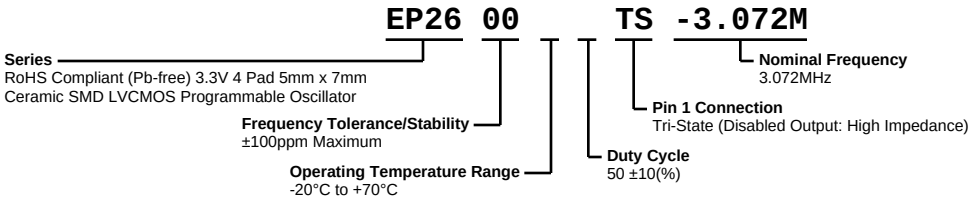
# EP2600TS-3.072M




## ELECTRICAL SPECIFICATIONS

| | |
|---|---|
| **Nominal Frequency** | 3.072MHz |
| **Frequency Tolerance/Stability** | ±100ppm 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°C, Shock, and Vibration) |
| **Aging at 25°C** | ±5ppm/year Maximum |
| **Operating Temperature Range** | -20°C to +70°C |
| **Supply Voltage** | 3.3Vdc ±0.3Vdc |
| **Input Current** | 28mA Maximum (Unloaded) |
| **Output Voltage Logic High (Voh)** | Vdd-0.4Vdc Minimum (IOH= -8mA) |
| **Output Voltage Logic Low (Vol)** | 0.4Vdc Maximum (IOL= +8mA) |
| **Rise/Fall Time** | 4nSec Maximum (Measured at 20% to 80% of waveform) |
| **Duty Cycle** | 50 ±10(%) (Measured at 50% of waveform) |
| **Load Drive Capability** | 30pF Maximum |
| **Output Logic Type** | CMOS |
| **Pin 1 Connection** | Tri-State (Disabled Output: High Impedance) |
| **Tri-State Input Voltage (Vih and Vil)** | 70% of Vdd Minimum to enable output, 20% of Vdd Maximum to disable output, No Connect to enable output. |
| **Standby Current** | 20µA Maximum (Pin 1 = Ground) |
| **Disable Current** | 16mA Maximum (Pin 1 = Ground) |
| **Absolute Clock Jitter** | ±250pSec Maximum, ±100pSec Typical |
| **One Sigma Clock Period Jitter** | ±50pSec 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: 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-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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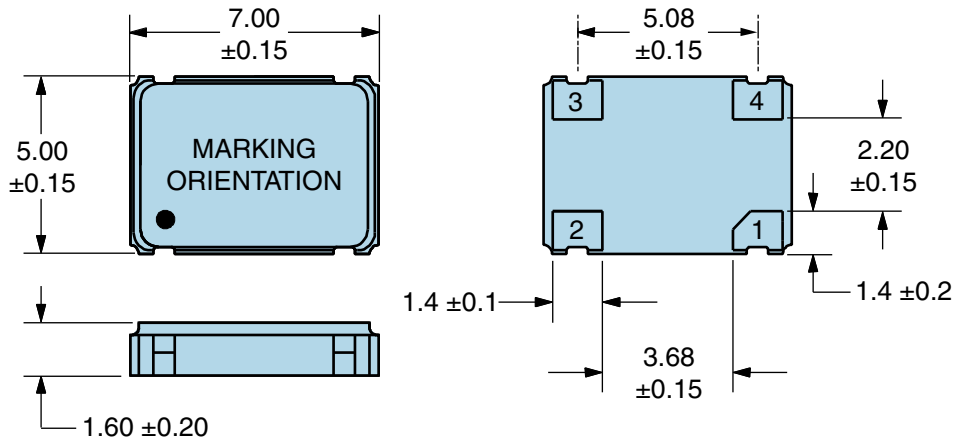
## MECHANICAL DIMENSIONS (all dimensions in millimeters)

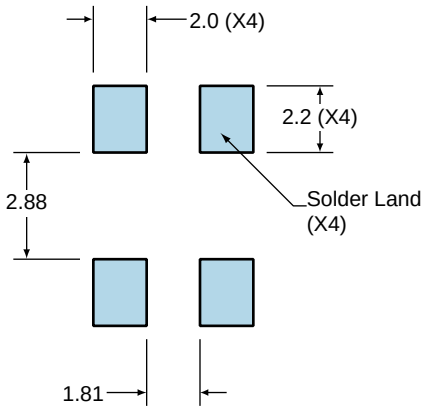



| PIN | CONNECTION |
|---|---|
| 1 | Tri-State (High Impedance) |
| 2 | Ground/Case Ground |
| 3 | Output |
| 4 | Supply Voltage |

| LINE | MARKING |
|---|---|
| 1 | **ECLIPTEK** |
| 2 | **3.072M** |
| 3 | **PXXYZZ**<br>*P=Configuration Designator*<br>*XX=Ecliptek Manufacturing Code*<br>*Y=Last Digit of the Year*<br>*ZZ=Week of the Year* |

