

CX1HGSM AT CRYSTAL

6 MHz to 250 MHz

High Shock Miniature Surface Mount AT Quartz Crystal

Fundamental Mode: 6 MHz - 250 MHz

DESCRIPTION

STATEK's miniature CX1HGSM AT crystals in leadless ceramic packages are designed for surface mounting on printed circuit boards or hybrid substrates. These rugged crystals are designed for applications requiring exceptional shock and vibration survival.

FEATURES

- High shock and vibration resistance
- Designed for surface mount applications using infrared, vapor phase, or epoxy mount techniques
- Low profile hermetically sealed ceramic package
- Available with glass or ceramic lid
- Custom designs available
- Full military testing available
- Designed and manufactured in the USA

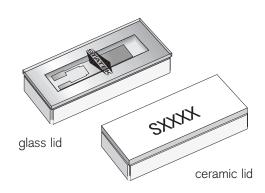
APPLICATIONS

Industrial

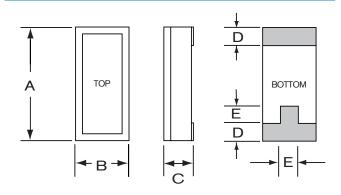
- Down-hole Data Recorder
- Process Control
- Environmental Control
- Engine Control
- Telemetry
- Ruggedized Instrumentation
- Automotive Control

Military & Aerospace

- Smart Munitions
- Timing Devices (Fuzes)
- Surveillance Devices
- Missile Telemetry
- Ruggedized Communications
- Aviation Equipment



PACKAGE DIMENSIONS



	TYPICAL		TYPICAL MAXIMUM		
DIM	inches	mm	inches	mm	
Α	0.315	8.00	0.330	8.38	
В	0.140	3.56	0.155	3.94	
С	-	-	see below		
D	0.045	1.14	0.055	1.40	
Е	0.060	1.52	0.070	1.78	

THICKNESS (DIM C) MAXIMUM

	GLASS LID		CERAMIC LID		
	inches	mm	inches	mm	
SM1	0.065	1.65	0.070	1.78	
SM2/SM4	0.067	1.70	0.072	1.83	
SM3/SM5	0.070	1.78	0.075	1.90	

10108 - Rev D



SPECIFICATIONS

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

Fundamental Frequency	<u>10 MHz</u>	<u>32 MHz</u>	<u>155.52 MHz</u>
Motional Resistance R_1 (Ω)	30	25	15
Motional Capacitance C ₁ (fF)	5.5	6.2	4.0
Quality Factor Q (k)	100	30	30
Shunt Capacitance C ₀ (pF)	2.2	2.3	2.3
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Calibration Tolerance¹ ± 100 ppm, or tighter as required

Load Capacitance² 20 pF for $f \le 50$ 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 ± 50 ppm to ± 10 ppm (Commercial)

Stability^{1,3} + 100 ppm to ± 20 ppm (Industrial)

± 100 ppm to ± 20 ppm (Industrial) ± 100 ppm to ± 30 ppm (Military)

Aging, first year⁴ 10 ppm MAX

Shock, survival⁵ 10,000 g, 0.2 ms, 1/2 sine

Vibration, survival⁶ 20 g, 10-2,000 Hz swept sine

Operating Temp. Range -10°C to +70°C (Commercial)

 -40° C to $+85^{\circ}$ C (Industrial) -55° C to $+125^{\circ}$ C (Military)

Storage Temp. Range -55°C to +125°C.

Max Process Temperature 260°C for 20 sec.

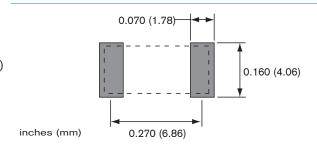
- 1. Other tolerances available. Contact factory.
- 2. Unless specified otherwise.
- Does not include calibration tolerance. The characteristics of the frequency stability over temperature follow that of the AT thickness-shear mode.
- 10 ppm MAX for frequencies below 40 MHz. For tighter tolerances and higher frequencies contact factory.
- 5. Up to 100,000 g. Contact factory.
- 6. Per MIL-STD-202G, Method 204D, Condition E. Random vibration testing also available.

TERMINATIONS

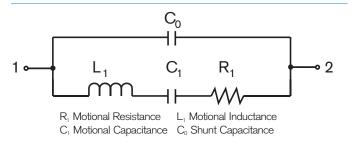
<u>Termination</u>
Gold Plated (Lead Free)
Solder Plated
Solder Dipped
Solder Plated (Lead Free)
Solder Dipped (Lead Free)

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 CX1HGSM AT CRYSTALS

