sky130_rhbd.ccs Library

Cell Groups
TMRDFFSNQX1

TMRDFFSNQX1

sky130_rhbd.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	0.06958	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	7.89625

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	57266200000000.00000	57266300000000.00000	57266300000000.00000
	SN	57265000000000.00000	57265000000000.00000	57265000000000.00000

Internal switching power(pJ) to Q falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
TMRDFFSNQX1	CLK	0.00000	0.00000	0.00000
	CLK	1010730000000000.00000	1010730000000000.00000	1010730000000000.00000

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)	1010790000000000.00000	1010790000000000.00000	1010790000000000.00000
	(CLK * Q) + (!CLK * !SN * Q)	0.00000	0.00000	0.00000
	(CLK * Q) + (!CLK * !SN * Q)	77802700000000.00000	77802700000000.00000	77802700000000.00000
	(!CLK * SN)	0.00000	0.00000	0.00000
	(!CLK * SN)	40954200000000.00000	40954200000000.00000	40954200000000.00000

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)	1010730000000000.00000	1010730000000000.00000	1010730000000000.00000
	(CLK * Q) + (!CLK * !SN * Q)	0.00000	0.00000	0.00000
	(CLK * Q) + (!CLK * !SN * Q)	578569000000000.00000	578568000000000.00000	578569000000000.00000
	(!CLK * SN)	0.00000	0.00000	0.00000
	(!CLK * SN)	535178000000000.00000	535177000000000.00000	535177000000000.00000

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)	572663000000000.00000	572661000000000.00000	572663000000000.00000
	(!CLK * !D * Q)	0.00000	0.00000	0.00000
	(!CLK * !D * Q)	443977000000000.00000	443975000000000.00000	443977000000000.00000

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)	57265100000000.00000	57265000000000.00000	57265000000000.00000
	(!CLK * !D * Q)	0.00000	0.00000	0.00000
	(!CLK * !D * Q)	11964100000000.00000	11964000000000.00000	11964000000000.00000

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)	57266300000000.00000	57266200000000.00000	57266300000000.00000
	(!D * SN * !Q)	0.00000	0.00000	0.00000
	(!D * SN * !Q)	1010730000000000.00000	1010730000000000.00000	1010730000000000.00000
	(!D * !SN * Q)	0.00000	0.00000	0.00000
	(!D * !SN * Q)	32376700000000.00000	32376700000000.00000	32376700000000.00000

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)	45038900000000.00000	45038900000000.00000	45038900000000.00000
	(D * Q)	0.00000	0.00000	0.00000
	(D * Q)	40945900000000.00000	40945900000000.00000	40945900000000.00000
	(!D * SN * Q)	0.00000	0.00000	0.00000
	(!D * SN * Q)	54684100000000.00000	54684100000000.00000	54684100000000.00000
	(!D * SN * !Q)	0.00000	0.00000	0.00000
	(!D * SN * !Q)	57880100000000.00000	57880100000000.00000	57880100000000.00000
	(!D * !SN * Q)	0.00000	0.00000	0.00000
	(!D * !SN * Q)	11964000000000.00000	11964000000000.00000	11964000000000.00000