sky130_osu_sc_15T_hs_ff_1P95_100C.ccs Library

Cell Groups
SKY130_OSU_SC_15T_HS__ADDFx
SKY130_OSU_SC_15T_HS__ADDHx
SKY130_OSU_SC_15T_HS__AND2x
SKY130_OSU_SC_15T_HS__AOI21
SKY130_OSU_SC_15T_HS__AOI22
SKY130_OSU_SC_15T_HS__BUFx
SKY130_OSU_SC_15T_HS__DFFRx
SKY130_OSU_SC_15T_HS__DFFSRx
SKY130_OSU_SC_15T_HS__DFFSx
SKY130_OSU_SC_15T_HS__DFFx
SKY130_OSU_SC_15T_HS__INVx
SKY130_OSU_SC_15T_HS__MUX2
SKY130_OSU_SC_15T_HS__NAND2x
SKY130_OSU_SC_15T_HS__NOR2x
SKY130_OSU_SC_15T_HS__OAI21
SKY130_OSU_SC_15T_HS__OAI22
SKY130_OSU_SC_15T_HS__OR2x
SKY130_OSU_SC_15T_HS__TBUFIx
SKY130_OSU_SC_15T_HS__TNBUFIx
SKY130_OSU_SC_15T_HS__XNOR2
SKY130_OSU_SC_15T_HS__XOR2
SKY130_OSU_SC_15T_HS_x

SKY130_OSU_SC_15T_HS__ADDFx

sky130_osu_sc_15T_hs_ff_1P95_100C.ccs
Cell Library: Process , Voltage 1.95, Temp 100.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_15T_hs__addf_1	39.07200
sky130_osu_sc_15T_hs__addf_l	39.07200

Pin Capacitance Information

Cell Name	Pin Cap(pf)			Max Cap(pf)		
	A	**B**	**CI**	**CO**	**CON**	**S**
sky130_osu_sc_15T_hs__addf_1	0.01500	0.01490	0.01152	2.86343	1.35813	2.70060
sky130_osu_sc_15T_hs__addf_l	0.01500	0.01489	0.01150	1.78455	1.35634	1.86771

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_15T_hs__addf_1	0.00000	301.47300	374.97100
sky130_osu_sc_15T_hs__addf_l	0.00000	269.14900	342.63300

Delay Information

Delay(ns) to CO rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_hs__addf_1	A->CO (RR)	0.10204	1.34208	24.99000
	B->CO (RR)	0.10269	1.32245	24.30250
	CI->CO (RR)	0.09709	1.38973	25.76430
	CON->CO (FR)	0.01610	0.55231	9.85182
sky130_osu_sc_15T_hs__addf_l	A->CO (RR)	0.10276	1.19102	18.42970
	B->CO (RR)	0.10353	1.18727	18.26500
	CI->CO (RR)	0.09781	1.24063	19.24390
	CON->CO (FR)	0.01890	0.59081	9.40604

Delay(ns) to CO falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_hs__addf_1	A->CO (FF)	0.11011	1.48509	27.47010
	B->CO (FF)	0.09570	1.44209	26.67720
	CI->CO (FF)	0.09443	1.51174	28.08980
	CON->CO (RF)	0.01743	0.52063	9.55710
sky130_osu_sc_15T_hs__addf_l	A->CO (FF)	0.10668	1.24829	19.23520
	B->CO (FF)	0.09260	1.22256	18.97220
	CI->CO (FF)	0.09100	1.27634	19.88400
	CON->CO (RF)	0.01742	0.48727	7.80076

Delay(ns) to CON rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_hs__addf_1	A->CON (FR)	0.08660	0.64092	8.62824
	B->CON (FR)	0.07229	0.63506	8.75794
	CI->CON (FR)	0.07090	0.67053	9.29955
sky130_osu_sc_15T_hs__addf_l	A->CON (FR)	0.08216	0.63648	8.61613
	B->CON (FR)	0.06826	0.63120	8.74693
	CI->CON (FR)	0.06646	0.66606	9.28736

Delay(ns) to CON falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_hs__addf_1	A->CON (RF)	0.07287	0.50566	6.71808
	B->CON (RF)	0.07408	0.53119	7.07033
	CI->CON (RF)	0.06789	0.55727	7.57509
sky130_osu_sc_15T_hs__addf_l	A->CON (RF)	0.06992	0.50264	6.70844
	B->CON (RF)	0.07130	0.52828	7.06083
	CI->CON (RF)	0.06494	0.55441	7.56496

Delay(ns) to S rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_hs__addf_1	A->S (-R)	0.16692	1.33242	22.11640
	B->S (-R)	0.18157	1.32212	21.17170
	CI->S (-R)	0.15024	1.35793	22.73560
	CON->S (RR)	0.05572	0.44737	6.88674
sky130_osu_sc_15T_hs__addf_l	A->S (-R)	0.15989	1.22756	17.90090
	B->S (-R)	0.17496	1.22705	17.31210
	CI->S (-R)	0.14318	1.25446	18.54540
	CON->S (RR)	0.05502	0.48092	6.66621

Delay(ns) to S falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_hs__addf_1	A->S (-F)	0.15862	1.28902	21.30350
	B->S (-F)	0.14714	1.22203	20.36410
	CI->S (-F)	0.15419	1.33699	22.08950
	CON->S (FF)	0.05998	0.56161	8.53610
sky130_osu_sc_15T_hs__addf_l	A->S (-F)	0.14970	1.12758	16.10340
	B->S (-F)	0.14640	1.09130	15.70150
	CI->S (-F)	0.14516	1.17576	16.92160
	CON->S (FF)	0.05681	0.53475	7.23252

Power Information

Internal switching power(pJ) to CO rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__addf_1	A	0.00923	0.02005	0.24822
	B	0.01000	0.01955	0.22258
	CI	0.01164	0.02269	0.24985
sky130_osu_sc_15T_hs__addf_l	A	0.00686	0.01483	0.15849
	B	0.00845	0.01531	0.14486
	CI	0.00926	0.01753	0.16066

Internal switching power(pJ) to CO falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__addf_1	A	0.02167	0.03508	0.31685
	B	0.02146	0.03276	0.28353
	CI	0.01924	0.03319	0.31655
sky130_osu_sc_15T_hs__addf_l	A	0.01852	0.02811	0.20006
	B	0.01793	0.02648	0.18187
	CI	0.01610	0.02626	0.19982

Internal switching power(pJ) to CON rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__addf_1	A	0.01948	0.02864	0.18475
	B	0.01890	0.02719	0.17207
	CI	0.01711	0.02676	0.18627
sky130_osu_sc_15T_hs__addf_l	A	0.01794	0.02630	0.16818
	B	0.01742	0.02506	0.15679
	CI	0.01556	0.02443	0.16952

Internal switching power(pJ) to CON falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__addf_1	A	0.00725	0.01480	0.14714
	B	0.00890	0.01558	0.14084
	CI	0.00970	0.01752	0.15168
sky130_osu_sc_15T_hs__addf_l	A	0.00571	0.01276	0.13411
	B	0.00747	0.01363	0.12806
	CI	0.00815	0.01548	0.13778

Internal switching power(pJ) to S rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__addf_1	A	0.00653	0.01461	0.27655
	B	0.01060	0.01781	0.25718
	CI	0.01234	0.02256	0.26260
sky130_osu_sc_15T_hs__addf_l	A	0.00465	0.01338	0.27841
	B	0.00867	0.01647	0.25921
	CI	0.01040	0.02129	0.26463

Internal switching power(pJ) to S falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__addf_1	A	0.04333	0.05425	0.28068
	B	0.03721	0.04874	0.29045
	CI	0.03221	0.04305	0.25329
sky130_osu_sc_15T_hs__addf_l	A	0.03942	0.05101	0.28522
	B	0.03310	0.04555	0.29362
	CI	0.02883	0.04018	0.25778

SKY130_OSU_SC_15T_HS__ADDHx

sky130_osu_sc_15T_hs_ff_1P95_100C.ccs
Cell Library: Process , Voltage 1.95, Temp 100.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_15T_hs__addh_1	23.19900
sky130_osu_sc_15T_hs__addh_l	23.19900

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)		
	A	B	CO	CON	S
sky130_osu_sc_15T_hs__addh_1	0.00756	0.00839	2.76203	1.47536	2.85708
sky130_osu_sc_15T_hs__addh_l	0.00765	0.00862	1.91952	1.47303	1.96276

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_15T_hs__addh_1	0.00000	324.30500	369.99500
sky130_osu_sc_15T_hs__addh_l	0.00000	285.88100	339.43600

Delay Information

Delay(ns) to CO rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_hs__addh_1	A->CO (RR)	0.06922	0.46690	6.88310
	B->CO (RR)	0.07145	0.45808	6.96772
sky130_osu_sc_15T_hs__addh_l	A->CO (RR)	0.05678	0.46701	6.42187
	B->CO (RR)	0.05907	0.45624	6.37523

Delay(ns) to CO falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_hs__addh_1	A->CO (FF)	0.04866	0.43011	6.35473
	B->CO (FF)	0.05219	0.44714	6.56871
sky130_osu_sc_15T_hs__addh_l	A->CO (FF)	0.04761	0.45175	6.15907
	B->CO (FF)	0.05185	0.47094	6.39330

Delay(ns) to CON rising (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_15T_hs__addh_1	A->CON (RR)	B	0.09489	0.38040	3.80150
	A->CON (FR)	!B	0.04682	0.62754	9.18071
	B->CON (RR)	A	0.09619	0.37108	3.88657
	B->CON (FR)	!A	0.05928	0.60821	8.70778
sky130_osu_sc_15T_hs__addh_l	A->CON (RR)	B	0.07512	0.33318	3.43002
	A->CON (FR)	!B	0.04306	0.62333	9.16754
	B->CON (RR)	A	0.07656	0.32293	3.41711
	B->CON (FR)	!A	0.05548	0.60389	8.69584

Delay(ns) to CON falling (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_15T_hs__addh_1	A->CON (FF)	B	0.07709	0.44139	4.94640
	A->CON (RF)	!B	0.03365	0.44226	6.42934
	B->CON (FF)	A	0.07487	0.46816	5.41569
	B->CON (RF)	!A	0.03996	0.42844	6.08001
sky130_osu_sc_15T_hs__addh_l	A->CON (FF)	B	0.07226	0.44488	5.19243
	A->CON (RF)	!B	0.03172	0.43946	6.41824
	B->CON (FF)	A	0.07108	0.47383	5.67031
	B->CON (RF)	!A	0.03802	0.42593	6.07069

Delay(ns) to S rising (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_15T_hs__addh_1	A->S (RR)	!B	0.05733	1.14364	21.57210
	A->S (FR)	B	0.10207	1.12860	19.80240
	B->S (RR)	!A	0.06469	1.10712	20.63640
	B->S (FR)	A	0.09954	1.18081	20.88730
	CON->S (FR)	-	0.01785	0.56852	10.10330
sky130_osu_sc_15T_hs__addh_l	A->S (RR)	!B	0.05693	1.06245	17.50800
	A->S (FR)	B	0.09893	1.05575	16.04650
	B->S (RR)	!A	0.06442	1.03249	16.83380
	B->S (FR)	A	0.09726	1.10314	16.89520
	CON->S (FR)	-	0.01929	0.60330	9.82326

Delay(ns) to S falling (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_15T_hs__addh_1	A->S (FF)	!B	0.06964	1.39699	26.33360
	A->S (RF)	B	0.11694	1.00811	17.27200
	B->S (FF)	!A	0.08212	1.38277	25.91620
	B->S (RF)	A	0.11826	0.99803	17.35460
	CON->S (RF)	-	0.01725	0.52246	9.59001
sky130_osu_sc_15T_hs__addh_l	A->S (FF)	!B	0.06543	1.22361	20.15650
	A->S (RF)	B	0.09625	0.84386	12.52580
	B->S (FF)	!A	0.07787	1.20781	19.70900
	B->S (RF)	A	0.09770	0.83265	12.49030
	CON->S (RF)	-	0.01651	0.49887	8.21312

Power Information

Internal switching power(pJ) to CO rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__addh_1	A	0.00000	0.00000	0.00000
	A	0.01117	0.01687	0.12542
	B	0.00000	0.00000	0.00000
	B	0.01031	0.01651	0.14590
sky130_osu_sc_15T_hs__addh_l	A	0.00000	0.00000	0.00000
	A	0.00966	0.01568	0.12704
	B	0.00000	0.00000	0.00000
	B	0.00875	0.01537	0.14576

Internal switching power(pJ) to CO falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__addh_1	A	0.00000	0.00000	0.00000
	A	0.01326	0.02020	0.15695
	B	0.00000	0.00000	0.00000
	B	0.01407	0.02235	0.17231
sky130_osu_sc_15T_hs__addh_l	A	0.00000	0.00000	0.00000
	A	0.01193	0.01911	0.15051
	B	0.00000	0.00000	0.00000
	B	0.01289	0.02119	0.16374

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

Cell Name	Input	When	Power(pJ)		
			first	mid	last
sky130_osu_sc_15T_hs__addh_1	A	B	0.00000	0.00000	0.00000
	A	B	0.00993	0.01555	0.11793
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.01334	0.01986	0.11996
	B	A	0.00000	0.00000	0.00000
	B	A	0.00908	0.01519	0.13848
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01471	0.02042	0.11574
sky130_osu_sc_15T_hs__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.00850	0.01451	0.12443
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.01175	0.01715	0.09931
	B	A	0.00000	0.00000	0.00000
	B	A	0.00762	0.01423	0.14325
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01311	0.01768	0.09570

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

Cell Name	Input	When	Power(pJ)		
			first	mid	last
sky130_osu_sc_15T_hs__addh_1	A	B	0.00000	0.00000	0.00000
	A	B	0.01288	0.01943	0.14335
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00546	0.01070	0.08631
	B	A	0.00000	0.00000	0.00000
	B	A	0.01374	0.02149	0.15496
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00577	0.01056	0.08695
sky130_osu_sc_15T_hs__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.01172	0.01882	0.14747
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00435	0.00878	0.07178
	B	A	0.00000	0.00000	0.00000
	B	A	0.01274	0.02092	0.15952
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00459	0.00866	0.07378

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

Cell Name	Input	When	Power(pJ)		
			first	mid	last
sky130_osu_sc_15T_hs__addh_1	A	B	0.00000	0.00000	0.00000
	A	B	0.01485	0.02184	0.16051
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00858	0.01399	0.09428
	B	A	0.00000	0.00000	0.00000
	B	A	0.01607	0.02441	0.17657
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00839	0.01316	0.08814
sky130_osu_sc_15T_hs__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.01314	0.02033	0.15219
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00655	0.01107	0.07160
	B	A	0.00000	0.00000	0.00000
	B	A	0.01442	0.02275	0.16665
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00645	0.01048	0.07138

