

EC4SM-12-12.000M
[Click part number to visit Part Number Details page](#)
REGULATORY COMPLIANCE (Data Sheet downloaded on May 4, 2019)**ITEM DESCRIPTION**

Quartz Crystal Resonator HC49/UP 4 Pad Surface Mount (SMD) 4.0mm Height Metal Resistance Weld Seal 12.000MHz ± 50 ppm at 25°C, ± 100 ppm over 0°C to +70°C 12pF Parallel Resonant

ELECTRICAL SPECIFICATIONS

Nominal Frequency	12.000MHz
Frequency Tolerance/Stability	± 50 ppm at 25°C, ± 100 ppm over 0°C to +70°C
Aging at 25°C	± 5 ppm/year Maximum
Load Capacitance	12pF Parallel Resonant
Shunt Capacitance (C0)	7pF Maximum
Equivalent Series Resistance	70 Ohms Maximum
Mode of Operation	AT-Cut Fundamental
Drive Level	1mWatts Maximum
Storage Temperature Range	-40°C to +85°C
Insulation Resistance	500 Megaohms Minimum at 100Vdc

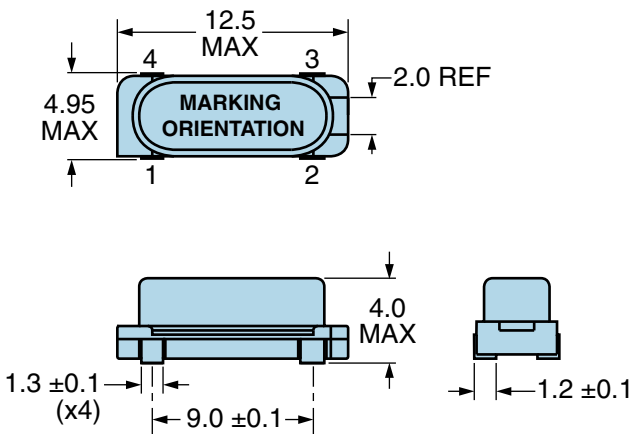
ENVIRONMENTAL & MECHANICAL SPECIFICATIONS

Fine Leak Test	MIL-STD-883, Method 1014 Condition A
Gross Leak Test	MIL-STD-883, Method 1014 Condition C
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)

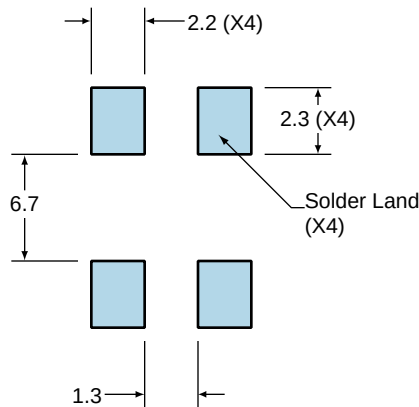


PIN	CONNECTION
1	Connected to Pin 4 and to Crystal
2	Connected to Pin 3 and to Crystal
3	Connected to Pin 2 and to Crystal
4	Connected to Pin 1 and to Crystal

LINE	MARKING
1	E12.000 <i>E=Ecliptek Designator</i>

Suggested Solder Pad Layout

All Dimensions in Millimeters

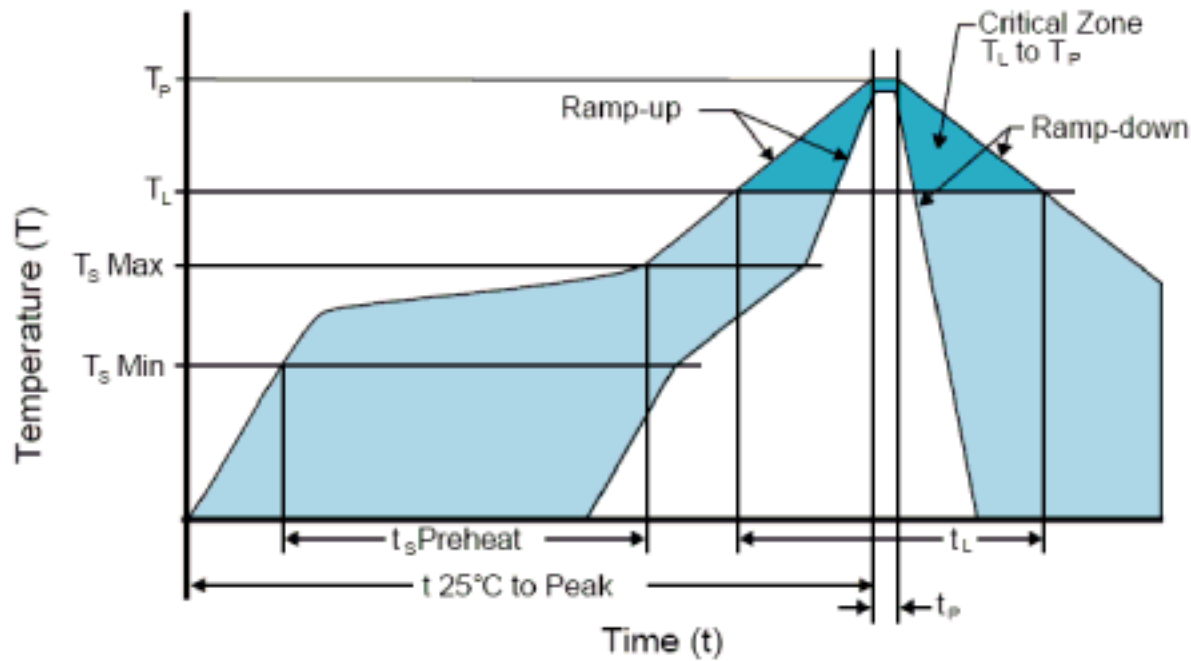


All Tolerances are ±0.1

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Recommended Solder Reflow Methods



Low Temperature Infrared/Convection 225°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)	225°C Maximum
Target Peak Temperature (TP Target)	225°C Maximum 2 Times
Time within 5°C of actual peak (tP)	80 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.