sky130_osu_sc_18T_hs_tt_1P80_100C.ccs Library

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

SKY130_OSU_SC_18T_HS__ADDFx

sky130_osu_sc_18T_hs_tt_1P80_100C.ccs
Cell Library: Process , Voltage 1.80, Temp 100.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_hs__addf_1	46.88640
sky130_osu_sc_18T_hs__addf_l	46.88640

Pin Capacitance Information

Cell Name	Pin Cap(pf)			Max Cap(pf)		
	A	**B**	**CI**	**CO**	**CON**	**S**
sky130_osu_sc_18T_hs__addf_1	0.02176	0.02159	0.01653	3.18837	1.49573	3.08952
sky130_osu_sc_18T_hs__addf_l	0.02174	0.02157	0.01651	2.20219	1.49963	2.20507

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__addf_1	0.00000	47.65530	60.47530
sky130_osu_sc_18T_hs__addf_l	0.00000	40.23750	53.05740

Delay Information

Delay(ns) to CO rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__addf_1	A->CO (RR)	0.13175	1.57878	25.66380
	B->CO (RR)	0.12911	1.53284	24.61830
	CI->CO (RR)	0.12589	1.63077	26.45280
	CON->CO (FR)	0.02386	0.65225	10.29630
sky130_osu_sc_18T_hs__addf_l	A->CO (RR)	0.13292	1.47423	20.82660
	B->CO (RR)	0.13040	1.44240	20.26670
	CI->CO (RR)	0.12704	1.52748	21.64280
	CON->CO (FR)	0.02665	0.71083	10.30160

Delay(ns) to CO falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__addf_1	A->CO (FF)	0.15783	1.82328	29.44740
	B->CO (FF)	0.13904	1.76109	28.57780
	CI->CO (FF)	0.13565	1.82806	29.81820
	CON->CO (RF)	0.02290	0.60356	9.63871
sky130_osu_sc_18T_hs__addf_l	A->CO (FF)	0.15539	1.65621	23.24420
	B->CO (FF)	0.13684	1.60575	22.74700
	CI->CO (FF)	0.13322	1.66274	23.65520
	CON->CO (RF)	0.02437	0.62873	9.13061

Delay(ns) to CON rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__addf_1	A->CON (FR)	0.12043	0.79625	9.32810
	B->CON (FR)	0.10223	0.77406	9.33145
	CI->CON (FR)	0.09827	0.80546	9.78815
sky130_osu_sc_18T_hs__addf_l	A->CON (FR)	0.11402	0.79094	9.33866
	B->CON (FR)	0.09630	0.76907	9.34097
	CI->CON (FR)	0.09183	0.79997	9.79838

Delay(ns) to CON falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__addf_1	A->CON (RF)	0.09076	0.60347	7.05014
	B->CON (RF)	0.08931	0.62268	7.33654
	CI->CON (RF)	0.08487	0.65873	7.92181
sky130_osu_sc_18T_hs__addf_l	A->CON (RF)	0.08703	0.60101	7.05953
	B->CON (RF)	0.08589	0.61976	7.34526
	CI->CON (RF)	0.08114	0.65580	7.93111

Delay(ns) to S rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__addf_1	A->S (-R)	0.23386	1.64440	23.58940
	B->S (-R)	0.24926	1.63765	22.67950
	CI->S (-R)	0.20968	1.64653	23.96930
	CON->S (RR)	0.07338	0.54533	7.07694
sky130_osu_sc_18T_hs__addf_l	A->S (-R)	0.22420	1.52849	19.57640
	B->S (-R)	0.24014	1.53158	18.98670
	CI->S (-R)	0.20000	1.53189	19.98490
	CON->S (RR)	0.07334	0.58693	7.02474

Delay(ns) to S falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__addf_1	A->S (-F)	0.21045	1.46329	20.43420
	B->S (-F)	0.20186	1.39372	19.60940
	CI->S (-F)	0.20404	1.51263	21.23390
	CON->S (FF)	0.08341	0.61765	7.60547
sky130_osu_sc_18T_hs__addf_l	A->S (-F)	0.20054	1.34406	16.68930
	B->S (-F)	0.19489	1.29530	16.26530
	CI->S (-F)	0.19408	1.39442	17.51350
	CON->S (FF)	0.08131	0.63481	7.26209

Power Information

Internal switching power(pJ) to CO rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__addf_1	A	0.00531	0.00993	0.10299
	B	0.00594	0.01004	0.09344
	CI	0.00821	0.01298	0.10602
sky130_osu_sc_18T_hs__addf_l	A	0.00383	0.00717	0.06739
	B	0.00451	0.00739	0.06171
	CI	0.00672	0.01023	0.07034

Internal switching power(pJ) to CO falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__addf_1	A	0.01970	0.02538	0.14768
	B	0.02063	0.02526	0.13495
	CI	0.01660	0.02278	0.14712
sky130_osu_sc_18T_hs__addf_l	A	0.01815	0.02233	0.10309
	B	0.01909	0.02250	0.09555
	CI	0.01505	0.01979	0.10305

Internal switching power(pJ) to CON rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__addf_1	A	0.01934	0.02286	0.08672
	B	0.01964	0.02294	0.08331
	CI	0.01626	0.02039	0.08754
sky130_osu_sc_18T_hs__addf_l	A	0.01796	0.02129	0.08111
	B	0.01830	0.02140	0.07802
	CI	0.01488	0.01877	0.08185

Internal switching power(pJ) to CON falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__addf_1	A	0.00497	0.00800	0.05870
	B	0.00551	0.00820	0.05477
	CI	0.00787	0.01105	0.06278
sky130_osu_sc_18T_hs__addf_l	A	0.00360	0.00636	0.05201
	B	0.00422	0.00654	0.04885
	CI	0.00650	0.00941	0.05587

Internal switching power(pJ) to S rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__addf_1	A	0.01953	0.02509	0.14339
	B	-0.00571	-0.00194	0.09127
	CI	0.01642	0.02249	0.14283
sky130_osu_sc_18T_hs__addf_l	A	-0.00168	-0.00168	0.11073
	B	-0.00788	-0.00384	0.09796
	CI	0.00630	0.00939	0.11482

Internal switching power(pJ) to S falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__addf_1	A	0.04317	0.04661	0.14668
	B	0.03824	0.04342	0.16176
	CI	0.03246	0.03619	0.13018
sky130_osu_sc_18T_hs__addf_l	A	0.04122	0.04476	0.14883
	B	0.03610	0.04155	0.16269
	CI	0.03058	0.03437	0.13229

SKY130_OSU_SC_18T_HS__ADDHx

sky130_osu_sc_18T_hs_tt_1P80_100C.ccs
Cell Library: Process , Voltage 1.80, Temp 100.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_hs__addh_1	27.83880
sky130_osu_sc_18T_hs__addh_l	27.83880

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)		
	A	B	CO	CON	S
sky130_osu_sc_18T_hs__addh_1	0.01056	0.01161	3.13838	1.59761	3.19807
sky130_osu_sc_18T_hs__addh_l	0.01056	0.01162	1.88357	1.59982	1.91008

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__addh_1	0.00000	52.77940	60.20910
sky130_osu_sc_18T_hs__addh_l	0.00000	40.59210	50.49390

Delay Information

Delay(ns) to CO rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__addh_1	A->CO (RR)	0.08710	0.56498	7.05238
	B->CO (RR)	0.09047	0.55196	7.09901
sky130_osu_sc_18T_hs__addh_l	A->CO (RR)	0.08725	0.62860	7.00718
	B->CO (RR)	0.09064	0.61645	6.98442

Delay(ns) to CO falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__addh_1	A->CO (FF)	0.07213	0.57864	7.43808
	B->CO (FF)	0.07764	0.59487	7.56098
sky130_osu_sc_18T_hs__addh_l	A->CO (FF)	0.07186	0.61114	6.89321
	B->CO (FF)	0.07717	0.62757	7.01929

Delay(ns) to CON rising (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_18T_hs__addh_1	A->CON (RR)	B	0.11979	0.46337	3.77592
	A->CON (FR)	!B	0.06480	0.75228	9.64199
	B->CON (RR)	A	0.12245	0.44979	3.83120
	B->CON (FR)	!A	0.08289	0.74976	9.35279
sky130_osu_sc_18T_hs__addh_l	A->CON (RR)	B	0.10718	0.44298	3.80640
	A->CON (FR)	!B	0.05736	0.74464	9.64237
	B->CON (RR)	A	0.10993	0.43037	3.79788
	B->CON (FR)	!A	0.07544	0.74189	9.35317

Delay(ns) to CON falling (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_18T_hs__addh_1	A->CON (FF)	B	0.11631	0.61451	5.96279
	A->CON (RF)	!B	0.05304	0.62509	8.00822
	B->CON (FF)	A	0.11285	0.64934	6.45779
	B->CON (RF)	!A	0.06425	0.61011	7.62803
sky130_osu_sc_18T_hs__addh_l	A->CON (FF)	B	0.10525	0.58727	5.81779
	A->CON (RF)	!B	0.04863	0.62045	8.01022
	B->CON (FF)	A	0.10200	0.62193	6.31264
	B->CON (RF)	!A	0.05986	0.60571	7.62916

Delay(ns) to S rising (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_18T_hs__addh_1	A->S (RR)	!B	0.09101	1.55917	25.92360
	A->S (FR)	B	0.15533	1.53663	23.66380
	B->S (RR)	!A	0.10306	1.50937	24.76080
	B->S (FR)	A	0.15166	1.60701	24.95130
	CON->S (FR)	-	0.02686	0.67480	10.64150
sky130_osu_sc_18T_hs__addh_l	A->S (RR)	!B	0.09021	1.41516	19.61460
	A->S (FR)	B	0.14810	1.37467	17.28080
	B->S (RR)	!A	0.10250	1.37788	18.85250
	B->S (FR)	A	0.14442	1.43232	18.16430
	CON->S (FR)	-	0.02991	0.75016	10.50200

Delay(ns) to S falling (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_18T_hs__addh_1	A->S (FF)	!B	0.09790	1.67887	27.91530
	A->S (RF)	B	0.15033	1.17519	17.29230
	B->S (FF)	!A	0.11600	1.68285	27.71110
	B->S (RF)	A	0.15301	1.16107	17.33840
	CON->S (RF)	-	0.02173	0.58805	9.38792
sky130_osu_sc_18T_hs__addh_l	A->S (FF)	!B	0.09386	1.48360	20.57050
	A->S (RF)	B	0.14026	1.05681	12.73400
	B->S (FF)	!A	0.11197	1.48393	20.30580
	B->S (RF)	A	0.14300	1.04378	12.70670
	CON->S (RF)	-	0.02404	0.63246	8.87587

Power Information

Internal switching power(pJ) to CO rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__addh_1	A	0.00000	0.00000	0.00000
	A	0.00896	0.01105	0.05654
	B	0.00000	0.00000	0.00000
	B	0.00790	0.00994	0.06612
sky130_osu_sc_18T_hs__addh_l	A	0.00000	0.00000	0.00000
	A	0.00723	0.00927	0.05725
	B	0.00000	0.00000	0.00000
	B	0.00618	0.00812	0.06313

Internal switching power(pJ) to CO falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__addh_1	A	0.00000	0.00000	0.00000
	A	0.01362	0.01684	0.08676
	B	0.00000	0.00000	0.00000
	B	0.01411	0.01850	0.09451
sky130_osu_sc_18T_hs__addh_l	A	0.00000	0.00000	0.00000
	A	0.01188	0.01459	0.07238
	B	0.00000	0.00000	0.00000
	B	0.01237	0.01595	0.07678

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

Cell Name	Input	When	Power(pJ)		
			first	mid	last
sky130_osu_sc_18T_hs__addh_1	A	B	0.00000	0.00000	0.00000
	A	B	0.00872	0.01077	0.05548
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.01216	0.01456	0.04686
	B	A	0.00000	0.00000	0.00000
	B	A	0.00768	0.00970	0.06509
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01384	0.01527	0.04308
sky130_osu_sc_18T_hs__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.00704	0.00909	0.05700
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.01070	0.01258	0.03792
	B	A	0.00000	0.00000	0.00000
	B	A	0.00599	0.00796	0.06290
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01238	0.01329	0.03400

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

Cell Name	Input	When	Power(pJ)		
			first	mid	last
sky130_osu_sc_18T_hs__addh_1	A	B	0.00000	0.00000	0.00000
	A	B	0.01355	0.01646	0.07848
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00254	0.00459	0.03189
	B	A	0.00000	0.00000	0.00000
	B	A	0.01405	0.01806	0.08421
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00366	0.00531	0.03232
sky130_osu_sc_18T_hs__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.01185	0.01454	0.07171
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00107	0.00242	0.02063
	B	A	0.00000	0.00000	0.00000
	B	A	0.01235	0.01591	0.07606
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00218	0.00318	0.02165

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

Cell Name	Input	When	Power(pJ)		
			first	mid	last
sky130_osu_sc_18T_hs__addh_1	A	B	0.00000	0.00000	0.00000
	A	B	0.01388	0.01712	0.08793
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00312	0.00552	0.04176
	B	A	0.00000	0.00000	0.00000
	B	A	0.01445	0.01888	0.09568
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00414	0.00612	0.03876
sky130_osu_sc_18T_hs__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.01204	0.01475	0.07289
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00140	0.00276	0.02090
	B	A	0.00000	0.00000	0.00000
	B	A	0.01258	0.01619	0.07744
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00245	0.00356	0.02101

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

Cell Name	Input	When	Power(pJ)		
			first	mid	last
sky130_osu_sc_18T_hs__addh_1	A	B	0.00000	0.00000	0.00000
	A	B	0.00908	0.01118	0.05768
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.01245	0.01504	0.05323
	B	A	0.00000	0.00000	0.00000
	B	A	0.00802	0.01008	0.06737
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01415	0.01600	0.05082
sky130_osu_sc_18T_hs__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.00724	0.00931	0.05761
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.01076	0.01256	0.03689
	B	A	0.00000	0.00000	0.00000
	B	A	0.00618	0.00814	0.06321
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01246	0.01348	0.03358

SKY130_OSU_SC_18T_HS__AND2x

sky130_osu_sc_18T_hs_tt_1P80_100C.ccs
Cell Library: Process , Voltage 1.80, Temp 100.00

