

### LOW NOISE CRYSTAL OSCILLATORS > GOLDEN MXO (FREE-RUNNING)

#### FEATURES:

- Free-Running OCXO with Integrated Multipliers
- Frequencies from 200 MHz to 12 GHz, fixed
- Golden Ultra Low Phase Noise Performance
- Good Temperature Stability
- Excellent Spectral Purity
- Easily Customized to Specific Frequency

#### APPLICATIONS:

- Military Applications
- Radar Systems
- Test Equipment
- Instruments
- Reference Source

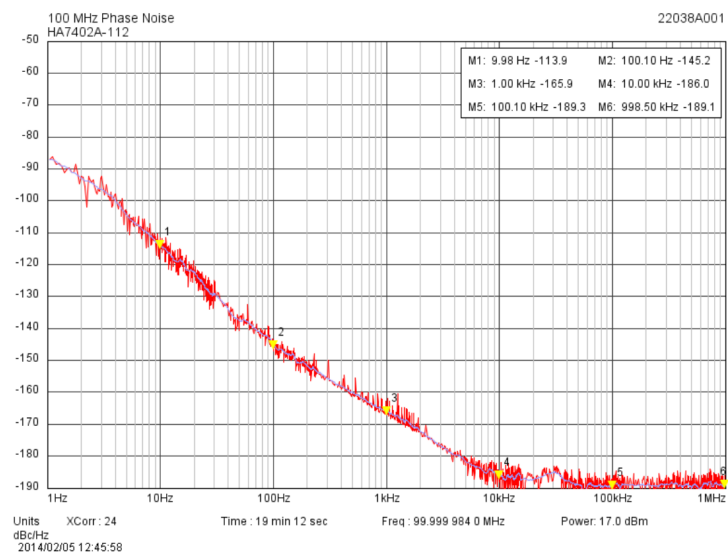


#### DESCRIPTION:

The Golden Multiplied Crystal Oscillator (GMXO-FR) is a fixed frequency industry leading free-running ultra-low noise Golden OCXO with a phase noise floor as low as -190 dBc/Hz, highly integrated with one or more "special" low noise multipliers stages to create a high performance in an OCXO based product. The GMXO-FR also provides good temperature stability and excellent spectral purity. The package varies depending on the number of multiplier stages needed to create the desired frequency and range in size from 3.25" x 4" x 1", 4.21" x 4" x 1" and 5.16" x 4" x 1". The base VHF oscillator frequency and multiple outputs are available as options. (i.e. If ordering a 10 GHz GMXO-FR, you may also request

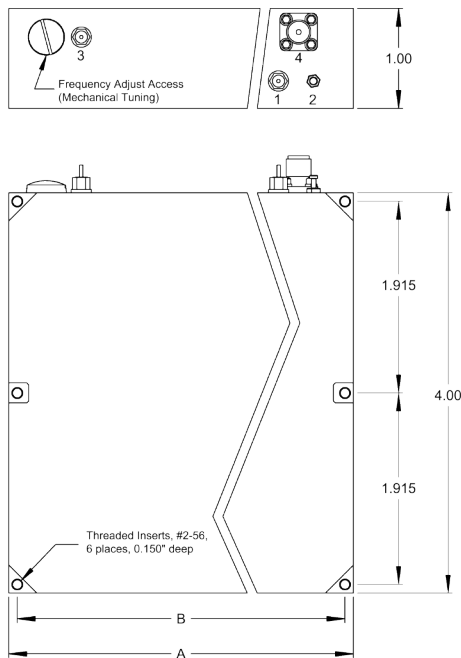
Electrical Specifications	
Output Frequency (fixed; specify within range)	200 MHz to 12 GHz
Output Level	+13 dBm ±2 dB into 50 ohms
Aging	
Per day after 30 days operating, typical	$5 \times 10^{-9}$
Second year, typical	$5 \times 10^{-7}$
Per year thereafter, typical	$3 \times 10^{-7}$
Temperature Stability (consult factory for other ranges)	
Range E: 0 to +50°C (Ref: +25°C)	$\leq \pm 5 \times 10^{-7}$
Range F: -20 to +70°C (Ref: +25°C)	$\leq \pm 1 \times 10^{-6}$
Phase Noise	(Frequency Dependent: See Std Specifications and Part Numbers table below for details)
Harmonics	$\leq -25$ dBc
Sub-Harmonics	$\leq -60$ dBc
Spurious	$\leq -80$ dBc
Tuning	(MT and ET ranges can be reversed upon request)
- Mechanical Tuning	$\geq \pm 4 \times 10^{-6}$ , typical
- Electrical Tuning	$\geq \pm 5 \times 10^{-7}$ , typical
Tuning A: 0 to +10 VDC	$\geq \pm 5 \times 10^{-7}$ , typical
Tuning B: ±5 VDC	$\geq \pm 5 \times 10^{-7}$ , typical
Slope: Negative	
Supply Voltage	+15 VDC ±5%
Warm-up	$\leq 10$ to 20 Watts for 5 minutes at +25°C
Total	$\leq 7$ to 17 Watts at +25°C
Crystal Type	SC-cut
Acceleration Sensitivity	$5 \times 10^{-10}$ /g, typical; to $2 \times 10^{-10}$ /g, available
Mechanical	
Packaging	Nickel-Plated Machined Aluminum
Dimensions	See Mechanical Drawing
Connectors / Mounting	SMA(f) and solder pins on side Threaded Inserts, #2-56, 6 places

