

EH4725TTS-7.3728M TR

 <p>Lead Free COMPLIANT</p>	 <p>EU RoHS 2011/65 + 2015/863 COMPLIANT</p>	 <p>China RoHS COMPLIANT</p>	 <p>REACH SVHC 163 Jun 15, 2015 COMPLIANT</p>
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ITEM DESCRIPTION

Quartz Crystal Clock Oscillators XO (SPXO) LVCMOS (CMOS) 2.5Vdc 4 Pad 2.5mm x 3.2mm Ceramic Surface Mount (SMD) 7.3728MHz ± 25 ppm 0°C to +70°C

ELECTRICAL SPECIFICATIONS

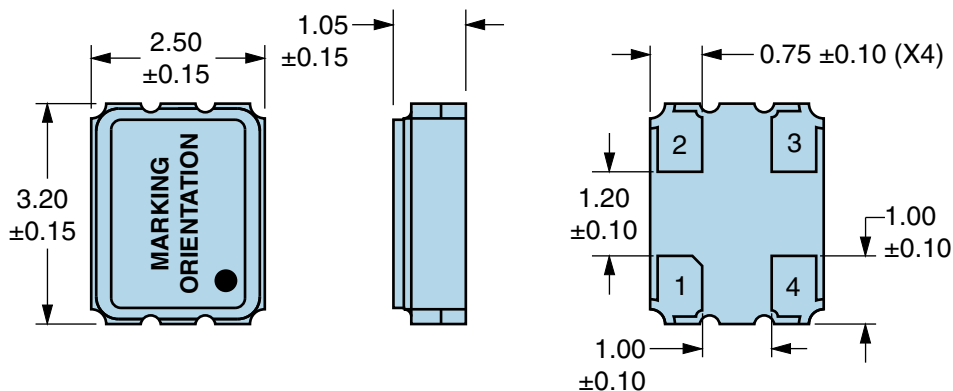
Nominal Frequency	7.3728MHz
Frequency Tolerance/Stability	± 25 ppm Maximum (Inclusive of all conditions: Calibration Tolerance at 25°C, Frequency Stability over the Operating Temperature Range, Supply Voltage Change, Output Load Change, First Year Aging at 25°, 260°C Reflow, Shock, and Vibration)
Aging at 25°C	± 5 ppm/Year Maximum
Operating Temperature Range	0°C to +70°C
Supply Voltage	2.5Vdc $\pm 5\%$
Input Current	6mA Maximum (No Load)
Output Voltage Logic High (Voh)	90% of Vdd Minimum (IOH = -8mA)
Output Voltage Logic Low (Vol)	10% of Vdd Maximum (IOL = +8mA)
Rise/Fall Time	6nSec Maximum (Measured at 20% to 80% of waveform)
Duty Cycle	50 ± 5 (%) (Measured at 50% of waveform)
Load Drive Capability	15pF Maximum
Output Logic Type	CMOS
Pin 1 Connection	Tri-State (High Impedance)
Tri-State Input Voltage (Vih and Vil)	90% of Vdd Minimum or No Connect to Enable Output, 10% of Vdd Maximum to Disable Output (High Impedance)
Standby Current	10 μ A Maximum (Pin 1 = Ground)
RMS Phase Jitter	20pSec Typical, 30pSec Maximum (Fj = 12kHz to 20MHz)
Period Jitter (RMS)	13pSec Typical
Period Jitter (pk-pk)	85pSec Typical, 100pSec Maximum
Start Up Time	10mSec Maximum
Storage Temperature Range	-55°C to +125°C

ENVIRONMENTAL & MECHANICAL SPECIFICATIONS

ESD Susceptibility	MIL-STD-883, Method 3015, Class 1, HBM: 1500Vdc
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-883, Method 2002, Condition B
Moisture Resistance	MIL-STD-883, Method 1004
Moisture Sensitivity	J-STD-020, MSL 1
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)

