

EC2SME-16.000M TR

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REGULATORY COMPLIANCE (Data Sheet downloaded on Oct 27, 2017)



ITEM DESCRIPTION

Quartz Crystal Resonator HC49/UP 2 Pad Surface Mount (SMD) 4.5mm Height Metal Resistance Weld Seal 16.000MHz ± 30 ppm at 25°C, ± 50 ppm over -40°C to +85°C 18pF Parallel Resonant

ELECTRICAL SPECIFICATIONS

Nominal Frequency	16.000MHz
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	18pF Parallel Resonant
Shunt Capacitance (C0)	7pF Maximum
Equivalent Series Resistance	50 Ohms Maximum
Mode of Operation	AT-Cut Fundamental
Drive Level	1mWatt Maximum
Storage Temperature Range	-40°C to +85°C
Insulation Resistance	500 Megaohms Minimum at 100Vdc

ENVIRONMENTAL & MECHANICAL SPECIFICATIONS

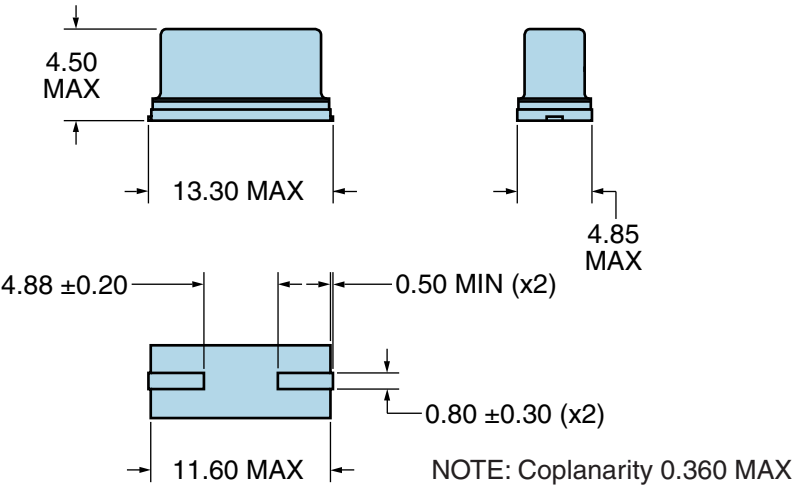
Fine Leak Test	MIL-STD-883, Method 1014 Condition A
Gross Leak Test	MIL-STD-883, Method 1014 Condition C
Mechanical Shock	MIL-STD-202, Method 213 Condition C
Resistance to Soldering Heat	MIL-STD-202, Method 210
Resistance to Solvents	MIL-STD-202, Method 215
Solderability	MIL-STD-883, Method 2003
Temperature Cycling	MIL-STD-883, Method 1010
Vibration	MIL-STD-883, Method 2007 Condition A

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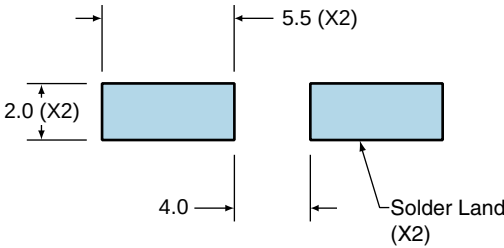
MECHANICAL DIMENSIONS (all dimensions in millimeters)

LINE	MARKING
1	E16.000M <i>E=Ecliptek Designator</i> <i>M=Frequency Unit of Measure</i>



