sky130_osu_sc_18T_hs_tt_1P68_25C.ccs Library

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

SKY130_OSU_SC_18T_HS__ADDFx

sky130_osu_sc_18T_hs_tt_1P68_25C.ccs
Cell Library: Process , Voltage 1.68,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_hs__addf_1	46.88640
sky130_osu_sc_18T_hs__addf_l	46.88640

Pin Capacitance Information

Cell Name	Pin Cap(pf)			Max Cap(pf)		
	A	B	CI	CO	CON	S
sky130_osu_sc_18T_hs__addf_1	0.02064	0.02058	0.01584	2.73208	1.26757	2.63518
sky130_osu_sc_18T_hs__addf_l	0.02063	0.02057	0.01583	1.87476	1.27097	1.85776

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__addf_1	0.00000	0.41145	0.55140
sky130_osu_sc_18T_hs__addf_l	0.00000	0.35387	0.49382

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)	0.13420	1.61069	24.76370
	B->CO (RR)	0.11646	1.52855	23.60910
	CI->CO (RR)	0.12798	1.65013	25.42180
	CON->CO (FR)	0.02709	0.73210	11.22550
sky130_osu_sc_18T_hs__addf_l	A->CO (RR)	0.13626	1.51274	20.25050
	B->CO (RR)	0.12893	1.45280	19.47990
	CI->CO (RR)	0.12999	1.55337	20.93850
	CON->CO (FR)	0.03084	0.80217	11.30350

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)	0.18531	2.03838	30.97300
	B->CO (FF)	0.16446	1.94998	29.69880
	CI->CO (FF)	0.15965	2.00734	30.96490
	CON->CO (RF)	0.02206	0.57599	8.86015
sky130_osu_sc_18T_hs__addf_l	A->CO (FF)	0.18219	1.83284	24.25850
	B->CO (FF)	0.16184	1.75785	23.37160
	CI->CO (FF)	0.15656	1.80260	24.28450
	CON->CO (RF)	0.02348	0.59128	8.38976

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)	0.14565	0.95859	10.85700
	B->CON (FR)	0.12468	0.90553	10.46940
	CI->CON (FR)	0.12003	0.93113	10.92200
sky130_osu_sc_18T_hs__addf_l	A->CON (FR)	0.13798	0.95208	10.86800
	B->CON (FR)	0.11770	0.89981	10.47970
	CI->CON (FR)	0.11233	0.92470	10.93270

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)	0.08246	0.57677	6.53737
	B->CON (RF)	0.07776	0.58150	6.69130
	CI->CON (RF)	0.07621	0.61943	7.27066
sky130_osu_sc_18T_hs__addf_l	A->CON (RF)	0.07929	0.57402	6.54514
	B->CON (RF)	0.07493	0.57910	6.69884
	CI->CON (RF)	0.07303	0.61674	7.27894

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)	0.27070	1.85857	24.63710
	B->S (-R)	0.27595	1.84550	23.77520
	CI->S (-R)	0.24292	1.82345	24.62980
	CON->S (RR)	0.07790	0.58938	6.89062
sky130_osu_sc_18T_hs__addf_l	A->S (-R)	0.25995	1.73234	20.59770
	B->S (-R)	0.26573	1.72979	20.04690
	CI->S (-R)	0.23214	1.69782	20.62000
	CON->S (RR)	0.07851	0.63991	6.86934

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)	0.21811	1.42873	17.99720
	B->S (-F)	0.21820	1.37071	17.28840
	CI->S (-F)	0.21124	1.46471	18.65600
	CON->S (FF)	0.09156	0.64713	6.94905
sky130_osu_sc_18T_hs__addf_l	A->S (-F)	0.20707	1.30406	14.67830
	B->S (-F)	0.19984	1.24585	14.27230
	CI->S (-F)	0.20006	1.34070	15.36350
	CON->S (FF)	0.08840	0.65471	6.59091

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	0.00350	0.00430	0.02279
	B	0.00400	0.00475	0.02092
	CI	0.00567	0.00660	0.02533
sky130_osu_sc_18T_hs__addf_l	A	0.00260	0.00314	0.01529
	B	0.00468	0.00480	0.01497
	CI	0.00476	0.00539	0.01758

Internal switching power(pJ) to CO falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__addf_1	A	0.01499	0.01610	0.04740
	B	0.01585	0.01676	0.04425
	CI	0.01253	0.01385	0.04613
sky130_osu_sc_18T_hs__addf_l	A	0.01409	0.01486	0.03549
	B	0.01495	0.01561	0.03349
	CI	0.01163	0.01259	0.03458

Internal switching power(pJ) to CON rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__addf_1	A	0.01497	0.01558	0.02971
	B	0.01541	0.01595	0.02921
	CI	0.01251	0.01327	0.02907
sky130_osu_sc_18T_hs__addf_l	A	0.01407	0.01464	0.02852
	B	0.01453	0.01500	0.02802
	CI	0.01162	0.01234	0.02789

Internal switching power(pJ) to CON falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__addf_1	A	0.00347	0.00399	0.01322
	B	0.00398	0.00437	0.01268
	CI	0.00564	0.00625	0.01616
sky130_osu_sc_18T_hs__addf_l	A	0.00258	0.00298	0.01162
	B	0.00310	0.00337	0.01103
	CI	0.00475	0.00524	0.01453

Internal switching power(pJ) to S rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__addf_1	A	0.01499	0.01606	0.04605
	B	0.01584	0.01674	0.04312
	CI	0.01252	0.01379	0.04483
sky130_osu_sc_18T_hs__addf_l	A	0.01409	0.01485	0.03523
	B	0.01495	0.01561	0.03327
	CI	0.01163	0.01259	0.03439

Internal switching power(pJ) to S falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__addf_1	A	0.03368	0.03402	0.05297
	B	0.02997	0.03071	0.06363
	CI	0.02733	0.02738	0.04654
sky130_osu_sc_18T_hs__addf_l	A	0.03247	0.03258	0.05195
	B	0.02879	0.02953	0.06339
	CI	0.02615	0.02620	0.04600

SKY130_OSU_SC_18T_HS__ADDHx

sky130_osu_sc_18T_hs_tt_1P68_25C.ccs
Cell Library: Process , Voltage 1.68,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_hs__addh_1	27.83880
sky130_osu_sc_18T_hs__addh_l	27.83880

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)		
	A	B	CO	CON	S
sky130_osu_sc_18T_hs__addh_1	0.01008	0.01106	2.67158	1.34197	2.71393
sky130_osu_sc_18T_hs__addh_l	0.01008	0.01106	1.59762	1.34316	1.61510

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__addh_1	0.00000	0.47339	0.54577
sky130_osu_sc_18T_hs__addh_l	0.00000	0.32608	0.42897

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)	0.09121	0.59872	6.67062
	B->CO (RR)	0.09469	0.59300	6.73442
sky130_osu_sc_18T_hs__addh_l	A->CO (RR)	0.09193	0.66950	6.63068
	B->CO (RR)	0.09543	0.66716	6.66280

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)	0.07959	0.61813	6.90273
	B->CO (FF)	0.08556	0.63168	6.92173
sky130_osu_sc_18T_hs__addh_l	A->CO (FF)	0.07856	0.64025	6.40512
	B->CO (FF)	0.08428	0.65419	6.42374

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	0.12666	0.48636	3.29683
	A->CON (FR)	!B	0.07936	0.86865	10.73950
	B->CON (RR)	A	0.12997	0.48102	3.36734
	B->CON (FR)	!A	0.09959	0.89718	10.80410
sky130_osu_sc_18T_hs__addh_l	A->CON (RR)	B	0.11340	0.46181	3.27734
	A->CON (FR)	!B	0.07016	0.85926	10.73570
	B->CON (RR)	A	0.11675	0.45885	3.31985
	B->CON (FR)	!A	0.09041	0.88746	10.80010

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	0.11998	0.64352	5.63234
	A->CON (RF)	!B	0.04879	0.58569	7.28107
	B->CON (FF)	A	0.11935	0.67685	5.99084
	B->CON (RF)	!A	0.05753	0.57078	6.91057
sky130_osu_sc_18T_hs__addh_l	A->CON (FF)	B	0.10876	0.61385	5.48310
	A->CON (RF)	!B	0.04502	0.58142	7.28042
	B->CON (FF)	A	0.10813	0.64802	5.83875
	B->CON (RF)	!A	0.05384	0.56683	6.91018

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	0.09574	1.57014	24.64910
	A->S (FR)	B	0.16725	1.60645	22.63310
	B->S (RR)	!A	0.10444	1.50865	23.42410
	B->S (FR)	A	0.16749	1.68556	23.86500
	CON->S (FR)	-	0.03056	0.75323	11.51610
sky130_osu_sc_18T_hs__addh_l	A->S (RR)	!B	0.09532	1.43574	18.88120
	A->S (FR)	B	0.15959	1.45585	16.87020
	B->S (RR)	!A	0.10429	1.38948	18.09170
	B->S (FR)	A	0.15964	1.52058	17.66350
	CON->S (FR)	-	0.03453	0.84024	11.41410

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	0.11424	1.83493	28.79880
	A->S (RF)	B	0.15815	1.19534	15.97950
	B->S (FF)	!A	0.13440	1.86830	28.94060
	B->S (RF)	A	0.16145	1.18827	16.04480
	CON->S (RF)	-	0.02068	0.55706	8.58571
sky130_osu_sc_18T_hs__addh_l	A->S (FF)	!B	0.10864	1.59251	20.95110
	A->S (RF)	B	0.14728	1.04798	11.26920
	B->S (FF)	!A	0.12891	1.62329	21.03270
	B->S (RF)	A	0.15063	1.04461	11.29970
	CON->S (RF)	-	0.02297	0.59154	8.11294

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	0.00681	0.00688	0.01654
	B	0.00000	0.00000	0.00000
	B	0.00609	0.00591	0.02045
sky130_osu_sc_18T_hs__addh_l	A	0.00000	0.00000	0.00000
	A	0.00557	0.00547	0.01724
	B	0.00000	0.00000	0.00000
	B	0.00485	0.00461	0.01794

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	0.01083	0.01102	0.02682
	B	0.00000	0.00000	0.00000
	B	0.01120	0.01212	0.02858
sky130_osu_sc_18T_hs__addh_l	A	0.00000	0.00000	0.00000
	A	0.00958	0.00972	0.02470
	B	0.00000	0.00000	0.00000
	B	0.00996	0.01059	0.02578

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	0.00680	0.00678	0.01697
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00943	0.00978	0.01502
	B	A	0.00000	0.00000	0.00000
	B	A	0.00608	0.00594	0.01816
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01063	0.01066	0.01355
sky130_osu_sc_18T_hs__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.00556	0.00545	0.01741
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00857	0.00883	0.01334
	B	A	0.00000	0.00000	0.00000
	B	A	0.00484	0.00459	0.01764
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00978	0.00972	0.01190

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	0.01083	0.01102	0.02628
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00143	0.00163	0.00484
	B	A	0.00000	0.00000	0.00000
	B	A	0.01120	0.01204	0.02727
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00253	0.00260	0.00551
sky130_osu_sc_18T_hs__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.00958	0.00971	0.02478
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00037	0.00046	0.00262
	B	A	0.00000	0.00000	0.00000
	B	A	0.00996	0.01059	0.02546
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00148	0.00143	0.00342

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	0.01084	0.01104	0.02739
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00144	0.00173	0.00581
	B	A	0.00000	0.00000	0.00000
	B	A	0.01121	0.01214	0.02930
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00256	0.00267	0.00610
sky130_osu_sc_18T_hs__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.00959	0.00973	0.02501
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00038	0.00051	0.00294
	B	A	0.00000	0.00000	0.00000
	B	A	0.00996	0.01061	0.02598
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00150	0.00142	0.00340

