

E1SFA20-6.144M



ITEM DESCRIPTION

Quartz Crystal Resonator HC49/UP Short 2 Pad Surface Mount (SMD) 3.2mm Height Metal Resistance Weld Seal 6.144MHz ± 30 ppm at 25°C, ± 50 ppm over -40°C to +85°C 20pF Parallel Resonant

ELECTRICAL SPECIFICATIONS

Nominal Frequency	6.144MHz
Frequency Tolerance/Stability	± 30 ppm at 25°C, ± 50 ppm over -40°C to +85°C
Aging at 25°C	± 5 ppm/year Maximum
Load Capacitance	20pF Parallel Resonant
Shunt Capacitance	7pF Maximum
Equivalent Series Resistance	120 Ohms Maximum
Mode of Operation	AT-Cut Fundamental
Drive Level	1mWatt Maximum
Storage Temperature Range	-40°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
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

3.20 MAX

13.30 MAX

4.85 MAX

4.88 ± 0.20

0.50 MIN (x2)

0.80 ± 0.30 (x2)

11.60 MAX

NOTE: Coplanarity 0.360 MAX

1-800-ECLIPTEK or 714.433.1200

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Recommended Solder Reflow Methods



High Temperature Infrared/Convection

Ts MAX to TL (Ramp-up Rate)	3°C/Second Maximum
Preheat	
- Temperature Minimum (Ts MIN)	150°C
- Temperature Typical (Ts TYP)	175°C
- Temperature Maximum (Ts MAX)	200°C
- Time (ts MIN)	60 - 180 Seconds
Ramp-up Rate (TL to TP)	3°C/Second Maximum
Time Maintained Above:	
- Temperature (TL)	217°C
- Time (tL)	60 - 150 Seconds
Peak Temperature (TP)	260°C Maximum for 10 Seconds Maximum
Target Peak Temperature (TP Target)	250°C +0/-5°C
Time within 5°C of actual peak (tp)	20 - 40 Seconds
Ramp-down Rate	6°C/Second Maximum
Time 25°C to Peak Temperature (t)	8 Minutes Maximum
Moisture Sensitivity Level	Level 1

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Recommended Solder Reflow Methods



Low Temperature Infrared/Convection 245°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)		245°C Maximum
Target Peak Temperature (TP Target)		245°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

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.