



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

All dimensions are millimeters.

|         |               |
|---------|---------------|
| CAD:    | TCR           |
| Review: | EG            |
| Appr:   | JL            |
| Page:   | 1/4           |
| Date:   | April 24,2024 |

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

AEC-Q200 Qualified  
IATF 16949 Certified

**Series Name: C5S Auto Series**

**Electrical Specifications:**

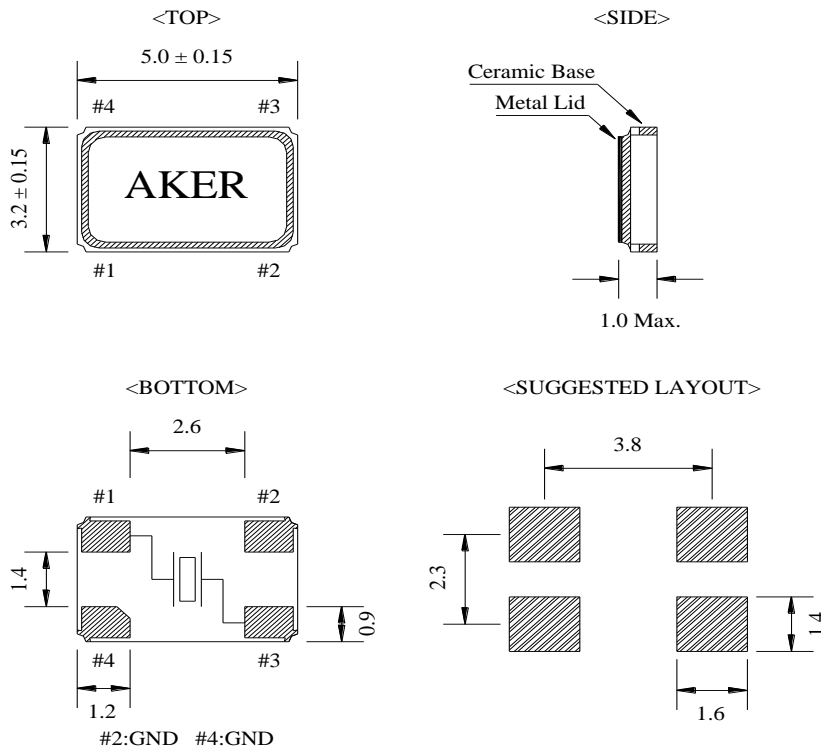
|  |                |                              |              |
|--|----------------|------------------------------|--------------|
| Frequency Range                            |                | 8.000 to 156.250             | MHz          |
| Mode of Oscillation                        | Fundamental    | 8.000 to 54.000              | MHz          |
|  | Third Overtone | 48.000 to 156.250            |              |
| 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           |
|  | Optional       | -40 to +105                  |              |
|  | Optional       | -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       | 48.000 to 59.999       | 70          | Third Overtone    |
| 10.000 to 11.999       | 45          | Fundamental       | 60.000 to 156.250      | 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       |                        |             |                   |

|  |     |           |      |      |
|--|-----|-----------|------|------|
| <b>RoHS Compliant</b><br><b>Pb - Lead Free</b><br><b>AEC-Q200 Qualified</b><br><b>IATF 16949 Certified</b> | Ltr | Revisions | Date | Appr |
|  |     |           |      |      |
|  |     |           |      |      |
|  |     |           |      |      |

**Mechanical Outline:**



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



**How to build a Part Number:**

|                            |                 |                         |                             |
|----------------------------|-----------------|-------------------------|-----------------------------|
| <b>Series</b>              |                 | <b>C</b>                | <b>Parameter</b>            |
| <b>Package</b>             |                 | <b>5S</b>               | <b>5.0 x 3.2 mm - 4 Pad</b> |
|                            |                 | -                       |                             |
| <b>Frequency</b>           |                 | <b>8.000 to 156.250</b> | <b>MHz</b>                  |
|                            |                 | -                       |                             |
| <b>Load Capacitance</b>    |                 | <b>6</b>                | <b>6 pF</b>                 |
|                            |                 | <b>10</b>               | <b>10 pF</b>                |
|                            |                 | <b>12</b>               | <b>12 pF</b>                |
|                            |                 | <b>16</b>               | <b>16 pF</b>                |
|                            |                 | <b>18</b>               | <b>18 pF</b>                |
|                            |                 | <b>20</b>               | <b>20 pF</b>                |
|                            |                 | <b>32</b>               | <b>32 pF</b>                |
|                            |                 | <b>S</b>                | <b>Series</b>               |
|                            |                 | -                       |                             |
| <b>Frequency Tolerance</b> | <b>Standard</b> | <b>30</b>               | <b>±30PPM</b>               |
|                            | <b>Option</b>   | <b>50</b>               | <b>±50PPM</b>               |
|                            |                 | <b>20</b>               | <b>±20PPM</b>               |
|                            |                 | <b>15</b>               | <b>±15PPM</b>               |
|                            |                 | <b>10</b>               | <b>±10PPM</b>               |
| <b>Frequency Stability</b> | <b>Standard</b> | <b>50</b>               | <b>±50PPM</b>               |
|                            | <b>Option</b>   | <b>100</b>              | <b>±100PPM</b>              |
|                            |                 | <b>30</b>               | <b>±30PPM</b>               |
|                            |                 | <b>25</b>               | <b>±25PPM</b>               |
|                            |                 | <b>20</b>               | <b>±20PPM</b>               |
|                            |                 | -                       |                             |
| <b>Mode of Oscillation</b> |                 | <b>See Notes</b>        | <b>Fundamental</b>          |
|                            |                 | <b>3</b>                | <b>Third Overtone</b>       |
|                            |                 | -                       |                             |
| <b>AECQ-200</b>            |                 | <b>A</b>                | <b>Automotive</b>           |
|                            |                 | -                       |                             |
| <b>Temperature Range</b>   | <b>Standard</b> | <b>X</b>                | <b>-40 to +85 °C</b>        |
|                            | <b>Option</b>   | <b>X1</b>               | <b>-40 to +125 °C</b>       |
|                            | <b>Option</b>   | <b>X2</b>               | <b>-40 to +105 °C</b>       |
|                            |                 | -                       |                             |
| <b>Packaging</b>           |                 | <b>M</b>                | <b>250pcs Reel</b>          |
|                            |                 | <b>R</b>                | <b>1000pcs Reel</b>         |

**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 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**

|       |     |                     |      |                        |
|-------|-----|---------------------|------|------------------------|
| Page: | 4/4 | Date: April 24,2024 | P/N: | <b>C5S Auto Series</b> |
|-------|-----|---------------------|------|------------------------|