Surface Mount PLL Multiplied PECL VCXO

CONNOR WINFIELD

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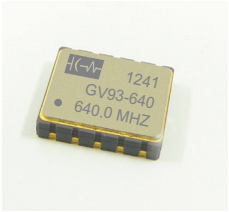
Description:

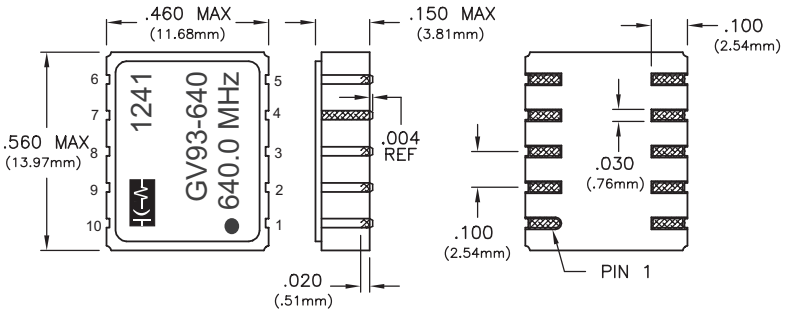
The Connor-Winfield GV93 Series are 14x11 mm Surface Mount, PECL, Voltage Controlled Crystal Oscillators (VCXO), and are designed for PLL applications requiring tight frequency stability and wide temperature range. Operating at 5.0 Vdc supply voltage, the GV93 Series provides single ended or differential PECL outputs with optional Enable / Disable function.



Features:

Frequency Range:
120 MHz to 800 MHz
5.0 Vdc Operation
14x11 mm SMT Package
Frequency Stabilities Available:
±20 ppm, ±50 ppm or ±100 ppm
Temperature Ranges Available:
0 to 70°C or -40 to 85°C
Output:
Single Ended PECL Output or
Differential PECL Outputs
Optional Enable/Disable Function
Tape and Reel Packaging

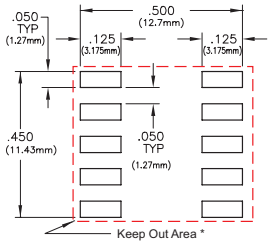
Package Outline



Pad Connections

1: OE or N/C
2: Control Voltage (Vc)
3: N/C:
4: Vee
5: N/C
6: Q or N/C
7: Output Q
8: Internal Test (DNC)
9: Supply Voltage (Vcc)
10: N/C

Suggested Pad Layout



Keep Out Area: Do not route any traces in the keep out area. It is recommended the next layer under the keep out area is to be ground plane.

Ordering Information

GV93-	6	4	0	-640.0M
Oscillator Type 5 Vdc PECL VCXO Series 14x11 mm	Temperature Range 5 = 0 to 70°C 6 = -40 to 85°C	Frequency Stability 4 = ±20 ppm 2 = ±50 ppm 3 = ±100 ppm	Options 0 = N/C pads 1 and 6 1 = Complementary Output Pad 6, N/C Pad 1 2 = OE Pad 1, N/C Pad 6 3 = OE Pad 1, Complementary Output Pad 6	Output Frequency Frequency Format -xxx.xM Min.* -xxx.xxxxxxM Max*

*Amount of numbers after the decimal point.
M = MHz

Example Part Numbers:
GV93 -640-640.0M = VCXO, 14x11 mm package, 5.0 Vdc, -40 to 85°C, Frequency Stability ±20 ppm, Single Ended PECL Output, 640 MHz
GV93 -541-622.08M = VCXO, 14x11 mm package, 5.0 Vdc, 0 to 70°C, Frequency Stability ±20 ppm, Complimentary PECL Outputs, 622.08 MHz

RoHS COMPLIANT

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Absolute Maximum Ratings

Parameter	Minimum	Nominal	Maximum	Units	Notes
Storage Temperature	-55	-	125	°C	
Supply Voltage (Vcc)	-0.5	-	6.0	Vdc	
Input Voltage	-0.5	-	Vcc+0.5	Vdc	

