



CX-7V-SM CRYSTAL

80 kHz to 160 kHz

Ultra-Miniature, Low Profile
Surface Mount Quartz Crystal

DESCRIPTION

STATEK's next generation ultra-miniature CX-7V-SM quartz crystals feature an innovation in quartz crystal miniaturization design and manufacturing process. The CX-7V-SM 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

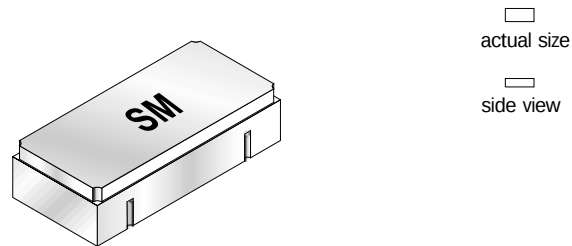
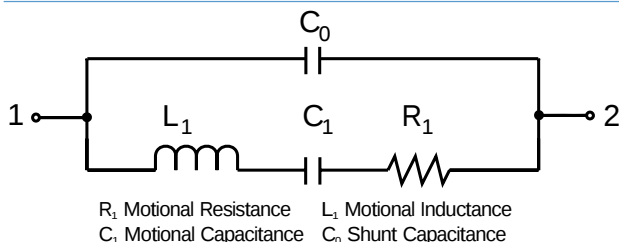
- Ultra-miniature design: (Typical dimensions)

	Length	Width	Thickness
Inches	0.157	0.072	0.041
(mm)	4.00	1.83	1.00
- 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

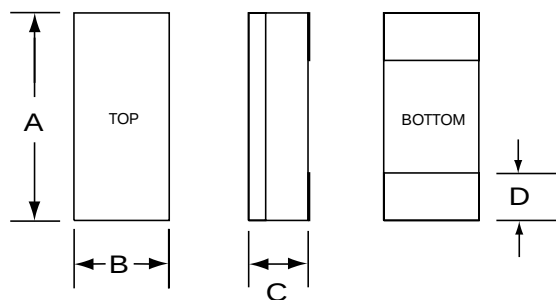
APPLICATIONS

- Medical
 - Pacemaker, defibrillator and hearing aid
- Industrial, Computer & Communications
 - Smart card
- Military & Aerospace
 - Airborne hybrid computer
 - Real time clock
 - MCM

EQUIVALENT CIRCUIT

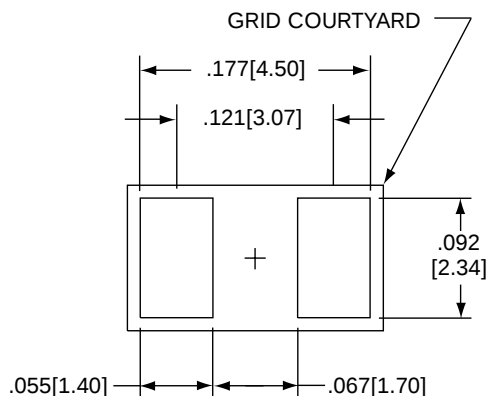


PACKAGE DIMENSIONS



DIM	TYP.		MAX.	
	INCHES	mm	INCHES	mm
A	.157	4.00	.162	4.11
B	.072	1.83	.085	2.16
C	-	-	see below	
D	.035	0.89	.045	1.14
DIM "C"				
	GLASS LID		CERAMIC LID	
MAX	INCHES	mm	INCHES	mm
SM1	.045	1.14	.050	1.27
SM2	.046	1.17	.051	1.30
SM3	.048	1.22	.053	1.35

SUGGESTED LAND PATTERN



10152 - Rev C

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 (k Ω)	19	11
Motional Capacitance C_1 (fF)	1.0	0.8
Quality Factor Q (k)	86	110
Shunt Capacitance C_0 (pF)	0.8	0.8
Load Capacitance (pF)*	5	5
Turning Point (°C)**	10	5

Calibration Tolerance***	<u>Glass Lid</u>	<u>Ceramic Lid</u>
	A $\pm 0.005\%$ (± 50 ppm)	$\pm 0.01\%$ (± 100 ppm)
	B $\pm 0.01\%$	$\pm 0.1\%$
	C $\pm 0.1\%$	$\pm 1.0\%$

Drive Level 0.5 μ W MAX.

Temperature Coefficient (k) -0.035 ppm/°C²

Note: Frequency (f) deviation from frequency (f₀) @ turning point temperature (T₀);

$$\frac{f-f_0}{f_0} = k(T-T_0)^2$$

Aging, first year	5ppm MAX. (1 ppm Typ.)
Shock, survival	5,000g peak 0.3 msec., 1/2 sine
Vibration, survival	20g rms, 10-2,000 Hz random
Operating Temperature	-10°C to +70°C Commercial -40°C to +85°C Industrial -55°C to +125°C Military
Storage Temperature	-55°C to +125°C
Max Process Temperature	260°C for 20 sec.

* Other load capacitance value available

** Other temperature available

*** Tighter tolerances available

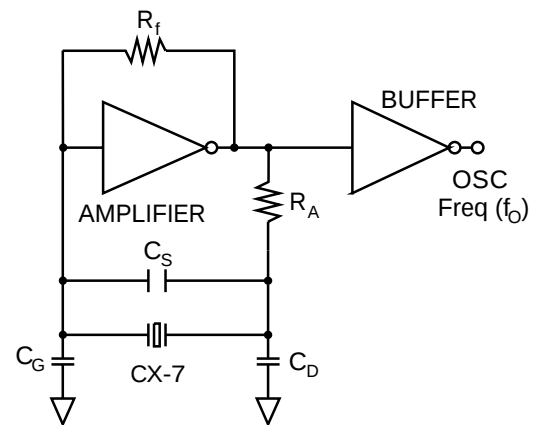
TERMINATIONS

Designation	Termination
SM1	Gold Plated
SM2	Nickel, Solder Plated
SM3	Nickel, Solder Plated and Solder Dipped

PACKAGING

CX-7V-SM -Tray Pack (Standard)
-16mm tape, 7" or 13" reels (Optional)
Per EIA 481 (see data sheet 10109)

CONVENTIONAL CMOS PIERCE OSCILLATOR CIRCUIT



HOW TO ORDER CX-7V-SM CRYSTALS

CX-7V		SM1	100 kHz	(	A	/	I	)
"S" if special or custom design. Blank if Std.	C = Ceramic Lid Blank = Glass Lid	SM1 SM2 SM3	Frequency		Calibration Tolerance* @25°C (A) (B) (C)		Temp. Range: C = Commercial I = Industrial M = Military S = Specify	

*Other calibration fill in ppm.