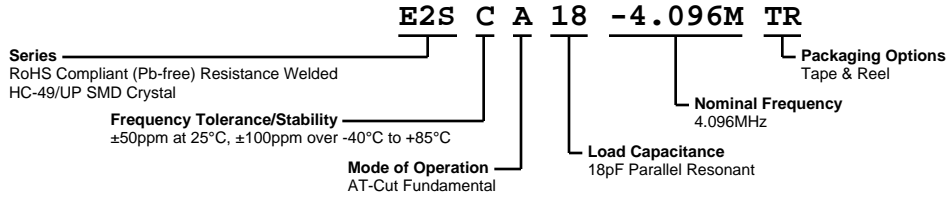


# E2SCA18-4.096M TR



**ECLIPTEK**  
CORPORATION



## ELECTRICAL SPECIFICATIONS

|                               |   |
|-------------------------------|---|
| Nominal Frequency             | 4.096MHz                                    |
| Frequency Tolerance/Stability | ±50ppm at 25°C, ±100ppm over -40°C to +85°C |
| Aging at 25°C                 | ±5ppm/year Maximum                          |
| Load Capacitance              | 18pF Parallel Resonant                      |
| Shunt Capacitance (C0)        | 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 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    | <b>E4.096M</b><br>E=Ecliptek Designator<br>M=MHz |

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## Suggested Solder Pad Layout

All Dimensions in Millimeters



All Tolerances are  $\pm 0.1$

# E2SCA18-4.096M TR

## Tape & Reel Dimensions

Quantity Per Reel: 1,000 units



\*Compliant to EIA 481A



## Recommended Solder Reflow Methods



### High Temperature Infrared/Convection

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

|  |  |
|--|--|
| <b>T<sub>s</sub> MAX to T<sub>L</sub> (Ramp-up Rate)</b> | 5°C/second Maximum                                     |
| <b>Preheat</b>   |  |
| - Temperature Minimum (T <sub>s</sub> MIN)               | N/A  |
| - Temperature Typical (T <sub>s</sub> TYP)               | 150°C  |
| - Temperature Maximum (T <sub>s</sub> MAX)               | N/A  |
| - Time (t <sub>s</sub> MIN)                              | 30 - 60 Seconds  |
| <b>Ramp-up Rate (T<sub>L</sub> to T<sub>p</sub>)</b>     | 5°C/second Maximum                                     |
| <b>Time Maintained Above:</b>                            |  |
| - Temperature (T <sub>L</sub> )                          | 150°C  |
| - Time (t <sub>L</sub> )                                 | 200 Seconds Maximum                                    |
| <b>Peak Temperature (T<sub>p</sub>)</b>                  | 245°C Maximum  |
| <b>Target Peak Temperature (T<sub>p</sub> Target)</b>    | 245°C Maximum 2 Times / 230°C Maximum 1 Time           |
| <b>Time within 5°C of actual peak (t<sub>p</sub>)</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  |

### 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.