Suggested Solder Pad Layout

All Dimensions in Millimeters



All Tolerances are ±0.1

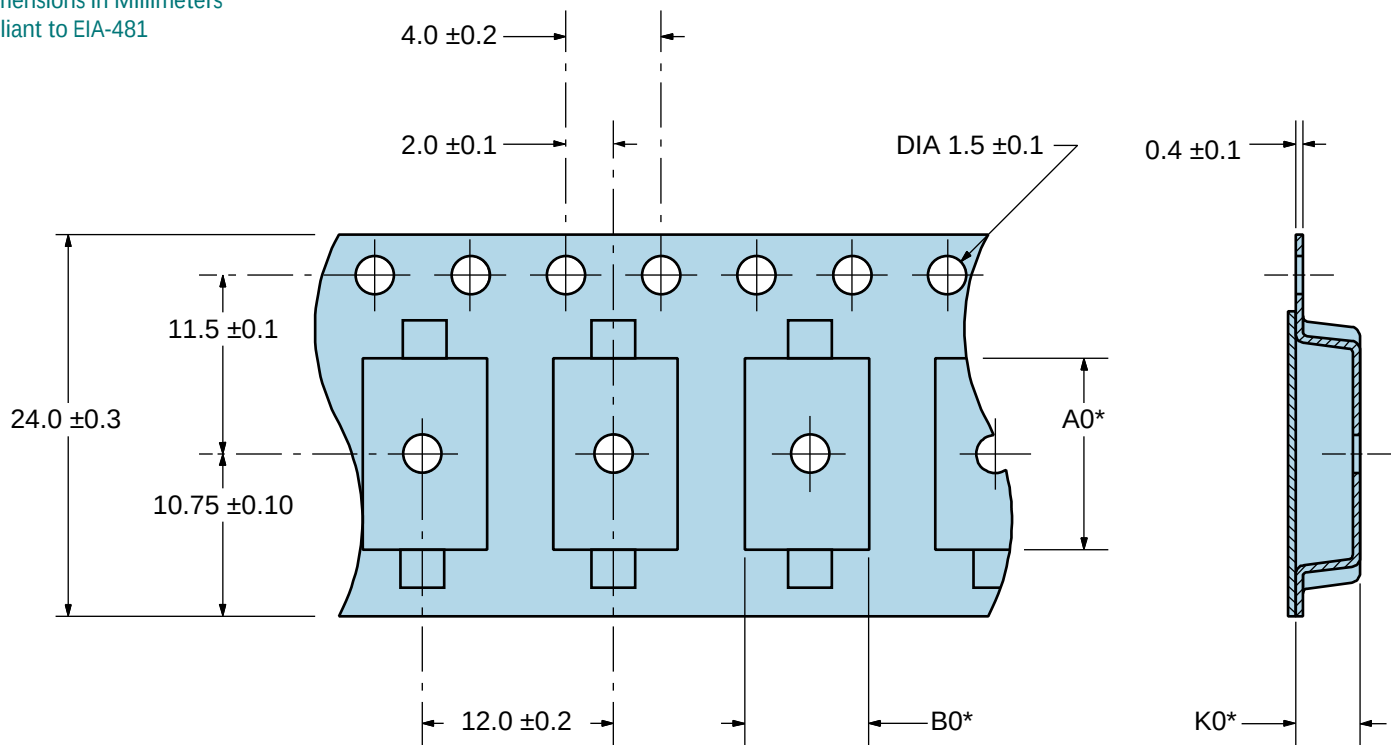
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Tape & Reel Dimensions

