sky130_osu_sc_18T_hs_ff_1P95_100C.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_ff_1P95_100C.ccs
Cell Library: Process , Voltage 1.95, Temp 100.00

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	0.02067	0.02046	0.01555	4.04500	1.99420	4.00914
sky130_osu_sc_18T_hs__addf_l	0.02065	0.02044	0.01555	2.81016	1.99898	2.82793

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__addf_1	0.00000	621.39300	791.44100
sky130_osu_sc_18T_hs__addf_l	0.00000	480.06300	650.10700

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)	0.09781	1.30594	24.15180
	B->CO (RR)	0.08193	1.24454	23.07530
	CI->CO (RR)	0.09355	1.35718	24.88420
	CON->CO (FR)	0.01775	0.54184	9.33978
sky130_osu_sc_18T_hs__addf_l	A->CO (RR)	0.10086	1.25206	20.12210
	B->CO (RR)	0.09923	1.22251	19.40550
	CI->CO (RR)	0.09658	1.30196	20.88390
	CON->CO (FR)	0.02043	0.62037	9.76515

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)	0.10920	1.47037	27.04020
	B->CO (FF)	0.09510	1.42985	26.21930
	CI->CO (FF)	0.09357	1.49568	27.55340
	CON->CO (RF)	0.01874	0.54714	9.71892
sky130_osu_sc_18T_hs__addf_l	A->CO (FF)	0.10549	1.30951	20.92520
	B->CO (FF)	0.09179	1.28260	20.51220
	CI->CO (FF)	0.08983	1.33644	21.46450
	CON->CO (RF)	0.01929	0.54176	8.70809

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)	0.08310	0.63459	8.45854
	B->CON (FR)	0.06930	0.63019	8.51943
	CI->CON (FR)	0.06744	0.66331	9.04565
sky130_osu_sc_18T_hs__addf_l	A->CON (FR)	0.07913	0.63109	8.46903
	B->CON (FR)	0.06568	0.62726	8.52817
	CI->CON (FR)	0.06345	0.66019	9.05716

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)	0.07070	0.53007	7.06164
	B->CON (RF)	0.06990	0.54349	7.18062
	CI->CON (RF)	0.06644	0.58506	7.87422
sky130_osu_sc_18T_hs__addf_l	A->CON (RF)	0.06793	0.52775	7.07313
	B->CON (RF)	0.06738	0.54143	7.19002
	CI->CON (RF)	0.06366	0.58279	7.88583

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)	0.16258	1.32605	22.32350
	B->S (-R)	0.17399	1.30481	21.17060
	CI->S (-R)	0.14556	1.34947	22.83080
	CON->S (RR)	0.05493	0.44523	6.95125
sky130_osu_sc_18T_hs__addf_l	A->S (-R)	0.15861	1.24529	18.53620
	B->S (-R)	0.17070	1.23229	17.76310
	CI->S (-R)	0.14159	1.27045	19.07680
	CON->S (RR)	0.05624	0.49501	7.07162

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)	0.15370	1.29534	21.73660
	B->S (-F)	0.14465	1.23319	20.77640
	CI->S (-F)	0.14943	1.34587	22.47500
	CON->S (FF)	0.06101	0.55229	8.41247
sky130_osu_sc_18T_hs__addf_l	A->S (-F)	0.14529	1.16300	17.08160
	B->S (-F)	0.13683	1.11169	16.45940
	CI->S (-F)	0.14093	1.21458	17.84740
	CON->S (FF)	0.05829	0.54757	7.54749

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	0.01545	0.03096	0.35275
	B	0.01728	0.03108	0.31542
	CI	0.01891	0.03511	0.35588
sky130_osu_sc_18T_hs__addf_l	A	0.01106	0.02288	0.23422
	B	0.01302	0.02354	0.21215
	CI	0.01449	0.02677	0.23756

Internal switching power(pJ) to CO falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__addf_1	A	0.03382	0.05198	0.43044
	B	0.03254	0.04779	0.38419
	CI	0.03047	0.04962	0.43123
sky130_osu_sc_18T_hs__addf_l	A	0.02824	0.04238	0.30121
	B	0.02671	0.03961	0.27258
	CI	0.02488	0.04006	0.30288

Internal switching power(pJ) to CON rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__addf_1	A	0.02936	0.04215	0.25779
	B	0.02808	0.04011	0.24387
	CI	0.02614	0.03994	0.26307
sky130_osu_sc_18T_hs__addf_l	A	0.02634	0.03845	0.24024
	B	0.02517	0.03658	0.22719
	CI	0.02309	0.03627	0.24464

Internal switching power(pJ) to CON falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__addf_1	A	0.01166	0.02289	0.21037
	B	0.01273	0.02280	0.19380
	CI	0.01524	0.02714	0.21812
sky130_osu_sc_18T_hs__addf_l	A	0.00880	0.01900	0.18707
	B	0.01008	0.01927	0.17212
	CI	0.01231	0.02305	0.19333

Internal switching power(pJ) to S rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__addf_1	A	0.01130	0.02515	0.38437
	B	0.01335	0.02962	0.30540
	CI	0.01994	0.03620	0.36649
sky130_osu_sc_18T_hs__addf_l	A	0.00883	0.02366	0.38745
	B	0.00742	0.02531	0.32860
	CI	0.01738	0.03460	0.36947

Internal switching power(pJ) to S falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__addf_1	A	0.06835	0.08579	0.40130
	B	0.05672	0.07619	0.42163
	CI	0.04940	0.06674	0.36154
sky130_osu_sc_18T_hs__addf_l	A	0.06069	0.07911	0.40761
	B	0.04617	0.06712	0.42181
	CI	0.04261	0.06073	0.36805

SKY130_OSU_SC_18T_HS__ADDHx

sky130_osu_sc_18T_hs_ff_1P95_100C.ccs
Cell Library: Process , Voltage 1.95, Temp 100.00

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	0.00997	0.01105	4.04026	2.11150	4.17968
sky130_osu_sc_18T_hs__addh_l	0.00997	0.01105	2.40753	2.11005	2.45081

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__addh_1	0.00000	691.82700	790.48500
sky130_osu_sc_18T_hs__addh_l	0.00000	617.45600	732.32900

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)	0.06328	0.45854	6.89228
	B->CO (RR)	0.06581	0.45400	7.03352
sky130_osu_sc_18T_hs__addh_l	A->CO (RR)	0.06379	0.52382	7.00417
	B->CO (RR)	0.06631	0.51622	6.99881

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)	0.05210	0.50351	8.02211
	B->CO (FF)	0.05669	0.52366	8.22700
sky130_osu_sc_18T_hs__addh_l	A->CO (FF)	0.05071	0.51186	6.96080
	B->CO (FF)	0.05499	0.53211	7.17542

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	0.08618	0.37321	3.80840
	A->CON (FR)	!B	0.04378	0.61374	8.73131
	B->CON (RR)	A	0.08801	0.36795	3.94837
	B->CON (FR)	!A	0.05671	0.59688	8.37223
sky130_osu_sc_18T_hs__addh_l	A->CON (RR)	B	0.07775	0.36205	3.90186
	A->CON (FR)	!B	0.03919	0.60863	8.72224
	B->CON (RR)	A	0.07963	0.35452	3.92352
	B->CON (FR)	!A	0.05210	0.59139	8.36300

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	0.08620	0.51788	6.13648
	A->CON (RF)	!B	0.04164	0.55485	7.91219
	B->CON (FF)	A	0.08335	0.55513	6.71761
	B->CON (RF)	!A	0.04962	0.53408	7.45160
sky130_osu_sc_18T_hs__addh_l	A->CON (FF)	B	0.07839	0.49782	6.00287
	A->CON (RF)	!B	0.03827	0.55054	7.90325
	B->CON (FF)	A	0.07572	0.53484	6.57934
	B->CON (RF)	!A	0.04627	0.53021	7.44468

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	0.06658	1.31912	25.01970
	A->S (FR)	B	0.11227	1.27434	23.10150
	B->S (RR)	!A	0.07556	1.26737	23.75910
	B->S (FR)	A	0.10891	1.34336	24.49030
	CON->S (FR)	-	0.02007	0.57404	9.92133
sky130_osu_sc_18T_hs__addh_l	A->S (RR)	!B	0.06644	1.19375	18.64060
	A->S (FR)	B	0.10803	1.13397	16.62010
	B->S (RR)	!A	0.07576	1.15519	17.83050
	B->S (FR)	A	0.10454	1.19112	17.57730
	CON->S (FR)	-	0.02253	0.64309	9.81966

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	0.06737	1.37955	26.14280
	A->S (RF)	B	0.10847	0.99560	17.41050
	B->S (FF)	!A	0.08032	1.37088	25.86970
	B->S (RF)	A	0.11028	0.98933	17.54160
	CON->S (RF)	-	0.01788	0.53770	9.63151
sky130_osu_sc_18T_hs__addh_l	A->S (FF)	!B	0.06306	1.18663	18.50190
	A->S (RF)	B	0.10028	0.87196	12.37540
	B->S (FF)	!A	0.07597	1.17175	18.16550
	B->S (RF)	A	0.10214	0.86213	12.36200
	CON->S (RF)	-	0.01874	0.53940	8.37799

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	0.01709	0.02587	0.17158
	B	0.00000	0.00000	0.00000
	B	0.01582	0.02563	0.20557
sky130_osu_sc_18T_hs__addh_l	A	0.00000	0.00000	0.00000
	A	0.01465	0.02371	0.17266
	B	0.00000	0.00000	0.00000
	B	0.01335	0.02302	0.19347

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	0.02097	0.03421	0.27037
	B	0.00000	0.00000	0.00000
	B	0.02272	0.03830	0.29881
sky130_osu_sc_18T_hs__addh_l	A	0.00000	0.00000	0.00000
	A	0.01786	0.02914	0.21229
	B	0.00000	0.00000	0.00000
	B	0.01946	0.03239	0.22981

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	0.01440	0.02316	0.16444
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.02069	0.02973	0.15318
	B	A	0.00000	0.00000	0.00000
	B	A	0.01318	0.02292	0.19692
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.02245	0.02959	0.14373
sky130_osu_sc_18T_hs__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.01212	0.02123	0.17016
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.01744	0.02510	0.12530
	B	A	0.00000	0.00000	0.00000
	B	A	0.01087	0.02057	0.19104
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01925	0.02507	0.11609

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	0.01979	0.03188	0.23157
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.01215	0.02128	0.14134
	B	A	0.00000	0.00000	0.00000
	B	A	0.02168	0.03581	0.25222
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01148	0.01977	0.13795
sky130_osu_sc_18T_hs__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.01742	0.02858	0.20981
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00984	0.01646	0.10091
	B	A	0.00000	0.00000	0.00000
	B	A	0.01927	0.03208	0.22559
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00918	0.01527	0.10060

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	0.02383	0.03717	0.27657
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.01886	0.02908	0.19008
	B	A	0.00000	0.00000	0.00000
	B	A	0.02652	0.04226	0.30635
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01706	0.02586	0.17139
sky130_osu_sc_18T_hs__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.01989	0.03118	0.21614
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.01372	0.02021	0.10459
	B	A	0.00000	0.00000	0.00000
	B	A	0.02213	0.03507	0.23399
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01250	0.01851	0.10292

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	0.01925	0.02809	0.17648
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.02477	0.03439	0.17944
	B	A	0.00000	0.00000	0.00000
	B	A	0.01797	0.02783	0.20870
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.02668	0.03489	0.17409
sky130_osu_sc_18T_hs__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.01486	0.02416	0.17380
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.01860	0.02630	0.12498
	B	A	0.00000	0.00000	0.00000
	B	A	0.01355	0.02320	0.19441
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.02050	0.02638	0.11586

