sky130_osu_sc_18T_ls_ss_1P60_100C.ccs Library

Cell Groups
SKY130_OSU_SC_18T_LS__ADDFx
SKY130_OSU_SC_18T_LS__ADDHx
SKY130_OSU_SC_18T_LS__AND2x
SKY130_OSU_SC_18T_LS__AOI21
SKY130_OSU_SC_18T_LS__AOI22
SKY130_OSU_SC_18T_LS__BUFx
SKY130_OSU_SC_18T_LS__DFFRx
SKY130_OSU_SC_18T_LS__DFFSRx
SKY130_OSU_SC_18T_LS__DFFSx
SKY130_OSU_SC_18T_LS__DFFx
SKY130_OSU_SC_18T_LS__INVx
SKY130_OSU_SC_18T_LS__MUX2
SKY130_OSU_SC_18T_LS__NAND2x
SKY130_OSU_SC_18T_LS__NOR2x
SKY130_OSU_SC_18T_LS__OAI21
SKY130_OSU_SC_18T_LS__OAI22
SKY130_OSU_SC_18T_LS__OR2x
SKY130_OSU_SC_18T_LS__TBUFIx
SKY130_OSU_SC_18T_LS__TNBUFIx
SKY130_OSU_SC_18T_LS__XNOR2
SKY130_OSU_SC_18T_LS__XOR2
SKY130_OSU_SC_18T_LS_x

SKY130_OSU_SC_18T_LS__ADDFx

sky130_osu_sc_18T_ls_ss_1P60_100C.ccs
Cell Library: Process , Voltage 1.60,
Temp 100.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__addf_1	46.88640
sky130_osu_sc_18T_ls__addf_l	46.88640

Pin Capacitance Information

Cell Name	Pin Cap(pf)			Max Cap(pf)		
	A	**B**	**CI**	**CO**	**CON**	**S**
sky130_osu_sc_18T_ls__addf_1	0.02280	0.02275	0.01748	1.55970	0.72399	1.52169
sky130_osu_sc_18T_ls__addf_l	0.02278	0.02275	0.01748	1.05968	0.72851	1.06808

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__addf_1	0.00000	0.02859	0.03589
sky130_osu_sc_18T_ls__addf_l	0.00000	0.02421	0.03212

Delay Information

Delay(ns) to CO rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__addf_1	A->CO (RR)	0.28242	2.43788	27.70250
	B->CO (RR)	0.27431	2.35769	26.75320
	CI->CO (RR)	0.27047	2.46974	28.26620
	CON->CO (FR)	0.05208	1.01859	12.27660
sky130_osu_sc_18T_ls__addf_1	A->CO (RR)	0.28328	2.26486	22.43290
	B->CO (RR)	0.27541	2.20511	21.94990
	CI->CO (RR)	0.27122	2.29679	23.01420
	CON->CO (FR)	0.06003	1.10829	12.20990

Delay(ns) to CO falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__addf_1	A->CO (FF)	0.40421	3.10276	34.65800
	B->CO (FF)	0.36824	2.99042	33.88830
	CI->CO (FF)	0.35655	3.05782	34.86770
	CON->CO (RF)	0.03977	0.78463	9.47311
sky130_osu_sc_18T_ls__addf_1	A->CO (FF)	0.39591	2.78196	26.97330
	B->CO (FF)	0.36012	2.68251	26.49880
	CI->CO (FF)	0.34817	2.73698	27.20130
	CON->CO (RF)	0.04378	0.83261	9.24676

Delay(ns) to CON rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__addf_1	A->CON (FR)	0.29290	1.40856	11.79620
	B->CON (FR)	0.26000	1.34387	11.73290
	CI->CON (FR)	0.24552	1.36466	12.04130
sky130_osu_sc_18T_ls__addf_l	A->CON (FR)	0.27692	1.39564	11.82350
	B->CON (FR)	0.24471	1.33135	11.76060
	CI->CON (FR)	0.22956	1.35180	12.07040

Delay(ns) to CON falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__addf_1	A->CON (RF)	0.16489	0.88950	7.81691
	B->CON (RF)	0.16133	0.89300	8.08160
	CI->CON (RF)	0.15276	0.92318	8.43520
sky130_osu_sc_18T_ls__addf_l	A->CON (RF)	0.15850	0.88484	7.83705
	B->CON (RF)	0.15535	0.89145	8.09970
	CI->CON (RF)	0.14633	0.91846	8.45469

Delay(ns) to S rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__addf_1	A->S (-R)	0.58168	3.00654	27.88830
	B->S (-R)	0.60874	3.02895	27.61580
	CI->S (-R)	0.53063	2.95338	28.08460
	CON->S (RR)	0.15624	0.98873	8.28456
sky130_osu_sc_18T_ls__addf_l	A->S (-R)	0.55342	2.77198	23.30160
	B->S (-R)	0.58067	2.80722	23.20830
	CI->S (-R)	0.50222	2.71976	23.51130
	CON->S (RR)	0.15611	1.05932	8.24332

Delay(ns) to S falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__addf_1	A->S (-F)	0.47073	2.26645	19.91860
	B->S (-F)	0.46455	2.16257	19.34970
	CI->S (-F)	0.45770	2.29037	20.46730
	CON->S (FF)	0.18591	0.99072	7.32213
sky130_osu_sc_18T_ls__addf_l	A->S (-F)	0.44563	2.07626	16.60120
	B->S (-F)	0.43915	1.99326	16.36450
	CI->S (-F)	0.43237	2.10171	17.16420
	CON->S (FF)	0.18021	1.01820	7.17083

Power Information

Internal switching power(pJ) to CO rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__addf_1	A	0.00409	0.00390	0.00506
	B	0.00545	0.00546	0.00673
	CI	0.00577	0.00599	0.00764
sky130_osu_sc_18T_ls__addf_l	A	0.00313	0.00282	0.00350
	B	0.00449	0.00433	0.00511
	CI	0.00480	0.00489	0.00589

Internal switching power(pJ) to CO falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__addf_1	A	0.01643	0.01650	0.01882
	B	0.01621	0.01654	0.01893
	CI	0.01416	0.01477	0.01721
sky130_osu_sc_18T_ls__addf_l	A	0.01547	0.01548	0.01685
	B	0.01525	0.01552	0.01689
	CI	0.01318	0.01371	0.01518

Internal switching power(pJ) to CON rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__addf_1	A	0.01639	0.01645	0.01723
	B	0.01618	0.01647	0.01723
	CI	0.01414	0.01466	0.01557
sky130_osu_sc_18T_ls__addf_l	A	0.01544	0.01545	0.01620
	B	0.01522	0.01542	0.01617
	CI	0.01317	0.01365	0.01452

Internal switching power(pJ) to CON falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__addf_1	A	0.00405	0.00383	0.00429
	B	0.00540	0.00532	0.00580
	CI	0.00575	0.00591	0.00658
sky130_osu_sc_18T_ls__addf_l	A	0.00309	0.00279	0.00319
	B	0.00445	0.00429	0.00474
	CI	0.00479	0.00486	0.00550

Internal switching power(pJ) to S rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__addf_1	A	0.01642	0.01649	0.01873
	B	0.01620	0.01653	0.01882
	CI	0.01416	0.01477	0.01707
sky130_osu_sc_18T_ls__addf_l	A	0.01547	0.01548	0.01681
	B	0.01525	0.01552	0.01688
	CI	0.01318	0.01371	0.01517

Internal switching power(pJ) to S falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__addf_1	A	0.03453	0.03488	0.03565
	B	0.03080	0.03033	0.03343
	CI	0.02797	0.02816	0.02930
sky130_osu_sc_18T_ls__addf_l	A	0.03328	0.03342	0.03412
	B	0.02956	0.02897	0.03212
	CI	0.02674	0.02673	0.02791

SKY130_OSU_SC_18T_LS__ADDHx

sky130_osu_sc_18T_ls_ss_1P60_100C.ccs
Cell Library: Process , Voltage 1.60,
Temp 100.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__addh_1	27.83880
sky130_osu_sc_18T_ls__addh_l	27.83880

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)		
	A	B	CO	CON	S
sky130_osu_sc_18T_ls__addh_1	0.01125	0.01214	1.53589	0.76454	1.54986
sky130_osu_sc_18T_ls__addh_l	0.01126	0.01214	0.88333	0.76480	0.88179

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__addh_1	0.00000	0.03077	0.03490
sky130_osu_sc_18T_ls__addh_l	0.00000	0.02555	0.02942

Delay Information

Delay(ns) to CO rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__addh_1	A->CO (RR)	0.19465	1.03450	8.27801
	B->CO (RR)	0.20114	1.02203	8.33035
sky130_osu_sc_18T_ls__addh_l	A->CO (RR)	0.19823	1.15660	8.24467
	B->CO (RR)	0.20476	1.14667	8.31029

Delay(ns) to CO falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__addh_1	A->CO (FF)	0.16747	0.93537	7.30598
	B->CO (FF)	0.17742	0.95376	7.37977
sky130_osu_sc_18T_ls__addh_l	A->CO (FF)	0.16607	0.98389	6.95872
	B->CO (FF)	0.17592	1.00364	7.03790

Delay(ns) to CON rising (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_18T_ls__addh_1	A->CON (RR)	B	0.26606	0.89204	4.71263
	A->CON (FR)	!B	0.16737	1.27234	11.98990
	B->CON (RR)	A	0.27276	0.87933	4.77418
	B->CON (FR)	!A	0.20508	1.30650	11.80380
sky130_osu_sc_18T_ls__addh_l	A->CON (RR)	B	0.23578	0.84980	4.58882
	A->CON (FR)	!B	0.14711	1.25120	11.97060
	B->CON (RR)	A	0.24249	0.84030	4.64944
	B->CON (FR)	!A	0.18490	1.28535	11.78460

Delay(ns) to CON falling (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_18T_ls__addh_1	A->CON (FF)	B	0.25094	1.05141	6.70880
	A->CON (RF)	!B	0.09874	0.86587	8.46395
	B->CON (FF)	A	0.24799	1.08448	7.01964
	B->CON (RF)	!A	0.11978	0.86720	8.25400
sky130_osu_sc_18T_ls__addh_l	A->CON (FF)	B	0.22618	1.00381	6.47505
	A->CON (RF)	!B	0.09056	0.85721	8.45665
	B->CON (FF)	A	0.22299	1.03916	6.79709
	B->CON (RF)	!A	0.11176	0.85894	8.24713

Delay(ns) to S rising (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_18T_ls__addh_1	A->S (RR)	!B	0.20185	2.33966	27.55170
	A->S (FR)	B	0.35514	2.50069	25.53840
	B->S (RR)	!A	0.22343	2.29291	26.63790
	B->S (FR)	A	0.35282	2.58238	26.53960
	CON->S (FR)	-	0.05660	1.03765	12.45470
sky130_osu_sc_18T_ls__addh_l	A->S (RR)	!B	0.20352	2.12872	20.82790
	A->S (FR)	B	0.34037	2.26380	18.72610
	B->S (RR)	!A	0.22530	2.10126	20.29130
	B->S (FR)	A	0.33757	2.32845	19.36660
	CON->S (FR)	-	0.06856	1.18755	12.48620

Delay(ns) to S falling (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_18T_ls__addh_1	A->S (FF)	!B	0.26019	2.81910	33.09710
	A->S (RF)	B	0.33958	1.94217	18.52260
	B->S (FF)	!A	0.29812	2.85900	32.95970
	B->S (RF)	A	0.34623	1.92936	18.57710
	CON->S (RF)	-	0.03773	0.76809	9.26371
sky130_osu_sc_18T_ls__addh_l	A->S (FF)	!B	0.24869	2.40870	23.39130
	A->S (RF)	B	0.31530	1.71168	12.96110
	B->S (FF)	!A	0.28696	2.44318	23.22640
	B->S (RF)	A	0.32201	1.70126	13.02590
	CON->S (RF)	-	0.04450	0.84438	9.06095

Power Information

Internal switching power(pJ) to CO rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__addh_1	A	0.00000	0.00000	0.00000
	A	0.00699	0.00667	0.00715
	B	0.00000	0.00000	0.00000
	B	0.00625	0.00593	0.00611
sky130_osu_sc_18T_ls__addh_l	A	0.00000	0.00000	0.00000
	A	0.00565	0.00526	0.00621
	B	0.00000	0.00000	0.00000
	B	0.00492	0.00449	0.00498

Internal switching power(pJ) to CO falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__addh_1	A	0.00000	0.00000	0.00000
	A	0.01115	0.01075	0.01143
	B	0.00000	0.00000	0.00000
	B	0.01149	0.01162	0.01237
sky130_osu_sc_18T_ls__addh_l	A	0.00000	0.00000	0.00000
	A	0.00980	0.00933	0.01022
	B	0.00000	0.00000	0.00000
	B	0.01015	0.01016	0.01115

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

Cell Name	Input	When	Power(pJ)		
			first	mid	last
sky130_osu_sc_18T_ls__addh_1	A	B	0.00000	0.00000	0.00000
	A	B	0.00699	0.00667	0.00773
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00958	0.00961	0.00993
	B	A	0.00000	0.00000	0.00000
	B	A	0.00625	0.00593	0.00652
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01082	0.01082	0.01096
sky130_osu_sc_18T_ls__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.00565	0.00523	0.00623
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00872	0.00870	0.00892
	B	A	0.00000	0.00000	0.00000
	B	A	0.00492	0.00447	0.00512
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00997	0.00988	0.00994

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

Cell Name	Input	When	Power(pJ)		
			first	mid	last
sky130_osu_sc_18T_ls__addh_1	A	B	0.00000	0.00000	0.00000
	A	B	0.01114	0.01079	0.01173
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00167	0.00162	0.00173
	B	A	0.00000	0.00000	0.00000
	B	A	0.01149	0.01160	0.01249
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00259	0.00243	0.00252
sky130_osu_sc_18T_ls__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.00980	0.00934	0.00997
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00050	0.00043	0.00047
	B	A	0.00000	0.00000	0.00000
	B	A	0.01016	0.01015	0.01115
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00142	0.00123	0.00126

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

Cell Name	Input	When	Power(pJ)		
			first	mid	last
sky130_osu_sc_18T_ls__addh_1	A	B	0.00000	0.00000	0.00000
	A	B	0.01116	0.01077	0.01165
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00168	0.00171	0.00189
	B	A	0.00000	0.00000	0.00000
	B	A	0.01150	0.01165	0.01270
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00261	0.00251	0.00264
sky130_osu_sc_18T_ls__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.00981	0.00935	0.01036
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00051	0.00044	0.00050
	B	A	0.00000	0.00000	0.00000
	B	A	0.01016	0.01017	0.01113
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00144	0.00126	0.00131

