

2.5V LVCMOS Surface Mount Crystal Clock Oscillator 5212 5222 5232 Series



2111 Comprehensive Drive
Aurora, Illinois 60505
Phone: 630-851-4722
Fax: 630-851-5040

www.conwin.com

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

XO

The Connor-Winfield models 5212, 5222, and 5232 are 5.0mm x 7.5mm, 2.5V LVCMOS, Surface Mount, Fixed Frequency Crystal Oscillators (XO) designed for use in all applications requiring precision clocks. This oscillator features low stand-by current (10uA) when the output is disabled. The RoHS compliant, surface mount package is designed for high-density mounting and is optimum for mass production.

Features:

1.8 to 170 MHz
2.5V Operation
RoHS Compliant
Tri-State Enable / Disable Function
Overall Frequency Tolerance:
5212 ± 25 ppm; 5222 ± 50 ppm; 5232 ± 100 ppm
Temperature Range: -40 to 85°C
Power Saving Stand-By Current
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)	1.0	-	170	MHz	
Frequency Tolerance		-		ppm	1
5212	-25		25		
5222	-50		50		
5232	-100		100		
Operating Temp Range	-40	-	85	°C	
Supply Voltage (Vdd)	2.25	2.50	2.75	Vdc	
Supply Current (Icc)					
1.8 to 31.999 MHz	-	-	10	mA	
32 to 79.999 MHz	-	-	12		
80 to 170 MHz	-	-	30		

Input Characteristics

Parameter	Minimum	Nominal	Maximum	Units	Notes
Enable Voltage - (Vih)	$\geq 70\%$ Vdd	-	-	Vdc	2
Disable Voltage - (Vil)	-	-	$\leq 30\%$ Vdd	Vdc	
Enable Time	-	-	10	nS	
Disable Time	-	-	150	nS	
Output Disable Current (Icc)	-	-	10	uA	

LVCMOS Output Characteristics

Parameter	Minimum	Nominal	Maximum	Units	Notes
Load	-	-	15	pF	
Voltage High (Voh)	2.14	-	-	Vdc	
Low (Vol)	-	-	0.26		
Current High (Ioh)	-8	-	-	mA	
Low (Iol)	-	-	8		
Duty Cycle at 50% of Vcc	45	50	55	%	
Rise / Fall Time 10% to 90%	-	-	5	nS	
Start-Up Time	-	-	10	mS	
Period Jitter	-	1.5	3.0	ps RMS	
Period Jitter	-	15	25	ps Pk - Pk	
Integrated Phase Jitter (12KHz to 20MHz)	-	0.5	1.0	ps RMS	

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 pin 1.

Specifications subject to change without notice. All dimensions in inches. © Copyright 2007 The Connor-Winfield Corporation





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.

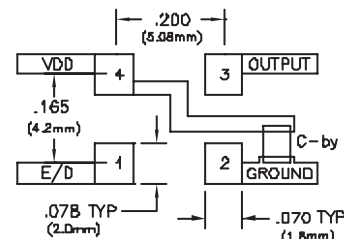
Vibration The specimen shall meet electrical characteristics after tested by the following conditions: 10-55Hz 1.5mm Amplitude, 55-2000 Hz 20 G's, 2 hours for each plane

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

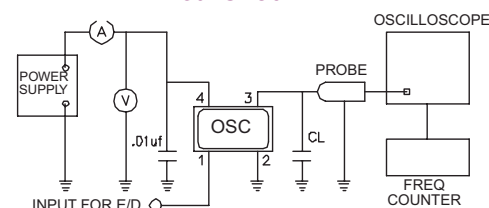
After performing the above procedures, a newly soldered coverage shall be greater than 90%

Suggested Pad Layout

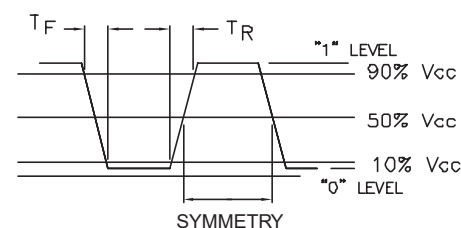


Bypass capacitor, C-by, should be ceramic capacitor ≥ .01 uf

Test Circuit

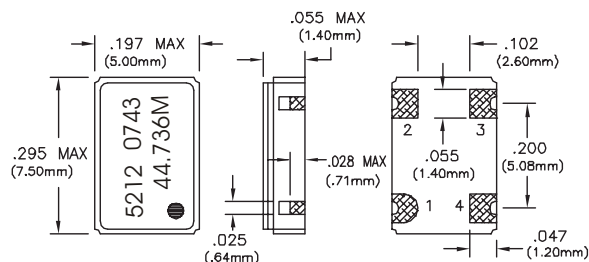


Output Waveform

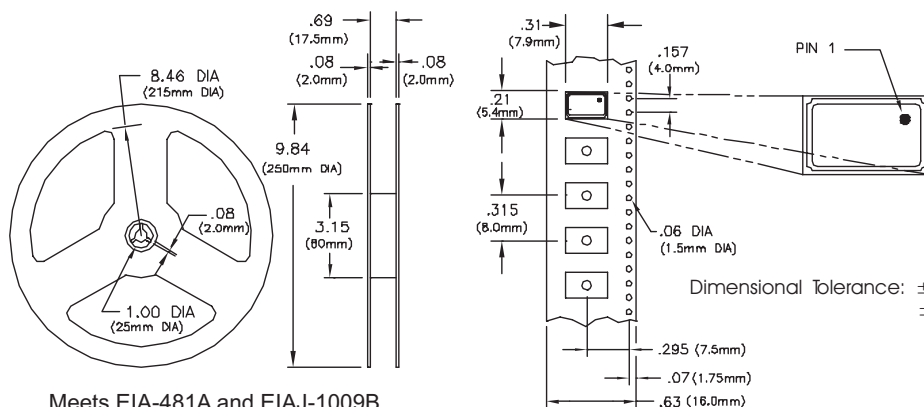


Pin Connections

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



Tape and Reel Dimensions



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

Ordering Information

5212 - 44.736M
CLOCK SERIES CENTER FREQUENCY

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

Bulletin **Sm077**
Page **2 of 2**
Revision **06**
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