

**RoHS Compliant  
Pb - Lead Free**

Ltr	Revisions	Date	Appr

### Electrical Specifications:

Frequency Range		20.000 to 60.000	MHz
Mode of Oscillation	Fundamental	20.000 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 +60	° 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		3.0	
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
20.000 to 29.999	100	Fundamental
30.000 to 37.999	80	Fundamental
38.000 to 60.000	60	Fundamental



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All dimensions are millimeters.

CAD: TCR

Review: EG

Appr: JL

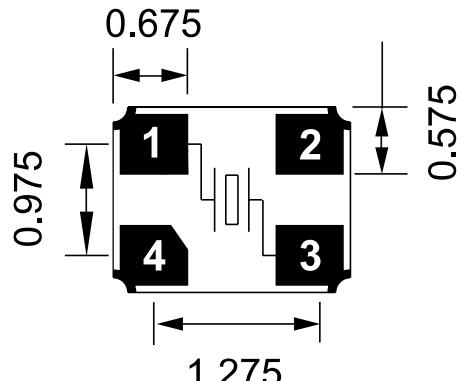
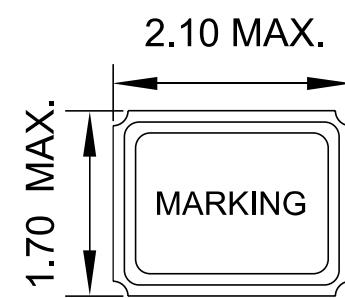
Page: 1/4 Date: May 1, 2013

Specification Title:

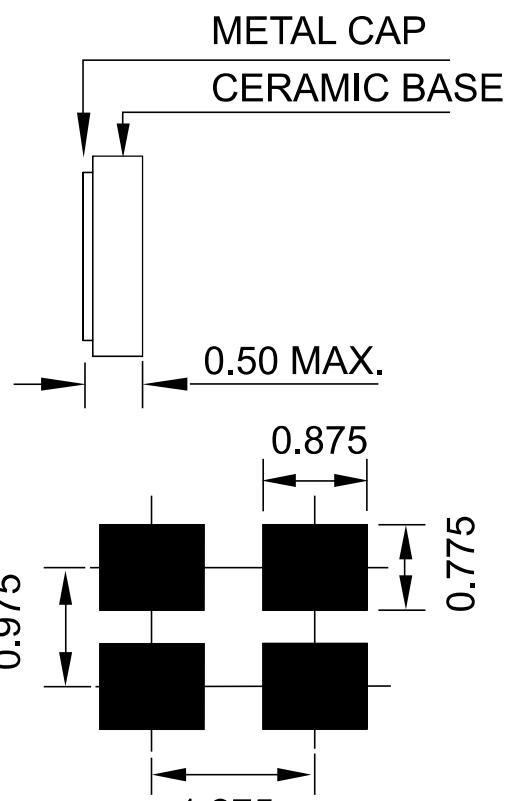
**Microprocessor Crystal Unit  
Low Profile  
1.6 x 2.0 millimeter Surface Mount  
General Product Specification**

