

# CRYSTAL CONTROLLED OSCILLATORS

## 2.5V SURFACE MOUNT 5x3.2mm LVC MOS FIXED FREQUENCY OSCILLATOR OSCILLATOR



7222, 7232

### ABSOLUTE MAXIMUM RATINGS

TABLE 1.0

PARAMETER	UNITS	MINIMUM	NOMINAL	MAXIMUM	UNITS	NOTE
Storage Temperature		-55	-	125	°C	
Supply Voltage	(Vcc)	-0.5	-	7.0	Vdc	

### MODEL SPECIFICATIONS:

TABLE 2.0

#### MODEL 7222

PARAMETER	UNITS	MINIMUM	NOMINAL	MAXIMUM	UNITS	NOTE
Frequency Range	(Fo)	1.8	-	50	MHz	
Frequency Tolerance:		-50	-	50	ppm	1

#### MODEL 7232

PARAMETER	UNITS	MINIMUM	NOMINAL	MAXIMUM	UNITS	NOTE
Frequency Range	(Fo)	1.8	-	50	MHz	
Frequency Tolerance:		-100	-	100	ppm	1

### OPERATING SPECIFICATIONS

TABLE 3.0

PARAMETER	UNITS	MINIMUM	NOMINAL	MAXIMUM	UNITS	NOTE
Operating Temperature Range		-40	-	85	°C	
Supply Voltage	(Vdd)	2.375	2.5	2.625	Vdc	
Supply Current	(Icc)	-	-	20	mA	
	(Icc)	-	-	30	mA	

### INPUT CHARACTERISTICS

TABLE 4.0

PARAMETER	UNITS	MINIMUM	NOMINAL	MAXIMUM	UNITS	NOTE
Enable Voltage	(Vih)	? 70% Vdd	-	-	Vdc	2
Disable Voltage	(Vil)	-	-	? 30% Vdd	Vdc	2
Enable Time		-	-	10	mS	
Disable Time		-	-	150	nS	
Output Disable Current	(Icc)	-	-	10	uA	

### LVC MOS OUTPUT CHARACTERISTICS

TABLE 5.0

PARAMETER	UNITS	MINIMUM	NOMINAL	MAXIMUM	UNITS	NOTE
LOAD		-	-	15	pF	
Voltage (High)	(Voh)	2.25	-	-	Vdc	
Voltage (Low)	(Vol)	-	-	0.25	Vdc	
Current (High)	(Ioh)	-4	-	-	mA	
Current (Low)	(Ioh)	-	-	4	mA	
Duty Cycle measured at 50% of Vcc		45	50	55	%	
Rise / Fall Time measured from 10% to 90%		-	-	5	nS	
Start-Up Time		-	-	10	mS	
Jitter		-	-	5	pS RMS	

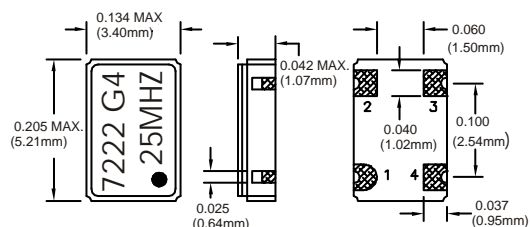
### PACKAGE CHARACTERISTICS

TABLE 6.0

Package	Hermetically sealed ceramic package and metal cover
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Note:

- 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.



PAD	CONNECTION
1	ENABLE/DISABLE
2	GROUND
3	OUTPUT
4	Vcc

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

### DESCRIPTION

The Connor-Winfield models 7222 and 7232 are 2.5V LVC MOS, Surface Mount, Fixed Frequency Crystal Oscillators (XO) designed for use in all applications requiring precision clocks. These oscillators feature low stand-by current (10uA) when output is disabled. The surface mount package is designed for high-density mounting and is optimum for mass production.

