sky130_osu_sc_18T_ls_ff_1P95_-40C.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_ff_1P95_-40C.ccs
Cell Library: Process , Voltage 1.95,
Temp -40.00

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	0.02064	0.02060	0.01581	3.48350	1.68252	3.34412
sky130_osu_sc_18T_ls__addf_l	0.02063	0.02059	0.01580	2.39984	1.68295	2.38819

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__addf_1	0.00000	0.00993	0.01257
sky130_osu_sc_18T_ls__addf_l	0.00000	0.00864	0.01249

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)	0.10448	1.42677	24.40680
	B->CO (RR)	0.09061	1.34595	23.04900
	CI->CO (RR)	0.09982	1.45400	24.84390
	CON->CO (FR)	0.02337	0.69881	11.47710
sky130_osu_sc_18T_ls__addf_1	A->CO (RR)	0.10508	1.33075	19.84670
	B->CO (RR)	0.09144	1.26774	18.93380
	CI->CO (RR)	0.10041	1.36067	20.33750
	CON->CO (FR)	0.02589	0.75448	11.42840

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)	0.14185	1.77135	29.78740
	B->CO (FF)	0.12340	1.68456	28.51420
	CI->CO (FF)	0.12184	1.76843	30.07310
	CON->CO (RF)	0.01826	0.51888	8.71899
sky130_osu_sc_18T_ls__addf_1	A->CO (FF)	0.13824	1.59088	23.34880
	B->CO (FF)	0.12004	1.51845	22.53150
	CI->CO (FF)	0.11822	1.58801	23.65420
	CON->CO (RF)	0.01919	0.53145	8.12893

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)	0.11538	0.87203	10.96280
	B->CON (FR)	0.09699	0.82617	10.67450
	CI->CON (FR)	0.09538	0.87079	11.29070
sky130_osu_sc_18T_ls__addf_l	A->CON (FR)	0.10956	0.86646	10.95380
	B->CON (FR)	0.09170	0.82118	10.66920
	CI->CON (FR)	0.08954	0.86526	11.28650

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)	0.06265	0.51154	6.44267
	B->CON (RF)	0.04995	0.48779	6.29081
	CI->CON (RF)	0.05798	0.54306	6.97447
sky130_osu_sc_18T_ls__addf_l	A->CON (RF)	0.06054	0.50926	6.44138
	B->CON (RF)	0.04810	0.48560	6.28960
	CI->CON (RF)	0.05587	0.54080	6.97314

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)	0.20830	1.60236	23.52740
	B->S (-R)	0.21060	1.57705	22.51980
	CI->S (-R)	0.18705	1.59689	23.81440
	CON->S (RR)	0.06292	0.50430	6.65931
sky130_osu_sc_18T_ls__addf_l	A->S (-R)	0.19966	1.50565	19.93080
	B->S (-R)	0.20252	1.49222	19.27620
	CI->S (-R)	0.17841	1.50068	20.23770
	CON->S (RR)	0.06272	0.54784	6.61545

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)	0.16611	1.25556	18.01980
	B->S (-F)	0.16753	1.21106	17.26150
	CI->S (-F)	0.16119	1.28042	18.46410
	CON->S (FF)	0.07165	0.60080	7.40399
sky130_osu_sc_18T_ls__addf_l	A->S (-F)	0.15700	1.14898	14.78790
	B->S (-F)	0.15890	1.11980	14.32830
	CI->S (-F)	0.15201	1.17672	15.27920
	CON->S (FF)	0.06854	0.60761	7.06321

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	0.00467	0.00553	0.03006
	B	0.00549	0.00625	0.02672
	CI	0.00760	0.00863	0.03354
sky130_osu_sc_18T_ls__addf_l	A	0.00348	0.00411	0.02012
	B	0.00432	0.00487	0.01830
	CI	0.00641	0.00710	0.02385

Internal switching power(pJ) to CO falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__addf_1	A	0.02008	0.02161	0.06351
	B	0.02102	0.02221	0.05770
	CI	0.01682	0.01844	0.06124
sky130_osu_sc_18T_ls__addf_l	A	0.01891	0.01997	0.04764
	B	0.01984	0.02065	0.04395
	CI	0.01563	0.01683	0.04584

Internal switching power(pJ) to CON rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__addf_1	A	0.02006	0.02089	0.04049
	B	0.02042	0.02111	0.03736
	CI	0.01680	0.01780	0.03816
sky130_osu_sc_18T_ls__addf_l	A	0.01888	0.01965	0.03886
	B	0.01926	0.01985	0.03577
	CI	0.01562	0.01655	0.03651

Internal switching power(pJ) to CON falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__addf_1	A	0.00527	0.00529	0.01440
	B	0.00547	0.00584	0.01610
	CI	0.00756	0.00829	0.02178
sky130_osu_sc_18T_ls__addf_l	A	0.00411	0.00402	0.01266
	B	0.00431	0.00455	0.01482
	CI	0.00638	0.00699	0.02000

Internal switching power(pJ) to S rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__addf_1	A	0.02007	0.02158	0.06141
	B	0.02101	0.02217	0.05635
	CI	0.01682	0.01842	0.05907
sky130_osu_sc_18T_ls__addf_l	A	0.01890	0.01997	0.04726
	B	0.01984	0.02065	0.04401
	CI	0.01563	0.01683	0.04543

Internal switching power(pJ) to S falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__addf_1	A	0.04536	0.04573	0.07217
	B	0.03976	0.04075	0.08391
	CI	0.03652	0.03639	0.06560
sky130_osu_sc_18T_ls__addf_l	A	0.04374	0.04386	0.07155
	B	0.03820	0.03925	0.08430
	CI	0.03502	0.03490	0.06530

SKY130_OSU_SC_18T_LS__ADDHx

sky130_osu_sc_18T_ls_ff_1P95_-40C.ccs
Cell Library: Process , Voltage 1.95,
Temp -40.00

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	0.01009	0.01108	3.40767	1.83045	3.47150
sky130_osu_sc_18T_ls__addh_l	0.01009	0.01108	1.97425	1.83078	2.00595

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__addh_1	0.00000	0.01014	0.01208
sky130_osu_sc_18T_ls__addh_l	0.00000	0.01896	0.02228

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)	0.07009	0.49541	6.32493
	B->CO (RR)	0.07309	0.49822	6.41493
sky130_osu_sc_18T_ls__addh_l	A->CO (RR)	0.07287	0.57881	6.39144
	B->CO (RR)	0.07588	0.58269	6.45399

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)	0.06334	0.57744	7.41352
	B->CO (FF)	0.06871	0.59003	7.41859
sky130_osu_sc_18T_ls__addh_l	A->CO (FF)	0.06253	0.59133	6.69055
	B->CO (FF)	0.06764	0.60358	6.69547

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	0.09869	0.40028	3.09444
	A->CON (FR)	!B	0.06108	0.81222	11.13750
	B->CON (RR)	A	0.10179	0.40303	3.19095
	B->CON (FR)	!A	0.07721	0.82008	10.98850
sky130_osu_sc_18T_ls__addh_l	A->CON (RR)	B	0.08865	0.38045	3.07904
	A->CON (FR)	!B	0.05434	0.80494	11.13170
	B->CON (RR)	A	0.09177	0.38417	3.14256
	B->CON (FR)	!A	0.07049	0.81266	10.98220

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	0.09488	0.58832	6.02454
	A->CON (RF)	!B	0.03695	0.51616	7.06377
	B->CON (FF)	A	0.09446	0.62348	6.45008
	B->CON (RF)	!A	0.04277	0.49060	6.54982
sky130_osu_sc_18T_ls__addh_l	A->CON (FF)	B	0.08647	0.56257	5.86475
	A->CON (RF)	!B	0.03442	0.51350	7.06170
	B->CON (FF)	A	0.08599	0.59774	6.28048
	B->CON (RF)	!A	0.04031	0.48758	6.54810

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	0.07478	1.38187	24.01630
	A->S (FR)	B	0.13269	1.42811	22.53950
	B->S (RR)	!A	0.08021	1.30661	22.48930
	B->S (FR)	A	0.13332	1.51299	24.00110
	CON->S (FR)	-	0.02666	0.72400	11.86300
sky130_osu_sc_18T_ls__addh_l	A->S (RR)	!B	0.07652	1.28352	18.42930
	A->S (FR)	B	0.12865	1.31531	16.96480
	B->S (RR)	!A	0.08209	1.22378	17.43030
	B->S (FR)	A	0.12923	1.38527	17.90530
	CON->S (FR)	-	0.03085	0.83084	12.06080

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	0.08512	1.59884	27.59410
	A->S (RF)	B	0.12130	1.00708	15.29980
	B->S (FF)	!A	0.10129	1.60897	27.49330
	B->S (RF)	A	0.12436	1.00937	15.39140
	CON->S (RF)	-	0.01697	0.50219	8.40470
sky130_osu_sc_18T_ls__addh_l	A->S (FF)	!B	0.08098	1.37932	19.76890
	A->S (RF)	B	0.11310	0.86597	10.30400
	B->S (FF)	!A	0.09713	1.38812	19.62910
	B->S (RF)	A	0.11620	0.86967	10.36250
	CON->S (RF)	-	0.01868	0.52299	7.66677

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	0.00921	0.00924	0.02135
	B	0.00000	0.00000	0.00000
	B	0.00823	0.00796	0.02286
sky130_osu_sc_18T_ls__addh_l	A	0.00000	0.00000	0.00000
	A	0.00757	0.00756	0.02378
	B	0.00000	0.00000	0.00000
	B	0.00659	0.00629	0.02405

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	0.01429	0.01447	0.03439
	B	0.00000	0.00000	0.00000
	B	0.01491	0.01600	0.03704
sky130_osu_sc_18T_ls__addh_l	A	0.00000	0.00000	0.00000
	A	0.01265	0.01286	0.03277
	B	0.00000	0.00000	0.00000
	B	0.01326	0.01418	0.03411

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	0.00921	0.00933	0.02222
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.01264	0.01299	0.01896
	B	A	0.00000	0.00000	0.00000
	B	A	0.00823	0.00807	0.02410
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01421	0.01422	0.01803
sky130_osu_sc_18T_ls__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.00757	0.00757	0.02370
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.01150	0.01176	0.01641
	B	A	0.00000	0.00000	0.00000
	B	A	0.00659	0.00629	0.02389
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01309	0.01298	0.01560

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	0.01429	0.01451	0.03376
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00172	0.00193	0.00542
	B	A	0.00000	0.00000	0.00000
	B	A	0.01490	0.01596	0.03663
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00309	0.00307	0.00746
sky130_osu_sc_18T_ls__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.01265	0.01287	0.03254
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00033	0.00021	0.00266
	B	A	0.00000	0.00000	0.00000
	B	A	0.01326	0.01418	0.03395
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00170	0.00159	0.00443

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	0.01430	0.01449	0.03444
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00174	0.00199	0.00623
	B	A	0.00000	0.00000	0.00000
	B	A	0.01491	0.01604	0.03725
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00311	0.00320	0.00652
sky130_osu_sc_18T_ls__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.01266	0.01288	0.03273
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00034	0.00040	0.00251
	B	A	0.00000	0.00000	0.00000
	B	A	0.01326	0.01420	0.03409
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00171	0.00155	0.00311

