



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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| Date: | August 01, 2022 |

Specification Title:

**Microprocessor Crystal Unit
Automotive Grade
5.0 x 3.2 millimeter Surface Mount - 4 Pad
General Product Specification**

Series Name: C5S Auto Series

Electrical Specifications:

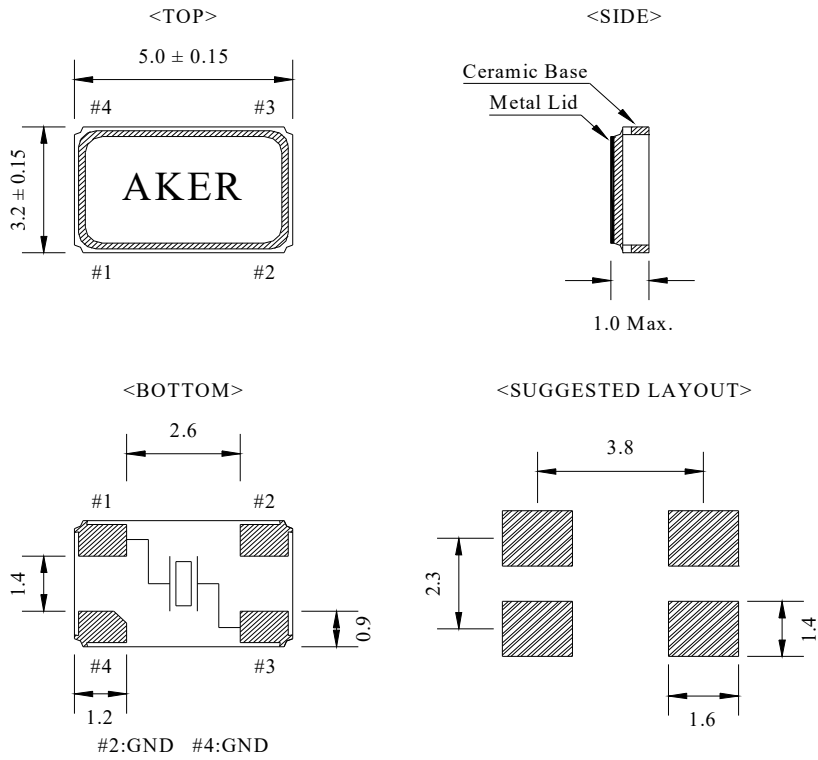
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|--|----------------|------------------------------|--------------|
| Frequency Range | | 8.000 to 133.000 | MHz |
| Mode of Oscillation | Fundamental | 8.000 to 54.000 | MHz |
| | Third Overtone | 40.000 to 133.00 | |
| Frequency Tolerance at 25°C | Standard | ±30 | PPM Max |
| | | ±50 | |
| | Optional | ±20 | |
| | | ±15 | |
| | | ±10 | |
| Frequency Stability over Temperature Range | Standard | ±50 | PPM Max |
| | | ±100 | |
| | Optional | ±30 | |
| | | ±25 | |
| | | ±20 | |
| Operating Temperature Range | Standard | -40 to +85 | °C |
| | Extended | -40 to +125 | |
| Storage Temperature Range | | -55 to +150 | |
| Aging | | ±3 | PPM Max/Year |
| Load Capacitance | | 6 to 47 and Series Resonance | pF |
| Shunt Capacitance | | 7.0 | |
| 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 | 60 | Fundamental | 40.000 to 59.999 | 70 | Third Overtone |
| 10.000 to 11.999 | 45 | Fundamental | 60.000 to 133.000 | 60 | Third Overtone |
| 12.000 to 15.999 | 35 | Fundamental | | | |
| 16.000 to 19.999 | 30 | Fundamental | | | |
| 20.000 to 49.999 | 25 | Fundamental | | | |
| 50.000 to 54.000 | 20 | Fundamental | | | |

