

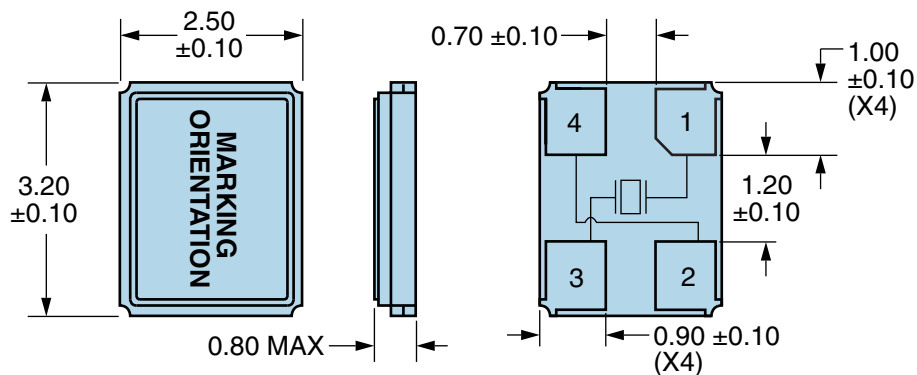
## ELECTRICAL SPECIFICATIONS

|                               |                                            |
|-------------------------------|--------------------------------------------|
| Nominal Frequency             | 39.000MHz                                  |
| Frequency Tolerance/Stability | ±15ppm at 25°C, ±20ppm over -20°C to +70°C |
| Aging at 25°C                 | ±3ppm/Year Maximum                         |
| Load Capacitance              | 8pF Parallel Resonant                      |
| Shunt Capacitance (C0)        | 5pF Maximum                                |
| Equivalent Series Resistance  | 60 Ohms Maximum                            |
| Mode of Operation             | AT-Cut Fundamental                         |
| Drive Level                   | 100μWatts Maximum                          |
| Crystal Cut                   | AT-Cut                                     |
| Spurious Response             | >3dB (from Fo to Fo +5000ppm)              |
| Storage Temperature Range     | -40°C to +85°C                             |
| Insulation Resistance         | 500 Megaohms Minimum 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)



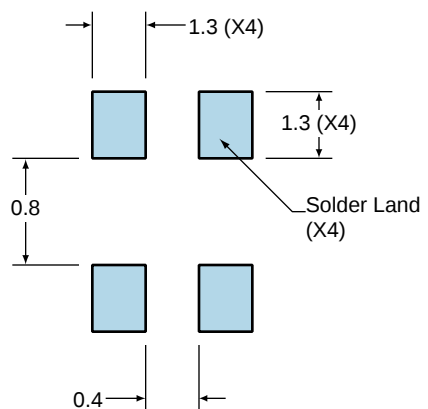
| PIN | CONNECTION   |
|-----|--------------|
| 1   | Crystal      |
| 2   | Cover/Ground |
| 3   | Crystal      |
| 4   | Cover/Ground |

| LINE | MARKING                                                              |
|------|----------------------------------------------------------------------|
| 1    | <b>E39.0</b><br><i>E=Ecliptek Designator</i>                         |
| 2    | <b>XXXXXX</b><br><i>XXXXXX=Ecliptek<br/>Manufacturing Identifier</i> |

