

# E1WCDA12-32.768K

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

## REGULATORY COMPLIANCE (Data Sheet downloaded on Feb 11, 2020)


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## ITEM DESCRIPTION

Watch Crystal Resonator 2.1mm x 6.2mm Thru-Hole Metal Cylindrical 32.768KHz  $\pm 20$ ppm at 25°C 12.5pF Parallel Resonant

## ELECTRICAL SPECIFICATIONS

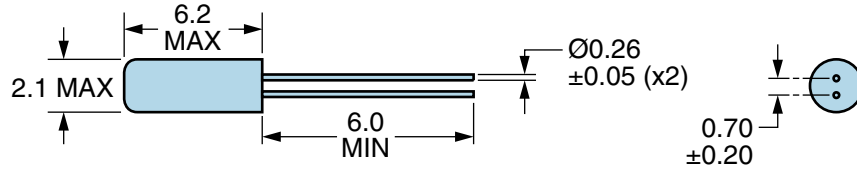
Nominal Frequency	32.768KHz
Frequency Tolerance	$\pm 20$ ppm at 25°C
Frequency Stability Temperature Coefficient	-0.034ppm $\pm 0.006$ ppm/(Change in °C) <sup>2</sup> Maximum
Turn over Temperature	25°C $\pm 5$ °C
Aging at 25°C	$\pm 3$ ppm/year Maximum
Operating Temperature Range	-10°C to +60°C
Load Capacitance	12.5pF Parallel Resonant
Shunt Capacitance	2pF Maximum
Motional Capacitance	3.0fF Typical
Equivalent Series Resistance	35,000 Ohms Maximum
Mode of Operation	Fundamental
Drive Level	1 $\mu$ 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 B
Solderability	MIL-STD-883, Method 2003
Vibration	MIL-STD-883, Method 2007, Condition A

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### MECHANICAL DIMENSIONS (all dimensions in millimeters)



LINE	MARKING
1	XXXX XXXX=Ecliptek Manufacturing Identifier
2	XXXX XXXX=Ecliptek Manufacturing Identifier

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## Recommended Solder Reflow Methods



### High Temperature Solder Bath (Wave Solder)

<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
<b>Additional Notes</b>	Temperatures shown are applied to back of PCB board and device leads only.

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## Recommended Solder Reflow Methods



### Low Temperature Solder Bath (Wave Solder)

$T_s$ MAX to $T_L$ (Ramp-up Rate)	5°C/Second Maximum
<b>Preheat</b>	
- 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
<b>Ramp-up Rate (<math>T_L</math> to <math>T_P</math>)</b>	5°C/Second Maximum
<b>Time Maintained Above:</b>	
- Temperature ( $T_L$ )	150°C
- Time ( $t_L$ )	200 Seconds Maximum
<b>Peak Temperature (<math>T_P</math>)</b>	245°C Maximum
<b>Target Peak Temperature (<math>T_P</math> Target)</b>	245°C Maximum 1 Time / 235°C Maximum 2 Times
<b>Time within 5°C of actual peak (<math>t_p</math>)</b>	5 Seconds Maximum 1 Time / 15 Seconds Maximum 2 Times
<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
<b>Additional Notes</b>	Temperatures shown are applied to back of PCB board and device leads only.

### Low Temperature Manual Soldering

185°C Maximum for 10 Seconds Maximum, 2 times Maximum. (Temperatures shown are applied to back of PCB board and device leads only.)

### High Temperature Manual Soldering

260°C Maximum for 5 Seconds Maximum, 2 times Maximum. (Temperatures shown are applied to back of PCB board and device leads only.)

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