Truth Table

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

Footprint

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

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	B	Y
sky130_osu_sc_18T_hs__and2_1	0.00572	0.00586	3.14325
sky130_osu_sc_18T_hs__and2_2	0.00572	0.00586	6.00027
sky130_osu_sc_18T_hs__and2_4	0.00573	0.00587	11.42775
sky130_osu_sc_18T_hs__and2_6	0.00576	0.00587	16.76421
sky130_osu_sc_18T_hs__and2_8	0.00574	0.00589	21.51768
sky130_osu_sc_18T_hs__and2_l	0.00440	0.00453	2.18634

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__and2_1	0.00000	25.08130	40.06760
sky130_osu_sc_18T_hs__and2_2	0.00000	40.06560	40.35520
sky130_osu_sc_18T_hs__and2_4	0.00000	70.04320	79.84600
sky130_osu_sc_18T_hs__and2_6	0.00000	100.02100	119.62200
sky130_osu_sc_18T_hs__and2_8	0.00000	129.99700	159.39700
sky130_osu_sc_18T_hs__and2_l	0.00000	15.81850	25.24460

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__and2_1	A->Y (RR)	0.06677	0.51038	7.03233
	B->Y (RR)	0.07094	0.49455	6.69533
sky130_osu_sc_18T_hs__and2_2	A->Y (RR)	0.07686	0.46524	6.97264
	B->Y (RR)	0.08110	0.44635	6.61823
sky130_osu_sc_18T_hs__and2_4	A->Y (RR)	0.10624	0.48317	7.12599
	B->Y (RR)	0.11052	0.45853	6.77059
sky130_osu_sc_18T_hs__and2_6	A->Y (RR)	0.13708	0.52092	7.26570
	B->Y (RR)	0.14128	0.49094	6.90970
sky130_osu_sc_18T_hs__and2_8	A->Y (RR)	0.16769	0.56205	7.38776
	B->Y (RR)	0.17195	0.52898	7.01485
sky130_osu_sc_18T_hs__and2_l	A->Y (RR)	0.07247	0.57156	6.96166
	B->Y (RR)	0.07687	0.55615	6.66463

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__and2_1	**A->Y (FF)**	0.05709	0.51529	6.91034
	B->Y (FF)	0.06024	0.52803	7.01215
sky130_osu_sc_18T_hs__and2_2	**A->Y (FF)**	0.06356	0.46823	6.77143
	B->Y (FF)	0.06733	0.48078	6.89569
sky130_osu_sc_18T_hs__and2_4	**A->Y (FF)**	0.08658	0.47964	6.85444
	B->Y (FF)	0.09035	0.49006	6.98066
sky130_osu_sc_18T_hs__and2_6	**A->Y (FF)**	0.11274	0.51341	6.95050
	B->Y (FF)	0.11639	0.52251	7.07443
sky130_osu_sc_18T_hs__and2_8	**A->Y (FF)**	0.13713	0.54551	6.89015
	B->Y (FF)	0.14092	0.55336	7.00623
sky130_osu_sc_18T_hs__and2_l	**A->Y (FF)**	0.06117	0.56138	6.64157
	B->Y (FF)	0.06505	0.57605	6.77107

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__and2_1	A	0.00000	0.00000	0.00000
	A	0.00703	0.01499	0.17786
	B	0.00000	0.00000	0.00000
	B	0.00707	0.01274	0.13910
sky130_osu_sc_18T_hs__and2_2	A	0.00000	0.00000	0.00000
	A	0.01377	0.02092	0.18377
	B	0.00000	0.00000	0.00000
	B	0.01385	0.01913	0.14292
sky130_osu_sc_18T_hs__and2_4	A	0.00000	0.00000	0.00000
	A	0.02980	0.03553	0.19476
	B	0.00000	0.00000	0.00000
	B	0.02988	0.03392	0.15116
sky130_osu_sc_18T_hs__and2_6	A	0.00000	0.00000	0.00000
	A	0.05055	0.05165	0.20741
	B	0.00000	0.00000	0.00000
	B	0.05072	0.05073	0.16381
sky130_osu_sc_18T_hs__and2_8	A	0.00000	0.00000	0.00000
	A	0.07393	0.06975	0.22084
	B	0.00000	0.00000	0.00000
	B	0.07403	0.06693	0.17250
sky130_osu_sc_18T_hs__and2_l	A	0.00000	0.00000	0.00000
	A	0.00504	0.00990	0.11411
	B	0.00000	0.00000	0.00000
	B	0.00512	0.00860	0.09263

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__and2_1	A	0.00000	0.00000	0.00000
	A	0.01603	0.02589	0.17116
	B	0.00000	0.00000	0.00000
	B	0.01799	0.02757	0.16832
sky130_osu_sc_18T_hs__and2_2	A	0.00000	0.00000	0.00000
	A	0.02142	0.03096	0.17606
	B	0.00000	0.00000	0.00000
	B	0.02336	0.03252	0.17329
sky130_osu_sc_18T_hs__and2_4	A	0.00000	0.00000	0.00000
	A	0.03740	0.04413	0.18737
	B	0.00000	0.00000	0.00000
	B	0.03919	0.04545	0.18413
sky130_osu_sc_18T_hs__and2_6	A	0.00000	0.00000	0.00000
	A	0.05457	0.05870	0.19949
	B	0.00000	0.00000	0.00000
	B	0.05629	0.05931	0.19566
sky130_osu_sc_18T_hs__and2_8	A	0.00000	0.00000	0.00000
	A	0.07695	0.07303	0.21211
	B	0.00000	0.00000	0.00000
	B	0.07859	0.07353	0.20673
sky130_osu_sc_18T_hs__and2_l	A	0.00000	0.00000	0.00000
	A	0.01230	0.01846	0.10865
	B	0.00000	0.00000	0.00000
	B	0.01377	0.01974	0.10890

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__and2_1	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00594	-0.00597	-0.00599
sky130_osu_sc_18T_hs__and2_2	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00577	-0.00580	-0.00582
sky130_osu_sc_18T_hs__and2_4	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00542	-0.00545	-0.00547
sky130_osu_sc_18T_hs__and2_6	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00510	-0.00514	-0.00515
sky130_osu_sc_18T_hs__and2_8	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00473	-0.00476	-0.00478
sky130_osu_sc_18T_hs__and2_l	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00437	-0.00439	-0.00441

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__and2_1	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00632	0.00636	0.00635
sky130_osu_sc_18T_hs__and2_2	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00649	0.00654	0.00653
sky130_osu_sc_18T_hs__and2_4	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00684	0.00688	0.00687
sky130_osu_sc_18T_hs__and2_6	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00722	0.00726	0.00725
sky130_osu_sc_18T_hs__and2_8	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00754	0.00758	0.00757
sky130_osu_sc_18T_hs__and2_l	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00462	0.00466	0.00464

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__and2_1	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00564	-0.00569	-0.00565
sky130_osu_sc_18T_hs__and2_2	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00547	-0.00551	-0.00548
sky130_osu_sc_18T_hs__and2_4	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00513	-0.00517	-0.00514
sky130_osu_sc_18T_hs__and2_6	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00478	-0.00482	-0.00479
sky130_osu_sc_18T_hs__and2_8	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00443	-0.00447	-0.00445
sky130_osu_sc_18T_hs__and2_l	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00416	-0.00417	-0.00417

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__and2_1	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00619	0.00607	0.00603
sky130_osu_sc_18T_hs__and2_2	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00637	0.00624	0.00620
sky130_osu_sc_18T_hs__and2_4	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00671	0.00659	0.00655
sky130_osu_sc_18T_hs__and2_6	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00706	0.00694	0.00690
sky130_osu_sc_18T_hs__and2_8	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00741	0.00728	0.00724
sky130_osu_sc_18T_hs__and2_l	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00454	0.00443	0.00441

SKY130_OSU_SC_18T_HS__AOI21

sky130_osu_sc_18T_hs_tt_1P80_100C.ccs
Cell Library: Process , Voltage 1.80, Temp 100.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_hs__aoi21_l	12.45420

Pin Capacitance Information

Cell Name	Pin Cap(pf)			Max Cap(pf)
	A0	A1	B0	Y
sky130_osu_sc_18T_hs__aoi21_l	0.00549	0.00565	0.00546	1.47565

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__aoi21_l	0.00000	10.08560	19.89180

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__aoi21_l	A0->Y (FR)	0.06499	0.73770	9.21952
	A1->Y (FR)	0.05641	0.70427	8.88823
	B0->Y (FR)	0.04551	0.74780	9.65183

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__aoi21_l	A0->Y (RF)	0.04999	0.53590	6.59138
	A1->Y (RF)	0.04585	0.57772	7.23742
	B0->Y (RF)	0.02840	0.54868	7.13343

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__aoi21_l	A0	0.00000	0.00000	0.00000
	A0	0.01433	0.01538	0.04580
	A1	0.00000	0.00000	0.00000
	A1	0.01209	0.01315	0.04272
	B0	0.00831	0.01076	0.04987

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__aoi21_l	A0	0.00000	0.00000	0.00000
	A0	0.00370	0.00452	0.02844
	A1	0.00000	0.00000	0.00000
	A1	0.00378	0.00503	0.03108
	B0	-0.00117	0.00047	0.02275

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__aoi21_l	(A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * !Y)	-0.00411	-0.00521	-0.00532
	(!A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !Y)	-0.00535	-0.00539	-0.00537
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00552	-0.00556	-0.00553

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__aoi21_l	(A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * !Y)	0.00567	0.00569	0.00571
	(!A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !Y)	0.00570	0.00574	0.00573
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00573	0.00559	0.00556

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__aoi21_l	(A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * B0 * !Y)	-0.00406	-0.00514	-0.00526
	(!A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !Y)	-0.00530	-0.00533	-0.00531
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	-0.00584	-0.00589	-0.00591

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__aoi21_l	(A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * B0 * !Y)	0.00561	0.00568	0.00565
	(!A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !Y)	0.00564	0.00568	0.00567
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	0.00590	0.00595	0.00593

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__aoi21_l	(A0 * A1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !Y)	-0.00233	-0.00236	-0.00233

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__aoi21_l	(A0 * A1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !Y)	0.00273	0.00274	0.00250

SKY130_OSU_SC_18T_HS__AOI22

sky130_osu_sc_18T_hs_tt_1P80_100C.ccs
Cell Library: Process , Voltage 1.80, Temp 100.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_hs__aoi22_l	15.38460

Pin Capacitance Information

Cell Name	Pin Cap(pf)				Max Cap(pf)
	A0	A1	B0	B1	Y
sky130_osu_sc_18T_hs__aoi22_l	0.00550	0.00565	0.00582	0.00561	1.40383

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__aoi22_l	0.00000	11.29630	39.76200

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__aoi22_l	A0->Y (FR)	0.08133	0.75351	9.08414
	A1->Y (FR)	0.07314	0.73267	8.91675
	B0->Y (FR)	0.04760	0.73873	9.38642
	B1->Y (FR)	0.05581	0.76531	9.63774

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__aoi22_l	A0->Y (RF)	0.06709	0.54517	6.38486
	A1->Y (RF)	0.06297	0.58658	7.02975
	B0->Y (RF)	0.03180	0.54981	6.99704
	B1->Y (RF)	0.03605	0.50760	6.35349

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__aoi22_l	A0	0.01782	0.01874	0.05088
	A1	0.01560	0.01651	0.04833
	B0	0.00901	0.01230	0.05915
	B1	0.01123	0.01454	0.06032

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__aoi22_l	A0	0.00730	0.00806	0.03384
	A1	0.00738	0.00861	0.03660
	B0	-0.00027	0.00148	0.02890
	B1	-0.00023	0.00112	0.02605

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__aoi22_l	(A1 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * B1 * !Y)	-0.00379	-0.00505	-0.00514
	(!A1 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * B1 * !Y)	-0.00518	-0.00522	-0.00519
	(!A1 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !B1 * Y)	-0.00552	-0.00556	-0.00553
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00552	-0.00556	-0.00553

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__aoi22_l	(A1 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * B1 * !Y)	0.00585	0.00590	0.00587
	(!A1 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * B1 * !Y)	0.00587	0.00591	0.00590
	(!A1 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !B1 * Y)	0.00573	0.00559	0.00556
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00573	0.00559	0.00556

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__aoi22_l	(A0 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * B0 * B1 * !Y)	-0.00377	-0.00499	-0.00509
	(!A0 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * B1 * !Y)	-0.00513	-0.00515	-0.00514
	(!A0 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !B1 * Y)	-0.00583	-0.00588	-0.00590
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	-0.00583	-0.00588	-0.00590

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__aoi22_l	(A0 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * B0 * B1 * !Y)	0.00580	0.00584	0.00581
	(!A0 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * B1 * !Y)	0.00581	0.00585	0.00584
	(!A0 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !B1 * Y)	0.00589	0.00594	0.00592
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	0.00590	0.00594	0.00592

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__aoi22_l	(A0 * A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * B1 * !Y)	-0.00234	-0.00236	-0.00235
	(A0 * A1 * !B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B1 * !Y)	-0.00211	-0.00214	-0.00217
	(!A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B1 * Y)	-0.00598	-0.00601	-0.00604
	(!A0 * A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B1 * Y)	-0.00598	-0.00602	-0.00604

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__aoi22_l	(A0 * A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * B1 * !Y)	0.00284	0.00285	0.00253
	(A0 * A1 * !B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B1 * !Y)	0.00246	0.00249	0.00248
	(!A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B1 * Y)	0.00603	0.00609	0.00606
	(!A0 * A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B1 * Y)	0.00603	0.00609	0.00606

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__aoi22_l	(A0 * A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * B0 * !Y)	-0.00236	-0.00237	-0.00236
	(A0 * A1 * !B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B0 * !Y)	-0.00212	-0.00215	-0.00219
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00559	-0.00564	-0.00561
	(!A0 * A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B0 * Y)	-0.00560	-0.00564	-0.00561

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__aoi22_l	(A0 * A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * B0 * !Y)	0.00285	0.00286	0.00254
	(A0 * A1 * !B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B0 * !Y)	0.00248	0.00250	0.00249
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00581	0.00567	0.00564
	(!A0 * A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B0 * Y)	0.00581	0.00567	0.00563

SKY130_OSU_SC_18T_HS__BUFx

sky130_osu_sc_18T_hs_tt_1P80_100C.ccs
Cell Library: Process , Voltage 1.80, Temp 100.00

