

# E1SHB18-33.000M TR



## ITEM DESCRIPTION

Quartz Crystal Resonator HC49/UP Short 2 Pad Surface Mount (SMD) 3.2mm Height Metal Resistance Weld Seal 33.000MHz  $\pm 15\text{ppm}$  at 25°C,  $\pm 30\text{ppm}$  over -20°C to +70°C 18pF Parallel Resonant

## ELECTRICAL SPECIFICATIONS

|                               |                                                                    |
|-------------------------------|--------------------------------------------------------------------|
| Nominal Frequency             | 33.000MHz                                                          |
| 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              | 18pF Parallel Resonant                                             |
| Shunt Capacitance             | 7pF Maximum                                                        |
| Equivalent Series Resistance  | 100 Ohms Maximum                                                   |
| Mode of Operation             | AT-Cut Third Overtone                                              |
| 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         |
| 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         |

3.20 MAX

13.30 MAX

4.85 MAX

4.88 ±0.20

0.50 MIN (x2)

0.80 ±0.30 (x2)

11.60 MAX

NOTE: Coplanarity 0.360 MAX

1-800-ECLIPTEK or 714.433.1200

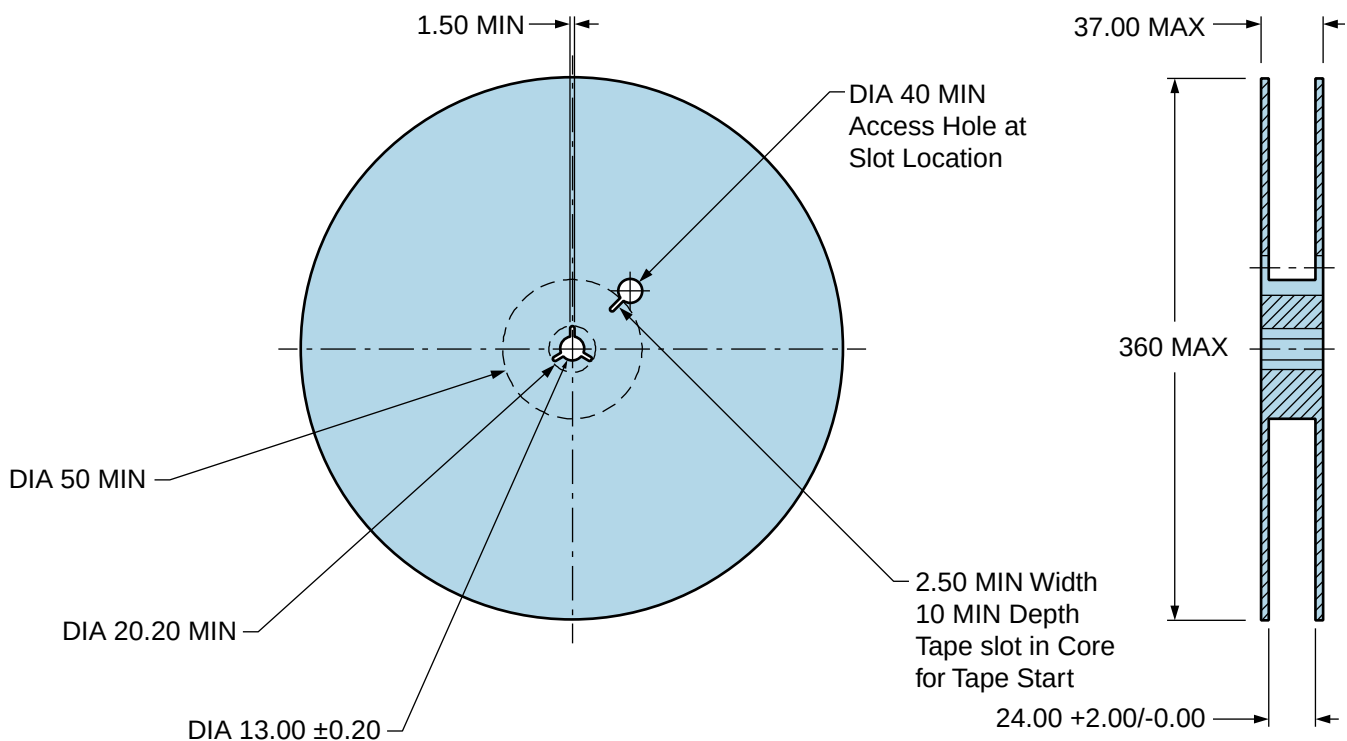
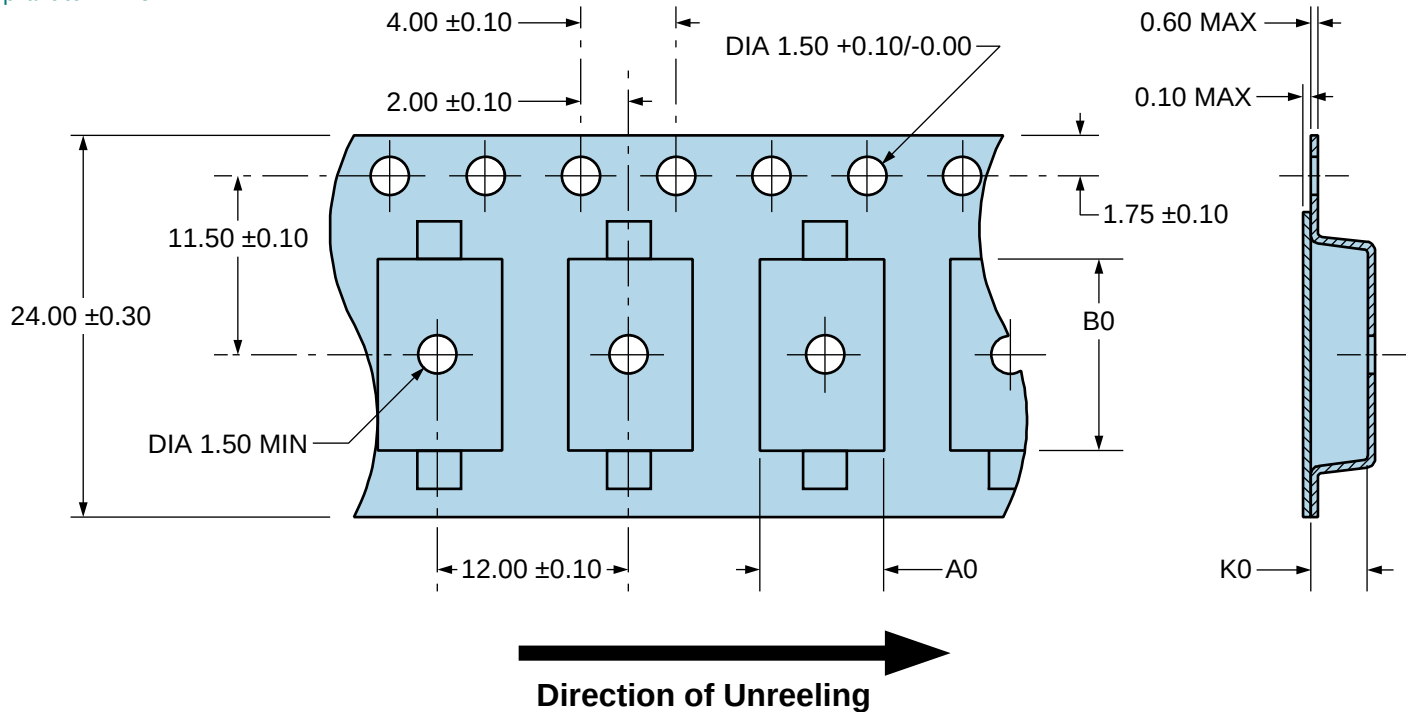
# E1SHB18-33.000M TR

