

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

Electrical Specifications:

| | | | |
|--|----------------|-------------------------------|--------------|
| 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 |
| | Optional | ±25 | |
| | | ±20 | |
| | | ±15 | |
| | | ±10 | |
| Frequency Stability over Temperature Range | Standard | ±50 | PPM Max |
| | Optional | ±30 | |
| | | ±25 | |
| | | ±20 | |
| | | ±15 | |
| Operating Temperature Range | Standard | -10 to +70 | °C |
| | Extended | -40 to +85 | |
| Storage Temperature Range | | -55 to +125 | |
| Aging | | ±3 | PPM Max/Year |
| Load Capacitance | | 10 to 32 and Series Resonance | pF |
| Shunt Capacitance | | 7.0 | |
| Equivalent Series Resistance(ESR) | | See ESR Table | Ohm |
| Drive Level | | 100 | uW Typ |
| 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 9.749 | 70 | Fundamental | 40.000 to 79.999 | 100 | Third Overtone |
| 9.750 to 9.999 | 60 | Fundamental | 80.000 to 99.999 | 80 | Third Overtone |
| 10.000 to 11.999 | 45 | Fundamental | 100.000 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 | | | |



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All dimensions are millimeters.

CAD: TCR

Review: EG

Appr: JL

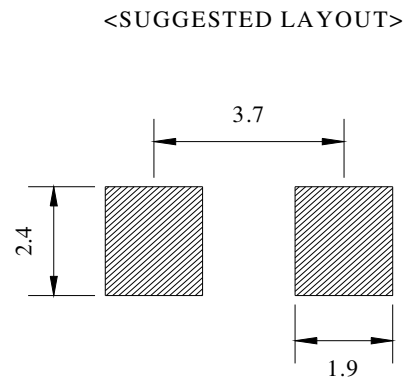
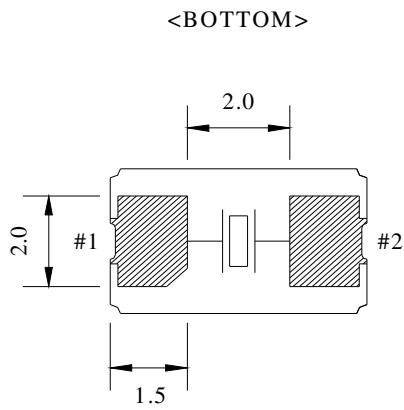
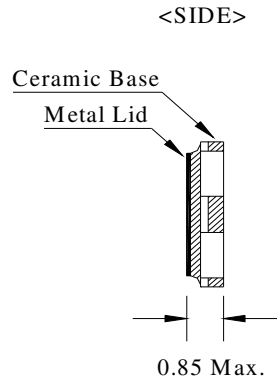
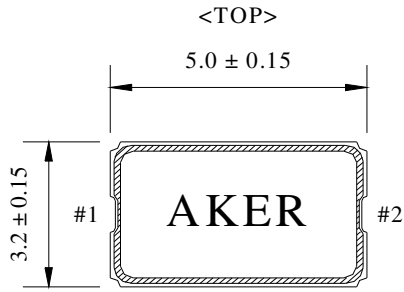
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Specification Title:

**Microprocessor Crystal Unit
Low Profile - 2 Pad
5.0 x 3.2 millimeter Surface Mount
General Product Specification**

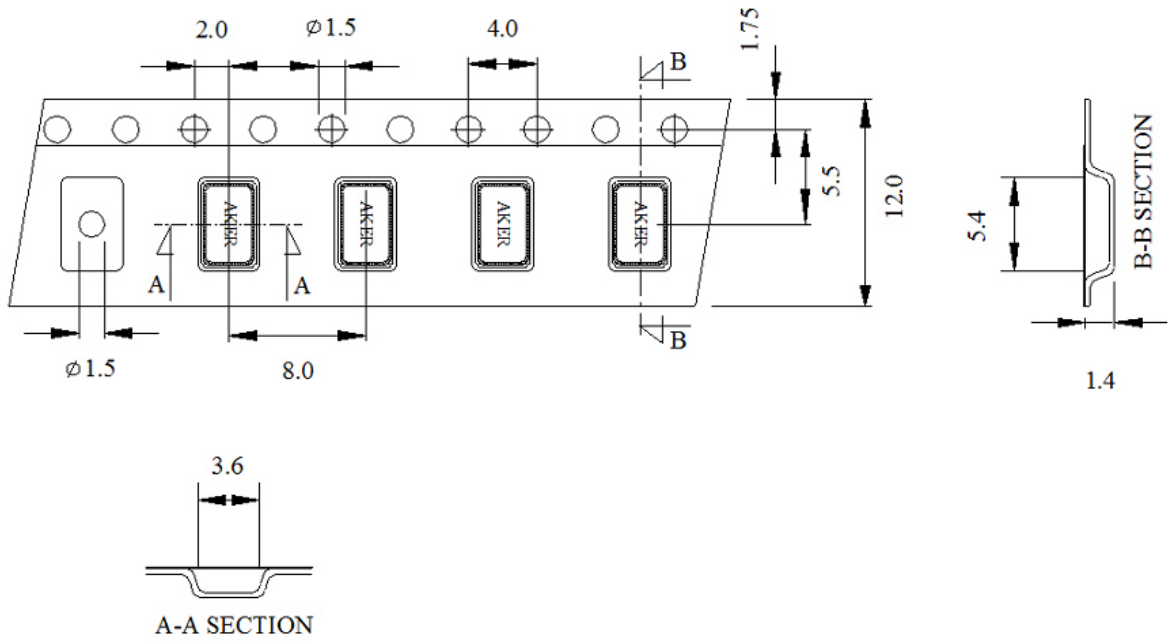
Part Number: C5SA Series

Mechanical Outline:



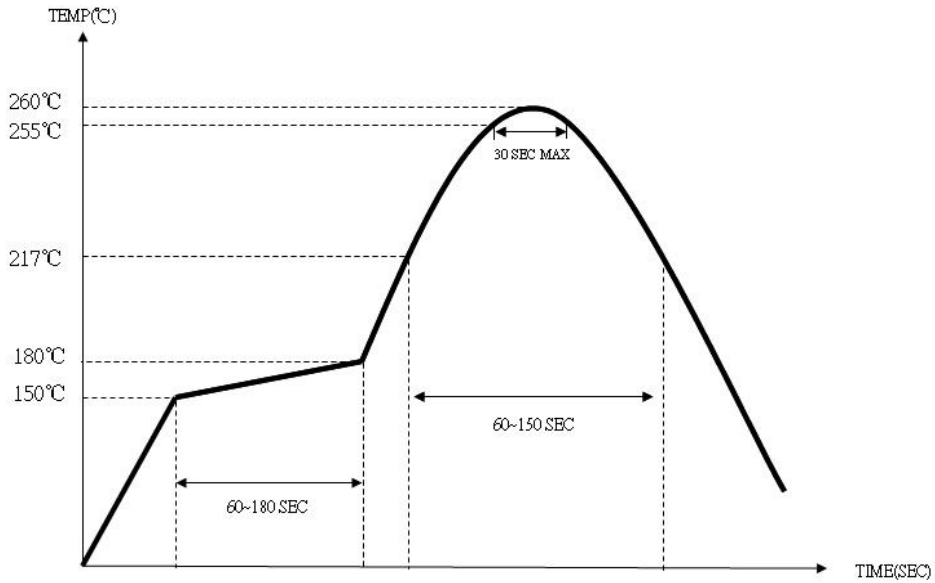
**Package is Seam Sealed Ceramic-Metal.
Dimensions are millimeters.**

Carrier Tape Dimensions:



Dimensions are millimeters.

Solder Reflow Characteristics:



How to build a Part Number:

| | | | | | |
|----------------------------|--|-------------------------|-----------------------------|----------------------|----------------|
| Series | | C | Parameter | | |
| Package | | 5SA | 5.0 x 3.2 mm - 2 Pad | | |
| | | - | | | |
| Frequency | | 8.000 to 133.000 | MHz | | |
| | | - | | | |
| Load Capacitance | | 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 | | 25 | ±25PPM |
| | | | | 20 | ±20PPM |
| | | | | 15 | ±15PPM |
| | | | | 10 | ±10PPM |
| Frequency Stability | | Standard | 50 | ±50PPM | |
| | | Option | | 30 | ±30PPM |
| | | | | 25 | ±25PPM |
| | | | | 20 | ±20PPM |
| | | | | 15 | ±15PPM |
| | | | | 10 | ±10PPM* |
| | | - | | | |
| Mode of Oscillation | | See Notes | Fundamental | | |
| | | 3 | Third Overtone | | |
| | | - | | | |
| Temperature Range | | Standard | See Notes | -10 to +70 °C | |
| | | Option | X | -40 to +85 °C | |
| | | - | | | |
| Packaging | | R | Tape and Reel | | |

Part Number Example:

C5SA-50.000-18-3050-R

C5SA: 5.0 x 3.2 mm SMD Seam Seal Ceramic - Metal Package - 2 Pad

50.000 MHz Nominal Frequency

18 pF Load Capacitance

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

-10 to +70° C Temperature Range

R: Tape and Reel Packaging

Notes:

1- Fundamental mode does not need to be included in Part Number description.

*** ±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 1000 pieces.

4- Quantities less than 1000 are shipped bulk in ESD pouches.

5- Specification subject to change without notice

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