sky130_osu_sc_18T_ms_tt_1P68_25C.ccs Library

Cell Groups
SKY130_OSU_SC_18T_MS__ADDFx
SKY130_OSU_SC_18T_MS__ADDHx
SKY130_OSU_SC_18T_MS__AND2x
SKY130_OSU_SC_18T_MS__AOI21
SKY130_OSU_SC_18T_MS__AOI22
SKY130_OSU_SC_18T_MS__BUFx
SKY130_OSU_SC_18T_MS__DFFRx
SKY130_OSU_SC_18T_MS__DFFSRx
SKY130_OSU_SC_18T_MS__DFFSx
SKY130_OSU_SC_18T_MS__DFFx
SKY130_OSU_SC_18T_MS__INVx
SKY130_OSU_SC_18T_MS__MUX2
SKY130_OSU_SC_18T_MS__NAND2x
SKY130_OSU_SC_18T_MS__NOR2x
SKY130_OSU_SC_18T_MS__OAI21
SKY130_OSU_SC_18T_MS__OAI22
SKY130_OSU_SC_18T_MS__OR2x
SKY130_OSU_SC_18T_MS__TBUFIx
SKY130_OSU_SC_18T_MS__TNBUFIx
SKY130_OSU_SC_18T_MS__XNOR2
SKY130_OSU_SC_18T_MS__XOR2
SKY130_OSU_SC_18T_MS_x

SKY130_OSU_SC_18T_MS__ADDFx

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_ms__addf_1	46.88640
sky130_osu_sc_18T_ms__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_ms__addf_1	0.02082	0.02082	0.01590	2.74576	1.26798	2.65851
sky130_osu_sc_18T_ms__addf_l	0.02081	0.02081	0.01592	1.86602	1.26669	1.87654

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ms__addf_1	0.00000	0.39728	0.53676
sky130_osu_sc_18T_ms__addf_l	0.00000	0.33901	0.47848

Delay Information

Delay(ns) to CO rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	**Mid**	**Last**
sky130_osu_sc_18T_ms__addf_1	**A->CO (RR)**	0.15676	1.85996	28.00630
	B->CO (RR)	0.13540	1.76405	26.67650
	CI->CO (RR)	0.14911	1.88709	28.50330
	CON->CO (FR)	0.02844	0.75503	11.24910
sky130_osu_sc_18T_ms__addf_l	**A->CO (RR)**	0.15846	1.72695	22.58200
	B->CO (RR)	0.13757	1.64487	21.66590
	CI->CO (RR)	0.15085	1.75481	23.10580
	CON->CO (FR)	0.03233	0.82424	11.25310

Delay(ns) to CO falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	**Mid**	**Last**
sky130_osu_sc_18T_ms__addf_1	**A->CO (FF)**	0.20472	2.27339	34.06050
	B->CO (FF)	0.18333	2.17438	32.61220
	CI->CO (FF)	0.17883	2.24125	34.04140
	CON->CO (RF)	0.02623	0.68919	10.29460
sky130_osu_sc_18T_ms__addf_l	**A->CO (FF)**	0.20100	2.03260	26.37470
	B->CO (FF)	0.18049	1.95209	25.37630
	CI->CO (FF)	0.17515	2.00131	26.38080
	CON->CO (RF)	0.02827	0.71122	9.74891

Delay(ns) to CON rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	**Mid**	**Last**
sky130_osu_sc_18T_ms__addf_1	**A->CON (FR)**	0.14747	0.98289	10.84680
	B->CON (FR)	0.12595	0.92925	10.45910
	CI->CON (FR)	0.12177	0.95360	10.89580
sky130_osu_sc_18T_ms__addf_l	**A->CON (FR)**	0.14023	0.97527	10.83250
	B->CON (FR)	0.11930	0.92135	10.44570
	CI->CON (FR)	0.11448	0.94604	10.88200

Delay(ns) to CON falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	**Mid**	**Last**
sky130_osu_sc_18T_ms__addf_1	**A->CON (RF)**	0.10121	0.72266	8.09171
	B->CON (RF)	0.09556	0.70791	8.06790
	CI->CON (RF)	0.09354	0.75369	8.65613
sky130_osu_sc_18T_ms__addf_l	**A->CON (RF)**	0.09739	0.71854	8.08130
	B->CON (RF)	0.09212	0.70458	8.05952
	CI->CON (RF)	0.08969	0.74961	8.64772

Delay(ns) to S rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	**Mid**	**Last**
sky130_osu_sc_18T_ms__addf_1	**A->S (-R)**	0.29632	2.02508	25.88270
	B->S (-R)	0.30843	2.02113	25.00090
	CI->S (-R)	0.26847	1.98881	25.86270
	CON->S (RR)	0.08726	0.67707	7.56520
sky130_osu_sc_18T_ms__addf_l	**A->S (-R)**	0.28461	1.87810	21.53270
	B->S (-R)	0.29700	1.88431	20.98620
	CI->S (-R)	0.25664	1.84194	21.53990
	CON->S (RR)	0.08760	0.72682	7.53839

Delay(ns) to S falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ms__addf_1	A->S (-F)	0.25674	1.71023	20.98730
	B->S (-F)	0.25182	1.63572	20.11610
	CI->S (-F)	0.24816	1.73351	21.48960
	CON->S (FF)	0.10464	0.72317	7.46447
sky130_osu_sc_18T_ms__addf_l	A->S (-F)	0.24472	1.57178	17.35070
	B->S (-F)	0.23957	1.51047	16.77700
	CI->S (-F)	0.23603	1.59591	17.86830
	CON->S (FF)	0.10174	0.74113	7.15838

Power Information

Internal switching power(pJ) to CO rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ms__addf_1	A	0.00361	0.00418	0.01692
	B	0.00569	0.00590	0.01561
	CI	0.00579	0.00646	0.01948
sky130_osu_sc_18T_ms__addf_l	A	0.00270	0.00302	0.01096
	B	0.00480	0.00481	0.01090
	CI	0.00489	0.00530	0.01327

Internal switching power(pJ) to CO falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ms__addf_1	A	0.01507	0.01565	0.03311
	B	0.01596	0.01652	0.03123
	CI	0.01263	0.01323	0.03150
sky130_osu_sc_18T_ms__addf_l	A	0.01419	0.01459	0.02599
	B	0.01507	0.01550	0.02487
	CI	0.01174	0.01215	0.02465

Internal switching power(pJ) to CON rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ms__addf_1	A	0.01505	0.01537	0.02267
	B	0.01552	0.01584	0.02231
	CI	0.01398	0.01464	0.02135
sky130_osu_sc_18T_ms__addf_l	A	0.01418	0.01444	0.02180
	B	0.01466	0.01492	0.02143
	CI	0.01309	0.01371	0.02040

Internal switching power(pJ) to CON falling :

Cell Name	Input	Power(pJ)		
		first	**mid**	**last**
sky130_osu_sc_18T_ms__addf_1	**A**	0.00357	0.00392	0.00963
	B	0.00563	0.00561	0.01026
	CI	0.00575	0.00615	0.01204
sky130_osu_sc_18T_ms__addf_l	**A**	0.00269	0.00293	0.00832
	B	0.00475	0.00463	0.00898
	CI	0.00486	0.00517	0.01071

Internal switching power(pJ) to S rising :

Cell Name	Input	Power(pJ)		
		first	**mid**	**last**
sky130_osu_sc_18T_ms__addf_1	**A**	0.01507	0.01563	0.03238
	B	0.01596	0.01651	0.03057
	CI	0.01262	0.01322	0.03077
sky130_osu_sc_18T_ms__addf_l	**A**	0.01419	0.01459	0.02608
	B	0.01507	0.01550	0.02470
	CI	0.01174	0.01215	0.02458

Internal switching power(pJ) to S falling :

Cell Name	Input	Power(pJ)		
		first	**mid**	**last**
sky130_osu_sc_18T_ms__addf_1	**A**	0.03399	0.03423	0.04410
	B	0.03026	0.03037	0.05021
	CI	0.02756	0.02763	0.03758
sky130_osu_sc_18T_ms__addf_l	**A**	0.03279	0.03283	0.04299
	B	0.02909	0.02912	0.04966
	CI	0.02642	0.02637	0.03677

SKY130_OSU_SC_18T_MS__ADDHx

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_ms__addh_1	27.83880
sky130_osu_sc_18T_ms__addh_l	27.83880

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)		
	A	B	CO	CON	S
sky130_osu_sc_18T_ms__addh_1	0.01023	0.01117	2.68151	1.34787	2.72310
sky130_osu_sc_18T_ms__addh_l	0.01023	0.01117	1.59464	1.34329	1.62324

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ms__addh_1	0.00000	0.46325	0.53625
sky130_osu_sc_18T_ms__addh_l	0.00000	0.31371	0.41649

Delay Information

Delay(ns) to CO rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	**Mid**	**Last**
sky130_osu_sc_18T_ms__addh_1	**A->CO (RR)**	0.10439	0.69042	7.34444
	B->CO (RR)	0.10878	0.69043	7.43508
sky130_osu_sc_18T_ms__addh_l	**A->CO (RR)**	0.10457	0.75879	7.22689
	B->CO (RR)	0.10890	0.76140	7.29648

Delay(ns) to CO falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	**Mid**	**Last**
sky130_osu_sc_18T_ms__addh_1	**A->CO (FF)**	0.08875	0.68718	7.38674
	B->CO (FF)	0.09497	0.70126	7.39555
sky130_osu_sc_18T_ms__addh_l	**A->CO (FF)**	0.08851	0.72458	6.92025
	B->CO (FF)	0.09453	0.73882	6.92665

Delay(ns) to CON rising (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	**Mid**	**Last**
sky130_osu_sc_18T_ms__addh_1	**A->CON (RR)**	**B**	0.14147	0.57768	3.97845
	A->CON (FR)	**!B**	0.08078	0.89175	10.74390
	B->CON (RR)	**A**	0.14566	0.57713	4.06569
	B->CON (FR)	**!A**	0.10119	0.92149	10.82030
sky130_osu_sc_18T_ms__addh_l	**A->CON (RR)**	**B**	0.12701	0.55085	3.91972
	A->CON (FR)	**!B**	0.07189	0.88117	10.71220
	B->CON (RR)	**A**	0.13131	0.55295	3.98884
	B->CON (FR)	**!A**	0.09236	0.91072	10.78790

Delay(ns) to CON falling (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_18T_ms__addh_1	A->CON (FF)	B	0.13787	0.73657	6.14119
	A->CON (RF)	!B	0.05973	0.70809	8.68924
	B->CON (FF)	A	0.13657	0.77541	6.54410
	B->CON (RF)	!A	0.07078	0.69661	8.31276
sky130_osu_sc_18T_ms__addh_l	A->CON (FF)	B	0.12527	0.70065	5.92202
	A->CON (RF)	!B	0.05507	0.70187	8.66732
	B->CON (FF)	A	0.12374	0.73995	6.32183
	B->CON (RF)	!A	0.06628	0.69098	8.29623

Delay(ns) to S rising (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_18T_ms__addh_1	A->S (RR)	!B	0.11006	1.78511	27.56300
	A->S (FR)	B	0.18837	1.79221	24.71930
	B->S (RR)	!A	0.12090	1.72551	26.22710
	B->S (FR)	A	0.18773	1.88049	26.06070
	CON->S (FR)	-	0.03185	0.77643	11.52990
sky130_osu_sc_18T_ms__addh_l	A->S (RR)	!B	0.10899	1.61556	20.92210
	A->S (FR)	B	0.17950	1.60180	18.00520
	B->S (RR)	!A	0.12020	1.57309	20.07180
	B->S (FR)	A	0.17864	1.67325	18.87060
	CON->S (FR)	-	0.03606	0.86514	11.43750

Delay(ns) to S falling (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_18T_ms__addh_1	A->S (FF)	!B	0.12832	2.04689	31.59980
	A->S (RF)	B	0.18123	1.41141	18.47960
	B->S (FF)	!A	0.14884	2.07994	31.75160
	B->S (RF)	A	0.18544	1.40946	18.56540
	CON->S (RF)	-	0.02461	0.66950	9.96088
sky130_osu_sc_18T_ms__addh_l	A->S (FF)	!B	0.12337	1.78690	23.03190
	A->S (RF)	B	0.16965	1.26060	13.39000
	B->S (FF)	!A	0.14382	1.82009	23.13360
	B->S (RF)	A	0.17388	1.26057	13.45980
	CON->S (RF)	-	0.02802	0.72279	9.57636

Power Information

Internal switching power(pJ) to CO rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ms__addh_1	A	0.00000	0.00000	0.00000
	A	0.00694	0.00673	0.01040
	B	0.00000	0.00000	0.00000
	B	0.00622	0.00588	0.01025
sky130_osu_sc_18T_ms__addh_l	A	0.00000	0.00000	0.00000
	A	0.00569	0.00544	0.01134
	B	0.00000	0.00000	0.00000
	B	0.00498	0.00457	0.01060

Internal switching power(pJ) to CO falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ms__addh_1	A	0.00000	0.00000	0.00000
	A	0.01096	0.01082	0.01957
	B	0.00000	0.00000	0.00000
	B	0.01133	0.01179	0.02110
sky130_osu_sc_18T_ms__addh_l	A	0.00000	0.00000	0.00000
	A	0.00969	0.00951	0.01785
	B	0.00000	0.00000	0.00000
	B	0.01009	0.01038	0.01887

Internal switching power(pJ) to CON rising (conditional):

Cell Name	Input	When	Power(pJ)		
			first	mid	last
sky130_osu_sc_18T_ms__addh_1	A	B	0.00000	0.00000	0.00000
	A	B	0.00693	0.00675	0.01124
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00952	0.00970	0.01207
	B	A	0.00000	0.00000	0.00000
	B	A	0.00622	0.00590	0.01144
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01069	0.01068	0.01169
sky130_osu_sc_18T_ms__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.00568	0.00544	0.01114
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00869	0.00881	0.01092
	B	A	0.00000	0.00000	0.00000
	B	A	0.00497	0.00456	0.01072
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00987	0.00980	0.01058

Internal switching power(pJ) to CON falling (conditional):

Cell Name	Input	When	Power(pJ)		
			first	mid	last
sky130_osu_sc_18T_ms__addh_1	A	B	0.00000	0.00000	0.00000
	A	B	0.01095	0.01081	0.01919
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00146	0.00156	0.00304
	B	A	0.00000	0.00000	0.00000
	B	A	0.01133	0.01175	0.02038
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00259	0.00252	0.00379
sky130_osu_sc_18T_ms__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.00969	0.00951	0.01774
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00038	0.00041	0.00125
	B	A	0.00000	0.00000	0.00000
	B	A	0.01008	0.01037	0.01888
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00152	0.00137	0.00227

Internal switching power(pJ) to S rising (conditional):

Cell Name	Input	When	Power(pJ)		
			first	mid	last
sky130_osu_sc_18T_ms__addh_1	A	B	0.00000	0.00000	0.00000
	A	B	0.01096	0.01082	0.01984
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00148	0.00166	0.00391
	B	A	0.00000	0.00000	0.00000
	B	A	0.01134	0.01183	0.02140
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00262	0.00261	0.00454
sky130_osu_sc_18T_ms__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.00970	0.00953	0.01803
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00039	0.00044	0.00125
	B	A	0.00000	0.00000	0.00000
	B	A	0.01009	0.01041	0.01921
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00154	0.00138	0.00218

