



**THE DATASHEET OF
EMRE22J1H-625.000M**



ECN/PCN No.: 4151

| For Manufacturer | | | |
|--|---|--|--|
| Product Description: PLASTIC SMD MEMS OSCILLATOR | Abracon Part Number / Part Series: EMRE22 | <input type="checkbox"/> Documentation only <input type="checkbox"/> ECN <input checked="" type="checkbox"/> EOL | <input checked="" type="checkbox"/> Series <input type="checkbox"/> Part Number |
| Affected Revision: A | New Revision: EOL | Application: | <input type="checkbox"/> Safety <input checked="" type="checkbox"/> Non-Safety |
| Prior to Change: Active | | | |
| After Change: EOL | | | |
| Cause/Reason for Change: Discontinuation of manufacturing capability. | | | |
| Change Plan | | | |
| Effective Date: 2/7/2022 | Additional Remarks: N/A | | |
| Change Declaration: N/A | | | |
| Issued Date: 2/7/2022 | Issued By: <i>Brooke Cushman</i> Product Engineer | Issued Department: Engineering | |
| Approval: <i>Thomas Culhane</i> Engineering Director | Approval: <i>Reuben Quintanilla</i> Quality Director | Approval: <i>Ying Huang</i> Purchasing Director | |
| For Abracon EOL only | | | |
| Last Time Buy (if applicable): 5/7/2022 | Alternate Part Number / Part Series: AK5 (frequency=100-200MHz), AX5 (frequency greater than 200MHz or less than 100MHz) | | |
| Additional Approval: | Additional Approval: | Additional Approval: | |
| Customer Approval (If Applicable) | | | |
| Qualification Status: <input type="checkbox"/> Approved <input type="checkbox"/> Not accepted <i>Note: It is considered approved if there is no feedback from the customer 1 month after ECN/PCN is released.</i> | | | |
| Customer Part Number: | | Customer Project: | |
| Company Name: | Company Representative: | Representative Signature: | |
| Customer Remarks: | | | |

REGULATORY COMPLIANCE



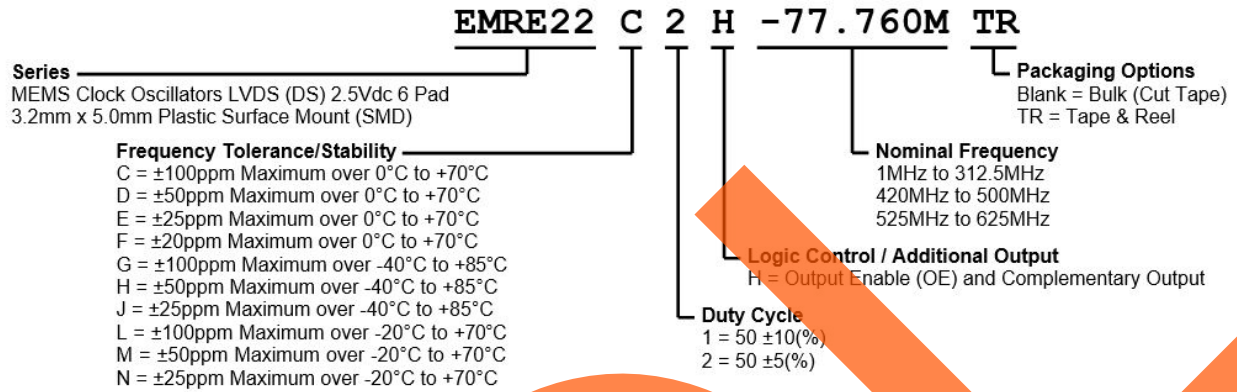
ITEM DESCRIPTION

MEMS Clock Oscillators LVDS (DS) 2.5Vdc 6 Pad 3.2mm x 5.0mm Plastic Surface Mount (SMD)