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	0.00922	0.00925	0.02093
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.01265	0.01313	0.02004
	B	A	0.00000	0.00000	0.00000
	B	A	0.00824	0.00798	0.02273
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01423	0.01445	0.01982
sky130_osu_sc_18T_ls__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.00757	0.00757	0.02414
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.01151	0.01180	0.01638
	B	A	0.00000	0.00000	0.00000
	B	A	0.00660	0.00630	0.02424
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.01310	0.01302	0.01560

SKY130_OSU_SC_18T_LS__AND2x

sky130_osu_sc_18T_ls_ff_1P95_-40C.ccs
Cell Library: Process , Voltage 1.95,
Temp -40.00

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	0.00546	0.00556	3.42963
sky130_osu_sc_18T_ls__and2_2	0.00546	0.00557	6.57213
sky130_osu_sc_18T_ls__and2_4	0.00547	0.00557	12.42010
sky130_osu_sc_18T_ls__and2_6	0.00551	0.00558	18.12121
sky130_osu_sc_18T_ls__and2_8	0.00549	0.00560	23.20647
sky130_osu_sc_18T_ls__and2_l	0.00424	0.00434	2.39202

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__and2_1	0.00000	0.00500	0.00794
sky130_osu_sc_18T_ls__and2_2	0.00000	0.00796	0.00806
sky130_osu_sc_18T_ls__and2_4	0.00000	0.01389	0.01579
sky130_osu_sc_18T_ls__and2_6	0.00000	0.01981	0.02360
sky130_osu_sc_18T_ls__and2_8	0.00000	0.02573	0.03141
sky130_osu_sc_18T_ls__and2_l	0.00000	0.00341	0.00539

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)	0.05377	0.43820	6.18505
	B->Y (RR)	0.05738	0.44395	6.05887
sky130_osu_sc_18T_ls__and2_2	A->Y (RR)	0.06199	0.39205	6.15125
	B->Y (RR)	0.06560	0.39556	6.03718
sky130_osu_sc_18T_ls__and2_4	A->Y (RR)	0.08521	0.40409	6.33566
	B->Y (RR)	0.08882	0.40373	6.24405
sky130_osu_sc_18T_ls__and2_6	A->Y (RR)	0.10697	0.43411	6.48893
	B->Y (RR)	0.11052	0.43023	6.41064
sky130_osu_sc_18T_ls__and2_8	A->Y (RR)	0.12933	0.46949	6.64932
	B->Y (RR)	0.13292	0.46307	6.57508
sky130_osu_sc_18T_ls__and2_l	A->Y (RR)	0.05886	0.49785	6.17930
	B->Y (RR)	0.06265	0.50325	6.06376

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)	0.04999	0.51359	6.84232
	B->Y (FF)	0.05329	0.52513	6.87619
sky130_osu_sc_18T_ls__and2_2	A->Y (FF)	0.05657	0.48392	6.80393
	B->Y (FF)	0.06044	0.49352	6.84344
sky130_osu_sc_18T_ls__and2_4	A->Y (FF)	0.07623	0.50123	6.93153
	B->Y (FF)	0.08011	0.50864	6.98019
sky130_osu_sc_18T_ls__and2_6	A->Y (FF)	0.09917	0.53323	7.05053
	B->Y (FF)	0.10285	0.53948	7.09201
sky130_osu_sc_18T_ls__and2_8	A->Y (FF)	0.11985	0.56155	7.02480
	B->Y (FF)	0.12364	0.56749	7.06535
sky130_osu_sc_18T_ls__and2_l	A->Y (FF)	0.05304	0.55177	6.68877
	B->Y (FF)	0.05723	0.56531	6.73335

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	0.00660	0.00774	0.07124
	B	0.00000	0.00000	0.00000
	B	0.00668	0.00672	0.04447
sky130_osu_sc_18T_ls__and2_2	A	0.00000	0.00000	0.00000
	A	0.01355	0.01496	0.07834
	B	0.00000	0.00000	0.00000
	B	0.01367	0.01409	0.05241
sky130_osu_sc_18T_ls__and2_4	A	0.00000	0.00000	0.00000
	A	0.02851	0.03021	0.08992
	B	0.00000	0.00000	0.00000
	B	0.02863	0.02961	0.06778
sky130_osu_sc_18T_ls__and2_6	A	0.00000	0.00000	0.00000
	A	0.04415	0.04637	0.10168
	B	0.00000	0.00000	0.00000
	B	0.04430	0.04541	0.08188
sky130_osu_sc_18T_ls__and2_8	A	0.00000	0.00000	0.00000
	A	0.06011	0.06227	0.11486
	B	0.00000	0.00000	0.00000
	B	0.06015	0.06105	0.09470
sky130_osu_sc_18T_ls__and2_l	A	0.00000	0.00000	0.00000
	A	0.00483	0.00558	0.05310
	B	0.00000	0.00000	0.00000
	B	0.00494	0.00486	0.03497

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	0.01717	0.02053	0.06935
	B	0.00000	0.00000	0.00000
	B	0.01937	0.02213	0.06753
sky130_osu_sc_18T_ls__and2_2	A	0.00000	0.00000	0.00000
	A	0.02237	0.02599	0.07515
	B	0.00000	0.00000	0.00000
	B	0.02459	0.02763	0.07336
sky130_osu_sc_18T_ls__and2_4	A	0.00000	0.00000	0.00000
	A	0.03603	0.03939	0.08855
	B	0.00000	0.00000	0.00000
	B	0.03814	0.04101	0.08640
sky130_osu_sc_18T_ls__and2_6	A	0.00000	0.00000	0.00000
	A	0.04906	0.05282	0.10279
	B	0.00000	0.00000	0.00000
	B	0.05099	0.05463	0.09900
sky130_osu_sc_18T_ls__and2_8	A	0.00000	0.00000	0.00000
	A	0.06477	0.06608	0.11663
	B	0.00000	0.00000	0.00000
	B	0.06666	0.06782	0.11115
sky130_osu_sc_18T_ls__and2_l	A	0.00000	0.00000	0.00000
	A	0.01334	0.01574	0.05095
	B	0.00000	0.00000	0.00000
	B	0.01503	0.01700	0.05057

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)	-0.00664	-0.00668	-0.00667
sky130_osu_sc_18T_ls__and2_2	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00664	-0.00669	-0.00667
sky130_osu_sc_18T_ls__and2_4	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00664	-0.00669	-0.00667
sky130_osu_sc_18T_ls__and2_6	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00667	-0.00673	-0.00671
sky130_osu_sc_18T_ls__and2_8	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00663	-0.00669	-0.00667
sky130_osu_sc_18T_ls__and2_l	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00488	-0.00490	-0.00490

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)	0.00665	0.00671	0.00669
sky130_osu_sc_18T_ls__and2_2	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00665	0.00671	0.00669
sky130_osu_sc_18T_ls__and2_4	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00666	0.00671	0.00669
sky130_osu_sc_18T_ls__and2_6	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00669	0.00675	0.00673
sky130_osu_sc_18T_ls__and2_8	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00666	0.00672	0.00669
sky130_osu_sc_18T_ls__and2_l	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00489	0.00491	0.00492

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)	-0.00625	-0.00629	-0.00627
sky130_osu_sc_18T_ls__and2_2	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00625	-0.00629	-0.00627
sky130_osu_sc_18T_ls__and2_4	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00625	-0.00628	-0.00627
sky130_osu_sc_18T_ls__and2_6	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00625	-0.00629	-0.00627
sky130_osu_sc_18T_ls__and2_8	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00625	-0.00629	-0.00627
sky130_osu_sc_18T_ls__and2_l	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00459	-0.00463	-0.00460

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)	0.00628	0.00631	0.00628
sky130_osu_sc_18T_ls__and2_2	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00628	0.00631	0.00628
sky130_osu_sc_18T_ls__and2_4	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00628	0.00631	0.00629
sky130_osu_sc_18T_ls__and2_6	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00628	0.00631	0.00628
sky130_osu_sc_18T_ls__and2_8	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00628	0.00631	0.00629
sky130_osu_sc_18T_ls__and2_l	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00460	0.00464	0.00461

SKY130_OSU_SC_18T_LS__AOI21

sky130_osu_sc_18T_ls_ff_1P95_-40C.ccs
Cell Library: Process , Voltage 1.95,
Temp -40.00

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	0.00517	0.00537	0.00522	1.68975

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__aoi21_l	0.00000	0.00209	0.00391

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)	0.06215	0.82197	10.98890
	A1->Y (FR)	0.05295	0.77839	10.50410
	B0->Y (FR)	0.04497	0.82201	11.30310

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)	0.03453	0.45985	6.08298
	A1->Y (RF)	0.03084	0.46353	6.20566
	B0->Y (RF)	0.02256	0.47187	6.46897

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	0.01561	0.01547	0.01942
	A1	0.00000	0.00000	0.00000
	A1	0.01308	0.01300	0.01708
	B0	0.00920	0.00980	0.01795

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	0.00271	0.00234	0.00650
	A1	0.00000	0.00000	0.00000
	A1	0.00278	0.00264	0.00843
	B0	-0.00175	-0.00143	0.00408

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)	-0.00558	-0.00586	-0.00584
	(!A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !Y)	-0.00590	-0.00596	-0.00592
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00590	-0.00590	-0.00592

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)	0.00581	0.00587	0.00584
	(!A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !Y)	0.00590	0.00599	0.00594
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00594	0.00599	0.00594

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)	-0.00554	-0.00579	-0.00577
	(!A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !Y)	-0.00583	-0.00589	-0.00585
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	-0.00634	-0.00640	-0.00638

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)	0.00574	0.00584	0.00577
	(!A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !Y)	0.00583	0.00590	0.00587
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	0.00635	0.00642	0.00640

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)	-0.00258	-0.00259	-0.00259

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)	0.00279	0.00280	0.00265

SKY130_OSU_SC_18T_LS__AOI22

sky130_osu_sc_18T_ls_ff_1P95_-40C.ccs
Cell Library: Process , Voltage 1.95,
Temp -40.00

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	0.00518	0.00537	0.00556	0.00532	1.58115

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__aoi22_1	0.00000	0.00268	0.00781

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)	0.07884	0.83803	10.78060
	A1->Y (FR)	0.06992	0.81129	10.54180
	B0->Y (FR)	0.04738	0.80568	10.87670
	B1->Y (FR)	0.05627	0.83731	11.19400

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)	0.04517	0.46200	5.82683
	A1->Y (RF)	0.04155	0.46564	5.94347
	B0->Y (RF)	0.02337	0.44189	5.92892
	B1->Y (RF)	0.02708	0.43893	5.81335

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	0.01926	0.01859	0.02314
	A1	0.01677	0.01658	0.02054
	B0	0.00999	0.01067	0.02091
	B1	0.01246	0.01302	0.02266

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__aoi22_l	A0	0.00604	0.00560	0.01010
	A1	0.00612	0.00588	0.01207
	B0	-0.00113	-0.00082	0.00542
	B1	-0.00099	-0.00101	0.00359

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)	-0.00561	-0.00582	-0.00583
	(!A1 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * B1 * !Y)	-0.00590	-0.00596	-0.00592
	(!A1 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !B1 * Y)	-0.00590	-0.00595	-0.00592
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00590	-0.00592	-0.00592

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)	0.00579	0.00586	0.00583
	(!A1 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * B1 * !Y)	0.00590	0.00599	0.00594
	(!A1 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !B1 * Y)	0.00593	0.00599	0.00594
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00593	0.00599	0.00594