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	0.00682	0.00679	0.01645
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00943	0.00984	0.01508
	B	A	0.00000	0.00000	0.00000
	B	A	0.00609	0.00594	0.01752
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01065	0.01083	0.01463
sky130_osu_sc_18T_hs__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.00557	0.00551	0.01774
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00858	0.00882	0.01321
	B	A	0.00000	0.00000	0.00000
	B	A	0.00485	0.00460	0.01763
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00979	0.00977	0.01188

SKY130_OSU_SC_18T_HS__AND2x

sky130_osu_sc_18T_hs_tt_1P68_25C.ccs
Cell Library: Process , Voltage 1.68,
Temp 25.00

Truth Table

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

Footprint

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

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	B	Y
sky130_osu_sc_18T_hs__and2_1	0.00545	0.00557	2.70595
sky130_osu_sc_18T_hs__and2_2	0.00545	0.00557	5.22321
sky130_osu_sc_18T_hs__and2_4	0.00545	0.00558	9.86985
sky130_osu_sc_18T_hs__and2_6	0.00549	0.00558	14.47906
sky130_osu_sc_18T_hs__and2_8	0.00547	0.00560	18.63863
sky130_osu_sc_18T_hs__and2_l	0.00422	0.00434	1.85322

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__and2_1	0.00000	0.22720	0.36262
sky130_osu_sc_18T_hs__and2_2	0.00000	0.36245	0.36844
sky130_osu_sc_18T_hs__and2_4	0.00000	0.63296	0.71941
sky130_osu_sc_18T_hs__and2_6	0.00000	0.90346	1.07621
sky130_osu_sc_18T_hs__and2_8	0.00000	1.17397	1.43301
sky130_osu_sc_18T_hs__and2_l	0.00000	0.15515	0.24709

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)	0.06970	0.53337	6.59329
	B->Y (RR)	0.07406	0.53430	6.44853
sky130_osu_sc_18T_hs__and2_2	A->Y (RR)	0.08007	0.48899	6.61357
	B->Y (RR)	0.08444	0.48455	6.47542
sky130_osu_sc_18T_hs__and2_4	A->Y (RR)	0.10981	0.50858	6.78372
	B->Y (RR)	0.11414	0.49696	6.65851
sky130_osu_sc_18T_hs__and2_6	A->Y (RR)	0.13835	0.54861	6.98481
	B->Y (RR)	0.14261	0.53061	6.86307
sky130_osu_sc_18T_hs__and2_8	A->Y (RR)	0.16722	0.59157	7.17220
	B->Y (RR)	0.17154	0.57020	7.04686
sky130_osu_sc_18T_hs__and2_l	A->Y (RR)	0.07681	0.60912	6.57929
	B->Y (RR)	0.08132	0.60723	6.46925

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)**	0.06184	0.54834	6.43810
	B->Y (FF)	0.06576	0.56184	6.48621
sky130_osu_sc_18T_hs__and2_2	**A->Y (FF)**	0.07034	0.52045	6.44415
	B->Y (FF)	0.07485	0.53339	6.50139
sky130_osu_sc_18T_hs__and2_4	**A->Y (FF)**	0.09595	0.54781	6.58897
	B->Y (FF)	0.10048	0.55678	6.65443
sky130_osu_sc_18T_hs__and2_6	**A->Y (FF)**	0.12485	0.58840	6.76681
	B->Y (FF)	0.12920	0.59599	6.82298
sky130_osu_sc_18T_hs__and2_8	**A->Y (FF)**	0.15121	0.62299	6.80736
	B->Y (FF)	0.15568	0.62878	6.85010
sky130_osu_sc_18T_hs__and2_l	**A->Y (FF)**	0.06690	0.59172	6.16898
	B->Y (FF)	0.07182	0.60790	6.24233

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	0.00506	0.00574	0.05075
	B	0.00000	0.00000	0.00000
	B	0.00513	0.00496	0.03447
sky130_osu_sc_18T_hs__and2_2	A	0.00000	0.00000	0.00000
	A	0.01023	0.01112	0.05433
	B	0.00000	0.00000	0.00000
	B	0.01032	0.01058	0.03851
sky130_osu_sc_18T_hs__and2_4	A	0.00000	0.00000	0.00000
	A	0.02165	0.02292	0.06878
	B	0.00000	0.00000	0.00000
	B	0.02170	0.02254	0.04768
sky130_osu_sc_18T_hs__and2_6	A	0.00000	0.00000	0.00000
	A	0.03385	0.03478	0.07091
	B	0.00000	0.00000	0.00000
	B	0.03388	0.03465	0.05768
sky130_osu_sc_18T_hs__and2_8	A	0.00000	0.00000	0.00000
	A	0.04658	0.04692	0.08180
	B	0.00000	0.00000	0.00000
	B	0.04663	0.04672	0.06862
sky130_osu_sc_18T_hs__and2_l	A	0.00000	0.00000	0.00000
	A	0.00372	0.00400	0.03142
	B	0.00000	0.00000	0.00000
	B	0.00382	0.00354	0.02271

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	0.01293	0.01510	0.05578
	B	0.00000	0.00000	0.00000
	B	0.01458	0.01649	0.05505
sky130_osu_sc_18T_hs__and2_2	A	0.00000	0.00000	0.00000
	A	0.01650	0.01907	0.05954
	B	0.00000	0.00000	0.00000
	B	0.01817	0.02068	0.05892
sky130_osu_sc_18T_hs__and2_4	A	0.00000	0.00000	0.00000
	A	0.02588	0.02896	0.06908
	B	0.00000	0.00000	0.00000
	B	0.02750	0.03025	0.06813
sky130_osu_sc_18T_hs__and2_6	A	0.00000	0.00000	0.00000
	A	0.03532	0.03868	0.07908
	B	0.00000	0.00000	0.00000
	B	0.03687	0.03965	0.07739
sky130_osu_sc_18T_hs__and2_8	A	0.00000	0.00000	0.00000
	A	0.04645	0.04853	0.08832
	B	0.00000	0.00000	0.00000
	B	0.04779	0.05004	0.08600
sky130_osu_sc_18T_hs__and2_l	A	0.00000	0.00000	0.00000
	A	0.01002	0.01126	0.03576
	B	0.00000	0.00000	0.00000
	B	0.01126	0.01255	0.03621

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)	-0.00498	-0.00501	-0.00502
sky130_osu_sc_18T_hs__and2_2	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00498	-0.00501	-0.00502
sky130_osu_sc_18T_hs__and2_4	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00497	-0.00501	-0.00501
sky130_osu_sc_18T_hs__and2_6	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00499	-0.00503	-0.00504
sky130_osu_sc_18T_hs__and2_8	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00497	-0.00500	-0.00501
sky130_osu_sc_18T_hs__and2_l	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00368	-0.00370	-0.00371

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)	0.00501	0.00504	0.00503
sky130_osu_sc_18T_hs__and2_2	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00501	0.00505	0.00504
sky130_osu_sc_18T_hs__and2_4	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00502	0.00505	0.00504
sky130_osu_sc_18T_hs__and2_6	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00505	0.00508	0.00507
sky130_osu_sc_18T_hs__and2_8	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00502	0.00506	0.00504
sky130_osu_sc_18T_hs__and2_l	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00370	0.00372	0.00372

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)	-0.00472	-0.00475	-0.00473
sky130_osu_sc_18T_hs__and2_2	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00472	-0.00475	-0.00473
sky130_osu_sc_18T_hs__and2_4	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00472	-0.00473	-0.00473
sky130_osu_sc_18T_hs__and2_6	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00472	-0.00475	-0.00472
sky130_osu_sc_18T_hs__and2_8	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00471	-0.00474	-0.00472
sky130_osu_sc_18T_hs__and2_l	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00349	-0.00352	-0.00350

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)	0.00482	0.00478	0.00475
sky130_osu_sc_18T_hs__and2_2	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00482	0.00478	0.00475
sky130_osu_sc_18T_hs__and2_4	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00482	0.00478	0.00475
sky130_osu_sc_18T_hs__and2_6	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00482	0.00479	0.00476
sky130_osu_sc_18T_hs__and2_8	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00483	0.00479	0.00476
sky130_osu_sc_18T_hs__and2_l	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00357	0.00352	0.00351

SKY130_OSU_SC_18T_HS__AOI21

sky130_osu_sc_18T_hs_tt_1P68_25C.ccs
Cell Library: Process , Voltage 1.68,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_hs__aoi21_l	12.45420

Pin Capacitance Information

Cell Name	Pin Cap(pf)			Max Cap(pf)
	A0	A1	B0	Y
sky130_osu_sc_18T_hs__aoi21_l	0.00519	0.00537	0.00520	1.24993

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__aoi21_l	0.00000	0.08611	0.17840

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)	0.07779	0.88822	10.72830
	A1->Y (FR)	0.06713	0.84618	10.35880
	B0->Y (FR)	0.05544	0.86452	10.78280

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)	0.04471	0.51336	6.14198
	A1->Y (RF)	0.04039	0.54095	6.60612
	B0->Y (RF)	0.02776	0.52655	6.62848

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	0.01157	0.01148	0.01465
	A1	0.00000	0.00000	0.00000
	A1	0.00975	0.00964	0.01283
	B0	0.00693	0.00722	0.01471

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	0.00257	0.00222	0.00475
	A1	0.00000	0.00000	0.00000
	A1	0.00259	0.00237	0.00582
	B0	-0.00125	-0.00118	0.00151

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)	-0.00384	-0.00439	-0.00442
	(!A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !Y)	-0.00447	-0.00450	-0.00448
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00447	-0.00450	-0.00447

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)	0.00440	0.00445	0.00442
	(!A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !Y)	0.00447	0.00451	0.00449
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00456	0.00451	0.00449

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)	-0.00381	-0.00436	-0.00437
	(!A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !Y)	-0.00442	-0.00443	-0.00443
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	-0.00476	-0.00480	-0.00480

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)	0.00434	0.00436	0.00437
	(!A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !Y)	0.00442	0.00447	0.00444
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	0.00479	0.00482	0.00481

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)	-0.00213	-0.00214	-0.00214

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)	0.00234	0.00235	0.00219

SKY130_OSU_SC_18T_HS__AOI22

sky130_osu_sc_18T_hs_tt_1P68_25C.ccs
Cell Library: Process , Voltage 1.68,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_hs__aoi22_l	15.38460

Pin Capacitance Information

Cell Name	Pin Cap(pf)				Max Cap(pf)
	A0	A1	B0	B1	Y
sky130_osu_sc_18T_hs__aoi22_l	0.00520	0.00538	0.00554	0.00533	1.21412

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__aoi22_l	0.00000	0.09461	0.35679

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)	0.09841	0.91681	10.73530
	A1->Y (FR)	0.08817	0.89030	10.54670
	B0->Y (FR)	0.05809	0.85758	10.61240
	B1->Y (FR)	0.06853	0.88912	10.86460

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)	0.05901	0.52432	6.04287
	A1->Y (RF)	0.05472	0.55215	6.50552
	B0->Y (RF)	0.03058	0.52307	6.47925
	B1->Y (RF)	0.03487	0.49533	6.01944

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	0.01418	0.01404	0.01715
	A1	0.01238	0.01195	0.01531
	B0	0.00753	0.00787	0.01708
	B1	0.00931	0.00963	0.01878

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__aoi22_l	A0	0.00530	0.00493	0.00748
	A1	0.00533	0.00507	0.00862
	B0	-0.00083	-0.00074	0.00292
	B1	-0.00072	-0.00081	0.00186

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)	-0.00388	-0.00438	-0.00442
	(!A1 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * B1 * !Y)	-0.00447	-0.00450	-0.00448
	(!A1 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !B1 * Y)	-0.00447	-0.00450	-0.00447
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00447	-0.00450	-0.00447

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)	0.00440	0.00444	0.00442
	(!A1 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * B1 * !Y)	0.00448	0.00451	0.00449
	(!A1 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !B1 * Y)	0.00456	0.00451	0.00449
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00456	0.00451	0.00449

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)	-0.00385	-0.00438	-0.00437
	(!A0 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * B1 * !Y)	-0.00442	-0.00446	-0.00442
	(!A0 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !B1 * Y)	-0.00475	-0.00479	-0.00480
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	-0.00475	-0.00479	-0.00480