SKY130_OSU_SC_18T_HS__AND2x

sky130_osu_sc_18T_hs_ff_1P95_100C.ccs
Cell Library: Process , Voltage 1.95, Temp 100.00

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	0.00541	0.00557	4.06722
sky130_osu_sc_18T_hs__and2_2	0.00541	0.00557	7.74124
sky130_osu_sc_18T_hs__and2_4	0.00541	0.00558	14.59759
sky130_osu_sc_18T_hs__and2_6	0.00545	0.00559	21.18102
sky130_osu_sc_18T_hs__and2_8	0.00544	0.00561	27.12709
sky130_osu_sc_18T_hs__and2_l	0.00428	0.00442	2.78645

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__and2_1	0.00000	329.44300	526.64700
sky130_osu_sc_18T_hs__and2_2	0.00000	526.79900	528.63900
sky130_osu_sc_18T_hs__and2_4	0.00000	921.41000	1051.67000
sky130_osu_sc_18T_hs__and2_6	0.00000	1316.01000	1576.39000
sky130_osu_sc_18T_hs__and2_8	0.00000	1710.49000	2101.13000
sky130_osu_sc_18T_hs__and2_l	0.00000	152.45500	243.40700

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)	0.04840	0.42790	7.03844
	B->Y (RR)	0.05148	0.40353	6.55486
sky130_osu_sc_18T_hs__and2_2	A->Y (RR)	0.05644	0.38458	7.01130
	B->Y (RR)	0.05964	0.35820	6.48084
sky130_osu_sc_18T_hs__and2_4	A->Y (RR)	0.07968	0.38652	7.07107
	B->Y (RR)	0.08294	0.35856	6.52182
sky130_osu_sc_18T_hs__and2_6	A->Y (RR)	0.10419	0.40822	7.10559
	B->Y (RR)	0.10741	0.37846	6.54040
sky130_osu_sc_18T_hs__and2_8	A->Y (RR)	0.12817	0.43629	7.19557
	B->Y (RR)	0.13146	0.40504	6.60126
sky130_osu_sc_18T_hs__and2_l	A->Y (RR)	0.05252	0.46727	6.77184
	B->Y (RR)	0.05552	0.44336	6.35098

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)**	0.04216	0.45357	7.48571
	B->Y (FF)	0.04400	0.46493	7.59020
sky130_osu_sc_18T_hs__and2_2	**A->Y (FF)**	0.04631	0.39331	7.25832
	B->Y (FF)	0.04876	0.40707	7.40815
sky130_osu_sc_18T_hs__and2_4	**A->Y (FF)**	0.06288	0.38218	7.18427
	B->Y (FF)	0.06545	0.39551	7.35134
sky130_osu_sc_18T_hs__and2_6	**A->Y (FF)**	0.08163	0.40028	7.13929
	B->Y (FF)	0.08410	0.41122	7.30628
sky130_osu_sc_18T_hs__and2_8	**A->Y (FF)**	0.09930	0.41931	6.99051
	B->Y (FF)	0.10201	0.42955	7.15994
sky130_osu_sc_18T_hs__and2_l	**A->Y (FF)**	0.04535	0.49246	6.97930
	B->Y (FF)	0.04801	0.50862	7.14975

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	0.02058	0.05152	0.52890
	B	0.00000	0.00000	0.00000
	B	0.02036	0.04419	0.42538
sky130_osu_sc_18T_hs__and2_2	A	0.00000	0.00000	0.00000
	A	0.02913	0.05889	0.54447
	B	0.00000	0.00000	0.00000
	B	0.02894	0.05172	0.43185
sky130_osu_sc_18T_hs__and2_4	A	0.00000	0.00000	0.00000
	A	0.05153	0.07717	0.56796
	B	0.00000	0.00000	0.00000
	B	0.05137	0.06954	0.44029
sky130_osu_sc_18T_hs__and2_6	A	0.00000	0.00000	0.00000
	A	0.08537	0.10113	0.59628
	B	0.00000	0.00000	0.00000
	B	0.08519	0.09270	0.45602
sky130_osu_sc_18T_hs__and2_8	A	0.00000	0.00000	0.00000
	A	0.12481	0.13050	0.63106
	B	0.00000	0.00000	0.00000
	B	0.12461	0.11910	0.46240
sky130_osu_sc_18T_hs__and2_1	A	0.00000	0.00000	0.00000
	A	0.01127	0.03247	0.35923
	B	0.00000	0.00000	0.00000
	B	0.01122	0.02866	0.30769

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	0.02422	0.05517	0.48701
	B	0.00000	0.00000	0.00000
	B	0.02627	0.05675	0.47348
sky130_osu_sc_18T_hs__and2_2	A	0.00000	0.00000	0.00000
	A	0.03786	0.06721	0.49928
	B	0.00000	0.00000	0.00000
	B	0.03989	0.06869	0.48386
sky130_osu_sc_18T_hs__and2_4	A	0.00000	0.00000	0.00000
	A	0.07472	0.09663	0.52072
	B	0.00000	0.00000	0.00000
	B	0.07654	0.09714	0.50271
sky130_osu_sc_18T_hs__and2_6	A	0.00000	0.00000	0.00000
	A	0.11402	0.12601	0.54400
	B	0.00000	0.00000	0.00000
	B	0.11593	0.12684	0.52347
sky130_osu_sc_18T_hs__and2_8	A	0.00000	0.00000	0.00000
	A	0.16332	0.15908	0.57063
	B	0.00000	0.00000	0.00000
	B	0.16531	0.15911	0.54455
sky130_osu_sc_18T_hs__and2_l	A	0.00000	0.00000	0.00000
	A	0.01668	0.03740	0.32078
	B	0.00000	0.00000	0.00000
	B	0.01834	0.03893	0.31810

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)	-0.00442	-0.00444	-0.00447
sky130_osu_sc_18T_hs__and2_2	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00213	-0.00216	-0.00219
sky130_osu_sc_18T_hs__and2_4	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00246	0.00240	0.00237
sky130_osu_sc_18T_hs__and2_6	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00695	0.00693	0.00690
sky130_osu_sc_18T_hs__and2_8	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.01155	0.01152	0.01149
sky130_osu_sc_18T_hs__and2_l	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00399	-0.00402	-0.00405

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)	0.00904	0.00909	0.00907
sky130_osu_sc_18T_hs__and2_2	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.01133	0.01138	0.01136
sky130_osu_sc_18T_hs__and2_4	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.01590	0.01596	0.01593
sky130_osu_sc_18T_hs__and2_6	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.02051	0.02057	0.02054
sky130_osu_sc_18T_hs__and2_8	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.02505	0.02511	0.02508
sky130_osu_sc_18T_hs__and2_l	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00615	0.00619	0.00617

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)	-0.00406	-0.00410	-0.00407
sky130_osu_sc_18T_hs__and2_2	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00178	-0.00182	-0.00179
sky130_osu_sc_18T_hs__and2_4	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00278	0.00274	0.00277
sky130_osu_sc_18T_hs__and2_6	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00734	0.00728	0.00733
sky130_osu_sc_18T_hs__and2_8	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.01189	0.01184	0.01189
sky130_osu_sc_18T_hs__and2_l	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00374	-0.00377	-0.00375

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)	0.00895	0.00877	0.00871
sky130_osu_sc_18T_hs__and2_2	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.01124	0.01106	0.01100
sky130_osu_sc_18T_hs__and2_4	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.01581	0.01564	0.01557
sky130_osu_sc_18T_hs__and2_6	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.02039	0.02021	0.02015
sky130_osu_sc_18T_hs__and2_8	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.02496	0.02479	0.02472
sky130_osu_sc_18T_hs__and2_l	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00610	0.00599	0.00592

SKY130_OSU_SC_18T_HS__AOI21

sky130_osu_sc_18T_hs_ff_1P95_100C.ccs
Cell Library: Process , Voltage 1.95, Temp 100.00

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	0.00521	0.00535	0.00518	1.91588

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__aoi21_l	0.00000	131.71800	262.19400

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)	0.04512	0.58870	8.21847
	A1->Y (FR)	0.03903	0.56029	7.85047
	B0->Y (FR)	0.03159	0.62289	8.83568

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)	0.03862	0.46536	6.41647
	A1->Y (RF)	0.03535	0.50065	6.95408
	B0->Y (RF)	0.02212	0.46793	6.69409

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	0.01598	0.02418	0.15028
	A1	0.00000	0.00000	0.00000
	A1	0.01337	0.02146	0.14443
	B0	0.00905	0.02345	0.19551

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	0.00864	0.01476	0.10828
	A1	0.00000	0.00000	0.00000
	A1	0.00898	0.01657	0.11708
	B0	0.00394	0.01241	0.11266

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)	-0.00389	-0.00506	-0.00390
	(!A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !Y)	-0.00374	-0.00377	-0.00374
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00597	-0.00601	-0.00598

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)	0.00837	0.00840	0.00794
	(!A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !Y)	0.00829	0.00835	0.00832
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00634	0.00617	0.00610

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)	-0.00383	-0.00499	-0.00383
	(!A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !Y)	-0.00365	-0.00369	-0.00367
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	-0.00635	-0.00641	-0.00643

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)	0.00830	0.00833	0.00788
	(!A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !Y)	0.00822	0.00825	0.00825
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	0.00647	0.00652	0.00650

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)	-0.00219	-0.00221	-0.00206

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)	0.00504	0.00500	0.00396

SKY130_OSU_SC_18T_HS__AOI22

sky130_osu_sc_18T_hs_ff_1P95_100C.ccs
Cell Library: Process , Voltage 1.95, Temp 100.00

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	0.00522	0.00535	0.00550	0.00530	1.84141

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__aoi22_l	0.00000	146.55300	523.29900

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)	0.05638	0.60277	8.18665
	A1->Y (FR)	0.05061	0.58470	7.98864
	B0->Y (FR)	0.03294	0.61465	8.61466
	B1->Y (FR)	0.03848	0.63978	8.90913

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)	0.05118	0.47324	6.25128
	A1->Y (RF)	0.04789	0.50813	6.78798
	B0->Y (RF)	0.02472	0.47939	6.76090
	B1->Y (RF)	0.02794	0.44461	6.22196

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	0.01989	0.02803	0.16386
	A1	0.01730	0.02542	0.15666
	B0	0.00979	0.02349	0.19154
	B1	0.01229	0.02577	0.19364

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__aoi22_l	A0	0.01279	0.01907	0.11962
	A1	0.01312	0.02083	0.12877
	B0	0.01029	0.01868	0.12005
	B1	0.00979	0.01674	0.10926

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)	-0.00326	-0.00453	-0.00201
	(!A1 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * B1 * !Y)	-0.00146	-0.00150	-0.00147
	(!A1 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !B1 * Y)	-0.00598	-0.00602	-0.00599
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00598	-0.00602	-0.00599

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)	0.01069	0.01063	0.00967
	(!A1 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * B1 * !Y)	0.01056	0.01064	0.01059
	(!A1 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !B1 * Y)	0.00632	0.00616	0.00608
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00633	0.00617	0.00609

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)	-0.00320	-0.00446	-0.00195
	(!A0 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * B1 * !Y)	-0.00138	-0.00145	-0.00140
	(!A0 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !B1 * Y)	-0.00636	-0.00641	-0.00644
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	-0.00636	-0.00641	-0.00644

