TMR_SNQX_sky130_rhbd_tt_1P8_25C.ccs Library

Cell Groups
TMRDFFSNQX1

TMRDFFSNQX1

TMR_SNQX_sky130_rhbd_tt_1P8_25C.ccs
Cell Library: Process , Voltage 1.80, Temp 25.00

Truth Table

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

Footprint

Cell Name	Area
TMRDFFSNQX1	0.00000

Pin Capacitance Information

Cell Name	Pin Cap(pf)			Max Cap(pf)
	D	**SN**	**CLK**	**Q**
TMRDFFSNQX1	0.04036	0.06959	0.07086	5.19317

Leakage Information

Cell Name	Leakage(nW)		
	Min.	**Avg**	**Max.**
TMRDFFSNQX1	0.00000	85.20620	149.46600

Delay Information

Delay(ns) to Q rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
TMRDFFSNQX1	CLK->Q (RR)	0.30445	1.31534	7.04551
	SN->Q (FR)	0.21949	1.36859	7.89660

Delay(ns) to Q falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
TMRDFFSNQX1	CLK->Q (RF)	0.51551	1.28971	5.53605

Constraint Information

Constraints(ns) for D rising :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
TMRDFFSNQX1	hold	CLK (R)	0.00644	0.02489	0.46066
	setup	CLK (R)	0.12433	0.23121	0.91892

Constraints(ns) for D falling :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
TMRDFFSNQX1	hold	CLK (R)	-0.08429	-0.21738	-1.11050
	setup	CLK (R)	0.10636	0.25072	1.43838

Constraints(ns) for D rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	When	Reference Slew Rate(ns)		
				first	mid	last
TMRDFFSNQX1	hold	CLK (R)	SN	0.00644	0.02489	0.46066
	setup	CLK (R)	SN	0.12433	0.23121	0.91892

Constraints(ns) for D falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	When	Reference Slew Rate(ns)		
				first	mid	last
TMRDFFSNQX1	hold	CLK (R)	SN	-0.08429	-0.21738	-1.11050
	setup	CLK (R)	SN	0.10636	0.25072	1.43838

Constraints(ns) for SN rising :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
TMRDFFSNQX1	recovery	CLK (R)	0.02837	0.02895	3.66243
	removal	CLK (R)	-0.01612	-0.01045	-0.10866

Constraints(ns) for SN rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	When	Reference Slew Rate(ns)		
				first	mid	last
TMRDFFSNQX1	recovery	CLK (R)	!D	0.02837	0.02895	3.66243
	removal	CLK (R)	!D	-0.01612	-0.01045	-0.10866

Constraints(ns) for SN falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	When	Reference Slew Rate(ns)		
				first	mid	last
TMRDFFSNQX1	min_pulse_width	SN ()	(CLK * D)	0.14069	1.38184	16.50020
	min_pulse_width	SN ()	(CLK * !D)	0.14069	1.38184	16.50020
	min_pulse_width	SN ()	(!CLK * D)	0.14069	1.38184	16.50020
	min_pulse_width	SN ()	(!CLK * !D)	0.14069	1.38184	16.50020

Constraints(ns) for CLK rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	When	Reference Slew Rate(ns)		
				first	mid	last
TMRDFFSNQX1	min_pulse_width	CLK ()	(D * SN)	0.15552	1.38184	16.50020
	min_pulse_width	CLK ()	(!D * SN)	0.16047	1.38184	16.50020

Constraints(ns) for CLK falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	When	Reference Slew Rate(ns)		
				first	mid	last
TMRDFFSNQX1	min_pulse_width	CLK ()	(D * SN)	0.20745	1.38184	16.50020
	min_pulse_width	CLK ()	(!D * SN)	0.13080	1.38184	16.50020

Power Information

Internal switching power(pJ) to Q rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
TMRDFFSNQX1	CLK	0.00000	0.00000	0.00000
	CLK	0.30744	0.35631	0.96408
	SN	0.62290	0.73919	1.66118

Internal switching power(pJ) to Q falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
TMRDFFSNQX1	CLK	0.00000	0.00000	0.00000
	CLK	0.42647	0.47112	1.06689

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

Cell Name	When	Power(pJ)		
		first	mid	last
TMRDFFSNQX1	(CLK * SN * !Q)	0.00000	0.00000	0.00000
	(CLK * SN * !Q)	0.09027	0.10446	0.28752
	(CLK * Q) + (!CLK * !SN * Q)	0.00000	0.00000	0.00000
	(CLK * Q) + (!CLK * !SN * Q)	0.12303	0.16603	0.71519
	(!CLK * SN)	0.00000	0.00000	0.00000
	(!CLK * SN)	0.14979	0.19528	0.74718

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

Cell Name	When	Power(pJ)		
		first	mid	last
TMRDFFSNQX1	(CLK * SN * !Q)	0.00000	0.00000	0.00000
	(CLK * SN * !Q)	0.12419	0.14729	0.34227
	(CLK * Q) + (!CLK * !SN * Q)	0.00000	0.00000	0.00000
	(CLK * Q) + (!CLK * !SN * Q)	0.12606	0.19329	0.75724
	(!CLK * SN)	0.00000	0.00000	0.00000
	(!CLK * SN)	0.23100	0.30244	0.87631

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

Cell Name	When	Power(pJ)		
		first	mid	last
TMRDFFSNQX1	(CLK * Q) + (!CLK * D * Q)	0.00000	0.00000	0.00000
	(CLK * Q) + (!CLK * D * Q)	0.00042	-0.00002	0.00008
	(!CLK * !D * Q)	0.00000	0.00000	0.00000
	(!CLK * !D * Q)	0.05752	0.10196	0.63113

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

Cell Name	When	Power(pJ)		
		first	mid	last
TMRDFFSNQX1	(CLK * Q) + (!CLK * D * Q)	0.00000	0.00000	0.00000
	(CLK * Q) + (!CLK * D * Q)	0.27417	0.30723	0.58192
	(!CLK * !D * Q)	0.00000	0.00000	0.00000
	(!CLK * !D * Q)	0.16179	0.25682	0.99984

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

Cell Name	When	Power(pJ)		
		first	mid	last
TMRDFFSNQX1	(D * Q)	0.00000	0.00000	0.00000
	(D * Q)	0.17130	0.22236	0.81853
	(!D * SN * !Q)	0.00000	0.00000	0.00000
	(!D * SN * !Q)	0.26603	0.30544	0.86765
	(!D * !SN * Q)	0.00000	0.00000	0.00000
	(!D * !SN * Q)	0.11789	0.20914	0.93442

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

Cell Name	When	Power(pJ)		
		first	mid	last
TMRDFFSNQX1	(D * SN * !Q)	0.00000	0.00000	0.00000
	(D * SN * !Q)	0.30838	0.37634	1.01125
	(D * Q)	0.00000	0.00000	0.00000
	(D * Q)	0.22401	0.29012	0.93497
	(!D * SN * Q)	0.00000	0.00000	0.00000
	(!D * SN * Q)	0.24044	0.31579	0.95730
	(!D * SN * !Q)	0.00000	0.00000	0.00000
	(!D * SN * !Q)	0.20073	0.26936	0.87282
	(!D * !SN * Q)	0.00000	0.00000	0.00000
	(!D * !SN * Q)	0.12959	0.20173	0.99339