CX7VSM CRYSTAL

80 kHz to 160 kHz

Ultra-Miniature, Low Profile
Surface Mount Quartz Crystal

DESCRIPTION

STATEK's next generation ultra-miniature CX7VSM quartz crystals feature an innovation in quartz crystal miniaturization design and manufacturing process. The CX7VSM quartz crystals are hermetically sealed in the smallest surface mount ceramic package in the world! This high quality tuning fork resonator is intended for use in Pierce oscillators.

FEATURES

- Designed for surface mount applications using infrared, vapor phase, wave solder or epoxy mount techniques
- Hermetically sealed ceramic package
- Quartz crystal tuning fork design
- High shock resistance
- Excellent aging characteristics
- Designed for low power applications
- Full military testing available
- Designed and manufactured in the USA

APPLICATIONS

Medical

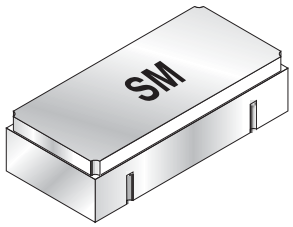
- Pacemaker, defibrillator and hearing aid

Industrial, Computer & Communications

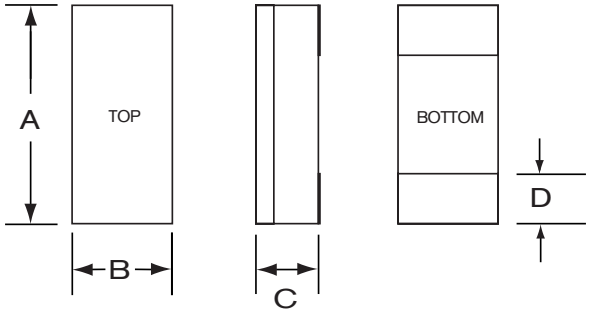
- Smart card

Military & Aerospace

- Airborne hybrid computer
- Real time clock
- MCM



PACKAGE DIMENSIONS

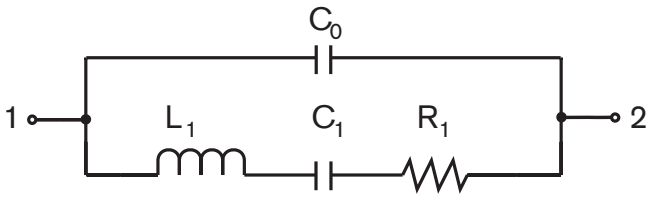


	TYP.		MAX.	
DIM	INCHES	mm	INCHES	mm
A	0.157	4.00	0.162	4.11
B	0.072	1.83	0.085	2.16
C	-	-	see below	
D	0.035	0.89	0.045	1.14

THICKNESS (DIM C) MAXIMUM

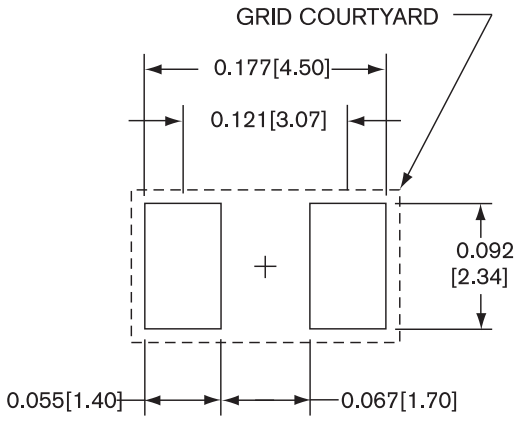
DIM "C"	GLASS LID		CERAMIC LID	
MAX	INCHES	mm	INCHES	mm
SM1	0.045	1.14	0.050	1.27
SM2/SM4	0.046	1.17	0.051	1.30
SM3/SM5	0.048	1.22	0.053	1.35

EQUIVALENT CIRCUIT



R_1 Motional Resistance L_1 Motional Inductance
C_1 Motional Capacitance C_0 Shunt Capacitance

SUGGESTED LAND PATTERN



10152 - Rev D

SPECIFICATIONS

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

	100 kHz	153.6 kHz
Motional Resistance R_1(kΩ)	19	11
Motional Capacitance C_1 (fF)	1.0	0.8
Quality Factor Q (k)	86	110
Shunt Capacitance C_O (pF)	0.8	0.8
Load Capacitance (pF)[1]	5	5
Turning Point (°C)[2]	10	5

Standard Calibration Tolerance:[3]

Glass Lid:	± 30 ppm (0.003%)	± 100 ppm (0.01%)	± 1000 ppm (0.1%)
Ceramic Lid:	± 100 ppm (0.01%)	± 1000 ppm (0.1%)	± 10000 ppm (1.0%)

Drive Level	0.5 µW MAX
Temperature Coefficient (k)	-0.035 ppm/°C[2]
Aging, first year	5 ppm
Shock, survival[4]	5,000 g, 0.3 ms, 1/2 sine
Vibration, survival	20 g RMS, 10-2,000 Hz random
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.

Note: Frequency (f_T) at temperature (T) from frequency (f_0) @ turning point temperature (T_0); $\frac{f-f_0}{f_0} = k(T-T_0)^2$

1. Other load capacitance value available
2. Other temperature available
3. Tighter tolerances available

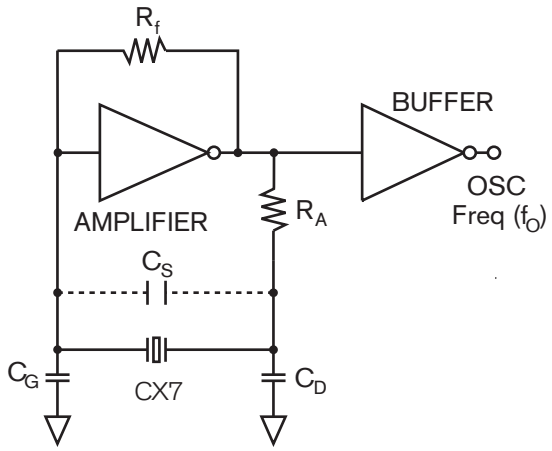
TERMINATIONS

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

PACKAGING OPTIONS

- Tray Pack (standard)

CONVENTIONAL CMOS PIERCE OSCILLATOR CIRCUIT



HOW TO ORDER CX7VSM CRYSTALS

CX7V — S — C — SM1 — 100.0K, — 100 / I

- S: "S" if special or custom design. Blank if Std.
- C: C = Ceramic Lid, Blank = Glass Lid
- SM1: SM1 = Gold Plated (Lead Free); SM2 = Solder Plated; SM3 = Solder Dipped; SM4 = Solder Plated (Lead Free); SM5 = Solder Dipped (Lead Free)
- 100.0K,: Frequency K = kHz
- 100: Calibration Tollerance (in ppm) @ 25°C (in ppm)
- I: 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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