Part Number: **C1E Series**

**Mechanical Outline:**

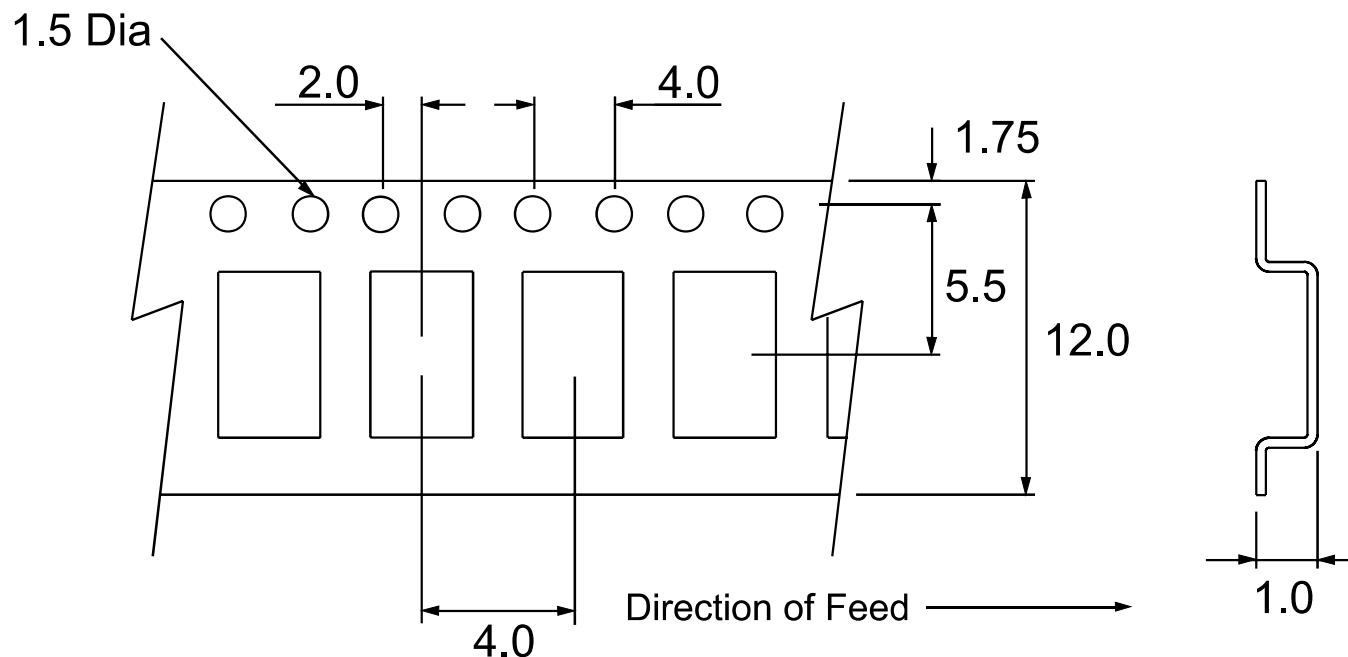


#2 & #4 : GND  
Bottom

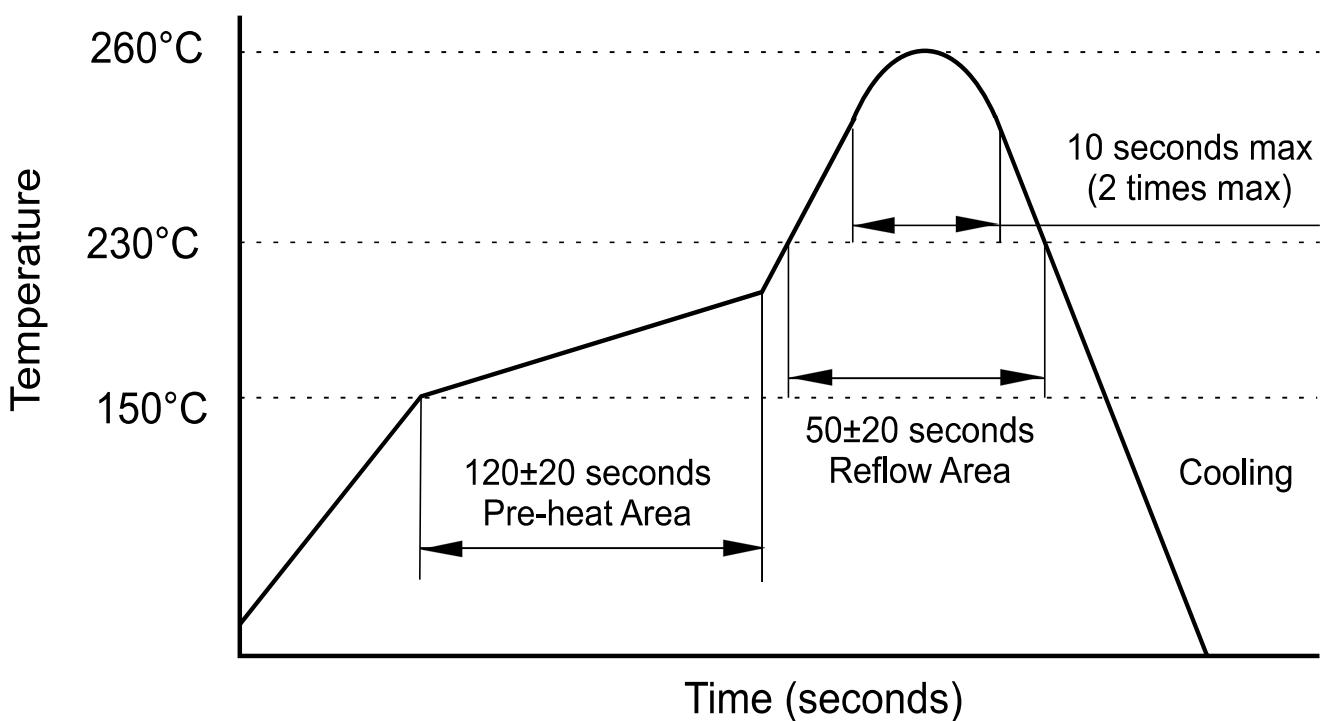


Recommended Land Pattern

**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		1E	1.6 x 2.0 mm Seam Seal
		-	-
Frequency		20.000 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	$\pm 30$ PPM
	Option	25	$\pm 25$ PPM
		20	$\pm 20$ PPM
		15	$\pm 15$ PPM
		10	$\pm 10$ PPM
Frequency Stability (Note 1)	Standard	50	$\pm 50$ PPM
	Option	30	$\pm 30$ PPM
		25	$\pm 25$ PPM
		20	$\pm 20$ PPM
		15	$\pm 15$ PPM*
	-	-	-
Temperature Range	Standard	See Notes	-10 to +60 °C
	Extended	X	-40 to +85 °C
		-	-
Packaging	R	Tape and Reel	

### Part Number Example:

C1E-50.000-10-3050-R

C1E- 1.6 x 2.0 mm SMD Seam Seal Crystal Unit

50.000 MHz Nominal Frequency

10 pF Load Capacitance

3050:  $\pm 30$  PPM Frequency Tolerance and  $\pm 50$  PPM Frequency Stability

Fundamental Mode

-10 to +60° C Temperature Range

R: Tape and Reel Packaging

### Notes:

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

\*  $\pm 10$  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.