

**RoHS Compliant
Pb - Lead Free**

Ltr	Revisions	Date	Appr

Electrical Specifications:

Frequency Range		12.000 to 60.000	MHz
Mode of Oscillation	Fundamental	12.000 to 60.000	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 16.000	120	Fundamental
16.100 to 20.000	90	Fundamental
20.100 to 60.000	50	Fundamental



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All dimensions are millimeters.

CAD: TCR

Review: EG

Appr: JL

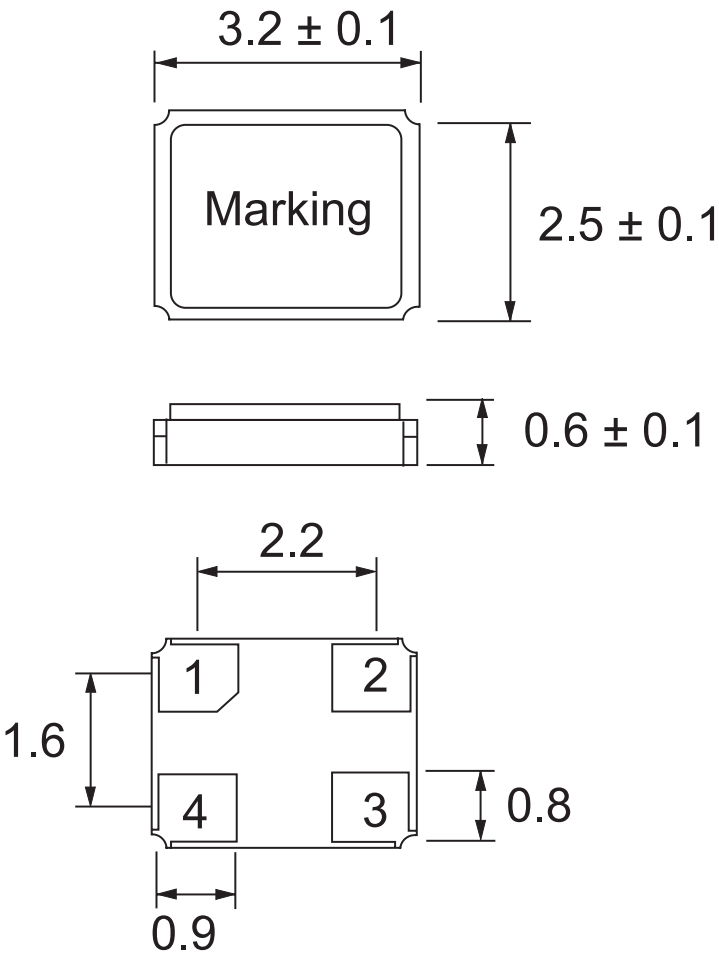
Page: 1/4 Date: June 10, 2006

Specification Title:

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

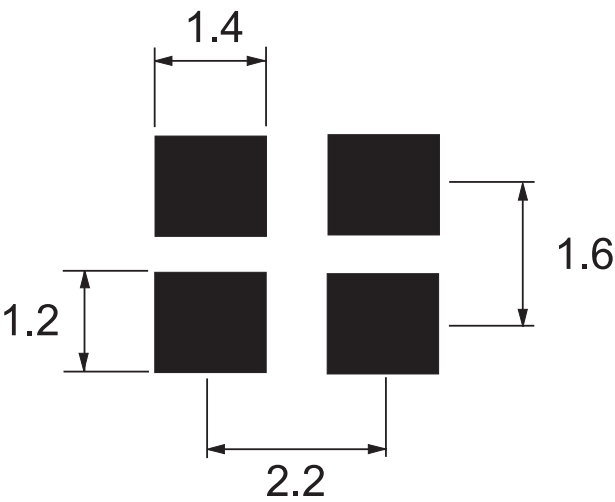
Part Number: **C3E Series**

Mechanical Outline:

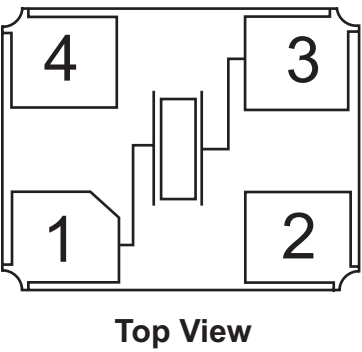


**Package is Seam Sealed Ceramic-Metal.
Dimensions are millimeters.**

PCB Solder Pad Layout:



Pad Connection:



1.5 Dia



The graph illustrates the temperature profile over time for a reflow process. The Y-axis represents Temperature in degrees Celsius (°C), with marked values at 150°C, 230°C, and 260°C. The X-axis represents Time in seconds. The curve shows a pre-heat phase, a reflow phase, and a cooling phase.

Key parameters and areas indicated on the graph:

- 120±20 seconds Pre-heat Area:** The time interval from the start of the pre-heat phase to the start of the reflow phase.
- 50±20 seconds Reflow Area:** The time interval during the reflow phase, centered around the peak temperature.
- 10 seconds max (2 times max):** The maximum time interval for the peak temperature (260°C).
- Cooling:** The phase following the reflow, where the temperature decreases.

How to build a Part Number:

Series		C	Parameter
Package		3E	3.2 x 2.5 mm Seam Seal
		-	
Frequency		12.000 to 60.000	MHz
		-	
Load Capacitance		7	7 pF
		10	10 pF
		12	12 pF
		16	16 pF
		18	18 pF
		20	20 pF
		32	32 pF
		S	Series
		-	
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.