Truth Table

INPUT	OUTPUT
A	Y
0	0
1	1

Footprint

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

Pin Capacitance Information

Cell Name	Pin Cap(pf)	Max Cap(pf)
	A	Y
sky130_osu_sc_18T_hs__buf_1	0.00584	3.13043
sky130_osu_sc_18T_hs__buf_2	0.00584	6.08252
sky130_osu_sc_18T_hs__buf_4	0.00584	11.65511
sky130_osu_sc_18T_hs__buf_6	0.00097	1.80000
sky130_osu_sc_18T_hs__buf_8	0.00586	22.07857
sky130_osu_sc_18T_hs__buf_l	0.00455	2.21332

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__buf_1	0.00000	20.18680	20.18710
sky130_osu_sc_18T_hs__buf_2	0.00000	30.27230	40.07060
sky130_osu_sc_18T_hs__buf_4	0.00000	50.45070	79.84840
sky130_osu_sc_18T_hs__buf_6	0.00000	0.00000	0.00000
sky130_osu_sc_18T_hs__buf_8	0.00000	90.80700	159.40300
sky130_osu_sc_18T_hs__buf_l	0.00000	12.76900	12.76910

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__buf_1	**A->Y (RR)**	0.05206	0.46664	6.55957
sky130_osu_sc_18T_hs__buf_2	**A->Y (RR)**	0.05802	0.41512	6.54414
sky130_osu_sc_18T_hs__buf_4	**A->Y (RR)**	0.07778	0.41961	6.68549
sky130_osu_sc_18T_hs__buf_8	**A->Y (RR)**	0.11853	0.47664	6.89796
sky130_osu_sc_18T_hs__buf_l	**A->Y (RR)**	0.05711	0.53003	6.60868

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__buf_1	**A->Y (FF)**	0.05433	0.51337	7.02424
sky130_osu_sc_18T_hs__buf_2	**A->Y (FF)**	0.06152	0.47127	7.03142
sky130_osu_sc_18T_hs__buf_4	**A->Y (FF)**	0.08460	0.48237	7.12218
sky130_osu_sc_18T_hs__buf_8	**A->Y (FF)**	0.13507	0.54733	7.18053
sky130_osu_sc_18T_hs__buf_l	**A->Y (FF)**	0.05909	0.56386	6.85273

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__buf_1	A	0.00000	0.00000	0.00000
	A	0.00605	0.01381	0.15202
sky130_osu_sc_18T_hs__buf_2	A	0.00000	0.00000	0.00000
	A	0.01248	0.02009	0.15766
sky130_osu_sc_18T_hs__buf_4	A	0.00000	0.00000	0.00000
	A	0.02697	0.03463	0.16999
sky130_osu_sc_18T_hs__buf_8	A	0.00000	0.00000	0.00000
	A	0.06283	0.06771	0.19471
sky130_osu_sc_18T_hs__buf_l	A	0.00000	0.00000	0.00000
	A	0.00450	0.00933	0.10151

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__buf_1	A	0.00000	0.00000	0.00000
	A	0.01533	0.02586	0.17700
sky130_osu_sc_18T_hs__buf_2	A	0.00000	0.00000	0.00000
	A	0.02064	0.03082	0.18104
sky130_osu_sc_18T_hs__buf_4	A	0.00000	0.00000	0.00000
	A	0.03635	0.04361	0.19207
sky130_osu_sc_18T_hs__buf_8	A	0.00000	0.00000	0.00000
	A	0.07590	0.07194	0.21477
sky130_osu_sc_18T_hs__buf_l	A	0.00000	0.00000	0.00000
	A	0.01187	0.01849	0.11306

Passive power(pJ) for A rising :

Cell Name	Power(pJ)		
	first	mid	last
sky130_osu_sc_18T_hs__buf_6	0.00000	0.00000	0.00000
	-0.00080	-0.00080	-0.00078

Passive power(pJ) for A falling :

Cell Name	Power(pJ)		
	first	mid	last
sky130_osu_sc_18T_hs__buf_6	0.00000	0.00000	0.00000
	0.00080	0.00080	0.00078

SKY130_OSU_SC_18T_HS__DFFRx

sky130_osu_sc_18T_hs_tt_1P80_100C.ccs
Cell Library: Process , Voltage 1.80, Temp 100.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_hs__dffr_1	63.73620
sky130_osu_sc_18T_hs__dffr_l	63.73620

Pin Capacitance Information

Cell Name	Pin Cap(pf)			Max Cap(pf)	
	D	RN	CK	Q	QN
sky130_osu_sc_18T_hs__dffr_1	0.00566	0.00556	0.01585	3.07766	3.03267
sky130_osu_sc_18T_hs__dffr_l	0.00566	0.00556	0.01585	2.19994	2.21097

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__dffr_1	0.00000	65.08940	101.36400
sky130_osu_sc_18T_hs__dffr_l	0.00000	57.67160	93.94670

Delay Information

Delay(ns) to Q rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__dffr_1	CK->Q (RR)	0.23771	1.23564	16.40440
	QN->Q (FR)	0.02786	0.73514	11.57440
sky130_osu_sc_18T_hs__dffr_l	CK->Q (RR)	0.23468	1.32121	15.83490
	QN->Q (FR)	0.02934	0.77123	11.21920

Delay(ns) to Q falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__dffr_1	CK->Q (RF)	0.24624	1.23079	16.46130
	QN->Q (RF)	0.02615	0.69693	11.02350
	RN->Q (FF)	0.18500	1.24984	17.46930
sky130_osu_sc_18T_hs__dffr_l	CK->Q (RF)	0.24867	1.33552	16.07480
	QN->Q (RF)	0.02661	0.70384	10.27260
	RN->Q (FF)	0.18797	1.35396	17.07800

Delay(ns) to QN rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__dffr_1	CK->QN (RR)	0.21690	0.65274	6.51482
	RN->QN (FR)	0.15565	0.67224	7.52458
sky130_osu_sc_18T_hs__dffr_l	CK->QN (RR)	0.21654	0.70136	6.55789
	RN->QN (FR)	0.15564	0.72082	7.56326

Delay(ns) to QN falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__dffr_1	**CK->QN (RF)**	0.20420	0.64090	6.20389
sky130_osu_sc_18T_hs__dffr_l	**CK->QN (RF)**	0.19753	0.65929	5.92877

Constraint Information

Constraints(ns) for D rising :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_hs__dffr_1	hold	CK (R)	-0.06524	-0.06427	0.16896
	setup	CK (R)	0.18801	0.22332	11.18210
sky130_osu_sc_18T_hs__dffr_l	hold	CK (R)	-0.06707	-0.06716	0.16812
	setup	CK (R)	0.18808	0.22395	10.92820

Constraints(ns) for D falling :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_hs__dffr_1	hold	CK (R)	-0.09871	-0.26391	1.96797
	setup	CK (R)	0.12203	0.27815	3.40469
sky130_osu_sc_18T_hs__dffr_l	hold	CK (R)	-0.10031	-0.26558	1.54903
	setup	CK (R)	0.12203	0.27815	3.40332

Constraints(ns) for D rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_hs__dffr_1	hold	CK (R)	-0.06524	-0.06427	0.16896
	setup	CK (R)	0.18801	0.22332	11.18210
sky130_osu_sc_18T_hs__dffr_l	hold	CK (R)	-0.06707	-0.06716	0.16812
	setup	CK (R)	0.18808	0.22395	10.92820

Constraints(ns) for D falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_hs__dffr_1	hold	CK (R)	-0.09871	-0.26391	1.96797
	setup	CK (R)	0.12203	0.27815	3.40469
sky130_osu_sc_18T_hs__dffr_l	hold	CK (R)	-0.10031	-0.26558	1.54903
	setup	CK (R)	0.12203	0.27815	3.40332

Constraints(ns) for RN rising :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_hs__dffr_1	recovery	CK (R)	0.14908	0.19181	8.91735
	removal	CK (R)	-0.03305	-0.04000	-0.10038
sky130_osu_sc_18T_hs__dffr_l	recovery	CK (R)	0.14973	0.19218	8.40621
	removal	CK (R)	-0.03305	-0.04000	-0.10038

Constraints(ns) for RN rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_hs__dffr_1	recovery	CK (R)	0.14908	0.19181	8.91735
	removal	CK (R)	-0.03305	-0.04000	-0.10038
sky130_osu_sc_18T_hs__dffr_l	recovery	CK (R)	0.14973	0.19218	8.40621
	removal	CK (R)	-0.03305	-0.04000	-0.10038

Constraints(ns) for RN falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_hs__dffr_1	min_pulse_width	RN ()	0.10771	0.51025	13.33370
	min_pulse_width	RN ()	0.10771	0.51025	13.33370
sky130_osu_sc_18T_hs__dffr_l	min_pulse_width	RN ()	0.10387	0.51025	13.33370
	min_pulse_width	RN ()	0.10387	0.51025	13.33370

Constraints(ns) for CK rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_hs__dffr_1	min_pulse_width	CK ()	0.11538	0.51025	13.33370
	min_pulse_width	CK ()	0.12688	0.51025	13.33370
sky130_osu_sc_18T_hs__dffr_l	min_pulse_width	CK ()	0.10771	0.51025	13.33370
	min_pulse_width	CK ()	0.12304	0.51025	13.33370

Constraints(ns) for CK falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_hs__dffr_1	min_pulse_width	CK ()	0.24189	0.51025	13.33370
	min_pulse_width	CK ()	0.10004	0.51025	13.33370
sky130_osu_sc_18T_hs__dffr_l	min_pulse_width	CK ()	0.24189	0.51025	13.33370
	min_pulse_width	CK ()	0.10004	0.51025	13.33370

Power Information

Internal switching power(pJ) to Q rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__dffr_1	CK	0.00000	0.00000	0.00000
	CK	0.01699	0.02004	0.07003
sky130_osu_sc_18T_hs__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.01495	0.01971	0.10439

Internal switching power(pJ) to Q falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__dffr_1	CK	0.00000	0.00000	0.00000
	CK	0.01901	0.01982	0.06120
	RN	-0.00187	-0.14020	-2.49280
	RN	0.04125	0.04325	0.08855
sky130_osu_sc_18T_hs__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.01705	0.01927	0.08913
	RN	-0.00187	-0.11462	-1.78191
	RN	0.03930	0.04266	0.11555

Internal switching power(pJ) to QN rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__dffr_1	CK	0.00000	0.00000	0.00000
	CK	0.01872	0.01958	0.06190
	RN	-0.00187	-0.13897	-2.45457
	RN	0.04108	0.04309	0.08882
sky130_osu_sc_18T_hs__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.01685	0.01908	0.08892
	RN	-0.00187	-0.11497	-1.79033
	RN	0.03919	0.04252	0.11536

Internal switching power(pJ) to QN falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__dffr_1	CK	0.00000	0.00000	0.00000
	CK	0.01651	0.01964	0.06933
sky130_osu_sc_18T_hs__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.01453	0.01925	0.10284

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__dffr_1	CK	0.00000	0.00000	0.00000
	CK	-0.00346	-0.00445	-0.00457
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.02035	0.02440	0.14697
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.00934	0.01356	0.13396
sky130_osu_sc_18T_hs__dffr_l	CK	0.00000	0.00000	0.00000
	CK	-0.00353	-0.00452	-0.00463
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.02028	0.02434	0.14690
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.00928	0.01349	0.13390

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__dffr_1	CK	0.00000	0.00000	0.00000
	CK	0.00637	0.00645	0.00638
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.03310	0.03789	0.16303
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.01541	0.02004	0.14157
sky130_osu_sc_18T_hs__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.00631	0.00638	0.00631
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.03304	0.03782	0.16296
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.01535	0.01997	0.14150

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__dffr_1	(CK * !Q * QN) + (!CK * !D * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !Q * QN) + (!CK * !D * !Q * QN)	0.00645	0.01519	0.20151
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.01708	0.02561	0.21828
sky130_osu_sc_18T_hs__dffr_l	(CK * !Q * QN) + (!CK * !D * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !Q * QN) + (!CK * !D * !Q * QN)	0.00638	0.01512	0.20145
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.01702	0.02555	0.21822

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__dffr_1	(CK * !Q * QN) + (!CK * !D * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !Q * QN) + (!CK * !D * !Q * QN)	0.01441	0.02523	0.21202
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.03129	0.04167	0.23456
sky130_osu_sc_18T_hs__dffr_l	(CK * !Q * QN) + (!CK * !D * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !Q * QN) + (!CK * !D * !Q * QN)	0.01434	0.02517	0.21195
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.03122	0.04160	0.23450

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__dffr_1	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	-0.00066	0.00772	0.19296
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.00953	0.01716	0.21351
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	-0.00120	0.00738	0.19151
sky130_osu_sc_18T_hs__dffr_l	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	-0.00073	0.00766	0.19289
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.00946	0.01709	0.21345
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	-0.00127	0.00732	0.19145

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__dffr_1	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.02142	0.03239	0.21856
	(D * RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * RN * !Q * QN)	0.04864	0.05806	0.29191
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.03738	0.04719	0.24229
	(!D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * Q * !QN)	0.04711	0.06631	0.35919
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.02508	0.03549	0.22043
sky130_osu_sc_18T_hs__dffr_l	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.02136	0.03233	0.21849
	(D * RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * RN * !Q * QN)	0.04857	0.05800	0.29184
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.03732	0.04712	0.24223
	(!D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * Q * !QN)	0.04705	0.06625	0.35913
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.02502	0.03542	0.22036

SKY130_OSU_SC_18T_HS__DFFSRx

sky130_osu_sc_18T_hs_tt_1P80_100C.ccs
Cell Library: Process , Voltage 1.80, Temp 100.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_hs__dffsr_1	69.59700
sky130_osu_sc_18T_hs__dffsr_l	69.59700

Pin Capacitance Information

Cell Name	Pin Cap(pf)				Max Cap(pf)	
	D	**RN**	**SN**	**CK**	**Q**	**QN**
sky130_osu_sc_18T_hs__dffsr_1	0.00561	0.00556	0.01195	0.01613	3.20412	3.20038
sky130_osu_sc_18T_hs__dffsr_l	0.00561	0.00556	0.01194	0.01613	2.20535	2.21386