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)	-0.00554	-0.00577	-0.00576
	(!A0 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * B1 * !Y)	-0.00583	-0.00589	-0.00585
	(!A0 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !B1 * Y)	-0.00633	-0.00639	-0.00637
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	-0.00633	-0.00639	-0.00637

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)	0.00572	0.00577	0.00576
	(!A0 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * B1 * !Y)	0.00583	0.00590	0.00587
	(!A0 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !B1 * Y)	0.00635	0.00641	0.00639
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	0.00635	0.00641	0.00639

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)	-0.00259	-0.00261	-0.00260
	(A0 * A1 * !B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B1 * !Y)	-0.00258	-0.00260	-0.00259
	(!A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B1 * Y)	-0.00650	-0.00651	-0.00654
	(!A0 * A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B1 * Y)	-0.00650	-0.00652	-0.00654

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)	0.00289	0.00290	0.00267
	(A0 * A1 * !B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B1 * !Y)	0.00259	0.00260	0.00259
	(!A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B1 * Y)	0.00651	0.00658	0.00655
	(!A0 * A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B1 * Y)	0.00651	0.00658	0.00655

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)	-0.00261	-0.00262	-0.00262
	(A0 * A1 * !B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B0 * !Y)	-0.00260	-0.00262	-0.00261
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00600	-0.00604	-0.00601
	(!A0 * A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B0 * Y)	-0.00600	-0.00604	-0.00601

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)	0.00290	0.00292	0.00269
	(A0 * A1 * !B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B0 * !Y)	0.00261	0.00262	0.00261
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00602	0.00604	0.00603
	(!A0 * A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B0 * Y)	0.00602	0.00604	0.00603

SKY130_OSU_SC_18T_LS__BUFx

sky130_osu_sc_18T_ls_ff_1P95_-40C.ccs
Cell Library: Process , Voltage 1.95,
Temp -40.00

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	0.00557	3.43520
sky130_osu_sc_18T_ls__buf_2	0.00557	6.66622
sky130_osu_sc_18T_ls__buf_4	0.00557	12.63000
sky130_osu_sc_18T_ls__buf_6	0.00097	1.80000
sky130_osu_sc_18T_ls__buf_8	0.00560	23.81491
sky130_osu_sc_18T_ls__buf_l	0.00438	2.38416

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__buf_1	0.00000	0.00403	0.00403
sky130_osu_sc_18T_ls__buf_2	0.00000	0.00605	0.00794
sky130_osu_sc_18T_ls__buf_4	0.00000	0.01008	0.01575
sky130_osu_sc_18T_ls__buf_6	0.00000	0.00000	0.00000
sky130_osu_sc_18T_ls__buf_8	0.00000	0.01814	0.03137
sky130_osu_sc_18T_ls__buf_l	0.00000	0.00274	0.00274

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)**	0.04466	0.41794	6.04562
sky130_osu_sc_18T_ls__buf_2	**A->Y (RR)**	0.05007	0.36563	6.03941
sky130_osu_sc_18T_ls__buf_4	**A->Y (RR)**	0.06784	0.36670	6.18754
sky130_osu_sc_18T_ls__buf_8	**A->Y (RR)**	0.10139	0.41735	6.46501
sky130_osu_sc_18T_ls__buf_l	**A->Y (RR)**	0.04914	0.47264	5.95432

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)**	0.04744	0.50610	6.85207
sky130_osu_sc_18T_ls__buf_2	**A->Y (FF)**	0.05464	0.48121	6.91200
sky130_osu_sc_18T_ls__buf_4	**A->Y (FF)**	0.07437	0.49848	7.02205
sky130_osu_sc_18T_ls__buf_8	**A->Y (FF)**	0.11776	0.56017	7.16729
sky130_osu_sc_18T_ls__buf_l	**A->Y (FF)**	0.05113	0.54609	6.67545

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	0.00603	0.00717	0.05246
sky130_osu_sc_18T_ls__buf_2	A	0.00000	0.00000	0.00000
	A	0.01302	0.01429	0.06091
sky130_osu_sc_18T_ls__buf_4	A	0.00000	0.00000	0.00000
	A	0.02789	0.02985	0.07761
sky130_osu_sc_18T_ls__buf_8	A	0.00000	0.00000	0.00000
	A	0.05825	0.06125	0.10618
sky130_osu_sc_18T_ls__buf_l	A	0.00000	0.00000	0.00000
	A	0.00454	0.00531	0.04211

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	0.01642	0.01957	0.06656
sky130_osu_sc_18T_ls__buf_2	A	0.00000	0.00000	0.00000
	A	0.02157	0.02478	0.07185
sky130_osu_sc_18T_ls__buf_4	A	0.00000	0.00000	0.00000
	A	0.03513	0.03795	0.08466
sky130_osu_sc_18T_ls__buf_8	A	0.00000	0.00000	0.00000
	A	0.06402	0.06415	0.11083
sky130_osu_sc_18T_ls__buf_l	A	0.00000	0.00000	0.00000
	A	0.01288	0.01512	0.04985

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
	-0.00088	-0.00089	-0.00088

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
	0.00088	0.00089	0.00088

SKY130_OSU_SC_18T_LS__DFFRx

sky130_osu_sc_18T_ls_ff_1P95_-40C.ccs
Cell Library: Process , Voltage 1.95,
Temp -40.00

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	0.00533	0.00530	0.01519	3.30174	3.27702
sky130_osu_sc_18T_ls__dffr_l	0.00533	0.00530	0.01516	2.39482	2.39290

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__dffr_1	0.00000	0.01497	0.02056
sky130_osu_sc_18T_ls__dffr_l	0.00000	0.01368	0.01927

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)	0.20062	1.07379	14.96760
	QN->Q (FR)	0.02778	0.79351	12.93290
sky130_osu_sc_18T_ls__dffr_l	CK->Q (RR)	0.19602	1.15108	14.50240
	QN->Q (FR)	0.02885	0.82578	12.52840

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)	0.20853	1.06455	14.69820
	QN->Q (RF)	0.02160	0.63230	10.34010
	RN->Q (FF)	0.15736	1.19527	17.19710
sky130_osu_sc_18T_ls__dffr_l	CK->Q (RF)	0.21014	1.15960	14.42460
	QN->Q (RF)	0.02151	0.62518	9.49800
	RN->Q (FF)	0.15922	1.28932	16.91630

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)	0.18579	0.57942	6.01036
	RN->QN (FR)	0.13462	0.70946	8.50695
sky130_osu_sc_18T_ls__dffr_l	CK->QN (RR)	0.18586	0.63189	6.10718
	RN->QN (FR)	0.13491	0.76154	8.59790

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)**	0.16607	0.49047	4.58083
sky130_osu_sc_18T_ls__dffr_l	**CK->QN (RF)**	0.15906	0.50239	4.31361

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)	-0.04333	-0.05828	-0.09449
	setup	CK (R)	0.15756	0.20481	0.41831
sky130_osu_sc_18T_ls__dffr_l	hold	CK (R)	-0.04333	-0.05828	-0.09479
	setup	CK (R)	0.15812	0.20602	0.42048

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)	-0.08417	-0.31877	-4.12572
	setup	CK (R)	0.10846	0.33072	4.17800
sky130_osu_sc_18T_ls__dffr_l	hold	CK (R)	-0.08752	-0.31877	-4.12558
	setup	CK (R)	0.10846	0.33072	4.17673

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)	-0.04333	-0.05828	-0.09449
	setup	CK (R)	0.15756	0.20481	0.41831
sky130_osu_sc_18T_ls__dffr_l	hold	CK (R)	-0.04333	-0.05828	-0.09479
	setup	CK (R)	0.15812	0.20602	0.42048

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)	-0.08417	-0.31877	-4.12572
	setup	CK (R)	0.10846	0.33072	4.17800
sky130_osu_sc_18T_ls__dffr_l	hold	CK (R)	-0.08752	-0.31877	-4.12558
	setup	CK (R)	0.10846	0.33072	4.17673

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)	0.13340	0.17607	0.64681
	removal	CK (R)	-0.02267	-0.02789	-0.08289
sky130_osu_sc_18T_ls__dffr_l	recovery	CK (R)	0.13390	0.17723	0.64697
	removal	CK (R)	-0.02267	-0.02789	-0.08289

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)	0.13340	0.17607	0.64681
	removal	CK (R)	-0.02267	-0.02789	-0.08289
sky130_osu_sc_18T_ls__dffr_l	recovery	CK (R)	0.13390	0.17723	0.64697
	removal	CK (R)	-0.02267	-0.02789	-0.08289

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 ()	0.09421	0.48096	13.33370
	min_pulse_width	RN ()	0.09421	0.48096	13.33370
sky130_osu_sc_18T_ls__dffr_l	min_pulse_width	RN ()	0.09060	0.48096	13.33370
	min_pulse_width	RN ()	0.09060	0.48096	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 ()	0.09060	0.48096	13.33370
	min_pulse_width	CK ()	0.10506	0.48096	13.33370
sky130_osu_sc_18T_ls__dffr_l	min_pulse_width	CK ()	0.08337	0.48096	13.33370
	min_pulse_width	CK ()	0.10144	0.48096	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 ()	0.20626	0.48096	13.33370
	min_pulse_width	CK ()	0.08698	0.48096	13.33370
sky130_osu_sc_18T_ls__dffr_l	min_pulse_width	CK ()	0.20988	0.48096	13.33370
	min_pulse_width	CK ()	0.08698	0.48096	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	0.01618	0.00939	0.00000
sky130_osu_sc_18T_ls__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.01431	0.01018	-0.00799

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	0.01907	0.01495	0.00000
	RN	-0.00214	-0.17001	-3.13869
	RN	0.04429	0.04082	-0.00134
sky130_osu_sc_18T_ls__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.01721	0.01473	0.00799
	RN	-0.00214	-0.14022	-2.27657
	RN	0.04241	0.04054	0.03549

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	0.01907	0.01496	0.00000
	RN	-0.00214	-0.16925	-3.11499
	RN	0.04428	0.04077	-0.00076
sky130_osu_sc_18T_ls__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.01720	0.01473	0.00851
	RN	-0.00214	-0.14015	-2.27472
	RN	0.04240	0.04056	0.03456

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	0.01613	0.00941	0.00000
sky130_osu_sc_18T_ls__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.01426	0.01016	-0.00851

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	-0.00533	-0.00581	-0.00579
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.02042	0.02008	0.05774
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.00906	0.00888	0.04672
sky130_osu_sc_18T_ls__dffr_l	CK	0.00000	0.00000	0.00000
	CK	-0.00533	-0.00581	-0.00579
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.02042	0.02008	0.05774
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.00906	0.00888	0.04672

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	0.00575	0.00581	0.00579
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.03452	0.03448	0.07215
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.01616	0.01615	0.05319
sky130_osu_sc_18T_ls__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.00575	0.00581	0.00579
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.03452	0.03448	0.07215
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.01616	0.01615	0.05319

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)	0.00616	0.00731	0.07659
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.01794	0.01863	0.08869
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)	0.00616	0.00731	0.07659
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.01794	0.01863	0.08869

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)	0.01533	0.01762	0.08682
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.03320	0.03470	0.10509
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)	0.01533	0.01762	0.08682
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.03320	0.03471	0.10509

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)	-0.00146	-0.00059	0.06805
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.00993	0.00914	0.07968
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	-0.00211	-0.00078	0.06691
sky130_osu_sc_18T_ls__dffr_l	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	-0.00147	-0.00059	0.06805
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.00993	0.00914	0.07968
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	-0.00211	-0.00078	0.06691