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

Cell Name	Input	When	Power(pJ)		
			first	mid	last
sky130_osu_sc_18T_ls__addh_1	A	B	0.00000	0.00000	0.00000
	A	B	0.00699	0.00667	0.00715
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00959	0.00970	0.01003
	B	A	0.00000	0.00000	0.00000
	B	A	0.00625	0.00593	0.00614
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01083	0.01090	0.01115
sky130_osu_sc_18T_ls__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.00565	0.00524	0.00643
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00872	0.00872	0.00893
	B	A	0.00000	0.00000	0.00000
	B	A	0.00492	0.00448	0.00545
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00998	0.00992	0.00998

SKY130_OSU_SC_18T_LS__AND2x

sky130_osu_sc_18T_ls_ss_1P60_100C.ccs
Cell Library: Process , Voltage 1.60,
Temp 100.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__and2_1	12.45420
sky130_osu_sc_18T_ls__and2_2	15.38460
sky130_osu_sc_18T_ls__and2_4	21.24540
sky130_osu_sc_18T_ls__and2_6	27.10620
sky130_osu_sc_18T_ls__and2_8	32.96700
sky130_osu_sc_18T_ls__and2_l	12.45420

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	B	Y
sky130_osu_sc_18T_ls__and2_1	0.00604	0.00615	1.56344
sky130_osu_sc_18T_ls__and2_2	0.00604	0.00615	3.03828
sky130_osu_sc_18T_ls__and2_4	0.00604	0.00615	5.93902
sky130_osu_sc_18T_ls__and2_6	0.00608	0.00615	8.67897
sky130_osu_sc_18T_ls__and2_8	0.00605	0.00616	11.35383
sky130_osu_sc_18T_ls__and2_l	0.00455	0.00466	1.06208

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__and2_1	0.00000	0.01202	0.01442
sky130_osu_sc_18T_ls__and2_2	0.00000	0.00924	0.01172
sky130_osu_sc_18T_ls__and2_4	0.00000	0.01328	0.02121
sky130_osu_sc_18T_ls__and2_6	0.00000	0.01733	0.03069
sky130_osu_sc_18T_ls__and2_8	0.00000	0.02138	0.04018
sky130_osu_sc_18T_ls__and2_l	0.00000	0.00842	0.01013

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__and2_1	A->Y (RR)	0.14853	0.93885	7.94966
	B->Y (RR)	0.15690	0.93816	8.03636
sky130_osu_sc_18T_ls__and2_2	A->Y (RR)	0.17214	0.88041	8.14566
	B->Y (RR)	0.18066	0.87053	8.19874
sky130_osu_sc_18T_ls__and2_4	A->Y (RR)	0.23778	0.92660	8.75645
	B->Y (RR)	0.24614	0.90337	8.76847
sky130_osu_sc_18T_ls__and2_6	A->Y (RR)	0.30094	0.99278	9.10066
	B->Y (RR)	0.30914	0.96186	9.07000
sky130_osu_sc_18T_ls__and2_8	A->Y (RR)	0.36329	1.06381	9.49493
	B->Y (RR)	0.37163	1.03238	9.42899
sky130_osu_sc_18T_ls__and2_l	A->Y (RR)	0.16820	1.04853	7.99315
	B->Y (RR)	0.17734	1.04697	8.06601

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__and2_1	**A->Y (FF)**	0.12689	0.83784	6.77104
	B->Y (FF)	0.13499	0.86052	6.90909
sky130_osu_sc_18T_ls__and2_2	**A->Y (FF)**	0.14983	0.82011	7.03324
	B->Y (FF)	0.15873	0.83784	7.13224
sky130_osu_sc_18T_ls__and2_4	**A->Y (FF)**	0.21180	0.87614	7.60997
	B->Y (FF)	0.22108	0.88921	7.68689
sky130_osu_sc_18T_ls__and2_6	**A->Y (FF)**	0.27686	0.94171	7.95968
	B->Y (FF)	0.28619	0.95281	8.02877
sky130_osu_sc_18T_ls__and2_8	**A->Y (FF)**	0.33797	1.00335	8.23196
	B->Y (FF)	0.34746	1.01620	8.29088
sky130_osu_sc_18T_ls__and2_l	**A->Y (FF)**	0.13812	0.90576	6.73949
	B->Y (FF)	0.14796	0.92933	6.86037

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__and2_1	A	0.00000	0.00000	0.00000
	A	0.00560	0.00497	0.00865
	B	0.00000	0.00000	0.00000
	B	0.00569	0.00488	0.00714
sky130_osu_sc_18T_ls__and2_2	A	0.00000	0.00000	0.00000
	A	0.01102	0.01082	0.01425
	B	0.00000	0.00000	0.00000
	B	0.01114	0.01081	0.01287
sky130_osu_sc_18T_ls__and2_4	A	0.00000	0.00000	0.00000
	A	0.02273	0.02342	0.02685
	B	0.00000	0.00000	0.00000
	B	0.02284	0.02338	0.02597
sky130_osu_sc_18T_ls__and2_6	A	0.00000	0.00000	0.00000
	A	0.03455	0.03578	0.03973
	B	0.00000	0.00000	0.00000
	B	0.03456	0.03566	0.03868
sky130_osu_sc_18T_ls__and2_8	A	0.00000	0.00000	0.00000
	A	0.04624	0.04806	0.05230
	B	0.00000	0.00000	0.00000
	B	0.04635	0.04806	0.05169
sky130_osu_sc_18T_ls__and2_l	A	0.00000	0.00000	0.00000
	A	0.00406	0.00358	0.00612
	B	0.00000	0.00000	0.00000
	B	0.00416	0.00354	0.00509

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__and2_1	A	0.00000	0.00000	0.00000
	A	0.01334	0.01332	0.01711
	B	0.00000	0.00000	0.00000
	B	0.01498	0.01499	0.01843
sky130_osu_sc_18T_ls__and2_2	A	0.00000	0.00000	0.00000
	A	0.01674	0.01765	0.02132
	B	0.00000	0.00000	0.00000
	B	0.01841	0.01917	0.02254
sky130_osu_sc_18T_ls__and2_4	A	0.00000	0.00000	0.00000
	A	0.02518	0.02762	0.03149
	B	0.00000	0.00000	0.00000
	B	0.02678	0.02896	0.03256
sky130_osu_sc_18T_ls__and2_6	A	0.00000	0.00000	0.00000
	A	0.03388	0.03747	0.04204
	B	0.00000	0.00000	0.00000
	B	0.03525	0.03861	0.04282
sky130_osu_sc_18T_ls__and2_8	A	0.00000	0.00000	0.00000
	A	0.04211	0.04698	0.05244
	B	0.00000	0.00000	0.00000
	B	0.04376	0.04795	0.05281
sky130_osu_sc_18T_ls__and2_l	A	0.00000	0.00000	0.00000
	A	0.01010	0.00999	0.01262
	B	0.00000	0.00000	0.00000
	B	0.01131	0.01125	0.01361

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__and2_1	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00513	-0.00513	-0.00517
sky130_osu_sc_18T_ls__and2_2	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00513	-0.00514	-0.00517
sky130_osu_sc_18T_ls__and2_4	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00513	-0.00514	-0.00517
sky130_osu_sc_18T_ls__and2_6	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00515	-0.00516	-0.00519
sky130_osu_sc_18T_ls__and2_8	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00512	-0.00514	-0.00517
sky130_osu_sc_18T_ls__and2_l	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00368	-0.00368	-0.00371

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__and2_1	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00516	0.00526	0.00519
sky130_osu_sc_18T_ls__and2_2	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00517	0.00522	0.00519
sky130_osu_sc_18T_ls__and2_4	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00517	0.00522	0.00519
sky130_osu_sc_18T_ls__and2_6	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00519	0.00524	0.00521
sky130_osu_sc_18T_ls__and2_8	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00517	0.00522	0.00519
sky130_osu_sc_18T_ls__and2_l	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00370	0.00377	0.00372

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__and2_1	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00491	-0.00494	-0.00491
sky130_osu_sc_18T_ls__and2_2	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00491	-0.00493	-0.00491
sky130_osu_sc_18T_ls__and2_4	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00491	-0.00494	-0.00491
sky130_osu_sc_18T_ls__and2_6	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00491	-0.00494	-0.00491
sky130_osu_sc_18T_ls__and2_8	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00491	-0.00494	-0.00491
sky130_osu_sc_18T_ls__and2_l	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00351	-0.00354	-0.00352

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__and2_1	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00495	0.00500	0.00493
sky130_osu_sc_18T_ls__and2_2	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00495	0.00500	0.00493
sky130_osu_sc_18T_ls__and2_4	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00495	0.00500	0.00493
sky130_osu_sc_18T_ls__and2_6	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00495	0.00500	0.00493
sky130_osu_sc_18T_ls__and2_8	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00495	0.00500	0.00493
sky130_osu_sc_18T_ls__and2_l	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00355	0.00359	0.00353

SKY130_OSU_SC_18T_LS__AOI21

sky130_osu_sc_18T_ls_ss_1P60_100C.ccs
Cell Library: Process , Voltage 1.60,
Temp 100.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__aoi21_l	12.45420

Pin Capacitance Information

Cell Name	Pin Cap(pf)			Max Cap(pf)
	A0	A1	B0	Y
sky130_osu_sc_18T_ls__aoi21_l	0.00573	0.00594	0.00577	0.73010

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__aoi21_l	0.00000	0.00813	0.01441

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__aoi21_l	A0->Y (FR)	0.15661	1.27768	11.74600
	A1->Y (FR)	0.13546	1.22410	11.45670
	B0->Y (FR)	0.11405	1.23754	11.99070

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__aoi21_l	A0->Y (RF)	0.09266	0.79396	7.53175
	A1->Y (RF)	0.08498	0.82000	8.04661
	B0->Y (RF)	0.05221	0.75460	7.78598

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__aoi21_l	A0	0.00000	0.00000	0.00000
	A0	0.01199	0.01189	0.01190
	A1	0.00000	0.00000	0.00000
	A1	0.01024	0.01011	0.01015
	B0	0.00925	0.00907	0.00930

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__aoi21_l	A0	0.00000	0.00000	0.00000
	A0	0.00233	0.00188	0.00194
	A1	0.00000	0.00000	0.00000
	A1	0.00234	0.00194	0.00208
	B0	-0.00123	-0.00134	-0.00122

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__aoi21_l	(A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * !Y)	-0.00436	-0.00459	-0.00457
	(!A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !Y)	-0.00467	-0.00470	-0.00468
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00466	-0.00470	-0.00468

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__aoi21_l	(A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * !Y)	0.00454	0.00459	0.00457
	(!A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !Y)	0.00468	0.00473	0.00470
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00472	0.00474	0.00470

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__aoi21_l	(A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * B0 * !Y)	-0.00433	-0.00455	-0.00452
	(!A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !Y)	-0.00463	-0.00465	-0.00463
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	-0.00492	-0.00495	-0.00497

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__aoi21_l	(A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * B0 * !Y)	0.00450	0.00455	0.00452
	(!A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !Y)	0.00463	0.00466	0.00465
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	0.00497	0.00506	0.00499

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__aoi21_l	(A0 * A1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !Y)	-0.00218	-0.00222	-0.00219

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__aoi21_l	(A0 * A1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !Y)	0.00240	0.00242	0.00225

SKY130_OSU_SC_18T_LS__AOI22

sky130_osu_sc_18T_ls_ss_1P60_100C.ccs
Cell Library: Process , Voltage 1.60,
Temp 100.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__aoi22_1	15.38460

Pin Capacitance Information

Cell Name	Pin Cap(pf)				Max Cap(pf)
	A0	A1	B0	B1	Y
sky130_osu_sc_18T_ls__aoi22_1	0.00573	0.00594	0.00614	0.00591	0.70852

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__aoi22_1	0.00000	0.00857	0.01578

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__aoi22_l	A0->Y (FR)	0.19820	1.32733	11.71040
	A1->Y (FR)	0.17760	1.28842	11.55570
	B0->Y (FR)	0.12141	1.23034	11.78240
	B1->Y (FR)	0.14205	1.27068	11.97560

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__aoi22_l	A0->Y (RF)	0.12364	0.81992	7.44790
	A1->Y (RF)	0.11600	0.84569	7.96427
	B0->Y (RF)	0.06306	0.78651	7.90221
	B1->Y (RF)	0.07094	0.75892	7.38566

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__aoi22_l	A0	0.01474	0.01463	0.01467
	A1	0.01302	0.01286	0.01292
	B0	0.00993	0.00968	0.01006
	B1	0.01159	0.01138	0.01179

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__aoi22_l	A0	0.00499	0.00454	0.00454
	A1	0.00501	0.00459	0.00469
	B0	-0.00072	-0.00085	-0.00066
	B1	-0.00063	-0.00087	-0.00075

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__aoi22_l	(A1 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * B1 * !Y)	-0.00439	-0.00458	-0.00456
	(!A1 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * B1 * !Y)	-0.00467	-0.00470	-0.00468
	(!A1 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !B1 * Y)	-0.00466	-0.00468	-0.00468
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00466	-0.00467	-0.00468

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__aoi22_l	(A1 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * B1 * !Y)	0.00454	0.00458	0.00456
	(!A1 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * B1 * !Y)	0.00468	0.00473	0.00470
	(!A1 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !B1 * Y)	0.00472	0.00474	0.00469
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00472	0.00474	0.00469

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__aoi22_l	(A0 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * B0 * B1 * !Y)	-0.00434	-0.00455	-0.00452
	(!A0 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * B1 * !Y)	-0.00463	-0.00465	-0.00464
	(!A0 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !B1 * Y)	-0.00492	-0.00495	-0.00497
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	-0.00492	-0.00494	-0.00497

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__aoi22_l	(A0 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * B0 * B1 * !Y)	0.00449	0.00455	0.00452
	(!A0 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * B1 * !Y)	0.00463	0.00467	0.00465
	(!A0 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !B1 * Y)	0.00497	0.00505	0.00498
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	0.00497	0.00505	0.00498

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__aoi22_l	(A0 * A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * B1 * !Y)	-0.00219	-0.00223	-0.00220
	(A0 * A1 * !B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B1 * !Y)	-0.00218	-0.00219	-0.00219
	(!A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B1 * Y)	-0.00502	-0.00502	-0.00508
	(!A0 * A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B1 * Y)	-0.00502	-0.00502	-0.00508