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)	0.00433	0.00438	0.00437
	(!A0 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * B1 * !Y)	0.00442	0.00447	0.00444
	(!A0 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !B1 * Y)	0.00479	0.00481	0.00481
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	0.00479	0.00481	0.00481

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)	-0.00214	-0.00215	-0.00215
	(A0 * A1 * !B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B1 * !Y)	-0.00213	-0.00215	-0.00214
	(!A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B1 * Y)	-0.00487	-0.00490	-0.00492
	(!A0 * A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B1 * Y)	-0.00487	-0.00490	-0.00492

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)	0.00243	0.00244	0.00222
	(A0 * A1 * !B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B1 * !Y)	0.00213	0.00215	0.00214
	(!A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B1 * Y)	0.00491	0.00495	0.00493
	(!A0 * A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B1 * Y)	0.00491	0.00495	0.00493

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__aoi22_l	(A0 * A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * B0 * !Y)	-0.00215	-0.00217	-0.00216
	(A0 * A1 * !B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B0 * !Y)	-0.00214	-0.00215	-0.00215
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00454	-0.00457	-0.00454
	(!A0 * A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B0 * Y)	-0.00454	-0.00457	-0.00454

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)	0.00244	0.00245	0.00223
	(A0 * A1 * !B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B0 * !Y)	0.00215	0.00215	0.00215
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00463	0.00458	0.00456
	(!A0 * A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B0 * Y)	0.00463	0.00458	0.00455

SKY130_OSU_SC_18T_HS__BUFx

sky130_osu_sc_18T_hs_tt_1P68_25C.ccs
Cell Library: Process , Voltage 1.68,
Temp 25.00

Truth Table

INPUT	OUTPUT
A	Y
0	0
1	1

Footprint

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

Pin Capacitance Information

Cell Name	Pin Cap(pf)	Max Cap(pf)
	A	Y
sky130_osu_sc_18T_hs__buf_1	0.00556	2.68988
sky130_osu_sc_18T_hs__buf_2	0.00556	5.24258
sky130_osu_sc_18T_hs__buf_4	0.00555	10.09072
sky130_osu_sc_18T_hs__buf_6	0.00097	1.80000
sky130_osu_sc_18T_hs__buf_8	0.00558	19.17269
sky130_osu_sc_18T_hs__buf_l	0.00437	1.86294

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__buf_1	0.00000	0.18422	0.18422
sky130_osu_sc_18T_hs__buf_2	0.00000	0.27633	0.36262
sky130_osu_sc_18T_hs__buf_4	0.00000	0.46054	0.71942
sky130_osu_sc_18T_hs__buf_6	0.00000	0.00000	0.00000
sky130_osu_sc_18T_hs__buf_8	0.00000	0.82898	1.43301
sky130_osu_sc_18T_hs__buf_l	0.00000	0.12665	0.12665

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)	0.05490	0.50199	6.35771
sky130_osu_sc_18T_hs__buf_2	A->Y (RR)	0.06107	0.44815	6.38449
sky130_osu_sc_18T_hs__buf_4	A->Y (RR)	0.08218	0.45463	6.62264
sky130_osu_sc_18T_hs__buf_8	A->Y (RR)	0.12229	0.51419	6.95477
sky130_osu_sc_18T_hs__buf_l	A->Y (RR)	0.06109	0.57615	6.39758

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)	0.05886	0.53953	6.42472
sky130_osu_sc_18T_hs__buf_2	A->Y (FF)	0.06811	0.51709	6.49789
sky130_osu_sc_18T_hs__buf_4	A->Y (FF)	0.09385	0.54542	6.72893
sky130_osu_sc_18T_hs__buf_8	A->Y (FF)	0.14898	0.62256	6.96397
sky130_osu_sc_18T_hs__buf_l	A->Y (FF)	0.06469	0.58660	6.20940

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	0.00469	0.00612	0.04002
sky130_osu_sc_18T_hs__buf_2	A	0.00000	0.00000	0.00000
	A	0.00985	0.01065	0.04462
sky130_osu_sc_18T_hs__buf_4	A	0.00000	0.00000	0.00000
	A	0.02103	0.02249	0.05413
sky130_osu_sc_18T_hs__buf_8	A	0.00000	0.00000	0.00000
	A	0.04434	0.04618	0.07488
sky130_osu_sc_18T_hs__buf_l	A	0.00000	0.00000	0.00000
	A	0.00356	0.00385	0.02642

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	0.01242	0.01493	0.05513
sky130_osu_sc_18T_hs__buf_2	A	0.00000	0.00000	0.00000
	A	0.01597	0.01873	0.05861
sky130_osu_sc_18T_hs__buf_4	A	0.00000	0.00000	0.00000
	A	0.02532	0.02841	0.06777
sky130_osu_sc_18T_hs__buf_8	A	0.00000	0.00000	0.00000
	A	0.04570	0.04741	0.08626
sky130_osu_sc_18T_hs__buf_l	A	0.00000	0.00000	0.00000
	A	0.00973	0.01116	0.03571

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
	-0.00067	-0.00067	-0.00066

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
	0.00067	0.00067	0.00066

SKY130_OSU_SC_18T_HS__DFFRx

sky130_osu_sc_18T_hs_tt_1P68_25C.ccs
Cell Library: Process , Voltage 1.68,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_hs__dffr_1	63.73620
sky130_osu_sc_18T_hs__dffr_l	63.73620

Pin Capacitance Information

Cell Name	Pin Cap(pf)			Max Cap(pf)	
	D	**RN**	**CK**	**Q**	**QN**
sky130_osu_sc_18T_hs__dffr_1	0.00534	0.00529	0.01533	2.61916	2.60443
sky130_osu_sc_18T_hs__dffr_l	0.00534	0.00529	0.01532	1.86364	1.85809

Leakage Information

Cell Name	Leakage(nW)		
	Min.	**Avg**	**Max.**
sky130_osu_sc_18T_hs__dffr_1	0.00000	0.57666	0.87570
sky130_osu_sc_18T_hs__dffr_l	0.00000	0.51908	0.81812

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)	0.26958	1.27333	15.29230
	QN->Q (FR)	0.03171	0.81682	12.47730
sky130_osu_sc_18T_hs__dffr_l	CK->Q (RR)	0.26499	1.35968	14.75360
	QN->Q (FR)	0.03393	0.86409	12.18910

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)	0.26905	1.27653	15.51340
	QN->Q (RF)	0.02551	0.67193	10.21510
	RN->Q (FF)	0.19937	1.34950	17.32990
sky130_osu_sc_18T_hs__dffr_l	CK->Q (RF)	0.27284	1.39248	15.21390
	QN->Q (RF)	0.02589	0.67232	9.48930
	RN->Q (FF)	0.20363	1.46472	17.02680

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)	0.23846	0.71099	6.42258
	RN->QN (FR)	0.16881	0.78422	8.24196
sky130_osu_sc_18T_hs__dffr_l	CK->QN (RR)	0.23920	0.76863	6.45696
	RN->QN (FR)	0.16992	0.84153	8.26983

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)**	0.22736	0.62376	4.90329
sky130_osu_sc_18T_hs__dffr_l	**CK->QN (RF)**	0.21887	0.63123	4.55813

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)	-0.05807	-0.07315	-0.05965
	setup	CK (R)	0.21180	0.25675	0.88606
sky130_osu_sc_18T_hs__dffr_l	hold	CK (R)	-0.05850	-0.07715	-0.06032
	setup	CK (R)	0.21444	0.25455	0.88231

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)	-0.11181	-0.35418	-3.07478
	setup	CK (R)	0.13856	0.36403	3.80098
sky130_osu_sc_18T_hs__dffr_l	hold	CK (R)	-0.11485	-0.35291	-3.16509
	setup	CK (R)	0.13856	0.36403	3.80079

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)	-0.05807	-0.07315	-0.05965
	setup	CK (R)	0.21180	0.25675	0.88606
sky130_osu_sc_18T_hs__dffr_l	hold	CK (R)	-0.05850	-0.07715	-0.06032
	setup	CK (R)	0.21444	0.25455	0.88231

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)	-0.11181	-0.35418	-3.07478
	setup	CK (R)	0.13856	0.36403	3.80098
sky130_osu_sc_18T_hs__dffr_l	hold	CK (R)	-0.11485	-0.35291	-3.16509
	setup	CK (R)	0.13856	0.36403	3.80079

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)	0.17422	0.21627	1.08516
	removal	CK (R)	-0.03665	-0.04213	-0.10912
sky130_osu_sc_18T_hs__dffr_l	recovery	CK (R)	0.17805	0.21759	1.08526
	removal	CK (R)	-0.03665	-0.04213	-0.10912

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)	0.17422	0.21627	1.08516
	removal	CK (R)	-0.03665	-0.04213	-0.10912
sky130_osu_sc_18T_hs__dffr_l	recovery	CK (R)	0.17805	0.21759	1.08526
	removal	CK (R)	-0.03665	-0.04213	-0.10912

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 ()	0.11822	0.49194	13.33370
	min_pulse_width	RN ()	0.11822	0.49194	13.33370
sky130_osu_sc_18T_hs__dffr_l	min_pulse_width	RN ()	0.11452	0.49194	13.33370
	min_pulse_width	RN ()	0.11452	0.49194	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 ()	0.12192	0.49194	13.33370
	min_pulse_width	CK ()	0.13672	0.49194	13.33370
sky130_osu_sc_18T_hs__dffr_l	min_pulse_width	CK ()	0.11452	0.49194	13.33370
	min_pulse_width	CK ()	0.13672	0.49194	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 ()	0.27363	0.49194	13.33370
	min_pulse_width	CK ()	0.11082	0.49194	13.33370
sky130_osu_sc_18T_hs__dffr_l	min_pulse_width	CK ()	0.27363	0.49194	13.33370
	min_pulse_width	CK ()	0.11082	0.49194	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	0.01269	0.00922	-0.00144
sky130_osu_sc_18T_hs__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.01128	0.00909	0.00746

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	0.01437	0.01228	0.00144
	RN	-0.00163	-0.11084	-1.84806
	RN	0.03313	0.03179	0.02242
sky130_osu_sc_18T_hs__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.01296	0.01172	0.01847
	RN	-0.00163	-0.09037	-1.31498
	RN	0.03171	0.03119	0.03885

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	0.01436	0.01231	0.00196
	RN	-0.00163	-0.11046	-1.83754
	RN	0.03312	0.03176	0.02224
sky130_osu_sc_18T_hs__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.01295	0.01172	0.01855
	RN	-0.00163	-0.09021	-1.31105
	RN	0.03170	0.03118	0.03870

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	0.01262	0.00914	-0.00196
sky130_osu_sc_18T_hs__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.01122	0.00907	0.00758

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	-0.00367	-0.00435	-0.00440
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.01564	0.01511	0.03762
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.00717	0.00675	0.02955
sky130_osu_sc_18T_hs__dffr_l	CK	0.00000	0.00000	0.00000
	CK	-0.00367	-0.00435	-0.00440
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.01564	0.01511	0.03762
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.00717	0.00675	0.02955

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	0.00437	0.00439	0.00441
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.02607	0.02584	0.04956
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.01205	0.01190	0.03526
sky130_osu_sc_18T_hs__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.00437	0.00439	0.00441
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.02607	0.02584	0.04957
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.01205	0.01190	0.03526

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)	0.00497	0.00544	0.05411
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.01362	0.01377	0.06284
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)	0.00497	0.00544	0.05411
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.01362	0.01377	0.06284

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)	0.01159	0.01329	0.06322
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.02511	0.02637	0.07661
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)	0.01159	0.01329	0.06322
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.02511	0.02637	0.07661

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)	-0.00091	-0.00074	0.04748
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.00728	0.00659	0.05618
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	-0.00150	-0.00114	0.04659
sky130_osu_sc_18T_hs__dffr_l	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	-0.00091	-0.00074	0.04748
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.00728	0.00659	0.05618
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	-0.00150	-0.00114	0.04659

