



Low Noise Crystal Oscillators > VHF Citrine PLO

Features:

- Frequencies from 25 MHz to 160 MHz, fixed
- Standard, Premium or Golden Phase Noise
- Ruggedized for Dynamic Environments
- PLL Loop Bandwidth: 1 Hz to 100 Hz
- Low G-Sensitivity to 2E-10/g per axis
- Vibration Isolated Version Available

Applications:

- Military Applications
- Airborne, Ground, Shipboard
- Radar Systems
- Tactical Radio
- Vehicular Communication
- Reference Source



Electrical Specifications	
Output Frequency (fixed; specify within range)	25 MHz to 160 MHz
Output Level	+13 dBm ±2 dB into 50 ohms
External Reference Input Frequency	10 MHz (standard; other options available)
External Reference Input Level	+7 dBm ±6 dB into 50 ohms
Aging	(100 MHz model, typical)
Per day after 30 days operating, typical	5×10^{-9}
Second year, typical	5×10^{-7}
Per year thereafter, typical	3×10^{-7}
Temperature Stability (consult factory for other ranges)	(100 MHz model, typical)
Range E: 0 to +50°C (Ref: +25°C)	$\leq \pm 5 \times 10^{-7}$
Range F: -20 to +70°C (Ref: +25°C)	$\leq \pm 1 \times 10^{-6}$
Range G: -55 to +85°C (Ref: +25°C)	$\leq \pm 2 \times 10^{-6}$
Phase Noise	(Frequency Dependent: See Standard Specifications and Part Numbers table below for details)
Harmonics	≤ -30 dBc
Sub-Harmonics	≤ -80 dBc
PLL Divider Products	≤ -80 dBc
Spurious	≤ -80 dBc
PLL Loop Bandwidth	≤ 5 Hz or ≤ 60 Hz
Supply Voltage	+15 VDC or +12 VDC (±5%)
Warm-up	≤ 9 Watts for 5 minutes at +25°C
Total	≤ 6 Watts at +25°C
Crystal Type	SC-cut
Crystal Acceleration Sensitivity	5×10^{-10} /g, typical; to 2×10^{-10} /g, available
Mechanical	
Packaging	Nickel-Plated Machined Aluminum
Dimensions	2.0" x 2.0" x 1.3"
Connectors / Mounting	SMA(f) and solder pins on side Threaded Inserts, #2-56, 4 places

Description:

The VHF Citrine PLO is a 25 MHz to 160 MHz fixed frequency rugged OCXO integrated with a low noise phase lock loop circuit. The PLO offers good temperature stability (when free-running), Standard, Premium or Golden phase noise options (to -190 dBc/Hz) and low g-sensitivity (to 2E-10/g per axis). Frequency dividers are used to prescale the internal VHF oscillator and the external reference frequencies to phase lock at a common lower frequency. The PLL loop bandwidth options are typically ≤ 5 Hz or ≤ 60 Hz, but can be configured for optimal performance considering the reference signal provided. Designed for demanding applications, the VHF Citrine PLO provides excellent phase noise performance under vibration with both hard mount and a vibration isolated version available. The hard mount nickel-plated machined aluminum package is 2" x 2" x 1.3". An internal voltage regulator is provided for excellent power supply line rejection. Please consult the factory if you need any specifications to be modified to better suit your application.



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**100 MHz VHF Citrine PLO
(free-running)**

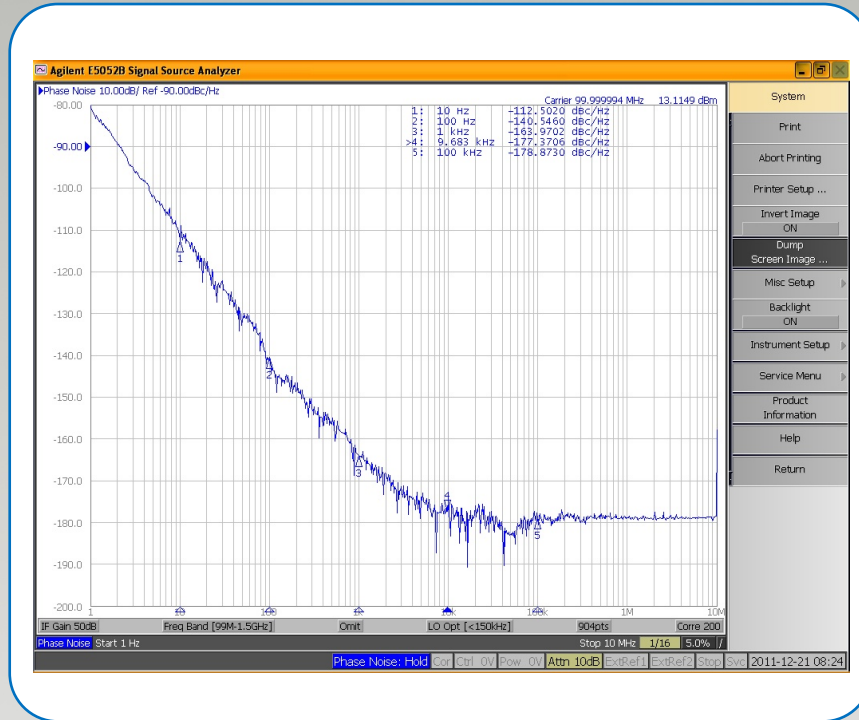


Figure 1: Typical Phase Noise Performance Plot for the 100 MHz VHF Citrine PLO, P/N: 501-26229

