TMR_RNQ_sky130_rhbd_tt_1P8_25C.ccs Library

Cell Groups
TMRDFFQNX1
TMRDFFQX1
TMRDFFRNQNX1
TMRDFFRNQX1

TMRDFFQNX1

TMR_RNQ_sky130_rhbd_tt_1P8_25C.ccs
Cell Library: Process , Voltage 1.80,
Temp 25.00

Truth Table

INPUT		OUTPUT
D	CLK	QN
0	R	1
1	R	0
x	x	IQN

Footprint

Cell Name	Area
TMRDFFQNX1	0.00000

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	D	CLK	QN
TMRDFFQNX1	0.03880	0.07289	3.19295

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
TMRDFFQNX1	0.00000	80.34340	116.88600

Delay Information

Delay(ns) to QN rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
TMRDFFQNX1	CLK->QN (RR)	0.48866	1.71427	7.70903

Delay(ns) to QN falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
TMRDFFQNX1	CLK->QN (RF)	0.29732	0.72771	2.17277

Constraint Information

Constraints(ns) for D rising :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
TMRDFFQNX1	hold	CLK (R)	0.06550	0.10335	0.58620
	setup	CLK (R)	0.13009	0.27656	0.72667

Constraints(ns) for D falling :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
TMRDFFQNX1	hold	CLK (R)	-0.06961	-0.18819	-0.72288
	setup	CLK (R)	0.09354	0.26568	1.33210

Constraints(ns) for CLK rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	When	Reference Slew Rate(ns)		
				first	mid	last
TMRDFFQNX1	min_pulse_width	CLK ()	D	0.42480	2.64526	16.50020
	min_pulse_width	CLK ()	!D	0.42480	2.64526	16.50020

Constraints(ns) for CLK falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	When	Reference Slew Rate(ns)		
				first	mid	last
TMRDFFQNX1	min_pulse_width	CLK ()	D	0.42480	2.64526	16.50020
	min_pulse_width	CLK ()	!D	0.42480	2.64526	16.50020

Power Information

Internal switching power(pJ) to QN rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
TMRDFFQNX1	CLK	0.00000	0.00000	0.00000
	CLK	0.33649	0.44863	1.00868

Internal switching power(pJ) to QN falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
TMRDFFQNX1	CLK	0.00000	0.00000	0.00000
	CLK	0.29883	0.40355	0.93775

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

Cell Name	When	Power(pJ)		
		first	mid	last
TMRDFFQNX1	(CLK * QN)	0.00000	0.00000	0.00000
	(CLK * QN)	0.06735	0.10383	0.27769
	(CLK * !QN)	0.00000	0.00000	0.00000
	(CLK * !QN)	0.13130	0.24309	0.77138
	!CLK	0.00000	0.00000	0.00000
	!CLK	0.12223	0.23491	0.75557

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

Cell Name	When	Power(pJ)		
		first	mid	last
TMRDFFQNX1	(CLK * QN)	0.00000	0.00000	0.00000
	(CLK * QN)	0.10329	0.14500	0.32220
	(CLK * !QN)	0.00000	0.00000	0.00000
	(CLK * !QN)	0.11602	0.24577	0.79854
	!CLK	0.00000	0.00000	0.00000
	!CLK	0.18054	0.30474	0.82896

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

Cell Name	When	Power(pJ)		
		first	mid	last
TMRDFFQNX1	(D * !QN)	0.00000	0.00000	0.00000
	(D * !QN)	0.17745	0.27952	0.80468
	(!D * QN)	0.00000	0.00000	0.00000
	(!D * QN)	0.20402	0.29513	0.79790

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

Cell Name	When	Power(pJ)		
		first	mid	last
TMRDFFQNX1	(D * QN)	0.00000	0.00000	0.00000
	(D * QN)	0.29031	0.40402	0.91706
	(D * !QN)	0.00000	0.00000	0.00000
	(D * !QN)	0.21159	0.32840	0.86208
	(!D * QN)	0.00000	0.00000	0.00000
	(!D * QN)	0.18593	0.30972	0.82466
	(!D * !QN)	0.00000	0.00000	0.00000
	(!D * !QN)	0.23691	0.36608	0.88418