Operating Specifications

Parameter	Minimum	Nominal	Maximum	Units	Notes
Center Frequency: (Fo) 0 to 70 °C Models GV93-52x, GV93-53x and GV93-5xx					1
	120	to	135	MHz	
	144	to	168	MHz	
	174	to	205	MHz	
	232	to	270	MHz	
	288	to	336	MHz	
	348	to	410	MHz	
	464	to	520	MHz	
	576	to	672	MHz	
	700	to	800	MHz	
Center Frequency: (Fo) -40 to 85 °C Models GV93-62x, GV93-63x and GV63-5xx					1
	144	to	168	MHz	
	174	to	205	MHz	
	288	to	336	MHz	
	348	to	410	MHz	
	576	to	672	MHz	
Operating Temperature Range: (See Ordering Information)					
Temperature Code 5	0	-	70	°C	
Temperature Code 6	-40	-	85	°C	
Frequency Stability: (See Ordering Information)					
Stability Code 4	-20.0	-	20.0	ppm	2
Stability Code 2	-50.0	-	50.0	ppm	2
Stability Code 3	-100.0	-	100.0	ppm	2
Supply Voltage: (Vcc)	4.75	5.0	5.25	Vdc	±5%
Supply Current	-	-	100	mA	
Start-Up Time:	-	-	10	ms	

PECL Output Characteristics

Parameter	Minimum	Nominal	Maximum	Units	Notes
Load	-	50	-	pF	3
Output Voltage: Vcc = 5.0 Vdc					
High (V_{OH})	4.0	-	4.5	V	
Low (V_{OL})	2.9	-	3.4	V	
Duty Cycle at 50% of output voltage swing	45	50	55	%	
Rise / Fall Time: 20% to 80%	-	-	750	ps	
Jitter					
Period Jitter	-	5	10	ps RMS	
Integrated Phase Jitter (12 KHz to 20 MHz)	-	1.5	3	ps RMS	
SSB Phase Noise @ 10 KHz offset	-	-100	-	dBC/Hz	

Notes:

1. *Not all frequencies are available, please contact Connor-Winfield Sales Department for more information.*
2. *Frequency stability vs. change in temperature,*
3. *Outputs must be terminated into 50 ohms to 3 Vdc or Thevenin equivalent.*
4. *When the oscillator is disabled, output Q (pad 7) goes to low state, optional complementary output Q (pad 6) goes to high state. With no connection on pad 1 (floating) the outputs are in the disabled state.*

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Control Voltage Input Characteristics

Parameter	Minimum	Nominal	Maximum	Units	Notes
Control Voltage (Vc)	0.5	-	4.5	Vdc	
Deviation @ 25 °C	±75	-	±140	ppm	
Center Frequency @ 25 °C	2.0	2.5	3.0	Vdc	
Slope	Positive Transfer Characteristics				
Linearity	-	-	10	%	
Input Impedance (< 10 KHz)	50K	-	-	Ohms	

Enable / Disable Function Input Characteristics

Parameter	Minimum	Nominal	Maximum	Units	Notes
Enable / Disable Function Option: (Input Pad 1)					
Enable Voltage (V_{IH})	-	-	0.5	Vdc	4
Disable Voltage (V_{IL})	1.5	-	-	Vdc	4

