

# E1UGAS-24.000M TR



## ITEM DESCRIPTION

Quartz Crystal Resonator HC49/US Short Thru-Hole 2.5mm Height Metal Resistance Weld Seal 24.000MHz  $\pm 15$ ppm at 25°C,  $\pm 30$ ppm over 0°C to +70°C Series Resonant

## ELECTRICAL SPECIFICATIONS

Nominal Frequency	24.000MHz
Frequency Tolerance/Stability	$\pm 15$ ppm at 25°C, $\pm 30$ ppm over 0°C to +70°C
Aging at 25°C	$\pm 5$ ppm/year Maximum
Load Capacitance	Series Resonant
Shunt Capacitance	7pF Maximum
Equivalent Series Resistance	40 Ohms Maximum
Mode of Operation	AT-Cut Fundamental
Drive Level	1mWatt Maximum
Storage Temperature Range	-40°C to +125°C
Insulation Resistance	500 Megaohms Minimum (Measured at 100Vdc)

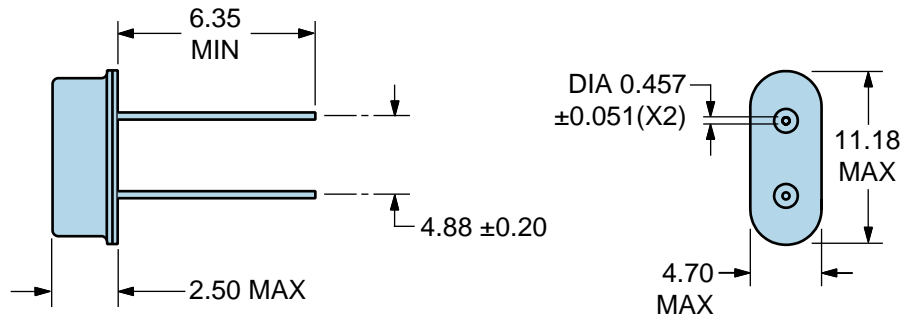
## ENVIRONMENTAL & MECHANICAL SPECIFICATIONS

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
Lead Integrity	MIL-STD-883, Method 2004
Mechanical Shock	MIL-STD-202, Method 213, Condition C
Moisture Resistance	MIL-STD-883, Method 1004
Moisture Sensitivity	J-STD-020, MSL1
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)