Standard Specifications and Part Numbers **

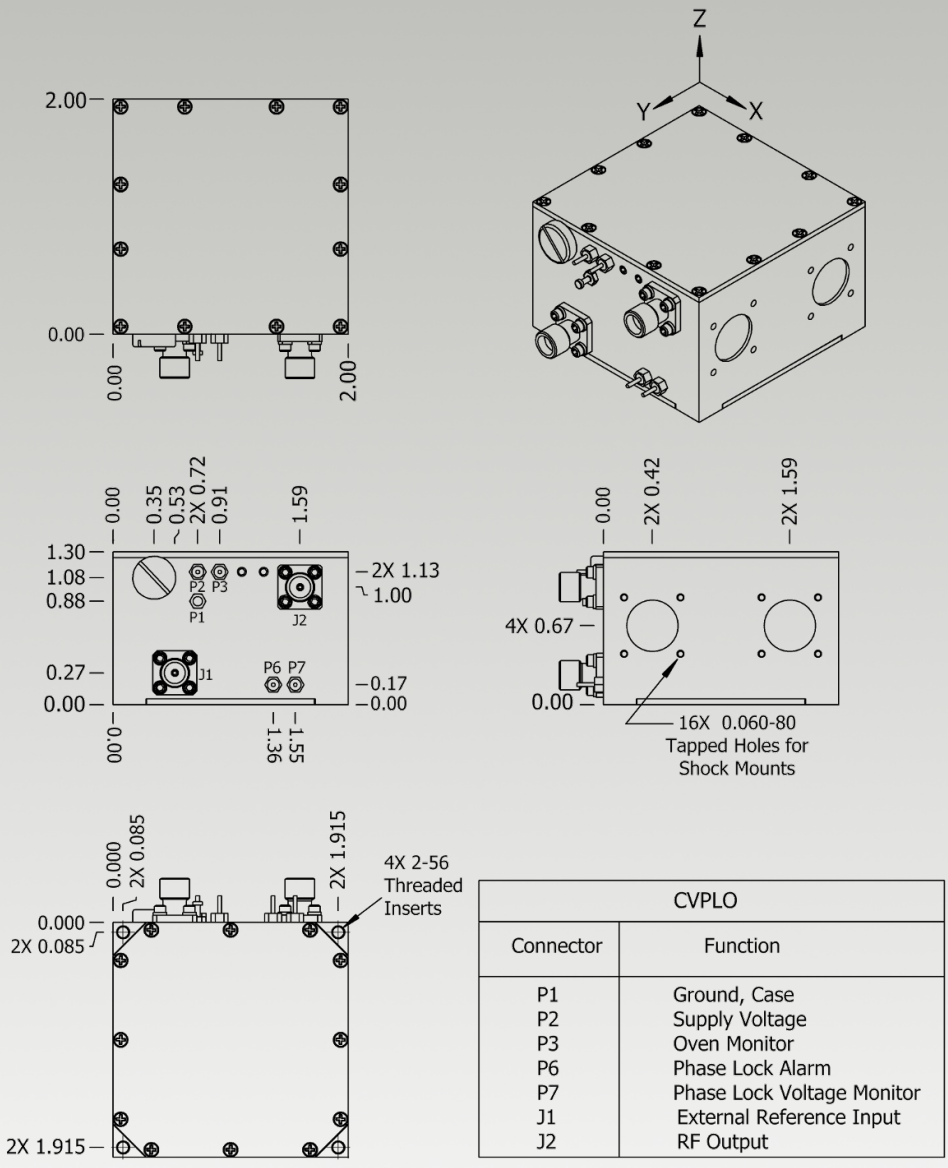
Part Number	Output Frequency * (MHz)	Typical Phase Noise (dBc/Hz), Static * (free-running)					Output Level (dBm) * into 50 ohms	Temperature Stability (Ref: +25°C) *	Supply Voltage (VDC)	Acceleration Sensitivity (/g per axis) *	External Reference Frequency (MHz)	Package / Connectors	Package Size (inches)
		10 Hz	100 Hz	1 kHz	10 kHz	100 kHz							
501-26245	50	-105	-135	-155	-169	-170	+13 ±2	±5E-7, 0 to +50°C	+15	5E-10, typ	10, LBW=10 Hz	SMA(f) & Pins on Side	2 x 2 x 1.3
501-26246	50	-105	-135	-158	-175	-176	+13 ±2	±2E-7, 0 to +50°C	+15	5E-10, typ	10, LBW=10 Hz	SMA(f) & Pins on Side	2 x 2 x 1.3
501-26228	100	-100	-130	-150	-169	-170	+13 ±2	±5E-7, 0 to +50°C	+15	3E-10, typ	10, LBW=10 Hz	SMA(f) & Pins on Side	2 x 2 x 1.3
501-26229	100	-100	-130	-158	-175	-176	+13 ±2	±5E-7, 0 to +50°C	+15	3E-10, typ	10, LBW=10 Hz	SMA(f) & Pins on Side	2 x 2 x 1.3

* Consult factory for custom frequency, phase noise performance, output level, temperature stability and acceleration sensitivity options.
** See website for additional Standard Part Numbers and Specifications.





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Connector numbers are for reference only and will not be marked on unit.