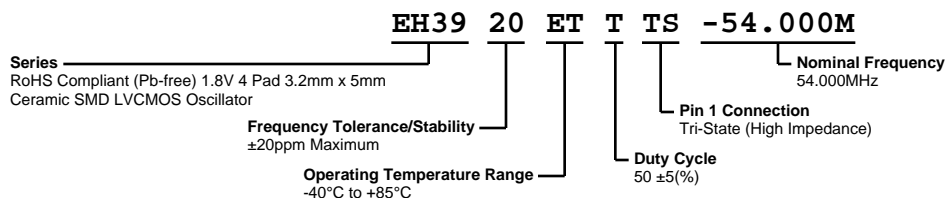


EH3920ETTS-54.000M



ECLIPTEK
CORPORATION



ELECTRICAL SPECIFICATIONS

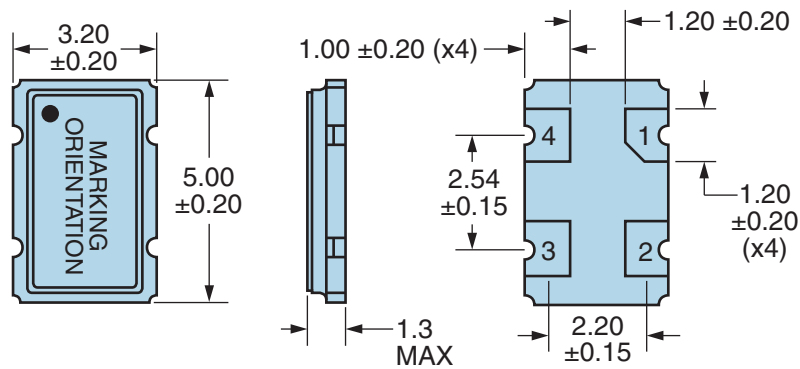
| | |
|---------------------------------------|---|
| Nominal Frequency | 54.000MHz |
| Frequency Tolerance/Stability | ± 20 ppm Maximum (Inclusive of all conditions: Calibration Tolerance at 25°C, Frequency Stability over the Operating Temperature Range, Supply Voltage Change, Output Load Change, First Year Aging at 25°, 260°C Reflow, Shock, and Vibration) |
| Aging at 25°C | ± 5 ppm/Year Maximum |
| Operating Temperature Range | -40°C to +85°C |
| Supply Voltage | 1.8Vdc \pm 5% |
| Input Current | 4mA 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 | 4nSec Maximum (Measured at 20% to 80% of waveform) |
| Duty Cycle | 50 \pm 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) |
| Absolute Clock Jitter | ± 100 pSec 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 |

EH3920ETTTTS-54.000M

MECHANICAL DIMENSIONS (all dimensions in millimeters)

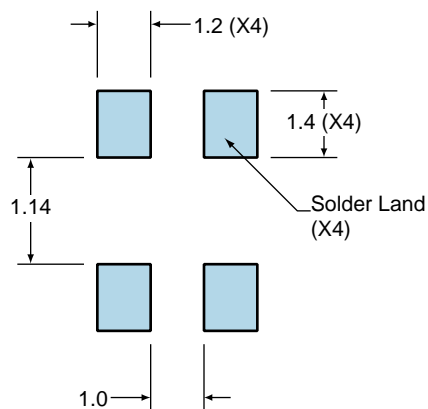


| PIN | CONNECTION |
|-----|----------------|
| 1 | Tri-State |
| 2 | Case Ground |
| 3 | Output |
| 4 | Supply Voltage |

| LINE | MARKING |
|------|---|
| 1 | EPO |
| 2 | XXXXXX XXXXXX=Ecliptek Manufacturing Identifier |

