

RoHS Compliant  
Pb - Lead Free  
AEC-Q200 Qualified

Ltr	Revisions	Date	Appr

**Electrical Specifications:**

Frequency Range	8.000 to 150.000		MHz
Mode of Oscillation	Fundamental	8.000 to 52.000	
	Third Overtone	40.000 to 150.000	
Frequency Tolerance at 25°C	±50		PPM Max
Frequency Stability over Temperature Range	±100		
Operating Temperature Range	-40 to +125		°C
Storage Temperature Range	-55 to +150		
Aging per Year	±3		PPM Max
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
8.000 to 10.000	150	Fundamental
10.100 to 12.000	90	Fundamental
12.100 to 15.000	70	Fundamental
15.100 to 30.000	50	Fundamental
30.100 to 52.000	30	Fundamental
40.000 to 52.000	100	Third Overtone
52.100 to 80.000	100	Third Overtone
80.100 to 150.000	80	Third Overtone



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All dimensions are millimeters.

CAD: TCR

Review: EG

Appr: JL

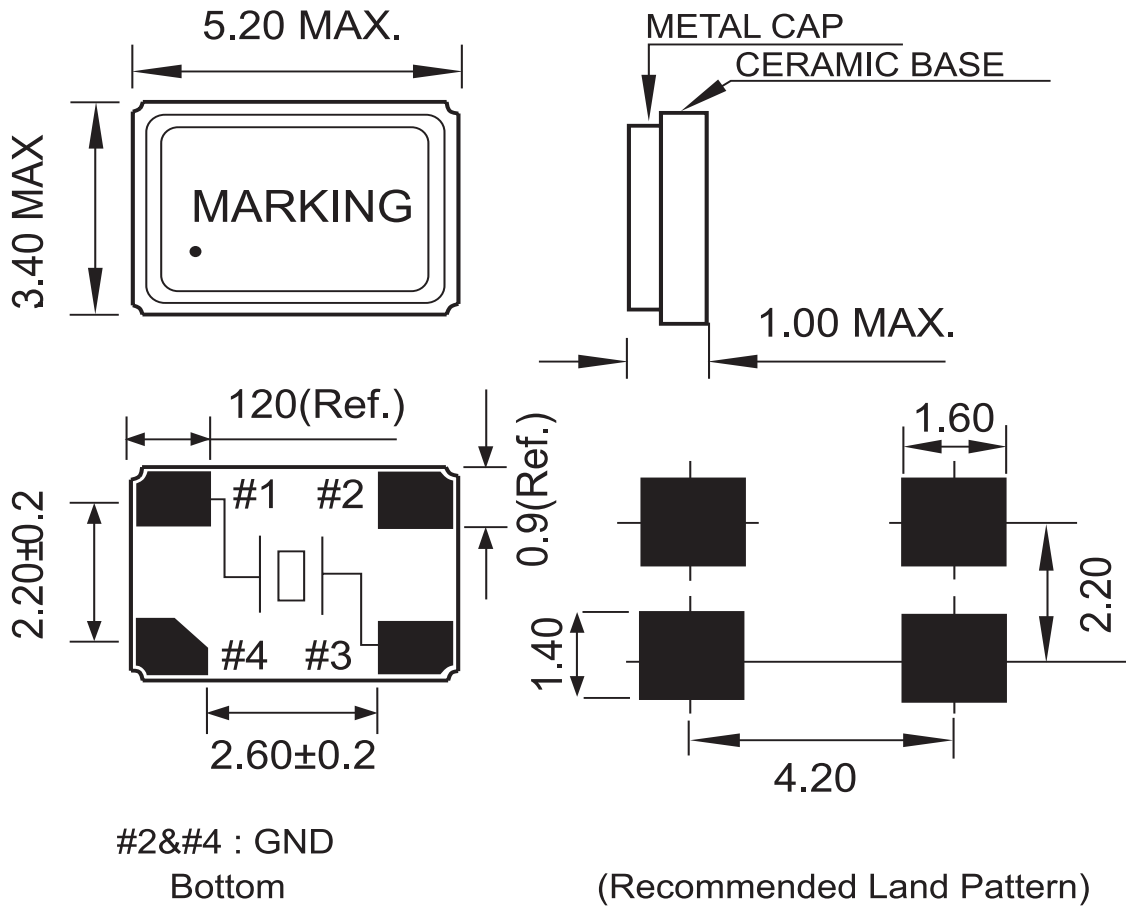
Page: 1/4 Date: April 18, 2008

Specification Title:

