



CXOQ/CXOQHG OSCILLATOR

400 kHz to 100 MHz

One of the World's Smallest and Highest Precision
Crystal Oscillators

DESCRIPTION

Technological advancements permit 2.5 mm x 2.0 mm CXOQ quartz oscillator to have design-in capabilities of withstanding high shock applications. Additionally, the ultra-miniature CXOQ takes advantage of Statek's well known reliability and impeccable quality.



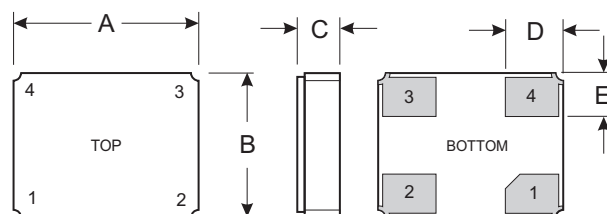
FEATURES

- High shock survival
- High frequency stability
- Low acceleration sensitivity (HG version)
- CMOS and TTL compatible
- Low power consumption
- Full military testing per MIL PRF 55310 available
- Optional output enable/disable with Tri-State
- Low EMI emission
- Hermetically sealed ceramic package
- Designed, manufactured and tested in the USA

APPLICATIONS

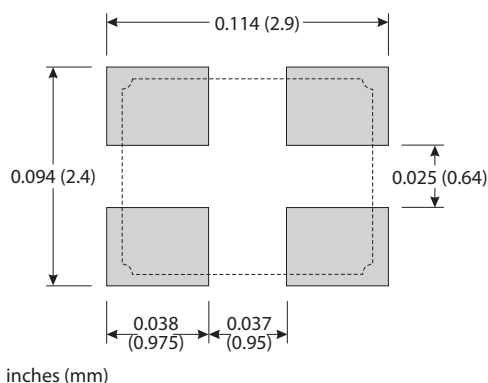
- Military
- Medical
- Industrial

DIMENSIONS



DIM	TYPICAL		MAXIMUM	
	inches	mm	inches	mm
A	0.098	2.50	0.102	2.60
B	0.079	2.00	0.083	2.10
C (SM1)	0.035	0.89	0.039	1.00
C (SM3/SM5)	0.040	1.02	0.048	1.22
D	0.026	0.67	0.027	0.69
E	0.022	0.57	0.023	0.59

SUGGESTED LAND PATTERN



PIN CONNECTIONS

1. Output Enable/Disable (E) or no connection (N)
2. Ground (Connected to Lid)
3. Output
4. V_{DD}

10190 Rev A1

SPECIFICATIONS

Specifications are typical at 25°C unless otherwise noted. Specifications are subject to change without notice. Tighter specifications are available. Please contact factory.

Frequency	400 kHz to 100 MHz		
Supply Voltage ¹	1.8V to 5.0 V ± 10%		
Calibration Tolerance ²	± 100 ppm to ± 30 ppm		
Frequency Stability Over Temperature ³	± 50 ppm for Commercial ± 100 ppm for Industrial ± 100 ppm for Military		
Supply Current (Typical)	1.8 V	3.3 V	
	24 MHz	1.5 mA	3.0 mA
	32 MHz	2.0 mA	5.0 mA
	50 MHz	3.0 mA	6.0 mA
Output Load (CMOS)	15 pF		
Start-up Time	5 ms MAX		
Rise/Fall Time	10 ns MAX		
Duty Cycle ⁴	45% MIN/55% MAX		
Aging, first year	5 ppm		
Shock, survival ⁵	5,000 g, 0.3 ms, 1/2 sine HG: 20,000 g		
Vibration, survival ⁶	20 g, 10-2,000 Hz swept sine		
Operating Temp. Ranges	-10°C to 70°C	(Commerical)	
	-40°C to 85°C	(Industrial)	
	-55°C to 125°C	(Military)	

1. Contact factory for available other voltages.

2. Tighter tolerances available.

3. Does not include calibration tolerances. Tighter tolerances available

4. Tighter duty cycles are available.

5. Higher shock available, contact factory for requirements above 20,000 g.

6. Per MIL-STD-202G, Method 204D, Condition D. Random vibration testing also available.

Note: All parameters are measured at ambient temperature with a 10 MΩ, 15 pF load.

ABSOLUTE MAXIMUM RATINGS

Supply Voltage V_{DD}	-0.5 V to 5.0 V
Storage Temperature	-55°C to 125°C
Maximum Process Temperature	260°C for 20 seconds

ENABLE/DISABLE OPTIONS (E/N)

Statek offers two enable/disable options: E and N. The E-version has a Tri-State output and stops oscillating internally when the output is put into the high Z state. The N-version does not have PIN 1 connected internally and so has no enable/disable capability. The following table describes the Enable/Disable option E.

**ENABLE/DISABLE OPTION E
FUNCTION TABLE**

	Enable (Pin 1 High*)	Disable (Pin 1 Low)
Output	Frequency Output	High Z State
Oscillator	Oscillates	Stops
Current	Normal	Very Low

*When PIN 1 is allowed to float, it is held high by an internal pull-up resistor.

PACKAGING OPTIONS

CXOQ	- Tray Pack
	- 12 mm tape, 7" or 13" reels
	Per EIA 481 (see Tape and Reel data sheet #10109)

HOW TO ORDER CXOQ/CXOQH G SURFACE MOUNT CRYSTAL OSCILLATORS

CXOQ	HG	4	S	N	SM3	—	32.0M	,	100	/	100	/	—	/	I
	HG = High Shock otherwise leave blank	Supply Voltage 1 = 1.8 V 2 = 2.5 V 3 = 3.0 V 4 = 3.3 V 5 = 5.0 V*	"S" if Special or custom design; otherwise blank	Enable/Disable Option E or N	Terminations Blank = SM1 = Gold Plated (Lead Free) SM3 = Solder Dipped (Lead Free) SM5 = Solder Dipped (Lead Free)		Frequency K = kHz M = MHz		Calibration Tolerance @ 25°C (in ppm)		Frequency Stability over Temp. Range (in ppm)				Temp. Range: C = -10°C to +70°C I = -40°C to +85°C M = -55°C to +125°C S = Customer Specified
OR															
											200	/			I
											Total Frequency Tolerance (in ppm)				Temp. Range: C = -10°C to +70°C I = -40°C to +85°C M = -55°C to +125°C S = Customer Specified

*5.0 V offered in Disable (N) option only.