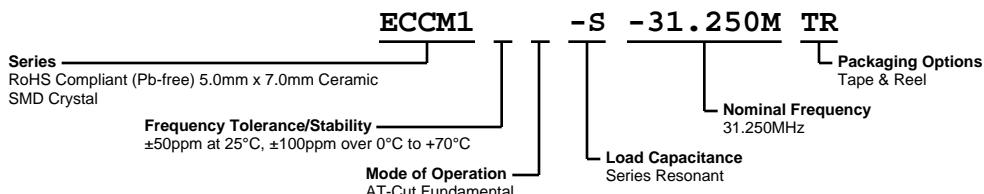


# ECCM1-S-31.250M TR



**ECLIPTEK**  
CORPORATION



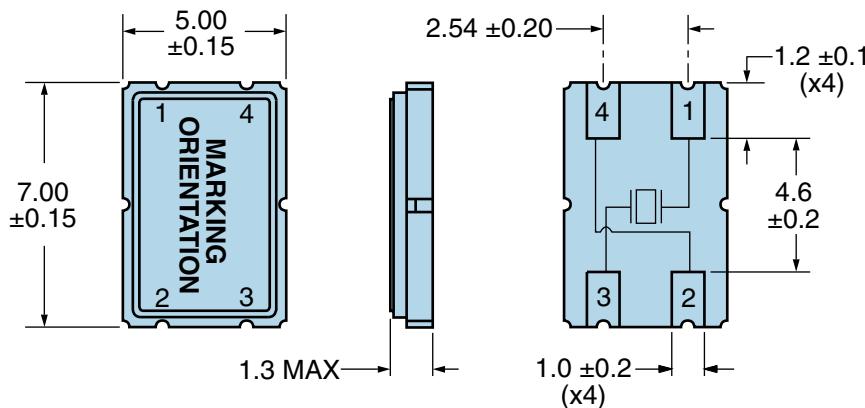
## ELECTRICAL SPECIFICATIONS

Nominal Frequency	31.250MHz
Frequency Tolerance/Stability	$\pm 50\text{ppm}$ at $25^\circ\text{C}$ , $\pm 100\text{ppm}$ over $0^\circ\text{C}$ to $+70^\circ\text{C}$
Aging at $25^\circ\text{C}$	$\pm 3\text{ppm/year}$ Maximum
Load Capacitance	Series Resonant
Shunt Capacitance (C0)	7pF Maximum
Equivalent Series Resistance	30 Ohms Maximum
Mode of Operation	AT-Cut Fundamental
Drive Level	50 $\mu\text{W}$ atts Maximum, 50 $\mu\text{W}$ atts Correlation
Spurious Response	-3dB Minimum (Measured from $\text{F}_0$ to $\text{F}_0 + 5000\text{ppm}$ )
Storage Temperature Range	-40 $^\circ\text{C}$ to +85 $^\circ\text{C}$
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

## MECHANICAL DIMENSIONS (all dimensions in millimeters)



Note: Chamfer and index mark not shown.

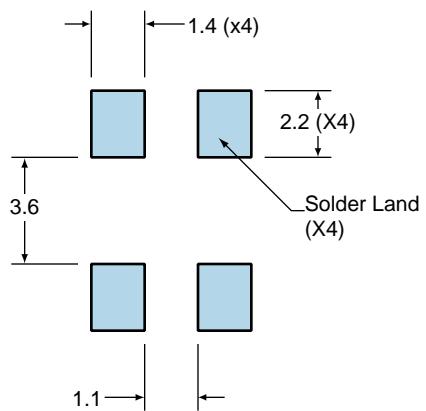
PIN	CONNECTION
1	Crystal
2	Cover/Ground
3	Crystal
4	Cover/Ground

LINE	MARKING
1	E31.25 E=Ecliptek Designator
2	XXXXX XXXXX=Ecliptek Manufacturing Identifier

