

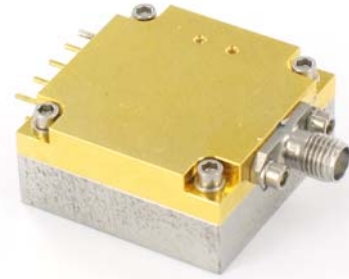
FAST TUNE OSCILLATORS (FTO) 3 TO 10 GHz SERIES

FEATURES

Low Profile Package
Very Fast Tuning
Wide FM Coil Bandwidth
Low Phase Noise
Single Bias Supply

APPLICATIONS

Microwave Test Equipment
Frequency Synthesizers
Up & Down Converters
Communications Systems



DESCRIPTION

The FTO series of low profile YIG oscillators achieves frequency-tuning speeds approximately five (5) times faster than the older industry standard MCO series oscillators with excellent phase noise characteristics (typically -104 dBc/Hz at 10 kHz) in a low profile package. Along with enhanced tuning speed characteristics of the main coil, the FM coil bandwidth typically is greater than 3.5 MHz. This feature provides for faster frequency modulation and greater PLL bandwidths in synthesizer design applications. As an additional feature, all oscillators use a single positive 12 V supply.

| | Model # | FTO-0307-540-01 | FTO-0408-540-01 | FTO-0410-540-01 |
|-----------|---------|-----------------|-----------------|-----------------|
| Parameter | Units | Specification | Specification | Specification |

General Characteristics

| | | | | |
|------------------------------------|--------------|----------|---------|----------|
| Frequency Range | GHz, min. | 3-7 | 4-8 | 4-10 |
| RF Power | dBm, min. | 11 | 11 | 11 |
| RF Power Variation (Freq. & Temp.) | dBm, max. | ± 3 | ± 3 | ± 3 |
| Harmonic Level | dBc, max. | -12 | -12 | -12 |
| Non-Harmonic Spurious | dBc, max. | -70 | -70 | -70 |
| SSB Phase Noise | | Typical | Max. | Typical |
| 10 KHz offset | dBc/Hz, max. | -106 | -100 | -106 |
| 100 KHz offset | dBc/Hz, max. | -127 | -120 | -126 |
| Freq. Drift (over Temp.) | MHz, typ. | ± 15 | | ± 15 |
| Freq. Pulling (12 dB return loss) | MHz, typ. | 0.1 | 0.1 | 0.1 |

Main Coil Characteristics

| | | | | |
|--------------------------------|--------------|--------------|--------------|--------------|
| Sensitivity | MHz/mA, max. | 10 ± 1.5 | 10 ± 1.5 | 10 ± 1.5 |
| Bandwidth | kHz, typ. | 16 | 16 | 16 |
| Linearity (from best fit line) | MHz, max. | 0.1 % | 0.1 % | 0.1 % |
| Hysteresis | MHz, max. | 8 | 8 | 9 |
| Coil Impedance | ohms, typ. | 2 | 2 | 2 |
| Inductance | mH, typ. | 3.3 | 3.3 | 3.3 |
| Connection Capacity (per pin) | pF, typ. | 100 | 100 | 100 |

FM Coil Characteristics

| | | | | |
|-------------------------------|--------------|----------------|----------------|----------------|
| Sensitivity | kHz/mA, max. | $310 \pm 15\%$ | $310 \pm 15\%$ | $310 \pm 15\%$ |
| 3 dB Bandwidth | MHz, typ. | 3.5 | 3.5 | 3.5 |
| Coil Impedance | ohms, typ. | 0.6 | 0.6 | 0.6 |
| Inductance | uH, typ. | 0.4 | 0.4 | 0.4 |
| Connection Capacity (per pin) | pF, typ. | 27 | 27 | 27 |

