

**RoHS Compliant  
Pb - Lead Free**

Ltr	Revisions	Date	Appr

**Electrical Specifications:**

<b>Frequency Range</b>		<b>7.372 to 133.000</b>	<b>MHz</b>
<b>Mode of Oscillation</b>	<b>Fundamental</b>	<b>7.372 to 52.000</b>	<b>MHZ</b>
	<b>Third Overtone</b>	<b>40.000 to 133.000</b>	
<b>Frequency Tolerance at 25°C</b>	<b>Standard</b>	<b>±30</b>	<b>PPM Max</b>
	<b>Optional</b>	<b>±25</b>	
		<b>±20</b>	
		<b>±15</b>	
		<b>±10</b>	
<b>Frequency Stability over Temperature Range</b>	<b>Standard</b>	<b>±50</b>	<b>PPM Max</b>
	<b>Optional</b>	<b>±30</b>	
		<b>±25</b>	
		<b>±20</b>	
		<b>±15</b>	
<b>Operating Temperature Range</b>	<b>Standard</b>	<b>-10 to +70</b>	<b>° C</b>
	<b>Extended</b>	<b>-40 to +85</b>	
<b>Storage Temperature Range</b>		<b>-55 to +125</b>	
<b>Aging</b>		<b>±3</b>	<b>PPM Max/Year</b>
<b>Load Capacitance</b>		<b>10 to 32 and Series Resonance</b>	<b>pF</b>
<b>Shunt Capacitance</b>		<b>7.0</b>	
<b>Equivalent Series Resistance (ESR)</b>		<b>See ESR Table</b>	<b>Ohms</b>
<b>Drive Level</b>		<b>100</b>	<b>uW Typ</b>
<b>Insulation Resistance</b>		<b>500 at 100 Vdc ± 15 Vdc</b>	<b>M Ohms</b>

**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
7.372 to 7.999	100	Fundamental	40.000 to 51.999	100	3rd Overtone
8.000 to 9.999	70	Fundamental	52.000 to 79.999	80	3rd Overtone
10.000 to 11.999	50	Fundamental	80.000 to 133.000	70	3rd Overtone
12.000 to 19.999	30	Fundamental			
20.000 to 24.999	25	Fundamental			
25.000 to 52.000	20	Fundamental			



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All dimensions are millimeters.

CAD: TCR

Review: EG

Appr: JL

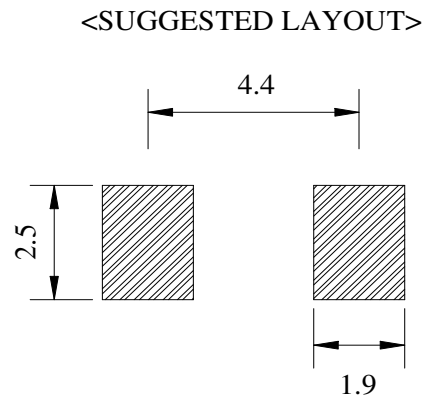
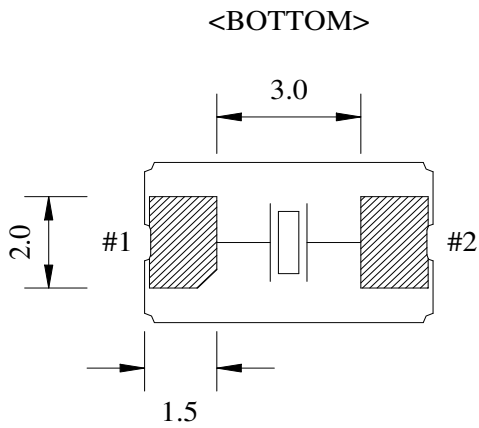
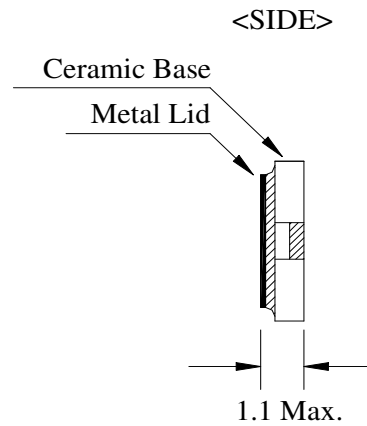
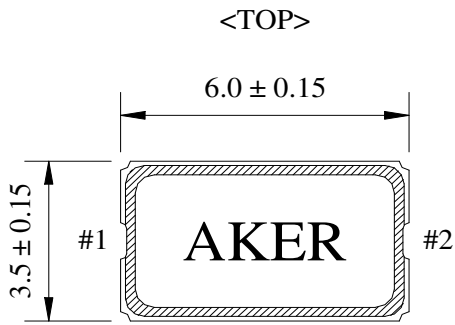
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Specification Title:

**Microprocessor Crystal Unit  
Low Profile  
6.0 x 3.5 millimeter Surface Mount - 2 Pad  
General Product Specification**

Part Number: **C6SA Series**

**Mechanical Outline:**



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



**How to build a Part Number:**

Series		C	Parameter
Package		6SA	6.0 x 3.5 mm - 2 Pad
		-	
Frequency		7.372 to 133.000	MHz
		-	
Load Capacitance		10	10 pF
		12	12pF
		16	16 pF
		18	18 pF
		20	20 pF
		32	32 pF
		S	Series
		-	
Frequency Tolerance	Standard	30	±30 PPM
	Option	25	±25 PPM
		15	± 15 PPM
		10	±10 PPM
Frequency Stability	Standard	50	±50 PPM
	Option	30	±30 PPM
		25	±25 PPM
		15	±15 PPM
		10	±10 PPM*
		-	
		-	
Mode of Oscillation		See Notes	Fundamental
		3	Third Overtone
		-	
Temperature Range	Standard	See Notes	-10 to +70 °C
	Extended	X	-40 to +85 °C
		-	
Packaging		M	250pcs Reel
		R	1000pcs Reel

**Part Number Example:**

**C6SA-24.576-18-3050-R**

**C6SA: 6.0 x 3.5 mm Seam Seal Crystal Unit - 2 Pad**

**24.576 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- Quantities less than 250pcs are shipped bulk in tape only.
- 4- Specification subject to change without notice