

## LOW NOISE CRYSTAL OSCILLATORS > VHF ULN II

### FEATURES:

- Frequency: 25 MHz to 160 MHz, fixed
- Small/Rugged/High Performance
- Ultra Low Phase Noise to -178 dBc/Hz
- Low G-Sensitivity to 2E-10/g per axis
- Internal Voltage Regulator

### APPLICATIONS:

- Military Applications
- Airborne, Ground, Shipboard
- Test Equipment
- Synthesizers
- Base Stations
- Portable Transceivers

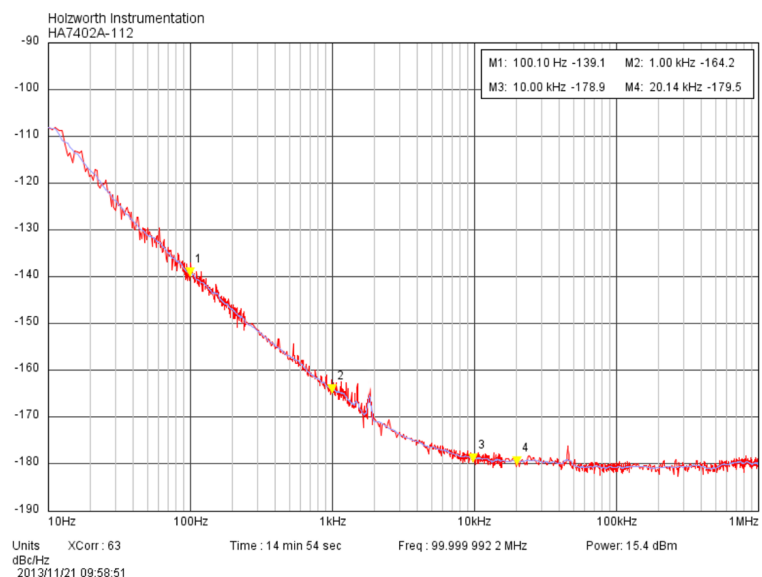


### DESCRIPTION:

The VHF ULN II oscillators are small lightweight OCXOs with a fixed output frequency between 25 MHz and 160 MHz. These oscillators provide good frequency stability over temperature, phase noise floor performance to -178 dBc/Hz and acceleration sensitivity to 2E-10/g per axis. The standard package is a rugged nickel-plated machined aluminum case with SMA(f) and solder pins on one side (1.87"x1.84"x0.75"). The small size and low-g options make this unit well suited for airborne and mobile applications where good dynamic performance is required. A low noise voltage regulator is included to minimize power supply line related spurious signals. Please contact technical staff to discuss custom requirements.