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)	0.02349	0.02599	0.09480
	(D * RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * RN * !Q * QN)	0.05255	0.05380	0.13743
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.04030	0.04154	0.11096
	(!D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * Q * !QN)	0.05093	0.05492	0.16699
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.02722	0.02936	0.09639
sky130_osu_sc_18T_ls__dffr_l	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.02349	0.02599	0.09480
	(D * RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * RN * !Q * QN)	0.05255	0.05385	0.13743
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.04030	0.04154	0.11096
	(!D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * Q * !QN)	0.05093	0.05492	0.16699
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.02722	0.02936	0.09639

SKY130_OSU_SC_18T_LS__DFFSRx

sky130_osu_sc_18T_ls_ff_1P95_-40C.ccs
Cell Library: Process , Voltage 1.95,
Temp -40.00

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	0.00528	0.00531	0.01137	0.01553	3.52272	3.46847
sky130_osu_sc_18T_ls__dffsr_l	0.00528	0.00531	0.01135	0.01553	2.40103	2.39540

Leakage Information

Cell Name	Leakage(nW)		
	Min.	**Avg**	**Max.**
sky130_osu_sc_18T_ls__dffsr_1	0.00000	0.01575	0.02072
sky130_osu_sc_18T_ls__dffsr_l	0.00000	0.01446	0.01942

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)	0.21058	1.07871	15.16350
	QN->Q (FR)	0.02626	0.77448	12.82570
	RN->Q (RR)	0.16977	1.04827	15.20740
	SN->Q (FR)	0.15852	1.23020	17.89770
sky130_osu_sc_18T_ls__dffsr_l	CK->Q (RR)	0.21229	1.17518	14.55290
	QN->Q (FR)	0.02878	0.82367	12.50390
	RN->Q (RR)	0.17163	1.14512	14.59240
	SN->Q (FR)	0.16050	1.32354	17.27940

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)	0.23183	1.08068	14.93970
	QN->Q (RF)	0.01952	0.58944	9.80194
	RN->Q (FF)	0.16119	1.19689	17.43530
sky130_osu_sc_18T_ls__dffsr_l	CK->Q (RF)	0.23697	1.18985	14.47810
	QN->Q (RF)	0.02146	0.62501	9.49853
	RN->Q (FF)	0.16610	1.30383	16.97120

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)	0.21017	0.60386	6.14384
	RN->QN (FR)	0.13966	0.71959	8.64246
sky130_osu_sc_18T_ls__dffsr_l	CK->QN (RR)	0.21261	0.66070	6.13623
	RN->QN (FR)	0.14180	0.77529	8.62924

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)	0.17824	0.50228	4.59976
	RN->QN (RF)	0.13794	0.47294	4.64576
	SN->QN (FF)	0.12672	0.65266	7.33069
sky130_osu_sc_18T_ls__dffsr_l	CK->QN (RF)	0.17604	0.52620	4.35397
	RN->QN (RF)	0.13626	0.49778	4.39728
	SN->QN (FF)	0.12482	0.67348	7.07583

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)	-0.04414	-0.06507	-0.12490
	setup	CK (R)	0.16095	0.20958	0.46663
sky130_osu_sc_18T_ls__dffsr_l	hold	CK (R)	-0.04365	-0.06507	-0.12490
	setup	CK (R)	0.16092	0.20893	0.46858

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)	-0.09723	-0.33471	-4.17218
	setup	CK (R)	0.12156	0.34666	4.22227
sky130_osu_sc_18T_ls__dffsr_l	hold	CK (R)	-0.09708	-0.33471	-4.16977
	setup	CK (R)	0.12156	0.34666	4.22227

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)	-0.04414	-0.06507	-0.12490
	setup	CK (R)	0.16095	0.20958	0.46663
sky130_osu_sc_18T_ls__dffsr_l	hold	CK (R)	-0.04365	-0.06507	-0.12490
	setup	CK (R)	0.16092	0.20893	0.46858

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)	-0.09723	-0.33471	-4.17218
	setup	CK (R)	0.12156	0.34666	4.22227
sky130_osu_sc_18T_ls__dffsr_l	hold	CK (R)	-0.09708	-0.33471	-4.16977
	setup	CK (R)	0.12156	0.34666	4.22227

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)	0.12493	0.16213	0.62636
	removal	CK (R)	-0.01404	-0.01594	-0.05095
	hold	SN (R)	-0.11977	-0.25501	-1.06710
	setup	SN (R)	0.13961	0.30640	2.32062
sky130_osu_sc_18T_ls__dffsr_l	recovery	CK (R)	0.12515	0.16212	0.62653
	removal	CK (R)	-0.01404	-0.01594	-0.05095
	hold	SN (R)	-0.11641	-0.24704	-1.03810
	setup	SN (R)	0.14054	0.29877	2.22374

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)	0.12493	0.16213	0.62636
	removal	CK (R)	-0.01404	-0.01594	-0.05095
	hold	SN (R)	-0.11977	-0.25501	-1.06710
	hold	SN (R)	-0.12041	-0.25501	-1.07188
	setup	SN (R)	0.13961	0.30458	2.15239
	setup	SN (R)	0.13599	0.30640	2.32062
sky130_osu_sc_18T_ls__dffsr_l	recovery	CK (R)	0.12515	0.16212	0.62653
	removal	CK (R)	-0.01404	-0.01594	-0.05095
	hold	SN (R)	-0.11641	-0.24704	-1.03810
	hold	SN (R)	-0.11768	-0.24704	-1.04288
	setup	SN (R)	0.14054	0.29606	2.05990
	setup	SN (R)	0.13012	0.29877	2.22374

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 ()	0.10867	0.48096	13.33370
	min_pulse_width	RN ()	0.10867	0.48096	13.33370
sky130_osu_sc_18T_ls__dffsr_l	min_pulse_width	RN ()	0.10867	0.48096	13.33370
	min_pulse_width	RN ()	0.10506	0.48096	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)	0.02712	0.06665	2.64751
	removal	CK (R)	-0.01380	-0.05180	-0.21144
sky130_osu_sc_18T_ls__dffsr_l	recovery	CK (R)	0.02869	0.06616	2.55929
	removal	CK (R)	-0.01380	-0.05180	-0.21144

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)	0.02712	0.06665	2.64751
	removal	CK (R)	-0.01380	-0.05180	-0.21144
sky130_osu_sc_18T_ls__dffsr_l	recovery	CK (R)	0.02869	0.06616	2.55929
	removal	CK (R)	-0.01380	-0.05180	-0.21144

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 ()	0.12674	0.48096	13.33370
	min_pulse_width	SN ()	0.12313	0.48096	13.33370
sky130_osu_sc_18T_ls__dffsr_l	min_pulse_width	SN ()	0.12674	0.48096	13.33370
	min_pulse_width	SN ()	0.11951	0.48096	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 ()	0.09421	0.48096	13.33370
	min_pulse_width	CK ()	0.11951	0.48096	13.33370
sky130_osu_sc_18T_ls__dffsr_l	min_pulse_width	CK ()	0.09060	0.48096	13.33370
	min_pulse_width	CK ()	0.11590	0.48096	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 ()	0.21349	0.48096	13.33370
	min_pulse_width	CK ()	0.10144	0.48096	13.33370
sky130_osu_sc_18T_ls__dffsr_l	min_pulse_width	CK ()	0.20988	0.48096	13.33370
	min_pulse_width	CK ()	0.10144	0.48096	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	0.02054	0.01635	0.00000
	RN	0.03819	0.03293	-0.00858
	SN	-0.00214	-0.17675	-3.34878
	SN	0.04293	0.03696	-0.04183
sky130_osu_sc_18T_ls__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.01882	0.01470	-0.01210
	RN	0.03646	0.03122	-0.01611
	SN	-0.00214	-0.14044	-2.28248
	SN	0.04119	0.03531	-0.02159

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	0.02194	0.01845	0.00000
	RN	-0.00214	-0.17675	-3.34878
	RN	0.04552	0.04251	0.00858
sky130_osu_sc_18T_ls__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.02024	0.01800	0.01210
	RN	-0.00214	-0.14044	-2.28248
	RN	0.04379	0.04193	0.03776

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	0.02193	0.01850	0.00000
	RN	-0.00214	-0.17511	-3.29716
	RN	0.04551	0.04258	0.00946
sky130_osu_sc_18T_ls__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.02023	0.01792	0.01258
	RN	-0.00214	-0.14024	-2.27710
	RN	0.04378	0.04193	0.03705

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	0.02049	0.01633	0.00000
	RN	0.03815	0.03301	-0.00927
	SN	-0.00214	-0.17511	-3.29705
	SN	0.04288	0.03694	-0.03842
sky130_osu_sc_18T_ls__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.01877	0.01467	-0.01258
	RN	0.03641	0.03130	-0.01620
	SN	-0.00214	-0.14024	-2.27700
	SN	0.04114	0.03524	-0.02149

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	-0.00563	-0.00582	-0.00579
	(!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)	0.02642	0.02609	0.06348
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.01025	0.01007	0.04757
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.01020	0.01001	0.04758
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.01031	0.01014	0.04764
sky130_osu_sc_18T_ls__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	-0.00563	-0.00582	-0.00579
	(!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)	0.02642	0.02610	0.06348
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.01025	0.01007	0.04757
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.01020	0.01001	0.04758
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.01031	0.01014	0.04764

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	0.00579	0.00582	0.00579
	(!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)	0.03911	0.03878	0.07544
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.01713	0.01712	0.05363
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.01719	0.01720	0.05362
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.01706	0.01706	0.05353
sky130_osu_sc_18T_ls__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.00579	0.00582	0.00579
	(!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)	0.03910	0.03877	0.07542
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.01712	0.01710	0.05362
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.01717	0.01719	0.05361
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.01705	0.01704	0.05352

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)	0.00470	0.00577	0.07494
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.02123	0.02173	0.09148
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)	0.00470	0.00577	0.07495
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.02123	0.02174	0.09149

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)	0.01657	0.01902	0.08859
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.03518	0.03657	0.10729
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)	0.01655	0.01900	0.08858
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.03516	0.03658	0.10728

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)	-0.01317	-0.01329	-0.01325
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	-0.01326	-0.01356	-0.01355
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	-0.01287	-0.01306	-0.01303
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.00834	0.00839	0.05017
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)	-0.01317	-0.01329	-0.01325
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	-0.01324	-0.01353	-0.01352
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	-0.01286	-0.01306	-0.01302
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.00835	0.00841	0.05018

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)	0.01321	0.01332	0.01328
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.01349	0.01362	0.01355
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	0.01299	0.01312	0.01305
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.02725	0.02689	0.06368
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)	0.01321	0.01332	0.01329
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.01346	0.01368	0.01353
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	0.01298	0.01311	0.01304
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.02724	0.02685	0.06367

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)	-0.00146	-0.00059	0.06811
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.01124	0.01062	0.08088
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.01114	0.01048	0.08081
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	-0.00183	-0.00044	0.06726
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.00697	0.00864	0.13477
sky130_osu_sc_18T_ls__dffsr_l	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	-0.00146	-0.00059	0.06811
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.01123	0.01061	0.08079
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.01113	0.01047	0.08080
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	-0.00183	-0.00044	0.06726
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.00697	0.00864	0.13477

