

### FEATURES

- Designed for infrared, vapour phase or epoxy mounting
- Low profile, (<1.0mm) hermetically sealed ceramic package
- Excellent ageing characteristics
- High shock and vibration resistance
- Full military testing available
- Available with glass or ceramic lid
- Custom designs available

### DESCRIPTION

CX9SM crystals are designed for applications requiring very small footprint and low profile (<1.0mm). Using micro-machining processes this hermitacly-sealed crystalensures high stability and low ageing.

### SPECIFICATION

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

Fundamental Frequency:	25.0MHz	49.0MHz	155.52MHz
Motional Resistance R (Ω):	30	30	25
Motional Capacitance C1 (fF):	1.8	2.1	2.5
QualityFactor Q (k):	120	60	16
Shunt Capacitance C0 (pF):	1.0	1.0	1.4

Standard Calibration Tolerance<sup>1</sup>: ±100ppm or tighter as required.

Load Capacitance: 10pF (or as specified)

Drive Level: 200μW maximum <50MHz  
100μW maximum >50MHz

Frequency Stability<sup>1,2,3</sup>

-10° to +70°C: ±50ppm to ±10ppm

-40° to +85°C: ±100ppm to ±20ppm

-55° to +125°C: ±100ppm to ±30ppm

Ageing First Year: ±5ppm maximum

(Better than ±1ppm available)

Shock, Survival<sup>4</sup>: 5000g, 0.3ms, ½ sine

Vibration, Survival: 20g rms, 10~2000Hz swept sine

Operating Temperature Range: -10°C to +70°C (Commercial)

-40°C to +85°C (Industrial)

-55°C to +125°C (Military)

Storage Temperature Range: -55° to +125°C

Maximum Process Temperature: +260°C for 20 seconds

1. Other tolerances available, contact Euroquartz sales
2. Does not include calibration tolerance. (Frequency stability characteristics follow that of the AT-Cut thickness-shear mode.)
3. 5ppm max. for frequencies below 40MHz.
4. Per MIL-STD-202G, Method 204D, Condition D. Random vibration testing also available.

### HOW TO ORDER CX9SM AT CRYSTALS

**CX9 - S - C - SM1 - 49.0M, 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

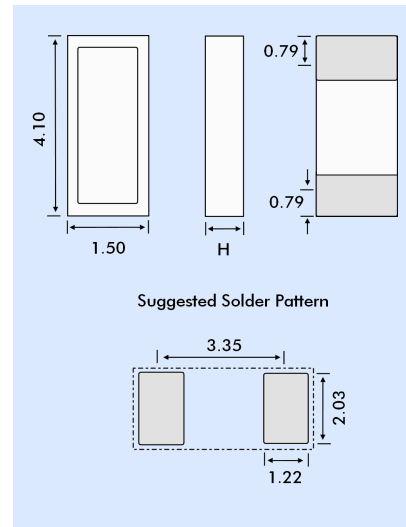
Calibration Tolerance @25°C (in ppm)\*

Frequency Stability over Temp. Range (in ppm)\*

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

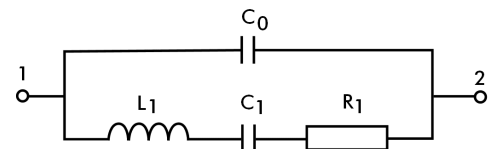
\*Alternative 'total' tolerance (in ppm)

### OUTLINE & DIMENSIONS



Dim. H	Glass Lid	Ceramic Lid
SM1	0.87	0.90
SM2	0.87	0.90
SM3	0.91	0.94
SM4	0.87	0.90
SM5	0.91	0.94

### CRYSTAL EQUIVALENT CIRCUIT



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

### PACKAGING OPTIONS

CX9SM crystals are available either tray packed (<250pcs) or tape and reel (>250 pieces).

16mm tape, 178mm or 330mm reels (EIA 418).

### 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)