

FAST SWITCHING 800 MICROSECONDS STANDARD AND MULTI-OCTAVE TRACKING YIG FILTER / YIG OSCILLATOR INTEGRATED WITH ANALOG OR DIGITAL 12 BIT TTL TUNING



Features

YIG FILTERS

- Switching Speed 400 μ Sec 3 GHz steps
- Low insertion Loss, 2.5 dB in some models
- Freq. vs. Temp. Stability as low as 5 MHz/60°C
- Repeatable RF Performance from Unit to Unit
- Package Sizes Typically 1.4 inch³
- Qualification to MIL-E-5400, Class II Specifications Available
- Operating Temp. -54°C to +85°C

YIG OSCILLATORS

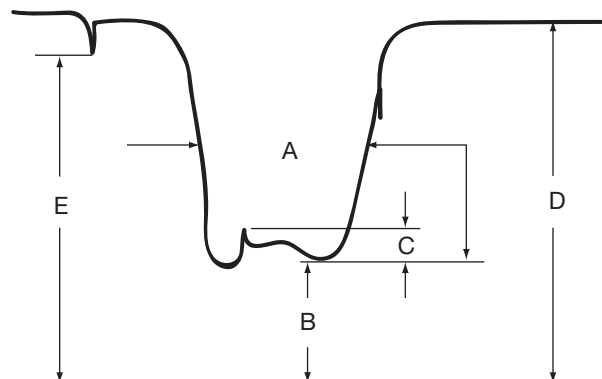
- Switching Speed 400 μ Sec 3 GHz steps
- Miniature Packaging
- Super Temp. Stability
- Excellent Tuning Linearity $\pm 0.10\%$
- 2nd Harmonic 20 dB down
- All other Spurious Signals 60 dB down
- Qualification to MIL-E-5400, Class II Specifications Available
- Operating Temp. -54°C to +85°C

DESCRIPTION

Omniyig's Yig-tuned integrated local oscillator with pre-post-selector YIG filters has been designed to electromagnetically tune octave and multi-octave bands providing maximum RF power output and lower second harmonic and other spurious responses. The superb tracking of the YIG oscillator versus the YIG filter is attributed by the ideal design of the magnetic circuit and the coupling technique used between YIG sphere and active elements.

These front ends are available in many models covering the frequency range from 500 MHz to 18 GHz in octave and multi-octave bands. These units are integrated with 12 BIT TTL driver and provide digital tuning for the full frequency band. Omniyig can provide customized tuning to customer's requirements either Digital or Analog tuning. All devices can be qualified to MIL-E-5400 Class II specification. Tuning speed is 16 mSec. We can provide faster switching speed with our other models to greater than 800 μ Sec for full band.

FILTER PARAMETER DEFINITIONS



- A = 3 dB Bandwidth
- B = Insertion Loss
- C = Passband Ripple and Spurious Responses Combined
- D = Off Resonance Isolation
- E = Off Resonance Spurious