Internal switching power(pJ) to S falling (conditional):

Cell Name	Input	When	Power(pJ)		
			first	mid	last
	A	B	0.00000	0.00000	0.00000
	A	B	0.00695	0.00674	0.01034
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00952	0.00977	0.01177
sky130_osu_sc_18T_ms__addh_1	B	A	0.00000	0.00000	0.00000
	B	A	0.00623	0.00590	0.01017
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01070	0.01080	0.01191
	A	B	0.00000	0.00000	0.00000
	A	B	0.00569	0.00545	0.01158
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00869	0.00884	0.01072
sky130_osu_sc_18T_ms__addh_l	B	A	0.00000	0.00000	0.00000
	B	A	0.00498	0.00458	0.01101
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00988	0.00985	0.01063

SKY130_OSU_SC_18T_MS__AND2x

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_ms__and2_1	12.45420
sky130_osu_sc_18T_ms__and2_2	15.38460
sky130_osu_sc_18T_ms__and2_4	21.24540
sky130_osu_sc_18T_ms__and2_6	27.10620
sky130_osu_sc_18T_ms__and2_8	32.96700
sky130_osu_sc_18T_ms__and2_l	12.45420

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	**B**	**Y**
sky130_osu_sc_18T_ms__and2_1	0.00550	0.00560	2.71879
sky130_osu_sc_18T_ms__and2_2	0.00550	0.00560	5.18130
sky130_osu_sc_18T_ms__and2_4	0.00550	0.00561	9.98537
sky130_osu_sc_18T_ms__and2_6	0.00553	0.00560	14.46177
sky130_osu_sc_18T_ms__and2_8	0.00552	0.00562	18.58329
sky130_osu_sc_18T_ms__and2_l	0.00426	0.00436	1.87503

Leakage Information

Cell Name	Leakage(nW)		
	Min.	**Avg**	**Max.**
sky130_osu_sc_18T_ms__and2_1	0.00000	0.22340	0.35733
sky130_osu_sc_18T_ms__and2_2	0.00000	0.35733	0.35786
sky130_osu_sc_18T_ms__and2_4	0.00000	0.62520	0.71413
sky130_osu_sc_18T_ms__and2_6	0.00000	0.89306	1.07092
sky130_osu_sc_18T_ms__and2_8	0.00000	1.16092	1.42772
sky130_osu_sc_18T_ms__and2_l	0.00000	0.15074	0.24111

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ms__and2_1	A->Y (RR)	0.07955	0.62050	7.21168
	B->Y (RR)	0.08494	0.62758	7.15157
sky130_osu_sc_18T_ms__and2_2	A->Y (RR)	0.09250	0.57764	7.18906
	B->Y (RR)	0.09787	0.57774	7.14088
sky130_osu_sc_18T_ms__and2_4	A->Y (RR)	0.12760	0.60880	7.56263
	B->Y (RR)	0.13299	0.59999	7.53315
sky130_osu_sc_18T_ms__and2_6	A->Y (RR)	0.16115	0.65306	7.73609
	B->Y (RR)	0.16639	0.63640	7.70973
sky130_osu_sc_18T_ms__and2_8	A->Y (RR)	0.19455	0.69968	7.95768
	B->Y (RR)	0.19990	0.68029	7.92714
sky130_osu_sc_18T_ms__and2_l	A->Y (RR)	0.08895	0.69684	7.22103
	B->Y (RR)	0.09472	0.70294	7.19039

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ms__and2_1	A->Y (FF)	0.06881	0.60856	6.89554
	B->Y (FF)	0.07272	0.62442	6.92766
sky130_osu_sc_18T_ms__and2_2	A->Y (FF)	0.07828	0.57252	6.84094
	B->Y (FF)	0.08294	0.58558	6.88649
sky130_osu_sc_18T_ms__and2_4	A->Y (FF)	0.10736	0.59947	7.15527
	B->Y (FF)	0.11209	0.60946	7.20099
sky130_osu_sc_18T_ms__and2_6	A->Y (FF)	0.13941	0.63991	7.29272
	B->Y (FF)	0.14402	0.64802	7.34217
sky130_osu_sc_18T_ms__and2_8	A->Y (FF)	0.16859	0.67655	7.31919
	B->Y (FF)	0.17348	0.68357	7.38022
sky130_osu_sc_18T_ms__and2_l	A->Y (FF)	0.07497	0.66779	6.79199
	B->Y (FF)	0.07999	0.68717	6.84566

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ms__and2_1	A	0.00000	0.00000	0.00000
	A	0.00519	0.00500	0.02955
	B	0.00000	0.00000	0.00000
	B	0.00529	0.00479	0.01913
sky130_osu_sc_18T_ms__and2_2	A	0.00000	0.00000	0.00000
	A	0.01048	0.01091	0.03350
	B	0.00000	0.00000	0.00000
	B	0.01060	0.01037	0.02359
sky130_osu_sc_18T_ms__and2_4	A	0.00000	0.00000	0.00000
	A	0.02201	0.02301	0.04337
	B	0.00000	0.00000	0.00000
	B	0.02217	0.02259	0.03525
sky130_osu_sc_18T_ms__and2_6	A	0.00000	0.00000	0.00000
	A	0.03407	0.03522	0.05506
	B	0.00000	0.00000	0.00000
	B	0.03411	0.03472	0.04814
sky130_osu_sc_18T_ms__and2_8	A	0.00000	0.00000	0.00000
	A	0.04652	0.04748	0.06509
	B	0.00000	0.00000	0.00000
	B	0.04647	0.04696	0.05943
sky130_osu_sc_18T_ms__and2_l	A	0.00000	0.00000	0.00000
	A	0.00385	0.00366	0.01956
	B	0.00000	0.00000	0.00000
	B	0.00394	0.00340	0.01357

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ms__and2_1	A	0.00000	0.00000	0.00000
	A	0.01312	0.01433	0.03851
	B	0.00000	0.00000	0.00000
	B	0.01481	0.01573	0.03834
sky130_osu_sc_18T_ms__and2_2	A	0.00000	0.00000	0.00000
	A	0.01659	0.01832	0.04235
	B	0.00000	0.00000	0.00000
	B	0.01831	0.01969	0.04232
sky130_osu_sc_18T_ms__and2_4	A	0.00000	0.00000	0.00000
	A	0.02538	0.02832	0.05181
	B	0.00000	0.00000	0.00000
	B	0.02708	0.02945	0.05159
sky130_osu_sc_18T_ms__and2_6	A	0.00000	0.00000	0.00000
	A	0.03409	0.03806	0.06205
	B	0.00000	0.00000	0.00000
	B	0.03593	0.03892	0.06114
sky130_osu_sc_18T_ms__and2_8	A	0.00000	0.00000	0.00000
	A	0.04337	0.04767	0.07207
	B	0.00000	0.00000	0.00000
	B	0.04505	0.04823	0.07042
sky130_osu_sc_18T_ms__and2_l	A	0.00000	0.00000	0.00000
	A	0.01019	0.01087	0.02622
	B	0.00000	0.00000	0.00000
	B	0.01146	0.01194	0.02660

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ms__and2_1	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00499	-0.00503	-0.00503
sky130_osu_sc_18T_ms__and2_2	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00499	-0.00503	-0.00503
sky130_osu_sc_18T_ms__and2_4	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00499	-0.00502	-0.00502
sky130_osu_sc_18T_ms__and2_6	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00501	-0.00504	-0.00504
sky130_osu_sc_18T_ms__and2_8	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00498	-0.00501	-0.00502
sky130_osu_sc_18T_ms__and2_l	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00369	-0.00372	-0.00372

Passive power(pJ) for A falling (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ms__and2_1	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00503	0.00506	0.00505
sky130_osu_sc_18T_ms__and2_2	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00503	0.00506	0.00505
sky130_osu_sc_18T_ms__and2_4	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00503	0.00506	0.00505
sky130_osu_sc_18T_ms__and2_6	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00504	0.00509	0.00508
sky130_osu_sc_18T_ms__and2_8	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00502	0.00507	0.00506
sky130_osu_sc_18T_ms__and2_l	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00371	0.00374	0.00373

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

Cell Name	When	Power(pJ)		
		first	**mid**	**last**
sky130_osu_sc_18T_ms__and2_1	**(!A * !Y)**	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00473	-0.00474	-0.00473
sky130_osu_sc_18T_ms__and2_2	**(!A * !Y)**	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00473	-0.00474	-0.00473
sky130_osu_sc_18T_ms__and2_4	**(!A * !Y)**	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00472	-0.00474	-0.00473
sky130_osu_sc_18T_ms__and2_6	**(!A * !Y)**	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00472	-0.00473	-0.00473
sky130_osu_sc_18T_ms__and2_8	**(!A * !Y)**	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00472	-0.00473	-0.00472
sky130_osu_sc_18T_ms__and2_l	**(!A * !Y)**	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00350	-0.00351	-0.00350

Passive power(pJ) for B falling (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ms__and2_1	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00477	0.00479	0.00475
sky130_osu_sc_18T_ms__and2_2	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00477	0.00479	0.00475
sky130_osu_sc_18T_ms__and2_4	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00477	0.00479	0.00476
sky130_osu_sc_18T_ms__and2_6	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00477	0.00479	0.00476
sky130_osu_sc_18T_ms__and2_8	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00478	0.00480	0.00476
sky130_osu_sc_18T_ms__and2_l	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00352	0.00352	0.00351

SKY130_OSU_SC_18T_MS__AOI21

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_ms__aoi21_l	12.45420

Pin Capacitance Information

Cell Name	Pin Cap(pf)			Max Cap(pf)
	A0	A1	B0	Y
sky130_osu_sc_18T_ms__aoi21_l	0.00522	0.00542	0.00524	1.25162

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ms__aoi21_l	0.00000	0.08263	0.17840

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	**Mid**	**Last**
sky130_osu_sc_18T_ms__aoi21_l	**A0->Y (FR)**	0.08078	0.91324	10.72580
	A1->Y (FR)	0.06919	0.87016	10.35710
	B0->Y (FR)	0.05834	0.88894	10.77170

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	**Mid**	**Last**
sky130_osu_sc_18T_ms__aoi21_l	**A0->Y (RF)**	0.05556	0.64439	7.60692
	A1->Y (RF)	0.05040	0.65837	7.98383
	B0->Y (RF)	0.03314	0.63068	7.87734

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ms__aoi21_l	A0	0.00000	0.00000	0.00000
	A0	0.01181	0.01170	0.01303
	A1	0.00000	0.00000	0.00000
	A1	0.00995	0.00982	0.01119
	B0	0.00715	0.00724	0.01123

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ms__aoi21_l	A0	0.00000	0.00000	0.00000
	A0	0.00256	0.00215	0.00297
	A1	0.00000	0.00000	0.00000
	A1	0.00259	0.00234	0.00346
	B0	-0.00129	-0.00116	-0.00018

Passive power(pJ) for A0 rising (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ms__aoi21_l	(A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * !Y)	-0.00386	-0.00444	-0.00442
	(!A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !Y)	-0.00447	-0.00450	-0.00448
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00447	-0.00449	-0.00448

Passive power(pJ) for A0 falling (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ms__aoi21_l	(A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * !Y)	0.00439	0.00444	0.00442
	(!A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !Y)	0.00448	0.00450	0.00449
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00451	0.00451	0.00449

Passive power(pJ) for A1 rising (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ms__aoi21_l	(A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * B0 * !Y)	-0.00383	-0.00436	-0.00437
	(!A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !Y)	-0.00442	-0.00443	-0.00443
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	-0.00477	-0.00481	-0.00481

Passive power(pJ) for A1 falling (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ms__aoi21_l	(A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * B0 * !Y)	0.00434	0.00439	0.00437
	(!A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !Y)	0.00442	0.00448	0.00444
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	0.00480	0.00484	0.00482

Passive power(pJ) for B0 rising (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ms__aoi21_l	(A0 * A1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !Y)	-0.00213	-0.00214	-0.00214

Passive power(pJ) for B0 falling (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ms__aoi21_l	(A0 * A1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !Y)	0.00234	0.00235	0.00219

SKY130_OSU_SC_18T_MS__AOI22

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_ms__aoi22_l	15.38460

Pin Capacitance Information

Cell Name	Pin Cap(pf)				Max Cap(pf)
	A0	A1	B0	B1	Y
sky130_osu_sc_18T_ms__aoi22_l	0.00523	0.00543	0.00559	0.00536	1.19774

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ms__aoi22_l	0.00000	0.09090	0.35679

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	**Mid**	**Last**
sky130_osu_sc_18T_ms__aoi22_l	**A0->Y (FR)**	0.10247	0.93807	10.63280
	A1->Y (FR)	0.09120	0.91035	10.44410
	B0->Y (FR)	0.06111	0.87349	10.49720
	B1->Y (FR)	0.07261	0.90967	10.74630

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	**Mid**	**Last**
sky130_osu_sc_18T_ms__aoi22_l	**A0->Y (RF)**	0.07300	0.65431	7.43628
	A1->Y (RF)	0.06787	0.66828	7.81550
	B0->Y (RF)	0.03710	0.63872	7.78794
	B1->Y (RF)	0.04239	0.61910	7.40804

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ms__aoi22_l	**A0**	0.01443	0.01430	0.01550
	A1	0.01260	0.01245	0.01368
	B0	0.00776	0.00787	0.01266
	B1	0.01157	0.01155	0.01601

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ms__aoi22_l	**A0**	0.00530	0.00486	0.00568
	A1	0.00535	0.00503	0.00617
	B0	-0.00088	-0.00088	0.00045
	B1	-0.00074	-0.00092	0.00003

Passive power(pJ) for A0 rising (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ms__aoi22_l	**(A1 * B0 * B1 * !Y)**	0.00000	0.00000	0.00000
	(A1 * B0 * B1 * !Y)	-0.00389	-0.00443	-0.00442
	(!A1 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * B1 * !Y)	-0.00446	-0.00447	-0.00448
	(!A1 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !B1 * Y)	-0.00447	-0.00449	-0.00448
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00447	-0.00449	-0.00448

Passive power(pJ) for A0 falling (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ms__aoi22_l	(A1 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * B1 * !Y)	0.00438	0.00444	0.00442
	(!A1 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * B1 * !Y)	0.00448	0.00450	0.00449
	(!A1 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !B1 * Y)	0.00451	0.00450	0.00449
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00451	0.00450	0.00449

Passive power(pJ) for A1 rising (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ms__aoi22_l	(A0 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * B0 * B1 * !Y)	-0.00386	-0.00434	-0.00437
	(!A0 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * B1 * !Y)	-0.00442	-0.00444	-0.00442
	(!A0 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !B1 * Y)	-0.00477	-0.00480	-0.00480
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	-0.00477	-0.00480	-0.00480

