

<b>RoHS Compliant</b> <b>Pb - Lead Free</b> <b>AEC-Q200 Qualified</b>	Ltr	Revisions	Date	Appr

**Electrical Specifications:**

<b>Frequency Range</b>		<b>2.000 to 50.000</b>		<b>MHz</b>
<b>Temperature Stability</b>		<b>±100</b>		<b>PPM Max</b>
<b>Aging per Year</b>		<b>±3</b>		
<b>Operating Temperature Range</b>	<b>Standard</b>	<b>-40 to +125</b>		<b>°C</b>
	<b>Extended</b>	<b>-40 to +85</b>		
<b>Storage Temperature Range</b>		<b>-55 to +150</b>		
<b>Supply Voltage</b>		<b>+2.5 ± 5%</b>	<b>+3.3 ± 5%</b>	<b>Vdd</b>
<b>Input Current</b>	<b>2.000 to 10.000 MHz</b>	<b>6</b>	<b>7</b>	<b>mA Max</b>
	<b>10.100 to 20.000 MHz</b>	<b>8</b>	<b>7</b>	
	<b>20.100 to 32.000 MHz</b>	<b>8</b>	<b>12</b>	
	<b>32.100 to 50.000 MHz</b>	<b>20</b>	<b>20</b>	
<b>Output Voltage</b>	<b>Logic High (Voh)</b>	<b>90%</b>		<b>Vdd Min</b>
	<b>Logic Low (Vol)</b>	<b>10%</b>		<b>Vdd Max</b>
<b>Output Symmetry (Duty Cycle)</b>	<b>Standard</b>	<b>40 to 60</b>		<b>%</b>
	<b>Tight</b>	<b>45 to 55</b>		
<b>Output Load</b>		<b>15</b>		<b>pF</b>
<b>Output Level</b>		<b>CMOS</b>		<b>-</b>
<b>Phase Jitter (12 KHz to 20 MHz)</b>		<b>1</b>		<b>ps Max RMS</b>
<b>Rise and Fall Time</b>		<b>7</b>		<b>ns Max</b>
<b>Standby Function</b>		<b>Tri-State</b>		<b>-</b>
<b>Start Up Time</b>		<b>10</b>		<b>ms Max</b>

Temperature stability is Inclusive of all conditions:

Calibration Tolerance at +25°C, frequency stability over the operating temperature range, supply voltage, supply voltage change, output load changes, shock, vibration, and 1st year aging at +25°C.



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All dimensions are millimeters.

CAD: TCR

Review: EG

Appr: JL

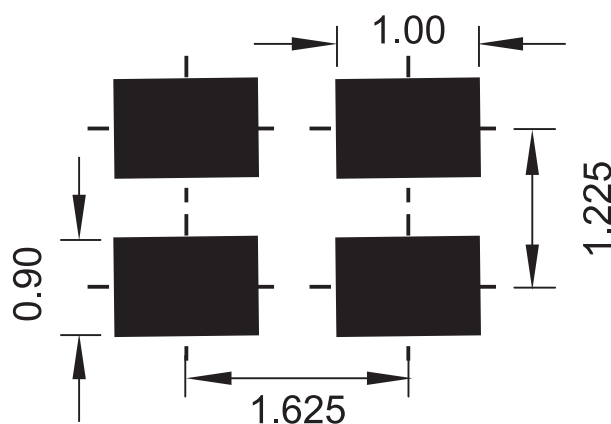
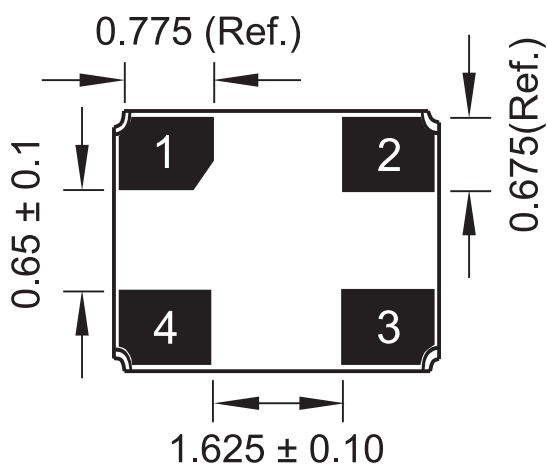
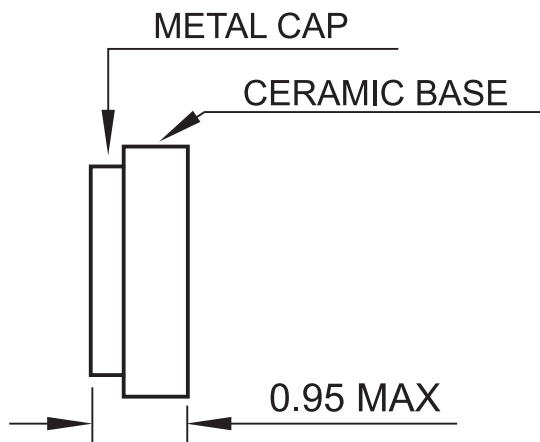
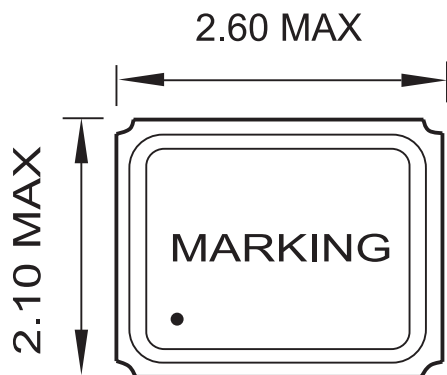
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Specification Title:

**Clock Oscillator**  
**Automotive Temperature Range**  
**Ultra Miniature**  
**2.5 x 2.0 millimeter Surface Mount**  
**General Product Specification**

Part Number: **S2 X1 Series**

**Mechanical Outline:**



#1 : E/D      #2 : GND  
 #4 : VDC      #3 : OUTPUT

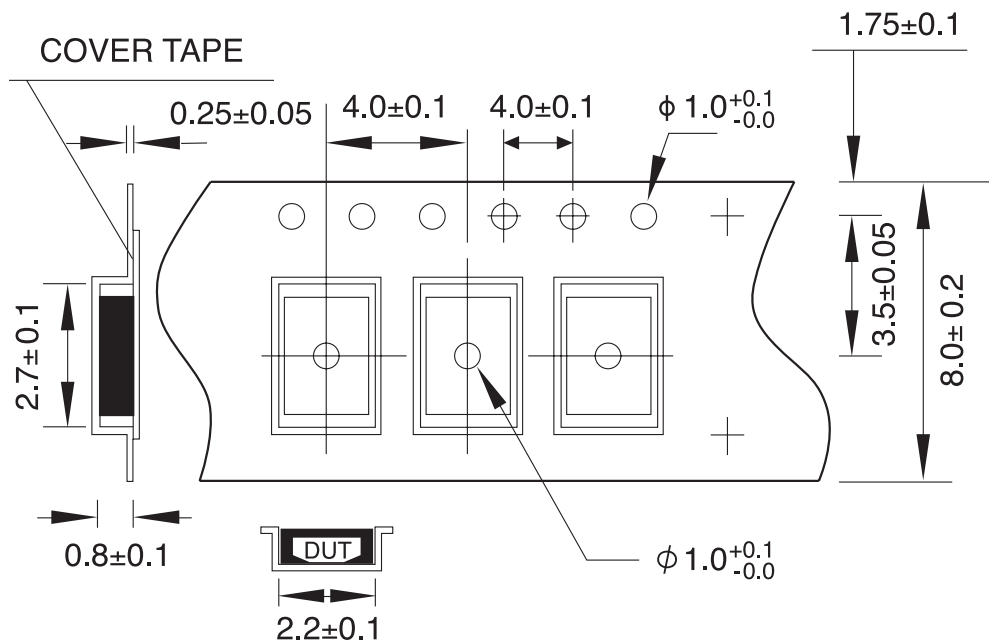
Bottom

Recommended Land Pattern

<b>Pin1</b>	<b>Pin 3</b>
<b>INH</b>	<b>Output</b>
<b>High or Open</b>	<b>Operating</b>
<b>Low</b>	<b>High Impedance</b>

