

# 5.0V HCMOS Surface Mount Crystal Clock Oscillator 7215, 7225, 7235



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## XO

The Connor-Winfield models 7215, 7225, and 7235 are a 5 x 3.2mm, 5.0V HCMOS, Surface Mount, Fixed Frequency Crystal Oscillators (XO) designed for use in all applications requiring precision clocks. The RoHS compliant, surface mount package is designed for high-density mounting and is optimum for mass production.

### Features:

- 1.8 to 50 MHz
- 5.0V Operation
- RoHS Compliant
- Tri-State Enable / Disable Function
- Overall Frequency Tolerance:
  - 7215 ± 25 ppm
  - 7225 ± 50 ppm
  - 7235 ± 100 ppm
- Temperature Range: -40 to 85°C
- Ceramic Surface Mount Package
- Tape and Reel Packaging

### 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)	1.8	-	50	MHz	
Frequency Tolerance				ppm	1
7215	-25	-	25		
7225	-50	-	50		
7235	-100	-	100		
Operating Temp Range	-40	-	85	°C	
Supply Voltage (Vdd)	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	
Enable Time	-	-	100	nS	
Disable Time	-	-	100	nS	

### HCMOS Output Characteristics

Parameter	Minimum	Nominal	Maximum	Units	Notes
Load	-	-	50	pF	
Voltage High (Voh)	4.50	-	-	Vdc	
Low (Vol)	-	-	0.55	Vdc	
Current High (Ioh)	-16	-	-	mA	
Low (Iol)	-	-	16	mA	
Duty Cycle at 50% of Vcc	40	50	60	%	
Rise / Fall Time 10% to 90%	-	-	5	nS	
Start-Up Time	-	-	10	mS	
Jitter	-	-	5	pS RMS	



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#### 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



## Package Characteristics

Package Hermetically sealed ceramic package and metal cover

## 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

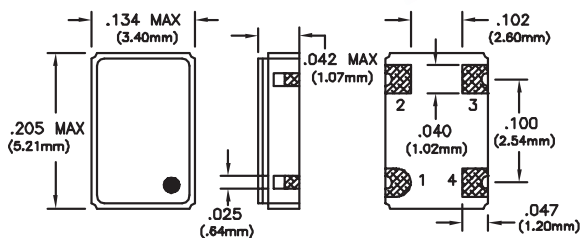
Free Drop The specimen shall meet electrical characteristics after tested 3 times, Free Drop testing on the hard wooden board from a height of 75 cm.

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%

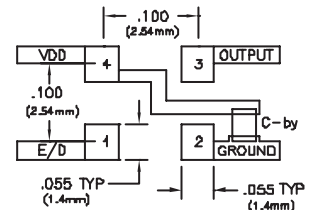


Dimensional Tolerance: ± .02" (.508mm)  
± .005" (.127mm)

## Pad Connection

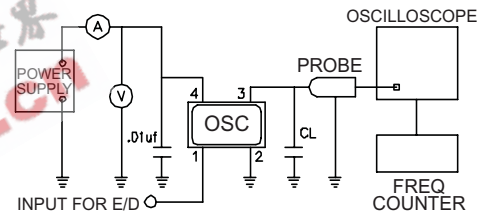
- 1: Enable / Disable
- 2: Ground
- 3: Output
- 4: Vcc

## Suggested Pad Layout

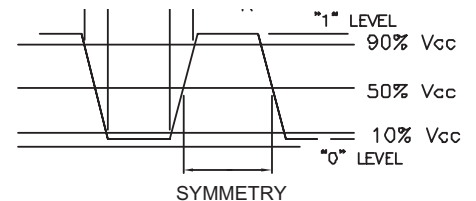


Bypass capacitor, C-by, should be ceramic capacitor ≥ .01uf.

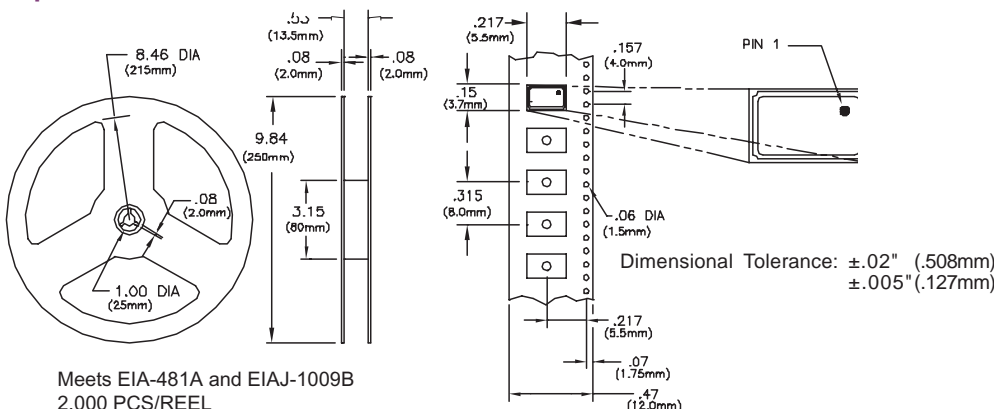
## Test Circuit



## Output Waveform



## Tape and Reel Dimensions



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

## Ordering Information

7215 - 12.00 MHz  
CLOCK SERIES CENTER FREQUENCY

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