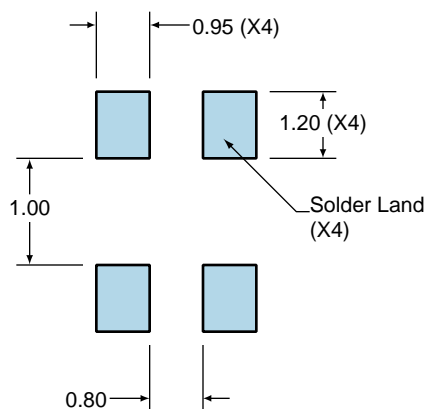


PIN	CONNECTION
1	Tri-State
2	Case Ground
3	Output
4	Supply Voltage

LINE	MARKING
1	E7.3728 E=Ecliptek Designator
2	XXXXX XXXXX=Ecliptek Manufacturing Identifier

Suggested Solder Pad Layout

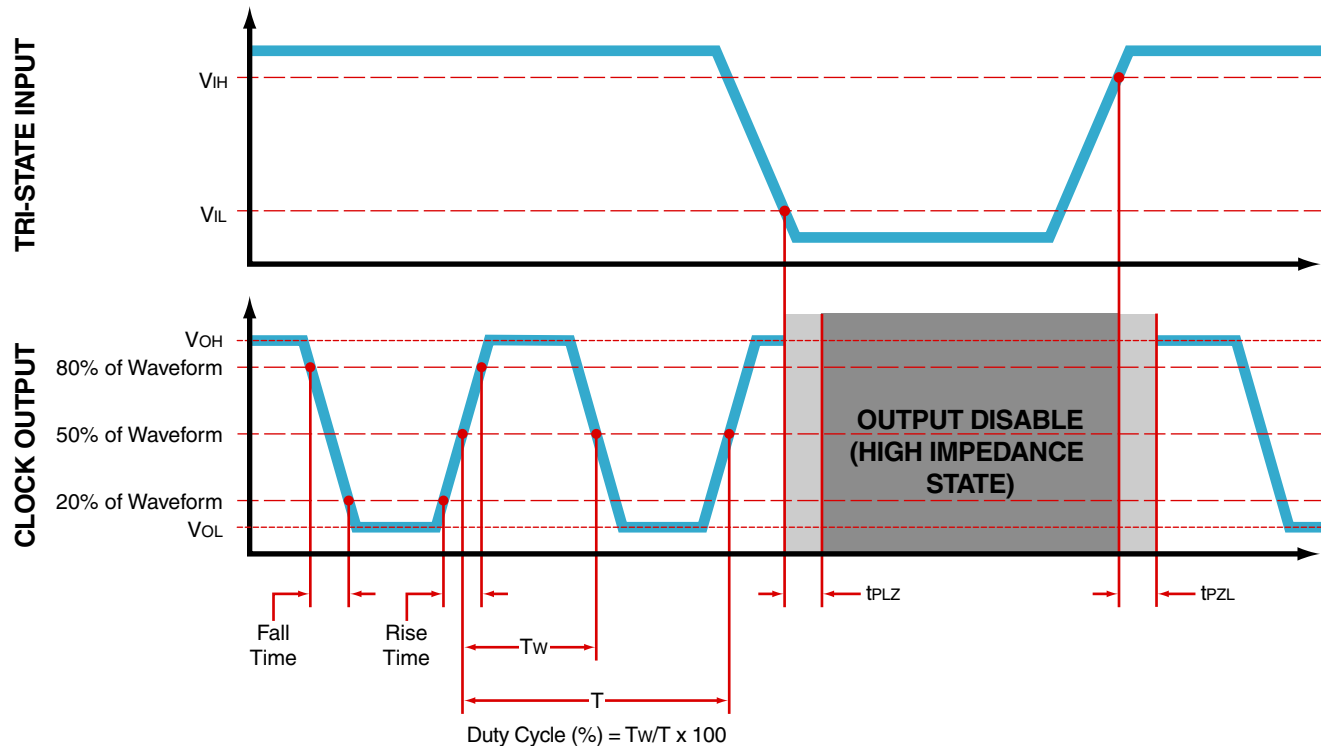
All Dimensions in Millimeters



All Tolerances are ± 0.1

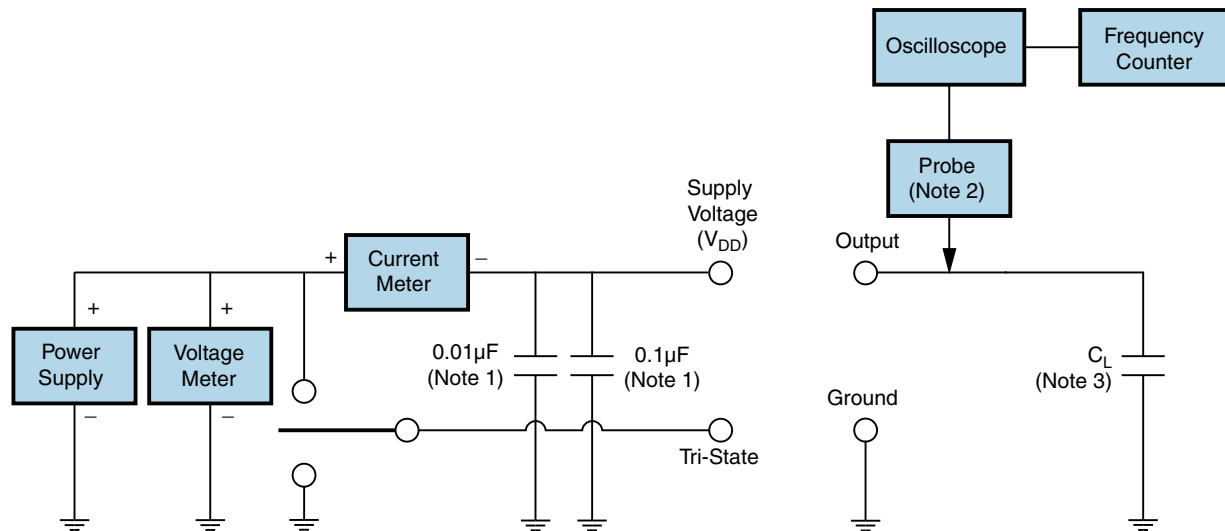
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OUTPUT WAVEFORM & TIMING DIAGRAM



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Test Circuit for CMOS Output



Note 1: An external 0.01µF ceramic bypass capacitor in parallel with a 0.1µF high frequency ceramic bypass capacitor close (less than 2mm) to the package ground and supply voltage pin is required.

Note 2: A low capacitance (<12pF), 10X attenuation factor, high impedance (>10Mohms), and high bandwidth (>300MHz) passive probe is recommended.

Note 3: Capacitance value C_L includes sum of all probe and fixture capacitance.

