

High Frequency 5.0V HCMOS VCXO HV6x-xxxG - Series

CONNOR WINFIELD



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Description:

The Connor-Winfield HV6x-xxxG series are 14 pin DIP, 5.0V HCMOS, Voltage Controlled Crystal Oscillator (VCXO). Based on a fundamental crystal design the HV6x-xxxG series are designed for phase lock loop applications requiring low jitter and tight frequency stability.



Features:

5.0 Vdc Operation
Available Frequency Stabilities:
 $\pm 20\text{ppm}$, $\pm 25\text{ppm}$, $\pm 50\text{ppm}$ or $\pm 100\text{ppm}$
Temperature Range: -40 to 85°C
Available Pull Ranges:
 $\pm 50\text{ppm}$ to $\pm 150\text{ppm}$
HCMOS Output
14 Pin DIP Package
RoHS Compliant / Lead Free

Absolute Maximum Ratings

Parameter	Minimum	Nominal	Maximum	Units	Notes
Storage Temperature (TST)	-55	-	125	$^\circ\text{C}$	
Supply Voltage (Vcc)	-0.5	-	7.0	Vdc	
Control Voltage (Vc)	-0.5	-	Vcc + 0.5	Vdc	

Model Specifications

Model Number	Frequency Stability (See ordering information on page 2.)				
HV61-xxxxG	-25	-	25	ppm	1
HV62-xxxxG	-50	-	50	ppm	1
HV63-xxxxG	-100	-	100	ppm	1
HV64-xxxxG	-20	-	20	ppm	1
Frequency Pullability Codes	Minimum	Nominal	Maximum	Units	Notes
100	± 50	-	-	ppm	2
120	± 60	-	-	ppm	2
150	± 75	-	-	ppm	2
200 (Not available above 70 MHz)	± 100	-	-	ppm	2
300 (Not available above 50 MHz)	± 150	-	-	ppm	2

Operating Specifications

Parameter	Minimum	Nominal	Maximum	Units	Notes
Center Frequency (Fo)	30	-	100	MHz	
Operating Temp Range (Ta)	-40	-	85	$^\circ\text{C}$	
Supply Voltage (Vcc)	4.75	5.0	5.25	Vdc	
Supply Current (Icc)					
≤ 50 MHz	-	-	35	mA	
> 50 MHz	-	-	60	mA	
Jitter:					
Integrated Phase Jitter	-	-	1.0	ps RMS	3
Period Jitter (Jp)	-	-	5.0	ps RMS	
SSB Phase Noise					
@ 10 Hz offset	-	-60	-	dBc/Hz	
@ 100 Hz offset	-	-90	-	dBc/Hz	
@ 1 KHz offset	-	-120	-	dBc/Hz	
@ 10 KHz offset	-	-140	-	dBc/Hz	
@ 100 KHz offset	-	-145	-	dBc/Hz	
Start-Up Time	-	-	10	ms	

Input Characteristics

Parameter	Minimum	Nominal	Maximum	Units	Notes
Control Voltage Range (Vc)	0.5	2.5	4.5	Vdc	
Center Frequency	2.0	2.5	3.0	Vdc	
Transfer Characteristic		Positive			
Linearity	-10	-	10	%	
Input Impedance	-	50K	-	Ohm	
Modulation Bandwidth (3dB)	15	-	-	KHz	

HCMOS Output Characteristics

Parameter	Minimum	Nominal	Maximum	Units	Notes
Load	-	15	-	pF	
Output Voltage					
High (Voh)	4.5	-	-	Vdc	
Low (Vol)	-	-	0.5	Vdc	
Duty Cycle	40	50	60	%	
Optional Duty Cycle	45	50	55	%	Add suffix "S"
Rise / Fall Times	-	-	3	ns	



Bulletin **VX629**
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Revision **00**
Date **06 Dec 2010**