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)	0.05869	0.05998	0.14308
	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.02357	0.02608	0.09488
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.04105	0.04235	0.11132
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.04116	0.04239	0.11119
	(!D * RN * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * Q * !QN)	0.05543	0.05894	0.17092
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.02694	0.02911	0.09620
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.03143	0.03555	0.16142
sky130_osu_sc_18T_ls__dffsr_l	**(D * RN * SN * !Q * QN)**	0.00000	0.00000	0.00000
	(D * RN * SN * !Q * QN)	0.05869	0.05998	0.14309
	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.02356	0.02608	0.09488
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.04105	0.04235	0.11132
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.04116	0.04239	0.11119
	(!D * RN * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * Q * !QN)	0.05541	0.05883	0.17091
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.02694	0.02911	0.09620
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.03142	0.03553	0.16141

SKY130_OSU_SC_18T_LS__DFFSx

sky130_osu_sc_18T_ls_ff_1P95_-40C.ccs
Cell Library: Process , Voltage 1.95,
Temp -40.00

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	0.00531	0.00907	0.01532	3.33284	3.31785
sky130_osu_sc_18T_ls__dffs_l	0.00531	0.00908	0.01532	2.41030	2.39654

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__dffs_1	0.00000	0.01512	0.01906
sky130_osu_sc_18T_ls__dffs_l	0.00000	0.01382	0.01776

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)	0.15778	1.02514	14.97500
	QN->Q (FR)	0.02764	0.78893	12.88050
	SN->Q (FR)	0.12652	1.21544	17.63770
sky130_osu_sc_18T_ls__dffs_l	CK->Q (RR)	0.15661	1.10688	14.48830
	QN->Q (FR)	0.02869	0.82165	12.48530
	SN->Q (FR)	0.12589	1.29250	17.12880

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)	0.22340	1.08410	14.78790
	QN->Q (RF)	0.02142	0.63051	10.34150
sky130_osu_sc_18T_ls__dffs_l	CK->Q (RF)	0.22419	1.17596	14.47830
	QN->Q (RF)	0.02137	0.62368	9.49168

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)	0.20037	0.59777	6.06357
sky130_osu_sc_18T_ls__dffs_l	CK->QN (RR)	0.19965	0.64670	6.09821

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)	0.12631	0.44300	4.56585
	SN->QN (FF)	0.09509	0.63271	7.22016
sky130_osu_sc_18T_ls__dffs_l	CK->QN (RF)	0.12270	0.45790	4.24936
	SN->QN (FF)	0.09171	0.64218	6.88373

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)	-0.03237	-0.04782	-0.07795
	setup	CK (R)	0.11517	0.16706	0.37809
sky130_osu_sc_18T_ls__dffs_l	hold	CK (R)	-0.03132	-0.04782	-0.07809
	setup	CK (R)	0.11499	0.16747	0.37810

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)	-0.08754	-0.31877	-4.13767
	setup	CK (R)	0.11450	0.33072	4.18877
sky130_osu_sc_18T_ls__dffs_l	hold	CK (R)	-0.08634	-0.31877	-4.13754
	setup	CK (R)	0.11441	0.33072	4.18877

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)	-0.03237	-0.04782	-0.07795
	setup	CK (R)	0.11517	0.16706	0.37809
sky130_osu_sc_18T_ls__dffs_l	hold	CK (R)	-0.03132	-0.04782	-0.07809
	setup	CK (R)	0.11499	0.16747	0.37810

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)	-0.08754	-0.31877	-4.13767
	setup	CK (R)	0.11450	0.33072	4.18877
sky130_osu_sc_18T_ls__dffs_l	hold	CK (R)	-0.08634	-0.31877	-4.13754
	setup	CK (R)	0.11441	0.33072	4.18877

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)	0.03065	0.05975	2.03488
	removal	CK (R)	-0.01355	-0.04383	-0.23190
sky130_osu_sc_18T_ls__dffs_l	recovery	CK (R)	0.03023	0.05975	1.90992
	removal	CK (R)	-0.01355	-0.04383	-0.23190

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)	0.03065	0.05975	2.03488
	removal	CK (R)	-0.01355	-0.04383	-0.23190
sky130_osu_sc_18T_ls__dffs_l	recovery	CK (R)	0.03023	0.05975	1.90992
	removal	CK (R)	-0.01355	-0.04383	-0.23190

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 ()	0.08698	0.48096	13.33370
	min_pulse_width	SN ()	0.08698	0.48096	13.33370
sky130_osu_sc_18T_ls__dffs_l	min_pulse_width	SN ()	0.08698	0.48096	13.33370
	min_pulse_width	SN ()	0.08337	0.48096	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 ()	0.06530	0.48096	13.33370
	min_pulse_width	CK ()	0.10867	0.48096	13.33370
sky130_osu_sc_18T_ls__dffs_l	min_pulse_width	CK ()	0.06530	0.48096	13.33370
	min_pulse_width	CK ()	0.10506	0.48096	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 ()	0.16289	0.48096	13.33370
	min_pulse_width	CK ()	0.09421	0.48096	13.33370
sky130_osu_sc_18T_ls__dffs_l	min_pulse_width	CK ()	0.16289	0.48096	13.33370
	min_pulse_width	CK ()	0.09421	0.48096	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	0.01615	0.00951	0.00000
	SN	-0.00214	-0.17097	-3.16828
	SN	0.03620	0.02916	-0.07896
sky130_osu_sc_18T_ls__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.01428	0.01023	-0.01036
	SN	-0.00214	-0.14076	-2.29129
	SN	0.03432	0.02987	-0.01707

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	0.01896	0.01509	0.00000
sky130_osu_sc_18T_ls__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.01711	0.01483	0.01036

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	0.01895	0.01514	0.00000
sky130_osu_sc_18T_ls__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.01710	0.01485	0.01096

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	0.01610	0.00964	0.00000
	SN	-0.00214	-0.17051	-3.15365
	SN	0.03616	0.02912	-0.07632
sky130_osu_sc_18T_ls__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.01423	0.01031	-0.01096
	SN	-0.00214	-0.14028	-2.27808
	SN	0.03428	0.02983	-0.01754

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	-0.00569	-0.00588	-0.00586
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.01955	0.01915	0.05750
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.00883	0.00868	0.04655
sky130_osu_sc_18T_ls__dffs_l	CK	0.00000	0.00000	0.00000
	CK	-0.00569	-0.00588	-0.00586
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.01955	0.01915	0.05750
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.00883	0.00868	0.04655

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	0.00585	0.00588	0.00586
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.03367	0.03337	0.07079
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.01645	0.01650	0.05359
sky130_osu_sc_18T_ls__dffs_1	CK	0.00000	0.00000	0.00000
	CK	0.00585	0.00588	0.00586
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.03367	0.03337	0.07079
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.01645	0.01646	0.05359

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)	-0.00973	-0.00981	-0.00977
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.00705	0.00741	0.05277
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)	-0.00973	-0.00981	-0.00977
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.00705	0.00741	0.05277

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)	0.00976	0.00983	0.00979
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.01867	0.01986	0.06542
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)	0.00976	0.00983	0.00979
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.01867	0.01986	0.06542

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)	-0.00149	-0.00061	0.06817
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	-0.00200	-0.00061	0.06720
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.00549	0.00726	0.13448
sky130_osu_sc_18T_ls__dffs_l	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	-0.00149	-0.00061	0.06817
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	-0.00200	-0.00060	0.06720
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.00549	0.00726	0.13448

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)	0.05167	0.05299	0.13800
	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.02350	0.02603	0.09494
	(!D * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * SN * Q * !QN)	0.04990	0.05356	0.16561
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	0.02705	0.02921	0.09636
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.03061	0.03495	0.16183
sky130_osu_sc_18T_ls__dffs_l	(D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * SN * !Q * QN)	0.05167	0.05299	0.13800
	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.02350	0.02603	0.09494
	(!D * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * SN * Q * !QN)	0.04990	0.05355	0.16561
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	0.02705	0.02921	0.09635
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.03061	0.03489	0.16183

SKY130_OSU_SC_18T_LS__DFFx

sky130_osu_sc_18T_ls_ff_1P95_-40C.ccs
Cell Library: Process , Voltage 1.95,
Temp -40.00

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	0.00547	0.01509	3.52451	3.52137
sky130_osu_sc_18T_ls__dff_l	0.00547	0.01509	2.36405	2.34661

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__dff_1	0.00000	0.01451	0.01655
sky130_osu_sc_18T_ls__dff_l	0.00000	0.01321	0.01526

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)	0.14018	0.99358	15.01140
	QN->Q (FR)	0.02606	0.77084	12.75530
sky130_osu_sc_18T_ls__dff_l	CK->Q (RR)	0.14455	1.09261	14.29520
	QN->Q (FR)	0.02930	0.83276	12.59170

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)	0.19535	1.03895	14.85590
	QN->Q (RF)	0.01940	0.58706	9.76377
sky130_osu_sc_18T_ls__dff_l	CK->Q (RF)	0.20172	1.14924	14.31940
	QN->Q (RF)	0.02142	0.61940	9.38117

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)	0.17396	0.56572	6.17564
sky130_osu_sc_18T_ls__dff_l	CK->QN (RR)	0.17749	0.62320	6.05010

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)	0.11111	0.42274	4.55482
sky130_osu_sc_18T_ls__dff_l	CK->QN (RF)	0.11114	0.44424	4.13062

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)	-0.03004	-0.04782	-0.08970
	setup	CK (R)	0.09394	0.15258	0.37378
sky130_osu_sc_18T_ls__dff_l	hold	CK (R)	-0.03009	-0.04782	-0.08681
	setup	CK (R)	0.09344	0.15225	0.37483

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)	-0.07872	-0.31525	-4.14086
	setup	CK (R)	0.10029	0.33072	4.18714
sky130_osu_sc_18T_ls__dff_l	hold	CK (R)	-0.07913	-0.31619	-4.14099
	setup	CK (R)	0.09629	0.33072	4.18714

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 ()	0.05807	0.48096	13.33370
	min_pulse_width	CK ()	0.09783	0.48096	13.33370
sky130_osu_sc_18T_ls__dff_l	min_pulse_width	CK ()	0.05807	0.48096	13.33370
	min_pulse_width	CK ()	0.09783	0.48096	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 ()**	0.14120	0.48096	13.33370
	min_pulse_width	**CK ()**	0.07614	0.48096	13.33370
sky130_osu_sc_18T_ls__dff_l	**min_pulse_width**	**CK ()**	0.14120	0.48096	13.33370
	min_pulse_width	**CK ()**	0.07614	0.48096	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	0.01699	0.01279	0.00000
sky130_osu_sc_18T_ls__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.01527	0.01123	-0.00712

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	0.01930	0.01600	0.00000
sky130_osu_sc_18T_ls__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.01763	0.01512	0.00712

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	0.01929	0.01599	0.00000
sky130_osu_sc_18T_ls__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.01762	0.01513	0.00792

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	0.01695	0.01280	0.00000
sky130_osu_sc_18T_ls__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.01522	0.01132	-0.00792

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	-0.00533	-0.00578	-0.00578
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.01787	0.01788	0.05618
sky130_osu_sc_18T_ls__dff_l	CK	0.00000	0.00000	0.00000
	CK	-0.00533	-0.00578	-0.00578
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.01788	0.01789	0.05619