Function: (Pad 6 or 7)	Outputs
Low	Enabled
High or Open:	Disabled

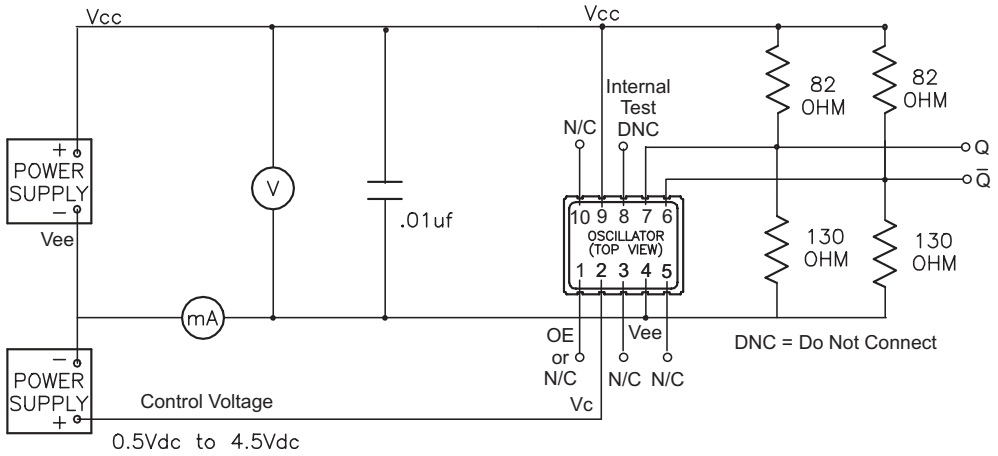
Package Characteristics

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 4.

Test Circuit



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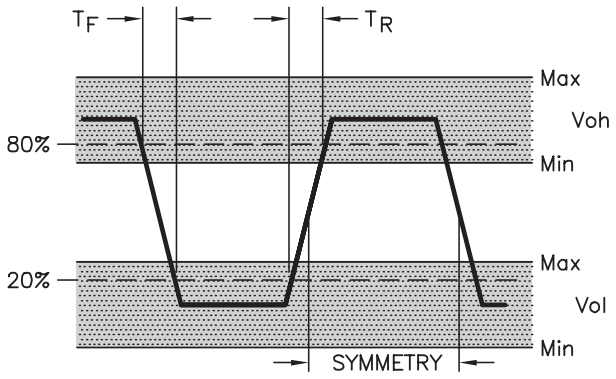
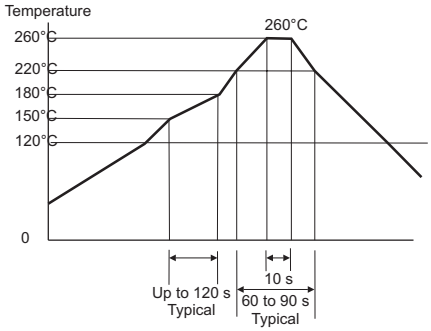
Output Waveform

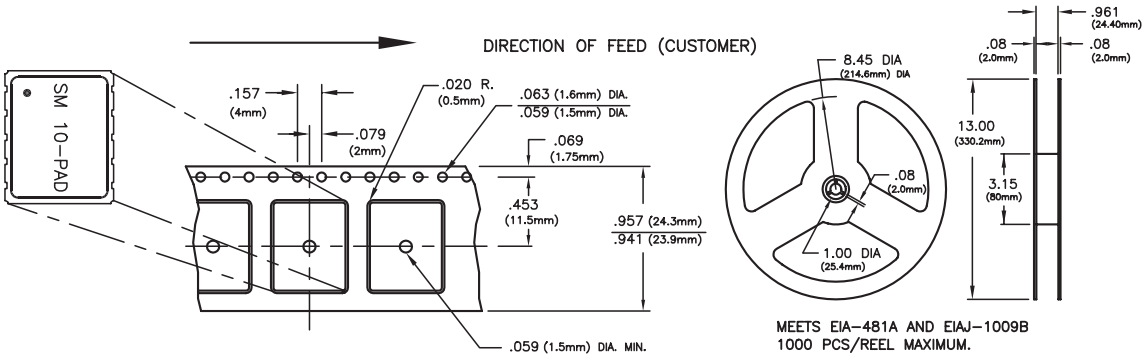


RoHS Solder Profile



Meets IPC/JEDEC J-STD-020C

Tape and Reel Dimensions



Revision History

Revision 10 Data sheet revised 10/15/12

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