760
	QN->Q (RF)	0.03319	0.73201	8.95172
	RN->Q (FF)	0.31483	1.95061	17.97660

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)	0.37865	1.06901	7.65639
	RN->QN (FR)	0.25620	1.11497	9.43428
sky130_osu_sc_18T_hs__dffr_l	CK->QN (RR)	0.38101	1.14504	7.72187
	RN->QN (FR)	0.25923	1.19098	9.48827

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)**	0.38637	0.90025	4.79440
sky130_osu_sc_18T_hs__dffr_l	**CK->QN (RF)**	0.37108	0.89616	4.51001

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)	-0.07979	-0.11473	-0.57363
	setup	CK (R)	0.36316	0.38553	1.72016
sky130_osu_sc_18T_hs__dffr_l	hold	CK (R)	-0.08202	-0.11482	-0.57050
	setup	CK (R)	0.36257	0.38635	1.72621

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)	-0.19048	-0.54460	-5.17542
	setup	CK (R)	0.22858	0.56110	5.24117
sky130_osu_sc_18T_hs__dffr_l	hold	CK (R)	-0.19245	-0.54366	-5.17357
	setup	CK (R)	0.22823	0.56110	5.24084

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)	-0.07979	-0.11473	-0.57363
	setup	CK (R)	0.36316	0.38553	1.72016
sky130_osu_sc_18T_hs__dffr_l	hold	CK (R)	-0.08202	-0.11482	-0.57050
	setup	CK (R)	0.36257	0.38635	1.72621

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)	-0.19048	-0.54460	-5.17542
	setup	CK (R)	0.22858	0.56110	5.24117
sky130_osu_sc_18T_hs__dffr_l	hold	CK (R)	-0.19245	-0.54366	-5.17357
	setup	CK (R)	0.22823	0.56110	5.24084

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)	0.30599	0.33007	1.56285
	removal	CK (R)	-0.05680	-0.06596	-0.13625
sky130_osu_sc_18T_hs__dffr_l	recovery	CK (R)	0.30643	0.33131	1.56715
	removal	CK (R)	-0.05680	-0.06596	-0.13625

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)	0.30599	0.33007	1.56285
	removal	CK (R)	-0.05680	-0.06596	-0.13625
sky130_osu_sc_18T_hs__dffr_l	recovery	CK (R)	0.30643	0.33131	1.56715
	removal	CK (R)	-0.05680	-0.06596	-0.13625

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 ()	0.18502	0.53101	13.33370
	min_pulse_width	RN ()	0.18502	0.53101	13.33370
sky130_osu_sc_18T_hs__dffr_l	min_pulse_width	RN ()	0.18502	0.53101	13.33370
	min_pulse_width	RN ()	0.18502	0.53101	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 ()	0.20491	0.53101	13.33370
	min_pulse_width	CK ()	0.23274	0.53101	13.33370
sky130_osu_sc_18T_hs__dffr_l	min_pulse_width	CK ()	0.19298	0.53101	13.33370
	min_pulse_width	CK ()	0.22479	0.53101	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 ()	0.45968	0.56592	13.33370
	min_pulse_width	CK ()	0.18502	0.53101	13.33370
sky130_osu_sc_18T_hs__dffr_l	min_pulse_width	CK ()	0.46181	0.56592	13.33370
	min_pulse_width	CK ()	0.18502	0.53101	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	0.00818	0.00630	-0.00119
sky130_osu_sc_18T_hs__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.00732	0.00588	-0.00260

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	0.00903	0.00814	0.00119
	RN	-0.00108	-0.05360	-0.72179
	RN	0.02046	0.01964	0.01290
sky130_osu_sc_18T_hs__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.00815	0.00746	0.00427
	RN	-0.00108	-0.04351	-0.50995
	RN	0.01958	0.01896	0.01595

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	0.00903	0.00814	0.00124
	RN	-0.00108	-0.05371	-0.72425
	RN	0.02046	0.01964	0.01287
sky130_osu_sc_18T_hs__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.00815	0.00747	0.00428
	RN	-0.00108	-0.04384	-0.51633
	RN	0.01958	0.01896	0.01588

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	0.00812	0.00625	-0.00124
sky130_osu_sc_18T_hs__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.00726	0.00581	-0.00299

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	-0.00225	-0.00259	-0.00262
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00960	0.00911	0.00943
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.00447	0.00403	0.00449
sky130_osu_sc_18T_hs__dffr_l	CK	0.00000	0.00000	0.00000
	CK	-0.00225	-0.00259	-0.00262
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00960	0.00911	0.00943
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.00447	0.00403	0.00449

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	0.00259	0.00261	0.00262
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.01576	0.01552	0.01588
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.00722	0.00704	0.00747
sky130_osu_sc_18T_hs__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.00259	0.00261	0.00262
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.01576	0.01552	0.01588
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.00722	0.00704	0.00747

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)	0.00330	0.00281	0.00452
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.00862	0.00791	0.00946
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)	0.00330	0.00281	0.00452
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.00862	0.00791	0.00946

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)	0.00721	0.00691	0.00949
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.01546	0.01489	0.01719
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)	0.00721	0.00691	0.00949
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.01546	0.01489	0.01719

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)	-0.00033	-0.00093	0.00066
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.00450	0.00340	0.00479
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	-0.00072	-0.00136	0.00028
sky130_osu_sc_18T_hs__dffr_l	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	-0.00033	-0.00093	0.00066
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.00450	0.00340	0.00479
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	-0.00072	-0.00136	0.00028

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)	0.01155	0.01138	0.01376
	(D * RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * RN * !Q * QN)	0.02438	0.02359	0.02538
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.01861	0.01816	0.02030
	(!D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * Q * !QN)	0.02418	0.02366	0.02843
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.01266	0.01239	0.01481
sky130_osu_sc_18T_hs__dffr_l	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.01155	0.01138	0.01376
	(D * RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * RN * !Q * QN)	0.02438	0.02359	0.02538
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.01861	0.01816	0.02030
	(!D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * Q * !QN)	0.02418	0.02367	0.02843
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.01266	0.01238	0.01481

SKY130_OSU_SC_18T_HS__DFFSRx

sky130_osu_sc_18T_hs_tt_1P35_25C.ccs
Cell Library: Process , Voltage 1.35,
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	0.00498	0.00500	0.01076	0.01502	1.64669	1.62860
sky130_osu_sc_18T_hs__dffsr_l	0.00498	0.00500	0.01074	0.01502	1.13329	1.13145

Leakage Information

Cell Name	Leakage(nW)		
	Min.	**Avg**	**Max.**
sky130_osu_sc_18T_hs__dffsr_1	0.00000	0.20009	0.27407
sky130_osu_sc_18T_hs__dffsr_l	0.00000	0.19025	0.26423

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)	0.46395	1.71286	15.25860
	QN->Q (FR)	0.04440	0.98152	12.97250
	RN->Q (RR)	0.36749	1.62552	15.28790
	SN->Q (FR)	0.35330	1.78505	17.81760
sky130_osu_sc_18T_hs__dffsr_l	CK->Q (RR)	0.46775	1.84612	14.94870
	QN->Q (FR)	0.05140	1.06977	12.91350
	RN->Q (RR)	0.37195	1.75950	14.96490
	SN->Q (FR)	0.35721	1.91853	17.47630

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)	0.48069	1.80440	16.62070
	QN->Q (RF)	0.02968	0.69276	9.11471
	RN->Q (FF)	0.31770	1.80920	18.42990
sky130_osu_sc_18T_hs__dffsr_l	CK->Q (RF)	0.49469	1.97636	16.45700
	QN->Q (RF)	0.03312	0.73384	8.99509
	RN->Q (FF)	0.33199	1.98286	18.25550