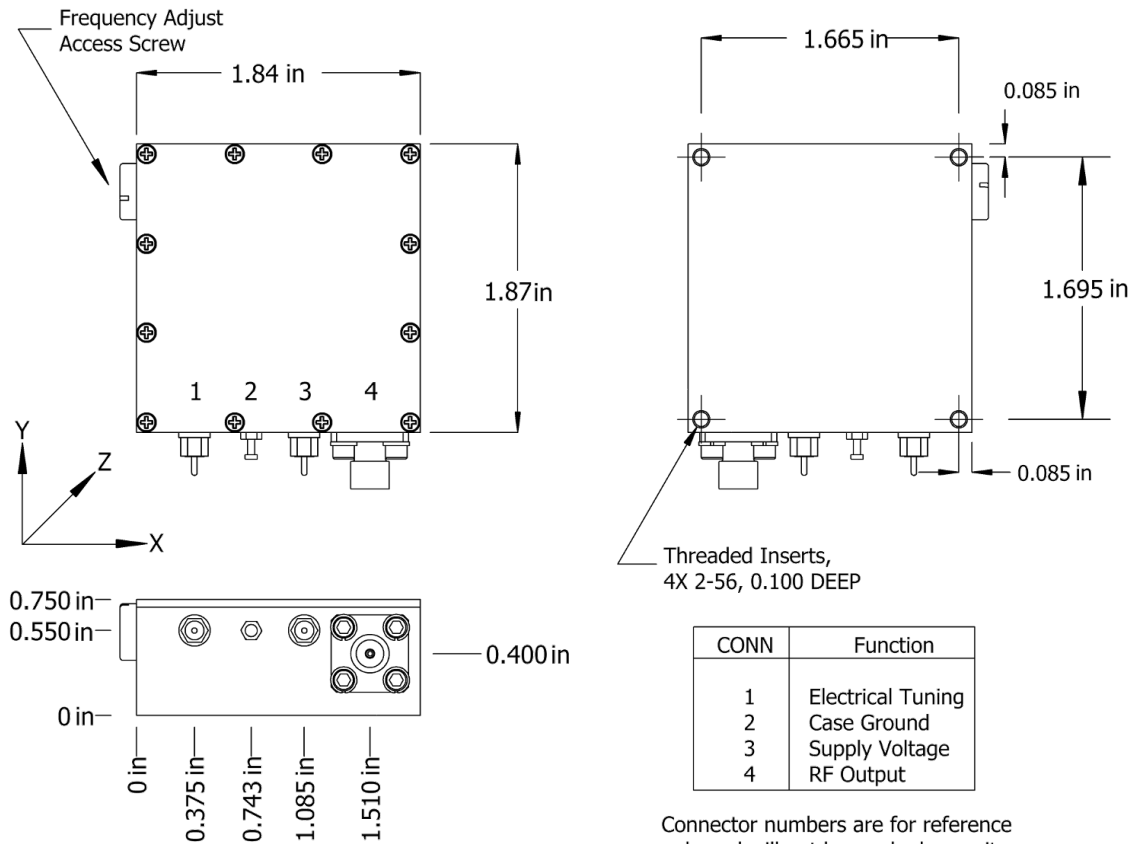
Electrical Specifications	
Output Frequency (fixed; specify within range)	25 MHz to 130 MHz
Output Level	+13 dBm ±2 dB into 50 ohms
Aging	(100 MHz model, typical)
Per day after 30 days operating, typical	5 x 10 <sup>-9</sup>
Second year, typical	5 x 10 <sup>-7</sup>
Per year thereafter, typical	3 x 10 <sup>-7</sup>
Temperature Stability (consult factory for other ranges)	(100 MHz model, typical)
Range E: 0 to +50°C (Ref: +25°C)	≤ ±2 x 10 <sup>-7</sup>
Range F: -20 to +70°C (Ref: +25°C)	≤ ±5 x 10 <sup>-7</sup>
Range G: -55 to +85°C (Ref: +25°C)	≤ ±2 x 10 <sup>-6</sup>
Phase Noise	(Frequency Dependent: See Std. Specifications and Part Numbers table below for details)
Harmonics	≤ -30 dBc
Spurious	≤ -80 dBc
Tuning	(MT and ET ranges can be reversed upon request)
- Mechanical Tuning	≥ ±4 x 10 <sup>-6</sup> , typical
- Electrical Tuning	≥ ±5 x 10 <sup>-7</sup> , typical
Tuning A: 0 to +10 VDC	≥ ±5 x 10 <sup>-7</sup> , typical
Tuning B: ±5 VDC	≥ ±5 x 10 <sup>-7</sup> , typical
Slope: Negative	(Positive Slope available on some ET only models)
Supply Voltage	+15 VDC or +12 VDC (±5%)
Warm-up	≤ 5 Watts for 5 minutes at +25°C
Total	≤ 2.5 Watts at +25°C
Crystal Type	SC-cut
Acceleration Sensitivity	5 x 10 <sup>-10</sup> /g, typical; to 2 x 10 <sup>-10</sup> /g, available
Mechanical	
Packaging	Nickel-Plated Machined Aluminum
Dimensions	1.84" x 1.87" x 0.75"
Connectors / Mounting	SMA(f) and solder pins on side Threaded Inserts, #2-56, 4 places

