

# 5.0V HCMOS Surface Mount Crystal Clock Oscillator CWX825

# CONNOR WINFIELD



## Features:

1 MHz to 156.25 MHz  
5.0V Operation  
RoHS Compliant / Lead Free  
Frequency Tolerance:  $\pm 50$ 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 CWX825 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.

2111 Comprehensive Drive  
Aurora, Illinois 60505  
Phone: 630-851-4722  
Fax: 630-851-5040  
[www.conwin.com](http://www.conwin.com)

US Headquarters:  
630-851-4722  
European Headquarters:  
+353-61-472221

## 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	-50	-	50	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)	$\geq 2.2$	-	-	Vdc	2
Disable Voltage - (Vil)	-	-	$\leq 0.8$	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



Bulletin **Sm109**  
Page **1 of 2**  
Revision **04**  
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

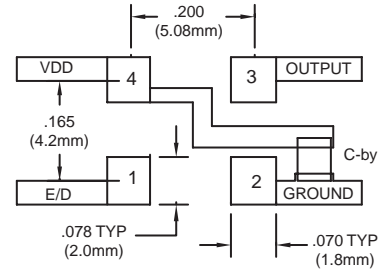
## Soldering

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

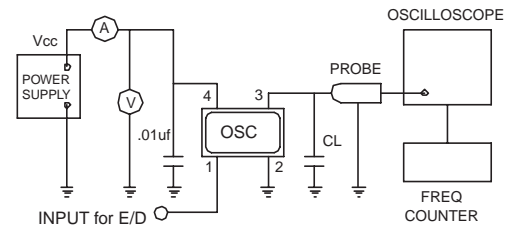
## Suggested Pad Layout



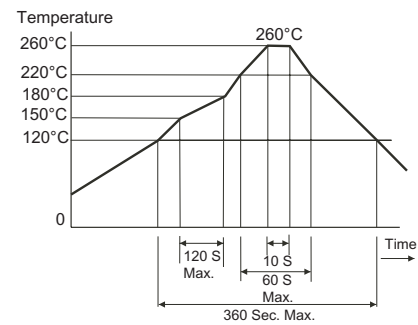
Bypass capacitor. C-by, should be ceramic capacitor ≥ .01uf.

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

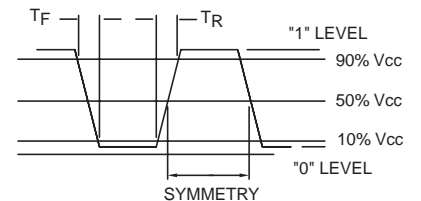
## Test Circuit



## Solder Profile



## Output Waveform



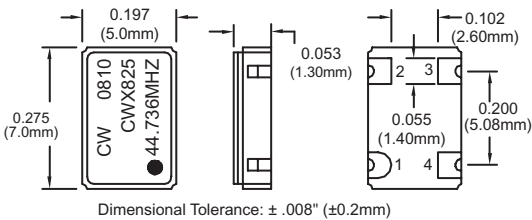
## Ordering Information

CW X825 - 044.736 M

CLOCK SERIES

CENTER FREQUENCY

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

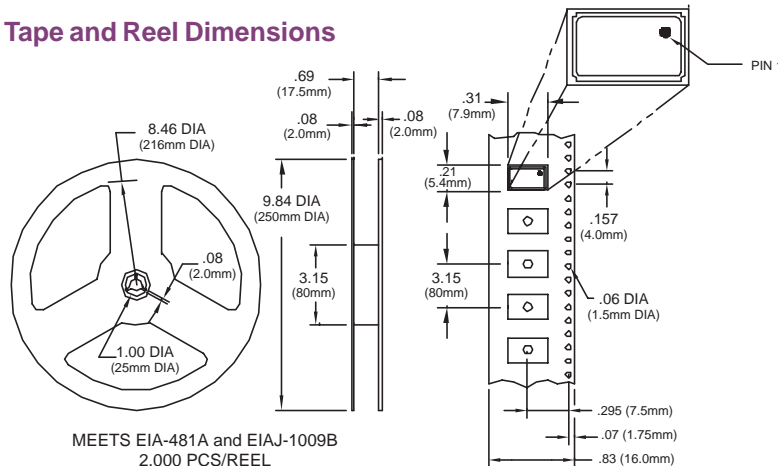


## Pad Connection

- 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 Impedance

## Tape and Reel Dimensions



MEETS EIA-481A and EIAJ-1009B  
2,000 PCS/REEL