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)	0.43216	1.12232	7.68898
	RN->QN (FR)	0.27026	1.12750	9.49569
sky130_osu_sc_18T_hs__dffsr_l	CK->QN (RR)	0.43827	1.20782	7.77544
	RN->QN (FR)	0.27649	1.21297	9.57184

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)	0.39745	0.90851	4.78646
	RN->QN (RF)	0.30131	0.82246	4.80322
	SN->QN (FF)	0.28743	0.98229	7.34055
sky130_osu_sc_18T_hs__dffsr_l	CK->QN (RF)	0.39184	0.92599	4.61309
	RN->QN (RF)	0.29602	0.84054	4.62989
	SN->QN (FF)	0.28174	0.99972	7.13782

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)	-0.08904	-0.12400	-0.65004
	setup	CK (R)	0.35046	0.36983	1.70183
sky130_osu_sc_18T_hs__dffsr_l	hold	CK (R)	-0.09021	-0.12400	-0.65014
	setup	CK (R)	0.35257	0.36878	1.70228

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)	-0.21468	-0.56468	-5.33600
	setup	CK (R)	0.26538	0.57973	5.38856
sky130_osu_sc_18T_hs__dffsr_l	hold	CK (R)	-0.21449	-0.56267	-5.33524
	setup	CK (R)	0.26471	0.57963	5.38461

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)	-0.08904	-0.12400	-0.65004
	setup	CK (R)	0.35046	0.36983	1.70183
sky130_osu_sc_18T_hs__dffsr_l	hold	CK (R)	-0.09021	-0.12400	-0.65014
	setup	CK (R)	0.35257	0.36878	1.70228

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)	-0.21468	-0.56468	-5.33600
	setup	CK (R)	0.26538	0.57973	5.38856
sky130_osu_sc_18T_hs__dffsr_l	hold	CK (R)	-0.21449	-0.56267	-5.33524
	setup	CK (R)	0.26471	0.57963	5.38461

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)	0.26719	0.28392	1.45184
	removal	CK (R)	-0.02972	-0.03731	-0.09720
	hold	SN (R)	-0.27516	-0.51919	-3.29511
	setup	SN (R)	0.30214	0.56976	5.91730
sky130_osu_sc_18T_hs__dffsr_l	recovery	CK (R)	0.26540	0.28321	1.45228
	removal	CK (R)	-0.03203	-0.03809	-0.09739
	hold	SN (R)	-0.26839	-0.51160	-3.23833
	setup	SN (R)	0.30326	0.56133	5.82516

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)	0.26719	0.28392	1.45184
	removal	CK (R)	-0.02972	-0.03731	-0.09720
	hold	SN (R)	-0.27646	-0.51919	-3.29511
	hold	SN (R)	-0.27516	-0.52047	-3.31026
	setup	SN (R)	0.30214	0.56565	5.75112
	setup	SN (R)	0.29727	0.56976	5.91730
sky130_osu_sc_18T_hs__dffsr_l	recovery	CK (R)	0.26540	0.28321	1.45228
	removal	CK (R)	-0.03203	-0.03809	-0.09739
	hold	SN (R)	-0.27038	-0.51160	-3.23833
	hold	SN (R)	-0.26839	-0.51291	-3.25837
	setup	SN (R)	0.30326	0.55984	5.67185
	setup	SN (R)	0.28279	0.56133	5.82516

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 ()	0.21286	0.53101	13.33370
	min_pulse_width	RN ()	0.21684	0.53101	13.33370
sky130_osu_sc_18T_hs__dffsr_l	min_pulse_width	RN ()	0.21286	0.53101	13.33370
	min_pulse_width	RN ()	0.21286	0.53101	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)	0.05366	0.09217	3.23676
	removal	CK (R)	-0.01727	-0.06294	-0.52209
sky130_osu_sc_18T_hs__dffsr_l	recovery	CK (R)	0.05218	0.09184	3.11120
	removal	CK (R)	-0.01727	-0.06294	-0.52209

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)	0.05366	0.09217	3.23676
	removal	CK (R)	-0.01727	-0.06294	-0.52209
sky130_osu_sc_18T_hs__dffsr_l	recovery	CK (R)	0.05218	0.09184	3.11120
	removal	CK (R)	-0.01727	-0.06294	-0.52209

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 ()	0.28752	0.61829	13.33370
	min_pulse_width	SN ()	0.28382	0.62047	13.33370
sky130_osu_sc_18T_hs__dffsr_l	min_pulse_width	SN ()	0.28724	0.60738	13.33370
	min_pulse_width	SN ()	0.27078	0.61174	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 ()	0.21286	0.53101	13.33370
	min_pulse_width	CK ()	0.24865	0.53101	13.33370
sky130_osu_sc_18T_hs__dffsr_l	min_pulse_width	CK ()	0.20491	0.53101	13.33370
	min_pulse_width	CK ()	0.24865	0.53101	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 ()	0.45122	0.55283	13.33370
	min_pulse_width	CK ()	0.22479	0.53101	13.33370
sky130_osu_sc_18T_hs__dffsr_l	min_pulse_width	CK ()	0.45122	0.55283	13.33370
	min_pulse_width	CK ()	0.22479	0.53101	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	0.01002	0.00866	-0.00229
	RN	0.01826	0.01711	0.00482
	SN	-0.00108	-0.05486	-0.75028
	SN	0.02006	0.01895	0.00624
sky130_osu_sc_18T_hs__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.00924	0.00784	-0.00065
	RN	0.01747	0.01628	0.00665
	SN	-0.00108	-0.04384	-0.51636
	SN	0.01927	0.01811	0.00778

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	0.01049	0.00978	0.00401
	RN	-0.00108	-0.05486	-0.75027
	RN	0.02105	0.02029	0.01479
sky130_osu_sc_18T_hs__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.00971	0.00909	0.00595
	RN	-0.00108	-0.04384	-0.51636
	RN	0.02025	0.01958	0.01673

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	0.01049	0.00979	0.00419
	RN	-0.00108	-0.05449	-0.74203
	RN	0.02106	0.02029	0.01485
sky130_osu_sc_18T_hs__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.00971	0.00911	0.00603
	RN	-0.00108	-0.04380	-0.51551
	RN	0.02025	0.01959	0.01670

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	0.00995	0.00862	-0.00243
	RN	0.01819	0.01706	0.00507
	SN	-0.00108	-0.05449	-0.74197
	SN	0.01999	0.01889	0.00634
sky130_osu_sc_18T_hs__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.00917	0.00778	-0.00085
	RN	0.01740	0.01620	0.00637
	SN	-0.00108	-0.04380	-0.51547
	SN	0.01920	0.01805	0.00769

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	-0.00254	-0.00261	-0.00260
	(!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)	0.01213	0.01168	0.01205
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.00496	0.00454	0.00493
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.00492	0.00450	0.00494
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.00497	0.00455	0.00496
sky130_osu_sc_18T_hs__dffsr_1	CK	0.00000	0.00000	0.00000
	CK	-0.00254	-0.00261	-0.00260
	(!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)	0.01213	0.01168	0.01205
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.00496	0.00454	0.00493
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.00492	0.00450	0.00494
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.00497	0.00457	0.00496

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	0.00263	0.00261	0.00260
	(!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)	0.01800	0.01775	0.01791
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.00761	0.00747	0.00792
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.00767	0.00750	0.00793
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.00757	0.00743	0.00787
sky130_osu_sc_18T_hs__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.00263	0.00261	0.00260
	(!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)	0.01800	0.01774	0.01790
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.00761	0.00746	0.00791
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.00767	0.00750	0.00793
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.00757	0.00742	0.00786

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)	0.00300	0.00249	0.00407
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.01034	0.00961	0.01105
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)	0.00300	0.00249	0.00407
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.01034	0.00961	0.01105

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)	0.00773	0.00749	0.01014
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.01629	0.01570	0.01800
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)	0.00772	0.00748	0.01013
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.01628	0.01570	0.01800

