sky130_osu_sc_18T_ls_tt_1P20_25C.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_tt_1P20_25C.ccs
Cell Library: Process , Voltage 1.20,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_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	0.01902	0.01913	0.01493	0.59135	0.23884	0.58292
sky130_osu_sc_18T_ls__addf_l	0.01903	0.01914	0.01494	0.41899	0.23980	0.41694

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__addf_1	0.00000	0.00081	0.00087
sky130_osu_sc_18T_ls__addf_l	0.00000	0.00066	0.00079

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)	0.42559	2.76442	22.48390
	B->CO (RR)	0.40014	2.67139	21.88650
	CI->CO (RR)	0.40875	2.75279	22.58940
	CON->CO (FR)	0.10455	1.43210	13.58090
sky130_osu_sc_18T_ls__addf_1	A->CO (RR)	0.42938	2.65767	19.49790
	B->CO (RR)	0.40475	2.57950	19.09900
	CI->CO (RR)	0.41253	2.64629	19.63010
	CON->CO (FR)	0.12268	1.55614	13.58180

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)	1.01449	5.14010	39.27640
	B->CO (FF)	0.94793	4.99402	38.51380
	CI->CO (FF)	0.91325	4.97747	38.84850
	CON->CO (RF)	0.04780	0.78649	7.92955
sky130_osu_sc_18T_ls__addf_1	A->CO (FF)	0.98463	4.56685	31.01200
	B->CO (FF)	0.91899	4.44357	30.44320
	CI->CO (FF)	0.88313	4.40492	30.57720
	CON->CO (RF)	0.05208	0.81402	7.81000

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)	0.71658	2.37206	14.05490
	B->CON (FR)	0.65803	2.27774	13.80710
	CI->CON (FR)	0.61509	2.20868	13.64010
sky130_osu_sc_18T_ls__addf_l	A->CON (FR)	0.68232	2.34002	14.04880
	B->CON (FR)	0.62530	2.24678	13.80100
	CI->CON (FR)	0.58111	2.17639	13.63320

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)	0.18935	0.91346	6.86859
	B->CON (RF)	0.17621	0.88286	6.81664
	CI->CON (RF)	0.17240	0.90396	6.99663
sky130_osu_sc_18T_ls__addf_l	A->CON (RF)	0.18224	0.90711	6.86929
	B->CON (RF)	0.16962	0.87928	6.81735
	CI->CON (RF)	0.16527	0.89765	6.99739

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)	1.36702	5.48952	36.41020
	B->S (-R)	1.33249	5.41127	36.09290
	CI->S (-R)	1.25876	5.31095	35.92450
	CON->S (RR)	0.25675	1.48403	10.25650
sky130_osu_sc_18T_ls__addf_l	A->S (-R)	1.30587	5.00841	30.35860
	B->S (-R)	1.27290	4.94864	30.13480
	CI->S (-R)	1.19725	4.83251	29.88540
	CON->S (RR)	0.26145	1.58458	10.14660

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)	0.84972	2.68247	16.55260
	B->S (-F)	0.91651	2.63518	16.17000
	CI->S (-F)	0.83196	2.66418	16.65260
	CON->S (FF)	0.40853	1.29795	8.37933
sky130_osu_sc_18T_ls__addf_l	A->S (-F)	0.79322	2.45386	14.12020
	B->S (-F)	0.86062	2.41140	13.85100
	CI->S (-F)	0.77543	2.43337	14.22860
	CON->S (FF)	0.38190	1.29757	8.19220

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	0.00219	0.00214	0.00206
	B	0.00262	0.00266	0.00263
	CI	0.00277	0.00283	0.00278
sky130_osu_sc_18T_ls__addf_l	A	0.00175	0.00166	0.00157
	B	0.00217	0.00218	0.00210
	CI	0.00232	0.00234	0.00229

Internal switching power(pJ) to CO falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__addf_1	A	0.00766	0.00762	0.00758
	B	0.00755	0.00761	0.00753
	CI	0.00662	0.00679	0.00674
sky130_osu_sc_18T_ls__addf_l	A	0.00721	0.00716	0.00714
	B	0.00710	0.00714	0.00709
	CI	0.00617	0.00632	0.00626

Internal switching power(pJ) to CON rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__addf_1	A	0.00765	0.00762	0.00759
	B	0.00754	0.00759	0.00753
	CI	0.00661	0.00675	0.00670
sky130_osu_sc_18T_ls__addf_l	A	0.00721	0.00716	0.00713
	B	0.00710	0.00713	0.00707
	CI	0.00616	0.00629	0.00624

Internal switching power(pJ) to CON falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__addf_1	A	0.00216	0.00211	0.00199
	B	0.00258	0.00261	0.00245
	CI	0.00276	0.00281	0.00271
sky130_osu_sc_18T_ls__addf_l	A	0.00171	0.00164	0.00150
	B	0.00214	0.00214	0.00197
	CI	0.00231	0.00234	0.00223

Internal switching power(pJ) to S rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__addf_1	A	0.00766	0.00762	0.00762
	B	0.00755	0.00761	0.00757
	CI	0.00662	0.00679	0.00673
sky130_osu_sc_18T_ls__addf_l	A	0.00722	0.00717	0.00715
	B	0.00711	0.00715	0.00708
	CI	0.00617	0.00633	0.00628

Internal switching power(pJ) to S falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__addf_1	A	0.01583	0.01597	0.01591
	B	0.01434	0.01420	0.01401
	CI	0.01281	0.01287	0.01280
sky130_osu_sc_18T_ls__addf_l	A	0.01521	0.01526	0.01513
	B	0.01374	0.01352	0.01331
	CI	0.01220	0.01219	0.01212

SKY130_OSU_SC_18T_LS__ADDHx

sky130_osu_sc_18T_ls_tt_1P20_25C.ccs
Cell Library: Process , Voltage 1.20,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_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	0.00948	0.01024	0.58915	0.24992	0.59079
sky130_osu_sc_18T_ls__addh_l	0.00948	0.01025	0.33076	0.25172	0.33694

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__addh_1	0.00000	0.00060	0.00061
sky130_osu_sc_18T_ls__addh_l	0.00000	0.00048	0.00061

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)	0.31288	1.52249	10.20710
	B->CO (RR)	0.32031	1.52832	10.43320
sky130_osu_sc_18T_ls__addh_l	A->CO (RR)	0.33349	1.71701	10.11680
	B->CO (RR)	0.34082	1.72508	10.34640

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)	0.33850	1.19318	8.35303
	B->CO (FF)	0.35622	1.21384	8.42662
sky130_osu_sc_18T_ls__addh_l	A->CO (FF)	0.32368	1.19344	7.94353
	B->CO (FF)	0.34165	1.21407	8.02645

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	0.44291	1.30972	6.23648
	A->CON (FR)	!B	0.43938	2.02907	13.57640
	B->CON (RR)	A	0.45094	1.31546	6.45356
	B->CON (FR)	!A	0.51492	2.16091	13.96900
sky130_osu_sc_18T_ls__addh_l	A->CON (RR)	B	0.39654	1.25916	6.09848
	A->CON (FR)	!B	0.39315	1.98581	13.58060
	B->CON (RR)	A	0.40448	1.26699	6.32651
	B->CON (FR)	!A	0.46855	2.11777	13.97350

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	0.44688	1.29746	7.89308
	A->CON (RF)	!B	0.12022	0.84962	6.96592
	B->CON (FF)	A	0.46000	1.32781	8.06383
	B->CON (RF)	!A	0.13595	0.85309	6.86961
sky130_osu_sc_18T_ls__addh_l	A->CON (FF)	B	0.40134	1.24736	7.71761
	A->CON (RF)	!B	0.11092	0.84127	6.97098
	B->CON (FF)	A	0.41372	1.27823	7.89949
	B->CON (RF)	!A	0.12686	0.84502	6.87449

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	0.32479	2.61714	22.17220
	A->S (FR)	B	0.65416	3.03740	22.74870
	B->S (RR)	!A	0.33929	2.57255	21.62590
	B->S (FR)	A	0.66972	3.11673	23.39450
	CON->S (FR)	-	0.11017	1.45290	13.73130
sky130_osu_sc_18T_ls__addh_l	A->S (RR)	!B	0.34036	2.50938	18.11130
	A->S (FR)	B	0.63435	2.90303	18.62630
	B->S (RR)	!A	0.35616	2.48440	17.81650
	B->S (FR)	A	0.64869	2.96297	19.03000
	CON->S (FR)	-	0.14621	1.69062	13.90170

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	0.68434	4.59276	37.55580
	A->S (RF)	B	0.59860	2.72401	18.93320
	B->S (FF)	!A	0.75980	4.72346	37.98800
	B->S (RF)	A	0.60651	2.72922	19.15570
	CON->S (RF)	-	0.04536	0.77338	7.83277
sky130_osu_sc_18T_ls__addh_l	A->S (FF)	!B	0.64002	3.72679	25.58010
	A->S (RF)	B	0.55390	2.30161	13.07570
	B->S (FF)	!A	0.71532	3.86216	25.98710
	B->S (RF)	A	0.56178	2.30907	13.31070
	CON->S (RF)	-	0.05234	0.81024	7.59464

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	0.00346	0.00335	0.00319
	B	0.00000	0.00000	0.00000
	B	0.00322	0.00312	0.00297
sky130_osu_sc_18T_ls__addh_l	A	0.00000	0.00000	0.00000
	A	0.00283	0.00268	0.00255
	B	0.00000	0.00000	0.00000
	B	0.00259	0.00245	0.00232

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	0.00541	0.00530	0.00496
	B	0.00000	0.00000	0.00000
	B	0.00559	0.00561	0.00529
sky130_osu_sc_18T_ls__addh_l	A	0.00000	0.00000	0.00000
	A	0.00478	0.00465	0.00443
	B	0.00000	0.00000	0.00000
	B	0.00496	0.00494	0.00475

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	0.00345	0.00333	0.00322
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00465	0.00462	0.00459
	B	A	0.00000	0.00000	0.00000
	B	A	0.00321	0.00310	0.00296
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00505	0.00502	0.00500
sky130_osu_sc_18T_ls__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.00282	0.00267	0.00253
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00422	0.00418	0.00415
	B	A	0.00000	0.00000	0.00000
	B	A	0.00259	0.00244	0.00232
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00463	0.00457	0.00456

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	0.00541	0.00532	0.00519
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00090	0.00090	0.00083
	B	A	0.00000	0.00000	0.00000
	B	A	0.00559	0.00561	0.00551
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00141	0.00135	0.00129
sky130_osu_sc_18T_ls__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.00478	0.00465	0.00446
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00038	0.00037	0.00026
	B	A	0.00000	0.00000	0.00000
	B	A	0.00496	0.00494	0.00479
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00088	0.00083	0.00072

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	0.00542	0.00531	0.00518
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00091	0.00092	0.00090
	B	A	0.00000	0.00000	0.00000
	B	A	0.00560	0.00562	0.00553
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00142	0.00138	0.00134
sky130_osu_sc_18T_ls__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.00479	0.00466	0.00456
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00039	0.00037	0.00032
	B	A	0.00000	0.00000	0.00000
	B	A	0.00497	0.00494	0.00489
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00090	0.00084	0.00078

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	0.00346	0.00334	0.00319
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00464	0.00464	0.00465
	B	A	0.00000	0.00000	0.00000
	B	A	0.00322	0.00311	0.00298
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00506	0.00504	0.00504
sky130_osu_sc_18T_ls__addh_l	A	B	0.00000	0.00000	0.00000
	A	B	0.00283	0.00266	0.00255
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00422	0.00419	0.00417
	B	A	0.00000	0.00000	0.00000
	B	A	0.00259	0.00244	0.00230
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00463	0.00459	0.00457

