

RoHS Compliant  
Pb - Lead Free  
AEC-Q200 Qualified

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 133.000	
Frequency Tolerance at 25°C		±50	PPM Max
Frequency Stability over Temperature Range		±100	PPM Max
Operating Temperature Range		-40 to +125	°C
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 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	3rd Overtone
9.750 to 9.999	60	Fundamental	80.000 to 99.999	80	3rd Overtone
10.000 to 11.999	45	Fundamental	100.000 to 133.000	60	3rd 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

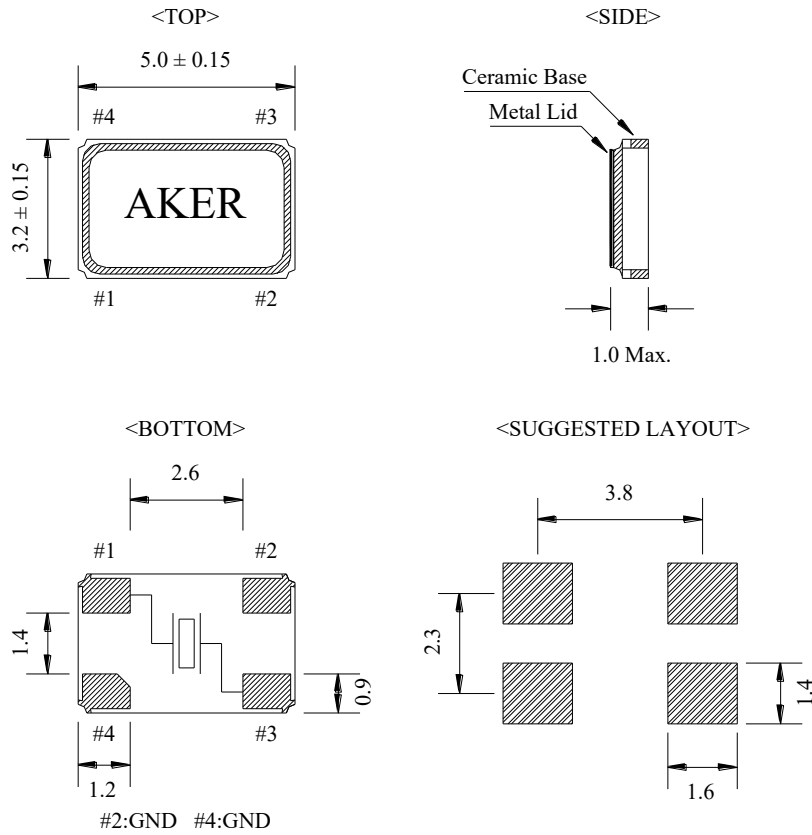
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Specification Title:

**Microprocessor Crystal Unit  
Automotive Temperature Range  
5.0 x 3.2 millimeter Surface Mount  
General Product Specification**