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

Cell Name	Input	When	Power(pJ)		
			first	mid	last
sky130_osu_sc_15T_hs__addh_1	A	B	0.00000	0.00000	0.00000
	A	B	0.01220	0.01793	0.12857
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.01527	0.02246	0.14098
	B	A	0.00000	0.00000	0.00000
	B	A	0.01132	0.01753	0.14860
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01669	0.02310	0.13888
sky130_osu_sc_15T_hs__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.00974	0.01577	0.12724
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.01232	0.01781	0.09943
	B	A	0.00000	0.00000	0.00000
	B	A	0.00883	0.01547	0.14565
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01372	0.01832	0.09625

SKY130_OSU_SC_15T_HS__AND2x

sky130_osu_sc_15T_hs_ff_1P95_100C.ccs
Cell Library: Process , Voltage 1.95, Temp 100.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_15T_hs__and2_1	10.37850
sky130_osu_sc_15T_hs__and2_2	12.82050
sky130_osu_sc_15T_hs__and2_4	17.70450
sky130_osu_sc_15T_hs__and2_6	22.58850
sky130_osu_sc_15T_hs__and2_8	27.47250
sky130_osu_sc_15T_hs__and2_l	10.37850

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	B	Y
sky130_osu_sc_15T_hs__and2_1	0.00392	0.00406	2.80948
sky130_osu_sc_15T_hs__and2_2	0.00391	0.00406	5.31187
sky130_osu_sc_15T_hs__and2_4	0.00393	0.00407	10.10230
sky130_osu_sc_15T_hs__and2_6	0.00396	0.00407	15.01092
sky130_osu_sc_15T_hs__and2_8	0.00393	0.00408	19.19802
sky130_osu_sc_15T_hs__and2_l	0.00310	0.00324	1.78175

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_15T_hs__and2_1	0.00000	154.09800	245.79700
sky130_osu_sc_15T_hs__and2_2	0.00000	245.66600	251.01400
sky130_osu_sc_15T_hs__and2_4	0.00000	428.75400	486.50800
sky130_osu_sc_15T_hs__and2_6	0.00000	611.84400	727.13500
sky130_osu_sc_15T_hs__and2_8	0.00000	794.91000	967.72000
sky130_osu_sc_15T_hs__and2_l	0.00000	115.50000	184.40000

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_hs__and2_1	A->Y (RR)	0.04955	0.42833	7.03269
	B->Y (RR)	0.05269	0.40645	6.57193
sky130_osu_sc_15T_hs__and2_2	A->Y (RR)	0.05701	0.37430	6.83306
	B->Y (RR)	0.06011	0.35018	6.33608
sky130_osu_sc_15T_hs__and2_4	A->Y (RR)	0.08263	0.37974	6.95442
	B->Y (RR)	0.08589	0.35382	6.44276
sky130_osu_sc_15T_hs__and2_6	A->Y (RR)	0.10852	0.40410	7.11508
	B->Y (RR)	0.11170	0.37600	6.58936
sky130_osu_sc_15T_hs__and2_8	A->Y (RR)	0.13360	0.43074	7.13348
	B->Y (RR)	0.13688	0.40120	6.58539
sky130_osu_sc_15T_hs__and2_1	A->Y (RR)	0.04960	0.46164	6.51686
	B->Y (RR)	0.05300	0.43851	6.02858

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_hs__and2_1	A->Y (FF)	0.04149	0.47869	7.84710
	B->Y (FF)	0.04279	0.48899	7.97113
sky130_osu_sc_15T_hs__and2_2	A->Y (FF)	0.04461	0.40604	7.40509
	B->Y (FF)	0.04633	0.41742	7.57146
sky130_osu_sc_15T_hs__and2_4	A->Y (FF)	0.06167	0.40116	7.57926
	B->Y (FF)	0.06321	0.41008	7.74826
sky130_osu_sc_15T_hs__and2_6	A->Y (FF)	0.08009	0.41779	7.69369
	B->Y (FF)	0.08126	0.42526	7.86938
sky130_osu_sc_15T_hs__and2_8	A->Y (FF)	0.09749	0.43455	7.54323
	B->Y (FF)	0.09858	0.44091	7.71028
sky130_osu_sc_15T_hs__and2_1	A->Y (FF)	0.04376	0.45291	6.20389
	B->Y (FF)	0.04622	0.46607	6.35698

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__and2_1	A	0.00000	0.00000	0.00000
	A	0.01131	0.02974	0.35269
	B	0.00000	0.00000	0.00000
	B	0.01123	0.02592	0.29080
sky130_osu_sc_15T_hs__and2_2	A	0.00000	0.00000	0.00000
	A	0.01733	0.03597	0.37359
	B	0.00000	0.00000	0.00000
	B	0.01730	0.03234	0.30710
sky130_osu_sc_15T_hs__and2_4	A	0.00000	0.00000	0.00000
	A	0.03404	0.04793	0.37622
	B	0.00000	0.00000	0.00000
	B	0.03399	0.04400	0.30733
sky130_osu_sc_15T_hs__and2_6	A	0.00000	0.00000	0.00000
	A	0.05862	0.06373	0.39631
	B	0.00000	0.00000	0.00000
	B	0.05863	0.06039	0.31875
sky130_osu_sc_15T_hs__and2_8	A	0.00000	0.00000	0.00000
	A	0.08771	0.08352	0.41797
	B	0.00000	0.00000	0.00000
	B	0.08777	0.07796	0.32970
sky130_osu_sc_15T_hs__and2_1	A	0.00000	0.00000	0.00000
	A	0.00833	0.02213	0.26242
	B	0.00000	0.00000	0.00000
	B	0.00833	0.01869	0.20778

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__and2_1	A	0.00000	0.00000	0.00000
	A	0.01593	0.03422	0.31949
	B	0.00000	0.00000	0.00000
	B	0.01726	0.03514	0.31156
sky130_osu_sc_15T_hs__and2_2	A	0.00000	0.00000	0.00000
	A	0.02347	0.04203	0.35337
	B	0.00000	0.00000	0.00000
	B	0.02478	0.04302	0.34569
sky130_osu_sc_15T_hs__and2_4	A	0.00000	0.00000	0.00000
	A	0.04540	0.05831	0.34031
	B	0.00000	0.00000	0.00000
	B	0.04659	0.05930	0.33197
sky130_osu_sc_15T_hs__and2_6	A	0.00000	0.00000	0.00000
	A	0.07034	0.07734	0.35667
	B	0.00000	0.00000	0.00000
	B	0.07135	0.07797	0.34647
sky130_osu_sc_15T_hs__and2_8	A	0.00000	0.00000	0.00000
	A	0.10068	0.09773	0.37284
	B	0.00000	0.00000	0.00000
	B	0.10158	0.09767	0.36122
sky130_osu_sc_15T_hs__and2_l	A	0.00000	0.00000	0.00000
	A	0.01189	0.02596	0.24163
	B	0.00000	0.00000	0.00000
	B	0.01307	0.02664	0.23660

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__and2_1	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00374	-0.00373	-0.00379
sky130_osu_sc_15T_hs__and2_2	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00269	-0.00272	-0.00274
sky130_osu_sc_15T_hs__and2_4	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00061	-0.00064	-0.00065
sky130_osu_sc_15T_hs__and2_6	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00145	0.00142	0.00140
sky130_osu_sc_15T_hs__and2_8	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00358	0.00355	0.00353
sky130_osu_sc_15T_hs__and2_l	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00260	-0.00259	-0.00264

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__and2_1	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00589	0.00600	0.00592
sky130_osu_sc_15T_hs__and2_2	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00694	0.00704	0.00696
sky130_osu_sc_15T_hs__and2_4	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00904	0.00915	0.00906
sky130_osu_sc_15T_hs__and2_6	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.01118	0.01128	0.01120
sky130_osu_sc_15T_hs__and2_8	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.01324	0.01334	0.01326
sky130_osu_sc_15T_hs__and2_l	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00423	0.00430	0.00424

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__and2_1	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00353	-0.00357	-0.00353
sky130_osu_sc_15T_hs__and2_2	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00246	-0.00252	-0.00248
sky130_osu_sc_15T_hs__and2_4	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00039	-0.00039	-0.00040
sky130_osu_sc_15T_hs__and2_6	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00170	0.00171	0.00169
sky130_osu_sc_15T_hs__and2_8	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00379	0.00380	0.00378
sky130_osu_sc_15T_hs__and2_l	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00243	-0.00246	-0.00244

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__and2_1	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00593	0.00584	0.00574
sky130_osu_sc_15T_hs__and2_2	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00697	0.00689	0.00679
sky130_osu_sc_15T_hs__and2_4	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00908	0.00899	0.00889
sky130_osu_sc_15T_hs__and2_6	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.01116	0.01109	0.01099
sky130_osu_sc_15T_hs__and2_8	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.01326	0.01319	0.01309
sky130_osu_sc_15T_hs__and2_l	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00422	0.00416	0.00407

SKY130_OSU_SC_15T_HS__AOI21

sky130_osu_sc_15T_hs_ff_1P95_100C.ccs
Cell Library: Process , Voltage 1.95, Temp 100.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_15T_hs__aoi21_l	10.37850

Pin Capacitance Information

Cell Name	Pin Cap(pf)			Max Cap(pf)
	A0	A1	B0	Y
sky130_osu_sc_15T_hs__aoi21_l	0.00374	0.00387	0.00390	1.26607

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_15T_hs__aoi21_l	0.00000	63.03470	120.23300

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_hs__aoi21_l	A0->Y (FR)	0.04550	0.59893	8.40522
	A1->Y (FR)	0.03896	0.56787	8.02542
	B0->Y (FR)	0.03167	0.63201	9.11147

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_hs__aoi21_l	A0->Y (RF)	0.03950	0.44825	6.14437
	A1->Y (RF)	0.03632	0.48053	6.69056
	B0->Y (RF)	0.02070	0.42890	6.16959

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__aoi21_l	A0	0.00000	0.00000	0.00000
	A0	0.01138	0.01621	0.10741
	A1	0.00000	0.00000	0.00000
	A1	0.00970	0.01439	0.10273
	B0	0.00661	0.01462	0.13015

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__aoi21_l	A0	0.00000	0.00000	0.00000
	A0	0.00511	0.00928	0.08701
	A1	0.00000	0.00000	0.00000
	A1	0.00531	0.01044	0.09199
	B0	0.00125	0.00699	0.08539

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__aoi21_l	(A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * !Y)	-0.00268	-0.00370	-0.00325
	(!A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !Y)	-0.00321	-0.00324	-0.00323
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00421	-0.00424	-0.00422

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__aoi21_l	(A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * !Y)	0.00535	0.00538	0.00519
	(!A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !Y)	0.00531	0.00538	0.00533
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00454	0.00445	0.00437

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__aoi21_l	(A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * B0 * !Y)	-0.00261	-0.00363	-0.00318
	(!A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !Y)	-0.00313	-0.00317	-0.00316
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	-0.00445	-0.00447	-0.00451

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__aoi21_l	(A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * B0 * !Y)	0.00528	0.00530	0.00512
	(!A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !Y)	0.00524	0.00531	0.00526
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	0.00456	0.00465	0.00458

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__aoi21_l	(A0 * A1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !Y)	-0.00157	-0.00158	-0.00151

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__aoi21_l	(A0 * A1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !Y)	0.00302	0.00302	0.00253

SKY130_OSU_SC_15T_HS__AOI22

sky130_osu_sc_15T_hs_ff_1P95_100C.ccs
Cell Library: Process , Voltage 1.95, Temp 100.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_15T_hs__aoi22_l	12.82050

Pin Capacitance Information

Cell Name	Pin Cap(pf)				Max Cap(pf)
	A0	A1	B0	B1	Y
sky130_osu_sc_15T_hs__aoi22_l	0.00374	0.00384	0.00398	0.00379	1.30077

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_15T_hs__aoi22_l	0.00000	71.95270	240.14400

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_hs__aoi22_l	A0->Y (FR)	0.05385	0.60286	8.40837
	A1->Y (FR)	0.04901	0.59122	8.28640
	B0->Y (FR)	0.03154	0.61815	8.94639
	B1->Y (FR)	0.03636	0.63429	9.13430

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_hs__aoi22_l	A0->Y (RF)	0.05264	0.46972	6.31519
	A1->Y (RF)	0.04957	0.50154	6.85953
	B0->Y (RF)	0.02469	0.47342	6.82720
	B1->Y (RF)	0.02778	0.44031	6.27883

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__aoi22_l	A0	0.01413	0.01891	0.11430
	A1	0.01245	0.01711	0.10862
	B0	0.00715	0.01471	0.12363
	B1	0.00879	0.01622	0.12671

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__aoi22_l	A0	0.00811	0.01240	0.09452
	A1	0.00829	0.01347	0.09877
	B0	0.00458	0.01002	0.09187
	B1	0.00441	0.00919	0.08633

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__aoi22_l	(A1 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * B1 * !Y)	-0.00232	-0.00341	-0.00234
	(!A1 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * B1 * !Y)	-0.00217	-0.00219	-0.00218
	(!A1 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !B1 * Y)	-0.00419	-0.00422	-0.00420
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00418	-0.00421	-0.00419

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__aoi22_l	(A1 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * B1 * !Y)	0.00644	0.00643	0.00602
	(!A1 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * B1 * !Y)	0.00635	0.00642	0.00637
	(!A1 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !B1 * Y)	0.00456	0.00447	0.00438
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00457	0.00448	0.00439

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__aoi22_l	(A0 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * B0 * B1 * !Y)	-0.00227	-0.00335	-0.00227
	(!A0 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * B1 * !Y)	-0.00209	-0.00212	-0.00211
	(!A0 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !B1 * Y)	-0.00442	-0.00444	-0.00448
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	-0.00441	-0.00444	-0.00447

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__aoi22_l	(A0 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * B0 * B1 * !Y)	0.00637	0.00635	0.00595
	(!A0 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * B1 * !Y)	0.00629	0.00635	0.00630
	(!A0 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !B1 * Y)	0.00456	0.00466	0.00458
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	0.00457	0.00467	0.00459