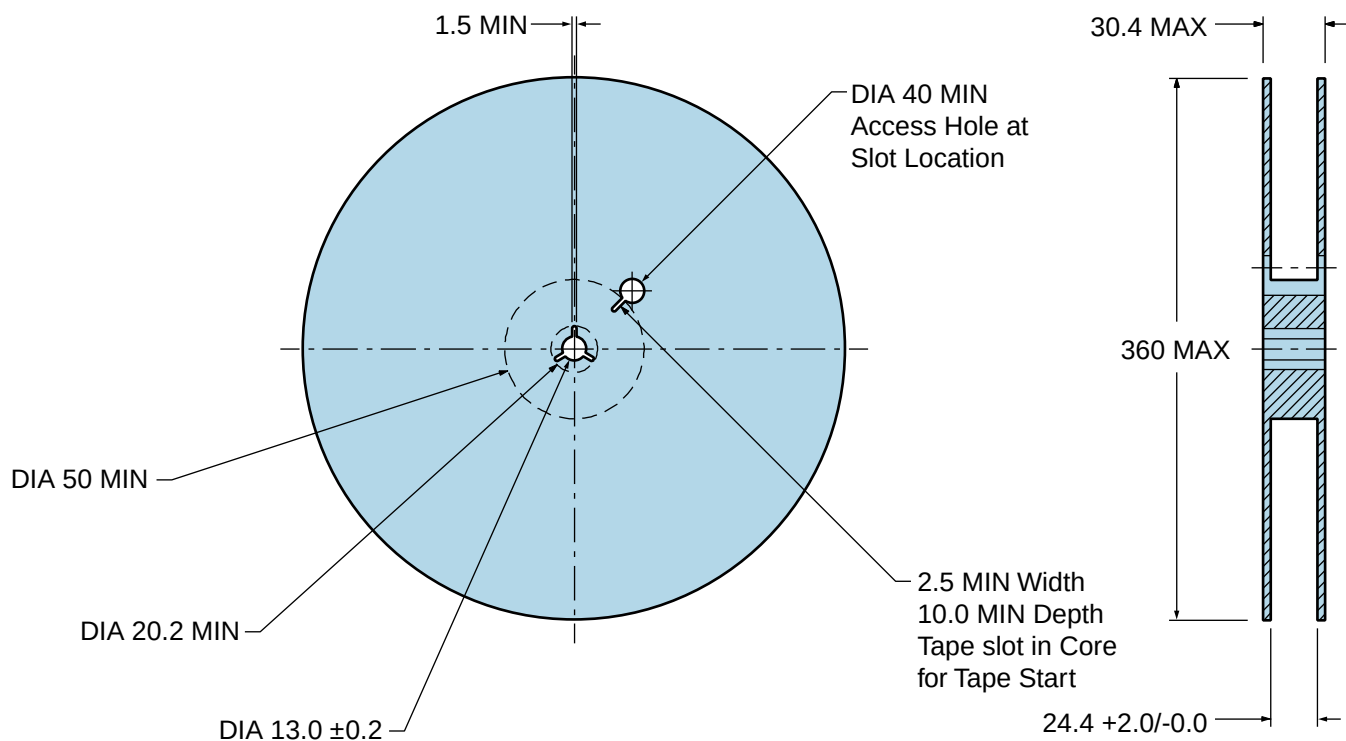
Quantity Per Reel: 1,000 units

All Dimensions in Millimeters

Compliant to EIA-481



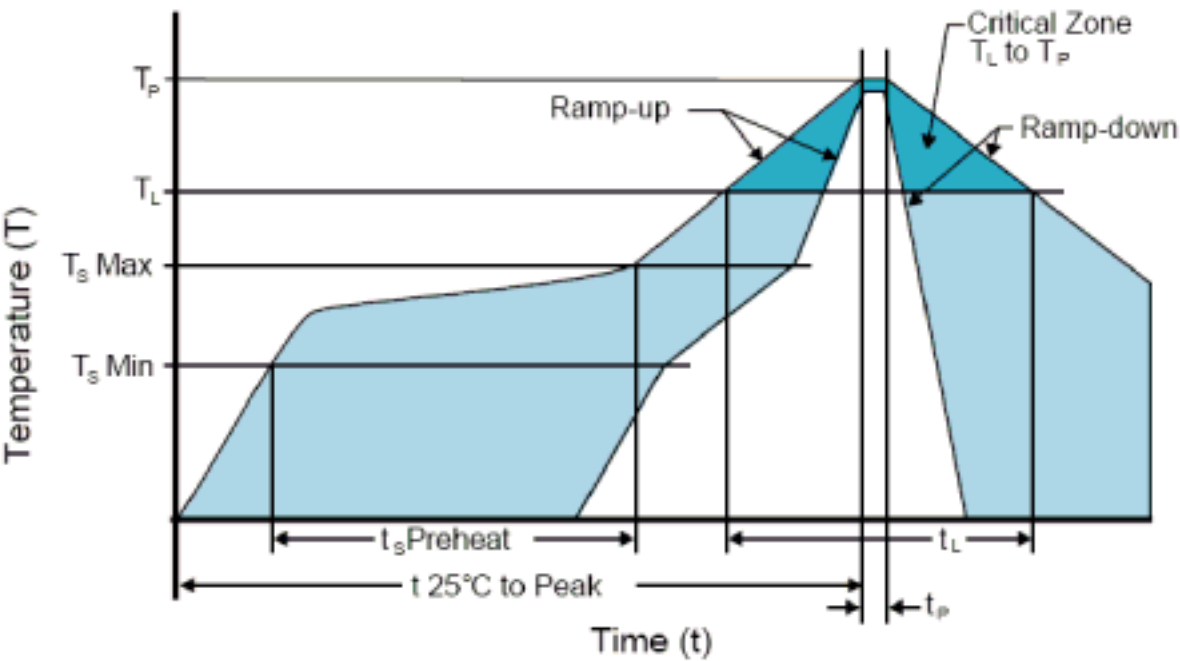
*Compliant to EIA 481A