DC Circuit Power

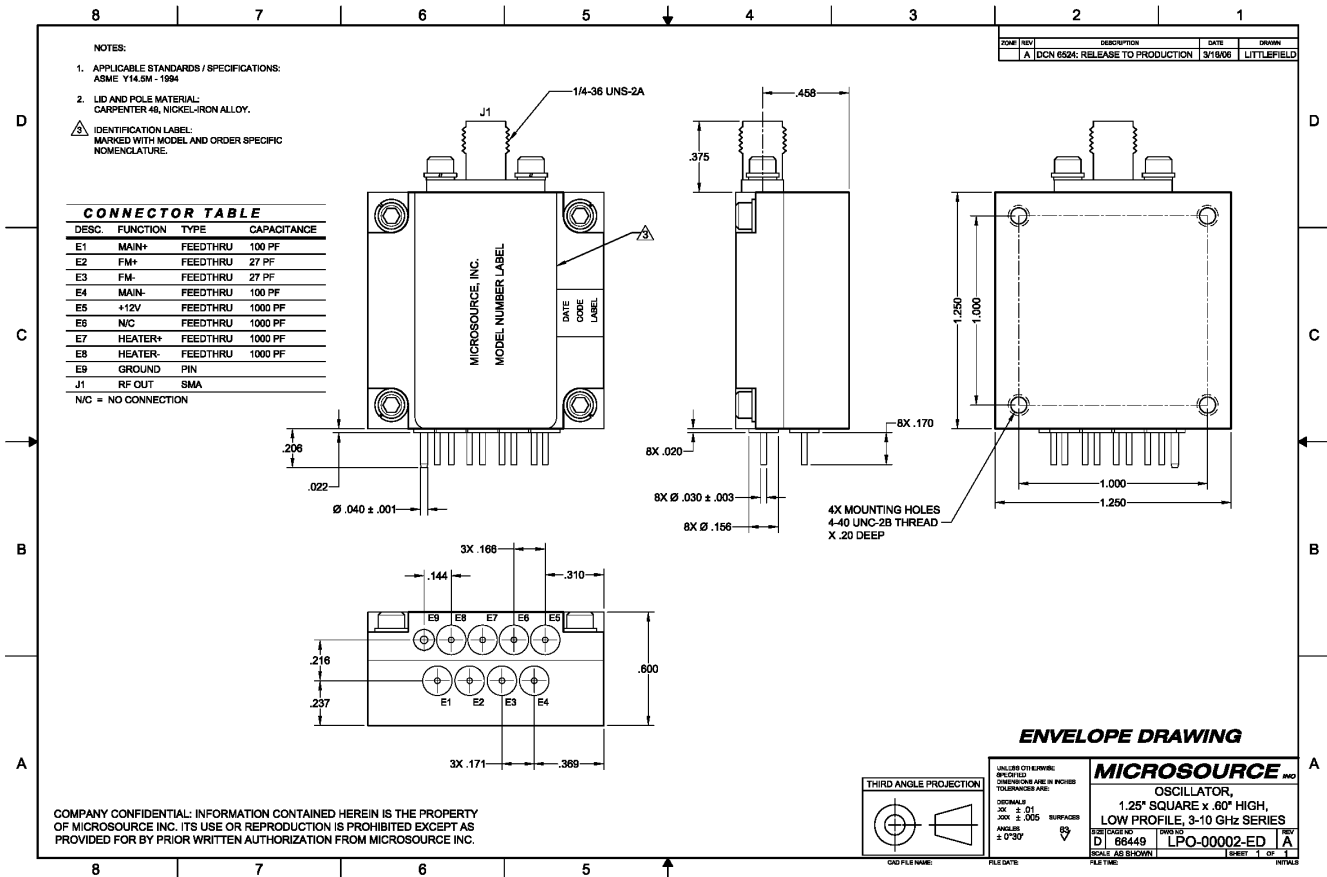
| | | | | |
|-------------------------------|--------------|------------------------------|------------------------------|------------------------------|
| Bias Voltage & Currents | | | | |
| +12 Vdc | mA, max | 150 | 150 | 150 |
| YIG Heater Power | 20 to 32 Vdc | 35 Steady State 400 surge | 35 Steady State 400 surge | 35 Steady State 400 surge |
| Connection Capacity (per pin) | pF, typ. | 1000 | 1000 | 1000 |
| Power Supply Pushing | +12 Volt | MHz/V, typ. | 0.2 | 0.2 |

Packaging & Environmental

| | | | | |
|------------------------------|--------|-------------------|-------------------|-------------------|
| Size (See attached figure) | inches | 1.25 x 1.25 x 0.6 | 1.25 x 1.25 x 0.6 | 1.25 x 1.25 x 0.6 |
| Weight | oz | 3 | 3 | 3 |
| Operational Case Temperature | Deg C | 0 to 65 | 0 to 65 | 0 to 65 |

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Envelope Drawing, FTO 540 Series YIG Oscillator



Customer Specific Applications

If you don't see what you need, contact us. MicroSource takes pride in being a world class, fast turn design center for microwave YIG based component, subsystems and synthesizers.