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)	0.01063	0.01059	0.00961
	(!A0 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * B1 * !Y)	0.01049	0.01053	0.01051
	(!A0 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !B1 * Y)	0.00645	0.00650	0.00649
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	0.00646	0.00650	0.00649

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)	-0.00217	-0.00219	-0.00206
	(A0 * A1 * !B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B1 * !Y)	-0.00009	-0.00012	-0.00012
	(!A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B1 * Y)	-0.00653	-0.00655	-0.00660
	(!A0 * A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B1 * Y)	-0.00654	-0.00655	-0.00660

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)	0.00514	0.00511	0.00411
	(A0 * A1 * !B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B1 * !Y)	0.00445	0.00446	0.00430
	(!A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B1 * Y)	0.00662	0.00668	0.00666
	(!A0 * A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B1 * Y)	0.00662	0.00667	0.00665

Passive power(pJ) for B1 rising (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__aoi22_l	(A0 * A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * B0 * !Y)	-0.00219	-0.00220	-0.00208
	(A0 * A1 * !B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B0 * !Y)	-0.00011	-0.00013	-0.00014
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00607	-0.00611	-0.00608
	(!A0 * A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B0 * Y)	-0.00607	-0.00612	-0.00608

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)	0.00516	0.00512	0.00412
	(A0 * A1 * !B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B0 * !Y)	0.00447	0.00448	0.00432
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00642	0.00624	0.00618
	(!A0 * A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B0 * Y)	0.00641	0.00624	0.00617

SKY130_OSU_SC_18T_HS__BUFx

sky130_osu_sc_18T_hs_ff_1P95_100C.ccs
Cell Library: Process , Voltage 1.95, Temp 100.00

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	0.00555	4.08448
sky130_osu_sc_18T_hs__buf_2	0.00555	7.81358
sky130_osu_sc_18T_hs__buf_4	0.00554	14.82780
sky130_osu_sc_18T_hs__buf_6	0.00095	1.80000
sky130_osu_sc_18T_hs__buf_8	0.00557	27.95589
sky130_osu_sc_18T_hs__buf_l	0.00444	2.80294

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__buf_1	0.00000	264.48600	264.52100
sky130_osu_sc_18T_hs__buf_2	0.00000	396.73100	527.03900
sky130_osu_sc_18T_hs__buf_4	0.00000	661.15700	1051.96000
sky130_osu_sc_18T_hs__buf_6	0.00000	0.00000	0.00000
sky130_osu_sc_18T_hs__buf_8	0.00000	1189.95000	2101.67000
sky130_osu_sc_18T_hs__buf_l	0.00000	123.14100	123.15000

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)**	0.03925	0.37937	6.41010
sky130_osu_sc_18T_hs__buf_2	**A->Y (RR)**	0.04400	0.33018	6.30757
sky130_osu_sc_18T_hs__buf_4	**A->Y (RR)**	0.06003	0.32600	6.35075
sky130_osu_sc_18T_hs__buf_8	**A->Y (RR)**	0.09453	0.36645	6.46303
sky130_osu_sc_18T_hs__buf_l	**A->Y (RR)**	0.04317	0.41906	6.18998

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)**	0.03994	0.46183	7.73524
sky130_osu_sc_18T_hs__buf_2	**A->Y (FF)**	0.04471	0.40607	7.60643
sky130_osu_sc_18T_hs__buf_4	**A->Y (FF)**	0.06134	0.39439	7.55598
sky130_osu_sc_18T_hs__buf_8	**A->Y (FF)**	0.09776	0.42967	7.44351
sky130_osu_sc_18T_hs__buf_l	**A->Y (FF)**	0.04369	0.50303	7.25489

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	0.01299	0.04167	0.45543
sky130_osu_sc_18T_hs__buf_2	A	0.00000	0.00000	0.00000
	A	0.02046	0.04955	0.46646
sky130_osu_sc_18T_hs__buf_4	A	0.00000	0.00000	0.00000
	A	0.03891	0.06789	0.48916
sky130_osu_sc_18T_hs__buf_8	A	0.00000	0.00000	0.00000
	A	0.09545	0.11527	0.53242
sky130_osu_sc_18T_hs__buf_l	A	0.00000	0.00000	0.00000
	A	0.00780	0.02815	0.32894

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	0.02332	0.05657	0.51120
sky130_osu_sc_18T_hs__buf_2	A	0.00000	0.00000	0.00000
	A	0.03686	0.06872	0.52083
sky130_osu_sc_18T_hs__buf_4	A	0.00000	0.00000	0.00000
	A	0.07338	0.09702	0.54302
sky130_osu_sc_18T_hs__buf_8	A	0.00000	0.00000	0.00000
	A	0.16325	0.16002	0.58462
sky130_osu_sc_18T_hs__buf_l	A	0.00000	0.00000	0.00000
	A	0.01610	0.03824	0.33619

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
	-0.00094	-0.00094	-0.00090

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
	0.00094	0.00094	0.00090

SKY130_OSU_SC_18T_HS__DFFRx

sky130_osu_sc_18T_hs_ff_1P95_100C.ccs
Cell Library: Process , Voltage 1.95, Temp 100.00

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	0.00538	0.00524	0.01497	3.93057	3.88009
sky130_osu_sc_18T_hs__dffr_l	0.00538	0.00524	0.01497	2.84755	2.81921

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__dffr_1	0.00000	818.80800	1328.47000
sky130_osu_sc_18T_hs__dffr_l	0.00000	677.47300	1187.15000

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)	0.16688	1.01124	15.97770
	QN->Q (FR)	0.02108	0.63243	10.84300
sky130_osu_sc_18T_hs__dffr_l	CK->Q (RR)	0.16444	1.08798	15.50310
	QN->Q (FR)	0.02261	0.68430	10.85630

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)	0.17466	1.00357	15.99060
	QN->Q (RF)	0.02149	0.64664	11.30480
	RN->Q (FF)	0.13285	1.02923	16.75190
sky130_osu_sc_18T_hs__dffr_l	CK->Q (RF)	0.17759	1.07937	15.40770
	QN->Q (RF)	0.02124	0.62813	10.06940
	RN->Q (FF)	0.13613	1.10631	16.16760

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)	0.15351	0.50548	6.18758
	RN->QN (FR)	0.11165	0.53167	6.94419
sky130_osu_sc_18T_hs__dffr_l	CK->QN (RR)	0.15549	0.55685	6.35335
	RN->QN (FR)	0.11399	0.58326	7.10939

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)**	0.14522	0.54095	6.73636
sky130_osu_sc_18T_hs__dffr_l	**CK->QN (RF)**	0.13886	0.53942	6.03135

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)	-0.04676	-0.03762	0.14293
	setup	CK (R)	0.13373	0.16811	1.85411
sky130_osu_sc_18T_hs__dffr_l	hold	CK (R)	-0.04679	-0.03762	0.14501
	setup	CK (R)	0.13217	0.16678	1.79612

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)	-0.06735	-0.20691	0.61591
	setup	CK (R)	0.08583	0.22264	3.80800
sky130_osu_sc_18T_hs__dffr_l	hold	CK (R)	-0.06856	-0.20691	0.50788
	setup	CK (R)	0.08583	0.22264	3.80955

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)	-0.04676	-0.03762	0.14293
	setup	CK (R)	0.13373	0.16811	1.85411
sky130_osu_sc_18T_hs__dffr_l	hold	CK (R)	-0.04679	-0.03762	0.14501
	setup	CK (R)	0.13217	0.16678	1.79612

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)	-0.06735	-0.20691	0.61591
	setup	CK (R)	0.08583	0.22264	3.80800
sky130_osu_sc_18T_hs__dffr_l	hold	CK (R)	-0.06856	-0.20691	0.50788
	setup	CK (R)	0.08583	0.22264	3.80955

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)	0.10834	0.16118	1.18381
	removal	CK (R)	-0.02415	-0.03329	-0.18237
sky130_osu_sc_18T_hs__dffr_l	recovery	CK (R)	0.10701	0.16192	1.16215
	removal	CK (R)	-0.02415	-0.03329	-0.18237

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)	0.10834	0.16118	1.18381
	removal	CK (R)	-0.02415	-0.03329	-0.18237
sky130_osu_sc_18T_hs__dffr_l	recovery	CK (R)	0.10701	0.16192	1.16215
	removal	CK (R)	-0.02415	-0.03329	-0.18237

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 ()	0.07647	0.50537	13.33370
	min_pulse_width	RN ()	0.07647	0.50537	13.33370
sky130_osu_sc_18T_hs__dffr_l	min_pulse_width	RN ()	0.07647	0.50537	13.33370
	min_pulse_width	RN ()	0.07647	0.50537	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 ()	0.08406	0.50537	13.33370
	min_pulse_width	CK ()	0.08785	0.50537	13.33370
sky130_osu_sc_18T_hs__dffr_l	min_pulse_width	CK ()	0.08026	0.50537	13.33370
	min_pulse_width	CK ()	0.08785	0.50537	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 ()	0.17136	0.50537	13.33370
	min_pulse_width	CK ()	0.06887	0.50537	13.33370
sky130_osu_sc_18T_hs__dffr_l	min_pulse_width	CK ()	0.17136	0.50537	13.33370
	min_pulse_width	CK ()	0.06887	0.50537	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	0.03693	0.05795	0.32158
sky130_osu_sc_18T_hs__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.03179	0.05492	0.36662

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	0.03732	0.04973	0.25121
	RN	-0.00203	-0.18476	-3.73605
	RN	0.05227	0.06735	0.28708
sky130_osu_sc_18T_hs__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.03186	0.04720	0.30786
	RN	-0.00203	-0.15228	-2.70678
	RN	0.04703	0.06477	0.34184

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	0.03299	0.04539	0.24757
	RN	-0.00203	-0.18333	-3.68189
	RN	0.04879	0.06360	0.28466
sky130_osu_sc_18T_hs__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.02929	0.04464	0.30491
	RN	-0.00203	-0.15137	-2.67867
	RN	0.04506	0.06275	0.34124

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	0.03230	0.05348	0.31904
sky130_osu_sc_18T_hs__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.02712	0.05039	0.36216

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	0.00502	0.00404	0.00539
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.03028	0.05257	0.46716
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.01662	0.03824	0.42546
sky130_osu_sc_18T_hs__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.00379	0.00281	0.00416
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.02905	0.05134	0.46593
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.01539	0.03701	0.42423

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	0.01760	0.01762	0.01715
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.04475	0.06903	0.48531
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.01965	0.04273	0.43438
sky130_osu_sc_18T_hs__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.01637	0.01639	0.01592
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.04352	0.06780	0.48407
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.01842	0.04150	0.43315

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)	0.01503	0.05075	0.61299
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.02611	0.06322	0.66885
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)	0.01380	0.04952	0.61177
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.02488	0.06199	0.66763

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)	0.02070	0.05872	0.62462
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.04161	0.08033	0.68615
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)	0.01947	0.05749	0.62339
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.04038	0.07910	0.68492

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)	0.00816	0.04304	0.60165
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.01586	0.05199	0.67116
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.00646	0.04077	0.59925
sky130_osu_sc_18T_hs__dffr_l	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.00693	0.04181	0.60041
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.01463	0.05075	0.66993
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.00523	0.03954	0.59802