Passive power(pJ) for A1 falling (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ms__aoi22_l	(A0 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * B0 * B1 * !Y)	0.00434	0.00439	0.00437
	(!A0 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * B1 * !Y)	0.00442	0.00448	0.00444
	(!A0 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !B1 * Y)	0.00480	0.00484	0.00482
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	0.00480	0.00484	0.00482

Passive power(pJ) for B0 rising (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ms__aoi22_l	(A0 * A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * B1 * !Y)	-0.00214	-0.00216	-0.00215
	(A0 * A1 * !B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B1 * !Y)	-0.00213	-0.00215	-0.00214
	(!A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B1 * Y)	-0.00489	-0.00491	-0.00493
	(!A0 * A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B1 * Y)	-0.00488	-0.00491	-0.00493

Passive power(pJ) for B0 falling (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ms__aoi22_l	(A0 * A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * B1 * !Y)	0.00244	0.00245	0.00222
	(A0 * A1 * !B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B1 * !Y)	0.00214	0.00215	0.00214
	(!A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B1 * Y)	0.00492	0.00496	0.00494
	(!A0 * A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B1 * Y)	0.00492	0.00497	0.00494

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ms__aoi22_l	(A0 * A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * B0 * !Y)	-0.00215	-0.00217	-0.00216
	(A0 * A1 * !B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B0 * !Y)	-0.00215	-0.00216	-0.00215
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00454	-0.00456	-0.00455
	(!A0 * A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B0 * Y)	-0.00454	-0.00456	-0.00455

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ms__aoi22_l	(A0 * A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * B0 * !Y)	0.00245	0.00246	0.00223
	(A0 * A1 * !B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B0 * !Y)	0.00215	0.00216	0.00215
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00458	0.00459	0.00456
	(!A0 * A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B0 * Y)	0.00458	0.00459	0.00456

SKY130_OSU_SC_18T_MS__BUFx

Truth Table

INPUT	OUTPUT
A	Y
0	0
1	1

Footprint

Cell Name	Area
sky130_osu_sc_18T_ms__buf_1	9.52380
sky130_osu_sc_18T_ms__buf_2	12.45420
sky130_osu_sc_18T_ms__buf_4	18.31500
sky130_osu_sc_18T_ms__buf_6	24.17580
sky130_osu_sc_18T_ms__buf_8	30.03660
sky130_osu_sc_18T_ms__buf_l	9.52380

Pin Capacitance Information

Cell Name	Pin Cap(pf)	Max Cap(pf)
	A	Y
sky130_osu_sc_18T_ms__buf_1	0.00560	2.67986
sky130_osu_sc_18T_ms__buf_2	0.00561	5.24983
sky130_osu_sc_18T_ms__buf_4	0.00560	10.09551
sky130_osu_sc_18T_ms__buf_6	0.00097	1.80000
sky130_osu_sc_18T_ms__buf_8	0.00562	19.00384
sky130_osu_sc_18T_ms__buf_l	0.00441	1.86248

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ms__buf_1	0.00000	0.17893	0.17893
sky130_osu_sc_18T_ms__buf_2	0.00000	0.26840	0.35733
sky130_osu_sc_18T_ms__buf_4	0.00000	0.44733	0.71413
sky130_osu_sc_18T_ms__buf_6	0.00000	0.00000	0.00000
sky130_osu_sc_18T_ms__buf_8	0.00000	0.80519	1.42772
sky130_osu_sc_18T_ms__buf_l	0.00000	0.12066	0.12066

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ms__buf_1	A->Y (RR)	0.06118	0.58297	6.97123
sky130_osu_sc_18T_ms__buf_2	A->Y (RR)	0.06879	0.53533	7.08221
sky130_osu_sc_18T_ms__buf_4	A->Y (RR)	0.09293	0.54743	7.37799
sky130_osu_sc_18T_ms__buf_8	A->Y (RR)	0.13855	0.61155	7.73765
sky130_osu_sc_18T_ms__buf_l	A->Y (RR)	0.06855	0.65644	6.99567

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ms__buf_1	A->Y (FF)	0.06556	0.59665	6.80068
sky130_osu_sc_18T_ms__buf_2	A->Y (FF)	0.07574	0.56913	6.93245
sky130_osu_sc_18T_ms__buf_4	A->Y (FF)	0.10496	0.59576	7.21406
sky130_osu_sc_18T_ms__buf_8	A->Y (FF)	0.16609	0.67513	7.45823
sky130_osu_sc_18T_ms__buf_l	A->Y (FF)	0.07249	0.65909	6.74631

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ms__buf_1	A	0.00000	0.00000	0.00000
	A	0.00482	0.00462	0.02250
sky130_osu_sc_18T_ms__buf_2	A	0.00000	0.00000	0.00000
	A	0.01012	0.01040	0.02734
sky130_osu_sc_18T_ms__buf_4	A	0.00000	0.00000	0.00000
	A	0.02159	0.02239	0.03824
sky130_osu_sc_18T_ms__buf_8	A	0.00000	0.00000	0.00000
	A	0.04480	0.04714	0.06417
sky130_osu_sc_18T_ms__buf_l	A	0.00000	0.00000	0.00000
	A	0.00368	0.00346	0.01636

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ms__buf_1	A	0.00000	0.00000	0.00000
	A	0.01264	0.01380	0.03757
sky130_osu_sc_18T_ms__buf_2	A	0.00000	0.00000	0.00000
	A	0.01609	0.01761	0.04106
sky130_osu_sc_18T_ms__buf_4	A	0.00000	0.00000	0.00000
	A	0.02489	0.02751	0.05053
sky130_osu_sc_18T_ms__buf_8	A	0.00000	0.00000	0.00000
	A	0.04295	0.04647	0.06998
sky130_osu_sc_18T_ms__buf_l	A	0.00000	0.00000	0.00000
	A	0.00990	0.01047	0.02597

Passive power(pJ) for A rising :

Cell Name	Power(pJ)		
	first	mid	last
sky130_osu_sc_18T_ms__buf_6	0.00000	0.00000	0.00000
	-0.00067	-0.00067	-0.00066

Passive power(pJ) for A falling :

Cell Name	Power(pJ)		
	first	mid	last
sky130_osu_sc_18T_ms__buf_6	0.00000	0.00000	0.00000
	0.00067	0.00067	0.00066

SKY130_OSU_SC_18T_MS__DFFRx

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_ms__dffr_1	63.73620
sky130_osu_sc_18T_ms__dffr_l	63.73620

Pin Capacitance Information

Cell Name	Pin Cap(pf)			Max Cap(pf)	
	D	RN	CK	Q	QN
sky130_osu_sc_18T_ms__dffr_1	0.00537	0.00533	0.01548	2.63482	2.59999
sky130_osu_sc_18T_ms__dffr_l	0.00537	0.00533	0.01546	1.86753	1.85980

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ms__dffr_1	0.00000	0.55203	0.84648
sky130_osu_sc_18T_ms__dffr_l	0.00000	0.49376	0.78821

Delay Information

Delay(ns) to Q rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	**Mid**	**Last**
sky130_osu_sc_18T_ms__dffr_1	**CK->Q (RR)**	0.30187	1.46600	17.35910
	QN->Q (FR)	0.03316	0.84459	12.51750
sky130_osu_sc_18T_ms__dffr_l	**CK->Q (RR)**	0.29776	1.57437	16.93630
	QN->Q (FR)	0.03550	0.88991	12.19630

Delay(ns) to Q falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	**Mid**	**Last**
sky130_osu_sc_18T_ms__dffr_1	**CK->Q (RF)**	0.30446	1.50796	18.07760
	QN->Q (RF)	0.03031	0.79205	11.72230
	RN->Q (FF)	0.22506	1.50292	18.84060
sky130_osu_sc_18T_ms__dffr_l	**CK->Q (RF)**	0.30884	1.63916	17.73250
	QN->Q (RF)	0.03113	0.80032	10.94170
	RN->Q (FF)	0.22986	1.63386	18.49240

Delay(ns) to QN rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	**Mid**	**Last**
sky130_osu_sc_18T_ms__dffr_1	**CK->QN (RR)**	0.26628	0.81947	7.12807
	RN->QN (FR)	0.18682	0.81467	7.89221
sky130_osu_sc_18T_ms__dffr_l	**CK->QN (RR)**	0.26659	0.87776	7.17956
	RN->QN (FR)	0.18749	0.87294	7.93598

Delay(ns) to QN falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ms__dffr_1	CK->QN (RF)	0.25743	0.77398	6.40664
sky130_osu_sc_18T_ms__dffr_l	CK->QN (RF)	0.24841	0.79270	6.13888

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_ms__dffr_1	**hold**	**CK (R)**	-0.06686	-0.09097	-0.21144
	setup	**CK (R)**	0.23825	0.28058	0.95174
sky130_osu_sc_18T_ms__dffr_l	**hold**	**CK (R)**	-0.06850	-0.08896	-0.21010
	setup	**CK (R)**	0.23887	0.28095	0.95949

Constraints(ns) for D falling :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	**mid**	**last**
sky130_osu_sc_18T_ms__dffr_1	**hold**	**CK (R)**	-0.11720	-0.37121	-2.88515
	setup	**CK (R)**	0.15069	0.38378	2.96596
sky130_osu_sc_18T_ms__dffr_l	**hold**	**CK (R)**	-0.12003	-0.37053	-2.88167
	setup	**CK (R)**	0.15041	0.38378	2.96596

Constraints(ns) for D rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	**mid**	**last**
sky130_osu_sc_18T_ms__dffr_1	**hold**	**CK (R)**	-0.06686	-0.09097	-0.21144
	setup	**CK (R)**	0.23825	0.28058	0.95174
sky130_osu_sc_18T_ms__dffr_l	**hold**	**CK (R)**	-0.06850	-0.08896	-0.21010
	setup	**CK (R)**	0.23887	0.28095	0.95949

Constraints(ns) for D falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_ms__dffr_1	hold	CK (R)	-0.11720	-0.37121	-2.88515
	setup	CK (R)	0.15069	0.38378	2.96596
sky130_osu_sc_18T_ms__dffr_l	hold	CK (R)	-0.12003	-0.37053	-2.88167
	setup	CK (R)	0.15041	0.38378	2.96596

Constraints(ns) for RN rising :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_ms__dffr_1	recovery	CK (R)	0.19479	0.23341	1.07167
	removal	CK (R)	-0.03506	-0.04360	-0.12327
sky130_osu_sc_18T_ms__dffr_l	recovery	CK (R)	0.19381	0.23160	1.08003
	removal	CK (R)	-0.03506	-0.04360	-0.12327

Constraints(ns) for RN rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_ms__dffr_1	recovery	CK (R)	0.19479	0.23341	1.07167
	removal	CK (R)	-0.03506	-0.04360	-0.12327
sky130_osu_sc_18T_ms__dffr_l	recovery	CK (R)	0.19381	0.23160	1.08003
	removal	CK (R)	-0.03506	-0.04360	-0.12327

Constraints(ns) for RN falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_ms__dffr_1	min_pulse_width	RN ()	0.13104	0.52490	13.33370
	min_pulse_width	RN ()	0.13104	0.52490	13.33370
sky130_osu_sc_18T_ms__dffr_l	min_pulse_width	RN ()	0.13104	0.52490	13.33370
	min_pulse_width	RN ()	0.13104	0.52490	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_ms__dffr_1	min_pulse_width	CK ()	0.13891	0.52490	13.33370
	min_pulse_width	CK ()	0.15861	0.52490	13.33370
sky130_osu_sc_18T_ms__dffr_l	min_pulse_width	CK ()	0.13104	0.52490	13.33370
	min_pulse_width	CK ()	0.15467	0.52490	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_ms__dffr_1	min_pulse_width	CK ()	0.30040	0.52490	13.33370
	min_pulse_width	CK ()	0.12316	0.52490	13.33370
sky130_osu_sc_18T_ms__dffr_l	min_pulse_width	CK ()	0.30434	0.52490	13.33370
	min_pulse_width	CK ()	0.12316	0.52490	13.33370

Power Information

Internal switching power(pJ) to Q rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ms__dffr_1	CK	0.00000	0.00000	0.00000
	CK	0.01284	0.00896	0.00000
sky130_osu_sc_18T_ms__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.01144	0.00875	-0.00343

Internal switching power(pJ) to Q falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ms__dffr_1	CK	0.00000	0.00000	0.00000
	CK	0.01455	0.01197	0.00000
	RN	-0.00169	-0.11286	-1.85912
	RN	0.03372	0.03150	0.00993
sky130_osu_sc_18T_ms__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.01312	0.01141	0.00580
	RN	-0.00169	-0.09180	-1.31773
	RN	0.03228	0.03093	0.02642

Internal switching power(pJ) to QN rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ms__dffr_1	CK	0.00000	0.00000	0.00000
	CK	0.01454	0.01197	0.00000
	RN	-0.00169	-0.11196	-1.83413
	RN	0.03370	0.03147	0.01009
sky130_osu_sc_18T_ms__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.01312	0.01141	0.00552
	RN	-0.00169	-0.09157	-1.31216
	RN	0.03227	0.03091	0.02658

Internal switching power(pJ) to QN falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ms__dffr_1	CK	0.00000	0.00000	0.00000
	CK	0.01279	0.00896	0.00000
sky130_osu_sc_18T_ms__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.01138	0.00874	-0.00341

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ms__dffr_1	CK	0.00000	0.00000	0.00000
	CK	-0.00370	-0.00434	-0.00440
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.01585	0.01499	0.02560
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.00708	0.00633	0.01726
sky130_osu_sc_18T_ms__dffr_l	CK	0.00000	0.00000	0.00000
	CK	-0.00370	-0.00434	-0.00440
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.01585	0.01499	0.02560
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.00707	0.00633	0.01723

Passive power(pJ) for D falling (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ms__dffr_1	CK	0.00000	0.00000	0.00000
	CK	0.00437	0.00443	0.00441
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.02643	0.02604	0.03821
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.01244	0.01213	0.02412
sky130_osu_sc_18T_ms__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.00437	0.00443	0.00441
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.02643	0.02604	0.03821
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.01244	0.01213	0.02412

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ms__dffr_1	(CK * !Q * QN) + (!CK * !D * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !Q * QN) + (!CK * !D * !Q * QN)	0.00494	0.00456	0.02944
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.01390	0.01321	0.03787
sky130_osu_sc_18T_ms__dffr_l	(CK * !Q * QN) + (!CK * !D * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !Q * QN) + (!CK * !D * !Q * QN)	0.00494	0.00456	0.02943
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.01390	0.01321	0.03787

Passive power(pJ) for RN falling (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ms__dffr_1	(CK * !Q * QN) + (!CK * !D * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !Q * QN) + (!CK * !D * !Q * QN)	0.01183	0.01244	0.04012
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.02533	0.02542	0.05283
sky130_osu_sc_18T_ms__dffr_l	(CK * !Q * QN) + (!CK * !D * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !Q * QN) + (!CK * !D * !Q * QN)	0.01183	0.01244	0.04012
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.02533	0.02542	0.05283

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ms__dffr_1	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	-0.00096	-0.00136	0.02293
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.00753	0.00605	0.03101
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	-0.00148	-0.00202	0.02212
sky130_osu_sc_18T_ms__dffr_l	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	-0.00096	-0.00136	0.02293
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.00753	0.00605	0.03097
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	-0.00148	-0.00202	0.02212