SKY130_OSU_SC_18T_LS__AND2x

sky130_osu_sc_18T_ls_tt_1P20_25C.ccs
Cell Library: Process , Voltage 1.20,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_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	0.00507	0.00516	0.58952
sky130_osu_sc_18T_ls__and2_2	0.00507	0.00515	1.17544
sky130_osu_sc_18T_ls__and2_4	0.00507	0.00515	2.30077
sky130_osu_sc_18T_ls__and2_6	0.00510	0.00515	3.38539
sky130_osu_sc_18T_ls__and2_8	0.00507	0.00516	4.42904
sky130_osu_sc_18T_ls__and2_l	0.00394	0.00403	0.41730

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__and2_1	0.00000	0.00023	0.00031
sky130_osu_sc_18T_ls__and2_2	0.00000	0.00032	0.00055
sky130_osu_sc_18T_ls__and2_4	0.00000	0.00049	0.00104
sky130_osu_sc_18T_ls__and2_6	0.00000	0.00067	0.00152
sky130_osu_sc_18T_ls__and2_8	0.00000	0.00084	0.00200
sky130_osu_sc_18T_ls__and2_l	0.00000	0.00013	0.00017

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)	0.24080	1.41168	9.69322
	B->Y (RR)	0.25095	1.42759	9.99162
sky130_osu_sc_18T_ls__and2_2	A->Y (RR)	0.27214	1.30137	10.11550
	B->Y (RR)	0.28235	1.30944	10.35220
sky130_osu_sc_18T_ls__and2_4	A->Y (RR)	0.37631	1.31415	10.75980
	B->Y (RR)	0.38648	1.31758	10.92970
sky130_osu_sc_18T_ls__and2_6	A->Y (RR)	0.47951	1.38009	11.15880
	B->Y (RR)	0.48974	1.38501	11.28950
sky130_osu_sc_18T_ls__and2_8	A->Y (RR)	0.58108	1.46886	11.54030
	B->Y (RR)	0.59132	1.47728	11.63480
sky130_osu_sc_18T_ls__and2_l	A->Y (RR)	0.26882	1.54784	9.76133
	B->Y (RR)	0.27950	1.56385	10.03940

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)**	0.24670	1.07569	7.78808
	B->Y (FF)	0.26555	1.09441	7.90821
sky130_osu_sc_18T_ls__and2_2	**A->Y (FF)**	0.30919	1.09875	8.20547
	B->Y (FF)	0.32944	1.12436	8.30039
sky130_osu_sc_18T_ls__and2_4	**A->Y (FF)**	0.45565	1.24161	8.82166
	B->Y (FF)	0.47626	1.26460	8.89134
sky130_osu_sc_18T_ls__and2_6	**A->Y (FF)**	0.60358	1.39994	9.22894
	B->Y (FF)	0.62391	1.42170	9.28770
sky130_osu_sc_18T_ls__and2_8	**A->Y (FF)**	0.74438	1.55507	9.53928
	B->Y (FF)	0.76600	1.57820	9.58504
sky130_osu_sc_18T_ls__and2_l	**A->Y (FF)**	0.26522	1.12467	7.78065
	B->Y (FF)	0.28727	1.14912	7.90498

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	0.00292	0.00266	0.00252
	B	0.00000	0.00000	0.00000
	B	0.00296	0.00273	0.00294
sky130_osu_sc_18T_ls__and2_2	A	0.00000	0.00000	0.00000
	A	0.00546	0.00537	0.00524
	B	0.00000	0.00000	0.00000
	B	0.00550	0.00545	0.00533
sky130_osu_sc_18T_ls__and2_4	A	0.00000	0.00000	0.00000
	A	0.01099	0.01113	0.01119
	B	0.00000	0.00000	0.00000
	B	0.01102	0.01122	0.01139
sky130_osu_sc_18T_ls__and2_6	A	0.00000	0.00000	0.00000
	A	0.01646	0.01689	0.01717
	B	0.00000	0.00000	0.00000
	B	0.01651	0.01711	0.01723
sky130_osu_sc_18T_ls__and2_8	A	0.00000	0.00000	0.00000
	A	0.02190	0.02270	0.02304
	B	0.00000	0.00000	0.00000
	B	0.02194	0.02283	0.02313
sky130_osu_sc_18T_ls__and2_l	A	0.00000	0.00000	0.00000
	A	0.00215	0.00196	0.00185
	B	0.00000	0.00000	0.00000
	B	0.00219	0.00201	0.00189

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	0.00656	0.00643	0.00632
	B	0.00000	0.00000	0.00000
	B	0.00733	0.00721	0.00710
sky130_osu_sc_18T_ls__and2_2	A	0.00000	0.00000	0.00000
	A	0.00833	0.00850	0.00843
	B	0.00000	0.00000	0.00000
	B	0.00912	0.00931	0.00920
sky130_osu_sc_18T_ls__and2_4	A	0.00000	0.00000	0.00000
	A	0.01267	0.01351	0.01349
	B	0.00000	0.00000	0.00000
	B	0.01345	0.01426	0.01424
sky130_osu_sc_18T_ls__and2_6	A	0.00000	0.00000	0.00000
	A	0.01705	0.01847	0.01866
	B	0.00000	0.00000	0.00000
	B	0.01782	0.01917	0.01935
sky130_osu_sc_18T_ls__and2_8	A	0.00000	0.00000	0.00000
	A	0.02126	0.02321	0.02368
	B	0.00000	0.00000	0.00000
	B	0.02203	0.02388	0.02432
sky130_osu_sc_18T_ls__and2_l	A	0.00000	0.00000	0.00000
	A	0.00507	0.00495	0.00486
	B	0.00000	0.00000	0.00000
	B	0.00565	0.00555	0.00544

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)	-0.00230	-0.00231	-0.00233
sky130_osu_sc_18T_ls__and2_2	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00230	-0.00231	-0.00233
sky130_osu_sc_18T_ls__and2_4	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00230	-0.00231	-0.00233
sky130_osu_sc_18T_ls__and2_6	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00231	-0.00232	-0.00234
sky130_osu_sc_18T_ls__and2_8	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00229	-0.00231	-0.00233
sky130_osu_sc_18T_ls__and2_l	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	-0.00169	-0.00170	-0.00171

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)	0.00232	0.00238	0.00234
sky130_osu_sc_18T_ls__and2_2	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00232	0.00238	0.00234
sky130_osu_sc_18T_ls__and2_4	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00232	0.00237	0.00234
sky130_osu_sc_18T_ls__and2_6	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00234	0.00239	0.00235
sky130_osu_sc_18T_ls__and2_8	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00232	0.00237	0.00234
sky130_osu_sc_18T_ls__and2_l	(!B * !Y)	0.00000	0.00000	0.00000
	(!B * !Y)	0.00171	0.00175	0.00172

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)	-0.00218	-0.00218	-0.00218
sky130_osu_sc_18T_ls__and2_2	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00217	-0.00218	-0.00218
sky130_osu_sc_18T_ls__and2_4	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00218	-0.00218	-0.00218
sky130_osu_sc_18T_ls__and2_6	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00218	-0.00218	-0.00218
sky130_osu_sc_18T_ls__and2_8	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00218	-0.00218	-0.00218
sky130_osu_sc_18T_ls__and2_l	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	-0.00160	-0.00160	-0.00160

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)	0.00219	0.00220	0.00219
sky130_osu_sc_18T_ls__and2_2	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00219	0.00220	0.00219
sky130_osu_sc_18T_ls__and2_4	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00218	0.00220	0.00219
sky130_osu_sc_18T_ls__and2_6	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00218	0.00220	0.00219
sky130_osu_sc_18T_ls__and2_8	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00218	0.00220	0.00219
sky130_osu_sc_18T_ls__and2_l	(!A * !Y)	0.00000	0.00000	0.00000
	(!A * !Y)	0.00161	0.00163	0.00161

SKY130_OSU_SC_18T_LS__AOI21

sky130_osu_sc_18T_ls_tt_1P20_25C.ccs
Cell Library: Process , Voltage 1.20,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_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	0.00472	0.00496	0.00485	0.25182

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__aoi21_l	0.00000	0.00013	0.00034

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)	0.37945	2.07860	14.12330
	A1->Y (FR)	0.32959	1.99084	13.88150
	B0->Y (FR)	0.29117	1.92353	13.71860

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)	0.09880	0.81642	6.78743
	A1->Y (RF)	0.08935	0.80516	6.83368
	B0->Y (RF)	0.05975	0.74006	6.62781

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	0.00531	0.00524	0.00522
	A1	0.00000	0.00000	0.00000
	A1	0.00451	0.00442	0.00440
	B0	0.00436	0.00425	0.00422

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	0.00101	0.00089	0.00077
	A1	0.00000	0.00000	0.00000
	A1	0.00103	0.00089	0.00077
	B0	-0.00038	-0.00039	-0.00047

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)	-0.00194	-0.00200	-0.00198
	(!A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !Y)	-0.00204	-0.00205	-0.00205
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00204	-0.00205	-0.00205

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)	0.00197	0.00200	0.00198
	(!A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !Y)	0.00205	0.00206	0.00205
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00206	0.00205	0.00205

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)	-0.00192	-0.00198	-0.00196
	(!A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !Y)	-0.00201	-0.00204	-0.00202
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	-0.00218	-0.00220	-0.00222

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)	0.00195	0.00198	0.00196
	(!A0 * B0 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !Y)	0.00201	0.00204	0.00203
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	0.00222	0.00226	0.00222

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)	-0.00117	-0.00119	-0.00117

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)	0.00134	0.00135	0.00122

SKY130_OSU_SC_18T_LS__AOI22

sky130_osu_sc_18T_ls_tt_1P20_25C.ccs
Cell Library: Process , Voltage 1.20,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_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	0.00473	0.00496	0.00517	0.00492	0.24428

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__aoi22_1	0.00000	0.00022	0.00048

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)	0.48463	2.18270	14.10830
	A1->Y (FR)	0.43579	2.11114	13.95670
	B0->Y (FR)	0.31339	1.92093	13.51100
	B1->Y (FR)	0.36185	1.99477	13.66400

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)	0.12295	0.83846	6.75672
	A1->Y (RF)	0.11338	0.82752	6.80053
	B0->Y (RF)	0.07816	0.78496	6.73090
	B1->Y (RF)	0.08720	0.79337	6.69184

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	0.00651	0.00644	0.00641
	A1	0.00573	0.00562	0.00558
	B0	0.00469	0.00454	0.00448
	B1	0.00545	0.00533	0.00529

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__aoi22_l	A0	0.00212	0.00201	0.00185
	A1	0.00214	0.00201	0.00185
	B0	-0.00011	-0.00013	-0.00020
	B1	-0.00010	-0.00012	-0.00019

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)	-0.00195	-0.00200	-0.00198
	(!A1 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * B1 * !Y)	-0.00204	-0.00206	-0.00205
	(!A1 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !B1 * Y)	-0.00204	-0.00205	-0.00205
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00204	-0.00205	-0.00205

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)	0.00197	0.00202	0.00198
	(!A1 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * B1 * !Y)	0.00205	0.00206	0.00205
	(!A1 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * B0 * !B1 * Y)	0.00206	0.00206	0.00205
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00205	0.00206	0.00205

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)	-0.00192	-0.00198	-0.00196
	(!A0 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * B1 * !Y)	-0.00202	-0.00204	-0.00202
	(!A0 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !B1 * Y)	-0.00218	-0.00220	-0.00221
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	-0.00218	-0.00220	-0.00221

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)	0.00195	0.00199	0.00196
	(!A0 * B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * B1 * !Y)	0.00202	0.00206	0.00203
	(!A0 * B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * B0 * !B1 * Y)	0.00221	0.00226	0.00222
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	0.00221	0.00226	0.00222