#### Golden Multiplied Crystal Oscillator Plots (GMXO) (free-running)





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**GMXO-FR**

Package	Dimension A	Dimension B	Connector	Function
G1	3.25	3.080	1	Supply Voltage
G2	4.21	4.035	2	Ground, Case
G3	5.16	4.990	3	Electrical Tuning
			4	RF Output

**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						
501-26943	200	-96	-126	-154	-173	-177	+16 ±2	±5E-7, 0 to +50°C	+15	5E-10, typ	SMA(f) & Pins on Side	3.25 x 4 x 1
501-26960	320	-90	-120	-147	-166	-169	+16 ±2	±5E-7, 0 to +50°C	+15	5E-10, typ	SMA(f) & Pins on Side	4.21 x 4 x 1
501-26961	400	-90	-120	-147	-166	-169	+16 ±2	±5E-7, 0 to +50°C	+15	5E-10, typ	SMA(f) & Pins on Side	4.21 x 4 x 1
501-26838	500	-91	-121	-146	-167	-170	+16 ±2	±5E-7, 0 to +50°C	+15	5E-10, typ	SMA(f) & Pins on Side	3.25 x 4 x 1
501-27181	640	-86	-116	-144	-167	-168	+16 ±2	±5E-7, 0 to +50°C	+15	5E-10, typ	SMA(f) & Pins on Side	3.25 x 4 x 1
501-27182	1280	-80	-110	-137	-159	-160	+16 ±2	±5E-7, 0 to +50°C	+15	5E-10, typ	SMA(f) & Pins on Side	4.21 x 4 x 1
501-27355	1600	-75	-105	-133	-151	-154	+16 ±2	±5E-7, 0 to +50°C	+15	5E-10, typ	SMA(f) & Pins on Side	5.16 x 4 x 1
501-27186	2500	-76	-106	-131	-151	-153	+16 ±2	±5E-7, 0 to +50°C	+15	5E-10, typ	SMA(f) & Pins on Side	4.21 x 4 x 1
501-27183	2560	-74	-104	-130	-152	-153	+16 ±2	±5E-7, 0 to +50°C	+15	5E-10, typ	SMA(f) & Pins on Side	4.21 x 4 x 1
501-27184	5120	-68	-98	-124	-146	-147	+16 ±2	±5E-7, 0 to +50°C	+15	5E-10, typ	SMA(f) & Pins on Side	5.16 x 4 x 1
501-27178	10000	-62	-92	-117	-137	-138	+16 ±2	±5E-7, 0 to +50°C	+15	5E-10, typ	SMA(f) & Pins on Side	5.16 x 4 x 1
501-27304	12000	-58	-88	-112	-135	-137	+16 ±2	±5E-7, 0 to +50°C	+15	5E-10, typ	SMA(f) & Pins on Side	5.16 x 4 x 1
501-27234	000/ 500/ 1000	-78	-113	-139	-160	-163	+16 ±2	±5E-7, 0 to +50°C	+15	5E-10, typ	SMA(f) & Pins on Side	4.21 x 4 x 1
501-26872	500/ 100	-85	-120	-146	-167	-170	+18 ±2	±5E-7, 0 to +50°C	+15	5E-10, typ	SMA(f) & Pins on Side	3.25 x 4 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.