Passive power(pJ) for CK falling (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ms__dffr_1	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.01825	0.01925	0.04665
	(D * RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * RN * !Q * QN)	0.04010	0.03946	0.06917
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.03066	0.03072	0.05765
	(!D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * Q * !QN)	0.03937	0.04063	0.08910
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.02086	0.02155	0.04845
sky130_osu_sc_18T_ms__dffr_l	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.01825	0.01912	0.04665
	(D * RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * RN * !Q * QN)	0.04010	0.03948	0.06917
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.03066	0.03072	0.05765
	(!D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * Q * !QN)	0.03937	0.04047	0.08910
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.02086	0.02155	0.04845

SKY130_OSU_SC_18T_MS__DFFSRx

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_ms__dffsr_1	69.59700
sky130_osu_sc_18T_ms__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_ms__dffsr_1	0.00533	0.00534	0.01147	0.01574	2.76567	2.73857
sky130_osu_sc_18T_ms__dffsr_l	0.00533	0.00534	0.01146	0.01574	1.86082	1.86299

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ms__dffsr_1	0.00000	0.60743	0.84698
sky130_osu_sc_18T_ms__dffsr_l	0.00000	0.54916	0.78871

Delay Information

Delay(ns) to Q rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	**Mid**	**Last**
sky130_osu_sc_18T_ms__dffsr_1	**CK->Q (RR)**	0.30924	1.46328	17.40970
	QN->Q (FR)	0.03149	0.82511	12.36420
	RN->Q (RR)	0.24732	1.41331	17.40610
	SN->Q (FR)	0.22640	1.49029	18.51690
sky130_osu_sc_18T_ms__dffsr_l	**CK->Q (RR)**	0.31356	1.59526	16.91160
	QN->Q (FR)	0.03543	0.88685	12.13330
	RN->Q (RR)	0.25221	1.54856	16.90200
	SN->Q (FR)	0.23105	1.61957	18.00030

Delay(ns) to Q falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	**Mid**	**Last**
sky130_osu_sc_18T_ms__dffsr_1	**CK->Q (RF)**	0.34448	1.53596	18.17880
	QN->Q (RF)	0.02768	0.74933	11.19740
	RN->Q (FF)	0.23052	1.50019	18.93450
sky130_osu_sc_18T_ms__dffsr_l	**CK->Q (RF)**	0.35349	1.68446	17.70660
	QN->Q (RF)	0.03107	0.79629	10.90530
	RN->Q (FF)	0.23949	1.64892	18.45950

Delay(ns) to QN rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	**Mid**	**Last**
sky130_osu_sc_18T_ms__dffsr_1	**CK->QN (RR)**	0.30726	0.86378	7.27842
	RN->QN (FR)	0.19390	0.82862	8.03361
sky130_osu_sc_18T_ms__dffsr_l	**CK->QN (RR)**	0.31050	0.92679	7.23853
	RN->QN (FR)	0.19703	0.89143	7.98628

Delay(ns) to QN falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ms__dffsr_1	CK->QN (RF)	0.26763	0.78434	6.43991
	RN->QN (RF)	0.20604	0.73462	6.43372
	SN->QN (FF)	0.18519	0.81158	7.54668
sky130_osu_sc_18T_ms__dffsr_l	CK->QN (RF)	0.26544	0.81896	6.20345
	RN->QN (RF)	0.20430	0.77193	6.19364
	SN->QN (FF)	0.18323	0.84310	7.29380

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_ms__dffsr_1	hold	CK (R)	-0.07189	-0.09837	-0.26601
	setup	CK (R)	0.23512	0.27558	0.97838
sky130_osu_sc_18T_ms__dffsr_l	hold	CK (R)	-0.07155	-0.09921	-0.26679
	setup	CK (R)	0.23559	0.27412	0.97935

Constraints(ns) for D falling :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_ms__dffsr_1	hold	CK (R)	-0.13384	-0.38777	-2.98110
	setup	CK (R)	0.17238	0.40204	3.05122
sky130_osu_sc_18T_ms__dffsr_l	hold	CK (R)	-0.13415	-0.38915	-2.98125
	setup	CK (R)	0.17345	0.40185	3.05076

Constraints(ns) for D rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_ms__dffsr_1	hold	CK (R)	-0.07189	-0.09837	-0.26601
	setup	CK (R)	0.23512	0.27558	0.97838
sky130_osu_sc_18T_ms__dffsr_l	hold	CK (R)	-0.07155	-0.09921	-0.26679
	setup	CK (R)	0.23559	0.27412	0.97935

Constraints(ns) for D falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_ms__dffsr_1	hold	CK (R)	-0.13384	-0.38777	-2.98110
	setup	CK (R)	0.17238	0.40204	3.05122
sky130_osu_sc_18T_ms__dffsr_l	hold	CK (R)	-0.13415	-0.38915	-2.98125
	setup	CK (R)	0.17345	0.40185	3.05076

Constraints(ns) for RN rising :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_ms__dffsr_1	recovery	CK (R)	0.17448	0.20639	1.00298
	removal	CK (R)	-0.01998	-0.02608	-0.07918
	hold	SN (R)	-0.17530	-0.37431	-1.66143
	setup	SN (R)	0.19986	0.43290	4.56950
sky130_osu_sc_18T_ms__dffsr_l	recovery	CK (R)	0.17364	0.20555	1.00187
	removal	CK (R)	-0.01998	-0.02608	-0.07918
	hold	SN (R)	-0.17241	-0.36752	-1.62126
	setup	SN (R)	0.20339	0.42636	4.47000

Constraints(ns) for RN rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_ms__dffsr_1	recovery	CK (R)	0.17448	0.20639	1.00298
	removal	CK (R)	-0.01998	-0.02608	-0.07918
	hold	SN (R)	-0.17591	-0.37431	-1.66143
	hold	SN (R)	-0.17530	-0.37471	-1.66894
	setup	SN (R)	0.19986	0.43176	4.34188
	setup	SN (R)	0.19910	0.43290	4.56950
sky130_osu_sc_18T_ms__dffsr_l	recovery	CK (R)	0.17364	0.20555	1.00187
	removal	CK (R)	-0.01998	-0.02608	-0.07918
	hold	SN (R)	-0.17241	-0.36752	-1.62126
	hold	SN (R)	-0.17455	-0.36863	-1.62813
	setup	SN (R)	0.20339	0.42179	4.23032
	setup	SN (R)	0.19002	0.42636	4.47000

Constraints(ns) for RN falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_ms__dffsr_1	min_pulse_width	RN ()	0.15073	0.52490	13.33370
	min_pulse_width	RN ()	0.15073	0.52490	13.33370
sky130_osu_sc_18T_ms__dffsr_l	min_pulse_width	RN ()	0.15073	0.52490	13.33370
	min_pulse_width	RN ()	0.14679	0.52490	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_ms__dffsr_1	recovery	CK (R)	0.04776	0.08976	3.99703
	removal	CK (R)	-0.01726	-0.06861	-0.33816
sky130_osu_sc_18T_ms__dffsr_l	recovery	CK (R)	0.04680	0.08976	3.87092
	removal	CK (R)	-0.01941	-0.06646	-0.33925

Constraints(ns) for SN rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_ms__dffsr_1	recovery	CK (R)	0.04776	0.08976	3.99703
	removal	CK (R)	-0.01726	-0.06861	-0.33816
sky130_osu_sc_18T_ms__dffsr_l	recovery	CK (R)	0.04680	0.08976	3.87092
	removal	CK (R)	-0.01941	-0.06646	-0.33925

Constraints(ns) for SN falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_ms__dffsr_1	min_pulse_width	SN ()	0.17830	0.52490	13.33370
	min_pulse_width	SN ()	0.17830	0.52490	13.33370
sky130_osu_sc_18T_ms__dffsr_l	min_pulse_width	SN ()	0.17830	0.52490	13.33370
	min_pulse_width	SN ()	0.17042	0.52490	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_ms__dffsr_1	min_pulse_width	CK ()	0.14285	0.52490	13.33370
	min_pulse_width	CK ()	0.17436	0.52490	13.33370
sky130_osu_sc_18T_ms__dffsr_l	min_pulse_width	CK ()	0.13891	0.52490	13.33370
	min_pulse_width	CK ()	0.17436	0.52490	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_ms__dffsr_1	min_pulse_width	CK ()	0.30040	0.52490	13.33370
	min_pulse_width	CK ()	0.15073	0.52490	13.33370
sky130_osu_sc_18T_ms__dffsr_l	min_pulse_width	CK ()	0.30040	0.52490	13.33370
	min_pulse_width	CK ()	0.15073	0.52490	13.33370

Power Information

Internal switching power(pJ) to Q rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ms__dffsr_1	CK	0.00000	0.00000	0.00000
	CK	0.01609	0.01343	0.00000
	RN	0.02946	0.02707	0.00003
	SN	-0.00169	-0.11619	-1.95146
	SN	0.03287	0.03009	-0.00065
sky130_osu_sc_18T_ms__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.01479	0.01210	0.00032
	RN	0.02815	0.02571	0.00694
	SN	-0.00169	-0.09160	-1.31299
	SN	0.03157	0.02878	0.00685

Internal switching power(pJ) to Q falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ms__dffsr_1	CK	0.00000	0.00000	0.00000
	CK	0.01696	0.01482	0.00000
	RN	-0.00169	-0.11619	-1.95145
	RN	0.03468	0.03268	0.01537
sky130_osu_sc_18T_ms__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.01566	0.01407	0.00890
	RN	-0.00169	-0.09160	-1.31299
	RN	0.03335	0.03192	0.02821

Internal switching power(pJ) to QN rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ms__dffsr_1	CK	0.00000	0.00000	0.00000
	CK	0.01694	0.01481	0.00000
	RN	-0.00169	-0.11550	-1.93215
	RN	0.03464	0.03265	0.01580
sky130_osu_sc_18T_ms__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.01564	0.01407	0.00859
	RN	-0.00169	-0.09167	-1.31441
	RN	0.03333	0.03189	0.02814

Internal switching power(pJ) to QN falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ms__dffsr_1	CK	0.00000	0.00000	0.00000
	CK	0.01603	0.01338	0.00000
	RN	0.02940	0.02703	-0.00011
	SN	-0.00169	-0.11550	-1.93224
	SN	0.03281	0.03002	0.00075
sky130_osu_sc_18T_ms__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.01473	0.01208	-0.00021
	RN	0.02809	0.02567	0.00697
	SN	-0.00169	-0.09167	-1.31445
	SN	0.03151	0.02875	0.00746

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ms__dffsr_1	CK	0.00000	0.00000	0.00000
	CK	-0.00430	-0.00439	-0.00439
	(!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)	0.02021	0.01938	0.02994
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.00793	0.00720	0.01791
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.00790	0.00718	0.01793
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.00797	0.00725	0.01796
sky130_osu_sc_18T_ms__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	-0.00430	-0.00439	-0.00439
	(!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)	0.02021	0.01938	0.02994
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.00793	0.00720	0.01791
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.00790	0.00718	0.01793
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.00797	0.00725	0.01796

Passive power(pJ) for D falling (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ms__dffsr_1	CK	0.00000	0.00000	0.00000
	CK	0.00439	0.00441	0.00439
	(!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)	0.03010	0.02962	0.04122
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.01302	0.01280	0.02465
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.01318	0.01287	0.02467
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.01296	0.01274	0.02460
sky130_osu_sc_18T_ms__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.00439	0.00441	0.00439
	(!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)	0.03009	0.02961	0.04119
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.01301	0.01278	0.02464
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.01317	0.01286	0.02466
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.01295	0.01273	0.02459

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ms__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)	0.00406	0.00386	0.02833
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.01656	0.01593	0.04027
sky130_osu_sc_18T_ms__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)	0.00406	0.00386	0.02834
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.01656	0.01593	0.04027

Passive power(pJ) for RN falling (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ms__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)	0.01254	0.01334	0.04127
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.02657	0.02665	0.05413
sky130_osu_sc_18T_ms__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)	0.01253	0.01333	0.04125
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.02656	0.02664	0.05412

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ms__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)	-0.00990	-0.00989	-0.00998
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	-0.00924	-0.01018	-0.01023
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	-0.00933	-0.00982	-0.00984
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.00685	0.00615	0.01824
sky130_osu_sc_18T_ms__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)	-0.00990	-0.00989	-0.00998
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	-0.00922	-0.01017	-0.01021
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	-0.00932	-0.00981	-0.00983
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.00685	0.00616	0.01825

Passive power(pJ) for SN falling (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ms__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)	0.00998	0.01006	0.01002
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.01019	0.01027	0.01026
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	0.00983	0.00990	0.00988
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.02069	0.02019	0.03151
sky130_osu_sc_18T_ms__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)	0.00998	0.01006	0.01002
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.01017	0.01025	0.01024
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	0.00982	0.00989	0.00987
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.02068	0.02016	0.03150

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ms__dffsr_1	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	-0.00096	-0.00137	0.02292
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.00848	0.00708	0.03195
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.00827	0.00687	0.03184
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	-0.00126	-0.00186	0.02233
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.00562	0.00443	0.05155
sky130_osu_sc_18T_ms__dffsr_l	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	-0.00096	-0.00137	0.02292
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.00847	0.00707	0.03194
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.00826	0.00687	0.03183
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	-0.00126	-0.00186	0.02233
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.00562	0.00442	0.05155

Passive power(pJ) for CK falling (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last

	(D * RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * RN * SN * !Q * QN)	0.04473	0.04421	0.07372
	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.01831	0.01917	0.04670
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.03122	0.03135	0.05829
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
sky130_osu_sc_18T_ms__dffsr_1	(D * !RN * !SN * !Q * QN)	0.03130	0.03124	0.05822
	(!D * RN * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * Q * !QN)	0.04301	0.04380	0.09225
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.02068	0.02137	0.04828
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.02434	0.02571	0.07743
	(D * RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * RN * SN * !Q * QN)	0.04473	0.04421	0.07372
	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.01831	0.01917	0.04670
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.03122	0.03135	0.05829
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
sky130_osu_sc_18T_ms__dffsr_l	(D * !RN * !SN * !Q * QN)	0.03130	0.03124	0.05822
	(!D * RN * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * Q * !QN)	0.04300	0.04379	0.09224
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.02068	0.02137	0.04828
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.02433	0.02569	0.07742

SKY130_OSU_SC_18T_MS__DFFSx

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_ms__dffs_1	57.87540
sky130_osu_sc_18T_ms__dffs_l	57.87540

Pin Capacitance Information

Cell Name	Pin Cap(pf)			Max Cap(pf)	
	D	SN	CK	Q	QN
sky130_osu_sc_18T_ms__dffs_1	0.00536	0.00914	0.01553	2.63212	2.62887
sky130_osu_sc_18T_ms__dffs_l	0.00536	0.00914	0.01553	1.86706	1.87872

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ms__dffs_1	0.00000	0.55727	0.84066
sky130_osu_sc_18T_ms__dffs_l	0.00000	0.49900	0.78239

