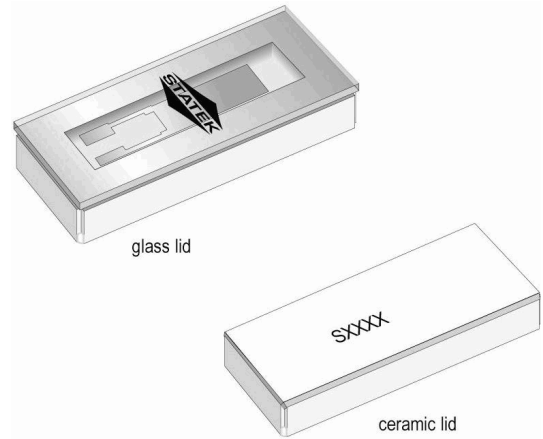


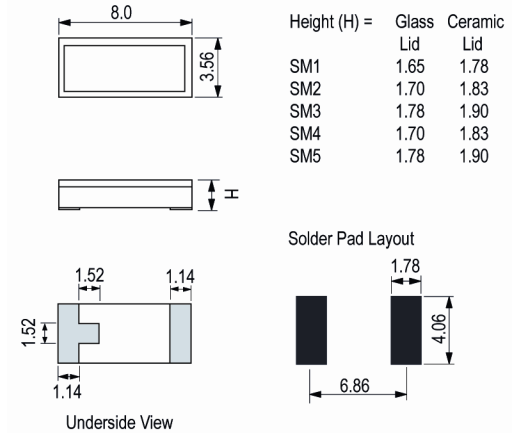
ISSUE 1; June 2016

Description

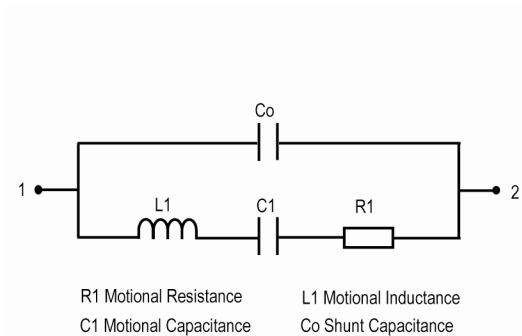
- The miniature CX1HG AT crystal is a leadless ceramic package designed for surface mounting on printed circuit boards or hybrid substrates. These rugged crystals are designed for applications requiring exceptional shock and vibration survival.
- -C-SM1 Ceramic Lid, Gold Plated (Lead Free)
- Ceramic Lid, Gold Plated (Lead Free)
- -C-SM4 Ceramic Lid, Solder Plated (Lead Free)
- Ceramic Lid, Solder Plated (Lead Free)
- -C-SM5 Ceramic Lid, Solder Dipped (Lead Free)
- Ceramic Lid, Solder Dipped (Lead Free)
- -SM1 Glass Lid, Gold Plated (Lead Free)
- Glass Lid, Gold Plated (Lead Free)
- -SM4 Glass Lid, Solder Plated (Lead Free)
- Glass Lid, Solder Plated (Lead Free)
- -SM5 Glass Lid, Solder Dipped (Lead Free)
- Glass Lid, Solder Dipped (Lead Free)
- FEATURES:
 - High shock and vibration resistance
 - Designed for surface mount applications using infrared, vapour phase or epoxy mount techniques
 - Low profile hermetically sealed ceramic package
 - Available with glass or ceramic lid
 - Custom designs available
 - Full military testing available
- APPLICATIONS:
 - Industrial -
 - 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) -SM1 = Glass Lid, Gold Plated (Lead Free)



Equivalent Circuit



Sales Office Contact Details:

UK: +44 (0)1460 270200
Germany: 0800 1808 443

France: 0800 901 383
USA: +1.760.318.2824

Email: info@iqdfrequencyproducts.com
Web: www.iqdfrequencyproducts.com

Frequency Parameters

- Frequency 6.0MHz to 250.0MHz
- Frequency Tolerance $\pm 100.00\text{ppm}$
- Tolerance Condition @ 25°C
- Frequency Stability $\pm 10.00\text{ppm}$ to $\pm 100.00\text{ppm}$
- Ageing $\pm 10\text{ppm}$ max in 1st year (f<40MHz)
- Notes:
 - Frequency Stability does not include Frequency Tolerance @ 25°C
- Ageing at $\pm 10\text{ppm}$ max applies for frequencies below 40MHz - for details on higher frequencies and also tighter ageing requirements please contact an IQD Sales Office
- Tighter Frequency Tolerances are available - for details please contact an IQD Sales Office

Electrical Parameters

- Load Capacitance (CL) 10.0pF to 20.0pF
- Shunt Capacitance (C0) 2.3pF typ
- Drive Level 500 μ W max f \leq 50MHz, 200 μ W max f>50MHz
- Electrical Parameters (typ):

Frequency (MHz)	10	32	155.52
Motional Resistance R1 (Ω)	30	25	15
Motional Capacitance C1 (fF)	5.5	6.2	4.0
Quality Factor Q (k)	100	30	30
Shunt Capacitance C0 (pF)	2.2	2.3	2.3

Operating Temperature Ranges

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

Environmental Parameters

- Shock: 10000G, 0.2ms, 1/2 sine
- Note: Higher Shock values up to 100000G are available - for details please contact an IQD Sales Office
- Vibration: MIL-STD-202G, Method 204D, Condition E: 20G, 10-2000Hz swept sine
- Note: Random vibration testing also available - for details please contact an IQD Sales Office
- Storage Temperature Range: -55 to 125°C

Manufacturing Details

- Maximum Process Temperature: 260°C for 20sec

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Ordering Information

- Frequency*
- Model*
- Lid*
- Termination Variant*
- Frequency Tolerance (@ 25°C)*
- Frequency Stability (over operating temperature range)*
- Operating Temperature Range*
- Load Capacitance
- Overtone
- (*minimum required)
- Lid Variants:
 - Blank = Glass
 - C = Ceramic
- Termination Variants:
 - SM1 = Gold Plated (RoHS)
 - SM2 = Solder Plated (non-RoHS)
 - SM3 = Solder Dipped (non-RoHS)
 - SM4 = Solder Plated (RoHS)
 - SM5 = Solder Dipped (RoHS)
- Example:
 - 10.0MHz CX1HG AT-SM1
 - 100/100/-40 to 85C/20 FUND

Compliance

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

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
6.0MHz	250.0MHz	-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.

[Click to view latest version on our website.](#)

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