# E1SJA20-25.000M TR

**E1S J A 20 -25.000M TR**

**Series**
RoHS Compliant (Pb-free) Resistance Welded Short HC-49/UP SMD Crystal

**Frequency Tolerance/Stability**
±15ppm at 25°C, ±30ppm over -40°C to +85°C

**Mode of Operation**
AT-Cut Fundamental

**Load Capacitance**
20pF Parallel Resonant

**Nominal Frequency**
25.000MHz

**Packaging Options**
Tape & Reel

## ELECTRICAL SPECIFICATIONS

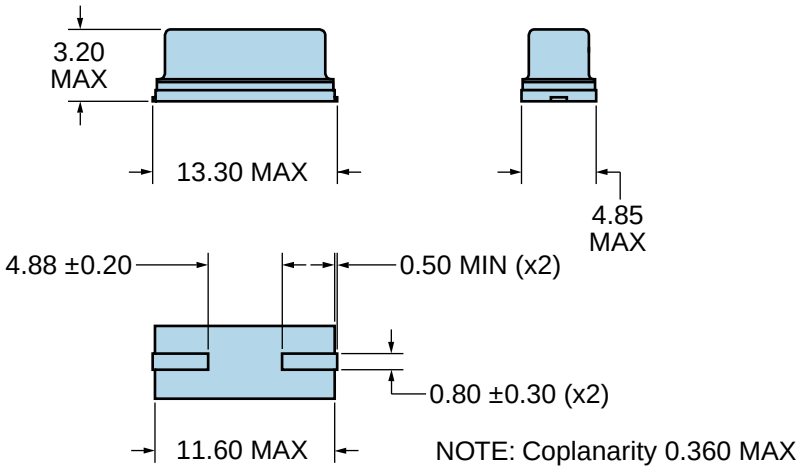
| | |
|---|---|
| **Nominal Frequency** | 25.000MHz |
| **Frequency Tolerance/Stability** | ±15ppm at 25°C, ±30ppm over -40°C to +85°C |
| **Aging at 25°C** | ±5ppm/year Maximum |
| **Load Capacitance** | 20pF Parallel Resonant |
| **Shunt Capacitance (C0)** | 7pF Maximum |
| **Equivalent Series Resistance** | 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 at 100Vdc |

## ENVIRONMENTAL & MECHANICAL SPECIFICATIONS

| | |
|---|---|
| **Fine Leak Test** | MIL-STD-883, Method 1014 Condition A |
| **Gross Leak Test** | MIL-STD-883, Method 1014 Condition C |
| **Lead Termination** | Sn 2µm - 6µm |
| **Mechanical Shock** | MIL-STD-202, Method 213 Condition C |
| **Resistance to Soldering Heat** | MIL-STD-202, Method 210 |
| **Resistance to Solvents** | MIL-STD-202, Method 215 |
| **Solderability** | MIL-STD-883, Method 2003 |
| **Temperature Cycling** | MIL-STD-883, Method 1010 |
| **Vibration** | MIL-STD-883, Method 2007 Condition A |

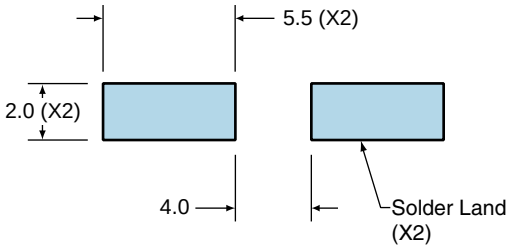
## MECHANICAL DIMENSIONS (all dimensions in millimeters)

| LINE | MARKING |
|---|---|
| 1 | **E25.000M**<br>*E=Ecliptek Designator*<br>*M=MHz* |