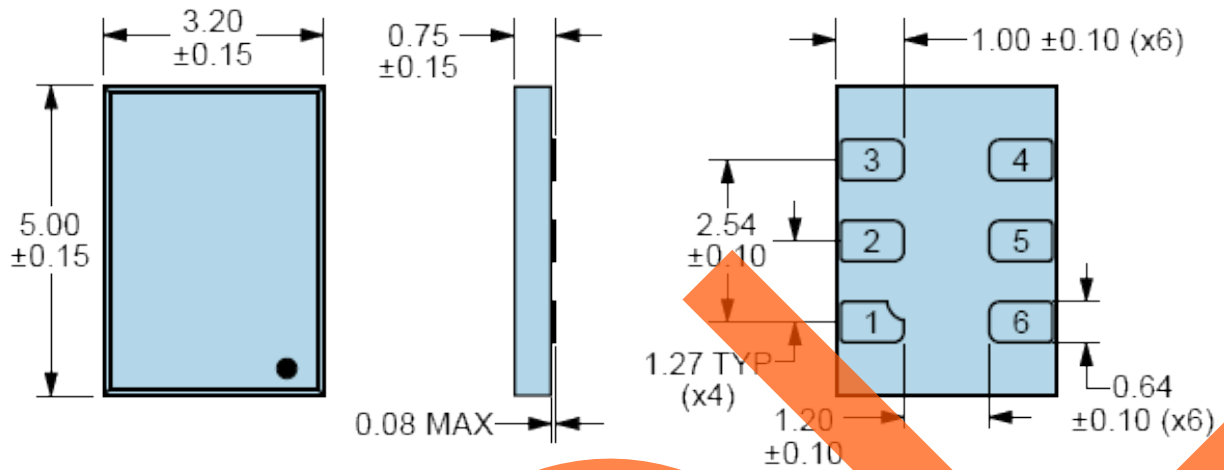
ELECTRICAL SPECIFICATIONS

| | |
|-----------------------------------|--|
| Nominal Frequency | 1MHz to 625MHz |
| Frequency Tolerance/Stability | Inclusive of all conditions: Calibration Tolerance at 25°C, Frequency Stability over the Operating Temperature Range, Supply Voltage Change, Output Load Change, 1st Year Aging at 25°C, Reflow, Shock, and Vibration ±100ppm Maximum over 0°C to +70°C ±50ppm Maximum over 0°C to +70°C ±25ppm Maximum over 0°C to +70°C ±20ppm Maximum over 0°C to +70°C ±100ppm Maximum over -40°C to +85°C ±50ppm Maximum over -40°C to +85°C ±25ppm Maximum over -40°C to +85°C ±100ppm Maximum over -20°C to +70°C ±50ppm Maximum over -20°C to +70°C ±25ppm Maximum over -20°C to +70°C |
| Aging at 25°C | ±1ppm First Year Maximum |
| Supply Voltage | +2.5Vdc ±10% |
| Input Current | Excluding Load Termination Current 45mA Typical, 55mA Maximum |
| Differential Output Voltage (Vod) | 200mVdc Minimum, 350mVdc Typical, 500mVdc Maximum |
| Offset Voltage (Vos) | 1.125V Minimum, 1.20V Typical, 1.375V Maximum |
| Rise/Fall Time | Measured over 20% to 80% of waveform 500pSec Typical, 600pSec Maximum |
| Differential Output Error (dVod) | 50mVdc Maximum |
| Duty Cycle | Measured at 50% of waveform 50 ±10(%) 50 ±5(%) (Not available with Duty Cycle of 50 ±5(%) over Nominal Frequency range of 312.500001MHz to 524.999999MHz) |
| Offset Error (dVos) | 50mVdc Maximum |
| Load Drive Capability | 100 Ohms Between Output and Complementary Output |
| Output Logic Type | LVDS |
| Logic Control / Additional Output | Output Enable (OE) and Complementary Output |
| Output Control Input Voltage | Vih of 70% of Vdd Minimum or No Connect to Enable Output and Complementary Output, Vil of 30% of Vdd Maximum to Disable Output and Complementary Output (High Impedance) |
| Output Enable Current | 35mA Maximum (Without Load) |
| RMS Phase Jitter | Fj = 12kHz to 20MHz; Random 0.5pSec Typical, 1pSec Maximum |
| Period Jitter (Deterministic) | 0.2pSec Typical |
| Period Jitter (Random) | 1.0pSec Typical |
| Period Jitter (RMS) | 1.4pSec Typical, 1.7pSec Maximum |
| Period Jitter (pk-pk) | 15pSec Typical, 20pSec Maximum |
| Start Up Time | 10mSec Maximum |
| Storage Temperature Range | -55°C to +125°C |

