

**RoHS Compliant  
Pb - Lead Free**

Ltr	Revisions	Date	Appr

**Electrical Specifications:**

<b>Frequency Range</b>		<b>16.000 to 50.000</b>	<b>MHz</b>
<b>Mode of Oscillation</b>	<b>Fundamental</b>	<b>16.000 to 50.000</b>	<b>MHZ</b>
<b>Frequency Tolerance at 25°C</b>	<b>Standard</b>	<b>±30</b>	<b>PPM Max (Note 1)</b>
	<b>Optional</b>	<b>±25</b>	
		<b>±20</b>	
		<b>±15</b>	
		<b>±10</b>	
<b>Frequency Stability over Temperature Range</b>	<b>Standard</b>	<b>±50</b>	<b>PPM Max (Note 1)</b>
	<b>Optional</b>	<b>±30</b>	
		<b>±25</b>	
		<b>±20</b>	
		<b>±15*</b>	
<b>Operating Temperature Range</b>	<b>Standard</b>	<b>-10 to +70</b>	<b>° C</b>
	<b>Extended</b>	<b>-40 to +85</b>	
<b>Storage Temperature Range</b>		<b>-55 to +125</b>	
<b>Aging</b>		<b>±3</b>	<b>PPM Max/Year</b>
<b>Load Capacitance</b>		<b>6 to 32 and Series Resonance</b>	<b>pF</b>
<b>Shunt Capacitance</b>		<b>3.0</b>	
<b>Equivalent Series Resistance (ESR)</b>		<b>See ESR Table</b>	<b>Ohm</b>
<b>Drive Level</b>		<b>100</b>	<b>uW Max</b>
<b>Insulation Resistance</b>		<b>500 at at 100 Vdc ± 15 Vdc</b>	<b>M Ohm</b>

**Frequency Range and ESR Values:**

Frequency Range in MHz	ESR Ohm Max	Mode of Operation
16.000 to 17.999	200	Fundamental
18.000 to 23.999	120	Fundamental
24.000 to 29.999	100	Fundamental
30.000 to 37.999	80	Fundamental
38.000 to 50.000	60	Fundamental



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All dimensions are millimeters.

CAD: TCR

Review: EG

Appr: JL

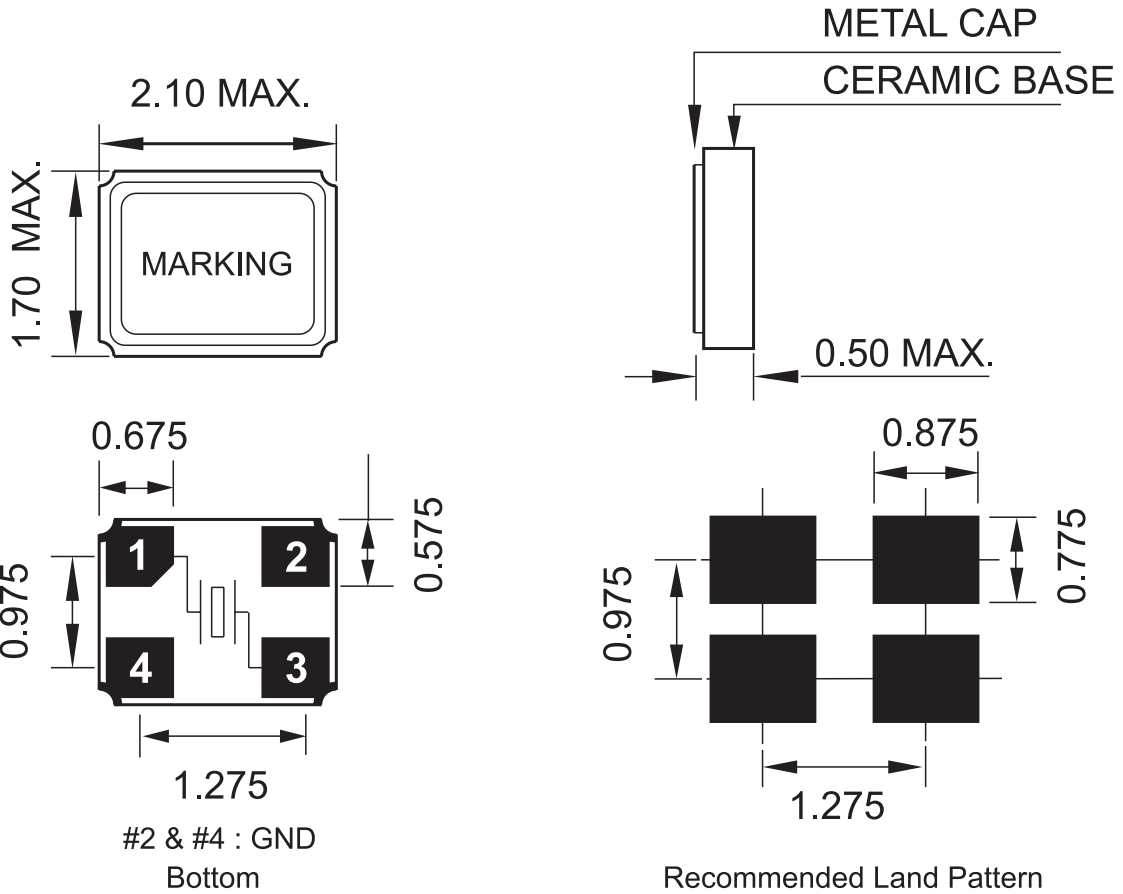
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Specification Title:

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

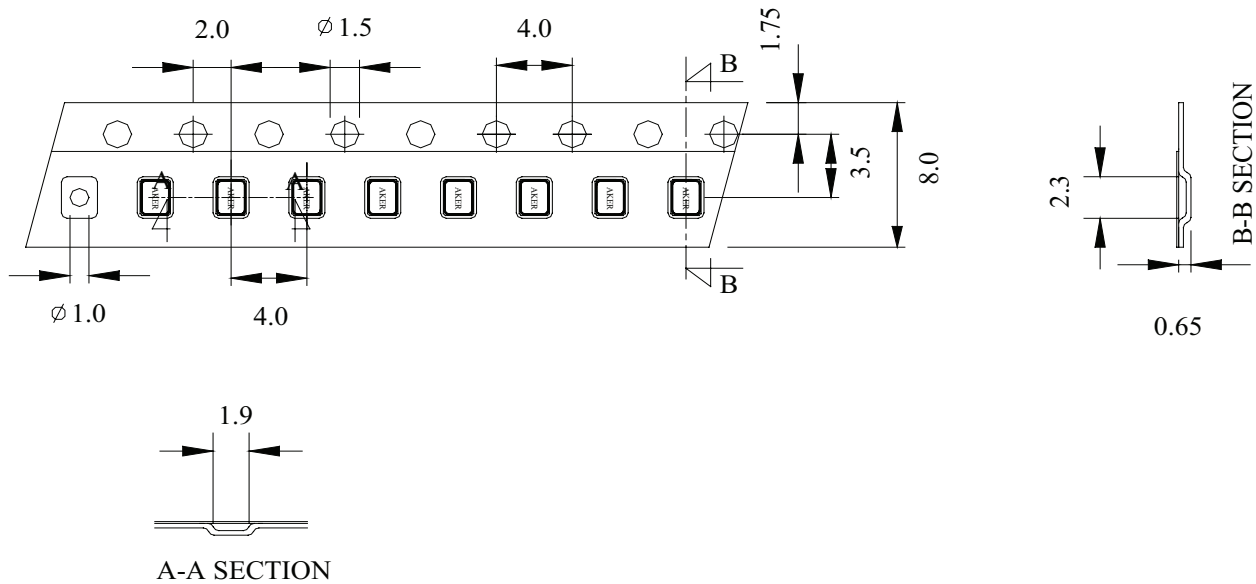
Part Number: **C1E Series**

**Mechanical Outline:**



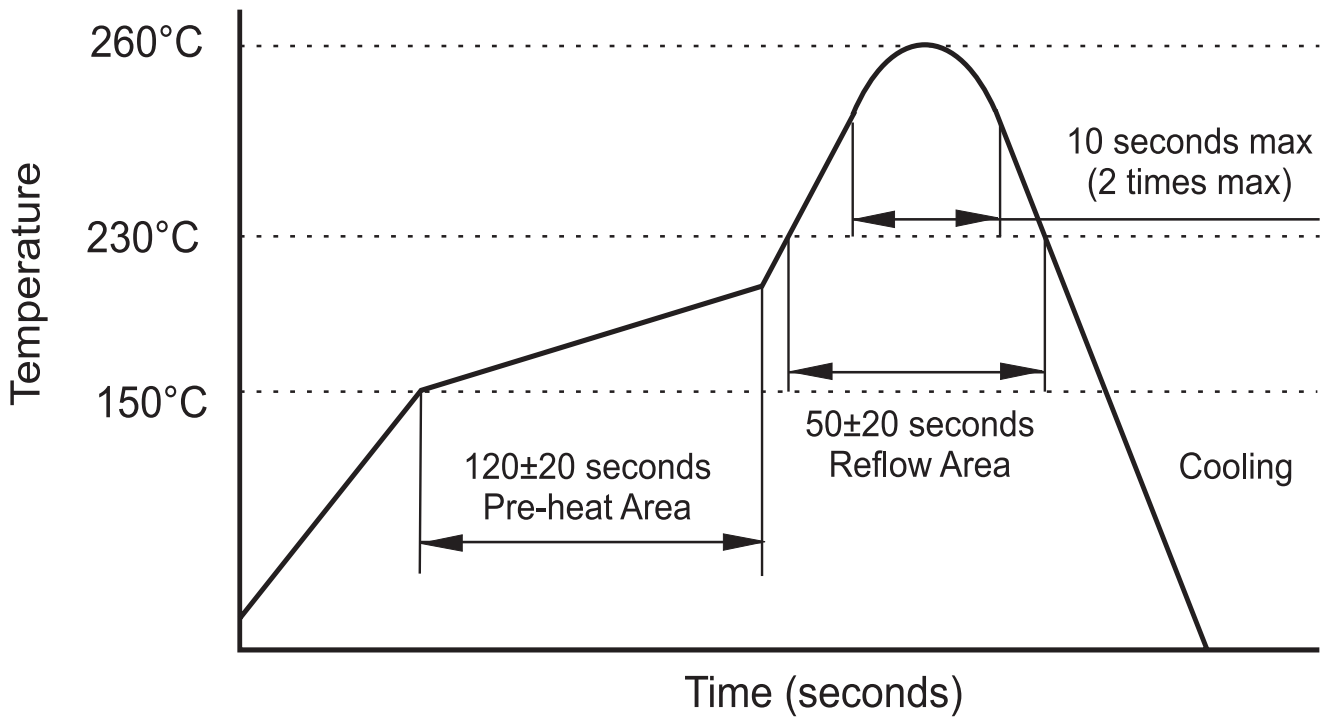
**Package is Seam Sealed Ceramic-Metal.  
Dimensions are millimeters.**

**Carrier Tape Dimensions:**



**Dimensions are millimeters.**

**Solder Reflow Characteristics:**



## How to build a Part Number:

Series		C	Parameter
Package		1E	1.6 x 2.0 mm Seam Seal
		-	
Frequency		16.000 to 50.000	MHz
		-	
Load Capacitance		6	6 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*
		-	
Temperature Range	Standard	See Notes	-10 to +70 °C
	Extended	X	-40 to +85 °C
		-	
Packaging		M	250pcs Reel
		R	1000pcs Reel
		R3	3000pcs Reel

### Part Number Example:

**C1E-50.000-10-3050-R3**

**C1E- 1.6 x 2.0 mm SMD Seam Seal Crystal Unit**

**50.000 MHz Nominal Frequency**

**10 pF Load Capacitance**

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

**Fundamental Mode**

**-10 to +70° C Temperature Range**

**R3: Tape and Reel Packaging - 3000pcs**

### 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.

4- Quantities less than 250 are shipped in tape only.

5- Specification subject to change without notice.