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)	-0.00117	-0.00120	-0.00118
	(A0 * A1 * !B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B1 * !Y)	-0.00117	-0.00118	-0.00118
	(!A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B1 * Y)	-0.00224	-0.00225	-0.00228
	(!A0 * A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B1 * Y)	-0.00224	-0.00225	-0.00228

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)	0.00139	0.00140	0.00123
	(A0 * A1 * !B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B1 * !Y)	0.00117	0.00119	0.00118
	(!A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B1 * Y)	0.00227	0.00229	0.00228
	(!A0 * A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B1 * Y)	0.00227	0.00229	0.00228

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)	-0.00119	-0.00120	-0.00119
	(A0 * A1 * !B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B0 * !Y)	-0.00118	-0.00119	-0.00118
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00208	-0.00208	-0.00208
	(!A0 * A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B0 * Y)	-0.00208	-0.00208	-0.00208

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)	0.00140	0.00140	0.00124
	(A0 * A1 * !B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * A1 * !B0 * !Y)	0.00118	0.00119	0.00118
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00208	0.00209	0.00209
	(!A0 * A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * A1 * !B0 * Y)	0.00208	0.00209	0.00209

SKY130_OSU_SC_18T_LS__BUFx

sky130_osu_sc_18T_ls_tt_1P20_25C.ccs
Cell Library: Process , Voltage 1.20,
Temp 25.00

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	0.00517	0.59035
sky130_osu_sc_18T_ls__buf_2	0.00517	1.16960
sky130_osu_sc_18T_ls__buf_4	0.00516	2.29346
sky130_osu_sc_18T_ls__buf_6	0.00097	1.80000
sky130_osu_sc_18T_ls__buf_8	0.00517	4.47507
sky130_osu_sc_18T_ls__buf_l	0.00408	0.41352

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__buf_1	0.00000	0.00028	0.00028
sky130_osu_sc_18T_ls__buf_2	0.00000	0.00042	0.00052
sky130_osu_sc_18T_ls__buf_4	0.00000	0.00069	0.00100
sky130_osu_sc_18T_ls__buf_6	0.00000	0.00000	0.00000
sky130_osu_sc_18T_ls__buf_8	0.00000	0.00125	0.00196
sky130_osu_sc_18T_ls__buf_l	0.00000	0.00013	0.00013

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)	0.17522	1.34345	9.58734
sky130_osu_sc_18T_ls__buf_2	A->Y (RR)	0.18322	1.20631	9.91225
sky130_osu_sc_18T_ls__buf_4	A->Y (RR)	0.24391	1.17633	10.48790
sky130_osu_sc_18T_ls__buf_8	A->Y (RR)	0.36573	1.23880	11.20710
sky130_osu_sc_18T_ls__buf_l	A->Y (RR)	0.19885	1.46880	9.54276

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)	0.23244	1.05893	7.70796
sky130_osu_sc_18T_ls__buf_2	A->Y (FF)	0.29733	1.08776	8.14600
sky130_osu_sc_18T_ls__buf_4	A->Y (FF)	0.44471	1.22678	8.77479
sky130_osu_sc_18T_ls__buf_8	A->Y (FF)	0.73536	1.54362	9.54069
sky130_osu_sc_18T_ls__buf_l	A->Y (FF)	0.25481	1.10991	7.69090

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	0.00269	0.00237	0.00223
sky130_osu_sc_18T_ls__buf_2	A	0.00000	0.00000	0.00000
	A	0.00525	0.00509	0.00491
sky130_osu_sc_18T_ls__buf_4	A	0.00000	0.00000	0.00000
	A	0.01082	0.01096	0.01094
sky130_osu_sc_18T_ls__buf_8	A	0.00000	0.00000	0.00000
	A	0.02179	0.02234	0.02277
sky130_osu_sc_18T_ls__buf_l	A	0.00000	0.00000	0.00000
	A	0.00205	0.00180	0.00168

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	0.00641	0.00625	0.00617
sky130_osu_sc_18T_ls__buf_2	A	0.00000	0.00000	0.00000
	A	0.00816	0.00832	0.00822
sky130_osu_sc_18T_ls__buf_4	A	0.00000	0.00000	0.00000
	A	0.01252	0.01328	0.01326
sky130_osu_sc_18T_ls__buf_8	A	0.00000	0.00000	0.00000
	A	0.02113	0.02298	0.02342
sky130_osu_sc_18T_ls__buf_l	A	0.00000	0.00000	0.00000
	A	0.00501	0.00485	0.00477

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
	-0.00034	-0.00034	-0.00034

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
	0.00034	0.00034	0.00034

SKY130_OSU_SC_18T_LS__DFFRx

sky130_osu_sc_18T_ls_tt_1P20_25C.ccs
Cell Library: Process , Voltage 1.20,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_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	0.00486	0.00491	0.01480	0.58779	0.58219
sky130_osu_sc_18T_ls__dffr_l	0.00486	0.00491	0.01479	0.41684	0.41628

Leakage Information

Cell Name	Leakage(nW)		
	Min.	**Avg**	**Max.**
sky130_osu_sc_18T_ls__dffr_1	0.00000	0.00114	0.00134
sky130_osu_sc_18T_ls__dffr_l	0.00000	0.00099	0.00120

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)	1.30815	3.12808	16.08020
	QN->Q (FR)	0.11385	1.50860	14.24380
sky130_osu_sc_18T_ls__dffr_l	CK->Q (RR)	1.26216	3.20998	15.66950
	QN->Q (FR)	0.12817	1.60194	13.96100

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)	1.13668	3.26805	19.42580
	QN->Q (RF)	0.05459	0.86133	8.62253
	RN->Q (FF)	0.77056	3.06100	21.82610
sky130_osu_sc_18T_ls__dffr_l	CK->Q (RF)	1.15893	3.49277	19.14240
	QN->Q (RF)	0.05686	0.87028	8.32150
	RN->Q (FF)	0.79448	3.28175	21.53440

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)	1.00236	2.19557	10.73000
	RN->QN (FR)	0.63433	1.98641	13.12460
sky130_osu_sc_18T_ls__dffr_l	CK->QN (RR)	1.00702	2.30024	10.70370
	RN->QN (FR)	0.64044	2.09188	13.08730

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)**	1.10699	1.86738	6.08398
sky130_osu_sc_18T_ls__dffr_l	**CK->QN (RF)**	1.04750	1.81568	5.90496

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)	-0.17041	-0.21227	-1.20686
	setup	CK (R)	1.02796	1.01885	2.16480
sky130_osu_sc_18T_ls__dffr_l	hold	CK (R)	-0.17133	-0.21439	-1.20824
	setup	CK (R)	1.03074	1.02454	2.17472

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)	-0.56071	-1.06454	-10.64690
	setup	CK (R)	0.65069	1.12234	10.76650
sky130_osu_sc_18T_ls__dffr_l	hold	CK (R)	-0.56040	-1.06355	-10.64680
	setup	CK (R)	0.65012	1.12234	10.76630

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)	-0.17041	-0.21227	-1.20686
	setup	CK (R)	1.02796	1.01885	2.16480
sky130_osu_sc_18T_ls__dffr_l	hold	CK (R)	-0.17133	-0.21439	-1.20824
	setup	CK (R)	1.03074	1.02454	2.17472

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)	-0.56071	-1.06454	-10.64690
	setup	CK (R)	0.65069	1.12234	10.76650
sky130_osu_sc_18T_ls__dffr_l	hold	CK (R)	-0.56040	-1.06355	-10.64680
	setup	CK (R)	0.65012	1.12234	10.76630

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)	0.90958	0.90937	1.77042
	removal	CK (R)	-0.13687	-0.15835	-0.12660
sky130_osu_sc_18T_ls__dffr_l	recovery	CK (R)	0.91236	0.91044	1.76339
	removal	CK (R)	-0.13439	-0.15658	-0.12668

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)	0.90958	0.90937	1.77042
	removal	CK (R)	-0.13687	-0.15835	-0.12660
sky130_osu_sc_18T_ls__dffr_l	recovery	CK (R)	0.91236	0.91044	1.76339
	removal	CK (R)	-0.13439	-0.15658	-0.12668

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 ()	0.48332	0.92100	13.33370
	min_pulse_width	RN ()	0.48332	0.92100	13.33370
sky130_osu_sc_18T_ls__dffr_l	min_pulse_width	RN ()	0.48116	0.91675	13.33370
	min_pulse_width	RN ()	0.47770	0.91675	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 ()	0.58399	0.71471	13.33370
	min_pulse_width	CK ()	0.63974	0.64453	13.33370
sky130_osu_sc_18T_ls__dffr_l	min_pulse_width	CK ()	0.52929	0.68494	13.33370
	min_pulse_width	CK ()	0.62538	0.64453	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 ()	1.31978	1.38037	13.33370
	min_pulse_width	CK ()	0.53666	0.95503	13.33370
sky130_osu_sc_18T_ls__dffr_l	min_pulse_width	CK ()	1.32323	1.38675	13.33370
	min_pulse_width	CK ()	0.53306	0.95503	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	0.00641	0.00585	0.00233
sky130_osu_sc_18T_ls__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.00570	0.00520	0.00301

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	0.00720	0.00695	0.00596
	RN	-0.00093	-0.02417	-0.21160
	RN	0.01601	0.01585	0.01469
sky130_osu_sc_18T_ls__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.00647	0.00623	0.00561
	RN	-0.00093	-0.01967	-0.15006
	RN	0.01527	0.01512	0.01433

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	0.00721	0.00696	0.00598
	RN	-0.00093	-0.02403	-0.20959
	RN	0.01602	0.01586	0.01469
sky130_osu_sc_18T_ls__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.00647	0.00623	0.00563
	RN	-0.00093	-0.01965	-0.14986
	RN	0.01527	0.01513	0.01433

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	0.00638	0.00581	0.00217
sky130_osu_sc_18T_ls__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.00566	0.00516	0.00303

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	-0.00191	-0.00199	-0.00197
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00724	0.00702	0.00676
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.00331	0.00310	0.00287
sky130_osu_sc_18T_ls__dffr_l	CK	0.00000	0.00000	0.00000
	CK	-0.00191	-0.00199	-0.00197
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00724	0.00702	0.00676
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.00331	0.00310	0.00287

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	0.00196	0.00199	0.00197
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.01206	0.01192	0.01170
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.00557	0.00544	0.00539
sky130_osu_sc_18T_ls__dffr_l	CK	0.00000	0.00000	0.00000
	CK	0.00196	0.00199	0.00197
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * RN * Q * !QN) + (!CK * RN * !Q * QN)	0.01206	0.01192	0.01170
	(!CK * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !Q * QN)	0.00557	0.00544	0.00539

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)	0.00260	0.00232	0.00212
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.00681	0.00639	0.00608
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)	0.00260	0.00232	0.00212
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.00681	0.00639	0.00608

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)	0.00565	0.00544	0.00538
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.01202	0.01173	0.01145
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)	0.00565	0.00544	0.00538
	(!CK * D * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !Q * QN)	0.01202	0.01173	0.01145

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)	-0.00018	-0.00052	-0.00077
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.00355	0.00304	0.00251
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	-0.00045	-0.00079	-0.00104
sky130_osu_sc_18T_ls__dffr_l	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	-0.00018	-0.00052	-0.00077
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.00355	0.00304	0.00251
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	-0.00045	-0.00079	-0.00104

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)	0.00931	0.00904	0.00885
	(D * RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * RN * !Q * QN)	0.01913	0.01879	0.01812
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.01460	0.01452	0.01420
	(!D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * Q * !QN)	0.01910	0.01857	0.01811
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.01012	0.00987	0.00972
sky130_osu_sc_18T_ls__dffr_l	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.00931	0.00904	0.00885
	(D * RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * RN * !Q * QN)	0.01913	0.01879	0.01812
	(D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !Q * QN)	0.01460	0.01452	0.01419
	(!D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * Q * !QN)	0.01910	0.01857	0.01811
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.01012	0.00987	0.00972