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)	-0.00593	-0.00593	-0.00600
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	-0.00584	-0.00618	-0.00617
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	-0.00574	-0.00593	-0.00592
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.00417	0.00369	0.00431
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)	-0.00594	-0.00594	-0.00600
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	-0.00583	-0.00617	-0.00616
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	-0.00574	-0.00592	-0.00592
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.00417	0.00370	0.00432

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)	0.00600	0.00605	0.00602
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00613	0.00619	0.00617
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	0.00590	0.00596	0.00594
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.01229	0.01198	0.01227
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)	0.00600	0.00605	0.00602
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00612	0.00618	0.00616
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	0.00589	0.00596	0.00593
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.01228	0.01198	0.01226

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)	-0.00033	-0.00093	0.00065
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.00508	0.00406	0.00543
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.00499	0.00396	0.00536
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	-0.00057	-0.00122	0.00043
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.00393	0.00272	0.00618
sky130_osu_sc_18T_hs__dffsr_1	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	-0.00033	-0.00093	0.00065
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.00507	0.00405	0.00542
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.00498	0.00396	0.00536
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	-0.00057	-0.00122	0.00043
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.00393	0.00272	0.00618

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)	0.02705	0.02630	0.02809
	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.01158	0.01142	0.01379
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.01890	0.01848	0.02063
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.01895	0.01851	0.02065
	(!D * RN * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * Q * !QN)	0.02639	0.02559	0.03036
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.01254	0.01225	0.01470
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.01503	0.01445	0.01954
sky130_osu_sc_18T_hs__dffsr_l	**(D * RN * SN * !Q * QN)**	0.00000	0.00000	0.00000
	(D * RN * SN * !Q * QN)	0.02705	0.02630	0.02809
	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.01158	0.01142	0.01379
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.01890	0.01848	0.02063
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.01895	0.01851	0.02065
	(!D * RN * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * Q * !QN)	0.02639	0.02559	0.03035
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.01254	0.01225	0.01470
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.01502	0.01444	0.01953

SKY130_OSU_SC_18T_HS__DFFSx

sky130_osu_sc_18T_hs_tt_1P35_25C.ccs
Cell Library: Process , Voltage 1.35,
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	0.00501	0.00868	0.01480	1.58473	1.58949
sky130_osu_sc_18T_hs__dffs_l	0.00501	0.00868	0.01480	1.13604	1.13405

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__dffs_1	0.00000	0.18992	0.29188
sky130_osu_sc_18T_hs__dffs_l	0.00000	0.18008	0.28204

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)	0.31899	1.55598	15.03470
	QN->Q (FR)	0.04630	0.99602	12.97350
	SN->Q (FR)	0.25200	1.69346	17.27830
sky130_osu_sc_18T_hs__dffs_l	CK->Q (RR)	0.31928	1.67110	14.71480
	QN->Q (FR)	0.05128	1.06719	12.90020
	SN->Q (FR)	0.25111	1.80411	16.92010

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)	0.47364	1.80622	16.50200
	QN->Q (RF)	0.03217	0.72459	9.47643
sky130_osu_sc_18T_hs__dffs_l	CK->Q (RF)	0.47944	1.95841	16.43520
	QN->Q (RF)	0.03299	0.73260	8.98732

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)	0.42217	1.11711	7.66894
sky130_osu_sc_18T_hs__dffs_l	CK->QN (RR)	0.42238	1.18989	7.74579

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)	0.25579	0.74401	4.64090
	SN->QN (FF)	0.18844	0.88244	6.88182
sky130_osu_sc_18T_hs__dffs_l	CK->QN (RF)	0.24919	0.75295	4.37239
	SN->QN (FF)	0.18040	0.88675	6.57417

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)	-0.06075	-0.09440	-0.50950
	setup	CK (R)	0.22414	0.25762	1.68431
sky130_osu_sc_18T_hs__dffs_l	hold	CK (R)	-0.06015	-0.09503	-0.51369
	setup	CK (R)	0.22459	0.25779	1.68394

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)	-0.19290	-0.54822	-5.19786
	setup	CK (R)	0.25416	0.56513	5.27743
sky130_osu_sc_18T_hs__dffs_l	hold	CK (R)	-0.19438	-0.54653	-5.19886
	setup	CK (R)	0.25380	0.56507	5.27730

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)	-0.06075	-0.09440	-0.50950
	setup	CK (R)	0.22414	0.25762	1.68431
sky130_osu_sc_18T_hs__dffs_l	hold	CK (R)	-0.06015	-0.09503	-0.51369
	setup	CK (R)	0.22459	0.25779	1.68394

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)	-0.19290	-0.54822	-5.19786
	setup	CK (R)	0.25416	0.56513	5.27743
sky130_osu_sc_18T_hs__dffs_l	hold	CK (R)	-0.19438	-0.54653	-5.19886
	setup	CK (R)	0.25380	0.56507	5.27730

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)	0.05981	0.10465	2.54825
	removal	CK (R)	-0.01802	-0.06694	-0.65400
sky130_osu_sc_18T_hs__dffs_l	recovery	CK (R)	0.05905	0.10454	2.40601
	removal	CK (R)	-0.01802	-0.06694	-0.65400

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)	0.05981	0.10465	2.54825
	removal	CK (R)	-0.01802	-0.06694	-0.65400
sky130_osu_sc_18T_hs__dffs_l	recovery	CK (R)	0.05905	0.10454	2.40601
	removal	CK (R)	-0.01802	-0.06694	-0.65400

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 ()	0.17309	0.57465	13.33370
	min_pulse_width	SN ()	0.17369	0.57683	13.33370
sky130_osu_sc_18T_hs__dffs_l	min_pulse_width	SN ()	0.16741	0.56156	13.33370
	min_pulse_width	SN ()	0.16588	0.56374	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 ()	0.12935	0.53101	13.33370
	min_pulse_width	CK ()	0.24468	0.53101	13.33370
sky130_osu_sc_18T_hs__dffs_l	min_pulse_width	CK ()	0.12537	0.53101	13.33370
	min_pulse_width	CK ()	0.23672	0.53101	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 ()	0.32421	0.53101	13.33370
	min_pulse_width	CK ()	0.21684	0.53101	13.33370
sky130_osu_sc_18T_hs__dffs_l	min_pulse_width	CK ()	0.32421	0.53101	13.33370
	min_pulse_width	CK ()	0.21684	0.53101	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	0.00822	0.00629	-0.00166
	SN	-0.00108	-0.05361	-0.72204
	SN	0.01733	0.01553	-0.00231
sky130_osu_sc_18T_hs__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.00735	0.00586	-0.00256
	SN	-0.00108	-0.04390	-0.51761
	SN	0.01646	0.01511	0.00565

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	0.00897	0.00815	0.00166
sky130_osu_sc_18T_hs__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.00811	0.00746	0.00445

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	0.00897	0.00815	0.00167
sky130_osu_sc_18T_hs__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.00811	0.00747	0.00451

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	0.00816	0.00623	-0.00167
	SN	-0.00108	-0.05370	-0.72413
	SN	0.01727	0.01547	-0.00184
sky130_osu_sc_18T_hs__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.00729	0.00580	-0.00278
	SN	-0.00108	-0.04386	-0.51665
	SN	0.01640	0.01506	0.00596

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	-0.00257	-0.00264	-0.00263
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00935	0.00883	0.00909
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.00437	0.00393	0.00435
sky130_osu_sc_18T_hs__dffs_l	CK	0.00000	0.00000	0.00000
	CK	-0.00257	-0.00264	-0.00263
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00935	0.00883	0.00909
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.00437	0.00393	0.00435

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	0.00266	0.00265	0.00263
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.01529	0.01504	0.01535
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.00730	0.00714	0.00763
sky130_osu_sc_18T_hs__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.00266	0.00265	0.00263
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.01529	0.01504	0.01535
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.00730	0.00714	0.00763

