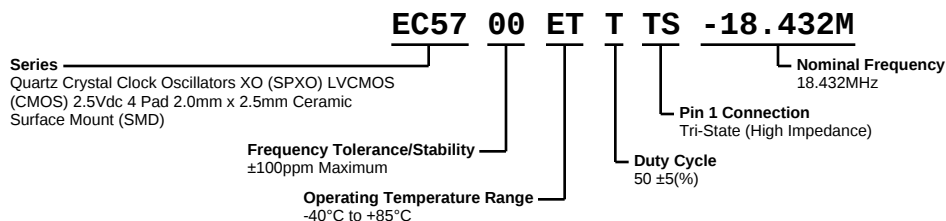


# EC5700ETTS-18.432M



## ELECTRICAL SPECIFICATIONS

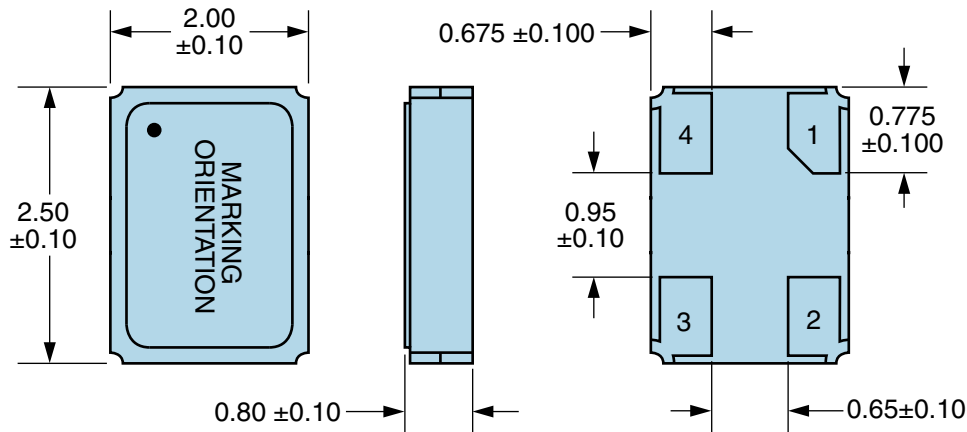
|                                       |                                                                                                                                                                                                                                   |
|---------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Nominal Frequency                     | 18.432MHz                                                                                                                                                                                                                         |
| 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) |
| Operating Temperature Range           | -40°C to +85°C                                                                                                                                                                                                                    |
| Supply Voltage                        | 2.5Vdc ±5%                                                                                                                                                                                                                        |
| Input Current                         | 4.5mA Maximum                                                                                                                                                                                                                     |
| Output Voltage Logic High (Voh)       | 90% of Vdd Minimum (IOH= -4mA)                                                                                                                                                                                                    |
| Output Voltage Logic Low (Vol)        | 10% of Vdd Maximum (IOL= +4mA)                                                                                                                                                                                                    |
| Rise/Fall Time                        | 10nSec 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                       | 10µA Maximum (Disabled Output: High Impedance)                                                                                                                                                                                    |
| RMS Phase Jitter                      | 1pSec Maximum (12kHz to 20MHz offset frequency)                                                                                                                                                                                   |
| 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         |

# EC5700ETTTTS-18.432M

## MECHANICAL DIMENSIONS (all dimensions in millimeters)

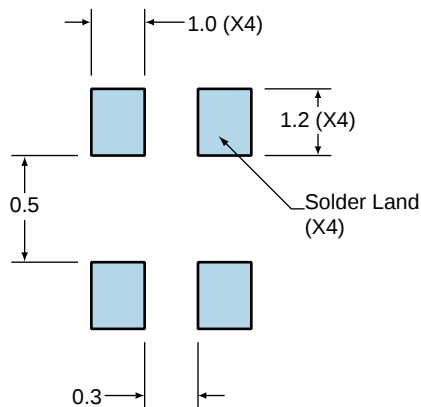


| PIN | CONNECTION     |
|-----|----------------|
| 1   | Tri-State      |
| 2   | Case/Ground    |
| 3   | Output         |
| 4   | Supply Voltage |

| LINE | MARKING                                                    |
|------|------------------------------------------------------------|
| 1    | <b>E18.4</b><br>E=Ecliptek Designator                      |
| 2    | <b>XXXXX</b><br>XXXXX=Ecliptek<br>Manufacturing Identifier |

