

## REGULATORY COMPLIANCE

 <b>Lead Free</b> COMPLIANT	 <b>EU RoHS</b> 2011/65 + 2015/863 COMPLIANT	 <b>China RoHS</b> COMPLIANT	 <b>REACH</b> <b>SVHC</b> COMPLIANT	 <b>DRC</b> <b>CONFLICT</b> <b>FREE</b>
---	---	---	---	---

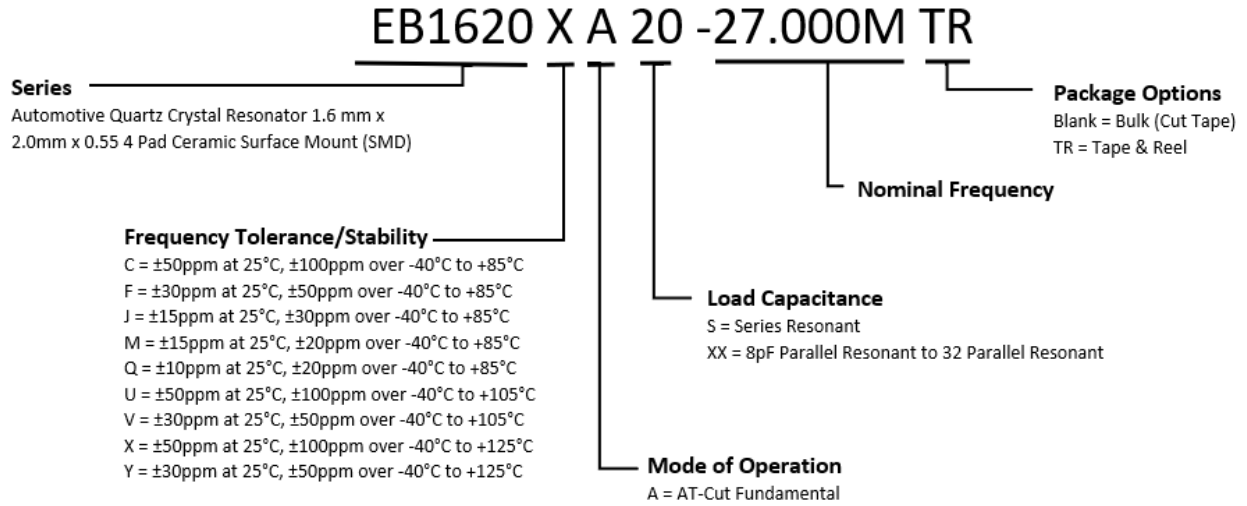
## ITEM DESCRIPTION

Automotive Grade Quartz Crystal Resonator 1.6mm x 2.0mm x 0.55mm 4 Pad Ceramic Surface Mount (SMD)