SKY130_OSU_SC_18T_LS__DFFSRx

sky130_osu_sc_18T_ls_tt_1P20_25C.ccs
Cell Library: Process , Voltage 1.20,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_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	0.00482	0.00492	0.01049	0.01507	0.59285	0.59255
sky130_osu_sc_18T_ls__dffsr_l	0.00482	0.00492	0.01047	0.01507	0.41722	0.41804

Leakage Information

Cell Name	Leakage(nW)		
	Min.	**Avg**	**Max.**
sky130_osu_sc_18T_ls__dffsr_1	0.00000	0.00121	0.00157
sky130_osu_sc_18T_ls__dffsr_l	0.00000	0.00106	0.00143

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)	1.28301	3.07023	15.95150
	QN->Q (FR)	0.10991	1.48357	14.06600
	RN->Q (RR)	1.03826	2.84536	15.88660
	SN->Q (FR)	1.04071	2.98499	19.04100
sky130_osu_sc_18T_ls__dffsr_l	CK->Q (RR)	1.27327	3.22450	15.84190
	QN->Q (FR)	0.12811	1.60020	13.94950
	RN->Q (RR)	1.02996	3.00055	15.77580
	SN->Q (FR)	1.03224	3.14037	18.89540

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)	1.26638	3.38630	19.38150
	QN->Q (RF)	0.05020	0.82544	8.33035
	RN->Q (FF)	0.81441	3.07397	21.76360
sky130_osu_sc_18T_ls__dffsr_l	CK->Q (RF)	1.29894	3.64286	19.30710
	QN->Q (RF)	0.05675	0.86960	8.31878
	RN->Q (FF)	0.84994	3.33678	21.68880

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)	1.13280	2.33519	10.88920
	RN->QN (FR)	0.68326	2.02604	13.27560
sky130_osu_sc_18T_ls__dffsr_l	CK->QN (RR)	1.14334	2.45224	10.88610
	RN->QN (FR)	0.69621	2.14558	13.26810

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)	1.10025	1.84715	6.14366
	RN->QN (RF)	0.85421	1.62813	6.07579
	SN->QN (FF)	0.85653	1.76769	9.22866
sky130_osu_sc_18T_ls__dffsr_l	CK->QN (RF)	1.06864	1.83730	6.07722
	RN->QN (RF)	0.82310	1.61865	6.01345
	SN->QN (FF)	0.82585	1.75853	9.12934

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)	-0.19392	-0.23233	-1.32754
	setup	CK (R)	0.97881	0.96305	2.05690
sky130_osu_sc_18T_ls__dffsr_l	hold	CK (R)	-0.19264	-0.23317	-1.32854
	setup	CK (R)	0.98012	0.96688	2.05360

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)	-0.64350	-1.13421	-10.91720
	setup	CK (R)	0.75016	1.18442	10.99440
sky130_osu_sc_18T_ls__dffsr_l	hold	CK (R)	-0.64369	-1.13114	-10.91710
	setup	CK (R)	0.74811	1.18042	10.99280

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)	-0.19392	-0.23233	-1.32754
	setup	CK (R)	0.97881	0.96305	2.05690
sky130_osu_sc_18T_ls__dffsr_l	hold	CK (R)	-0.19264	-0.23317	-1.32854
	setup	CK (R)	0.98012	0.96688	2.05360

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)	-0.64350	-1.13421	-10.91720
	setup	CK (R)	0.75016	1.18442	10.99440
sky130_osu_sc_18T_ls__dffsr_l	hold	CK (R)	-0.64369	-1.13114	-10.91710
	setup	CK (R)	0.74811	1.18042	10.99280

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)	0.79422	0.78900	1.55534
	removal	CK (R)	-0.07307	-0.08701	-0.10557
	hold	SN (R)	-0.82868	-1.17494	-8.58979
	setup	SN (R)	0.86322	1.24755	9.91821
sky130_osu_sc_18T_ls__dffsr_l	recovery	CK (R)	0.79356	0.78943	1.56555
	removal	CK (R)	-0.07307	-0.08701	-0.09848
	hold	SN (R)	-0.78461	-1.13893	-8.48828
	setup	SN (R)	0.86044	1.21017	9.83195

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)	0.79422	0.78900	1.55534
	removal	CK (R)	-0.07307	-0.08701	-0.10557
	hold	SN (R)	-0.83619	-1.17494	-8.58979
	hold	SN (R)	-0.82868	-1.17895	-8.60532
	setup	SN (R)	0.86322	1.23567	9.87702
	setup	SN (R)	0.85043	1.24755	9.91821
sky130_osu_sc_18T_ls__dffsr_l	recovery	CK (R)	0.79356	0.78943	1.56555
	removal	CK (R)	-0.07307	-0.08701	-0.09848
	hold	SN (R)	-0.81082	-1.14091	-8.48828
	hold	SN (R)	-0.78461	-1.13893	-8.51134
	setup	SN (R)	0.86044	1.20701	9.78865
	setup	SN (R)	0.80540	1.21017	9.83195

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 ()	0.54261	0.95928	13.33370
	min_pulse_width	RN ()	0.55348	0.95928	13.33370
sky130_osu_sc_18T_ls__dffsr_l	min_pulse_width	RN ()	0.55109	0.95503	13.33370
	min_pulse_width	RN ()	0.54748	0.95503	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)	0.09498	0.12240	0.93487
	removal	CK (R)	-0.01753	-0.06155	-0.70291
sky130_osu_sc_18T_ls__dffsr_l	recovery	CK (R)	0.09318	0.12149	0.92504
	removal	CK (R)	-0.01884	-0.06424	-0.70720

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)	0.09498	0.12240	0.93487
	removal	CK (R)	-0.01753	-0.06155	-0.70291
sky130_osu_sc_18T_ls__dffsr_l	recovery	CK (R)	0.09318	0.12149	0.92504
	removal	CK (R)	-0.01884	-0.06424	-0.70720

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 ()	0.85955	1.29317	13.33370
	min_pulse_width	SN ()	0.85384	1.29955	13.33370
sky130_osu_sc_18T_ls__dffsr_l	min_pulse_width	SN ()	0.84877	1.25489	13.33370
	min_pulse_width	SN ()	0.80768	1.26553	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 ()	0.57454	0.69344	13.33370
	min_pulse_width	CK ()	0.69124	0.65304	13.33370
sky130_osu_sc_18T_ls__dffsr_l	min_pulse_width	CK ()	0.54126	0.68068	13.33370
	min_pulse_width	CK ()	0.68065	0.64878	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 ()	1.27203	1.32507	13.33370
	min_pulse_width	CK ()	0.64349	1.01670	13.33370
sky130_osu_sc_18T_ls__dffsr_l	min_pulse_width	CK ()	1.27203	1.32507	13.33370
	min_pulse_width	CK ()	0.64349	1.01670	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	0.00774	0.00732	0.00498
	RN	0.01435	0.01404	0.01169
	SN	-0.00093	-0.02430	-0.21343
	SN	0.01552	0.01528	0.01311
sky130_osu_sc_18T_ls__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.00709	0.00662	0.00447
	RN	0.01370	0.01334	0.01136
	SN	-0.00093	-0.01968	-0.15020
	SN	0.01486	0.01457	0.01275

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	0.00818	0.00799	0.00716
	RN	-0.00093	-0.02430	-0.21343
	RN	0.01654	0.01638	0.01539
sky130_osu_sc_18T_ls__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.00752	0.00732	0.00672
	RN	-0.00093	-0.01968	-0.15020
	RN	0.01586	0.01570	0.01495

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	0.00819	0.00800	0.00718
	RN	-0.00093	-0.02429	-0.21332
	RN	0.01654	0.01639	0.01538
sky130_osu_sc_18T_ls__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.00753	0.00734	0.00674
	RN	-0.00093	-0.01970	-0.15050
	RN	0.01587	0.01571	0.01494

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	0.00770	0.00728	0.00479
	RN	0.01432	0.01400	0.01148
	SN	-0.00093	-0.02429	-0.21331
	SN	0.01548	0.01524	0.01285
sky130_osu_sc_18T_ls__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.00704	0.00658	0.00445
	RN	0.01366	0.01330	0.01120
	SN	-0.00093	-0.01970	-0.15049
	SN	0.01482	0.01453	0.01253

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	-0.00191	-0.00199	-0.00197
	(!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)	0.00915	0.00895	0.00873
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.00370	0.00350	0.00328
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.00367	0.00348	0.00325
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.00372	0.00353	0.00330
sky130_osu_sc_18T_ls__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	-0.00191	-0.00199	-0.00197
	(!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)	0.00915	0.00895	0.00873
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.00370	0.00350	0.00328
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.00367	0.00348	0.00325
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.00372	0.00353	0.00330

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	0.00197	0.00199	0.00197
	(!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)	0.01360	0.01347	0.01310
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.00592	0.00581	0.00576
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.00595	0.00583	0.00578
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.00589	0.00578	0.00573
sky130_osu_sc_18T_ls__dffsr_l	CK	0.00000	0.00000	0.00000
	CK	0.00197	0.00199	0.00197
	(!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)	0.01360	0.01346	0.01310
	(!CK * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * RN * !SN * Q * !QN)	0.00591	0.00580	0.00575
	(!CK * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * SN * !Q * QN)	0.00594	0.00583	0.00578
	(!CK * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * !RN * !SN * !Q * QN)	0.00589	0.00577	0.00573

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)	0.00260	0.00232	0.00201
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.00828	0.00786	0.00745
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)	0.00260	0.00232	0.00202
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.00828	0.00786	0.00745

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)	0.00616	0.00594	0.00589
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.01279	0.01247	0.01214
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)	0.00616	0.00593	0.00588
	(!CK * D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * SN * !Q * QN)	0.01278	0.01246	0.01213

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)	-0.00455	-0.00458	-0.00462
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	-0.00468	-0.00475	-0.00473
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	-0.00451	-0.00456	-0.00455
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.00289	0.00267	0.00229
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)	-0.00455	-0.00458	-0.00462
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	-0.00467	-0.00474	-0.00472
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	-0.00450	-0.00455	-0.00454
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.00290	0.00268	0.00230

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)	0.00462	0.00471	0.00463
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00469	0.00476	0.00473
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	0.00452	0.00460	0.00455
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.00943	0.00926	0.00926
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)	0.00462	0.00471	0.00463
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(CK * !RN * !Q * QN) + (!CK * !D * !RN * !Q * QN)	0.00469	0.00475	0.00472
	(!CK * D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * D * !RN * !Q * QN)	0.00452	0.00460	0.00455
	(!CK * !D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * RN * Q * !QN)	0.00943	0.00926	0.00922

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)	-0.00018	-0.00052	-0.00078
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.00403	0.00356	0.00303
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.00398	0.00351	0.00299
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	-0.00034	-0.00069	-0.00092
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.00331	0.00267	0.00220
sky130_osu_sc_18T_ls__dffsr_l	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	-0.00018	-0.00052	-0.00078
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.00402	0.00355	0.00303
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.00398	0.00350	0.00298
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	-0.00034	-0.00069	-0.00092
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.00331	0.00267	0.00220

