

# E1SCA18-18.432M TR

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


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## ITEM DESCRIPTION

Quartz Crystal Resonator HC49/UP Short 2 Pad Surface Mount (SMD) 3.2mm Height Metal Resistance Weld Seal 18.432MHz  $\pm 50$ ppm at 25°C,  $\pm 100$ ppm over -40°C to +85°C 18pF Parallel Resonant

## ELECTRICAL SPECIFICATIONS

|                               |   |
|-------------------------------|---|
| Nominal Frequency             | 18.432MHz   |
| Frequency Tolerance/Stability | $\pm 50$ ppm at 25°C, $\pm 100$ ppm over -40°C to +85°C |
| Aging at 25°C                 | $\pm 5$ ppm/year Maximum                                |
| Load Capacitance              | 18pF Parallel Resonant                                  |
| Shunt Capacitance             | 7pF Maximum   |
| Equivalent Series Resistance  | 50 Ohms Maximum   |
| Mode of Operation             | AT-Cut Fundamental                                      |
| Drive Level                   | 1mWatt Maximum  |
| Storage Temperature Range     | -55°C to +125°C   |
| Insulation Resistance         | 500 Megaohms Minimum (Measured at 100Vdc)               |

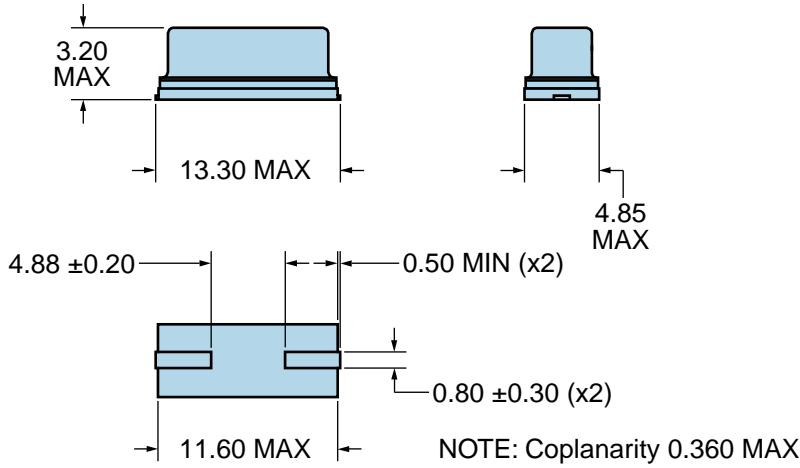
## ENVIRONMENTAL & MECHANICAL SPECIFICATIONS

|                              |   |
|------------------------------|---|
| 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         |

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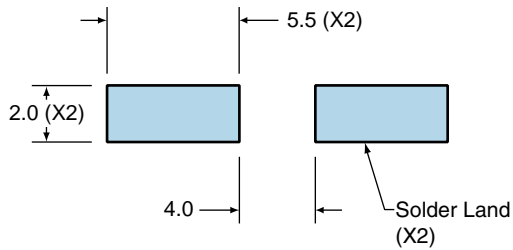
### MECHANICAL DIMENSIONS (all dimensions in millimeters)

| LINE | MARKING                                  |
|------|--|
| 1    | <b>E18.432M</b><br>E=Ecliptek Designator |



