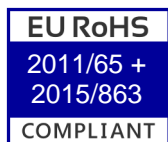


# EA2532EA10-27.000M TR

[Click part number to visit Part Number Details page](#)

## REGULATORY COMPLIANCE (Data Sheet downloaded on Oct 1, 2015)


[Click badges to download compliance docs](#)

Regulatory Compliance standards are subject to updates by governing bodies. Click the badges to download the latest compliance docs for this part number directly from Ecliptek.



## ITEM DESCRIPTION

Quartz Crystal Resonator 2.5mm x 3.2mm x 0.8mm 4 Pad Ceramic Surface Mount (SMD) 27.000MHz  $\pm 30$ ppm at 25°C,  $\pm 50$ ppm over 0°C to +70°C 10pF Parallel Resonant

## ELECTRICAL SPECIFICATIONS

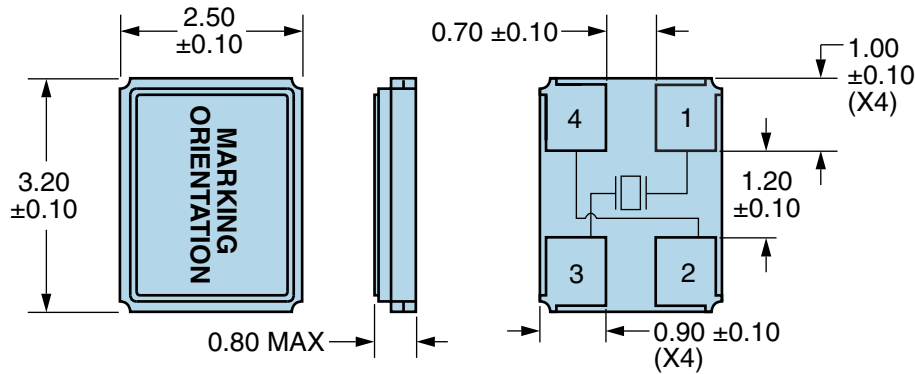
|                               |  |
|-------------------------------|--|
| Nominal Frequency             | 27.000MHz  |
| Frequency Tolerance/Stability | $\pm 30$ ppm at 25°C, $\pm 50$ ppm over 0°C to +70°C |
| Aging at 25°C                 | $\pm 3$ ppm/Year Maximum                             |
| Load Capacitance              | 10pF Parallel Resonant                               |
| Shunt Capacitance (C0)        | 5pF Maximum  |
| Equivalent Series Resistance  | 60 Ohms Maximum                                      |
| Mode of Operation             | AT-Cut Fundamental                                   |
| Drive Level                   | 100 $\mu$ Watts Maximum                              |
| Crystal Cut                   | AT-Cut   |
| Spurious Response             | -3dB Minimum (Measured from Fo to Fo +5000ppm)       |
| Storage Temperature Range     | -40°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)



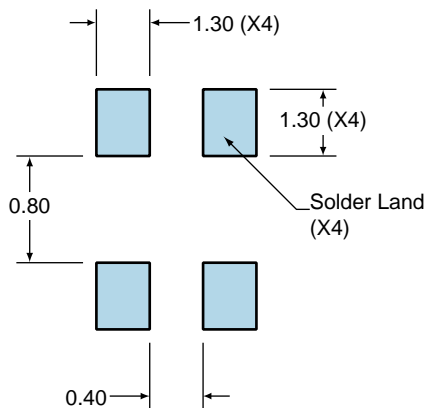
Note: Chamfer not shown.

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

| LINE | MARKING   |
|------|---|
| 1    | <b>E27.0</b><br>E=Ecliptek Designator                   |
| 2    | <b>XXXXX</b><br>XXXXX=Ecliptek Manufacturing Identifier |