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__aoi22_l	(A0 * A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * B1 * !Y)	0.00251	0.00252	0.00228
	(A0 * A1 * !B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B1 * !Y)	0.00219	0.00220	0.00219
	(!A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B1 * Y)	0.00507	0.00508	0.00509
	(!A0 * A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B1 * Y)	0.00507	0.00508	0.00509

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__aoi22_l	(A0 * A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * B0 * !Y)	-0.00220	-0.00224	-0.00221
	(A0 * A1 * !B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B0 * !Y)	-0.00219	-0.00221	-0.00220
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00473	-0.00475	-0.00474
	(!A0 * A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B0 * Y)	-0.00473	-0.00475	-0.00474

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__aoi22_l	(A0 * A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * B0 * !Y)	0.00251	0.00253	0.00229
	(A0 * A1 * !B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B0 * !Y)	0.00219	0.00222	0.00220
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00478	0.00479	0.00475
	(!A0 * A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B0 * Y)	0.00478	0.00479	0.00475

SKY130_OSU_SC_18T_LS__BUFx

sky130_osu_sc_18T_ls_ss_1P60_100C.ccs
Cell Library: Process , Voltage 1.60,
Temp 100.00

Truth Table

INPUT	OUTPUT
A	Y
0	0
1	1

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__buf_1	9.52380
sky130_osu_sc_18T_ls__buf_2	12.45420
sky130_osu_sc_18T_ls__buf_4	18.31500
sky130_osu_sc_18T_ls__buf_6	24.17580
sky130_osu_sc_18T_ls__buf_8	30.03660
sky130_osu_sc_18T_ls__buf_l	9.52380

Pin Capacitance Information

Cell Name	Pin Cap(pf)	Max Cap(pf)
	A	Y
sky130_osu_sc_18T_ls__buf_1	0.00615	1.53630
sky130_osu_sc_18T_ls__buf_2	0.00615	3.05508
sky130_osu_sc_18T_ls__buf_4	0.00614	5.97473
sky130_osu_sc_18T_ls__buf_6	0.00099	1.80000
sky130_osu_sc_18T_ls__buf_8	0.00615	11.50542
sky130_osu_sc_18T_ls__buf_l	0.00470	1.06332

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__buf_1	0.00000	0.01354	0.01354
sky130_osu_sc_18T_ls__buf_2	0.00000	0.01263	0.01637
sky130_osu_sc_18T_ls__buf_4	0.00000	0.01849	0.02585
sky130_osu_sc_18T_ls__buf_6	0.00000	0.00000	0.00000
sky130_osu_sc_18T_ls__buf_8	0.00000	0.03021	0.04483
sky130_osu_sc_18T_ls__buf_l	0.00000	0.00917	0.00917

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__buf_1	**A->Y (RR)**	0.10663	0.87118	7.71736
sky130_osu_sc_18T_ls__buf_2	**A->Y (RR)**	0.11826	0.80293	8.01260
sky130_osu_sc_18T_ls__buf_4	**A->Y (RR)**	0.15902	0.81461	8.52886
sky130_osu_sc_18T_ls__buf_8	**A->Y (RR)**	0.23687	0.89925	9.16622
sky130_osu_sc_18T_ls__buf_l	**A->Y (RR)**	0.12055	0.98071	7.82601

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__buf_1	**A->Y (FF)**	0.12064	0.82073	6.65625
sky130_osu_sc_18T_ls__buf_2	**A->Y (FF)**	0.14462	0.81204	7.03625
sky130_osu_sc_18T_ls__buf_4	**A->Y (FF)**	0.20697	0.86940	7.60660
sky130_osu_sc_18T_ls__buf_8	**A->Y (FF)**	0.33337	0.99896	8.27699
sky130_osu_sc_18T_ls__buf_l	**A->Y (FF)**	0.13325	0.89432	6.69606

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__buf_1	A	0.00000	0.00000	0.00000
	A	0.00519	0.00441	0.00811
sky130_osu_sc_18T_ls__buf_2	A	0.00000	0.00000	0.00000
	A	0.01068	0.01062	0.01378
sky130_osu_sc_18T_ls__buf_4	A	0.00000	0.00000	0.00000
	A	0.02243	0.02294	0.02616
sky130_osu_sc_18T_ls__buf_8	A	0.00000	0.00000	0.00000
	A	0.04564	0.04760	0.05231
sky130_osu_sc_18T_ls__buf_l	A	0.00000	0.00000	0.00000
	A	0.00388	0.00329	0.00584

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__buf_1	A	0.00000	0.00000	0.00000
	A	0.01291	0.01293	0.01659
sky130_osu_sc_18T_ls__buf_2	A	0.00000	0.00000	0.00000
	A	0.01628	0.01704	0.02064
sky130_osu_sc_18T_ls__buf_4	A	0.00000	0.00000	0.00000
	A	0.02473	0.02689	0.03064
sky130_osu_sc_18T_ls__buf_8	A	0.00000	0.00000	0.00000
	A	0.04173	0.04598	0.05105
sky130_osu_sc_18T_ls__buf_l	A	0.00000	0.00000	0.00000
	A	0.00987	0.00976	0.01232

Passive power(pJ) for A rising :

Cell Name	Power(pJ)		
	first	mid	last
sky130_osu_sc_18T_ls__buf_6	0.00000	0.00000	0.00000
	-0.00061	-0.00062	-0.00061

Passive power(pJ) for A falling :

Cell Name	Power(pJ)		
	first	mid	last
sky130_osu_sc_18T_ls__buf_6	0.00000	0.00000	0.00000
	0.00061	0.00062	0.00061

SKY130_OSU_SC_18T_LS__DFFRx

sky130_osu_sc_18T_ls_ss_1P60_100C.ccs
Cell Library: Process , Voltage 1.60,
Temp 100.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__dffr_1	63.73620
sky130_osu_sc_18T_ls__dffr_l	63.73620

Pin Capacitance Information

Cell Name	Pin Cap(pf)			Max Cap(pf)	
	D	RN	CK	Q	QN
sky130_osu_sc_18T_ls__dffr_1	0.00588	0.00588	0.01690	1.53170	1.51871
sky130_osu_sc_18T_ls__dffr_l	0.00588	0.00588	0.01690	1.06148	1.05997

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__dffr_1	0.00000	0.05229	0.05882
sky130_osu_sc_18T_ls__dffr_l	0.00000	0.04792	0.05445

Delay Information

Delay(ns) to Q rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__dffr_1	CK->Q (RR)	0.58932	2.10850	17.40540
	QN->Q (FR)	0.05829	1.09411	13.12730
sky130_osu_sc_18T_ls__dffr_l	CK->Q (RR)	0.57851	2.24913	17.06800
	QN->Q (FR)	0.06377	1.16244	12.81840

Delay(ns) to Q falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__dffr_1	CK->Q (RF)	0.56694	2.16050	18.58570
	QN->Q (RF)	0.04486	0.87740	10.51430
	RN->Q (FF)	0.41311	2.13153	19.82270
sky130_osu_sc_18T_ls__dffr_l	CK->Q (RF)	0.57541	2.34815	18.36370
	QN->Q (RF)	0.04740	0.90466	10.04400
	RN->Q (FF)	0.42264	2.32191	19.59170

Delay(ns) to QN rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__dffr_1	CK->QN (RR)	0.49881	1.30626	8.34550
	RN->QN (FR)	0.34476	1.27714	9.57162
sky130_osu_sc_18T_ls__dffr_l	CK->QN (RR)	0.49805	1.38415	8.33118
	RN->QN (FR)	0.34475	1.35539	9.55188

Delay(ns) to QN falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__dffr_1	**CK->QN (RF)**	0.50003	1.14908	5.97412
sky130_osu_sc_18T_ls__dffr_l	**CK->QN (RF)**	0.47992	1.16150	5.79203

Constraint Information

Constraints(ns) for D rising :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_ls__dffr_1	hold	CK (R)	-0.13279	-0.14711	-0.45373
	setup	CK (R)	0.45960	0.46765	1.57761
sky130_osu_sc_18T_ls__dffr_l	hold	CK (R)	-0.13290	-0.14750	-0.45416
	setup	CK (R)	0.45940	0.46850	1.58415

Constraints(ns) for D falling :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_ls__dffr_1	hold	CK (R)	-0.23663	-0.59456	-4.27829
	setup	CK (R)	0.28594	0.61409	4.32326
sky130_osu_sc_18T_ls__dffr_l	hold	CK (R)	-0.23564	-0.59580	-4.27720
	setup	CK (R)	0.28595	0.61405	4.32322

Constraints(ns) for D rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_ls__dffr_1	hold	CK (R)	-0.13279	-0.14711	-0.45373
	setup	CK (R)	0.45960	0.46765	1.57761
sky130_osu_sc_18T_ls__dffr_l	hold	CK (R)	-0.13290	-0.14750	-0.45416
	setup	CK (R)	0.45940	0.46850	1.58415

Constraints(ns) for D falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_ls__dffr_1	hold	CK (R)	-0.23663	-0.59456	-4.27829
	setup	CK (R)	0.28594	0.61409	4.32326
sky130_osu_sc_18T_ls__dffr_l	hold	CK (R)	-0.23564	-0.59580	-4.27720
	setup	CK (R)	0.28595	0.61405	4.32322

Constraints(ns) for RN rising :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_ls__dffr_1	recovery	CK (R)	0.37133	0.39290	1.50067
	removal	CK (R)	-0.07245	-0.08161	-0.11848
sky130_osu_sc_18T_ls__dffr_l	recovery	CK (R)	0.37414	0.39399	1.50448
	removal	CK (R)	-0.07245	-0.08161	-0.11848

Constraints(ns) for RN rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_ls__dffr_1	recovery	CK (R)	0.37133	0.39290	1.50067
	removal	CK (R)	-0.07245	-0.08161	-0.11848
sky130_osu_sc_18T_ls__dffr_l	recovery	CK (R)	0.37414	0.39399	1.50448
	removal	CK (R)	-0.07245	-0.08161	-0.11848

Constraints(ns) for RN falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_ls__dffr_1	min_pulse_width	RN ()	0.24864	0.60425	13.33370
	min_pulse_width	RN ()	0.24639	0.60425	13.33370
sky130_osu_sc_18T_ls__dffr_l	min_pulse_width	RN ()	0.24414	0.60425	13.33370
	min_pulse_width	RN ()	0.24189	0.60425	13.33370

Constraints(ns) for CK rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_ls__dffr_1	min_pulse_width	CK ()	0.27115	0.60425	13.33370
	min_pulse_width	CK ()	0.30041	0.60425	13.33370
sky130_osu_sc_18T_ls__dffr_l	min_pulse_width	CK ()	0.25089	0.60425	13.33370
	min_pulse_width	CK ()	0.29365	0.60425	13.33370

Constraints(ns) for CK falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_ls__dffr_1	min_pulse_width	CK ()	0.58607	0.66864	13.33370
	min_pulse_width	CK ()	0.23514	0.60425	13.33370
sky130_osu_sc_18T_ls__dffr_l	min_pulse_width	CK ()	0.58607	0.66864	13.33370
	min_pulse_width	CK ()	0.23514	0.60425	13.33370

Power Information

Internal switching power(pJ) to Q rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__dffr_1	CK	0.00000	0.00000	0.00000
	CK	0.01251	0.01017	-0.00387
sky130_osu_sc_18T_ls__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.01098	0.00916	0.00221

Internal switching power(pJ) to Q falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__dffr_1	CK	0.00000	0.00000	0.00000
	CK	0.01488	0.01352	0.00387
	RN	-0.00173	-0.07763	-0.98028
	RN	0.03374	0.03257	0.02263
sky130_osu_sc_18T_ls__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.01331	0.01226	0.00828
	RN	-0.00173	-0.06230	-0.67934
	RN	0.03216	0.03130	0.02713

Internal switching power(pJ) to QN rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__dffr_1	CK	0.00000	0.00000	0.00000
	CK	0.01487	0.01353	0.00412
	RN	-0.00173	-0.07724	-0.97195
	RN	0.03373	0.03256	0.02272
sky130_osu_sc_18T_ls__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.01331	0.01227	0.00833
	RN	-0.00173	-0.06225	-0.67837
	RN	0.03215	0.03130	0.02705

Internal switching power(pJ) to QN falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__dffr_1	CK	0.00000	0.00000	0.00000
	CK	0.01247	0.01014	-0.00412
sky130_osu_sc_18T_ls__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.01094	0.00915	0.00189

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__dffr_1	CK	0.00000	0.00000	0.00000
	CK	-0.00414	-0.00456	-0.00454
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.01499	0.01409	0.01572
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.00696	0.00612	0.00785
sky130_osu_sc_18T_ls__dffr_l	CK	0.00000	0.00000	0.00000
	CK	-0.00414	-0.00456	-0.00454
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.01499	0.01409	0.01572
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.00696	0.00612	0.00785

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__dffr_1	CK	0.00000	0.00000	0.00000
	CK	0.00452	0.00456	0.00454
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.02670	0.02634	0.02760
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.01237	0.01211	0.01361
sky130_osu_sc_18T_ls__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.00452	0.00456	0.00454
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.02670	0.02634	0.02760
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.01237	0.01211	0.01361

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__dffr_1	(CK * !Q * QN) + (!CK * !D * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !Q * QN) + (!CK * !D * !Q * QN)	0.00482	0.00397	0.00731
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.01325	0.01211	0.01532
sky130_osu_sc_18T_ls__dffr_l	(CK * !Q * QN) + (!CK * !D * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !Q * QN) + (!CK * !D * !Q * QN)	0.00482	0.00397	0.00731
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.01326	0.01210	0.01532

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__dffr_1	(CK * !Q * QN) + (!CK * !D * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !Q * QN) + (!CK * !D * !Q * QN)	0.01143	0.01101	0.01482
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.02518	0.02436	0.02760
sky130_osu_sc_18T_ls__dffr_l	(CK * !Q * QN) + (!CK * !D * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !Q * QN) + (!CK * !D * !Q * QN)	0.01143	0.01101	0.01482
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.02518	0.02436	0.02760

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__dffr_1	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	-0.00087	-0.00188	0.00128
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.00722	0.00565	0.00850
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	-0.00139	-0.00236	0.00081
sky130_osu_sc_18T_ls__dffr_l	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	-0.00087	-0.00188	0.00128
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.00722	0.00565	0.00850
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	-0.00139	-0.00236	0.00081