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)	0.03011	0.06859	0.62987
	(D * RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * RN * !Q * QN)	0.06107	0.09910	0.86145
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.04801	0.08573	0.70060
	(!D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * Q * !QN)	0.06000	0.12584	0.98662
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.03323	0.07051	0.63130
sky130_osu_sc_18T_hs__dffr_l	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.02888	0.06735	0.62864
	(D * RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * RN * !Q * QN)	0.05984	0.09792	0.86022
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.04678	0.08451	0.69937
	(!D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * Q * !QN)	0.05877	0.12461	0.98538
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.03200	0.06928	0.63007

SKY130_OSU_SC_18T_HS__DFFSRx

sky130_osu_sc_18T_hs_ff_1P95_100C.ccs
Cell Library: Process , Voltage 1.95, Temp 100.00

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	0.00533	0.00525	0.01137	0.01529	4.18948	4.15829
sky130_osu_sc_18T_hs__dffsr_l	0.00533	0.00525	0.01136	0.01529	2.83957	2.83204

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__dffsr_1	0.00000	959.67100	1325.82000
sky130_osu_sc_18T_hs__dffsr_l	0.00000	818.31100	1184.47000

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)	0.17173	1.00790	16.29020
	QN->Q (FR)	0.01994	0.61648	10.72260
	RN->Q (RR)	0.13895	0.99052	16.56050
	SN->Q (FR)	0.12346	1.03805	17.22970
sky130_osu_sc_18T_hs__dffsr_l	CK->Q (RR)	0.17386	1.08862	15.39560
	QN->Q (FR)	0.02256	0.68116	10.79630
	RN->Q (RR)	0.14244	1.07429	15.66630
	SN->Q (FR)	0.12586	1.11789	16.33400

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)	0.20223	1.02766	16.26660
	QN->Q (RF)	0.01978	0.61189	10.88790
	RN->Q (FF)	0.13002	1.02483	17.08870
sky130_osu_sc_18T_hs__dffsr_l	CK->Q (RF)	0.20841	1.11194	15.38790
	QN->Q (RF)	0.02120	0.62578	10.03610
	RN->Q (FF)	0.13547	1.10926	16.21040

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)	0.18173	0.53635	6.36089
	RN->QN (FR)	0.10978	0.53356	7.17838
sky130_osu_sc_18T_hs__dffsr_l	CK->QN (RR)	0.18618	0.59174	6.40722
	RN->QN (FR)	0.11333	0.58856	7.22763

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)	0.15081	0.53745	6.82032
	RN->QN (RF)	0.11913	0.52311	7.09905
	SN->QN (FF)	0.10273	0.56757	7.75908
sky130_osu_sc_18T_hs__dffsr_l	CK->QN (RF)	0.14855	0.54351	6.00671
	RN->QN (RF)	0.11734	0.52959	6.28338
	SN->QN (FF)	0.10085	0.57232	6.94271

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)	-0.04574	-0.04162	0.16306
	setup	CK (R)	0.13404	0.17288	1.45964
sky130_osu_sc_18T_hs__dffsr_l	hold	CK (R)	-0.04662	-0.04162	0.16648
	setup	CK (R)	0.12989	0.17228	1.44133

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)	-0.07763	-0.22040	-0.03653
	setup	CK (R)	0.09974	0.23305	3.88174
sky130_osu_sc_18T_hs__dffsr_l	hold	CK (R)	-0.07766	-0.22040	-0.08072
	setup	CK (R)	0.09963	0.23305	3.88105

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)	-0.04574	-0.04162	0.16306
	setup	CK (R)	0.13404	0.17288	1.45964
sky130_osu_sc_18T_hs__dffsr_l	hold	CK (R)	-0.04662	-0.04162	0.16648
	setup	CK (R)	0.12989	0.17228	1.44133

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)	-0.07763	-0.22040	-0.03653
	setup	CK (R)	0.09974	0.23305	3.88174
sky130_osu_sc_18T_hs__dffsr_l	hold	CK (R)	-0.07766	-0.22040	-0.08072
	setup	CK (R)	0.09963	0.23305	3.88105

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)	0.09363	0.15019	1.41855
	removal	CK (R)	-0.01249	-0.01665	-0.09346
	hold	SN (R)	-0.09383	-0.19559	-0.96112
	setup	SN (R)	0.11737	0.24739	7.67020
sky130_osu_sc_18T_hs__dffsr_l	recovery	CK (R)	0.09335	0.14982	1.31673
	removal	CK (R)	-0.01249	-0.01665	-0.09346
	hold	SN (R)	-0.09192	-0.18935	-0.94925
	setup	SN (R)	0.11667	0.24182	7.64277

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)	0.09363	0.15019	1.41855
	removal	CK (R)	-0.01249	-0.01665	-0.09346
	hold	SN (R)	-0.09573	-0.19559	-0.97524
	hold	SN (R)	-0.09383	-0.19767	-0.96112
	setup	SN (R)	0.11737	0.24620	7.45261
	setup	SN (R)	0.11425	0.24739	7.67020
sky130_osu_sc_18T_hs__dffsr_l	recovery	CK (R)	0.09335	0.14982	1.31673
	removal	CK (R)	-0.01249	-0.01665	-0.09346
	hold	SN (R)	-0.09217	-0.18935	-0.96938
	hold	SN (R)	-0.09192	-0.19143	-0.94925
	setup	SN (R)	0.11667	0.23796	7.44126
	setup	SN (R)	0.10865	0.24182	7.64277

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 ()	0.08785	0.50537	13.33370
	min_pulse_width	RN ()	0.08785	0.50537	13.33370
sky130_osu_sc_18T_hs__dffsr_l	min_pulse_width	RN ()	0.08785	0.50537	13.33370
	min_pulse_width	RN ()	0.08406	0.50537	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)	0.03144	0.06890	7.60187
	removal	CK (R)	-0.01714	-0.04578	-0.32048
sky130_osu_sc_18T_hs__dffsr_l	recovery	CK (R)	0.03205	0.07058	7.60311
	removal	CK (R)	-0.01714	-0.04578	-0.32048

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)	0.03144	0.06890	7.60187
	removal	CK (R)	-0.01714	-0.04578	-0.32048
sky130_osu_sc_18T_hs__dffsr_l	recovery	CK (R)	0.03205	0.07058	7.60311
	removal	CK (R)	-0.01714	-0.04578	-0.32048

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 ()	0.09924	0.50537	13.33370
	min_pulse_width	SN ()	0.09924	0.50537	13.33370
sky130_osu_sc_18T_hs__dffsr_l	min_pulse_width	SN ()	0.09924	0.50537	13.33370
	min_pulse_width	SN ()	0.09165	0.50537	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 ()	0.08406	0.50537	13.33370
	min_pulse_width	CK ()	0.10304	0.50537	13.33370
sky130_osu_sc_18T_hs__dffsr_l	min_pulse_width	CK ()	0.08406	0.50537	13.33370
	min_pulse_width	CK ()	0.10304	0.50537	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 ()	0.16756	0.50537	13.33370
	min_pulse_width	CK ()	0.08406	0.50537	13.33370
sky130_osu_sc_18T_hs__dffsr_l	min_pulse_width	CK ()	0.16756	0.50537	13.33370
	min_pulse_width	CK ()	0.08406	0.50537	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	0.04112	0.06461	0.38402
	RN	0.05908	0.07622	0.36595
	SN	-0.00203	-0.19197	-3.98234
	SN	0.05009	0.06660	0.31745
sky130_osu_sc_18T_hs__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.03620	0.05880	0.37208
	RN	0.05423	0.07074	0.35225
	SN	-0.00203	-0.15202	-2.69924
	SN	0.04538	0.06117	0.30523

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	0.04586	0.05880	0.27654
	RN	-0.00203	-0.19197	-3.98229
	RN	0.06463	0.08092	0.33970
sky130_osu_sc_18T_hs__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.04003	0.05524	0.31967
	RN	-0.00203	-0.15202	-2.69919
	RN	0.05920	0.07769	0.38129

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	0.04042	0.05334	0.27114
	RN	-0.00203	-0.19112	-3.94862
	RN	0.06010	0.07643	0.33576
sky130_osu_sc_18T_hs__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.03664	0.05184	0.31480
	RN	-0.00203	-0.15178	-2.69085
	RN	0.05645	0.07494	0.37923

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	0.03665	0.06009	0.37961
	RN	0.05457	0.07188	0.35986
	SN	-0.00203	-0.19111	-3.95221
	SN	0.04724	0.06383	0.31453
sky130_osu_sc_18T_hs__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.03163	0.05430	0.36597
	RN	0.04962	0.06618	0.34638
	SN	-0.00203	-0.15178	-2.69167
	SN	0.04272	0.05853	0.30149

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	0.00515	0.00512	0.00515
	(!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)	0.03625	0.05817	0.48082
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.01829	0.03958	0.42761
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.01904	0.04029	0.42679
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.02118	0.04246	0.42949
sky130_osu_sc_18T_hs__dffsr_1	CK	0.00000	0.00000	0.00000
	CK	0.00392	0.00389	0.00392
	(!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)	0.03502	0.05694	0.47959
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.01706	0.03836	0.42638
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.01781	0.03906	0.42556
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.01995	0.04123	0.42827

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	0.01734	0.01721	0.01710
	(!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)	0.05008	0.07346	0.49433
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.02329	0.04601	0.43624
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.02150	0.04406	0.43561
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.02423	0.04702	0.43812
sky130_osu_sc_18T_hs__dffsr_1	CK	0.00000	0.00000	0.00000
	CK	0.01611	0.01598	0.01587
	(!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)	0.04883	0.07222	0.49309
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.02204	0.04476	0.43499
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.02026	0.04281	0.43437
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.02299	0.04578	0.43688

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)	0.01626	0.05198	0.61357
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.03035	0.06799	0.68836
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)	0.01503	0.05075	0.61235
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.02912	0.06677	0.68718

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)	0.02125	0.05995	0.62708
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.04400	0.08313	0.70002
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)	0.02000	0.05864	0.62584
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.04276	0.08188	0.69877

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)	-0.00395	-0.00407	-0.00411
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	-0.00465	-0.00702	-0.00483
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	-0.00292	-0.00419	-0.00306
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.01990	0.04056	0.42391
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)	-0.00518	-0.00529	-0.00534
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	-0.00586	-0.00822	-0.00603
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	-0.00415	-0.00541	-0.00428
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.01868	0.03934	0.42269

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)	0.02271	0.02280	0.02277
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.02299	0.02306	0.02214
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	0.02354	0.02360	0.02314
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.03460	0.05415	0.44189
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)	0.02147	0.02157	0.02154
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.02173	0.02180	0.02089
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	0.02230	0.02236	0.02191
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.03335	0.05291	0.44065

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)	0.00814	0.04307	0.60223
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.01794	0.05402	0.67338
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.02074	0.05679	0.67572
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00922	0.04356	0.60260
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.01917	0.07987	1.05491
sky130_osu_sc_18T_hs__dffsr_1	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.00691	0.04184	0.60099
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.01669	0.05278	0.67214
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.01950	0.05555	0.67448
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00799	0.04233	0.60137
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.01794	0.07864	1.05367

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)	0.06831	0.10642	0.86689
	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.03016	0.06861	0.63053
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.05014	0.08784	0.70224
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.05219	0.08995	0.70522
	(!D * RN * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * Q * !QN)	0.06632	0.13163	0.99761
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.03574	0.07305	0.63438
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.03674	0.10308	1.08385
sky130_osu_sc_18T_hs__dffsr_l	**(D * RN * SN * !Q * QN)**	0.00000	0.00000	0.00000
	(D * RN * SN * !Q * QN)	0.06708	0.10519	0.86567
	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.02893	0.06738	0.62928
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.04891	0.08661	0.70101
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.05095	0.08872	0.70399
	(!D * RN * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * Q * !QN)	0.06508	0.13039	0.99635
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.03451	0.07182	0.63315
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.03549	0.10184	1.08259