### FEATURES

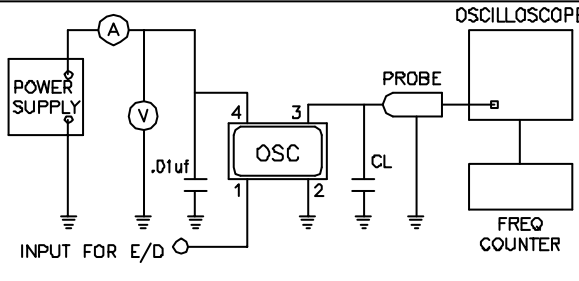
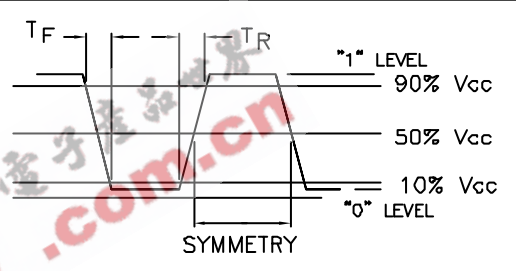
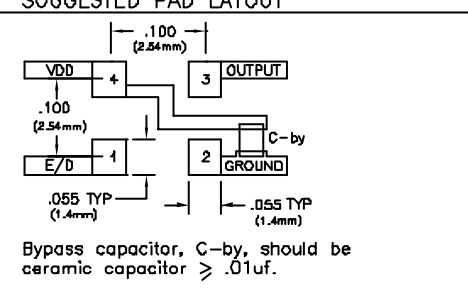
- 1.8 to 50 MHz
- 2.5V OPERATION
- OVERALL FREQUENCY TOLERANCE:  
7222 ±50ppm  
7232 ±100ppm
- TEMPERATURE RANGE: -40 to 85°C
- TRI-STATE ENABLE / DISABLE FUNCTION
- POWER SAVING FUNCTION: 10uA when disabled.
- CERAMIC SURFACE MOUNT PACKAGE
- TAPE AND REEL PACKAGING

### ORDERING INFORMATION

7222	-	25.00 MHz
CLOCK SERIES		CENTER FREQUENCY

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CRYSTAL CONTROLLED OSCILLATORS

<p><b>ENVIRONMENTAL CHARACTERISTICS</b></p>	<p><b>TEST CIRCUIT</b></p>
<p><b>TEMPERATURE CYCLE:</b> The specimen shall meet electrical characteristics after tested 5 cycles of -55°C/30 min &amp; +125°C/30 min.</p> <p><b>HERMETICAL</b> No bubbles appear in Flourinert (FC-43) at 125°C ±5°C, for 5 minutes.</p> <p><b>SOLVENT RESISTANCE:</b> Marking will withstand immersion in Isopropyl Alcohol or Trichloroethylene.</p>	
<p><b>SOLDERING</b></p> <p><b>GENERAL CONDITIONS:</b> 280°C max x 10 sec max x 2 times max or 230°C max x 180 sec max x 1 time.</p> <p><b>TYPICAL OPERATION DATA (Vapor phase reflow)</b> 20 to 100 sec up to 215°C, 50 sec at 215°C then down to room temperature per 1 to 5°C/sec</p>	<p><b>OUTPUT WAVEFORM</b></p> 
<p><b>MECHANICAL CHARACTERISTICS</b></p> <p><b>FREE DROP:</b> The specimen shall meet electrical characteristics after tested 3 times Free Drop testing on the hard wooden board from a height of 75cm.</p> <p><b>VIBRATION:</b> The specimen shall meet electrical characteristics after tested by the following conditions: 10-55Hz 1.5mm Amplitude, 55-2000Hz 20G's, 2 hours for each plane.</p> <p><b>THERMAL SHOCK:</b> 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.</p> <p><b>SOLDERABILITY:</b> (EIAJ-RGX-0102/1D1 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%.</p>	<p><b>SUGGESTED PAD LAYOUT</b></p>  <p>Bypass capacitor, C-by, should be ceramic capacitor &gt; .01uf.</p>

TAPING AND REEL DIMENSIONS

