

**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)
	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	-20 to +70	° C
	Extended	-40 to +85	
Storage Temperature Range		-55 to +125	PPM Max
Aging per Year		±3	
Load Capacitance		7 to 32 and Series Resonance	pF
Shunt Capacitance		3.0	
Equivalent Series Resistance (ESR)		See ESR Table	Ohms
Drive Level		100	uW Typ
Insulation Resistance		500 at 100 Vdc ± 15 Vdc	M Ohms

Frequency Range and ESR Values:

Frequency Range in MHz	ESR Ohm Max	Mode of Operation
12.000 to 13.999	200	Fundamental
14.000 to 15.999	150	Fundamental
16.000 to 19.999	90	Fundamental
20.000 to 23.999	70	Fundamental
24.000 to 24.999	60	Fundamental
25.000 to 44.999	50	Fundamental
45.000 to 60.000	40	Fundamental



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All dimensions are millimeters.

CAD: TCR

Review: EG

Appr: JL

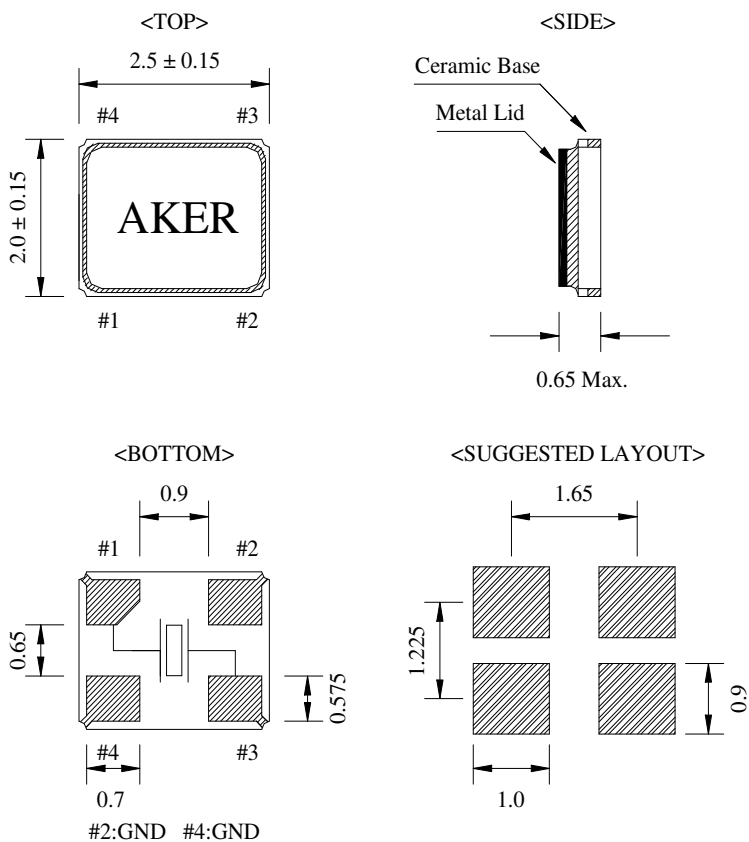
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Specification Title:

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

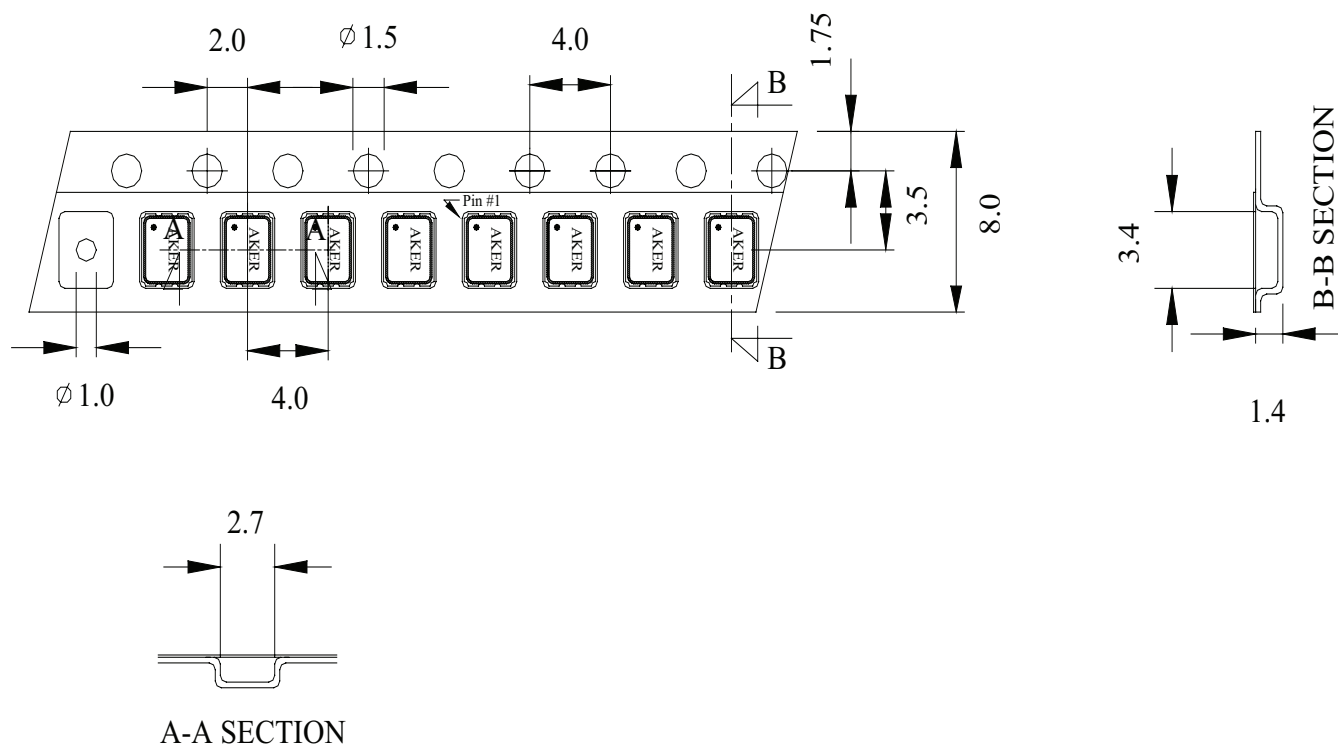
Part Number: **C2E Series**

Mechanical Outline:

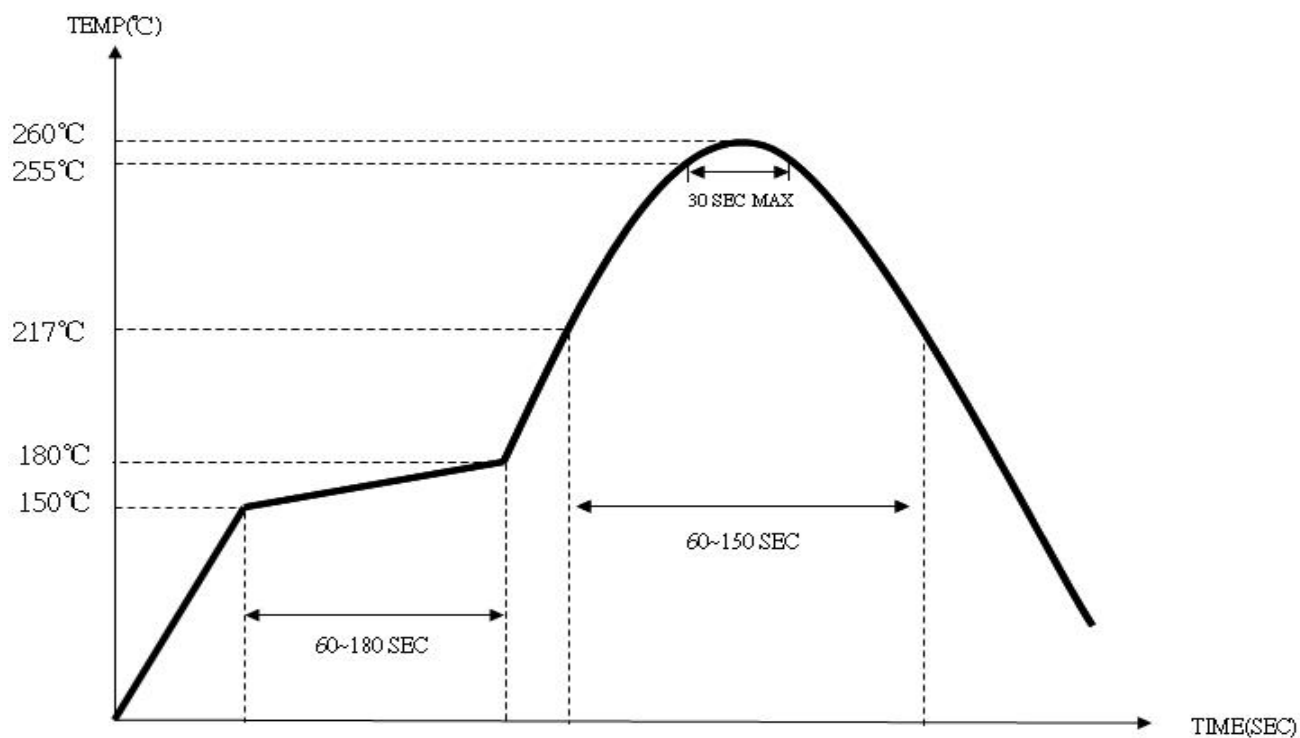


**Package is Seam Sealed Ceramic-Metal.
Dimensions are millimeters.**

Carrier Tape Dimensions:



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
	Optional	25	±25 PPM
		20	±20 PPM
		15	± 15 PPM
		10	±10 PPM
Frequency Stability (Note 1)	Standard	50	±50 PPM
	Optional	30	±30 PPM
		25	±25 PPM
		20	±20 PPM
		15	±15 PPM
		10	±10 PPM*
		-	
Temperature Range	Standard	See Notes	-20 to +70 °C
	Extended	X	-40 to +85 °C
		-	
Packaging		M	250pcs Reel
		R	1000pcs Reel
		R3	3000pcs 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.

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

5- Specification subject to change without notice.