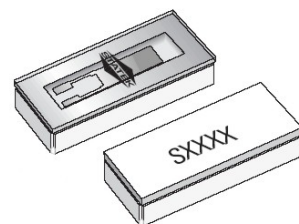


**High Shock Miniature SMD AT Quartz Crystal 8MHz to 250MHz**
**FEATURES**

- High shock and vibration resistance
- Designed for infrared, vapour phase or epoxy mounting
- Low profile, hermetically sealed ceramic package
- Excellent ageing characteristics
- Full military testing available
- Available with glass or ceramic lid
- Custom designs available


**DESCRIPTION**

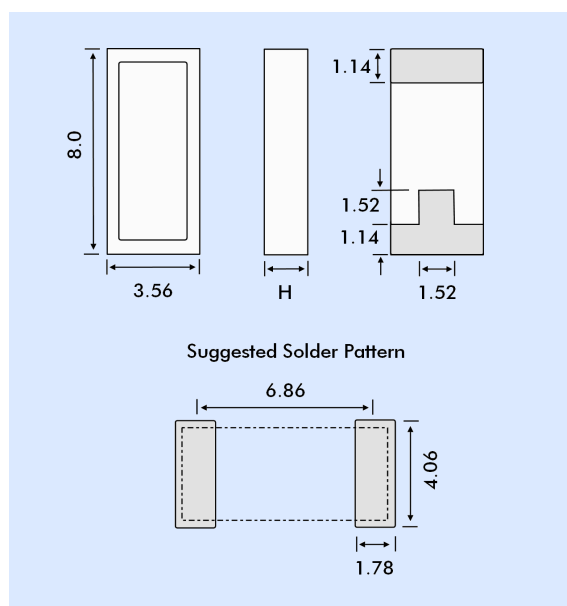
CX1HGSM AT crystals are leadless devices designed for surface mounting. The crystals are hermetically sealed in a rugged, ceramic package. These crystals are designed for applications requiring exceptional shock and vibration survival characteristics.

**APPLICATIONS**
**Industrial**

- Down-hole data recorder
- Process control
- Environmental Control
- Engine Control
- Telemetry
- Ruggedized instrumentation
- Automotive control

**Military & Aerospace**

- Smart munitions
- Timing devices (fuses)
- Surveillance Devices
- Missile Telemetry
- Ruggedized communications
- Aviation equipment

**OUTLINE & DIMENSIONS**

**DIMENSION 'H'**

Terminations	Glass Lid	Ceramic Lid
SM1	1.65	1.78
SM2/SM4	1.70	1.83
SM3/SM5	1.78	1.90

**TERMINATIONS - PLATING**

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

## High Shock Miniature SMD AT Quartz Crystal 8MHz to 250MHz

### SPECIFICATION

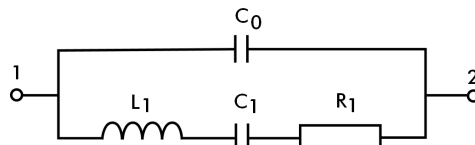
Specifications stated are typical at 25°C unless otherwise indicated.  
Specifications may change without notice.

Fundamental Frequency:	10.0MHz	32.0MHz	155.52MHz
Motional Resistance R (Ω):	30	25	15
Motional Capacitance C1 (ff):	5.5	6.2	4.0
QualityFactor Q (k):	100	30	30
Shunt Capacitance C0 (pF):	2.2	2.3	2.3

Calibration Tolerance <sup>1</sup> :	±100ppm or tighter as required
Load Capacitance <sup>2</sup> :	20pF for fr. <50MHz 10pF for fr. >50MHz
Drive Level:	500μW max. for fr. <50MHz 200μW max. for fr. <50MHz
Temperature Stability <sup>3</sup>	
Commercial -10 ~ +60°C:	±50ppm to ±10ppm
Industrial -40 to +85°C:	±100ppm to ±20ppm
Military -55 to +125°C:	±100ppm to ±30ppm
Ageing, first year <sup>4</sup> :	10ppm max.
Shock, survival <sup>5</sup> :	10,000g, 0.2ms, ½ sine
Vibration, survival <sup>6</sup> :	50g, 10~2000Hz swept sine
Operating Temperature Range	
Commercial:	-10° to +70°C
Industrial:	-40° to +85°C
Military:	-55 to +125°C
Storage Temperature Range:	-55° to +125°C
Maximum Process Temperature:	+260°C for 20 seconds

1. Other tolerances available, contact Euroquartz sales.
2. Unless specified otherwise.
3. Does not include calibration tolerance. The characteristics of the frequency stability over temperature follow that of the AT thickness-shear mode.
4. 10ppm max. for frequencies below 40MHz For tighter tolerances and higher frequencies contact Euroquartz sales.
5. Up to 100,000g, contact Euroquartz sales.
6. Per MIL-STD-202G, Method 204D, Condition E. Random vibration testing also available.

### CRYSTAL EQUIVALENT CIRCUIT



R1 Motional Resistance      L1 Motional Inductance  
C1 Motional Capacitance      C0 Shunt Capacitance

### PACKAGING OPTIONS

CX1HGSM crystals are available either tray packed (<250pcs) or tape and reel (>250 pieces).  
16mm tape, 178mm or 330mm reels (EIA 418).

### HOW TO ORDER CX1HGSM AT CRYSTALS

**CX1 - S - HG - C - SM1 - 32.0M 100 / 100 / I**

'S' if special, custom design. Otherwise leave blank

Blank = glass lid  
C = ceramic lid

Terminations  
SM1 = Gold plated \*  
SM2 = Solder plated  
SM3 = Solder dipped  
SM4 = Solder plated \*  
SM5 = Solder dipped \*  
\* = Lead free

Frequency  
M = MHz

Calibration Tolerance  
@25°C  
(in ppm)

Frequency Stability over Temp. Range  
(in ppm)

Temp. Range  
C = -10° ~ +70°C  
I = -40° ~ +85°C  
M = -55° ~ +125°C  
S = Customer specified

May be specified as - / - / 200 / I  
where '200' indicates an overall total frequency tolerance in ppm.