

CRYSTAL CONTROLLED OSCILLATORS

3.3V LVCMOS SURFACE MOUNT 5x3.2mm CLOCK OSCILLATOR



7213, 7223,
7233

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 7213

Frequency Range	(Fo)	1.8	-	160	MHz	
Frequency Tolerance:		-25	-	25	ppm	1

MODEL 7223

Frequency Range	(Fo)	1.8	-	160	MHz	
Frequency Tolerance:		-50	-	50	ppm	1

MODEL 7233

Frequency Range	(Fo)	1.8	-	160	MHz	
Frequency Tolerance:		-100	-	100	ppm	1

OPERATING SPECIFICATIONS
TABLE 3.0

PARAMETER		MINIMUM	NOMINAL	MAXIMUM	UNITS	NOTE
Operating Temperature Range		-40	-	85	°C	
Supply Voltage	(Vdd)	3.0	3.3	3.6	Vdc	
Supply Current	(Icc)	-	-	20	mA	
1.5 to 49.999 MHz		-	-	30	mA	
50 to 79.999 MHz		-	-	40	mA	
80 to 124.999 MHz		-	-	50	mA	
125 to 160.999 MHz		-	-	50	mA	

INPUT CHARACTERISTICS
TABLE 4.0

Enable Voltage	(Vih)	70% Vdd	-	-	Vdc	2
Disable Voltage	(Vil)	-	-	30% Vdd	Vdc	
Enable Time		-	-	10	ms	
Disable Time		-	-	150	ns	
Output Disable Current	(Icc)	-	-	10	uA	

LVCMOS OUTPUT CHARACTERISTICS
TABLE 5.0

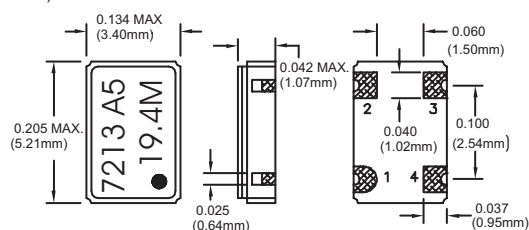
PARAMETER		MINIMUM	NOMINAL	MAXIMUM	UNITS	NOTE
LOAD		-	-	15	pF	
Voltage (High)	(Voh)	2.70	-	-	Vdc	
(Low)	(Vol)	-	-	0.36	Vdc	
Current (High)	(Ioh)	-2	-	-	mA	
(Low)	(Iol)	-	-	2	mA	
Duty Cycle	1.5 to 49.999 MHz	45	50	55	%	3
50 to 160 MHz		40	50	60	%	3
Rise / Fall Time	1.5 to 69.999 MHz	-	3	6	ns	4
70 to 160 MHz		-	1	2	ns	4
Start-Up Time		-	-	10	ms	
Period Jitter		-	3	5	ps RMS	
Phase Jitter (BW=12kHz to 20MHz)		-	0.5	1	ps RMS	

PACKAGE CHARACTERISTICS
TABLE 6.0

Package	Hermetically sealed ceramic package and metal cover
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Note:

- 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.
- 3) Duty Cycle measured at 50% of Vcc.
- 4) Rise and Fall times measured from 10% to 90%.



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

Dimensional Tolerance: $\pm 0.2''$ (.508mm)
 $\pm 0.005''$ (.127mm)

DESCRIPTION

The Connor-Winfield models 7213, 7223 and 7233 are 3.3V LVCMOS, 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 160 MHz

3.3V OPERATION

TRI-STATE ENABLE / DISABLE FUNCTION

OVERALL FREQUENCY TOLERANCE:

7213 ± 25 ppm

7223 ± 50 ppm

7233 ± 100 ppm

TEMPERATURE RANGE: -40 to 85°C

POWER SAVING FUNCTION: 10uA when disabled.

