sky130_fd_sc_hs_TT_1.8v_25C.ccs Library

Cell Groups
SKY130_FD_SC_HS__DFXTPx

SKY130_FD_SC_HS__DFXTPx

sky130_fd_sc_hs_TT_1.8v_25C.ccs
Cell Library: Process , Voltage
1.80, Temp 25.00

Truth Table

INPUT		OUTPUT
D	CLK	Q
0	R	0
1	R	1
x	x	IQ

Footprint

Cell Name	Area
sky130_fd_sc_hs__dfxtp_1	27.17280
sky130_fd_sc_hs__dfxtp_2	28.77120
sky130_fd_sc_hs__dfxtp_4	31.96800

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	D	CLK	Q
sky130_fd_sc_hs__dfxtp_1	0.00175	0.00298	1.16800
sky130_fd_sc_hs__dfxtp_2	0.00180	0.00298	2.35892
sky130_fd_sc_hs__dfxtp_4	0.00179	0.00299	4.37936

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
sky130_fd_sc_hs__dfxtp_1	0.00000	0.70454	1.43093
sky130_fd_sc_hs__dfxtp_2	0.00000	0.62319	1.19132
sky130_fd_sc_hs__dfxtp_4	0.00000	1.05144	1.89689

Delay Information

Delay(ns) to Q rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_fd_sc_hs__dfxtp_1	**CLK->Q (RR)**	0.17340	0.67973	6.04444
sky130_fd_sc_hs__dfxtp_2	**CLK->Q (RR)**	0.18396	0.58315	6.05890
sky130_fd_sc_hs__dfxtp_4	**CLK->Q (RR)**	0.21957	0.54645	6.06782

Delay(ns) to Q falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
sky130_fd_sc_hs__dfxtp_1	**CLK->Q (RF)**	0.19800	0.45686	2.25109
sky130_fd_sc_hs__dfxtp_2	**CLK->Q (RF)**	0.20396	0.42614	2.28235
sky130_fd_sc_hs__dfxtp_4	**CLK->Q (RF)**	0.21010	0.40098	2.24902

Constraint Information

Constraints(ns) for D rising :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_fd_sc_hs__dfxtp_1	hold	CLK (R)	-0.02042	-0.05438	-0.24793
	setup	CLK (R)	0.07361	0.09927	0.31893
sky130_fd_sc_hs__dfxtp_2	hold	CLK (R)	-0.02020	-0.05438	-0.24781
	setup	CLK (R)	0.07088	0.09712	0.31920
sky130_fd_sc_hs__dfxtp_4	hold	CLK (R)	-0.01783	-0.05147	-0.23694
	setup	CLK (R)	0.06444	0.09350	0.31908

Constraints(ns) for D falling :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_fd_sc_hs__dfxtp_1	hold	CLK (R)	-0.04362	-0.17742	-2.88191
	setup	CLK (R)	0.11743	0.25147	3.05723
sky130_fd_sc_hs__dfxtp_2	hold	CLK (R)	-0.03999	-0.16835	-2.85706
	setup	CLK (R)	0.10982	0.24174	3.02748
sky130_fd_sc_hs__dfxtp_4	hold	CLK (R)	-0.03959	-0.16442	-2.83938
	setup	CLK (R)	0.10794	0.24157	3.02396

Constraints(ns) for CLK rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_fd_sc_hs__dfxtp_1	min_pulse_width	CLK ()	0.08118	0.69336	16.50020
	min_pulse_width	CLK ()	0.07080	0.69336	16.50020
sky130_fd_sc_hs__dfxtp_2	min_pulse_width	CLK ()	0.08896	0.69336	16.50020
	min_pulse_width	CLK ()	0.07339	0.69336	16.50020
sky130_fd_sc_hs__dfxtp_4	min_pulse_width	CLK ()	0.11490	0.69336	16.50020
	min_pulse_width	CLK ()	0.07599	0.69336	16.50020

Constraints(ns) for CLK falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
sky130_fd_sc_hs__dfxtp_1	min_pulse_width	CLK ()	0.14603	0.69336	16.50020
	min_pulse_width	CLK ()	0.17716	0.69336	16.50020
sky130_fd_sc_hs__dfxtp_2	min_pulse_width	CLK ()	0.14084	0.69336	16.50020
	min_pulse_width	CLK ()	0.17197	0.69336	16.50020
sky130_fd_sc_hs__dfxtp_4	min_pulse_width	CLK ()	0.13306	0.69336	16.50020
	min_pulse_width	CLK ()	0.17456	0.69336	16.50020

Power Information

Internal switching power(pJ) to Q rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_fd_sc_hs__dfxtp_1	CLK	0.02405	0.02533	0.07373
	CLK	0.01954	0.02082	0.06966
sky130_fd_sc_hs__dfxtp_2	CLK	0.02724	0.02877	0.07699
	CLK	0.02271	0.02424	0.07338
sky130_fd_sc_hs__dfxtp_4	CLK	0.03442	0.03631	0.08463
	CLK	0.02994	0.03188	0.08196