TMRDFFQX1

TMR_RNQ_sky130_rhbd_tt_1P8_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
TMRDFFQX1	0.00000

Pin Capacitance Information

Cell Name	Pin Cap(pf)		Max Cap(pf)
	D	CLK	Q
TMRDFFQX1	0.03879	0.07298	5.23943

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
TMRDFFQX1	0.00000	83.30790	123.69400

Delay Information

Delay(ns) to Q rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
TMRDFFQX1	CLK->Q (RR)	0.35534	1.35702	7.12728

Delay(ns) to Q falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
TMRDFFQX1	CLK->Q (RF)	0.50436	1.27214	5.47985

Constraint Information

Constraints(ns) for D rising :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
TMRDFFQX1	hold	CLK (R)	0.06620	0.10171	0.57612
	setup	CLK (R)	0.11694	0.25760	0.71129

Constraints(ns) for D falling :

Cell Name	Timing Check	Ref Pin(trans)	Reference Slew Rate(ns)		
			first	mid	last
TMRDFFQX1	hold	CLK (R)	-0.07028	-0.18527	-0.71055
	setup	CLK (R)	0.09189	0.26568	1.33230

Constraints(ns) for CLK rising (conditional):

Cell Name	Timing Check	Ref Pin(trans)	When	Reference Slew Rate(ns)		
				first	mid	last
TMRDFFQX1	min_pulse_width	CLK ()	D	0.42480	2.64526	16.50020
	min_pulse_width	CLK ()	!D	0.42480	2.64526	16.50020

Constraints(ns) for CLK falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	When	Reference Slew Rate(ns)		
				first	mid	last
TMRDFFQX1	min_pulse_width	CLK ()	D	0.42480	2.64526	16.50020
	min_pulse_width	CLK ()	!D	0.42480	2.64526	16.50020

Power Information

Internal switching power(pJ) to Q rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
TMRDFFQX1	CLK	0.00000	0.00000	0.00000
	CLK	0.30874	0.41114	0.95153

Internal switching power(pJ) to Q falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
TMRDFFQX1	CLK	0.00000	0.00000	0.00000
	CLK	0.35448	0.45487	0.97976

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

Cell Name	When	Power(pJ)		
		first	mid	last
TMRDFFQX1	(CLK * Q)	0.00000	0.00000	0.00000
	(CLK * Q)	0.12927	0.24061	0.76739
	(CLK * !Q)	0.00000	0.00000	0.00000
	(CLK * !Q)	0.07177	0.10820	0.28196
	!CLK	0.00000	0.00000	0.00000
	!CLK	0.12591	0.23896	0.76100

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

Cell Name	When	Power(pJ)		
		first	mid	last
TMRDFFQX1	(CLK * Q)	0.00000	0.00000	0.00000
	(CLK * Q)	0.11606	0.24573	0.79802
	(CLK * !Q)	0.00000	0.00000	0.00000
	(CLK * !Q)	0.10708	0.14868	0.32585
	!CLK	0.00000	0.00000	0.00000
	!CLK	0.18423	0.30862	0.83408

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

Cell Name	When	Power(pJ)		
		first	mid	last
TMRDFFQX1	(D * Q)	0.00000	0.00000	0.00000
	(D * Q)	0.17608	0.27771	0.80081
	(!D * !Q)	0.00000	0.00000	0.00000
	(!D * !Q)	0.21094	0.30215	0.80475

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

Cell Name	When	Power(pJ)		
		first	mid	last
TMRDFFQX1	(D * Q)	0.00000	0.00000	0.00000
	(D * Q)	0.21168	0.32843	0.86185
	(D * !Q)	0.00000	0.00000	0.00000
	(D * !Q)	0.29298	0.40651	0.91916
	(!D * Q)	0.00000	0.00000	0.00000
	(!D * Q)	0.23652	0.36541	0.88275
	(!D * !Q)	0.00000	0.00000	0.00000
	(!D * !Q)	0.18876	0.31272	0.82685

TMRDFFRNQNX1

TMR_RNQ_sky130_rhbd_tt_1P8_25C.ccs
Cell Library: Process , Voltage 1.80,
Temp 25.00