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	0.00574	0.00580	0.00578
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.03447	0.03434	0.07205
sky130_osu_sc_18T_ls__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.00574	0.00580	0.00578
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.03448	0.03435	0.07206

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)	-0.00151	-0.00061	0.06817
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	-0.00196	-0.00061	0.06723
sky130_osu_sc_18T_ls__dff_l	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	-0.00151	-0.00061	0.06817
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	-0.00196	-0.00062	0.06723

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)	0.02341	0.02595	0.09487
	(D * !Q * QN)	0.00000	0.00000	0.00000
	(D * !Q * QN)	0.05013	0.05169	0.13745
	(!D * Q * !QN)	0.00000	0.00000	0.00000
	(!D * Q * !QN)	0.05054	0.05437	0.16831
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.02695	0.02910	0.09624
sky130_osu_sc_18T_ls__dff_l	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.02341	0.02592	0.09487
	(D * !Q * QN)	0.00000	0.00000	0.00000
	(D * !Q * QN)	0.05014	0.05170	0.13746
	(!D * Q * !QN)	0.00000	0.00000	0.00000
	(!D * Q * !QN)	0.05055	0.05443	0.16832
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.02695	0.02910	0.09624

SKY130_OSU_SC_18T_LS__INVx

sky130_osu_sc_18T_ls_ff_1P95_-40C.ccs
Cell Library: Process , Voltage 1.95,
Temp -40.00

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	0.00534	3.35548
sky130_osu_sc_18T_ls__inv_10	0.05040	28.42729
sky130_osu_sc_18T_ls__inv_2	0.01027	6.46672
sky130_osu_sc_18T_ls__inv_3	0.01532	9.20872
sky130_osu_sc_18T_ls__inv_4	0.02027	12.37241
sky130_osu_sc_18T_ls__inv_6	0.03040	18.05976
sky130_osu_sc_18T_ls__inv_8	0.04041	23.62150
sky130_osu_sc_18T_ls__inv_l	0.00413	2.30451

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__inv_1	0.00000	0.00202	0.00391
sky130_osu_sc_18T_ls__inv_10	0.00000	0.02016	0.03906
sky130_osu_sc_18T_ls__inv_2	0.00000	0.00403	0.00781
sky130_osu_sc_18T_ls__inv_3	0.00000	0.00605	0.01172
sky130_osu_sc_18T_ls__inv_4	0.00000	0.00806	0.01562
sky130_osu_sc_18T_ls__inv_6	0.00000	0.01209	0.02344
sky130_osu_sc_18T_ls__inv_8	0.00000	0.01613	0.03125
sky130_osu_sc_18T_ls__inv_l	0.00000	0.00137	0.00265

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)**	0.02435	0.69570	11.32250
sky130_osu_sc_18T_ls__inv_10	**A->Y (FR)**	0.04262	0.49637	11.15990
sky130_osu_sc_18T_ls__inv_2	**A->Y (FR)**	0.02099	0.60590	11.16370
sky130_osu_sc_18T_ls__inv_3	**A->Y (FR)**	0.02376	0.57426	11.23160
sky130_osu_sc_18T_ls__inv_4	**A->Y (FR)**	0.02522	0.54783	11.17430
sky130_osu_sc_18T_ls__inv_6	**A->Y (FR)**	0.02955	0.51860	11.16910
sky130_osu_sc_18T_ls__inv_8	**A->Y (FR)**	0.03565	0.50295	11.17030
sky130_osu_sc_18T_ls__inv_l	**A->Y (FR)**	0.02688	0.75021	11.25770

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)**	0.01700	0.49170	8.16807
sky130_osu_sc_18T_ls__inv_10	**A->Y (RF)**	0.03187	0.28608	7.77225
sky130_osu_sc_18T_ls__inv_2	**A->Y (RF)**	0.01495	0.40825	8.04073
sky130_osu_sc_18T_ls__inv_3	**A->Y (RF)**	0.01681	0.37505	8.05489
sky130_osu_sc_18T_ls__inv_4	**A->Y (RF)**	0.01732	0.34722	8.04106
sky130_osu_sc_18T_ls__inv_6	**A->Y (RF)**	0.02238	0.31610	7.99415
sky130_osu_sc_18T_ls__inv_8	**A->Y (RF)**	0.02688	0.29926	7.94749
sky130_osu_sc_18T_ls__inv_l	**A->Y (RF)**	0.01858	0.52280	7.89236

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	0.00851	0.00941	0.01605
sky130_osu_sc_18T_ls__inv_10	A	0.00000	0.00000	0.00000
	A	0.07572	0.08859	0.08260
sky130_osu_sc_18T_ls__inv_2	A	0.00000	0.00000	0.00000
	A	0.01541	0.01800	0.01496
sky130_osu_sc_18T_ls__inv_3	A	0.00000	0.00000	0.00000
	A	0.02355	0.02864	0.04743
sky130_osu_sc_18T_ls__inv_4	A	0.00000	0.00000	0.00000
	A	0.03050	0.03473	0.03324
sky130_osu_sc_18T_ls__inv_6	A	0.00000	0.00000	0.00000
	A	0.04515	0.05418	0.05162
sky130_osu_sc_18T_ls__inv_8	A	0.00000	0.00000	0.00000
	A	0.06006	0.07440	0.07183
sky130_osu_sc_18T_ls__inv_l	A	0.00000	0.00000	0.00000
	A	0.00656	0.00713	0.01259

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	-0.00209	-0.00163	0.00288
sky130_osu_sc_18T_ls__inv_10	**A**	0.00000	0.00000	0.00000
	A	-0.02409	-0.02311	0.02481
sky130_osu_sc_18T_ls__inv_2	**A**	0.00000	0.00000	0.00000
	A	-0.00619	-0.00487	0.00415
sky130_osu_sc_18T_ls__inv_3	**A**	0.00000	0.00000	0.00000
	A	-0.00820	-0.00606	0.00746
sky130_osu_sc_18T_ls__inv_4	**A**	0.00000	0.00000	0.00000
	A	-0.01201	-0.00970	0.00881
sky130_osu_sc_18T_ls__inv_6	**A**	0.00000	0.00000	0.00000
	A	-0.01836	-0.01439	0.01333
sky130_osu_sc_18T_ls__inv_8	**A**	0.00000	0.00000	0.00000
	A	-0.02293	-0.01787	0.01824
sky130_osu_sc_18T_ls__inv_l	**A**	0.00000	0.00000	0.00000
	A	-0.00148	-0.00119	0.00238

SKY130_OSU_SC_18T_LS__MUX2

sky130_osu_sc_18T_ls_ff_1P95_-40C.ccs
Cell Library: Process , Voltage 1.95,
Temp -40.00

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	0.88061	0.88167	0.01086	0.90548

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__mux2_1	0.00000	0.00606	0.01171

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)	-	0.01061	0.21771	2.46446
	A1->Y (RR)	-	0.01158	0.21870	2.46484
	S0->Y (RR)	(!A0 * A1)	0.03509	0.20103	0.99633
	S0->Y (FR)	(A0 * !A1)	0.03763	0.37473	3.89456

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)	-	0.00990	0.23445	2.71023
	A1->Y (FF)	-	0.01011	0.23290	2.69536
	S0->Y (FF)	(!A0 * A1)	0.05136	0.35831	3.17982
	S0->Y (RF)	(A0 * !A1)	0.02131	0.24115	2.18044

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	-	-0.00910	-0.00911	-0.00912
	A1	-	0.00000	0.00000	0.00000
	A1	-	-0.00616	-0.00617	-0.00617
	S0	(A0 * !A1)	0.00000	0.00000	0.00000
	S0	(A0 * !A1)	0.00991	0.01311	0.08391
	S0	(!A0 * A1)	0.00000	0.00000	0.00000
	S0	(!A0 * A1)	-0.00622	-0.00402	0.06573

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	-	0.00910	0.00911	0.00912
	A1	-	0.00000	0.00000	0.00000
	A1	-	0.00616	0.00617	0.00617
	S0	(A0 * !A1)	0.00000	0.00000	0.00000
	S0	(A0 * !A1)	0.00160	0.00363	0.07497
	S0	(!A0 * A1)	0.00000	0.00000	0.00000
	S0	(!A0 * A1)	0.02334	0.02581	0.09519

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)	-0.00227	-0.00225	-0.00226

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)	0.00227	0.00225	0.00226

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)	-0.00272	-0.00270	-0.00271

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)	0.00272	0.00270	0.00271

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)	-0.00233	-0.00036	0.07019
	(!A0 * !A1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !Y)	-0.00230	-0.00049	0.07031

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)	0.01755	0.02001	0.08959
	(!A0 * !A1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !Y)	0.01569	0.01859	0.08925

SKY130_OSU_SC_18T_LS__NAND2x

sky130_osu_sc_18T_ls_ff_1P95_-40C.ccs
Cell Library: Process , Voltage 1.95,
Temp -40.00

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	0.00536	0.00532	3.28702
sky130_osu_sc_18T_ls__nand2_l	0.00414	0.00411	2.26074

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__nand2_1	0.00000	0.00204	0.00781
sky130_osu_sc_18T_ls__nand2_l	0.00000	0.00140	0.00530

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)	0.02484	0.69798	11.30360
	B->Y (FR)	0.02940	0.69369	11.13540
sky130_osu_sc_18T_ls__nand2_l	A->Y (FR)	0.02733	0.75086	11.19500
	B->Y (FR)	0.03293	0.75171	11.14680

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)	0.02199	0.58162	9.66282
	B->Y (RF)	0.02539	0.57772	9.59406
sky130_osu_sc_18T_ls__nand2_l	A->Y (RF)	0.02418	0.62166	9.34590
	B->Y (RF)	0.02738	0.61837	9.25766

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	0.00908	0.00987	0.01597
	B	0.00000	0.00000	0.00000
	B	0.01164	0.01228	0.01437
sky130_osu_sc_18T_ls__nand2_l	A	0.00000	0.00000	0.00000
	A	0.00696	0.00746	0.00729
	B	0.00000	0.00000	0.00000
	B	0.00887	0.00927	0.01484

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	-0.00140	-0.00111	0.00302
	B	0.00000	0.00000	0.00000
	B	-0.00135	-0.00125	0.00160
sky130_osu_sc_18T_ls__nand2_l	A	0.00000	0.00000	0.00000
	A	-0.00104	-0.00084	0.00237
	B	0.00000	0.00000	0.00000
	B	-0.00100	-0.00095	0.00132

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)	-0.00653	-0.00658	-0.00656
sky130_osu_sc_18T_ls__nand2_l	(!B * Y)	0.00000	0.00000	0.00000
	(!B * Y)	-0.00475	-0.00477	-0.00478

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)	0.00654	0.00660	0.00658
sky130_osu_sc_18T_ls__nand2_l	(!B * Y)	0.00000	0.00000	0.00000
	(!B * Y)	0.00476	0.00478	0.00479

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)	-0.00605	-0.00608	-0.00606
sky130_osu_sc_18T_ls__nand2_l	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00439	-0.00441	-0.00440

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)	0.00607	0.00611	0.00608
sky130_osu_sc_18T_ls__nand2_l	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00441	0.00443	0.00441

SKY130_OSU_SC_18T_LS__NOR2x

sky130_osu_sc_18T_ls_ff_1P95_-40C.ccs
Cell Library: Process , Voltage 1.95,
Temp -40.00

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	0.00534	0.00566	1.86450
sky130_osu_sc_18T_ls__nor2_l	0.00405	0.00440	1.31226

