

3.3V LVCMOS Surface Mount Crystal Clock Oscillator CWX813

In Stock at Digi-Key

CONNOR WINFIELD



Features:

- 1 MHz to 156.25 MHz
- 3.3V Operation
- RoHS Compliant / Lead Free
- Frequency Tolerance: ± 25 ppm
- Temperature Range: -20 to 70°C
- Low Jitter: <1 pS RMS
- Tri-State Enable / Disable
- Ceramic Surface Mount Package
- Tape and Reel Packaging

XO

The Connor-Winfield CWX813 is a RoHS compliant 3.3V, LVCMOS, 7.0x5.0mm, surface mount, oscillator (XO). This fixed frequency crystal oscillator is designed for use in applications requiring high stability and low jitter. The surface mount package is designed for high-density mounting and is optimum for mass production.

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Absolute Maximum Ratings

| Parameter | Minimum | Nominal | Maximum | Units | Notes |
|----------------------|---------|---------|---------|-------|-------|
| Storage Temperature | -55 | - | 125 | °C | |
| Supply Voltage (Vcc) | -0.5 | - | 7.0 | Vdc | |

Operating Specifications

| Parameter | Minimum | Nominal | Maximum | Units | Notes |
|-----------------------------|---------|---------|---------|-------|-------|
| Frequency Range (Fo) | 1.00 | - | 156.25 | MHz | |
| Frequency Tolerance | -25 | - | 25 | ppm | 1 |
| Operating Temperature Range | -20 | - | 70 | °C | |
| Supply Voltage (Vcc) | 3.63 | 3.30 | 2.97 | Vdc | |
| Supply Current (Icc) | - | - | 30 | mA | |

Input Characteristics

| Parameter | Minimum | Nominal | Maximum | Units | Notes |
|-------------------------|------------|---------|------------|-------|-------|
| Enable Voltage - (Vih) | ≥ 2.2 | - | - | Vdc | 2 |
| Disable Voltage - (Vil) | - | - | ≤ 0.8 | Vdc | |

LVCMOS Output Characteristics

| Parameter | Minimum | Nominal | Maximum | Units | Notes |
|---|---------|---------|---------|--------|-------|
| Load | - | - | 15 | pF | |
| Voltage High (Voh) | 2.97 | - | - | Vdc | |
| Low (Vol) | - | - | 0.33 | Vdc | |
| Current High (Ioh) | -8 | - | - | mA | |
| Low (Iol) | - | - | 8 | mA | |
| Duty Cycle at 50% of Vcc | 40 | 50 | 60 | % | |
| Rise / Fall Time 10% to 80% | - | 2 | 6 | ns | |
| Start-Up Time | - | - | 10 | ms | |
| Period Jitter | - | 3 | 5 | ps RMS | |
| Integrated Phase Jitter (BW=12KHz to 20MHz) | - | 0.3 | 1.0 | ps RMS | |

Package Characteristics

| | |
|-------------------|--|
| Package | Hermetically sealed ceramic package |
| Soldering Process | RoHS compliant, lead free. See solder profile on page 2. |

Notes:

1. Inclusive of calibration @ 25°C, frequency vs temperature stability, supply voltage change, load change, shock and vibration, 10 years aging.
2. Oscillator output is enabled with no connection on pad 1



Bulletin **Sm111**
Page **1 of 2**
Revision **05**
Date **10 April 2008**



Environmental Characteristics

| | |
|--------------------|--|
| Temperature Cycle | The specimen shall meet electrical characteristics after tested 5 cycles of -55°C / 30 minutes and +125°C / 30 minutes |
| Hermetical | No bubbles appear in Flourinert (FC-43) at 125°C ±5°C for 5 minutes |
| Solvent Resistance | Marking will withstand immersion in Isopropyl Alcohol or Trichloroethylene |

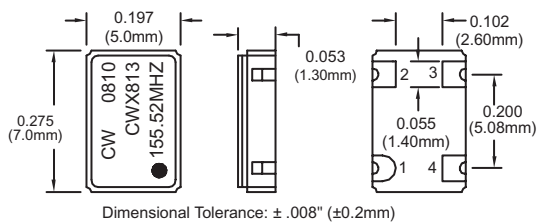
Soldering

| | |
|---|--|
| General Conditions | 260°C max x 10 sec max x 2 times max or 230°C max x 180 sec max x 1 time |
| Typical Operation Data (Vapor phase reflow) | 20 to 100 sec up to 215°C, 50 sec at 215°C, then down to room temperature per 1 to 5°C / sec |