## Suggested Solder Pad Layout

All Dimensions in Millimeters

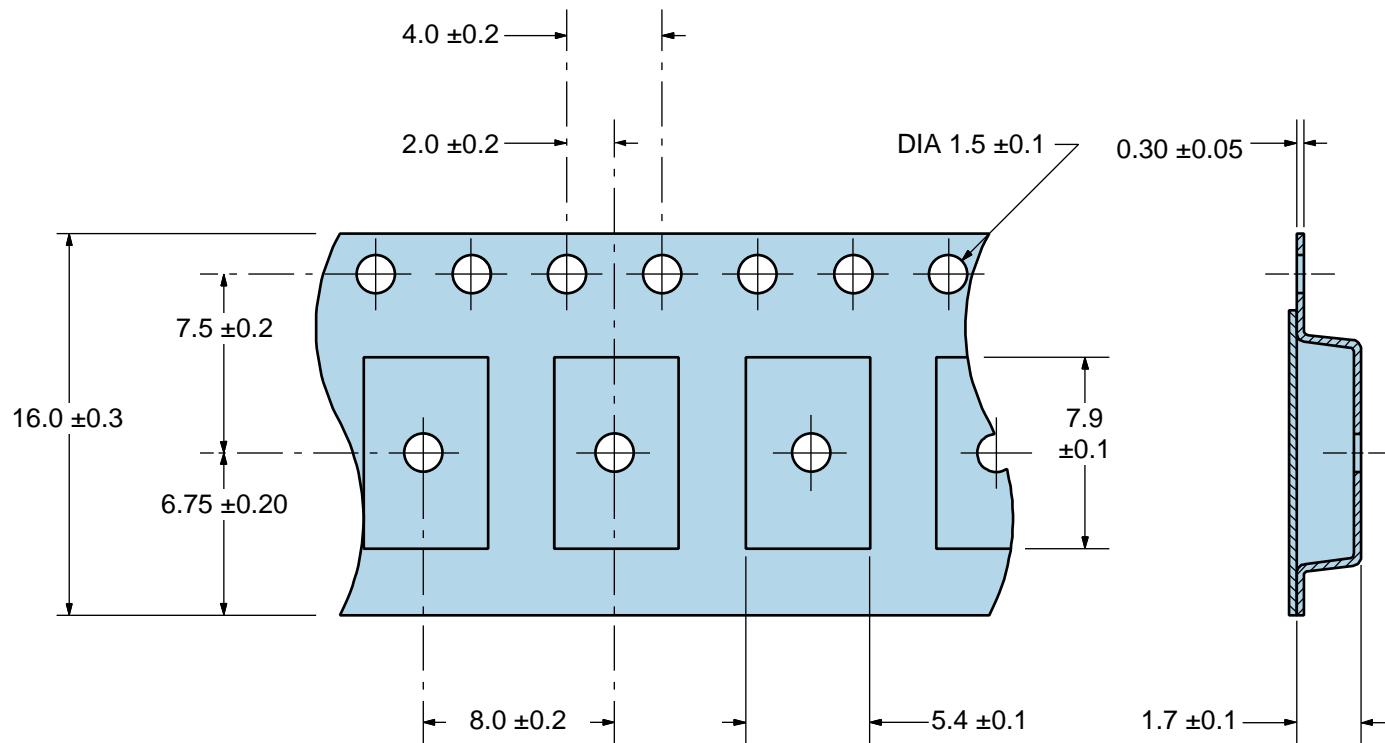


All Tolerances are  $\pm 0.1$

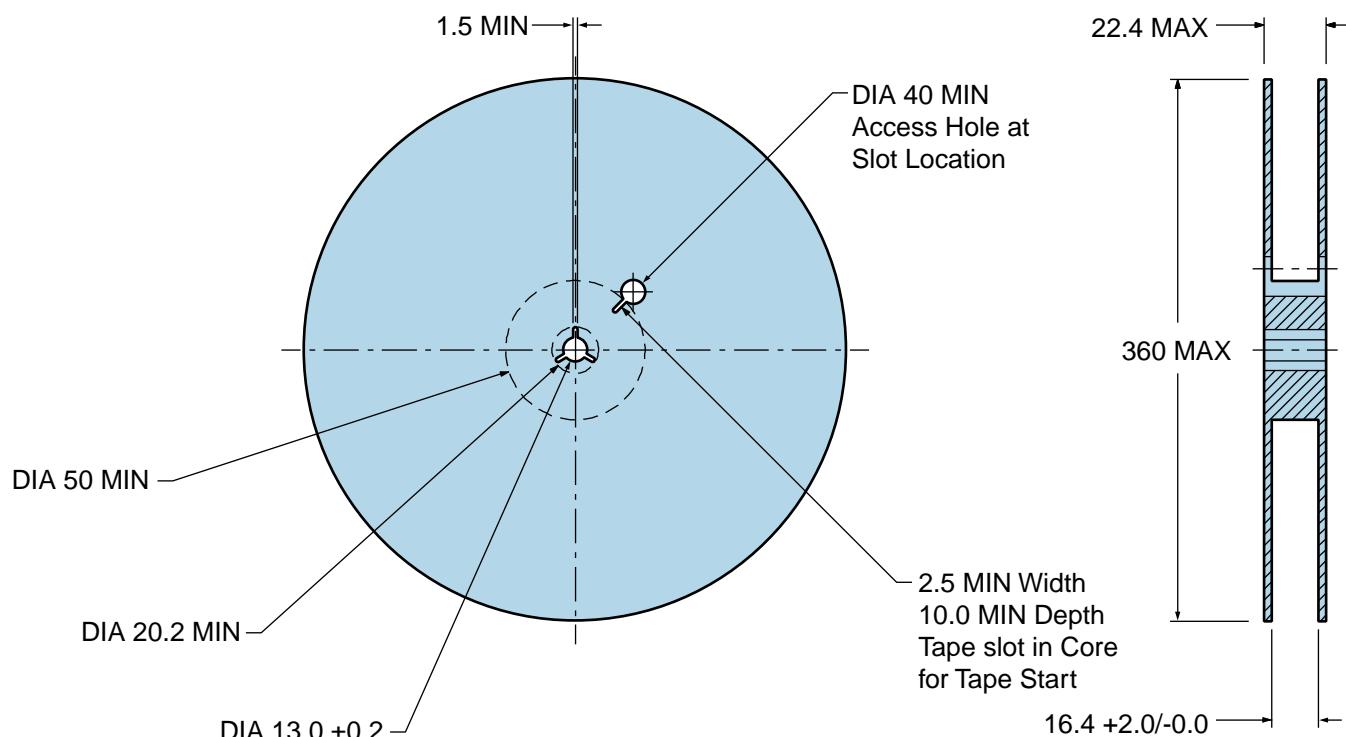
# ECCM1-S-31.250M TR

## Tape & Reel Dimensions

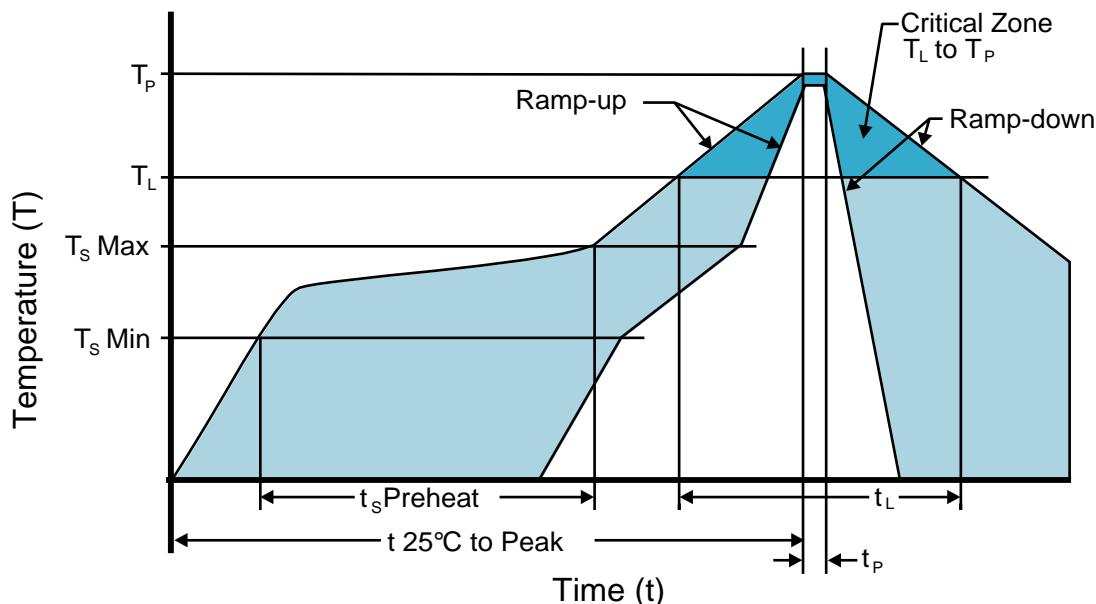
Quantity Per Reel: 1,000 units



\*Compliant to EIA 481A



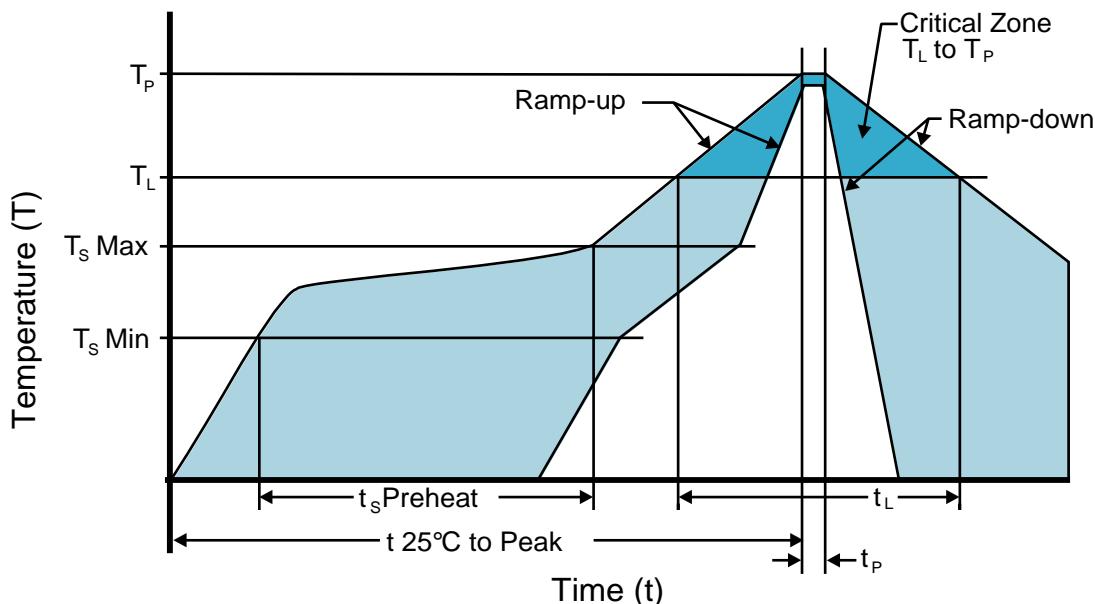
## Recommended Solder Reflow Methods



### High Temperature Infrared/Convection

T <sub>s</sub> MAX to T <sub>L</sub> (Ramp-up Rate)	3°C/second Maximum
<b>Preheat</b>	
- Temperature Minimum (T <sub>s</sub> MIN)	150°C
