

**RoHS Compliant
Pb - Lead Free**

| Ltr | Revisions | Date | Appr |
|-----|-----------|------|------|
| | | | |
| | | | |
| | | | |

Electrical Specifications:

| | | | |
|---|-------------|------------------------------|---------------------|
| Frequency Range | | 12.000 to 52.000 | MHz |
| Mode of Oscillation | Fundamental | 12.000 to 52.000 | MHz |
| Frequency Tolerance at 25°C | Standard | ±30 | PPM Max (Note 1) |
| | Optional | ±25 | |
| | | ±20 | |
| | | ±15 | |
| | | ±10 | |
| Frequency Stability over Temperature Range | Standard | ±50 | PPM Max (Note 1) |
| | Optional | ±30 | |
| | | ±25 | |
| | | ±20 | |
| | | ±15 | |
| Operating Temperature Range | Standard | -10 to +70 | ° C |
| | Extended | -40 to +85 | |
| Storage Temperature Range | | -55 to +125 | |
| Aging | | ±3 | PPM Max/Year |
| Load Capacitance | | 7 to 32 and Series Resonance | pF |
| Shunt Capacitance | | 5.0 | |
| Equivalent Series Resistance (ESR) | | See ESR Table | Ohm |
| Drive Level | | 100 | uW Max |
| Insulation Resistance | | 500 at 100 Vdc ± 15 Vdc | M Ohm |

Frequency Range and ESR Values:

| Frequency Range in MHz | ESR Ohm Max | Mode of Operation |
|------------------------|-------------|-------------------|
| 12.000 to 29.900 | 100 | Fundamental |
| 30.000 to 52.000 | 50 | Fundamental |



11-3 Chien-Kuo Rd T.E.P.Z. 4027 Taiwan, ROC

All dimensions are millimeters.

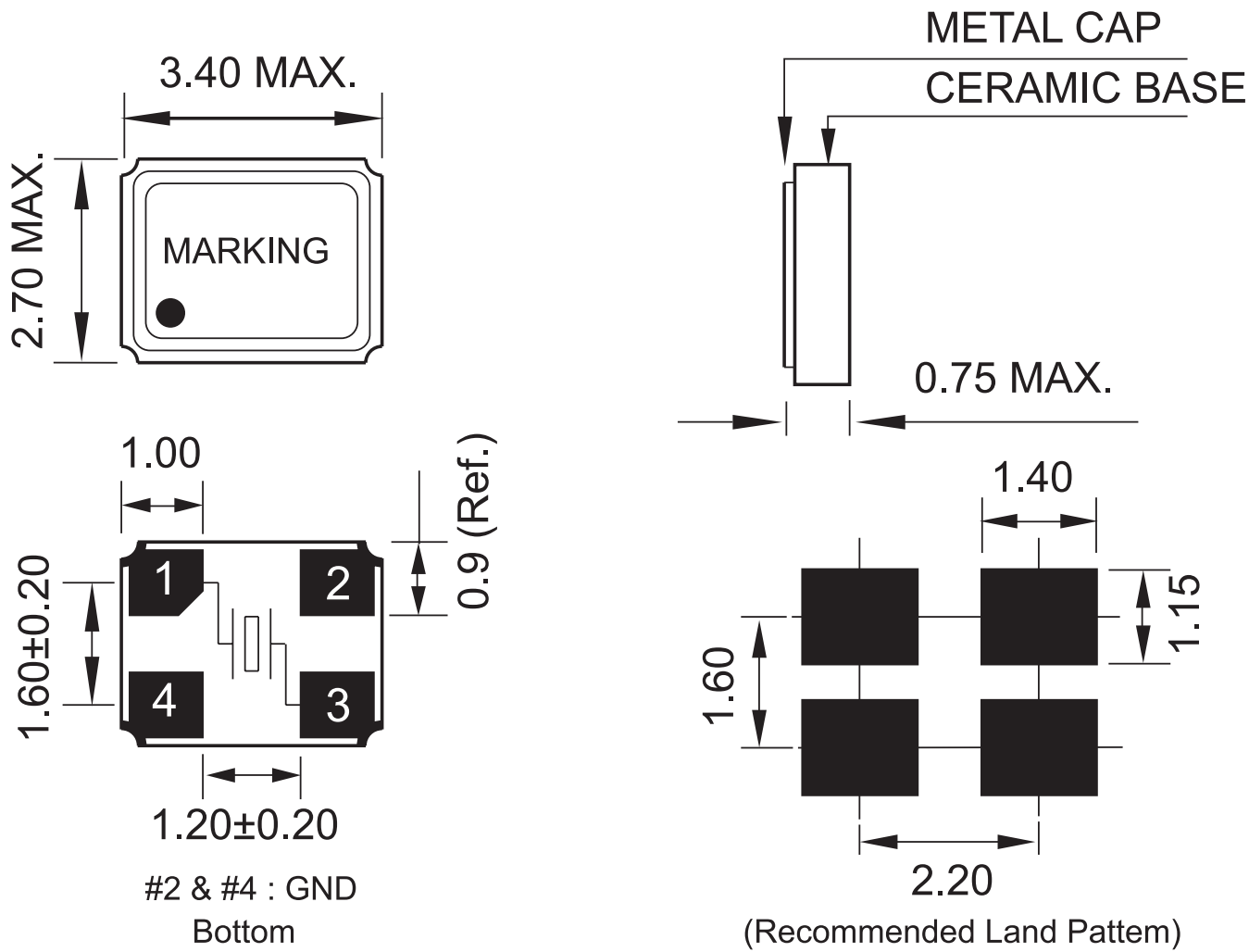
| | |
|---------|---------------|
| CAD: | TCR |
| Review: | EG |
| Appr: | JL |
| Page: | 1/4 |
| Date: | June 10, 2006 |