## Suggested Solder Pad Layout

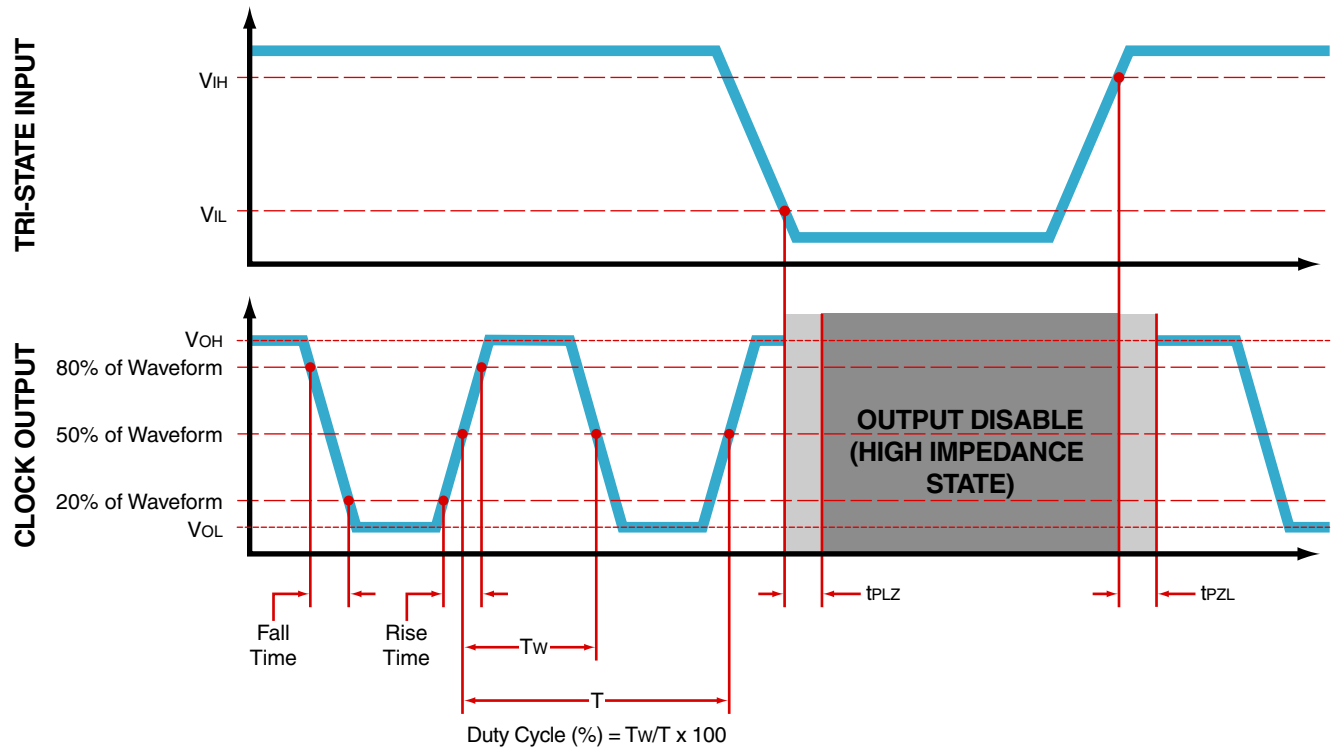
All Dimensions in Millimeters



All Tolerances are  $\pm 0.1$

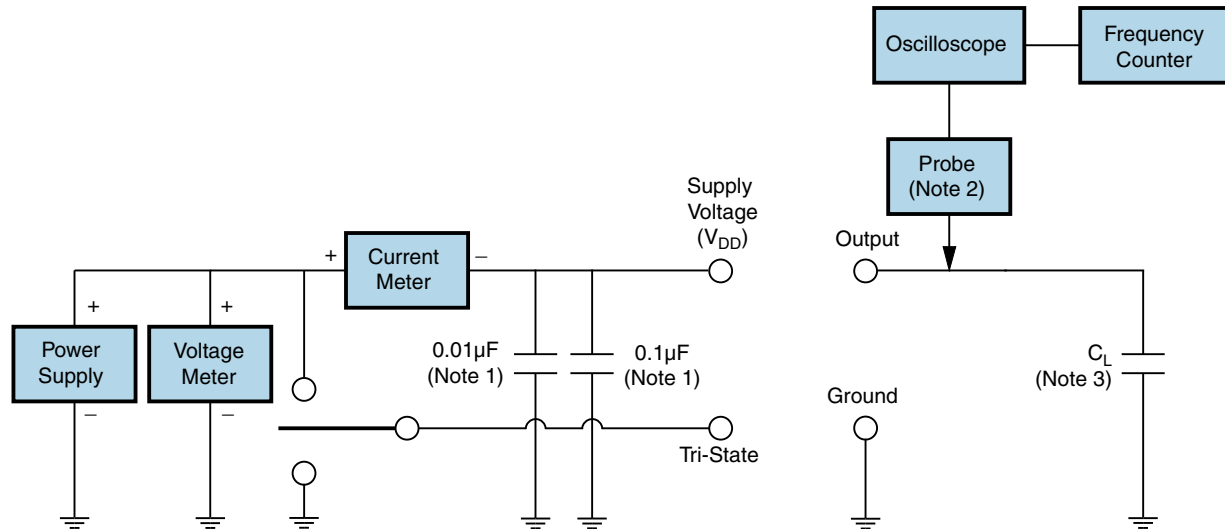
# EC5700ETTTTS-18.432M

## OUTPUT WAVEFORM & TIMING DIAGRAM



# EC5700ETTTTS-18.432M

## Test Circuit for CMOS Output

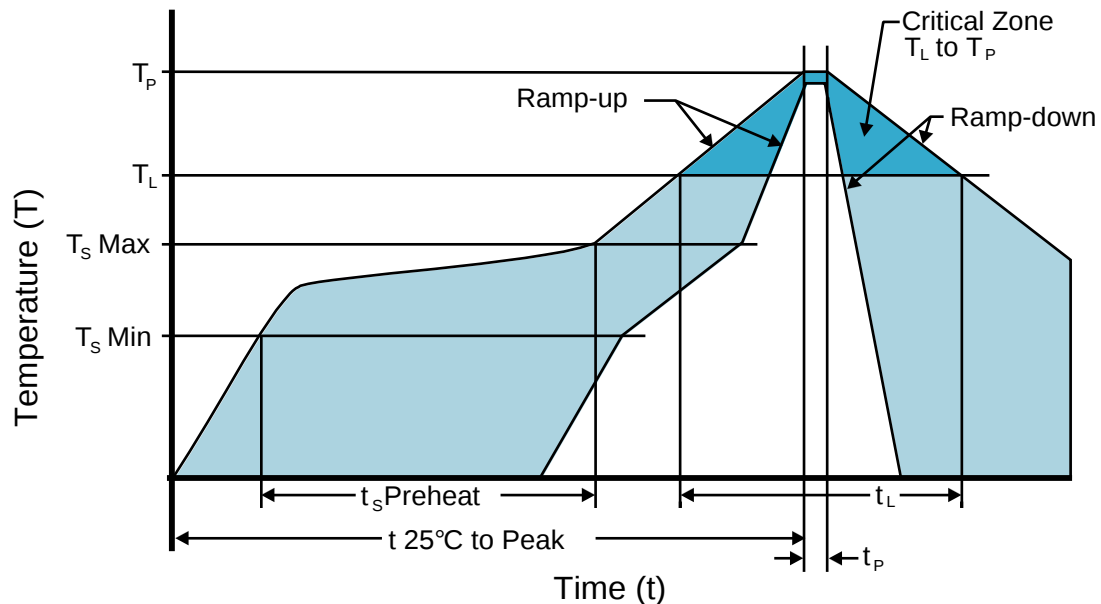


Note 1: An external 0.01µF ceramic bypass capacitor in parallel with a 0.1µF high frequency ceramic bypass capacitor close (less than 2mm) to the package ground and supply voltage pin is required.