CERAMIC SURFACE MOUNT PACKAGE

TAPE AND REEL PACKAGING

RoHS COMPLIANT / LEAD FREE

ORDERING INFORMATION

7213 - 019.44M

CLOCK
SERIES

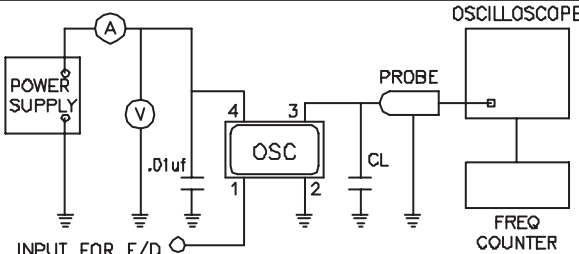
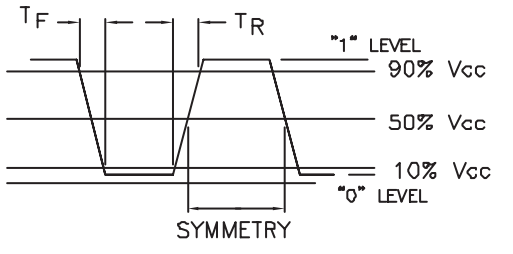
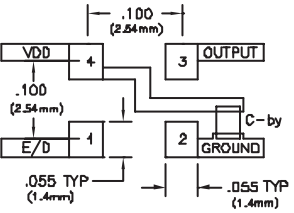
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FREQUENCY

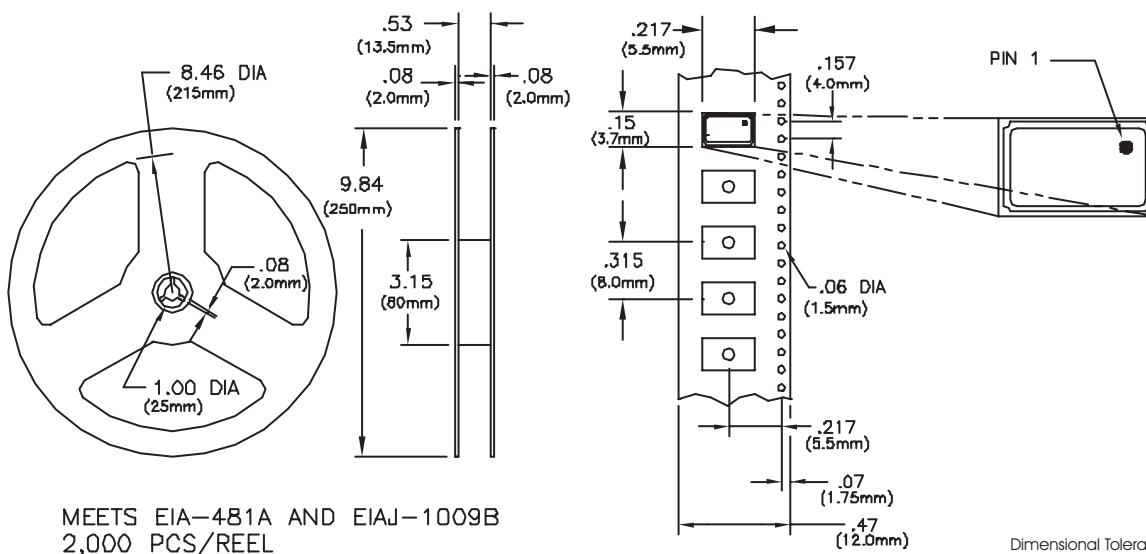
Specifications subject to change without notice.

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PRODUCT DATA SHEET

CRYSTAL CONTROLLED OSCILLATORS

ENVIRONMENTAL CHARACTERISTICS	TEST CIRCUIT
<p>TEMPERATURE CYCLE: The specimen shall meet electrical characteristics after tested 5 cycles of -55°C/30 min & +125°C/30 min.</p> <p>HERMETICAL No bubbles appear in Fluorinert (FC-43) at 125°C ±5°C, for 5 minutes.</p> <p>SOLVENT RESISTANCE: Marking will withstand immersion in Isopropyl Alcohol or Trichloroethylene.</p>	
SOLDERING	OUTPUT WAVEFORM
<p>GENERAL CONDITIONS: 260°C max x 10 sec max x 2 times max or 230°C max x 180 sec max x 1 time.</p> <p>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</p>	
MECHANICAL CHARACTERISTICS	SUGGESTED PAD LAYOUT
<p>FREE DROP: 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>VIBRATION: 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>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.</p> <p>SOLDERABILITY: (EIAJ-RGX-0102/101 Condition 1a) 1. Flux: MIL-F-14256 (WW Rosin=25%, Isopropyl alcohol=75%) 2. Solder: 60-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>Bypass capacitor, C-by, should be ceramic capacitor ≥ .01uf.</p>
TAPING AND REEL DIMENSIONS	



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

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