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)	0.02113	0.02081	0.02011
	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.00934	0.00905	0.00887
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.01485	0.01478	0.01442
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.01491	0.01482	0.01449
	(!D * RN * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * Q * !QN)	0.02062	0.02008	0.01943
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.01003	0.00977	0.00963
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.01215	0.01161	0.01140
sky130_osu_sc_18T_ls__dffsr_l	**(D * RN * SN * !Q * QN)**	0.00000	0.00000	0.00000
	(D * RN * SN * !Q * QN)	0.02113	0.02081	0.02011
	(D * RN * Q * !QN)	0.00000	0.00000	0.00000
	(D * RN * Q * !QN)	0.00934	0.00905	0.00887
	(D * !RN * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * SN * !Q * QN)	0.01485	0.01478	0.01442
	(D * !RN * !SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * !RN * !SN * !Q * QN)	0.01491	0.01482	0.01449
	(!D * RN * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * Q * !QN)	0.02061	0.02007	0.01943
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * RN * SN * !Q * QN) + (!D * !RN * !Q * QN)	0.01003	0.00977	0.00963
	(!D * RN * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * RN * !SN * Q * !QN)	0.01214	0.01160	0.01140

SKY130_OSU_SC_18T_LS__DFFSx

sky130_osu_sc_18T_ls_tt_1P20_25C.ccs
Cell Library: Process , Voltage 1.20,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_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	0.00485	0.00847	0.01473	0.58818	0.58662
sky130_osu_sc_18T_ls__dffs_l	0.00485	0.00847	0.01473	0.41765	0.41578

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__dffs_1	0.00000	0.00090	0.00122
sky130_osu_sc_18T_ls__dffs_l	0.00000	0.00076	0.00108

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)	0.79745	2.56529	15.55470
	QN->Q (FR)	0.11370	1.50363	14.19750
	SN->Q (FR)	0.66445	2.59561	18.70150
sky130_osu_sc_18T_ls__dffs_l	CK->Q (RR)	0.79009	2.69702	15.21190
	QN->Q (FR)	0.12795	1.59892	13.93660
	SN->Q (FR)	0.65840	2.72976	18.30200

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)	1.24701	3.37924	19.50460
	QN->Q (RF)	0.05416	0.85612	8.60323
sky130_osu_sc_18T_ls__dffs_l	CK->Q (RF)	1.25948	3.59404	19.25410
	QN->Q (RF)	0.05652	0.86783	8.31116

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)	1.10778	2.30932	10.87300
sky130_osu_sc_18T_ls__dffs_l	CK->QN (RR)	1.10385	2.39968	10.78170

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)	0.63138	1.33266	5.60061
	SN->QN (FF)	0.49450	1.36645	8.74467
sky130_osu_sc_18T_ls__dffs_l	CK->QN (RF)	0.60756	1.32269	5.44659
	SN->QN (FF)	0.47100	1.35776	8.53217

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)	-0.12961	-0.17927	-1.13135
	setup	CK (R)	0.56021	0.54608	1.77363
sky130_osu_sc_18T_ls__dffs_l	hold	CK (R)	-0.13151	-0.17919	-1.13118
	setup	CK (R)	0.56199	0.54616	1.77767

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)	-0.57703	-1.07957	-10.72070
	setup	CK (R)	0.72997	1.14491	10.83970
sky130_osu_sc_18T_ls__dffs_l	hold	CK (R)	-0.57723	-1.07781	-10.71960
	setup	CK (R)	0.72952	1.14466	10.83960

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)	-0.12961	-0.17927	-1.13135
	setup	CK (R)	0.56021	0.54608	1.77363
sky130_osu_sc_18T_ls__dffs_l	hold	CK (R)	-0.13151	-0.17919	-1.13118
	setup	CK (R)	0.56199	0.54616	1.77767

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)	-0.57703	-1.07957	-10.72070
	setup	CK (R)	0.72997	1.14491	10.83970
sky130_osu_sc_18T_ls__dffs_l	hold	CK (R)	-0.57723	-1.07781	-10.71960
	setup	CK (R)	0.72952	1.14466	10.83960

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)	0.12664	0.15099	1.02641
	removal	CK (R)	-0.02756	-0.07203	-0.71071
sky130_osu_sc_18T_ls__dffs_l	recovery	CK (R)	0.12615	0.15068	1.00894
	removal	CK (R)	-0.02756	-0.07203	-0.71071

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)	0.12664	0.15099	1.02641
	removal	CK (R)	-0.02756	-0.07203	-0.71071
sky130_osu_sc_18T_ls__dffs_l	recovery	CK (R)	0.12615	0.15068	1.00894
	removal	CK (R)	-0.02756	-0.07203	-0.71071

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 ()	0.47141	1.05498	13.33370
	min_pulse_width	SN ()	0.47941	1.05498	13.33370
sky130_osu_sc_18T_ls__dffs_l	min_pulse_width	SN ()	0.45679	1.02096	13.33370
	min_pulse_width	SN ()	0.44787	1.02734	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 ()	0.27350	0.64453	13.33370
	min_pulse_width	CK ()	0.67854	0.64666	13.33370
sky130_osu_sc_18T_ls__dffs_l	min_pulse_width	CK ()	0.26154	0.64453	13.33370
	min_pulse_width	CK ()	0.65942	0.64453	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 ()	0.85194	0.94865	13.33370
	min_pulse_width	CK ()	0.62711	0.97842	13.33370
sky130_osu_sc_18T_ls__dffs_l	min_pulse_width	CK ()	0.85194	0.94865	13.33370
	min_pulse_width	CK ()	0.62342	0.97842	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	0.00641	0.00578	0.00245
	SN	-0.00093	-0.02418	-0.21174
	SN	0.01348	0.01304	0.00969
sky130_osu_sc_18T_ls__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.00568	0.00514	0.00310
	SN	-0.00093	-0.01969	-0.15035
	SN	0.01274	0.01240	0.01044

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	0.00720	0.00698	0.00603
sky130_osu_sc_18T_ls__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.00647	0.00625	0.00566

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	0.00721	0.00698	0.00605
sky130_osu_sc_18T_ls__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.00647	0.00626	0.00568

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	0.00637	0.00574	0.00226
	SN	-0.00093	-0.02414	-0.21117
	SN	0.01344	0.01300	0.00945
sky130_osu_sc_18T_ls__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.00564	0.00510	0.00300
	SN	-0.00093	-0.01964	-0.14967
	SN	0.01271	0.01236	0.01024

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	-0.00194	-0.00201	-0.00200
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00711	0.00687	0.00654
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.00322	0.00302	0.00279
sky130_osu_sc_18T_ls__dffs_l	CK	0.00000	0.00000	0.00000
	CK	-0.00194	-0.00201	-0.00200
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00711	0.00687	0.00654
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.00322	0.00302	0.00279

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	0.00200	0.00202	0.00200
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.01189	0.01176	0.01160
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.00568	0.00556	0.00551
sky130_osu_sc_18T_ls__dffs_l	CK	0.00000	0.00000	0.00000
	CK	0.00200	0.00202	0.00200
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * SN * Q * !QN) + (!CK * SN * !Q * QN)	0.01189	0.01176	0.01160
	(!CK * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !SN * Q * !QN)	0.00568	0.00556	0.00551

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)	-0.00339	-0.00342	-0.00342
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.00265	0.00245	0.00227
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)	-0.00339	-0.00339	-0.00342
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.00265	0.00245	0.00227

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)	0.00341	0.00345	0.00343
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.00672	0.00648	0.00639
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)	0.00341	0.00345	0.00343
	(!CK * !D * Q * !QN)	0.00000	0.00000	0.00000
	(!CK * !D * Q * !QN)	0.00672	0.00648	0.00639

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)	-0.00019	-0.00052	-0.00078
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	-0.00039	-0.00075	-0.00099
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.00283	0.00220	0.00172
sky130_osu_sc_18T_ls__dffs_l	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	-0.00018	-0.00052	-0.00078
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	-0.00039	-0.00075	-0.00099
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.00283	0.00220	0.00172

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)	0.01896	0.01862	0.01792
	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.00932	0.00905	0.00884
	(!D * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * SN * Q * !QN)	0.01890	0.01831	0.01789
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	0.01006	0.00977	0.00966
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.01187	0.01132	0.01112
sky130_osu_sc_18T_ls__dffs_l	(D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(D * SN * !Q * QN)	0.01896	0.01862	0.01792
	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.00932	0.00905	0.00884
	(!D * SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * SN * Q * !QN)	0.01890	0.01831	0.01789
	(!D * SN * !Q * QN)	0.00000	0.00000	0.00000
	(!D * SN * !Q * QN)	0.01006	0.00976	0.00966
	(!D * !SN * Q * !QN)	0.00000	0.00000	0.00000
	(!D * !SN * Q * !QN)	0.01187	0.01132	0.01112

SKY130_OSU_SC_18T_LS__DFFx

sky130_osu_sc_18T_ls_tt_1P20_25C.ccs
Cell Library: Process , Voltage 1.20,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_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	0.00500	0.01464	0.59533	0.59014
sky130_osu_sc_18T_ls__dff_l	0.00500	0.01462	0.41008	0.41455

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__dff_1	0.00000	0.00109	0.00133
sky130_osu_sc_18T_ls__dff_l	0.00000	0.00094	0.00119

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)	0.68978	2.42216	15.30140
	QN->Q (FR)	0.10921	1.48106	14.06790
sky130_osu_sc_18T_ls__dff_l	CK->Q (RR)	0.70544	2.59712	15.01940
	QN->Q (FR)	0.12941	1.60545	13.90130

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)	1.10340	3.21281	19.23170
	QN->Q (RF)	0.04999	0.82131	8.32750
sky130_osu_sc_18T_ls__dff_l	CK->Q (RF)	1.14463	3.46749	18.93130
	QN->Q (RF)	0.05665	0.86374	8.26429

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)	0.97428	2.16135	10.66130
sky130_osu_sc_18T_ls__dff_l	CK->QN (RR)	0.99193	2.29075	10.69170

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)	0.53687	1.21545	5.45770
sky130_osu_sc_18T_ls__dff_l	CK->QN (RF)	0.52790	1.23425	5.41691

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)	-0.13573	-0.18335	-1.18611
	setup	CK (R)	0.44806	0.43203	1.72802
sky130_osu_sc_18T_ls__dff_l	hold	CK (R)	-0.13614	-0.18378	-1.18699
	setup	CK (R)	0.44550	0.43060	1.72487

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)	-0.55325	-1.07705	-10.75750
	setup	CK (R)	0.66220	1.15186	10.91270
sky130_osu_sc_18T_ls__dff_l	hold	CK (R)	-0.55686	-1.07620	-10.75700
	setup	CK (R)	0.66202	1.15188	10.91280

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 ()	0.24957	0.64453	13.33370
	min_pulse_width	CK ()	0.62777	0.64453	13.33370
sky130_osu_sc_18T_ls__dff_l	min_pulse_width	CK ()	0.24239	0.64453	13.33370
	min_pulse_width	CK ()	0.61581	0.64453	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 ()**	0.73529	0.91462	13.33370
	min_pulse_width	**CK ()**	0.53692	0.98268	13.33370
sky130_osu_sc_18T_ls__dff_l	**min_pulse_width**	**CK ()**	0.73529	0.91462	13.33370
	min_pulse_width	**CK ()**	0.53692	0.98268	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	0.00673	0.00620	0.00395
sky130_osu_sc_18T_ls__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.00607	0.00552	0.00359

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	0.00731	0.00713	0.00631
sky130_osu_sc_18T_ls__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.00666	0.00646	0.00583

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	0.00731	0.00713	0.00633
sky130_osu_sc_18T_ls__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.00666	0.00647	0.00584

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	0.00670	0.00617	0.00368
sky130_osu_sc_18T_ls__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.00604	0.00548	0.00338

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	-0.00190	-0.00199	-0.00197
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00680	0.00658	0.00627
sky130_osu_sc_18T_ls__dff_l	CK	0.00000	0.00000	0.00000
	CK	-0.00190	-0.00199	-0.00197
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00680	0.00658	0.00628

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	0.00196	0.00199	0.00197
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.01234	0.01218	0.01198
sky130_osu_sc_18T_ls__dff_l	CK	0.00000	0.00000	0.00000
	CK	0.00196	0.00199	0.00197
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.00000	0.00000	0.00000
	(!CK * Q * !QN) + (!CK * !Q * QN)	0.01234	0.01218	0.01199

