

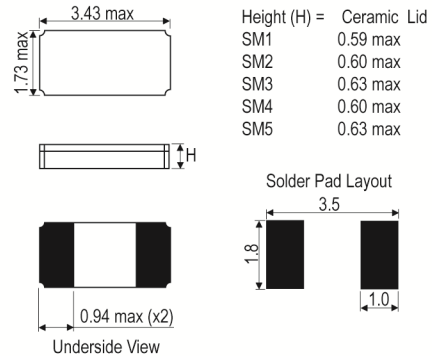
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**Description**

- CX11LHG is a high performance quartz crystal designed to survive the most extreme shock and high vibration application environments. Low acceleration sensitivity and low ageing performance meets the most demanding requirements. Available with tight calibration tolerances and high stability over temperature.
- -C-SM1 5000G, Gold Plated (RoHS) with ceramic lid
- -C-SM4 5000G, Solder Plated (RoHS) with ceramic lid
- -C-SM5 5000G, Solder Dipped (RoHS) with ceramic lid
- -HG1-C-SM1 10000G, Gold Plated (RoHS) with ceramic lid
- -HG1-C-SM4 1000G, Solder Plated (RoHS) with ceramic lid
- -HG1-C-SM5 1000G, Solder Dipped (RoHS) with ceramic lid
- -HG2-C-SM1 20000G, Gold Dipped (RoHS) with ceramic lid
- -HG2-C-SM4 20000G, Solder Plated (RoHS) with ceramic lid
- -HG2-C-SM5 20000G, Solder Dipped (RoHS) with ceramic lid
- -HG3-C-SM1 30000G, Gold Plated (RoS) with ceramic lid
- -HG3-C-SM4 30000G, Solder Plated (RoHS) with ceramic lid
- -HG3-C-SM5 30000G, Solder Dipped (RoHS) with ceramic lid
- -HG4-C-SM1 50000G, Gold Plated (RoHS) with ceramic lid
- -HG4-C-SM4 50000G, Solder Plated (RoHS) with ceramic lid
- -HG4-C-SM5 50000G, Solder Dipped (RoHS) with ceramic lid
- -HG5-C-SM1 75000G, Gold Plated (RoHS) with ceramic lid
- -HG5-C-SM4 75000G, Solder Plated (RoHS) with ceramic lid
- -HG5-C-SM5 75000G, Solder Dipped (RoHS) with ceramic lid
- **FEATURES:**  
 Mechanical shock survivability up to 75,000G  
 Ultra-low profile - typical height of 0.5 mm  
 Low acceleration sensitivity available  
 Hermetically sealed ceramic package  
 Excellent ageing characteristics  
 Full military testing available
- **APPLICATIONS:**  
 Industrial & Communications -  
 Down-hole Data Recorder  
 Process Control  
 Environmental Control  
 Engine Control  
 Telemetry  
 Ruggedised Instrumentation  
 Automotive Control  
 Military & Aerospace -  
 Smart Munitions  
 Timing Devices (Fuses)  
 Surveillance Devices  
 Missile Telemetry  
 Ruggedised Communications  
 Aviation Equipment
- Please note that all data is only valid at 25°C unless otherwise stated.



**Outline (mm) -C-SM1 = 5000G, Gold Plated (RoHS) with ceramic lid**



**Frequency Parameters**

- Frequency 16.0MHz to 50.0MHz
- Frequency Tolerance ±30.00ppm to ±100.00ppm
- Tolerance Condition @ 25°C
- Frequency Stability ±10.00ppm to ±100.00ppm
- Ageing ±5ppm max in 1st year

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#### Electrical Parameters

■ Load Capacitance (CL)	10.0pF		
■ Shunt Capacitance (C0)	0.7pF typ @ 24MHz		
■ Drive Level	200µW max		
■ Fundamental Frequency	16.0MHz	24.0MHz	32.0MHz
■ Motional Resistance R1 (Ω)	85	30	25
■ Motional Capacitance C1 (fF)	1.5	1.6	1.9
■ Quality Factor Q (k)	80	150	110
■ Shunt Capacitance C0 (pF)	0.7	0.7	0.9

#### Operating Temperature Ranges

- -10 to 70°C
- -40 to 85°C
- -55 to 125°C

#### Environmental Parameters

- Shock: Up to 75000G, 0.3ms, half sine
- Vibration: MIL-STD-202G, Method 204D, Condition D: 20G, 10-2000Hz swept sine  
(Note: Random vibration testing also available)
- Storage Temperature Range: -55 to 125°C

#### Manufacturing Details

- Soldering Process Temperature: 260°C max for 20sec max

#### Ordering Information

- Frequency\*
- Model\*
- Shock Level\*
- Termination\*
- Frequency Tolerance (@ 25°C)\*
- Frequency Stability (over operating temperature range)\*
- Operating Temperature Range\*
- Load Capacitance\*
- (\*minimum required)
- Shock Level Variants:
  - Blank = 5000G
  - HG1 = 10000G
  - HG2 = 20000G
  - HG3 = 30000G
  - HG4 = 50000G
  - HG5 = 75000G
- Termination Variants:
  - SM1 = Gold Plated (RoHS compliant)
  - SM2 = Solder Plated (Non-RoHS compliant)
  - SM3 = Solder Dipped (Non-RoHS compliant)
  - SM4 = Solder Plated (RoHS compliant)
  - SM5 = Solder Dipped (RoHS compliant)
- Example
  - 20.0MHz CX11L AT-HG1-C-SM1
  - 100/100/-55 to 125C/10 FUND

#### Compliance

- |                              |                |
|------------------------------|----------------|
| ■ RoHS Status (2011/65/EU)   | Optional       |
| ■ REACh Status               | Compliant      |
| ■ MSL Rating (JDEC-STD-033): | Not Applicable |

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#### Packaging Details

- Pack Style: Reel      Tape & reel in accordance with EIA-481-D  
Pack Size: 1,000
- Pack Style: Tray      Supplied on a tray  
Pack Size: 1

#### Electrical Specification - maximum limiting values

Frequency Min	Frequency Max	Temperature Range	Stability (Min)	Over Tone Order	ESR
		°C	ppm		Ω
16.0MHz	50.0MHz	-10 to 70	±10	Fundamental	-
		-40 to 85	±20		-
		-55 to 125	±30		-

\*Stability Maximum values ±100ppm

*This document was correct at the time of printing; please contact your local sales office for the latest version.*

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