

FEATURES

- 2-8 GHz Frequency Coverage
- 80 uS/GHz Tuning Speed
- FM/Phase Lock Port
- 1% Linearity Under Sweep
- High Reliability



DESCRIPTION

Micro Lambda, Inc. a leader in the development of next generation YIG devices now offers "High Speed" miniature YIG sources covering octave and multi-octave frequencies in the 2 to 8 GHz range. Designed specifically for speed, these oscillators tune 10 times faster than conventional YIG oscillators for new fast acquisition Test Equipment, Synthesizers, Single Slot VXI or VME based Instruments, as well as a multitude of general applications.

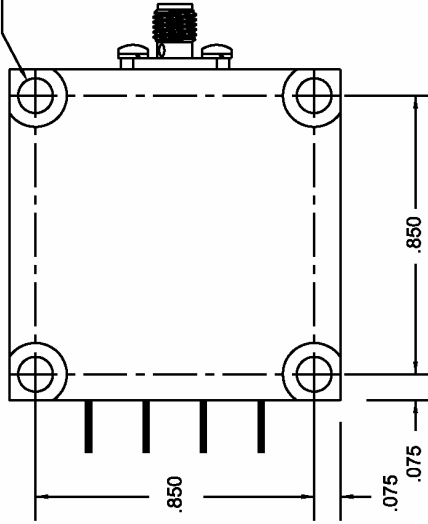
This series of YIG oscillators have been specifically designed for "Fast Tuning" applications. They incorporate a low inductance tuning coil in a small magnet structure covering standard frequency bands of 2-4, 3-6, 4-8 and 2-8 GHz. Performance characteristics of this family of oscillators is consistent with the standard MLMY-Series miniature oscillators. Typical phase noise of a 2-8 GHz "Fast Tune" oscillator at 100 kHz offset is -120 dBc/Hz. They provide +13 dBm power output, frequency linearity under sweep conditions of 1% with a 500 us ramp. Utilizing standard analog driver techniques with +24 Volt & -15 Volt inputs, the tuning speed of a 2-8 GHz oscillator is 80 uS per GHz to an accuracy of ± 10 MHz. With +15 Volt / -15 Volt driver inputs, the tuning speed is 100 us per GHz to an accuracy of ± 10 MHz.

ELECTRICAL AND PERFORMANCE SPECIFICATIONS

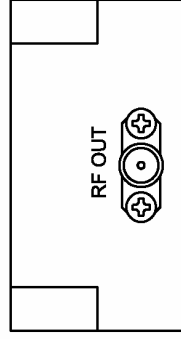
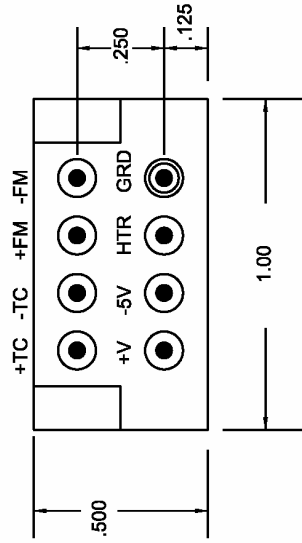
Guaranteed Specifications at -0° to $+65^{\circ}$ C Case Temperature