Leakage Information

Cell Name	Leakage(nW)		
	Min.	**Avg**	**Max.**
sky130_osu_sc_18T_hs__dffsr_1	0.00000	73.52940	101.27300
sky130_osu_sc_18T_hs__dffsr_l	0.00000	66.11150	93.85560

Delay Information

Delay(ns) to Q rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__dffsr_1	CK->Q (RR)	0.24716	1.22987	16.39220
	QN->Q (FR)	0.02646	0.71589	11.36090
	RN->Q (RR)	0.19754	1.18929	16.43680
	SN->Q (FR)	0.17921	1.24508	17.48040
sky130_osu_sc_18T_hs__dffsr_l	CK->Q (RR)	0.25050	1.33833	15.87530
	QN->Q (FR)	0.02928	0.76990	11.20100
	RN->Q (RR)	0.20124	1.29811	15.91930
	SN->Q (FR)	0.18262	1.35167	16.97330

Delay(ns) to Q falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__dffsr_1	CK->Q (RF)	0.28237	1.25623	16.44900
	QN->Q (RF)	0.02404	0.65555	10.49570
	RN->Q (FF)	0.18880	1.24299	17.44930
sky130_osu_sc_18T_hs__dffsr_l	CK->Q (RF)	0.28861	1.38219	16.14240
	QN->Q (RF)	0.02656	0.70630	10.27620
	RN->Q (FF)	0.18873	1.36224	17.14320

Delay(ns) to QN rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__dffsr_1	CK->QN (RR)	0.25377	0.69431	6.65846
	RN->QN (FR)	0.16074	0.68215	7.66277
sky130_osu_sc_18T_hs__dffsr_l	CK->QN (RR)	0.25601	0.74683	6.60112
	RN->QN (FR)	0.16266	0.73389	7.60273

Delay(ns) to QN falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__dffsr_1	CK->QN (RF)	0.21521	0.64653	6.25011
	RN->QN (RF)	0.16586	0.60616	6.29572
	SN->QN (FF)	0.14759	0.66179	7.34526
sky130_osu_sc_18T_hs__dffsr_l	CK->QN (RF)	0.21389	0.67623	5.95218
	RN->QN (RF)	0.16486	0.63654	5.99582
	SN->QN (FF)	0.14638	0.68961	7.04797

Constraint Information

Constraints(ns) for D rising :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_hs__dffsr_1	hold	CK (R)	-0.06818	-0.07176	0.12646
	setup	CK (R)	0.19147	0.22587	11.80350
sky130_osu_sc_18T_hs__dffsr_l	hold	CK (R)	-0.06928	-0.07364	0.12363
	setup	CK (R)	0.18891	0.22090	8.71863

Constraints(ns) for D falling :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_hs__dffsr_1	hold	CK (R)	-0.11212	-0.27988	1.85418
	setup	CK (R)	0.14147	0.29291	3.42441
sky130_osu_sc_18T_hs__dffsr_l	hold	CK (R)	-0.11256	-0.27788	1.81734
	setup	CK (R)	0.14225	0.29291	3.42518

Constraints(ns) for D rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_hs__dffsr_1	hold	CK (R)	-0.06818	-0.07176	0.12646
	setup	CK (R)	0.19147	0.22587	11.80350
sky130_osu_sc_18T_hs__dffsr_l	hold	CK (R)	-0.06928	-0.07364	0.12363
	setup	CK (R)	0.18891	0.22090	8.71863

Constraints(ns) for D falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_hs__dffsr_1	hold	CK (R)	-0.11212	-0.27988	1.85418
	setup	CK (R)	0.14147	0.29291	3.42441
sky130_osu_sc_18T_hs__dffsr_l	hold	CK (R)	-0.11256	-0.27788	1.81734
	setup	CK (R)	0.14225	0.29291	3.42518

Constraints(ns) for RN rising :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_hs__dffsr_1	recovery	CK (R)	0.13665	0.17526	7.98112
	removal	CK (R)	-0.01679	-0.02215	-0.04993
	hold	SN (R)	-0.13661	-0.26096	-1.02174
	setup	SN (R)	0.16322	0.30923	7.46449
sky130_osu_sc_18T_hs__dffsr_l	recovery	CK (R)	0.13571	0.17470	6.42616
	removal	CK (R)	-0.01679	-0.02215	-0.04993
	hold	SN (R)	-0.13378	-0.25671	-0.99206
	setup	SN (R)	0.16129	0.30424	7.45865

Constraints(ns) for RN rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_hs__dffsr_1	recovery	CK (R)	0.13665	0.17526	7.98112
	removal	CK (R)	-0.01679	-0.02215	-0.04993
	hold	SN (R)	-0.13661	-0.26096	-1.02874
	hold	SN (R)	-0.13961	-0.26340	-1.02174
	setup	SN (R)	0.16322	0.30877	7.46449
	setup	SN (R)	0.15942	0.30923	7.45392
sky130_osu_sc_18T_hs__dffsr_l	recovery	CK (R)	0.13571	0.17470	6.42616
	removal	CK (R)	-0.01679	-0.02215	-0.04993
	hold	SN (R)	-0.13378	-0.25671	-1.01457
	hold	SN (R)	-0.13586	-0.25708	-0.99206
	setup	SN (R)	0.16129	0.29940	7.45865
	setup	SN (R)	0.15181	0.30424	7.43148

Constraints(ns) for RN falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_hs__dffsr_1	min_pulse_width	RN ()	0.12304	0.51025	13.33370
	min_pulse_width	RN ()	0.12688	0.51025	13.33370
sky130_osu_sc_18T_hs__dffsr_l	min_pulse_width	RN ()	0.12304	0.51025	13.33370
	min_pulse_width	RN ()	0.12304	0.51025	13.33370

Constraints(ns) for SN rising :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_hs__dffsr_1	recovery	CK (R)	0.04423	0.07927	6.59306
	removal	CK (R)	-0.01957	-0.05900	-0.30345
sky130_osu_sc_18T_hs__dffsr_l	recovery	CK (R)	0.04284	0.07903	6.41344
	removal	CK (R)	-0.01878	-0.05900	-0.30345

Constraints(ns) for SN rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_hs__dffsr_1	recovery	CK (R)	0.04423	0.07927	6.59306
	removal	CK (R)	-0.01957	-0.05900	-0.30345
sky130_osu_sc_18T_hs__dffsr_l	recovery	CK (R)	0.04284	0.07903	6.41344
	removal	CK (R)	-0.01878	-0.05900	-0.30345

Constraints(ns) for SN falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_hs__dffsr_1	min_pulse_width	SN ()	0.14221	0.51025	13.33370
	min_pulse_width	SN ()	0.14221	0.51025	13.33370
sky130_osu_sc_18T_hs__dffsr_l	min_pulse_width	SN ()	0.14221	0.51025	13.33370
	min_pulse_width	SN ()	0.13454	0.51025	13.33370

Constraints(ns) for CK rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_hs__dffsr_1	min_pulse_width	CK ()	0.11538	0.51025	13.33370
	min_pulse_width	CK ()	0.14221	0.51025	13.33370
sky130_osu_sc_18T_hs__dffsr_l	min_pulse_width	CK ()	0.11154	0.51025	13.33370
	min_pulse_width	CK ()	0.13838	0.51025	13.33370

Constraints(ns) for CK falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_hs__dffsr_1	min_pulse_width	CK ()	0.24189	0.51025	13.33370
	min_pulse_width	CK ()	0.12304	0.51025	13.33370
sky130_osu_sc_18T_hs__dffsr_l	min_pulse_width	CK ()	0.24189	0.51025	13.33370
	min_pulse_width	CK ()	0.12304	0.51025	13.33370

Power Information

Internal switching power(pJ) to Q rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__dffsr_1	CK	0.00000	0.00000	0.00000
	CK	0.02098	0.02560	0.10427
	RN	0.03699	0.03861	0.09319
	SN	-0.00187	-0.14363	-2.59532
	SN	0.03448	0.03501	0.08717
sky130_osu_sc_18T_hs__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.01910	0.02370	0.10878
	RN	0.03514	0.03671	0.09789
	SN	-0.00187	-0.11479	-1.78632
	SN	0.03264	0.03310	0.09154

Internal switching power(pJ) to Q falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__dffsr_1	CK	0.00000	0.00000	0.00000
	CK	0.02233	0.02375	0.07409
	RN	-0.00187	-0.14363	-2.59528
	RN	0.04201	0.04458	0.10304
sky130_osu_sc_18T_hs__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.02047	0.02279	0.09396
	RN	-0.00187	-0.11479	-1.78629
	RN	0.04018	0.04361	0.12116

Internal switching power(pJ) to QN rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__dffsr_1	CK	0.00000	0.00000	0.00000
	CK	0.02202	0.02345	0.07421
	RN	-0.00187	-0.14353	-2.59119
	RN	0.04174	0.04433	0.10150
sky130_osu_sc_18T_hs__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.02022	0.02254	0.09354
	RN	-0.00187	-0.11506	-1.79267
	RN	0.03998	0.04341	0.12056

Internal switching power(pJ) to QN falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__dffsr_1	CK	0.00000	0.00000	0.00000
	CK	0.02052	0.02521	0.10275
	RN	0.03652	0.03822	0.09186
	SN	-0.00187	-0.14353	-2.59195
	SN	0.03418	0.03472	0.08795
sky130_osu_sc_18T_hs__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.01867	0.02323	0.10724
	RN	0.03469	0.03626	0.09675
	SN	-0.00187	-0.11506	-1.79297
	SN	0.03237	0.03282	0.09050

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__dffsr_1	CK	0.00000	0.00000	0.00000
	CK	-0.00456	-0.00459	-0.00461
	(!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)	0.02550	0.02944	0.15263
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.01061	0.01472	0.13467
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.01055	0.01466	0.13473
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.01073	0.01482	0.13482
sky130_osu_sc_18T_hs__dffsr_1	CK	0.00000	0.00000	0.00000
	CK	-0.00463	-0.00466	-0.00468
	(!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)	0.02544	0.02937	0.15256
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.01055	0.01466	0.13461
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.01048	0.01459	0.13467
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.01066	0.01475	0.13476

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__dffsr_1	CK	0.00000	0.00000	0.00000
	CK	0.00647	0.00635	0.00630
	(!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)	0.03784	0.04222	0.16738
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.01607	0.02062	0.14184
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.01663	0.02100	0.14190
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.01607	0.02066	0.14192
sky130_osu_sc_18T_hs__dffsr_1	CK	0.00000	0.00000	0.00000
	CK	0.00640	0.00629	0.00624
	(!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)	0.03776	0.04214	0.16731
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.01600	0.02055	0.14177
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.01656	0.02092	0.14183
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.01600	0.02058	0.14184

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__dffsr_1	(CK * SN * !Q * QN) + (!CK * !D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * SN * !Q * QN) + (!CK * !D * SN * !Q * QN)	0.00515	0.01381	0.20007
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.02001	0.02837	0.22315
sky130_osu_sc_18T_hs__dffsr_l	(CK * SN * !Q * QN) + (!CK * !D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * SN * !Q * QN) + (!CK * !D * SN * !Q * QN)	0.00509	0.01375	0.20001
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.01995	0.02831	0.22310

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__dffsr_1	(CK * SN * !Q * QN) + (!CK * !D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * SN * !Q * QN) + (!CK * !D * SN * !Q * QN)	0.01496	0.02618	0.21352
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.03263	0.04315	0.23779
sky130_osu_sc_18T_hs__dffsr_l	(CK * SN * !Q * QN) + (!CK * !D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * SN * !Q * QN) + (!CK * !D * SN * !Q * QN)	0.01488	0.02611	0.21344
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.03255	0.04307	0.23772

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__dffsr_1	(CK * RN * Q * !QN) + (!CK * D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(CK * RN * Q * !QN) + (!CK * D * RN * Q * !QN)	-0.01138	-0.01150	-0.01153
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	-0.00936	-0.01156	-0.01181
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	-0.01006	-0.01111	-0.01129
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.00970	0.01370	0.13442
sky130_osu_sc_18T_hs__dffsr_l	(CK * RN * Q * !QN) + (!CK * D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(CK * RN * Q * !QN) + (!CK * D * RN * Q * !QN)	-0.01145	-0.01156	-0.01160
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	-0.00941	-0.01160	-0.01185
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	-0.01012	-0.01117	-0.01135
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.00964	0.01365	0.13436

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__dffsr_1	(CK * RN * Q * !QN) + (!CK * D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(CK * RN * Q * !QN) + (!CK * D * RN * Q * !QN)	0.01292	0.01302	0.01298
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.01324	0.01339	0.01332
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	0.01287	0.01287	0.01294
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.02579	0.02899	0.14896
sky130_osu_sc_18T_hs__dffsr_l	(CK * RN * Q * !QN) + (!CK * D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(CK * RN * Q * !QN) + (!CK * D * RN * Q * !QN)	0.01286	0.01296	0.01292
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.01316	0.01331	0.01324
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	0.01280	0.01280	0.01287
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.02571	0.02891	0.14889

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__dffsr_1	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	-0.00066	0.00772	0.19309
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.01097	0.01863	0.21454
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.01044	0.01812	0.21429
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	-0.00085	0.00776	0.19202
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.00749	0.02306	0.35051
sky130_osu_sc_18T_hs__dffsr_1	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	-0.00072	0.00766	0.19302
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.01089	0.01855	0.21447
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.01036	0.01804	0.21422
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	-0.00092	0.00770	0.19196
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.00743	0.02299	0.35045

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

Cell Name	When	Power(pJ)		
		first	mid	last

sky130_osu_sc_18T_hs__dffsr_1	**(D * RN * SN * !Q * QN)**	0.00000	0.00000	0.00000
	(D * RN * SN * !Q * QN)	0.05443	0.06391	0.29714
	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.02148	0.03237	0.21875
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.03824	0.04821	0.24314
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.03841	0.04829	0.24321
	(!D * RN * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * Q * !QN)	0.05179	0.07031	0.36492
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.02511	0.03551	0.22055
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.02842	0.04729	0.37716
sky130_osu_sc_18T_hs__dffsr_l	**(D * RN * SN * !Q * QN)**	0.00000	0.00000	0.00000
	(D * RN * SN * !Q * QN)	0.05436	0.06385	0.29708
	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.02142	0.03230	0.21868
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.03818	0.04815	0.24307
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.03834	0.04822	0.24315
	(!D * RN * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * Q * !QN)	0.05171	0.07023	0.36485
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.02504	0.03545	0.22049
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.02834	0.04721	0.37708