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)	-0.00018	-0.00053	-0.00078
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	-0.00039	-0.00075	-0.00097
sky130_osu_sc_18T_ls__dff_l	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	-0.00018	-0.00053	-0.00078
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	-0.00038	-0.00075	-0.00097

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)	0.00928	0.00900	0.00882
	(D * !Q * QN)	0.00000	0.00000	0.00000
	(D * !Q * QN)	0.01863	0.01832	0.01764
	(!D * Q * !QN)	0.00000	0.00000	0.00000
	(!D * Q * !QN)	0.01921	0.01864	0.01818
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.01002	0.00977	0.00961
sky130_osu_sc_18T_ls__dff_l	(D * Q * !QN)	0.00000	0.00000	0.00000
	(D * Q * !QN)	0.00928	0.00900	0.00882
	(D * !Q * QN)	0.00000	0.00000	0.00000
	(D * !Q * QN)	0.01864	0.01832	0.01764
	(!D * Q * !QN)	0.00000	0.00000	0.00000
	(!D * Q * !QN)	0.01922	0.01864	0.01818
	(!D * !Q * QN)	0.00000	0.00000	0.00000
	(!D * !Q * QN)	0.01002	0.00977	0.00961

SKY130_OSU_SC_18T_LS__INVx

sky130_osu_sc_18T_ls_tt_1P20_25C.ccs
Cell Library: Process , Voltage 1.20,
Temp 25.00

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	0.00496	0.59080
sky130_osu_sc_18T_ls__inv_10	0.04655	5.55270
sky130_osu_sc_18T_ls__inv_2	0.00950	1.17795
sky130_osu_sc_18T_ls__inv_3	0.01416	1.71265
sky130_osu_sc_18T_ls__inv_4	0.01873	2.30141
sky130_osu_sc_18T_ls__inv_6	0.02808	3.41245
sky130_osu_sc_18T_ls__inv_8	0.03732	4.51138
sky130_osu_sc_18T_ls__inv_l	0.00383	0.41462

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__inv_1	0.00000	0.00014	0.00024
sky130_osu_sc_18T_ls__inv_10	0.00000	0.00139	0.00241
sky130_osu_sc_18T_ls__inv_2	0.00000	0.00028	0.00048
sky130_osu_sc_18T_ls__inv_3	0.00000	0.00042	0.00072
sky130_osu_sc_18T_ls__inv_4	0.00000	0.00055	0.00096
sky130_osu_sc_18T_ls__inv_6	0.00000	0.00083	0.00144
sky130_osu_sc_18T_ls__inv_8	0.00000	0.00111	0.00193
sky130_osu_sc_18T_ls__inv_l	0.00000	0.00007	0.00010

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)**	0.10626	1.43537	13.61180
sky130_osu_sc_18T_ls__inv_10	**A->Y (FR)**	0.12084	0.98417	13.62350
sky130_osu_sc_18T_ls__inv_2	**A->Y (FR)**	0.08017	1.23223	13.60740
sky130_osu_sc_18T_ls__inv_3	**A->Y (FR)**	0.08474	1.14935	13.58930
sky130_osu_sc_18T_ls__inv_4	**A->Y (FR)**	0.08338	1.09514	13.59400
sky130_osu_sc_18T_ls__inv_6	**A->Y (FR)**	0.09088	1.03425	13.59910
sky130_osu_sc_18T_ls__inv_8	**A->Y (FR)**	0.10428	1.00121	13.60760
sky130_osu_sc_18T_ls__inv_l	**A->Y (FR)**	0.12432	1.55194	13.54050

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)**	0.04554	0.77215	7.81443
sky130_osu_sc_18T_ls__inv_10	**A->Y (RF)**	0.06489	0.60570	7.81068
sky130_osu_sc_18T_ls__inv_2	**A->Y (RF)**	0.03789	0.70426	7.81635
sky130_osu_sc_18T_ls__inv_3	**A->Y (RF)**	0.04043	0.67805	7.83729
sky130_osu_sc_18T_ls__inv_4	**A->Y (RF)**	0.04034	0.65411	7.83734
sky130_osu_sc_18T_ls__inv_6	**A->Y (RF)**	0.04783	0.62962	7.84183
sky130_osu_sc_18T_ls__inv_8	**A->Y (RF)**	0.05593	0.61572	7.84100
sky130_osu_sc_18T_ls__inv_l	**A->Y (RF)**	0.05123	0.80886	7.77604

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	0.00327	0.00320	0.00324
sky130_osu_sc_18T_ls__inv_10	A	0.00000	0.00000	0.00000
	A	0.02855	0.02846	0.02898
sky130_osu_sc_18T_ls__inv_2	A	0.00000	0.00000	0.00000
	A	0.00590	0.00582	0.00593
sky130_osu_sc_18T_ls__inv_3	A	0.00000	0.00000	0.00000
	A	0.00902	0.00892	0.00907
sky130_osu_sc_18T_ls__inv_4	A	0.00000	0.00000	0.00000
	A	0.01165	0.01151	0.01162
sky130_osu_sc_18T_ls__inv_6	A	0.00000	0.00000	0.00000
	A	0.01732	0.01717	0.01741
sky130_osu_sc_18T_ls__inv_8	A	0.00000	0.00000	0.00000
	A	0.02296	0.02282	0.02331
sky130_osu_sc_18T_ls__inv_l	A	0.00000	0.00000	0.00000
	A	0.00252	0.00247	0.00247

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	-0.00045	-0.00050	-0.00051
sky130_osu_sc_18T_ls__inv_10	**A**	0.00000	0.00000	0.00000
	A	-0.00925	-0.00905	-0.00835
sky130_osu_sc_18T_ls__inv_2	**A**	0.00000	0.00000	0.00000
	A	-0.00168	-0.00174	-0.00172
sky130_osu_sc_18T_ls__inv_3	**A**	0.00000	0.00000	0.00000
	A	-0.00214	-0.00223	-0.00217
sky130_osu_sc_18T_ls__inv_4	**A**	0.00000	0.00000	0.00000
	A	-0.00345	-0.00350	-0.00337
sky130_osu_sc_18T_ls__inv_6	**A**	0.00000	0.00000	0.00000
	A	-0.00526	-0.00535	-0.00504
sky130_osu_sc_18T_ls__inv_8	**A**	0.00000	0.00000	0.00000
	A	-0.00718	-0.00716	-0.00670
sky130_osu_sc_18T_ls__inv_l	**A**	0.00000	0.00000	0.00000
	A	-0.00032	-0.00035	-0.00037

SKY130_OSU_SC_18T_LS__MUX2

sky130_osu_sc_18T_ls_tt_1P20_25C.ccs
Cell Library: Process , Voltage 1.20,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_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	0.35016	0.35252	0.01008	0.53642

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__mux2_1	0.00000	0.00033	0.00033

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)	-	0.06159	0.91441	9.11789
	A1->Y (RR)	-	0.06884	0.92092	9.13474
	S0->Y (RR)	(!A0 * A1)	0.13713	1.07553	8.59685
	S0->Y (FR)	(A0 * !A1)	0.13109	1.26535	10.36110

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)	-	0.04465	0.73431	7.41189
	A1->Y (FF)	-	0.03931	0.72509	7.39075
	S0->Y (FF)	(!A0 * A1)	0.24358	1.02955	7.58765
	S0->Y (RF)	(A0 * !A1)	0.05178	0.76633	7.27946

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	-	-0.00359	-0.00359	-0.00360
	A1	-	0.00000	0.00000	0.00000
	A1	-	-0.00258	-0.00258	-0.00258
	S0	(A0 * !A1)	0.00000	0.00000	0.00000
	S0	(A0 * !A1)	0.00394	0.00369	0.00364
	S0	(!A0 * A1)	0.00000	0.00000	0.00000
	S0	(!A0 * A1)	-0.00213	-0.00245	-0.00263

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	-	0.00359	0.00359	0.00360
	A1	-	0.00000	0.00000	0.00000
	A1	-	0.00258	0.00258	0.00258
	S0	(A0 * !A1)	0.00000	0.00000	0.00000
	S0	(A0 * !A1)	0.00101	0.00069	0.00053
	S0	(!A0 * A1)	0.00000	0.00000	0.00000
	S0	(!A0 * A1)	0.00872	0.00848	0.00842

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)	-0.00101	-0.00101	-0.00101

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)	0.00101	0.00101	0.00101

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)	-0.00119	-0.00119	-0.00119

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)	0.00119	0.00119	0.00119

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)	-0.00057	-0.00091	-0.00107
	(!A0 * !A1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !Y)	-0.00055	-0.00090	-0.00106

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)	0.00653	0.00629	0.00624
	(!A0 * !A1 * !Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !Y)	0.00613	0.00589	0.00583

SKY130_OSU_SC_18T_LS__NAND2x

sky130_osu_sc_18T_ls_tt_1P20_25C.ccs
Cell Library: Process , Voltage 1.20,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_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	0.00497	0.00493	0.58558
sky130_osu_sc_18T_ls__nand2_l	0.00384	0.00381	0.41743

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__nand2_1	0.00000	0.00014	0.00024
sky130_osu_sc_18T_ls__nand2_l	0.00000	0.00007	0.00010

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)	0.11309	1.44186	13.60660
	B->Y (FR)	0.13153	1.45561	13.55370
sky130_osu_sc_18T_ls__nand2_l	A->Y (FR)	0.12977	1.56638	13.62980
	B->Y (FR)	0.15046	1.58617	13.62140

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)	0.07468	0.97825	9.38715
	B->Y (RF)	0.08381	0.98827	9.34383
sky130_osu_sc_18T_ls__nand2_l	A->Y (RF)	0.08510	1.05680	9.42544
	B->Y (RF)	0.09401	1.06773	9.38759

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	0.00348	0.00341	0.00343
	B	0.00000	0.00000	0.00000
	B	0.00427	0.00418	0.00421
sky130_osu_sc_18T_ls__nand2_l	A	0.00000	0.00000	0.00000
	A	0.00265	0.00260	0.00260
	B	0.00000	0.00000	0.00000
	B	0.00323	0.00317	0.00318

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	-0.00016	-0.00021	-0.00023
	B	0.00000	0.00000	0.00000
	B	-0.00014	-0.00019	-0.00021
sky130_osu_sc_18T_ls__nand2_l	A	0.00000	0.00000	0.00000
	A	-0.00014	-0.00019	-0.00020
	B	0.00000	0.00000	0.00000
	B	-0.00013	-0.00017	-0.00019

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)	-0.00226	-0.00227	-0.00229
sky130_osu_sc_18T_ls__nand2_l	(!B * Y)	0.00000	0.00000	0.00000
	(!B * Y)	-0.00165	-0.00165	-0.00167

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)	0.00228	0.00234	0.00229
sky130_osu_sc_18T_ls__nand2_l	(!B * Y)	0.00000	0.00000	0.00000
	(!B * Y)	0.00166	0.00170	0.00167

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)	-0.00210	-0.00211	-0.00210
sky130_osu_sc_18T_ls__nand2_l	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00153	-0.00153	-0.00153

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)	0.00210	0.00213	0.00211
sky130_osu_sc_18T_ls__nand2_l	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00153	0.00155	0.00153

SKY130_OSU_SC_18T_LS__NOR2x

sky130_osu_sc_18T_ls_tt_1P20_25C.ccs
Cell Library: Process , Voltage 1.20,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_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	0.00493	0.00528	0.25821
sky130_osu_sc_18T_ls__nor2_l	0.00374	0.00411	0.18285

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__nor2_1	0.00000	0.00015	0.00048
sky130_osu_sc_18T_ls__nor2_l	0.00000	0.00008	0.00019

