



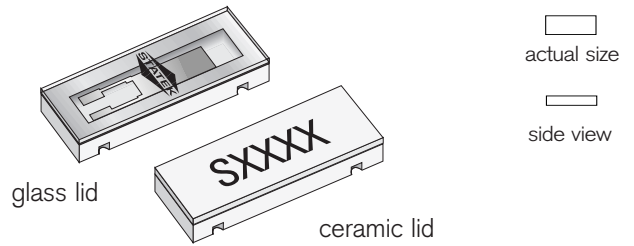
CX3HGSM AT CRYSTAL

9.6 MHz to 250 MHz
High Shock, Low Profile, Miniature
Surface Mount AT Quartz Crystal

Fundamental Mode: 9.6 MHz - 250 MHz

DESCRIPTION

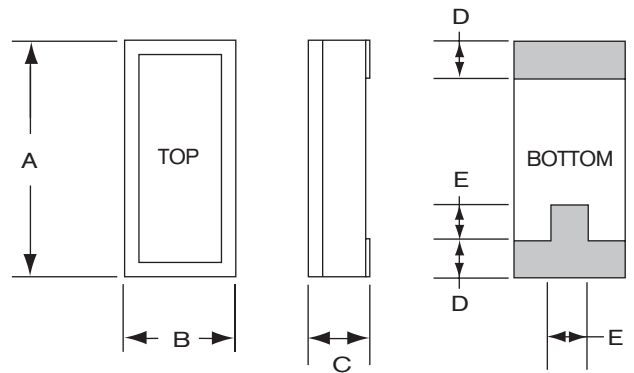
STATEK's miniature CX3SM AT crystals in leadless ceramic packages are designed for surface mounting on printed circuit boards or hybrid substrates. These crystals are low profile and have a small land pattern. These rugged crystals are designed for applications requiring higher shock and vibration survival.



FEATURES

- High shock and vibration survival
- Designed for surface mount applications using infrared, vapor phase, or epoxy mount techniques.
- Low profile (less than 1.5 mm available) hermetically sealed ceramic package
- Excellent aging characteristics
- Available with glass or ceramic lid
- High shock and vibration resistance
- Custom designs available
- Full military testing available
- Designed and manufactured in the USA

PACKAGE DIMENSIONS



APPLICATIONS

Medical

- Monitoring Equipment

Industrial, Computer & Communications

- Instrumentation
- Down-hole Data Recorder
- Engine Control
- Handheld Inventory Control
- Telemetry

Military & Aerospace

- Communications
- Smart Munitions
- Timing Devices
- Surveillance Devices

DIM	TYPICAL		MAXIMUM	
	inches	mm	inches	mm
A	0.263	6.68	0.270	6.86
B	0.097	2.46	0.104	2.64
C	-	-	see below	
D	0.052	1.32	0.058	1.47
E	0.030	0.76	0.035	0.89

THICKNESS (DIM C) MAXIMUM

	GLASS LID		CERAMIC LID	
	inches	mm	inches	mm
SM1	0.053	1.35	0.067	1.70
SM2/SM4	0.055	1.40	0.069	1.75
SM3/SM5	0.058	1.47	0.072	1.83

10182 Rev A



SPECIFICATIONS

Specifications are typical at 25°C unless otherwise noted. Specifications are subject to change without notice.

Fundamental Frequency	10 MHz	32 MHz	155.52 MHz
Motional Resistance R_1 (Ω)	60	25	10
Motional Capacitance C_1 (fF)	2.8	6.2	4.0
Quality Factor Q (k)	95	30	30
Shunt Capacitance C_0 (pF)	1.4	2.3	2.3

Calibration Tolerances ¹	± 100 ppm, or tighter as required
Load Capacitance ²	20 pF for $f \leq 50$ MHz 10 pF for $f > 50$ MHz
Drive Level	500 μ W MAX for $f \leq 50$ MHz 200 μ W MAX for $f > 50$ MHz
Frequency-Temperature Stability ^{1,3}	± 50 ppm to ± 10 ppm (Commercial) ± 100 ppm to ± 20 ppm (Industrial) ± 100 ppm to ± 30 ppm (Military)
Aging, first year ⁴	10 ppm MAX
Shock, survival	Up to 20,000 g, 0.3 ms, 1/2 sine
Vibration, survival ⁵	20 g, 10-2,000 Hz swept sine
Operating Temp. Range	-10°C to +70°C (Commercial) -40°C to +85°C (Industrial) -55°C to +125°C (Military)
Storage Temp. Range	-55°C to +125°C
Max Process Temperature	260°C for 20 sec.