## Suggested Solder Pad Layout

All Dimensions in Millimeters




All Tolerances are ±0.1

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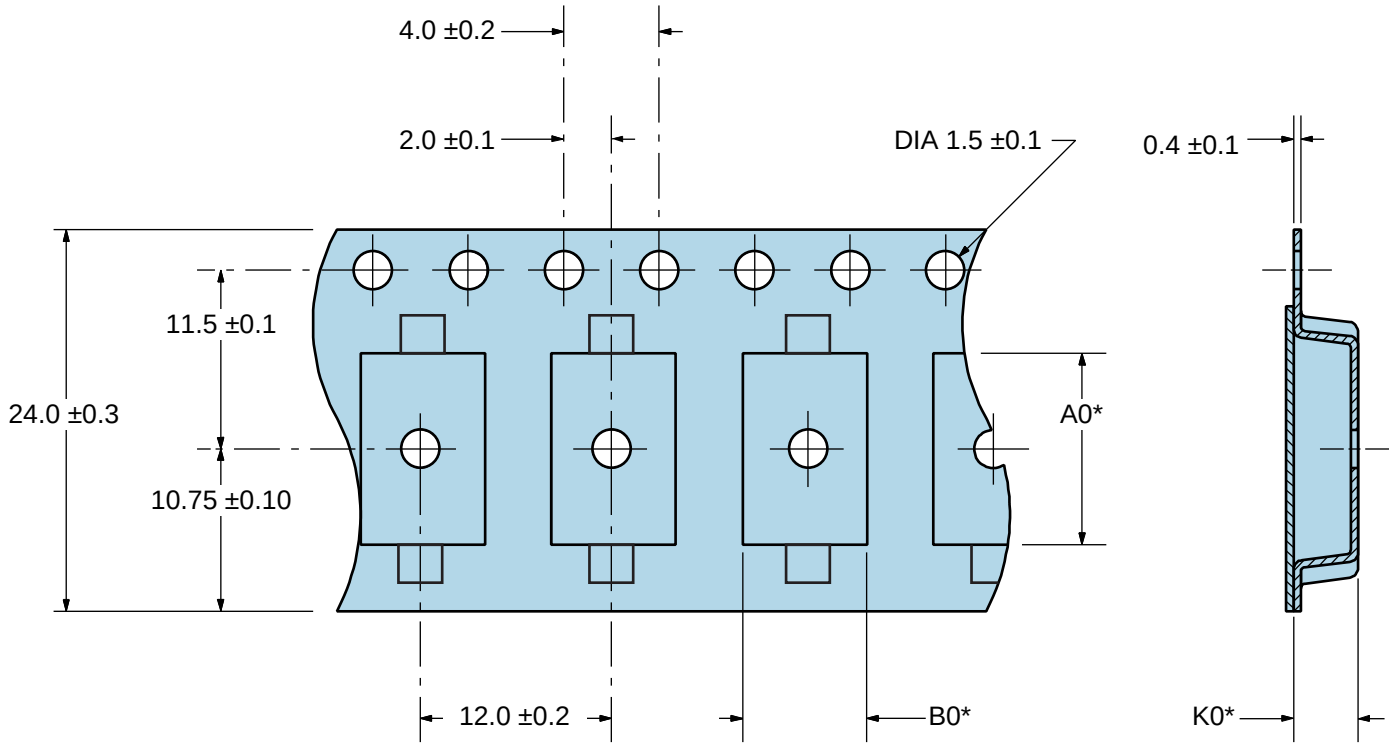
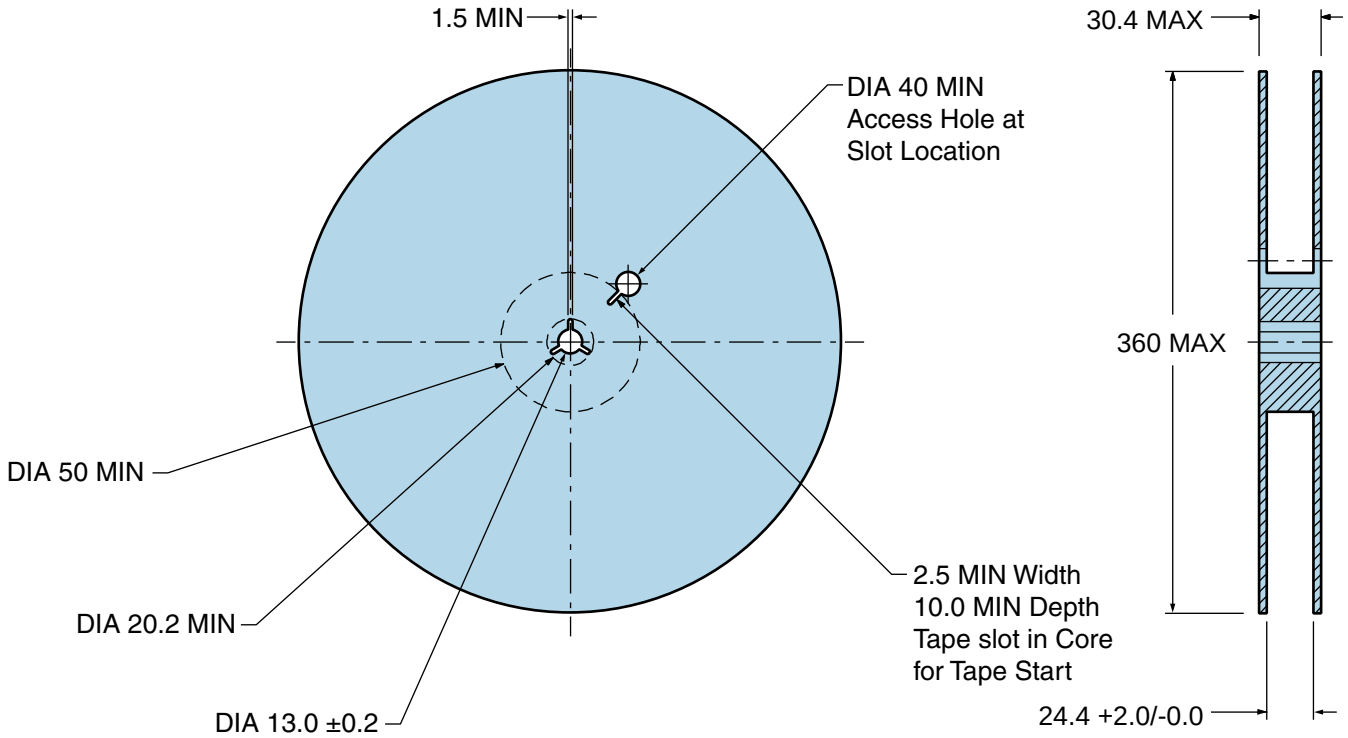
## Tape & Reel Dimensions