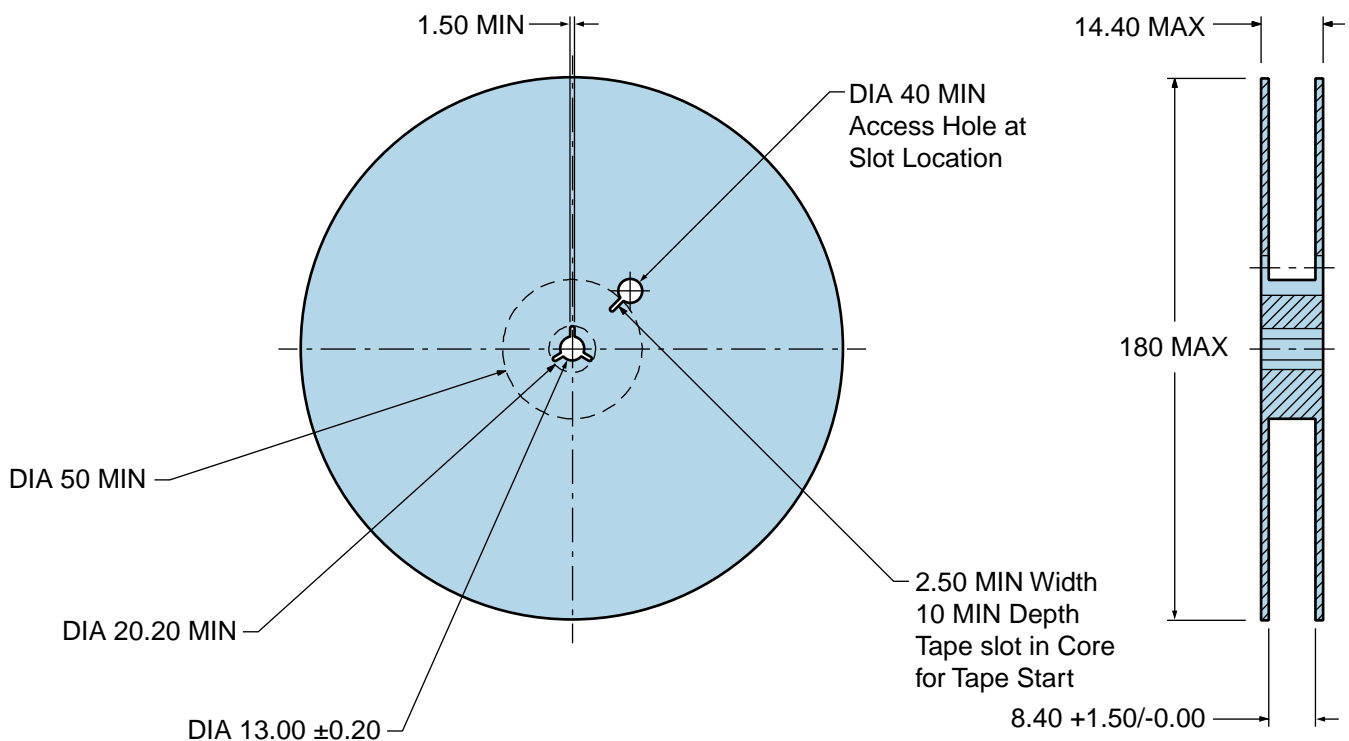
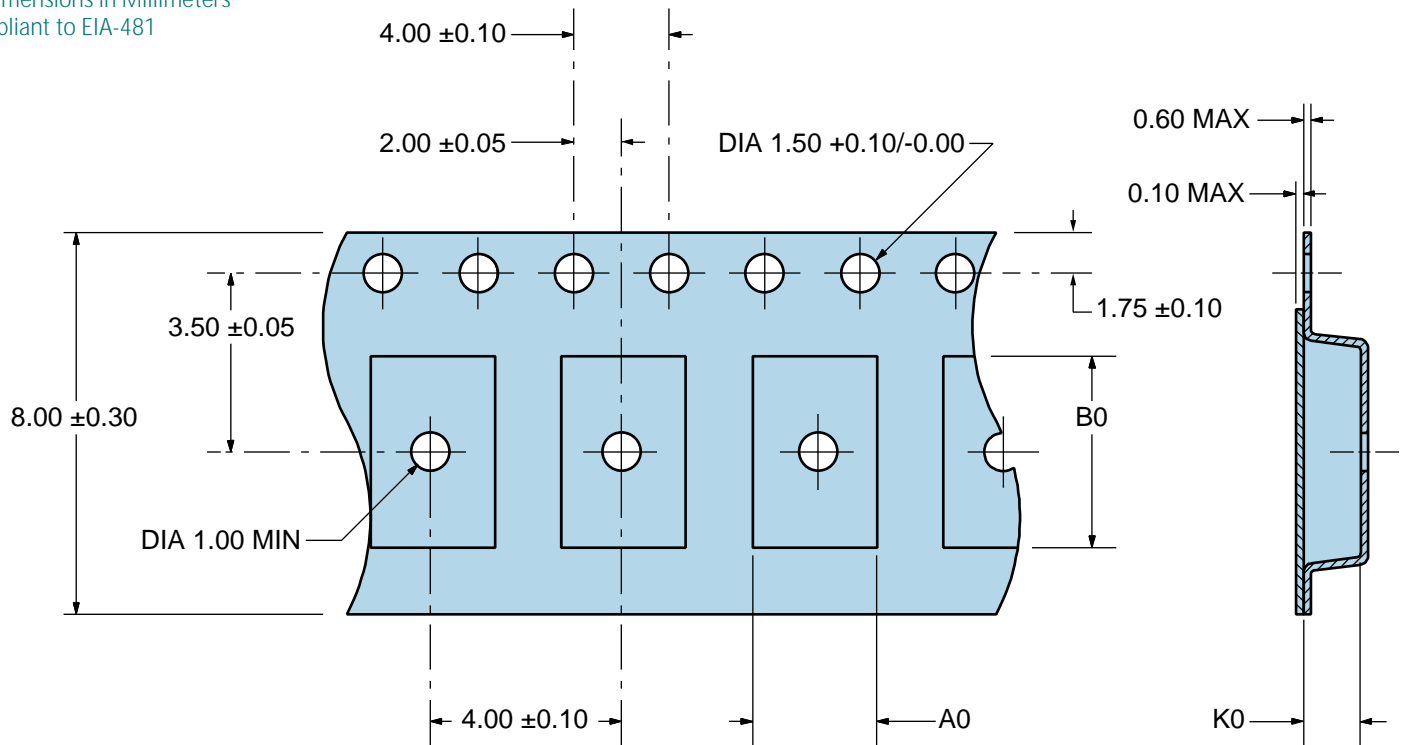
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Tape & Reel Dimensions

