Surface Mount LVPECL Clock Oscillator

CONNOR WINFIELD

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Description:

The Connor Winfield PLxxx - Series are 5 x 7mm Surface Mount, LVPECL, Fixed Frequency Crystal Controlled Oscillator (XO) designed for applications requiring tight frequency stability, wide temperature range and low jitter. Operating at 3.3V supply voltage, the PLxxx - Series provides an LVPECL Differential Outputs with enable / disable function. The surface mount package is designed for high-density mounting and is optimum for mass production.

Features:

Model PLxxx - Series
5 x 7mm Surface Mount Package
3.3V Operation
LVPECL Differential Outputs
Frequency Stabilities Available:
+/-20 ppm,+/-25 ppm, +/-50 ppm, +/-100 ppm
Temperature Ranges Available:
0 to 70°C, -40 to 85°C, 0 to 85°C, -20 to 70°C
Low Jitter <0.6ps RMS
Tri-State Enable/Disable on Pad 1
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	-	4.6	Vdc	
Input Voltage (Vc)	-0.5	-	Vcc + 0.5	Vdc	

Operating Specifications

Parameter	Minimum	Nominal	Maximum	Units	Notes
Output Frequency (Fo)	98	-	800	MHz	
Total Frequency Tolerance	(See Ordering Information for full part number)				
Model PLx43	-20	-	20	ppm	1
Model PLx13	-25	-	25	ppm	1
Model PLx23	-50	-	50	ppm	1
Model PLx33	-100	-	100	ppm	1
Operating Temperature Range					
Model PL1x3	0	-	70	°C	
Model PL2x3	-40	-	85	°C	
Model PL3x3	0	-	85	°C	
Model PL4x3	-20	-	70	°C	
Supply Voltage (Vcc)	3.135	3.3	3.465	Vdc	
Supply Current (Icc)	-	75	90	mA	
Jitter:					
Period Jitter	-	3.0	5.0	ps RMS	
Integrated Phase Jitter	-	0.6	1.0	ps RMS	
SSB Phase Noise for Fo=496 MHz					
@ 100 Hz offset	-	-90	-	dBc/Hz	
@ 1 KHz offset	-	-105	-	dBc/Hz	
@ 10 KHz offset	-	-110	-	dBc/Hz	
@ 100 KHz offset	-	-115	-	dBc/Hz	
@ 1 MHz offset	-	-125	-	dBc/Hz	
@ 10 MHz offset	-	-145	-	dBc/Hz	
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

LVPECL Output Characteristics

Parameter	Minimum	Nominal	Maximum	Units	Notes
Load -	-	50	-	Ohm	3
Voltage (High) (Vcc = 3.3 V) (Voh)	2.275	-	-	V	
(Low) (Vcc = 3.3 V) (Vol)	-	-	1.680	V	
Duty Cycle at 50% Level	45	50	55	%	4
Rise / Fall Time: 20% to 80%	-	0.5	1.0	ns	

Ordering Information

PL	1	4	3	- 496.0M
Type LVPECL Clock Series 5x7 mm	Temperature Range 1 = 0 to 70°C 2 = -40 to 85°C 3 = 0 to 85°C 4 = -20 to 70°C	Frequency Stability 4 = ±20 ppm 1 = ±25 ppm 2 = ±50 ppm 3 = ±100 ppm	Supply Voltage 3 = 3.3 Vdc, E/D Pad 1	Output Frequency Frequency Format -xxx.xM Min -xxx.xxxxxxM Max *Amount of numbers after the decimal point. M = MHz

Example: Part Number
PL143-496.0M = LVPECL Output,
0 to 70, +/-20ppm, 3.3Vdc, E/D Pad 1, Output Frequency 496 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 outputs are at high impedance. Outputs are enabled with no connection on E/D pad.*
3. *Outputs must be terminated into 50 ohms to Vcc – 2V or Thevenin equivalent.*
4. *Duty cycle measured at 50% of output voltage swing.*

Enable / Disable Function

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

Package Characteristics

Package	Hermetically sealed ceramic package and metal cover

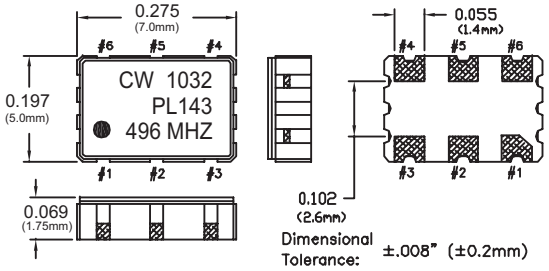
Pad Connections

1:	Enable / Disable
2	N/C
3:	Ground
4:	Output Q
5:	Complementary Output $\overline{Q}$
6:	Supply Voltage (Vcc)

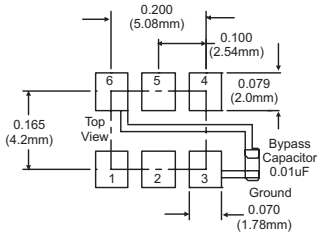
Environmental Characteristics

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.

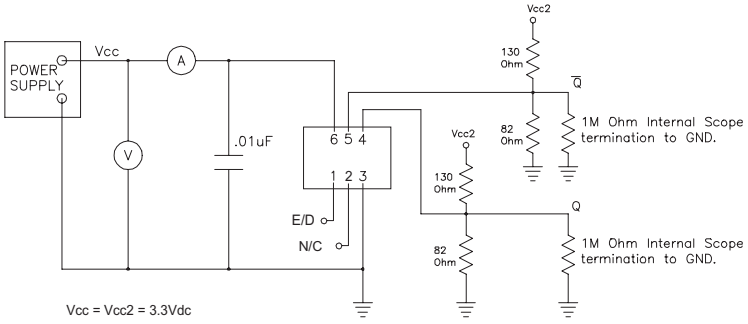
Package Outline



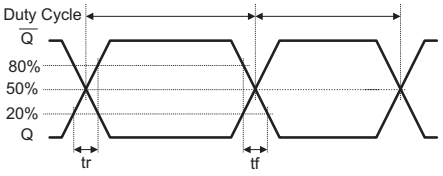
Suggested Pad Layout



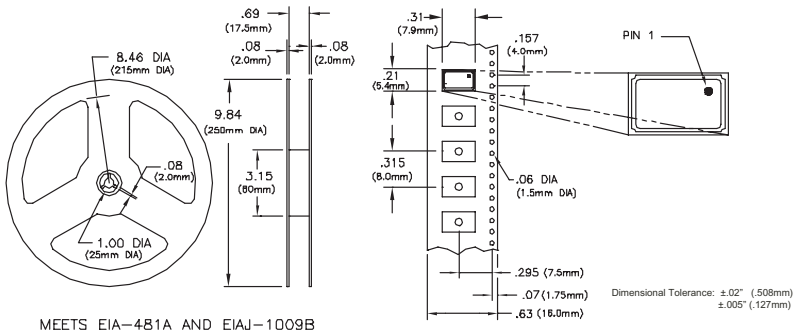
Test Circuit



Output Waveform

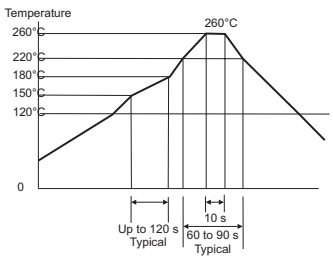


Tape and Reel Dimensions



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

Solder Profile



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