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)	-0.00446	-0.00451	-0.00451
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.00328	0.00287	0.00371
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)	-0.00446	-0.00451	-0.00451
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.00328	0.00287	0.00371

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)	0.00453	0.00453	0.00452
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.00878	0.00838	0.00967
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)	0.00453	0.00453	0.00452
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.00878	0.00838	0.00967

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)	-0.00034	-0.00094	0.00065
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	-0.00065	-0.00128	0.00035
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.00331	0.00210	0.00567
sky130_osu_sc_18T_hs__dffs_l	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	-0.00034	-0.00094	0.00065
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	-0.00065	-0.00128	0.00035
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.00331	0.00210	0.00567

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)	0.02415	0.02335	0.02516
	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.01155	0.01139	0.01376
	(!D * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * SN * Q * !QN)	0.02366	0.02302	0.02783
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	0.01259	0.01228	0.01473
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.01466	0.01431	0.01926
sky130_osu_sc_18T_hs__dffs_l	(D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * SN * !Q * QN)	0.02415	0.02335	0.02516
	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.01155	0.01139	0.01376
	(!D * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * SN * Q * !QN)	0.02366	0.02301	0.02783
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	0.01259	0.01232	0.01473
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.01466	0.01431	0.01926

SKY130_OSU_SC_18T_HS__DFFx

sky130_osu_sc_18T_hs_tt_1P35_25C.ccs
Cell Library: Process , Voltage 1.35,
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	0.00516	0.01471	1.63930	1.63499
sky130_osu_sc_18T_hs__dff_l	0.00516	0.01470	1.11071	1.12326

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__dff_1	0.00000	0.18115	0.22609
sky130_osu_sc_18T_hs__dff_l	0.00000	0.17131	0.21625

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)	0.28003	1.49498	14.90310
	QN->Q (FR)	0.04412	0.97862	12.89110
sky130_osu_sc_18T_hs__dff_l	CK->Q (RR)	0.28996	1.63299	14.46690
	QN->Q (FR)	0.05214	1.07283	12.90000

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)	0.40582	1.71584	16.41440
	QN->Q (RF)	0.02955	0.68938	9.06911
sky130_osu_sc_18T_hs__dff_l	CK->Q (RF)	0.42244	1.89063	16.15410
	QN->Q (RF)	0.03307	0.72787	8.89406

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)	0.35929	1.04092	7.60075
sky130_osu_sc_18T_hs__dff_l	CK->QN (RR)	0.36739	1.13302	7.70293

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)	0.22178	0.69839	4.53336
sky130_osu_sc_18T_hs__dff_l	CK->QN (RF)	0.22128	0.72291	4.32802

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)	-0.05779	-0.09119	-0.53419
	setup	CK (R)	0.18143	0.21987	1.68454
sky130_osu_sc_18T_hs__dff_l	hold	CK (R)	-0.05654	-0.09145	-0.53546
	setup	CK (R)	0.18312	0.21941	1.67788

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)	-0.18091	-0.54487	-5.19623
	setup	CK (R)	0.21729	0.56527	5.27860
sky130_osu_sc_18T_hs__dff_l	hold	CK (R)	-0.18079	-0.54432	-5.19564
	setup	CK (R)	0.21709	0.56527	5.29401

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 ()	0.11742	0.53101	13.33370
	min_pulse_width	CK ()	0.22081	0.53101	13.33370
sky130_osu_sc_18T_hs__dff_l	min_pulse_width	CK ()	0.11344	0.53101	13.33370
	min_pulse_width	CK ()	0.21684	0.53101	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 ()**	0.28047	0.53101	13.33370
	min_pulse_width	**CK ()**	0.17309	0.53101	13.33370
sky130_osu_sc_18T_hs__dff_l	**min_pulse_width**	**CK ()**	0.28047	0.53101	13.33370
	min_pulse_width	**CK ()**	0.17309	0.53101	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	0.00862	0.00713	-0.00310
sky130_osu_sc_18T_hs__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.00783	0.00631	-0.00194

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	0.00915	0.00842	0.00310
sky130_osu_sc_18T_hs__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.00837	0.00770	0.00432

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	0.00915	0.00842	0.00303
sky130_osu_sc_18T_hs__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.00837	0.00771	0.00432

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	0.00856	0.00709	-0.00303
sky130_osu_sc_18T_hs__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.00777	0.00627	-0.00235

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	-0.00225	-0.00259	-0.00261
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00878	0.00832	0.00863
sky130_osu_sc_18T_hs__dff_l	CK	0.00000	0.00000	0.00000
	CK	-0.00225	-0.00259	-0.00261
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00879	0.00832	0.00863

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	0.00259	0.00261	0.00261
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.01580	0.01551	0.01587
sky130_osu_sc_18T_hs__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.00259	0.00261	0.00261
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.01580	0.01552	0.01588

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)	-0.00035	-0.00095	0.00065
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	-0.00064	-0.00129	0.00037
sky130_osu_sc_18T_hs__dff_l	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	-0.00035	-0.00095	0.00065
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	-0.00064	-0.00129	0.00037

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)	0.01151	0.01136	0.01372
	(D * !Q * QN)	0.00000	0.00000	0.00000
	(D * !Q * QN)	0.02362	0.02281	0.02474
	(!D * Q * !QN)	0.00000	0.00000	0.00000
	(!D * Q * !QN)	0.02402	0.02337	0.02820
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.01253	0.01223	0.01469
sky130_osu_sc_18T_hs__dff_l	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.01151	0.01136	0.01372
	(D * !Q * QN)	0.00000	0.00000	0.00000
	(D * !Q * QN)	0.02362	0.02281	0.02474
	(!D * Q * !QN)	0.00000	0.00000	0.00000
	(!D * Q * !QN)	0.02402	0.02339	0.02820
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.01253	0.01223	0.01469

SKY130_OSU_SC_18T_HS__INVx

sky130_osu_sc_18T_hs_tt_1P35_25C.ccs
Cell Library: Process , Voltage 1.35,
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	0.00504	1.58040
sky130_osu_sc_18T_hs__inv_10	0.04735	14.24804
sky130_osu_sc_18T_hs__inv_2	0.00966	3.14628
sky130_osu_sc_18T_hs__inv_3	0.01440	4.49608
sky130_osu_sc_18T_hs__inv_4	0.01905	6.05723
sky130_osu_sc_18T_hs__inv_6	0.02857	8.97182
sky130_osu_sc_18T_hs__inv_8	0.03797	11.87646
sky130_osu_sc_18T_hs__inv_l	0.00393	1.09355

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__inv_1	0.00000	0.02836	0.05363
sky130_osu_sc_18T_hs__inv_10	0.00000	0.28358	0.53626
sky130_osu_sc_18T_hs__inv_2	0.00000	0.05672	0.10725
sky130_osu_sc_18T_hs__inv_3	0.00000	0.08507	0.16088
sky130_osu_sc_18T_hs__inv_4	0.00000	0.11343	0.21451
sky130_osu_sc_18T_hs__inv_6	0.00000	0.17015	0.32176
sky130_osu_sc_18T_hs__inv_8	0.00000	0.22686	0.42901
sky130_osu_sc_18T_hs__inv_l	0.00000	0.02344	0.04326

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)**	0.04203	0.91565	11.94600
sky130_osu_sc_18T_hs__inv_10	**A->Y (FR)**	0.06216	0.65069	11.92330
sky130_osu_sc_18T_hs__inv_2	**A->Y (FR)**	0.03405	0.79676	11.98440
sky130_osu_sc_18T_hs__inv_3	**A->Y (FR)**	0.03768	0.74829	11.93530
sky130_osu_sc_18T_hs__inv_4	**A->Y (FR)**	0.03885	0.71283	11.94190
sky130_osu_sc_18T_hs__inv_6	**A->Y (FR)**	0.04437	0.67940	11.98250
sky130_osu_sc_18T_hs__inv_8	**A->Y (FR)**	0.05262	0.66168	12.02570
sky130_osu_sc_18T_hs__inv_l	**A->Y (FR)**	0.04889	1.00147	12.04930

