

# E1UHAS-24.000M TR



## ITEM DESCRIPTION

Quartz Crystal Resonator HC49/US Short Thru-Hole 2.5mm Height Metal Resistance Weld Seal 24.000MHz  $\pm 15\text{ppm}$  at 25°C,  $\pm 30\text{ppm}$  over -20°C to +70°C Series Resonant

## ELECTRICAL SPECIFICATIONS

|                               |                                                                    |
|-------------------------------|--------------------------------------------------------------------|
| Nominal Frequency             | 24.000MHz                                                          |
| Frequency Tolerance/Stability | $\pm 15\text{ppm}$ at 25°C, $\pm 30\text{ppm}$ over -20°C to +70°C |
| Aging at 25°C                 | $\pm 5\text{ppm/year}$ 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         |

**E1UHAS-24.000M TR** **MECHANICAL DIMENSIONS (all dimensions in millimeters)**

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



# E1UHAS-24.000M TR

## Tape & Reel Dimensions

Quantity Per Reel: 1,000 units

All Dimensions in Millimeters

Compliant to EIA-468



# E1UHAS-24.000M TR

## 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. |

# E1UHAS-24.000M TR

## Recommended Solder Reflow Methods



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

|                                            |                                                                            |
|--------------------------------------------|----------------------------------------------------------------------------|
| <b>Ts MAX to Tl (Ramp-up Rate)</b>         | 5°C/Second Maximum                                                         |
| <b>Preheat</b>                             |                                                                            |
| - Temperature Minimum (Ts MIN)             | N/A                                                                        |
| - Temperature Typical (Ts TYP)             | 150°C                                                                      |
| - Temperature Maximum (Ts MAX)             | N/A                                                                        |
| - Time (ts MIN)                            | 30 - 60 Seconds                                                            |
| <b>Ramp-up Rate (Tl to Tp)</b>             | 5°C/Second Maximum                                                         |
| <b>Time Maintained Above:</b>              |                                                                            |
| - Temperature (Tl)                         | 150°C                                                                      |
| - Time (tL)                                | 200 Seconds Maximum                                                        |
| <b>Peak Temperature (Tp)</b>               | 245°C Maximum                                                              |
| <b>Target Peak Temperature (Tp Target)</b> | 245°C Maximum 1 Time / 235°C Maximum 2 Times                               |
| <b>Time within 5°C of actual peak (tp)</b> | 5 Seconds Maximum 1 Time / 15 Seconds Maximum 2 Times                      |
| <b>Ramp-down Rate</b>                      | 5°C/Second Maximum                                                         |
| <b>Time 25°C to Peak Temperature (t)</b>   | N/A                                                                        |
| <b>Moisture Sensitivity Level</b>          | Level 1                                                                    |
| <b>Additional Notes</b>                    | 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.)