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__dffr_1	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.01819	0.01775	0.02142
	(D * RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * RN * !Q * QN)	0.03987	0.03865	0.04094
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.03085	0.03016	0.03293
	(!D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * Q * !QN)	0.03961	0.03836	0.04551
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.02110	0.02071	0.02407
sky130_osu_sc_18T_ls__dffr_l	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.01819	0.01775	0.02142
	(D * RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * RN * !Q * QN)	0.03987	0.03865	0.04094
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.03085	0.03016	0.03293
	(!D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * Q * !QN)	0.03961	0.03836	0.04551
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.02110	0.02071	0.02407

SKY130_OSU_SC_18T_LS__DFFSRx

sky130_osu_sc_18T_ls_ss_1P60_100C.ccs
Cell Library: Process , Voltage 1.60,
Temp 100.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__dffsr_1	69.59700
sky130_osu_sc_18T_ls__dffsr_l	69.59700

Pin Capacitance Information

Cell Name	Pin Cap(pf)				Max Cap(pf)	
	D	**RN**	**SN**	**CK**	**Q**	**QN**
sky130_osu_sc_18T_ls__dffsr_1	0.00583	0.00589	0.01248	0.01714	1.55543	1.55819
sky130_osu_sc_18T_ls__dffsr_l	0.00583	0.00589	0.01247	0.01714	1.05841	1.06344

Leakage Information

Cell Name	Leakage(nW)		
	Min.	**Avg**	**Max.**
sky130_osu_sc_18T_ls__dffsr_1	0.00000	0.05861	0.07688
sky130_osu_sc_18T_ls__dffsr_l	0.00000	0.05424	0.07251

Delay Information

Delay(ns) to Q rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__dffsr_1	CK->Q (RR)	0.59550	2.09142	17.16130
	QN->Q (FR)	0.05593	1.07027	12.94300
	RN->Q (RR)	0.47241	1.98860	17.18210
	SN->Q (FR)	0.44346	2.06457	18.84370
sky130_osu_sc_18T_ls__dffsr_l	CK->Q (RR)	0.60075	2.27956	17.11170
	QN->Q (FR)	0.06368	1.16029	12.77600
	RN->Q (RR)	0.47818	2.17815	17.12540
	SN->Q (FR)	0.44876	2.25410	18.74890

Delay(ns) to Q falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__dffsr_1	CK->Q (RF)	0.64562	2.22123	18.43080
	QN->Q (RF)	0.04144	0.83273	10.03350
	RN->Q (FF)	0.43116	2.12991	19.69230
sky130_osu_sc_18T_ls__dffsr_l	CK->Q (RF)	0.66027	2.43753	18.40520
	QN->Q (RF)	0.04731	0.90306	10.02010
	RN->Q (FF)	0.44618	2.35129	19.66340

Delay(ns) to QN rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__dffsr_1	CK->QN (RR)	0.57828	1.39245	8.46340
	RN->QN (FR)	0.36456	1.30302	9.72200
sky130_osu_sc_18T_ls__dffsr_l	CK->QN (RR)	0.58131	1.47795	8.44977
	RN->QN (FR)	0.36824	1.38939	9.70086

Delay(ns) to QN falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__dffsr_1	CK->QN (RF)	0.51207	1.15838	5.96670
	RN->QN (RF)	0.38927	1.05669	5.98712
	SN->QN (FF)	0.36079	1.13283	7.64408
sky130_osu_sc_18T_ls__dffsr_l	CK->QN (RF)	0.50478	1.19747	5.91294
	RN->QN (RF)	0.38245	1.09664	5.93125
	SN->QN (FF)	0.35355	1.17173	7.55132

Constraint Information

Constraints(ns) for D rising :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_ls__dffsr_1	hold	CK (R)	-0.14362	-0.16270	-0.54287
	setup	CK (R)	0.44552	0.45086	1.61144
sky130_osu_sc_18T_ls__dffsr_l	hold	CK (R)	-0.14162	-0.16335	-0.54456
	setup	CK (R)	0.44444	0.45081	1.60972

Constraints(ns) for D falling :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_ls__dffsr_1	hold	CK (R)	-0.26765	-0.62213	-4.45054
	setup	CK (R)	0.33574	0.63941	4.48316
sky130_osu_sc_18T_ls__dffsr_l	hold	CK (R)	-0.26796	-0.62208	-4.44832
	setup	CK (R)	0.33516	0.63858	4.48326

Constraints(ns) for D rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_ls__dffsr_1	hold	CK (R)	-0.14362	-0.16270	-0.54287
	setup	CK (R)	0.44552	0.45086	1.61144
sky130_osu_sc_18T_ls__dffsr_l	hold	CK (R)	-0.14162	-0.16335	-0.54456
	setup	CK (R)	0.44444	0.45081	1.60972

Constraints(ns) for D falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_ls__dffsr_1	hold	CK (R)	-0.26765	-0.62213	-4.45054
	setup	CK (R)	0.33574	0.63941	4.48316
sky130_osu_sc_18T_ls__dffsr_l	hold	CK (R)	-0.26796	-0.62208	-4.44832
	setup	CK (R)	0.33516	0.63858	4.48326

Constraints(ns) for RN rising :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_ls__dffsr_1	recovery	CK (R)	0.32603	0.33837	1.43502
	removal	CK (R)	-0.04019	-0.04315	-0.08629
	hold	SN (R)	-0.34693	-0.61143	-3.04594
	setup	SN (R)	0.38126	0.66759	5.30839
sky130_osu_sc_18T_ls__dffsr_l	recovery	CK (R)	0.32470	0.33837	1.43385
	removal	CK (R)	-0.04019	-0.04315	-0.08629
	hold	SN (R)	-0.33624	-0.59672	-2.96445
	setup	SN (R)	0.37897	0.65541	5.18466

Constraints(ns) for RN rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_ls__dffsr_1	recovery	CK (R)	0.32603	0.33837	1.43502
	removal	CK (R)	-0.04019	-0.04315	-0.08629
	hold	SN (R)	-0.34693	-0.61143	-3.04594
	hold	SN (R)	-0.34907	-0.61379	-3.06542
	setup	SN (R)	0.38126	0.66325	5.15827
	setup	SN (R)	0.37707	0.66759	5.30839
sky130_osu_sc_18T_ls__dffsr_l	recovery	CK (R)	0.32470	0.33837	1.43385
	removal	CK (R)	-0.04019	-0.04315	-0.08629
	hold	SN (R)	-0.34152	-0.59672	-2.96445
	hold	SN (R)	-0.33624	-0.60060	-2.99020
	setup	SN (R)	0.37897	0.64948	5.03910
	setup	SN (R)	0.35613	0.65541	5.18466

Constraints(ns) for RN falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_ls__dffsr_1	min_pulse_width	RN ()	0.28240	0.60425	13.33370
	min_pulse_width	RN ()	0.28690	0.60425	13.33370
sky130_osu_sc_18T_ls__dffsr_l	min_pulse_width	RN ()	0.28240	0.60425	13.33370
	min_pulse_width	RN ()	0.27790	0.60425	13.33370

Constraints(ns) for SN rising :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_ls__dffsr_1	recovery	CK (R)	0.08193	0.12644	3.19307
	removal	CK (R)	-0.02873	-0.09022	-0.59384
sky130_osu_sc_18T_ls__dffsr_l	recovery	CK (R)	0.08322	0.12647	3.06875
	removal	CK (R)	-0.03079	-0.09033	-0.59299

Constraints(ns) for SN rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_ls__dffsr_1	recovery	CK (R)	0.08193	0.12644	3.19307
	removal	CK (R)	-0.02873	-0.09022	-0.59384
sky130_osu_sc_18T_ls__dffsr_l	recovery	CK (R)	0.08322	0.12647	3.06875
	removal	CK (R)	-0.03079	-0.09033	-0.59299

Constraints(ns) for SN falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_ls__dffsr_1	min_pulse_width	SN ()	0.35086	0.66864	13.33370
	min_pulse_width	SN ()	0.34943	0.67078	13.33370
sky130_osu_sc_18T_ls__dffsr_l	min_pulse_width	SN ()	0.35062	0.65361	13.33370
	min_pulse_width	SN ()	0.33069	0.65791	13.33370

Constraints(ns) for CK rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_ls__dffsr_1	min_pulse_width	CK ()	0.27115	0.60425	13.33370
	min_pulse_width	CK ()	0.32066	0.60425	13.33370
sky130_osu_sc_18T_ls__dffsr_l	min_pulse_width	CK ()	0.25989	0.60425	13.33370
	min_pulse_width	CK ()	0.31616	0.60425	13.33370

Constraints(ns) for CK falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_ls__dffsr_1	min_pulse_width	CK ()	0.57354	0.65147	13.33370
	min_pulse_width	CK ()	0.29365	0.60425	13.33370
sky130_osu_sc_18T_ls__dffsr_l	min_pulse_width	CK ()	0.57354	0.65147	13.33370
	min_pulse_width	CK ()	0.29365	0.60425	13.33370

Power Information

Internal switching power(pJ) to Q rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__dffsr_1	CK	0.00000	0.00000	0.00000
	CK	0.01582	0.01417	0.00405
	RN	0.02943	0.02810	0.01571
	SN	-0.00173	-0.07835	-0.99548
	SN	0.03286	0.03161	0.01839
sky130_osu_sc_18T_ls__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.01440	0.01267	0.00588
	RN	0.02799	0.02659	0.01741
	SN	-0.00173	-0.06219	-0.67738
	SN	0.03143	0.03012	0.02023

Internal switching power(pJ) to Q falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__dffsr_1	CK	0.00000	0.00000	0.00000
	CK	0.01715	0.01610	0.00848
	RN	-0.00173	-0.07835	-0.99547
	RN	0.03455	0.03344	0.02569
sky130_osu_sc_18T_ls__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.01572	0.01479	0.01101
	RN	-0.00173	-0.06219	-0.67738
	RN	0.03309	0.03211	0.02821

Internal switching power(pJ) to QN rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__dffsr_1	CK	0.00000	0.00000	0.00000
	CK	0.01714	0.01610	0.00846
	RN	-0.00173	-0.07844	-0.99723
	RN	0.03455	0.03344	0.02553
sky130_osu_sc_18T_ls__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.01571	0.01480	0.01102
	RN	-0.00173	-0.06237	-0.68059
	RN	0.03309	0.03211	0.02807

Internal switching power(pJ) to QN falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__dffsr_1	CK	0.00000	0.00000	0.00000
	CK	0.01577	0.01413	0.00372
	RN	0.02938	0.02804	0.01561
	SN	-0.00173	-0.07844	-0.99715
	SN	0.03282	0.03157	0.01856
sky130_osu_sc_18T_ls__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.01435	0.01264	0.00546
	RN	0.02794	0.02654	0.01732
	SN	-0.00173	-0.06237	-0.68053
	SN	0.03138	0.03007	0.02029

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__dffsr_1	CK	0.00000	0.00000	0.00000
	CK	-0.00440	-0.00455	-0.00453
	(!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)	0.01960	0.01875	0.02035
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.00803	0.00722	0.00888
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.00797	0.00716	0.00883
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.00807	0.00726	0.00893
sky130_osu_sc_18T_ls__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	-0.00440	-0.00455	-0.00453
	(!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)	0.01960	0.01876	0.02035
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.00803	0.00722	0.00888
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.00797	0.00716	0.00883
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.00807	0.00726	0.00893

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__dffsr_1	CK	0.00000	0.00000	0.00000
	CK	0.00455	0.00455	0.00453
	(!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)	0.03028	0.02987	0.03084
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.01308	0.01283	0.01431
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.01312	0.01286	0.01433
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.01303	0.01280	0.01425
sky130_osu_sc_18T_ls__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.00455	0.00455	0.00453
	(!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)	0.03027	0.02989	0.03083
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.01307	0.01282	0.01430
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.01311	0.01286	0.01432
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.01302	0.01278	0.01424

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__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)	0.00416	0.00327	0.00646
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.01604	0.01483	0.01784
sky130_osu_sc_18T_ls__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)	0.00417	0.00328	0.00646
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.01604	0.01483	0.01785

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__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)	0.01236	0.01199	0.01585
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.02673	0.02582	0.02898
sky130_osu_sc_18T_ls__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)	0.01235	0.01197	0.01584
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.02672	0.02581	0.02897

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__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)	-0.01019	-0.01021	-0.01027
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	-0.01026	-0.01055	-0.01049
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	-0.01006	-0.01014	-0.01016
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.00677	0.00597	0.00798
sky130_osu_sc_18T_ls__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)	-0.01019	-0.01022	-0.01027
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	-0.01025	-0.01053	-0.01047
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	-0.01006	-0.01014	-0.01016
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.00678	0.00598	0.00799

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__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)	0.01027	0.01045	0.01030
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.01043	0.01055	0.01049
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	0.01012	0.01019	0.01017
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.02034	0.01992	0.02113
sky130_osu_sc_18T_ls__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)	0.01027	0.01045	0.01030
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.01042	0.01053	0.01047
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	0.01011	0.01020	0.01016
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.02033	0.01991	0.02112

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__dffsr_1	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	-0.00087	-0.00188	0.00128
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.00815	0.00666	0.00951
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.00806	0.00657	0.00944
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	-0.00118	-0.00210	0.00101
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.00605	0.00406	0.01052
sky130_osu_sc_18T_ls__dffsr_l	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	-0.00087	-0.00188	0.00128
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.00814	0.00665	0.00950
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.00805	0.00656	0.00943
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	-0.00118	-0.00209	0.00101
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.00605	0.00406	0.01053

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

Cell Name	When	Power(pJ)		
		first	mid	last

sky130_osu_sc_18T_ls__dffsr_1	**(D * RN * SN * !Q * QN)**	0.00000	0.00000	0.00000
	(D * RN * SN * !Q * QN)	0.04459	0.04336	0.04575
	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.01823	0.01779	0.02147
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.03161	0.03098	0.03373
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.03170	0.03119	0.03390
	(!D * RN * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * Q * !QN)	0.04316	0.04181	0.04869
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.02093	0.02054	0.02390
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.02434	0.02341	0.03072
sky130_osu_sc_18T_ls__dffsr_l	**(D * RN * SN * !Q * QN)**	0.00000	0.00000	0.00000
	(D * RN * SN * !Q * QN)	0.04459	0.04336	0.04575
	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.01823	0.01779	0.02147
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.03161	0.03098	0.03373
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.03170	0.03119	0.03390
	(!D * RN * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * Q * !QN)	0.04315	0.04180	0.04869
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.02093	0.02054	0.02390
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.02433	0.02340	0.03071