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__aoi22_l	(A0 * A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * B1 * !Y)	-0.00156	-0.00157	-0.00152
	(A0 * A1 * !B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B1 * !Y)	-0.00051	-0.00053	-0.00054
	(!A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B1 * Y)	-0.00459	-0.00461	-0.00464
	(!A0 * A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B1 * Y)	-0.00459	-0.00463	-0.00465

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__aoi22_l	(A0 * A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * B1 * !Y)	0.00308	0.00309	0.00259
	(A0 * A1 * !B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B1 * !Y)	0.00265	0.00266	0.00259
	(!A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B1 * Y)	0.00474	0.00475	0.00476
	(!A0 * A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B1 * Y)	0.00473	0.00475	0.00475

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__aoi22_l	(A0 * A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * B0 * !Y)	-0.00158	-0.00159	-0.00153
	(A0 * A1 * !B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B0 * !Y)	-0.00052	-0.00055	-0.00055
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00426	-0.00429	-0.00427
	(!A0 * A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B0 * Y)	-0.00427	-0.00431	-0.00428

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__aoi22_l	(A0 * A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * B0 * !Y)	0.00311	0.00311	0.00261
	(A0 * A1 * !B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B0 * !Y)	0.00267	0.00269	0.00261
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00465	0.00454	0.00447
	(!A0 * A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B0 * Y)	0.00464	0.00453	0.00446

SKY130_OSU_SC_15T_HS__BUFx

sky130_osu_sc_15T_hs_ff_1P95_100C.ccs
Cell Library: Process , Voltage 1.95, Temp 100.00

Truth Table

INPUT	OUTPUT
A	Y
0	0
1	1

Footprint

Cell Name	Area
sky130_osu_sc_15T_hs__buf_1	7.93650
sky130_osu_sc_15T_hs__buf_2	10.37850
sky130_osu_sc_15T_hs__buf_4	15.26250
sky130_osu_sc_15T_hs__buf_6	20.14650
sky130_osu_sc_15T_hs__buf_8	25.03050
sky130_osu_sc_15T_hs__buf_l	7.93650

Pin Capacitance Information

Cell Name	Pin Cap(pf)	Max Cap(pf)
	A	Y
sky130_osu_sc_15T_hs__buf_1	0.00406	2.76112
sky130_osu_sc_15T_hs__buf_2	0.00407	5.37952
sky130_osu_sc_15T_hs__buf_4	0.00406	10.35786
sky130_osu_sc_15T_hs__buf_6	0.00089	1.80000
sky130_osu_sc_15T_hs__buf_8	0.00408	19.67410
sky130_osu_sc_15T_hs__buf_l	0.00325	1.83035

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_15T_hs__buf_1	0.00000	125.53900	125.55100
sky130_osu_sc_15T_hs__buf_2	0.00000	188.31500	245.91300
sky130_osu_sc_15T_hs__buf_4	0.00000	313.84900	486.60400
sky130_osu_sc_15T_hs__buf_6	0.00000	0.00000	0.00000
sky130_osu_sc_15T_hs__buf_8	0.00000	564.90100	967.95700
sky130_osu_sc_15T_hs__buf_l	0.00000	93.23250	93.24150

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_hs__buf_1	A->Y (RR)	0.03949	0.38124	6.32835
sky130_osu_sc_15T_hs__buf_2	A->Y (RR)	0.04451	0.32736	6.23911
sky130_osu_sc_15T_hs__buf_4	A->Y (RR)	0.06170	0.32142	6.32273
sky130_osu_sc_15T_hs__buf_8	A->Y (RR)	0.09813	0.36028	6.41104
sky130_osu_sc_15T_hs__buf_l	A->Y (RR)	0.04053	0.42111	6.01933

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_hs__buf_1	A->Y (FF)	0.03913	0.48133	7.95973
sky130_osu_sc_15T_hs__buf_2	A->Y (FF)	0.04336	0.42421	7.94537
sky130_osu_sc_15T_hs__buf_4	A->Y (FF)	0.05984	0.41156	8.02691
sky130_osu_sc_15T_hs__buf_8	A->Y (FF)	0.09561	0.44289	7.97676
sky130_osu_sc_15T_hs__buf_l	A->Y (FF)	0.04157	0.46390	6.57070

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__buf_1	A	0.00000	0.00000	0.00000
	A	0.00760	0.02487	0.30490
sky130_osu_sc_15T_hs__buf_2	A	0.00000	0.00000	0.00000
	A	0.01296	0.03030	0.31447
sky130_osu_sc_15T_hs__buf_4	A	0.00000	0.00000	0.00000
	A	0.02666	0.04390	0.32902
sky130_osu_sc_15T_hs__buf_8	A	0.00000	0.00000	0.00000
	A	0.06786	0.07573	0.36486
sky130_osu_sc_15T_hs__buf_l	A	0.00000	0.00000	0.00000
	A	0.00579	0.01801	0.22281

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__buf_1	A	0.00000	0.00000	0.00000
	A	0.01524	0.03461	0.33286
sky130_osu_sc_15T_hs__buf_2	A	0.00000	0.00000	0.00000
	A	0.02300	0.04156	0.33966
sky130_osu_sc_15T_hs__buf_4	A	0.00000	0.00000	0.00000
	A	0.04452	0.05855	0.35328
sky130_osu_sc_15T_hs__buf_8	A	0.00000	0.00000	0.00000
	A	0.09997	0.09790	0.38061
sky130_osu_sc_15T_hs__buf_l	A	0.00000	0.00000	0.00000
	A	0.01143	0.02617	0.25173

Passive power(pJ) for A rising :

Cell Name	Power(pJ)		
	first	mid	last
sky130_osu_sc_15T_hs__buf_6	0.00000	0.00000	0.00000
	-0.00086	-0.00086	-0.00083

Passive power(pJ) for A falling :

Cell Name	Power(pJ)		
	first	mid	last
sky130_osu_sc_15T_hs__buf_6	0.00000	0.00000	0.00000
	0.00086	0.00086	0.00083

SKY130_OSU_SC_15T_HS__DFFRx

sky130_osu_sc_15T_hs_ff_1P95_100C.ccs
Cell Library: Process , Voltage 1.95, Temp 100.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_15T_hs__dffr_1	53.11350
sky130_osu_sc_15T_hs__dffr_l	53.11350

Pin Capacitance Information

Cell Name	Pin Cap(pf)			Max Cap(pf)	
	D	RN	CK	Q	QN
sky130_osu_sc_15T_hs__dffr_1	0.00386	0.00378	0.01101	2.52474	2.47507
sky130_osu_sc_15T_hs__dffr_l	0.00386	0.00378	0.01101	1.83010	1.80448

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_15T_hs__dffr_1	0.00000	419.48200	620.99900
sky130_osu_sc_15T_hs__dffr_l	0.00000	385.99200	587.52000

Delay Information

Delay(ns) to Q rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_hs__dffr_1	CK->Q (RR)	0.17119	1.01464	15.30900
	QN->Q (FR)	0.02051	0.66246	11.51110
sky130_osu_sc_15T_hs__dffr_l	CK->Q (RR)	0.17397	1.18258	16.34300
	QN->Q (FR)	0.02096	0.66929	10.79470

Delay(ns) to Q falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_hs__dffr_1	CK->Q (RF)	0.19153	0.99601	14.84090
	QN->Q (RF)	0.01919	0.55979	9.81420
	RN->Q (FF)	0.14693	1.03982	16.03290
sky130_osu_sc_15T_hs__dffr_l	CK->Q (RF)	0.19250	1.17563	16.16080
	QN->Q (RF)	0.02191	0.64948	10.53150
	RN->Q (FF)	0.14800	1.21931	17.34650

Delay(ns) to QN rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_hs__dffr_1	CK->QN (RR)	0.17194	0.53127	6.05879
	RN->QN (FR)	0.12727	0.57545	7.24571
sky130_osu_sc_15T_hs__dffr_l	CK->QN (RR)	0.16763	0.56893	6.07241
	RN->QN (FR)	0.12301	0.61281	7.25342

Delay(ns) to QN falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_hs__dffr_1	**CK->QN (RF)**	0.14773	0.51245	5.84229
sky130_osu_sc_15T_hs__dffr_l	**CK->QN (RF)**	0.14851	0.60171	6.68732

Constraint Information

Constraints(ns) for D rising :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_15T_hs__dffr_1	hold	CK (R)	-0.04287	-0.03425	0.19503
	setup	CK (R)	0.13503	0.16988	0.21076
sky130_osu_sc_15T_hs__dffr_l	hold	CK (R)	-0.04514	-0.03425	0.19503
	setup	CK (R)	0.13441	0.16917	0.21706

Constraints(ns) for D falling :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_15T_hs__dffr_1	hold	CK (R)	-0.07236	-0.21150	-2.61016
	setup	CK (R)	0.09506	0.22367	4.28062
sky130_osu_sc_15T_hs__dffr_l	hold	CK (R)	-0.07464	-0.21030	-2.61372
	setup	CK (R)	0.09506	0.22367	4.27970

Constraints(ns) for D rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_15T_hs__dffr_1	hold	CK (R)	-0.04287	-0.03425	0.19503
	setup	CK (R)	0.13503	0.16988	0.21076
sky130_osu_sc_15T_hs__dffr_l	hold	CK (R)	-0.04514	-0.03425	0.19503
	setup	CK (R)	0.13441	0.16917	0.21706

Constraints(ns) for D falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_15T_hs__dffr_1	hold	CK (R)	-0.07236	-0.21150	-2.61016
	setup	CK (R)	0.09506	0.22367	4.28062
sky130_osu_sc_15T_hs__dffr_l	hold	CK (R)	-0.07464	-0.21030	-2.61372
	setup	CK (R)	0.09506	0.22367	4.27970

Constraints(ns) for RN rising :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_15T_hs__dffr_1	recovery	CK (R)	0.11325	0.15893	0.93816
	removal	CK (R)	-0.02511	-0.02786	-0.06581
sky130_osu_sc_15T_hs__dffr_l	recovery	CK (R)	0.10961	0.16069	0.93783
	removal	CK (R)	-0.02511	-0.02786	-0.06581

Constraints(ns) for RN rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_15T_hs__dffr_1	recovery	CK (R)	0.11325	0.15893	0.93816
	removal	CK (R)	-0.02511	-0.02786	-0.06581
sky130_osu_sc_15T_hs__dffr_l	recovery	CK (R)	0.10961	0.16069	0.93783
	removal	CK (R)	-0.02511	-0.02786	-0.06581

Constraints(ns) for RN falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_15T_hs__dffr_1	min_pulse_width	RN ()	0.08697	0.44922	13.33370
	min_pulse_width	RN ()	0.08697	0.44922	13.33370
sky130_osu_sc_15T_hs__dffr_l	min_pulse_width	RN ()	0.08358	0.44922	13.33370
	min_pulse_width	RN ()	0.08358	0.44922	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_15T_hs__dffr_1	min_pulse_width	CK ()	0.08358	0.44922	13.33370
	min_pulse_width	CK ()	0.10051	0.44922	13.33370
sky130_osu_sc_15T_hs__dffr_l	min_pulse_width	CK ()	0.08019	0.44922	13.33370
	min_pulse_width	CK ()	0.09712	0.44922	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_15T_hs__dffr_1	min_pulse_width	CK ()	0.16822	0.44922	13.33370
	min_pulse_width	CK ()	0.08019	0.44922	13.33370
sky130_osu_sc_15T_hs__dffr_l	min_pulse_width	CK ()	0.16822	0.44922	13.33370
	min_pulse_width	CK ()	0.08019	0.44922	13.33370

Power Information

Internal switching power(pJ) to Q rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__dffr_1	CK	0.00000	0.00000	0.00000
	CK	0.02163	0.03605	0.24966
sky130_osu_sc_15T_hs__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.01924	0.03571	0.28503

Internal switching power(pJ) to Q falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__dffr_1	CK	0.00000	0.00000	0.00000
	CK	0.02297	0.02934	0.15543
	RN	-0.00145	-0.12381	-2.39995
	RN	0.03438	0.04147	0.17561
sky130_osu_sc_15T_hs__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.02123	0.02957	0.19508
	RN	-0.00145	-0.10207	-1.73964
	RN	0.03497	0.04395	0.21489

Internal switching power(pJ) to QN rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__dffr_1	CK	0.00000	0.00000	0.00000
	CK	0.02124	0.02767	0.15533
	RN	-0.00145	-0.12234	-2.35204
	RN	0.03614	0.04313	0.17544
sky130_osu_sc_15T_hs__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.01909	0.02745	0.19351
	RN	-0.00145	-0.10121	-1.71422
	RN	0.03390	0.04291	0.21361

Internal switching power(pJ) to QN falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__dffr_1	CK	0.00000	0.00000	0.00000
	CK	0.01907	0.03362	0.24763
sky130_osu_sc_15T_hs__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.01724	0.03374	0.28224

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__dffr_1	CK	0.00000	0.00000	0.00000
	CK	0.00144	0.00060	0.00114
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.01953	0.03407	0.33442
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.01036	0.02451	0.30677
sky130_osu_sc_15T_hs__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.00115	0.00030	0.00085
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.01924	0.03378	0.33413
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.01007	0.02422	0.30648

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__dffr_1	CK	0.00000	0.00000	0.00000
	CK	0.00966	0.00967	0.00948
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.02956	0.04493	0.34540
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.01338	0.02812	0.31278
sky130_osu_sc_15T_hs__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.00937	0.00938	0.00919
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.02927	0.04464	0.34511
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.01309	0.02788	0.31249

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__dffr_1	(CK * !Q * QN) + (!CK * !D * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !Q * QN) + (!CK * !D * !Q * QN)	0.00918	0.03068	0.41054
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.01733	0.03952	0.44425
sky130_osu_sc_15T_hs__dffr_l	(CK * !Q * QN) + (!CK * !D * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !Q * QN) + (!CK * !D * !Q * QN)	0.00889	0.03039	0.41025
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.01704	0.03923	0.44395

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__dffr_1	(CK * !Q * QN) + (!CK * !D * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !Q * QN) + (!CK * !D * !Q * QN)	0.01391	0.03633	0.41800
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.02856	0.05097	0.45424
sky130_osu_sc_15T_hs__dffr_l	(CK * !Q * QN) + (!CK * !D * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !Q * QN) + (!CK * !D * !Q * QN)	0.01362	0.03604	0.41770
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.02827	0.05067	0.45395

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__dffr_1	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.00340	0.02466	0.40580
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.00994	0.03189	0.45154
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.00306	0.02411	0.40471
sky130_osu_sc_15T_hs__dffr_l	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.00311	0.02437	0.40551
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.00965	0.03160	0.45125
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.00276	0.02382	0.40442