## ELECTRICAL SPECIFICATIONS

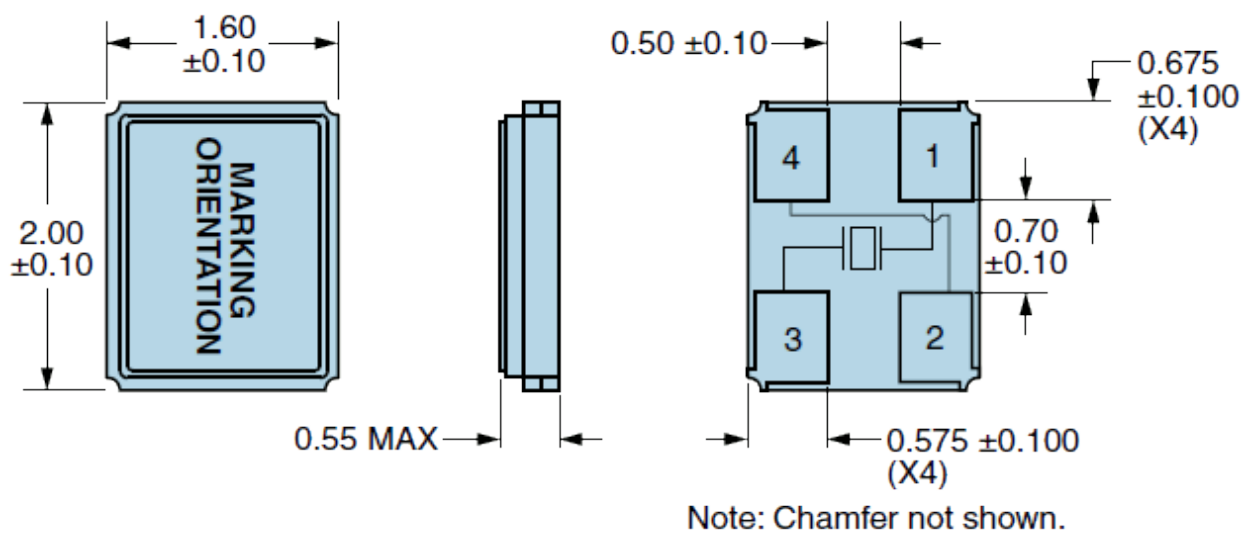
<b>Nominal Frequency</b>	16MHz to 54MHz
<b>Frequency Tolerance/Stability</b>	±50ppm at 25°C, ±100ppm over -40°C to +85°C ±30ppm at 25°C, ±50ppm over -40°C to +85°C ±15ppm at 25°C, ±30ppm over -40°C to +85°C ±15ppm at 25°C, ±20ppm over -40°C to +85°C ±10ppm at 25°C, ±20ppm over -40°C to +85°C ±50ppm at 25°C, ±100ppm over -40°C to +105°C ±30ppm at 25°C, ±50ppm over -40°C to +105°C ±50ppm at 25°C, ±100ppm over -40°C to +125°C ±30ppm at 25°C, ±50ppm over -40°C to +125°C
<b>Aging at 25°C</b>	±3ppm/year Maximum
<b>Load Capacitance</b>	Series Resonant, 8pF Parallel Resonant to 32pF Parallel Resonant
<b>Shunt Capacitance</b>	3pF Maximum
<b>Equivalent Series Resistance</b>	200 Ohms Maximum over Nominal Frequency of 16MHz to 19.999999MHz 120 Ohms Maximum over Nominal Frequency of 20MHz to 24.999999MHz 100 Ohms Maximum over Nominal Frequency of 25MHz to 39.999999MHz 60 Ohms Maximum over Nominal Frequency of 40MHz to 54MHz
<b>Mode of Operation</b>	AT-Cut Fundamental
<b>Drive Level</b>	100µWatts Maximum
<b>Spurious Response</b>	Measured from Fo to Fo +5000ppm -3dB Minimum
<b>Storage Temperature Range</b>	-50°C to +150°C
<b>Insulation Resistance</b>	Measured at 100Vdc 500 Megaohms Minimum