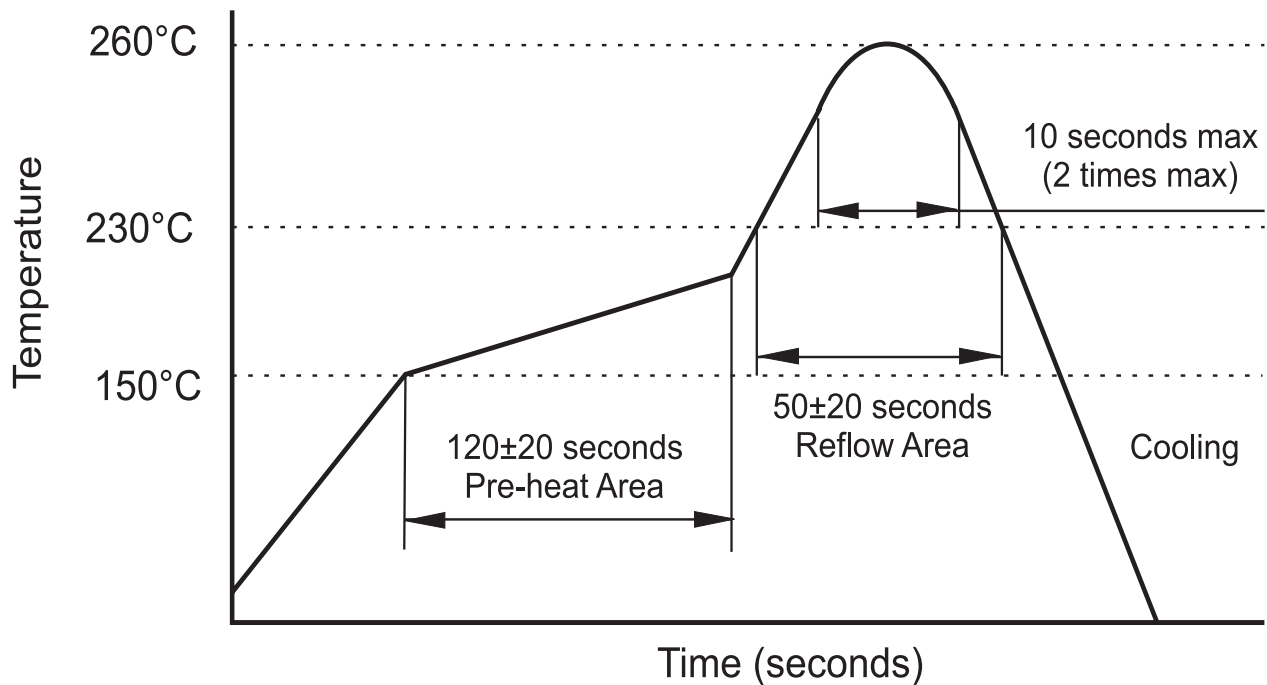
**Package is Seam Sealed Ceramic-Metal.  
 Dimensions are millimeters.**

### Carrier Tape Dimensions:



Dimensions are millimeters.

### Solder Reflow Characteristics:



## How to build a Part Number:

Series	S	Parameter
Package	2	2.5 x 2.0 mm
Supply Voltage	33	+3.3 Vdd $\pm$ 5%
	25	+2.5 Vdd $\pm$ 5%
Temperature Stability	10	$\pm$ 100 PPM
Duty Cycle	See Notes	40/60%
	T	45/55%
	-	
Frequency	2.000 to 50.000	MHz
	-	
Temperature Range	X1	-40 to +125 °C
	-	
Packaging	R	Tape and Reel

## Part Number Example:

**S22510-48.000-X1-R**

**S2: 2.0 x 2.5 mm SMD Package**

**25: +2.5 Vdd Supply Voltage**

**10:  $\pm$ 100 PPM Temperature Stability**

**48.000 MHz Nominal Frequency**

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

**R: Tape and Reel Packaging**

## Notes:

- 1- Standard Duty Cycle does not need to be included in Part Number description.
- 2- Product is shipped in Tape and Reel configuration. Each reel contains 1000 pieces.
- 3- Quantities less than 1000 are shipped bulk in ESD pouches.
- 4- Specification subject to change without notice.