SKY130_OSU_SC_18T_HS__DFFSx

sky130_osu_sc_18T_hs_tt_1P80_100C.ccs
Cell Library: Process , Voltage 1.80, Temp 100.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_hs__dffs_1	57.87540
sky130_osu_sc_18T_hs__dffs_l	57.87540

Pin Capacitance Information

Cell Name	Pin Cap(pf)			Max Cap(pf)	
	D	SN	CK	Q	QN
sky130_osu_sc_18T_hs__dffs_1	0.00564	0.00944	0.01591	3.05266	3.05227
sky130_osu_sc_18T_hs__dffs_l	0.00564	0.00944	0.01591	2.22665	2.22061

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__dffs_1	0.00000	65.32970	90.80710
sky130_osu_sc_18T_hs__dffs_l	0.00000	57.91200	83.38920

Delay Information

Delay(ns) to Q rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__dffs_1	CK->Q (RR)	0.18838	1.16636	16.11640
	QN->Q (FR)	0.02769	0.72716	11.41130
	SN->Q (FR)	0.14038	1.22930	17.22150
sky130_osu_sc_18T_hs__dffs_l	CK->Q (RR)	0.18855	1.26890	15.89690
	QN->Q (FR)	0.02919	0.77084	11.23070
	SN->Q (FR)	0.14107	1.32832	16.99100

Delay(ns) to Q falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__dffs_1	CK->Q (RF)	0.27146	1.25604	16.30380
	QN->Q (RF)	0.02596	0.69220	10.91300
sky130_osu_sc_18T_hs__dffs_l	CK->Q (RF)	0.27281	1.37088	16.25320
	QN->Q (RF)	0.02646	0.70701	10.31500

Delay(ns) to QN rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__dffs_1	CK->QN (RR)	0.24143	0.68482	6.55019
sky130_osu_sc_18T_hs__dffs_l	CK->QN (RR)	0.23997	0.73089	6.58693

Delay(ns) to QN falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__dffs_1	CK->QN (RF)	0.15703	0.58127	6.13522
	SN->QN (FF)	0.10857	0.64424	7.24063
sky130_osu_sc_18T_hs__dffs_l	CK->QN (RF)	0.15373	0.60438	5.85183
	SN->QN (FF)	0.10600	0.66334	6.94685

Constraint Information

Constraints(ns) for D rising :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_hs__dffs_1	hold	CK (R)	-0.04903	-0.04937	0.18324
	setup	CK (R)	0.13819	0.17649	2.55021
sky130_osu_sc_18T_hs__dffs_l	hold	CK (R)	-0.04827	-0.05057	0.18359
	setup	CK (R)	0.13810	0.17662	2.47774

Constraints(ns) for D falling :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_hs__dffs_1	hold	CK (R)	-0.09963	-0.26599	0.23273
	setup	CK (R)	0.13165	0.27815	3.41845
sky130_osu_sc_18T_hs__dffs_l	hold	CK (R)	-0.09974	-0.26600	0.18739
	setup	CK (R)	0.13154	0.27815	3.41780

Constraints(ns) for D rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_hs__dffs_1	hold	CK (R)	-0.04903	-0.04937	0.18324
	setup	CK (R)	0.13819	0.17649	2.55021
sky130_osu_sc_18T_hs__dffs_l	hold	CK (R)	-0.04827	-0.05057	0.18359
	setup	CK (R)	0.13810	0.17662	2.47774

Constraints(ns) for D falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_hs__dffs_1	hold	CK (R)	-0.09963	-0.26599	0.23273
	setup	CK (R)	0.13165	0.27815	3.41845
sky130_osu_sc_18T_hs__dffs_l	hold	CK (R)	-0.09974	-0.26600	0.18739
	setup	CK (R)	0.13154	0.27815	3.41780

Constraints(ns) for SN rising :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_hs__dffs_1	recovery	CK (R)	0.04054	0.07699	5.95939
	removal	CK (R)	-0.02084	-0.05900	-0.46561
sky130_osu_sc_18T_hs__dffs_l	recovery	CK (R)	0.04019	0.07700	5.79757
	removal	CK (R)	-0.02084	-0.05900	-0.46561

Constraints(ns) for SN rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_hs__dffs_1	recovery	CK (R)	0.04054	0.07699	5.95939
	removal	CK (R)	-0.02084	-0.05900	-0.46561
sky130_osu_sc_18T_hs__dffs_l	recovery	CK (R)	0.04019	0.07700	5.79757
	removal	CK (R)	-0.02084	-0.05900	-0.46561

Constraints(ns) for SN falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_hs__dffs_1	min_pulse_width	SN ()	0.09621	0.51025	13.33370
	min_pulse_width	SN ()	0.09621	0.51025	13.33370
sky130_osu_sc_18T_hs__dffs_l	min_pulse_width	SN ()	0.09621	0.51025	13.33370
	min_pulse_width	SN ()	0.08854	0.51025	13.33370

Constraints(ns) for CK rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_hs__dffs_1	min_pulse_width	CK ()	0.08471	0.51025	13.33370
	min_pulse_width	CK ()	0.13454	0.51025	13.33370
sky130_osu_sc_18T_hs__dffs_l	min_pulse_width	CK ()	0.08471	0.51025	13.33370
	min_pulse_width	CK ()	0.13071	0.51025	13.33370

Constraints(ns) for CK falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_hs__dffs_1	min_pulse_width	CK ()	0.18822	0.51025	13.33370
	min_pulse_width	CK ()	0.11154	0.51025	13.33370
sky130_osu_sc_18T_hs__dffs_l	min_pulse_width	CK ()	0.18822	0.51025	13.33370
	min_pulse_width	CK ()	0.11154	0.51025	13.33370

Power Information

Internal switching power(pJ) to Q rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__dffs_1	CK	0.00000	0.00000	0.00000
	CK	0.01646	0.01966	0.07134
	SN	-0.00187	-0.13952	-2.47263
	SN	0.02801	0.02829	0.04976
sky130_osu_sc_18T_hs__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.01455	0.01918	0.10407
	SN	-0.00187	-0.11546	-1.80357
	SN	0.02612	0.02799	0.08196

Internal switching power(pJ) to Q falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__dffs_1	CK	0.00000	0.00000	0.00000
	CK	0.01907	0.02010	0.06616
sky130_osu_sc_18T_hs__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.01709	0.01944	0.09180

Internal switching power(pJ) to QN rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__dffs_1	CK	0.00000	0.00000	0.00000
	CK	0.01877	0.01980	0.06596
sky130_osu_sc_18T_hs__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.01685	0.01923	0.09149

Internal switching power(pJ) to QN falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__dffs_1	CK	0.00000	0.00000	0.00000
	CK	0.01611	0.01926	0.07095
	SN	-0.00187	-0.13951	-2.47178
	SN	0.02782	0.02812	0.04982
sky130_osu_sc_18T_hs__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.01423	0.01895	0.10299
	SN	-0.00187	-0.11527	-1.79844
	SN	0.02596	0.02784	0.08227

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__dffs_1	CK	0.00000	0.00000	0.00000
	CK	-0.00468	-0.00471	-0.00473
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.01895	0.02328	0.14905
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.00908	0.01330	0.13390
sky130_osu_sc_18T_hs__dffs_l	CK	0.00000	0.00000	0.00000
	CK	-0.00475	-0.00478	-0.00480
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.01889	0.02322	0.14898
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.00902	0.01323	0.13384

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__dffs_1	CK	0.00000	0.00000	0.00000
	CK	0.00646	0.00634	0.00630
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.03176	0.03635	0.16179
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.01529	0.02008	0.14195
sky130_osu_sc_18T_hs__dffs_1	CK	0.00000	0.00000	0.00000
	CK	0.00639	0.00628	0.00623
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.03169	0.03629	0.16172
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.01523	0.02002	0.14188

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__dffs_1	(CK * Q * !QN) + (!CK * D * Q * !QN)	0.00000	0.00000	0.00000
	(CK * Q * !QN) + (!CK * D * Q * !QN)	-0.00843	-0.00851	-0.00849
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.00732	0.01080	0.11430
sky130_osu_sc_18T_hs__dffs_1	(CK * Q * !QN) + (!CK * D * Q * !QN)	0.00000	0.00000	0.00000
	(CK * Q * !QN) + (!CK * D * Q * !QN)	-0.00849	-0.00849	-0.00856
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.00726	0.01073	0.11424

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__dffs_1	(CK * Q * !QN) + (!CK * D * Q * !QN)	0.00000	0.00000	0.00000
	(CK * Q * !QN) + (!CK * D * Q * !QN)	0.00970	0.00964	0.00959
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.01782	0.02231	0.12773
sky130_osu_sc_18T_hs__dffs_l	(CK * Q * !QN) + (!CK * D * Q * !QN)	0.00000	0.00000	0.00000
	(CK * Q * !QN) + (!CK * D * Q * !QN)	0.00964	0.00957	0.00952
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.01776	0.02224	0.12767

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__dffs_1	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	-0.00086	0.00754	0.19307
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	-0.00100	0.00760	0.19204
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.00589	0.02181	0.35067
sky130_osu_sc_18T_hs__dffs_l	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	-0.00093	0.00748	0.19301
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	-0.00107	0.00754	0.19198
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.00583	0.02175	0.35061

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__dffs_1	(D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * SN * !Q * QN)	0.04784	0.05730	0.29287
	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.02125	0.03225	0.21870
	(!D * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * SN * Q * !QN)	0.04555	0.06447	0.35798
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	0.02503	0.03546	0.22070
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.02752	0.04677	0.37792
sky130_osu_sc_18T_hs__dffs_l	(D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * SN * !Q * QN)	0.04777	0.05724	0.29280
	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.02119	0.03218	0.21864
	(!D * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * SN * Q * !QN)	0.04549	0.06432	0.35792
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	0.02497	0.03539	0.22063
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.02745	0.04671	0.37785

SKY130_OSU_SC_18T_HS__DFFx

sky130_osu_sc_18T_hs_tt_1P80_100C.ccs
Cell Library: Process , Voltage 1.80, Temp 100.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_hs__dff_1	48.35160
sky130_osu_sc_18T_hs__dff_l	48.35160

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)	
	D	CK	Q	QN
sky130_osu_sc_18T_hs__dff_1	0.00579	0.01584	3.25489	3.21577
sky130_osu_sc_18T_hs__dff_l	0.00579	0.01584	2.18220	2.18277

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__dff_1	0.00000	66.10260	80.92370
sky130_osu_sc_18T_hs__dff_l	0.00000	58.68460	73.50580

Delay Information

Delay(ns) to Q rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__dff_1	CK->Q (RR)	0.17019	1.14667	16.49630
	QN->Q (FR)	0.02627	0.71461	11.41710
sky130_osu_sc_18T_hs__dff_l	CK->Q (RR)	0.17553	1.25085	15.65360
	QN->Q (FR)	0.02978	0.77850	11.29770

Delay(ns) to Q falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__dff_1	CK->Q (RF)	0.23081	1.20326	16.61260
	QN->Q (RF)	0.02393	0.65940	10.56900
sky130_osu_sc_18T_hs__dff_l	CK->Q (RF)	0.23816	1.32529	16.02850
	QN->Q (RF)	0.02653	0.69868	10.18270

Delay(ns) to QN rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__dff_1	CK->QN (RR)	0.20294	0.63489	6.60928
sky130_osu_sc_18T_hs__dff_l	CK->QN (RR)	0.20618	0.69158	6.53911

Delay(ns) to QN falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__dff_1	CK->QN (RF)	0.14055	0.55878	6.15039
sky130_osu_sc_18T_hs__dff_l	CK->QN (RF)	0.14098	0.58808	5.74581

Constraint Information

Constraints(ns) for D rising :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_hs__dff_1	hold	CK (R)	-0.04455	-0.04657	0.16819
	setup	CK (R)	0.11609	0.16114	2.64582
sky130_osu_sc_18T_hs__dff_l	hold	CK (R)	-0.04503	-0.04657	0.15999
	setup	CK (R)	0.11509	0.15677	2.63220

Constraints(ns) for D falling :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_hs__dff_1	hold	CK (R)	-0.08938	-0.26270	0.17968
	setup	CK (R)	0.10960	0.27605	3.39516
sky130_osu_sc_18T_hs__dff_l	hold	CK (R)	-0.08956	-0.26374	0.34105
	setup	CK (R)	0.10960	0.27605	3.39435

Constraints(ns) for CK rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_hs__dff_1	min_pulse_width	CK ()	0.07704	0.51025	13.33370
	min_pulse_width	CK ()	0.11921	0.51025	13.33370
sky130_osu_sc_18T_hs__dff_l	min_pulse_width	CK ()	0.07704	0.51025	13.33370
	min_pulse_width	CK ()	0.11921	0.51025	13.33370

Constraints(ns) for CK falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_hs__dff_1	min_pulse_width	CK ()	0.16905	0.51025	13.33370
	min_pulse_width	CK ()	0.08471	0.51025	13.33370
sky130_osu_sc_18T_hs__dff_l	min_pulse_width	CK ()	0.16905	0.51025	13.33370
	min_pulse_width	CK ()	0.08471	0.51025	13.33370

Power Information

Internal switching power(pJ) to Q rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__dff_1	CK	0.00000	0.00000	0.00000
	CK	0.01722	0.02230	0.10391
sky130_osu_sc_18T_hs__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.01544	0.02037	0.10636

Internal switching power(pJ) to Q falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__dff_1	CK	0.00000	0.00000	0.00000
	CK	0.01925	0.02092	0.07336
sky130_osu_sc_18T_hs__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.01749	0.01973	0.08914

Internal switching power(pJ) to QN rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__dff_1	CK	0.00000	0.00000	0.00000
	CK	0.01898	0.02068	0.07392
sky130_osu_sc_18T_hs__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.01730	0.01955	0.08899

Internal switching power(pJ) to QN falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__dff_1	CK	0.00000	0.00000	0.00000
	CK	0.01686	0.02203	0.10454
sky130_osu_sc_18T_hs__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.01512	0.02002	0.10832