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)	0.01798	0.01985	0.06964
	(D * RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * RN * !Q * QN)	0.03943	0.03994	0.09806
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.03027	0.03138	0.08213
	(!D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * Q * !QN)	0.03869	0.04164	0.12544
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.02038	0.02200	0.07108
sky130_osu_sc_18T_hs__dffr_l	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.01798	0.01985	0.06963
	(D * RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * RN * !Q * QN)	0.03943	0.03994	0.09806
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.03027	0.03138	0.08213
	(!D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * Q * !QN)	0.03869	0.04164	0.12544
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.02038	0.02200	0.07108

SKY130_OSU_SC_18T_HS__DFFSRx

sky130_osu_sc_18T_hs_tt_1P68_25C.ccs
Cell Library: Process , Voltage 1.68,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_hs__dffsr_1	69.59700
sky130_osu_sc_18T_hs__dffsr_l	69.59700

Pin Capacitance Information

Cell Name	Pin Cap(pf)				Max Cap(pf)	
	D	**RN**	**SN**	**CK**	**Q**	**QN**
sky130_osu_sc_18T_hs__dffsr_1	0.00530	0.00529	0.01138	0.01561	2.74385	2.72288
sky130_osu_sc_18T_hs__dffsr_l	0.00530	0.00529	0.01137	0.01561	1.85842	1.86115

Leakage Information

Cell Name	Leakage(nW)		
	Min.	**Avg**	**Max.**
sky130_osu_sc_18T_hs__dffsr_1	0.00000	0.63084	0.87243
sky130_osu_sc_18T_hs__dffsr_l	0.00000	0.57327	0.81486

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)	0.27807	1.27187	15.31340
	QN->Q (FR)	0.03008	0.79845	12.31120
	RN->Q (RR)	0.22136	1.22458	15.30760
	SN->Q (FR)	0.20725	1.36776	17.40840
sky130_osu_sc_18T_hs__dffsr_l	CK->Q (RR)	0.28139	1.38105	14.74120
	QN->Q (FR)	0.03386	0.86063	12.13270
	RN->Q (RR)	0.22324	1.33224	14.72840
	SN->Q (FR)	0.21065	1.47462	16.83290

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)	0.30238	1.30024	15.58280
	QN->Q (RF)	0.02331	0.63108	9.71668
	RN->Q (FF)	0.20478	1.34802	17.39320
sky130_osu_sc_18T_hs__dffsr_l	CK->Q (RF)	0.31042	1.43135	15.19800
	QN->Q (RF)	0.02584	0.67019	9.46248
	RN->Q (FF)	0.21288	1.47967	17.00850

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)	0.27279	0.74655	6.51235
	RN->QN (FR)	0.17584	0.79567	8.32407
sky130_osu_sc_18T_hs__dffsr_l	CK->QN (RR)	0.27634	0.81047	6.50512
	RN->QN (FR)	0.17917	0.85928	8.31078

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)	0.23857	0.63367	4.89939
	RN->QN (RF)	0.18227	0.58682	4.89528
	SN->QN (FF)	0.16823	0.73053	6.99539
sky130_osu_sc_18T_hs__dffsr_l	CK->QN (RF)	0.23620	0.65592	4.61223
	RN->QN (RF)	0.18026	0.60978	4.60549
	SN->QN (FF)	0.16592	0.75026	6.70051

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)	-0.06262	-0.08269	-0.09787
	setup	CK (R)	0.21079	0.25401	0.97997
sky130_osu_sc_18T_hs__dffsr_l	hold	CK (R)	-0.06325	-0.08318	-0.09365
	setup	CK (R)	0.21032	0.25333	0.97817

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)	-0.12764	-0.36641	-2.73676
	setup	CK (R)	0.15962	0.38009	3.84733
sky130_osu_sc_18T_hs__dffsr_l	hold	CK (R)	-0.12796	-0.36870	-2.73379
	setup	CK (R)	0.15920	0.38009	3.84737

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)	-0.06262	-0.08269	-0.09787
	setup	CK (R)	0.21079	0.25401	0.97997
sky130_osu_sc_18T_hs__dffsr_l	hold	CK (R)	-0.06325	-0.08318	-0.09365
	setup	CK (R)	0.21032	0.25333	0.97817

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)	-0.12764	-0.36641	-2.73676
	setup	CK (R)	0.15962	0.38009	3.84733
sky130_osu_sc_18T_hs__dffsr_l	hold	CK (R)	-0.12796	-0.36870	-2.73379
	setup	CK (R)	0.15920	0.38009	3.84737

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)	0.15850	0.19320	1.06237
	removal	CK (R)	-0.02172	-0.02429	-0.06540
	hold	SN (R)	-0.15674	-0.31609	-1.33959
	setup	SN (R)	0.18199	0.36659	5.38420
sky130_osu_sc_18T_hs__dffsr_l	recovery	CK (R)	0.15805	0.19257	1.06245
	removal	CK (R)	-0.02172	-0.02429	-0.06540
	hold	SN (R)	-0.15554	-0.30975	-1.31175
	setup	SN (R)	0.18190	0.36013	5.29437

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)	0.15850	0.19320	1.06237
	removal	CK (R)	-0.02172	-0.02429	-0.06540
	hold	SN (R)	-0.15674	-0.31609	-1.33959
	hold	SN (R)	-0.15971	-0.31610	-1.34223
	setup	SN (R)	0.18199	0.36464	5.11008
	setup	SN (R)	0.17938	0.36659	5.38420
sky130_osu_sc_18T_hs__dffsr_l	recovery	CK (R)	0.15805	0.19257	1.06245
	removal	CK (R)	-0.02172	-0.02429	-0.06540
	hold	SN (R)	-0.15738	-0.30975	-1.31175
	hold	SN (R)	-0.15554	-0.30978	-1.32236
	setup	SN (R)	0.18190	0.35389	5.04265
	setup	SN (R)	0.17072	0.36013	5.29437

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 ()	0.13672	0.49194	13.33370
	min_pulse_width	RN ()	0.13672	0.49194	13.33370
sky130_osu_sc_18T_hs__dffsr_l	min_pulse_width	RN ()	0.13672	0.49194	13.33370
	min_pulse_width	RN ()	0.13302	0.49194	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)	0.04099	0.07978	5.79370
	removal	CK (R)	-0.01801	-0.06135	-0.25990
sky130_osu_sc_18T_hs__dffsr_l	recovery	CK (R)	0.03891	0.07951	5.74552
	removal	CK (R)	-0.01531	-0.06135	-0.25990

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)	0.04099	0.07978	5.79370
	removal	CK (R)	-0.01801	-0.06135	-0.25990
sky130_osu_sc_18T_hs__dffsr_l	recovery	CK (R)	0.03891	0.07951	5.74552
	removal	CK (R)	-0.01531	-0.06135	-0.25990

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 ()	0.16632	0.49194	13.33370
	min_pulse_width	SN ()	0.16632	0.49194	13.33370
sky130_osu_sc_18T_hs__dffsr_l	min_pulse_width	SN ()	0.16632	0.49194	13.33370
	min_pulse_width	SN ()	0.15892	0.49194	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 ()	0.12562	0.49194	13.33370
	min_pulse_width	CK ()	0.15522	0.49194	13.33370
sky130_osu_sc_18T_hs__dffsr_l	min_pulse_width	CK ()	0.12192	0.49194	13.33370
	min_pulse_width	CK ()	0.15152	0.49194	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 ()	0.27363	0.49194	13.33370
	min_pulse_width	CK ()	0.13672	0.49194	13.33370
sky130_osu_sc_18T_hs__dffsr_l	min_pulse_width	CK ()	0.27363	0.49194	13.33370
	min_pulse_width	CK ()	0.13302	0.49194	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	0.01589	0.01372	0.00402
	RN	0.02913	0.02660	0.00479
	SN	-0.00163	-0.11398	-1.93606
	SN	0.03256	0.02950	0.00323
sky130_osu_sc_18T_hs__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.01460	0.01240	0.01088
	RN	0.02783	0.02533	0.01413
	SN	-0.00163	-0.09022	-1.31130
	SN	0.03126	0.02824	0.01041

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	0.01678	0.01508	0.00931
	RN	-0.00163	-0.11398	-1.93605
	RN	0.03414	0.03297	0.02869
sky130_osu_sc_18T_hs__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.01549	0.01433	0.02166
	RN	-0.00163	-0.09022	-1.31130
	RN	0.03282	0.03219	0.04078

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	0.01676	0.01508	0.00951
	RN	-0.00163	-0.11345	-1.92121
	RN	0.03412	0.03295	0.02835
sky130_osu_sc_18T_hs__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.01548	0.01433	0.02160
	RN	-0.00163	-0.09030	-1.31321
	RN	0.03281	0.03217	0.04040

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	0.01581	0.01367	0.00406
	RN	0.02905	0.02662	0.00732
	SN	-0.00163	-0.11345	-1.92110
	SN	0.03248	0.02945	0.00332
sky130_osu_sc_18T_hs__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.01452	0.01235	0.01084
	RN	0.02775	0.02524	0.01428
	SN	-0.00163	-0.09030	-1.31310
	SN	0.03118	0.02815	0.01036

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	-0.00429	-0.00438	-0.00438
	(!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)	0.01994	0.01942	0.04179
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.00804	0.00762	0.03013
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.00799	0.00757	0.03015
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.00806	0.00765	0.03018
sky130_osu_sc_18T_hs__dffsr_1	CK	0.00000	0.00000	0.00000
	CK	-0.00429	-0.00438	-0.00438
	(!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)	0.01994	0.01943	0.04179
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.00804	0.00762	0.03013
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.00799	0.00757	0.03015
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.00806	0.00765	0.03018

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	0.00445	0.00438	0.00438
	(!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)	0.02977	0.02945	0.05250
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.01262	0.01256	0.03572
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.01279	0.01265	0.03571
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.01256	0.01250	0.03563
sky130_osu_sc_18T_hs__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.00445	0.00438	0.00438
	(!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)	0.02976	0.02944	0.05249
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.01261	0.01255	0.03571
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.01278	0.01264	0.03570
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.01255	0.01249	0.03563

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)	0.00409	0.00450	0.05295
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.01620	0.01618	0.06522
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)	0.00409	0.00446	0.05295
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.01620	0.01619	0.06522

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)	0.01229	0.01419	0.06443
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.02636	0.02761	0.07807
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)	0.01228	0.01418	0.06442
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.02635	0.02760	0.07806

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)	-0.00988	-0.00996	-0.00996
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	-0.00921	-0.01026	-0.01023
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	-0.00932	-0.00985	-0.00984
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.00687	0.00659	0.03170
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)	-0.00988	-0.00996	-0.00996
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	-0.00920	-0.01025	-0.01021
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	-0.00932	-0.00984	-0.00983
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.00687	0.00660	0.03171

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)	0.00995	0.01002	0.00999
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.01019	0.01026	0.01026
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	0.00982	0.00992	0.00988
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.02037	0.01994	0.04299
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)	0.00995	0.01002	0.00999
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.01017	0.01025	0.01024
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	0.00981	0.00991	0.00987
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.02035	0.01997	0.04299

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)	-0.00091	-0.00074	0.04749
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.00822	0.00755	0.05712
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.00801	0.00734	0.05702
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	-0.00127	-0.00092	0.04686
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.00571	0.00626	0.09522
sky130_osu_sc_18T_hs__dffsr_1	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	-0.00091	-0.00074	0.04749
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.00821	0.00754	0.05711
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.00800	0.00733	0.05701
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	-0.00127	-0.00092	0.04686
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.00571	0.00623	0.09522

