

# E2SAD18-32.768M TR



## ITEM DESCRIPTION

Quartz Crystal Resonator HC49/UP 2 Pad Surface Mount (SMD) 4.5mm Height Metal Resistance Weld Seal 32.768MHz  $\pm 50$ ppm at 25°C,  $\pm 100$ ppm over 0°C to +70°C 18pF Parallel Resonant

## ELECTRICAL SPECIFICATIONS

|                               |                                                       |
|-------------------------------|-------------------------------------------------------|
| Nominal Frequency             | 32.768MHz                                             |
| Frequency Tolerance/Stability | $\pm 50$ ppm at 25°C, $\pm 100$ ppm over 0°C to +70°C |
| Aging at 25°C                 | $\pm 5$ ppm/year Maximum                              |
| Load Capacitance              | 18pF Parallel Resonant                                |
| Shunt Capacitance             | 7pF Maximum                                           |
| Equivalent Series Resistance  | 40 Ohms Maximum                                       |
| Mode of Operation             | BT-Cut Fundamental                                    |
| Drive Level                   | 1mWatt Maximum                                        |
| Storage Temperature Range     | -40°C to +125°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-202, Method 213, Condition C          |
| Moisture Resistance          | MIL-STD-883, Method 1004                      |
| Moisture Sensitivity         | J-STD-020, MSL1                               |
| 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         |

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MECHANICAL DIMENSIONS (all dimensions in millimeters)

| LINE | MARKING                           |
|------|-----------------------------------|
| 1    | E32.768M<br>E=Ecliptek Designator |



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

All Dimensions in Millimeters

Compliant to EIA-481



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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                   |
| Preheat                                             |                                      |
| - 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                   |
| Time Maintained Above:                              |                                      |
| - 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                              |

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Recommended Solder Reflow Methods



Low Temperature Infrared/Convection 245°C

|                                     |                                                        |
|-------------------------------------|--------------------------------------------------------|
| TS MAX to TL (Ramp-up Rate)         | 5°C/Second Maximum                                     |
| Preheat                             |                                                        |
| - Temperature Minimum (TS MIN)      | N/A                                                    |
| - Temperature Typical (TS TYP)      | 150°C                                                  |
| - Temperature Maximum (TS MAX)      | N/A                                                    |
| - Time (ts MIN)                     | 30 - 60 Seconds                                        |
| Ramp-up Rate (TL to TP)             | 5°C/Second Maximum                                     |
| Time Maintained Above:              |                                                        |
| - Temperature (TL)                  | 150°C                                                  |
| - Time (tL)                         | 200 Seconds Maximum                                    |
| Peak Temperature (TP)               | 245°C Maximum                                          |
| Target Peak Temperature (TP Target) | 245°C Maximum 2 Times / 230°C Maximum 1 Time           |
| Time within 5°C of actual peak (tp) | 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.