SKY130_OSU_SC_18T_LS__DFFSx

sky130_osu_sc_18T_ls_ss_1P60_100C.ccs
Cell Library: Process , Voltage 1.60,
Temp 100.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__dffs_1	57.87540
sky130_osu_sc_18T_ls__dffs_l	57.87540

Pin Capacitance Information

Cell Name	Pin Cap(pf)			Max Cap(pf)	
	D	SN	CK	Q	QN
sky130_osu_sc_18T_ls__dffs_1	0.00586	0.00970	0.01692	1.52486	1.52926
sky130_osu_sc_18T_ls__dffs_l	0.00586	0.00970	0.01692	1.06720	1.06421

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__dffs_1	0.00000	0.03880	0.04522
sky130_osu_sc_18T_ls__dffs_l	0.00000	0.03443	0.04085

Delay Information

Delay(ns) to Q rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__dffs_1	CK->Q (RR)	0.42986	1.91932	17.11610
	QN->Q (FR)	0.05809	1.08241	13.05490
	SN->Q (FR)	0.32917	1.99763	18.88620
sky130_osu_sc_18T_ls__dffs_l	CK->Q (RR)	0.43121	2.08706	16.96590
	QN->Q (FR)	0.06358	1.16118	12.81440
	SN->Q (FR)	0.32844	2.15833	18.66440

Delay(ns) to Q falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__dffs_1	CK->Q (RF)	0.64639	2.24512	18.54240
	QN->Q (RF)	0.04453	0.87276	10.45260
sky130_osu_sc_18T_ls__dffs_l	CK->Q (RF)	0.64942	2.43550	18.49900
	QN->Q (RF)	0.04714	0.90229	10.04580

Delay(ns) to QN rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__dffs_1	CK->QN (RR)	0.57463	1.39747	8.44924
sky130_osu_sc_18T_ls__dffs_l	CK->QN (RR)	0.56882	1.46645	8.41911

Delay(ns) to QN falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__dffs_1	CK->QN (RF)	0.35011	0.97129	5.83024
	SN->QN (FF)	0.24829	1.05026	7.59349
sky130_osu_sc_18T_ls__dffs_l	CK->QN (RF)	0.34164	0.99998	5.65074
	SN->QN (FF)	0.23833	1.07182	7.35667

Constraint Information

Constraints(ns) for D rising :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_ls__dffs_1	hold	CK (R)	-0.10139	-0.12902	-0.41439
	setup	CK (R)	0.30285	0.32408	1.50486
sky130_osu_sc_18T_ls__dffs_l	hold	CK (R)	-0.10358	-0.12684	-0.41607
	setup	CK (R)	0.30334	0.32664	1.51962

Constraints(ns) for D falling :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_ls__dffs_1	hold	CK (R)	-0.24343	-0.59776	-4.28539
	setup	CK (R)	0.32652	0.61681	4.33283
sky130_osu_sc_18T_ls__dffs_l	hold	CK (R)	-0.24020	-0.59598	-4.28607
	setup	CK (R)	0.32615	0.61681	4.33283

Constraints(ns) for D rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_ls__dffs_1	hold	CK (R)	-0.10139	-0.12902	-0.41439
	setup	CK (R)	0.30285	0.32408	1.50486
sky130_osu_sc_18T_ls__dffs_l	hold	CK (R)	-0.10358	-0.12684	-0.41607
	setup	CK (R)	0.30334	0.32664	1.51962

Constraints(ns) for D falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_ls__dffs_1	hold	CK (R)	-0.24343	-0.59776	-4.28539
	setup	CK (R)	0.32652	0.61681	4.33283
sky130_osu_sc_18T_ls__dffs_l	hold	CK (R)	-0.24020	-0.59598	-4.28607
	setup	CK (R)	0.32615	0.61681	4.33283

Constraints(ns) for SN rising :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_ls__dffs_1	recovery	CK (R)	0.09998	0.13697	2.23390
	removal	CK (R)	-0.03629	-0.09158	-0.61788
sky130_osu_sc_18T_ls__dffs_l	recovery	CK (R)	0.09771	0.13863	2.10437
	removal	CK (R)	-0.03438	-0.09123	-0.61645

Constraints(ns) for SN rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_ls__dffs_1	recovery	CK (R)	0.09998	0.13697	2.23390
	removal	CK (R)	-0.03629	-0.09158	-0.61788
sky130_osu_sc_18T_ls__dffs_l	recovery	CK (R)	0.09771	0.13863	2.10437
	removal	CK (R)	-0.03438	-0.09123	-0.61645

Constraints(ns) for SN falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_ls__dffs_1	min_pulse_width	SN ()	0.21979	0.64932	13.33370
	min_pulse_width	SN ()	0.22289	0.65147	13.33370
sky130_osu_sc_18T_ls__dffs_l	min_pulse_width	SN ()	0.21551	0.62786	13.33370
	min_pulse_width	SN ()	0.21213	0.63215	13.33370

Constraints(ns) for CK rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_ls__dffs_1	min_pulse_width	CK ()	0.18562	0.60425	13.33370
	min_pulse_width	CK ()	0.32066	0.60425	13.33370
sky130_osu_sc_18T_ls__dffs_l	min_pulse_width	CK ()	0.17662	0.60425	13.33370
	min_pulse_width	CK ()	0.31166	0.60425	13.33370

Constraints(ns) for CK falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_ls__dffs_1	min_pulse_width	CK ()	0.42870	0.60425	13.33370
	min_pulse_width	CK ()	0.28690	0.60425	13.33370
sky130_osu_sc_18T_ls__dffs_l	min_pulse_width	CK ()	0.42870	0.60425	13.33370
	min_pulse_width	CK ()	0.28690	0.60425	13.33370

Power Information

Internal switching power(pJ) to Q rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__dffs_1	CK	0.00000	0.00000	0.00000
	CK	0.01255	0.01017	-0.00454
	SN	-0.00173	-0.07743	-0.97591
	SN	0.02751	0.02527	0.00662
sky130_osu_sc_18T_ls__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.01100	0.00916	0.00254
	SN	-0.00173	-0.06250	-0.68301
	SN	0.02595	0.02430	0.01577

Internal switching power(pJ) to Q falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__dffs_1	CK	0.00000	0.00000	0.00000
	CK	0.01477	0.01355	0.00454
sky130_osu_sc_18T_ls__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.01323	0.01226	0.00856

Internal switching power(pJ) to QN rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__dffs_1	CK	0.00000	0.00000	0.00000
	CK	0.01477	0.01355	0.00453
sky130_osu_sc_18T_ls__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.01323	0.01226	0.00862

Internal switching power(pJ) to QN falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__dffs_1	CK	0.00000	0.00000	0.00000
	CK	0.01251	0.01013	-0.00453
	SN	-0.00173	-0.07756	-0.97862
	SN	0.02747	0.02523	0.00674
sky130_osu_sc_18T_ls__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.01096	0.00913	0.00203
	SN	-0.00173	-0.06240	-0.68102
	SN	0.02591	0.02426	0.01575

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__dffs_1	CK	0.00000	0.00000	0.00000
	CK	-0.00444	-0.00459	-0.00458
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.01437	0.01344	0.01499
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.00682	0.00597	0.00769
sky130_osu_sc_18T_ls__dffs_l	CK	0.00000	0.00000	0.00000
	CK	-0.00444	-0.00459	-0.00458
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.01437	0.01344	0.01499
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.00682	0.00597	0.00769

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__dffs_1	CK	0.00000	0.00000	0.00000
	CK	0.00459	0.00459	0.00458
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.02594	0.02551	0.02676
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.01258	0.01231	0.01386
sky130_osu_sc_18T_ls__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.00459	0.00459	0.00458
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.02594	0.02551	0.02676
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.01258	0.01231	0.01386

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__dffs_1	(CK * Q * !QN) + (!CK * D * Q * !QN)	0.00000	0.00000	0.00000
	(CK * Q * !QN) + (!CK * D * Q * !QN)	-0.00737	-0.00741	-0.00741
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.00577	0.00507	0.00694
sky130_osu_sc_18T_ls__dffs_l	(CK * Q * !QN) + (!CK * D * Q * !QN)	0.00000	0.00000	0.00000
	(CK * Q * !QN) + (!CK * D * Q * !QN)	-0.00737	-0.00742	-0.00741
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.00577	0.00507	0.00694

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__dffs_1	(CK * Q * !QN) + (!CK * D * Q * !QN)	0.00000	0.00000	0.00000
	(CK * Q * !QN) + (!CK * D * Q * !QN)	0.00741	0.00745	0.00743
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.01376	0.01321	0.01533
sky130_osu_sc_18T_ls__dffs_l	(CK * Q * !QN) + (!CK * D * Q * !QN)	0.00000	0.00000	0.00000
	(CK * Q * !QN) + (!CK * D * Q * !QN)	0.00741	0.00745	0.00743
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.01376	0.01321	0.01533

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__dffs_1	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	-0.00089	-0.00190	0.00126
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	-0.00129	-0.00228	0.00090
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.00479	0.00290	0.00945
sky130_osu_sc_18T_ls__dffs_l	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	-0.00089	-0.00190	0.00126
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	-0.00129	-0.00228	0.00090
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.00479	0.00290	0.00945

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__dffs_1	(D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * SN * !Q * QN)	0.03916	0.03793	0.04030
	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.01819	0.01768	0.02143
	(!D * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * SN * Q * !QN)	0.03876	0.03745	0.04456
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	0.02099	0.02057	0.02397
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.02376	0.02285	0.03028
sky130_osu_sc_18T_ls__dffs_l	(D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * SN * !Q * QN)	0.03916	0.03793	0.04030
	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.01819	0.01776	0.02143
	(!D * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * SN * Q * !QN)	0.03876	0.03745	0.04456
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	0.02099	0.02058	0.02397
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.02376	0.02285	0.03028

SKY130_OSU_SC_18T_LS__DFFx

sky130_osu_sc_18T_ls_ss_1P60_100C.ccs
Cell Library: Process , Voltage 1.60,
Temp 100.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__dff_1	48.35160
sky130_osu_sc_18T_ls__dff_l	48.35160

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)	
	D	CK	Q	QN
sky130_osu_sc_18T_ls__dff_1	0.00602	0.01689	1.56165	1.56332
sky130_osu_sc_18T_ls__dff_l	0.00602	0.01689	1.06394	1.05231

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__dff_1	0.00000	0.04713	0.05495
sky130_osu_sc_18T_ls__dff_l	0.00000	0.04276	0.05058

Delay Information

Delay(ns) to Q rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__dff_1	CK->Q (RR)	0.38277	1.84709	16.93550
	QN->Q (FR)	0.05558	1.07141	12.93250
sky130_osu_sc_18T_ls__dff_l	CK->Q (RR)	0.39586	2.05808	16.98190
	QN->Q (FR)	0.06448	1.17211	12.92510

Delay(ns) to Q falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__dff_1	CK->Q (RF)	0.53410	2.09911	18.33120
	QN->Q (RF)	0.04126	0.83170	10.02960
sky130_osu_sc_18T_ls__dff_l	CK->Q (RF)	0.55309	2.33423	18.45000
	QN->Q (RF)	0.04723	0.90273	10.03040

Delay(ns) to QN rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__dff_1	CK->QN (RR)	0.46963	1.27028	8.33595
sky130_osu_sc_18T_ls__dff_l	CK->QN (RR)	0.47626	1.36260	8.30233

Delay(ns) to QN falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__dff_1	CK->QN (RF)	0.30817	0.91627	5.71149
sky130_osu_sc_18T_ls__dff_l	CK->QN (RF)	0.30774	0.96498	5.60309

Constraint Information

Constraints(ns) for D rising :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_ls__dff_1	hold	CK (R)	-0.09835	-0.12968	-0.45097
	setup	CK (R)	0.25374	0.27725	1.50074
sky130_osu_sc_18T_ls__dff_l	hold	CK (R)	-0.09771	-0.12985	-0.45282
	setup	CK (R)	0.25522	0.27572	1.50052

Constraints(ns) for D falling :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_ls__dff_1	hold	CK (R)	-0.22760	-0.60074	-4.34786
	setup	CK (R)	0.26790	0.61995	4.39108
sky130_osu_sc_18T_ls__dff_l	hold	CK (R)	-0.22847	-0.59796	-4.34978
	setup	CK (R)	0.26846	0.61995	4.39081

Constraints(ns) for CK rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_ls__dff_1	min_pulse_width	CK ()	0.16987	0.60425	13.33370
	min_pulse_width	CK ()	0.28690	0.60425	13.33370
sky130_osu_sc_18T_ls__dff_l	min_pulse_width	CK ()	0.16312	0.60425	13.33370
	min_pulse_width	CK ()	0.28015	0.60425	13.33370

Constraints(ns) for CK falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_osu_sc_18T_ls__dff_1	**min_pulse_width**	**CK ()**	0.37918	0.60425	13.33370
	min_pulse_width	**CK ()**	0.21263	0.60425	13.33370
sky130_osu_sc_18T_ls__dff_l	**min_pulse_width**	**CK ()**	0.37918	0.60425	13.33370
	min_pulse_width	**CK ()**	0.21263	0.60425	13.33370

Power Information

Internal switching power(pJ) to Q rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__dff_1	CK	0.00000	0.00000	0.00000
	CK	0.01332	0.01147	0.00164
sky130_osu_sc_18T_ls__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.01188	0.00998	0.00340

Internal switching power(pJ) to Q falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__dff_1	CK	0.00000	0.00000	0.00000
	CK	0.01510	0.01402	0.00664
sky130_osu_sc_18T_ls__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.01368	0.01265	0.00836

Internal switching power(pJ) to QN rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__dff_1	CK	0.00000	0.00000	0.00000
	CK	0.01510	0.01402	0.00670
sky130_osu_sc_18T_ls__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.01368	0.01266	0.00843

Internal switching power(pJ) to QN falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__dff_1	CK	0.00000	0.00000	0.00000
	CK	0.01328	0.01141	0.00118
sky130_osu_sc_18T_ls__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.01184	0.00995	0.00307

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__dff_1	CK	0.00000	0.00000	0.00000
	CK	-0.00413	-0.00454	-0.00453
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.01381	0.01292	0.01452
sky130_osu_sc_18T_ls__dff_l	CK	0.00000	0.00000	0.00000
	CK	-0.00413	-0.00454	-0.00453
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.01382	0.01293	0.01453

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__dff_1	CK	0.00000	0.00000	0.00000
	CK	0.00451	0.00455	0.00453
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.02676	0.02630	0.02762
sky130_osu_sc_18T_ls__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.00451	0.00455	0.00453
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.02677	0.02631	0.02763