Ordering Information

HV VCXO 5.0 Vdc HCMOS 14 Pin DIP Package	6 Temperature Range 6= -40 to 85°C	4 Freq. Stability 1 = ±25 ppm 2 = ±50 ppm 3 = ±100 ppm 4 = ±20 ppm	-120 Pullability -100 = ±50 ppm -120 = ±60 ppm -150 = ±75 ppm -200 = ±100 ppm -300 = ±150 ppm	 Duty Cycle Blank = 40/60% S = 45/55%	G RoHS Compliant Lead Free	038.88M Output Frequency - Frequency Format -xxx.xM Min. * -xxx.xxxxxM Max. * * Amount of numbers after the decimal point. M = MHz
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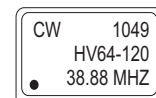
Example Part Number:

HV64-120G-038.88M = VCXO 14 Pin DIP 5.0 Vdc, -40 to 85°C, Freq. Stability ±20 ppm, Freq Pullability ±60 ppm, RoHS Compliant, Duty Cycle 40/60%, Output Frequency 38.88 MHz.

Package Characteristics

Package Hermetically sealed 14 pin DIP package.

Marking Diagram



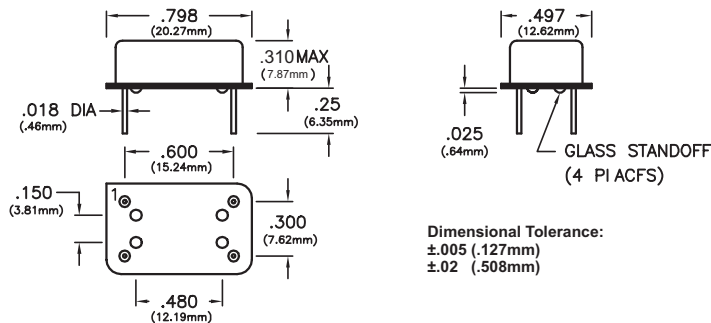
Environmental Characteristics

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.
Solderability;	Solderability per Mil Std 883E Method 2003.

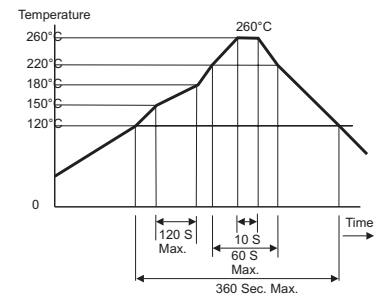
Pin Connections

1.	Control Voltage (Vc)
7.	Ground
8.	Output
14.	Supply Voltage (Vcc)

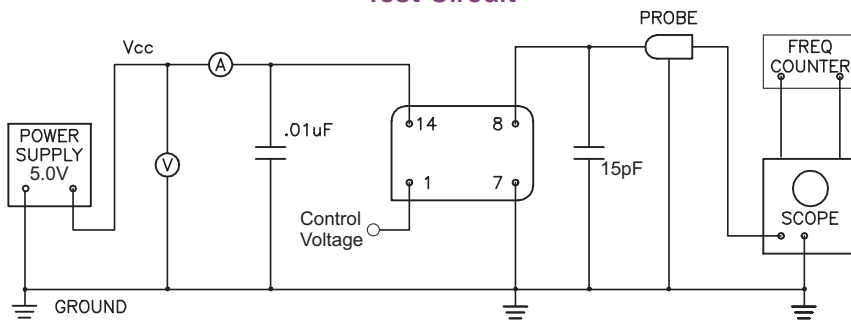
Package Layout



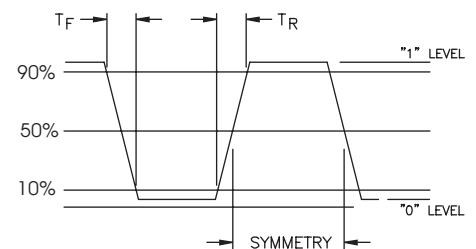
Solder Profile



Test Circuit



Output Waveform



Notes:

1. Frequency stability vs. temperature, referenced to the frequency measured at 25°C with the control voltage at 2.5 Vdc.
2. Pull range is measured at 25°C, referenced to Fo.
3. BW= 12 KHz to 20 MHz.