sky130_rhbd_tt_1P8_25C.ccs Library

Cell Groups	
TMRDFFSNQX1	

TMRDFFSNQX1

sky130_rhbd_tt_1P8_25C.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	0.06959	0.07086	5.19317

Leakage Information

Call Nama	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	7.89660	

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	Timin a Charle	Timing Check Def Din(tuons)		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	ng Chock Dof Din (Anong)		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 Timing	Timing Chook	Ciming Check Ref Pin(trans)	When	Reference Slew Rate(ns)			
	Tilling Check			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)	When	Reference Slew Rate(ns)			
	Timing Check F		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:

Call Name	Timing Charle	D of Div(tuons)	Refero	ence Slew Ra	ate(ns)
Cell Name	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)	Wilson	Reference Slew Rate(ns)			
Cell Name	Cell Name Timing Check	Ref Pin(trans)	When	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 Chash	Ref	XX/le o re	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	Dof Dire(treese)	XX/la ova	Reference Slew Rate(ns)		
Cell Name	Timing Check Ref Pin(trans	Ref Pin(trans)	When	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	g Check Ref Pin(trans)	When	Reference Slew Rate(ns)		
Cell Name	Timing Check			first	mid	last
TMRDFFSNQX1 min_pulse_width 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	Immud	Power(pJ)			
Cell Name	Input	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:

Call Name	mo Innut		Power(pJ)			
Cell Name	Input	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):

Call Name	Where	Power(pJ)			
Cell Name	When	first	mid	last	
	(CLK * SN * !Q)	0.00000	0.00000	0.00000	
	(CLK * SN * !Q)	0.09027	0.10446	0.28752	
TMDDEECNOV1	(CLK * Q) + (!CLK * !SN * Q)	0.00000	0.00000	0.00000	
TMRDFFSNQX1	(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	W/lease	Power(pJ)			
Cen Name	When	first	mid	last	
	(CLK * SN * !Q)	0.00000	0.00000	0.00000	
	(CLK * SN * !Q)	0.12419	0.14729	0.34227	
TMDDEECNOV1	$(\operatorname{CLK} * \operatorname{Q}) + (!\operatorname{CLK} * !\operatorname{SN} * \operatorname{Q})$	0.00000	0.00000	0.00000	
TMRDFFSNQX1	$(\operatorname{CLK} * \operatorname{Q}) + (!\operatorname{CLK} * !\operatorname{SN} * \operatorname{Q})$	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	W/lease	Power(pJ)			
	When	first	mid	last	
	(CLK * Q) + (!CLK * D * Q)	0.00000	0.00000	0.00000	
TMDDEECNOV1	(CLK * Q) + (!CLK * D * Q)	0.00042	-0.00002	0.00008	
TMRDFFSNQX1	(!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	W/h ore	Power(pJ)			
	When	first	mid	last	
	(CLK * Q) + (!CLK * D * Q)	0.00000	0.00000	0.00000	
TMDDEECNOV1	(CLK * Q) + (!CLK * D * Q)	0.27417	0.30723	0.58192	
TMRDFFSNQX1	(!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):

Call Name	Whor	Power(pJ)			
Cell Name	When	first	mid	last	
	(D * Q)	0.00000	0.00000	0.00000	
	(D * Q)	0.17130	0.22236	0.81853	
EMPRECNOV1	(!D * SN * !Q)	0.00000	0.00000	0.00000	
TMRDFFSNQX1	(!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):

Call Name	Whor	Power(pJ)			
Cell Name	When	first	mid	last	
	(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	
TMDDEECNOV1	(!D * SN * Q)	0.00000	0.00000	0.00000	
TMRDFFSNQX1	(!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	