Low Voltage LVMOS Clock Oscillator

CONNOR WINFIELD

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

Description:

The Connor Winfield 5xxx Series are 5.0x7.0mm Surface Mount, LVCMOS, Fixed Frequency Crystal Controlled Oscillator (XO) designed for applications requiring tight frequency stability, wide temperature range and low jitter. Operating at 1.8V, 2.5V or 2.8V supply voltage, the 5xxx Series provides a LVCMOS Output with a Tri-state enable / disable function. The surface mount package is designed for high-density mounting and is optimum for mass production.

Features:

Model 5xxx - Series
5.0 x7.0mm Surface Mount Package
1.8V, 2.5V or 2.8V Operation
LVCMOS Output
Frequency Stabilities Available:
+/-25ppm, +/-50ppm or +/-100ppm
Temperature Ranges Available:
-10 to 70°C or -40 to 85°C,
Low Jitter <1.0 ps RMS
Tri-State Enable/Disable
with Power Saving Stand-by Mode
Tape and Reel Packaging
RoHS Compliant / Lead Free

Absolute Maximum Ratings

Parameter	Minimum	Nominal	Maximum	Units	Notes
Storage Temperature	-55	-	125	°C	
Supply Voltage (Vcc)	-0.5	-	3.6	Vdc	
Input Voltage	-0.5	-	Vcc + 0.5	Vdc	

Operating Specifications

Parameter	Minimum	Nominal	Maximum	Units	Notes
Output Frequency (Fo)	1.8	-	160	MHz	
Total Frequency Tolerance	(See Ordering Information for full part number)				
Model 5x1x	-25	-	25	ppm	1
Model 5x2x	-50	-	50	ppm	1
Model 5x3x	-100	-	100	ppm	1
Operating Temperature Range					
Model 51xx	-10	-	70	°C	
Model 52xx	-40	-	85	°C	
Supply Voltage (Vcc)					
Model 5xx0	1.710	1.8	1.890	Vdc	
Model 5xx2	2.375	2.5	2.625	Vdc	
Model 5xx6	2.660	2.8	2.940	Vdc	
Supply Current (Icc)	-	15	30	mA	
Jitter:					
Period Jitter	-	3.0	5.0	ps RMS	
Integrated Phase Jitter (BW = 12 KHz to 20 MHz)	-	0.5	1.0	ps RMS	
Start-Up Time	-	-	10	ms	

Input Characteristics

Parameter	Minimum	Nominal	Maximum	Units	Notes
Enable Input Voltage - (High) -(Vih)	70%Vcc	-	-	Vdc	2
Disable Input Voltage - (Low) - (Vil)	-	-	30%Vcc	Vdc	2
Enable Time	-	-	10	ms	
Disable Time	-	-	100	ns	
Stand-by Current (Icc)	-	-	10	uA	3

LVCMOS Output Characteristics

Parameter	Minimum	Nominal	Maximum	Units	Notes
Load	-	15	-	pF	
Voltage High (Voh)	90%Vcc	-	-	Vdc	
Low (Vol)	-	-	10%Vcc	Vdc	
Duty Cycle at 50% Level	45	50	55	%	
Rise / Fall Time: 10% to 90%					
1.8 to 10 MHz	-	-	10	ns	
>10 to 50 MHz	-	-	7	ns	
>50 MHz	-	-	5	ns	

Ordering Information

5	1	1	2	- 156.25M
Type LVCMOS Low Voltage Clock Series 5x7 mm	Temperature Range 1 =-10 to 70°C 2 = -40 to 85°C	Frequency Stability 1 = ±25 ppm 2 = ±50 ppm 3 = ±100 ppm	Supply Voltage 0 = 1.8 Vdc 2 = 2.5 Vdc 6 = 2.8 Vdc	Output Frequency Frequency Format -xxx.xM Min -xxx.xxxxxxM Max *Amount of numbers after the decimal point. M = MHz

Example: Part Number: 5112-156.25M = 5x7mm package, LVCMOS Output, -10 to 70, +/-25 ppm, 2.5 Vdc, E/D Pad 1, Output Frequency 156.25 MHz

RoHS COMPLIANT

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Notes:
1. *Includes calibration @ 25°C, frequency stability vs. change in temperature, supply voltage and load variations, shock and vibration and 20 years aging.*
2. *When the oscillator is disabled the output is at high impedance. Output is enabled with no connection on E/D pad.*
3. *The internal oscillator circuit is turned off when the part is disabled.*