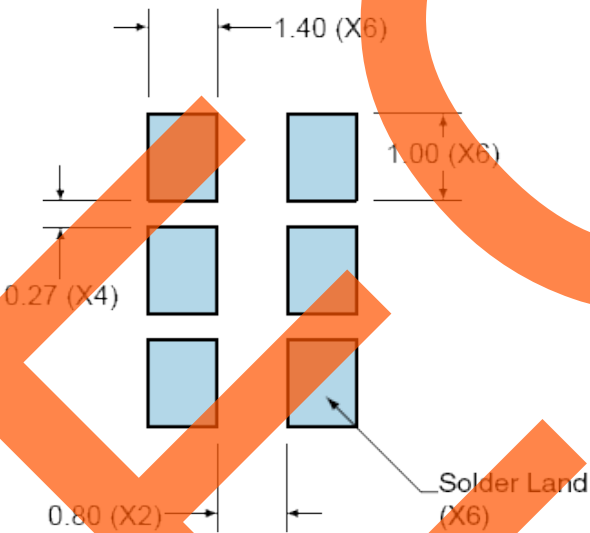
PART NUMBERING GUIDE



MECHANICAL DIMENSIONS



SUGGESTED SOLDER PAD LAYOUT

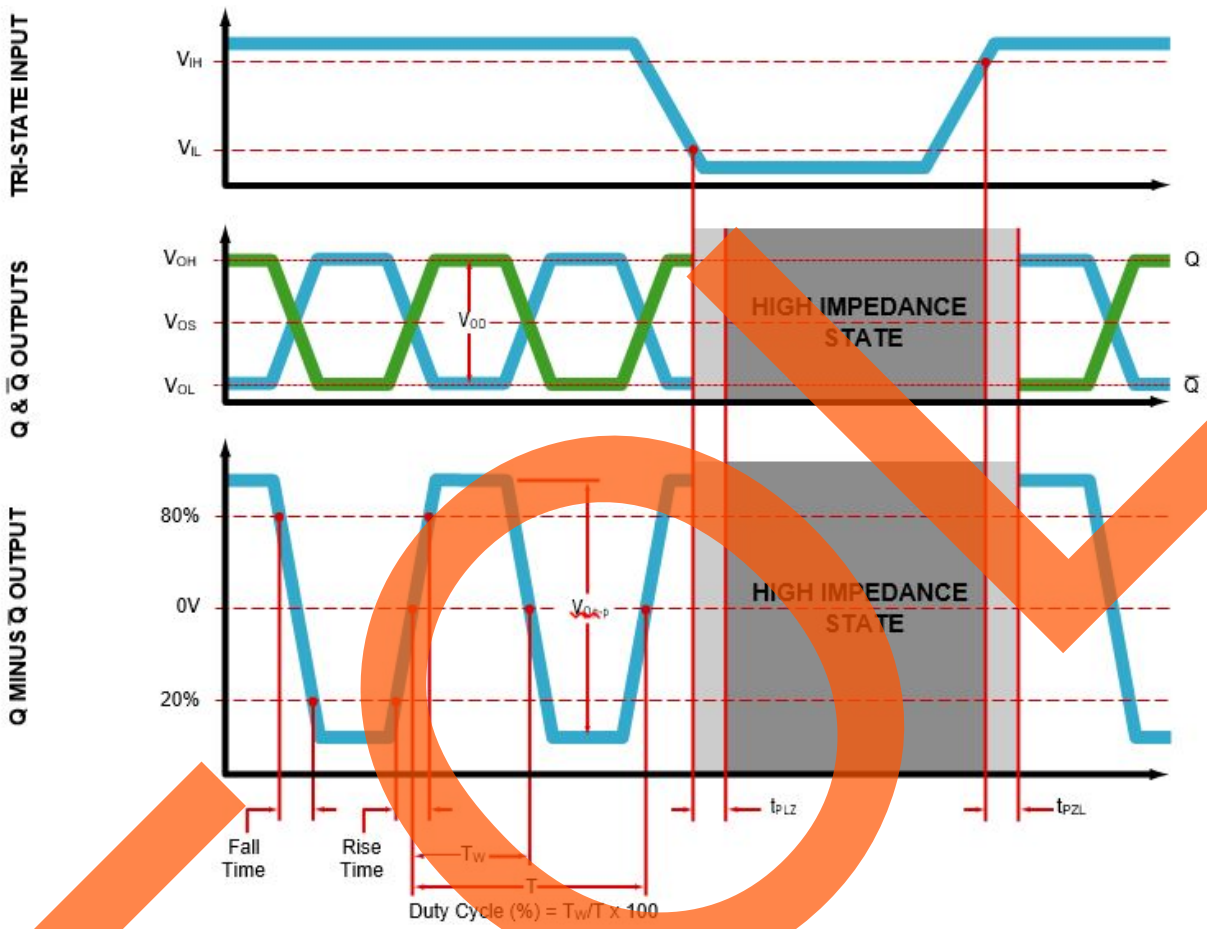


| PIN | CONNECTION |
|-----|----------------------|
| 1 | Output Enable (OE) |
| 2 | No Connect |
| 3 | Case Ground |
| 4 | Output |
| 5 | Complementary Output |
| 6 | Supply Voltage |