## Suggested Solder Pad Layout

All Dimensions in Millimeters



All Tolerances are ±0.1

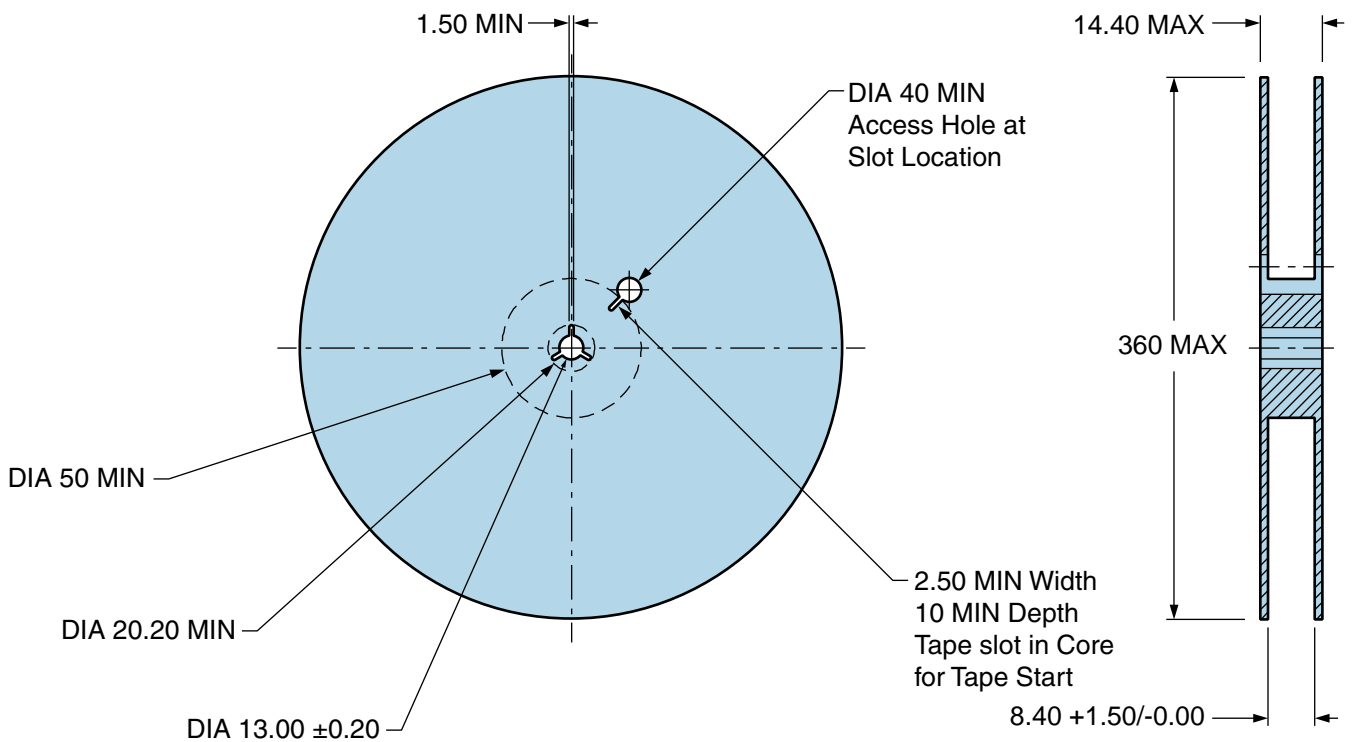
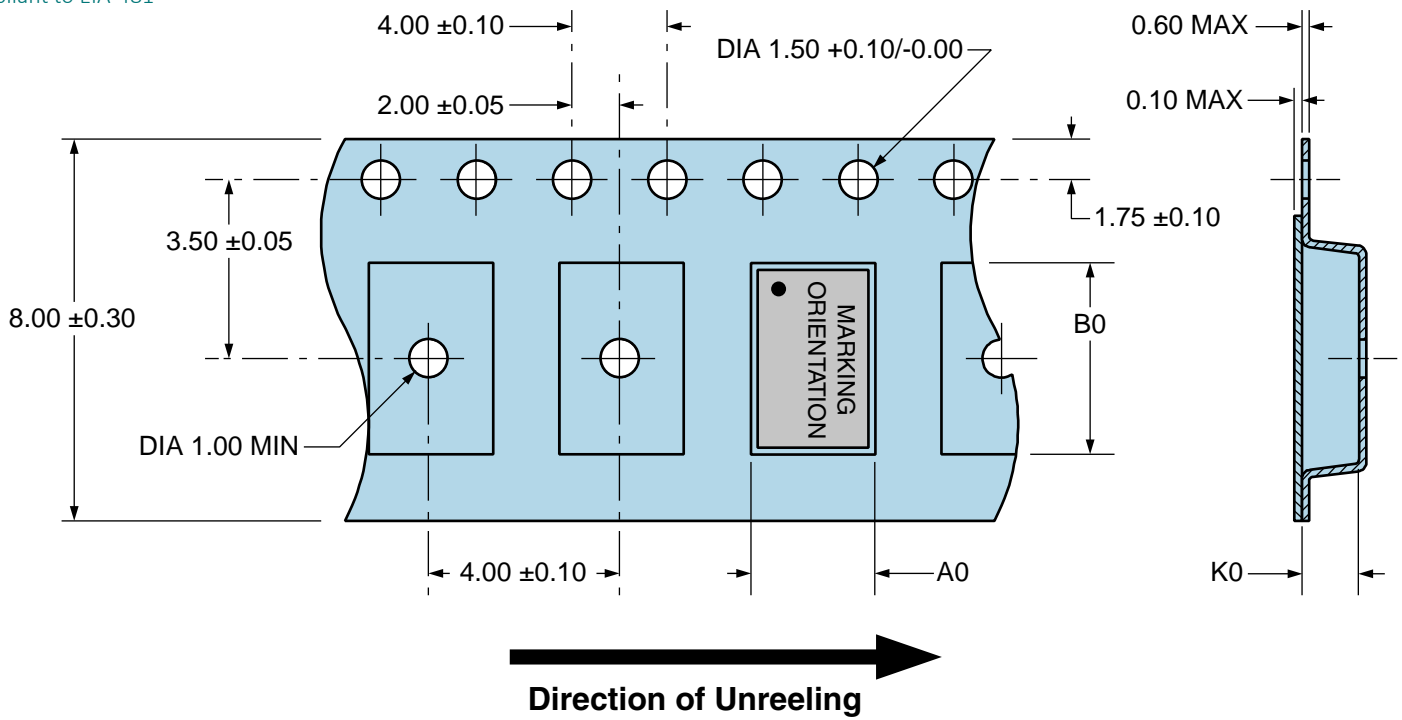
# EA2532EA10-27.000M TR

