

# E1SAAS-4.9152M TR



## ITEM DESCRIPTION

Quartz Crystal Resonator HC49/UP Short 2 Pad Surface Mount (SMD) 3.2mm Height Metal Resistance Weld Seal 4.9152MHz  $\pm 50$ ppm at 25°C,  $\pm 100$ ppm over 0°C to +70°C Series Resonant

## ELECTRICAL SPECIFICATIONS

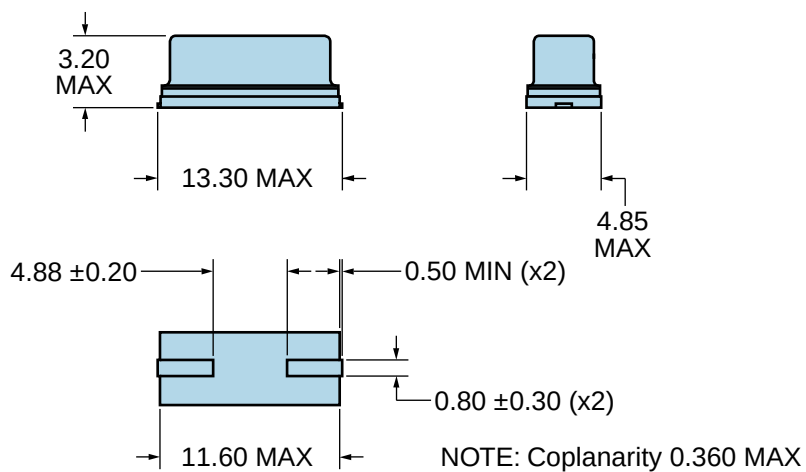
|                               |                                                       |
|-------------------------------|-------------------------------------------------------|
| Nominal Frequency             | 4.9152MHz                                             |
| Frequency Tolerance/Stability | $\pm 50$ ppm at 25°C, $\pm 100$ 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  | 200 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         |
| 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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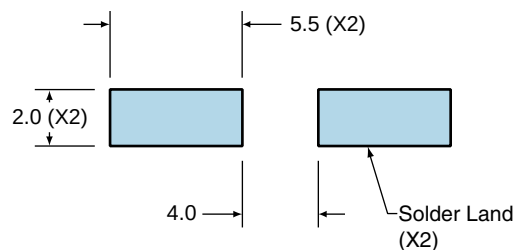
## MECHANICAL DIMENSIONS (all dimensions in millimeters)



| LINE | MARKING                                  |
|------|------------------------------------------|
| 1    | <b>E4.9152M</b><br>E=Ecliptek Designator |