# ECCM7LA08-39.000M TR

## Suggested Solder Pad Layout

All Dimensions in Millimeters

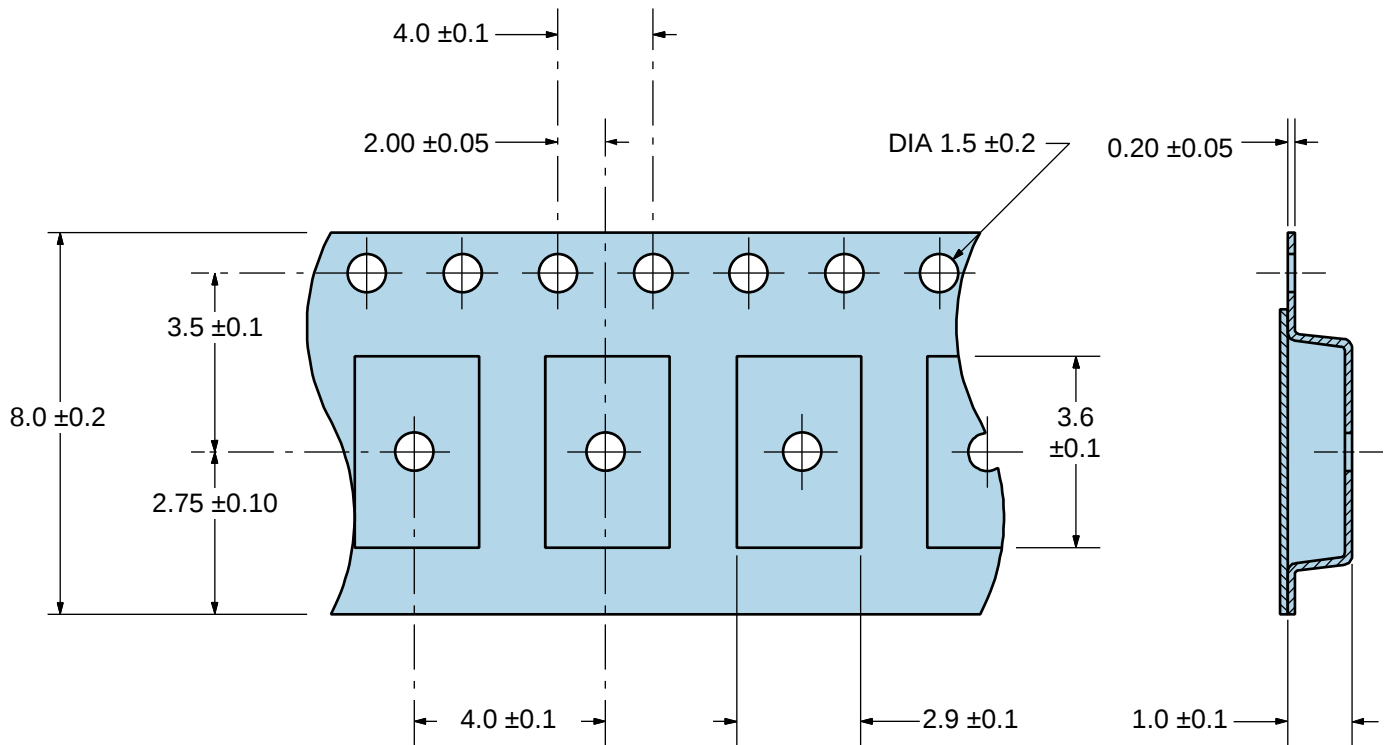


All Tolerances are  $\pm 0.1$

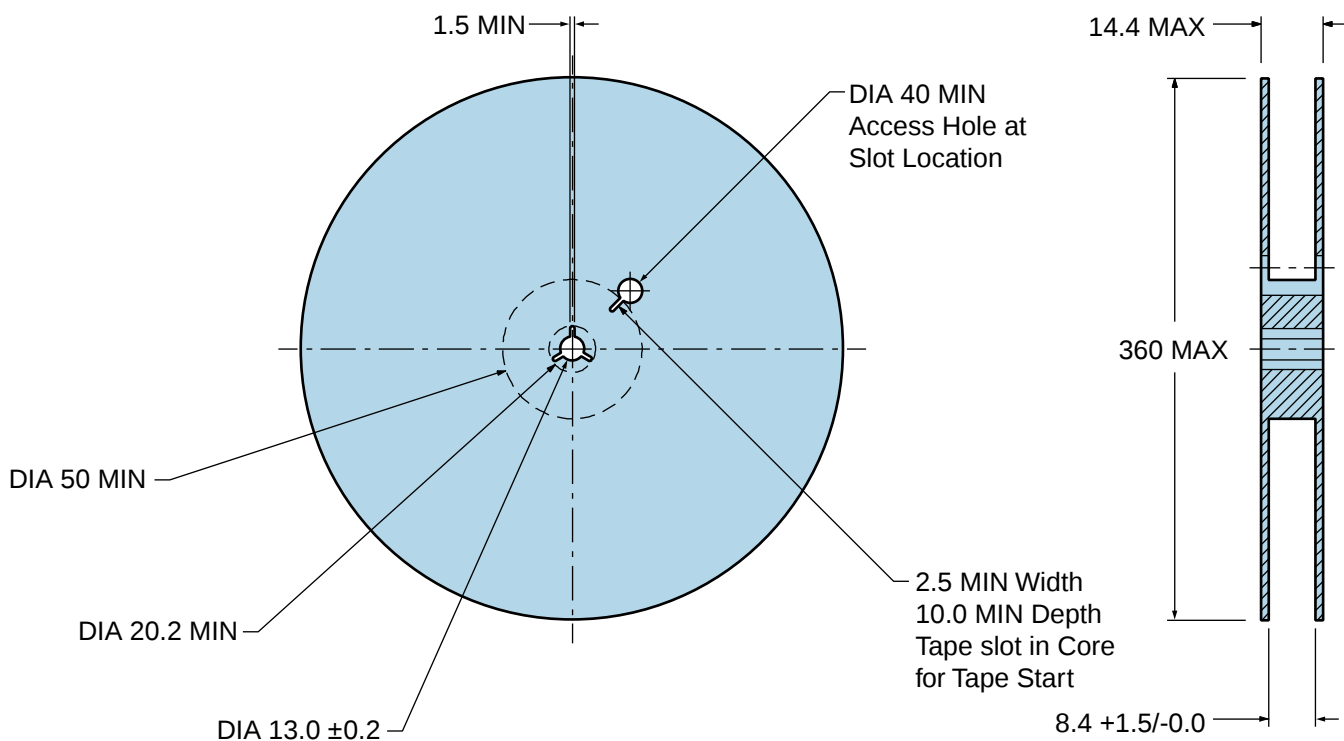
# ECCM7LA08-39.000M TR

## Tape & Reel Dimensions

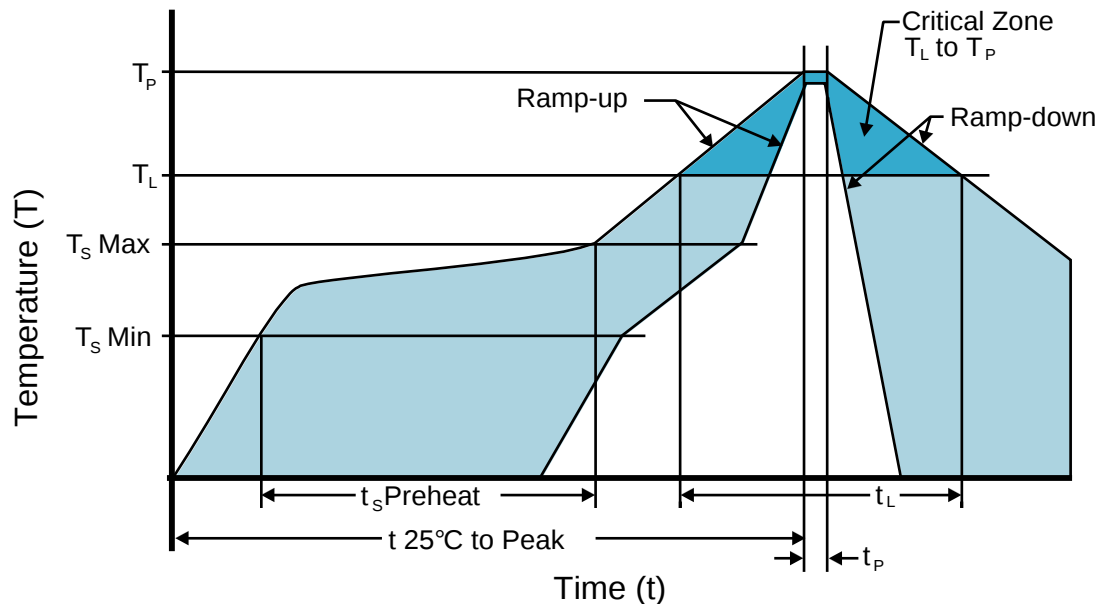
Quantity Per Reel: 3,000 units



\*Compliant to EIA 481A



## Recommended Solder Reflow Methods



### High Temperature Infrared/Convection

|                                            |                                      |
|--------------------------------------------|--------------------------------------|
| <b>Ts MAX to Tl (Ramp-up Rate)</b>         | 3°C/second Maximum                   |
| <b>Preheat</b>                             |                                      |
| - 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                   |
| <b>Time Maintained Above:</b>              |                                      |
| - 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                              |

## 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

### 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.