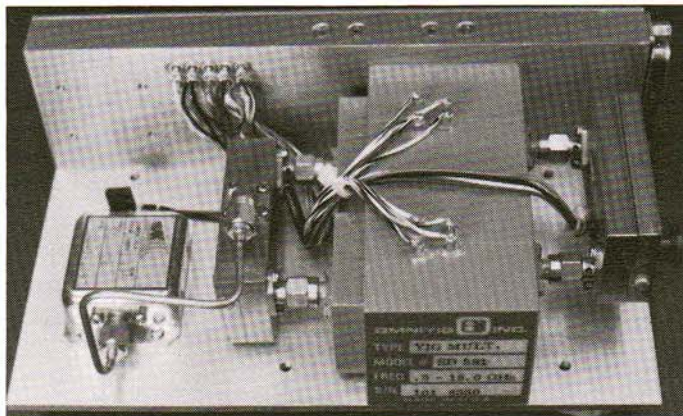


YIG-TUNED HARMONIC GENERATOR SOURCE

0.5 – 18 GHz



DESCRIPTION

Omniyig SDXXX series Yig-tuned Harmonic Generator Sources provide RF Power Output in the frequency covering 0.5 – 18 GHz. These units have been designed to have internal integrated electronic Yig Filter tuning for selecting the output frequency required; at the same time provide rejection of all harmonics and spurious responses, in some cases, –60 dB rejection. The internal oscillator provided with the Harmonic Generator Source can be any one of the indicated designs, either a fixed or variable output frequency. The Harmonics of the input oscillator are generated by the integrated Comb Generator to the output frequency range determined by each individual unit. The integrated Yig Filter (either 2, 3, or 4-Stages) selects the required output frequency from the Comb Generator and is electronically tuned throughout the frequency range of the device. The Yig Filter can be eliminated and have an open-ended output from the Harmonic Multiplier with all the combs presented at the RF output at the same time.

The frequency coverage on all models is from 0.5 – 18 GHz in octave or multi-octave bands. One unit can cover the full frequency range of six (6) octaves from 0.5 – 18 GHz. These compact Harmonic Sources can be mounted either on a base plate (as illustrated) or can be put in an enclosed case. Yig analogic and digital drivers are available for input tuning. All the drivers are temperature compensated for frequency stability and RF power variation. All devices can be qualified to MIL-E-5400, Class II Specification.

Integrated Package Component Features

2-4 STAGE YIG FILTERS

- Low Insertion Loss, 2.5 dB in some models.
- Frequency vs. Temperature 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 Specification available.

INPUT OSCILLATOR

- Crystal Stability in some models 50 ppm.
- Miniature Packaging.
- Super Temperature Stability.
- Excellent Tuning Linearity $\pm 0.10\%$ (for variable units).
- All other Spurious Signals 60 dB down.
- Qualification to MIL-E-5400, Class II Specification available.

HARMONIC GENERATOR

- Low Harmonic Conversion Loss
- Excellent Spectrum Purity.
- Repeatable Performance from Unit to Unit.
- Input Matched for Bandband Performance.
- Integrated Self Biasing.
- Small Packaging.

OUTPUT RF PERFORMANCE

- Excellent Signal Purity.
- All Harmonic and Spurious are –50 dB min.
- Miniature Packaging.
- Airborne Qualified.
- Qualification to MIL-E-5400, Class II Specification available.

SPECIFICATIONS

MODEL	OUTPUT – (NOTE 1) FREQUENCY STEPS	OUTPUT – (NOTE 3) FREQUENCY RANGE, GHz	SPURIOUS OUTPUTS	OUTPUT POWER MINIMUM	HARMONIC REJECTION	YIG FILTER NO. STAGES
SD381	500 MHz	0.5-18 GHz	- 50 dB	- 18 dBm	50 dB	3
SD384	1000 MHz	2-18 GHz	- 50 dB	- 10 dBm	50 dB	2
SD385	500 MHz	2-18 GHz	- 50 dB	- 25 dBm	60 dB	3
SD386	200 MHz	2-18 GHz	- 50 dB	- 36 dBm	60 dB	3
SD387	1-1.5 GHz	2-18 GHz	- 40 dB	- 20 dBm	N/A	No Filter
SD388	100 MHz	2-12 GHz	- 50 dB	- 30 dBm	60 dB	3
SD389	200 MHz	2-18 GHz	- 40 dB	- 45 dBm	N/A	No Filter

ADDITIONAL SPECIFICATIONS – ALL MODELS WITH INTEGRATED YIG FILTERS

1. Typical Tuning Sensitivity (Note 2):	22 MHz/mA	8. Maximum Temperature Coefficient:	±200 KHz/°C
2. Maximum Linearity Deviation:	0.15%	9. Heater Voltage:	20 – 30V
3. Maximum Tuning Hysteresis:	30 MHz	10. Heater Current:	
4. Typical Tuning Coil Resistance:	8 ohms	Maximum 4 second surge:	900 mA
5. Typical Tuning Inductance:	110 MH	Maximum steady state at 0°C:	80 mA
6. Maximum Weight:	40 ounces	11. Operating Temperature:	0° – 55°C
7. Yig Filter Speed:	20 Milisec		

Mechanical Specifications

Output RF Connector	SMA female
DC Connector	Solder Pins
Dimensions:	
Model SD389	2.87 W × 4.00 L × 0.55 H, inches
Model SD387	3.25 W × 4.88 L × 0.55 H, inches
Models SD381, SD384, SD385, SD386, SD388	4.00 W × 7.00 L × 2.10 H, inches

Model No.	Outline Drawing	Weight (oz.)	Mounting
SD389		40	.125 Dia. through 4 places
SD387		40	.166 Dia. through 4 places
SD381, SD384, SD385	82394	45	6-32 THD through 6 places
SD386, SD388	82394	45	6-32 THD through 6 places

Power Supply Requirements

Driver Supply (if used)	± 15 Volts at 500 mA – 900 mA
Oscillator Supply (includes 1 watt amplifier)	± 15 Volts at 500 mA
Heater Supply	20-30 Volts unregulated 4 sec. 950 mA Steady State 60 mA

NOTES:

- Other designs are available with different tuning frequency steps.
- Units are available with analog and digital tuning or without drivers.
- Other frequency ranges are available.