SKY130_OSU_SC_18T_HS__DFFSx

sky130_osu_sc_18T_hs_ff_1P95_100C.ccs
Cell Library: Process , Voltage 1.95, Temp 100.00

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	0.00536	0.00922	0.01507	3.98555	3.90399
sky130_osu_sc_18T_hs__dffs_l	0.00536	0.00922	0.01507	2.88229	2.83509

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__dffs_1	0.00000	795.63900	1059.89000
sky130_osu_sc_18T_hs__dffs_l	0.00000	654.32000	918.57700

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)	0.13727	0.97645	16.00490
	QN->Q (FR)	0.02092	0.62951	10.82720
	SN->Q (FR)	0.10173	1.04892	17.31610
sky130_osu_sc_18T_hs__dffs_l	CK->Q (RR)	0.13720	1.05644	15.52390
	QN->Q (FR)	0.02248	0.68194	10.85830
	SN->Q (FR)	0.10201	1.12572	16.81820

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)	0.18953	1.02788	16.18790
	QN->Q (RF)	0.02134	0.64671	11.35880
sky130_osu_sc_18T_hs__dffs_l	CK->Q (RF)	0.19234	1.10338	15.58170
	QN->Q (RF)	0.02112	0.62751	10.10350

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)	0.16809	0.52442	6.21001
sky130_osu_sc_18T_hs__dffs_l	CK->QN (RR)	0.17005	0.57531	6.38224

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)	0.11658	0.50345	6.63183
	SN->QN (FF)	0.08119	0.57510	7.92613
sky130_osu_sc_18T_hs__dffs_l	CK->QN (RF)	0.11294	0.50520	5.92604
	SN->QN (FF)	0.07758	0.57369	7.21342

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)	-0.03539	-0.02956	0.17960
	setup	CK (R)	0.09996	0.14119	1.17067
sky130_osu_sc_18T_hs__dffs_l	hold	CK (R)	-0.03749	-0.02973	0.17900
	setup	CK (R)	0.09951	0.14175	1.15929

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)	-0.06852	-0.20691	-0.35476
	setup	CK (R)	0.08711	0.22264	3.85730
sky130_osu_sc_18T_hs__dffs_l	hold	CK (R)	-0.06724	-0.20691	-0.40047
	setup	CK (R)	0.08710	0.22264	3.85892

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)	-0.03539	-0.02956	0.17960
	setup	CK (R)	0.09996	0.14119	1.17067
sky130_osu_sc_18T_hs__dffs_l	hold	CK (R)	-0.03749	-0.02973	0.17900
	setup	CK (R)	0.09951	0.14175	1.15929

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)	-0.06852	-0.20691	-0.35476
	setup	CK (R)	0.08711	0.22264	3.85730
sky130_osu_sc_18T_hs__dffs_l	hold	CK (R)	-0.06724	-0.20691	-0.40047
	setup	CK (R)	0.08710	0.22264	3.85892

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)	0.02521	0.05785	7.01321
	removal	CK (R)	-0.01441	-0.03953	-0.32432
sky130_osu_sc_18T_hs__dffs_l	recovery	CK (R)	0.02454	0.05746	6.66053
	removal	CK (R)	-0.01441	-0.03953	-0.32432

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)	0.02521	0.05785	7.01321
	removal	CK (R)	-0.01441	-0.03953	-0.32432
sky130_osu_sc_18T_hs__dffs_l	recovery	CK (R)	0.02454	0.05746	6.66053
	removal	CK (R)	-0.01441	-0.03953	-0.32432

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 ()	0.07267	0.50537	13.33370
	min_pulse_width	SN ()	0.07267	0.50537	13.33370
sky130_osu_sc_18T_hs__dffs_l	min_pulse_width	SN ()	0.07267	0.50537	13.33370
	min_pulse_width	SN ()	0.06887	0.50537	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 ()	0.06508	0.50537	13.33370
	min_pulse_width	CK ()	0.09544	0.50537	13.33370
sky130_osu_sc_18T_hs__dffs_l	min_pulse_width	CK ()	0.06508	0.50537	13.33370
	min_pulse_width	CK ()	0.09165	0.50537	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 ()	0.14099	0.50537	13.33370
	min_pulse_width	CK ()	0.07267	0.50537	13.33370
sky130_osu_sc_18T_hs__dffs_l	min_pulse_width	CK ()	0.14099	0.50537	13.33370
	min_pulse_width	CK ()	0.07267	0.50537	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	0.03172	0.05294	0.31519
	SN	-0.00203	-0.18631	-3.78843
	SN	0.03862	0.05379	0.24076
sky130_osu_sc_18T_hs__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.02693	0.05025	0.36125
	SN	-0.00203	-0.15339	-2.73986
	SN	0.03400	0.05118	0.28405

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	0.03812	0.05079	0.26051
sky130_osu_sc_18T_hs__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.03248	0.04804	0.31422

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	0.03350	0.04620	0.25755
sky130_osu_sc_18T_hs__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.02971	0.04526	0.31150

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	0.02817	0.04948	0.31459
	SN	-0.00203	-0.18401	-3.71007
	SN	0.03680	0.05202	0.24053
sky130_osu_sc_18T_hs__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.02355	0.04686	0.35679
	SN	-0.00203	-0.15188	-2.69457
	SN	0.03261	0.04982	0.28341

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	0.00280	0.00276	0.00279
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.02700	0.05080	0.47531
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.01462	0.03635	0.42586
sky130_osu_sc_18T_hs__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.00157	0.00153	0.00156
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.02576	0.04957	0.47408
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.01339	0.03512	0.42463

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	0.01512	0.01499	0.01487
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.04143	0.06560	0.48694
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.02030	0.04356	0.43528
sky130_osu_sc_18T_hs__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.01389	0.01376	0.01364
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.04020	0.06437	0.48570
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.01907	0.04233	0.43405

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)	-0.00314	-0.00320	-0.00320
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.01500	0.03339	0.36991
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)	-0.00437	-0.00443	-0.00443
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.01377	0.03216	0.36868

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)	0.01739	0.01740	0.01724
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.02381	0.04413	0.38494
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)	0.01615	0.01616	0.01600
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.02258	0.04290	0.38371

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)	0.00579	0.04078	0.60058
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	0.00690	0.04132	0.60100
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.01542	0.07706	1.05547
sky130_osu_sc_18T_hs__dffs_l	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.00456	0.03955	0.59933
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	0.00567	0.04009	0.59977
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.01419	0.07583	1.05423

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)	0.05908	0.09795	0.86565
	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.02778	0.06636	0.62884
	(!D * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * SN * Q * !QN)	0.05756	0.12341	0.98663
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	0.03338	0.07075	0.63275
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.03362	0.10085	1.08501
sky130_osu_sc_18T_hs__dffs_l	(D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * SN * !Q * QN)	0.05785	0.09672	0.86442
	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.02655	0.06513	0.62760
	(!D * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * SN * Q * !QN)	0.05633	0.12216	0.98538
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	0.03215	0.06952	0.63152
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.03239	0.09955	1.08377

SKY130_OSU_SC_18T_HS__DFFx

sky130_osu_sc_18T_hs_ff_1P95_100C.ccs
Cell Library: Process , Voltage 1.95, Temp 100.00

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	0.00552	0.01496	4.24491	4.17676
sky130_osu_sc_18T_hs__dff_l	0.00552	0.01496	2.77362	2.76185

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__dff_1	0.00000	863.80400	1058.89000
sky130_osu_sc_18T_hs__dff_l	0.00000	722.44400	917.53800

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)	0.12218	0.95780	16.35160
	QN->Q (FR)	0.01979	0.61614	10.74770
sky130_osu_sc_18T_hs__dff_l	CK->Q (RR)	0.12612	1.02762	15.00160
	QN->Q (FR)	0.02297	0.68703	10.82280

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)	0.16518	0.99030	16.41530
	QN->Q (RF)	0.01969	0.61266	10.95090
sky130_osu_sc_18T_hs__dff_l	CK->Q (RF)	0.17148	1.06489	15.10220
	QN->Q (RF)	0.02118	0.61953	9.84648

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)	0.14500	0.49432	6.33033
sky130_osu_sc_18T_hs__dff_l	CK->QN (RR)	0.14941	0.55085	6.31085

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)	0.10241	0.48376	6.72936
sky130_osu_sc_18T_hs__dff_l	CK->QN (RF)	0.10195	0.48624	5.73433

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)	-0.03155	-0.02705	0.62965
	setup	CK (R)	0.08312	0.13117	1.17103
sky130_osu_sc_18T_hs__dff_l	hold	CK (R)	-0.03172	-0.02705	0.83257
	setup	CK (R)	0.08509	0.12917	1.08633

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)	-0.06221	-0.20691	-0.43697
	setup	CK (R)	0.07509	0.22264	3.83889
sky130_osu_sc_18T_hs__dff_l	hold	CK (R)	-0.05955	-0.20691	-0.49784
	setup	CK (R)	0.07500	0.22264	3.83838

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 ()	0.05749	0.50537	13.33370
	min_pulse_width	CK ()	0.08785	0.50537	13.33370
sky130_osu_sc_18T_hs__dff_l	min_pulse_width	CK ()	0.05749	0.50537	13.33370
	min_pulse_width	CK ()	0.08785	0.50537	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 ()**	0.12201	0.50537	13.33370
	min_pulse_width	**CK ()**	0.05749	0.50537	13.33370
sky130_osu_sc_18T_hs__dff_l	**min_pulse_width**	**CK ()**	0.12201	0.50537	13.33370
	min_pulse_width	**CK ()**	0.05749	0.50537	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	0.03227	0.05769	0.38294
sky130_osu_sc_18T_hs__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.02755	0.05164	0.37344

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	0.03904	0.05301	0.27613
sky130_osu_sc_18T_hs__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.03338	0.04893	0.31220

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	0.03438	0.04838	0.27285
sky130_osu_sc_18T_hs__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.03081	0.04641	0.30803

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	0.02883	0.05423	0.38300
sky130_osu_sc_18T_hs__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.02423	0.04864	0.36946

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	0.00266	0.00173	0.00306
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.02582	0.05045	0.48751
sky130_osu_sc_18T_hs__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.00143	0.00050	0.00183
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.02460	0.04923	0.48629

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	0.01524	0.01526	0.01479
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.04283	0.06722	0.50309
sky130_osu_sc_18T_hs__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.01401	0.01403	0.01356
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.04161	0.06600	0.50187

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)	0.00577	0.04077	0.60040
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.00730	0.04175	0.60127
sky130_osu_sc_18T_hs__dff_l	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.00454	0.03954	0.59916
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.00607	0.04051	0.60004

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)	0.02769	0.06625	0.62858
	(D * !Q * QN)	0.00000	0.00000	0.00000
	(D * !Q * QN)	0.05811	0.09763	0.87919
	(!D * Q * !QN)	0.00000	0.00000	0.00000
	(!D * Q * !QN)	0.05861	0.12611	1.00849
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.03366	0.07105	0.63288
sky130_osu_sc_18T_hs__dff_l	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.02646	0.06501	0.62733
	(D * !Q * QN)	0.00000	0.00000	0.00000
	(D * !Q * QN)	0.05688	0.09640	0.87807
	(!D * Q * !QN)	0.00000	0.00000	0.00000
	(!D * Q * !QN)	0.05738	0.12487	1.00725
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.03243	0.06982	0.63165

