CX11LHG AT CRYSTAL

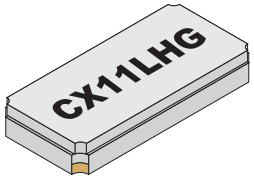
16 MHz to 50 MHz

High Shock, Ultra Low Profile, Ultra-Miniature

AT Quartz Crystal

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 aging performance meets the most demanding requirements. Available with tight calibration tolerances and high stability over temperature.



FEATURES

- Mechanical shock survivability up to 75,000 g
- Ultra-low profile - typical height of 0.5 mm
- Low acceleration sensitivity available
- Hermetically sealed ceramic package
- Excellent aging characteristics
- Full military testing available
- Designed, manufactured and tested in the USA

APPLICATIONS

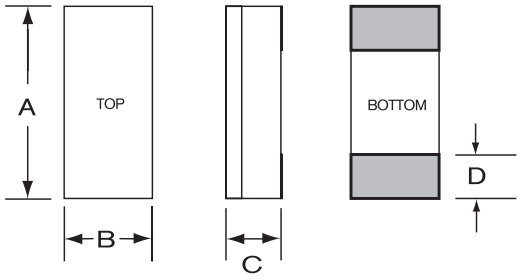
Industrial & Communications

- 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

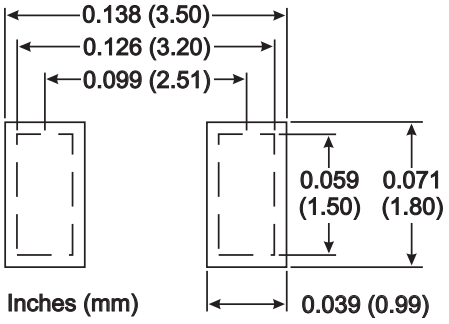


	TYPICAL		MAXIMUM	
DIM	inches	mm	inches	mm
A	0.127	3.20	0.135	3.43
B	0.060	1.50	0.068	1.73
C		see below		
D	0.028	0.71	0.037	0.94

THICKNESS (DIM C)

Termination	Typical		Maximum	
	inches	mm	inches	mm
SM1	0.020	0.51	0.023	0.59
SM2/SM4	0.021	0.53	0.024	0.60
SM3/SM5	0.023	0.58	0.025	0.63

SUGGESTED LAND PATTERN



10193 Rev A

STATEK CORPORATION 512 N. MAIN ST., ORANGE, CA 92868 714-639-7810 FAX: 714-997-1256 **www.statek.com**

SPECIFICATIONS

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

Fundamental Frequency[1]	16.0 MHz	24.0 MHz	32.0 MHz
Motional Resistance R_1(Ω)	85	30	25
Motional Capacitance C_1 (fF)	1.5	1.6	1.9
Quality Factor Q (k)	80	150	110
Shunt Capacitance C_0 (pF)	0.7	0.7	0.9

Calibration Tolerance[2]	±100 to ±30 ppm, or tighter as required
Load Capacitance	10 pF (unless specified otherwise)
Drive Level	200 µW MAX
Frequency-Temperature Stability[2,3]	±50 ppm to ±10 ppm (Commercial) ±50 ppm to ±20 ppm (Industrial) ±100 ppm to ±30 ppm (Military)
Aging, first year	5 ppm MAX
Shock, survival	up to 75,000 g, 0.3 ms, 1/2 sine
Vibration, survival[4]	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.

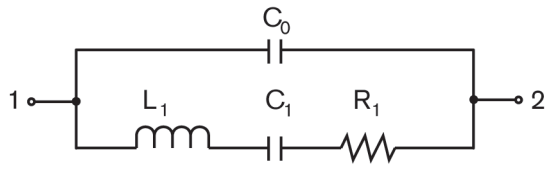
1. For frequencies above 50 MHz contact factory.
2. Other tolerances available. Contact factory.
3. Does not include calibration tolerance. The characteristics of the frequency stability over temperature follow that of the AT thickness-shear mode.
4. Per MIL-STD-202G, Method 204D, Condition D. Random 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.

EQUIVALENT CIRCUIT



R_1 Motional Resistance L_1 Motional Inductance
C_1 Motional Capacitance C_0 Shunt Capacitance

PACKAGING OPTIONS

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

HOW TO ORDER LOW PROFILE CX11LHG AT CRYSTALS

CX11L — S — HG3 — C — SM1 — — 24.0M , 100 / 100 / — / I

- S: Blank = Standard; S = Special or custom
- HG3: Blank = 5,000 g; HG1 = 10,000 g; HG2 = 20,000 g; HG3 = 30,000 g; HG4 = 50,000 g; HG5 = 75,000 g
- C: C = Ceramic Lid
- SM1: SM1 = Gold Plated; SM2 = Solder Plated; SM3 = Solder Dipped; SM4 = Solder Plated Lead Free; SM5 = Solder Dipped Lead Free
- 24.0M: Frequency; M = MHz
- 100: Calibration Tolerance @ 25°C (in ppm)
- 100: Frequency Stability over Temp.Range (in ppm)
- I: Temp. Range: C = -10°C to +70°C; I = -40°C to +85°C; M = -55°C to +125°C; S = Customer Specified

OR

— / — / 100 / I

- 100: Total Frequency Tolerance (in ppm)
- I: Temp. Range: C = -10°C to +70°C; I = -40°C to +85°C; M = -55°C to +125°C; S = Customer Specified

STATEK CORPORATION 512 N. MAIN ST., ORANGE, CA 92868 714-639-7810 FAX: 714-997-1256 **www.statek.com**