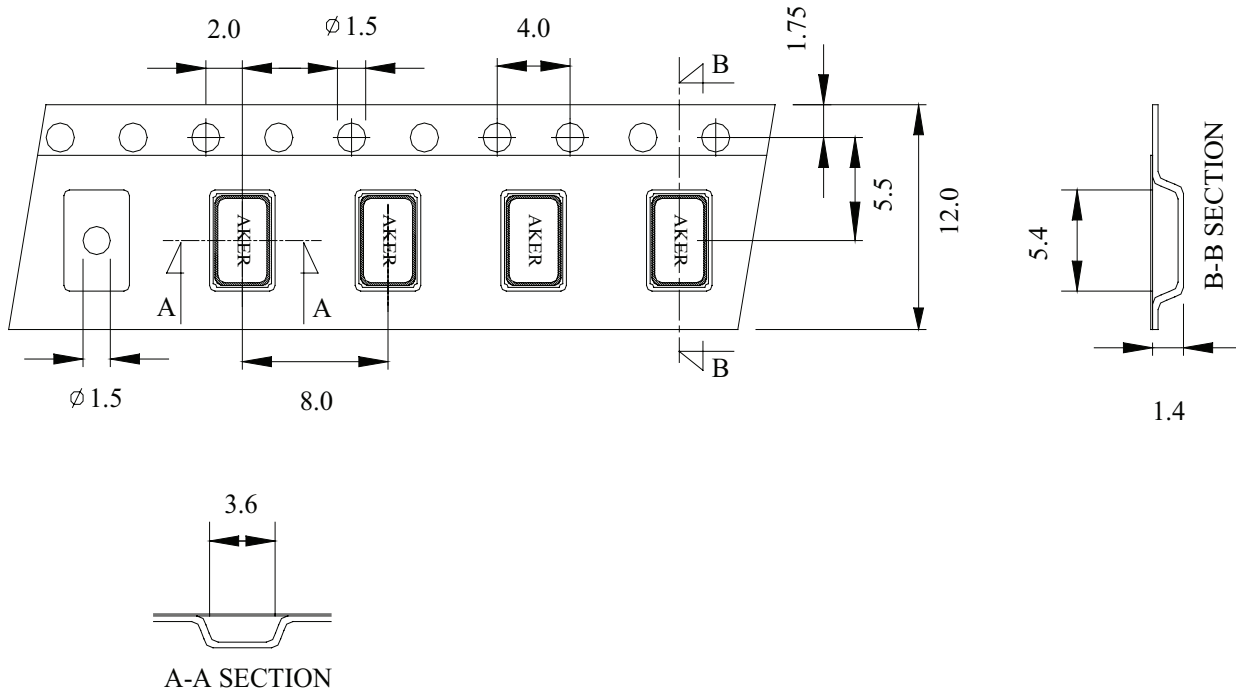
Part Number: **C5S X1 Series**

## Mechanical Outline:



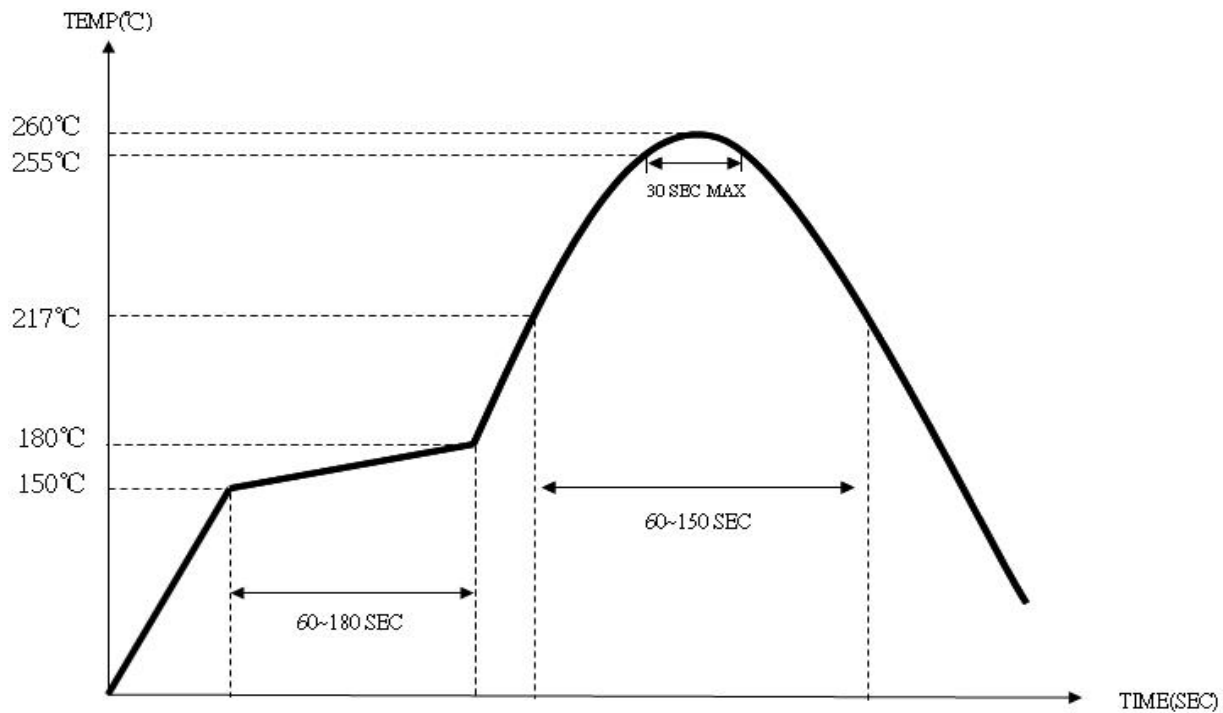
**Package is Seam Sealed Ceramic-Metal.  
Dimensions are millimeters.**

**Carrier Tape Dimensions:**



**Dimensions are millimeters.**

**Solder Reflow Characteristics:**



**How to build a Part Number:**

<b>Series</b>		<b>C</b>	<b>Parameter</b>
<b>Package</b>		<b>5S</b>	<b>5.0 x 3.2 mm</b>
		-	
<b>Frequency</b>		<b>8.000 to 133.000</b>	<b>MHz</b>
		-	
<b>Load Capacitance</b>		<b>7</b>	<b>7 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>50</b>	<b>±50 PPM</b>
<b>Frequency Stability</b>		<b>100</b>	<b>±100 PPM</b>
		-	
<b>Mode of Oscillation</b>		<b>See Notes</b>	<b>Fundamental</b>
		<b>3</b>	<b>Third Overtone</b>
		-	
<b>Temperature Range</b>		<b>X1</b>	<b>-40 to +125 °C</b>
		-	
<b>Packaging</b>		<b>M</b>	<b>250pcs Reel</b>
		<b>R</b>	<b>1000pcs Reel</b>

**Part Number Example:**

**C5S-40.000-50100-X1-R**

**C5S: 5.0 x 3.2 mm SMD Seam Sealed Package**

**40.000 MHz Nominal Frequency**

**18 pF Load Capacitance**

**50100: ±50 PPM Frequency Tolerance and ±100 PPM Frequency Stability**

**X1: -40 to +125° C Extended Temperature Range**

**R: Tape and Reel Packaging - 1000pcs reel**

**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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