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)	0.04399	0.04454	0.10238
	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.01803	0.01990	0.06970
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.03083	0.03207	0.08257
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.03087	0.03203	0.08223
	(!D * RN * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * Q * !QN)	0.04234	0.04503	0.12862
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.02020	0.02182	0.07092
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.02370	0.02684	0.11818
sky130_osu_sc_18T_hs__dffsr_l	**(D * RN * SN * !Q * QN)**	0.00000	0.00000	0.00000
	(D * RN * SN * !Q * QN)	0.04399	0.04454	0.10239
	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.01803	0.01990	0.06970
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.03083	0.03207	0.08257
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.03087	0.03203	0.08223
	(!D * RN * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * Q * !QN)	0.04233	0.04502	0.12861
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.02020	0.02182	0.07092
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.02369	0.02683	0.11812

SKY130_OSU_SC_18T_HS__DFFSx

sky130_osu_sc_18T_hs_tt_1P68_25C.ccs
Cell Library: Process , Voltage 1.68,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_hs__dffs_1	57.87540
sky130_osu_sc_18T_hs__dffs_l	57.87540

Pin Capacitance Information

Cell Name	Pin Cap(pf)			Max Cap(pf)	
	D	SN	CK	Q	QN
sky130_osu_sc_18T_hs__dffs_1	0.00533	0.00906	0.01539	2.61619	2.62000
sky130_osu_sc_18T_hs__dffs_l	0.00533	0.00906	0.01539	1.86542	1.87112

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__dffs_1	0.00000	0.57443	0.85995
sky130_osu_sc_18T_hs__dffs_l	0.00000	0.51686	0.80237

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)	0.20438	1.19115	15.12710
	QN->Q (FR)	0.03153	0.81096	12.36270
	SN->Q (FR)	0.15888	1.33705	17.08000
sky130_osu_sc_18T_hs__dffs_l	CK->Q (RR)	0.20442	1.28645	14.64140
	QN->Q (FR)	0.03377	0.86057	12.12120
	SN->Q (FR)	0.15935	1.42649	16.57540

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)	0.29445	1.30337	15.45260
	QN->Q (RF)	0.02532	0.66718	10.15910
sky130_osu_sc_18T_hs__dffs_l	CK->Q (RF)	0.29713	1.41819	15.20660
	QN->Q (RF)	0.02574	0.66940	9.45848

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)	0.26315	0.74104	6.45015
sky130_osu_sc_18T_hs__dffs_l	CK->QN (RR)	0.26273	0.79701	6.50064

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)	0.16601	0.54830	4.83001
	SN->QN (FF)	0.12056	0.69258	6.78749
sky130_osu_sc_18T_hs__dffs_l	CK->QN (RF)	0.16200	0.56290	4.49690
	SN->QN (FF)	0.11688	0.70221	6.43261

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)	-0.04326	-0.05937	-0.02775
	setup	CK (R)	0.14512	0.19358	0.75600
sky130_osu_sc_18T_hs__dffs_l	hold	CK (R)	-0.04256	-0.06033	-0.02597
	setup	CK (R)	0.14484	0.19389	0.75144

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)	-0.11504	-0.35347	-3.49422
	setup	CK (R)	0.14730	0.36597	3.81154
sky130_osu_sc_18T_hs__dffs_l	hold	CK (R)	-0.11348	-0.35347	-3.53941
	setup	CK (R)	0.14730	0.36597	3.81154

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)	-0.04326	-0.05937	-0.02775
	setup	CK (R)	0.14512	0.19358	0.75600
sky130_osu_sc_18T_hs__dffs_l	hold	CK (R)	-0.04256	-0.06033	-0.02597
	setup	CK (R)	0.14484	0.19389	0.75144

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)	-0.11504	-0.35347	-3.49422
	setup	CK (R)	0.14730	0.36597	3.81154
sky130_osu_sc_18T_hs__dffs_l	hold	CK (R)	-0.11348	-0.35347	-3.53941
	setup	CK (R)	0.14730	0.36597	3.81154

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)	0.04063	0.07893	4.50452
	removal	CK (R)	-0.01648	-0.05931	-0.39244
sky130_osu_sc_18T_hs__dffs_l	recovery	CK (R)	0.03893	0.07945	4.38156
	removal	CK (R)	-0.01648	-0.05931	-0.39244

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)	0.04063	0.07893	4.50452
	removal	CK (R)	-0.01648	-0.05931	-0.39244
sky130_osu_sc_18T_hs__dffs_l	recovery	CK (R)	0.03893	0.07945	4.38156
	removal	CK (R)	-0.01648	-0.05931	-0.39244

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 ()	0.10712	0.49194	13.33370
	min_pulse_width	SN ()	0.11082	0.49194	13.33370
sky130_osu_sc_18T_hs__dffs_l	min_pulse_width	SN ()	0.10712	0.49194	13.33370
	min_pulse_width	SN ()	0.10342	0.49194	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 ()	0.08862	0.49194	13.33370
	min_pulse_width	CK ()	0.14782	0.49194	13.33370
sky130_osu_sc_18T_hs__dffs_l	min_pulse_width	CK ()	0.08492	0.49194	13.33370
	min_pulse_width	CK ()	0.14412	0.49194	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 ()	0.20702	0.49194	13.33370
	min_pulse_width	CK ()	0.12562	0.49194	13.33370
sky130_osu_sc_18T_hs__dffs_l	min_pulse_width	CK ()	0.20702	0.49194	13.33370
	min_pulse_width	CK ()	0.12562	0.49194	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	0.01272	0.00923	-0.00373
	SN	-0.00163	-0.11076	-1.84598
	SN	0.02763	0.02381	-0.01636
sky130_osu_sc_18T_hs__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.01131	0.00908	0.00796
	SN	-0.00163	-0.09042	-1.31624
	SN	0.02622	0.02373	0.01246

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	0.01426	0.01235	0.00373
sky130_osu_sc_18T_hs__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.01285	0.01173	0.01965

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	0.01425	0.01234	0.00381
sky130_osu_sc_18T_hs__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.01284	0.01174	0.01959

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	0.01265	0.00918	-0.00381
	SN	-0.00163	-0.11086	-1.84838
	SN	0.02757	0.02374	-0.01661
sky130_osu_sc_18T_hs__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.01125	0.00907	0.00814
	SN	-0.00163	-0.09059	-1.32013
	SN	0.02616	0.02365	0.01179

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	-0.00434	-0.00443	-0.00443
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.01500	0.01442	0.03760
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.00700	0.00659	0.02934
sky130_osu_sc_18T_hs__dffs_l	CK	0.00000	0.00000	0.00000
	CK	-0.00434	-0.00443	-0.00443
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.01500	0.01442	0.03760
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.00700	0.00659	0.02934

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	0.00450	0.00443	0.00443
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.02517	0.02488	0.04844
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.01211	0.01206	0.03554
sky130_osu_sc_18T_hs__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.00450	0.00443	0.00443
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.02517	0.02488	0.04844
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.01211	0.01206	0.03554

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)	-0.00734	-0.00739	-0.00740
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.00536	0.00516	0.03040
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)	-0.00734	-0.00739	-0.00740
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.00536	0.00516	0.03040

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)	0.00747	0.00747	0.00743
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.01425	0.01444	0.04175
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)	0.00747	0.00747	0.00743
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.01425	0.01444	0.04175

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)	-0.00093	-0.00076	0.04752
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	-0.00140	-0.00104	0.04676
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.00462	0.00523	0.09503
sky130_osu_sc_18T_hs__dffs_l	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	-0.00093	-0.00076	0.04752
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	-0.00140	-0.00104	0.04676
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.00462	0.00523	0.09503

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)	0.03893	0.03944	0.09848
	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.01798	0.01986	0.06970
	(!D * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * SN * Q * !QN)	0.03766	0.04045	0.12418
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	0.02026	0.02188	0.07103
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.02309	0.02635	0.11832
sky130_osu_sc_18T_hs__dffs_l	(D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * SN * !Q * QN)	0.03893	0.03944	0.09848
	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.01798	0.01986	0.06970
	(!D * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * SN * Q * !QN)	0.03766	0.04038	0.12418
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	0.02026	0.02188	0.07103
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.02309	0.02635	0.11832

SKY130_OSU_SC_18T_HS__DFFx

sky130_osu_sc_18T_hs_tt_1P68_25C.ccs
Cell Library: Process , Voltage 1.68,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_hs__dff_1	48.35160
sky130_osu_sc_18T_hs__dff_l	48.35160

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)	
	D	CK	Q	QN
sky130_osu_sc_18T_hs__dff_1	0.00548	0.01514	2.74669	2.74113
sky130_osu_sc_18T_hs__dff_l	0.00548	0.01512	1.84000	1.83212

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__dff_1	0.00000	0.57788	0.73496
sky130_osu_sc_18T_hs__dff_l	0.00000	0.52030	0.67738

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)	0.18148	1.15445	15.11890
	QN->Q (FR)	0.02986	0.79433	12.25810
sky130_osu_sc_18T_hs__dff_l	CK->Q (RR)	0.18779	1.26932	14.50840
	QN->Q (FR)	0.03443	0.87027	12.23100

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)	0.25280	1.24265	15.49610
	QN->Q (RF)	0.02320	0.62899	9.69348
sky130_osu_sc_18T_hs__dff_l	CK->Q (RF)	0.26215	1.37906	15.10130
	QN->Q (RF)	0.02579	0.66609	9.38579

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)	0.22393	0.69103	6.47061
sky130_osu_sc_18T_hs__dff_l	CK->QN (RR)	0.22863	0.75850	6.42447

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)	0.14581	0.52055	4.76452
sky130_osu_sc_18T_hs__dff_l	CK->QN (RF)	0.14600	0.54359	4.37516

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)	-0.03837	-0.05814	-0.05321
	setup	CK (R)	0.11989	0.17517	0.74530
sky130_osu_sc_18T_hs__dff_l	hold	CK (R)	-0.03823	-0.05843	-0.05201
	setup	CK (R)	0.11805	0.17518	0.74786

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)	-0.10584	-0.35022	-3.58750
	setup	CK (R)	0.12822	0.36255	3.80380
sky130_osu_sc_18T_hs__dff_l	hold	CK (R)	-0.10389	-0.35022	-3.57199
	setup	CK (R)	0.12822	0.36255	3.80420

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 ()	0.07751	0.49194	13.33370
	min_pulse_width	CK ()	0.13302	0.49194	13.33370
sky130_osu_sc_18T_hs__dff_l	min_pulse_width	CK ()	0.07751	0.49194	13.33370
	min_pulse_width	CK ()	0.12932	0.49194	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 ()	0.18112	0.49194	13.33370
	min_pulse_width	CK ()	0.09972	0.49194	13.33370
sky130_osu_sc_18T_hs__dff_l	min_pulse_width	CK ()	0.18112	0.49194	13.33370
	min_pulse_width	CK ()	0.09972	0.49194	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	0.01336	0.01116	-0.00094
sky130_osu_sc_18T_hs__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.01207	0.00990	0.00988

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	0.01454	0.01291	0.00832
sky130_osu_sc_18T_hs__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.01328	0.01200	0.01817

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	0.01454	0.01292	0.00859
sky130_osu_sc_18T_hs__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.01328	0.01200	0.01836

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	0.01330	0.01120	0.00336
sky130_osu_sc_18T_hs__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.01201	0.00993	0.01002

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	-0.00367	-0.00434	-0.00439
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.01399	0.01363	0.03706
sky130_osu_sc_18T_hs__dff_l	CK	0.00000	0.00000	0.00000
	CK	-0.00367	-0.00434	-0.00439
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.01400	0.01363	0.03706

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	0.00436	0.00438	0.00440
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.02592	0.02567	0.04952
sky130_osu_sc_18T_hs__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.00436	0.00438	0.00440
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.02593	0.02568	0.04952

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)	-0.00094	-0.00076	0.04754
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	-0.00139	-0.00100	0.04680
sky130_osu_sc_18T_hs__dff_l	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	-0.00094	-0.00076	0.04754
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	-0.00139	-0.00100	0.04680

