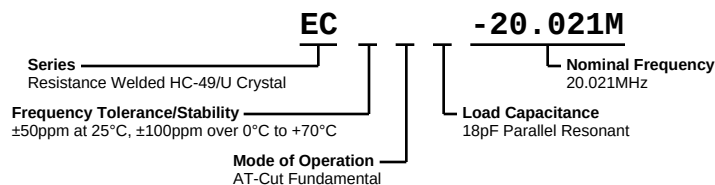


EC-20.021M



ELECTRICAL SPECIFICATIONS

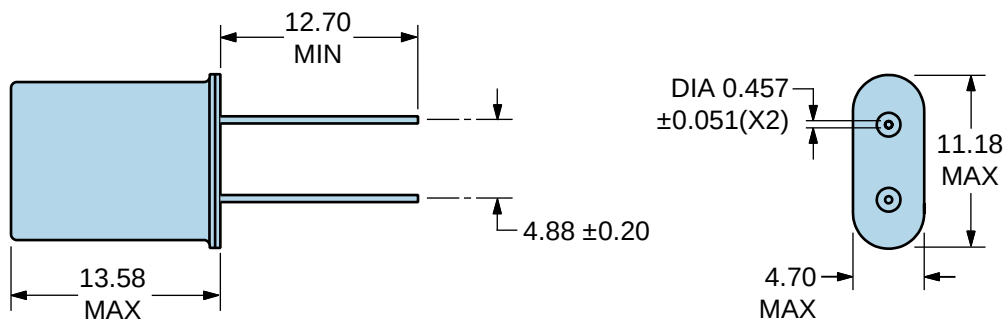
Nominal Frequency	20.021MHz
Frequency Tolerance/Stability	$\pm 50\text{ppm}$ at 25°C, $\pm 100\text{ppm}$ over 0°C to +70°C
Aging at 25°C	$\pm 5\text{ppm/year}$ Maximum
Load Capacitance	18pF Parallel Resonant
Shunt Capacitance (C0)	7pF Maximum
Equivalent Series Resistance	25 Ohms Maximum
Mode of Operation	AT-Cut Fundamental
Drive Level	2mWatts Maximum
Storage Temperature Range	-40°C to +85°C
Insulation Resistance	500 Megaohms Minimum 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
Lead Integrity	MIL-STD-883, Method 2004
Mechanical Shock	MIL-STD-202, Method 213, Condition C
Resistance to Soldering Heat	MIL-STD-202, Method 210
Resistance to Solvents	MIL-STD-202, Method 215
Solderability	MIL-STD-883, Method 2003
Temperature Cycling	MIL-STD-883, Method 1010
Vibration	MIL-STD-883, Method 2007, Condition A

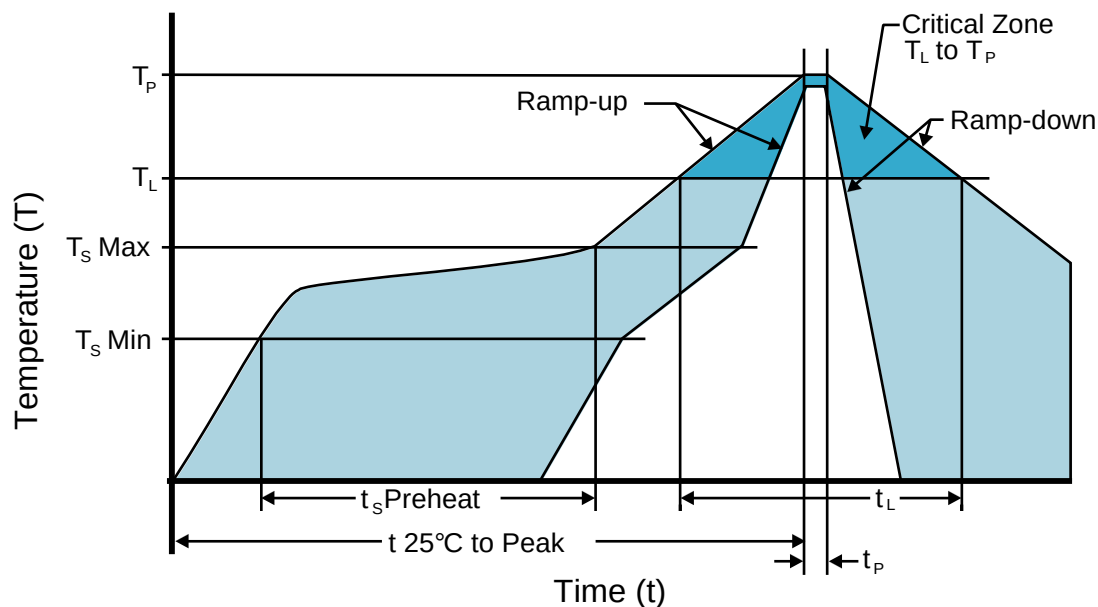
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MECHANICAL DIMENSIONS (all dimensions in millimeters)



