

CSM65: Oscillators



Libraries

Name	Process	Form Factor	Silicon proven
RGO_CSM65_25V33_G_30C_OSC	G	staggered	yes
RGO_CSM65_25V33_G_50C_OSC	G	Inline	yes
RGO_CSM65_25V33_LPE_30C_OSC	LPe	staggered	yes
RGO_CSM65_25V33_LPE_50C_OSC	LPe	Inline	yes

Summary

Included are three oscillator macro I/O cells:

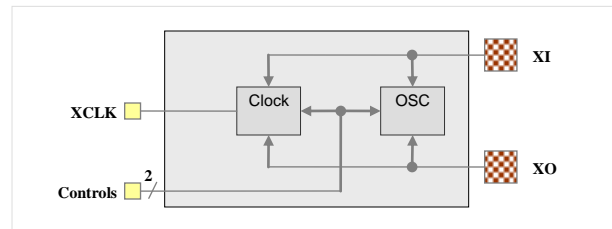
- 50 MHz oscillator
- 100 MHz oscillator
- 32 kHz oscillator

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_032_12V



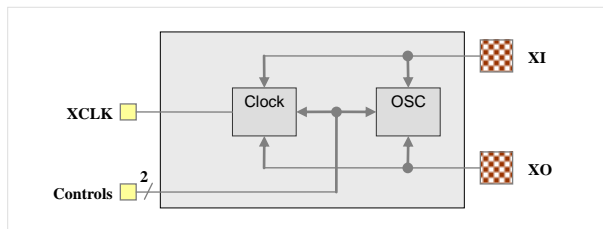
Description

The OSx_BI_032_12V oscillator is designed to generate an asynchronous on-chip clock signal with an appropriate external oscillator crystal. The design has been optimized for low power (1.5 μ W typical), stability and minimum jitter using a general purpose 32KHz crystal. The design has been characterized to allow a variation of 4pF to 18pF on each pin.

Key features:

- Very low power (2.6 μ W max)
- Bypass mode
- Power down (disable) mode
- Speed-up circuitry for fast startup

OSx_BI_050_12V



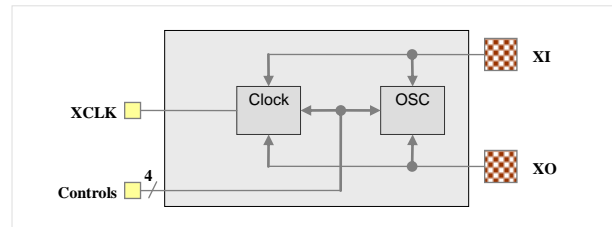
Description

The OSx_BI_050_12V 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. The design has been characterized to allow a variation of 4pF to 18pF on each pin.

Key features:

- Low power
- Bypass mode
- Power down (disable) mode
- Frequency range of 1 MHz to 50 MHz

OSx_BI_100_33V



Description

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. The design has been characterized to allow a variation of 4pF to 18pF on each pin.

Key features:

- Programmable current for wide frequency range
- Frequency range of 1 MHz to 100 MHz
- DVDD options from 1.5V to 3.3V
- Bypass mode
- Power down (disable) mode

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Recommended operating conditions

Description	Min	Nom	Max	Units
V_{DVDD} I/O supply voltage	2.97	3.3	3.63	V
	2.70	3.0	3.30	V
	2.52	2.8	3.08	V
	2.25	2.5	2.50	V
	1.62	1.8	1.98	V
	1.35	1.5	1.65	V
T_A Ambient operating temperature	0	25	100	°C
V_{VDD} Core supply voltage	0.9	1.0 to 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]	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
	1.0	FF	+10%	+10%
FF		+10%	+10%	125°C
TT		nominal	nominal	25°C
SS		-10%	-10%	-40°C
SS		-10%	-10%	125°C

^[1] DVDD = 1.5, 1.8, 2.5, 2.8, 3.0 and 3.3V

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