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)	0.01792	0.01980	0.06965
	(D * !Q * QN)	0.00000	0.00000	0.00000
	(D * !Q * QN)	0.03801	0.03866	0.09799
	(!D * Q * !QN)	0.00000	0.00000	0.00000
	(!D * Q * !QN)	0.03824	0.04110	0.12595
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.02018	0.02181	0.07095
sky130_osu_sc_18T_hs__dff_l	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.01792	0.01979	0.06965
	(D * !Q * QN)	0.00000	0.00000	0.00000
	(D * !Q * QN)	0.03801	0.03867	0.09800
	(!D * Q * !QN)	0.00000	0.00000	0.00000
	(!D * Q * !QN)	0.03825	0.04111	0.12596
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.02017	0.02181	0.07095

SKY130_OSU_SC_18T_HS__INVx

sky130_osu_sc_18T_hs_tt_1P68_25C.ccs
Cell Library: Process , Voltage 1.68,
Temp 25.00

Truth Table

INPUT	OUTPUT
A	Y
0	1
1	0

Footprint

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

Pin Capacitance Information

Cell Name	Pin Cap(pf)	Max Cap(pf)
	A	Y
sky130_osu_sc_18T_hs__inv_1	0.00533	2.64740
sky130_osu_sc_18T_hs__inv_10	0.05027	22.82310
sky130_osu_sc_18T_hs__inv_2	0.01025	5.12853
sky130_osu_sc_18T_hs__inv_3	0.01528	7.32253
sky130_osu_sc_18T_hs__inv_4	0.02022	9.85176
sky130_osu_sc_18T_hs__inv_6	0.03032	14.39803
sky130_osu_sc_18T_hs__inv_8	0.04031	18.80784
sky130_osu_sc_18T_hs__inv_l	0.00411	1.77444

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__inv_1	0.00000	0.09211	0.17840
sky130_osu_sc_18T_hs__inv_10	0.00000	0.92109	1.78399
sky130_osu_sc_18T_hs__inv_2	0.00000	0.18422	0.35680
sky130_osu_sc_18T_hs__inv_3	0.00000	0.27633	0.53520
sky130_osu_sc_18T_hs__inv_4	0.00000	0.36844	0.71359
sky130_osu_sc_18T_hs__inv_6	0.00000	0.55265	1.07039
sky130_osu_sc_18T_hs__inv_8	0.00000	0.73687	1.42719
sky130_osu_sc_18T_hs__inv_l	0.00000	0.06332	0.12045

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)**	0.02814	0.72929	11.10560
sky130_osu_sc_18T_hs__inv_10	**A->Y (FR)**	0.04561	0.50877	10.94170
sky130_osu_sc_18T_hs__inv_2	**A->Y (FR)**	0.02362	0.63178	10.99050
sky130_osu_sc_18T_hs__inv_3	**A->Y (FR)**	0.02664	0.59420	10.99590
sky130_osu_sc_18T_hs__inv_4	**A->Y (FR)**	0.02791	0.56772	10.98150
sky130_osu_sc_18T_hs__inv_6	**A->Y (FR)**	0.03230	0.53488	10.95680
sky130_osu_sc_18T_hs__inv_8	**A->Y (FR)**	0.03852	0.51641	10.93040
sky130_osu_sc_18T_hs__inv_l	**A->Y (FR)**	0.03192	0.79005	11.02820

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)**	0.02069	0.55181	8.41478
sky130_osu_sc_18T_hs__inv_10	**A->Y (RF)**	0.03548	0.33790	8.05678
sky130_osu_sc_18T_hs__inv_2	**A->Y (RF)**	0.01775	0.46652	8.30010
sky130_osu_sc_18T_hs__inv_3	**A->Y (RF)**	0.01973	0.43087	8.29328
sky130_osu_sc_18T_hs__inv_4	**A->Y (RF)**	0.02007	0.40248	8.29101
sky130_osu_sc_18T_hs__inv_6	**A->Y (RF)**	0.02569	0.37026	8.24158
sky130_osu_sc_18T_hs__inv_8	**A->Y (RF)**	0.03048	0.35119	8.18468
sky130_osu_sc_18T_hs__inv_l	**A->Y (RF)**	0.02285	0.58302	8.11102

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	0.00647	0.00718	0.01356
sky130_osu_sc_18T_hs__inv_10	A	0.00000	0.00000	0.00000
	A	0.05660	0.06837	0.13479
sky130_osu_sc_18T_hs__inv_2	A	0.00000	0.00000	0.00000
	A	0.01164	0.01374	0.02615
sky130_osu_sc_18T_hs__inv_3	A	0.00000	0.00000	0.00000
	A	0.01780	0.02146	0.03993
sky130_osu_sc_18T_hs__inv_4	A	0.00000	0.00000	0.00000
	A	0.02299	0.02743	0.05247
sky130_osu_sc_18T_hs__inv_6	A	0.00000	0.00000	0.00000
	A	0.03401	0.04130	0.07900
sky130_osu_sc_18T_hs__inv_8	A	0.00000	0.00000	0.00000
	A	0.04513	0.05811	0.10615
sky130_osu_sc_18T_hs__inv_l	A	0.00000	0.00000	0.00000
	A	0.00502	0.00486	0.00923

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	-0.00147	-0.00127	0.00130
sky130_osu_sc_18T_hs__inv_10	**A**	0.00000	0.00000	0.00000
	A	-0.02112	-0.01924	0.00899
sky130_osu_sc_18T_hs__inv_2	**A**	0.00000	0.00000	0.00000
	A	-0.00462	-0.00397	0.00132
sky130_osu_sc_18T_hs__inv_3	**A**	0.00000	0.00000	0.00000
	A	-0.00612	-0.00504	0.00296
sky130_osu_sc_18T_hs__inv_4	**A**	0.00000	0.00000	0.00000
	A	-0.00926	-0.00788	0.00298
sky130_osu_sc_18T_hs__inv_6	**A**	0.00000	0.00000	0.00000
	A	-0.01410	-0.01170	0.00475
sky130_osu_sc_18T_hs__inv_8	**A**	0.00000	0.00000	0.00000
	A	-0.01839	-0.01527	0.00661
sky130_osu_sc_18T_hs__inv_l	**A**	0.00000	0.00000	0.00000
	A	-0.00105	-0.00094	0.00087

SKY130_OSU_SC_18T_HS__MUX2

sky130_osu_sc_18T_hs_tt_1P68_25C.ccs
Cell Library: Process , Voltage 1.68,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_hs__mux2_1	18.31500

Pin Capacitance Information

Cell Name	Pin Cap(pf)			Max Cap(pf)
	A0	**A1**	**S0**	**Y**
sky130_osu_sc_18T_hs__mux2_1	0.65029	0.65080	0.01083	0.66668

Leakage Information

Cell Name	Leakage(nW)		
	Min.	**Avg**	**Max.**
sky130_osu_sc_18T_hs__mux2_1	0.00000	0.18474	0.18474

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)	-	0.01352	0.24566	2.54894
	A1->Y (RR)	-	0.01477	0.24616	2.55142
	S0->Y (RR)	(!A0 * A1)	0.04341	0.25804	1.31169
	S0->Y (FR)	(A0 * !A1)	0.04223	0.39683	3.68842

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)	-	0.01270	0.25771	2.71145
	A1->Y (FF)	-	0.01252	0.25623	2.70079
	S0->Y (FF)	(!A0 * A1)	0.06124	0.36907	2.77658
	S0->Y (RF)	(A0 * !A1)	0.02486	0.28754	2.44744

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	-	-0.00701	-0.00701	-0.00701
	A1	-	0.00000	0.00000	0.00000
	A1	-	-0.00483	-0.00485	-0.00484
	S0	(A0 * !A1)	0.00000	0.00000	0.00000
	S0	(A0 * !A1)	0.00746	0.00993	0.06105
	S0	(!A0 * A1)	0.00000	0.00000	0.00000
	S0	(!A0 * A1)	-0.00474	-0.00377	0.04593

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	-	0.00701	0.00702	0.00703
	A1	-	0.00000	0.00000	0.00000
	A1	-	0.00484	0.00485	0.00485
	S0	(A0 * !A1)	0.00000	0.00000	0.00000
	S0	(A0 * !A1)	0.00139	0.00244	0.05305
	S0	(!A0 * A1)	0.00000	0.00000	0.00000
	S0	(!A0 * A1)	0.01765	0.01971	0.06995

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)	-0.00177	-0.00176	-0.00177

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)	0.00177	0.00176	0.00177

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)	-0.00209	-0.00209	-0.00209

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)	0.00209	0.00209	0.00209

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)	-0.00170	-0.00072	0.04949
	(!A0 * !A1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !Y)	-0.00166	-0.00058	0.04967

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)	0.01316	0.01521	0.06565
	(!A0 * !A1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !Y)	0.01194	0.01424	0.06523

SKY130_OSU_SC_18T_HS__NAND2x

sky130_osu_sc_18T_hs_tt_1P68_25C.ccs
Cell Library: Process , Voltage 1.68,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_hs__nand2_1	9.52380
sky130_osu_sc_18T_hs__nand2_l	9.52380

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	B	Y
sky130_osu_sc_18T_hs__nand2_1	0.00535	0.00533	2.50640
sky130_osu_sc_18T_hs__nand2_l	0.00412	0.00412	1.74734

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__nand2_1	0.00000	0.09194	0.35680
sky130_osu_sc_18T_hs__nand2_l	0.00000	0.06326	0.24089

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)	0.02876	0.72294	10.84850
	B->Y (FR)	0.03386	0.72011	10.72520
sky130_osu_sc_18T_hs__nand2_l	A->Y (FR)	0.03240	0.79386	10.99430
	B->Y (FR)	0.03856	0.79507	10.94300

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)	0.02867	0.67165	10.19840
	B->Y (RF)	0.03275	0.64668	9.77540
sky130_osu_sc_18T_hs__nand2_l	A->Y (RF)	0.03173	0.72578	10.02330
	B->Y (RF)	0.03550	0.69517	9.53483

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	0.00691	0.00752	0.01355
	B	0.00000	0.00000	0.00000
	B	0.00875	0.00927	0.01535
sky130_osu_sc_18T_hs__nand2_1	A	0.00000	0.00000	0.00000
	A	0.00531	0.00562	0.00914
	B	0.00000	0.00000	0.00000
	B	0.00666	0.00683	0.01046

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	-0.00101	-0.00090	0.00149
	B	0.00000	0.00000	0.00000
	B	-0.00095	-0.00097	0.00079
sky130_osu_sc_18T_hs__nand2_1	A	0.00000	0.00000	0.00000
	A	-0.00078	-0.00072	0.00090
	B	0.00000	0.00000	0.00000
	B	-0.00073	-0.00076	0.00050

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)	-0.00490	-0.00493	-0.00494
sky130_osu_sc_18T_hs__nand2_l	(!B * Y)	0.00000	0.00000	0.00000
	(!B * Y)	-0.00359	-0.00360	-0.00362

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)	0.00493	0.00496	0.00495
sky130_osu_sc_18T_hs__nand2_l	(!B * Y)	0.00000	0.00000	0.00000
	(!B * Y)	0.00360	0.00363	0.00362

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)	-0.00458	-0.00461	-0.00458
sky130_osu_sc_18T_hs__nand2_l	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00335	-0.00338	-0.00335

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)	0.00466	0.00463	0.00460
sky130_osu_sc_18T_hs__nand2_l	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00342	0.00339	0.00336

SKY130_OSU_SC_18T_HS__NOR2x

sky130_osu_sc_18T_hs_tt_1P68_25C.ccs
Cell Library: Process , Voltage 1.68,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_hs__nor2_1	9.52380
sky130_osu_sc_18T_hs__nor2_l	9.52380

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	B	Y
sky130_osu_sc_18T_hs__nor2_1	0.00535	0.00565	1.39218
sky130_osu_sc_18T_hs__nor2_l	0.00405	0.00439	0.92934

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__nor2_1	0.00000	0.06421	0.17840
sky130_osu_sc_18T_hs__nor2_l	0.00000	0.04713	0.12045

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)	0.05867	0.86627	10.99940
	B->Y (FR)	0.04368	0.84343	10.93610
sky130_osu_sc_18T_hs__nor2_l	A->Y (FR)	0.06560	0.94092	10.75180
	B->Y (FR)	0.05227	0.92834	10.84080