## Tape & Reel Dimensions

Quantity Per Reel: 1,000 units

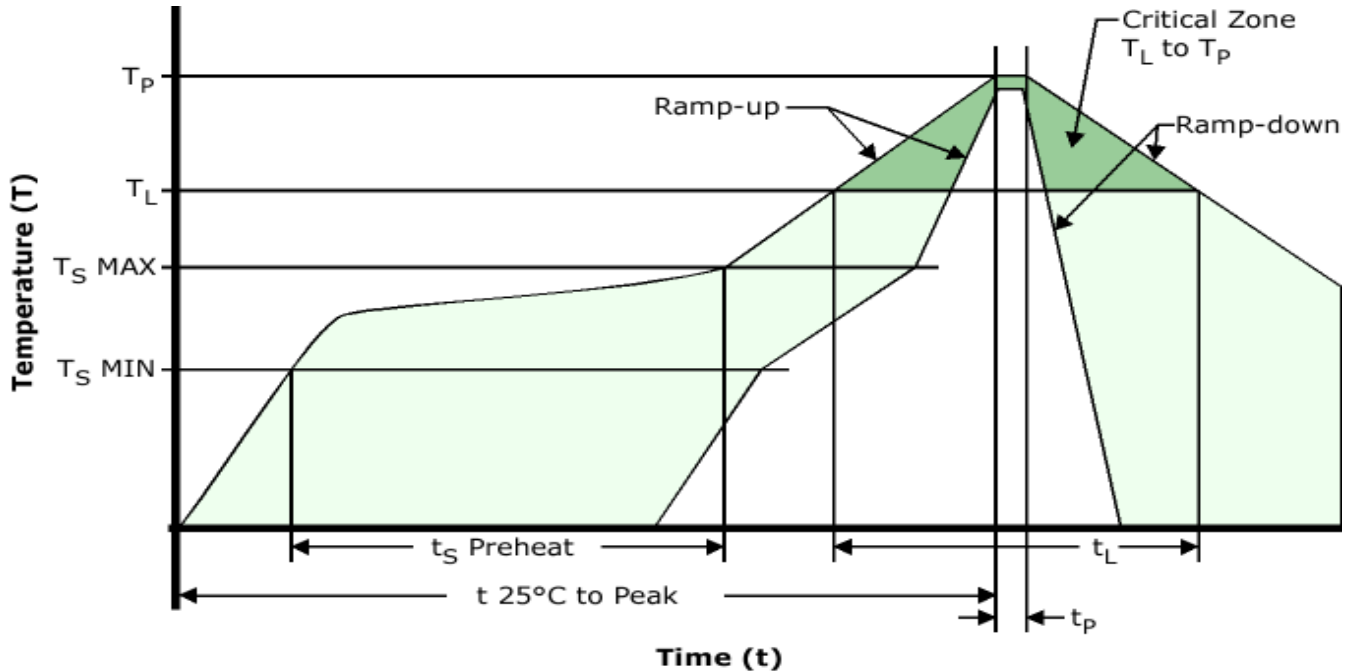
All Dimensions in Millimeters

Compliant to EIA-481



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## Recommended Solder Reflow Methods