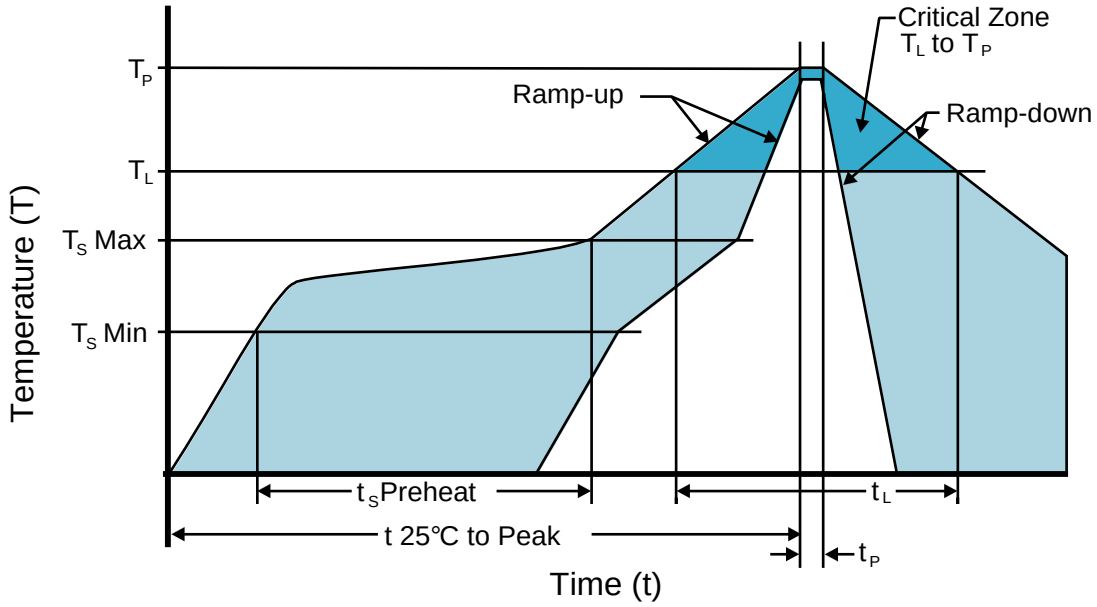
Quantity Per Reel: 1,000 units




*Compliant to EIA 481A



## Recommended Solder Reflow Methods




### High Temperature Infrared/Convection

| | |
|---|---|
| **$T_S$ MAX to $T_L$ (Ramp-up Rate)** | 3°C/second Maximum |
| **Preheat** | |
| **- 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 |
| **Ramp-up Rate ($T_L$ to $T_P$)** | 3°C/second Maximum |
| **Time Maintained Above:** | |
| **- Temperature ($T_L$)** | 217°C |
| **- Time ($t_L$)** | 60 - 150 Seconds |
| **Peak Temperature ($T_P$)** | 260°C Maximum for 10 Seconds Maximum |
| **Target Peak Temperature ($T_P$ Target)** | 250°C +0/-5°C |
| **Time within 5°C of actual peak ($t_p$)** | 20 - 40 seconds |
| **Ramp-down Rate** | 6°C/second Maximum |
| **Time 25°C to Peak Temperature (t)** | 8 minutes Maximum |
| **Moisture Sensitivity Level** | Level 1 |

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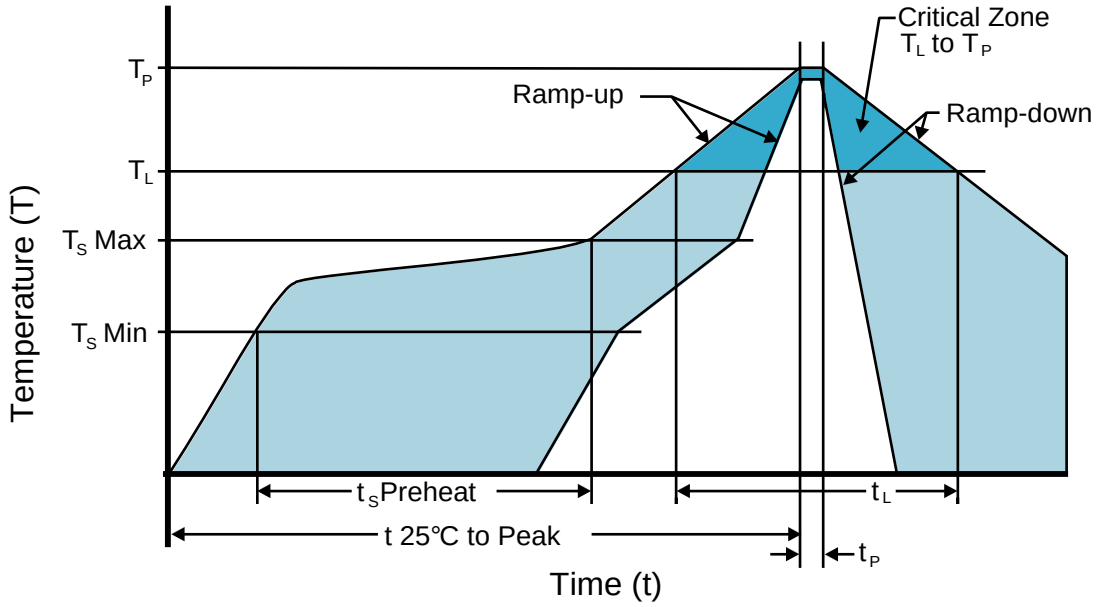
## Recommended Solder Reflow Methods




### Low Temperature Infrared/Convection 245°C

| | |
|---|---|
| **$T_S$ MAX to $T_L$ (Ramp-up Rate)** | 5°C/second Maximum |
| **Preheat**<br>**- Temperature Minimum ($T_S$ MIN)**<br>**- Temperature Typical ($T_S$ TYP)**<br>**- Temperature Maximum ($T_S$ MAX)**<br>**- Time ($t_S$ MIN)** | <br>N/A<br>150°C<br>N/A<br>30 - 60 Seconds |
| **Ramp-up Rate ($T_L$ to $T_P$)** | 5°C/second Maximum |
| **Time Maintained Above:**<br>**- Temperature ($T_L$)**<br>**- Time ($t_L$)** | <br>150°C<br>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.