

**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	
Frequency Tolerance at 25°C	Standard	±30	PPM Max (Note 1)
		±25	
	Optional	±20	
		±15	
		±10	
Frequency Stability over Temperature Range	Standard	±50	PPM Max (Note 1)
		±30	
	Optional	±25	
		±20	
		±10*	
Operating Temperature Range	Standard	-10 to +70	° C
	Extended	-40 to +85	
Storage Temperature Range		-55 to +125	
Aging per Year		±3	PPM Max
Load Capacitance		7 to 32 and Series Resonance	pF
Shunt Capacitance		5.0	
Equivalent Series Resistance (ESR)		See ESR Table	Ohms
Drive Level		100	uW Typ

Frequency Range and ESR Values:

Frequency Range in MHz	ESR Ohm Max	Mode of Operation
12.000 to 15.999	300	Fundamental
16.000 to 29.999	100	Fundamental
30.000 to 60.000	70	Fundamental



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All dimensions are millimeters.

CAD: TCR

Review: EG

Appr: JL

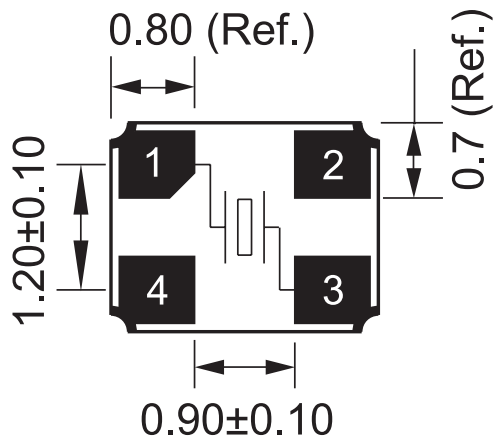
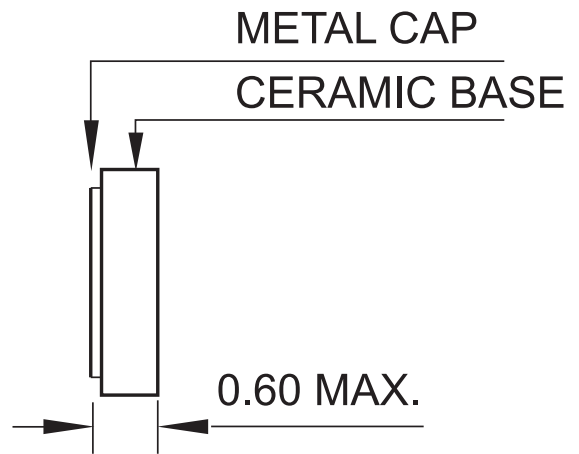
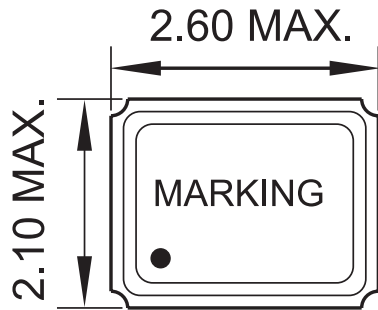
Page: 1/4 Date: May 1, 2013

Specification Title:

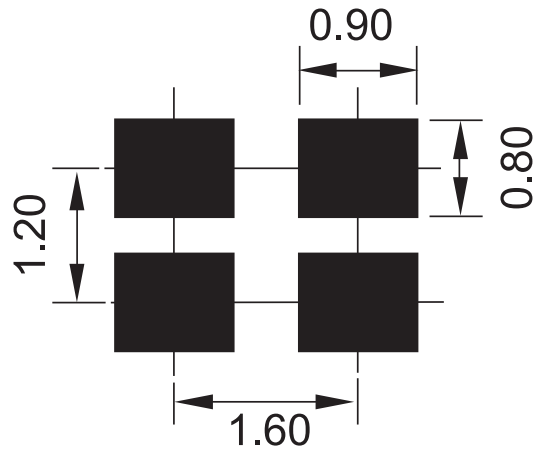
**Microprocessor Crystal Unit
Low Profile
2.0 x 2.5 millimeter Surface Mount
General Product Specification**

Part Number: **C2E Series**

Mechanical Outline:



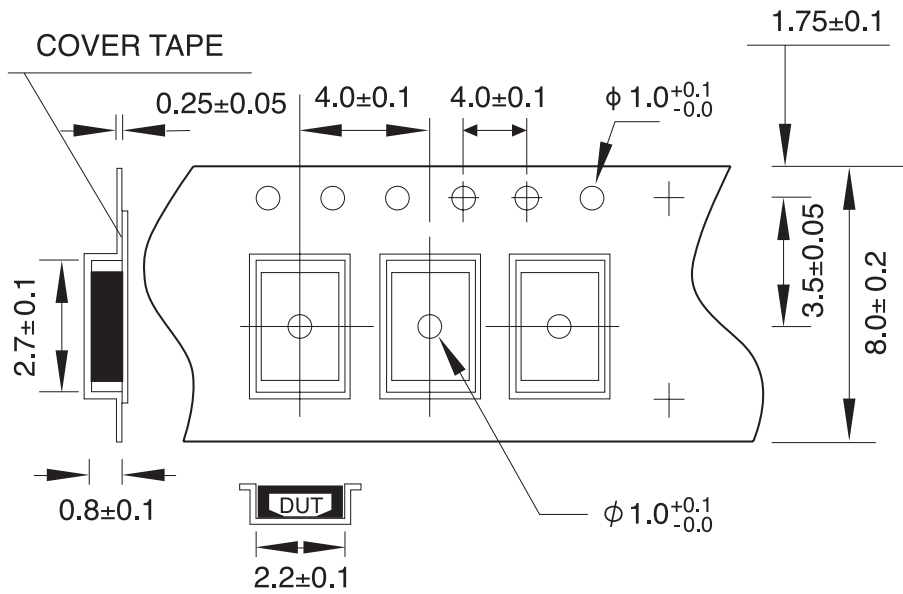
#2 & #4 : GND
Bottom



(Recommended Solder Pad Layout)

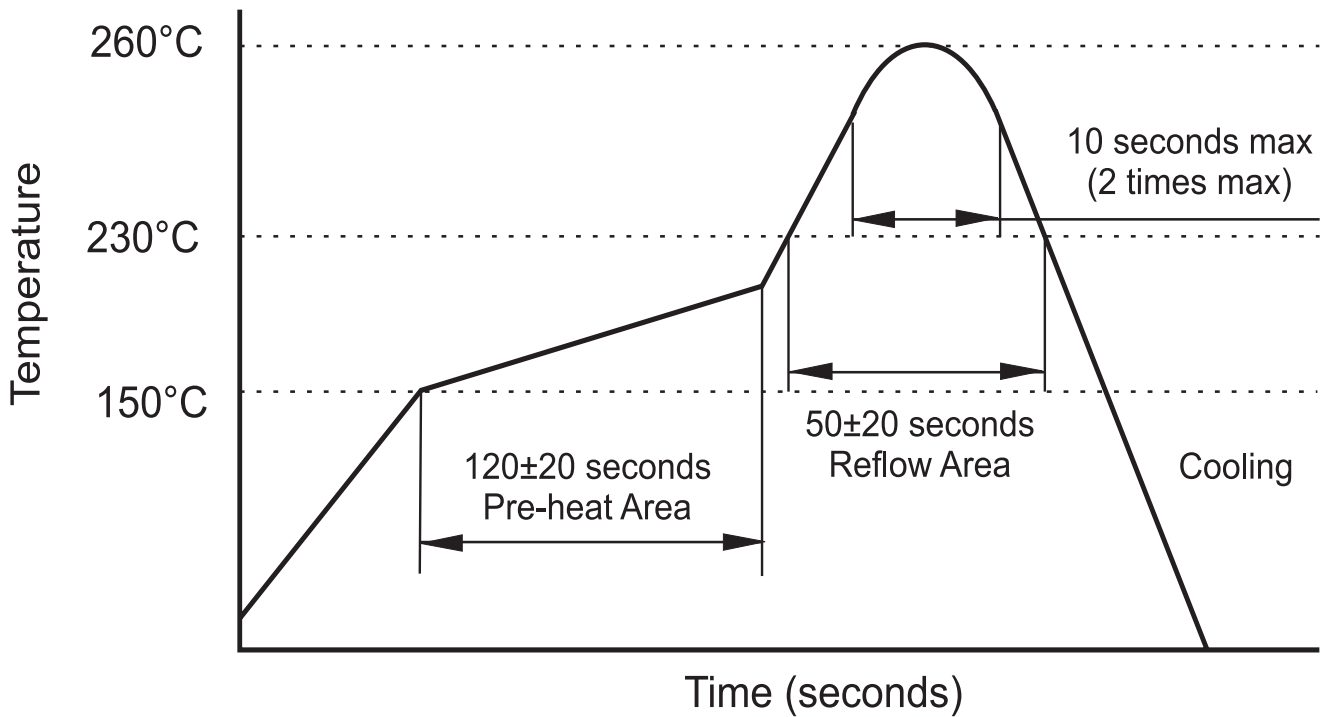
**Package is Seam Sealed Ceramic-Metal.
Dimensions are millimeters.**

Carrier Tape Dimensions:



Dimensions are millimeters.

Solder Reflow Characteristics:



How to build a Part Number:

Series		C	Parameter
Package		2E	2.5 x 2.0 mm
		-	
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:

C2E-50.000-18-3050-R

C2E- 2.0 x 2.5 mm SMD Seam Seal Crystal Unit

50.000 MHz Nominal Frequency

18 pF Load Capacitance

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

Fundamental Mode

-10 to +70° C Temperature Range

R: Tape and Reel Packaging

Notes:

1- Frequency Tolerance and Stability options are limited due to physical size.

*** ±10 PPM Temperature Stability is only available from -30 to +85° C.**

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.