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__nor2_1	0.00000	0.00208	0.00391
sky130_osu_sc_18T_ls__nor2_l	0.00000	0.00143	0.00265

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)	0.04666	0.79249	11.07060
	B->Y (FR)	0.03479	0.78545	11.21760
sky130_osu_sc_18T_ls__nor2_l	A->Y (FR)	0.05074	0.86752	11.10050
	B->Y (FR)	0.04029	0.86515	11.27310

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)	0.02309	0.40277	5.56960
	B->Y (RF)	0.01810	0.39119	5.54971
sky130_osu_sc_18T_ls__nor2_l	A->Y (RF)	0.02423	0.42989	5.43710
	B->Y (RF)	0.01972	0.42152	5.42076

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	0.01268	0.01265	0.01685
	B	0.00000	0.00000	0.00000
	B	0.00930	0.00932	0.01921
sky130_osu_sc_18T_ls__nor2_1	A	0.00000	0.00000	0.00000
	A	0.00930	0.00927	0.01249
	B	0.00000	0.00000	0.00000
	B	0.00708	0.00748	0.01460

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	0.00094	0.00094	0.00705
	B	0.00000	0.00000	0.00000
	B	-0.00160	-0.00116	0.00480
sky130_osu_sc_18T_ls__nor2_1	A	0.00000	0.00000	0.00000
	A	0.00058	0.00065	0.00539
	B	0.00000	0.00000	0.00000
	B	-0.00106	-0.00080	0.00388

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)	-0.00535	-0.00583	-0.00581
sky130_osu_sc_18T_ls__nor2_l	(B * !Y)	0.00000	0.00000	0.00000
	(B * !Y)	-0.00380	-0.00410	-0.00410

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)	0.00578	0.00585	0.00581
sky130_osu_sc_18T_ls__nor2_l	(B * !Y)	0.00000	0.00000	0.00000
	(B * !Y)	0.00408	0.00413	0.00410

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)	-0.00259	-0.00260	-0.00260
sky130_osu_sc_18T_ls__nor2_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	-0.00187	-0.00188	-0.00188

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)	0.00271	0.00272	0.00264
sky130_osu_sc_18T_ls__nor2_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00195	0.00196	0.00190

SKY130_OSU_SC_18T_LS__OAI21

sky130_osu_sc_18T_ls_ff_1P95_-40C.ccs
Cell Library: Process , Voltage 1.95,
Temp -40.00

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	0.00540	0.00545	0.00458	1.83278

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__oai21_l	0.00000	0.00209	0.00655

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)	0.04629	0.80149	11.19600
	A1->Y (FR)	0.06191	0.81006	11.05300
	B0->Y (FR)	0.03317	0.69829	9.83489

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)	0.03180	0.49347	6.81572
	A1->Y (RF)	0.03771	0.49175	6.66032
	B0->Y (RF)	0.02435	0.52144	7.35700

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	0.01287	0.01323	0.02131
	A1	0.00000	0.00000	0.00000
	A1	0.01626	0.01608	0.01995
	B0	0.01095	0.01151	0.01905

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	0.00019	0.00009	0.00401
	A1	0.00000	0.00000	0.00000
	A1	0.00277	0.00241	0.00632
	B0	0.00100	0.00120	0.00586

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)	-0.00260	-0.00266	-0.00261
	(A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * Y)	-0.00568	-0.00587	-0.00585
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00593	-0.00594	-0.00594

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)	0.00272	0.00272	0.00265
	(A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * Y)	0.00582	0.00587	0.00585
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00593	0.00601	0.00596

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)	-0.00527	-0.00574	-0.00572
	(A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * Y)	-0.00563	-0.00583	-0.00581
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	-0.00587	-0.00592	-0.00589

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)	0.00569	0.00574	0.00572
	(A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * Y)	0.00578	0.00583	0.00581
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	0.00587	0.00593	0.00591

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)	-0.00486	-0.00490	-0.00492

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)	0.00491	0.00495	0.00494

SKY130_OSU_SC_18T_LS__OAI22

sky130_osu_sc_18T_ls_ff_1P95_-40C.ccs
Cell Library: Process , Voltage 1.95,
Temp -40.00

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	0.00524	0.00551	0.00566	0.00552	1.85256

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__oai22_1	0.00000	0.00315	0.00781

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)	0.06663	0.81301	11.07100
	A1->Y (FR)	0.05481	0.80827	11.22100
	B0->Y (FR)	0.03864	0.79328	11.22700
	B1->Y (FR)	0.05153	0.79913	11.07780

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)	0.05577	0.53208	7.01292
	A1->Y (RF)	0.04378	0.51269	6.90989
	B0->Y (RF)	0.03660	0.54028	7.43714
	B1->Y (RF)	0.04962	0.57546	7.75975

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	0.02131	0.02113	0.02469
	A1	0.01794	0.01823	0.02604
	B0	0.00998	0.01053	0.01889
	B1	0.01694	0.01681	0.02044

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__oai22_l	A0	0.00471	0.00434	0.00813
	A1	-0.00065	-0.00071	0.00326
	B0	-0.00065	-0.00043	0.00504
	B1	0.00184	0.00171	0.00680

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)	-0.00534	-0.00583	-0.00581
	(A1 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * B1 * !Y)	-0.00534	-0.00583	-0.00581
	(A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * !B1 * Y)	-0.00564	-0.00584	-0.00582
	(!A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * !B1 * Y)	-0.00588	-0.00593	-0.00590

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)	0.00578	0.00585	0.00581
	(A1 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * B1 * !Y)	0.00578	0.00585	0.00581
	(A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * !B1 * Y)	0.00579	0.00586	0.00582
	(!A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * !B1 * Y)	0.00588	0.00595	0.00592

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)	-0.00257	-0.00259	-0.00258
	(A0 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * B1 * !Y)	-0.00257	-0.00259	-0.00258
	(A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * !B1 * Y)	-0.00561	-0.00581	-0.00579
	(!A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * !B1 * Y)	-0.00587	-0.00591	-0.00589

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)	0.00269	0.00271	0.00262
	(A0 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * B1 * !Y)	0.00269	0.00271	0.00262
	(A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * !B1 * Y)	0.00576	0.00581	0.00579
	(!A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * !B1 * Y)	0.00587	0.00593	0.00590

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)	-0.00255	-0.00258	-0.00257
	(A0 * !A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B1 * !Y)	-0.00255	-0.00258	-0.00257
	(!A0 * !A1 * B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B1 * Y)	-0.00626	-0.00644	-0.00644
	(!A0 * !A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B1 * Y)	-0.00642	-0.00648	-0.00651

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)	0.00268	0.00269	0.00260
	(A0 * !A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B1 * !Y)	0.00268	0.00269	0.00260
	(!A0 * !A1 * B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B1 * Y)	0.00647	0.00651	0.00644
	(!A0 * !A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B1 * Y)	0.00650	0.00656	0.00654

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)	-0.00526	-0.00575	-0.00574
	(A0 * !A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B0 * !Y)	-0.00528	-0.00575	-0.00574
	(!A0 * !A1 * B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B0 * Y)	-0.00636	-0.00654	-0.00655
	(!A0 * !A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B0 * Y)	-0.00651	-0.00654	-0.00660

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)	0.00570	0.00577	0.00574
	(A0 * !A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B0 * !Y)	0.00570	0.00577	0.00574
	(!A0 * !A1 * B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B0 * Y)	0.00658	0.00664	0.00655
	(!A0 * !A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B0 * Y)	0.00658	0.00665	0.00662

SKY130_OSU_SC_18T_LS__OR2x

sky130_osu_sc_18T_ls_ff_1P95_-40C.ccs
Cell Library: Process , Voltage 1.95,
Temp -40.00

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	0.00568	0.00549	3.40245
sky130_osu_sc_18T_ls__or2_2	0.00568	0.00549	6.56789
sky130_osu_sc_18T_ls__or2_4	0.00568	0.00549	12.40351
sky130_osu_sc_18T_ls__or2_8	0.00569	0.00552	23.39836
sky130_osu_sc_18T_ls__or2_l	0.00446	0.00422	2.33505

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__or2_1	0.00000	0.00315	0.00416
sky130_osu_sc_18T_ls__or2_2	0.00000	0.00423	0.00806
sky130_osu_sc_18T_ls__or2_4	0.00000	0.00637	0.01588
sky130_osu_sc_18T_ls__or2_8	0.00000	0.01065	0.03150
sky130_osu_sc_18T_ls__or2_l	0.00000	0.00215	0.00283

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)	0.05256	0.44315	5.90561
	B->Y (RR)	0.04612	0.41908	5.89483
sky130_osu_sc_18T_ls__or2_2	A->Y (RR)	0.05851	0.38845	5.91212
	B->Y (RR)	0.05181	0.36760	5.88669
sky130_osu_sc_18T_ls__or2_4	A->Y (RR)	0.07662	0.38765	6.10597
	B->Y (RR)	0.06987	0.36972	6.06946
sky130_osu_sc_18T_ls__or2_8	A->Y (RR)	0.11005	0.43446	6.48271
	B->Y (RR)	0.10331	0.42134	6.44306
sky130_osu_sc_18T_ls__or2_l	A->Y (RR)	0.05702	0.49978	5.84142
	B->Y (RR)	0.05120	0.47925	5.83825

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)	0.08041	0.56769	7.05781
	B->Y (FF)	0.06443	0.54680	7.10986
sky130_osu_sc_18T_ls__or2_2	A->Y (FF)	0.09498	0.54611	7.09145
	B->Y (FF)	0.07907	0.53229	7.11486
sky130_osu_sc_18T_ls__or2_4	A->Y (FF)	0.13122	0.57631	7.25973
	B->Y (FF)	0.11539	0.57011	7.24740
sky130_osu_sc_18T_ls__or2_8	A->Y (FF)	0.20797	0.66310	7.44548
	B->Y (FF)	0.19215	0.66305	7.41495
sky130_osu_sc_18T_ls__or2_l	A->Y (FF)	0.08642	0.60426	6.84063
	B->Y (FF)	0.07097	0.58780	6.92027

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	0.00903	0.00926	0.04256
	B	0.00000	0.00000	0.00000
	B	0.00672	0.00870	0.05119
sky130_osu_sc_18T_ls__or2_2	A	0.00000	0.00000	0.00000
	A	0.01605	0.01711	0.05257
	B	0.00000	0.00000	0.00000
	B	0.01362	0.01602	0.05782
sky130_osu_sc_18T_ls__or2_4	A	0.00000	0.00000	0.00000
	A	0.03095	0.03223	0.07084
	B	0.00000	0.00000	0.00000
	B	0.02849	0.03169	0.07826
sky130_osu_sc_18T_ls__or2_8	A	0.00000	0.00000	0.00000
	A	0.06148	0.06331	0.10115
	B	0.00000	0.00000	0.00000
	B	0.05907	0.06278	0.10856
sky130_osu_sc_18T_ls__or2_l	A	0.00000	0.00000	0.00000
	A	0.00661	0.00663	0.03128
	B	0.00000	0.00000	0.00000
	B	0.00519	0.00626	0.04013