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__dffr_1	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.02035	0.04309	0.42545
	(D * RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * RN * !Q * QN)	0.04219	0.06487	0.58799
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.03313	0.05569	0.47185
	(!D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * Q * !QN)	0.04096	0.08089	0.66663
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.02343	0.04540	0.42698
sky130_osu_sc_15T_hs__dffr_l	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.02005	0.04280	0.42516
	(D * RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * RN * !Q * QN)	0.04189	0.06458	0.58770
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.03284	0.05539	0.47155
	(!D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * Q * !QN)	0.04067	0.08060	0.66634
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.02314	0.04511	0.42668

SKY130_OSU_SC_15T_HS__DFFSRx

sky130_osu_sc_15T_hs_ff_1P95_100C.ccs
Cell Library: Process , Voltage 1.95, Temp 100.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_15T_hs__dffsr_1	57.99750
sky130_osu_sc_15T_hs__dffsr_l	57.99750

Pin Capacitance Information

Cell Name	Pin Cap(pf)				Max Cap(pf)	
	D	**RN**	**SN**	**CK**	**Q**	**QN**
sky130_osu_sc_15T_hs__dffsr_1	0.00381	0.00379	0.00842	0.01125	2.84437	2.83119
sky130_osu_sc_15T_hs__dffsr_l	0.00381	0.00379	0.00840	0.01125	1.83722	1.80889

Leakage Information

Cell Name	Leakage(nW)		
	Min.	**Avg**	**Max.**
sky130_osu_sc_15T_hs__dffsr_1	0.00000	463.10300	627.45100
sky130_osu_sc_15T_hs__dffsr_l	0.00000	429.59500	593.94200

Delay Information

Delay(ns) to Q rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_hs__dffsr_1	CK->Q (RR)	0.17735	1.04246	16.57560
	QN->Q (FR)	0.01776	0.60711	10.83670
	RN->Q (RR)	0.14645	1.02708	16.79170
	SN->Q (FR)	0.12653	1.08020	17.80320
sky130_osu_sc_15T_hs__dffsr_l	CK->Q (RR)	0.18451	1.19297	16.40640
	QN->Q (FR)	0.02094	0.66876	10.79720
	RN->Q (RR)	0.15363	1.17807	16.62460
	SN->Q (FR)	0.13360	1.23091	17.64550

Delay(ns) to Q falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_hs__dffsr_1	CK->Q (RF)	0.21186	1.04270	16.02270
	QN->Q (RF)	0.01889	0.58828	10.73750
	RN->Q (FF)	0.14610	1.06852	17.27970
sky130_osu_sc_15T_hs__dffsr_l	CK->Q (RF)	0.21627	1.20505	16.24170
	QN->Q (RF)	0.02188	0.64985	10.55230
	RN->Q (FF)	0.14995	1.22973	17.48840

Delay(ns) to QN rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_hs__dffsr_1	CK->QN (RR)	0.19189	0.54814	6.25680
	RN->QN (FR)	0.12621	0.57401	7.50808
sky130_osu_sc_15T_hs__dffsr_l	CK->QN (RR)	0.19111	0.59670	6.10607
	RN->QN (FR)	0.12504	0.62178	7.34771

Delay(ns) to QN falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_hs__dffsr_1	CK->QN (RF)	0.15584	0.54492	6.76161
	RN->QN (RF)	0.12521	0.53016	6.97467
	SN->QN (FF)	0.10534	0.58249	7.98553
sky130_osu_sc_15T_hs__dffsr_l	CK->QN (RF)	0.15937	0.61093	6.71707
	RN->QN (RF)	0.12869	0.59634	6.93129
	SN->QN (FF)	0.10872	0.64900	7.95156

Constraint Information

Constraints(ns) for D rising :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_15T_hs__dffsr_1	hold	CK (R)	-0.04944	-0.04149	0.16426
	setup	CK (R)	0.13798	0.17275	0.29843
sky130_osu_sc_15T_hs__dffsr_l	hold	CK (R)	-0.04825	-0.04149	0.16424
	setup	CK (R)	0.13605	0.17070	0.28640

Constraints(ns) for D falling :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_15T_hs__dffsr_1	hold	CK (R)	-0.07665	-0.21609	-2.61149
	setup	CK (R)	0.10035	0.22963	4.25313
sky130_osu_sc_15T_hs__dffsr_l	hold	CK (R)	-0.07770	-0.21609	-2.60767
	setup	CK (R)	0.10043	0.22946	4.25425

Constraints(ns) for D rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_15T_hs__dffsr_1	hold	CK (R)	-0.04944	-0.04149	0.16426
	setup	CK (R)	0.13798	0.17275	0.29843
sky130_osu_sc_15T_hs__dffsr_l	hold	CK (R)	-0.04825	-0.04149	0.16424
	setup	CK (R)	0.13605	0.17070	0.28640

Constraints(ns) for D falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_15T_hs__dffsr_1	hold	CK (R)	-0.07665	-0.21609	-2.61149
	setup	CK (R)	0.10035	0.22963	4.25313
sky130_osu_sc_15T_hs__dffsr_l	hold	CK (R)	-0.07770	-0.21609	-2.60767
	setup	CK (R)	0.10043	0.22946	4.25425

Constraints(ns) for RN rising :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_15T_hs__dffsr_1	recovery	CK (R)	0.09793	0.14958	1.00884
	removal	CK (R)	-0.01439	-0.01516	-0.01368
	hold	SN (R)	-0.09870	-0.19334	-0.82524
	setup	SN (R)	0.12159	0.24263	4.87422
sky130_osu_sc_15T_hs__dffsr_l	recovery	CK (R)	0.09753	0.14812	1.00299
	removal	CK (R)	-0.01439	-0.01516	-0.01368
	hold	SN (R)	-0.09993	-0.19334	-0.80230
	setup	SN (R)	0.12024	0.23863	4.89872

Constraints(ns) for RN rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_15T_hs__dffsr_1	recovery	CK (R)	0.09793	0.14958	1.00884
	removal	CK (R)	-0.01439	-0.01516	-0.01368
	hold	SN (R)	-0.09870	-0.19334	-0.82920
	hold	SN (R)	-0.10262	-0.19714	-0.82524
	setup	SN (R)	0.12006	0.23863	4.62354
	setup	SN (R)	0.12159	0.24263	4.87422
sky130_osu_sc_15T_hs__dffsr_l	recovery	CK (R)	0.09753	0.14812	1.00299
	removal	CK (R)	-0.01439	-0.01516	-0.01368
	hold	SN (R)	-0.10269	-0.19334	-0.82920
	hold	SN (R)	-0.09993	-0.19334	-0.80230
	setup	SN (R)	0.12024	0.23788	4.64374
	setup	SN (R)	0.11689	0.23863	4.89872

Constraints(ns) for RN falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_15T_hs__dffsr_1	min_pulse_width	RN ()	0.10051	0.44922	13.33370
	min_pulse_width	RN ()	0.10389	0.44922	13.33370
sky130_osu_sc_15T_hs__dffsr_l	min_pulse_width	RN ()	0.10051	0.44922	13.33370
	min_pulse_width	RN ()	0.09712	0.44922	13.33370

Constraints(ns) for SN rising :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_15T_hs__dffsr_1	recovery	CK (R)	0.03443	0.06466	5.19270
	removal	CK (R)	-0.02033	-0.04549	-0.33286
sky130_osu_sc_15T_hs__dffsr_l	recovery	CK (R)	0.03358	0.06466	5.08553
	removal	CK (R)	-0.02033	-0.04549	-0.33178

Constraints(ns) for SN rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_15T_hs__dffsr_1	recovery	CK (R)	0.03443	0.06466	5.19270
	removal	CK (R)	-0.02033	-0.04549	-0.33286
sky130_osu_sc_15T_hs__dffsr_l	recovery	CK (R)	0.03358	0.06466	5.08553
	removal	CK (R)	-0.02033	-0.04549	-0.33178

Constraints(ns) for SN falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_15T_hs__dffsr_1	min_pulse_width	SN ()	0.10051	0.44922	13.33370
	min_pulse_width	SN ()	0.10051	0.44922	13.33370
sky130_osu_sc_15T_hs__dffsr_l	min_pulse_width	SN ()	0.10051	0.44922	13.33370
	min_pulse_width	SN ()	0.09712	0.44922	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_15T_hs__dffsr_1	min_pulse_width	CK ()	0.08697	0.44922	13.33370
	min_pulse_width	CK ()	0.10728	0.44922	13.33370
sky130_osu_sc_15T_hs__dffsr_l	min_pulse_width	CK ()	0.08358	0.44922	13.33370
	min_pulse_width	CK ()	0.10389	0.44922	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_15T_hs__dffsr_1	min_pulse_width	CK ()	0.17160	0.44922	13.33370
	min_pulse_width	CK ()	0.08697	0.44922	13.33370
sky130_osu_sc_15T_hs__dffsr_l	min_pulse_width	CK ()	0.17160	0.44922	13.33370
	min_pulse_width	CK ()	0.08697	0.44922	13.33370

Power Information

Internal switching power(pJ) to Q rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__dffsr_1	CK	0.00000	0.00000	0.00000
	CK	0.02506	0.03906	0.24940
	RN	0.03831	0.04712	0.22109
	SN	-0.00145	-0.13299	-2.70379
	SN	0.03373	0.04314	0.21355
sky130_osu_sc_15T_hs__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.02266	0.03889	0.29130
	RN	0.03600	0.04717	0.26353
	SN	-0.00145	-0.10231	-1.74642
	SN	0.03138	0.04306	0.25531

Internal switching power(pJ) to Q falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__dffsr_1	CK	0.00000	0.00000	0.00000
	CK	0.02776	0.03601	0.19723
	RN	-0.00145	-0.13299	-2.70376
	RN	0.04220	0.05138	0.23058
sky130_osu_sc_15T_hs__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.02547	0.03377	0.20071
	RN	-0.00145	-0.10231	-1.74641
	RN	0.03993	0.04914	0.23394

Internal switching power(pJ) to QN rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__dffsr_1	CK	0.00000	0.00000	0.00000
	CK	0.02511	0.03336	0.19454
	RN	-0.00145	-0.13262	-2.68832
	RN	0.04000	0.04918	0.22790
sky130_osu_sc_15T_hs__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.02293	0.03122	0.19878
	RN	-0.00145	-0.10136	-1.71840
	RN	0.03785	0.04707	0.23190

Internal switching power(pJ) to QN falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__dffsr_1	CK	0.00000	0.00000	0.00000
	CK	0.02297	0.03698	0.24442
	RN	0.03624	0.04516	0.21964
	SN	-0.00145	-0.13262	-2.69100
	SN	0.03234	0.04179	0.21264
sky130_osu_sc_15T_hs__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.02063	0.03685	0.28865
	RN	0.03397	0.04516	0.26163
	SN	-0.00145	-0.10136	-1.71940
	SN	0.03009	0.04173	0.25388

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__dffsr_1	CK	0.00000	0.00000	0.00000
	CK	0.00115	0.00113	0.00115
	(!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)	0.02408	0.03828	0.34668
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.01136	0.02513	0.30779
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.01166	0.02544	0.30733
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.01261	0.02640	0.30861
sky130_osu_sc_15T_hs__dffsr_1	CK	0.00000	0.00000	0.00000
	CK	0.00086	0.00084	0.00086
	(!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)	0.02379	0.03800	0.34646
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.01106	0.02484	0.30750
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.01137	0.02515	0.30704
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.01232	0.02611	0.30833

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__dffsr_1	CK	0.00000	0.00000	0.00000
	CK	0.00979	0.00972	0.00962
	(!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)	0.03398	0.04898	0.35749
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.01541	0.02979	0.31349
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.01489	0.02915	0.31322
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.01578	0.03027	0.31435
sky130_osu_sc_15T_hs__dffsr_1	CK	0.00000	0.00000	0.00000
	CK	0.00950	0.00942	0.00933
	(!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)	0.03368	0.04868	0.35719
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.01510	0.02949	0.31319
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.01458	0.02885	0.31292
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.01547	0.02996	0.31405

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_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)	0.00912	0.03046	0.41014
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.02024	0.04245	0.45374
sky130_osu_sc_15T_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)	0.00883	0.03017	0.40986
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.01995	0.04217	0.45346

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_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)	0.01459	0.03728	0.41933
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.03007	0.05255	0.46092
sky130_osu_sc_15T_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)	0.01428	0.03698	0.41902
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.02976	0.05224	0.46062

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_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)	-0.00510	-0.00510	-0.00518
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	-0.00467	-0.00667	-0.00586
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	-0.00420	-0.00524	-0.00482
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.01170	0.02466	0.30131
sky130_osu_sc_15T_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)	-0.00539	-0.00539	-0.00547
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	-0.00494	-0.00694	-0.00613
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	-0.00448	-0.00553	-0.00511
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.01142	0.02438	0.30103

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_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)	0.01398	0.01418	0.01402
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.01462	0.01468	0.01430
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	0.01461	0.01468	0.01447
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.02382	0.03577	0.31383
sky130_osu_sc_15T_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)	0.01369	0.01389	0.01372
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.01430	0.01437	0.01399
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	0.01431	0.01438	0.01417
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.02351	0.03547	0.31352

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__dffsr_1	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.00346	0.02472	0.40611
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.01163	0.03352	0.45274
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.01258	0.03446	0.45365
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00399	0.02501	0.40589
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.01069	0.04839	0.72082
sky130_osu_sc_15T_hs__dffsr_1	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.00317	0.02443	0.40581
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.01133	0.03321	0.45243
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.01227	0.03416	0.45335
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00370	0.02472	0.40559
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.01040	0.04811	0.72053

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

Cell Name	When	Power(pJ)		
		first	mid	last

sky130_osu_sc_15T_hs__dffsr_1	**(D * RN * SN * !Q * QN)**	0.00000	0.00000	0.00000
	(D * RN * SN * !Q * QN)	0.04725	0.06986	0.59223
	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.02047	0.04323	0.42582
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.03418	0.05667	0.47262
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.03508	0.05762	0.47391
	(!D * RN * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * Q * !QN)	0.04565	0.08522	0.67572
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.02412	0.04609	0.42791
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.02566	0.06560	0.74059
sky130_osu_sc_15T_hs__dffsr_l	**(D * RN * SN * !Q * QN)**	0.00000	0.00000	0.00000
	(D * RN * SN * !Q * QN)	0.04696	0.06957	0.59194
	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.02018	0.04293	0.42553
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.03389	0.05638	0.47234
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.03479	0.05733	0.47363
	(!D * RN * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * Q * !QN)	0.04535	0.08492	0.67542
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.02383	0.04580	0.42762
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.02536	0.06529	0.74029