100 MHz ULN II  
P/N: 501-27555-11





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

**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] *	Package / Connectors	Package Size (inches)
		10 Hz	100 Hz	1 kHz	10 kHz	100 kHz						
501-27555-01	100	-100	-130	-158	-175	-176	+13 ±2	±2E-7, 0° to +50°C	+15	5E-10, typ	SMA(f) & Pins on Side	1.835 x 1.865 x 0.75
501-27555-02	100	-100	-130	-158	-175	-176	+13 ±2	±5E-7, -20° to +70°C	+15	5E-10, typ	SMA(f) & Pins on Side	1.835 x 1.865 x 0.75
501-27555-11	100	-105	-135	-160	-176	-178	+13 ±2	±2E-7, 0° to +50°C	+15	5E-10, typ	SMA(f) & Pins on Side	1.835 x 1.865 x 0.75
501-27555-12	100	-105	-135	-160	-176	-178	+13 ±2	±5E-7, -20° to +70°C	+15	5E-10, typ	SMA(f) & Pins on Side	1.835 x 1.865 x 0.75
501-27555-21	100	-100	-130	-158	-175	-176	+13 ±2	±2E-7, 0° to +50°C	+12	5E-10, typ	SMA(f) & Pins on Side	1.835 x 1.865 x 0.75
501-27555-22	100	-100	-130	-158	-175	-176	+13 ±2	±5E-7, -20° to +70°C	+12	5E-10, typ	SMA(f) & Pins on Side	1.835 x 1.865 x 0.75
501-27555-31	100	-105	-135	-160	-176	-178	+13 ±2	±2E-7, 0° to +50°C	+12	5E-10, typ	SMA(f) & Pins on Side	1.835 x 1.865 x 0.75
501-27555-32	100	-105	-135	-160	-176	-178	+13 ±2	±5E-7, -20° to +70°C	+12	5E-10, typ	SMA(f) & Pins on Side	1.835 x 1.865 x 0.75
501-27555-41	100	-100	-130	-158	-175	-176	+13 ±2	±2E-7, 0° to +50°C	+15	3E-10, gtd	SMA(f) & Pins on Side	1.835 x 1.865 x 0.75
501-27555-51	100	-105	-135	-160	-176	-178	+13 ±2	±2E-7, 0° to +50°C	+15	3E-10, gtd	SMA(f) & Pins on Side	1.835 x 1.865 x 0.75
501-27555-52	100	-105	-135	-160	-176	-178	+13 ±2	±5E-7, -20° to +70°C	+15	3E-10, gtd	SMA(f) & Pins on Side	1.835 x 1.865 x 0.75
501-27555-61	100	-100	-130	-158	-175	-176	+13 ±2	±2E-7, 0° to +50°C	+12	3E-10, gtd	SMA(f) & Pins on Side	1.835 x 1.865 x 0.75
501-27555-62	100	-100	-130	-158	-175	-176	+13 ±2	±5E-7, -20° to +70°C	+12	3E-10, gtd	SMA(f) & Pins on Side	1.835 x 1.865 x 0.75
501-27555-71	100	-105	-135	-160	-176	-178	+13 ±2	±2E-7, 0° to +50°C	+12	3E-10, gtd	SMA(f) & Pins on Side	1.835 x 1.865 x 0.75
501-27555-81	100	-100	-130	-158	-175	-176	+13 ±2	±2E-7, 0° to +50°C	+15	2E-10, gtd	SMA(f) & Pins on Side	1.835 x 1.865 x 0.75
501-27555-82	100	-100	-130	-158	-175	-176	+13 ±2	±5E-7, -20° to +70°C	+15	2E-10, gtd	SMA(f) & Pins on Side	1.835 x 1.865 x 0.75

\* 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.