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__dff_1	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	-0.00090	-0.00190	0.00127
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	-0.00128	-0.00221	0.00092
sky130_osu_sc_18T_ls__dff_l	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	-0.00090	-0.00190	0.00127
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	-0.00128	-0.00221	0.00092

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__dff_1	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.01814	0.01770	0.02138
	(D * !Q * QN)	0.00000	0.00000	0.00000
	(D * !Q * QN)	0.03864	0.03739	0.03989
	(!D * Q * !QN)	0.00000	0.00000	0.00000
	(!D * Q * !QN)	0.03936	0.03804	0.04528
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.02091	0.02054	0.02390
sky130_osu_sc_18T_ls__dff_l	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.01813	0.01770	0.02138
	(D * !Q * QN)	0.00000	0.00000	0.00000
	(D * !Q * QN)	0.03864	0.03740	0.03989
	(!D * Q * !QN)	0.00000	0.00000	0.00000
	(!D * Q * !QN)	0.03936	0.03805	0.04528
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.02091	0.02054	0.02390

SKY130_OSU_SC_18T_LS__INVx

sky130_osu_sc_18T_ls_ss_1P60_100C.ccs
Cell Library: Process , Voltage 1.60,
Temp 100.00

Truth Table

INPUT	OUTPUT
A	Y
0	1
1	0

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__inv_1	6.59340
sky130_osu_sc_18T_ls__inv_10	32.96700
sky130_osu_sc_18T_ls__inv_2	9.52380
sky130_osu_sc_18T_ls__inv_3	12.45420
sky130_osu_sc_18T_ls__inv_4	15.38460
sky130_osu_sc_18T_ls__inv_6	21.24540
sky130_osu_sc_18T_ls__inv_8	27.10620
sky130_osu_sc_18T_ls__inv_l	6.59340

Pin Capacitance Information

Cell Name	Pin Cap(pf)	Max Cap(pf)
	A	Y
sky130_osu_sc_18T_ls__inv_1	0.00593	1.53157
sky130_osu_sc_18T_ls__inv_10	0.05625	14.13151
sky130_osu_sc_18T_ls__inv_2	0.01144	3.03297
sky130_osu_sc_18T_ls__inv_3	0.01707	4.40263
sky130_osu_sc_18T_ls__inv_4	0.02261	5.90024
sky130_osu_sc_18T_ls__inv_6	0.03391	8.67747
sky130_osu_sc_18T_ls__inv_8	0.04509	11.52772
sky130_osu_sc_18T_ls__inv_l	0.00445	1.04258

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__inv_1	0.00000	0.00677	0.00688
sky130_osu_sc_18T_ls__inv_10	0.00000	0.02930	0.04743
sky130_osu_sc_18T_ls__inv_2	0.00000	0.00586	0.00949
sky130_osu_sc_18T_ls__inv_3	0.00000	0.01263	0.01615
sky130_osu_sc_18T_ls__inv_4	0.00000	0.01172	0.01897
sky130_osu_sc_18T_ls__inv_6	0.00000	0.01758	0.02846
sky130_osu_sc_18T_ls__inv_8	0.00000	0.02344	0.03795
sky130_osu_sc_18T_ls__inv_l	0.00000	0.00458	0.00500

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__inv_1	**A->Y (FR)**	0.05349	1.01719	12.20800
sky130_osu_sc_18T_ls__inv_10	**A->Y (FR)**	0.07383	0.71498	12.21730
sky130_osu_sc_18T_ls__inv_2	**A->Y (FR)**	0.04341	0.87633	12.17480
sky130_osu_sc_18T_ls__inv_3	**A->Y (FR)**	0.04734	0.82595	12.20000
sky130_osu_sc_18T_ls__inv_4	**A->Y (FR)**	0.04854	0.78680	12.17580
sky130_osu_sc_18T_ls__inv_6	**A->Y (FR)**	0.05419	0.74514	12.14550
sky130_osu_sc_18T_ls__inv_8	**A->Y (FR)**	0.06332	0.72521	12.20150
sky130_osu_sc_18T_ls__inv_l	**A->Y (FR)**	0.06137	1.10465	12.14830

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__inv_1	**A->Y (RF)**	0.03778	0.76314	9.17610
sky130_osu_sc_18T_ls__inv_10	**A->Y (RF)**	0.05754	0.53477	9.08117
sky130_osu_sc_18T_ls__inv_2	**A->Y (RF)**	0.03158	0.67394	9.15230
sky130_osu_sc_18T_ls__inv_3	**A->Y (RF)**	0.03416	0.63541	9.18611
sky130_osu_sc_18T_ls__inv_4	**A->Y (RF)**	0.03432	0.60200	9.17130
sky130_osu_sc_18T_ls__inv_6	**A->Y (RF)**	0.04242	0.56879	9.14057
sky130_osu_sc_18T_ls__inv_8	**A->Y (RF)**	0.04994	0.54999	9.15910
sky130_osu_sc_18T_ls__inv_l	**A->Y (RF)**	0.04303	0.82363	9.16013

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__inv_1	A	0.00000	0.00000	0.00000
	A	0.00689	0.00687	0.00728
sky130_osu_sc_18T_ls__inv_10	A	0.00000	0.00000	0.00000
	A	0.06002	0.06139	0.06635
sky130_osu_sc_18T_ls__inv_2	A	0.00000	0.00000	0.00000
	A	0.01246	0.01192	0.01336
sky130_osu_sc_18T_ls__inv_3	A	0.00000	0.00000	0.00000
	A	0.01904	0.01918	0.02038
sky130_osu_sc_18T_ls__inv_4	A	0.00000	0.00000	0.00000
	A	0.02462	0.02485	0.02685
sky130_osu_sc_18T_ls__inv_6	A	0.00000	0.00000	0.00000
	A	0.03647	0.03720	0.04015
sky130_osu_sc_18T_ls__inv_8	A	0.00000	0.00000	0.00000
	A	0.04829	0.04938	0.05331
sky130_osu_sc_18T_ls__inv_l	A	0.00000	0.00000	0.00000
	A	0.00518	0.00492	0.00541

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__inv_1	**A**	0.00000	0.00000	0.00000
	A	-0.00144	-0.00145	-0.00125
sky130_osu_sc_18T_ls__inv_10	**A**	0.00000	0.00000	0.00000
	A	-0.02477	-0.02354	-0.01836
sky130_osu_sc_18T_ls__inv_2	**A**	0.00000	0.00000	0.00000
	A	-0.00455	-0.00442	-0.00383
sky130_osu_sc_18T_ls__inv_3	**A**	0.00000	0.00000	0.00000
	A	-0.00612	-0.00605	-0.00493
sky130_osu_sc_18T_ls__inv_4	**A**	0.00000	0.00000	0.00000
	A	-0.00941	-0.00899	-0.00751
sky130_osu_sc_18T_ls__inv_6	**A**	0.00000	0.00000	0.00000
	A	-0.01442	-0.01370	-0.01119
sky130_osu_sc_18T_ls__inv_8	**A**	0.00000	0.00000	0.00000
	A	-0.01968	-0.01889	-0.01480
sky130_osu_sc_18T_ls__inv_l	**A**	0.00000	0.00000	0.00000
	A	-0.00096	-0.00100	-0.00089

SKY130_OSU_SC_18T_LS__MUX2

sky130_osu_sc_18T_ls_ss_1P60_100C.ccs
Cell Library: Process , Voltage 1.60,
Temp 100.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__mux2_1	18.31500

Pin Capacitance Information

Cell Name	Pin Cap(pf)			Max Cap(pf)
	A0	A1	S0	Y
sky130_osu_sc_18T_ls__mux2_1	0.25175	0.25164	0.01203	0.24651

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__mux2_1	0.00000	0.01995	0.02118

Delay Information

Delay(ns) to Y rising (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_18T_ls__mux2_1	A0->Y (RR)	-	0.03167	0.44740	3.92001
	A1->Y (RR)	-	0.03431	0.44946	3.92903
	S0->Y (RR)	(!A0 * A1)	0.08734	0.46660	1.73167
	S0->Y (FR)	(A0 * !A1)	0.07326	0.60029	4.10023

Delay(ns) to Y falling (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_18T_ls__mux2_1	A0->Y (FF)	-	0.02753	0.40405	3.43096
	A1->Y (FF)	-	0.02578	0.40081	3.41862
	S0->Y (FF)	(!A0 * A1)	0.12286	0.56949	2.79054
	S0->Y (RF)	(A0 * !A1)	0.04365	0.46500	3.10526

Power Information

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

Cell Name	Input	When	Power(pJ)		
			first	mid	last
sky130_osu_sc_18T_ls__mux2_1	A0	-	0.00000	0.00000	0.00000
	A0	-	-0.00704	-0.00705	-0.00704
	A1	-	0.00000	0.00000	0.00000
	A1	-	-0.00508	-0.00508	-0.00508
	S0	(A0 * !A1)	0.00000	0.00000	0.00000
	S0	(A0 * !A1)	0.00776	0.00743	0.01168
	S0	(!A0 * A1)	0.00000	0.00000	0.00000
	S0	(!A0 * A1)	-0.00486	-0.00571	-0.00201

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

Cell Name	Input	When	Power(pJ)		
			first	mid	last
sky130_osu_sc_18T_ls__mux2_1	A0	-	0.00000	0.00000	0.00000
	A0	-	0.00704	0.00705	0.00705
	A1	-	0.00000	0.00000	0.00000
	A1	-	0.00508	0.00508	0.00508
	S0	(A0 * !A1)	0.00000	0.00000	0.00000
	S0	(A0 * !A1)	0.00155	0.00078	0.00462
	S0	(!A0 * A1)	0.00000	0.00000	0.00000
	S0	(!A0 * A1)	0.01825	0.01787	0.02174

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__mux2_1	(A1 * S0 * Y) + (!A1 * S0 * !Y)	0.00000	0.00000	0.00000
	(A1 * S0 * Y) + (!A1 * S0 * !Y)	-0.00185	-0.00184	-0.00185

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__mux2_1	(A1 * S0 * Y) + (!A1 * S0 * !Y)	0.00000	0.00000	0.00000
	(A1 * S0 * Y) + (!A1 * S0 * !Y)	0.00185	0.00184	0.00185

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__mux2_1	(A0 * !S0 * Y) + (!A0 * !S0 * !Y)	0.00000	0.00000	0.00000
	(A0 * !S0 * Y) + (!A0 * !S0 * !Y)	-0.00221	-0.00220	-0.00220

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__mux2_1	(A0 * !S0 * Y) + (!A0 * !S0 * !Y)	0.00000	0.00000	0.00000
	(A0 * !S0 * Y) + (!A0 * !S0 * !Y)	0.00221	0.00220	0.00220

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__mux2_1	(A0 * A1 * Y)	0.00000	0.00000	0.00000
	(A0 * A1 * Y)	-0.00169	-0.00248	0.00132
	(!A0 * !A1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !Y)	-0.00163	-0.00246	0.00129

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__mux2_1	(A0 * A1 * Y)	0.00000	0.00000	0.00000
	(A0 * A1 * Y)	0.01373	0.01330	0.01730
	(!A0 * !A1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !Y)	0.01226	0.01191	0.01615

SKY130_OSU_SC_18T_LS__NAND2x

sky130_osu_sc_18T_ls_ss_1P60_100C.ccs
Cell Library: Process , Voltage 1.60,
Temp 100.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__nand2_1	9.52380
sky130_osu_sc_18T_ls__nand2_l	9.52380

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	B	Y
sky130_osu_sc_18T_ls__nand2_1	0.00595	0.00591	1.38662
sky130_osu_sc_18T_ls__nand2_l	0.00446	0.00444	0.92101

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__nand2_1	0.00000	0.00519	0.00754
sky130_osu_sc_18T_ls__nand2_l	0.00000	0.00362	0.00513

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__nand2_1	A->Y (FR)	0.05593	0.99252	11.60210
	B->Y (FR)	0.06555	0.99524	11.52520
sky130_osu_sc_18T_ls__nand2_l	A->Y (FR)	0.06343	1.06663	11.37200
	B->Y (FR)	0.07439	1.07136	11.34780

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__nand2_1	A->Y (RF)	0.05939	0.97558	11.43220
	B->Y (RF)	0.06714	0.95253	10.96720
sky130_osu_sc_18T_ls__nand2_l	A->Y (RF)	0.06964	1.08058	11.38670
	B->Y (RF)	0.07738	1.05652	10.91010

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__nand2_1	A	0.00000	0.00000	0.00000
	A	0.00735	0.00732	0.00768
	B	0.00000	0.00000	0.00000
	B	0.00911	0.00900	0.00933
sky130_osu_sc_18T_ls__nand2_l	A	0.00000	0.00000	0.00000
	A	0.00548	0.00543	0.00565
	B	0.00000	0.00000	0.00000
	B	0.00674	0.00639	0.00686

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__nand2_1	A	0.00000	0.00000	0.00000
	A	-0.00089	-0.00097	-0.00077
	B	0.00000	0.00000	0.00000
	B	-0.00082	-0.00100	-0.00086
sky130_osu_sc_18T_ls__nand2_l	A	0.00000	0.00000	0.00000
	A	-0.00063	-0.00073	-0.00060
	B	0.00000	0.00000	0.00000
	B	-0.00059	-0.00072	-0.00065

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__nand2_1	(!B * Y)	0.00000	0.00000	0.00000
	(!B * Y)	-0.00505	-0.00509	-0.00509
sky130_osu_sc_18T_ls__nand2_l	(!B * Y)	0.00000	0.00000	0.00000
	(!B * Y)	-0.00359	-0.00362	-0.00362

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__nand2_1	(!B * Y)	0.00000	0.00000	0.00000
	(!B * Y)	0.00508	0.00515	0.00511
sky130_osu_sc_18T_ls__nand2_l	(!B * Y)	0.00000	0.00000	0.00000
	(!B * Y)	0.00361	0.00366	0.00363

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__nand2_1	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00477	-0.00480	-0.00478
sky130_osu_sc_18T_ls__nand2_l	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00339	-0.00341	-0.00339

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__nand2_1	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00482	0.00484	0.00479
sky130_osu_sc_18T_ls__nand2_l	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00342	0.00343	0.00340

SKY130_OSU_SC_18T_LS__NOR2x

sky130_osu_sc_18T_ls_ss_1P60_100C.ccs
Cell Library: Process , Voltage 1.60,
Temp 100.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__nor2_1	9.52380
sky130_osu_sc_18T_ls__nor2_l	9.52380