## PART NUMBERING GUIDE



# EB1620 Series

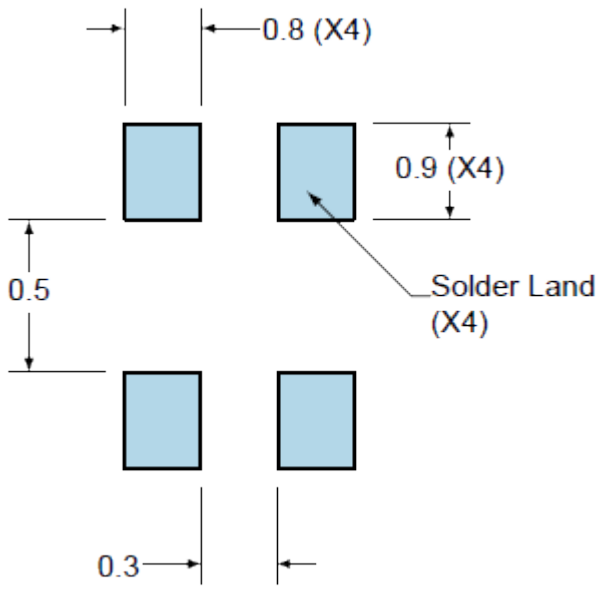
## MECHANICAL DIMENSIONS



**Seam Sealed**

**Terminal Plating Thickness:** Gold (0.3 to 1.0µm) over Nickel (1.27 to 8.89µm).

## SUGGESTED SOLDER PAD LAYOUT



PIN	CONNECTION
1	Crystal
2	Cover/Ground
3	Crystal
4	Cover/Ground

All Tolerances are ±0.1

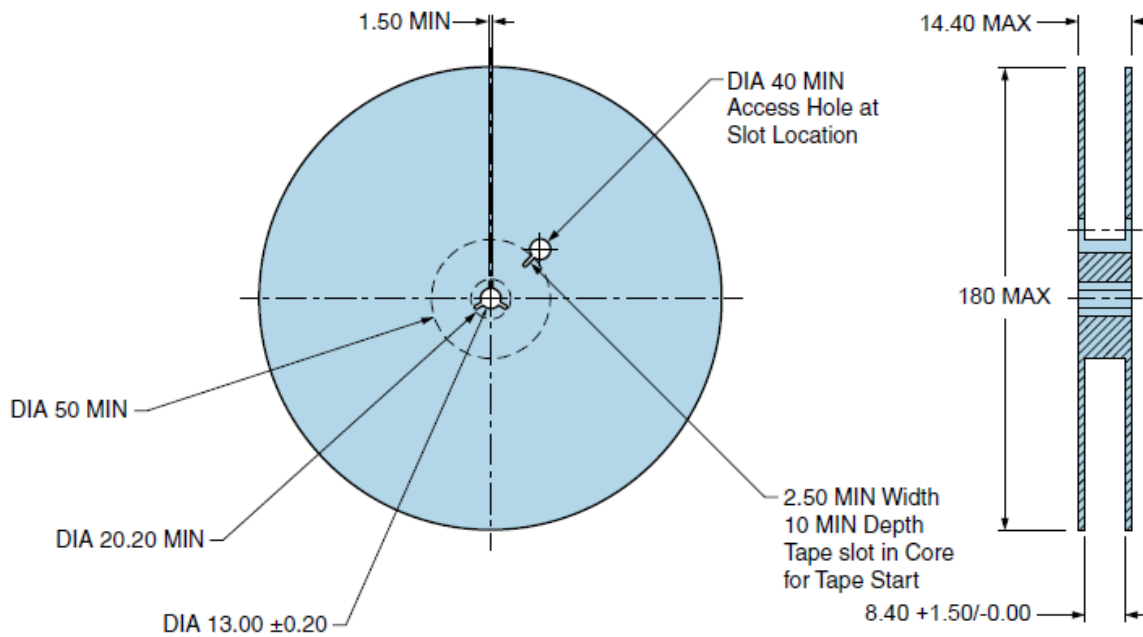
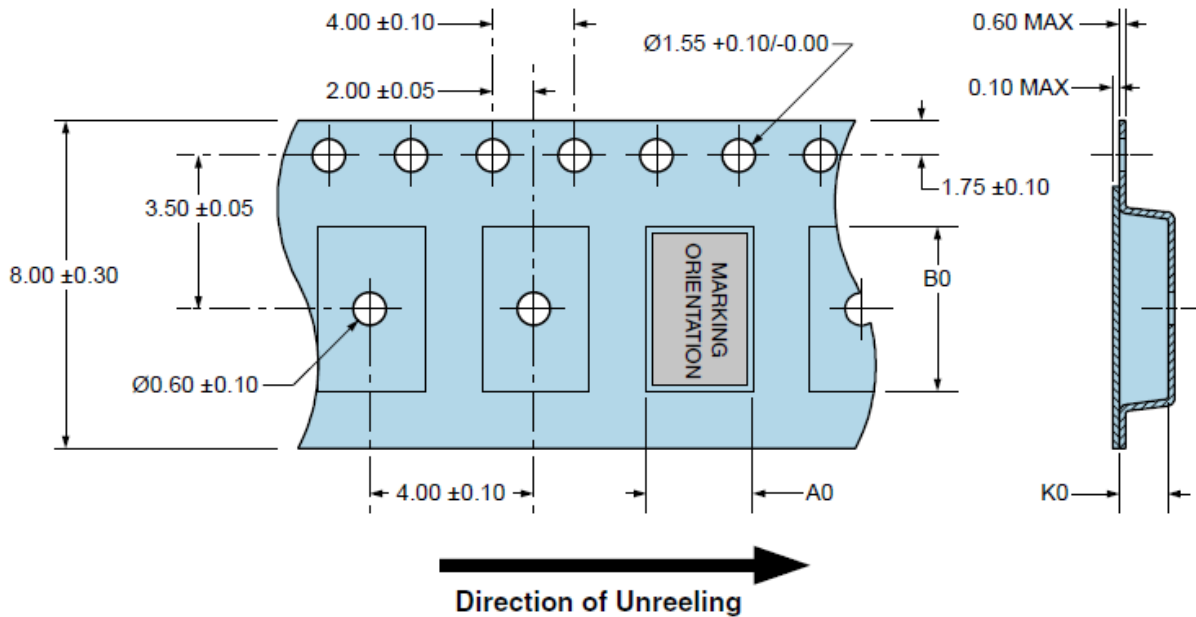
**All Dimensions in Millimeters**