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)**	0.02665	0.61746	8.10085
sky130_osu_sc_18T_hs__inv_10	**A->Y (RF)**	0.04257	0.42510	7.96848
sky130_osu_sc_18T_hs__inv_2	**A->Y (RF)**	0.02254	0.54405	8.10998
sky130_osu_sc_18T_hs__inv_3	**A->Y (RF)**	0.02463	0.51135	8.09745
sky130_osu_sc_18T_hs__inv_4	**A->Y (RF)**	0.02485	0.48407	8.10242
sky130_osu_sc_18T_hs__inv_6	**A->Y (RF)**	0.03105	0.45489	8.11094
sky130_osu_sc_18T_hs__inv_8	**A->Y (RF)**	0.03679	0.44051	8.11552
sky130_osu_sc_18T_hs__inv_l	**A->Y (RF)**	0.02953	0.65401	7.98878

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	0.00406	0.00405	0.00442
sky130_osu_sc_18T_hs__inv_10	A	0.00000	0.00000	0.00000
	A	0.03493	0.03591	0.03906
sky130_osu_sc_18T_hs__inv_2	A	0.00000	0.00000	0.00000
	A	0.00730	0.00736	0.00818
sky130_osu_sc_18T_hs__inv_3	A	0.00000	0.00000	0.00000
	A	0.01116	0.01135	0.01247
sky130_osu_sc_18T_hs__inv_4	A	0.00000	0.00000	0.00000
	A	0.01439	0.01452	0.01622
sky130_osu_sc_18T_hs__inv_6	A	0.00000	0.00000	0.00000
	A	0.02129	0.02175	0.02421
sky130_osu_sc_18T_hs__inv_8	A	0.00000	0.00000	0.00000
	A	0.02813	0.02907	0.03210
sky130_osu_sc_18T_hs__inv_l	A	0.00000	0.00000	0.00000
	A	0.00318	0.00294	0.00336

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	-0.00073	-0.00075	-0.00067
sky130_osu_sc_18T_hs__inv_10	A	0.00000	0.00000	0.00000
	A	-0.01380	-0.01318	-0.01076
sky130_osu_sc_18T_hs__inv_2	A	0.00000	0.00000	0.00000
	A	-0.00252	-0.00247	-0.00224
sky130_osu_sc_18T_hs__inv_3	A	0.00000	0.00000	0.00000
	A	-0.00333	-0.00328	-0.00282
sky130_osu_sc_18T_hs__inv_4	A	0.00000	0.00000	0.00000
	A	-0.00523	-0.00506	-0.00438
sky130_osu_sc_18T_hs__inv_6	A	0.00000	0.00000	0.00000
	A	-0.00800	-0.00774	-0.00652
sky130_osu_sc_18T_hs__inv_8	A	0.00000	0.00000	0.00000
	A	-0.01089	-0.01042	-0.00865
sky130_osu_sc_18T_hs__inv_l	A	0.00000	0.00000	0.00000
	A	-0.00054	-0.00057	-0.00052

SKY130_OSU_SC_18T_HS__MUX2

sky130_osu_sc_18T_hs_tt_1P35_25C.ccs
Cell Library: Process , Voltage 1.35,
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	0.12345	0.12326	0.01025	0.11572

Leakage Information

Cell Name	Leakage(nW)		
	Min.	**Avg**	**Max.**
sky130_osu_sc_18T_hs__mux2_1	0.00000	0.05679	0.05679

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)	-	0.02239	0.34972	2.83543
	A1->Y (RR)	-	0.02473	0.35071	2.83805
	S0->Y (RR)	(!A0 * A1)	0.06328	0.32251	0.84831
	S0->Y (FR)	(A0 * !A1)	0.05888	0.49700	3.40439

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)	-	0.02054	0.28462	2.28944
	A1->Y (FF)	-	0.01929	0.28169	2.27553
	S0->Y (FF)	(!A0 * A1)	0.09425	0.46760	2.53940
	S0->Y (RF)	(A0 * !A1)	0.03093	0.30901	1.75252

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	-	-0.00449	-0.00450	-0.00449
	A1	-	0.00000	0.00000	0.00000
	A1	-	-0.00314	-0.00315	-0.00314
	S0	(A0 * !A1)	0.00000	0.00000	0.00000
	S0	(A0 * !A1)	0.00479	0.00459	0.00749
	S0	(!A0 * A1)	0.00000	0.00000	0.00000
	S0	(!A0 * A1)	-0.00282	-0.00332	-0.00130

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	-	0.00449	0.00450	0.00450
	A1	-	0.00000	0.00000	0.00000
	A1	-	0.00314	0.00315	0.00315
	S0	(A0 * !A1)	0.00000	0.00000	0.00000
	S0	(A0 * !A1)	0.00107	0.00057	0.00274
	S0	(!A0 * A1)	0.00000	0.00000	0.00000
	S0	(!A0 * A1)	0.01099	0.01076	0.01345

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)	-0.00119	-0.00119	-0.00119

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)	0.00119	0.00119	0.00119

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)	-0.00140	-0.00140	-0.00140

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)	0.00140	0.00140	0.00140

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)	-0.00090	-0.00139	0.00073
	(!A0 * !A1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !Y)	-0.00087	-0.00139	0.00073

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)	0.00817	0.00794	0.01069
	(!A0 * !A1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !Y)	0.00760	0.00738	0.01028

SKY130_OSU_SC_18T_HS__NAND2x

sky130_osu_sc_18T_hs_tt_1P35_25C.ccs
Cell Library: Process , Voltage 1.35,
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	0.00506	0.00503	1.55363
sky130_osu_sc_18T_hs__nand2_l	0.00394	0.00393	1.08484

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__nand2_1	0.00000	0.02832	0.10725
sky130_osu_sc_18T_hs__nand2_l	0.00000	0.02345	0.08652

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)	0.04354	0.91817	11.91420
	B->Y (FR)	0.05109	0.91772	11.81560
sky130_osu_sc_18T_hs__nand2_l	A->Y (FR)	0.05020	1.00528	12.05190
	B->Y (FR)	0.05910	1.00872	12.01120

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)	0.03929	0.77450	10.06330
	B->Y (RF)	0.04484	0.76280	9.77436
sky130_osu_sc_18T_hs__nand2_l	A->Y (RF)	0.04384	0.83522	9.95202
	B->Y (RF)	0.04906	0.81881	9.58739

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	0.00433	0.00431	0.00467
	B	0.00000	0.00000	0.00000
	B	0.00542	0.00535	0.00569
sky130_osu_sc_18T_hs__nand2_l	A	0.00000	0.00000	0.00000
	A	0.00335	0.00315	0.00352
	B	0.00000	0.00000	0.00000
	B	0.00415	0.00383	0.00430

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	-0.00041	-0.00048	-0.00040
	B	0.00000	0.00000	0.00000
	B	-0.00038	-0.00044	-0.00041
sky130_osu_sc_18T_hs__nand2_l	A	0.00000	0.00000	0.00000
	A	-0.00035	-0.00040	-0.00036
	B	0.00000	0.00000	0.00000
	B	-0.00033	-0.00038	-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)	-0.00294	-0.00296	-0.00297
sky130_osu_sc_18T_hs__nand2_l	(!B * Y)	0.00000	0.00000	0.00000
	(!B * Y)	-0.00218	-0.00219	-0.00220

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)	0.00296	0.00299	0.00298
sky130_osu_sc_18T_hs__nand2_l	(!B * Y)	0.00000	0.00000	0.00000
	(!B * Y)	0.00219	0.00221	0.00220

