

CSM110: Oscillator



Libraries

Name	Process	Form Factor	Silicon proven
RGO_CSM110_33V_NOM_30C_OSC	NOM	staggered	yes
RGO_CSM110_33V_NOM_50C_OSC	NOM	Inline	yes

Summary

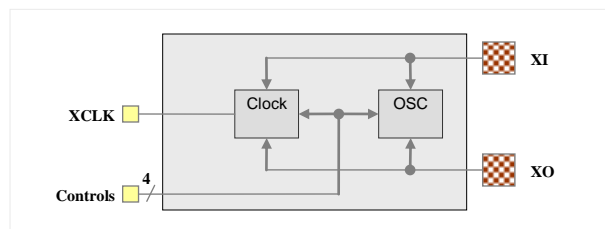
These libraries include 100 MHz crystal oscillator I/O pad.

ESD Protection

I/O pads are designed with robust ESD protection for all market segments. Passed:

- 2KV ESD Human Body Model (HBM)
- 200 V ESD Machine Model (MM)
- 500 V ESD Charge Device Model (CDM)

OSx_BI_100_33V



Description

100 MHz Crystal Oscillator with High Enable. The OSx_BI_100_33V oscillator is designed to generate an asynchronous on-chip clock signal with an appropriate external oscillator crystal. The design has been optimized for a wide operating range, stability and minimum jitter using a wide range of industry standard crystals. Most crystal manufacturers recommend a 10pF capacitor to ground from both the XI and XO pins for crystal stability. The design has been characterized to allow a variation of 4pF to 18pF on each pin.

The oscillator has two pins (E1,E2) for drive strength programming that allow the user to select the frequency and power level for any given application / crystal selection. The oscillator can share I/O VDD and I/O VSS with adjacent 1.8V, 2.5V, or 3.3V power domains, or if the user prefers the oscillator can have its own dedicated power domain with the I/O VDD and I/O VSS pads already provided in the oscillator macro design.

Maximum frequency (MHz)

E2	E1	ESR (Ω, R)	Cap loading (pF, C)	DVDD = 1.8V±10%	DVDD = 2.5V±10%	DVDD = 3.3V±10%
0	0	20	10	12	25	12
		40	20	5	10	5
0	1	20	10	25	70	25
		40	20	10	25	10
1	0	20	10	70	100	70
		40	20	25	40	25
1	1	20	10	100	100	100
		40	20	40	65	40

Recommended operating conditions

Description	Min	Nom	Max	Units
V _{DVDD} I/O supply voltage	2.97	3.3	3.63	V
	2.25	2.5	2.75	V
	1.62	1.8	1.98	V
T _A Ambient operating temperature	0	25	100	°C
V _{VDD} Core supply voltage	1.08	1.2	1.32	V
T _J Junction temperature	-40	25	125	°C
V _{PAD} Voltage at PAD	0	-	V _{DVDD}	V
V _{IH} Input logic high	0.7 * V _{DVDD}	-	V _{DVDD} + 0.3	V
V _{IL} Input logic low	V _{DVSS} - 0.3	-	0.3 * V _{DVDD}	V

Characterization Corners

Nominal VDD	Model	VDD	DVDD= 1.8, 2.5 or 3.3V	Temperature
1.2	FF	+10%	+10%	-40°C
	FF	+10%	+10%	125°C
	TT	nominal	nominal	25°C
	SS	-10%	-10%	-40°C
	SS	-10%	-10%	125°C

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