**TAPE & REEL DIMENSIONS**

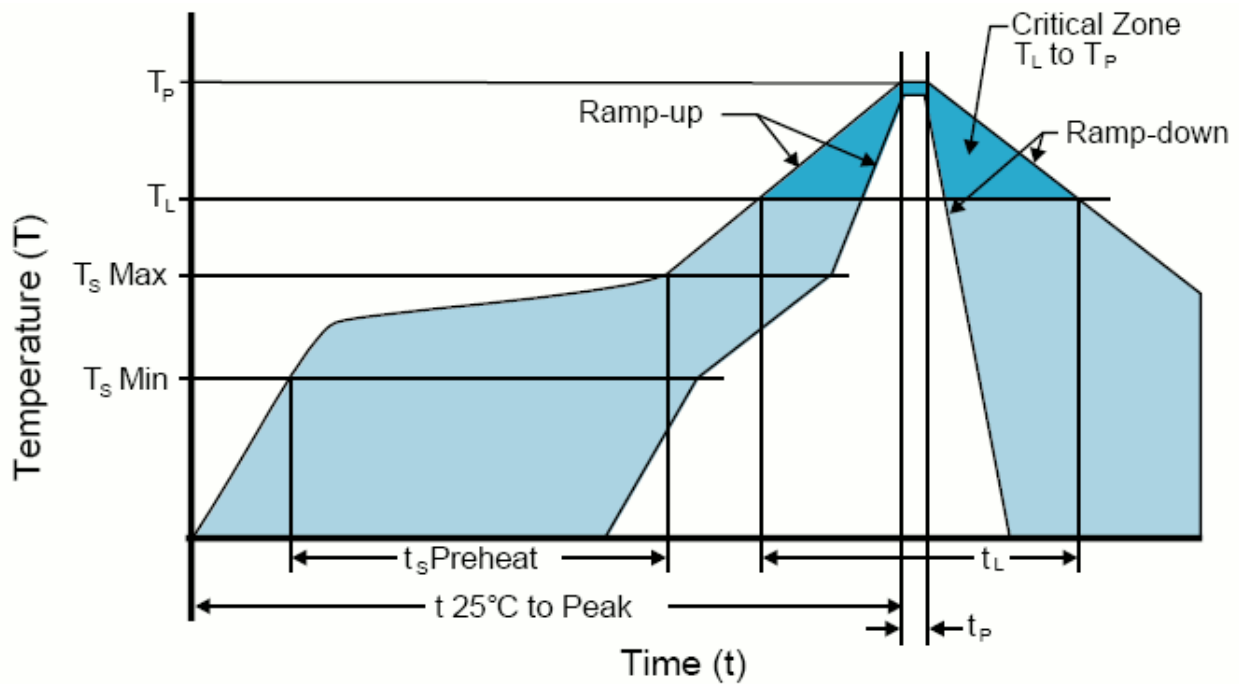
Quantity per Reel: 3,000 Units

All Dimensions in Millimeters

Compliant to EIA-481



RECOMMENDED SOLDER REFLOW METHOD



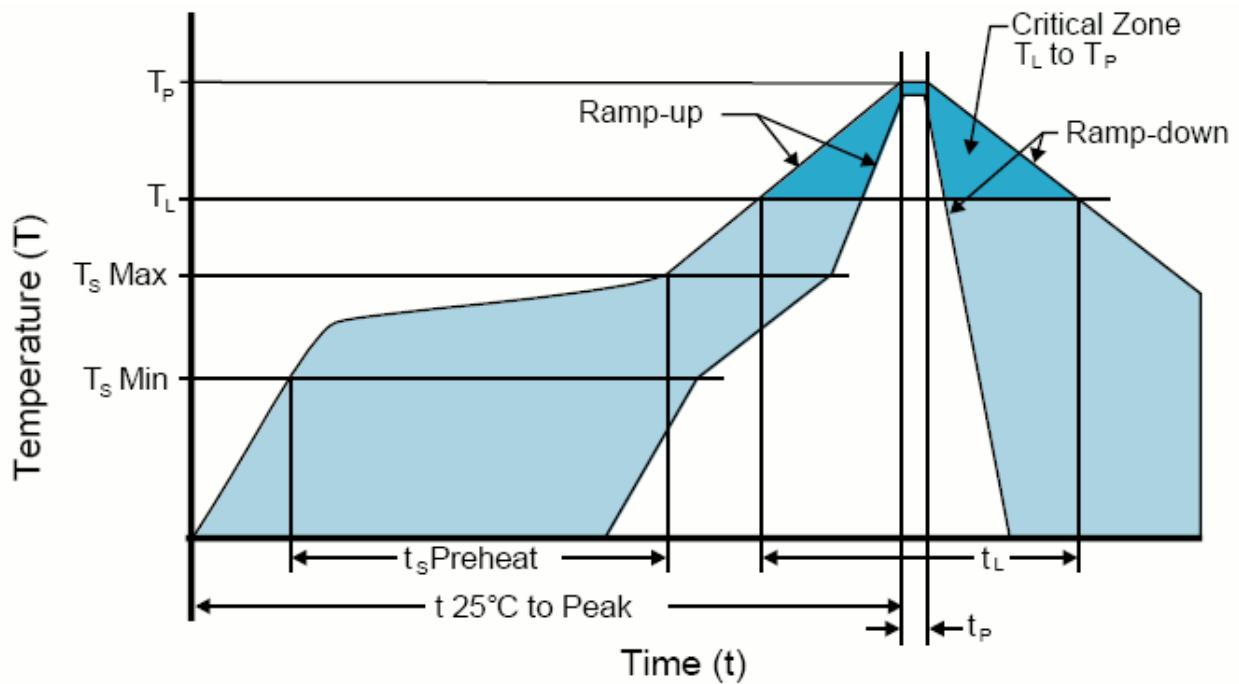
**HIGH TEMPERATURE INFRARED/CONVECTION**