SKY130_OSU_SC_18T_HS__INVx

sky130_osu_sc_18T_hs_ff_1P95_100C.ccs
Cell Library: Process , Voltage 1.95, Temp 100.00

Truth Table

INPUT	OUTPUT
A	Y
0	1
1	0

Footprint

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

Pin Capacitance Information

Cell Name	Pin Cap(pf)	Max Cap(pf)
	A	Y
sky130_osu_sc_18T_hs__inv_1	0.00529	3.76681
sky130_osu_sc_18T_hs__inv_10	0.04984	31.49987
sky130_osu_sc_18T_hs__inv_2	0.01016	7.10521
sky130_osu_sc_18T_hs__inv_3	0.01515	10.29308
sky130_osu_sc_18T_hs__inv_4	0.02005	13.68006
sky130_osu_sc_18T_hs__inv_6	0.03007	20.05948
sky130_osu_sc_18T_hs__inv_8	0.03996	26.51434
sky130_osu_sc_18T_hs__inv_l	0.00417	2.63145

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__inv_1	0.00000	132.22800	262.49300
sky130_osu_sc_18T_hs__inv_10	0.00000	1321.62000	2623.63000
sky130_osu_sc_18T_hs__inv_2	0.00000	264.42900	524.93600
sky130_osu_sc_18T_hs__inv_3	0.00000	396.57500	787.26700
sky130_osu_sc_18T_hs__inv_4	0.00000	528.77800	1049.71000
sky130_osu_sc_18T_hs__inv_6	0.00000	793.10300	1574.44000
sky130_osu_sc_18T_hs__inv_8	0.00000	1057.41000	2099.14000
sky130_osu_sc_18T_hs__inv_l	0.00000	61.56370	120.34900

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)**	0.01839	0.53456	9.01399
sky130_osu_sc_18T_hs__inv_10	**A->Y (FR)**	0.03204	0.34118	8.82030
sky130_osu_sc_18T_hs__inv_2	**A->Y (FR)**	0.01573	0.44794	8.80566
sky130_osu_sc_18T_hs__inv_3	**A->Y (FR)**	0.01774	0.41792	8.91067
sky130_osu_sc_18T_hs__inv_4	**A->Y (FR)**	0.01856	0.38902	8.83097
sky130_osu_sc_18T_hs__inv_6	**A->Y (FR)**	0.02182	0.36202	8.84398
sky130_osu_sc_18T_hs__inv_8	**A->Y (FR)**	0.02645	0.34863	8.90076
sky130_osu_sc_18T_hs__inv_l	**A->Y (FR)**	0.02117	0.61122	9.46351

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)**	0.01775	0.51172	8.88959
sky130_osu_sc_18T_hs__inv_10	**A->Y (RF)**	0.03223	0.28471	8.25022
sky130_osu_sc_18T_hs__inv_2	**A->Y (RF)**	0.01536	0.41406	8.59509
sky130_osu_sc_18T_hs__inv_3	**A->Y (RF)**	0.01712	0.37887	8.64802
sky130_osu_sc_18T_hs__inv_4	**A->Y (RF)**	0.01760	0.34841	8.58144
sky130_osu_sc_18T_hs__inv_6	**A->Y (RF)**	0.02225	0.31724	8.53346
sky130_osu_sc_18T_hs__inv_8	**A->Y (RF)**	0.02694	0.30023	8.52947
sky130_osu_sc_18T_hs__inv_l	**A->Y (RF)**	0.01882	0.52501	8.28888

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	0.00848	0.02446	0.17778
sky130_osu_sc_18T_hs__inv_10	A	0.00000	0.00000	0.00000
	A	0.08670	0.29264	1.74667
sky130_osu_sc_18T_hs__inv_2	A	0.00000	0.00000	0.00000
	A	0.01547	0.05072	0.35320
sky130_osu_sc_18T_hs__inv_3	A	0.00000	0.00000	0.00000
	A	0.02372	0.07860	0.51704
sky130_osu_sc_18T_hs__inv_4	A	0.00000	0.00000	0.00000
	A	0.03082	0.10817	0.69197
sky130_osu_sc_18T_hs__inv_6	A	0.00000	0.00000	0.00000
	A	0.04718	0.17040	1.03313
sky130_osu_sc_18T_hs__inv_8	A	0.00000	0.00000	0.00000
	A	0.06541	0.22909	1.36767
sky130_osu_sc_18T_hs__inv_l	A	0.00000	0.00000	0.00000
	A	0.00666	0.01608	0.12336

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	0.00505	0.01451	0.10312
sky130_osu_sc_18T_hs__inv_10	**A**	0.00000	0.00000	0.00000
	A	0.06193	0.19508	1.03415
sky130_osu_sc_18T_hs__inv_2	**A**	0.00000	0.00000	0.00000
	A	0.00797	0.03019	0.20543
sky130_osu_sc_18T_hs__inv_3	**A**	0.00000	0.00000	0.00000
	A	0.01348	0.04769	0.30246
sky130_osu_sc_18T_hs__inv_4	**A**	0.00000	0.00000	0.00000
	A	0.01747	0.06697	0.40663
sky130_osu_sc_18T_hs__inv_6	**A**	0.00000	0.00000	0.00000
	A	0.02675	0.10700	0.60991
sky130_osu_sc_18T_hs__inv_8	**A**	0.00000	0.00000	0.00000
	A	0.04170	0.15095	0.81069
sky130_osu_sc_18T_hs__inv_l	**A**	0.00000	0.00000	0.00000
	A	0.00160	0.00838	0.07731

SKY130_OSU_SC_18T_HS__MUX2

sky130_osu_sc_18T_hs_ff_1P95_100C.ccs
Cell Library: Process , Voltage 1.95, Temp 100.00

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	0.02196	0.02175	0.01075	0.01344

Leakage Information

Cell Name	Leakage(nW)		
	Min.	**Avg**	**Max.**
sky130_osu_sc_18T_hs__mux2_1	0.00000	264.34500	264.44200

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)	-	0.00862	0.01696	0.02743
	A1->Y (RR)	-	0.00906	0.01691	0.02734
	S0->Y (RR)	(!A0 * A1)	0.03228	0.06662	-0.27855
	S0->Y (FR)	(A0 * !A1)	0.02780	0.10408	0.56492

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)	-	0.00773	0.01698	0.02804
	A1->Y (FF)	-	0.00781	0.01695	0.02795
	S0->Y (FF)	(!A0 * A1)	0.03861	0.13341	0.64781
	S0->Y (RF)	(A0 * !A1)	0.02251	0.04768	-0.23855

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	-	-0.00905	-0.00909	-0.00911
	A1	-	0.00000	0.00000	0.00000
	A1	-	-0.00016	-0.00019	-0.00020
	S0	(A0 * !A1)	0.00000	0.00000	0.00000
	S0	(A0 * !A1)	0.00918	0.04881	0.60608
	S0	(!A0 * A1)	0.00000	0.00000	0.00000
	S0	(!A0 * A1)	-0.00479	0.03158	0.58669

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	-	0.00915	0.00917	0.00918
	A1	-	0.00000	0.00000	0.00000
	A1	-	0.01220	0.01221	0.01222
	S0	(A0 * !A1)	0.00000	0.00000	0.00000
	S0	(A0 * !A1)	0.00408	0.04286	0.59786
	S0	(!A0 * A1)	0.00000	0.00000	0.00000
	S0	(!A0 * A1)	0.02324	0.06099	0.61760

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)	0.00010	0.00011	0.00011

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)	0.00446	0.00445	0.00445

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)	-0.00253	-0.00252	-0.00252

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)	0.00255	0.00254	0.00255

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)	0.00030	0.03822	0.59184
	(!A0 * !A1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !Y)	0.00022	0.03796	0.59230

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)	0.01734	0.05579	0.61189
	(!A0 * !A1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !Y)	0.01526	0.05498	0.61137

SKY130_OSU_SC_18T_HS__NAND2x

sky130_osu_sc_18T_hs_ff_1P95_100C.ccs
Cell Library: Process , Voltage 1.95, Temp 100.00

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	0.00531	0.00530	2.76673
sky130_osu_sc_18T_hs__nand2_l	0.00418	0.00418	2.12723

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__nand2_1	0.00000	132.05400	524.69300
sky130_osu_sc_18T_hs__nand2_l	0.00000	61.48350	240.61200

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)	0.01872	0.47970	7.49321
	B->Y (FR)	0.02174	0.47683	7.40301
sky130_osu_sc_18T_hs__nand2_l	A->Y (FR)	0.02144	0.57004	8.33023
	B->Y (FR)	0.02537	0.57134	8.29860

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)	0.02355	0.56667	9.02462
	B->Y (RF)	0.02644	0.53256	8.53839
sky130_osu_sc_18T_hs__nand2_l	A->Y (RF)	0.02490	0.60110	8.94231
	B->Y (RF)	0.02739	0.56115	8.33873

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	0.00905	0.02323	0.17531
	B	0.00000	0.00000	0.00000
	B	0.01158	0.02617	0.18732
sky130_osu_sc_18T_hs__nand2_1	A	0.00000	0.00000	0.00000
	A	0.00705	0.01584	0.11657
	B	0.00000	0.00000	0.00000
	B	0.00901	0.01804	0.12323

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	0.01302	0.02153	0.10843
	B	0.00000	0.00000	0.00000
	B	0.01262	0.01980	0.10295
sky130_osu_sc_18T_hs__nand2_1	A	0.00000	0.00000	0.00000
	A	0.00552	0.01140	0.07542
	B	0.00000	0.00000	0.00000
	B	0.00533	0.01060	0.07609

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)	-0.00659	-0.00661	-0.00664
sky130_osu_sc_18T_hs__nand2_l	(!B * Y)	0.00000	0.00000	0.00000
	(!B * Y)	-0.00491	-0.00494	-0.00497

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)	0.00664	0.00669	0.00667
sky130_osu_sc_18T_hs__nand2_l	(!B * Y)	0.00000	0.00000	0.00000
	(!B * Y)	0.00498	0.00501	0.00499

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)	-0.00614	-0.00617	-0.00615
sky130_osu_sc_18T_hs__nand2_l	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00459	-0.00462	-0.00460

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)	0.00645	0.00630	0.00621
sky130_osu_sc_18T_hs__nand2_l	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00485	0.00478	0.00467

SKY130_OSU_SC_18T_HS__NOR2x

sky130_osu_sc_18T_hs_ff_1P95_100C.ccs
Cell Library: Process , Voltage 1.95, Temp 100.00

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	0.00532	0.00561	2.17918
sky130_osu_sc_18T_hs__nor2_l	0.00412	0.00444	1.49706

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__nor2_1	0.00000	100.77900	262.03400
sky130_osu_sc_18T_hs__nor2_l	0.00000	48.48550	120.19400

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)	0.03450	0.58401	8.56573
	B->Y (FR)	0.02510	0.60633	8.95471
sky130_osu_sc_18T_hs__nor2_l	A->Y (FR)	0.03925	0.65695	8.72686
	B->Y (FR)	0.03003	0.68731	9.23614

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)	0.02445	0.41477	6.05262
	B->Y (RF)	0.01907	0.40431	6.01961
sky130_osu_sc_18T_hs__nor2_l	A->Y (RF)	0.02469	0.41985	5.52440
	B->Y (RF)	0.02010	0.41139	5.49212