LINE	MARKING
1	ECLIPTEK
2	E20.021M <i>E=Ecliptek Designator or Blank (No Marking)</i>
3	XX <i>XX=Ecliptek Manufacturing Code</i>

Recommended Solder Reflow Methods



High Temperature Solder Bath (Wave Solder)

T_S MAX to T_L (Ramp-up Rate)	3°C/second Maximum
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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
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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
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Target Peak Temperature (T_P Target)	250°C +0/-5°C
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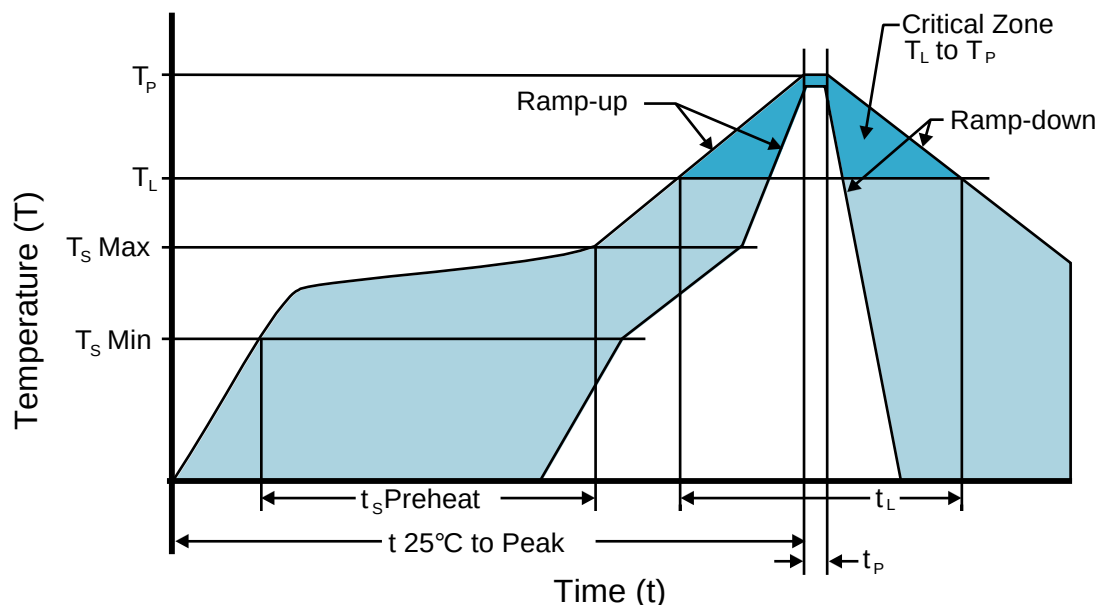
Time within 5°C of actual peak (t_p)	20 - 40 seconds
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Ramp-down Rate	6°C/second Maximum
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Time 25°C to Peak Temperature (t)	8 minutes Maximum
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Moisture Sensitivity Level	Level 1
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Recommended Solder Reflow Methods



Low Temperature Solder Bath (Wave Solder)

$T_S \text{ MAX to } T_L$ (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 1 Time / 235°C Maximum 2 Times

Time within 5°C of actual peak (t_P) 5 seconds Maximum 1 Time / 15 seconds Maximum 2 Times

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.