

5.0V HCMOS Surface Mount Crystal Clock Oscillator CWX815

CONNOR WINFIELD



Features:

1 MHz to 156.25 MHz
5.0V 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 CWX815 is a RoHS compliant 5.0V, HCMOS, 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)	4.5	5.0	5.5	Vdc	
Supply Current (Icc)	-	-	45	mA	

Input Characteristics

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

HCMOS Output Characteristics

Parameter	Minimum	Nominal	Maximum	Units	Notes
Load	-	-	50	pF	
Voltage High (Voh)	4.5	-	-	Vdc	
Low (Vol)	-	-	0.4	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:

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



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Environmental Characteristics

Temperature Cycle	The specimen shall meet electrical characteristics after tested 5 cycles of -55°C / 30 minutes and +125°C / 30 minutes
Hermetic	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

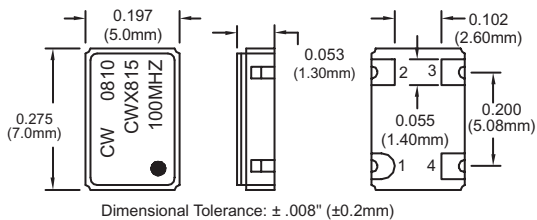
Soldering

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%



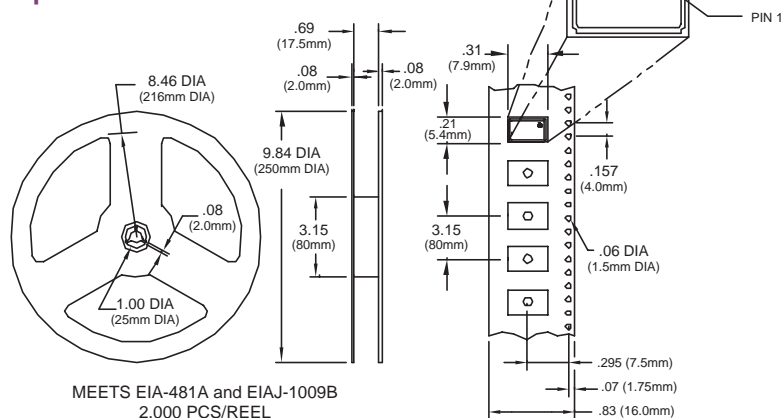
Pad Connection

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

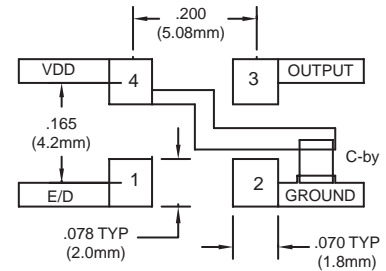
Enable/Disable Function Output

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



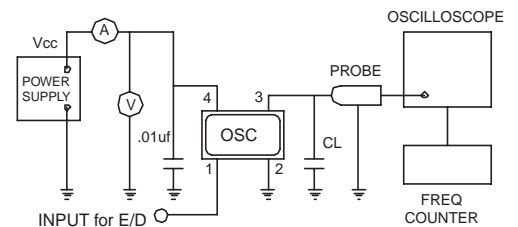
Suggested Pad Layout



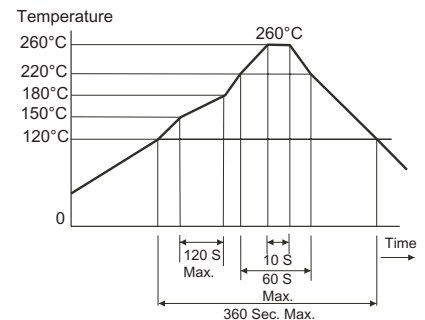
Bypass capacitor. C-by, should be ceramic capacitor ≥ .01µf.

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

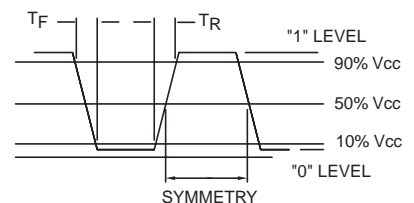
Test Circuit



Solder Profile



Output Waveform



Ordering Information

CWX815 - 100.0 M

CLOCK SERIES CENTER FREQUENCY

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