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	0.02055	0.02056	0.04759
	B	0.00000	0.00000	0.00000
	B	0.01680	0.01963	0.07616
sky130_osu_sc_18T_ls__or2_2	A	0.00000	0.00000	0.00000
	A	0.02574	0.02630	0.05303
	B	0.00000	0.00000	0.00000
	B	0.02200	0.02486	0.07883
sky130_osu_sc_18T_ls__or2_4	A	0.00000	0.00000	0.00000
	A	0.03988	0.03945	0.06577
	B	0.00000	0.00000	0.00000
	B	0.03616	0.03856	0.08758
sky130_osu_sc_18T_ls__or2_8	A	0.00000	0.00000	0.00000
	A	0.07365	0.06645	0.09127
	B	0.00000	0.00000	0.00000
	B	0.06953	0.06656	0.10791
sky130_osu_sc_18T_ls__or2_l	A	0.00000	0.00000	0.00000
	A	0.01567	0.01563	0.03567
	B	0.00000	0.00000	0.00000
	B	0.01304	0.01499	0.05753

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)	-0.00540	-0.00585	-0.00584
sky130_osu_sc_18T_ls__or2_2	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00540	-0.00585	-0.00584
sky130_osu_sc_18T_ls__or2_4	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00540	-0.00585	-0.00584
sky130_osu_sc_18T_ls__or2_8	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00540	-0.00585	-0.00584
sky130_osu_sc_18T_ls__or2_l	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00383	-0.00411	-0.00412

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)	0.00581	0.00586	0.00584
sky130_osu_sc_18T_ls__or2_2	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00581	0.00586	0.00584
sky130_osu_sc_18T_ls__or2_4	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00581	0.00586	0.00584
sky130_osu_sc_18T_ls__or2_8	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00581	0.00586	0.00584
sky130_osu_sc_18T_ls__or2_l	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00410	0.00414	0.00412

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)	-0.00260	-0.00267	-0.00261
sky130_osu_sc_18T_ls__or2_2	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00260	-0.00267	-0.00261
sky130_osu_sc_18T_ls__or2_4	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00260	-0.00267	-0.00261
sky130_osu_sc_18T_ls__or2_8	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00260	-0.00267	-0.00261
sky130_osu_sc_18T_ls__or2_l	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00190	-0.00195	-0.00191

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)	0.00274	0.00274	0.00265
sky130_osu_sc_18T_ls__or2_2	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00272	0.00274	0.00265
sky130_osu_sc_18T_ls__or2_4	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00272	0.00274	0.00265
sky130_osu_sc_18T_ls__or2_8	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00272	0.00274	0.00265
sky130_osu_sc_18T_ls__or2_l	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00200	0.00199	0.00194

SKY130_OSU_SC_18T_LS__TBUFIx

sky130_osu_sc_18T_ls_ff_1P95_-40C.ccs
Cell Library: Process , Voltage 1.95,
Temp -40.00

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	0.00566	0.00720	1.86631
sky130_osu_sc_18T_ls__tbufi_l	0.00441	0.00565	1.29283

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__tbufi_1	0.00000	0.00209	0.00781
sky130_osu_sc_18T_ls__tbufi_l	0.00000	0.00143	0.00530

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)	0.03355	0.78409	11.21680
	OE->Y (FR)	0.04170	0.37529	5.34324
	OE->Y (RR)	0.06055	0.52383	6.12101
sky130_osu_sc_18T_ls__tbufi_l	A->Y (FR)	0.03898	0.86072	11.18790
	OE->Y (FR)	0.04402	0.37508	5.34294
	OE->Y (RR)	0.06548	0.59960	6.10126

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)	0.02138	0.46700	6.63363
	OE->Y (FF)	0.04181	0.37530	5.34323
	OE->Y (RF)	0.02098	0.46052	6.50314
sky130_osu_sc_18T_ls__tbufi_l	A->Y (RF)	0.02374	0.50097	6.43050
	OE->Y (FF)	0.04410	0.37511	5.34299
	OE->Y (RF)	0.02393	0.49240	6.29153

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	0.00867	0.00865	0.01772
	OE	0.00000	0.00000	0.00000
	OE	0.00905	0.01095	0.07032
sky130_osu_sc_18T_ls__tbufi_l	A	0.00000	0.00000	0.00000
	A	0.00664	0.00700	0.01345
	OE	0.00000	0.00000	0.00000
	OE	0.00650	0.00797	0.05431

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	-0.00164	-0.00125	0.00410
	OE	0.00000	0.00000	0.00000
	OE	0.00588	0.00786	0.07803
sky130_osu_sc_18T_ls__tbufi_l	A	0.00000	0.00000	0.00000
	A	-0.00108	-0.00086	0.00335
	OE	0.00000	0.00000	0.00000
	OE	0.00411	0.00559	0.05812

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)	-0.00444	-0.00450	-0.00446
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	-0.00387	-0.00391	-0.00389
sky130_osu_sc_18T_ls__tbufi_l	(!OE * Y)	0.00000	0.00000	0.00000
	(!OE * Y)	-0.00337	-0.00339	-0.00338
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	-0.00298	-0.00300	-0.00300

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)	0.00444	0.00450	0.00446
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	0.00397	0.00399	0.00394
sky130_osu_sc_18T_ls__tbufi_l	(!OE * Y)	0.00000	0.00000	0.00000
	(!OE * Y)	0.00337	0.00339	0.00338
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	0.00305	0.00307	0.00302

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)	0.00344	0.00552	0.07755
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00310	0.00529	0.07724
sky130_osu_sc_18T_ls__tbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00234	0.00394	0.05797
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00213	0.00380	0.05775

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)	0.00986	0.01238	0.08384
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.01013	0.01274	0.08397
sky130_osu_sc_18T_ls__tbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00779	0.00958	0.06304
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00801	0.00985	0.06322

SKY130_OSU_SC_18T_LS__TNBUFIx

sky130_osu_sc_18T_ls_ff_1P95_-40C.ccs
Cell Library: Process , Voltage 1.95,
Temp -40.00

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	0.00566	0.00882	1.86629
sky130_osu_sc_18T_ls__tnbufi_l	0.00441	0.00662	1.29282

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__tnbufi_1	0.00000	0.00335	0.00403
sky130_osu_sc_18T_ls__tnbufi_l	0.00000	0.00229	0.00274

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)	0.03364	0.78407	11.21690
	OE->Y (RR)	0.02255	0.37613	5.34402
	OE->Y (FR)	0.04484	0.78965	11.07310
sky130_osu_sc_18T_ls__tnbufi_l	A->Y (FR)	0.03915	0.86064	11.18770
	OE->Y (RR)	0.02338	0.37636	5.34423
	OE->Y (FR)	0.04923	0.86383	11.01770

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)	0.02112	0.46820	6.63353
	OE->Y (RF)	0.02240	0.37613	5.34406
	OE->Y (FF)	0.04110	0.45671	5.46292
sky130_osu_sc_18T_ls__tnbufi_l	A->Y (RF)	0.02343	0.50087	6.43058
	OE->Y (RF)	0.02319	0.37634	5.34431
	OE->Y (FF)	0.04582	0.49485	5.33751

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	0.00889	0.00887	0.01795
	OE	0.00000	0.00000	0.00000
	OE	0.02236	0.02534	0.09777
sky130_osu_sc_18T_ls__tnbufi_l	A	0.00000	0.00000	0.00000
	A	0.00686	0.00722	0.01366
	OE	0.00000	0.00000	0.00000
	OE	0.01670	0.01919	0.07306

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	-0.00192	-0.00154	0.00383
	OE	0.00000	0.00000	0.00000
	OE	0.01958	0.02355	0.07902
sky130_osu_sc_18T_ls__tnbufi_l	A	0.00000	0.00000	0.00000
	A	-0.00136	-0.00113	0.00309
	OE	0.00000	0.00000	0.00000
	OE	0.01460	0.01743	0.05742

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)	-0.00379	-0.00384	-0.00380
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	-0.00328	-0.00331	-0.00330
sky130_osu_sc_18T_ls__tnbufi_l	(OE * Y)	0.00000	0.00000	0.00000
	(OE * Y)	-0.00275	-0.00277	-0.00276
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	-0.00240	-0.00242	-0.00242

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)	0.00379	0.00384	0.00380
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	0.00336	0.00338	0.00334
sky130_osu_sc_18T_ls__tnbufi_l	(OE * Y)	0.00000	0.00000	0.00000
	(OE * Y)	0.00275	0.00277	0.00276
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	0.00246	0.00247	0.00244

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)	-0.00731	-0.00542	0.06758
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00701	-0.00533	0.06767
sky130_osu_sc_18T_ls__tnbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	-0.00511	-0.00365	0.05107
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00490	-0.00354	0.05110

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)	0.01677	0.02056	0.09344
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.01653	0.02026	0.09325
sky130_osu_sc_18T_ls__tnbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.01257	0.01518	0.06975
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.01238	0.01504	0.06959

SKY130_OSU_SC_18T_LS__XNOR2

sky130_osu_sc_18T_ls_ff_1P95_-40C.ccs
Cell Library: Process , Voltage 1.95,
Temp -40.00

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	0.01119	0.01021	1.92810

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__xnor2_l	0.00000	0.00627	0.01184

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	0.07667	0.56156	6.36871
	A->Y (FR)	!B	0.04333	0.80182	11.33240
	B->Y (RR)	A	0.06060	0.54530	6.42788
	B->Y (FR)	!A	0.06177	0.81166	11.23890

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	0.07000	0.52826	5.95801
	A->Y (RF)	!B	0.03156	0.49229	6.89847
	B->Y (FF)	A	0.06245	0.52359	5.96702
	B->Y (RF)	!A	0.03922	0.50210	6.89242

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	0.00893	0.01039	0.06860
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.02136	0.02481	0.09066
	B	A	0.00000	0.00000	0.00000
	B	A	0.00267	0.00472	0.07690
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.02395	0.02625	0.09678

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	0.02677	0.02873	0.09589
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00582	0.00744	0.07875
	B	A	0.00000	0.00000	0.00000
	B	A	0.02472	0.02841	0.09821
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00721	0.00857	0.07911

SKY130_OSU_SC_18T_LS__XOR2

sky130_osu_sc_18T_ls_ff_1P95_-40C.ccs
Cell Library: Process , Voltage 1.95,
Temp -40.00

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	0.01117	0.01025	1.86805

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__xor2_l	0.00000	0.00627	0.00838

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	0.07280	0.54178	6.22520
	A->Y (FR)	B	0.05509	0.80194	11.13080
	B->Y (RR)	!A	0.06327	0.53993	6.25916
	B->Y (FR)	A	0.05946	0.80530	11.09970

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	0.06156	0.50999	5.57097
	A->Y (RF)	B	0.02932	0.48213	6.63160
	B->Y (FF)	!A	0.05652	0.50248	5.65629
	B->Y (RF)	A	0.03693	0.47988	6.51280

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	0.02547	0.02825	0.10242
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00418	0.00408	0.07395
	B	A	0.00000	0.00000	0.00000
	B	A	0.02625	0.02902	0.10157
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00222	0.00404	0.07727

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	0.00437	0.00574	0.08146
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.02784	0.03135	0.08611
	B	A	0.00000	0.00000	0.00000
	B	A	0.00442	0.00574	0.07800
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.02516	0.02905	0.09936

SKY130_OSU_SC_18T_LS_x

sky130_osu_sc_18T_ls_ff_1P95_-40C.ccs
Cell Library: Process , Voltage 1.95,
Temp -40.00

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	0.92986
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	520695.00000	1041390.00000
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
	-0.00214	0.13140	1.80768

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
	9.05981	8.60028	2.20258