## Suggested Solder Pad Layout

All Dimensions in Millimeters



All Tolerances are ±0.1

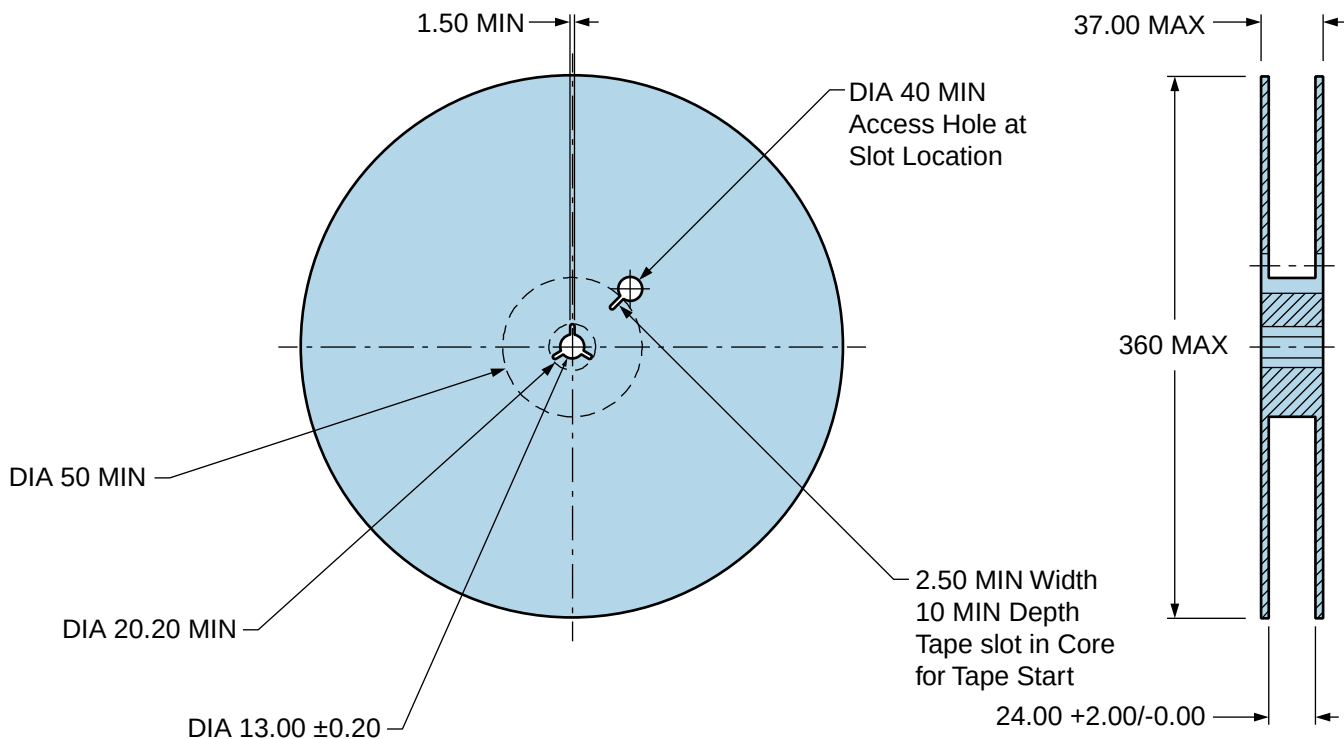
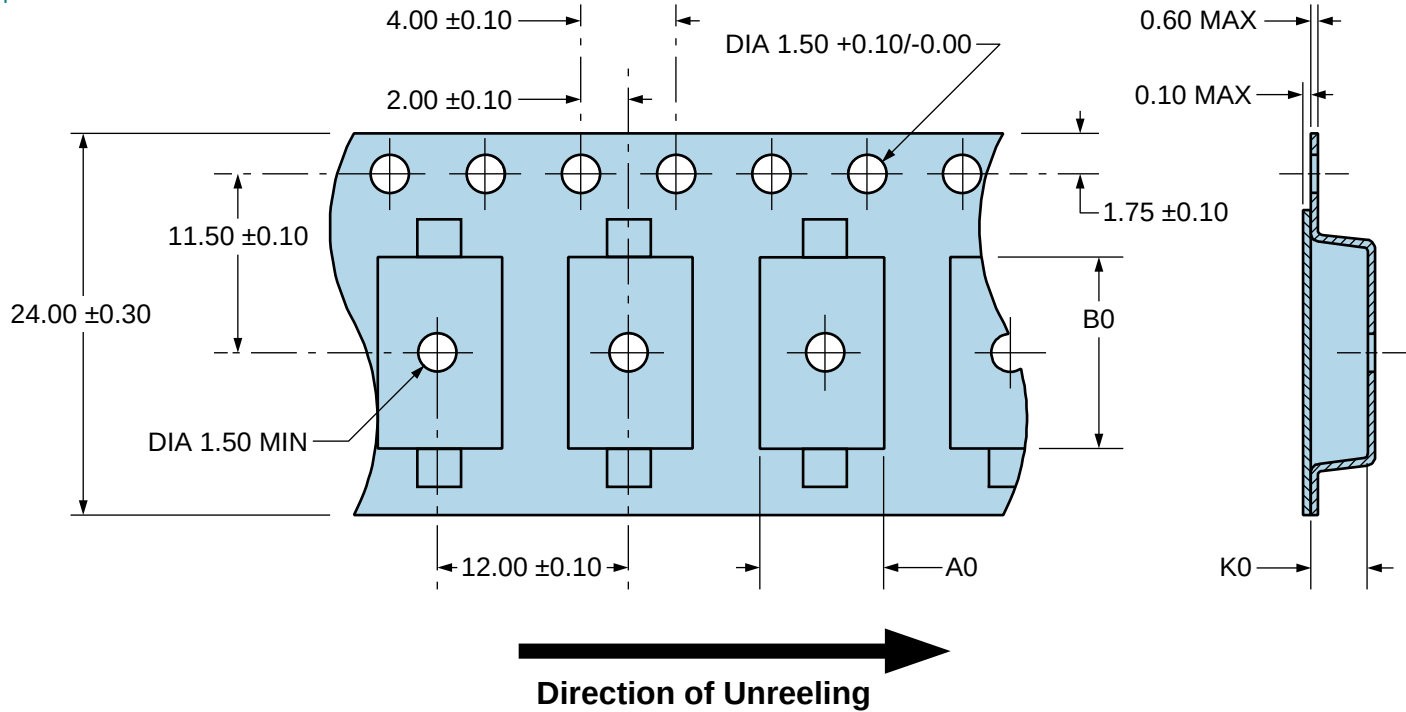
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## Tape & Reel Dimensions

