



Surface Mount LVPECL Clock Oscillator Model Pxxx Series

CONNOR WINFIELD



Description:

The Connor Winfield Pxxx Series are 5.0x7.0mm Surface Mount, LVPECL, Fixed Frequency Crystal Controlled Oscillator (XO) designed for applications requiring tight frequency stability, wide temperature range and low jitter. Operating at 2.5V or 3.3V supply voltage, the Pxxx 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:

- 5.0 x7.0mm Surface Mount Package
- 2.5V or 3.3V Operation
- LVPECL Differential Outputs
- Frequency Stabilities Available:
+/-20ppm, +/-25ppm, +/-50ppm, +/-100ppm
- Temperature Ranges Available:
0 to 70°C, -40 to 85°C, 0 to 85°C, -20 to 70°C
- Low Jitter <1pS RMS
- Tri-State Enable/Disable on Pad 1 or 2
- 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	-	5.0	Vdc	
Input Voltage (Vc)	-0.5	-	Vcc + 0.5	Vdc	

Operating Specifications

Parameter	Minimum	Nominal	Maximum	Units	Notes
Output Frequency (Fo)	25	-	312.5	MHz	
Total Frequency Tolerance	(See Ordering Information for full part number)				
Model Px4x	-20	-	20	ppm	1
Model Px1x	-25	-	25	ppm	1
Model Px2x	-50	-	50	ppm	1
Model Px3x	-100	-	100	ppm	1
Operating Temperature Range					
Model P1xx	0	-	70	°C	2
Model P2xx	-40	-	85	°C	
Model P3xx	0	-	85	°C	
Model P4xx	-20	-	70	°C	
Supply Voltage (Vcc)					
Model Pxx2, Pxx5	2.375	2.5	2.625	Vdc	
Model Pxx3, Pxx4	3.135	3.3	3.465	Vdc	
Supply Current (Icc)	-	60	90	mA	
Jitter:					
Period Jitter	-	3.0	5.0	ps RMS	
Integrated Phase Jitter (BW = 12 KHz to 20 MHz)					
25 ≤ Fo ≤ 60 MHz	-	1.3	2.0	ps RMS	
60 < Fo ≤ 80 MHz	-	0.80	1.0	ps RMS	
80 < Fo ≤ 100 MHz	-	0.60	0.80	ps RMS	
100 < Fo ≤ 160 MHz	-	0.40	0.50	ps RMS	
160 < Fo ≤ 200 MHz	-	0.30	0.40	ps RMS	
200 < Fo ≤ 312.5 MHz	-	0.20	0.30	ps RMS	
SSB Phase Noise					
@ 10 Hz offset	-	-60	-	dBc/Hz	
@ 100 Hz offset	-	-90	-	dBc/Hz	
@ 1 KHz offset	-	-115	-	dBc/Hz	
@ 10 KHz offset	-	-140	-	dBc/Hz	
@ 100 KHz offset	-	-145	-	dBc/Hz	
Start-Up Time	-	-	2	ms	

Input Characteristics

Parameter	Minimum	Nominal	Maximum	Units	Notes
Enable / Disable Option:					
Models Pxx2, Pxx3 E/D Pad 1. N/C Pad 2					
Models Pxx4, Pxx5 E/D Pad 2. N/C Pad 1					
Enable Input Voltage - (High) - (Vih)	70%Vcc	-	-	Vdc	3
Disable Input Voltage - (Low) - (Vil)	-	-	30%Vcc	Vdc	3
Enable Time	-	-	2	ms	
Disable Time	-	-	200	ns	
Standby Current (When Osc. is disabled)	-	-	30	uA	

LVPECL Output Characteristics

Parameter	Minimum	Nominal	Maximum	Units	Notes
Load	-	50	-	Ohm	4
Voltage (High) (Vcc = 2.5 V) (Voh)	1.475	-	-	V	
(Low) (Vcc = 2.5 V) (Vol)	-	-	0.880	V	
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	%	5
Rise / Fall Time: 20% to 80%	-	0.5	1.0	ns	

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



Bulletin **Ec217**

Page **1 of 2**

Revision **17**

Date **08 April 2015**

1. Includes calibration @ 25°C, frequency stability vs. change in temperature, supply voltage and load variations, shock and vibration and 20 years aging. Models P242, P243 P244 and P245 are not available above 260 MHz.
2. Models P242, P243 P244 and P245 are not available above 260 MHz.
3. When the oscillator is disabled the outputs are at high impedance. Outputs are enabled with no connection on E/D pad.
4. Outputs must be terminated into 50 ohms to Vcc - 2V or Thevenin equivalent.
5. Duty cycle measured at 50% of output voltage swing.

P	1	2	3	- 155.52M
Type	Temperature Range	Frequency Stability	Supply Voltage	Output Frequency
LVPECL Clock Series 5x7 mm	1 = 0 to 70°C 2 = -40 to 85°C 3 = 0 to 85°C 4 = -20 to 70°C	4 = ±20 ppm 1 = ±25 ppm 2 = ±50 ppm 3 = ±100 ppm	2 = 2.5 Vdc, E/D Pad 1 3 = 3.3 Vdc, E/D Pad 1 4 = 3.3 Vdc, E/D Pad 2 5 = 2.5 Vdc, E/D Pad 2	Frequency Format -xxx.xM Min -xxx.xxxxxxM Max *Amount of numbers after the decimal point, M = MHz

Attention: Models P242, P243, P244 and P245 are not available above 260 MHz.

Package	Hermetically sealed ceramic package and metal cover
---------	---

Soldering Process; RoHS compliant lead free. See soldering profile on page 2.

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

Figure 1: Dimensional drawing of the 155.52 MHz crystal. The drawing includes a top view, a side view, and a bottom view. The top view shows a rectangular package with dimensions 0.275 (7.0mm) by 0.197 (5.0mm). It features six pins labeled #1 through #6. The top view also displays the part number '1314', 'P123', and the frequency '155.52 MHz'. The side view shows a thickness of 0.079 MAX (2.0mm). The bottom view shows a width of 0.102 (2.6mm) and a distance of 0.055 (1.4mm) between the pins. A note indicates a dimensional tolerance of +/-0.008 (+/-0.2mm).

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

Test Circuit

POWER SUPPLY

Vcc

V

0.1 μ F

10 nF

6 5 4

1 2 3

OE or N/C

Vcc2

R3

R4

1M Ohm Internal Scope termination to GND.

1M Ohm Internal Scope termination to GND.

Vcc	R1 / R3	R2 / R4
2.5V	250 Ohms	62.5 Ohms
3.3V	130 Ohms	82 Ohms

Vcc = Vcc2

Meets IPC/JEDEC J-STD-020C

Date 08 April 2015