INPUT
Frequency
10 MHz
Level
+13 dBm ±1 dB into 50 ohms
OUTPUT
Frequency
1 GHz
Level
+13 dBm ±2 dB into 50 ohms
STABILITY
Aging (free-running)
1×10^{-6} first year
after 30 days operating, typical
5×10^{-7} second year, typical
3×10^{-7} per year thereafter, typical
Phase Noise L(f), (free-running)

10 Hz	-77 dBc/Hz
100 Hz	-109 dBc/Hz
1 KHz	-136 dBc/Hz
10 KHz	-153 dBc/Hz
100 KHz	-154 dBc/Hz

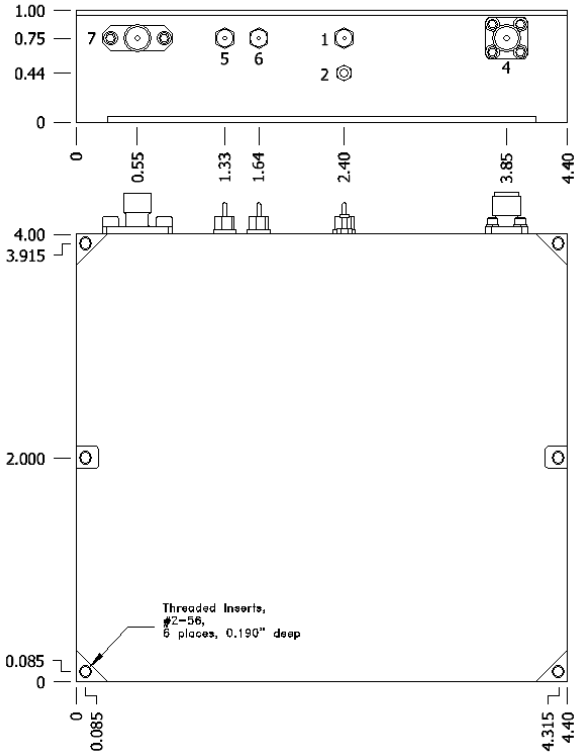
Temperature Stability
$\pm 5 \times 10^{-7}$ free-running from 0 to +50°C
(Ref. +25°C)
Phase Lock Alarm
TTL
Locked: +3.5 VDC to +5.2 VDC (Hi)
Out-of-Lock: +0.8 VDC max (Lo)
Phase Lock Voltage Monitor
Voltage monitor pin supplied
SPECTRAL PURTIY
Harmonics
≤-25 dBc
Sub-Harmonics
≤-60 dBc
PLL Reference Products
≤-60 dBc
Spurious
≤-80 dBc, excluding power
supply line related spurs

MECHANICAL
Dimensions
4.40 x 4.00 x 1”
Connectors
RF Input/Output: SMA(f)
Power, Monitoring: Feed Thru Terminals
GND: Ground Turret
Packaging
Nickel-plated machined
aluminum housing – J1PM
Mounting
Threaded inserts on base,
#2-56, 6 places
POWER REQUIREMENTS
Warm-Up Power
≤ 13 Watts for 5 minutes
Total Power
≤ 10 Watts at +25°C
Supply Voltage
+15 VDC ±5%
ADJUSTMENT
Loop BW
Target Bandwidth: ~200 Hz
Type 2 Loop
CRYSTAL
Type
100 MHz SC-cut (x10)
OTHER
Label
Use conventional label with the
following information:
501-21440 (Current Rev.)
1 GHz MXO-PLM
+15 VDC
Serial # - Date Code
(Mark connectors with function)
Test Data
Output Level
Phase Noise – free-running
Harmonics, Subs, Products, Spurious
Power – Warm-up and Total

REV	DATE	REVISION RECORD	DWN	AUTH
-	09-14-09	Initial Release	VG	
A	02-18-10	Revised input power level to +13 dBm	VG	JR
B	03-10-10	Revised phase noise, harmonic spec, mechanical tolerance, and power consumption	VG	JR
C	01-16-12	Phase Noise, Spectral Purity; Drawing	PAC	

J1PM MXO Connections

Connector	Function
1	Supply Voltage
2	Ground, Case
4	RF Output
5	Phase Lock Voltage
6	Phase Lock Alarm
7	External Reference Input



Wenzel Associates, Inc.
Austin, Texas

Title:
1 GHz Multiplied Crystal Oscillator (MXO-PLM)

P/N:	Rev:	Date:	Drawn:	Ref:
501-21440	**C**	**01-16-12**		

Tolerances: (except as noted) Dimensions are in inches	0.XX Dec:	0.XXX Dec:	FSCM:	
	±0.030”	±0.015”	62821	Page 1 of 1