



No.11-3 Jianguo Rd., T.E.P.Z. 42760 Taiwan, ROC

All dimensions are millimeters.

CAD: TCR

Review: EG

Appr: JL

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Specification Title:

**Microprocessor Crystal Unit
Low Profile
3.2 x 2.5 millimeter Surface Mount - 4 Pad
General Product Specification**

Series Name: C3E Series

Electrical Specifications:

| | | | |
|--|----------------|------------------------------|---------------------|
| Frequency Range | | 8.000 to 150.000 | MHz |
| Mode of Oscillation | Fundamental | 8.000 to 64.000 | MHz |
| | Third Overtone | 60.000 to 150.00 | |
| Frequency Tolerance at 25°C | Standard | ±30 | PPM Max (Note 1) |
| | Optional | ±50 | |
| | | ±20 | |
| | | ±15 | |
| | | ±10 | |
| Frequency Stability over Temperature Range | Standard | ±50 | PPM Max (Note 1) |
| | Optional | ±100 | |
| | | ±30 | |
| | | ±25 | |
| | | ±15 | |
| Operating Temperature Range | Standard | -20 to +70 | °C |
| | Extended | -40 to +85 | |
| | | -40 to +125 | |
| Storage Temperature Range | | -55 to +125 | |
| Aging | | ±3 | PPM Max/Year |
| Load Capacitance | | 6 to 47 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 |

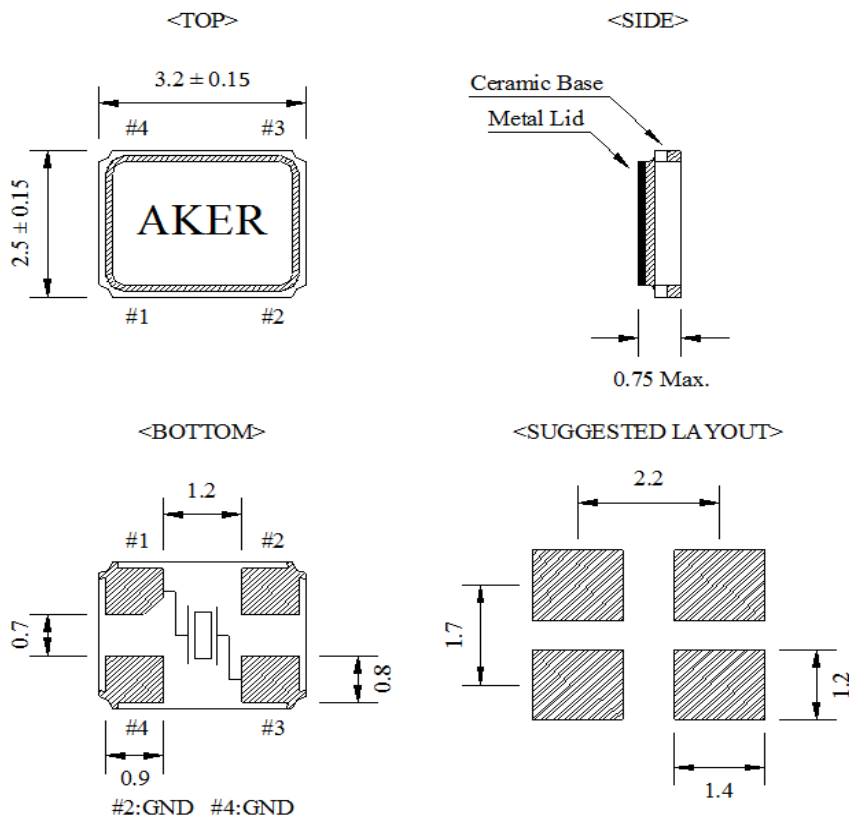
Frequency Range and ESR Values:

| Frequency Range in MHz | ESR Ohm Max | Mode of Operation | Frequency Range in MHz | ESR Ohm Max | Mode of Operation |
|------------------------|-------------|-------------------|------------------------|-------------|-------------------|
| 8.000 to 9.999 | 500 | Fundamental | 60.000 to 99.999 | 150 | Third Overtone |
| 10.000 to 11.999 | 150 | Fundamental | 100.000 to 124.999 | 100 | Third Overtone |
| 12.000 to 15.999 | 80 | Fundamental | 125.000 to 150.000 | 80 | Third Overtone |
| 16.000 to 19.999 | 60 | Fundamental | | | |
| 20.000 to 24.999 | 50 | Fundamental | | | |
| 25.000 to 49.999 | 40 | Fundamental | | | |
| 50.000 to 64.000 | 30 | Fundamental | | | |

| | | | | |
|----------------------------------|-----|-----------|------|------|
| RoHS Compliant Pb - Lead Free | Ltr | Revisions | Date | Appr |
| | | | | |
| | | | | |
| | | | | |

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Mechanical Outline:



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

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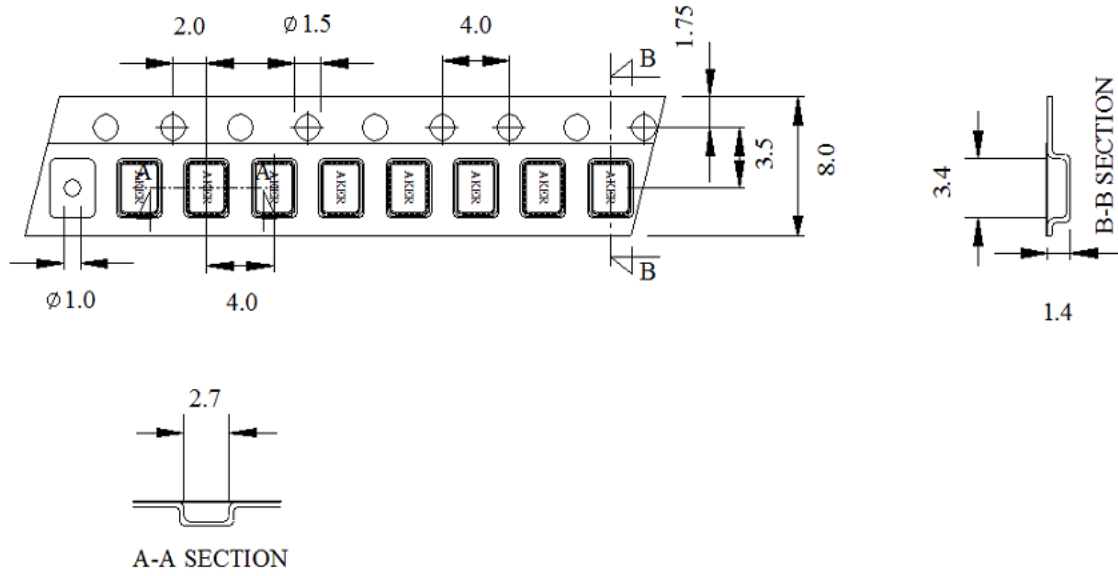
Date: August 01, 2022

P/N:

C3E Series

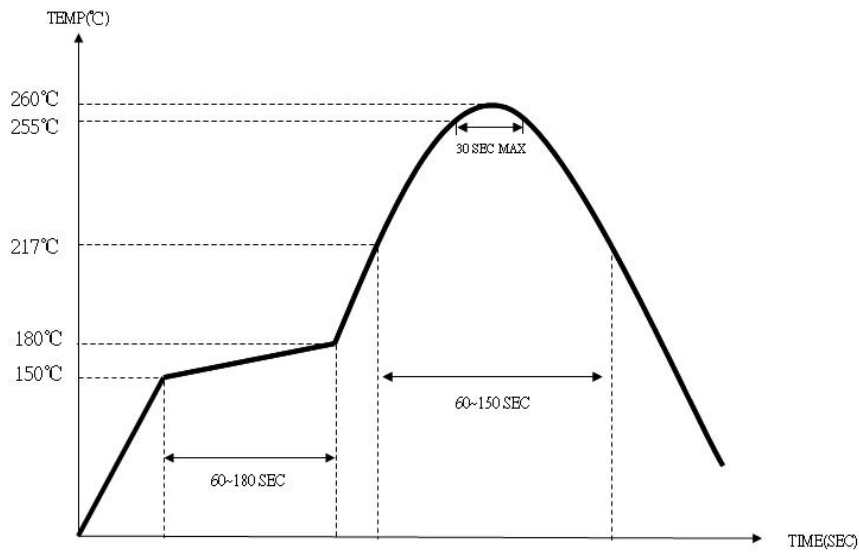
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Carrier Tape Dimensions:



Dimensions are millimeters.

Solder Reflow Characteristics:



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C3E Series

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How to build a Part Number:

| | | | |
|------------------------------|------------------|----------------------|----------------|
| Series | C | Parameter | |
| Package | 3E | 3.2 x 2.5 mm - 4 Pad | |
| - | | | |
| Frequency | 8.000 to 150.000 | 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 | ±30PPM |
| | Option | 25 | ±25PPM |
| | | 20 | ±20PPM |
| | | 15 | ±15PPM |
| | | 10 | ±10PPM |
| Frequency Stability (Note 1) | Standard | 50 | ±50PPM |
| | Option | 100 | ±100PPM |
| | | 30 | ±30PPM |
| | | 25 | ±25PPM |
| | | 20 | ±20PPM |
| | | 15 | ±15PPM |
| 10 | ±10PPM* | | |
| - | | | |
| Mode of Oscillation | See Notes | Fundamental | |
| | 3 | Third Overtone | |
| - | | | |
| Temperature Range | Standard | See Notes | -20 to +70 °C |
| | Option | X | -40 to +85 °C |
| | Option | X1 | -40 to +125 °C |
| | Option | X2 | -40 to +105 °C |
| - | | | |
| Packaging | M | 250pcs Reel | |
| | R | 1000pcs Reel | |
| | R3 | 3000pcs Reel | |

Part Number Example:

C3E-24.000-18-3050-X-R

C3E- 3.2 x 2.5 mm SMD Seam Seal Crystal Unit - 4 Pad

24.000 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 - 1000pcs Reel

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- Fundamental mode does not need to be included in part number description

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

5- Specification subject to change without notice.

| | | | | |
|-------|-----|-----------------------|------|-------------------|
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|-------|-----|-----------------------|------|-------------------|