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)	0.02773	0.45369	5.74730
	B->Y (RF)	0.02196	0.44169	5.72701
sky130_osu_sc_18T_hs__nor2_l	A->Y (RF)	0.02936	0.47718	5.53063
	B->Y (RF)	0.02413	0.46836	5.51352

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	0.00941	0.00937	0.01270
	B	0.00000	0.00000	0.00000
	B	0.00700	0.00739	0.01649
sky130_osu_sc_18T_hs__nor2_l	A	0.00000	0.00000	0.00000
	A	0.00689	0.00685	0.00919
	B	0.00000	0.00000	0.00000
	B	0.00535	0.00561	0.01101

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	0.00105	0.00094	0.00457
	B	0.00000	0.00000	0.00000
	B	-0.00114	-0.00091	0.00266
sky130_osu_sc_18T_hs__nor2_l	A	0.00000	0.00000	0.00000
	A	0.00070	0.00065	0.00321
	B	0.00000	0.00000	0.00000
	B	-0.00078	-0.00066	0.00189

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)	-0.00370	-0.00436	-0.00442
sky130_osu_sc_18T_hs__nor2_l	(B * !Y)	0.00000	0.00000	0.00000
	(B * !Y)	-0.00268	-0.00310	-0.00315

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)	0.00438	0.00445	0.00442
sky130_osu_sc_18T_hs__nor2_l	(B * !Y)	0.00000	0.00000	0.00000
	(B * !Y)	0.00312	0.00316	0.00315

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)	-0.00213	-0.00215	-0.00214
sky130_osu_sc_18T_hs__nor2_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	-0.00158	-0.00160	-0.00159

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)	0.00225	0.00226	0.00218
sky130_osu_sc_18T_hs__nor2_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00166	0.00167	0.00162

SKY130_OSU_SC_18T_HS__OAI21

sky130_osu_sc_18T_hs_tt_1P68_25C.ccs
Cell Library: Process , Voltage 1.68,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_hs__oai21_l	12.45420

Pin Capacitance Information

Cell Name	Pin Cap(pf)			Max Cap(pf)
	A0	A1	B0	Y
sky130_osu_sc_18T_hs__oai21_l	0.00542	0.00548	0.00457	1.34150

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__oai21_l	0.00000	0.07923	0.29885

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)	0.05903	0.85191	10.76630
	A1->Y (FR)	0.07807	0.87890	10.83500
	B0->Y (FR)	0.03925	0.72588	9.41715

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)	0.04109	0.54382	6.75313
	A1->Y (RF)	0.04900	0.54274	6.61355
	B0->Y (RF)	0.03170	0.58362	7.48788

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	0.00969	0.01004	0.01777
	A1	0.00000	0.00000	0.00000
	A1	0.01211	0.01198	0.01510
	B0	0.00821	0.00853	0.01419

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	0.00029	0.00017	0.00254
	A1	0.00000	0.00000	0.00000
	A1	0.00247	0.00216	0.00451
	B0	0.00085	0.00093	0.00395

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)	-0.00213	-0.00215	-0.00215
	(A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * Y)	-0.00434	-0.00442	-0.00442
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00449	-0.00450	-0.00450

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)	0.00225	0.00226	0.00218
	(A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * Y)	0.00440	0.00442	0.00442
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00452	0.00453	0.00451

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)	-0.00363	-0.00430	-0.00435
	(A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * Y)	-0.00431	-0.00439	-0.00439
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	-0.00444	-0.00446	-0.00445

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)	0.00432	0.00435	0.00435
	(A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * Y)	0.00437	0.00441	0.00439
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	0.00448	0.00449	0.00447

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)	-0.00365	-0.00368	-0.00372

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)	0.00372	0.00375	0.00373

SKY130_OSU_SC_18T_HS__OAI22

sky130_osu_sc_18T_hs_tt_1P68_25C.ccs
Cell Library: Process , Voltage 1.68,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_hs__oai22_l	15.38460

Pin Capacitance Information

Cell Name	Pin Cap(pf)				Max Cap(pf)
	A0	A1	B0	B1	Y
sky130_osu_sc_18T_hs__oai22_l	0.00526	0.00553	0.00565	0.00553	1.33944

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__oai22_l	0.00000	0.09588	0.35680

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)	0.08389	0.88111	10.78000
	A1->Y (FR)	0.06896	0.85672	10.72240
	B0->Y (FR)	0.04980	0.83910	10.71870
	B1->Y (FR)	0.06505	0.86401	10.78370

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)	0.07101	0.58732	6.87917
	A1->Y (RF)	0.05601	0.56475	6.78729
	B0->Y (RF)	0.04686	0.60216	7.50857
	B1->Y (RF)	0.06304	0.63651	7.75555

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	0.01574	0.01562	0.01855
	A1	0.01332	0.01364	0.02119
	B0	0.00750	0.00800	0.01616
	B1	0.01246	0.01235	0.01534

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_hs__oai22_l	A0	0.00409	0.00377	0.00604
	A1	-0.00044	-0.00055	0.00185
	B0	-0.00048	-0.00041	0.00300
	B1	0.00169	0.00148	0.00475

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)	-0.00369	-0.00436	-0.00442
	(A1 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * B1 * !Y)	-0.00369	-0.00436	-0.00442
	(A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * !B1 * Y)	-0.00433	-0.00439	-0.00440
	(!A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * !B1 * Y)	-0.00445	-0.00447	-0.00446

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)	0.00438	0.00443	0.00442
	(A1 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * B1 * !Y)	0.00438	0.00443	0.00442
	(A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * !B1 * Y)	0.00437	0.00439	0.00440
	(!A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * !B1 * Y)	0.00447	0.00450	0.00448

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)	-0.00212	-0.00214	-0.00213
	(A0 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * B1 * !Y)	-0.00212	-0.00214	-0.00213
	(A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * !B1 * Y)	-0.00431	-0.00439	-0.00437
	(!A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * !B1 * Y)	-0.00444	-0.00447	-0.00445

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)	0.00223	0.00225	0.00217
	(A0 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * B1 * !Y)	0.00223	0.00225	0.00217
	(A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * !B1 * Y)	0.00435	0.00440	0.00437
	(!A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * !B1 * Y)	0.00446	0.00448	0.00447

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)	-0.00211	-0.00212	-0.00212
	(A0 * !A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B1 * !Y)	-0.00211	-0.00212	-0.00212
	(!A0 * !A1 * B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B1 * Y)	-0.00476	-0.00485	-0.00482
	(!A0 * !A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B1 * Y)	-0.00479	-0.00484	-0.00490

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)	0.00222	0.00224	0.00215
	(A0 * !A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B1 * !Y)	0.00222	0.00224	0.00215
	(!A0 * !A1 * B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B1 * Y)	0.00481	0.00485	0.00482
	(!A0 * !A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B1 * Y)	0.00489	0.00493	0.00491

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)	-0.00364	-0.00431	-0.00436
	(A0 * !A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B0 * !Y)	-0.00364	-0.00431	-0.00436
	(!A0 * !A1 * B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B0 * Y)	-0.00483	-0.00491	-0.00490
	(!A0 * !A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B0 * Y)	-0.00486	-0.00489	-0.00496

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)	0.00432	0.00439	0.00436
	(A0 * !A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B0 * !Y)	0.00432	0.00438	0.00436
	(!A0 * !A1 * B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B0 * Y)	0.00489	0.00493	0.00490
	(!A0 * !A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B0 * Y)	0.00496	0.00499	0.00498

SKY130_OSU_SC_18T_HS__OR2x

sky130_osu_sc_18T_hs_tt_1P68_25C.ccs
Cell Library: Process , Voltage 1.68,
Temp 25.00

Truth Table

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

Footprint

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

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	B	Y
sky130_osu_sc_18T_hs__or2_1	0.00568	0.00547	2.66884
sky130_osu_sc_18T_hs__or2_2	0.00568	0.00547	5.16813
sky130_osu_sc_18T_hs__or2_4	0.00569	0.00548	9.87838
sky130_osu_sc_18T_hs__or2_8	0.00569	0.00550	18.59702
sky130_osu_sc_18T_hs__or2_l	0.00446	0.00421	1.84030

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__or2_1	0.00000	0.11317	0.19004
sky130_osu_sc_18T_hs__or2_2	0.00000	0.16213	0.36844
sky130_osu_sc_18T_hs__or2_4	0.00000	0.26006	0.72523
sky130_osu_sc_18T_hs__or2_8	0.00000	0.45592	1.43883
sky130_osu_sc_18T_hs__or2_l	0.00000	0.08189	0.13284

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)	0.06431	0.53382	6.20225
	B->Y (RR)	0.05646	0.50367	6.21448
sky130_osu_sc_18T_hs__or2_2	A->Y (RR)	0.07109	0.47686	6.24373
	B->Y (RR)	0.06285	0.45031	6.23508
sky130_osu_sc_18T_hs__or2_4	A->Y (RR)	0.09268	0.47869	6.50747
	B->Y (RR)	0.08416	0.45760	6.48408
sky130_osu_sc_18T_hs__or2_8	A->Y (RR)	0.13278	0.53278	6.87240
	B->Y (RR)	0.12408	0.51677	6.83368
sky130_osu_sc_18T_hs__or2_l	A->Y (RR)	0.07051	0.61174	6.36051
	B->Y (RR)	0.06316	0.58411	6.33715

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)	0.10529	0.62532	6.72268
	B->Y (FF)	0.08532	0.59199	6.68504
sky130_osu_sc_18T_hs__or2_2	A->Y (FF)	0.12540	0.61152	6.78824
	B->Y (FF)	0.10554	0.58389	6.72323
sky130_osu_sc_18T_hs__or2_4	A->Y (FF)	0.17521	0.65865	7.05592
	B->Y (FF)	0.15543	0.64015	6.94637
sky130_osu_sc_18T_hs__or2_8	A->Y (FF)	0.27873	0.77411	7.33375
	B->Y (FF)	0.25906	0.75792	7.19624
sky130_osu_sc_18T_hs__or2_l	A->Y (FF)	0.11575	0.66912	6.48527
	B->Y (FF)	0.09606	0.64379	6.45906

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	0.00723	0.00722	0.02885
	B	0.00000	0.00000	0.00000
	B	0.00515	0.00589	0.03890
sky130_osu_sc_18T_hs__or2_2	A	0.00000	0.00000	0.00000
	A	0.01243	0.01279	0.03516
	B	0.00000	0.00000	0.00000
	B	0.01028	0.01142	0.04378
sky130_osu_sc_18T_hs__or2_4	A	0.00000	0.00000	0.00000
	A	0.02369	0.02448	0.04648
	B	0.00000	0.00000	0.00000
	B	0.02146	0.02352	0.05388
sky130_osu_sc_18T_hs__or2_8	A	0.00000	0.00000	0.00000
	A	0.04708	0.04849	0.06978
	B	0.00000	0.00000	0.00000
	B	0.04494	0.04760	0.07455
sky130_osu_sc_18T_hs__or2_l	A	0.00000	0.00000	0.00000
	A	0.00535	0.00513	0.01942
	B	0.00000	0.00000	0.00000
	B	0.00398	0.00436	0.02514

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	0.01530	0.01536	0.03561
	B	0.00000	0.00000	0.00000
	B	0.01260	0.01480	0.05672
sky130_osu_sc_18T_hs__or2_2	A	0.00000	0.00000	0.00000
	A	0.01892	0.01945	0.03920
	B	0.00000	0.00000	0.00000
	B	0.01619	0.01865	0.05901
sky130_osu_sc_18T_hs__or2_4	A	0.00000	0.00000	0.00000
	A	0.02892	0.02917	0.04828
	B	0.00000	0.00000	0.00000
	B	0.02623	0.02807	0.06589
sky130_osu_sc_18T_hs__or2_8	A	0.00000	0.00000	0.00000
	A	0.05396	0.04921	0.06662
	B	0.00000	0.00000	0.00000
	B	0.05169	0.04692	0.08226
sky130_osu_sc_18T_hs__or2_l	A	0.00000	0.00000	0.00000
	A	0.01164	0.01155	0.02486
	B	0.00000	0.00000	0.00000
	B	0.00973	0.01105	0.03679