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__dff_1	CK	0.00000	0.00000	0.00000
	CK	-0.00365	-0.00462	-0.00474
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.01786	0.02245	0.15072
sky130_osu_sc_18T_hs__dff_l	CK	0.00000	0.00000	0.00000
	CK	-0.00371	-0.00469	-0.00480
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.01780	0.02239	0.15066

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__dff_1	CK	0.00000	0.00000	0.00000
	CK	0.00618	0.00622	0.00619
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.03270	0.03756	0.16556
sky130_osu_sc_18T_hs__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.00612	0.00615	0.00612
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.03264	0.03750	0.16550

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__dff_1	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	-0.00088	0.00755	0.19306
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	-0.00108	0.00757	0.19197
sky130_osu_sc_18T_hs__dff_l	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	-0.00094	0.00748	0.19299
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	-0.00114	0.00750	0.19190

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__dff_1	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.02118	0.03211	0.21861
	(D * !Q * QN)	0.00000	0.00000	0.00000
	(D * !Q * QN)	0.04686	0.05651	0.29332
	(!D * Q * !QN)	0.00000	0.00000	0.00000
	(!D * Q * !QN)	0.04635	0.06579	0.36445
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.02485	0.03530	0.22049
sky130_osu_sc_18T_hs__dff_l	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.02111	0.03205	0.21854
	(D * !Q * QN)	0.00000	0.00000	0.00000
	(D * !Q * QN)	0.04680	0.05645	0.29325
	(!D * Q * !QN)	0.00000	0.00000	0.00000
	(!D * Q * !QN)	0.04629	0.06574	0.36441
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.02479	0.03523	0.22043

SKY130_OSU_SC_18T_HS__INVx

sky130_osu_sc_18T_hs_tt_1P80_100C.ccs
Cell Library: Process , Voltage 1.80, Temp 100.00

Truth Table

INPUT	OUTPUT
A	Y
0	1
1	0

Footprint

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

Pin Capacitance Information

Cell Name	Pin Cap(pf)	Max Cap(pf)
	A	Y
sky130_osu_sc_18T_hs__inv_1	0.00560	2.98866
sky130_osu_sc_18T_hs__inv_10	0.05299	25.88964
sky130_osu_sc_18T_hs__inv_2	0.01079	5.70736
sky130_osu_sc_18T_hs__inv_3	0.01609	8.22007
sky130_osu_sc_18T_hs__inv_4	0.02131	10.97370
sky130_osu_sc_18T_hs__inv_6	0.03195	16.13493
sky130_osu_sc_18T_hs__inv_8	0.04248	21.20692
sky130_osu_sc_18T_hs__inv_l	0.00430	2.04228

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__inv_1	0.00000	10.09330	19.89490
sky130_osu_sc_18T_hs__inv_10	0.00000	100.88800	198.88100
sky130_osu_sc_18T_hs__inv_2	0.00000	20.17840	39.77780
sky130_osu_sc_18T_hs__inv_3	0.00000	30.27100	59.67140
sky130_osu_sc_18T_hs__inv_4	0.00000	40.35610	79.55430
sky130_osu_sc_18T_hs__inv_6	0.00000	60.53360	119.33000
sky130_osu_sc_18T_hs__inv_8	0.00000	80.71100	159.10600
sky130_osu_sc_18T_hs__inv_l	0.00000	6.38439	12.48470

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__inv_1	**A->Y (FR)**	0.02475	0.64303	9.97024
sky130_osu_sc_18T_hs__inv_10	**A->Y (FR)**	0.03943	0.42533	9.83792
sky130_osu_sc_18T_hs__inv_2	**A->Y (FR)**	0.02088	0.55046	9.78142
sky130_osu_sc_18T_hs__inv_3	**A->Y (FR)**	0.02340	0.51431	9.82843
sky130_osu_sc_18T_hs__inv_4	**A->Y (FR)**	0.02445	0.48261	9.77398
sky130_osu_sc_18T_hs__inv_6	**A->Y (FR)**	0.02815	0.45090	9.78445
sky130_osu_sc_18T_hs__inv_8	**A->Y (FR)**	0.03335	0.43319	9.79549
sky130_osu_sc_18T_hs__inv_l	**A->Y (FR)**	0.02757	0.69749	9.91747

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__inv_1	**A->Y (RF)**	0.02165	0.57083	8.93465
sky130_osu_sc_18T_hs__inv_10	**A->Y (RF)**	0.03713	0.33937	8.51502
sky130_osu_sc_18T_hs__inv_2	**A->Y (RF)**	0.01856	0.47455	8.71963
sky130_osu_sc_18T_hs__inv_3	**A->Y (RF)**	0.02050	0.43611	8.73453
sky130_osu_sc_18T_hs__inv_4	**A->Y (RF)**	0.02086	0.40469	8.69578
sky130_osu_sc_18T_hs__inv_6	**A->Y (RF)**	0.02643	0.37229	8.66410
sky130_osu_sc_18T_hs__inv_8	**A->Y (RF)**	0.03151	0.35271	8.62921
sky130_osu_sc_18T_hs__inv_l	**A->Y (RF)**	0.02378	0.60986	8.68208

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__inv_1	A	0.00000	0.00000	0.00000
	A	0.00777	0.01174	0.04915
sky130_osu_sc_18T_hs__inv_10	A	0.00000	0.00000	0.00000
	A	0.07089	0.12760	0.49018
sky130_osu_sc_18T_hs__inv_2	A	0.00000	0.00000	0.00000
	A	0.01404	0.02314	0.09731
sky130_osu_sc_18T_hs__inv_3	A	0.00000	0.00000	0.00000
	A	0.02145	0.03570	0.14598
sky130_osu_sc_18T_hs__inv_4	A	0.00000	0.00000	0.00000
	A	0.02780	0.05020	0.19393
sky130_osu_sc_18T_hs__inv_6	A	0.00000	0.00000	0.00000
	A	0.04153	0.07490	0.29165
sky130_osu_sc_18T_hs__inv_8	A	0.00000	0.00000	0.00000
	A	0.05570	0.10030	0.38973
sky130_osu_sc_18T_hs__inv_l	A	0.00000	0.00000	0.00000
	A	0.00599	0.00819	0.03186

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__inv_1	**A**	0.00000	0.00000	0.00000
	A	-0.00138	0.00075	0.02258
sky130_osu_sc_18T_hs__inv_10	**A**	0.00000	0.00000	0.00000
	A	-0.01434	0.01354	0.22646
sky130_osu_sc_18T_hs__inv_2	**A**	0.00000	0.00000	0.00000
	A	-0.00467	0.00040	0.04422
sky130_osu_sc_18T_hs__inv_3	**A**	0.00000	0.00000	0.00000
	A	-0.00593	0.00270	0.06697
sky130_osu_sc_18T_hs__inv_4	**A**	0.00000	0.00000	0.00000
	A	-0.00889	0.00292	0.08859
sky130_osu_sc_18T_hs__inv_6	**A**	0.00000	0.00000	0.00000
	A	-0.01349	0.00510	0.13312
sky130_osu_sc_18T_hs__inv_8	**A**	0.00000	0.00000	0.00000
	A	-0.01582	0.00979	0.17882
sky130_osu_sc_18T_hs__inv_l	**A**	0.00000	0.00000	0.00000
	A	-0.00105	0.00024	0.01516

SKY130_OSU_SC_18T_HS__MUX2

sky130_osu_sc_18T_hs_tt_1P80_100C.ccs
Cell Library: Process , Voltage 1.80, Temp 100.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_hs__mux2_1	18.31500

Pin Capacitance Information

Cell Name	Pin Cap(pf)			Max Cap(pf)
	A0	A1	S0	Y
sky130_osu_sc_18T_hs__mux2_1	0.28079	0.28070	0.01137	0.27534

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__mux2_1	0.00000	20.19290	20.19290

Delay Information

Delay(ns) to Y rising (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_18T_hs__mux2_1	A0->Y (RR)	-	0.01230	0.11719	0.77906
	A1->Y (RR)	-	0.01330	0.11729	0.77664
	S0->Y (RR)	(!A0 * A1)	0.04188	0.17818	0.51963
	S0->Y (FR)	(A0 * !A1)	0.03707	0.25379	1.99226

Delay(ns) to Y falling (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_18T_hs__mux2_1	A0->Y (FF)	-	0.01121	0.12704	0.84777
	A1->Y (FF)	-	0.01113	0.12655	0.84413
	S0->Y (FF)	(!A0 * A1)	0.05349	0.25079	1.53378
	S0->Y (RF)	(A0 * !A1)	0.02637	0.19398	1.14333

Power Information

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

Cell Name	Input	When	Power(pJ)		
			first	mid	last
sky130_osu_sc_18T_hs__mux2_1	A0	-	0.00000	0.00000	0.00000
	A0	-	-0.00829	-0.00832	-0.00831
	A1	-	0.00000	0.00000	0.00000
	A1	-	-0.00528	-0.00529	-0.00529
	S0	(A0 * !A1)	0.00000	0.00000	0.00000
	S0	(A0 * !A1)	0.00854	0.02044	0.20683
	S0	(!A0 * A1)	0.00000	0.00000	0.00000
	S0	(!A0 * A1)	-0.00565	0.00443	0.18915

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

Cell Name	Input	When	Power(pJ)		
			first	mid	last
sky130_osu_sc_18T_hs__mux2_1	A0	-	0.00000	0.00000	0.00000
	A0	-	0.00831	0.00832	0.00833
	A1	-	0.00000	0.00000	0.00000
	A1	-	0.00621	0.00622	0.00621
	S0	(A0 * !A1)	0.00000	0.00000	0.00000
	S0	(A0 * !A1)	0.00191	0.01237	0.19838
	S0	(!A0 * A1)	0.00000	0.00000	0.00000
	S0	(!A0 * A1)	0.02124	0.03221	0.21760

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__mux2_1	(A1 * S0 * Y) + (!A1 * S0 * !Y)	0.00000	0.00000	0.00000
	(A1 * S0 * Y) + (!A1 * S0 * !Y)	-0.00187	-0.00185	-0.00185

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__mux2_1	(A1 * S0 * Y) + (!A1 * S0 * !Y)	0.00000	0.00000	0.00000
	(A1 * S0 * Y) + (!A1 * S0 * !Y)	0.00220	0.00220	0.00220

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__mux2_1	(A0 * !S0 * Y) + (!A0 * !S0 * !Y)	0.00000	0.00000	0.00000
	(A0 * !S0 * Y) + (!A0 * !S0 * !Y)	-0.00239	-0.00238	-0.00238

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__mux2_1	(A0 * !S0 * Y) + (!A0 * !S0 * !Y)	0.00000	0.00000	0.00000
	(A0 * !S0 * Y) + (!A0 * !S0 * !Y)	0.00239	0.00238	0.00238

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__mux2_1	(A0 * A1 * Y)	0.00000	0.00000	0.00000
	(A0 * A1 * Y)	-0.00187	0.00833	0.19372
	(!A0 * !A1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !Y)	-0.00187	0.00829	0.19417

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__mux2_1	(A0 * A1 * Y)	0.00000	0.00000	0.00000
	(A0 * A1 * Y)	0.01584	0.02687	0.21261
	(!A0 * !A1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !Y)	0.01400	0.02574	0.21204

SKY130_OSU_SC_18T_HS__NAND2x

sky130_osu_sc_18T_hs_tt_1P80_100C.ccs
Cell Library: Process , Voltage 1.80, Temp 100.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_hs__nand2_1	9.52380
sky130_osu_sc_18T_hs__nand2_l	9.52380

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	B	Y
sky130_osu_sc_18T_hs__nand2_1	0.00562	0.00561	2.29359
sky130_osu_sc_18T_hs__nand2_l	0.00431	0.00430	1.67032

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__nand2_1	0.00000	10.08690	39.77590
sky130_osu_sc_18T_hs__nand2_l	0.00000	6.38379	24.96030

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__nand2_1	A->Y (FR)	0.02527	0.59534	8.59450
	B->Y (FR)	0.02956	0.59366	8.50632
sky130_osu_sc_18T_hs__nand2_l	A->Y (FR)	0.02800	0.65513	8.84989
	B->Y (FR)	0.03316	0.65693	8.81342

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__nand2_1	A->Y (RF)	0.03042	0.65802	9.65287
	B->Y (RF)	0.03431	0.61865	9.05401
sky130_osu_sc_18T_hs__nand2_l	A->Y (RF)	0.03341	0.72182	9.73528
	B->Y (RF)	0.03711	0.68049	9.10195

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__nand2_1	A	0.00000	0.00000	0.00000
	A	0.00829	0.01185	0.05036
	B	0.00000	0.00000	0.00000
	B	0.01056	0.01402	0.05317
sky130_osu_sc_18T_hs__nand2_1	A	0.00000	0.00000	0.00000
	A	0.00635	0.00839	0.03165
	B	0.00000	0.00000	0.00000
	B	0.00802	0.01000	0.03395

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__nand2_1	A	0.00000	0.00000	0.00000
	A	-0.00028	0.00146	0.02314
	B	0.00000	0.00000	0.00000
	B	-0.00028	0.00108	0.02131
sky130_osu_sc_18T_hs__nand2_1	A	0.00000	0.00000	0.00000
	A	-0.00034	0.00067	0.01487
	B	0.00000	0.00000	0.00000
	B	-0.00033	0.00045	0.01421

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__nand2_1	(!B * Y)	0.00000	0.00000	0.00000
	(!B * Y)	-0.00602	-0.00605	-0.00607
sky130_osu_sc_18T_hs__nand2_l	(!B * Y)	0.00000	0.00000	0.00000
	(!B * Y)	-0.00438	-0.00439	-0.00441

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__nand2_1	(!B * Y)	0.00000	0.00000	0.00000
	(!B * Y)	0.00605	0.00610	0.00609
sky130_osu_sc_18T_hs__nand2_l	(!B * Y)	0.00000	0.00000	0.00000
	(!B * Y)	0.00440	0.00445	0.00442

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__nand2_1	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00564	-0.00568	-0.00565
sky130_osu_sc_18T_hs__nand2_l	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00410	-0.00412	-0.00411

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__nand2_1	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00584	0.00573	0.00568
sky130_osu_sc_18T_hs__nand2_l	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00426	0.00417	0.00413

