

# E1UKAS-18.089M

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

## REGULATORY COMPLIANCE (Data Sheet downloaded on Dec 11, 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

Quartz Crystal Resonator HC49/US Short Thru-Hole 2.5mm Height Metal Resistance Weld Seal 18.089MHz  $\pm 15$ ppm at 25°C,  $\pm 20$ ppm over 0°C to +70°C Series Resonant

## ELECTRICAL SPECIFICATIONS

Nominal Frequency	18.089MHz
Frequency Tolerance/Stability	$\pm 15$ ppm at 25°C, $\pm 20$ ppm over 0°C to +70°C
Aging at 25°C	$\pm 5$ ppm/year Maximum
Load Capacitance	Series Resonant
Shunt Capacitance	7pF Maximum
Equivalent Series Resistance	50 Ohms Maximum
Mode of Operation	AT-Cut Fundamental
Drive Level	1mWatt Maximum
Storage Temperature Range	-55°C to +125°C
Insulation Resistance	500 Megaohms Minimum (Measured at 100Vdc)

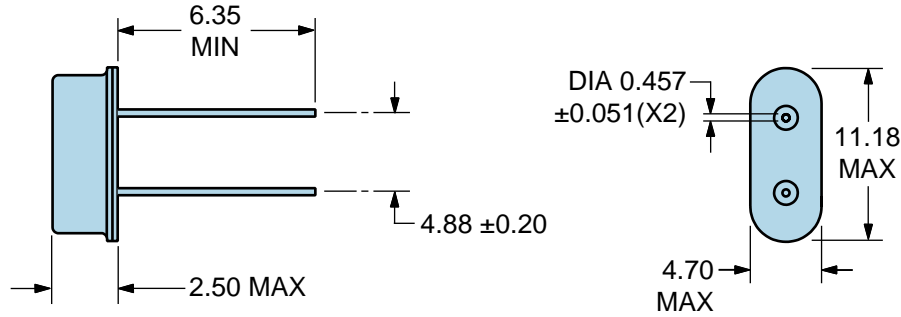
## ENVIRONMENTAL & MECHANICAL SPECIFICATIONS

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
Lead Integrity	MIL-STD-883, Method 2004
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	<b>E18.089M</b> <i>E=Ecliptek Designator</i>



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## Recommended Solder Reflow Methods



### High Temperature Solder Bath (Wave Solder)

Ts MAX to TL (Ramp-up Rate)	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.)