

## SPECIFICATION FOR SMT TUNING FORK CRYSTAL

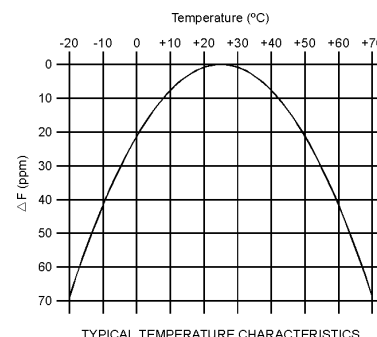
### MtronPTI P/N 5011-004-R

**Effective Date: June 11, 2009**

#### I. GENERAL & ELECTRICAL REQUIREMENTS:

1. MODE OF OSCILLATION: Fundamental XT-Cut Crystal (Tuning Fork)
2. FREQUENCY OF OPERATION: 32.768000 kHz
3. FREQUENCY TOLERANCE @ +25°C:  $\pm 20$  ppm max.
4. FREQUENCY STABILITY OVER TEMPERATURE: See Figure 1.
5. PARABOLIC CURVATURE CONSTANT:  $-0.034 \text{ ppm}/^\circ\text{C}^2$ , typical
6. TURNOVER TEMPERATURE:  $+24^\circ\text{C}$ ,  $\pm 4^\circ\text{C}$
7. OPERATING TEMPERATURE RANGE:  $-20^\circ\text{C}$  to  $+70^\circ\text{C}$
8. EFFECTIVE SERIES RESISTANCE (ESR): 50 K max.
9. QUALITY FACTOR (Q): 50,000 min.
10. LOAD CAPACITANCE: 12.5 pF
11. SHUNT CAPACITANCE: 1.35 pF typ.
12. AGING:  $\pm 3$  ppm/yr. max.
13. DRIVE LEVEL: 1  $\mu\text{W}$  max. 0.1  $\mu\text{W}$  typical 0.01  $\mu\text{W}$  min.

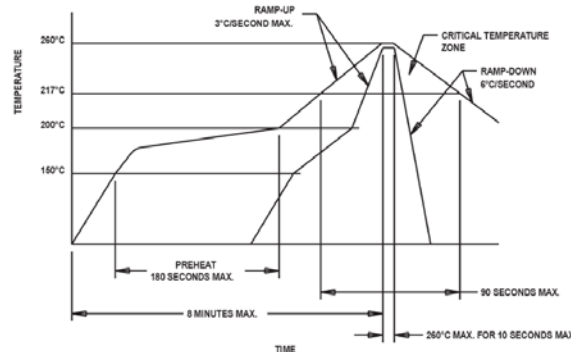
**Figure 1**



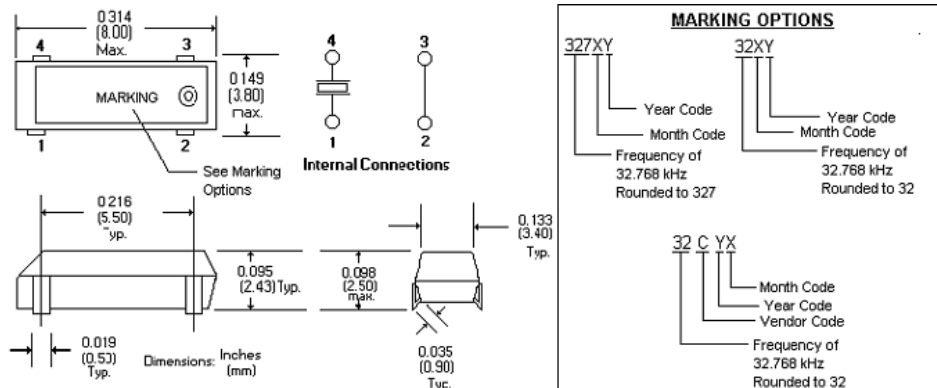
#### II. ENVIRONMENTAL & MECHANICAL REQUIREMENTS:

1. SHOCK: Per MIL-STD-202, Method 213, Condition C
2. VIBRATION: Per MIL-STD-202, Method 201 & 204
3. HERMETICITY:  $1 \times 10^{-8}$  atm cc/sec min.
4. THERMAL CYCLE: Per MIL-STD-883, method 1010 B.
5. STORAGE TEMPERATURE:  $-55^\circ\text{C}$  to  $+125^\circ\text{C}$
6. MAXIMUM SOLDERING CONDITIONS: See Figure 2.
7. SOLDERABILITY: Per EIAJ-STD-002
8. PACKAGE: 4-lead plastic SMT.  
RoHS 5 compliant by exemption 7A.

**Figure 2**



#### III. DIMENSIONS:



#### IV. DATA SHEET REVISION TABLE:

Date	Rev.	Author	Details of Revision
8/3/05	0	WNJ	Original release.
6/11/09	A	WNJ	Updated Marking and RoHS Information.