Delay Information

Delay(ns) to Q rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	**Mid**	**Last**
sky130_osu_sc_18T_ms__dffs_1	**CK->Q (RR)**	0.22963	1.37737	17.17530
	QN->Q (FR)	0.03297	0.83763	12.40260
	SN->Q (FR)	0.17461	1.45478	18.16680
sky130_osu_sc_18T_ms__dffs_l	**CK->Q (RR)**	0.23044	1.49539	16.78860
	QN->Q (FR)	0.03533	0.88631	12.11880
	SN->Q (FR)	0.17496	1.56369	17.75930

Delay(ns) to Q falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	**Mid**	**Last**
sky130_osu_sc_18T_ms__dffs_1	**CK->Q (RF)**	0.33754	1.54274	18.01930
	QN->Q (RF)	0.03007	0.78884	11.66060
sky130_osu_sc_18T_ms__dffs_l	**CK->Q (RF)**	0.34023	1.67211	17.70560
	QN->Q (RF)	0.03094	0.79504	10.90030

Delay(ns) to QN rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	**Mid**	**Last**
sky130_osu_sc_18T_ms__dffs_1	**CK->QN (RR)**	0.29775	0.85919	7.19765
sky130_osu_sc_18T_ms__dffs_l	**CK->QN (RR)**	0.29655	0.91492	7.25166

Delay(ns) to QN falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ms__dffs_1	CK->QN (RF)	0.18912	0.69377	6.35790
	SN->QN (FF)	0.13384	0.77040	7.34729
sky130_osu_sc_18T_ms__dffs_l	CK->QN (RF)	0.18522	0.72064	6.09444
	SN->QN (FF)	0.12936	0.78906	7.05936

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_ms__dffs_1	**hold**	**CK (R)**	-0.05103	-0.07668	-0.17644
	setup	**CK (R)**	0.16373	0.21005	0.94200
sky130_osu_sc_18T_ms__dffs_l	**hold**	**CK (R)**	-0.05235	-0.07599	-0.17736
	setup	**CK (R)**	0.16297	0.21057	0.95126

Constraints(ns) for D falling :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	**mid**	**last**
sky130_osu_sc_18T_ms__dffs_1	**hold**	**CK (R)**	-0.12234	-0.37128	-2.88563
	setup	**CK (R)**	0.16583	0.38677	2.98233
sky130_osu_sc_18T_ms__dffs_l	**hold**	**CK (R)**	-0.11925	-0.37128	-2.88451
	setup	**CK (R)**	0.16578	0.38677	2.98230

Constraints(ns) for D rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	**mid**	**last**
sky130_osu_sc_18T_ms__dffs_1	**hold**	**CK (R)**	-0.05103	-0.07668	-0.17644
	setup	**CK (R)**	0.16373	0.21005	0.94200
sky130_osu_sc_18T_ms__dffs_l	**hold**	**CK (R)**	-0.05235	-0.07599	-0.17736
	setup	**CK (R)**	0.16297	0.21057	0.95126

Constraints(ns) for D falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_ms__dffs_1	hold	CK (R)	-0.12234	-0.37128	-2.88563
	setup	CK (R)	0.16583	0.38677	2.98233
sky130_osu_sc_18T_ms__dffs_l	hold	CK (R)	-0.11925	-0.37128	-2.88451
	setup	CK (R)	0.16578	0.38677	2.98230

Constraints(ns) for SN rising :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_ms__dffs_1	recovery	CK (R)	0.04847	0.08626	3.01252
	removal	CK (R)	-0.02019	-0.06218	-0.34647
sky130_osu_sc_18T_ms__dffs_l	recovery	CK (R)	0.04822	0.08612	2.91215
	removal	CK (R)	-0.02019	-0.06218	-0.34647

Constraints(ns) for SN rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_ms__dffs_1	recovery	CK (R)	0.04847	0.08626	3.01252
	removal	CK (R)	-0.02019	-0.06218	-0.34647
sky130_osu_sc_18T_ms__dffs_l	recovery	CK (R)	0.04822	0.08612	2.91215
	removal	CK (R)	-0.02019	-0.06218	-0.34647

Constraints(ns) for SN falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_ms__dffs_1	min_pulse_width	SN ()	0.11528	0.52490	13.33370
	min_pulse_width	SN ()	0.11922	0.52490	13.33370
sky130_osu_sc_18T_ms__dffs_l	min_pulse_width	SN ()	0.11528	0.52490	13.33370
	min_pulse_width	SN ()	0.11134	0.52490	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_ms__dffs_1	min_pulse_width	CK ()	0.09953	0.52490	13.33370
	min_pulse_width	CK ()	0.17042	0.52490	13.33370
sky130_osu_sc_18T_ms__dffs_l	min_pulse_width	CK ()	0.09559	0.52490	13.33370
	min_pulse_width	CK ()	0.16648	0.52490	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_ms__dffs_1	min_pulse_width	CK ()	0.22950	0.52490	13.33370
	min_pulse_width	CK ()	0.14285	0.52490	13.33370
sky130_osu_sc_18T_ms__dffs_l	min_pulse_width	CK ()	0.22950	0.52490	13.33370
	min_pulse_width	CK ()	0.14285	0.52490	13.33370

Power Information

Internal switching power(pJ) to Q rising :

Cell Name	Input	Power(pJ)		
		first	**mid**	**last**
sky130_osu_sc_18T_ms__dffs_1	CK	0.00000	0.00000	0.00000
	CK	0.01287	0.00902	0.00000
	SN	-0.00169	-0.11279	-1.85723
	SN	0.02794	0.02405	-0.01733
sky130_osu_sc_18T_ms__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.01144	0.00875	-0.00291
	SN	-0.00169	-0.09179	-1.31739
	SN	0.02652	0.02383	0.00722

Internal switching power(pJ) to Q falling :

Cell Name	Input	Power(pJ)		
		first	**mid**	**last**
sky130_osu_sc_18T_ms__dffs_1	CK	0.00000	0.00000	0.00000
	CK	0.01443	0.01202	0.00000
sky130_osu_sc_18T_ms__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.01301	0.01140	0.00680

Internal switching power(pJ) to QN rising :

Cell Name	Input	Power(pJ)		
		first	**mid**	**last**
sky130_osu_sc_18T_ms__dffs_1	CK	0.00000	0.00000	0.00000
	CK	0.01442	0.01201	0.00000
sky130_osu_sc_18T_ms__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.01300	0.01140	0.00641

Internal switching power(pJ) to QN falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ms__dffs_1	CK	0.00000	0.00000	0.00000
	CK	0.01281	0.00897	0.00000
	SN	-0.00169	-0.11270	-1.85476
	SN	0.02790	0.02400	-0.01733
sky130_osu_sc_18T_ms__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.01139	0.00879	-0.00314
	SN	-0.00169	-0.09213	-1.32555
	SN	0.02647	0.02378	0.00739

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ms__dffs_1	CK	0.00000	0.00000	0.00000
	CK	-0.00435	-0.00444	-0.00444
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.01517	0.01427	0.02530
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.00689	0.00615	0.01703
sky130_osu_sc_18T_ms__dffs_l	CK	0.00000	0.00000	0.00000
	CK	-0.00435	-0.00444	-0.00443
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.01517	0.01427	0.02530
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.00689	0.00615	0.01703

Passive power(pJ) for D falling (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ms__dffs_1	CK	0.00000	0.00000	0.00000
	CK	0.00444	0.00446	0.00444
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.02550	0.02499	0.03702
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.01250	0.01225	0.02435
sky130_osu_sc_18T_ms__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.00444	0.00446	0.00443
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.02550	0.02499	0.03702
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.01250	0.01225	0.02435

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ms__dffs_1	(CK * Q * !QN) + (!CK * D * Q * !QN)	0.00000	0.00000	0.00000
	(CK * Q * !QN) + (!CK * D * Q * !QN)	-0.00738	-0.00741	-0.00742
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.00530	0.00502	0.01832
sky130_osu_sc_18T_ms__dffs_l	(CK * Q * !QN) + (!CK * D * Q * !QN)	0.00000	0.00000	0.00000
	(CK * Q * !QN) + (!CK * D * Q * !QN)	-0.00738	-0.00740	-0.00742
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.00530	0.00502	0.01832

Passive power(pJ) for SN falling (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ms__dffs_1	(CK * Q * !QN) + (!CK * D * Q * !QN)	0.00000	0.00000	0.00000
	(CK * Q * !QN) + (!CK * D * Q * !QN)	0.00742	0.00751	0.00744
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.01445	0.01428	0.03005
sky130_osu_sc_18T_ms__dffs_l	(CK * Q * !QN) + (!CK * D * Q * !QN)	0.00000	0.00000	0.00000
	(CK * Q * !QN) + (!CK * D * Q * !QN)	0.00742	0.00751	0.00744
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.01445	0.01428	0.03005

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ms__dffs_1	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	-0.00098	-0.00135	0.02294
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	-0.00138	-0.00193	0.02224
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.00452	0.00338	0.05113
sky130_osu_sc_18T_ms__dffs_l	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	-0.00098	-0.00135	0.02294
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	-0.00138	-0.00193	0.02224
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.00452	0.00338	0.05113

Passive power(pJ) for CK falling (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ms__dffs_1	(D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * SN * !Q * QN)	0.03957	0.03902	0.06919
	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.01826	0.01913	0.04668
	(!D * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * SN * Q * !QN)	0.03834	0.03920	0.08787
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	0.02075	0.02143	0.04837
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.02372	0.02512	0.07734
sky130_osu_sc_18T_ms__dffs_l	(D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * SN * !Q * QN)	0.03957	0.03902	0.06919
	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.01826	0.01913	0.04668
	(!D * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * SN * Q * !QN)	0.03834	0.03921	0.08787
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	0.02074	0.02143	0.04836
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.02372	0.02511	0.07734

SKY130_OSU_SC_18T_MS__DFFx

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_ms__dff_1	48.35160
sky130_osu_sc_18T_ms__dff_l	48.35160

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)	
	D	CK	Q	QN
sky130_osu_sc_18T_ms__dff_1	0.00551	0.01532	2.74780	2.73815
sky130_osu_sc_18T_ms__dff_l	0.00551	0.01532	1.85720	1.83558

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ms__dff_1	0.00000	0.55885	0.71567
sky130_osu_sc_18T_ms__dff_l	0.00000	0.50058	0.65740

Delay Information

Delay(ns) to Q rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	**Mid**	**Last**
sky130_osu_sc_18T_ms__dff_1	**CK->Q (RR)**	0.20466	1.33500	17.08600
	QN->Q (FR)	0.03126	0.81785	12.25410
sky130_osu_sc_18T_ms__dff_l	**CK->Q (RR)**	0.21256	1.48324	16.77430
	QN->Q (FR)	0.03601	0.89836	12.29410

Delay(ns) to Q falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	**Mid**	**Last**
sky130_osu_sc_18T_ms__dff_1	**CK->Q (RF)**	0.28440	1.46238	17.93780
	QN->Q (RF)	0.02753	0.74492	11.11610
sky130_osu_sc_18T_ms__dff_l	**CK->Q (RF)**	0.29522	1.62802	17.73460
	QN->Q (RF)	0.03100	0.79392	10.86720

Delay(ns) to QN rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	**Mid**	**Last**
sky130_osu_sc_18T_ms__dff_1	**CK->QN (RR)**	0.24863	0.79576	7.17797
sky130_osu_sc_18T_ms__dff_l	**CK->QN (RR)**	0.25324	0.86464	7.15138

Delay(ns) to QN falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	**Mid**	**Last**
sky130_osu_sc_18T_ms__dff_1	**CK->QN (RF)**	0.16697	0.66240	6.25374
sky130_osu_sc_18T_ms__dff_l	**CK->QN (RF)**	0.16791	0.69966	5.94148

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_ms__dff_1	hold	CK (R)	-0.04845	-0.07573	-0.19245
	setup	CK (R)	0.13975	0.18693	0.96719
sky130_osu_sc_18T_ms__dff_l	hold	CK (R)	-0.04909	-0.07589	-0.19154
	setup	CK (R)	0.13972	0.18543	0.97080

Constraints(ns) for D falling :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_ms__dff_1	hold	CK (R)	-0.10919	-0.37093	-2.88485
	setup	CK (R)	0.13436	0.38191	2.98594
sky130_osu_sc_18T_ms__dff_l	hold	CK (R)	-0.11217	-0.37110	-2.88983
	setup	CK (R)	0.13425	0.38191	2.98833

Constraints(ns) for CK rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_ms__dff_1	min_pulse_width	CK ()	0.09165	0.52490	13.33370
	min_pulse_width	CK ()	0.15467	0.52490	13.33370
sky130_osu_sc_18T_ms__dff_l	min_pulse_width	CK ()	0.09165	0.52490	13.33370
	min_pulse_width	CK ()	0.15073	0.52490	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_ms__dff_1	min_pulse_width	CK ()	0.20193	0.52490	13.33370
	min_pulse_width	CK ()	0.10740	0.52490	13.33370
sky130_osu_sc_18T_ms__dff_l	min_pulse_width	CK ()	0.20193	0.52490	13.33370
	min_pulse_width	CK ()	0.10740	0.52490	13.33370

Power Information

Internal switching power(pJ) to Q rising :

Cell Name	Input	Power(pJ)		
		first	**mid**	**last**
sky130_osu_sc_18T_ms__dff_1	**CK**	0.00000	0.00000	0.00000
	CK	0.01354	0.01081	0.00000
sky130_osu_sc_18T_ms__dff_l	**CK**	0.00000	0.00000	0.00000
	CK	0.01223	0.00953	-0.00172

Internal switching power(pJ) to Q falling :

Cell Name	Input	Power(pJ)		
		first	**mid**	**last**
sky130_osu_sc_18T_ms__dff_1	**CK**	0.00000	0.00000	0.00000
	CK	0.01472	0.01263	0.00000
sky130_osu_sc_18T_ms__dff_l	**CK**	0.00000	0.00000	0.00000
	CK	0.01345	0.01171	0.00506

Internal switching power(pJ) to QN rising :

Cell Name	Input	Power(pJ)		
		first	**mid**	**last**
sky130_osu_sc_18T_ms__dff_1	**CK**	0.00000	0.00000	0.00000
	CK	0.01471	0.01263	0.00000
sky130_osu_sc_18T_ms__dff_l	**CK**	0.00000	0.00000	0.00000
	CK	0.01344	0.01173	0.00516

Internal switching power(pJ) to QN falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ms__dff_1	CK	0.00000	0.00000	0.00000
	CK	0.01349	0.01080	0.00000
sky130_osu_sc_18T_ms__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.01218	0.00952	-0.00131

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ms__dff_1	CK	0.00000	0.00000	0.00000
	CK	-0.00370	-0.00433	-0.00439
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.01421	0.01345	0.02478
sky130_osu_sc_18T_ms__dff_l	CK	0.00000	0.00000	0.00000
	CK	-0.00370	-0.00433	-0.00439
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.01421	0.01346	0.02479

Passive power(pJ) for D falling (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ms__dff_1	CK	0.00000	0.00000	0.00000
	CK	0.00436	0.00442	0.00440
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.02622	0.02577	0.03796
sky130_osu_sc_18T_ms__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.00436	0.00442	0.00440
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.02623	0.02578	0.03797