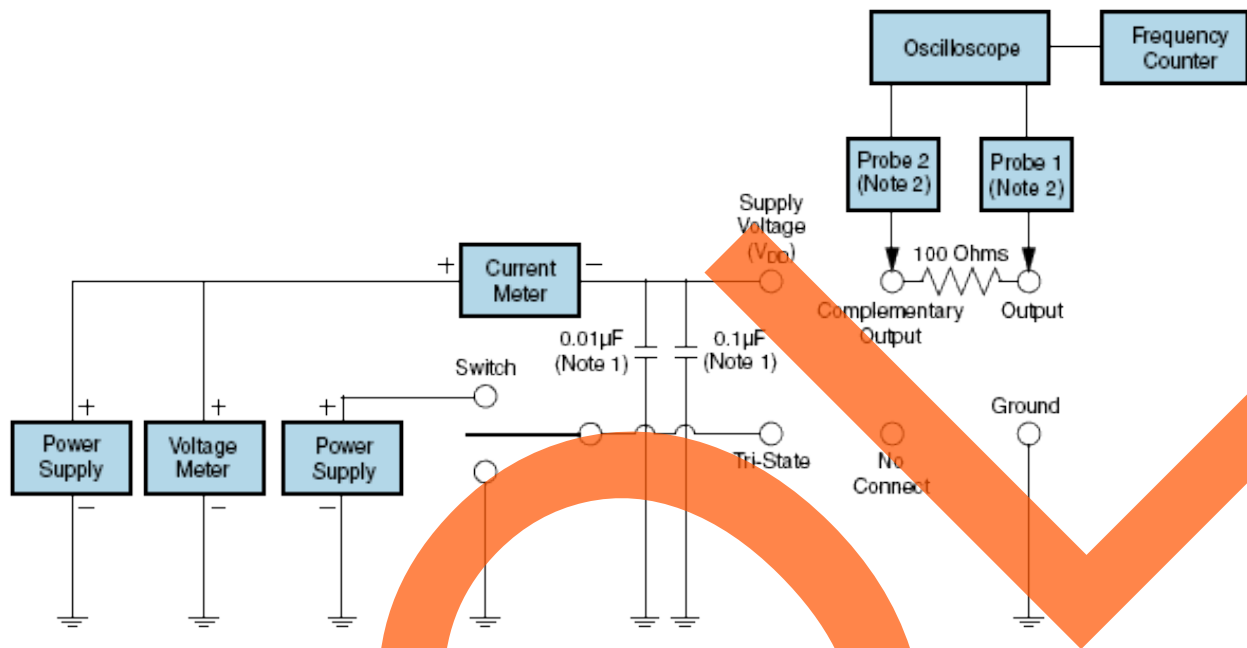
All Tolerances are ± 0.1

All Dimensions in Millimeters

OUTPUT WAVEFORM & TIMING DIAGRAM



TEST CIRCUIT FOR TRI-STATE AND COMPLEMENTARY 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 (>500MHz) passive probe is recommended.

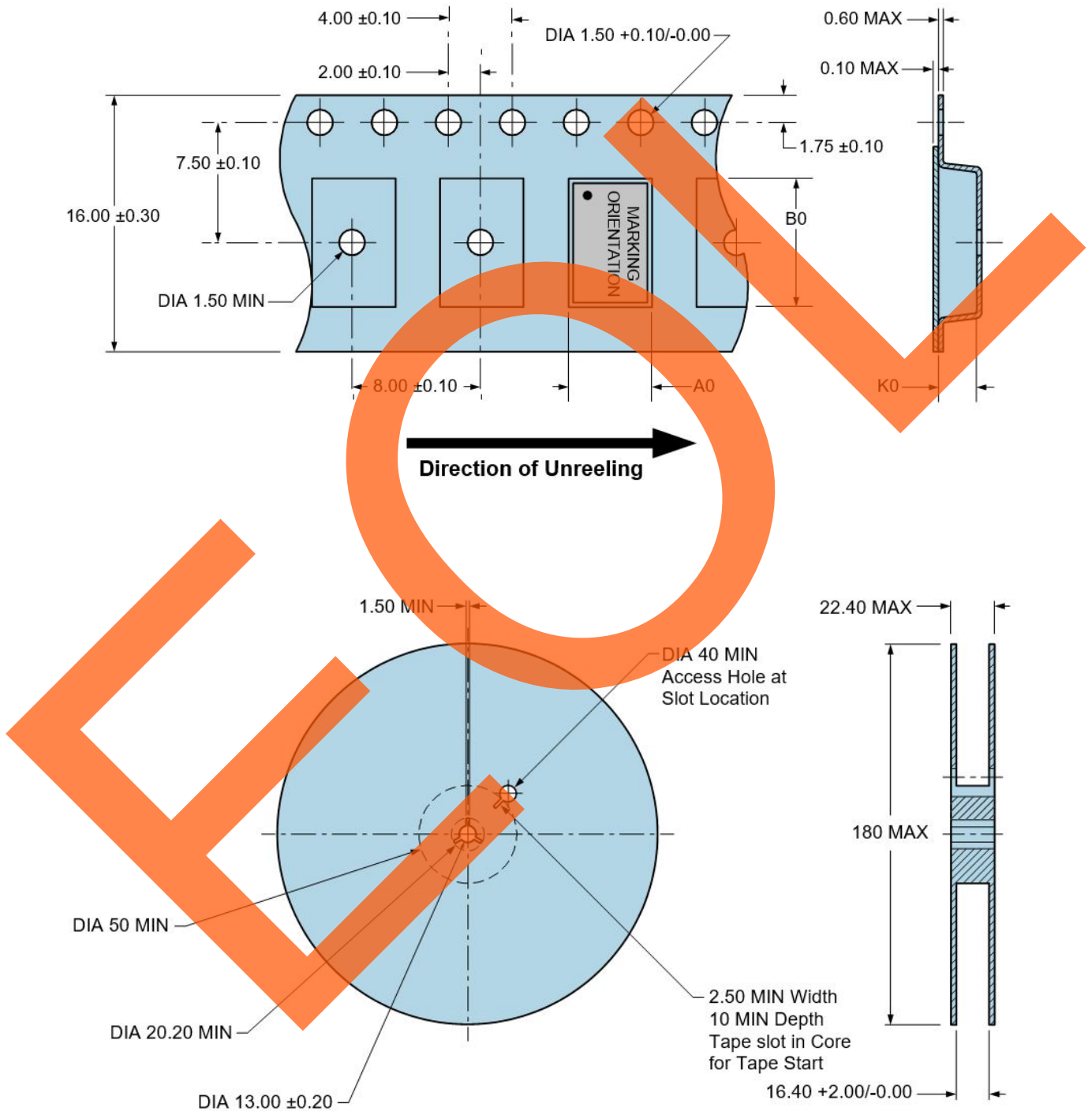
Note 3: Test circuit PCB traces need to be designed for a characteristic line impedance of 50 ohms.

