

## Low Profile Miniature SMD Crystal

## 9.6MHz to 250MHz

### FEATURES

- Designed for surface mount applications, including infrared, vapour phase or epoxy mount techniques
- Hermetically sealed ceramic package
- Excellent ageing characteristics
- Available with glass or ceramic lid
- High shock and vibration resistance
- Custom designs available
- Full Military testing available



### DESCRIPTION

CX2SM AT crystals in leadless ceramic packages are designed for surface mounting on PCB or hybrid substrates. The small footprint, low profile crystal is ideal for a wide range of commercial, industrial, medical and defence/aerospace applications.

### SPECIFICATION

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

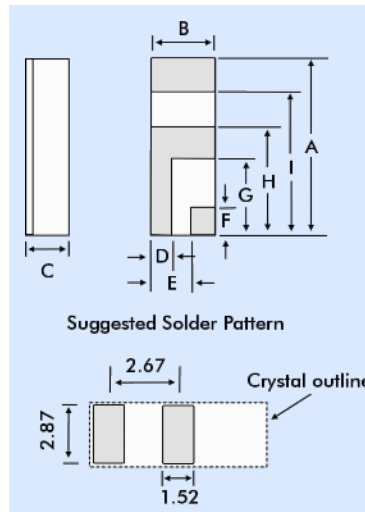
Fundamental Frequency:	10.0MHz	32.0MHz	155.52MHz
Motional Resistance R (Ω):	60	25	10
Motional Capacitance C1 (fF):	2.8	6.2	4.0
Quality Factor Q (k):	95	30	30
Shunt Capacitance C0 (pF):	1.4	2.3	2.3

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> :	5ppm max. <i>Better than ±1ppm is available</i>
Shock, survival <sup>5</sup> :	3,000g, 0.3ms, ½ sine
Vibration, survival <sup>6</sup> :	20g, 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. 5ppm max. for frequencies below 40MHz For tighter tolerances and higher frequencies contact Euroquartz sales.
5. Higher shock version available. See CX1HGS
6. Per MIL-STD-202G, Method 204D, Condition D. Random vibration testing also available.

Designed and manufactured by Statek Inc.

### OUTLINE & DIMENSIONS



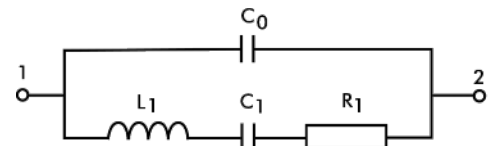
Dim.	Typ.	Max.
A	6.60	6.99
B	2.39	2.74
C	see below	
D	0.89	1.14
E	1.50	1.75
F	1.27	1.52
G	2.67	2.92
H	3.94	4.19
I	5.33	5.59

Dim. C	Glass Lid	Ceramic Lid
SM1	1.65	1.91
SM2	1.70	1.96
SM3	1.78	2.03
SM4	1.70	1.96
SM5	1.78	2.03

### PACKAGING OPTIONS

CX2SM AT crystals are available either tray packed (<250pcs) or tape and reel (>250 pieces).  
16mm tape, 178mm or 330mm reels (EIA 418).

### CRYSTAL EQUIVALENT CIRCUIT



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

### HOW TO ORDER CX2SM AT CRYSTALS

**CX2 - S - 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