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	B	Y
sky130_osu_sc_18T_ls__nor2_1	0.00591	0.00625	0.76894
sky130_osu_sc_18T_ls__nor2_l	0.00436	0.00472	0.52443

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__nor2_1	0.00000	0.00768	0.00949
sky130_osu_sc_18T_ls__nor2_l	0.00000	0.00526	0.00576

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__nor2_1	A->Y (FR)	0.12036	1.22353	11.75960
	B->Y (FR)	0.09179	1.19763	11.95000
sky130_osu_sc_18T_ls__nor2_l	A->Y (FR)	0.13447	1.34283	11.67950
	B->Y (FR)	0.10940	1.32063	11.88540

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__nor2_1	A->Y (RF)	0.05076	0.65408	6.70077
	B->Y (RF)	0.04005	0.63903	6.67383
sky130_osu_sc_18T_ls__nor2_l	A->Y (RF)	0.05552	0.69603	6.70584
	B->Y (RF)	0.04536	0.68190	6.68183

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__nor2_1	A	0.00000	0.00000	0.00000
	A	0.00993	0.00983	0.00993
	B	0.00000	0.00000	0.00000
	B	0.00745	0.00731	0.00771
sky130_osu_sc_18T_ls__nor2_1	A	0.00000	0.00000	0.00000
	A	0.00713	0.00704	0.00707
	B	0.00000	0.00000	0.00000
	B	0.00554	0.00541	0.00566

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__nor2_1	A	0.00000	0.00000	0.00000
	A	0.00096	0.00061	0.00080
	B	0.00000	0.00000	0.00000
	B	-0.00115	-0.00116	-0.00099
sky130_osu_sc_18T_ls__nor2_1	A	0.00000	0.00000	0.00000
	A	0.00063	0.00040	0.00053
	B	0.00000	0.00000	0.00000
	B	-0.00072	-0.00075	-0.00066

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__nor2_1	(B * !Y)	0.00000	0.00000	0.00000
	(B * !Y)	-0.00415	-0.00458	-0.00456
sky130_osu_sc_18T_ls__nor2_l	(B * !Y)	0.00000	0.00000	0.00000
	(B * !Y)	-0.00289	-0.00317	-0.00315

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__nor2_1	(B * !Y)	0.00000	0.00000	0.00000
	(B * !Y)	0.00454	0.00458	0.00456
sky130_osu_sc_18T_ls__nor2_l	(B * !Y)	0.00000	0.00000	0.00000
	(B * !Y)	0.00313	0.00317	0.00315

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__nor2_1	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	-0.00218	-0.00222	-0.00219
sky130_osu_sc_18T_ls__nor2_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	-0.00153	-0.00155	-0.00154

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__nor2_1	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00231	0.00233	0.00223
sky130_osu_sc_18T_ls__nor2_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00161	0.00163	0.00157

SKY130_OSU_SC_18T_LS__OAI21

sky130_osu_sc_18T_ls_ss_1P60_100C.ccs
Cell Library: Process , Voltage 1.60,
Temp 100.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__oai21_l	12.45420

Pin Capacitance Information

Cell Name	Pin Cap(pf)			Max Cap(pf)
	A0	A1	B0	Y
sky130_osu_sc_18T_ls__oai21_l	0.00599	0.00601	0.00493	0.76532

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__oai21_l	0.00000	0.00941	0.01384

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__oai21_l	A0->Y (FR)	0.12500	1.23525	11.99290
	A1->Y (FR)	0.15888	1.26642	11.80480
	B0->Y (FR)	0.07766	1.00865	10.26600

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__oai21_l	A0->Y (RF)	0.08201	0.81859	7.97854
	A1->Y (RF)	0.10071	0.82447	7.85707
	B0->Y (RF)	0.06373	0.84313	8.58599

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__oai21_l	A0	0.00000	0.00000	0.00000
	A0	0.01002	0.00980	0.01020
	A1	0.00000	0.00000	0.00000
	A1	0.01252	0.01237	0.01243
	B0	0.00854	0.00839	0.00873

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__oai21_l	A0	0.00000	0.00000	0.00000
	A0	0.00032	0.00012	0.00018
	A1	0.00000	0.00000	0.00000
	A1	0.00238	0.00197	0.00204
	B0	0.00334	0.00318	0.00331

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__oai21_l	(A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * !Y)	-0.00218	-0.00221	-0.00219
	(A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * Y)	-0.00444	-0.00457	-0.00455
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00470	-0.00471	-0.00470

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__oai21_l	(A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * !Y)	0.00231	0.00233	0.00224
	(A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * Y)	0.00454	0.00457	0.00455
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00470	0.00475	0.00471

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__oai21_l	(A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * B0 * !Y)	-0.00410	-0.00451	-0.00449
	(A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * Y)	-0.00440	-0.00456	-0.00454
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	-0.00465	-0.00467	-0.00466

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__oai21_l	(A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * B0 * !Y)	0.00447	0.00451	0.00449
	(A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * Y)	0.00452	0.00456	0.00454
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	0.00466	0.00474	0.00467

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__oai21_l	(!A0 * !A1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * Y)	-0.00363	-0.00364	-0.00372

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__oai21_l	(!A0 * !A1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * Y)	0.00372	0.00379	0.00373

SKY130_OSU_SC_18T_LS__OAI22

sky130_osu_sc_18T_ls_ss_1P60_100C.ccs
Cell Library: Process , Voltage 1.60,
Temp 100.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__oai22_1	15.38460

Pin Capacitance Information

Cell Name	Pin Cap(pf)				Max Cap(pf)
	A0	A1	B0	B1	Y
sky130_osu_sc_18T_ls__oai22_1	0.00579	0.00611	0.00625	0.00609	0.76471

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__oai22_1	0.00000	0.00677	0.01599

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__oai22_l	A0->Y (FR)	0.17458	1.27958	11.78720
	A1->Y (FR)	0.14572	1.25167	11.97830
	B0->Y (FR)	0.10349	1.20902	11.94510
	B1->Y (FR)	0.13181	1.23417	11.75470

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__oai22_l	A0->Y (RF)	0.14242	0.90041	8.13783
	A1->Y (RF)	0.11286	0.85967	8.03503
	B0->Y (RF)	0.09572	0.87771	8.62427
	B1->Y (RF)	0.12713	0.92491	8.81128

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__oai22_l	A0	0.01635	0.01618	0.01626
	A1	0.01383	0.01360	0.01397
	B0	0.01048	0.01033	0.01066
	B1	0.01308	0.01295	0.01302

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__oai22_l	A0	0.00395	0.00355	0.00358
	A1	0.00203	0.00177	0.00177
	B0	0.00201	0.00182	0.00193
	B1	0.00397	0.00358	0.00373

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__oai22_l	(A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * !Y)	-0.00415	-0.00458	-0.00455
	(A1 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * B1 * !Y)	-0.00415	-0.00458	-0.00455
	(A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * !B1 * Y)	-0.00441	-0.00454	-0.00455
	(!A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * !B1 * Y)	-0.00466	-0.00469	-0.00467

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__oai22_l	(A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * !Y)	0.00453	0.00458	0.00455
	(A1 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * B1 * !Y)	0.00453	0.00458	0.00455
	(A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * !B1 * Y)	0.00452	0.00454	0.00455
	(!A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * !B1 * Y)	0.00466	0.00475	0.00468

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__oai22_l	(A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * B0 * !Y)	-0.00217	-0.00221	-0.00218
	(A0 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * B1 * !Y)	-0.00217	-0.00221	-0.00218
	(A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * !B1 * Y)	-0.00440	-0.00453	-0.00451
	(!A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * !B1 * Y)	-0.00465	-0.00468	-0.00466

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__oai22_l	(A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * B0 * !Y)	0.00230	0.00232	0.00222
	(A0 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * B1 * !Y)	0.00230	0.00232	0.00222
	(A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * !B1 * Y)	0.00448	0.00453	0.00451
	(!A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * !B1 * Y)	0.00465	0.00471	0.00467

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__oai22_l	(A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * B1 * !Y)	-0.00216	-0.00220	-0.00217
	(A0 * !A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B1 * !Y)	-0.00216	-0.00220	-0.00217
	(!A0 * !A1 * B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B1 * Y)	-0.00481	-0.00491	-0.00492
	(!A0 * !A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B1 * Y)	-0.00491	-0.00496	-0.00505

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__oai22_l	(A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * B1 * !Y)	0.00229	0.00231	0.00221
	(A0 * !A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B1 * !Y)	0.00228	0.00229	0.00221
	(!A0 * !A1 * B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B1 * Y)	0.00489	0.00491	0.00492
	(!A0 * !A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B1 * Y)	0.00506	0.00515	0.00508

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__oai22_l	(A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * !Y)	-0.00410	-0.00454	-0.00450
	(A0 * !A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B0 * !Y)	-0.00410	-0.00454	-0.00450
	(!A0 * !A1 * B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B0 * Y)	-0.00487	-0.00506	-0.00501
	(!A0 * !A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B0 * Y)	-0.00499	-0.00500	-0.00511

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__oai22_l	(A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A1 * B0 * !Y)	0.00448	0.00455	0.00450
	(A0 * !A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B0 * !Y)	0.00448	0.00456	0.00450
	(!A0 * !A1 * B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B0 * Y)	0.00498	0.00507	0.00501
	(!A0 * !A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B0 * Y)	0.00511	0.00517	0.00514

SKY130_OSU_SC_18T_LS__OR2x

sky130_osu_sc_18T_ls_ss_1P60_100C.ccs
Cell Library: Process , Voltage 1.60,
Temp 100.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__or2_1	12.45420
sky130_osu_sc_18T_ls__or2_2	15.38460
sky130_osu_sc_18T_ls__or2_4	21.24540
sky130_osu_sc_18T_ls__or2_8	32.96700
sky130_osu_sc_18T_ls__or2_l	12.45420

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	B	Y
sky130_osu_sc_18T_ls__or2_1	0.00624	0.00607	1.53572
sky130_osu_sc_18T_ls__or2_2	0.00624	0.00607	3.05805
sky130_osu_sc_18T_ls__or2_4	0.00624	0.00607	5.86747
sky130_osu_sc_18T_ls__or2_8	0.00623	0.00608	11.25888
sky130_osu_sc_18T_ls__or2_l	0.00476	0.00454	1.04725

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__or2_1	0.00000	0.01446	0.01637
sky130_osu_sc_18T_ls__or2_2	0.00000	0.01542	0.01732
sky130_osu_sc_18T_ls__or2_4	0.00000	0.02309	0.02681
sky130_osu_sc_18T_ls__or2_8	0.00000	0.03844	0.04578
sky130_osu_sc_18T_ls__or2_l	0.00000	0.00970	0.01037

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__or2_1	A->Y (RR)	0.12430	0.92496	7.94492
	B->Y (RR)	0.10970	0.87794	7.71527
sky130_osu_sc_18T_ls__or2_2	A->Y (RR)	0.13656	0.84909	8.22986
	B->Y (RR)	0.12140	0.81013	8.03729
sky130_osu_sc_18T_ls__or2_4	A->Y (RR)	0.17789	0.85003	8.60713
	B->Y (RR)	0.16226	0.81797	8.45563
sky130_osu_sc_18T_ls__or2_8	A->Y (RR)	0.25582	0.92297	9.22178
	B->Y (RR)	0.23964	0.90111	9.10210
sky130_osu_sc_18T_ls__or2_l	A->Y (RR)	0.13877	1.03279	8.01521
	B->Y (RR)	0.12421	0.98825	7.80503

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__or2_1	A->Y (FF)	0.22810	0.96316	7.10298
	B->Y (FF)	0.19138	0.91877	6.87861
sky130_osu_sc_18T_ls__or2_2	A->Y (FF)	0.28013	0.97104	7.48135
	B->Y (FF)	0.24367	0.93939	7.27650
sky130_osu_sc_18T_ls__or2_4	A->Y (FF)	0.40227	1.07888	8.01108
	B->Y (FF)	0.36595	1.04987	7.89868
sky130_osu_sc_18T_ls__or2_8	A->Y (FF)	0.64577	1.34404	8.71711
	B->Y (FF)	0.60954	1.31138	8.71945
sky130_osu_sc_18T_ls__or2_l	A->Y (FF)	0.24916	1.03503	7.07118
	B->Y (FF)	0.21308	0.99594	6.86150

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__or2_1	A	0.00000	0.00000	0.00000
	A	0.00760	0.00676	0.00949
	B	0.00000	0.00000	0.00000
	B	0.00558	0.00481	0.00850
sky130_osu_sc_18T_ls__or2_2	A	0.00000	0.00000	0.00000
	A	0.01305	0.01266	0.01526
	B	0.00000	0.00000	0.00000
	B	0.01103	0.01078	0.01429
sky130_osu_sc_18T_ls__or2_4	A	0.00000	0.00000	0.00000
	A	0.02477	0.02531	0.02792
	B	0.00000	0.00000	0.00000
	B	0.02275	0.02357	0.02686
sky130_osu_sc_18T_ls__or2_8	A	0.00000	0.00000	0.00000
	A	0.04815	0.04988	0.05424
	B	0.00000	0.00000	0.00000
	B	0.04594	0.04840	0.05318
sky130_osu_sc_18T_ls__or2_l	A	0.00000	0.00000	0.00000
	A	0.00551	0.00486	0.00676
	B	0.00000	0.00000	0.00000
	B	0.00420	0.00363	0.00619

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__or2_1	A	0.00000	0.00000	0.00000
	A	0.01579	0.01584	0.01722
	B	0.00000	0.00000	0.00000
	B	0.01302	0.01325	0.01690
sky130_osu_sc_18T_ls__or2_2	A	0.00000	0.00000	0.00000
	A	0.01920	0.02009	0.02136
	B	0.00000	0.00000	0.00000
	B	0.01644	0.01741	0.02088
sky130_osu_sc_18T_ls__or2_4	A	0.00000	0.00000	0.00000
	A	0.02759	0.02986	0.03157
	B	0.00000	0.00000	0.00000
	B	0.02478	0.02697	0.03083
sky130_osu_sc_18T_ls__or2_8	A	0.00000	0.00000	0.00000
	A	0.04538	0.04828	0.05201
	B	0.00000	0.00000	0.00000
	B	0.04265	0.04540	0.05086
sky130_osu_sc_18T_ls__or2_l	A	0.00000	0.00000	0.00000
	A	0.01177	0.01171	0.01266
	B	0.00000	0.00000	0.00000
	B	0.00984	0.00994	0.01249