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ms__dff_1	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	-0.00099	-0.00134	0.02296
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	-0.00137	-0.00196	0.02228
sky130_osu_sc_18T_ms__dff_l	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	-0.00099	-0.00134	0.02296
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	-0.00137	-0.00196	0.02228

Passive power(pJ) for CK falling (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ms__dff_1	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.01820	0.01906	0.04663
	(D * !Q * QN)	0.00000	0.00000	0.00000
	(D * !Q * QN)	0.03868	0.03820	0.06865
	(!D * Q * !QN)	0.00000	0.00000	0.00000
	(!D * Q * !QN)	0.03889	0.03981	0.08881
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.02066	0.02136	0.04829
sky130_osu_sc_18T_ms__dff_l	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.01819	0.01906	0.04663
	(D * !Q * QN)	0.00000	0.00000	0.00000
	(D * !Q * QN)	0.03869	0.03821	0.06866
	(!D * Q * !QN)	0.00000	0.00000	0.00000
	(!D * Q * !QN)	0.03890	0.03981	0.08882
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.02066	0.02136	0.04829

SKY130_OSU_SC_18T_MS__INVx

Truth Table

INPUT	OUTPUT
A	Y
0	1
1	0

Footprint

Cell Name	Area
sky130_osu_sc_18T_ms__inv_1	6.59340
sky130_osu_sc_18T_ms__inv_10	32.96700
sky130_osu_sc_18T_ms__inv_2	9.52380
sky130_osu_sc_18T_ms__inv_3	12.45420
sky130_osu_sc_18T_ms__inv_4	15.38460
sky130_osu_sc_18T_ms__inv_6	21.24540
sky130_osu_sc_18T_ms__inv_8	27.10620
sky130_osu_sc_18T_ms__inv_l	6.59340

Pin Capacitance Information

Cell Name	Pin Cap(pf)	Max Cap(pf)
	A	Y
sky130_osu_sc_18T_ms__inv_1	0.00538	2.63888
sky130_osu_sc_18T_ms__inv_10	0.05075	22.88553
sky130_osu_sc_18T_ms__inv_2	0.01034	5.11196
sky130_osu_sc_18T_ms__inv_3	0.01542	7.29744
sky130_osu_sc_18T_ms__inv_4	0.02041	9.81824
sky130_osu_sc_18T_ms__inv_6	0.03061	14.40922
sky130_osu_sc_18T_ms__inv_8	0.04069	18.83664
sky130_osu_sc_18T_ms__inv_l	0.00416	1.77084

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ms__inv_1	0.00000	0.08947	0.17840
sky130_osu_sc_18T_ms__inv_10	0.00000	0.89465	1.78399
sky130_osu_sc_18T_ms__inv_2	0.00000	0.17893	0.35680
sky130_osu_sc_18T_ms__inv_3	0.00000	0.26840	0.53520
sky130_osu_sc_18T_ms__inv_4	0.00000	0.35786	0.71359
sky130_osu_sc_18T_ms__inv_6	0.00000	0.53679	1.07039
sky130_osu_sc_18T_ms__inv_8	0.00000	0.71572	1.42719
sky130_osu_sc_18T_ms__inv_l	0.00000	0.06033	0.12045

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ms__inv_1	A->Y (FR)	0.02950	0.75067	11.07320
sky130_osu_sc_18T_ms__inv_10	A->Y (FR)	0.04677	0.52355	10.94740
sky130_osu_sc_18T_ms__inv_2	A->Y (FR)	0.02480	0.65136	10.95820
sky130_osu_sc_18T_ms__inv_3	A->Y (FR)	0.02778	0.61386	10.96160
sky130_osu_sc_18T_ms__inv_4	A->Y (FR)	0.02902	0.58535	10.94870
sky130_osu_sc_18T_ms__inv_6	A->Y (FR)	0.03342	0.55130	10.95030
sky130_osu_sc_18T_ms__inv_8	A->Y (FR)	0.03969	0.53129	10.92840
sky130_osu_sc_18T_ms__inv_l	A->Y (FR)	0.03341	0.81553	11.00590

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ms__inv_1	A->Y (RF)	0.02468	0.65605	9.72837
sky130_osu_sc_18T_ms__inv_10	A->Y (RF)	0.04168	0.43365	9.35549
sky130_osu_sc_18T_ms__inv_2	A->Y (RF)	0.02107	0.56854	9.59404
sky130_osu_sc_18T_ms__inv_3	A->Y (RF)	0.02326	0.53251	9.59168
sky130_osu_sc_18T_ms__inv_4	A->Y (RF)	0.02369	0.50086	9.58623
sky130_osu_sc_18T_ms__inv_6	A->Y (RF)	0.03003	0.47088	9.55358
sky130_osu_sc_18T_ms__inv_8	A->Y (RF)	0.03579	0.44968	9.49119
sky130_osu_sc_18T_ms__inv_l	A->Y (RF)	0.02759	0.69471	9.44017

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ms__inv_1	A	0.00000	0.00000	0.00000
	A	0.00664	0.00703	0.01015
sky130_osu_sc_18T_ms__inv_10	A	0.00000	0.00000	0.00000
	A	0.05778	0.06658	0.09842
sky130_osu_sc_18T_ms__inv_2	A	0.00000	0.00000	0.00000
	A	0.01193	0.01322	0.01930
sky130_osu_sc_18T_ms__inv_3	A	0.00000	0.00000	0.00000
	A	0.01826	0.02080	0.02949
sky130_osu_sc_18T_ms__inv_4	A	0.00000	0.00000	0.00000
	A	0.02357	0.02627	0.03860
sky130_osu_sc_18T_ms__inv_6	A	0.00000	0.00000	0.00000
	A	0.03493	0.03960	0.05811
sky130_osu_sc_18T_ms__inv_8	A	0.00000	0.00000	0.00000
	A	0.04628	0.05463	0.07783
sky130_osu_sc_18T_ms__inv_l	A	0.00000	0.00000	0.00000
	A	0.00515	0.00532	0.00727

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ms__inv_1	A	0.00000	0.00000	0.00000
	A	-0.00152	-0.00131	-0.00046
sky130_osu_sc_18T_ms__inv_10	A	0.00000	0.00000	0.00000
	A	-0.02352	-0.02151	-0.00978
sky130_osu_sc_18T_ms__inv_2	A	0.00000	0.00000	0.00000
	A	-0.00473	-0.00400	-0.00225
sky130_osu_sc_18T_ms__inv_3	A	0.00000	0.00000	0.00000
	A	-0.00636	-0.00572	-0.00247
sky130_osu_sc_18T_ms__inv_4	A	0.00000	0.00000	0.00000
	A	-0.00963	-0.00846	-0.00424
sky130_osu_sc_18T_ms__inv_6	A	0.00000	0.00000	0.00000
	A	-0.01469	-0.01339	-0.00608
sky130_osu_sc_18T_ms__inv_8	A	0.00000	0.00000	0.00000
	A	-0.01959	-0.01776	-0.00790
sky130_osu_sc_18T_ms__inv_l	A	0.00000	0.00000	0.00000
	A	-0.00108	-0.00098	-0.00026

SKY130_OSU_SC_18T_MS__MUX2

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_ms__mux2_1	18.31500

Pin Capacitance Information

Cell Name	Pin Cap(pf)			Max Cap(pf)
	A0	A1	S0	Y
sky130_osu_sc_18T_ms__mux2_1	0.55866	0.55905	0.01093	0.56965

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ms__mux2_1	0.00000	0.17945	0.18024

Delay Information

Delay(ns) to Y rising (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	**Mid**	**Last**
sky130_osu_sc_18T_ms__mux2_1	**A0->Y (RR)**	**-**	0.01736	0.33214	3.52240
	A1->Y (RR)	**-**	0.01841	0.33292	3.52633
	S0->Y (RR)	**(!A0 * A1)**	0.05232	0.32363	1.71376
	S0->Y (FR)	**(A0 * !A1)**	0.04351	0.42352	3.62899

Delay(ns) to Y falling (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	**Mid**	**Last**
sky130_osu_sc_18T_ms__mux2_1	**A0->Y (FF)**	**-**	0.01508	0.32126	3.36470
	A1->Y (FF)	**-**	0.01488	0.31957	3.35573
	S0->Y (FF)	**(!A0 * A1)**	0.06617	0.38315	2.34695
	S0->Y (RF)	**(A0 * !A1)**	0.02939	0.36311	3.06115

Power Information

Internal switching power(pJ) to Y rising (conditional):

Cell Name	Input	When	Power(pJ)		
			first	**mid**	**last**
sky130_osu_sc_18T_ms__mux2_1	A0	-	0.00000	0.00000	0.00000
	A0	-	-0.00695	-0.00696	-0.00696
	A1	-	0.00000	0.00000	0.00000
	A1	-	-0.00483	-0.00485	-0.00485
	S0	(A0 * !A1)	0.00000	0.00000	0.00000
	S0	(A0 * !A1)	0.00776	0.00879	0.03771
	S0	(!A0 * A1)	0.00000	0.00000	0.00000
	S0	(!A0 * A1)	-0.00480	-0.00495	0.02141

Internal switching power(pJ) to Y falling (conditional):

Cell Name	Input	When	Power(pJ)		
			first	**mid**	**last**
sky130_osu_sc_18T_ms__mux2_1	A0	-	0.00000	0.00000	0.00000
	A0	-	0.00695	0.00696	0.00696
	A1	-	0.00000	0.00000	0.00000
	A1	-	0.00484	0.00485	0.00485
	S0	(A0 * !A1)	0.00000	0.00000	0.00000
	S0	(A0 * !A1)	0.00132	0.00125	0.02836
	S0	(!A0 * A1)	0.00000	0.00000	0.00000
	S0	(!A0 * A1)	0.01788	0.01869	0.04689

Passive power(pJ) for A0 rising (conditional):

Cell Name	When	Power(pJ)		
		first	**mid**	**last**
sky130_osu_sc_18T_ms__mux2_1	(A1 * S0 * Y) + (!A1 * S0 * !Y)	0.00000	0.00000	0.00000
	(A1 * S0 * Y) + (!A1 * S0 * !Y)	-0.00177	-0.00176	-0.00177

Passive power(pJ) for A0 falling (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ms__mux2_1	(A1 * S0 * Y) + (!A1 * S0 * !Y)	0.00000	0.00000	0.00000
	(A1 * S0 * Y) + (!A1 * S0 * !Y)	0.00177	0.00176	0.00177

Passive power(pJ) for A1 rising (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ms__mux2_1	(A0 * !S0 * Y) + (!A0 * !S0 * !Y)	0.00000	0.00000	0.00000
	(A0 * !S0 * Y) + (!A0 * !S0 * !Y)	-0.00209	-0.00209	-0.00209

Passive power(pJ) for A1 falling (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ms__mux2_1	(A0 * !S0 * Y) + (!A0 * !S0 * !Y)	0.00000	0.00000	0.00000
	(A0 * !S0 * Y) + (!A0 * !S0 * !Y)	0.00209	0.00209	0.00209

Passive power(pJ) for S0 rising (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ms__mux2_1	(A0 * A1 * Y)	0.00000	0.00000	0.00000
	(A0 * A1 * Y)	-0.00177	-0.00189	0.02491
	(!A0 * !A1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !Y)	-0.00172	-0.00189	0.02514

Passive power(pJ) for S0 falling (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ms__mux2_1	(A0 * A1 * Y)	0.00000	0.00000	0.00000
	(A0 * A1 * Y)	0.01347	0.01451	0.04257
	(!A0 * !A1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !Y)	0.01218	0.01338	0.04194

SKY130_OSU_SC_18T_MS__NAND2x

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_ms__nand2_1	9.52380
sky130_osu_sc_18T_ms__nand2_l	9.52380

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	B	Y
sky130_osu_sc_18T_ms__nand2_1	0.00540	0.00536	2.16503
sky130_osu_sc_18T_ms__nand2_l	0.00417	0.00414	1.50407

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ms__nand2_1	0.00000	0.08947	0.35680
sky130_osu_sc_18T_ms__nand2_l	0.00000	0.06035	0.24089

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	**Mid**	**Last**
sky130_osu_sc_18T_ms__nand2_1	**A->Y (FR)**	0.03005	0.70982	9.97699
	B->Y (FR)	0.03549	0.70780	9.87328
sky130_osu_sc_18T_ms__nand2_l	**A->Y (FR)**	0.03388	0.77769	10.09150
	B->Y (FR)	0.04044	0.78040	10.04950

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	**Mid**	**Last**
sky130_osu_sc_18T_ms__nand2_1	**A->Y (RF)**	0.03491	0.77191	10.99000
	B->Y (RF)	0.03998	0.75792	10.66980
sky130_osu_sc_18T_ms__nand2_l	**A->Y (RF)**	0.03963	0.84054	10.93590
	B->Y (RF)	0.04451	0.82922	10.60640

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	**mid**	**last**
	A	0.00000	0.00000	0.00000
	A	0.00706	0.00680	0.01077
sky130_osu_sc_18T_ms__nand2_1	B	0.00000	0.00000	0.00000
	B	0.00894	0.00853	0.01259
	A	0.00000	0.00000	0.00000
	A	0.00543	0.00560	0.00778
sky130_osu_sc_18T_ms__nand2_l	B	0.00000	0.00000	0.00000
	B	0.00681	0.00691	0.00909

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	**mid**	**last**
	A	0.00000	0.00000	0.00000
sky130_osu_sc_18T_ms__nand2_1	A	-0.00104	-0.00101	-0.00007
	B	0.00000	0.00000	0.00000
	B	-0.00097	-0.00108	-0.00040
	A	0.00000	0.00000	0.00000
sky130_osu_sc_18T_ms__nand2_l	A	-0.00079	-0.00079	-0.00004
	B	0.00000	0.00000	0.00000
	B	-0.00075	-0.00083	-0.00030

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ms__nand2_1	(!B * Y)	0.00000	0.00000	0.00000
	(!B * Y)	-0.00491	-0.00494	-0.00495
sky130_osu_sc_18T_ms__nand2_l	(!B * Y)	0.00000	0.00000	0.00000
	(!B * Y)	-0.00360	-0.00362	-0.00363

Passive power(pJ) for A falling (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ms__nand2_1	(!B * Y)	0.00000	0.00000	0.00000
	(!B * Y)	0.00494	0.00498	0.00496
sky130_osu_sc_18T_ms__nand2_l	(!B * Y)	0.00000	0.00000	0.00000
	(!B * Y)	0.00362	0.00365	0.00364

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ms__nand2_1	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00458	-0.00459	-0.00459
sky130_osu_sc_18T_ms__nand2_l	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00335	-0.00338	-0.00336

Passive power(pJ) for B falling (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ms__nand2_1	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00461	0.00464	0.00460
sky130_osu_sc_18T_ms__nand2_l	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00338	0.00340	0.00337

SKY130_OSU_SC_18T_MS__NOR2x

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_ms__nor2_1	9.52380
sky130_osu_sc_18T_ms__nor2_l	9.52380

