sky130_rhbd.ccs Library

Cell Groups	
TMRDFFSNQX1	

TMRDFFSNQX1

sky130_rhbd.ccs Cell Library: Process , Voltage 1.80, Temp 25.00

Truth Table

	INP	UT	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

Call Name		Pin Cap(pf)	Max Cap(pf)	
Cell Name	D	SN	CLK	Q
TMRDFFSNQX1	0.04036	0.06958	0.07086	5.19317

Leakage Information

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

Delay Information Delay(ns) to Q rising:

Call Name	Timing Ang(Din)	Delay(ns)			
Cell Name	Timing Arc(Dir)	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:

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

Constraint Information

Constraints(ns) for D rising:

Cell Name	Timing Charle	Dof Div (two vo)	Reference Slew Rate(ns)			
	Timing Check	Ref Pin(trans)	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 Charle	D of Div(4mons)	Reference Slew Rate(ns)			
	Timing Check	Ref Pin(trans)	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 T	Timing Check Ref Pin(trans)	Whon	Reference Slew Rate(ns)			
	Tilling Check	k Ref Pin(trans)	When	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 Chasle	ng Check Ref Pin(trans)	Whon	Reference Slew Rate(ns)			
	Timing Check K		When	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 Charle	D of Div(tuons)	Refero	ence Slew Ra	ate(ns)
	Timing Check	Ref Pin(trans)	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):

Call Name	Timing Charle	Dof Div(tuons)	When	Reference Slew Rate(ns)		
Cell Name	Timing Check	Ref Pin(trans)		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):

Call Name	Timing Chaple	Ref	XX/la a ra	Reference Slew Rate(ns)		
Cell Name	Timing Check	Pin(trans)	When	first	mid	last
	min_pulse_width	SN()	(CLK * D)	0.14069	1.38184	16.50020
	min_pulse_width	SN()	(CLK * !D)	0.14069	1.38184	16.50020
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

Constraints(ns) for CLK rising (conditional):

Call Name	Timin a Charle	Ref Pin(trans)	When	Reference Slew Rate(ns)		
Cell Name	Timing Check			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

$Constraints (ns) \ for \ CLK \ falling \ (conditional):$

Call Name	Timing Charle	Ref Pin(trans)	XX/In one	Reference Slew Rate(ns)		
Cell Name	Timing Check		When	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:

Call Name	T4		Power(pJ)	
Cell Name In	Input	first	mid	last
	CLK	0.00000	0.00000	0.00000
TMRDFFSNQX1	CLK	57266200000000.00000	57266300000000.00000	57266300000000.00000
	SN	572650000000000.00000	572650000000000.00000	572650000000000.00000

Internal switching power(pJ) to Q falling:

Call Name	I4		Power(pJ)	
Cell Name	Input	first	mid	last
TAIDDEECNOVI	CLK	0.00000	0.00000	0.00000
TMRDFFSNQX1	CLK	101073000000000.00000	101073000000000.00000	101073000000000.00000

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

Call Name	W/le oze	Power(pJ)				
Cell Name	When	first	mid	last		
	(CLK * SN * !Q)	0.00000	0.00000	0.00000		
	(CLK * SN * !Q)	101079000000000.00000	1010790000000000.00000	1010790000000000.00000		
TMRDFFSNQX1	(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):

Call Name	W/le are		Power(pJ)	
Cell Name	When	first	mid	last
	(CLK * SN * !Q)	0.00000	0.00000	0.00000
	(CLK * SN * !Q)	101073000000000.00000	101073000000000.00000	101073000000000.00000
TMRDFFSNQX1	(CLK * Q) + (!CLK * !SN * Q)	0.00000	0.00000	0.00000
	(CLK * Q) + (!CLK * !SN * Q)	57856900000000.00000	57856800000000.00000	57856900000000.00000
	(!CLK * SN)	0.00000	0.00000	0.00000
	(!CLK * SN)	53517800000000.00000	53517700000000.00000	53517700000000.00000

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

Call Name	When	Power(pJ)				
Cell Name	When	first	mid	last		
	(CLK * Q) + (!CLK * D * Q)	0.00000	0.00000	0.00000		
TMRDFFSNQX1	(CLK * Q) + (!CLK * D * Q)	57266300000000.00000	57266100000000.00000	57266300000000.00000		
	(!CLK * !D * Q)	0.00000	0.00000	0.00000		
	(!CLK * !D * Q)	44397700000000.00000	44397500000000.00000	44397700000000.00000		

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

Cell Name	When		Power(pJ)	
Cen Name	when	first	mid	last
	(CLK * Q) + (!CLK * D * Q)	0.00000	0.00000	0.00000
TMRDFFSNQX1	(CLK * Q) + (!CLK * D * Q)	57265100000000.00000	572650000000000.00000	572650000000000.00000
	(!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)				
Cell Name	when	first	mid	last		
	(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		
TMRDFFSNQX1	(!D * SN * !Q)	101073000000000.00000	101073000000000.00000	101073000000000.00000		
	(!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):

Call Name	Whom		Power(pJ)	
Cell Name	When	first	mid	last
	(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
TMRDFFSNQX1	(!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