Quantity Per Reel: 1,000 units

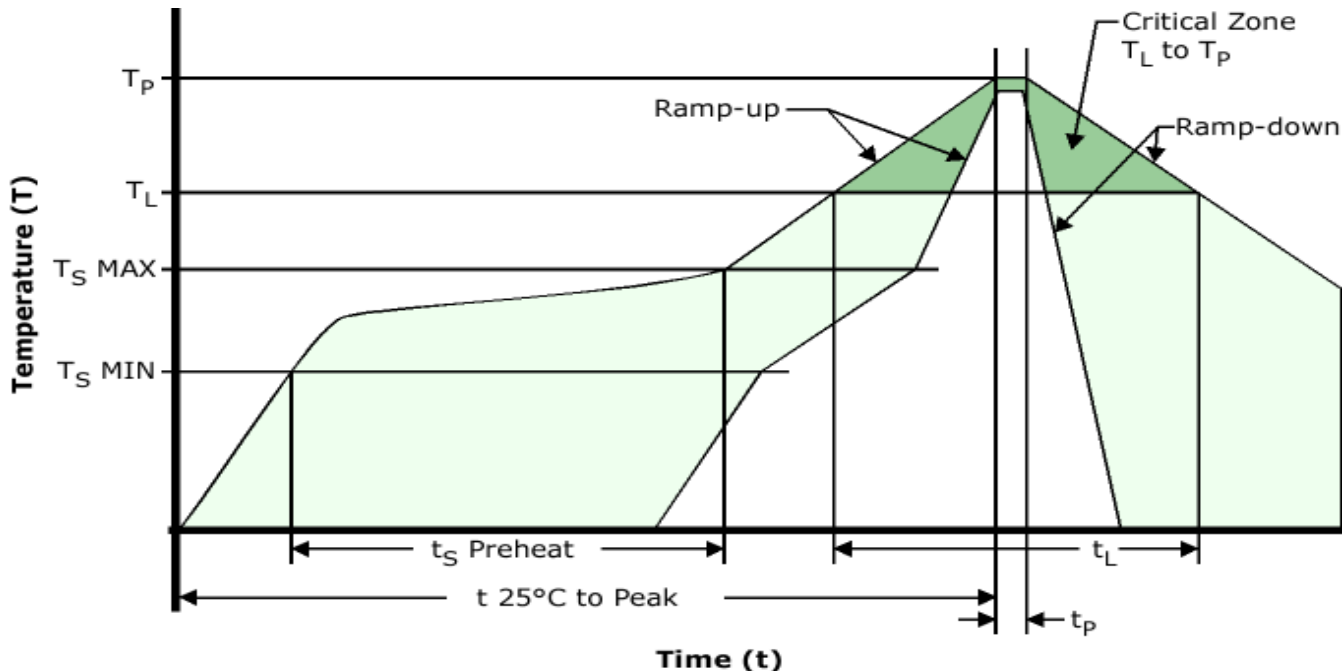
All Dimensions in Millimeters

Compliant to EIA-481



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Recommended Solder Reflow Methods