Internal switching power(pJ) to Q falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
sky130_fd_sc_hs__dfxtp_1	CLK	0.02524	0.02719	0.07494
	CLK	0.02074	0.02258	0.07031
sky130_fd_sc_hs__dfxtp_2	CLK	0.02821	0.03038	0.07799
	CLK	0.02368	0.02579	0.07334
sky130_fd_sc_hs__dfxtp_4	CLK	0.03628	0.03929	0.08739
	CLK	0.03180	0.03477	0.08228

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_fd_sc_hs__dfxtp_1	CLK	0.00247	0.00326	0.01909
	CLK	-0.00037	0.00040	0.01626
	!CLK	0.00952	0.01016	0.02733
	!CLK	0.00667	0.00731	0.02449
sky130_fd_sc_hs__dfxtp_2	CLK	0.00263	0.00342	0.01932
	CLK	-0.00029	0.00052	0.01641
	!CLK	0.00943	0.01007	0.02727
	!CLK	0.00651	0.00715	0.02435
sky130_fd_sc_hs__dfxtp_4	CLK	0.00249	0.00331	0.01920
	CLK	-0.00041	0.00040	0.01631
	!CLK	0.00943	0.01008	0.02727
	!CLK	0.00653	0.00718	0.02439

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_fd_sc_hs__dfxtp_1	CLK	0.00017	0.00105	0.01665
	CLK	0.00302	0.00389	0.01949
	!CLK	0.00609	0.00687	0.02394
	!CLK	0.00893	0.00972	0.02678
sky130_fd_sc_hs__dfxtp_2	CLK	-0.00026	0.00065	0.01635
	CLK	0.00265	0.00356	0.01927
	!CLK	0.00579	0.00658	0.02372
	!CLK	0.00870	0.00949	0.02662
sky130_fd_sc_hs__dfxtp_4	CLK	-0.00019	0.00073	0.01644
	CLK	0.00270	0.00362	0.01934
	!CLK	0.00571	0.00650	0.02362
	!CLK	0.00861	0.00940	0.02651

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_fd_sc_hs__dfxtp_1	(D * Q)	0.01415	0.01557	0.06135
	(D * Q)	0.00964	0.01103	0.05683
	(!D * !Q)	0.01459	0.01601	0.06185
	(!D * !Q)	0.01008	0.01147	0.05733
sky130_fd_sc_hs__dfxtp_2	(D * Q)	0.01420	0.01561	0.06144
	(D * Q)	0.00966	0.01105	0.05689
	(!D * !Q)	0.01453	0.01594	0.06180
	(!D * !Q)	0.00999	0.01137	0.05726
sky130_fd_sc_hs__dfxtp_4	(D * Q)	0.01411	0.01552	0.06127
	(D * Q)	0.00962	0.01100	0.05677
	(!D * !Q)	0.01444	0.01585	0.06165
	(!D * !Q)	0.00995	0.01133	0.05715

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

Cell Name	When	Power(pJ)		
		first	mid	last
sky130_fd_sc_hs__dfxtp_1	(D * Q)	0.01095	0.01318	0.05907
	(D * Q)	0.01546	0.01770	0.06358
	(D * !Q)	0.01721	0.01935	0.06674
	(D * !Q)	0.02174	0.02388	0.07125
	(!D * Q)	0.01831	0.02068	0.06757
	(!D * Q)	0.02282	0.02521	0.07210
	(!D * !Q)	0.01032	0.01257	0.05854
	(!D * !Q)	0.01485	0.01710	0.06304
sky130_fd_sc_hs__dfxtp_2	(D * Q)	0.01073	0.01295	0.05888
	(D * Q)	0.01526	0.01750	0.06342
	(D * !Q)	0.01682	0.01899	0.06636
	(D * !Q)	0.02138	0.02356	0.07092
	(!D * Q)	0.01818	0.02056	0.06743
	(!D * Q)	0.02272	0.02511	0.07198
	(!D * !Q)	0.01022	0.01247	0.05846
	(!D * !Q)	0.01478	0.01704	0.06302
sky130_fd_sc_hs__dfxtp_4	(D * Q)	0.01115	0.01336	0.05914
	(D * Q)	0.01564	0.01785	0.06365
	(D * !Q)	0.01729	0.01944	0.06666
	(D * !Q)	0.02179	0.02396	0.07116
	(!D * Q)	0.01860	0.02098	0.06777
	(!D * Q)	0.02309	0.02549	0.07227
	(!D * !Q)	0.01062	0.01286	0.05870
	(!D * !Q)	0.01512	0.01737	0.06321