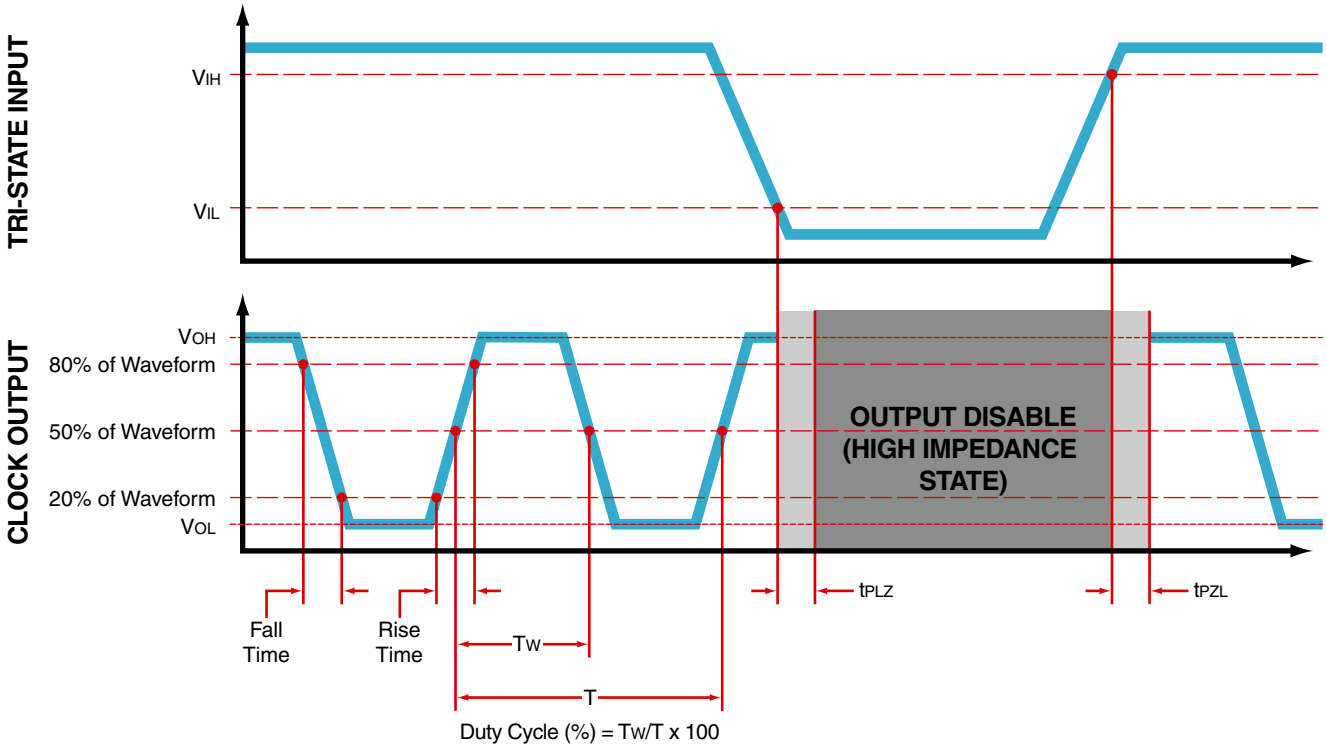
### Suggested Solder Pad Layout

All Dimensions in Millimeters

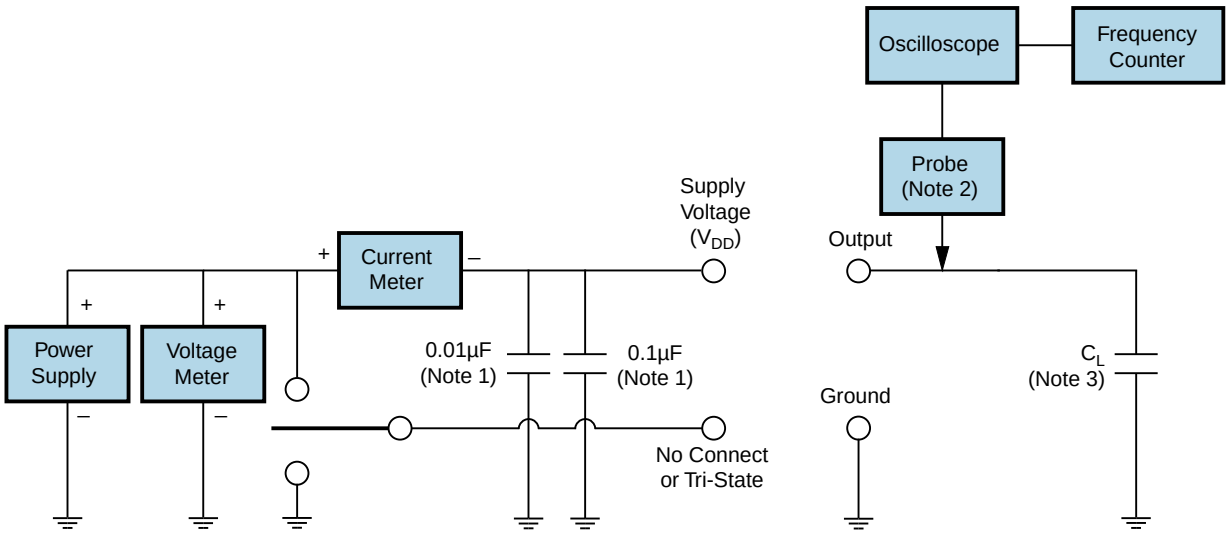



All Tolerances are ±0.1

## OUTPUT WAVEFORM & TIMING DIAGRAM

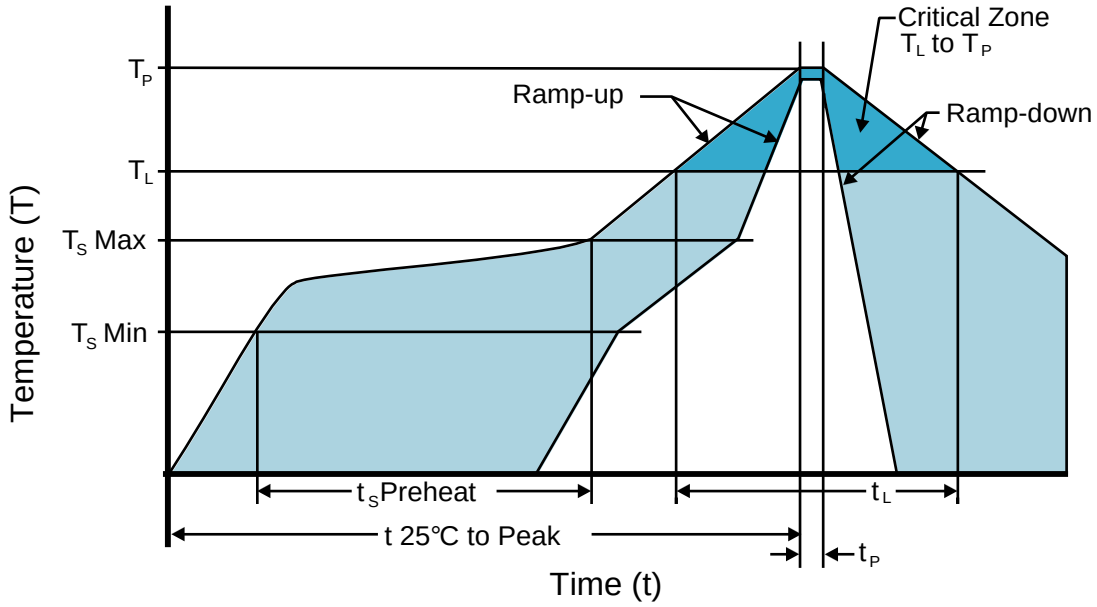



## Test Circuit for CMOS Output




Note 1: An external 0.1µF low frequency tantalum bypass capacitor in parallel with a 0.01µF high frequency ceramic