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	**B**	**Y**
sky130_osu_sc_18T_ms__nor2_1	0.00540	0.00570	1.35777
sky130_osu_sc_18T_ms__nor2_l	0.00409	0.00443	0.92855

Leakage Information

Cell Name	Leakage(nW)		
	Min.	**Avg**	**Max.**
sky130_osu_sc_18T_ms__nor2_1	0.00000	0.06156	0.17840
sky130_osu_sc_18T_ms__nor2_l	0.00000	0.04414	0.12045

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	**Mid**	**Last**
sky130_osu_sc_18T_ms__nor2_1	**A->Y (FR)**	0.06081	0.88185	10.81500
	B->Y (FR)	0.04581	0.85493	10.73830
sky130_osu_sc_18T_ms__nor2_l	**A->Y (FR)**	0.06805	0.96531	10.73280
	B->Y (FR)	0.05481	0.95170	10.81100

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	**Mid**	**Last**
sky130_osu_sc_18T_ms__nor2_1	**A->Y (RF)**	0.03349	0.55119	6.87449
	B->Y (RF)	0.02625	0.54230	6.85405
sky130_osu_sc_18T_ms__nor2_l	**A->Y (RF)**	0.03596	0.58399	6.74753
	B->Y (RF)	0.02921	0.57591	6.73009

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ms__nor2_1	A	0.00000	0.00000	0.00000
	A	0.00963	0.00955	0.01103
	B	0.00000	0.00000	0.00000
	B	0.00725	0.00703	0.01201
sky130_osu_sc_18T_ms__nor2_l	A	0.00000	0.00000	0.00000
	A	0.00706	0.00700	0.00804
	B	0.00000	0.00000	0.00000
	B	0.00554	0.00564	0.00842

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ms__nor2_1	A	0.00000	0.00000	0.00000
	A	0.00105	0.00085	0.00211
	B	0.00000	0.00000	0.00000
	B	-0.00119	-0.00116	0.00020
sky130_osu_sc_18T_ms__nor2_l	A	0.00000	0.00000	0.00000
	A	0.00069	0.00055	0.00162
	B	0.00000	0.00000	0.00000
	B	-0.00080	-0.00075	0.00031

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ms__nor2_1	(B * !Y)	0.00000	0.00000	0.00000
	(B * !Y)	-0.00372	-0.00437	-0.00442
sky130_osu_sc_18T_ms__nor2_l	(B * !Y)	0.00000	0.00000	0.00000
	(B * !Y)	-0.00269	-0.00314	-0.00315

Passive power(pJ) for A falling (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ms__nor2_1	(B * !Y)	0.00000	0.00000	0.00000
	(B * !Y)	0.00438	0.00442	0.00442
sky130_osu_sc_18T_ms__nor2_l	(B * !Y)	0.00000	0.00000	0.00000
	(B * !Y)	0.00313	0.00315	0.00315

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ms__nor2_1	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	-0.00213	-0.00215	-0.00214
sky130_osu_sc_18T_ms__nor2_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	-0.00159	-0.00160	-0.00159

Passive power(pJ) for B falling (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ms__nor2_1	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00225	0.00226	0.00218
sky130_osu_sc_18T_ms__nor2_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00166	0.00168	0.00162

SKY130_OSU_SC_18T_MS__OAI21

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_ms__oai21_l	12.45420

Pin Capacitance Information

Cell Name	Pin Cap(pf)			Max Cap(pf)
	A0	A1	B0	Y
sky130_osu_sc_18T_ms__oai21_l	0.00544	0.00550	0.00462	1.34224

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ms__oai21_l	0.00000	0.07614	0.29885

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	**Mid**	**Last**
sky130_osu_sc_18T_ms__oai21_l	**A0->Y (FR)**	0.06157	0.87038	10.74640
	A1->Y (FR)	0.08059	0.90373	10.82430
	B0->Y (FR)	0.04155	0.74946	9.40707

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	**Mid**	**Last**
sky130_osu_sc_18T_ms__oai21_l	**A0->Y (RF)**	0.05008	0.68315	8.33254
	A1->Y (RF)	0.06023	0.67750	8.11930
	B0->Y (RF)	0.03868	0.70333	8.89293

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	**mid**	**last**
	A0	0.00000	0.00000	0.00000
	A0	0.00991	0.00936	0.01399
sky130_osu_sc_18T_ms__oai21_l	**A1**	0.00000	0.00000	0.00000
	A1	0.01230	0.01214	0.01351
	B0	0.00834	0.00850	0.01131

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	**mid**	**last**
	A0	0.00000	0.00000	0.00000
	A0	0.00027	0.00007	0.00090
sky130_osu_sc_18T_ms__oai21_l	**A1**	0.00000	0.00000	0.00000
	A1	0.00246	0.00208	0.00286
	B0	0.00084	0.00079	0.00192

Passive power(pJ) for A0 rising (conditional):

Cell Name	When	Power(pJ)		
		first	**mid**	**last**
	(A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * !Y)	-0.00214	-0.00215	-0.00215
sky130_osu_sc_18T_ms__oai21_l	**(A1 * !B0 * Y)**	0.00000	0.00000	0.00000
	(A1 * !B0 * Y)	-0.00435	-0.00443	-0.00442
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00450	-0.00451	-0.00450

Passive power(pJ) for A0 falling (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ms__oai21_l	(A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * !Y)	0.00225	0.00227	0.00218
	(A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * Y)	0.00439	0.00443	0.00442
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00450	0.00454	0.00451

Passive power(pJ) for A1 rising (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ms__oai21_l	(A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * B0 * !Y)	-0.00366	-0.00434	-0.00435
	(A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * Y)	-0.00430	-0.00441	-0.00439
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	-0.00444	-0.00447	-0.00446

Passive power(pJ) for A1 falling (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ms__oai21_l	(A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * B0 * !Y)	0.00431	0.00436	0.00435
	(A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * Y)	0.00437	0.00441	0.00439
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	0.00445	0.00451	0.00447

Passive power(pJ) for B0 rising (conditional):

Cell Name	When	Power(pJ)		
		first	**mid**	**last**
sky130_osu_sc_18T_ms__oai21_l	(!A0 * !A1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * Y)	-0.00366	-0.00369	-0.00373

Passive power(pJ) for B0 falling (conditional):

Cell Name	When	Power(pJ)		
		first	**mid**	**last**
sky130_osu_sc_18T_ms__oai21_l	(!A0 * !A1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * Y)	0.00373	0.00376	0.00375

SKY130_OSU_SC_18T_MS__OAI22

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_ms__oai22_l	15.38460

Pin Capacitance Information

Cell Name	Pin Cap(pf)				Max Cap(pf)
	A0	**A1**	**B0**	**B1**	**Y**
sky130_osu_sc_18T_ms__oai22_l	0.00528	0.00555	0.00570	0.00558	1.33733

Leakage Information

Cell Name	Leakage(nW)		
	Min.	**Avg**	**Max.**
sky130_osu_sc_18T_ms__oai22_l	0.00000	0.09232	0.35680

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ms__oai22_l	**A0->Y (FR)**	0.08751	0.90711	10.76110
	A1->Y (FR)	0.07247	0.88013	10.68840
	B0->Y (FR)	0.05169	0.85740	10.68420
	B1->Y (FR)	0.06715	0.88628	10.76110

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ms__oai22_l	**A0->Y (RF)**	0.08712	0.73734	8.49441
	A1->Y (RF)	0.06889	0.70841	8.36832
	B0->Y (RF)	0.05765	0.72729	8.90235
	B1->Y (RF)	0.07731	0.76945	9.16694

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ms__oai22_l	A0	0.01603	0.01588	0.01718
	A1	0.01362	0.01336	0.01755
	B0	0.01016	0.01002	0.01423
	B1	0.01267	0.01254	0.01389

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ms__oai22_l	A0	0.00408	0.00371	0.00443
	A1	-0.00045	-0.00063	0.00019
	B0	-0.00052	-0.00040	0.00071
	B1	0.00411	0.00379	0.00487

Passive power(pJ) for A0 rising (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ms__oai22_l	(A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * !Y)	-0.00371	-0.00436	-0.00442
	(A1 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * B1 * !Y)	-0.00371	-0.00436	-0.00442
	(A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * !B1 * Y)	-0.00432	-0.00440	-0.00440
	(!A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * !B1 * Y)	-0.00446	-0.00449	-0.00447

Passive power(pJ) for A0 falling (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ms__oai22_l	(A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * !Y)	0.00439	0.00442	0.00442
	(A1 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * B1 * !Y)	0.00439	0.00442	0.00442
	(A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * !B1 * Y)	0.00437	0.00440	0.00440
	(!A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * !B1 * Y)	0.00446	0.00451	0.00448

Passive power(pJ) for A1 rising (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ms__oai22_l	(A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * B0 * !Y)	-0.00212	-0.00214	-0.00213
	(A0 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * B1 * !Y)	-0.00212	-0.00214	-0.00213
	(A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * !B1 * Y)	-0.00430	-0.00440	-0.00437
	(!A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * !B1 * Y)	-0.00444	-0.00447	-0.00446

Passive power(pJ) for A1 falling (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ms__oai22_l	(A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * B0 * !Y)	0.00223	0.00225	0.00217
	(A0 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * B1 * !Y)	0.00223	0.00225	0.00217
	(A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * !B1 * Y)	0.00435	0.00442	0.00437
	(!A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * !B1 * Y)	0.00445	0.00449	0.00447

Passive power(pJ) for B0 rising (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ms__oai22_l	(A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * B1 * !Y)	-0.00211	-0.00213	-0.00212
	(A0 * !A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B1 * !Y)	-0.00211	-0.00213	-0.00212
	(!A0 * !A1 * B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B1 * Y)	-0.00478	-0.00486	-0.00483
	(!A0 * !A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B1 * Y)	-0.00480	-0.00481	-0.00490

Passive power(pJ) for B0 falling (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ms__oai22_l	(A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * B1 * !Y)	0.00223	0.00224	0.00215
	(A0 * !A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B1 * !Y)	0.00222	0.00224	0.00215
	(!A0 * !A1 * B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B1 * Y)	0.00482	0.00487	0.00483
	(!A0 * !A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B1 * Y)	0.00491	0.00495	0.00493

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ms__oai22_l	(A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * !Y)	-0.00368	-0.00431	-0.00436
	(A0 * !A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B0 * !Y)	-0.00368	-0.00431	-0.00436
	(!A0 * !A1 * B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B0 * Y)	-0.00484	-0.00492	-0.00491
	(!A0 * !A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B0 * Y)	-0.00487	-0.00490	-0.00497

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ms__oai22_l	(A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * !Y)	0.00433	0.00436	0.00436
	(A0 * !A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B0 * !Y)	0.00433	0.00437	0.00436
	(!A0 * !A1 * B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B0 * Y)	0.00490	0.00492	0.00491
	(!A0 * !A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B0 * Y)	0.00497	0.00501	0.00499

SKY130_OSU_SC_18T_MS__OR2x

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_ms__or2_1	12.45420
sky130_osu_sc_18T_ms__or2_2	15.38460
sky130_osu_sc_18T_ms__or2_4	21.24540
sky130_osu_sc_18T_ms__or2_8	32.96700
sky130_osu_sc_18T_ms__or2_l	12.45420

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	**B**	**Y**
sky130_osu_sc_18T_ms__or2_1	0.00573	0.00552	2.67424
sky130_osu_sc_18T_ms__or2_2	0.00573	0.00552	5.19178
sky130_osu_sc_18T_ms__or2_4	0.00573	0.00553	9.87348
sky130_osu_sc_18T_ms__or2_8	0.00573	0.00555	18.69060
sky130_osu_sc_18T_ms__or2_l	0.00450	0.00425	1.83084

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ms__or2_1	0.00000	0.10656	0.17946
sky130_osu_sc_18T_ms__or2_2	0.00000	0.15156	0.35786
sky130_osu_sc_18T_ms__or2_4	0.00000	0.24155	0.71466
sky130_osu_sc_18T_ms__or2_8	0.00000	0.42155	1.42825
sky130_osu_sc_18T_ms__or2_l	0.00000	0.07441	0.12087

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	**Mid**	**Last**
sky130_osu_sc_18T_ms__or2_1	**A->Y (RR)**	0.07256	0.62456	6.96280
	B->Y (RR)	0.06315	0.58693	6.91830
sky130_osu_sc_18T_ms__or2_2	**A->Y (RR)**	0.08067	0.56949	7.05718
	B->Y (RR)	0.07098	0.53918	7.00125
sky130_osu_sc_18T_ms__or2_4	**A->Y (RR)**	0.10522	0.57341	7.33832
	B->Y (RR)	0.09532	0.55074	7.27228
sky130_osu_sc_18T_ms__or2_8	**A->Y (RR)**	0.15080	0.63328	7.80605
	B->Y (RR)	0.14068	0.61529	7.74455
sky130_osu_sc_18T_ms__or2_l	**A->Y (RR)**	0.08020	0.69842	7.00295
	B->Y (RR)	0.07105	0.66394	6.94232

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	**Mid**	**Last**
sky130_osu_sc_18T_ms__or2_1	**A->Y (FF)**	0.11591	0.69717	7.15881
	B->Y (FF)	0.09582	0.65335	7.01498
sky130_osu_sc_18T_ms__or2_2	**A->Y (FF)**	0.13810	0.67195	7.27827
	B->Y (FF)	0.11818	0.63767	7.09197
sky130_osu_sc_18T_ms__or2_4	**A->Y (FF)**	0.19335	0.71960	7.58449
	B->Y (FF)	0.17353	0.69608	7.37147
sky130_osu_sc_18T_ms__or2_8	**A->Y (FF)**	0.30623	0.84174	7.93870
	B->Y (FF)	0.28647	0.82305	7.73078
sky130_osu_sc_18T_ms__or2_l	**A->Y (FF)**	0.12811	0.75287	7.00030
	B->Y (FF)	0.10828	0.71817	6.89887

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ms__or2_1	A	0.00000	0.00000	0.00000
	A	0.00738	0.00673	0.01792
	B	0.00000	0.00000	0.00000
	B	0.00530	0.00517	0.02258
sky130_osu_sc_18T_ms__or2_2	A	0.00000	0.00000	0.00000
	A	0.01270	0.01240	0.02389
	B	0.00000	0.00000	0.00000
	B	0.01055	0.01078	0.02718
sky130_osu_sc_18T_ms__or2_4	A	0.00000	0.00000	0.00000
	A	0.02416	0.02480	0.03644
	B	0.00000	0.00000	0.00000
	B	0.02200	0.02321	0.03941
sky130_osu_sc_18T_ms__or2_8	A	0.00000	0.00000	0.00000
	A	0.04765	0.04874	0.06366
	B	0.00000	0.00000	0.00000
	B	0.04543	0.04795	0.06569
sky130_osu_sc_18T_ms__or2_l	A	0.00000	0.00000	0.00000
	A	0.00547	0.00493	0.01336
	B	0.00000	0.00000	0.00000
	B	0.00409	0.00397	0.01632