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Recommended Solder Reflow Methods



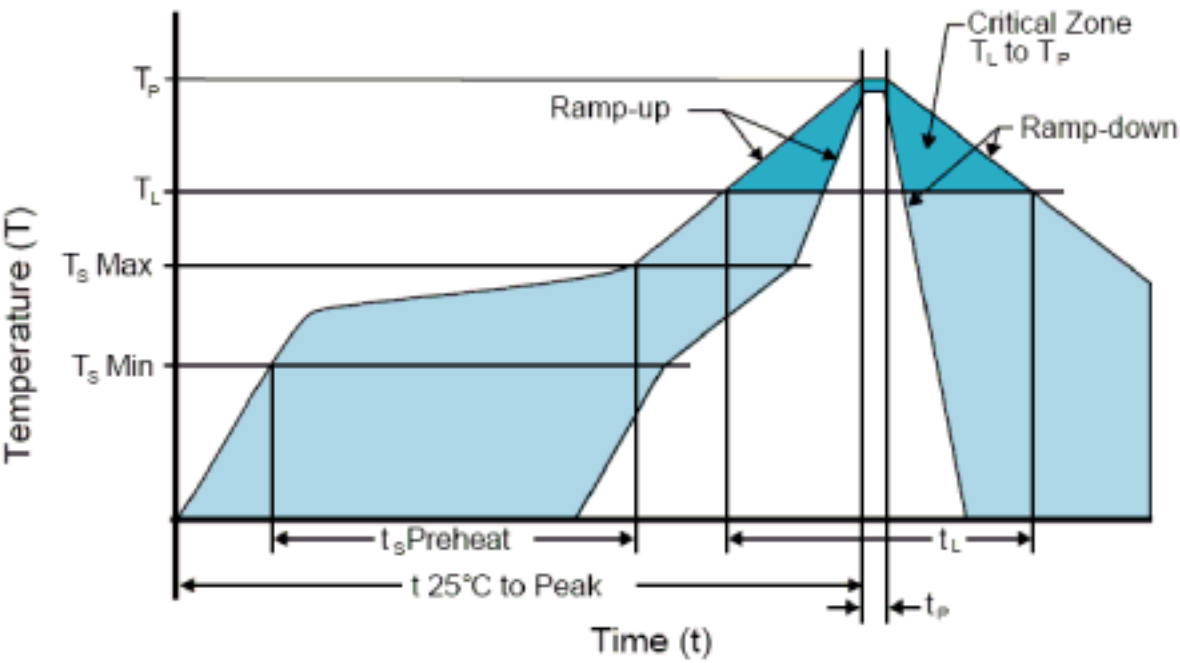
High Temperature Infrared/Convection

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.