

EB1216YA10-24.000M TR [Click part number to visit Part Number Details page](#)

REGULATORY COMPLIANCE (Data Sheet downloaded on Dec 6, 2018)



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ITEM DESCRIPTION

Automotive Grade Quartz Crystal Resonator 1.2mm x 1.6mm x 0.4mm 4 Pad Ceramic Surface Mount (SMD)
24.000MHz ± 30 ppm at 25°C, ± 50 ppm over -40°C to +125°C 10pF Parallel Resonant



ELECTRICAL SPECIFICATIONS

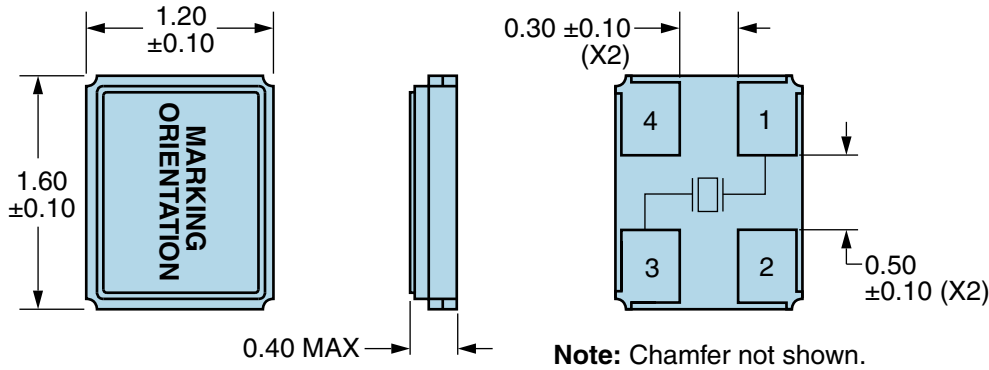
Nominal Frequency	24.000MHz
Frequency Tolerance/Stability	± 30 ppm at 25°C, ± 50 ppm over -40°C to +125°C
Aging at 25°C	± 3 ppm/year Maximum
Load Capacitance	10pF Parallel Resonant
Shunt Capacitance	5pF Maximum
Equivalent Series Resistance	150 Ohms Maximum
Mode of Operation	AT-Cut Fundamental
Drive Level	100 μ Watts Maximum
Spurious Response	-3dB Minimum (Measured from Fo to Fo +5000ppm)
Storage Temperature Range	-50°C to +150°C
Insulation Resistance	500 Megaohms Minimum (Measured at 100Vdc)

ENVIRONMENTAL & MECHANICAL SPECIFICATIONS

ESD Susceptibility	MIL-STD-883, Method 3015, Class 1, HBM: 1500V
Fine Leak Test	MIL-STD-883, Method 1014, Condition A
Flammability	UL94-V0
Gross Leak Test	MIL-STD-883, Method 1014, Condition C
Mechanical Shock	MIL-STD-883, Method 2002, Condition B
Moisture Resistance	MIL-STD-883, Method 1004
Moisture Sensitivity	J-STD-020, MSL 1
Resistance to Soldering Heat	MIL-STD-202, Method 210, Condition K
Resistance to Solvents	MIL-STD-202, Method 215
Solderability	MIL-STD-883, Method 2003
Temperature Cycling	MIL-STD-883, Method 1010, Condition B
Vibration	MIL-STD-883, Method 2007, Condition A

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MECHANICAL DIMENSIONS (all dimensions in millimeters)



PIN	CONNECTION
1	Crystal
2	Cover/Ground
3	Crystal
4	No Connect

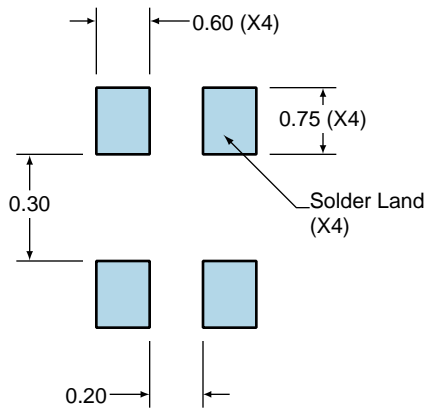
LINE	MARKING
1	24.00
2	XXX XXX=Ecliptek Manufacturing Identifier

Seam Sealed

Terminal Plating Thickness: Gold (0.3 to 1.0 μ m) over Nickel (2.00 to 8.89 μ m).