T <sub>S</sub> MAX to T <sub>L</sub> (Ramp-up Rate)	3°C/Second Maximum
<b>Preheat</b>	
- Temperature Minimum (T <sub>S</sub> MIN)	150°C
- Temperature Typical (T <sub>S</sub> TYP)	175°C
- Temperature Maximum(T <sub>S</sub> MAX)	200°C
- Time (t <sub>s</sub> )	60 - 180 Seconds
<b>Ramp-up Rate (T<sub>L</sub> to T<sub>P</sub>)</b>	3°C/Second Maximum
<b>Time Maintained Above:</b>	
- Temperature (T <sub>L</sub> )	217°C
- Time (t <sub>L</sub> )	60 - 150 Seconds
<b>Peak Temperature (T<sub>P</sub>)</b>	260°C Maximum for 10 Seconds Maximum
<b>Target Peak Temperature(T<sub>P</sub> Target)</b>	250°C +0/-5°C
<b>Time within 5°C of actual peak (t<sub>p</sub>)</b>	20 - 40 Seconds
<b>Ramp-down Rate</b>	6°C/Second Maximum
<b>Time 25°C to Peak Temperature (t)</b>	8 Minutes Maximum
<b>Moisture Sensitivity Level</b>	Level 1
<b>Additional Notes</b>	Temperatures shown are applied to body of device.

**High Temperature Manual Soldering**

260°C Maximum for 5 Seconds Maximum, 2 times Maximum. (Temperatures shown are applied to body of device.)

RECOMMENDED SOLDER REFLOW METHOD



LOW TEMPERATURE INFRARED/CONVECTION	
T <sub>s</sub> MAX to T <sub>L</sub> (Ramp-up Rate)	5°C/Second Maximum
<b>Preheat</b>	
- Temperature Minimum (T <sub>s</sub> MIN)	N/A
- Temperature Typical (T <sub>s</sub> TYP)	150°C
- Temperature Maximum(T <sub>s</sub> MAX)	N/A
- Time (t <sub>s</sub> )	30 - 60 Seconds
Ramp-up Rate (T <sub>L</sub> to T <sub>P</sub> )	5°C/Second Maximum
<b>Time Maintained Above:</b>	
- Temperature (T <sub>L</sub> )	150°C
- Time (t <sub>L</sub> )	200 Seconds Maximum
Peak Temperature (T <sub>P</sub> )	245°C Maximum
Target Peak Temperature (T <sub>P</sub> Target)	245°C Maximum 2 Times / 230°C Maximum 1 Time
Time within 5°C of actual peak (t <sub>P</sub> )	10 Seconds Maximum 2 Times / 80 Seconds Maximum 1 Time
Ramp-down Rate	5°C/Second Maximum
Time 25°C to Peak Temperature (t)	N/A
Moisture Sensitivity Level	Level 1
Additional Notes	Temperatures shown are applied to body of device.

Low Temperature Manual Soldering

185°C Maximum for 10 Seconds Maximum, 2 times Maximum. (Temperatures shown are applied to body of device.)