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	0.01297	0.02274	0.15929
	B	0.00000	0.00000	0.00000
	B	0.00915	0.02372	0.19437
sky130_osu_sc_18T_hs__nor2_l	A	0.00000	0.00000	0.00000
	A	0.00978	0.01671	0.12345
	B	0.00000	0.00000	0.00000
	B	0.00714	0.01654	0.13806

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	0.00398	0.01367	0.12714
	B	0.00000	0.00000	0.00000
	B	0.00386	0.01317	0.11920
sky130_osu_sc_18T_hs__nor2_l	A	0.00000	0.00000	0.00000
	A	0.00219	0.00920	0.09981
	B	0.00000	0.00000	0.00000
	B	0.00134	0.00805	0.09284

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)	-0.00432	-0.00528	-0.00390
sky130_osu_sc_18T_hs__nor2_l	(B * !Y)	0.00000	0.00000	0.00000
	(B * !Y)	-0.00322	-0.00392	-0.00336

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)	0.00834	0.00837	0.00788
sky130_osu_sc_18T_hs__nor2_l	(B * !Y)	0.00000	0.00000	0.00000
	(B * !Y)	0.00546	0.00549	0.00527

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)	-0.00229	-0.00232	-0.00220
sky130_osu_sc_18T_hs__nor2_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	-0.00174	-0.00177	-0.00171

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)	0.00374	0.00373	0.00315
sky130_osu_sc_18T_hs__nor2_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00248	0.00247	0.00220

SKY130_OSU_SC_18T_HS__OAI21

sky130_osu_sc_18T_hs_ff_1P95_100C.ccs
Cell Library: Process , Voltage 1.95, Temp 100.00

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	0.00538	0.00549	0.00460	2.10344

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__oai21_l	0.00000	96.09490	382.10200

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)	0.03280	0.60459	8.76471
	A1->Y (FR)	0.04532	0.58850	8.40758
	B0->Y (FR)	0.02576	0.56859	8.22219

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)	0.03338	0.50230	7.31972
	A1->Y (RF)	0.04120	0.50038	7.11697
	B0->Y (RF)	0.02618	0.55347	8.12650

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	0.01295	0.02414	0.16304
	A1	0.00000	0.00000	0.00000
	A1	0.01675	0.02483	0.14428
	B0	0.00769	0.01832	0.14360

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	0.00950	0.01550	0.09564
	A1	0.00000	0.00000	0.00000
	A1	0.00895	0.01481	0.10109
	B0	0.00414	0.01162	0.09826

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)	-0.00125	-0.00127	-0.00116
	(A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * Y)	-0.00603	-0.00605	-0.00602
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00603	-0.00606	-0.00603

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)	0.00479	0.00478	0.00420
	(A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * Y)	0.00603	0.00605	0.00606
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00635	0.00615	0.00609

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)	-0.00316	-0.00410	-0.00277
	(A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * Y)	-0.00597	-0.00600	-0.00596
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	-0.00596	-0.00599	-0.00597

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)	0.00929	0.00936	0.00884
	(A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * Y)	0.00598	0.00606	0.00601
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	0.00629	0.00611	0.00604

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)	-0.00499	-0.00503	-0.00511

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)	0.00511	0.00515	0.00514

SKY130_OSU_SC_18T_HS__OAI22

sky130_osu_sc_18T_hs_ff_1P95_100C.ccs
Cell Library: Process , Voltage 1.95, Temp 100.00

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	0.00527	0.00549	0.00561	0.00550	2.10643

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__oai22_l	0.00000	150.92300	523.71900

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)	0.04806	0.58755	8.35588
	A1->Y (FR)	0.03850	0.61016	8.76068
	B0->Y (FR)	0.02780	0.60053	8.75594
	B1->Y (FR)	0.03727	0.57739	8.34844

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)	0.06027	0.54165	7.51700
	A1->Y (RF)	0.04708	0.52137	7.38049
	B0->Y (RF)	0.04015	0.57242	8.18291
	B1->Y (RF)	0.05387	0.60661	8.49449

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	0.02003	0.02803	0.14647
	A1	0.01625	0.02861	0.18164
	B0	0.00990	0.02240	0.17097
	B1	0.01385	0.02183	0.13434

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__oai22_l	A0	0.00549	0.01152	0.10168
	A1	0.00528	0.01159	0.09634
	B0	0.00579	0.01371	0.10646
	B1	0.00572	0.01278	0.10547

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)	-0.00422	-0.00521	-0.00383
	(A1 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * B1 * !Y)	-0.00317	-0.00416	-0.00278
	(A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * !B1 * Y)	-0.00595	-0.00599	-0.00596
	(!A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * !B1 * Y)	-0.00596	-0.00600	-0.00597

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)	0.00841	0.00844	0.00795
	(A1 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * B1 * !Y)	0.00946	0.00950	0.00900
	(A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * !B1 * Y)	0.00602	0.00609	0.00604
	(!A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * !B1 * Y)	0.00638	0.00613	0.00607

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)	-0.00220	-0.00223	-0.00211
	(A0 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * B1 * !Y)	-0.00115	-0.00117	-0.00106
	(A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * !B1 * Y)	-0.00593	-0.00597	-0.00594
	(!A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * !B1 * Y)	-0.00594	-0.00598	-0.00595

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)	0.00380	0.00378	0.00321
	(A0 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * B1 * !Y)	0.00485	0.00483	0.00426
	(A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * !B1 * Y)	0.00599	0.00603	0.00602
	(!A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * !B1 * Y)	0.00636	0.00612	0.00605

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)	-0.00219	-0.00221	-0.00210
	(A0 * !A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B1 * !Y)	-0.00114	-0.00116	-0.00105
	(!A0 * !A1 * B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B1 * Y)	-0.00658	-0.00661	-0.00657
	(!A0 * !A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B1 * Y)	-0.00643	-0.00648	-0.00658

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)	0.00378	0.00377	0.00319
	(A0 * !A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B1 * !Y)	0.00483	0.00482	0.00424
	(!A0 * !A1 * B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B1 * Y)	0.00671	0.00674	0.00665
	(!A0 * !A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B1 * Y)	0.00659	0.00664	0.00662

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)	-0.00418	-0.00514	-0.00376
	(A0 * !A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B0 * !Y)	-0.00313	-0.00409	-0.00271
	(!A0 * !A1 * B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B0 * Y)	-0.00664	-0.00670	-0.00665
	(!A0 * !A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B0 * Y)	-0.00652	-0.00655	-0.00667

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)	0.00833	0.00836	0.00787
	(A0 * !A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B0 * !Y)	0.00938	0.00942	0.00892
	(!A0 * !A1 * B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B0 * Y)	0.00680	0.00686	0.00674
	(!A0 * !A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B0 * Y)	0.00670	0.00672	0.00671

SKY130_OSU_SC_18T_HS__OR2x

sky130_osu_sc_18T_hs_ff_1P95_100C.ccs
Cell Library: Process , Voltage 1.95, Temp 100.00

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	0.00569	0.00546	4.08346
sky130_osu_sc_18T_hs__or2_2	0.00569	0.00546	7.70485
sky130_osu_sc_18T_hs__or2_4	0.00570	0.00547	14.62305
sky130_osu_sc_18T_hs__or2_8	0.00573	0.00550	27.21626
sky130_osu_sc_18T_hs__or2_l	0.00454	0.00428	2.76089

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__or2_1	0.00000	167.89200	266.48700
sky130_osu_sc_18T_hs__or2_2	0.00000	234.99500	529.01300
sky130_osu_sc_18T_hs__or2_4	0.00000	369.17300	1053.95000
sky130_osu_sc_18T_hs__or2_8	0.00000	637.49900	2103.69000
sky130_osu_sc_18T_hs__or2_l	0.00000	80.66320	125.93100

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)	0.04823	0.38689	6.08590
	B->Y (RR)	0.04074	0.36134	6.00326
sky130_osu_sc_18T_hs__or2_2	A->Y (RR)	0.05368	0.33761	5.95045
	B->Y (RR)	0.04580	0.31279	5.84265
sky130_osu_sc_18T_hs__or2_4	A->Y (RR)	0.07046	0.33543	6.04839
	B->Y (RR)	0.06202	0.31261	5.92245
sky130_osu_sc_18T_hs__or2_8	A->Y (RR)	0.10535	0.37586	6.16182
	B->Y (RR)	0.09646	0.35632	6.02701
sky130_osu_sc_18T_hs__or2_l	A->Y (RR)	0.05176	0.42919	5.92197
	B->Y (RR)	0.04500	0.40549	5.79491

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)	0.06414	0.51255	8.04441
	B->Y (FF)	0.05155	0.52319	8.44315
sky130_osu_sc_18T_hs__or2_2	A->Y (FF)	0.07448	0.45796	7.81836
	B->Y (FF)	0.06181	0.46962	8.21081
sky130_osu_sc_18T_hs__or2_4	A->Y (FF)	0.10369	0.45649	7.81707
	B->Y (FF)	0.09102	0.47000	8.19543
sky130_osu_sc_18T_hs__or2_8	A->Y (FF)	0.16518	0.50686	7.66249
	B->Y (FF)	0.15255	0.52577	8.01947
sky130_osu_sc_18T_hs__or2_l	A->Y (FF)	0.07056	0.54687	7.44581
	B->Y (FF)	0.05750	0.56209	7.90757

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	0.01312	0.03397	0.34996
	B	0.00000	0.00000	0.00000
	B	0.01379	0.03900	0.40986
sky130_osu_sc_18T_hs__or2_2	A	0.00000	0.00000	0.00000
	A	0.02114	0.04287	0.36221
	B	0.00000	0.00000	0.00000
	B	0.02134	0.04685	0.41443
sky130_osu_sc_18T_hs__or2_4	A	0.00000	0.00000	0.00000
	A	0.04044	0.06363	0.38401
	B	0.00000	0.00000	0.00000
	B	0.03999	0.06643	0.43600
sky130_osu_sc_18T_hs__or2_8	A	0.00000	0.00000	0.00000
	A	0.09845	0.11349	0.43536
	B	0.00000	0.00000	0.00000
	B	0.09677	0.11423	0.47626
sky130_osu_sc_18T_hs__or2_l	A	0.00000	0.00000	0.00000
	A	0.00889	0.02370	0.25821
	B	0.00000	0.00000	0.00000
	B	0.00854	0.02614	0.28669

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	0.02821	0.04913	0.39149
	B	0.00000	0.00000	0.00000
	B	0.02419	0.05456	0.50047
sky130_osu_sc_18T_hs__or2_2	A	0.00000	0.00000	0.00000
	A	0.04373	0.06103	0.40055
	B	0.00000	0.00000	0.00000
	B	0.03970	0.06596	0.50886
sky130_osu_sc_18T_hs__or2_4	A	0.00000	0.00000	0.00000
	A	0.08764	0.08964	0.41576
	B	0.00000	0.00000	0.00000
	B	0.08376	0.09430	0.52448
sky130_osu_sc_18T_hs__or2_8	A	0.00000	0.00000	0.00000
	A	0.20416	0.15528	0.45074
	B	0.00000	0.00000	0.00000
	B	0.20045	0.16207	0.56084
sky130_osu_sc_18T_hs__or2_l	A	0.00000	0.00000	0.00000
	A	0.01961	0.03426	0.26893
	B	0.00000	0.00000	0.00000
	B	0.01666	0.03688	0.34059

