



Low Noise Crystal Oscillators > VHF PLO

Features:

- Frequencies from 25 MHz to 260 MHz, fixed
- Ruggedized for Dynamic Environments
- Standard or Premium Phase Noise Options
- PLL Loop Bandwidth from 1 Hz to 100 Hz
- Low G-Sensitivity to 2E-10/g per axis
- Dual Output Option

Applications:

- Airborne
- Radar Systems
- Vehicular Communications
- System Synchronization
- Test Equipment



Electrical Specifications		
Output Frequency (fixed; specify within range)	25 MHz to 260 MHz	
Output Level	+13 dBm ±2 dB into 50 ohms	
Output Level (Dual Output - Package B)	+10 dBm ±2 dB into 50 ohms, each output	
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)	$\leq \pm 2 \times 10^{-7}$	
Range F: -20 to +70°C (Ref: +25°C)	$\leq \pm 5 \times 10^{-7}$	
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	≤ -50 dBc	
PLL Divider Products	≤ -50 dBc	
Spurious	≤ -80 dBc	
PLL Loop Bandwidth	≤ 5 Hz or ≤ 60 Hz	
Supply Voltage	+15 VDC or +12 VDC (±5%)	
Warm-up	≤ 8 Watts for 5 minutes at +25°C	
Total	≤ 5 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	3.5" x 2.5" x 0.8"	
Connectors / Mounting	Package A	SMA(f) and solder pins on side Threaded Inserts, #2-56, 4 places
	Package B	SMA(f) x2 and solder pins on side Threaded Inserts, #2-56, 4 places

Description:

The VHF PLO is a 25 MHz to 130 MHz fixed frequency rugged OCXO integrated with a low noise phase lock loop circuit and optional x2 multiplier circuit. The integrated assembly can provide fixed output frequencies from 25 MHz to 260 MHz and offers good temperature stability (when free-running), Standard or Premium phase noise options 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. The PLO is housed in a 3.5" x 2.5" x 0.8" nickel plated machined aluminum case. 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 Premium VHF PLO
(free-running)**

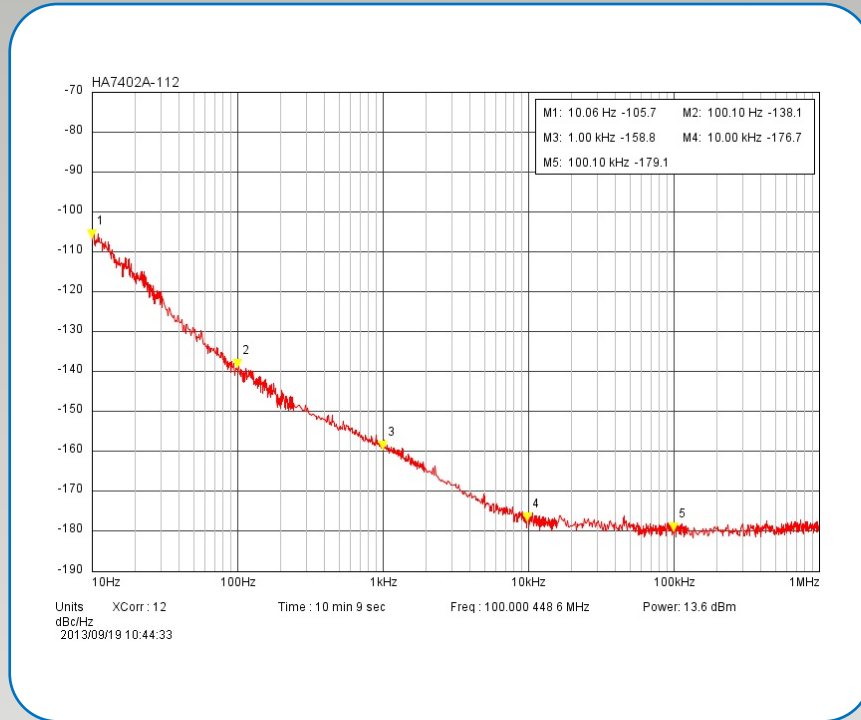


Figure 1: Typical Phase Noise Performance Plot for the Premium 100 MHz VHF PLO, P/N: 501-27596-11

