

E3WSDC12-32.768K TR

[Click part number to visit Part Number Details page](#)

REGULATORY COMPLIANCE (Data Sheet downloaded on Dec 15, 2019)


[Click badges to download compliance docs](#)

Regulatory Compliance standards are subject to updates by governing bodies. Click the badges to download the latest compliance docs for this part number directly from Ecliptek.



ITEM DESCRIPTION

Watch Crystal Resonator 1.2mm x 2.0mm x 0.6mm 2 Pad Ceramic Surface Mount (SMD) 32.768KHz ± 20 ppm at 25°C 12.5pF Parallel Resonant

ELECTRICAL SPECIFICATIONS

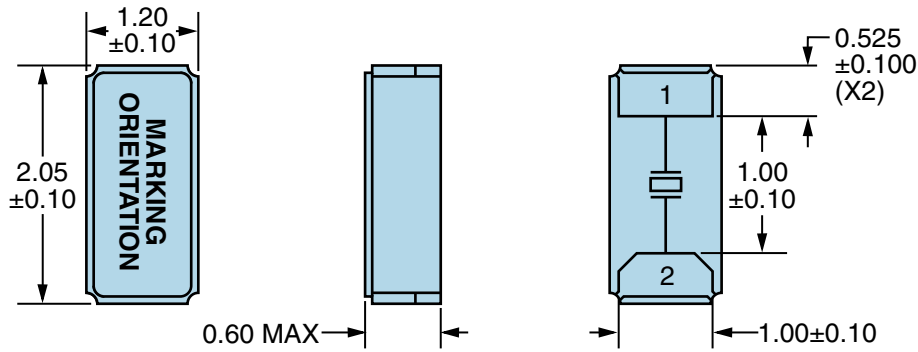
| | |
|---|--|
| Nominal Frequency | 32.768KHz |
| Frequency Tolerance | ± 20 ppm at 25°C |
| Frequency Stability Temperature Coefficient | -0.04ppm/(Change in °C) ² Maximum |
| Turn over Temperature | 25°C ± 5 °C |
| Aging at 25°C | ± 3 ppm/year Maximum |
| Operating Temperature Range | -40°C to +85°C |
| Load Capacitance | 12.5pF Parallel Resonant |
| Shunt Capacitance | 1.3pF Typical, 1.5pF Maximum |
| Motional Capacitance | 6.4fF Typical |
| Equivalent Series Resistance | 80,000 Ohms Maximum |
| Mode of Operation | Fundamental |
| Drive Level | 0.5 μ Watt Maximum |
| Crystal Cut | Tuning Fork |
| Storage Temperature Range | -40°C to +85°C |
| Insulation Resistance | 500 Megaohms Minimum (Measured 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 |
| Mechanical Shock | MIL-STD-202, Method 213, Condition C |
| Resistance to Soldering Heat | MIL-STD-202, Method 210, Condition K |
| Solderability | MIL-STD-883, Method 2003 |
| Vibration | MIL-STD-883, Method 2007, Condition A |

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MECHANICAL DIMENSIONS (all dimensions in millimeters)



| PIN | CONNECTION |
|-----|------------|
| 1 | Crystal |
| 2 | Crystal |

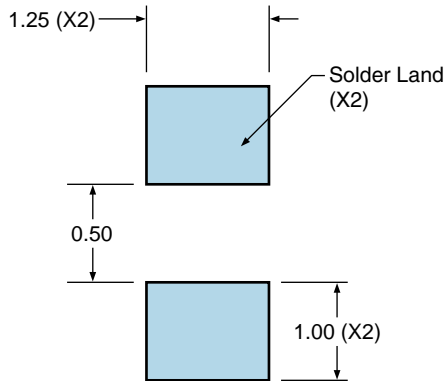
| LINE | MARKING |
|------|---|
| 1 | XXXXXXXXXX XXXXXXXXXX=Ecliptek Manufacturing Code |

Seam Sealed

Terminal Plating Thickness: Gold (0.3 to 1.0µm) over Nickel (3.0 to 4.0µm).

Suggested Solder Pad Layout

All Dimensions in Millimeters

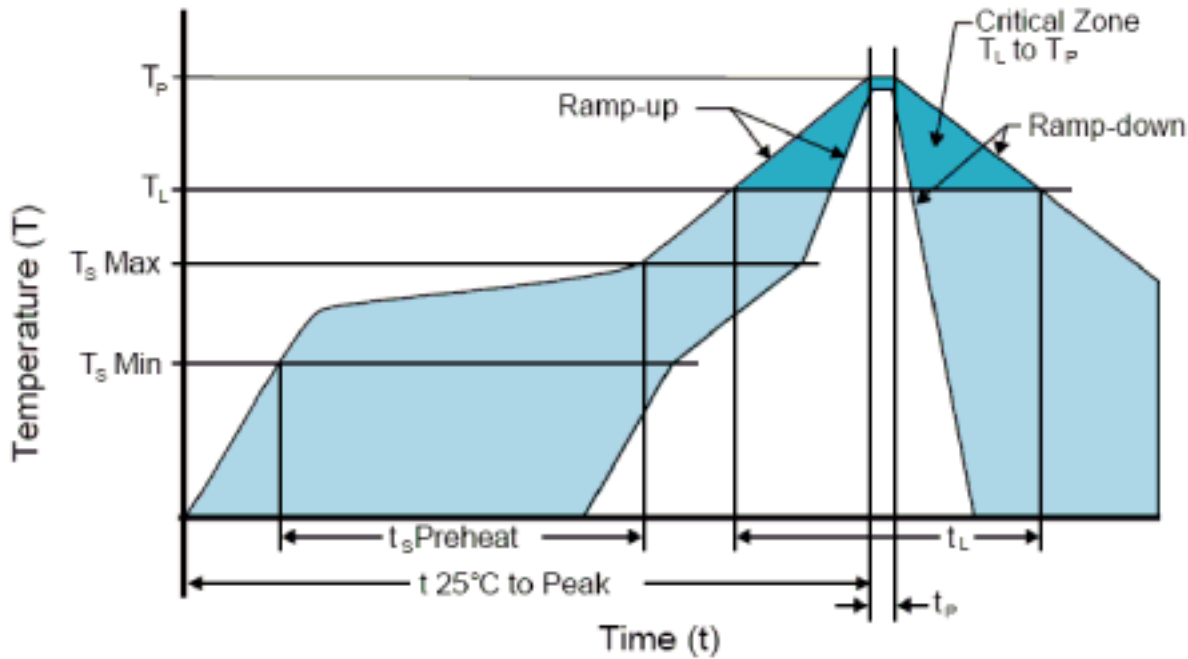


All Tolerances are ±0.1

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Recommended Solder Reflow Methods



Low Temperature Infrared/Convection 240°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) | 60 - 120 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) | 240°C Maximum |
| Target Peak Temperature (Tp Target) | 240°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 |
| Additional Notes | Temperatures shown are applied to body of device. |

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Recommended Solder Reflow Methods



Low Temperature Infrared/Convection 245°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 ($t_s \text{ MIN}$) | 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 ($T_P \text{ Target}$) | 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 |
| Additional Notes | Temperatures shown are applied to body of device. |

Low Temperature Manual Soldering

185°C Maximum for 10 Seconds Maximum, 2 times Maximum. (Temperatures shown are applied to body of device.)

High Temperature Manual Soldering

260°C Maximum for 5 Seconds Maximum, 2 times Maximum. (Temperatures shown are applied to body of device.)