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ms__or2_1	A	0.00000	0.00000	0.00000
	A	0.01553	0.01547	0.02624
	B	0.00000	0.00000	0.00000
	B	0.01284	0.01403	0.03847
sky130_osu_sc_18T_ms__or2_2	A	0.00000	0.00000	0.00000
	A	0.01898	0.01963	0.03008
	B	0.00000	0.00000	0.00000
	B	0.01628	0.01810	0.04139
sky130_osu_sc_18T_ms__or2_4	A	0.00000	0.00000	0.00000
	A	0.02789	0.02937	0.03952
	B	0.00000	0.00000	0.00000
	B	0.02539	0.02759	0.04966
sky130_osu_sc_18T_ms__or2_8	A	0.00000	0.00000	0.00000
	A	0.04815	0.04827	0.05880
	B	0.00000	0.00000	0.00000
	B	0.04542	0.04616	0.06770
sky130_osu_sc_18T_ms__or2_l	A	0.00000	0.00000	0.00000
	A	0.01183	0.01169	0.01930
	B	0.00000	0.00000	0.00000
	B	0.00996	0.01076	0.02664

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ms__or2_1	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00374	-0.00439	-0.00444
sky130_osu_sc_18T_ms__or2_2	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00374	-0.00439	-0.00444
sky130_osu_sc_18T_ms__or2_4	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00374	-0.00439	-0.00444
sky130_osu_sc_18T_ms__or2_8	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00374	-0.00439	-0.00444
sky130_osu_sc_18T_ms__or2_l	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00271	-0.00317	-0.00316

Passive power(pJ) for A falling (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ms__or2_1	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00440	0.00444	0.00444
sky130_osu_sc_18T_ms__or2_2	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00440	0.00444	0.00444
sky130_osu_sc_18T_ms__or2_4	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00440	0.00444	0.00444
sky130_osu_sc_18T_ms__or2_8	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00440	0.00444	0.00444
sky130_osu_sc_18T_ms__or2_l	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00313	0.00317	0.00316

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ms__or2_1	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00214	-0.00216	-0.00215
sky130_osu_sc_18T_ms__or2_2	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00214	-0.00216	-0.00215
sky130_osu_sc_18T_ms__or2_4	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00214	-0.00216	-0.00215
sky130_osu_sc_18T_ms__or2_8	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00214	-0.00216	-0.00215
sky130_osu_sc_18T_ms__or2_l	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00161	-0.00162	-0.00162

Passive power(pJ) for B falling (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ms__or2_1	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00228	0.00228	0.00219
sky130_osu_sc_18T_ms__or2_2	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00228	0.00228	0.00219
sky130_osu_sc_18T_ms__or2_4	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00228	0.00228	0.00219
sky130_osu_sc_18T_ms__or2_8	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00228	0.00228	0.00219
sky130_osu_sc_18T_ms__or2_l	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00171	0.00171	0.00164

SKY130_OSU_SC_18T_MS__TBUFIx

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_ms__tbufi_1	12.45420
sky130_osu_sc_18T_ms__tbufi_l	12.45420

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	OE	Y
sky130_osu_sc_18T_ms__tbufi_1	0.00570	0.00722	1.35694
sky130_osu_sc_18T_ms__tbufi_l	0.00444	0.00564	0.92627

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ms__tbufi_1	0.00000	0.08982	0.35680
sky130_osu_sc_18T_ms__tbufi_l	0.00000	0.06049	0.24090

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	**Mid**	**Last**
sky130_osu_sc_18T_ms__tbufi_1	**A->Y (FR)**	0.04382	0.85059	10.72720
	OE->Y (FR)	0.04884	0.36657	4.86252
	OE->Y (RR)	0.08300	0.71271	6.99262
sky130_osu_sc_18T_ms__tbufi_l	**A->Y (FR)**	0.05268	0.95067	10.80750
	OE->Y (FR)	0.05254	0.36636	4.86227
	OE->Y (RR)	0.09193	0.80925	6.99484

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	**Mid**	**Last**
sky130_osu_sc_18T_ms__tbufi_1	**A->Y (RF)**	0.03406	0.65552	8.32592
	OE->Y (FF)	0.04937	0.36656	4.86240
	OE->Y (RF)	0.03306	0.63645	7.95894
sky130_osu_sc_18T_ms__tbufi_l	**A->Y (RF)**	0.03914	0.70342	8.20287
	OE->Y (FF)	0.05324	0.36636	4.86226
	OE->Y (RF)	0.03854	0.68587	7.82113

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ms__tbufi_1	A	0.00000	0.00000	0.00000
	A	0.00677	0.00668	0.01110
	OE	0.00000	0.00000	0.00000
	OE	0.00682	0.00678	0.02965
sky130_osu_sc_18T_ms__tbufi_l	A	0.00000	0.00000	0.00000
	A	0.00520	0.00532	0.00782
	OE	0.00000	0.00000	0.00000
	OE	0.00490	0.00484	0.02061

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ms__tbufi_1	A	0.00000	0.00000	0.00000
	A	-0.00121	-0.00101	0.00008
	OE	0.00000	0.00000	0.00000
	OE	0.00455	0.00449	0.03166
sky130_osu_sc_18T_ms__tbufi_l	A	0.00000	0.00000	0.00000
	A	-0.00080	-0.00071	0.00020
	OE	0.00000	0.00000	0.00000
	OE	0.00320	0.00311	0.02096

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ms__tbufi_1	(!OE * Y)	0.00000	0.00000	0.00000
	(!OE * Y)	-0.00348	-0.00354	-0.00349
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	-0.00306	-0.00310	-0.00307
sky130_osu_sc_18T_ms__tbufi_l	(!OE * Y)	0.00000	0.00000	0.00000
	(!OE * Y)	-0.00267	-0.00269	-0.00268
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	-0.00239	-0.00242	-0.00240

Passive power(pJ) for A falling (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ms__tbufi_1	(!OE * Y)	0.00000	0.00000	0.00000
	(!OE * Y)	0.00348	0.00354	0.00349
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	0.00315	0.00317	0.00312
sky130_osu_sc_18T_ms__tbufi_l	(!OE * Y)	0.00000	0.00000	0.00000
	(!OE * Y)	0.00267	0.00269	0.00268
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	0.00245	0.00247	0.00243

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ms__tbufi_1	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00268	0.00275	0.03029
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00237	0.00265	0.02990
sky130_osu_sc_18T_ms__tbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00185	0.00186	0.01997
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00163	0.00180	0.01971

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ms__tbufi_1	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00790	0.00854	0.03720
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00787	0.00868	0.03731
sky130_osu_sc_18T_ms__tbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00623	0.00648	0.02521
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00623	0.00660	0.02531

SKY130_OSU_SC_18T_MS__TNBUFIx

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_ms__tnbufi_1	12.45420
sky130_osu_sc_18T_ms__tnbufi_l	12.45420

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	OE	Y
sky130_osu_sc_18T_ms__tnbufi_1	0.00569	0.00893	1.35599
sky130_osu_sc_18T_ms__tnbufi_l	0.00443	0.00672	0.92587

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ms__tnbufi_1	0.00000	0.14911	0.17893
sky130_osu_sc_18T_ms__tnbufi_l	0.00000	0.10057	0.12067

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	**Mid**	**Last**
sky130_osu_sc_18T_ms__tnbufi_1	**A->Y (FR)**	0.04415	0.85041	10.72250
	OE->Y (RR)	0.03074	0.36769	4.86358
	OE->Y (FR)	0.05748	0.87743	10.79680
sky130_osu_sc_18T_ms__tnbufi_l	**A->Y (FR)**	0.05314	0.95051	10.80450
	OE->Y (RR)	0.03250	0.36797	4.86386
	OE->Y (FR)	0.06469	0.96289	10.72850

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	**Mid**	**Last**
sky130_osu_sc_18T_ms__tnbufi_1	**A->Y (RF)**	0.03359	0.65497	8.32283
	OE->Y (RF)	0.03058	0.36768	4.86359
	OE->Y (FF)	0.05804	0.55028	5.40995
sky130_osu_sc_18T_ms__tnbufi_l	**A->Y (RF)**	0.03857	0.70313	8.20076
	OE->Y (RF)	0.03228	0.36795	4.86385
	OE->Y (FF)	0.06619	0.61423	5.32430

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	**mid**	**last**
sky130_osu_sc_18T_ms__tnbufi_1	**A**	0.00000	0.00000	0.00000
	A	0.00694	0.00684	0.01126
	OE	0.00000	0.00000	0.00000
	OE	0.01702	0.01843	0.04809
sky130_osu_sc_18T_ms__tnbufi_l	**A**	0.00000	0.00000	0.00000
	A	0.00537	0.00548	0.00798
	OE	0.00000	0.00000	0.00000
	OE	0.01273	0.01355	0.03298

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	**mid**	**last**
sky130_osu_sc_18T_ms__tnbufi_1	**A**	0.00000	0.00000	0.00000
	A	-0.00143	-0.00122	-0.00012
	OE	0.00000	0.00000	0.00000
	OE	0.01503	0.01645	0.04324
sky130_osu_sc_18T_ms__tnbufi_l	**A**	0.00000	0.00000	0.00000
	A	-0.00102	-0.00091	-0.00001
	OE	0.00000	0.00000	0.00000
	OE	0.01123	0.01205	0.02910

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ms__tnbufi_1	(OE * Y)	0.00000	0.00000	0.00000
	(OE * Y)	-0.00300	-0.00305	-0.00301
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	-0.00262	-0.00265	-0.00263
sky130_osu_sc_18T_ms__tnbufi_l	(OE * Y)	0.00000	0.00000	0.00000
	(OE * Y)	-0.00222	-0.00223	-0.00222
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	-0.00196	-0.00199	-0.00197

Passive power(pJ) for A falling (conditional):

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ms__tnbufi_1	(OE * Y)	0.00000	0.00000	0.00000
	(OE * Y)	0.00300	0.00305	0.00301
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	0.00269	0.00271	0.00267
sky130_osu_sc_18T_ms__tnbufi_l	(OE * Y)	0.00000	0.00000	0.00000
	(OE * Y)	0.00222	0.00223	0.00222
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	0.00202	0.00203	0.00199

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ms__tnbufi_1	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	-0.00522	-0.00566	0.02286
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00525	-0.00537	0.02289
sky130_osu_sc_18T_ms__tnbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	-0.00372	-0.00405	0.01466
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00373	-0.00385	0.01470

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ms__tnbufi_1	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.01287	0.01450	0.04390
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.01265	0.01425	0.04372
sky130_osu_sc_18T_ms__tnbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00967	0.01059	0.02990
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00952	0.01045	0.02977

SKY130_OSU_SC_18T_MS__XNOR2

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_ms__xnor2_l	21.24540

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	B	Y
sky130_osu_sc_18T_ms__xnor2_l	0.01126	0.01029	1.42657

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ms__xnor2_l	0.00000	0.30099	0.53573

Delay Information

Delay(ns) to Y rising (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_18T_ms__xnor2_l	A->Y (RR)	B	0.10522	0.76694	7.38588
	A->Y (FR)	!B	0.05762	0.88232	11.02080
	B->Y (RR)	A	0.08378	0.74278	7.38411
	B->Y (FR)	!A	0.07980	0.91096	11.11370

Delay(ns) to Y falling (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_18T_ms__xnor2_l	A->Y (FF)	B	0.10189	0.66093	6.04939
	A->Y (RF)	!B	0.05020	0.67713	8.41411
	B->Y (FF)	A	0.08869	0.64940	6.05126
	B->Y (RF)	!A	0.06266	0.69217	8.41872

Power Information

Internal switching power(pJ) to Y rising (conditional):

Cell Name	Input	When	Power(pJ)		
			first	**mid**	**last**
sky130_osu_sc_18T_ms__xnor2_l	A	B	0.00000	0.00000	0.00000
	A	B	0.00672	0.00643	0.02858
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.01669	0.01751	0.04987
	B	A	0.00000	0.00000	0.00000
	B	A	0.00216	0.00225	0.02909
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01849	0.01932	0.04846

Internal switching power(pJ) to Y falling (conditional):

Cell Name	Input	When	Power(pJ)		
			first	**mid**	**last**
sky130_osu_sc_18T_ms__xnor2_l	A	B	0.00000	0.00000	0.00000
	A	B	0.02087	0.02095	0.04864
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00446	0.00412	0.03101
	B	A	0.00000	0.00000	0.00000
	B	A	0.01879	0.02001	0.04868
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00599	0.00549	0.03230

SKY130_OSU_SC_18T_MS__XOR2

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_ms__xor2_l	21.24540

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	B	Y
sky130_osu_sc_18T_ms__xor2_l	0.01126	0.01034	1.40711

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ms__xor2_l	0.00000	0.30099	0.48623

Delay Information

Delay(ns) to Y rising (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_18T_ms__xor2_l	A->Y (RR)	!B	0.10042	0.74952	7.32606
	A->Y (FR)	B	0.07165	0.90234	11.09790
	B->Y (RR)	!A	0.08652	0.74231	7.34139
	B->Y (FR)	A	0.07797	0.90879	11.08130

Delay(ns) to Y falling (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_18T_ms__xor2_l	A->Y (FF)	!B	0.08845	0.63437	5.74166
	A->Y (RF)	B	0.04850	0.68932	8.50009
	B->Y (FF)	!A	0.08256	0.62828	5.79588
	B->Y (RF)	A	0.05832	0.67180	8.14653

Power Information

Internal switching power(pJ) to Y rising (conditional):

Cell Name	Input	When	Power(pJ)		
			first	mid	last
sky130_osu_sc_18T_ms__xor2_l	A	B	0.00000	0.00000	0.00000
	A	B	0.01955	0.02059	0.05059
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00343	0.00233	0.02862
	B	A	0.00000	0.00000	0.00000
	B	A	0.02017	0.02125	0.05086
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00190	0.00184	0.02893

Internal switching power(pJ) to Y falling (conditional):

Cell Name	Input	When	Power(pJ)		
			first	mid	last
sky130_osu_sc_18T_ms__xor2_l	A	B	0.00000	0.00000	0.00000
	A	B	0.00399	0.00336	0.03133
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.02113	0.02226	0.04841
	B	A	0.00000	0.00000	0.00000
	B	A	0.00402	0.00346	0.03067
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01908	0.02048	0.04931

SKY130_OSU_SC_18T_MS_x

Truth Table

INPUT
A
x

Footprint

Cell Name	Area
sky130_osu_sc_18T_ms__ant	6.59340
sky130_osu_sc_18T_ms__tiehi	6.59340
sky130_osu_sc_18T_ms__tielo	6.59340

Pin Capacitance Information

Cell Name	Pin Cap(pf)
	A
sky130_osu_sc_18T_ms__ant	0.76314
sky130_osu_sc_18T_ms__tiehi	0.00000
sky130_osu_sc_18T_ms__tielo	0.00000

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ms__ant	0.00000	316518.00000	633036.00000
sky130_osu_sc_18T_ms__tiehi	0.00000	0.00000	0.00000
sky130_osu_sc_18T_ms__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_ms__ant	0.00000	0.00000	0.00000
	-0.00202	0.08466	1.09838

Passive power(pJ) for A falling :

Cell Name	Power(pJ)		
	first	**mid**	**last**
sky130_osu_sc_18T_ms__ant	0.00000	0.00000	0.00000
	5.50725	5.20643	1.34050