## Tape & Reel Dimensions

Quantity Per Reel: 1,000 units

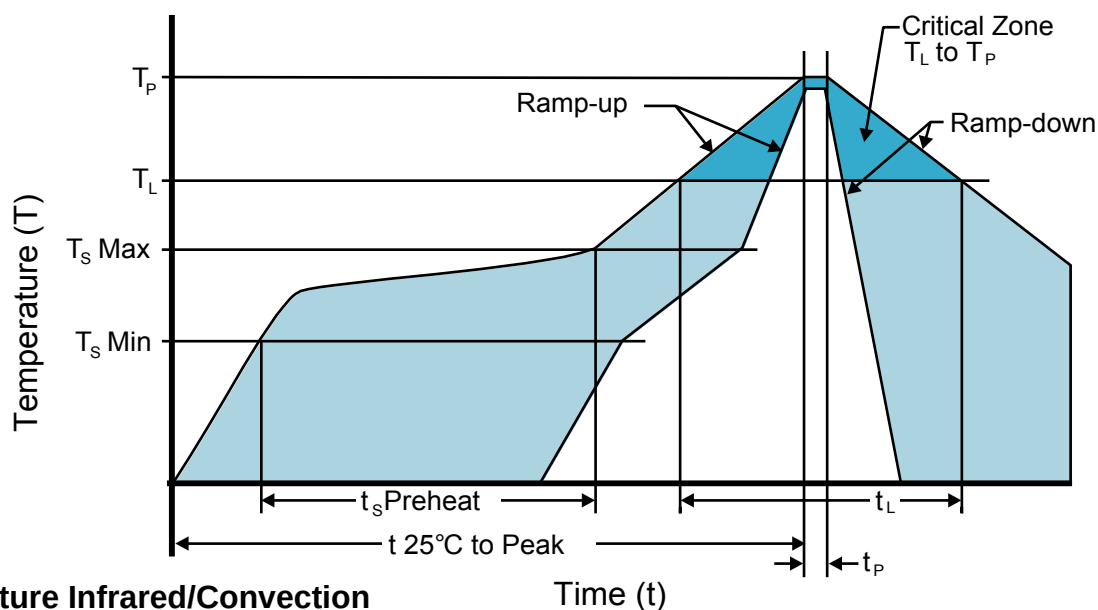
All Dimensions in Millimeters

Compliant to EIA-481



**E1SHB18-33.000M TR**

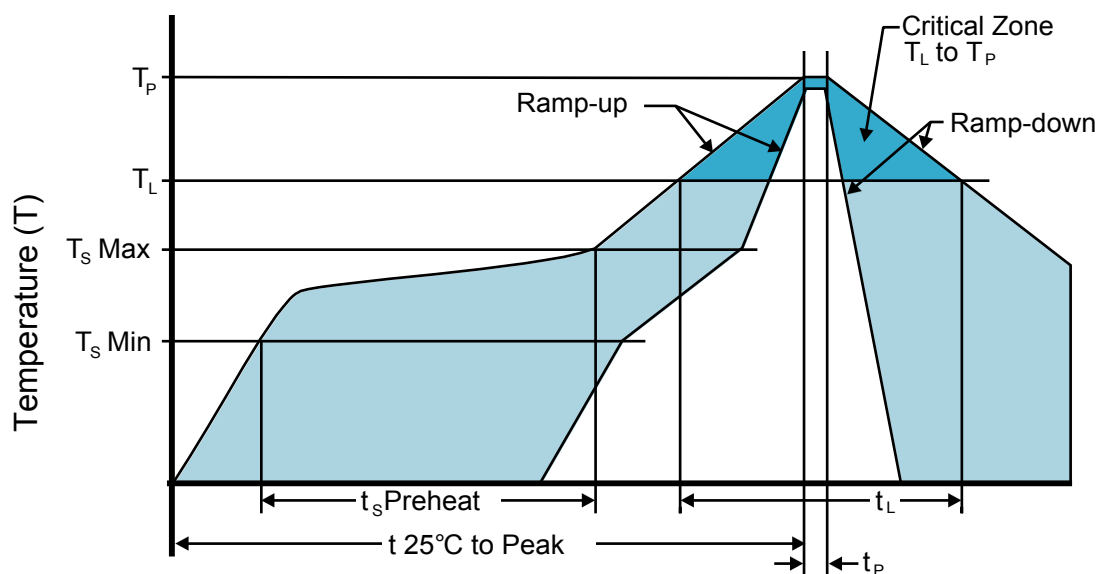
## Recommended Solder Reflow Methods

**High Temperature Infrared/Convection**

|                                            |                                      |
|--------------------------------------------|--------------------------------------|
| <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                              |

# E1SHB18-33.000M TR

## Recommended Solder Reflow Methods



### Low Temperature Infrared/Convection 245°C Time (t)

**$T_s$  MAX to  $T_L$  (Ramp-up Rate)** 5°C/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°C/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°C/Second Maximum

**Time 25°C to Peak Temperature (t)** N/A

**Moisture Sensitivity Level** Level 1

### Low Temperature Manual Soldering

185°C Maximum for 10 Seconds Maximum, 2 times Maximum.

### High Temperature Manual Soldering

260°C Maximum for 5 Seconds Maximum, 2 times Maximum.