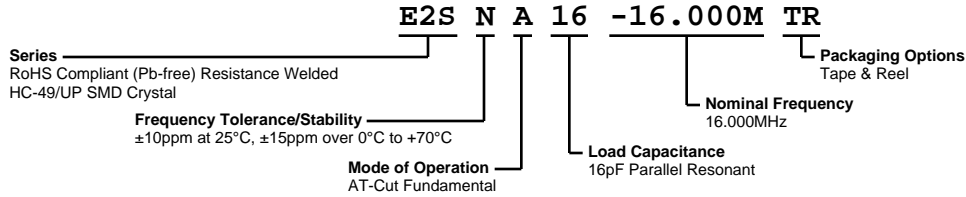


# E2SNA16-16.000M TR



**ECLIPTEK**  
CORPORATION



## ELECTRICAL SPECIFICATIONS

|                                      |  |
|--------------------------------------|--|
| <b>Nominal Frequency</b>             | 16.000MHz                                |
| <b>Frequency Tolerance/Stability</b> | ±10ppm at 25°C, ±15ppm over 0°C to +70°C |
| <b>Aging at 25°C</b>                 | ±5ppm/year Maximum                       |
| <b>Load Capacitance</b>              | 16pF Parallel Resonant                   |
| <b>Shunt Capacitance (C0)</b>        | 7pF Maximum                              |
| <b>Equivalent Series Resistance</b>  | 50 Ohms Maximum                          |
| <b>Mode of Operation</b>             | AT-Cut Fundamental                       |
| <b>Drive Level</b>                   | 1mWatt Maximum                           |
| <b>Storage Temperature Range</b>     | -40°C to +125°C                          |
| <b>Insulation Resistance</b>         | 500 Megaohms Minimum at 100Vdc           |

## ENVIRONMENTAL & MECHANICAL SPECIFICATIONS

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

## MECHANICAL DIMENSIONS (all dimensions in millimeters)



| LINE | MARKING   |
|------|---|
| 1    | <b>E16.000M</b><br>E=Ecliptek Designator<br>M=MHz |

# E2SNA16-16.000M TR

## Suggested Solder Pad Layout

All Dimensions in Millimeters



All Tolerances are  $\pm 0.1$

# E2SNA16-16.000M TR

## 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

# E2SNA16-16.000M TR

## 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.