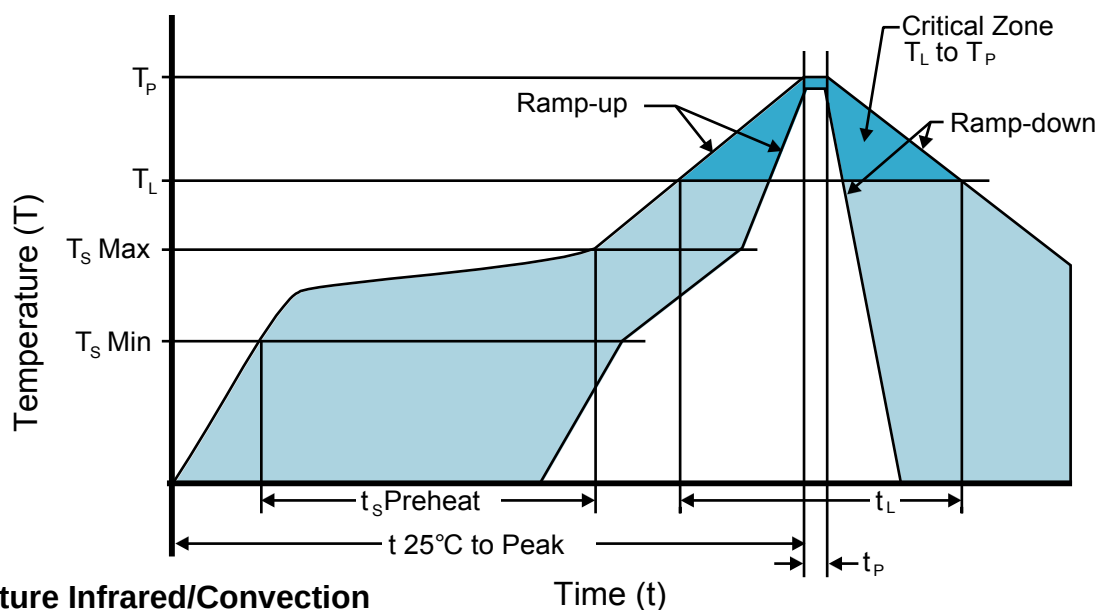
Quantity Per Reel: 1,000 units

All Dimensions in Millimeters

Compliant to EIA-481



## Recommended Solder Reflow Methods



### High Temperature Infrared/Convection

|                                    |                    |
|------------------------------------|--------------------|
| <b>Ts MAX to Tl (Ramp-up Rate)</b> | 3°C/Second Maximum |
|------------------------------------|--------------------|

#### Preheat

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

#### Time Maintained Above:

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

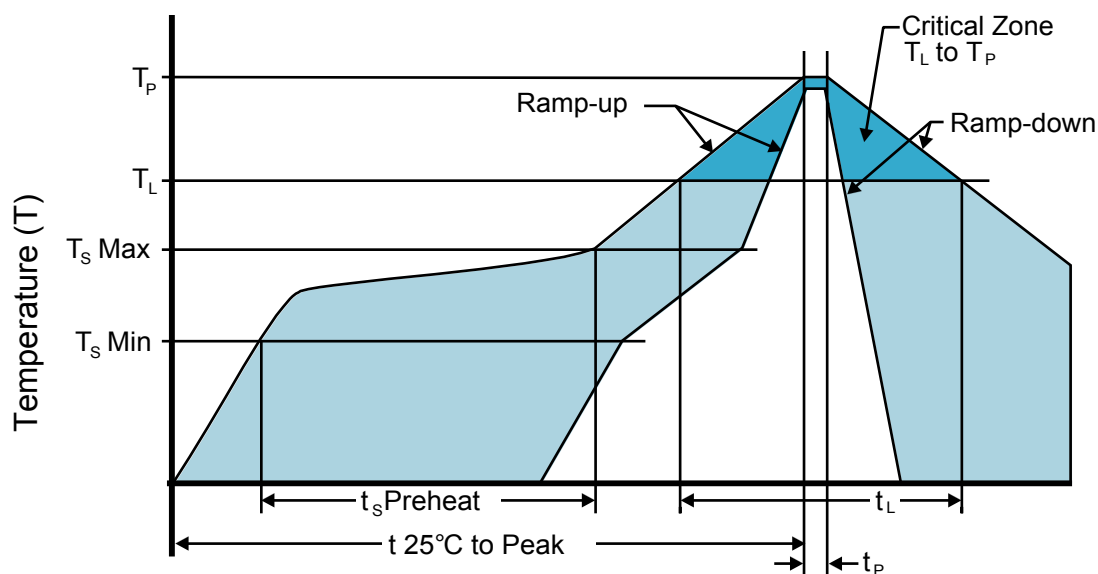
|                       |                    |
|-----------------------|--------------------|
| <b>Ramp-down Rate</b> | 6°C/Second Maximum |
|-----------------------|--------------------|

|                                          |                   |
|------------------------------------------|-------------------|
| <b>Time 25°C to Peak Temperature (t)</b> | 8 Minutes Maximum |
|------------------------------------------|-------------------|

|                                   |         |
|-----------------------------------|---------|
| <b>Moisture Sensitivity Level</b> | Level 1 |
|-----------------------------------|---------|

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## Recommended Solder Reflow Methods



### Low Temperature Infrared/Convection 245°C 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 2 Times / 230°C Maximum 1 Time

**Time within 5°C of actual peak (tp)** 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.