LINE	MARKING
1	<b>E24.000M</b> <i>E=Ecliptek Designator</i>



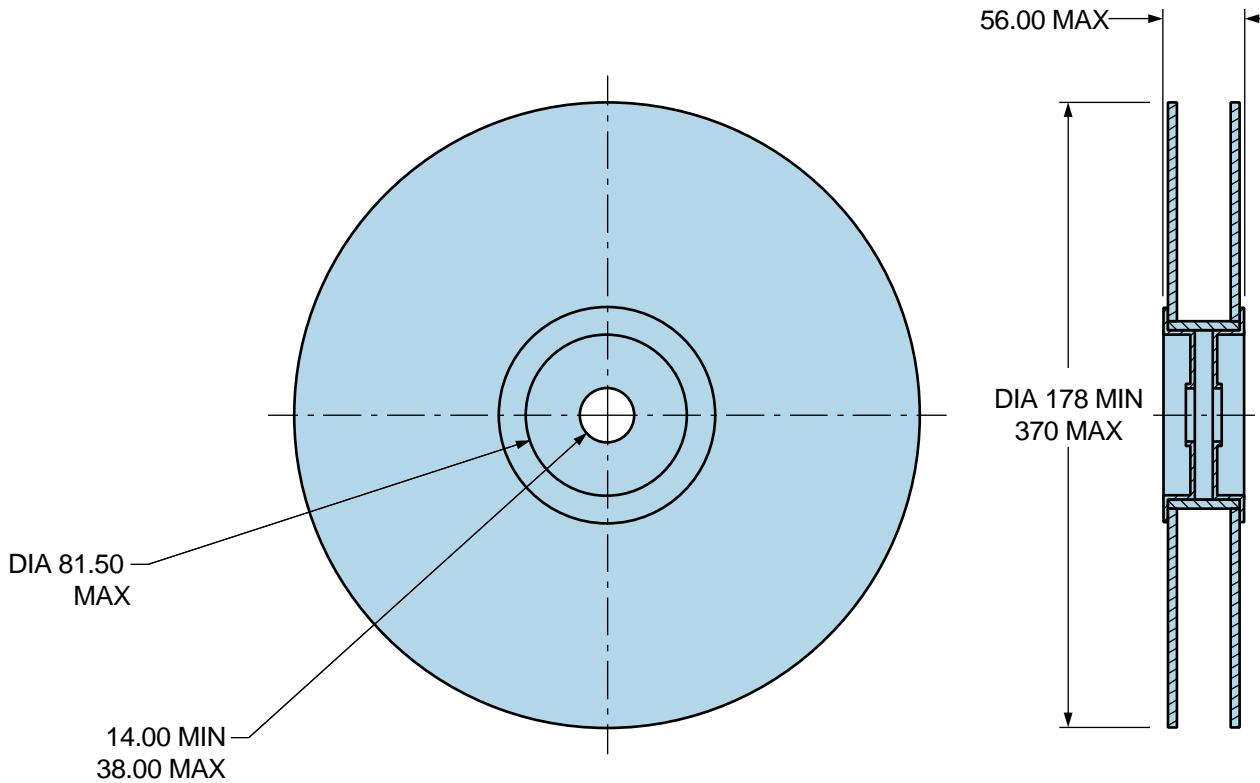
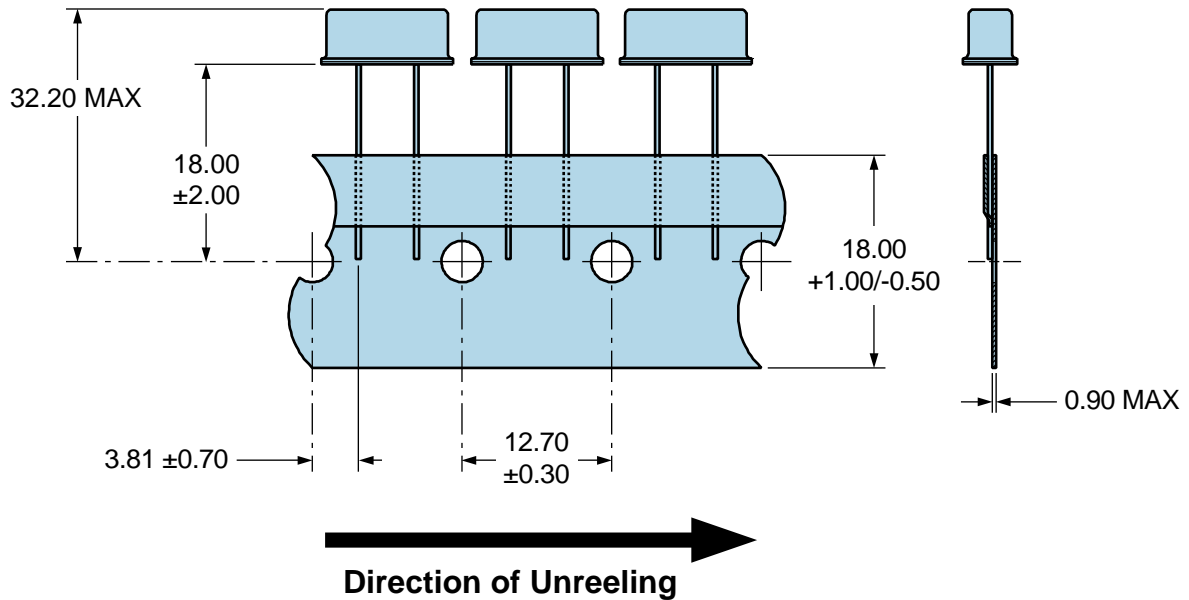
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## Tape & Reel Dimensions

Quantity Per Reel: 1,000 units

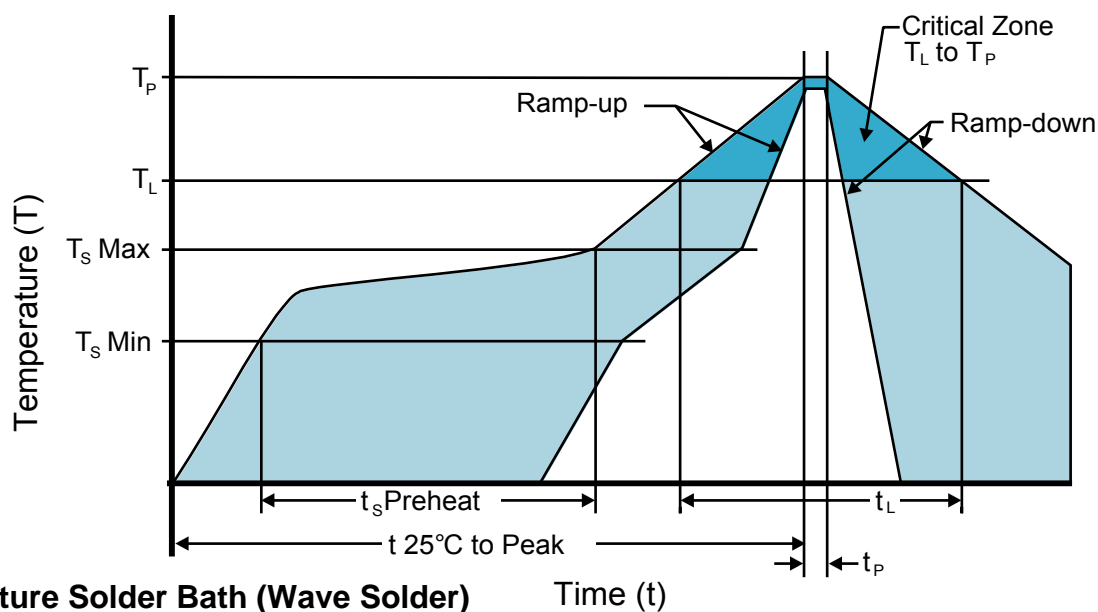
All Dimensions in Millimeters

Compliant to EIA-468



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## Recommended Solder Reflow Methods

