

INPUT

Frequency

5 MHz

Level

+13 dBm ± 1 dB into 50 ohms

OUTPUT

Frequency

50 MHz

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 -110 dBc/Hz

100 Hz -140 dBc/Hz

1 KHz -162 dBc/Hz

10 KHz -176 dBc/Hz

100 KHz -176 dBc/Hz

Temperature Stability

$\pm 5 \times 10^{-7}$ free-running from 0 to +50°C
(Ref. +25°C)

Harmonics

-25 dBc

Sub-Harmonics

-80 dBc

Spurious

-80 dBc, excluding power
supply line related spurs

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

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, 6 places

POWER REQUIREMENTS

Warm-Up Power

≤ 9.5 Watts for 5 minutes

Total Power

≤ 6 Watts at +25°C

Supply Voltage

+15 VDC $\pm 5\%$

ADJUSTMENT

Loop BW

Target Bandwidth: ~300 Hz

Type 2 Loop

CRYSTAL

Type

50 MHz SC-cut

OTHER

Design

Includes x5 and x2 multipliers on the front
end to multiply the 5 MHz reference input
to 50 MHz for phase locking to the
internal oscillator. Loop BW will be
optimized for best close-in phase noise
performance using a ULN reference.

Label

Use conventional label with the
following information:

501-28835 (Current Rev.)

50 MHz PL ULN

+15 VDC

Serial # - Date Code

(Mark connectors with function)

Test Data

- Output Level

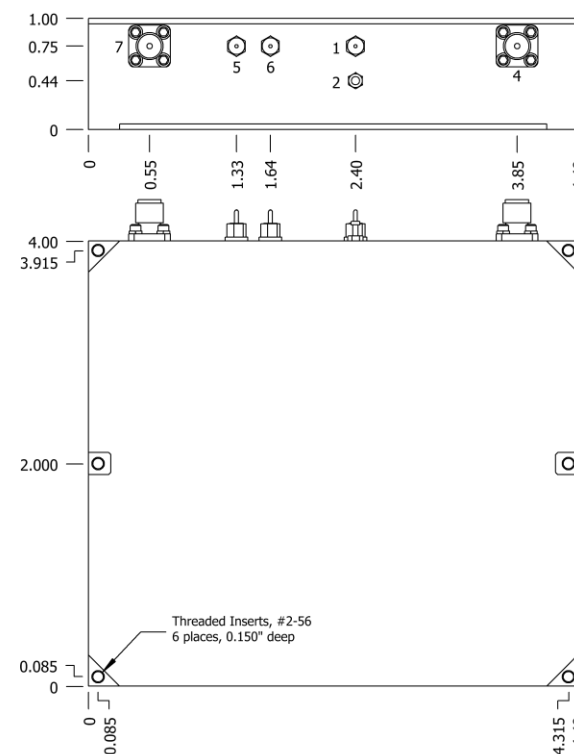
- Phase Noise – free-running

- Harmonics, PLL Products, Spurious

- Power – Warm-up and Total

REV	DATE	REVISION RECORD	DWN	AUTH
-	03-05-15	Initial Release	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:

50 MHz PL Ultra Low Noise Crystal Oscillator

P/N:

501-28835

Rev:

-

Date:

03-05-15

Drawn:

Ref:

Tolerances:
(except as noted)
Dimensions are in inches

0.XX Dec:

± 0.030 "

0.XXX Dec:

± 0.010 "

FSCM:

62821

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