SKY130_OSU_SC_15T_HS__DFFSx

sky130_osu_sc_15T_hs_ff_1P95_100C.ccs
Cell Library: Process , Voltage 1.95, Temp 100.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_15T_hs__dffs_1	48.22950
sky130_osu_sc_15T_hs__dffs_l	48.22950

Pin Capacitance Information

Cell Name	Pin Cap(pf)			Max Cap(pf)	
	D	SN	CK	Q	QN
sky130_osu_sc_15T_hs__dffs_1	0.00384	0.00661	0.01102	2.52750	2.48079
sky130_osu_sc_15T_hs__dffs_l	0.00384	0.00661	0.01102	1.83699	1.81248

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_15T_hs__dffs_1	0.00000	428.96700	624.17400
sky130_osu_sc_15T_hs__dffs_l	0.00000	395.47500	590.65300

Delay Information

Delay(ns) to Q rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_hs__dffs_1	CK->Q (RR)	0.14384	0.97703	15.16310
	QN->Q (FR)	0.02046	0.65868	11.44780
	SN->Q (FR)	0.10765	1.03592	16.33960
sky130_osu_sc_15T_hs__dffs_l	CK->Q (RR)	0.14803	1.14897	16.25650
	QN->Q (FR)	0.02090	0.66728	10.76570
	SN->Q (FR)	0.11251	1.20745	17.43640

Delay(ns) to Q falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_hs__dffs_1	CK->Q (RF)	0.21318	1.02415	14.86200
	QN->Q (RF)	0.01910	0.55781	9.78547
sky130_osu_sc_15T_hs__dffs_l	CK->Q (RF)	0.21219	1.20127	16.22990
	QN->Q (RF)	0.02184	0.64920	10.53390

Delay(ns) to QN rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_hs__dffs_1	CK->QN (RR)	0.19338	0.55907	6.08164
sky130_osu_sc_15T_hs__dffs_l	CK->QN (RR)	0.18681	0.59421	6.11187

Delay(ns) to QN falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_hs__dffs_1	CK->QN (RF)	0.12164	0.47702	5.71899
	SN->QN (FF)	0.08544	0.53522	6.89499
sky130_osu_sc_15T_hs__dffs_l	CK->QN (RF)	0.12367	0.56948	6.59281
	SN->QN (FF)	0.08792	0.62661	7.76773

Constraint Information

Constraints(ns) for D rising :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_15T_hs__dffs_1	hold	CK (R)	-0.03281	-0.02768	0.22477
	setup	CK (R)	0.10822	0.14483	0.18571
sky130_osu_sc_15T_hs__dffs_l	hold	CK (R)	-0.03271	-0.02771	0.22478
	setup	CK (R)	0.10462	0.14664	0.17068

Constraints(ns) for D falling :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_15T_hs__dffs_1	hold	CK (R)	-0.07540	-0.21230	-3.13455
	setup	CK (R)	0.10145	0.22746	4.31855
sky130_osu_sc_15T_hs__dffs_l	hold	CK (R)	-0.07439	-0.21230	-3.14431
	setup	CK (R)	0.10147	0.22746	4.31702

Constraints(ns) for D rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_15T_hs__dffs_1	hold	CK (R)	-0.03281	-0.02768	0.22477
	setup	CK (R)	0.10822	0.14483	0.18571
sky130_osu_sc_15T_hs__dffs_l	hold	CK (R)	-0.03271	-0.02771	0.22478
	setup	CK (R)	0.10462	0.14664	0.17068

Constraints(ns) for D falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_15T_hs__dffs_1	hold	CK (R)	-0.07540	-0.21230	-3.13455
	setup	CK (R)	0.10145	0.22746	4.31855
sky130_osu_sc_15T_hs__dffs_l	hold	CK (R)	-0.07439	-0.21230	-3.14431
	setup	CK (R)	0.10147	0.22746	4.31702

Constraints(ns) for SN rising :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_15T_hs__dffs_1	recovery	CK (R)	0.04204	0.08699	4.50613
	removal	CK (R)	-0.02805	-0.07203	-0.83383
sky130_osu_sc_15T_hs__dffs_l	recovery	CK (R)	0.04202	0.08699	4.23243
	removal	CK (R)	-0.02805	-0.07203	-0.83383

Constraints(ns) for SN rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_15T_hs__dffs_1	recovery	CK (R)	0.04204	0.08699	4.50613
	removal	CK (R)	-0.02805	-0.07203	-0.83383
sky130_osu_sc_15T_hs__dffs_l	recovery	CK (R)	0.04202	0.08699	4.23243
	removal	CK (R)	-0.02805	-0.07203	-0.83383

Constraints(ns) for SN falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_15T_hs__dffs_1	min_pulse_width	SN ()	0.07342	0.44922	13.33370
	min_pulse_width	SN ()	0.07342	0.44922	13.33370
sky130_osu_sc_15T_hs__dffs_l	min_pulse_width	SN ()	0.07342	0.44922	13.33370
	min_pulse_width	SN ()	0.07004	0.44922	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_15T_hs__dffs_1	min_pulse_width	CK ()	0.06665	0.44922	13.33370
	min_pulse_width	CK ()	0.11066	0.44922	13.33370
sky130_osu_sc_15T_hs__dffs_l	min_pulse_width	CK ()	0.06327	0.44922	13.33370
	min_pulse_width	CK ()	0.10389	0.44922	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_15T_hs__dffs_1	min_pulse_width	CK ()	0.14113	0.44922	13.33370
	min_pulse_width	CK ()	0.08697	0.44922	13.33370
sky130_osu_sc_15T_hs__dffs_l	min_pulse_width	CK ()	0.14113	0.44922	13.33370
	min_pulse_width	CK ()	0.08697	0.44922	13.33370

Power Information

Internal switching power(pJ) to Q rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__dffs_1	CK	0.00000	0.00000	0.00000
	CK	0.01913	0.03375	0.24702
	SN	-0.00145	-0.12389	-2.40259
	SN	0.02611	0.03461	0.17030
sky130_osu_sc_15T_hs__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.01693	0.03344	0.28088
	SN	-0.00145	-0.10230	-1.74620
	SN	0.02378	0.03411	0.20344

Internal switching power(pJ) to Q falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__dffs_1	CK	0.00000	0.00000	0.00000
	CK	0.02466	0.03103	0.16040
sky130_osu_sc_15T_hs__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.02292	0.03129	0.19945

Internal switching power(pJ) to QN rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__dffs_1	CK	0.00000	0.00000	0.00000
	CK	0.02262	0.02903	0.16036
sky130_osu_sc_15T_hs__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.02036	0.02874	0.19728

Internal switching power(pJ) to QN falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__dffs_1	CK	0.00000	0.00000	0.00000
	CK	0.01721	0.03191	0.24483
	SN	-0.00145	-0.12251	-2.35794
	SN	0.02505	0.03359	0.16997
sky130_osu_sc_15T_hs__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.01546	0.03196	0.27847
	SN	-0.00145	-0.10148	-1.72281
	SN	0.02303	0.03336	0.20206

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__dffs_1	CK	0.00000	0.00000	0.00000
	CK	0.00114	0.00112	0.00114
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.01820	0.03351	0.33921
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.00908	0.02318	0.30675
sky130_osu_sc_15T_hs__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.00085	0.00083	0.00085
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.01790	0.03322	0.33892
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.00878	0.02289	0.30646

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__dffs_1	CK	0.00000	0.00000	0.00000
	CK	0.00992	0.00984	0.00974
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.02918	0.04433	0.34630
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.01366	0.02849	0.31308
sky130_osu_sc_15T_hs__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.00962	0.00955	0.00945
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.02889	0.04404	0.34600
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.01337	0.02820	0.31278

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__dffs_1	(CK * Q * !QN) + (!CK * D * Q * !QN)	0.00000	0.00000	0.00000
	(CK * Q * !QN) + (!CK * D * Q * !QN)	-0.00350	-0.00358	-0.00356
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.00973	0.01846	0.21944
sky130_osu_sc_15T_hs__dffs_l	(CK * Q * !QN) + (!CK * D * Q * !QN)	0.00000	0.00000	0.00000
	(CK * Q * !QN) + (!CK * D * Q * !QN)	-0.00382	-0.00386	-0.00384
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.00944	0.01817	0.21915

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__dffs_1	(CK * Q * !QN) + (!CK * D * Q * !QN)	0.00000	0.00000	0.00000
	(CK * Q * !QN) + (!CK * D * Q * !QN)	0.01033	0.01033	0.01025
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.01616	0.02637	0.23071
sky130_osu_sc_15T_hs__dffs_l	(CK * Q * !QN) + (!CK * D * Q * !QN)	0.00000	0.00000	0.00000
	(CK * Q * !QN) + (!CK * D * Q * !QN)	0.01003	0.01003	0.00995
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.01586	0.02608	0.23041

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__dffs_1	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.00230	0.02360	0.40527
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	0.00395	0.02504	0.40618
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.00834	0.04667	0.72082
sky130_osu_sc_15T_hs__dffs_l	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.00201	0.02331	0.40498
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	0.00365	0.02475	0.40589
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.00804	0.04638	0.72053

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__dffs_1	(D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * SN * !Q * QN)	0.04141	0.06455	0.59041
	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.01930	0.04208	0.42497
	(!D * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * SN * Q * !QN)	0.04017	0.07993	0.66656
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	0.02418	0.04619	0.42830
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.02380	0.06433	0.74111
sky130_osu_sc_15T_hs__dffs_l	(D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * SN * !Q * QN)	0.04112	0.06426	0.59012
	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.01901	0.04179	0.42468
	(!D * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * SN * Q * !QN)	0.03988	0.07964	0.66626
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	0.02389	0.04590	0.42801
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.02350	0.06404	0.74082

SKY130_OSU_SC_15T_HS__DFFx

sky130_osu_sc_15T_hs_ff_1P95_100C.ccs
Cell Library: Process , Voltage 1.95, Temp 100.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_15T_hs__dff_1	40.29300
sky130_osu_sc_15T_hs__dff_l	40.29300

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)	
	D	CK	Q	QN
sky130_osu_sc_15T_hs__dff_1	0.00400	0.01100	2.85409	2.83658
sky130_osu_sc_15T_hs__dff_l	0.00400	0.01100	1.61108	1.57784

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_15T_hs__dff_1	0.00000	416.40600	507.84200
sky130_osu_sc_15T_hs__dff_l	0.00000	384.07500	475.50500

Delay Information

Delay(ns) to Q rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_hs__dff_1	CK->Q (RR)	0.12537	0.98621	16.51440
	QN->Q (FR)	0.01770	0.60543	10.81550
sky130_osu_sc_15T_hs__dff_l	CK->Q (RR)	0.12779	0.95422	12.55310
	QN->Q (FR)	0.02437	0.72787	11.31530

Delay(ns) to Q falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_hs__dff_1	CK->Q (RF)	0.17205	0.99782	16.01380
	QN->Q (RF)	0.01883	0.58744	10.73780
sky130_osu_sc_15T_hs__dff_l	CK->Q (RF)	0.17733	1.01519	12.99300
	QN->Q (RF)	0.01864	0.52002	8.06773

Delay(ns) to QN rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_hs__dff_1	CK->QN (RR)	0.15231	0.50212	6.20951
sky130_osu_sc_15T_hs__dff_l	CK->QN (RR)	0.15743	0.56418	5.84470

Delay(ns) to QN falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_hs__dff_1	CK->QN (RF)	0.10550	0.48952	6.67154
sky130_osu_sc_15T_hs__dff_l	CK->QN (RF)	0.10319	0.42382	4.15853

Constraint Information

Constraints(ns) for D rising :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_15T_hs__dff_1	hold	CK (R)	-0.03140	-0.02649	0.15643
	setup	CK (R)	0.08744	0.13093	0.20860
sky130_osu_sc_15T_hs__dff_l	hold	CK (R)	-0.03113	-0.02703	0.15442
	setup	CK (R)	0.08880	0.13046	0.21675

Constraints(ns) for D falling :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_15T_hs__dff_1	hold	CK (R)	-0.05921	-0.20647	-2.75072
	setup	CK (R)	0.07618	0.21988	4.20792
sky130_osu_sc_15T_hs__dff_l	hold	CK (R)	-0.06114	-0.20657	-2.77029
	setup	CK (R)	0.07578	0.21988	4.20755

Constraints(ns) for CK rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_15T_hs__dff_1	min_pulse_width	CK ()	0.05988	0.44922	13.33370
	min_pulse_width	CK ()	0.09035	0.44922	13.33370
sky130_osu_sc_15T_hs__dff_l	min_pulse_width	CK ()	0.05988	0.44922	13.33370
	min_pulse_width	CK ()	0.09035	0.44922	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_15T_hs__dff_1	min_pulse_width	CK ()	0.12421	0.44922	13.33370
	min_pulse_width	CK ()	0.05988	0.44922	13.33370
sky130_osu_sc_15T_hs__dff_l	min_pulse_width	CK ()	0.12421	0.44922	13.33370
	min_pulse_width	CK ()	0.05988	0.44922	13.33370

Power Information

Internal switching power(pJ) to Q rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__dff_1	CK	0.00000	0.00000	0.00000
	CK	0.01995	0.03507	0.25044
sky130_osu_sc_15T_hs__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.01755	0.03369	0.27607

Internal switching power(pJ) to Q falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__dff_1	CK	0.00000	0.00000	0.00000
	CK	0.02330	0.03218	0.19667
sky130_osu_sc_15T_hs__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.01979	0.02740	0.18139

Internal switching power(pJ) to QN rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__dff_1	CK	0.00000	0.00000	0.00000
	CK	0.02114	0.03003	0.19449
sky130_osu_sc_15T_hs__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.01935	0.02703	0.18219

Internal switching power(pJ) to QN falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__dff_1	CK	0.00000	0.00000	0.00000
	CK	0.01835	0.03355	0.24791
sky130_osu_sc_15T_hs__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.01529	0.03159	0.27228

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__dff_1	CK	0.00000	0.00000	0.00000
	CK	0.00045	-0.00038	0.00017
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.01706	0.03291	0.34872
sky130_osu_sc_15T_hs__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.00017	-0.00066	-0.00012
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.01678	0.03263	0.34845