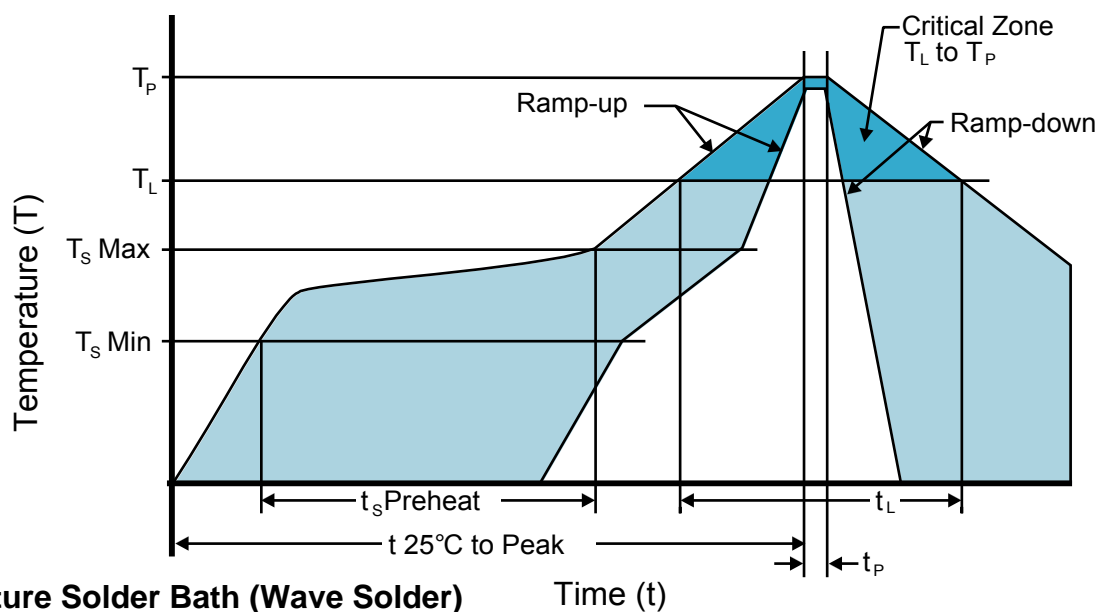


### High Temperature Solder Bath (Wave Solder) Time (t)

<b>Ts MAX to Tl (Ramp-up Rate)</b>	3°C/Second Maximum
<b>Preheat</b>	
- Temperature Minimum (Ts MIN)	150°C
- Temperature Typical (Ts TYP)	175°C
- Temperature Maximum (Ts MAX)	200°C
- Time (ts MIN)	60 - 180 Seconds
<b>Ramp-up Rate (Tl to Tp)</b>	3°C/Second Maximum
<b>Time Maintained Above:</b>	
- Temperature (Tl)	217°C
- Time (tL)	60 - 150 Seconds
<b>Peak Temperature (Tp)</b>	260°C Maximum for 10 Seconds Maximum
<b>Target Peak Temperature (Tp Target)</b>	250°C +0/-5°C
<b>Time within 5°C of actual peak (tp)</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 back of PCB board and device leads only.

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## Recommended Solder Reflow Methods



### Low Temperature Solder Bath (Wave Solder) Time (t)

**Ts MAX to Tl (Ramp-up Rate)** 5°C/Second Maximum

#### Preheat

- Temperature Minimum (Ts MIN) N/A  
 - Temperature Typical (Ts TYP) 150°C  
 - Temperature Maximum (Ts MAX) N/A  
 - Time (ts MIN) 30 - 60 Seconds

**Ramp-up Rate (Tl to Tp)** 5°C/Second Maximum

#### Time Maintained Above:

- Temperature (Tl) 150°C  
 - Time (tL) 200 Seconds Maximum

**Peak Temperature (Tp)** 245°C Maximum

**Target Peak Temperature (Tp Target)** 245°C Maximum 1 Time / 235°C Maximum 2 Times

**Time within 5°C of actual peak (tp)** 5 Seconds Maximum 1 Time / 15 Seconds Maximum 2 Times

**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 back of PCB board and device leads only.

### Low Temperature Manual Soldering

185°C Maximum for 10 Seconds Maximum, 2 times Maximum. (Temperatures shown are applied to back of PCB board and device leads only.)

### High Temperature Manual Soldering

260°C Maximum for 5 Seconds Maximum, 2 times Maximum. (Temperatures shown are applied to back of PCB board and device leads only.)