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)	-0.00372	-0.00438	-0.00444
sky130_osu_sc_18T_hs__or2_2	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00372	-0.00438	-0.00444
sky130_osu_sc_18T_hs__or2_4	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00372	-0.00438	-0.00444
sky130_osu_sc_18T_hs__or2_8	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00371	-0.00438	-0.00444
sky130_osu_sc_18T_hs__or2_l	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00269	-0.00315	-0.00316

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)	0.00440	0.00444	0.00444
sky130_osu_sc_18T_hs__or2_2	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00440	0.00444	0.00444
sky130_osu_sc_18T_hs__or2_4	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00440	0.00444	0.00444
sky130_osu_sc_18T_hs__or2_8	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00440	0.00444	0.00444
sky130_osu_sc_18T_hs__or2_l	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00313	0.00315	0.00316

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)	-0.00215	-0.00215	-0.00215
sky130_osu_sc_18T_hs__or2_2	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00215	-0.00215	-0.00215
sky130_osu_sc_18T_hs__or2_4	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00215	-0.00215	-0.00215
sky130_osu_sc_18T_hs__or2_8	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00214	-0.00215	-0.00215
sky130_osu_sc_18T_hs__or2_l	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00162	-0.00162	-0.00162

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)	0.00228	0.00228	0.00219
sky130_osu_sc_18T_hs__or2_2	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00226	0.00228	0.00219
sky130_osu_sc_18T_hs__or2_4	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00226	0.00228	0.00219
sky130_osu_sc_18T_hs__or2_8	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00226	0.00228	0.00219
sky130_osu_sc_18T_hs__or2_l	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00169	0.00170	0.00164

SKY130_OSU_SC_18T_HS__TBUFIx

sky130_osu_sc_18T_hs_tt_1P68_25C.ccs
Cell Library: Process , Voltage 1.68,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_hs__tbufi_1	12.45420
sky130_osu_sc_18T_hs__tbufi_l	12.45420

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	OE	Y
sky130_osu_sc_18T_hs__tbufi_1	0.00565	0.00714	1.36039
sky130_osu_sc_18T_hs__tbufi_l	0.00440	0.00558	0.92560

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__tbufi_1	0.00000	0.09460	0.35680
sky130_osu_sc_18T_hs__tbufi_l	0.00000	0.06620	0.24090

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)	0.04216	0.83307	10.76850
	OE->Y (FR)	0.04759	0.34809	4.86262
	OE->Y (RR)	0.07726	0.63294	6.38881
sky130_osu_sc_18T_hs__tbufi_l	A->Y (FR)	0.05063	0.92696	10.82500
	OE->Y (FR)	0.05113	0.34789	4.86227
	OE->Y (RR)	0.08504	0.73034	6.40292

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)	0.02801	0.53884	6.95079
	OE->Y (FF)	0.04786	0.34809	4.86252
	OE->Y (RF)	0.02663	0.50659	6.47560
sky130_osu_sc_18T_hs__tbufi_l	A->Y (RF)	0.03136	0.57463	6.75847
	OE->Y (FF)	0.05178	0.34787	4.86228
	OE->Y (RF)	0.03038	0.53910	6.22894

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	0.00663	0.00718	0.01501
	OE	0.00000	0.00000	0.00000
	OE	0.00677	0.00772	0.05162
sky130_osu_sc_18T_hs__tbufi_l	A	0.00000	0.00000	0.00000
	A	0.00508	0.00532	0.01016
	OE	0.00000	0.00000	0.00000
	OE	0.00484	0.00536	0.03287

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	-0.00116	-0.00098	0.00229
	OE	0.00000	0.00000	0.00000
	OE	0.00463	0.00564	0.05591
sky130_osu_sc_18T_hs__tbufi_l	A	0.00000	0.00000	0.00000
	A	-0.00078	-0.00069	0.00160
	OE	0.00000	0.00000	0.00000
	OE	0.00325	0.00375	0.03428

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)	-0.00349	-0.00355	-0.00351
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	-0.00310	-0.00314	-0.00311
sky130_osu_sc_18T_hs__tbufi_l	(!OE * Y)	0.00000	0.00000	0.00000
	(!OE * Y)	-0.00268	-0.00270	-0.00269
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	-0.00242	-0.00245	-0.00243

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)	0.00349	0.00355	0.00351
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	0.00318	0.00320	0.00315
sky130_osu_sc_18T_hs__tbufi_l	(!OE * Y)	0.00000	0.00000	0.00000
	(!OE * Y)	0.00268	0.00270	0.00269
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	0.00247	0.00249	0.00245

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)	0.00275	0.00387	0.05506
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00246	0.00358	0.05470
sky130_osu_sc_18T_hs__tbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00189	0.00244	0.03369
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00167	0.00224	0.03343

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)	0.00774	0.00955	0.06085
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00773	0.00966	0.06098
sky130_osu_sc_18T_hs__tbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00611	0.00702	0.03847
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00613	0.00714	0.03856

SKY130_OSU_SC_18T_HS__TNBUFIx

sky130_osu_sc_18T_hs_tt_1P68_25C.ccs
Cell Library: Process , Voltage 1.68,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_hs__tnbufi_1	12.45420
sky130_osu_sc_18T_hs__tnbufi_l	12.45420

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	OE	Y
sky130_osu_sc_18T_hs__tnbufi_1	0.00564	0.00888	1.35926
sky130_osu_sc_18T_hs__tnbufi_l	0.00439	0.00667	0.92715

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__tnbufi_1	0.00000	0.15213	0.18422
sky130_osu_sc_18T_hs__tnbufi_l	0.00000	0.10429	0.12664

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)	0.04248	0.83283	10.76310
	OE->Y (RR)	0.02639	0.34915	4.86357
	OE->Y (FR)	0.05568	0.85510	10.81990
sky130_osu_sc_18T_hs__tnbufi_l	A->Y (FR)	0.05104	0.92754	10.83620
	OE->Y (RR)	0.02738	0.34943	4.86385
	OE->Y (FR)	0.06263	0.93933	10.74200

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)	0.02763	0.53855	6.94709
	OE->Y (RF)	0.02610	0.34914	4.86359
	OE->Y (FF)	0.05056	0.48672	5.08516
sky130_osu_sc_18T_hs__tnbufi_l	A->Y (RF)	0.03091	0.57479	6.76514
	OE->Y (RF)	0.02707	0.34942	4.86391
	OE->Y (FF)	0.05691	0.52689	4.83399

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	0.00679	0.00734	0.01520
	OE	0.00000	0.00000	0.00000
	OE	0.01666	0.01938	0.07156
sky130_osu_sc_18T_hs__tnbufi_l	A	0.00000	0.00000	0.00000
	A	0.00525	0.00548	0.01031
	OE	0.00000	0.00000	0.00000
	OE	0.01244	0.01399	0.04611

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	-0.00138	-0.00118	0.00209
	OE	0.00000	0.00000	0.00000
	OE	0.01479	0.01758	0.06310
sky130_osu_sc_18T_hs__tnbufi_l	A	0.00000	0.00000	0.00000
	A	-0.00100	-0.00090	0.00139
	OE	0.00000	0.00000	0.00000
	OE	0.01105	0.01282	0.03985

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)	-0.00301	-0.00306	-0.00302
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	-0.00266	-0.00269	-0.00267
sky130_osu_sc_18T_hs__tnbufi_l	(OE * Y)	0.00000	0.00000	0.00000
	(OE * Y)	-0.00222	-0.00224	-0.00223
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	-0.00199	-0.00201	-0.00200

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)	0.00301	0.00306	0.00302
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	0.00272	0.00274	0.00271
sky130_osu_sc_18T_hs__tnbufi_l	(OE * Y)	0.00000	0.00000	0.00000
	(OE * Y)	0.00222	0.00224	0.00223
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	0.00204	0.00205	0.00202

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)	-0.00516	-0.00439	0.04763
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00517	-0.00426	0.04772
sky130_osu_sc_18T_hs__tnbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	-0.00369	-0.00336	0.02847
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00368	-0.00334	0.02853

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)	0.01261	0.01564	0.06787
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.01242	0.01544	0.06770
sky130_osu_sc_18T_hs__tnbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00947	0.01116	0.04323
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00934	0.01102	0.04307

SKY130_OSU_SC_18T_HS__XNOR2

sky130_osu_sc_18T_hs_tt_1P68_25C.ccs
Cell Library: Process , Voltage 1.68,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_hs__xnor2_l	21.24540

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	B	Y
sky130_osu_sc_18T_hs__xnor2_l	0.01119	0.01022	1.42074

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__xnor2_l	0.00000	0.31097	0.54102

Delay Information

Delay(ns) to Y rising (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_18T_hs__xnor2_l	A->Y (RR)	B	0.09763	0.68035	6.72000
	A->Y (FR)	!B	0.05459	0.85583	11.00860
	B->Y (RR)	A	0.07641	0.65807	6.74710
	B->Y (FR)	!A	0.07608	0.88378	11.09140

Delay(ns) to Y falling (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_18T_hs__xnor2_l	A->Y (FF)	B	0.08870	0.58030	5.63050
	A->Y (RF)	!B	0.04080	0.54133	6.87050
	B->Y (FF)	A	0.07869	0.57117	5.63605
	B->Y (RF)	!A	0.05049	0.55427	6.87307

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	0.00651	0.00711	0.04989
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.01599	0.01816	0.07594
	B	A	0.00000	0.00000	0.00000
	B	A	0.00194	0.00305	0.05383
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01781	0.01974	0.07191

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	0.02060	0.02185	0.07139
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00462	0.00537	0.05619
	B	A	0.00000	0.00000	0.00000
	B	A	0.01858	0.02089	0.07199
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00614	0.00672	0.05730

SKY130_OSU_SC_18T_HS__XOR2

sky130_osu_sc_18T_hs_tt_1P68_25C.ccs
Cell Library: Process , Voltage 1.68,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_hs__xor2_1	21.24540

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	B	Y
sky130_osu_sc_18T_hs__xor2_1	0.01116	0.01026	1.40537

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_hs__xor2_1	0.00000	0.31097	0.48623

Delay Information

Delay(ns) to Y rising (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_18T_hs__xor2_l	A->Y (RR)	!B	0.09164	0.66250	6.69374
	A->Y (FR)	B	0.06922	0.87833	11.10520
	B->Y (RR)	!A	0.07931	0.65886	6.71590
	B->Y (FR)	A	0.07411	0.88268	11.08080

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	0.07731	0.55776	5.33946
	A->Y (RF)	B	0.03885	0.56286	7.09770
	B->Y (FF)	!A	0.07252	0.55436	5.44027
	B->Y (RF)	A	0.04708	0.53724	6.63356

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	0.01908	0.02127	0.07533
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00307	0.00284	0.05270
	B	A	0.00000	0.00000	0.00000
	B	A	0.01956	0.02181	0.07500
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00167	0.00263	0.05377

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	0.00402	0.00471	0.05808
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.02098	0.02364	0.06820
	B	A	0.00000	0.00000	0.00000
	B	A	0.00408	0.00459	0.05618
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01886	0.02184	0.07271

SKY130_OSU_SC_18T_HS_x

sky130_osu_sc_18T_hs_tt_1P68_25C.ccs
Cell Library: Process , Voltage 1.68,
Temp 25.00

Truth Table

INPUT
A
x

Footprint

Cell Name	Area
sky130_osu_sc_18T_hs__ant	6.59340
sky130_osu_sc_18T_hs__tiehi	6.59340
sky130_osu_sc_18T_hs__tielo	6.59340

Pin Capacitance Information

Cell Name	Pin Cap(pf)
	A
sky130_osu_sc_18T_hs__ant	0.76291
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	316518.00000	633036.00000
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
	-0.00225	0.08073	1.09838

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
	5.50801	5.22283	1.34051