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__dff_1	CK	0.00000	0.00000	0.00000
	CK	0.00867	0.00867	0.00849
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.02926	0.04467	0.35941
sky130_osu_sc_15T_hs__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.00839	0.00839	0.00821
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.02898	0.04439	0.35913

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__dff_1	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.00238	0.02370	0.40532
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.00289	0.02401	0.40509
sky130_osu_sc_15T_hs__dff_l	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.00210	0.02342	0.40503
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.00261	0.02373	0.40481

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__dff_1	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.01929	0.04211	0.42491
	(D * !Q * QN)	0.00000	0.00000	0.00000
	(D * !Q * QN)	0.04037	0.06388	0.59673
	(!D * Q * !QN)	0.00000	0.00000	0.00000
	(!D * Q * !QN)	0.04068	0.08143	0.68127
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.02300	0.04502	0.42705
sky130_osu_sc_15T_hs__dff_l	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.01901	0.04183	0.42463
	(D * !Q * QN)	0.00000	0.00000	0.00000
	(D * !Q * QN)	0.04010	0.06361	0.59652
	(!D * Q * !QN)	0.00000	0.00000	0.00000
	(!D * Q * !QN)	0.04041	0.08115	0.68104
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.02272	0.04474	0.42676

SKY130_OSU_SC_15T_HS__INVx

sky130_osu_sc_15T_hs_ff_1P95_100C.ccs
Cell Library: Process , Voltage 1.95, Temp 100.00

Truth Table

INPUT	OUTPUT
A	Y
0	1
1	0

Footprint

Cell Name	Area
sky130_osu_sc_15T_hs__inv_1	5.49450
sky130_osu_sc_15T_hs__inv_10	27.47250
sky130_osu_sc_15T_hs__inv_2	7.93650
sky130_osu_sc_15T_hs__inv_3	10.37850
sky130_osu_sc_15T_hs__inv_4	12.82050
sky130_osu_sc_15T_hs__inv_6	17.70450
sky130_osu_sc_15T_hs__inv_8	22.58850
sky130_osu_sc_15T_hs__inv_l	5.49450

Pin Capacitance Information

Cell Name	Pin Cap(pf)	Max Cap(pf)
	A	Y
sky130_osu_sc_15T_hs__inv_1	0.00382	2.60860
sky130_osu_sc_15T_hs__inv_10	0.03510	22.73438
sky130_osu_sc_15T_hs__inv_2	0.00722	4.93776
sky130_osu_sc_15T_hs__inv_3	0.01074	7.16137
sky130_osu_sc_15T_hs__inv_4	0.01418	9.52769
sky130_osu_sc_15T_hs__inv_6	0.02125	13.97671
sky130_osu_sc_15T_hs__inv_8	0.02815	18.63022
sky130_osu_sc_15T_hs__inv_l	0.00299	1.46219

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_15T_hs__inv_1	0.00000	62.76190	120.34300
sky130_osu_sc_15T_hs__inv_10	0.00000	627.44200	1203.09000
sky130_osu_sc_15T_hs__inv_2	0.00000	125.51600	240.67300
sky130_osu_sc_15T_hs__inv_3	0.00000	188.25500	360.97000
sky130_osu_sc_15T_hs__inv_4	0.00000	251.01000	481.30100
sky130_osu_sc_15T_hs__inv_6	0.00000	376.49800	721.91800
sky130_osu_sc_15T_hs__inv_8	0.00000	501.98200	962.52700
sky130_osu_sc_15T_hs__inv_l	0.00000	46.60180	91.20070

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_hs__inv_1	**A->Y (FR)**	0.01682	0.54625	9.48779
sky130_osu_sc_15T_hs__inv_10	**A->Y (FR)**	0.02602	0.34355	9.24480
sky130_osu_sc_15T_hs__inv_2	**A->Y (FR)**	0.01401	0.45743	9.18680
sky130_osu_sc_15T_hs__inv_3	**A->Y (FR)**	0.01562	0.42595	9.26248
sky130_osu_sc_15T_hs__inv_4	**A->Y (FR)**	0.01608	0.39697	9.17793
sky130_osu_sc_15T_hs__inv_6	**A->Y (FR)**	0.01804	0.36640	9.15741
sky130_osu_sc_15T_hs__inv_8	**A->Y (FR)**	0.02189	0.35223	9.23398
sky130_osu_sc_15T_hs__inv_l	**A->Y (FR)**	0.02072	0.58630	8.85490

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_hs__inv_1	**A->Y (RF)**	0.01713	0.49954	8.91395
sky130_osu_sc_15T_hs__inv_10	**A->Y (RF)**	0.02560	0.27327	8.52174
sky130_osu_sc_15T_hs__inv_2	**A->Y (RF)**	0.01411	0.40363	8.63405
sky130_osu_sc_15T_hs__inv_3	**A->Y (RF)**	0.01552	0.36934	8.72044
sky130_osu_sc_15T_hs__inv_4	**A->Y (RF)**	0.01535	0.33740	8.64987
sky130_osu_sc_15T_hs__inv_6	**A->Y (RF)**	0.01825	0.30498	8.60282
sky130_osu_sc_15T_hs__inv_8	**A->Y (RF)**	0.02203	0.28789	8.64976
sky130_osu_sc_15T_hs__inv_l	**A->Y (RF)**	0.01709	0.44702	6.75366

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__inv_1	A	0.00000	0.00000	0.00000
	A	0.00621	0.01457	0.11317
sky130_osu_sc_15T_hs__inv_10	A	0.00000	0.00000	0.00000
	A	0.05829	0.17730	1.09218
sky130_osu_sc_15T_hs__inv_2	A	0.00000	0.00000	0.00000
	A	0.01110	0.03073	0.22438
sky130_osu_sc_15T_hs__inv_3	A	0.00000	0.00000	0.00000
	A	0.01704	0.04785	0.33038
sky130_osu_sc_15T_hs__inv_4	A	0.00000	0.00000	0.00000
	A	0.02198	0.06543	0.44172
sky130_osu_sc_15T_hs__inv_6	A	0.00000	0.00000	0.00000
	A	0.03309	0.10203	0.66071
sky130_osu_sc_15T_hs__inv_8	A	0.00000	0.00000	0.00000
	A	0.04507	0.14081	0.87069
sky130_osu_sc_15T_hs__inv_l	A	0.00000	0.00000	0.00000
	A	0.00474	0.01130	0.10145

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__inv_1	**A**	0.00000	0.00000	0.00000
	A	0.00191	0.00838	0.07985
sky130_osu_sc_15T_hs__inv_10	**A**	0.00000	0.00000	0.00000
	A	0.02082	0.11473	0.78924
sky130_osu_sc_15T_hs__inv_2	**A**	0.00000	0.00000	0.00000
	A	0.00238	0.01711	0.16088
sky130_osu_sc_15T_hs__inv_3	**A**	0.00000	0.00000	0.00000
	A	0.00455	0.02830	0.23672
sky130_osu_sc_15T_hs__inv_4	**A**	0.00000	0.00000	0.00000
	A	0.00542	0.03971	0.31806
sky130_osu_sc_15T_hs__inv_6	**A**	0.00000	0.00000	0.00000
	A	0.00797	0.06229	0.47607
sky130_osu_sc_15T_hs__inv_8	**A**	0.00000	0.00000	0.00000
	A	0.01301	0.08806	0.62966
sky130_osu_sc_15T_hs__inv_l	**A**	0.00000	0.00000	0.00000
	A	0.00102	0.00526	0.06433

SKY130_OSU_SC_15T_HS__MUX2

sky130_osu_sc_15T_hs_ff_1P95_100C.ccs
Cell Library: Process , Voltage 1.95, Temp 100.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_15T_hs__mux2_1	15.26250

Pin Capacitance Information

Cell Name	Pin Cap(pf)			Max Cap(pf)
	A0	**A1**	**S0**	**Y**
sky130_osu_sc_15T_hs__mux2_1	0.08677	0.08663	0.00781	0.08096

Leakage Information

Cell Name	Leakage(nW)		
	Min.	**Avg**	**Max.**
sky130_osu_sc_15T_hs__mux2_1	0.00000	125.49300	125.52200

Delay Information

Delay(ns) to Y rising (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_15T_hs__mux2_1	A0->Y (RR)	-	0.00830	0.04186	0.18004
	A1->Y (RR)	-	0.00890	0.04192	0.17950
	S0->Y (RR)	(!A0 * A1)	0.03186	0.09036	-0.13881
	S0->Y (FR)	(A0 * !A1)	0.02256	0.17132	1.47484

Delay(ns) to Y falling (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_15T_hs__mux2_1	A0->Y (FF)	-	0.00798	0.04313	0.18207
	A1->Y (FF)	-	0.00767	0.04285	0.18146
	S0->Y (FF)	(!A0 * A1)	0.03528	0.17664	1.15682
	S0->Y (RF)	(A0 * !A1)	0.02008	0.09302	0.17727

Power Information

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

Cell Name	Input	When	Power(pJ)		
			first	mid	last
sky130_osu_sc_15T_hs__mux2_1	A0	-	0.00000	0.00000	0.00000
	A0	-	-0.00625	-0.00626	-0.00627
	A1	-	0.00000	0.00000	0.00000
	A1	-	-0.00155	-0.00156	-0.00158
	S0	(A0 * !A1)	0.00000	0.00000	0.00000
	S0	(A0 * !A1)	0.00703	0.03080	0.40912
	S0	(!A0 * A1)	0.00000	0.00000	0.00000
	S0	(!A0 * A1)	-0.00378	0.01842	0.39548

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

Cell Name	Input	When	Power(pJ)		
			first	mid	last
sky130_osu_sc_15T_hs__mux2_1	A0	-	0.00000	0.00000	0.00000
	A0	-	0.00648	0.00649	0.00650
	A1	-	0.00000	0.00000	0.00000
	A1	-	0.00709	0.00709	0.00710
	S0	(A0 * !A1)	0.00000	0.00000	0.00000
	S0	(A0 * !A1)	0.00231	0.02542	0.40275
	S0	(!A0 * A1)	0.00000	0.00000	0.00000
	S0	(!A0 * A1)	0.01688	0.03946	0.41728

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__mux2_1	(A1 * S0 * Y) + (!A1 * S0 * !Y)	0.00000	0.00000	0.00000
	(A1 * S0 * Y) + (!A1 * S0 * !Y)	-0.00044	-0.00044	-0.00044

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__mux2_1	(A1 * S0 * Y) + (!A1 * S0 * !Y)	0.00000	0.00000	0.00000
	(A1 * S0 * Y) + (!A1 * S0 * !Y)	0.00253	0.00253	0.00253

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__mux2_1	(A0 * !S0 * Y) + (!A0 * !S0 * !Y)	0.00000	0.00000	0.00000
	(A0 * !S0 * Y) + (!A0 * !S0 * !Y)	-0.00170	-0.00170	-0.00170

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__mux2_1	(A0 * !S0 * Y) + (!A0 * !S0 * !Y)	0.00000	0.00000	0.00000
	(A0 * !S0 * Y) + (!A0 * !S0 * !Y)	0.00178	0.00178	0.00179

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__mux2_1	(A0 * A1 * Y)	0.00000	0.00000	0.00000
	(A0 * A1 * Y)	-0.00055	0.02219	0.39893
	(!A0 * !A1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !Y)	-0.00054	0.02238	0.39930

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__mux2_1	(A0 * A1 * Y)	0.00000	0.00000	0.00000
	(A0 * A1 * Y)	0.01277	0.03587	0.41340
	(!A0 * !A1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !Y)	0.01124	0.03513	0.41296

SKY130_OSU_SC_15T_HS__NAND2x

sky130_osu_sc_15T_hs_ff_1P95_100C.ccs
Cell Library: Process , Voltage 1.95, Temp 100.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_15T_hs__nand2_1	7.93650
sky130_osu_sc_15T_hs__nand2_l	7.93650

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	B	Y
sky130_osu_sc_15T_hs__nand2_1	0.00382	0.00381	1.85083
sky130_osu_sc_15T_hs__nand2_l	0.00299	0.00301	1.45624

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_15T_hs__nand2_1	0.00000	62.52690	240.59800
sky130_osu_sc_15T_hs__nand2_l	0.00000	46.56510	182.35000

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_hs__nand2_1	A->Y (FR)	0.01730	0.48583	7.73215
	B->Y (FR)	0.01980	0.48053	7.60773
sky130_osu_sc_15T_hs__nand2_l	A->Y (FR)	0.02126	0.58391	8.81349
	B->Y (FR)	0.02553	0.58673	8.79651

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_hs__nand2_1	A->Y (RF)	0.02356	0.54721	8.81656
	B->Y (RF)	0.02632	0.51690	8.32047
sky130_osu_sc_15T_hs__nand2_l	A->Y (RF)	0.02293	0.55549	8.40335
	B->Y (RF)	0.02571	0.52255	7.81470

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__nand2_1	A	0.00000	0.00000	0.00000
	A	0.00659	0.01446	0.11415
	B	0.00000	0.00000	0.00000
	B	0.00822	0.01619	0.12151
sky130_osu_sc_15T_hs__nand2_1	A	0.00000	0.00000	0.00000
	A	0.00501	0.01041	0.08538
	B	0.00000	0.00000	0.00000
	B	0.00647	0.01197	0.09031

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__nand2_1	A	0.00000	0.00000	0.00000
	A	0.00563	0.01127	0.08382
	B	0.00000	0.00000	0.00000
	B	0.00546	0.01041	0.08191
sky130_osu_sc_15T_hs__nand2_1	A	0.00000	0.00000	0.00000
	A	0.00401	0.00737	0.05576
	B	0.00000	0.00000	0.00000
	B	0.00391	0.00710	0.05639

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__nand2_1	(!B * Y)	0.00000	0.00000	0.00000
	(!B * Y)	-0.00468	-0.00470	-0.00472
sky130_osu_sc_15T_hs__nand2_l	(!B * Y)	0.00000	0.00000	0.00000
	(!B * Y)	-0.00326	-0.00328	-0.00329

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__nand2_1	(!B * Y)	0.00000	0.00000	0.00000
	(!B * Y)	0.00473	0.00483	0.00475
sky130_osu_sc_15T_hs__nand2_l	(!B * Y)	0.00000	0.00000	0.00000
	(!B * Y)	0.00329	0.00334	0.00331

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__nand2_1	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00437	-0.00437	-0.00438
sky130_osu_sc_15T_hs__nand2_l	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00302	-0.00302	-0.00303

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__nand2_1	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00466	0.00457	0.00449
sky130_osu_sc_15T_hs__nand2_l	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00322	0.00314	0.00308