Specification Title:

**Microprocessor Crystal Unit
Low Profile
2.5 x 3.2 millimeter Surface Mount
General Product Specification**

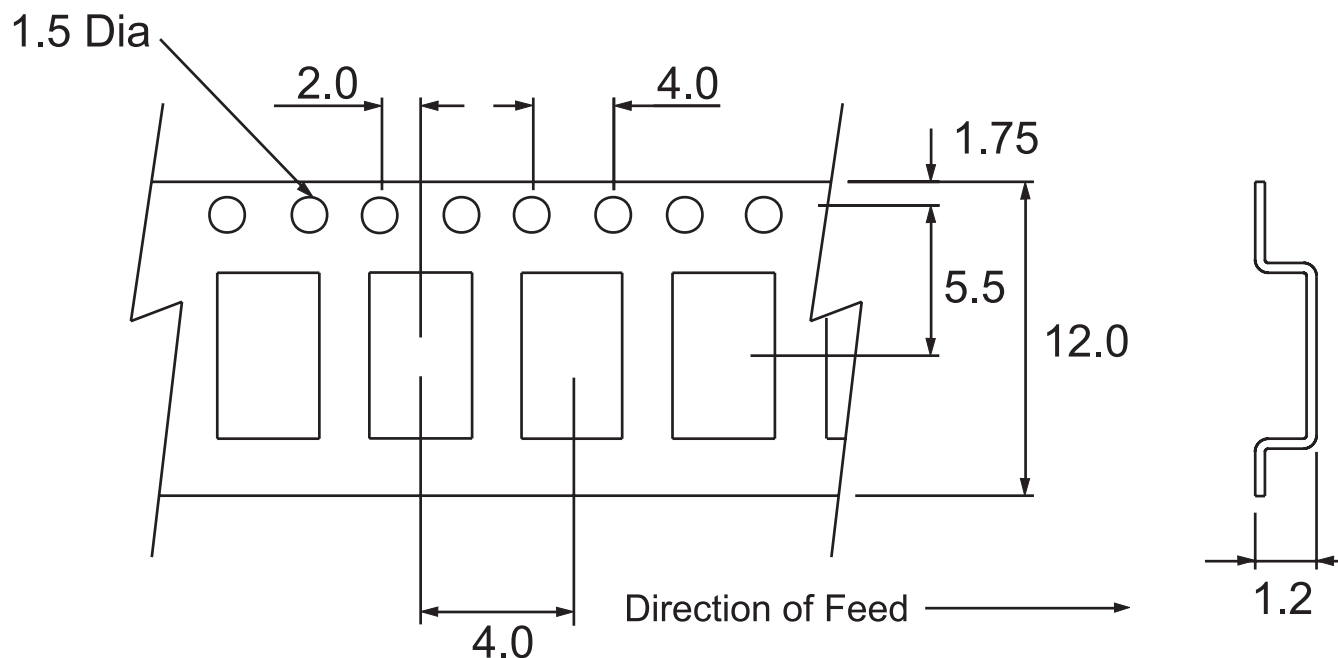
Part Number: **C3E Series**

Mechanical Outline:



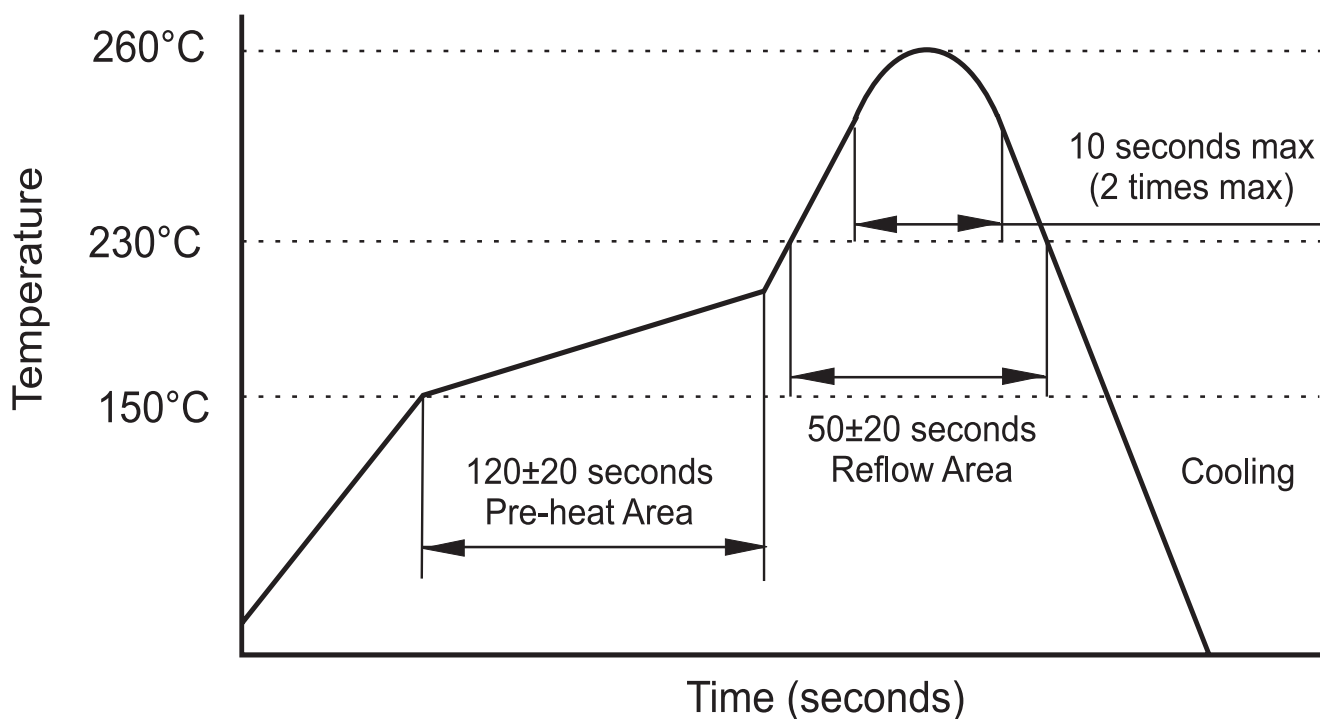
**Package is Seam Sealed Ceramic-Metal.
Dimensions are millimeters.**

Carrier Tape Dimensions:



Dimensions are millimeters.

Solder Reflow Characteristics:



How to build a Part Number:

| | | | |
|---------------------------------|----------|------------------|---------------|
| Series | | C | Parameter |
| Package | | 3E | 3.2 x 2.5 mm |
| | | - | |
| Frequency | | 12.000 to 52.000 | MHz |
| | | - | |
| Load Capacitance | | 7 | 7 pF |
| | | 10 | 10 pF |
| | | 12 | 12 pF |
| | | 16 | 16 pF |
| | | 18 | 18 pF |
| | | 20 | 20 pF |
| | | 32 | 32 pF |
| | | | |
| | | - | |
| Frequency Tolerance (Note 1) | Standard | 30 | ±30 PPM |
| | Option | 25 | ±25 PPM |
| | | 20 | ±20 PPM |
| | | 15 | ± 15 PPM |
| | | 10 | ±10 PPM |
| Frequency Stability (Note 1) | Standard | 50 | ±50 PPM |
| | Option | 30 | ±30 PPM |
| | | 25 | ±25 PPM |
| | | 20 | ±20 PPM |
| | | 15 | ±15 PPM |
| | | 10 | ±10 PPM |
| | | - | |
| Temperature Range | Standard | See Notes | -10 to +70 °C |
| | Extended | X | -40 to +85 °C |
| | | - | |
| Packaging | | R | Tape and Reel |

Part Number Example:

C3E-32.768-18-3050-X-R

C3E- 2.5 x 3.2 mm SMD Seam Seal Crystal Unit

32.768 MHz Nominal Frequency

18 pF Load Capacitance

3050: ±30 PPM Frequency Tolerance and ±50 PPM Frequency Stability

Fundamental Mode

X: -40 to +85° C Temperature Range

R: Tape and Reel Packaging

Notes:

- 1- Frequency Tolerance and Stability options are limited due to physical size.
- 2- Standard Temperature Range does not need to be included in Part Number description.
- 3- Product is shipped in Tape and Reel configuration. Each reel contains 3000 pieces.
- 4- Quantities less than 3000 are shipped bulk in ESD pouches.
- 5- Specification subject to change without notice.