

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



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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:

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 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.

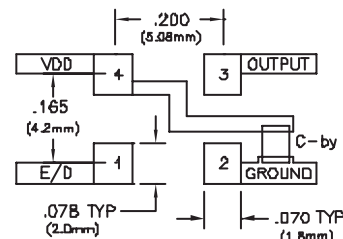
Vibration The specimen shall meet electrical characteristics after tested by the following conditions: 10-55Hz 1.5mm Amplitude, 55-2000 Hz 20 G's, 2 hours for each plane

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

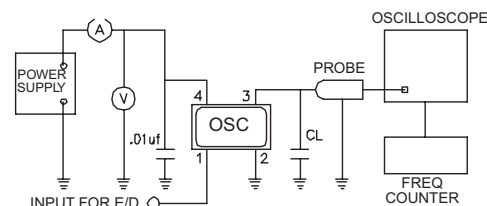
After performing the above procedures, a newly soldered coverage shall be greater than 90%

Suggested Pad Layout

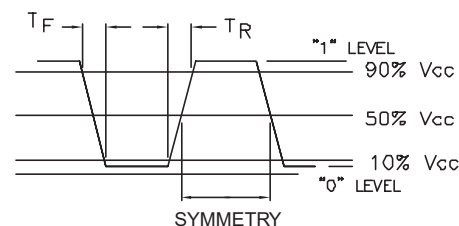


Bypass capacitor, C-by, should be ceramic capacitor ≥ .01 uf

Test Circuit

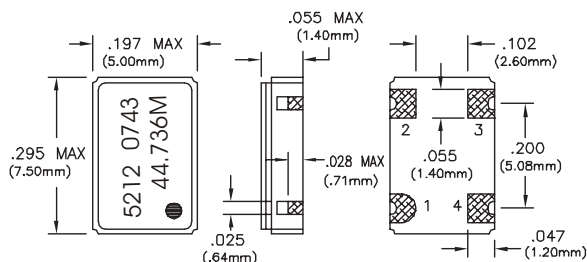


Output Waveform

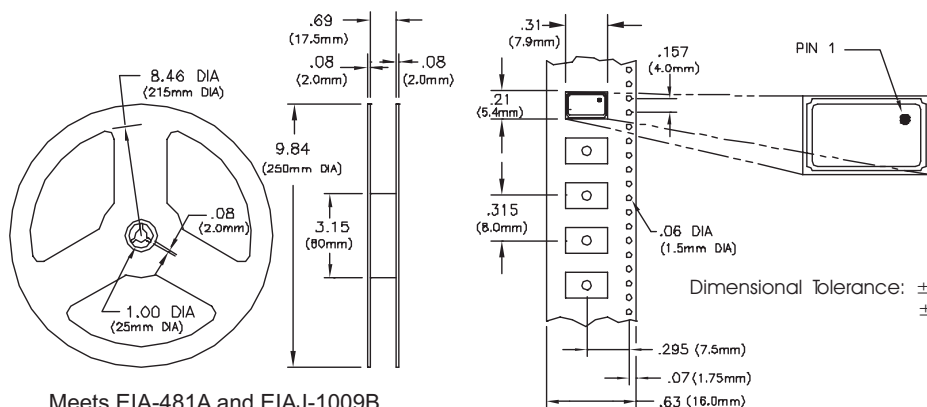


Pin Connections

- 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**
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Revision **06**
Date **03 Oct 2007**



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