- Temperature Typical (T <sub>s</sub> TYP)	175°C
- Temperature Maximum (T <sub>s</sub> MAX)	200°C
- Time (t <sub>s</sub> MIN)	60 - 180 Seconds
Ramp-up Rate (T <sub>L</sub> to T <sub>P</sub> )	3°C/second Maximum
<b>Time Maintained Above:</b>	
- Temperature (T <sub>L</sub> )	217°C
- Time (t <sub>L</sub> )	60 - 150 Seconds
Peak Temperature (T <sub>P</sub> )	260°C Maximum for 10 Seconds Maximum
Target Peak Temperature (T <sub>P</sub> Target)	250°C +0/-5°C
Time within 5°C of actual peak (t <sub>p</sub> )	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

## Recommended Solder Reflow Methods



### Low Temperature Infrared/Convection 240°C

**$T_s \text{ MAX to } T_l$  (Ramp-up Rate)** 5°C/second Maximum

#### Preheat

- Temperature Minimum ( $T_s \text{ MIN}$ )	N/A
- Temperature Typical ( $T_s \text{ TYP}$ )	150°C
- Temperature Maximum ( $T_s \text{ MAX}$ )	N/A
- Time ( $t_s \text{ MIN}$ )	60 - 120 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 ( $T_p$ )** 240°C Maximum

**Target Peak Temperature ( $T_p \text{ Target}$ )** 240°C Maximum 1 Time / 230°C Maximum 2 Times

**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.