Mechanical Characteristics

| | |
|---------------|---|
| Free Drop | The specimen shall meet electrical characteristics after tested 3 times, Free Drop testing on the hard wooden board from a height of 75 cm. |
| Vibration | The specimen shall meet electrical characteristics after tested by the following conditions: 10-55Hz 1.5mm Amplitude, 55-2000 Hz 20 G's, 2 hours for each plane |
| Thermal Shock | After applied Thermal Shock of 260°C max x 10 sec max x 2 times, or 230°C max x 180 sec max, the specimen shall meet electrical characteristics |
| Solderability | (EIAJ-RCX-0102.101 Condition 1a) 1) Flux: MIL-F-14256 (WW Rosin=25%, Isopropyl Alcohol = 75%) 2) Solder: QQ-S-571 (Sn = 63%, Pb = 37%) 3) Solder bath temperature: 235°C ±5°C 4) Depth of immersion: Up to electrical terminal 5) Immersing time: Within 2 sec ±0.5 sec into solder bath |

After performing the above procedures, a newly soldered coverage shall be greater than 90%



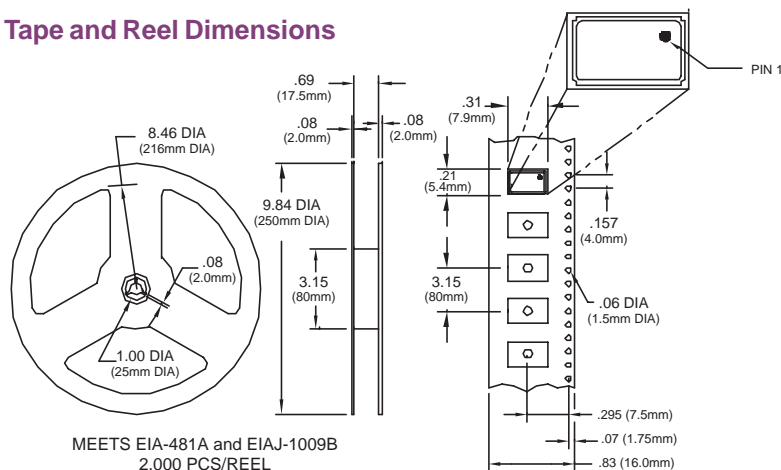
Dimensional Tolerance: ±.008" (±0.2mm)

Pad Connection

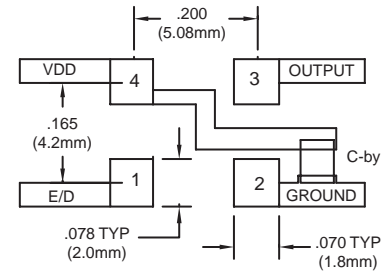
- 1: Enable / Disable
- 2: Ground
- 3: Output
- 4: Vcc

| Enable/Disable Function | Output |
|-------------------------|----------------------|
| Pin 1 Open | Pin 3 Active |
| Pin 1 ≥ 2.2V | Pin 3 Active |
| Pin 1 ≤ 0.8V | Pin 3 High Impedence |

Tape and Reel Dimensions



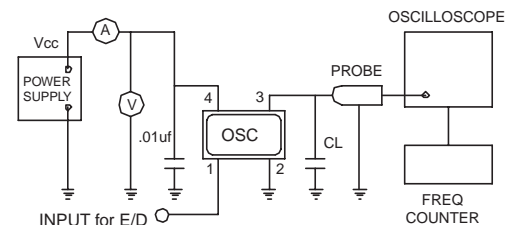
Suggested Pad Layout



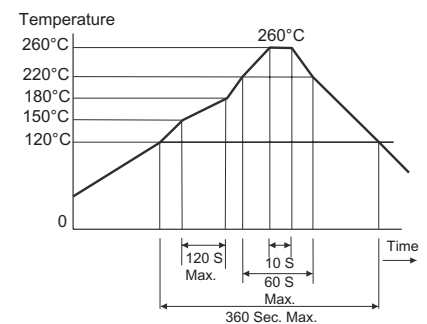
Bypass capacitor, C-by, should be ceramic capacitor ≥ .01uF.

Dimensional Tolerance: ±.02" (.508mm)
±.008" (0.2mm)

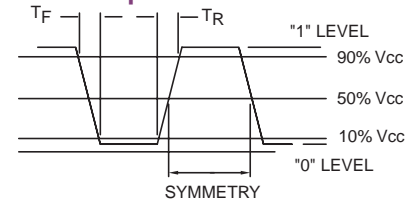
Test Circuit



Solder Profile



Output Waveform



Ordering Information

CWX813 - 155.52 M

CLOCK SERIES

CENTER FREQUENCY

| | |
|----------|---------------|
| Bulletin | Sm111 |
| Page | 2 of 2 |
| Revision | 05 |
| Date | 10 April 2008 |