SKY130_OSU_SC_15T_HS__NOR2x

sky130_osu_sc_15T_hs_ff_1P95_100C.ccs
Cell Library: Process , Voltage 1.95, Temp 100.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_15T_hs__nor2_1	7.93650
sky130_osu_sc_15T_hs__nor2_l	7.93650

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	B	Y
sky130_osu_sc_15T_hs__nor2_1	0.00380	0.00408	1.51624
sky130_osu_sc_15T_hs__nor2_l	0.00290	0.00321	0.98587

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_15T_hs__nor2_1	0.00000	49.68390	120.18300
sky130_osu_sc_15T_hs__nor2_l	0.00000	40.07380	91.09380

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_hs__nor2_1	A->Y (FR)	0.03370	0.59342	8.91500
	B->Y (FR)	0.02432	0.61698	9.39950
sky130_osu_sc_15T_hs__nor2_l	A->Y (FR)	0.03742	0.64271	8.57636
	B->Y (FR)	0.02981	0.67608	9.17793

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_hs__nor2_1	A->Y (RF)	0.02454	0.40470	6.01811
	B->Y (RF)	0.01840	0.39415	5.98519
sky130_osu_sc_15T_hs__nor2_l	A->Y (RF)	0.02202	0.38418	5.04391
	B->Y (RF)	0.01825	0.37554	5.00940

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__nor2_1	A	0.00000	0.00000	0.00000
	A	0.00947	0.01525	0.11184
	B	0.00000	0.00000	0.00000
	B	0.00681	0.01459	0.12577
sky130_osu_sc_15T_hs__nor2_l	A	0.00000	0.00000	0.00000
	A	0.00673	0.01128	0.09475
	B	0.00000	0.00000	0.00000
	B	0.00511	0.01102	0.10188

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__nor2_1	A	0.00000	0.00000	0.00000
	A	0.00240	0.00868	0.09979
	B	0.00000	0.00000	0.00000
	B	0.00145	0.00796	0.09306
sky130_osu_sc_15T_hs__nor2_l	A	0.00000	0.00000	0.00000
	A	0.00164	0.00575	0.07591
	B	0.00000	0.00000	0.00000
	B	0.00102	0.00540	0.06977

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__nor2_1	(B * !Y)	0.00000	0.00000	0.00000
	(B * !Y)	-0.00295	-0.00384	-0.00323
sky130_osu_sc_15T_hs__nor2_l	(B * !Y)	0.00000	0.00000	0.00000
	(B * !Y)	-0.00206	-0.00255	-0.00205

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__nor2_1	(B * !Y)	0.00000	0.00000	0.00000
	(B * !Y)	0.00533	0.00535	0.00514
sky130_osu_sc_15T_hs__nor2_l	(B * !Y)	0.00000	0.00000	0.00000
	(B * !Y)	0.00362	0.00364	0.00350

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__nor2_1	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	-0.00164	-0.00166	-0.00160
sky130_osu_sc_15T_hs__nor2_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	-0.00108	-0.00109	-0.00104

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__nor2_1	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00238	0.00237	0.00210
sky130_osu_sc_15T_hs__nor2_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00177	0.00176	0.00154

SKY130_OSU_SC_15T_HS__OAI21

sky130_osu_sc_15T_hs_ff_1P95_100C.ccs
Cell Library: Process , Voltage 1.95, Temp 100.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_15T_hs__oai21_l	10.37850

Pin Capacitance Information

Cell Name	Pin Cap(pf)			Max Cap(pf)
	A0	A1	B0	Y
sky130_osu_sc_15T_hs__oai21_l	0.00385	0.00396	0.00322	1.39644

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_15T_hs__oai21_l	0.00000	60.71060	211.25400

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_hs__oai21_l	A0->Y (FR)	0.03325	0.61626	9.06475
	A1->Y (FR)	0.04533	0.59789	8.62168
	B0->Y (FR)	0.02378	0.54712	8.11906

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_hs__oai21_l	A0->Y (RF)	0.03237	0.46950	6.80531
	A1->Y (RF)	0.04057	0.46749	6.62851
	B0->Y (RF)	0.02497	0.51766	7.66051

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__oai21_l	A0	0.00000	0.00000	0.00000
	A0	0.00937	0.01570	0.11010
	A1	0.00000	0.00000	0.00000
	A1	0.01201	0.01682	0.10448
	B0	0.00547	0.01221	0.10972

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__oai21_l	A0	0.00000	0.00000	0.00000
	A0	0.00511	0.00937	0.07854
	A1	0.00000	0.00000	0.00000
	A1	0.00581	0.00993	0.08408
	B0	0.00301	0.00803	0.08143

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__oai21_l	(A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * !Y)	-0.00086	-0.00086	-0.00082
	(A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * Y)	-0.00425	-0.00425	-0.00424
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00426	-0.00428	-0.00426

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__oai21_l	(A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * !Y)	0.00318	0.00317	0.00290
	(A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * Y)	0.00432	0.00435	0.00434
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00461	0.00446	0.00437

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__oai21_l	(A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * B0 * !Y)	-0.00203	-0.00292	-0.00235
	(A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * Y)	-0.00420	-0.00421	-0.00419
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	-0.00420	-0.00421	-0.00420

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__oai21_l	(A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * B0 * !Y)	0.00603	0.00605	0.00584
	(A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * Y)	0.00426	0.00433	0.00428
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	0.00453	0.00439	0.00431

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__oai21_l	(!A0 * !A1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * Y)	-0.00325	-0.00327	-0.00335

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__oai21_l	(!A0 * !A1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * Y)	0.00338	0.00339	0.00340

SKY130_OSU_SC_15T_HS__OAI22

sky130_osu_sc_15T_hs_ff_1P95_100C.ccs
Cell Library: Process , Voltage 1.95, Temp 100.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_15T_hs__oai22_l	12.82050

Pin Capacitance Information

Cell Name	Pin Cap(pf)				Max Cap(pf)
	A0	A1	B0	B1	Y
sky130_osu_sc_15T_hs__oai22_l	0.00375	0.00394	0.00404	0.00395	1.45790

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_15T_hs__oai22_l	0.00000	74.07540	240.27200

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_hs__oai22_l	A0->Y (FR)	0.04732	0.59609	8.66620
	A1->Y (FR)	0.03780	0.62081	9.17101
	B0->Y (FR)	0.02669	0.61046	9.16144
	B1->Y (FR)	0.03677	0.58623	8.65428

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_hs__oai22_l	A0->Y (RF)	0.05789	0.51099	7.13993
	A1->Y (RF)	0.04562	0.49501	7.06331
	B0->Y (RF)	0.03948	0.54416	7.93504
	B1->Y (RF)	0.05186	0.56362	8.05910

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__oai22_l	A0	0.01424	0.01911	0.10694
	A1	0.01156	0.01853	0.12304
	B0	0.00724	0.01434	0.11612
	B1	0.01005	0.01497	0.09922

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__oai22_l	A0	0.00327	0.00748	0.08353
	A1	0.00232	0.00681	0.07861
	B0	0.00253	0.00778	0.08485
	B1	0.00339	0.00849	0.08604

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__oai22_l	(A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * !Y)	-0.00290	-0.00379	-0.00319
	(A1 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * B1 * !Y)	-0.00239	-0.00329	-0.00268
	(A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * !B1 * Y)	-0.00416	-0.00417	-0.00415
	(!A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * !B1 * Y)	-0.00417	-0.00419	-0.00418

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__oai22_l	(A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * !Y)	0.00538	0.00540	0.00518
	(A1 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * B1 * !Y)	0.00588	0.00590	0.00569
	(A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * !B1 * Y)	0.00433	0.00439	0.00434
	(!A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * !B1 * Y)	0.00466	0.00448	0.00437

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__oai22_l	(A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * B0 * !Y)	-0.00159	-0.00159	-0.00154
	(A0 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * B1 * !Y)	-0.00108	-0.00109	-0.00103
	(A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * !B1 * Y)	-0.00413	-0.00413	-0.00412
	(!A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * !B1 * Y)	-0.00413	-0.00413	-0.00415

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__oai22_l	(A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * B0 * !Y)	0.00241	0.00240	0.00213
	(A0 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * B1 * !Y)	0.00291	0.00291	0.00263
	(A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * !B1 * Y)	0.00429	0.00429	0.00431
	(!A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * !B1 * Y)	0.00462	0.00442	0.00434

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__oai22_l	(A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * B1 * !Y)	-0.00157	-0.00158	-0.00153
	(A0 * !A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B1 * !Y)	-0.00107	-0.00108	-0.00102
	(!A0 * !A1 * B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B1 * Y)	-0.00464	-0.00466	-0.00462
	(!A0 * !A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B1 * Y)	-0.00449	-0.00452	-0.00463

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__oai22_l	(A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * B1 * !Y)	0.00238	0.00238	0.00211
	(A0 * !A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B1 * !Y)	0.00289	0.00289	0.00262
	(!A0 * !A1 * B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B1 * Y)	0.00481	0.00485	0.00476
	(!A0 * !A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B1 * Y)	0.00466	0.00476	0.00468

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__oai22_l	(A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * !Y)	-0.00283	-0.00372	-0.00311
	(A0 * !A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B0 * !Y)	-0.00233	-0.00321	-0.00261
	(!A0 * !A1 * B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B0 * Y)	-0.00473	-0.00474	-0.00471
	(!A0 * !A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B0 * Y)	-0.00459	-0.00462	-0.00472

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__oai22_l	(A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * !Y)	0.00529	0.00531	0.00510
	(A0 * !A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B0 * !Y)	0.00579	0.00582	0.00561
	(!A0 * !A1 * B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B0 * Y)	0.00489	0.00495	0.00485
	(!A0 * !A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B0 * Y)	0.00475	0.00485	0.00477

SKY130_OSU_SC_15T_HS__OR2x

sky130_osu_sc_15T_hs_ff_1P95_100C.ccs
Cell Library: Process , Voltage 1.95, Temp 100.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_15T_hs__or2_1	10.37850
sky130_osu_sc_15T_hs__or2_2	12.82050
sky130_osu_sc_15T_hs__or2_4	17.70450
sky130_osu_sc_15T_hs__or2_8	27.47250
sky130_osu_sc_15T_hs__or2_l	10.37850

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	B	Y
sky130_osu_sc_15T_hs__or2_1	0.00418	0.00394	2.75748
sky130_osu_sc_15T_hs__or2_2	0.00418	0.00394	5.31243
sky130_osu_sc_15T_hs__or2_4	0.00419	0.00394	10.15829
sky130_osu_sc_15T_hs__or2_8	0.00421	0.00396	19.38000
sky130_osu_sc_15T_hs__or2_l	0.00333	0.00307	1.59743

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_15T_hs__or2_1	0.00000	83.66790	130.74400
sky130_osu_sc_15T_hs__or2_2	0.00000	117.65000	251.12400
sky130_osu_sc_15T_hs__or2_4	0.00000	185.60700	491.84800
sky130_osu_sc_15T_hs__or2_8	0.00000	321.51400	973.27000
sky130_osu_sc_15T_hs__or2_l	0.00000	64.37980	95.24200

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_hs__or2_1	A->Y (RR)	0.04948	0.39140	6.06015
	B->Y (RR)	0.04096	0.36665	5.94368
sky130_osu_sc_15T_hs__or2_2	A->Y (RR)	0.05508	0.33766	5.93430
	B->Y (RR)	0.04627	0.31303	5.78906
sky130_osu_sc_15T_hs__or2_4	A->Y (RR)	0.07279	0.33181	6.01269
	B->Y (RR)	0.06363	0.30962	5.85849
sky130_osu_sc_15T_hs__or2_8	A->Y (RR)	0.10951	0.37130	6.18708
	B->Y (RR)	0.10001	0.35277	6.03160
sky130_osu_sc_15T_hs__or2_l	A->Y (RR)	0.04938	0.43333	5.44314
	B->Y (RR)	0.04294	0.41014	5.26407

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_hs__or2_1	A->Y (FF)	0.06429	0.52503	8.23551
	B->Y (FF)	0.05186	0.53720	8.67422
sky130_osu_sc_15T_hs__or2_2	A->Y (FF)	0.07424	0.46983	8.14763
	B->Y (FF)	0.06185	0.48327	8.58296
sky130_osu_sc_15T_hs__or2_4	A->Y (FF)	0.10371	0.46461	8.21031
	B->Y (FF)	0.09140	0.48153	8.63295
sky130_osu_sc_15T_hs__or2_8	A->Y (FF)	0.16575	0.51330	8.21313
	B->Y (FF)	0.15342	0.53553	8.61928
sky130_osu_sc_15T_hs__or2_l	A->Y (FF)	0.07044	0.48867	6.23138
	B->Y (FF)	0.05814	0.50409	6.65139

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__or2_1	A	0.00000	0.00000	0.00000
	A	0.00875	0.02172	0.24908
	B	0.00000	0.00000	0.00000
	B	0.00818	0.02388	0.27699
sky130_osu_sc_15T_hs__or2_2	A	0.00000	0.00000	0.00000
	A	0.01451	0.02777	0.25909
	B	0.00000	0.00000	0.00000
	B	0.01362	0.02952	0.28143
sky130_osu_sc_15T_hs__or2_4	A	0.00000	0.00000	0.00000
	A	0.02885	0.04209	0.27535
	B	0.00000	0.00000	0.00000
	B	0.02747	0.04293	0.29413
sky130_osu_sc_15T_hs__or2_8	A	0.00000	0.00000	0.00000
	A	0.07140	0.07656	0.31128
	B	0.00000	0.00000	0.00000
	B	0.06904	0.07650	0.33045
sky130_osu_sc_15T_hs__or2_l	A	0.00000	0.00000	0.00000
	A	0.00657	0.01449	0.14961
	B	0.00000	0.00000	0.00000
	B	0.00619	0.01523	0.16034

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__or2_1	A	0.00000	0.00000	0.00000
	A	0.01884	0.03163	0.27140
	B	0.00000	0.00000	0.00000
	B	0.01586	0.03384	0.33768
sky130_osu_sc_15T_hs__or2_2	A	0.00000	0.00000	0.00000
	A	0.02811	0.03865	0.27758
	B	0.00000	0.00000	0.00000
	B	0.02514	0.04046	0.34319
sky130_osu_sc_15T_hs__or2_4	A	0.00000	0.00000	0.00000
	A	0.05500	0.05611	0.28810
	B	0.00000	0.00000	0.00000
	B	0.05209	0.05774	0.35353
sky130_osu_sc_15T_hs__or2_8	A	0.00000	0.00000	0.00000
	A	0.13092	0.09884	0.31326
	B	0.00000	0.00000	0.00000
	B	0.12796	0.10149	0.37798
sky130_osu_sc_15T_hs__or2_l	A	0.00000	0.00000	0.00000
	A	0.01349	0.02241	0.19268
	B	0.00000	0.00000	0.00000
	B	0.01154	0.02320	0.22406