Standard Specifications and Part Numbers **

Part Number	Output Frequency * (MHz)	Typical Phase Noise (dBc/Hz), Static *					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							
501-27508-01	100	-97	-125	-155	-165	-167	+13 ±2	±2E-7, 0° to +50°C	+15	5E-10, typ	10, LBW=5 Hz	SMA(f) & Pins on Side	2.5 x 3.5 x 0.8
501-27508-11	100	-99	-130	-157	-167	-170	+13 ±2	±2E-7, 0° to +50°C	+15	5E-10, typ	10, LBW=5 Hz	SMA(f) & Pins on Side	2.5 x 3.5 x 0.8
501-27508-41	100	-97	-125	-155	-165	-167	+13 ±2	±2E-7, 0° to +50°C	+15	3E-10, gtd	10, LBW=5 Hz	SMA(f) & Pins on Side	2.5 x 3.5 x 0.8
501-27508-51	100	-99	-130	-157	-167	-170	+13 ±2	±2E-7, 0° to +50°C	+15	3E-10, gtd	10, LBW=5 Hz	SMA(f) & Pins on Side	2.5 x 3.5 x 0.8
501-27509-01	200	-90	-118	-148	-158	-160	+13 ±2	±2E-7, 0° to +50°C	+15	5E-10, typ	10, LBW=5 Hz	SMA(f) & Pins on Side	2.5 x 3.5 x 0.8
501-27509-11	200	-92	-123	-150	-160	-163	+13 ±2	±2E-7, 0° to +50°C	+15	5E-10, typ	10, LBW=5 Hz	SMA(f) & Pins on Side	2.5 x 3.5 x 0.8
501-27589-01	100	-97	-125	-155	-165	-167	+13 ±2	±2E-7, 0° to +50°C	+15	5E-10, typ	10, LBW=60 Hz	SMA(f) & Pins on Side	2.5 x 3.5 x 0.8
501-27589-11	100	-99	-130	-157	-167	-170	+13 ±2	±2E-7, 0° to +50°C	+15	5E-10, typ	10, LBW=60 Hz	SMA(f) & Pins on Side	2.5 x 3.5 x 0.8
501-27590-11	200	-92	-123	-150	-160	-163	+13 ±2	±2E-7, 0° to +50°C	+15	5E-10, typ	10, LBW=60 Hz	SMA(f) & Pins on Side	2.5 x 3.5 x 0.8
501-27596-01	100	-100	-130	-157	-170	-171	+13 ±2	±2E-7, 0° to +50°C	+15	5E-10, typ	10, LBW=5 Hz	SMA(f) & Pins on Side	2.5 x 3.5 x 0.8
501-27596-11	100	-105	-135	-160	-175	-176	+13 ±2	±2E-7, 0° to +50°C	+15	5E-10, typ	10, LBW=5 Hz	SMA(f) & Pins on Side	2.5 x 3.5 x 0.8
501-27597-11	200	-98	-128	-153	-168	-169	+13 ±2	±2E-7, 0° to +50°C	+15	5E-10, typ	10, LBW=5 Hz	SMA(f) & Pins on Side	2.5 x 3.5 x 0.8
501-27599-01	100	-100	-130	-157	-170	-171	+13 ±2	±2E-7, 0° to +50°C	+15	5E-10, typ	10, LBW=60 Hz	SMA(f) & Pins on Side	2.5 x 3.5 x 0.8
501-27599-11	100	-105	-135	-160	-175	-176	+13 ±2	±2E-7, 0° to +50°C	+15	5E-10, typ	10, LBW=60 Hz	SMA(f) & Pins on Side	2.5 x 3.5 x 0.8
501-27600-01	200	-93	-123	-150	-163	-164	+13 ±2	±2E-7, 0° to +50°C	+15	5E-10, typ	10, LBW=60 Hz	SMA(f) & Pins on Side	2.5 x 3.5 x 0.8
501-27600-11	200	-98	-128	-153	-168	-169	+13 ±2	±2E-7, 0° to +50°C	+15	5E-10, typ	10, LBW=60 Hz	SMA(f) & Pins on Side	2.5 x 3.5 x 0.8

* Consult factory for custom frequency, phase noise performance, output level, temperature stability and acceleration sensitivity options.

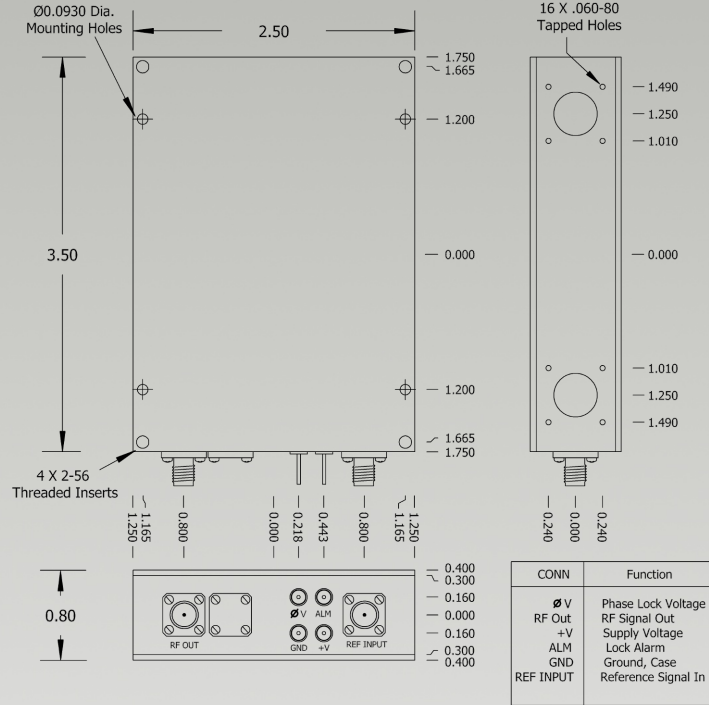
** See website for additional Standard Part Numbers and Specifications.





Low Noise Crystal Oscillators > VHF PLO

Package A



Package B