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

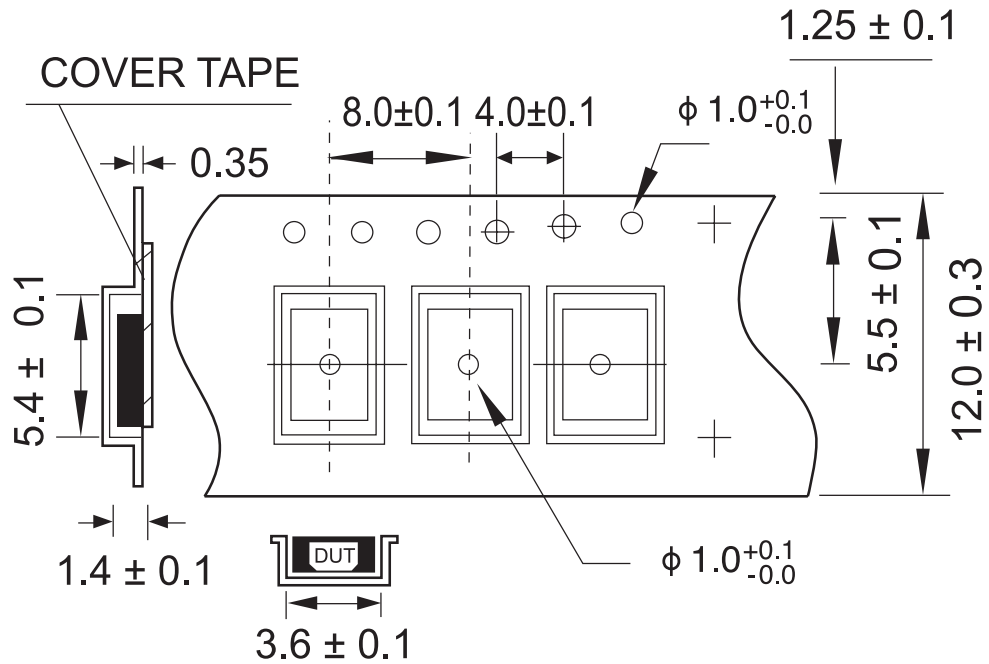
Part Number: **C5S X1 Series**

**Mechanical Outline:**



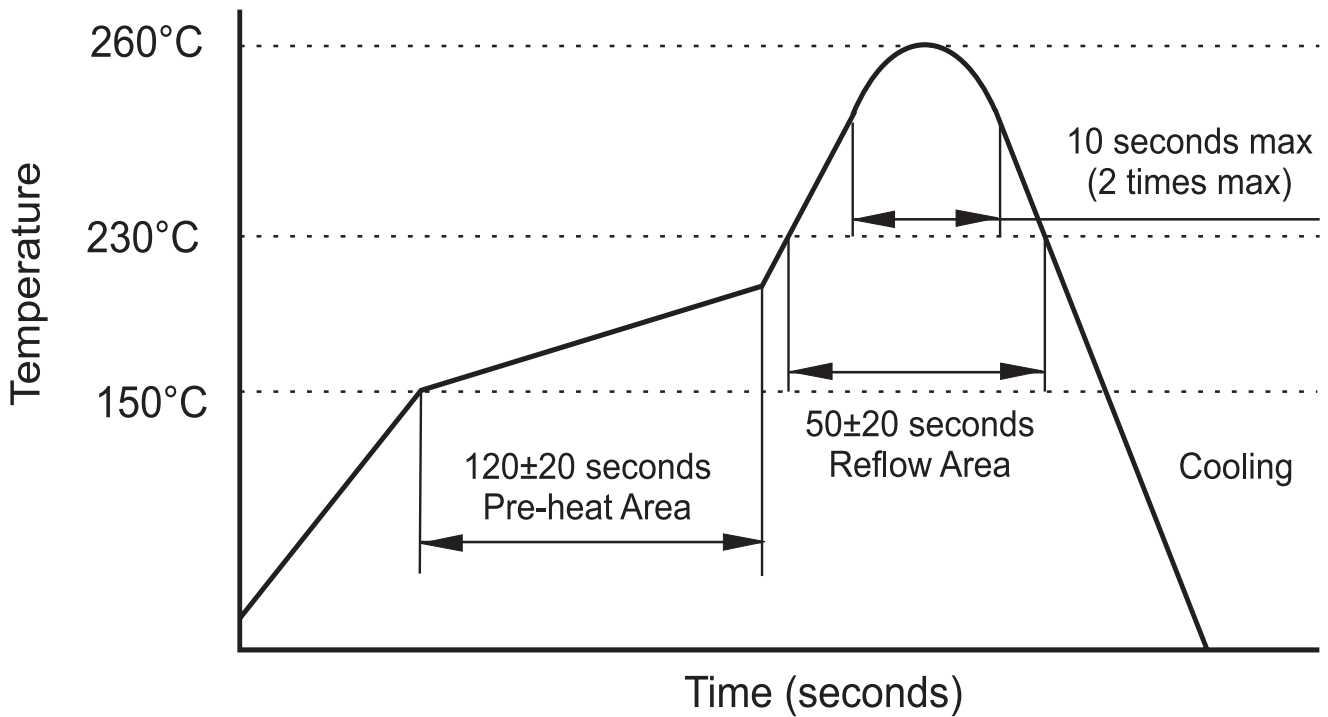
**Package is Seam Sealed Ceramic-Metal.  
Dimensions are millimeters.**

**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 150.000</b>	<b>MHz</b>
		-	
<b>Load Capacitance</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>R</b>	<b>Tape and Reel</b>

**Part Number Example:**

**C5S-40.000-18-50100-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 Automotive 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 than those listed in Part Number table above.
- 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