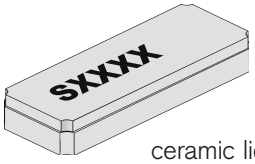
CX9 TELEMETRY CRYSTAL

14 MHz to 250 MHz

Low Profile, Ultra-Miniature
Surface Mount AT Quartz Crystal

DESCRIPTION

Designed and manufactured in the USA, Statek's 24 MHz, 26 MHz and 26.5 MHz CX9 telemetry crystals are the newest devices in Statek's CX9 family. Working in conjunction with medical manufacturers, these devices are specifically designed to support medical telemetry applications. Using micro-machining processes, this surface-mount crystal is hermetically sealed within an ultra-miniature ceramic package to ensure high stability and low aging. Small size, tight calibration and excellent frequency/temperature stability make the CX9 telemetry crystal ideally suited for medical applications.



ceramic lid

actual size

side view

FEATURES

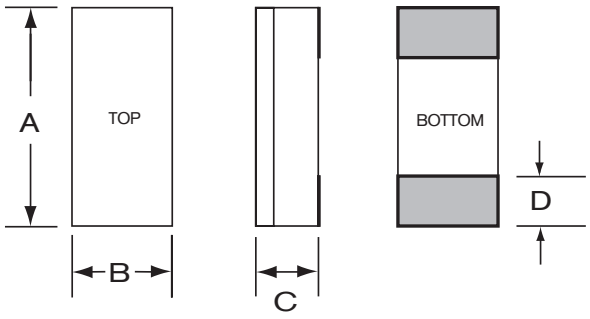
- Low profile (less than 1 mm)
- Ultra-miniature, surface mount design
- Hermetically sealed ceramic package
- Excellent aging characteristics
- Designed and manufactured in the USA

APPLICATIONS

Medical Telemetry

- Pacemakers
- Defibrillators
- Neurostimulators
- Infusion Pumps
- Glucose Monitors

DIMENSIONS

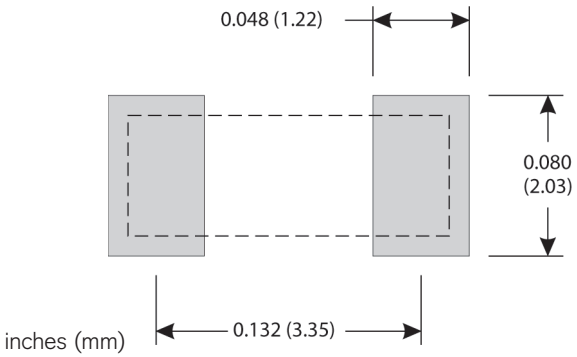


	TYPICAL		MAXIMUM	
DIM	inches	mm	inches	mm
A	0.160	4.10	0.170	4.32
B	0.060	1.50	0.068	1.73
C	-	-	see below	
D	0.031	0.79	0.038	0.97

THICKNESS (DIM C) MAXIMUM

	CERAMIC LID		GLASS LID	
TERMINATION	inches	mm	inches	mm
SM1	0.035	0.90	0.034	0.87
SM2/SM4	0.035	0.90	0.034	0.87
SM3/SM5	0.037	0.94	0.036	0.91

SUGGESTED LAND PATTERN



10187 Rev A

SPECIFICATIONS

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

Fundamental Frequency	24.0 MHz	26.5 MHz
Motional Resistance R_1(Ω)	30	30
Motional Capacitance C_1 (fF)	1.6	1.8
Quality Factor Q (k)	150	100
Shunt Capacitance C_0 (pF)	0.8	0.8

Calibration Tolerance[1]	±40 ppm, or tighter as required
Load Capacitance	10 pF (unless specified otherwise)
Drive Level	200 μW MAX
Frequency-Temperature Stability[1,2]	±50 ppm to ±10 ppm (Commercial) ±100 ppm to ±20 ppm (Industrial) ±100 ppm to ±30 ppm (Military)
Aging, first year[3]	5 ppm MAX (better than 1 ppm available)
Shock, survival	5,000 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)
Storage Temp. Range	-55°C to +125°C
Max Process Temperature	260°C for 20 sec.

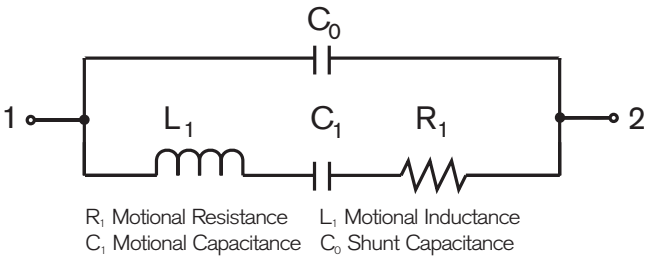
1. Other tolerances available. Contact factory.
2. Does not include calibration tolerance. The characteristics of the frequency stability over temperature follow that of the AT thickness-shear mode.
3. 5 ppm MAX for frequencies below 40 MHz. For tighter tolerances and higher frequencies contact factory.
4. 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)

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
- 16mm tape, 7" or 13" reels
  Per EIA 481 (see Tape and Reel data sheet 10109)

HOW TO ORDER CX9 TELEMETRY CRYSTALS

CX9 S C – SM2 – 24.0M , 30 / 10 / — / C , 3 pF

- S: "S" if special or custom design. Blank if Std.
- C: C = Ceramic Lid
- SM2: SM1 = Gold Plated (Lead Free); SM2 = Solder Plated; SM3 = Solder Dipped; SM4 = Solder Plated (Lead Free); SM5 = Solder Dipped (Lead Free)
- 24.0M: Frequency M = MHz
- 30: Calibration Tolerance @ 25°C (in ppm)
- 10: Frequency Stability over Temp.Range (in ppm)
- —: Temp. Range: C = -10°C to +70°C; I = -40°C to +85°C; S = Customer Specified
- C: Load Capacitance (Customer Specified)
- 3 pF

OR

— / — / 40 / C , 3 pF

- 40: Total Frequency Tolerance (in ppm)
- C: Operating Temp. Range: C = -10°C to +70°C; I = -40°C to +85°C; S = Customer Specified
- 3 pF: Load Capacitance (Customer Specified)

Note: Crystals with SM1, SM4 and SM5 terminations are Pb-free.
Crystals with SM2 and SM3 terminations contain Pb

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