Enable / Disable Function

Function:	**Output**
Low:	Disabled (High Impedance)
High or Open:	Enabled

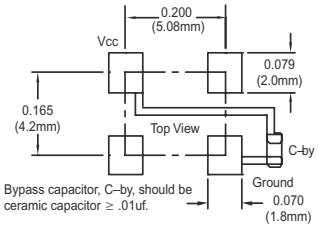
Package Characteristics

Package	Hermetically sealed ceramic package and metal cover

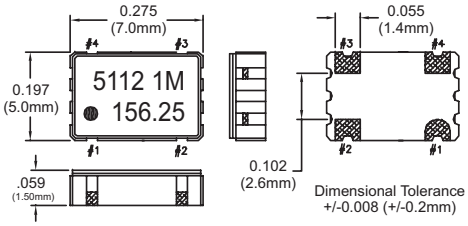
Environmental Characteristics

Vibration:	Vibration per Mil Std 883E Method 2007.3 Test Condition A.
Shock:	Mechanical Shock per Mil Std 883E Method 2002.4 Test Condition B.
Soldering Process;	RoHS compliant lead free. See soldering profile on page 2.

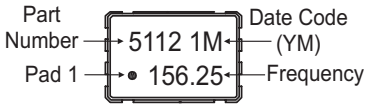
Suggested Pad Layout



Package Outline



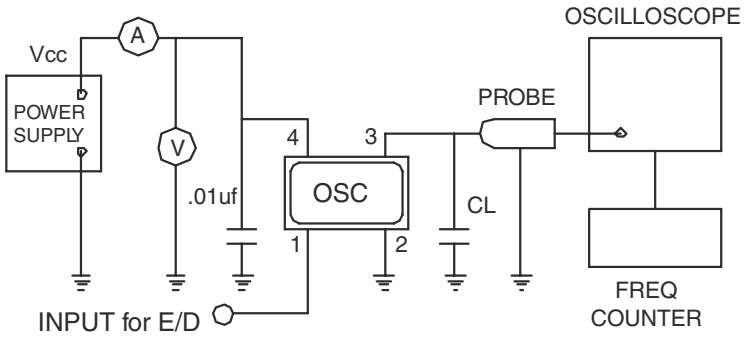
Marking Information



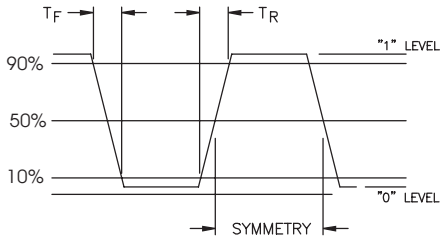
Pad Connections

1: Enable / Disable
2: Ground
3: Output Q
4: Supply Voltage (Vcc)

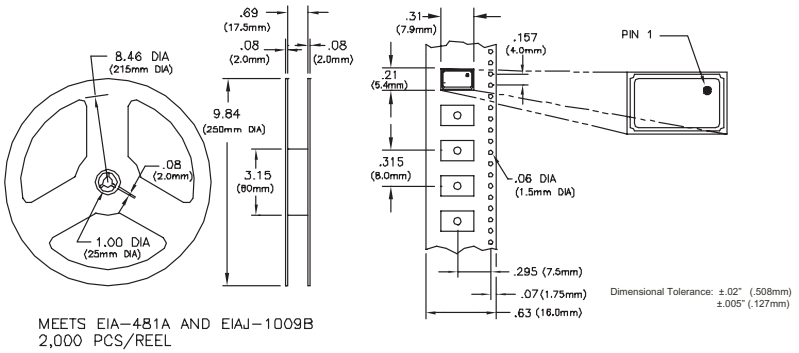
Test Circuit



Output Waveform

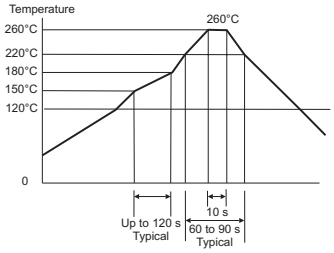


Tape and Reel Dimensions



MEETS EIA-481A AND EIAJ-1009B
2,000 PCS/REEL

Solder Profile



Meets IPC/JEDEC J-STD-020C

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Revision	**02**
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