Suggested Solder Pad Layout

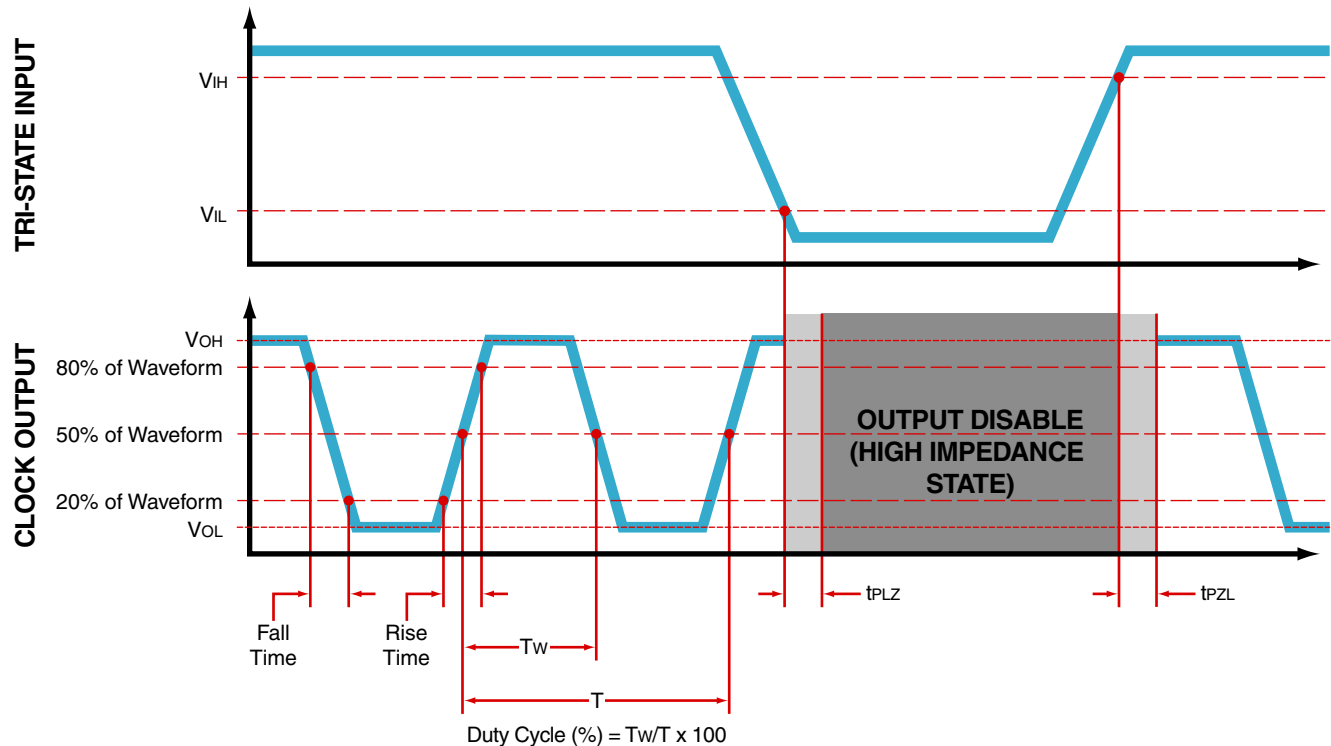
All Dimensions in Millimeters



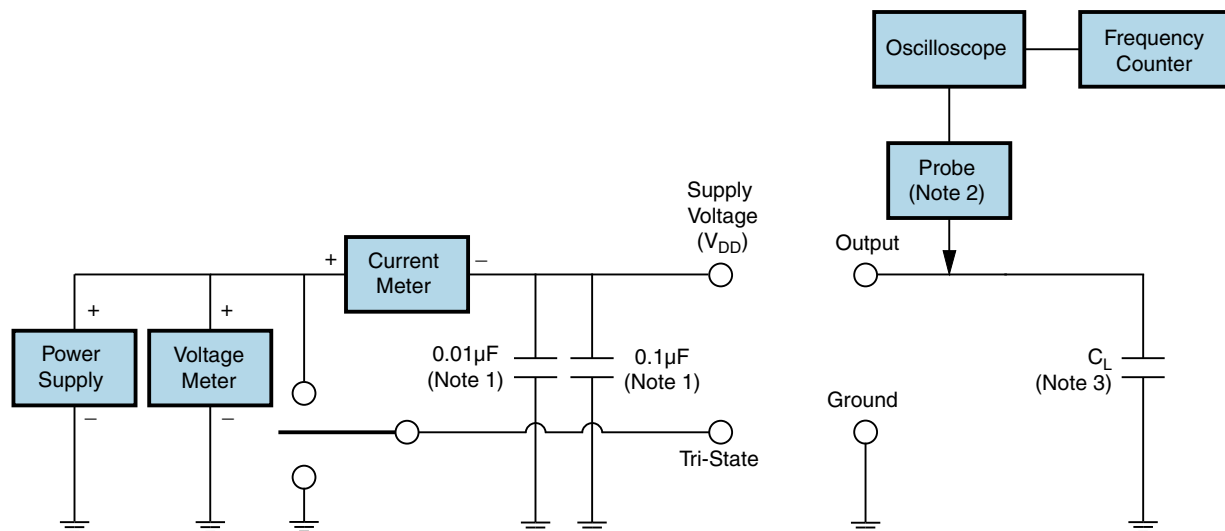
All Tolerances are ±0.1

EH3920ETTS-54.000M

OUTPUT WAVEFORM & TIMING DIAGRAM



Test Circuit for CMOS Output

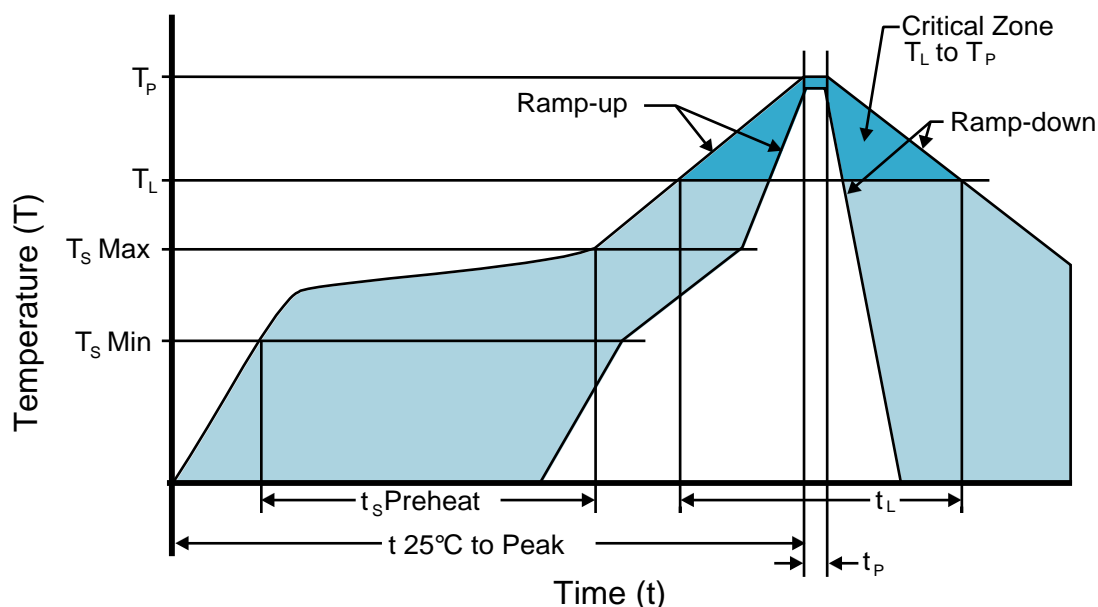


Note 1: An external $0.01\mu F$ ceramic bypass capacitor in parallel with a $0.1\mu F$ high frequency ceramic bypass capacitor close (less than 2mm) to the package ground and supply voltage pin is required.

Note 2: A low capacitance ($<12pF$), 10X attenuation factor, high impedance ($>10M\Omega$), 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

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

Recommended Solder Reflow Methods



Low Temperature Infrared/Convection 240°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) 60 - 120 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) 240°C Maximum

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

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.