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)	0.29209	1.96303	13.99120
	B->Y (FR)	0.24082	1.85128	13.61400
sky130_osu_sc_18T_ls__nor2_l	A->Y (FR)	0.32826	2.13699	13.93100
	B->Y (FR)	0.28590	2.03490	13.57750

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)	0.05388	0.67524	6.01678
	B->Y (RF)	0.04741	0.66392	5.99222
sky130_osu_sc_18T_ls__nor2_l	A->Y (RF)	0.05895	0.70029	5.99761
	B->Y (RF)	0.05315	0.69155	5.97429

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	0.00439	0.00431	0.00431
	B	0.00000	0.00000	0.00000
	B	0.00358	0.00347	0.00344
sky130_osu_sc_18T_ls__nor2_1	A	0.00000	0.00000	0.00000
	A	0.00323	0.00317	0.00316
	B	0.00000	0.00000	0.00000
	B	0.00272	0.00263	0.00260

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	0.00045	0.00032	0.00024
	B	0.00000	0.00000	0.00000
	B	-0.00038	-0.00041	-0.00049
sky130_osu_sc_18T_ls__nor2_1	A	0.00000	0.00000	0.00000
	A	0.00029	0.00021	0.00015
	B	0.00000	0.00000	0.00000
	B	-0.00025	-0.00027	-0.00033

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)	-0.00192	-0.00199	-0.00198
sky130_osu_sc_18T_ls__nor2_l	(B * !Y)	0.00000	0.00000	0.00000
	(B * !Y)	-0.00135	-0.00141	-0.00140

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)	0.00197	0.00199	0.00198
sky130_osu_sc_18T_ls__nor2_l	(B * !Y)	0.00000	0.00000	0.00000
	(B * !Y)	0.00139	0.00141	0.00140

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)	-0.00117	-0.00120	-0.00118
sky130_osu_sc_18T_ls__nor2_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	-0.00083	-0.00085	-0.00083

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)	0.00124	0.00125	0.00120
sky130_osu_sc_18T_ls__nor2_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00088	0.00089	0.00085

SKY130_OSU_SC_18T_LS__OAI21

sky130_osu_sc_18T_ls_tt_1P20_25C.ccs
Cell Library: Process , Voltage 1.20,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_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	0.00501	0.00501	0.00426	0.25537

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__oai21_l	0.00000	0.00018	0.00039

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)	0.32724	1.94165	13.65580
	A1->Y (FR)	0.38859	2.06119	14.03860
	B0->Y (FR)	0.15996	1.34700	10.86820

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)	0.10064	0.83466	6.91424
	A1->Y (RF)	0.11206	0.83879	6.89407
	B0->Y (RF)	0.08181	0.82080	7.04397

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	0.00468	0.00457	0.00452
	A1	0.00000	0.00000	0.00000
	A1	0.00552	0.00543	0.00541
	B0	0.00379	0.00359	0.00364

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	0.00037	0.00034	0.00027
	A1	0.00000	0.00000	0.00000
	A1	0.00122	0.00110	0.00103
	B0	0.00164	0.00158	0.00150

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)	-0.00119	-0.00120	-0.00118
	(A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * Y)	-0.00193	-0.00200	-0.00198
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	-0.00205	-0.00206	-0.00206

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)	0.00124	0.00126	0.00120
	(A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * Y)	0.00198	0.00200	0.00198
	(!A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * Y)	0.00205	0.00206	0.00206

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)	-0.00188	-0.00196	-0.00194
	(A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * Y)	-0.00192	-0.00199	-0.00198
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	-0.00203	-0.00204	-0.00204

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)	0.00194	0.00196	0.00194
	(A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * Y)	0.00197	0.00199	0.00198
	(!A0 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * Y)	0.00204	0.00205	0.00204

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)	-0.00166	-0.00168	-0.00172

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)	0.00172	0.00173	0.00173

SKY130_OSU_SC_18T_LS__OAI22

sky130_osu_sc_18T_ls_tt_1P20_25C.ccs
Cell Library: Process , Voltage 1.20,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_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	0.00479	0.00512	0.00528	0.00511	0.25392

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__oai22_1	0.00000	0.00022	0.00048

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)	0.42842	2.09810	14.02470
	A1->Y (FR)	0.37473	1.98298	13.64410
	B0->Y (FR)	0.26788	1.86612	13.53080
	B1->Y (FR)	0.32547	1.98497	13.91040

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)	0.14521	0.89499	7.00207
	A1->Y (RF)	0.12376	0.86589	6.94796
	B0->Y (RF)	0.10324	0.84762	7.06979
	B1->Y (RF)	0.12695	0.88183	7.18444

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	0.00704	0.00695	0.00692
	A1	0.00619	0.00606	0.00601
	B0	0.00467	0.00454	0.00449
	B1	0.00556	0.00545	0.00543

Internal switching power(pJ) to Y falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_osu_sc_18T_ls__oai22_l	A0	0.00174	0.00163	0.00151
	A1	0.00093	0.00090	0.00079
	B0	0.00092	0.00089	0.00077
	B1	0.00176	0.00163	0.00151

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)	-0.00191	-0.00199	-0.00198
	(A1 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * B1 * !Y)	-0.00191	-0.00199	-0.00198
	(A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * !B1 * Y)	-0.00192	-0.00200	-0.00198
	(!A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * !B1 * Y)	-0.00204	-0.00206	-0.00204

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)	0.00197	0.00199	0.00198
	(A1 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * B1 * !Y)	0.00198	0.00199	0.00198
	(A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A1 * !B0 * !B1 * Y)	0.00198	0.00200	0.00198
	(!A1 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A1 * !B0 * !B1 * Y)	0.00204	0.00208	0.00205

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)	-0.00117	-0.00119	-0.00117
	(A0 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * B1 * !Y)	-0.00117	-0.00119	-0.00117
	(A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * !B1 * Y)	-0.00191	-0.00197	-0.00196
	(!A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * !B1 * Y)	-0.00203	-0.00204	-0.00204

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)	0.00124	0.00125	0.00119
	(A0 * !B0 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * B1 * !Y)	0.00124	0.00125	0.00119
	(A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(A0 * !B0 * !B1 * Y)	0.00196	0.00197	0.00196
	(!A0 * !B0 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !B0 * !B1 * Y)	0.00203	0.00204	0.00204

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)	-0.00116	-0.00118	-0.00117
	(A0 * !A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B1 * !Y)	-0.00116	-0.00116	-0.00117
	(!A0 * !A1 * B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B1 * Y)	-0.00214	-0.00221	-0.00220
	(!A0 * !A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B1 * Y)	-0.00218	-0.00219	-0.00226

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)	0.00123	0.00123	0.00119
	(A0 * !A1 * B1 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B1 * !Y)	0.00123	0.00124	0.00119
	(!A0 * !A1 * B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B1 * Y)	0.00219	0.00221	0.00220
	(!A0 * !A1 * !B1 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B1 * Y)	0.00226	0.00228	0.00228

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)	-0.00189	-0.00197	-0.00195
	(A0 * !A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B0 * !Y)	-0.00189	-0.00197	-0.00195
	(!A0 * !A1 * B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B0 * Y)	-0.00219	-0.00226	-0.00224
	(!A0 * !A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B0 * Y)	-0.00222	-0.00223	-0.00229

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)	0.00195	0.00197	0.00195
	(A0 * !A1 * B0 * !Y)	0.00000	0.00000	0.00000
	(A0 * !A1 * B0 * !Y)	0.00195	0.00197	0.00195
	(!A0 * !A1 * B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * B0 * Y)	0.00224	0.00226	0.00224
	(!A0 * !A1 * !B0 * Y)	0.00000	0.00000	0.00000
	(!A0 * !A1 * !B0 * Y)	0.00230	0.00235	0.00231

SKY130_OSU_SC_18T_LS__OR2x

sky130_osu_sc_18T_ls_tt_1P20_25C.ccs
Cell Library: Process , Voltage 1.20,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_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	0.00525	0.00509	0.59090
sky130_osu_sc_18T_ls__or2_2	0.00525	0.00509	1.17197
sky130_osu_sc_18T_ls__or2_4	0.00525	0.00509	2.29349
sky130_osu_sc_18T_ls__or2_8	0.00521	0.00509	4.38846
sky130_osu_sc_18T_ls__or2_l	0.00413	0.00392	0.41418

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__or2_1	0.00000	0.00034	0.00052
sky130_osu_sc_18T_ls__or2_2	0.00000	0.00053	0.00055
sky130_osu_sc_18T_ls__or2_4	0.00000	0.00091	0.00101
sky130_osu_sc_18T_ls__or2_8	0.00000	0.00167	0.00198
sky130_osu_sc_18T_ls__or2_l	0.00000	0.00016	0.00023

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)	0.18961	1.37854	9.81447
	B->Y (RR)	0.17859	1.35126	9.62825
sky130_osu_sc_18T_ls__or2_2	A->Y (RR)	0.19859	1.23680	10.09460
	B->Y (RR)	0.18668	1.21463	9.97301
sky130_osu_sc_18T_ls__or2_4	A->Y (RR)	0.25987	1.20092	10.62720
	B->Y (RR)	0.24748	1.18369	10.53160
sky130_osu_sc_18T_ls__or2_8	A->Y (RR)	0.38132	1.25463	11.20130
	B->Y (RR)	0.36833	1.23998	11.14130
sky130_osu_sc_18T_ls__or2_l	A->Y (RR)	0.21405	1.50907	9.81213
	B->Y (RR)	0.20338	1.48426	9.63613

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)	0.53770	1.40299	8.56984
	B->Y (FF)	0.46740	1.27642	8.00616
sky130_osu_sc_18T_ls__or2_2	A->Y (FF)	0.69269	1.54705	8.99545
	B->Y (FF)	0.62231	1.42163	8.54155
sky130_osu_sc_18T_ls__or2_4	A->Y (FF)	1.02547	1.90832	9.70082
	B->Y (FF)	0.95499	1.78076	9.33969
sky130_osu_sc_18T_ls__or2_8	A->Y (FF)	1.67849	2.64174	10.68010
	B->Y (FF)	1.60769	2.50866	10.39040
sky130_osu_sc_18T_ls__or2_l	A->Y (FF)	0.58063	1.46971	8.53842
	B->Y (FF)	0.50992	1.34730	8.01150

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	0.00364	0.00340	0.00317
	B	0.00000	0.00000	0.00000
	B	0.00279	0.00253	0.00235
sky130_osu_sc_18T_ls__or2_2	A	0.00000	0.00000	0.00000
	A	0.00622	0.00612	0.00589
	B	0.00000	0.00000	0.00000
	B	0.00533	0.00529	0.00585
sky130_osu_sc_18T_ls__or2_4	A	0.00000	0.00000	0.00000
	A	0.01180	0.01191	0.01188
	B	0.00000	0.00000	0.00000
	B	0.01090	0.01119	0.01116
sky130_osu_sc_18T_ls__or2_8	A	0.00000	0.00000	0.00000
	A	0.02279	0.02342	0.02372
	B	0.00000	0.00000	0.00000
	B	0.02188	0.02263	0.02313
sky130_osu_sc_18T_ls__or2_l	A	0.00000	0.00000	0.00000
	A	0.00269	0.00250	0.00233
	B	0.00000	0.00000	0.00000
	B	0.00212	0.00194	0.00180

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	0.00746	0.00746	0.00739
	B	0.00000	0.00000	0.00000
	B	0.00647	0.00645	0.00639
sky130_osu_sc_18T_ls__or2_2	A	0.00000	0.00000	0.00000
	A	0.00919	0.00952	0.00949
	B	0.00000	0.00000	0.00000
	B	0.00820	0.00852	0.00846
sky130_osu_sc_18T_ls__or2_4	A	0.00000	0.00000	0.00000
	A	0.01344	0.01433	0.01455
	B	0.00000	0.00000	0.00000
	B	0.01245	0.01333	0.01347
sky130_osu_sc_18T_ls__or2_8	A	0.00000	0.00000	0.00000
	A	0.02187	0.02349	0.02465
	B	0.00000	0.00000	0.00000
	B	0.02087	0.02248	0.02351
sky130_osu_sc_18T_ls__or2_l	A	0.00000	0.00000	0.00000
	A	0.00571	0.00567	0.00561
	B	0.00000	0.00000	0.00000
	B	0.00500	0.00495	0.00491