TAPE & REEL DIMENSIONS

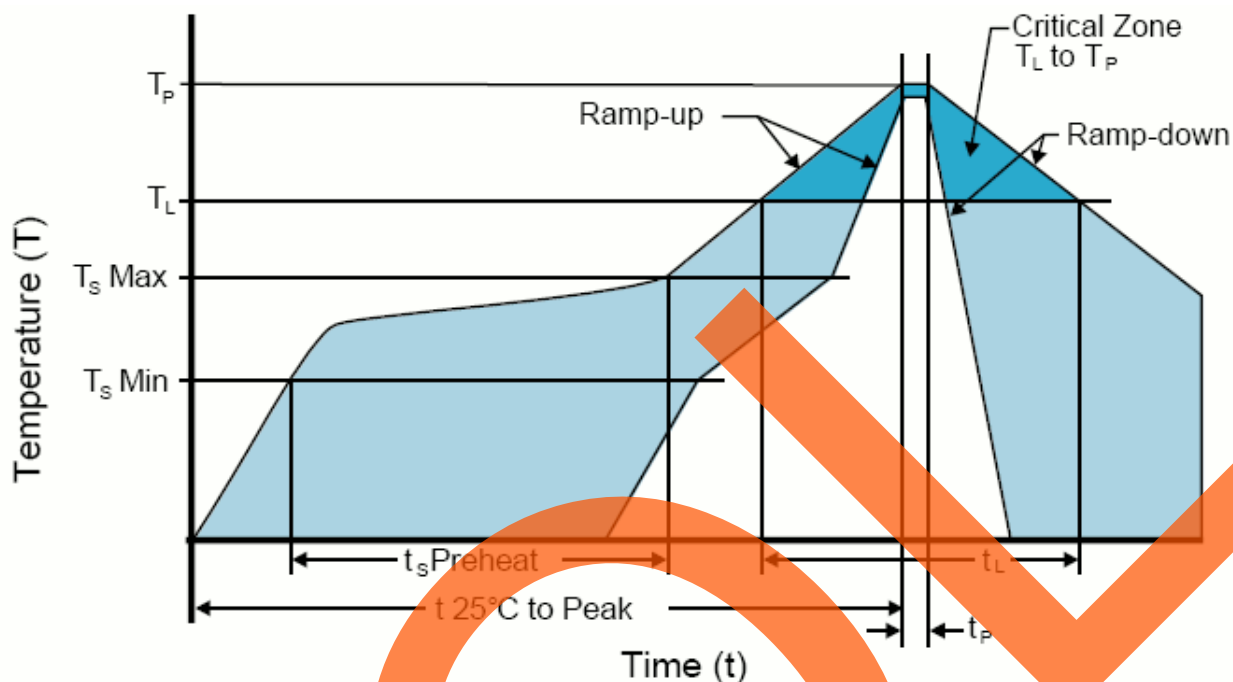
Quantity per Reel: 1,000 Units

All Dimensions in Millimeters

Compliant to EIA-481



RECOMMENDED SOLDER REFLOW METHOD



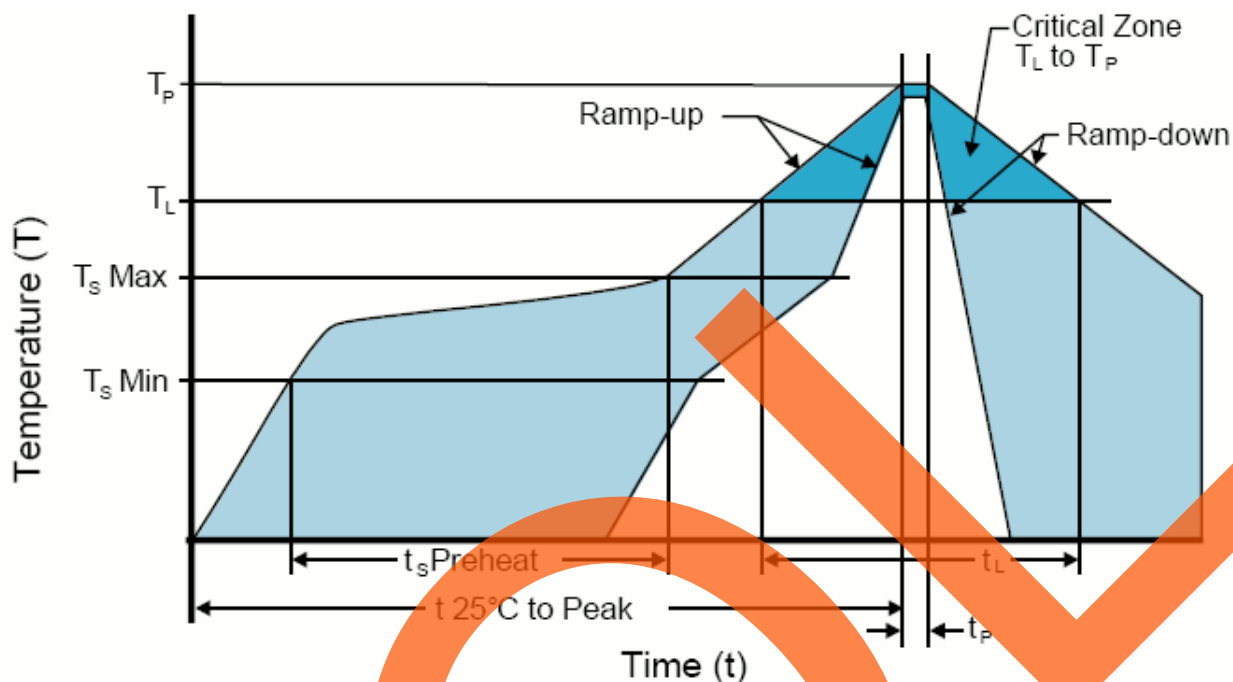
HIGH TEMPERATURE INFRARED/CONVECTION

| | |
|--|---|
| 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. |

High Temperature Manual Soldering

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

RECOMMENDED SOLDER REFLOW METHOD



LOW TEMPERATURE INFRARED/CONVECTION

| | |
|---|--|
| 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.)

Looking for pricing, stock, or lifecycle information?

Click below to explore more details on WIN SOURCE:

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