



Low Noise Crystal Oscillators > Sorcerer II

Features:

- HF Frequencies from 5 MHz to 25 MHz
- VHF Frequencies from 50 MHz to 130 MHz
- Ultra Low Phase Noise
- Excellent Temperature Stability
- Good Short Term Stability
- Low Aging rate

Applications:

- Reference Frequency Source
- System Integration
- Instruments



Electrical Specifications

HF Output Frequency (fixed; specify within range)	5 MHz to 25 MHz
VHF Output Frequency (fixed; specify within range)	50 MHz and 130 MHz
Output Level	+10 dBm $\pm$ 2 dB into 50 ohms, each output
Aging	(5 MHz/100 MHz model, typical)
Per day after 30 days operating, typical	5×10^{-10}
Second year, typical	5×10^{-8}
Per year thereafter, typical	3×10^{-8}
Temperature Stability (consult factory for other ranges)	(5 MHz/100 MHz model, typical)
Range E: 0 to +50°C (Ref: +25°C)	$\leq \pm 2 \times 10^{-8}$
Range F: -20 to +70°C (Ref: +25°C)	$\leq \pm 5 \times 10^{-8}$
Range G: -55 to +85°C (Ref: +25°C)	$\leq \pm 2 \times 10^{-7}$
Phase Noise	(Frequency Dependent: See Standard Specifications and Part Numbers table below for details)
Harmonics	≤ -25 dBc
Sub-Harmonics	≤ -50 dBc
PLL Products (Phase Lock models only)	≤ -50 dBc
Spurious	≤ -80 dBc
Tuning	(MT and ET ranges can be reversed upon request)
- Mechanical Tuning	$\geq \pm 1.5 \times 10^{-6}$, typical
- Electrical Tuning	$\geq \pm 2 \times 10^{-7}$, typical
Tuning A: 0 to +10 VDC	$\geq \pm 2 \times 10^{-7}$, typical
Tuning B: ± 5 VDC	$\geq \pm 2 \times 10^{-7}$, typical
Slope: Negative	(Positive Slope available on some ET only models)
Supply Voltage	+15 VDC or +12 VDC ($\pm 5\%$)
Warm-up	≤ 15 Watts for 5 minutes at +25°C
Total	≤ 10 Watts at +25°C
Crystal Type	SC-cut

Mechanical

Packaging	Nickel-Plated Machined Aluminum
Dimensions	4.75" x 3.5" x 1"
Connectors / Mounting	- Package A SMA(f)s and solder pins on side Threaded Inserts, #2-56, 6 places

Description:

The Sorcerer II is a low noise frequency source which is comprised of two fixed frequency Ultra Low Noise oscillators, one HF and one VHF, and all necessary components required to phase lock these two oscillators together with a PLL loop bandwidth of ~ 300 Hz. The building blocks combine to form a system and are integrated into a nickel plated machined aluminum housing (4.75" x 3.5" x 1"). The result is a compact very stable frequency source that provides two ultra-low noise outputs. The typical configuration has both a 5 MHz and a 100 MHz output. 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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Sorcerer II Static Phase Noise
(100 MHz Output)

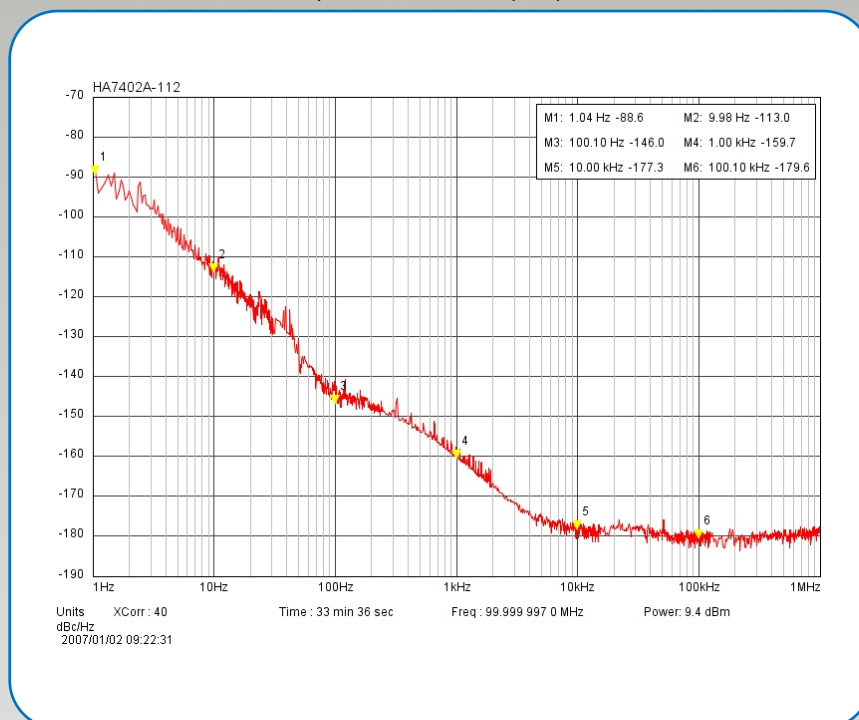


Figure 1: Typical Phase Noise Performance Plot for the Sorcerer II (100 MHz output), P/N: 501-

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)	Package / Connectors	Package Size (inches)
		10 Hz	100 Hz	1 kHz	10 kHz	100 kHz					
501-19250	100/5	-120	-135	-155	-174	-174	+10 ±2	±2E-8, 0 to +50°C	+15	SMA(f) & Pins on Side	4.75 x 3.5 x 1"

* 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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