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)	-0.00193	-0.00201	-0.00199
sky130_osu_sc_18T_ls__or2_2	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00193	-0.00201	-0.00199
sky130_osu_sc_18T_ls__or2_4	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00193	-0.00201	-0.00199
sky130_osu_sc_18T_ls__or2_8	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00193	-0.00201	-0.00199
sky130_osu_sc_18T_ls__or2_l	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	-0.00137	-0.00142	-0.00141

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)	0.00199	0.00201	0.00199
sky130_osu_sc_18T_ls__or2_2	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00199	0.00201	0.00199
sky130_osu_sc_18T_ls__or2_4	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00199	0.00201	0.00199
sky130_osu_sc_18T_ls__or2_8	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00199	0.00201	0.00199
sky130_osu_sc_18T_ls__or2_l	(B * Y)	0.00000	0.00000	0.00000
	(B * Y)	0.00141	0.00142	0.00141

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)	-0.00119	-0.00120	-0.00118
sky130_osu_sc_18T_ls__or2_2	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00119	-0.00120	-0.00118
sky130_osu_sc_18T_ls__or2_4	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00119	-0.00120	-0.00118
sky130_osu_sc_18T_ls__or2_8	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00118	-0.00120	-0.00118
sky130_osu_sc_18T_ls__or2_l	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	-0.00085	-0.00086	-0.00085

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)	0.00126	0.00126	0.00121
sky130_osu_sc_18T_ls__or2_2	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00126	0.00127	0.00121
sky130_osu_sc_18T_ls__or2_4	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00126	0.00127	0.00121
sky130_osu_sc_18T_ls__or2_8	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00126	0.00127	0.00121
sky130_osu_sc_18T_ls__or2_l	(A * Y)	0.00000	0.00000	0.00000
	(A * Y)	0.00090	0.00091	0.00086

SKY130_OSU_SC_18T_LS__TBUFIx

sky130_osu_sc_18T_ls_tt_1P20_25C.ccs
Cell Library: Process , Voltage 1.20,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_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	0.00528	0.00668	0.25903
sky130_osu_sc_18T_ls__tbufi_l	0.00412	0.00523	0.18294

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__tbufi_1	0.00000	0.00024	0.00028
sky130_osu_sc_18T_ls__tbufi_l	0.00000	0.00011	0.00013

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)	0.22808	1.84046	13.62550
	OE->Y (FR)	0.15443	0.70729	4.95356
	OE->Y (RR)	0.31787	1.81112	10.00800
sky130_osu_sc_18T_ls__tbufi_l	A->Y (FR)	0.27281	2.02401	13.57690
	OE->Y (FR)	0.16624	0.71341	4.95048
	OE->Y (RR)	0.35492	1.99551	10.02950

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)	0.07076	0.78811	6.86249
	OE->Y (FF)	0.15601	0.70897	4.96099
	OE->Y (RF)	0.06974	0.78502	6.80427
sky130_osu_sc_18T_ls__tbufi_l	A->Y (RF)	0.08208	0.83488	6.85242
	OE->Y (FF)	0.16787	0.71751	4.95712
	OE->Y (RF)	0.08149	0.83325	6.79658

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	0.00331	0.00320	0.00316
	OE	0.00000	0.00000	0.00000
	OE	0.00327	0.00293	0.00286
sky130_osu_sc_18T_ls__tbufi_l	A	0.00000	0.00000	0.00000
	A	0.00253	0.00243	0.00239
	OE	0.00000	0.00000	0.00000
	OE	0.00238	0.00212	0.00201

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	-0.00038	-0.00042	-0.00049
	OE	0.00000	0.00000	0.00000
	OE	0.00254	0.00221	0.00206
sky130_osu_sc_18T_ls__tbufi_l	A	0.00000	0.00000	0.00000
	A	-0.00025	-0.00027	-0.00033
	OE	0.00000	0.00000	0.00000
	OE	0.00179	0.00153	0.00142

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)	-0.00178	-0.00180	-0.00178
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	-0.00165	-0.00168	-0.00166
sky130_osu_sc_18T_ls__tbufi_l	(!OE * Y)	0.00000	0.00000	0.00000
	(!OE * Y)	-0.00133	-0.00135	-0.00134
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	-0.00125	-0.00127	-0.00125

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)	0.00178	0.00180	0.00178
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	0.00172	0.00174	0.00170
sky130_osu_sc_18T_ls__tbufi_l	(!OE * Y)	0.00000	0.00000	0.00000
	(!OE * Y)	0.00133	0.00135	0.00134
	(!OE * !Y)	0.00000	0.00000	0.00000
	(!OE * !Y)	0.00129	0.00131	0.00128

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)	0.00140	0.00107	0.00093
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00128	0.00093	0.00080
sky130_osu_sc_18T_ls__tbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00098	0.00072	0.00061
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00088	0.00062	0.00051

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)	0.00375	0.00347	0.00340
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00389	0.00362	0.00348
sky130_osu_sc_18T_ls__tbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00298	0.00274	0.00268
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00308	0.00285	0.00274

SKY130_OSU_SC_18T_LS__TNBUFIx

sky130_osu_sc_18T_ls_tt_1P20_25C.ccs
Cell Library: Process , Voltage 1.20,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_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	0.00527	0.00815	0.25903
sky130_osu_sc_18T_ls__tnbufi_l	0.00411	0.00612	0.18294

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__tnbufi_1	0.00000	0.00017	0.00048
sky130_osu_sc_18T_ls__tnbufi_l	0.00000	0.00009	0.00020

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)	0.23014	1.84044	13.62530
	OE->Y (RR)	0.05098	0.37539	3.47461
	OE->Y (FR)	0.26370	1.93939	13.98800
sky130_osu_sc_18T_ls__tnbufi_l	A->Y (FR)	0.27502	2.02376	13.57540
	OE->Y (RR)	0.05380	0.38538	3.47488
	OE->Y (FR)	0.29663	2.11041	13.91580

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)	0.06946	0.78722	6.86205
	OE->Y (RF)	0.05044	0.37517	3.47459
	OE->Y (FF)	0.18806	1.02118	6.76357
sky130_osu_sc_18T_ls__tnbufi_l	A->Y (RF)	0.08037	0.83349	6.85168
	OE->Y (RF)	0.05345	0.38471	3.47476
	OE->Y (FF)	0.21133	1.07983	6.79039

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	0.00340	0.00328	0.00325
	OE	0.00000	0.00000	0.00000
	OE	0.00798	0.00779	0.00778
sky130_osu_sc_18T_ls__tnbufi_l	A	0.00000	0.00000	0.00000
	A	0.00262	0.00252	0.00246
	OE	0.00000	0.00000	0.00000
	OE	0.00599	0.00581	0.00581

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	-0.00049	-0.00052	-0.00059
	OE	0.00000	0.00000	0.00000
	OE	0.00738	0.00720	0.00716
sky130_osu_sc_18T_ls__tnbufi_l	A	0.00000	0.00000	0.00000
	A	-0.00036	-0.00037	-0.00044
	OE	0.00000	0.00000	0.00000
	OE	0.00549	0.00531	0.00530

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)	-0.00154	-0.00156	-0.00155
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	-0.00143	-0.00146	-0.00143
sky130_osu_sc_18T_ls__tnbufi_l	(OE * Y)	0.00000	0.00000	0.00000
	(OE * Y)	-0.00111	-0.00112	-0.00111
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	-0.00103	-0.00105	-0.00103

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)	0.00154	0.00156	0.00155
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	0.00149	0.00150	0.00147
sky130_osu_sc_18T_ls__tnbufi_l	(OE * Y)	0.00000	0.00000	0.00000
	(OE * Y)	0.00111	0.00112	0.00111
	(OE * !Y)	0.00000	0.00000	0.00000
	(OE * !Y)	0.00107	0.00108	0.00105

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)	-0.00227	-0.00272	-0.00286
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00217	-0.00264	-0.00282
sky130_osu_sc_18T_ls__tnbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	-0.00157	-0.00190	-0.00201
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	-0.00149	-0.00184	-0.00198

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)	0.00612	0.00593	0.00590
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00599	0.00581	0.00578
sky130_osu_sc_18T_ls__tnbufi_l	(A * !Y)	0.00000	0.00000	0.00000
	(A * !Y)	0.00460	0.00443	0.00440
	(!A * Y)	0.00000	0.00000	0.00000
	(!A * Y)	0.00450	0.00434	0.00431

SKY130_OSU_SC_18T_LS__XNOR2

sky130_osu_sc_18T_ls_tt_1P20_25C.ccs
Cell Library: Process , Voltage 1.20,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_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	0.01040	0.00937	0.25819

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__xnor2_l	0.00000	0.00055	0.00091

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	0.41369	1.91830	10.22520
	A->Y (FR)	!B	0.30923	1.92754	13.68500
	B->Y (RR)	A	0.34047	1.83982	10.07450
	B->Y (FR)	!A	0.36657	2.03749	14.04720

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	0.29734	1.14934	7.34404
	A->Y (RF)	!B	0.10490	0.82186	6.88452
	B->Y (FF)	A	0.28413	1.13046	7.30864
	B->Y (RF)	!A	0.11467	0.83566	6.90841

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	0.00313	0.00276	0.00255
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00815	0.00778	0.00767
	B	A	0.00000	0.00000	0.00000
	B	A	0.00159	0.00124	0.00103
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00866	0.00836	0.00832

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	0.00998	0.00968	0.00946
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00258	0.00222	0.00200
	B	A	0.00000	0.00000	0.00000
	B	A	0.00918	0.00904	0.00893
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00313	0.00270	0.00245

SKY130_OSU_SC_18T_LS__XOR2

sky130_osu_sc_18T_ls_tt_1P20_25C.ccs
Cell Library: Process , Voltage 1.20,
Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
sky130_osu_sc_18T_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	0.01037	0.00943	0.25540

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_osu_sc_18T_ls__xor2_l	0.00000	0.00055	0.00076

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	0.41514	1.90112	10.07750
	A->Y (FR)	B	0.33512	1.99198	13.94850
	B->Y (RR)	!A	0.34686	1.83921	10.01210
	B->Y (FR)	A	0.36529	2.03352	13.99010

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	0.29534	1.13346	7.29663
	A->Y (RF)	B	0.09137	0.81217	6.87266
	B->Y (FF)	!A	0.27692	1.11587	7.23520
	B->Y (RF)	A	0.10355	0.82002	6.81879

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	0.00928	0.00895	0.00889
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.00201	0.00147	0.00118
	B	A	0.00000	0.00000	0.00000
	B	A	0.00947	0.00920	0.00915
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00139	0.00105	0.00084

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	0.00223	0.00178	0.00150
	A	!B	0.00000	0.00000	0.00000
	A	!B	0.01035	0.01014	0.01006
	B	A	0.00000	0.00000	0.00000
	B	A	0.00223	0.00179	0.00154
	B	!A	0.00000	0.00000	0.00000
	B	!A	0.00938	0.00928	0.00916

SKY130_OSU_SC_18T_LS_x

sky130_osu_sc_18T_ls_tt_1P20_25C.ccs
Cell Library: Process , Voltage 1.20,
Temp 25.00

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	0.08034
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	34130.80000	68261.60000
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
	-0.00222	0.00319	0.05647

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
	0.59537	0.55246	0.08648