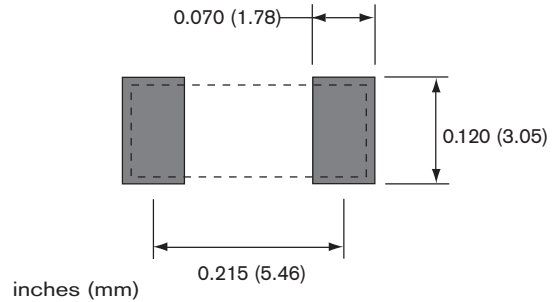
- Other tolerances available. Contact factory.
- Unless specified otherwise.
- Does not include calibration tolerance. The characteristics of the frequency stability over temperature follow that of the AT thickness-shear mode.
- 10 ppm MAX for frequencies below 40 MHz. For tighter tolerances and higher frequencies contact factory.
- Per MIL-STD-202G, Method 204D, Condition D. Random vibration testing also available.

TERMINATIONS

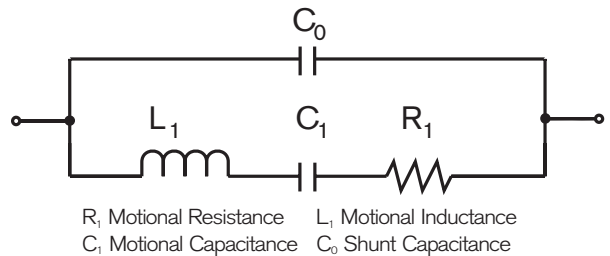
Designation	Termination
SM1	Gold Plated
SM2	Solder Plated
SM3	Solder Dipped
SM4	Solder Plated (Lead Free)
SM5	Solder Dipped (Lead Free)

Max Process Temperature 260°C for 20 sec.

SUGGESTED LAND PATTERN



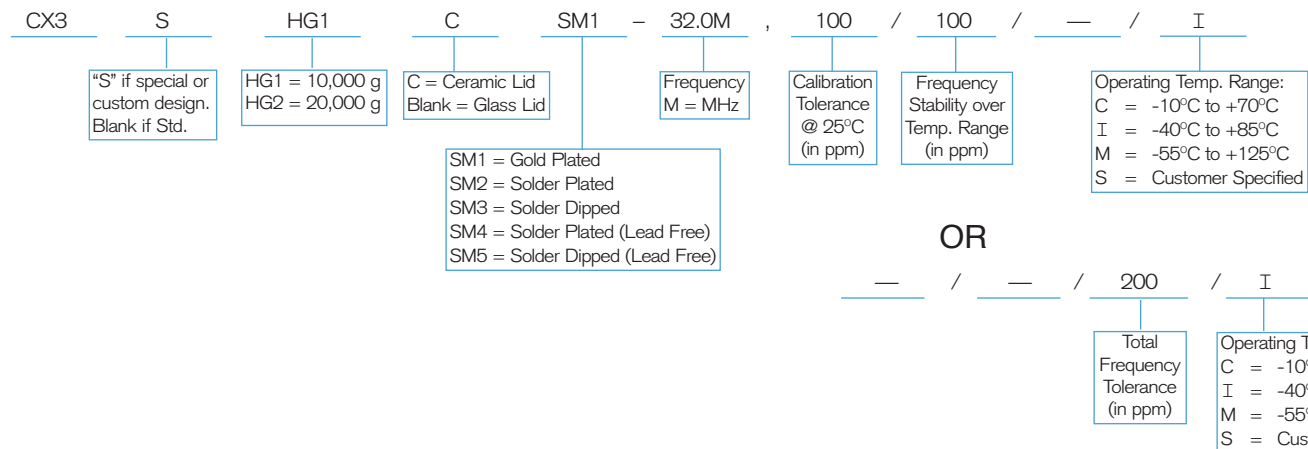
EQUIVALENT CIRCUIT



PACKAGING OPTIONS

- Tray Pack
- 16mm tape, 7" or 13" reels
Per EIA 481 (see Tape and Reel data sheet 10109)

HOW TO ORDER CX3HGSM AT CRYSTALS



10182 Rev A