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)	-0.00426	-0.00523	-0.00391
sky130_osu_sc_18T_hs__or2_2	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00424	-0.00521	-0.00389
sky130_osu_sc_18T_hs__or2_4	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00420	-0.00518	-0.00386
sky130_osu_sc_18T_hs__or2_8	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00413	-0.00511	-0.00379
sky130_osu_sc_18T_hs__or2_l	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00313	-0.00388	-0.00335

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)	0.00838	0.00840	0.00792
sky130_osu_sc_18T_hs__or2_2	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00840	0.00842	0.00794
sky130_osu_sc_18T_hs__or2_4	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00844	0.00845	0.00797
sky130_osu_sc_18T_hs__or2_8	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00850	0.00852	0.00804
sky130_osu_sc_18T_hs__or2_l	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00548	0.00552	0.00531

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)	-0.00230	-0.00230	-0.00220
sky130_osu_sc_18T_hs__or2_2	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00228	-0.00229	-0.00218
sky130_osu_sc_18T_hs__or2_4	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00225	-0.00225	-0.00215
sky130_osu_sc_18T_hs__or2_8	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00218	-0.00219	-0.00208
sky130_osu_sc_18T_hs__or2_l	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00177	-0.00178	-0.00172

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)	0.00380	0.00378	0.00320
sky130_osu_sc_18T_hs__or2_2	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00382	0.00379	0.00322
sky130_osu_sc_18T_hs__or2_4	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00385	0.00383	0.00325
sky130_osu_sc_18T_hs__or2_8	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00392	0.00390	0.00332
sky130_osu_sc_18T_hs__or2_l	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00256	0.00255	0.00227

SKY130_OSU_SC_18T_HS__TBUFIx

sky130_osu_sc_18T_hs_ff_1P95_100C.ccs
Cell Library: Process , Voltage 1.95, Temp 100.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_hs__tbufi_1	12.45420
sky130_osu_sc_18T_hs__tbufi_l	12.45420

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	OE	Y
sky130_osu_sc_18T_hs__tbufi_1	0.00561	0.00711	2.17839
sky130_osu_sc_18T_hs__tbufi_l	0.00445	0.00566	1.48367

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__tbufi_1	0.00000	133.28600	524.29900
sky130_osu_sc_18T_hs__tbufi_l	0.00000	63.28940	240.48100

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)	0.02464	0.59976	8.86560
	OE->Y (FR)	0.03498	0.39050	5.34326
	OE->Y (RR)	0.05043	0.45031	6.09643
sky130_osu_sc_18T_hs__tbufi_l	A->Y (FR)	0.02953	0.68019	9.12170
	OE->Y (FR)	0.03798	0.39030	5.34308
	OE->Y (RR)	0.05551	0.50119	5.81846

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)	0.02356	0.51138	7.59888
	OE->Y (FF)	0.03539	0.39050	5.34326
	OE->Y (RF)	0.02126	0.45927	6.91274
sky130_osu_sc_18T_hs__tbufi_l	A->Y (RF)	0.02505	0.51702	6.89147
	OE->Y (FF)	0.03878	0.39028	5.34307
	OE->Y (RF)	0.02295	0.45875	6.07742

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	0.01588	0.02796	0.16766
	OE	0.00000	0.00000	0.00000
	OE	0.01611	0.04946	0.54082
sky130_osu_sc_18T_hs__tbufi_l	A	0.00000	0.00000	0.00000
	A	0.01008	0.01797	0.12035
	OE	0.00000	0.00000	0.00000
	OE	0.01006	0.03350	0.37568

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	0.01108	0.01882	0.10646
	OE	0.00000	0.00000	0.00000
	OE	0.01830	0.05488	0.59946
sky130_osu_sc_18T_hs__tbufi_l	A	0.00000	0.00000	0.00000
	A	0.00437	0.01000	0.08041
	OE	0.00000	0.00000	0.00000
	OE	0.00957	0.03426	0.40243

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)	-0.00458	-0.00462	-0.00454
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	-0.00353	-0.00355	-0.00349
sky130_osu_sc_18T_hs__tbufi_l	(!OE * Y)	0.00000	0.00000	0.00000
	(!OE * Y)	-0.00354	-0.00360	-0.00352
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	-0.00284	-0.00287	-0.00282

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)	0.00458	0.00462	0.00454
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	0.00440	0.00443	0.00417
sky130_osu_sc_18T_hs__tbufi_l	(!OE * Y)	0.00000	0.00000	0.00000
	(!OE * Y)	0.00354	0.00360	0.00352
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	0.00337	0.00338	0.00323

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)	0.00878	0.04725	0.60954
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00597	0.04429	0.60775
sky130_osu_sc_18T_hs__tbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00505	0.03087	0.41202
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00364	0.02950	0.41109

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)	0.01061	0.05041	0.61635
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.01006	0.04995	0.61495
sky130_osu_sc_18T_hs__tbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00846	0.03490	0.41735
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00810	0.03465	0.41670

SKY130_OSU_SC_18T_HS__TNBUFIx

sky130_osu_sc_18T_hs_ff_1P95_100C.ccs
Cell Library: Process , Voltage 1.95, Temp 100.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_hs__tnbufi_1	12.45420
sky130_osu_sc_18T_hs__tnbufi_l	12.45420

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	OE	Y
sky130_osu_sc_18T_hs__tnbufi_1	0.00560	0.00881	2.18041
sky130_osu_sc_18T_hs__tnbufi_l	0.00444	0.00677	1.48361

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__tnbufi_1	0.00000	220.16100	263.95900
sky130_osu_sc_18T_hs__tnbufi_l	0.00000	102.49000	122.95900

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)	0.02460	0.59964	8.86909
	OE->Y (RR)	0.02368	0.39191	5.34470
	OE->Y (FR)	0.03305	0.56069	8.25204
sky130_osu_sc_18T_hs__tnbufi_l	A->Y (FR)	0.02955	0.68001	9.12000
	OE->Y (RR)	0.02402	0.39237	5.34513
	OE->Y (FR)	0.03808	0.63175	8.29420

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)	0.02328	0.51152	7.60468
	OE->Y (RF)	0.02342	0.39191	5.34467
	OE->Y (FF)	0.03615	0.43199	6.02013
sky130_osu_sc_18T_hs__tnbufi_l	A->Y (RF)	0.02474	0.51665	6.89271
	OE->Y (RF)	0.02380	0.39237	5.34512
	OE->Y (FF)	0.03983	0.46446	5.59331

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	0.00893	0.02103	0.16132
	OE	0.00000	0.00000	0.00000
	OE	0.02272	0.06318	0.61755
sky130_osu_sc_18T_hs__tnbufi_l	A	0.00000	0.00000	0.00000
	A	0.00707	0.01497	0.11779
	OE	0.00000	0.00000	0.00000
	OE	0.01729	0.04425	0.42069

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	0.00459	0.01236	0.10021
	OE	0.00000	0.00000	0.00000
	OE	0.02531	0.06304	0.56927
sky130_osu_sc_18T_hs__tnbufi_l	A	0.00000	0.00000	0.00000
	A	0.00147	0.00709	0.07789
	OE	0.00000	0.00000	0.00000
	OE	0.01726	0.04179	0.37230

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)	-0.00189	-0.00193	-0.00178
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	-0.00063	-0.00065	-0.00058
sky130_osu_sc_18T_hs__tnbufi_l	(OE * Y)	0.00000	0.00000	0.00000
	(OE * Y)	-0.00203	-0.00205	-0.00195
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	-0.00121	-0.00124	-0.00119

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)	0.00618	0.00621	0.00613
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	0.00606	0.00608	0.00583
sky130_osu_sc_18T_hs__tnbufi_l	(OE * Y)	0.00000	0.00000	0.00000
	(OE * Y)	0.00394	0.00396	0.00391
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	0.00380	0.00381	0.00367

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)	-0.00430	0.03506	0.59953
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00492	0.03446	0.59803
sky130_osu_sc_18T_hs__tnbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	-0.00371	0.02282	0.40483
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00412	0.02249	0.40410

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)	0.01958	0.06111	0.62679
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.01696	0.05919	0.62508
sky130_osu_sc_18T_hs__tnbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.01413	0.04182	0.42466
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.01287	0.04105	0.42378

SKY130_OSU_SC_18T_HS__XNOR2

sky130_osu_sc_18T_hs_ff_1P95_100C.ccs
Cell Library: Process , Voltage 1.95, Temp 100.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_hs__xnor2_1	21.24540

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	B	Y
sky130_osu_sc_18T_hs__xnor2_1	0.01111	0.01019	2.23166

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__xnor2_1	0.00000	461.53300	788.08800

Delay Information

Delay(ns) to Y rising (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_18T_hs__xnor2_1	A->Y (RR)	B	0.06269	0.47658	6.28987
	A->Y (FR)	!B	0.03044	0.60002	8.84997
	B->Y (RR)	A	0.05012	0.47463	6.52965
	B->Y (FR)	!A	0.04420	0.58838	8.54874

Delay(ns) to Y falling (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_18T_hs__xnor2_1	A->Y (FF)	B	0.06470	0.49564	6.52988
	A->Y (RF)	!B	0.03262	0.51065	7.56179
	B->Y (FF)	A	0.05542	0.48911	6.57228
	B->Y (RF)	!A	0.04228	0.52002	7.52408

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	0.02296	0.05486	0.54483
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.02106	0.06929	0.73096
	B	A	0.00000	0.00000	0.00000
	B	A	0.01581	0.05361	0.61678
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.02406	0.06755	0.68804

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	0.03896	0.07525	0.61829
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.02504	0.06540	0.66662
	B	A	0.00000	0.00000	0.00000
	B	A	0.04257	0.08118	0.63897
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.02059	0.06077	0.65433

SKY130_OSU_SC_18T_HS__XOR2

sky130_osu_sc_18T_hs_ff_1P95_100C.ccs
Cell Library: Process , Voltage 1.95, Temp 100.00

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_l	21.24540

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	B	Y
sky130_osu_sc_18T_hs__xor2_l	0.01111	0.01024	2.24679

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__xor2_l	0.00000	461.56700	782.69400

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	0.05784	0.47340	6.49350
	A->Y (FR)	B	0.04031	0.59823	8.79879
	B->Y (RR)	!A	0.05148	0.47435	6.54928
	B->Y (FR)	A	0.04272	0.59705	8.72606

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	0.05419	0.47533	6.23711
	A->Y (RF)	B	0.03324	0.52912	7.72350
	B->Y (FF)	!A	0.05137	0.48113	6.48239
	B->Y (RF)	A	0.03983	0.50155	7.27760

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	0.03319	0.07958	0.73687
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.01070	0.04596	0.60233
	B	A	0.00000	0.00000	0.00000
	B	A	0.03401	0.07981	0.72238
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00876	0.04669	0.61901

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	0.02385	0.06697	0.70117
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.03949	0.07544	0.58036
	B	A	0.00000	0.00000	0.00000
	B	A	0.02328	0.06434	0.67658
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.03702	0.07676	0.64255

SKY130_OSU_SC_18T_HS_x

sky130_osu_sc_18T_hs_ff_1P95_100C.ccs
Cell Library: Process , Voltage 1.95, Temp 100.00

Truth Table

INPUT
A
x

Footprint

Cell Name	Area
sky130_osu_sc_18T_hs__ant	6.59340
sky130_osu_sc_18T_hs__tiehi	6.59340
sky130_osu_sc_18T_hs__tielo	6.59340

Pin Capacitance Information

Cell Name	Pin Cap(pf)
	A
sky130_osu_sc_18T_hs__ant	1.68165
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	684933.00000	1369870.00000
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
	0.00069	0.24167	3.23692

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
	11.91600	11.33720	3.75300