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)	-0.00274	-0.00276	-0.00274
sky130_osu_sc_18T_hs__nand2_l	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00203	-0.00203	-0.00203

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)	0.00278	0.00276	0.00275
sky130_osu_sc_18T_hs__nand2_l	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00207	0.00205	0.00204

SKY130_OSU_SC_18T_HS__NOR2x

sky130_osu_sc_18T_hs_tt_1P35_25C.ccs
Cell Library: Process , Voltage 1.35,
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	0.00505	0.00536	0.76396
sky130_osu_sc_18T_hs__nor2_l	0.00386	0.00420	0.52633

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__nor2_1	0.00000	0.02060	0.05363
sky130_osu_sc_18T_hs__nor2_l	0.00000	0.01817	0.04326

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)	0.09909	1.16463	12.25920
	B->Y (FR)	0.07673	1.10212	11.83500
sky130_osu_sc_18T_hs__nor2_l	A->Y (FR)	0.11267	1.27498	12.15930
	B->Y (FR)	0.09314	1.22533	11.90150

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)	0.03361	0.51805	5.73300
	B->Y (RF)	0.02795	0.50541	5.71273
sky130_osu_sc_18T_hs__nor2_l	A->Y (RF)	0.03600	0.54632	5.67301
	B->Y (RF)	0.03087	0.53604	5.65540

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	0.00566	0.00558	0.00565
	B	0.00000	0.00000	0.00000
	B	0.00441	0.00431	0.00464
sky130_osu_sc_18T_hs__nor2_l	A	0.00000	0.00000	0.00000
	A	0.00419	0.00414	0.00416
	B	0.00000	0.00000	0.00000
	B	0.00339	0.00330	0.00350

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	0.00074	0.00053	0.00058
	B	0.00000	0.00000	0.00000
	B	-0.00059	-0.00061	-0.00056
sky130_osu_sc_18T_hs__nor2_l	A	0.00000	0.00000	0.00000
	A	0.00048	0.00034	0.00037
	B	0.00000	0.00000	0.00000
	B	-0.00041	-0.00043	-0.00041

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)	-0.00226	-0.00261	-0.00262
sky130_osu_sc_18T_hs__nor2_l	(B * !Y)	0.00000	0.00000	0.00000
	(B * !Y)	-0.00165	-0.00188	-0.00189

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)	0.00261	0.00261	0.00262
sky130_osu_sc_18T_hs__nor2_l	(B * !Y)	0.00000	0.00000	0.00000
	(B * !Y)	0.00188	0.00188	0.00189

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)	-0.00142	-0.00143	-0.00142
sky130_osu_sc_18T_hs__nor2_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	-0.00105	-0.00106	-0.00105

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)	0.00152	0.00153	0.00146
sky130_osu_sc_18T_hs__nor2_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00112	0.00113	0.00108

SKY130_OSU_SC_18T_HS__OAI21

sky130_osu_sc_18T_hs_tt_1P35_25C.ccs
Cell Library: Process , Voltage 1.35,
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	0.00512	0.00517	0.00437	0.77178

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__oai21_l	0.00000	0.02760	0.09689

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)	0.10500	1.14143	11.99070
	A1->Y (FR)	0.13248	1.20907	12.41490
	B0->Y (FR)	0.06201	0.90308	10.05960

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)	0.05524	0.64236	6.86973
	A1->Y (RF)	0.06374	0.64098	6.77166
	B0->Y (RF)	0.04359	0.65935	7.37038

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	0.00599	0.00585	0.00616
	A1	0.00000	0.00000	0.00000
	A1	0.00726	0.00717	0.00715
	B0	0.00497	0.00485	0.00513

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	0.00035	0.00027	0.00028
	A1	0.00000	0.00000	0.00000
	A1	0.00166	0.00147	0.00145
	B0	0.00216	0.00207	0.00210

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)	-0.00142	-0.00143	-0.00143
	(A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * Y)	-0.00257	-0.00263	-0.00262
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00268	-0.00269	-0.00269

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)	0.00152	0.00153	0.00146
	(A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * Y)	0.00262	0.00263	0.00262
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00269	0.00272	0.00269

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)	-0.00222	-0.00256	-0.00258
	(A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * Y)	-0.00254	-0.00262	-0.00261
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	-0.00265	-0.00266	-0.00266

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)	0.00256	0.00258	0.00258
	(A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * Y)	0.00259	0.00262	0.00261
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	0.00266	0.00269	0.00267

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)	-0.00221	-0.00223	-0.00227

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)	0.00227	0.00229	0.00228

SKY130_OSU_SC_18T_HS__OAI22

sky130_osu_sc_18T_hs_tt_1P35_25C.ccs
Cell Library: Process , Voltage 1.35,
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	0.00494	0.00523	0.00536	0.00523	0.75710

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__oai22_l	0.00000	0.03071	0.10725

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)	0.14394	1.20925	12.25100
	A1->Y (FR)	0.12129	1.14499	11.83430
	B0->Y (FR)	0.08622	1.11023	11.81060
	B1->Y (FR)	0.10871	1.17290	12.23330

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)	0.08772	0.68599	6.91068
	A1->Y (RF)	0.07159	0.66164	6.83815
	B0->Y (RF)	0.05957	0.67560	7.32539
	B1->Y (RF)	0.07710	0.70854	7.50807

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	0.00933	0.00925	0.00927
	A1	0.00805	0.00790	0.00817
	B0	0.00601	0.00589	0.00617
	B1	0.00735	0.00725	0.00728

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__oai22_l	A0	0.00256	0.00238	0.00233
	A1	0.00133	0.00123	0.00118
	B0	0.00132	0.00123	0.00122
	B1	0.00258	0.00240	0.00238

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)	-0.00226	-0.00260	-0.00262
	(A1 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * B1 * !Y)	-0.00226	-0.00260	-0.00262
	(A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * !B1 * Y)	-0.00255	-0.00262	-0.00261
	(!A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * !B1 * Y)	-0.00266	-0.00268	-0.00267

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)	0.00260	0.00261	0.00262
	(A1 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * B1 * !Y)	0.00260	0.00261	0.00262
	(A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * !B1 * Y)	0.00259	0.00262	0.00261
	(!A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * !B1 * Y)	0.00266	0.00269	0.00267

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)	-0.00141	-0.00142	-0.00142
	(A0 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * B1 * !Y)	-0.00141	-0.00142	-0.00142
	(A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * !B1 * Y)	-0.00254	-0.00260	-0.00259
	(!A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * !B1 * Y)	-0.00265	-0.00267	-0.00266

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)	0.00151	0.00152	0.00145
	(A0 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * B1 * !Y)	0.00151	0.00152	0.00145
	(A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * !B1 * Y)	0.00258	0.00260	0.00259
	(!A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * !B1 * Y)	0.00266	0.00269	0.00267

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)	-0.00140	-0.00142	-0.00141
	(A0 * !A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B1 * !Y)	-0.00140	-0.00142	-0.00141
	(!A0 * !A1 * B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B1 * Y)	-0.00283	-0.00289	-0.00288
	(!A0 * !A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B1 * Y)	-0.00286	-0.00288	-0.00295

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)	0.00150	0.00151	0.00144
	(A0 * !A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B1 * !Y)	0.00150	0.00152	0.00144
	(!A0 * !A1 * B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B1 * Y)	0.00288	0.00289	0.00288
	(!A0 * !A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B1 * Y)	0.00295	0.00300	0.00296

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)	-0.00223	-0.00257	-0.00259
	(A0 * !A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B0 * !Y)	-0.00223	-0.00257	-0.00259
	(!A0 * !A1 * B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B0 * Y)	-0.00288	-0.00295	-0.00294
	(!A0 * !A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B0 * Y)	-0.00289	-0.00293	-0.00299