Truth Table

INPUT			OUTPUT
D	RN	CLK	QN
x	x	x	-

Footprint

Cell Name	Area
TMRDFFRNQNX1	0.00000

Pin Capacitance Information

Cell Name	Pin Cap(pf)			Max Cap(pf)
	D	RN	CLK	QN
TMRDFFRNQNX1	0.03984	0.08922	0.06777	1.90988

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
TMRDFFRNQNX1	0.00000	599388.00000	943956.00000

Delay Information

Delay(ns) to QN rising :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
TMRDFFRNQNX1	CLK->QN (FR)	0.76545	3.32042	13.34460
	RN->QN (FR)	0.51700	2.05570	8.04629

Constraint Information

Constraints(ns) for CLK falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	When	Reference Slew Rate(ns)		
				first	mid	last
TMRDFFRNQNX1	**min_pulse_width**	**CLK** ()	**(!D * RN)**	0.48986	2.64526	16.50020

Power Information

Internal switching power(pJ) to QN rising :

Cell Name	Input	Power(pJ)		
		first	mid	last
TMRDFFRNQNX1	CLK	0.00000	0.00000	0.00000
	CLK	485.38300	484.59400	481.05600
	RN	0.00000	0.00000	0.00000
	RN	870.46800	868.43700	864.31100

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

Cell Name	When	Power(pJ)		
		first	mid	last
TMRDFFRNQNX1	(CLK * RN * !QN)	0.00000	0.00000	0.00000
	(CLK * RN * !QN)	401.74400	400.88700	397.68400
	(!CLK * RN * QN)	0.00000	0.00000	0.00000
	(!CLK * RN * QN)	429.32600	429.47200	430.11300

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

Cell Name	When	Power(pJ)		
		first	mid	last
TMRDFFRNQNX1	(!CLK * RN * QN)	0.00000	0.00000	0.00000
	(!CLK * RN * QN)	491.18400	491.17900	491.02400

TMRDFFRNQX1

TMR_RNQ_sky130_rhbd_tt_1P8_25C.ccs
Cell Library: Process , Voltage 1.80,
Temp 25.00

Truth Table

INPUT			OUTPUT
D	RN	CLK	Q
x	x	x	-

Footprint

Cell Name	Area
TMRDFFRNQX1	0.00000

Pin Capacitance Information

Cell Name	Pin Cap(pf)			Max Cap(pf)
	D	RN	CLK	Q
TMRDFFRNQX1	0.03983	0.08919	0.06783	7.98023

Leakage Information

Cell Name	Leakage(nW)		
	Min.	Avg	Max.
TMRDFFRNQX1	0.00000	599844.00000	944539.00000

Delay Information

Delay(ns) to Q falling :

Cell Name	Timing Arc(Dir)	Delay(ns)		
		First	Mid	Last
TMRDFFRNQX1	CLK->Q (FF)	0.73629	2.79306	13.40750
	RN->Q (FF)	0.49039	1.60294	8.61854

Constraint Information

Constraints(ns) for CLK falling (conditional):

Cell Name	Timing Check	Ref Pin(trans)	When	Reference Slew Rate(ns)		
				first	mid	last
TMRDFFRNQX1	**min_pulse_width**	**CLK ()**	**(!D * RN)**	0.48335	2.64526	16.50020

Power Information

Internal switching power(pJ) to Q falling :

Cell Name	Input	Power(pJ)		
		first	mid	last
TMRDFFRNQX1	CLK	-0.05433	-1.44663	-12.90000
	CLK	485.52400	484.69200	481.11700
	RN	-0.05433	-1.44667	-12.90040
	RN	871.79900	869.70600	865.47300

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

Cell Name	When	Power(pJ)		
		first	mid	last
TMRDFFRNQX1	(CLK * RN * Q)	0.00000	0.00000	0.00000
	(CLK * RN * Q)	402.03800	401.17400	397.96700
	(!CLK * RN * !Q)	0.00000	0.00000	0.00000
	(!CLK * RN * !Q)	430.03800	430.18600	430.82600

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

Cell Name	When	Power(pJ)		
		first	mid	last
TMRDFFRNQX1	(!CLK * RN * !Q)	0.00000	0.00000	0.00000
	(!CLK * RN * !Q)	491.26400	491.26500	491.10500