SKY130_OSU_SC_18T_HS__NOR2x

sky130_osu_sc_18T_hs_tt_1P80_100C.ccs
Cell Library: Process , Voltage 1.80, Temp 100.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_hs__nor2_1	9.52380
sky130_osu_sc_18T_hs__nor2_l	9.52380

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	B	Y
sky130_osu_sc_18T_hs__nor2_1	0.00562	0.00592	1.62184
sky130_osu_sc_18T_hs__nor2_l	0.00423	0.00457	1.12032

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__nor2_1	0.00000	7.73558	19.88990
sky130_osu_sc_18T_hs__nor2_l	0.00000	5.22419	12.48190

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__nor2_1	A->Y (FR)	0.04982	0.71744	9.41389
	B->Y (FR)	0.03612	0.72747	9.71508
sky130_osu_sc_18T_hs__nor2_l	A->Y (FR)	0.05460	0.78851	9.33176
	B->Y (FR)	0.04249	0.80551	9.75389

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__nor2_1	A->Y (RF)	0.03014	0.46812	6.06984
	B->Y (RF)	0.02319	0.45573	6.04601
sky130_osu_sc_18T_hs__nor2_l	A->Y (RF)	0.03165	0.50116	5.96320
	B->Y (RF)	0.02537	0.49113	5.94253

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__nor2_1	A	0.00000	0.00000	0.00000
	A	0.01172	0.01278	0.04575
	B	0.00000	0.00000	0.00000
	B	0.00838	0.01209	0.05779
sky130_osu_sc_18T_hs__nor2_l	A	0.00000	0.00000	0.00000
	A	0.00852	0.00939	0.03146
	B	0.00000	0.00000	0.00000
	B	0.00638	0.00844	0.03579

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__nor2_1	A	0.00000	0.00000	0.00000
	A	0.00157	0.00338	0.03282
	B	0.00000	0.00000	0.00000
	B	-0.00101	0.00111	0.02940
sky130_osu_sc_18T_hs__nor2_l	A	0.00000	0.00000	0.00000
	A	0.00106	0.00225	0.02229
	B	0.00000	0.00000	0.00000
	B	-0.00072	0.00061	0.01984

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__nor2_1	(B * !Y)	0.00000	0.00000	0.00000
	(B * !Y)	-0.00422	-0.00523	-0.00529
sky130_osu_sc_18T_hs__nor2_l	(B * !Y)	0.00000	0.00000	0.00000
	(B * !Y)	-0.00307	-0.00372	-0.00376

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__nor2_1	(B * !Y)	0.00000	0.00000	0.00000
	(B * !Y)	0.00567	0.00570	0.00568
sky130_osu_sc_18T_hs__nor2_l	(B * !Y)	0.00000	0.00000	0.00000
	(B * !Y)	0.00399	0.00400	0.00401

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__nor2_1	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	-0.00235	-0.00237	-0.00235
sky130_osu_sc_18T_hs__nor2_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	-0.00175	-0.00177	-0.00176

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__nor2_1	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00255	0.00256	0.00244
sky130_osu_sc_18T_hs__nor2_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00190	0.00191	0.00182

SKY130_OSU_SC_18T_HS__OAI21

sky130_osu_sc_18T_hs_tt_1P80_100C.ccs
Cell Library: Process , Voltage 1.80, Temp 100.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_hs__oai21_l	12.45420

Pin Capacitance Information

Cell Name	Pin Cap(pf)			Max Cap(pf)
	A0	A1	B0	Y
sky130_osu_sc_18T_hs__oai21_l	0.00569	0.00578	0.00476	1.58548

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__oai21_l	0.00000	8.65291	32.37200

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__oai21_l	A0->Y (FR)	0.04832	0.73681	9.62446
	A1->Y (FR)	0.06544	0.73349	9.34124
	B0->Y (FR)	0.03378	0.64500	8.54332

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__oai21_l	A0->Y (RF)	0.04323	0.56825	7.31512
	A1->Y (RF)	0.05366	0.56685	7.13088
	B0->Y (RF)	0.03326	0.61645	8.17229

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__oai21_l	A0	0.00000	0.00000	0.00000
	A0	0.01177	0.01453	0.05252
	A1	0.00000	0.00000	0.00000
	A1	0.01505	0.01615	0.04513
	B0	0.00691	0.00979	0.04543

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__oai21_l	A0	0.00000	0.00000	0.00000
	A0	0.00092	0.00200	0.02366
	A1	0.00000	0.00000	0.00000
	A1	0.00350	0.00423	0.02671
	B0	0.00129	0.00284	0.02516

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__oai21_l	(A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * !Y)	-0.00226	-0.00227	-0.00225
	(A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * Y)	-0.00547	-0.00548	-0.00550
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00555	-0.00559	-0.00555

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__oai21_l	(A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * !Y)	0.00266	0.00267	0.00256
	(A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * Y)	0.00548	0.00548	0.00550
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00570	0.00559	0.00558

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__oai21_l	(A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * B0 * !Y)	-0.00402	-0.00503	-0.00510
	(A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * Y)	-0.00543	-0.00543	-0.00546
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	-0.00550	-0.00554	-0.00551

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__oai21_l	(A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * B0 * !Y)	0.00570	0.00575	0.00571
	(A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * Y)	0.00543	0.00543	0.00546
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	0.00565	0.00557	0.00553

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__oai21_l	(!A0 * !A1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * Y)	-0.00444	-0.00447	-0.00454

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__oai21_l	(!A0 * !A1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * Y)	0.00453	0.00457	0.00455

SKY130_OSU_SC_18T_HS__OAI22

sky130_osu_sc_18T_hs_tt_1P80_100C.ccs
Cell Library: Process , Voltage 1.80, Temp 100.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_hs__oai22_l	15.38460

Pin Capacitance Information

Cell Name	Pin Cap(pf)				Max Cap(pf)
	A0	A1	B0	B1	Y
sky130_osu_sc_18T_hs__oai22_l	0.00556	0.00580	0.00592	0.00580	1.60338

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__oai22_l	0.00000	11.58110	39.76590

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__oai22_l	A0->Y (FR)	0.07000	0.73779	9.36962
	A1->Y (FR)	0.05642	0.74439	9.67274
	B0->Y (FR)	0.03998	0.72924	9.66958
	B1->Y (FR)	0.05387	0.72042	9.36710

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__oai22_l	A0->Y (RF)	0.07867	0.61960	7.54480
	A1->Y (RF)	0.06106	0.59523	7.42727
	B0->Y (RF)	0.05192	0.64392	8.27202
	B1->Y (RF)	0.07042	0.68069	8.53226

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__oai22_l	A0	0.01979	0.02083	0.04743
	A1	0.01455	0.01750	0.05888
	B0	0.00898	0.01217	0.05291
	B1	0.01244	0.01326	0.04172

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__oai22_l	A0	0.00242	0.00315	0.02625
	A1	-0.00015	0.00093	0.02303
	B0	-0.00007	0.00162	0.02654
	B1	0.00243	0.00377	0.02823

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__oai22_l	(A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * !Y)	-0.00421	-0.00523	-0.00528
	(A1 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * B1 * !Y)	-0.00413	-0.00514	-0.00520
	(A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * !B1 * Y)	-0.00544	-0.00551	-0.00547
	(!A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * !B1 * Y)	-0.00550	-0.00554	-0.00551

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__oai22_l	(A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * !Y)	0.00568	0.00575	0.00569
	(A1 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * B1 * !Y)	0.00576	0.00583	0.00577
	(A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * !B1 * Y)	0.00544	0.00551	0.00547
	(!A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * !B1 * Y)	0.00568	0.00557	0.00554

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__oai22_l	(A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * B0 * !Y)	-0.00233	-0.00235	-0.00233
	(A0 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * B1 * !Y)	-0.00225	-0.00227	-0.00225
	(A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * !B1 * Y)	-0.00542	-0.00548	-0.00545
	(!A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * !B1 * Y)	-0.00549	-0.00553	-0.00550

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__oai22_l	(A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * B0 * !Y)	0.00254	0.00255	0.00243
	(A0 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * B1 * !Y)	0.00262	0.00264	0.00251
	(A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * !B1 * Y)	0.00543	0.00548	0.00545
	(!A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * !B1 * Y)	0.00567	0.00557	0.00553

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__oai22_l	(A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * B1 * !Y)	-0.00232	-0.00234	-0.00232
	(A0 * !A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B1 * !Y)	-0.00223	-0.00226	-0.00224
	(!A0 * !A1 * B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B1 * Y)	-0.00595	-0.00600	-0.00599
	(!A0 * !A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B1 * Y)	-0.00588	-0.00593	-0.00602

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__oai22_l	(A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * B1 * !Y)	0.00253	0.00254	0.00242
	(A0 * !A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B1 * !Y)	0.00261	0.00263	0.00250
	(!A0 * !A1 * B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B1 * Y)	0.00602	0.00605	0.00599
	(!A0 * !A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B1 * Y)	0.00602	0.00607	0.00605

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__oai22_l	(A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * !Y)	-0.00415	-0.00516	-0.00522
	(A0 * !A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B0 * !Y)	-0.00408	-0.00508	-0.00514
	(!A0 * !A1 * B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B0 * Y)	-0.00603	-0.00609	-0.00606
	(!A0 * !A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B0 * Y)	-0.00596	-0.00599	-0.00609

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__oai22_l	(A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * !Y)	0.00561	0.00562	0.00562
	(A0 * !A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B0 * !Y)	0.00569	0.00575	0.00570
	(!A0 * !A1 * B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B0 * Y)	0.00609	0.00615	0.00607
	(!A0 * !A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B0 * Y)	0.00609	0.00614	0.00612

SKY130_OSU_SC_18T_HS__OR2x

sky130_osu_sc_18T_hs_tt_1P80_100C.ccs
Cell Library: Process , Voltage 1.80, Temp 100.00

Truth Table

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

Footprint

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

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	B	Y
sky130_osu_sc_18T_hs__or2_1	0.00596	0.00576	3.13701
sky130_osu_sc_18T_hs__or2_2	0.00596	0.00576	5.99063
sky130_osu_sc_18T_hs__or2_4	0.00597	0.00576	11.49347
sky130_osu_sc_18T_hs__or2_8	0.00599	0.00579	21.59763
sky130_osu_sc_18T_hs__or2_l	0.00464	0.00440	2.17711

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__or2_1	0.00000	12.92830	20.47450
sky130_osu_sc_18T_hs__or2_2	0.00000	18.11480	40.35830
sky130_osu_sc_18T_hs__or2_4	0.00000	28.49360	80.13640
sky130_osu_sc_18T_hs__or2_8	0.00000	49.25090	159.69200
sky130_osu_sc_18T_hs__or2_l	0.00000	8.55863	13.04990

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__or2_1	A->Y (RR)	0.06327	0.49404	6.39621
	B->Y (RR)	0.05382	0.46274	6.33532
sky130_osu_sc_18T_hs__or2_2	A->Y (RR)	0.06986	0.43931	6.31879
	B->Y (RR)	0.06001	0.40980	6.23687
sky130_osu_sc_18T_hs__or2_4	A->Y (RR)	0.09024	0.44288	6.52418
	B->Y (RR)	0.07996	0.41829	6.43872
sky130_osu_sc_18T_hs__or2_8	A->Y (RR)	0.13142	0.49649	6.76641
	B->Y (RR)	0.12059	0.47639	6.67419
sky130_osu_sc_18T_hs__or2_l	A->Y (RR)	0.06817	0.55891	6.45092
	B->Y (RR)	0.05927	0.52941	6.35824

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__or2_1	A->Y (FF)	0.09244	0.57684	7.30785
	B->Y (FF)	0.07450	0.57024	7.52800
sky130_osu_sc_18T_hs__or2_2	A->Y (FF)	0.10830	0.53848	7.21216
	B->Y (FF)	0.09049	0.53626	7.41664
sky130_osu_sc_18T_hs__or2_4	A->Y (FF)	0.15138	0.56615	7.36464
	B->Y (FF)	0.13364	0.57156	7.55051
sky130_osu_sc_18T_hs__or2_8	A->Y (FF)	0.24219	0.66095	7.42259
	B->Y (FF)	0.22448	0.67341	7.59585
sky130_osu_sc_18T_hs__or2_l	A->Y (FF)	0.10042	0.62189	7.01248
	B->Y (FF)	0.08308	0.62093	7.26529

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__or2_1	A	0.00000	0.00000	0.00000
	A	0.00911	0.01407	0.11549
	B	0.00000	0.00000	0.00000
	B	0.00671	0.01371	0.13813
sky130_osu_sc_18T_hs__or2_2	A	0.00000	0.00000	0.00000
	A	0.01571	0.02103	0.12330
	B	0.00000	0.00000	0.00000
	B	0.01313	0.02026	0.14419
sky130_osu_sc_18T_hs__or2_4	A	0.00000	0.00000	0.00000
	A	0.03044	0.03619	0.13634
	B	0.00000	0.00000	0.00000
	B	0.02768	0.03506	0.15565
sky130_osu_sc_18T_hs__or2_8	A	0.00000	0.00000	0.00000
	A	0.06687	0.06876	0.16422
	B	0.00000	0.00000	0.00000
	B	0.06369	0.06875	0.18026
sky130_osu_sc_18T_hs__or2_l	A	0.00000	0.00000	0.00000
	A	0.00670	0.00973	0.07780
	B	0.00000	0.00000	0.00000
	B	0.00508	0.00961	0.09007

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__or2_1	A	0.00000	0.00000	0.00000
	A	0.01933	0.02406	0.13017
	B	0.00000	0.00000	0.00000
	B	0.01568	0.02504	0.17575
sky130_osu_sc_18T_hs__or2_2	A	0.00000	0.00000	0.00000
	A	0.02542	0.02915	0.13424
	B	0.00000	0.00000	0.00000
	B	0.02179	0.02999	0.17822
sky130_osu_sc_18T_hs__or2_4	A	0.00000	0.00000	0.00000
	A	0.04484	0.04230	0.14427
	B	0.00000	0.00000	0.00000
	B	0.04119	0.04340	0.18535
sky130_osu_sc_18T_hs__or2_8	A	0.00000	0.00000	0.00000
	A	0.09909	0.07354	0.16615
	B	0.00000	0.00000	0.00000
	B	0.09567	0.07321	0.20280
sky130_osu_sc_18T_hs__or2_l	A	0.00000	0.00000	0.00000
	A	0.01451	0.01748	0.08577
	B	0.00000	0.00000	0.00000
	B	0.01201	0.01768	0.11370