RF PERFORMANCE - STANDARD 16 MILISECONDS OCTAVE BANDS

TYPE ¹	OMNIYIG MODEL No. ³	FILTER FREQUENCY RANGE (GHz)	FILTER INSERTION LOSS (dB)	FILTER BANDWIDTH AT 3dB ⁴ (MHz)	LINEARITY OSCILLATOR & FILTER (MHz)	OSCILLATOR RF POWER OUTPUT (mW)	FILTER & OSCILLATOR DRIFT 0°C to 60°C (MHz)	FILTER OFF RESONANCE ISOLATION MINIMUM (dB)	DIMENSIONS (INCHES)	FREQUENCY TRACKING BETWEEN OSC. & FILTER (MHz)
WITH 2 - STAGE FILTER	M132YTO	0.5 - 2.0	5.0	15 - 30	5	20	5	45	G	±5
	M133YTO	2.0 - 8.0	5.0	24 - 45	7	20	5	55	G	±7
	M134YTO	8.0 - 18.0	5.0	25 - 45	8	20	10	55	H	±8
WITH 3 - STAGE FILTER	M136YTO	0.5 - 2.0	6.0	15 - 30	5	20	5	70	G	±5
	M137YTO	2.0 - 8.0	5.0	20 - 45	7	20	5	70	G	±7
	M138YTO	8.0 - 18.0	5.0	25 - 50	8	20	10	70	H	±8
WITH 4 - STAGE FILTER	M140YTO	0.5 - 2.0	6.5	12 - 30	5	20	5	80	G	±5
	M141YTO	2.0 - 8.0	5.5	20 - 45	7	20	5	80	G	±7
	M142YTO	8.0 - 18.0	5.5	25 - 50	8	20	10	80	H	±8
WITH DUAL 2 - STAGE FILTER	M144YTO	0.5 - 2.0	6.0	15 - 30	5	20	5	45	G	±5
	M145YTO	2.0 - 8.0	5.0	24 - 45	7	20	5	55	G	±7
	M146YTO	8.0 - 18.0	5.0	25 - 45	8	20	10	55	H	±8

ADDITIONAL RF PERFORMANCE SPECIFICATIONS

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| <p>a. Oscillator frequency range is typically 160 MHz above the filter frequency. The oscillator frequency can also be factory adjusted to any other frequency requirement.</p> <p>b. The pulling figure (1.25:1 VSWR) is less than 3 MHz.</p> <p>c. The second harmonic is 14 dB minimum below fundamental.</p> <p>d. Other designs are available with 40 dB second harmonic.</p> <p>e. Weight 50 ounces max..</p> <p>f. Size 5.2" width x 6.0" length x 2.5" height.</p> <p>g. Size 2.8" width x 2.8" length x 1.65" height, drawing #82490.</p> <p>h. Size 3.4" width x 3.1" length x 1.95" height, drawing #82464.</p> | <p>Heater Voltage..... 28+4 Vdc unregulated</p> <p>Driver Voltage..... +24 Vdc @ 30 mA</p> <p style="padding-left: 20px;">-Vdc @ 900 mA</p> <p>Oscillator Voltage..... +20 Vdc @ 100 mA</p> <p>Driver Control Voltage 12 BIT TTL Full Frequency Band</p> |
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FAST SWITCHING (<800 µSecs)^{5,6}

WITH 2 - STAGE FILTER	M132YTO	0.5 - 2.0	5.0	15 - 30	5	20	5	45	G	±5
	M133YTO	2.0 - 8.0	5.0	24 - 45	7	20	5	55	G	±7
	M134YTO	8.0 - 18.0	5.0	25 - 45	8	20	10	55	H	±8
WITH 4 - STAGE FILTER	M136YTO	0.5 - 2.0	6.0	15 - 30	5	20	5	70	G	±5
	M137YTO	2.0 - 8.0	5.0	20 - 45	7	20	5	70	G	±7
	M138YTO	8.0 - 18.0	5.0	25 - 50	8	20	10	70	H	±8
WITH DUAL 2 - STAGE FILTER	M144YTO	0.5 - 2.0	6.0	15 - 30	5	20	5	45	G	±5
	M145YTO	2.0 - 8.0	5.0	24 - 45	7	20	5	55	G	±7
	M146YTO	8.0 - 18.0	5.0	25 - 45	8	20	10	55	H	±8

NOTES:

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| <p>1. All connectors are standard 3mm (SMA) female.</p> <p>2. Maximum isolation between channels is 50 dB.</p> <p>3. Limiting levels for all units is greater than +10 dBm.</p> <p>4. Nominal bandwidths, other bandwidths are available.</p> | <p>5. Drivers are 12 BIT TTL or analog.</p> <p>6. All units can be qualified to MIL-E-5400 Class II Specification on special order.</p> |
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