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)	0.00256	0.00258	0.00259
	(A0 * !A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B0 * !Y)	0.00256	0.00259	0.00259
	(!A0 * !A1 * B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B0 * Y)	0.00292	0.00296	0.00294
	(!A0 * !A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B0 * Y)	0.00298	0.00301	0.00300

SKY130_OSU_SC_18T_HS__OR2x

sky130_osu_sc_18T_hs_tt_1P35_25C.ccs
Cell Library: Process , Voltage 1.35,
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	0.00538	0.00518	1.61331
sky130_osu_sc_18T_hs__or2_2	0.00539	0.00518	3.17825
sky130_osu_sc_18T_hs__or2_4	0.00539	0.00518	6.11901
sky130_osu_sc_18T_hs__or2_8	0.00537	0.00519	11.64988
sky130_osu_sc_18T_hs__or2_l	0.00427	0.00402	1.11906

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__or2_1	0.00000	0.03633	0.05981
sky130_osu_sc_18T_hs__or2_2	0.00000	0.05205	0.11343
sky130_osu_sc_18T_hs__or2_4	0.00000	0.08349	0.22068
sky130_osu_sc_18T_hs__or2_8	0.00000	0.14639	0.43519
sky130_osu_sc_18T_hs__or2_l	0.00000	0.03170	0.05049

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)	0.08930	0.77278	7.31550
	B->Y (RR)	0.08095	0.74155	7.17396
sky130_osu_sc_18T_hs__or2_2	A->Y (RR)	0.09777	0.69679	7.53378
	B->Y (RR)	0.08896	0.67306	7.42181
sky130_osu_sc_18T_hs__or2_4	A->Y (RR)	0.12849	0.69261	7.92955
	B->Y (RR)	0.11941	0.67180	7.82942
sky130_osu_sc_18T_hs__or2_8	A->Y (RR)	0.18638	0.74790	8.45959
	B->Y (RR)	0.17698	0.73293	8.38849
sky130_osu_sc_18T_hs__or2_l	A->Y (RR)	0.09957	0.87242	7.55193
	B->Y (RR)	0.09167	0.84609	7.40294

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)	0.17971	0.84351	6.82888
	B->Y (FF)	0.14985	0.77434	6.28599
sky130_osu_sc_18T_hs__or2_2	A->Y (FF)	0.22163	0.85331	7.18303
	B->Y (FF)	0.19212	0.79271	6.63900
sky130_osu_sc_18T_hs__or2_4	A->Y (FF)	0.31912	0.94399	7.74018
	B->Y (FF)	0.28953	0.88215	7.21693
sky130_osu_sc_18T_hs__or2_8	A->Y (FF)	0.51314	1.15552	8.39923
	B->Y (FF)	0.48336	1.08938	7.92475
sky130_osu_sc_18T_hs__or2_l	A->Y (FF)	0.19950	0.88882	6.64381
	B->Y (FF)	0.16915	0.83087	6.17605

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	0.00465	0.00414	0.00508
	B	0.00000	0.00000	0.00000
	B	0.00337	0.00294	0.00471
sky130_osu_sc_18T_hs__or2_2	A	0.00000	0.00000	0.00000
	A	0.00786	0.00758	0.00841
	B	0.00000	0.00000	0.00000
	B	0.00653	0.00643	0.00797
sky130_osu_sc_18T_hs__or2_4	A	0.00000	0.00000	0.00000
	A	0.01474	0.01499	0.01632
	B	0.00000	0.00000	0.00000
	B	0.01340	0.01393	0.01597
sky130_osu_sc_18T_hs__or2_8	A	0.00000	0.00000	0.00000
	A	0.02832	0.02950	0.03087
	B	0.00000	0.00000	0.00000
	B	0.02700	0.02859	0.03894
sky130_osu_sc_18T_hs__or2_l	A	0.00000	0.00000	0.00000
	A	0.00346	0.00304	0.00373
	B	0.00000	0.00000	0.00000
	B	0.00260	0.00227	0.00339

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	0.00943	0.00936	0.00978
	B	0.00000	0.00000	0.00000
	B	0.00796	0.00802	0.01058
sky130_osu_sc_18T_hs__or2_2	A	0.00000	0.00000	0.00000
	A	0.01151	0.01195	0.01230
	B	0.00000	0.00000	0.00000
	B	0.01004	0.01051	0.01292
sky130_osu_sc_18T_hs__or2_4	A	0.00000	0.00000	0.00000
	A	0.01671	0.01804	0.01856
	B	0.00000	0.00000	0.00000
	B	0.01524	0.01648	0.01895
sky130_osu_sc_18T_hs__or2_8	A	0.00000	0.00000	0.00000
	A	0.02737	0.02970	0.03110
	B	0.00000	0.00000	0.00000
	B	0.02640	0.02812	0.03122
sky130_osu_sc_18T_hs__or2_l	A	0.00000	0.00000	0.00000
	A	0.00724	0.00715	0.00741
	B	0.00000	0.00000	0.00000
	B	0.00619	0.00620	0.00779

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)	-0.00228	-0.00262	-0.00263
sky130_osu_sc_18T_hs__or2_2	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00228	-0.00262	-0.00263
sky130_osu_sc_18T_hs__or2_4	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00228	-0.00262	-0.00263
sky130_osu_sc_18T_hs__or2_8	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00228	-0.00262	-0.00264
sky130_osu_sc_18T_hs__or2_l	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00166	-0.00189	-0.00189

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)	0.00261	0.00263	0.00263
sky130_osu_sc_18T_hs__or2_2	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00261	0.00263	0.00263
sky130_osu_sc_18T_hs__or2_4	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00261	0.00263	0.00263
sky130_osu_sc_18T_hs__or2_8	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00261	0.00263	0.00264
sky130_osu_sc_18T_hs__or2_l	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00188	0.00190	0.00189

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)	-0.00143	-0.00143	-0.00143
sky130_osu_sc_18T_hs__or2_2	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00142	-0.00144	-0.00143
sky130_osu_sc_18T_hs__or2_4	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00142	-0.00144	-0.00143
sky130_osu_sc_18T_hs__or2_8	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00142	-0.00144	-0.00143
sky130_osu_sc_18T_hs__or2_l	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00107	-0.00108	-0.00107

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)	0.00154	0.00154	0.00146
sky130_osu_sc_18T_hs__or2_2	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00154	0.00154	0.00146
sky130_osu_sc_18T_hs__or2_4	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00154	0.00154	0.00146
sky130_osu_sc_18T_hs__or2_8	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00154	0.00154	0.00146
sky130_osu_sc_18T_hs__or2_l	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00115	0.00115	0.00109

SKY130_OSU_SC_18T_HS__TBUFIx

sky130_osu_sc_18T_hs_tt_1P35_25C.ccs
Cell Library: Process , Voltage 1.35,
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	0.00536	0.00680	0.76449
sky130_osu_sc_18T_hs__tbufi_l	0.00421	0.00535	0.52568

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__tbufi_1	0.00000	0.02979	0.10726
sky130_osu_sc_18T_hs__tbufi_l	0.00000	0.02525	0.08653

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)	0.07321	1.09892	11.83440
	OE->Y (FR)	0.06462	0.36915	4.01367
	OE->Y (RR)	0.12190	0.95585	7.39238
sky130_osu_sc_18T_hs__tbufi_l	A->Y (FR)	0.08956	1.22361	11.90280
	OE->Y (FR)	0.07088	0.38262	4.01346
	OE->Y (RR)	0.13627	1.08824	7.54278

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)	0.03793	0.61686	6.91387
	OE->Y (FF)	0.06576	0.37117	4.01368
	OE->Y (RF)	0.03700	0.59799	6.58178
sky130_osu_sc_18T_hs__tbufi_l	A->Y (RF)	0.04295	0.65644	6.83371
	OE->Y (FF)	0.07154	0.38415	4.01361
	OE->Y (RF)	0.04238	0.63204	6.43221

