



CX17SM AT CRYSTAL

10 MHz to 200 MHz
Ultra-Miniature, Low Profile
Surface Mount AT Quartz Crystal

DESCRIPTION

The CX17SM is a miniature, low profile, surface-mount AT quartz crystal that is ideal for many applications.

FEATURES

- Small footprint (4.8 mm x 3.0 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

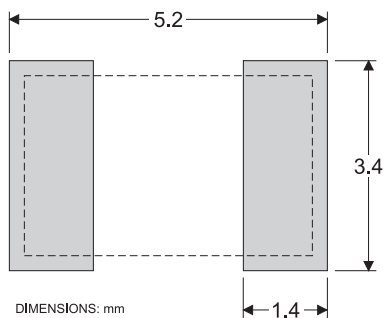
Industrial, Computer, & Communications

- Instrumentation
- Handheld devices

Military & Aerospace

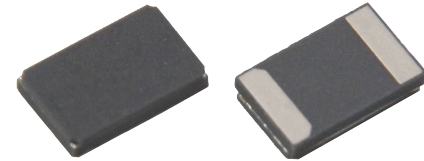
- Communications
- Smart munitions
- Surveillance devices
- Projectile telemetry

SUGGESTED LAND PATTERN

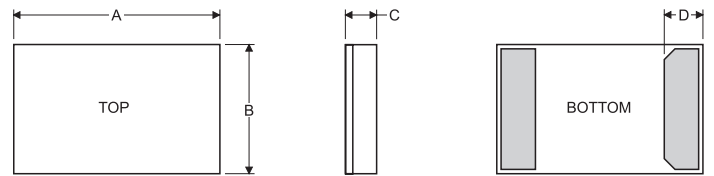


PACKAGING OPTIONS

- Tray Pack



PACKAGE DIMENSIONS

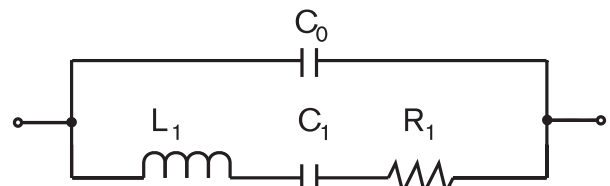


DIM	Termination	MINIMUM	TYPICAL	MAXIMUM
		mm	mm	mm
A		4.70	4.80	4.90
B		2.90	3.00	3.10
C	SM1	0.84	0.96	1.07
	SM2/SM4	0.86	0.98	1.09
	SM3/SM5	0.87	1.00	1.12
D		0.80	0.90	1.00

TERMINATIONS

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

EQUIVALENT CIRCUIT



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



SPECIFICATIONS

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

Fundamental Frequency	12.0 MHz	20.0 MHz	32.0 MHz
Motional Resistance R_1 (Ω)	35	15	10
Motional Capacitance C_1 (fF)	2.8	4.2	5.4
Quality Factor Q (k)	130	120	90
Shunt Capacitance C_0 (pF)	1.1	1.2	1.5
Calibration Tolerance ¹	±100 ppm, or tighter as required		
Load Capacitance ²	10 pF		
Drive Level ³	50 μ W nominal, 500 μ W MAX		
Frequency-Temperature Stability ^{1,4}	±50 ppm to ±10 ppm (Commercial) ±100 ppm to ±20 ppm (Industrial) ±100 ppm to ±30 ppm (Military)		
Aging, First Year ⁵	5 ppm MAX (better than 1 ppm available)		
Shock Survival ⁶	5,000 g, 0.3 ms, 1/2 sine		
Vibration Survival ⁷	20 g, 10-2,000 Hz 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°C to +125°C		
Max Process Temperature	260°C for 20 seconds		
Moisture Sensitivity Level (MSL)	This component is hermetically sealed and is not moisture sensitive.		

1. Other tolerances available. Contact factory.

2. Unless specified otherwise.

3. Crystals are characterized and tested at 50 μ W, unless specified otherwise. Operation at higher drive levels can result in sub-optimal behavior.

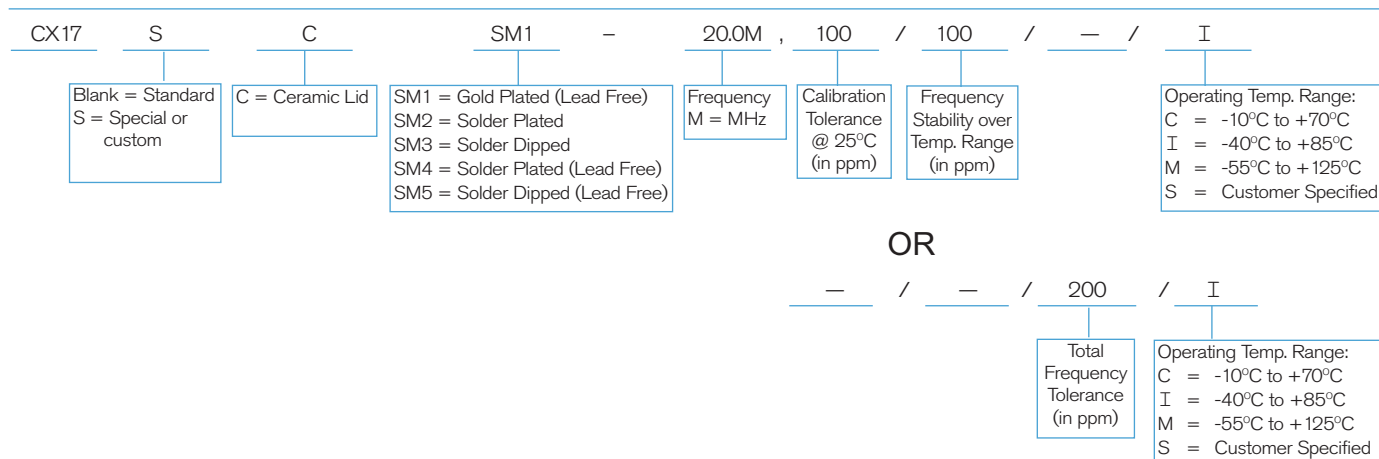
4. Does not include calibration tolerance. The characteristics of the frequency stability over temperature follow that of the AT thickness-shear mode.

5. 5 ppm MAX for frequencies 50 MHz and lower. For tighter tolerances and higher frequencies contact factory.

6. Higher shock version available.

7. Per MIL-STD-202G, Method 204D, Condition D. Random vibration testing also available.

HOW TO ORDER CX17SM AT CRYSTALS



10206 Rev E