



CX14SM AT CRYSTAL

12 MHz to 50 MHz
Ultra-Miniature, Ultra-Low Profile
Surface Mount AT Quartz Crystal

DESCRIPTION

The CX14SM is an ultra-miniature, ultra-low profile, surface-mount AT quartz crystal that is ideal for applications where space is at a premium.

FEATURES

- Ultra-small footprint (3.2 mm x 2.5 mm typical)
- Ultra-low profile (0.59 mm typical)
- Designed for surface-mount applications
- High shock and vibration resistance
- Custom designs available
- Full military testing available
- Designed and manufactured in the USA

APPLICATIONS

Medical

- Medical telemetry

Industrial, Computer, & Communications

- Instrumentation
- Handheld devices
- Animal tracking

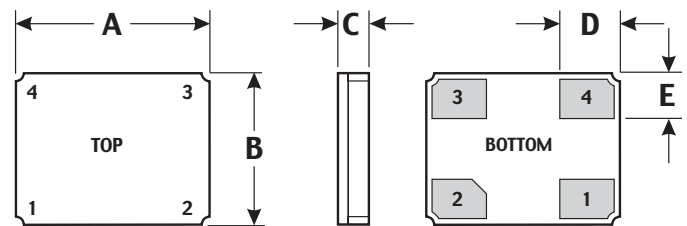
Military & Aerospace

- Communications
- Smart munitions
- Surveillance devices
- Projectile telemetry



Actual Size
□ Top View
⇨ Side View

PACKAGE DIMENSIONS



PACKAGE DIMENSIONS

Dimension	Minimum mm	Typical mm	Maximum mm
A	3.10	3.20	3.45
B	2.40	2.50	2.75
C	<i>See below</i>		
D	0.90	1.00	1.10
E	0.65	0.75	0.85

THICKNESS (DIM C)

Lid	Termination	Minimum mm	Typical mm	Maximum mm
Ceramic	SM1	0.49	0.59	0.70
	SM2/SM4	0.51	0.61	0.72
	SM3/SM5	0.52	0.63	0.77
Glass	SM1	0.52	0.63	0.72
	SM2/SM4	0.54	0.65	0.74
	SM3/SM5	0.55	0.67	0.79
Thin Glass	SM1	0.42	0.52	0.60
	SM2/SM4	0.44	0.54	0.62
	SM3/SM5	0.45	0.56	0.67

10173 Rev A



SPECIFICATIONS

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

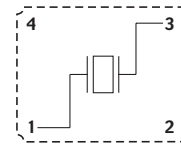
Fundamental Frequency	<u>26 MHz</u>	<u>50 MHz</u>
Motional Resistance R_1 (Ω)	20	25
Motional Capacitance C_1 (fF)	3.5	3.0
Quality Factor Q (k)	80	40
Shunt Capacitance C_0 (pF)	1.0	1.5
Calibration Tolerance ¹	± 100 ppm, or tighter as required	
Load Capacitance ²	10 pF	
Drive Level	100 μ W MAX	
Frequency-Temperature Stability ^{1,3}	± 50 ppm to ± 10 ppm (Commercial) ± 100 ppm to ± 20 ppm (Industrial) ± 100 ppm to ± 30 ppm (Military)	
Aging, first year ⁴	5 ppm MAX (better than 1 ppm available)	
Shock, survival ⁵	5,000 g, 0.3 ms, $\frac{1}{2}$ sine	
Vibration, survival ⁶	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.	

- Other tolerances available. Contact factory.
- Unless specified otherwise.
- Does not include calibration tolerance. The characteristics of the frequency stability over temperature follow that of the AT thickness-shear mode.
- 5 ppm MAX for frequencies below 40 MHz. For tighter tolerances and higher frequencies contact factory.
- Higher shock version available.
- Per MIL-STD-202G, Method 204D, Condition D. Random vibration testing also available.

TERMINATIONS

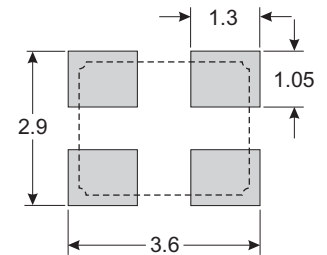
Designation	Termination
SM1	Gold Plated (Lead Free)
SM2	Solder Plated
SM3	Solder Dipped
SM4	Solder Plated (Lead Free)
SM5	Solder Dipped (Lead Free)

PIN CONNECTION

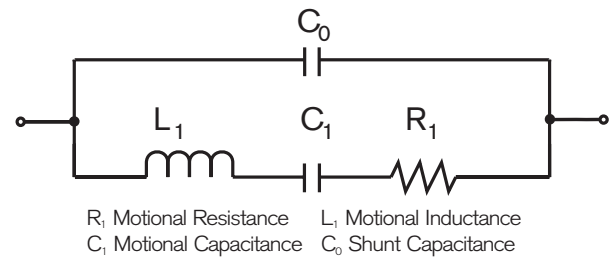


Pads 2 and 4 are not connected.

SUGGESTED LAND PATTERN



EQUIVALENT CIRCUIT



PACKAGING OPTIONS

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

HOW TO ORDER CX14SM AT CRYSTALS

CX14	S	C	SM1	-	26.0M	,	100	/	100	/	-	/	I
Blank = Standard S = Special or custom	Blank = Glass Lid T = Thin Glass Lid C = Ceramic Lid	SM1 = Gold Plated (Lead Free) SM2 = Solder Plated SM3 = Solder Dipped SM4 = Solder Plated (Lead Free) SM5 = Solder Dipped (Lead Free)	Frequency M = MHz	Calibration Tolerance @ 25°C (in ppm)	Frequency Stability over Temp. Range (in ppm)	Operating Temp. Range: C = -10°C to +70°C I = -40°C to +85°C M = -55°C to +125°C S = Customer Specified							

OR

-	/	-	/	200	/	I
Total Frequency Tolerance (in ppm)	Operating Temp. Range: C = -10°C to +70°C I = -40°C to +85°C M = -55°C to +125°C S = Customer Specified					

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