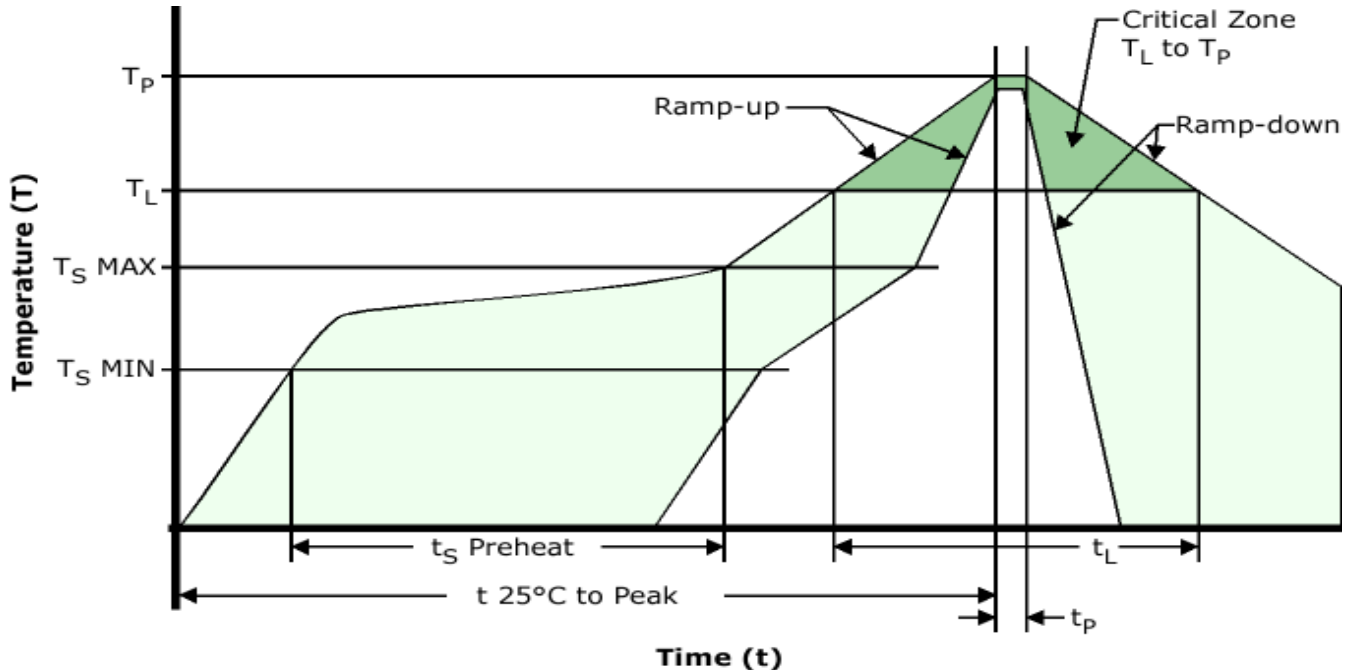
### High Temperature Infrared/Convection

|  |   |
|--|---|
| $T_s$ MAX to $T_L$ (Ramp-up Rate)                          | 3°C/Second Maximum                                |
| <b>Preheat</b>   |   |
| - 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                                  |
| <b>Ramp-up Rate (<math>T_L</math> to <math>T_P</math>)</b> | 3°C/Second Maximum                                |
| <b>Time Maintained Above:</b>                              |   |
| - Temperature ( $T_L$ )                                    | 217°C   |
| - Time ( $t_L$ )   | 60 - 150 Seconds                                  |
| <b>Peak Temperature (<math>T_P</math>)</b>                 | 260°C Maximum for 10 Seconds Maximum              |
| <b>Target Peak Temperature (<math>T_P</math> Target)</b>   | 250°C +0/-5°C                                     |
| <b>Time within 5°C of actual peak (<math>t_p</math>)</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. |

# EA2532EA10-27.000M TR

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## Recommended Solder Reflow Methods



### Low Temperature Infrared/Convection 245°C

$T_s$  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

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.)