| Model No. | MLMH-0204 | MLMH-0306 | MLMH-0408 | MLMH-0208 |
|--|-----------------|-----------------|-----------------|-----------------|
| Frequency Range, Min. | 2-4 GHz | 3-6 GHz | 4-8 GHz | 2-8 GHz |
| Power Output, Min. | +14 dBm | +14 dBm | +14 dBm | +13 dBm |
| Power Output Variation, Max. | +/- 2 dB | +/- 2 dB | +/- 2 dB | +/- 2 dB |
| Frequency Drift over Temperature, Max. | 15 MHz | 15 MHz | 15 MHz | 15 MHz |
| Pulling Figure (12 dB RL), Typ. | 1 MHz | 1 MHz | 1 MHz | 1 MHz |
| Pushing Figure +15 Vdc Supply, Typ. | 0.1 MHz/V | 0.1 MHz/V | 0.1 MHz/V | 0.1 MHz/V |
| -5 Vdc Supply, Typ. | 1 MHz/V | 1 MHz/V | 1 MHz/V | 1 MHz/V |
| Magnetic Susceptibility @ 60 Hz, Typ. | 110 kHz/gauss | 110 kHz/gauss | 110 kHz/gauss | 110 kHz/gauss |
| 2nd Harmonic, Min. | -12 dBc | -12 dBc | -12 dBc | -12 dBc |
| 3rd Harmonic, Min. | -20 dBc | -20 dBc | -20 dBc | -20 dBc |
| Spurious Output, Min. | -70 dBc | -70 dBc | -70 dBc | -70 dBc |
| Phase Noise @ 10kHz Offset | -103 dBc/Hz | -100 dBc/Hz | -100 dBc/Hz | -98 dBc/Hz |
| @ 100kHz Offset | -123 dBc/Hz | -123 dBc/Hz | -120 dBc/Hz | -120 dBc/Hz |
| Main Coil | | | | |
| Sensitivity, Typ. | 10 MHz/mA | 10 MHz/mA | 10 MHz/mA | 10 MHz/mA |
| 3 dB Bandwidth, Typ. | 25 kHz | 25 kHz | 25 kHz | 25 kHz |
| Linearity, Typ. | +/- 0.25 % | +/- 0.25 % | +/- 0.25 % | +/- 0.25 % |
| Hysteresis, Typ. | 3 MHz | 3 MHz | 5 MHz | 8 MHz |
| Input Impedance @ 1 kHz, Typ. | 4 Ohm / 4 mH | 4 Ohm / 4 mH | 4 Ohm / 4 mH | 4 Ohm / 4 mH |
| FM Coil | | | | |
| Sensitivity, Typ. | 310 kHz/ma | 310 kHz/ma | 310 kHz/ma | 310 kHz/ma |
| 3 dB Bandwidth, Typ. | 3 MHz | 3 MHz | 3 MHz | 3 MHz |
| Deviation @ 400 kHz Rate, Min. | +/- 50 MHz | +/- 50 MHz | +/- 50 MHz | +/- 50 MHz |
| Input Impedance @ 1 MHz, Typ. | 0.3 Ohm / 1.4uH | 0.3 Ohm / 1.4uH | 0.3 Ohm / 1.4uH | 0.3 Ohm / 1.4uH |
| DC Circuit Power, Max.+15 Vdc +/- 5% | 100 mA | 100 mA | 100 mA | 100 mA |
| -5 Vdc +/- 5% | 50 mA | 50 mA | 50 mA | 50 mA |
| YIG Heater Power | | | | |
| Input Voltage Range | +24 +/- 4 Vdc | +24 +/- 4 Vdc | +24 +/- 4 Vdc | +24 +/- 4 Vdc |
| Current Surge/Steady State, Max. | 250 mA / 25 mA | 250 mA / 25 mA | 250 mA / 25 mA | 250 mA / 25 mA |
| Case Style | 81-041-1 | 81-041-1 | 81-041-1 | 81-041-1 |

.180 DIA x.25 DP
.100 DIA. THRU
(4 PL)



LABEL



.125
.38 TYP.
1.00

| REV | DESCRIPTION | DATE | APPROVED |
|-----|-------------|------|----------|
| | | | |

WEIGHT: 1 Oz.

| | | | |
|---|----------|-----------------|----------|
| UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCE ARE : | | CONTRACT NO. | |
| FRACTIONS | DECIMALS | APPROVALS | DATE |
| • .000 | • .000 | DRAWN N. NGUYEN | 10/29/04 |
| • .001 | • .001 | CHECKED | ISSUED |
| • .002 | • .002 | | |
| MATERIAL | | | |
| FINISH | | | |
| DO NOT SCALE DRAWING | | | |

| | |
|---|-------------------|
| MICRO LAMBDA WIRELESS, INC. | |
| MINIATURE OSCILLATOR (DUAL SUPPLY) | |
| SIZE | CAGE No. DWG. NO. |
| 0RN63 | 81-041-1 |
| | REV. |
| | |
| | SCALE |
| | SHEET |