bypass capacitor close to the package ground and $V_{DD}$ 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.

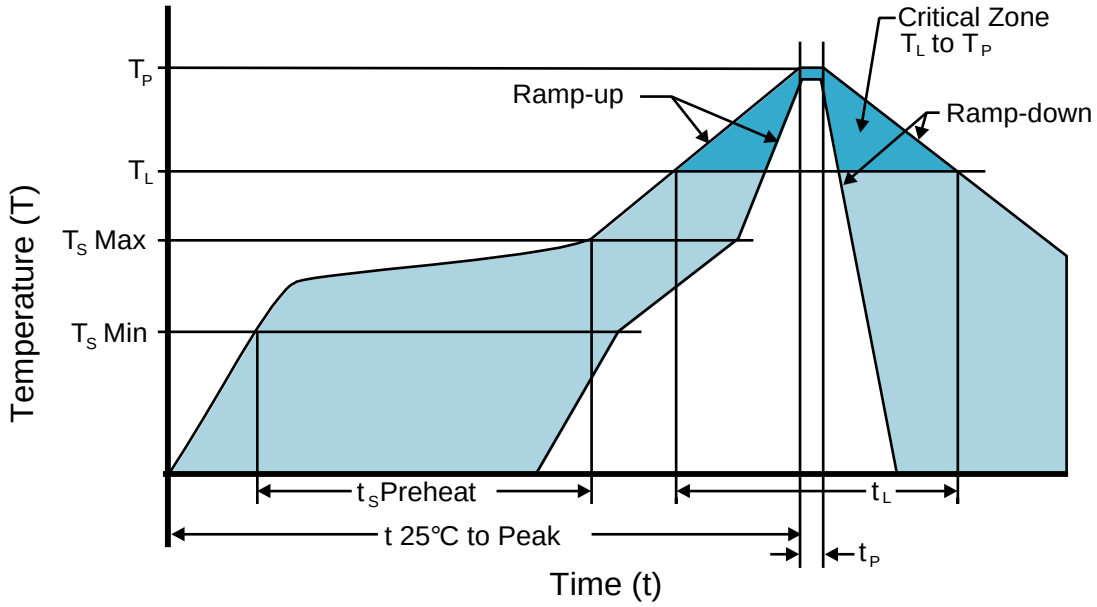
# Recommended Solder Reflow Methods




## 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. |

# 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 1 Time / 230°C Maximum 2 Times |
| **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.)