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	0.00414	0.00404	0.00434
	OE	0.00000	0.00000	0.00000
	OE	0.00413	0.00366	0.00578
sky130_osu_sc_18T_hs__tbufi_l	A	0.00000	0.00000	0.00000
	A	0.00321	0.00312	0.00329
	OE	0.00000	0.00000	0.00000
	OE	0.00299	0.00261	0.00398

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	-0.00059	-0.00061	-0.00056
	OE	0.00000	0.00000	0.00000
	OE	0.00303	0.00256	0.00481
sky130_osu_sc_18T_hs__tbufi_l	A	0.00000	0.00000	0.00000
	A	-0.00041	-0.00043	-0.00042
	OE	0.00000	0.00000	0.00000
	OE	0.00214	0.00177	0.00316

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)	-0.00223	-0.00225	-0.00224
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	-0.00204	-0.00207	-0.00205
sky130_osu_sc_18T_hs__tbufi_l	(!OE * Y)	0.00000	0.00000	0.00000
	(!OE * Y)	-0.00171	-0.00173	-0.00172
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	-0.00159	-0.00160	-0.00159

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)	0.00223	0.00225	0.00224
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	0.00211	0.00213	0.00209
sky130_osu_sc_18T_hs__tbufi_l	(!OE * Y)	0.00000	0.00000	0.00000
	(!OE * Y)	0.00171	0.00173	0.00172
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	0.00164	0.00165	0.00162

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)	0.00174	0.00133	0.00356
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00158	0.00114	0.00336
sky130_osu_sc_18T_hs__tbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00121	0.00087	0.00226
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00109	0.00073	0.00211

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)	0.00482	0.00444	0.00719
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00486	0.00455	0.00728
sky130_osu_sc_18T_hs__tbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00384	0.00352	0.00520
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00389	0.00360	0.00528

SKY130_OSU_SC_18T_HS__TNBUFIx

sky130_osu_sc_18T_hs_tt_1P35_25C.ccs
Cell Library: Process , Voltage 1.35,
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	0.00535	0.00834	0.76018
sky130_osu_sc_18T_hs__tnbufi_l	0.00421	0.00633	0.52569

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__tnbufi_1	0.00000	0.04664	0.05672
sky130_osu_sc_18T_hs__tnbufi_l	0.00000	0.03847	0.04688

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)	0.07413	1.09663	11.79470
	OE->Y (RR)	0.03173	0.30646	4.01484
	OE->Y (FR)	0.09229	1.15524	12.21870
sky130_osu_sc_18T_hs__tnbufi_l	A->Y (FR)	0.09054	1.22360	11.90290
	OE->Y (RR)	0.03317	0.30673	4.01508
	OE->Y (FR)	0.10512	1.26846	12.16130

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)	0.03734	0.61561	6.89402
	OE->Y (RF)	0.03118	0.30643	4.01475
	OE->Y (FF)	0.07628	0.64114	4.86915
sky130_osu_sc_18T_hs__tnbufi_l	A->Y (RF)	0.04219	0.65616	6.83346
	OE->Y (RF)	0.03286	0.30671	4.01508
	OE->Y (FF)	0.08645	0.68809	4.74885

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	0.00425	0.00415	0.00445
	OE	0.00000	0.00000	0.00000
	OE	0.01015	0.01009	0.01335
sky130_osu_sc_18T_hs__tnbufi_l	A	0.00000	0.00000	0.00000
	A	0.00332	0.00323	0.00340
	OE	0.00000	0.00000	0.00000
	OE	0.00767	0.00758	0.00958

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	-0.00073	-0.00074	-0.00069
	OE	0.00000	0.00000	0.00000
	OE	0.00924	0.00921	0.01217
sky130_osu_sc_18T_hs__tnbufi_l	A	0.00000	0.00000	0.00000
	A	-0.00054	-0.00056	-0.00055
	OE	0.00000	0.00000	0.00000
	OE	0.00695	0.00687	0.00870

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)	-0.00193	-0.00195	-0.00194
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	-0.00175	-0.00177	-0.00176
sky130_osu_sc_18T_hs__tnbufi_l	(OE * Y)	0.00000	0.00000	0.00000
	(OE * Y)	-0.00143	-0.00144	-0.00143
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	-0.00131	-0.00132	-0.00132

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)	0.00193	0.00195	0.00194
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	0.00181	0.00183	0.00180
sky130_osu_sc_18T_hs__tnbufi_l	(OE * Y)	0.00000	0.00000	0.00000
	(OE * Y)	0.00143	0.00144	0.00143
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	0.00135	0.00136	0.00134

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)	-0.00295	-0.00371	-0.00128
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00295	-0.00367	-0.00125
sky130_osu_sc_18T_hs__tnbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	-0.00212	-0.00269	-0.00119
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00211	-0.00266	-0.00118

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)	0.00775	0.00772	0.01079
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00763	0.00758	0.01070
sky130_osu_sc_18T_hs__tnbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00589	0.00579	0.00772
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00580	0.00570	0.00763

SKY130_OSU_SC_18T_HS__XNOR2

sky130_osu_sc_18T_hs_tt_1P35_25C.ccs
Cell Library: Process , Voltage 1.35,
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	0.01059	0.00961	0.77925

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__xnor2_l	0.00000	0.09716	0.16397

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	0.15573	1.01379	7.64898
	A->Y (FR)	!B	0.09690	1.12965	11.95790
	B->Y (RR)	A	0.12294	0.97527	7.56171
	B->Y (FR)	!A	0.12687	1.19513	12.38180

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	0.12738	0.75065	5.41617
	A->Y (RF)	!B	0.05590	0.62819	6.78759
	B->Y (FF)	A	0.11706	0.73895	5.40779
	B->Y (RF)	!A	0.06507	0.64176	6.79903

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	0.00396	0.00339	0.00534
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.01001	0.00967	0.01273
	B	A	0.00000	0.00000	0.00000
	B	A	0.00156	0.00118	0.00332
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01090	0.01062	0.01361

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	0.01287	0.01238	0.01491
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00311	0.00256	0.00464
	B	A	0.00000	0.00000	0.00000
	B	A	0.01155	0.01149	0.01426
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00414	0.00349	0.00556

SKY130_OSU_SC_18T_HS__XOR2

sky130_osu_sc_18T_hs_tt_1P35_25C.ccs
Cell Library: Process , Voltage 1.35,
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	0.01057	0.00966	0.76770

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__xor2_1	0.00000	0.09716	0.15064

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	0.14900	0.98921	7.49699
	A->Y (FR)	B	0.11618	1.18041	12.32200
	B->Y (RR)	!A	0.12684	0.97521	7.49767
	B->Y (FR)	A	0.12508	1.19120	12.31870

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	0.11819	0.72986	5.26001
	A->Y (RF)	B	0.05090	0.64138	6.94869
	B->Y (FF)	!A	0.11069	0.72210	5.25311
	B->Y (RF)	A	0.05996	0.62581	6.61816

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	0.01175	0.01148	0.01450
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00219	0.00122	0.00321
	B	A	0.00000	0.00000	0.00000
	B	A	0.01199	0.01179	0.01479
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00139	0.00095	0.00305

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	0.00288	0.00214	0.00421
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.01309	0.01294	0.01565
	B	A	0.00000	0.00000	0.00000
	B	A	0.00289	0.00219	0.00428
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01175	0.01175	0.01452

SKY130_OSU_SC_18T_HS_x

sky130_osu_sc_18T_hs_tt_1P35_25C.ccs
Cell Library: Process , Voltage 1.35,
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	0.36177
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	123909.00000	247819.00000
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
	-0.00215	0.02472	0.33706

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
	2.15696	2.03145	0.43424