High Temperature Infrared/Convection

T_S MAX to T_L (Ramp-up Rate) 3°C/Second Maximum

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

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

Target Peak Temperature (T_P Target) 250°C +0/-5°C

Time within 5°C of actual peak (t_p) 20 - 40 Seconds

Ramp-down Rate 6°C/Second Maximum

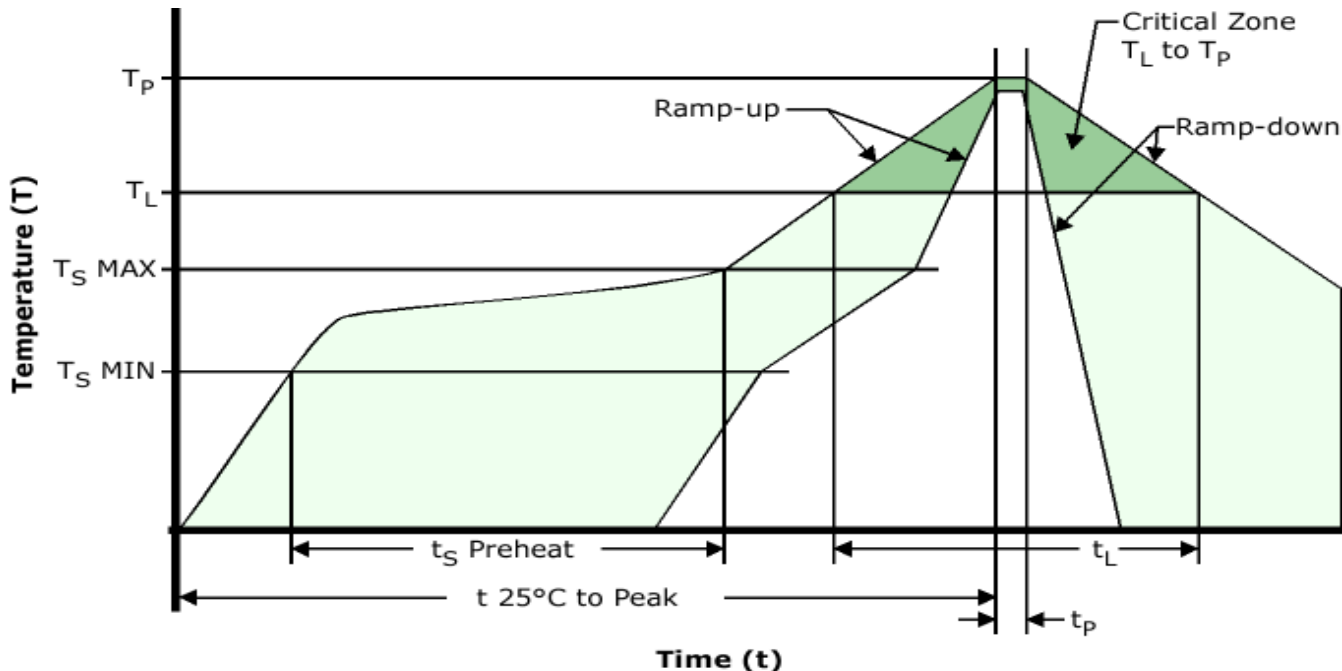
Time 25°C to Peak Temperature (t) 8 Minutes Maximum

Moisture Sensitivity Level Level 1

Additional Notes Temperatures shown are applied to body of device.

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Recommended Solder Reflow Methods



Low Temperature Infrared/Convection 240°C

T_s MAX to T_L (Ramp-up Rate) 5°C/Second Maximum

Preheat

- 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) 60 - 120 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) 240°C Maximum

Target Peak Temperature (T_P Target) 240°C Maximum 2 Times / 230°C Maximum 1 Time

Time within 5°C of actual peak (t_p) 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

Additional Notes Temperatures shown are applied to body of device.

Low Temperature Manual Soldering

185°C Maximum for 10 Seconds Maximum, 2 times Maximum. (Temperatures shown are applied to body of device.)

High Temperature Manual Soldering

260°C Maximum for 5 Seconds Maximum, 2 times Maximum. (Temperatures shown are applied to body of device.)