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__or2_1	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00420	-0.00459	-0.00458
sky130_osu_sc_18T_ls__or2_2	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00419	-0.00459	-0.00458
sky130_osu_sc_18T_ls__or2_4	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00419	-0.00459	-0.00458
sky130_osu_sc_18T_ls__or2_8	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00419	-0.00459	-0.00458
sky130_osu_sc_18T_ls__or2_l	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00292	-0.00320	-0.00317

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__or2_1	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00455	0.00459	0.00458
sky130_osu_sc_18T_ls__or2_2	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00455	0.00459	0.00458
sky130_osu_sc_18T_ls__or2_4	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00455	0.00459	0.00458
sky130_osu_sc_18T_ls__or2_8	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00455	0.00459	0.00458
sky130_osu_sc_18T_ls__or2_l	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00315	0.00320	0.00317

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__or2_1	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00219	-0.00222	-0.00220
sky130_osu_sc_18T_ls__or2_2	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00219	-0.00222	-0.00220
sky130_osu_sc_18T_ls__or2_4	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00218	-0.00222	-0.00220
sky130_osu_sc_18T_ls__or2_8	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00218	-0.00222	-0.00220
sky130_osu_sc_18T_ls__or2_l	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00155	-0.00157	-0.00156

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__or2_1	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00232	0.00234	0.00225
sky130_osu_sc_18T_ls__or2_2	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00232	0.00235	0.00225
sky130_osu_sc_18T_ls__or2_4	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00232	0.00235	0.00225
sky130_osu_sc_18T_ls__or2_8	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00232	0.00235	0.00225
sky130_osu_sc_18T_ls__or2_l	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00166	0.00166	0.00159

SKY130_OSU_SC_18T_LS__TBUFIx

sky130_osu_sc_18T_ls_ss_1P60_100C.ccs
Cell Library: Process , Voltage 1.60,
Temp 100.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__tbufi_1	12.45420
sky130_osu_sc_18T_ls__tbufi_l	12.45420

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	OE	Y
sky130_osu_sc_18T_ls__tbufi_1	0.00625	0.00779	0.77123
sky130_osu_sc_18T_ls__tbufi_l	0.00473	0.00593	0.52600

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__tbufi_1	0.00000	0.01259	0.01376
sky130_osu_sc_18T_ls__tbufi_l	0.00000	0.00859	0.01000

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__tbufi_1	A->Y (FR)	0.08795	1.19499	11.96680
	OE->Y (FR)	0.08682	0.40304	4.68894
	OE->Y (RR)	0.15570	1.08480	7.81722
sky130_osu_sc_18T_ls__tbufi_l	A->Y (FR)	0.10547	1.32027	11.91510
	OE->Y (FR)	0.09251	0.41204	4.68872
	OE->Y (RR)	0.17295	1.22314	7.88590

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__tbufi_1	A->Y (RF)	0.05744	0.80089	8.23111
	OE->Y (FF)	0.08880	0.40644	4.68903
	OE->Y (RF)	0.05306	0.76206	7.71346
sky130_osu_sc_18T_ls__tbufi_l	A->Y (RF)	0.06834	0.88107	8.31083
	OE->Y (FF)	0.09410	0.41768	4.68878
	OE->Y (RF)	0.06399	0.84462	7.78921

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__tbufi_1	A	0.00000	0.00000	0.00000
	A	0.00702	0.00689	0.00725
	OE	0.00000	0.00000	0.00000
	OE	0.00724	0.00647	0.01030
sky130_osu_sc_18T_ls__tbufi_l	A	0.00000	0.00000	0.00000
	A	0.00524	0.00512	0.00533
	OE	0.00000	0.00000	0.00000
	OE	0.00514	0.00456	0.00727

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__tbufi_1	A	0.00000	0.00000	0.00000
	A	-0.00116	-0.00117	-0.00101
	OE	0.00000	0.00000	0.00000
	OE	0.00492	0.00415	0.00809
sky130_osu_sc_18T_ls__tbufi_l	A	0.00000	0.00000	0.00000
	A	-0.00072	-0.00075	-0.00067
	OE	0.00000	0.00000	0.00000
	OE	0.00342	0.00283	0.00557

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__tbufi_1	(!OE * Y)	0.00000	0.00000	0.00000
	(!OE * Y)	-0.00350	-0.00356	-0.00351
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	-0.00307	-0.00313	-0.00308
sky130_osu_sc_18T_ls__tbufi_l	(!OE * Y)	0.00000	0.00000	0.00000
	(!OE * Y)	-0.00258	-0.00262	-0.00259
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	-0.00229	-0.00232	-0.00230

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__tbufi_1	(!OE * Y)	0.00000	0.00000	0.00000
	(!OE * Y)	0.00350	0.00356	0.00351
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	0.00317	0.00321	0.00315
sky130_osu_sc_18T_ls__tbufi_l	(!OE * Y)	0.00000	0.00000	0.00000
	(!OE * Y)	0.00258	0.00262	0.00259
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	0.00236	0.00238	0.00234

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__tbufi_1	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00285	0.00212	0.00602
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00255	0.00180	0.00571
sky130_osu_sc_18T_ls__tbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00195	0.00140	0.00410
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00172	0.00116	0.00386

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__tbufi_1	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00786	0.00728	0.01135
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00815	0.00758	0.01154
sky130_osu_sc_18T_ls__tbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00605	0.00561	0.00835
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00627	0.00596	0.00853

SKY130_OSU_SC_18T_LS__TNBUFIx

sky130_osu_sc_18T_ls_ss_1P60_100C.ccs
Cell Library: Process , Voltage 1.60,
Temp 100.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__tnbufi_1	12.45420
sky130_osu_sc_18T_ls__tnbufi_l	12.45420

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	OE	Y
sky130_osu_sc_18T_ls__tnbufi_1	0.00624	0.00997	0.77018
sky130_osu_sc_18T_ls__tnbufi_l	0.00473	0.00728	0.52601

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__tnbufi_1	0.00000	0.01267	0.01354
sky130_osu_sc_18T_ls__tnbufi_l	0.00000	0.00887	0.00968

Delay Information

Delay(ns) to Y rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__tnbufi_1	A->Y (FR)	0.08888	1.19453	11.95670
	OE->Y (RR)	0.04531	0.39665	4.69029
	OE->Y (FR)	0.11178	1.21622	11.76160
sky130_osu_sc_18T_ls__tnbufi_l	A->Y (FR)	0.10658	1.32035	11.91530
	OE->Y (RR)	0.04866	0.39684	4.69038
	OE->Y (FR)	0.12525	1.33742	11.70790

Delay(ns) to Y falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_osu_sc_18T_ls__tnbufi_1	A->Y (RF)	0.05664	0.80027	8.22611
	OE->Y (RF)	0.04494	0.39660	4.69025
	OE->Y (FF)	0.10242	0.78189	5.63248
sky130_osu_sc_18T_ls__tnbufi_l	A->Y (RF)	0.06733	0.88067	8.31057
	OE->Y (RF)	0.04799	0.39683	4.69043
	OE->Y (FF)	0.11794	0.87468	5.71254

Power Information

Internal switching power(pJ) to Y rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__tnbufi_1	A	0.00000	0.00000	0.00000
	A	0.00717	0.00704	0.00740
	OE	0.00000	0.00000	0.00000
	OE	0.01745	0.01732	0.02199
sky130_osu_sc_18T_ls__tnbufi_l	A	0.00000	0.00000	0.00000
	A	0.00539	0.00528	0.00549
	OE	0.00000	0.00000	0.00000
	OE	0.01275	0.01260	0.01574

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__tnbufi_1	A	0.00000	0.00000	0.00000
	A	-0.00136	-0.00135	-0.00119
	OE	0.00000	0.00000	0.00000
	OE	0.01538	0.01531	0.01954
sky130_osu_sc_18T_ls__tnbufi_l	A	0.00000	0.00000	0.00000
	A	-0.00091	-0.00093	-0.00085
	OE	0.00000	0.00000	0.00000
	OE	0.01121	0.01115	0.01402

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__tnbufi_1	(OE * Y)	0.00000	0.00000	0.00000
	(OE * Y)	-0.00305	-0.00310	-0.00306
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	-0.00266	-0.00272	-0.00268
sky130_osu_sc_18T_ls__tnbufi_l	(OE * Y)	0.00000	0.00000	0.00000
	(OE * Y)	-0.00216	-0.00220	-0.00216
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	-0.00190	-0.00194	-0.00191

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__tnbufi_1	(OE * Y)	0.00000	0.00000	0.00000
	(OE * Y)	0.00305	0.00310	0.00306
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	0.00275	0.00278	0.00273
sky130_osu_sc_18T_ls__tnbufi_l	(OE * Y)	0.00000	0.00000	0.00000
	(OE * Y)	0.00216	0.00220	0.00216
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	0.00195	0.00197	0.00194

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__tnbufi_1	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	-0.00552	-0.00669	-0.00255
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00531	-0.00657	-0.00246
sky130_osu_sc_18T_ls__tnbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	-0.00377	-0.00460	-0.00173
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00363	-0.00451	-0.00169

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__tnbufi_1	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.01307	0.01294	0.01752
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.01284	0.01268	0.01729
sky130_osu_sc_18T_ls__tnbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00958	0.00954	0.01251
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00940	0.00928	0.01239

SKY130_OSU_SC_18T_LS__XNOR2

sky130_osu_sc_18T_ls_ss_1P60_100C.ccs
Cell Library: Process , Voltage 1.60,
Temp 100.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__xnor2_l	21.24540

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	B	Y
sky130_osu_sc_18T_ls__xnor2_l	0.01236	0.01135	0.78268

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__xnor2_l	0.00000	0.02109	0.02575

Delay Information

Delay(ns) to Y rising (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_18T_ls__xnor2_l	A->Y (RR)	B	0.19761	1.15142	8.07214
	A->Y (FR)	!B	0.11895	1.23328	12.07840
	B->Y (RR)	A	0.15733	1.11032	8.00151
	B->Y (FR)	!A	0.15457	1.26234	11.88690

Delay(ns) to Y falling (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_18T_ls__xnor2_l	A->Y (FF)	B	0.18523	0.94245	6.25655
	A->Y (RF)	!B	0.08309	0.80121	7.92482
	B->Y (FF)	A	0.16057	0.91714	6.23574
	B->Y (RF)	!A	0.10288	0.82914	7.95059

Power Information

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

Cell Name	Input	When	Power(pJ)		
			first	mid	last
sky130_osu_sc_18T_ls__xnor2_l	A	B	0.00000	0.00000	0.00000
	A	B	0.00706	0.00613	0.00972
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.01708	0.01659	0.02102
	B	A	0.00000	0.00000	0.00000
	B	A	0.00234	0.00161	0.00542
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01903	0.01856	0.02297

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

Cell Name	Input	When	Power(pJ)		
			first	mid	last
sky130_osu_sc_18T_ls__xnor2_l	A	B	0.00000	0.00000	0.00000
	A	B	0.02099	0.02020	0.02381
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00478	0.00380	0.00764
	B	A	0.00000	0.00000	0.00000
	B	A	0.01923	0.01929	0.02335
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00574	0.00460	0.00842

SKY130_OSU_SC_18T_LS__XOR2

sky130_osu_sc_18T_ls_ss_1P60_100C.ccs
Cell Library: Process , Voltage 1.60,
Temp 100.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__xor2_l	21.24540

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	A	B	Y
sky130_osu_sc_18T_ls__xor2_l	0.01232	0.01140	0.76894

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__xor2_l	0.00000	0.02109	0.02597

Delay Information

Delay(ns) to Y rising (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_18T_ls__xor2_l	A->Y (RR)	!B	0.18865	1.12598	7.92673
	A->Y (FR)	B	0.14049	1.24010	11.78930
	B->Y (RR)	!A	0.16115	1.10614	7.92039
	B->Y (FR)	A	0.15354	1.25582	11.79470

Delay(ns) to Y falling (conditional):

Cell Name	Timing Arc(Dir)	When	Delay(ns)		
			First	Mid	Last
sky130_osu_sc_18T_ls__xor2_l	A->Y (FF)	!B	0.16156	0.90141	6.04645
	A->Y (RF)	B	0.08351	0.83664	8.25280
	B->Y (FF)	!A	0.15292	0.89565	6.05211
	B->Y (RF)	A	0.09585	0.80880	7.74606

Power Information

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

Cell Name	Input	When	Power(pJ)		
			first	mid	last
sky130_osu_sc_18T_ls__xor2_l	A	B	0.00000	0.00000	0.00000
	A	B	0.01990	0.01947	0.02386
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00350	0.00198	0.00558
	B	A	0.00000	0.00000	0.00000
	B	A	0.02059	0.02022	0.02464
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00197	0.00120	0.00509

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

Cell Name	Input	When	Power(pJ)		
			first	mid	last
sky130_osu_sc_18T_ls__xor2_l	A	B	0.00000	0.00000	0.00000
	A	B	0.00395	0.00263	0.00667
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.02148	0.02137	0.02523
	B	A	0.00000	0.00000	0.00000
	B	A	0.00396	0.00277	0.00663
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01958	0.01972	0.02381

SKY130_OSU_SC_18T_LS_x

sky130_osu_sc_18T_ls_ss_1P60_100C.ccs
Cell Library: Process , Voltage 1.60,
Temp 100.00

Truth Table

INPUT
A
x

Footprint

Cell Name	Area
sky130_osu_sc_18T_ls__ant	6.59340
sky130_osu_sc_18T_ls__tiehi	6.59340
sky130_osu_sc_18T_ls__tielo	6.59340

Pin Capacitance Information

Cell Name	Pin Cap(pf)
	A
sky130_osu_sc_18T_ls__ant	0.34863
sky130_osu_sc_18T_ls__tiehi	0.00000
sky130_osu_sc_18T_ls__tielo	0.00000

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__ant	0.00000	149823.00000	299646.00000
sky130_osu_sc_18T_ls__tiehi	0.00000	0.00000	0.00000
sky130_osu_sc_18T_ls__tielo	0.00000	0.00000	0.00000

Passive Power Information

Passive power(pJ) for A rising :

Cell Name	Power(pJ)		
	first	mid	last
sky130_osu_sc_18T_ls__ant	0.00000	0.00000	0.00000
	-0.00337	0.03652	0.45151

Passive power(pJ) for A falling :

Cell Name	Power(pJ)		
	first	mid	last
sky130_osu_sc_18T_ls__ant	0.00000	0.00000	0.00000
	2.60918	2.44443	0.57117