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__or2_1	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00420	-0.00524	-0.00531
sky130_osu_sc_18T_hs__or2_2	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00419	-0.00524	-0.00531
sky130_osu_sc_18T_hs__or2_4	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00419	-0.00524	-0.00530
sky130_osu_sc_18T_hs__or2_8	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00417	-0.00523	-0.00529
sky130_osu_sc_18T_hs__or2_l	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00305	-0.00372	-0.00377

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__or2_1	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00569	0.00574	0.00571
sky130_osu_sc_18T_hs__or2_2	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00569	0.00574	0.00571
sky130_osu_sc_18T_hs__or2_4	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00570	0.00575	0.00571
sky130_osu_sc_18T_hs__or2_8	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00571	0.00576	0.00572
sky130_osu_sc_18T_hs__or2_l	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00401	0.00406	0.00402

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__or2_1	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00237	-0.00238	-0.00236
sky130_osu_sc_18T_hs__or2_2	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00237	-0.00237	-0.00236
sky130_osu_sc_18T_hs__or2_4	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00235	-0.00237	-0.00235
sky130_osu_sc_18T_hs__or2_8	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00234	-0.00236	-0.00234
sky130_osu_sc_18T_hs__or2_l	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00179	-0.00180	-0.00178

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__or2_1	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00259	0.00258	0.00245
sky130_osu_sc_18T_hs__or2_2	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00259	0.00258	0.00246
sky130_osu_sc_18T_hs__or2_4	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00259	0.00259	0.00246
sky130_osu_sc_18T_hs__or2_8	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00260	0.00260	0.00247
sky130_osu_sc_18T_hs__or2_l	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00195	0.00195	0.00186

SKY130_OSU_SC_18T_HS__TBUFIx

sky130_osu_sc_18T_hs_tt_1P80_100C.ccs
Cell Library: Process , Voltage 1.80, Temp 100.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_hs__tbufi_1	12.45420
sky130_osu_sc_18T_hs__tbufi_l	12.45420

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	OE	Y
sky130_osu_sc_18T_hs__tbufi_1	0.00592	0.00745	1.62369
sky130_osu_sc_18T_hs__tbufi_l	0.00458	0.00579	1.11786

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__tbufi_1	0.00000	10.28190	39.78300
sky130_osu_sc_18T_hs__tbufi_l	0.00000	6.57515	24.96580

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__tbufi_1	A->Y (FR)	0.03522	0.72321	9.68887
	OE->Y (FR)	0.04456	0.37576	5.09402
	OE->Y (RR)	0.06987	0.56879	6.39241
sky130_osu_sc_18T_hs__tbufi_l	A->Y (FR)	0.04148	0.80369	9.74068
	OE->Y (FR)	0.04725	0.37552	5.09382
	OE->Y (RR)	0.07557	0.64913	6.37669

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__tbufi_1	A->Y (RF)	0.03015	0.57751	7.68662
	OE->Y (FF)	0.04531	0.37572	5.09400
	OE->Y (RF)	0.02738	0.52707	6.98641
sky130_osu_sc_18T_hs__tbufi_l	A->Y (RF)	0.03343	0.61627	7.49369
	OE->Y (FF)	0.04796	0.37550	5.09382
	OE->Y (RF)	0.03116	0.56805	6.76190

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__tbufi_1	A	0.00000	0.00000	0.00000
	A	0.00852	0.01146	0.05072
	OE	0.00000	0.00000	0.00000
	OE	0.00899	0.01827	0.18342
sky130_osu_sc_18T_hs__tbufi_l	A	0.00000	0.00000	0.00000
	A	0.00644	0.00823	0.03285
	OE	0.00000	0.00000	0.00000
	OE	0.00634	0.01217	0.11954

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__tbufi_1	A	0.00000	0.00000	0.00000
	A	-0.00054	0.00130	0.02521
	OE	0.00000	0.00000	0.00000
	OE	0.00642	0.01646	0.20089
sky130_osu_sc_18T_hs__tbufi_l	A	0.00000	0.00000	0.00000
	A	-0.00042	0.00069	0.01698
	OE	0.00000	0.00000	0.00000
	OE	0.00439	0.01055	0.12770

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__tbufi_1	(!OE * Y)	0.00000	0.00000	0.00000
	(!OE * Y)	-0.00409	-0.00416	-0.00410
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	-0.00347	-0.00348	-0.00348
sky130_osu_sc_18T_hs__tbufi_l	(!OE * Y)	0.00000	0.00000	0.00000
	(!OE * Y)	-0.00314	-0.00319	-0.00314
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	-0.00272	-0.00278	-0.00273

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__tbufi_1	(!OE * Y)	0.00000	0.00000	0.00000
	(!OE * Y)	0.00409	0.00416	0.00410
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	0.00360	0.00363	0.00355
sky130_osu_sc_18T_hs__tbufi_l	(!OE * Y)	0.00000	0.00000	0.00000
	(!OE * Y)	0.00314	0.00319	0.00314
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	0.00282	0.00284	0.00278

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__tbufi_1	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00392	0.01436	0.20261
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00326	0.01387	0.20191
sky130_osu_sc_18T_hs__tbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00264	0.00917	0.12890
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00220	0.00873	0.12844

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__tbufi_1	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00954	0.02100	0.20902
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00929	0.02086	0.20888
sky130_osu_sc_18T_hs__tbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00745	0.01448	0.13420
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00731	0.01443	0.13413

SKY130_OSU_SC_18T_HS__TNBUFIx

sky130_osu_sc_18T_hs_tt_1P80_100C.ccs
Cell Library: Process , Voltage 1.80, Temp 100.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_hs__tnbufi_1	12.45420
sky130_osu_sc_18T_hs__tnbufi_l	12.45420

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	OE	Y
sky130_osu_sc_18T_hs__tnbufi_1	0.00592	0.00939	1.62384
sky130_osu_sc_18T_hs__tnbufi_l	0.00457	0.00702	1.11795

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__tnbufi_1	0.00000	16.81660	20.18120
sky130_osu_sc_18T_hs__tnbufi_l	0.00000	10.64220	12.76580

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__tnbufi_1	A->Y (FR)	0.03533	0.72504	9.68903
	OE->Y (RR)	0.02800	0.37712	5.09540
	OE->Y (FR)	0.04728	0.71256	9.29768
sky130_osu_sc_18T_hs__tnbufi_l	A->Y (FR)	0.04170	0.80366	9.74076
	OE->Y (RR)	0.02895	0.37744	5.09569
	OE->Y (FR)	0.05227	0.78268	9.21018

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_hs__tnbufi_1	A->Y (RF)	0.02977	0.57739	7.68718
	OE->Y (RF)	0.02779	0.37714	5.09552
	OE->Y (FF)	0.04782	0.48229	5.60968
sky130_osu_sc_18T_hs__tnbufi_l	A->Y (RF)	0.03297	0.61609	7.49411
	OE->Y (RF)	0.02875	0.37746	5.09575
	OE->Y (FF)	0.05339	0.52224	5.30674

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__tnbufi_1	A	0.00000	0.00000	0.00000
	A	0.00817	0.01143	0.05042
	OE	0.00000	0.00000	0.00000
	OE	0.02043	0.03299	0.22058
sky130_osu_sc_18T_hs__tnbufi_l	A	0.00000	0.00000	0.00000
	A	0.00629	0.00808	0.03273
	OE	0.00000	0.00000	0.00000
	OE	0.01515	0.02290	0.14295

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__tnbufi_1	A	0.00000	0.00000	0.00000
	A	-0.00123	0.00063	0.02456
	OE	0.00000	0.00000	0.00000
	OE	0.01822	0.03064	0.19946
sky130_osu_sc_18T_hs__tnbufi_l	A	0.00000	0.00000	0.00000
	A	-0.00094	0.00019	0.01650
	OE	0.00000	0.00000	0.00000
	OE	0.01347	0.02113	0.12573

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__tnbufi_1	(OE * Y)	0.00000	0.00000	0.00000
	(OE * Y)	-0.00369	-0.00376	-0.00370
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	-0.00279	-0.00285	-0.00280
sky130_osu_sc_18T_hs__tnbufi_l	(OE * Y)	0.00000	0.00000	0.00000
	(OE * Y)	-0.00271	-0.00275	-0.00271
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	-0.00212	-0.00215	-0.00212

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__tnbufi_1	(OE * Y)	0.00000	0.00000	0.00000
	(OE * Y)	0.00369	0.00376	0.00370
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	0.00325	0.00328	0.00321
sky130_osu_sc_18T_hs__tnbufi_l	(OE * Y)	0.00000	0.00000	0.00000
	(OE * Y)	0.00271	0.00275	0.00271
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	0.00242	0.00243	0.00239

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__tnbufi_1	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	-0.00609	0.00439	0.19333
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00635	0.00436	0.19322
sky130_osu_sc_18T_hs__tnbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	-0.00434	0.00208	0.12246
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00451	0.00205	0.12238

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__tnbufi_1	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.01564	0.02866	0.21803
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.01516	0.02831	0.21767
sky130_osu_sc_18T_hs__tnbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.01163	0.01990	0.14035
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.01133	0.01945	0.14011

SKY130_OSU_SC_18T_HS__XNOR2

sky130_osu_sc_18T_hs_tt_1P80_100C.ccs
Cell Library: Process , Voltage 1.80, Temp 100.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_hs__xnor2_l	21.24540

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	B	Y
sky130_osu_sc_18T_hs__xnor2_l	0.01173	0.01079	1.66199

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__xnor2_l	0.00000	35.34770	59.95210

Delay Information

Delay(ns) to Y rising (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_18T_hs__xnor2_1	A->Y (RR)	B	0.08753	0.60310	6.58141
	A->Y (FR)	!B	0.04482	0.73439	9.74573
	B->Y (RR)	A	0.06879	0.58883	6.71789
	B->Y (FR)	!A	0.06369	0.73415	9.49255

Delay(ns) to Y falling (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_18T_hs__xnor2_1	A->Y (FF)	B	0.08832	0.56730	6.13241
	A->Y (RF)	!B	0.04258	0.56600	7.41911
	B->Y (FF)	A	0.07509	0.55558	6.14481
	B->Y (RF)	!A	0.05531	0.58107	7.41206

Power Information

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

Cell Name	Input	When	Power(pJ)		
			first	mid	last
sky130_osu_sc_18T_hs__xnor2_l	A	B	0.00000	0.00000	0.00000
	A	B	0.00936	0.01786	0.18183
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.01924	0.03267	0.24949
	B	A	0.00000	0.00000	0.00000
	B	A	0.00301	0.01333	0.20097
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.02185	0.03382	0.23724

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

Cell Name	Input	When	Power(pJ)		
			first	mid	last
sky130_osu_sc_18T_hs__xnor2_l	A	B	0.00000	0.00000	0.00000
	A	B	0.02578	0.03582	0.21782
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00676	0.01716	0.21728
	B	A	0.00000	0.00000	0.00000
	B	A	0.02370	0.03519	0.22225
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00817	0.01843	0.21656

SKY130_OSU_SC_18T_HS__XOR2

sky130_osu_sc_18T_hs_tt_1P80_100C.ccs
Cell Library: Process , Voltage 1.80, Temp 100.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_hs__xor2_1	21.24540

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	B	Y
sky130_osu_sc_18T_hs__xor2_1	0.01171	0.01084	1.65542

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__xor2_1	0.00000	35.34800	59.61400

Delay Information

Delay(ns) to Y rising (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_18T_hs__xor2_l	A->Y (RR)	!B	0.08061	0.59105	6.67398
	A->Y (FR)	B	0.05858	0.73448	9.58702
	B->Y (RR)	!A	0.07084	0.58952	6.70649
	B->Y (FR)	A	0.06221	0.73645	9.54879

Delay(ns) to Y falling (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_18T_hs__xor2_l	A->Y (FF)	!B	0.07314	0.54046	5.79830
	A->Y (RF)	B	0.04359	0.60046	7.77701
	B->Y (FF)	!A	0.06965	0.54189	5.98576
	B->Y (RF)	A	0.05172	0.56330	7.17047

Power Information

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

Cell Name	Input	When	Power(pJ)		
			first	mid	last
sky130_osu_sc_18T_hs__xor2_l	A	B	0.00000	0.00000	0.00000
	A	B	0.02384	0.03654	0.24916
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00398	0.01248	0.19781
	B	A	0.00000	0.00000	0.00000
	B	A	0.02454	0.03726	0.24604
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00216	0.01232	0.20195

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

Cell Name	Input	When	Power(pJ)		
			first	mid	last
sky130_osu_sc_18T_hs__xor2_l	A	B	0.00000	0.00000	0.00000
	A	B	0.00600	0.01682	0.22561
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.02603	0.03750	0.20562
	B	A	0.00000	0.00000	0.00000
	B	A	0.00602	0.01640	0.21917
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.02369	0.03601	0.22471

SKY130_OSU_SC_18T_HS_x

sky130_osu_sc_18T_hs_tt_1P80_100C.ccs
Cell Library: Process , Voltage 1.80, Temp 100.00

Truth Table

INPUT
A
x

Footprint

Cell Name	Area
sky130_osu_sc_18T_hs__ant	6.59340
sky130_osu_sc_18T_hs__tiehi	6.59340
sky130_osu_sc_18T_hs__tielo	6.59340

Pin Capacitance Information

Cell Name	Pin Cap(pf)
	A
sky130_osu_sc_18T_hs__ant	1.10205
sky130_osu_sc_18T_hs__tiehi	0.00000
sky130_osu_sc_18T_hs__tielo	0.00000

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__ant	0.00000	430373.00000	860746.00000
sky130_osu_sc_18T_hs__tiehi	0.00000	0.00000	0.00000
sky130_osu_sc_18T_hs__tielo	0.00000	0.00000	0.00000

Passive Power Information

Passive power(pJ) for A rising :

Cell Name	Power(pJ)		
	first	mid	last
sky130_osu_sc_18T_hs__ant	0.00000	0.00000	0.00000
	-0.00151	0.13562	1.81082

Passive power(pJ) for A falling :

Cell Name	Power(pJ)		
	first	mid	last
sky130_osu_sc_18T_hs__ant	0.00000	0.00000	0.00000
	7.48836	7.10626	2.13825