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__or2_1	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00289	-0.00380	-0.00321
sky130_osu_sc_15T_hs__or2_2	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00284	-0.00375	-0.00317
sky130_osu_sc_15T_hs__or2_4	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00275	-0.00366	-0.00308
sky130_osu_sc_15T_hs__or2_8	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00257	-0.00348	-0.00289
sky130_osu_sc_15T_hs__or2_l	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00201	-0.00252	-0.00206

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__or2_1	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00540	0.00542	0.00521
sky130_osu_sc_15T_hs__or2_2	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00544	0.00546	0.00525
sky130_osu_sc_15T_hs__or2_4	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00554	0.00555	0.00535
sky130_osu_sc_15T_hs__or2_8	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00572	0.00573	0.00552
sky130_osu_sc_15T_hs__or2_l	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00367	0.00368	0.00354

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__or2_1	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00160	-0.00161	-0.00157
sky130_osu_sc_15T_hs__or2_2	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00156	-0.00157	-0.00152
sky130_osu_sc_15T_hs__or2_4	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00147	-0.00148	-0.00143
sky130_osu_sc_15T_hs__or2_8	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00128	-0.00130	-0.00125
sky130_osu_sc_15T_hs__or2_l	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00110	-0.00110	-0.00106

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__or2_1	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00244	0.00244	0.00216
sky130_osu_sc_15T_hs__or2_2	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00248	0.00249	0.00221
sky130_osu_sc_15T_hs__or2_4	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00258	0.00258	0.00230
sky130_osu_sc_15T_hs__or2_8	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00276	0.00276	0.00248
sky130_osu_sc_15T_hs__or2_l	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00182	0.00183	0.00160

SKY130_OSU_SC_15T_HS__TBUFIx

sky130_osu_sc_15T_hs_ff_1P95_100C.ccs
Cell Library: Process , Voltage 1.95, Temp 100.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_15T_hs__tbufi_1	10.37850
sky130_osu_sc_15T_hs__tbufi_l	10.37850

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	OE	Y
sky130_osu_sc_15T_hs__tbufi_1	0.00406	0.00513	1.47539
sky130_osu_sc_15T_hs__tbufi_l	0.00322	0.00421	0.97975

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_15T_hs__tbufi_1	0.00000	65.58550	240.46000
sky130_osu_sc_15T_hs__tbufi_l	0.00000	47.88290	182.25600

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_hs__tbufi_1	A->Y (FR)	0.02361	0.60209	9.09603
	OE->Y (FR)	0.03207	0.35535	5.34287
	OE->Y (RR)	0.05058	0.45036	5.93519
sky130_osu_sc_15T_hs__tbufi_l	A->Y (FR)	0.02907	0.66912	9.06648
	OE->Y (FR)	0.03463	0.35513	5.34268
	OE->Y (RR)	0.05147	0.50683	5.71805

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_hs__tbufi_1	A->Y (RF)	0.02342	0.49517	7.45560
	OE->Y (FF)	0.03260	0.35533	5.34286
	OE->Y (RF)	0.02080	0.44661	6.71501
sky130_osu_sc_15T_hs__tbufi_l	A->Y (RF)	0.02303	0.47083	6.29989
	OE->Y (FF)	0.03520	0.35512	5.34269
	OE->Y (RF)	0.02133	0.41937	5.47864

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__tbufi_1	A	0.00000	0.00000	0.00000
	A	0.00968	0.01641	0.11033
	OE	0.00000	0.00000	0.00000
	OE	0.00984	0.03049	0.36926
sky130_osu_sc_15T_hs__tbufi_l	A	0.00000	0.00000	0.00000
	A	0.00736	0.01230	0.08912
	OE	0.00000	0.00000	0.00000
	OE	0.00701	0.02133	0.25891

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__tbufi_1	A	0.00000	0.00000	0.00000
	A	0.00475	0.01010	0.08182
	OE	0.00000	0.00000	0.00000
	OE	0.00984	0.03212	0.40276
sky130_osu_sc_15T_hs__tbufi_l	A	0.00000	0.00000	0.00000
	A	0.00315	0.00678	0.06114
	OE	0.00000	0.00000	0.00000
	OE	0.00638	0.02237	0.29150

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__tbufi_1	(!OE * Y)	0.00000	0.00000	0.00000
	(!OE * Y)	-0.00329	-0.00329	-0.00326
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	-0.00253	-0.00256	-0.00252
sky130_osu_sc_15T_hs__tbufi_l	(!OE * Y)	0.00000	0.00000	0.00000
	(!OE * Y)	-0.00245	-0.00244	-0.00241
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	-0.00189	-0.00190	-0.00188

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__tbufi_1	(!OE * Y)	0.00000	0.00000	0.00000
	(!OE * Y)	0.00329	0.00329	0.00326
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	0.00309	0.00312	0.00296
sky130_osu_sc_15T_hs__tbufi_l	(!OE * Y)	0.00000	0.00000	0.00000
	(!OE * Y)	0.00245	0.00244	0.00241
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	0.00241	0.00241	0.00229

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__tbufi_1	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00498	0.02822	0.41070
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00358	0.02681	0.40978
sky130_osu_sc_15T_hs__tbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00336	0.01992	0.29584
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00239	0.01898	0.29517

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__tbufi_1	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00786	0.03161	0.41532
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00752	0.03136	0.41470
sky130_osu_sc_15T_hs__tbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00609	0.02347	0.30033
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00589	0.02330	0.29984

SKY130_OSU_SC_15T_HS__TNBUFIx

sky130_osu_sc_15T_hs_ff_1P95_100C.ccs
Cell Library: Process , Voltage 1.95, Temp 100.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_15T_hs__tnbufi_1	10.37850
sky130_osu_sc_15T_hs__tnbufi_l	10.37850

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	OE	Y
sky130_osu_sc_15T_hs__tnbufi_1	0.00405	0.00633	1.47533
sky130_osu_sc_15T_hs__tnbufi_l	0.00321	0.00468	0.98009

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_15T_hs__tnbufi_1	0.00000	103.98400	125.35500
sky130_osu_sc_15T_hs__tnbufi_l	0.00000	77.63040	93.08960

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_hs__tnbufi_1	A->Y (FR)	0.02364	0.60194	9.09410
	OE->Y (RR)	0.02276	0.35603	5.34362
	OE->Y (FR)	0.03212	0.56224	8.32930
sky130_osu_sc_15T_hs__tnbufi_l	A->Y (FR)	0.02913	0.66947	9.06706
	OE->Y (RR)	0.02212	0.35596	5.34354
	OE->Y (FR)	0.03616	0.61985	8.11566

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_15T_hs__tnbufi_1	A->Y (RF)	0.02308	0.49539	7.45574
	OE->Y (RF)	0.02251	0.35605	5.34362
	OE->Y (FF)	0.03482	0.44742	6.18869
sky130_osu_sc_15T_hs__tnbufi_l	A->Y (RF)	0.02264	0.47081	6.30258
	OE->Y (RF)	0.02187	0.35599	5.34354
	OE->Y (FF)	0.03831	0.43228	5.15004

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__tnbufi_1	A	0.00000	0.00000	0.00000
	A	0.00670	0.01345	0.10797
	OE	0.00000	0.00000	0.00000
	OE	0.01640	0.04071	0.41672
sky130_osu_sc_15T_hs__tnbufi_l	A	0.00000	0.00000	0.00000
	A	0.00508	0.01010	0.08717
	OE	0.00000	0.00000	0.00000
	OE	0.01211	0.02948	0.29939

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__tnbufi_1	A	0.00000	0.00000	0.00000
	A	0.00173	0.00716	0.07879
	OE	0.00000	0.00000	0.00000
	OE	0.01659	0.03893	0.37633
sky130_osu_sc_15T_hs__tnbufi_l	A	0.00000	0.00000	0.00000
	A	0.00105	0.00470	0.05914
	OE	0.00000	0.00000	0.00000
	OE	0.01197	0.02857	0.27748

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__tnbufi_1	(OE * Y)	0.00000	0.00000	0.00000
	(OE * Y)	-0.00186	-0.00189	-0.00177
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	-0.00104	-0.00106	-0.00102
sky130_osu_sc_15T_hs__tnbufi_l	(OE * Y)	0.00000	0.00000	0.00000
	(OE * Y)	-0.00124	-0.00126	-0.00116
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	-0.00063	-0.00064	-0.00062

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__tnbufi_1	(OE * Y)	0.00000	0.00000	0.00000
	(OE * Y)	0.00378	0.00379	0.00374
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	0.00362	0.00363	0.00348
sky130_osu_sc_15T_hs__tnbufi_l	(OE * Y)	0.00000	0.00000	0.00000
	(OE * Y)	0.00274	0.00274	0.00269
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	0.00271	0.00271	0.00259

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__tnbufi_1	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	-0.00348	0.02006	0.40366
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00396	0.02020	0.40301
sky130_osu_sc_15T_hs__tnbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	-0.00215	0.01462	0.29130
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00249	0.01460	0.29077

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_15T_hs__tnbufi_1	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.01336	0.03843	0.42246
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.01210	0.03757	0.42157
sky130_osu_sc_15T_hs__tnbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00991	0.02786	0.30498
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00903	0.02741	0.30437

SKY130_OSU_SC_15T_HS__XNOR2

sky130_osu_sc_15T_hs_ff_1P95_100C.ccs
Cell Library: Process , Voltage 1.95, Temp 100.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_15T_hs__xnor2_l	17.70450

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	B	Y
sky130_osu_sc_15T_hs__xnor2_l	0.00806	0.00719	1.53320

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_15T_hs__xnor2_l	0.00000	221.80200	365.78900

Delay Information

Delay(ns) to Y rising (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_15T_hs__xnor2_1	A->Y (RR)	B	0.06185	0.47392	6.15064
	A->Y (FR)	!B	0.02929	0.60726	9.19914
	B->Y (RR)	A	0.04891	0.47123	6.39833
	B->Y (FR)	!A	0.04166	0.59096	8.77781

Delay(ns) to Y falling (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_15T_hs__xnor2_1	A->Y (FF)	B	0.06345	0.50568	6.65801
	A->Y (RF)	!B	0.03064	0.48085	7.21148
	B->Y (FF)	A	0.05332	0.49817	6.69202
	B->Y (RF)	!A	0.03974	0.49019	7.18419

Power Information

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

Cell Name	Input	When	Power(pJ)		
			first	mid	last
sky130_osu_sc_15T_hs__xnor2_l	A	B	0.00000	0.00000	0.00000
	A	B	0.01318	0.03353	0.38051
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.01549	0.04491	0.51088
	B	A	0.00000	0.00000	0.00000
	B	A	0.00807	0.03157	0.42201
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01740	0.04459	0.48868

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

Cell Name	Input	When	Power(pJ)		
			first	mid	last
sky130_osu_sc_15T_hs__xnor2_l	A	B	0.00000	0.00000	0.00000
	A	B	0.02519	0.04738	0.42553
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.01294	0.03926	0.47870
	B	A	0.00000	0.00000	0.00000
	B	A	0.02589	0.04942	0.43717
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01169	0.03785	0.47183

SKY130_OSU_SC_15T_HS__XOR2

sky130_osu_sc_15T_hs_ff_1P95_100C.ccs
Cell Library: Process , Voltage 1.95, Temp 100.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_15T_hs__xor2_l	17.70450

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	B	Y
sky130_osu_sc_15T_hs__xor2_l	0.00810	0.00724	1.52366

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_15T_hs__xor2_l	0.00000	221.79600	367.05000

Delay Information

Delay(ns) to Y rising (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_15T_hs__xor2_1	A->Y (RR)	!B	0.05748	0.47670	6.41199
	A->Y (FR)	B	0.04051	0.60225	8.98678
	B->Y (RR)	!A	0.05125	0.47864	6.47122
	B->Y (FR)	A	0.04255	0.60039	8.91376

Delay(ns) to Y falling (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_15T_hs__xor2_1	A->Y (FF)	!B	0.05425	0.49451	6.44143
	A->Y (RF)	B	0.03431	0.51406	7.59487
	B->Y (FF)	!A	0.05161	0.49990	6.69934
	B->Y (RF)	A	0.03968	0.48952	7.14546

Power Information

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

Cell Name	Input	When	Power(pJ)		
			first	mid	last
sky130_osu_sc_15T_hs__xor2_l	A	B	0.00000	0.00000	0.00000
	A	B	0.02234	0.04980	0.49790
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00602	0.02705	0.40171
	B	A	0.00000	0.00000	0.00000
	B	A	0.02267	0.04961	0.48456
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00501	0.02794	0.41433

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

Cell Name	Input	When	Power(pJ)		
			first	mid	last
sky130_osu_sc_15T_hs__xor2_l	A	B	0.00000	0.00000	0.00000
	A	B	0.01254	0.03903	0.47907
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.02557	0.04654	0.38192
	B	A	0.00000	0.00000	0.00000
	B	A	0.01235	0.03757	0.46242
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.02368	0.04722	0.43059

SKY130_OSU_SC_15T_HS_x

sky130_osu_sc_15T_hs_ff_1P95_100C.ccs
Cell Library: Process , Voltage 1.95, Temp 100.00

Truth Table

INPUT
A
x

Footprint

Cell Name	Area
sky130_osu_sc_15T_hs__ant	5.49450
sky130_osu_sc_15T_hs__tiehi	5.49450
sky130_osu_sc_15T_hs__tielo	5.49450

Pin Capacitance Information

Cell Name	Pin Cap(pf)
	A
sky130_osu_sc_15T_hs__ant	1.11262
sky130_osu_sc_15T_hs__tiehi	0.00000
sky130_osu_sc_15T_hs__tielo	0.00000

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_15T_hs__ant	0.00000	461341.00000	922682.00000
sky130_osu_sc_15T_hs__tiehi	0.00000	0.00000	0.00000
sky130_osu_sc_15T_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_15T_hs__ant	0.00000	0.00000	0.00000
	-0.00081	0.14524	2.14132

Passive power(pJ) for A falling :

Cell Name	Power(pJ)		
	first	mid	last
sky130_osu_sc_15T_hs__ant	0.00000	0.00000	0.00000
	8.02848	7.67006	2.49030