### Suggested Solder Pad Layout

All Dimensions in Millimeters



All Tolerances are ±0.1

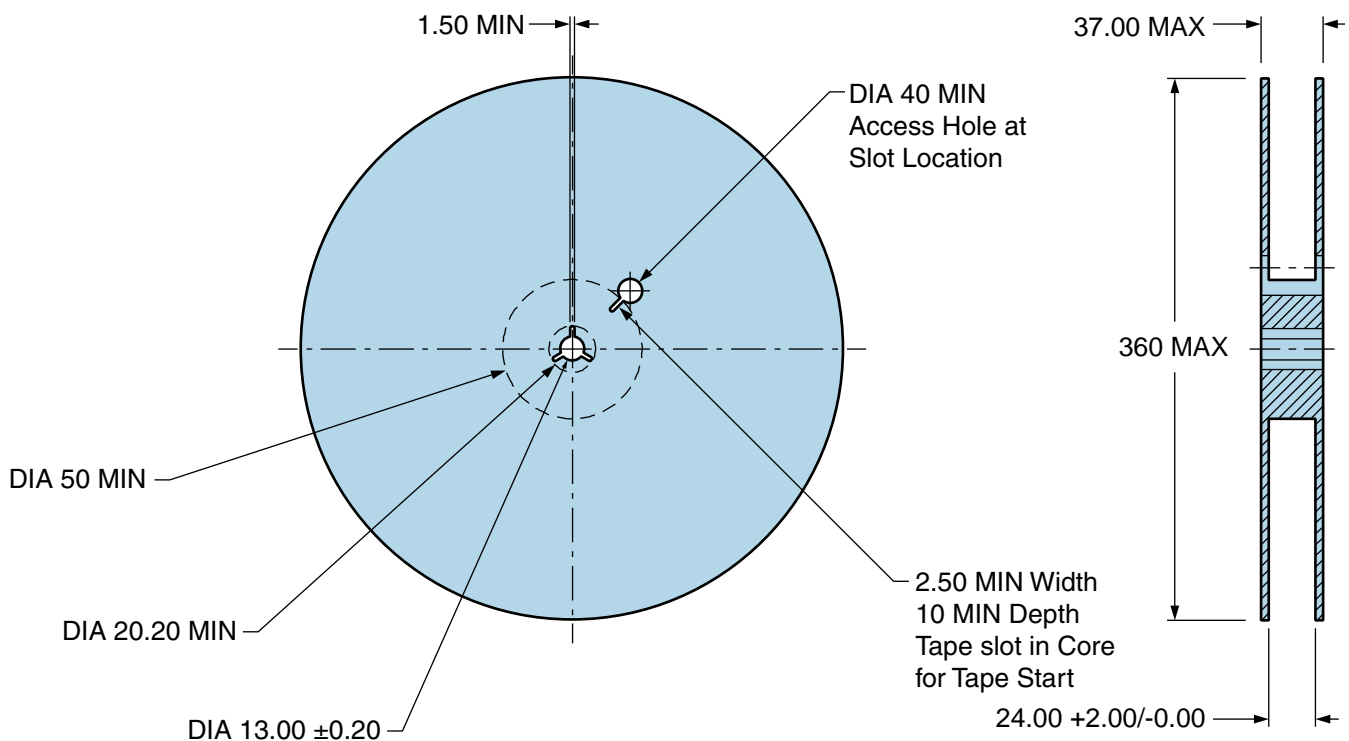
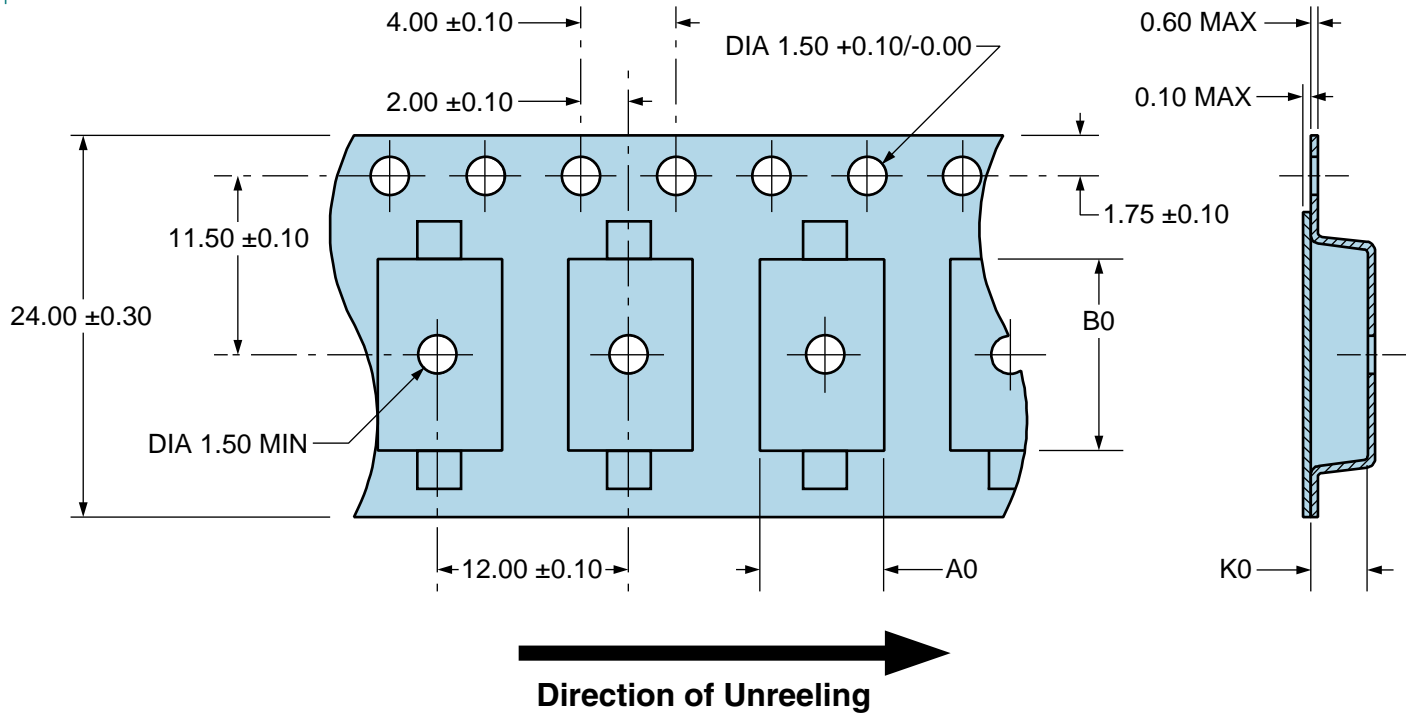
# E1SCA18-18.432M TR