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<sub>L</sub> includes sum of all probe and fixture capacitance.

## Recommended Solder Reflow Methods



### High Temperature Infrared/Convection

**$T_s \text{ MAX}$  to  $T_L$  (Ramp-up Rate)** 3°C/second Maximum

#### Preheat

- Temperature Minimum ( $T_s \text{ MIN}$ ) 150°C
- Temperature Typical ( $T_s \text{ TYP}$ ) 175°C
- Temperature Maximum ( $T_s \text{ MAX}$ ) 200°C
- Time ( $t_s \text{ MIN}$ ) 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 ( $T_p \text{ Target}$ )** 250°C +0/-5°C

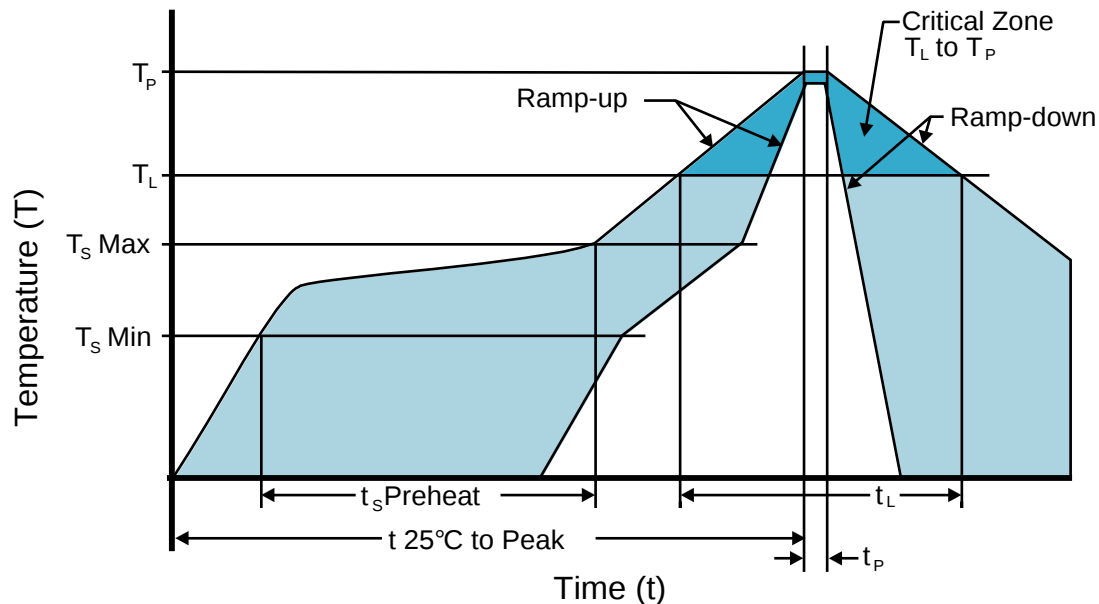
**Time within 5°C of actual peak ( $t_p$ )** 20 - 40 seconds

**Ramp-down Rate** 6°C/second Maximum

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

**Moisture Sensitivity Level** Level 1

## 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 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.