Suggested Solder Pad Layout

All Dimensions in Millimeters



All Tolerances are ± 0.1

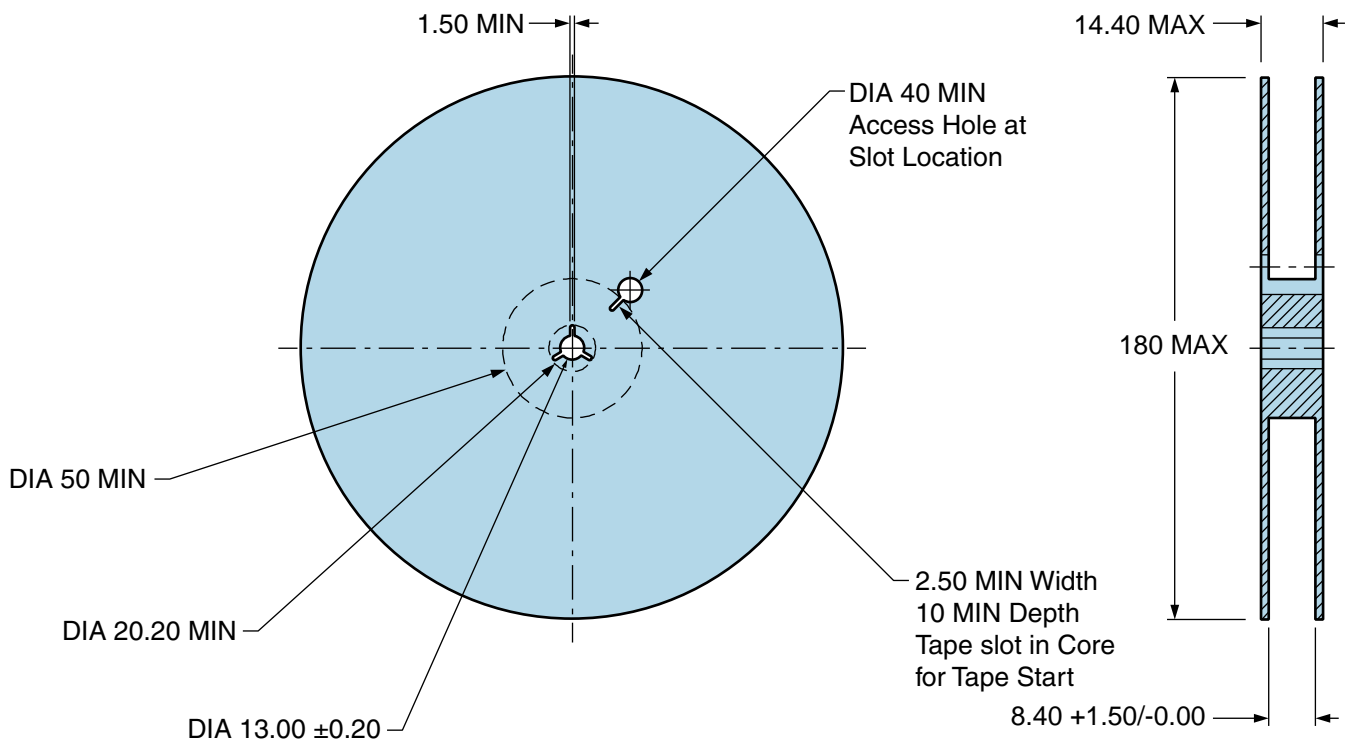
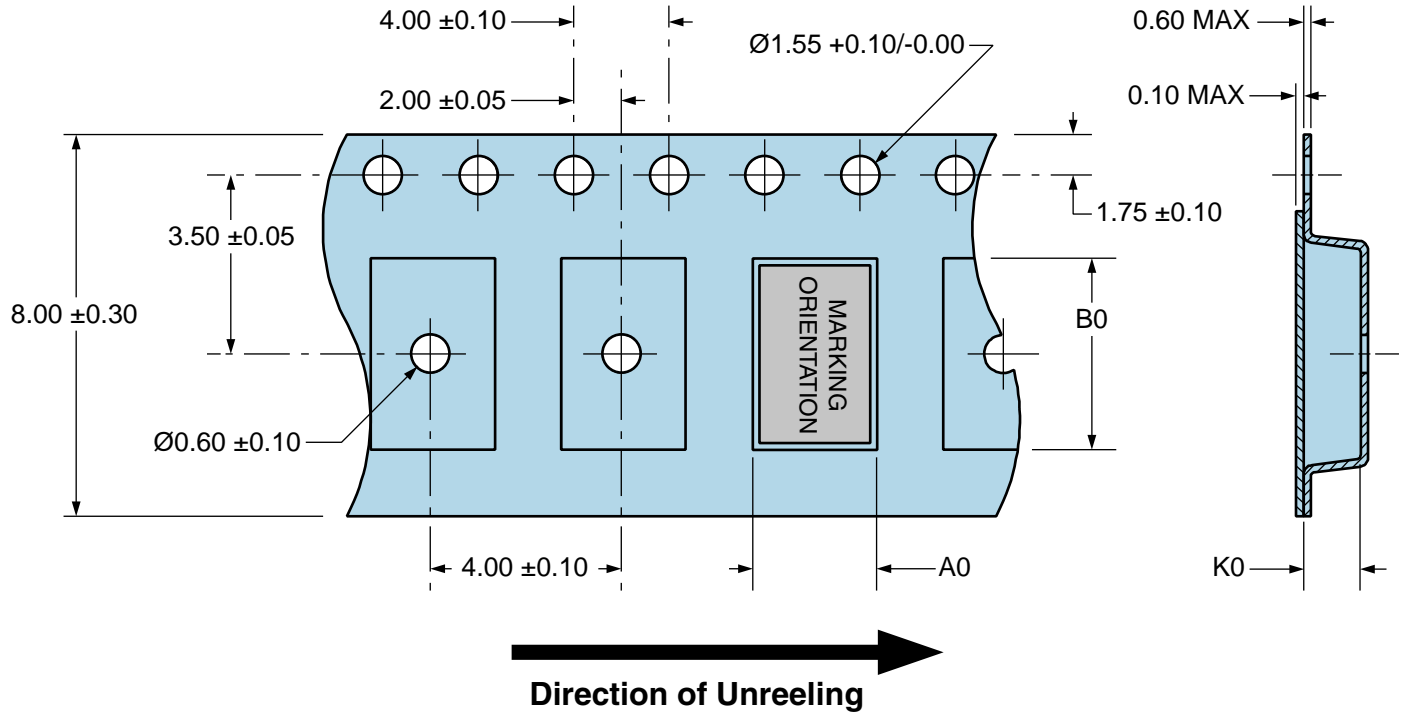
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Tape & Reel Dimensions

Quantity Per Reel: 3,000 units

All Dimensions in Millimeters

Compliant to EIA-481



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Recommended Solder Reflow Methods



High Temperature Infrared/Convection

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

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Recommended Solder Reflow Methods



Low Temperature Infrared/Convection 245°C

T_s MAX to T_L (Ramp-up Rate)	$5^\circ\text{C}/\text{Second}$ Maximum
Preheat	
- Temperature Minimum (T_s MIN)	N/A
- Temperature Typical (T_s TYP)	150°C
- Temperature Maximum (T_s MAX)	N/A
- Time (t_s MIN)	30 - 60 Seconds
Ramp-up Rate (T_L to T_P)	$5^\circ\text{C}/\text{Second}$ Maximum
Time Maintained Above:	
- Temperature (T_L)	150°C
- Time (t_L)	200 Seconds Maximum
Peak Temperature (T_P)	245°C Maximum
Target Peak Temperature (T_P Target)	245°C Maximum 2 Times / 230°C Maximum 1 Time
Time within 5°C of actual peak (t_p)	10 Seconds Maximum 2 Times / 80 Seconds Maximum 1 Time
Ramp-down Rate	$5^\circ\text{C}/\text{Second}$ 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.)

High Temperature Manual Soldering

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

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