## Tape & Reel Dimensions

Quantity Per Reel: 1,000 units

All Dimensions in Millimeters

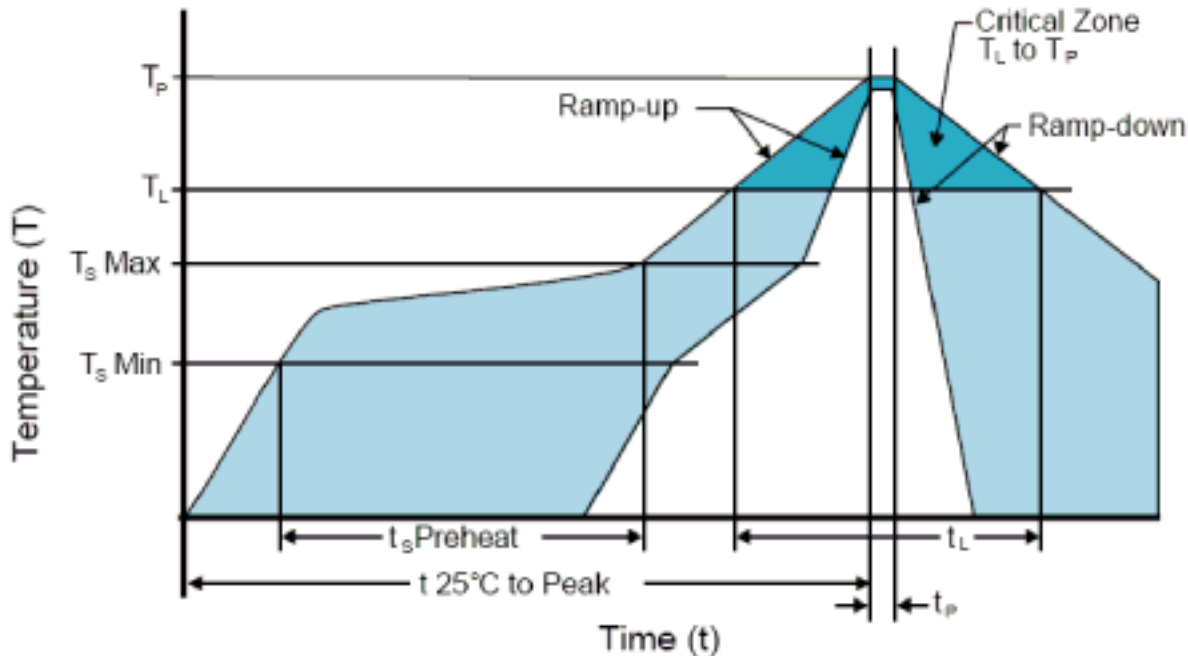
Compliant to EIA-481



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## Recommended Solder Reflow Methods



### High Temperature Infrared/Convection

|  |   |
|--|---|
| <b><math>T_s</math> MAX to <math>T_L</math> (Ramp-up Rate)</b> | 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. |

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## Recommended Solder Reflow Methods



### Low Temperature Infrared/Convection 245°C

|  |  |
|--|--|
| Ts MAX to TL (Ramp-up Rate)                | 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 2 Times / 230°C Maximum 1 Time           |
| <b>Time within 5°C of actual peak (tp)</b> | 10 Seconds Maximum 2 Times / 80 Seconds Maximum 1 Time |
| <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 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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