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

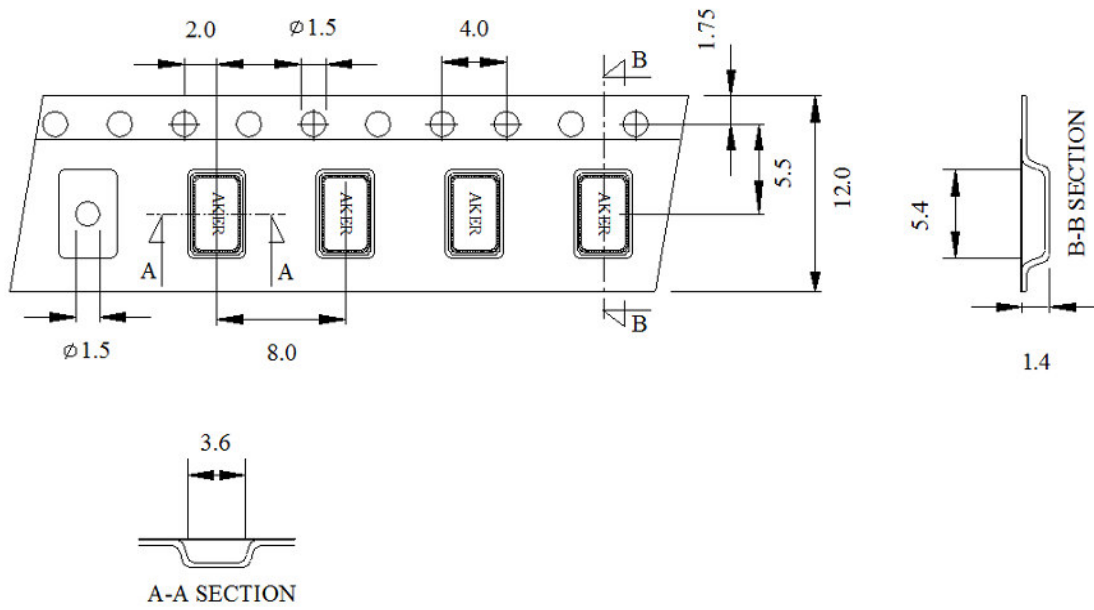
Mechanical Outline:



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

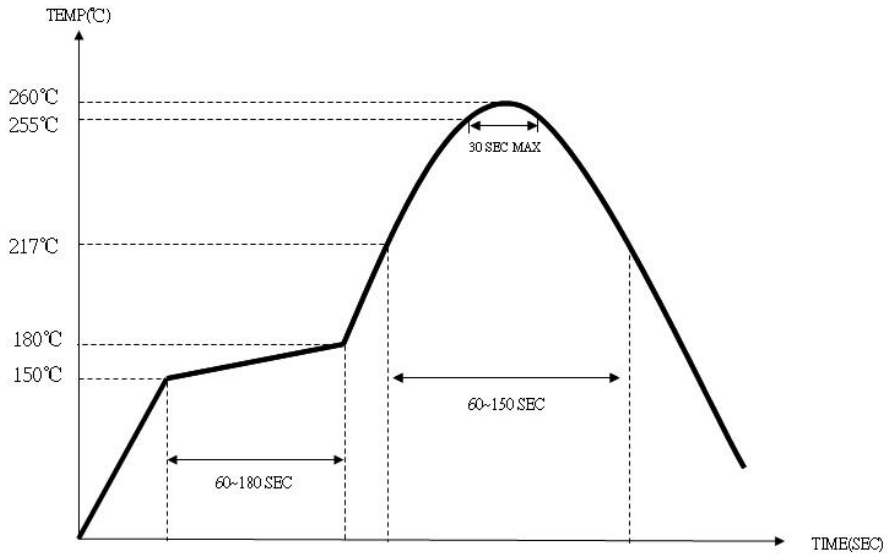
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Carrier Tape Dimensions:



Dimensions are millimeters.

Solder Reflow Characteristics:



How to build a Part Number:

| Series | | C | Parameter |
|---------------------|----------|------------------|-------------------------------|
| Package | | 5S | 5.0 x 3.2 mm - 4 Pad |
| | | - | |
| Frequency | | 8.000 to 133.000 | 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 | Standard | 30 | ±30PPM |
| | Option | 50 | ±50PPM |
| | | 20 | ±20PPM |
| | | 15 | ±15PPM |
| | | 10 | ±10PPM |
| Frequency Stability | Standard | 50 | ±50PPM |
| | Option | 100 | ±100PPM |
| | | 30 | ±30PPM |
| | | 25 | ±25PPM |
| | | 20 | ±20PPM |
| | | - | |
| Mode of Oscillation | | See Notes 3 | Fundamental Third Overtone |
| | | - | |
| AECQ-200 | | A | Automotive |
| | | - | |
| Temperature Range | Standard | X | -40 to +85 °C |
| | Option | X1 | -40 to +125 °C |
| | Option | X2 | -40 to +105 °C |
| | | - | |
| Packaging | | M | 250pcs Reel |
| | | R | 1000pcs Reel |

Part Number Example:

C5S-40.000-18-3050-A-X-R

C5S: 5.0 x 3.2 mm SMD Seam Sealed Package - 4 Pad

40.000 MHz Nominal Frequency

18 pF Load Capacitance

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

A: Automotive Grade

X: -40 to +85° C Extended Temperature Range

R: Tape and Reel Packaging

Notes:

- 1- Fundamental mode does not need to be included in Part Number description.
- 2- Other Load Capacitances are available other than those listed in Part Number table above.
- 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

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