SOB-77305213-12-S1

Rev. 1.0

E-Band Bias Tuned Gunn Oscillator, 76.5 GHz, ±250 MHz, +13 dBm

Description:

Model SOB-77305213-12-S1 is an E-band bias tuned Gunn oscillator that utilizes a high performance GaAs Gunn diode and proprietary cavity design to deliver +13 dBm typical power, useful for phase-locking and electrical tuning applications. The oscillator features a bias frequency tuning range of 76.25 to 76.75 GHz and delivers low AM/FM noise and harmonic emissions. Compared to its counterparts, such as multiplier based sources, the Gunn oscillator is a lower cost and cleaner source. The Gunn oscillator's frequency can also be tuned mechanically. The Gunn oscillator is equipped with a self-locking set screw for frequency trimming. The performance of the oscillator can be further enhanced by adding an optional isolator, Gunn oscillator modulator/regulator and temperature heater.

Features:

- Low AM/FM Noise and Harmonics
- Mechanical Tunable

Applications:

- Test Sources
- Signal Generation
- Lab Test Setups

Electrical Specifications:

Parameter	Minimum	Typical	Maximum
Center Frequency	76.25 GHz	76.5 GHz	76.75 GHz
Power Output	+12 dBm	+13 dBm	
Mechanical Tuning Range		±500 MHz	
Bias Tuning Range (+3.5 to +5.5 V_{DC})		±250 MHz	
Bias Voltage	+3.5 V_{DC}	+4.5 V_{DC}	+5.5 V_{DC}
Bias Tuning Speed		100 µS	
Bias Current		350 mA	
Specification Temperature		+25 ˚C	
Operating Temperature	0 ˚C		+50 ˚C

Mechanical Specifications:

Item	Specification
RF Port	WR-12 Waveguide with UG-387/U Flange
Bias and Tuning Port	SMA (F)
Mechanical Tuning Mechanism	Self-locking Set Screw
Housing Material	Aluminum
Finishing	Gold Plating
Weight	3 Oz
Outline	OM-SE-C

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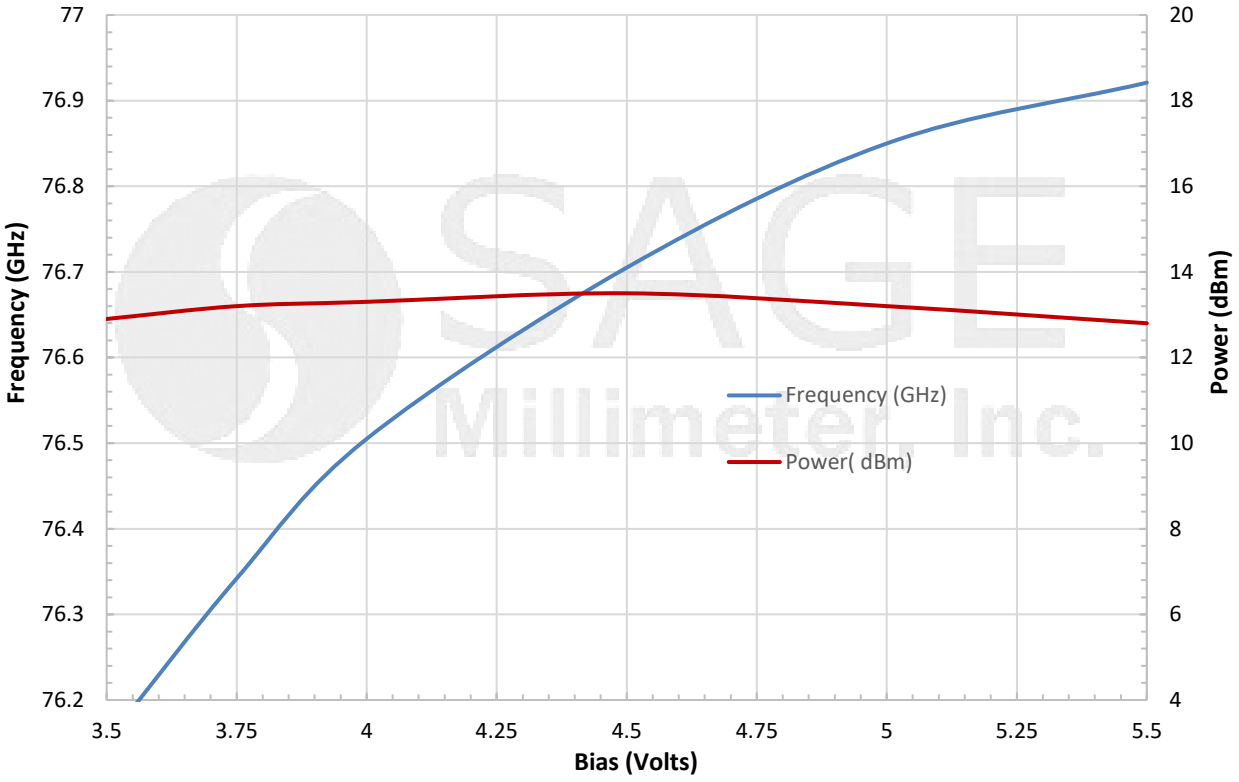
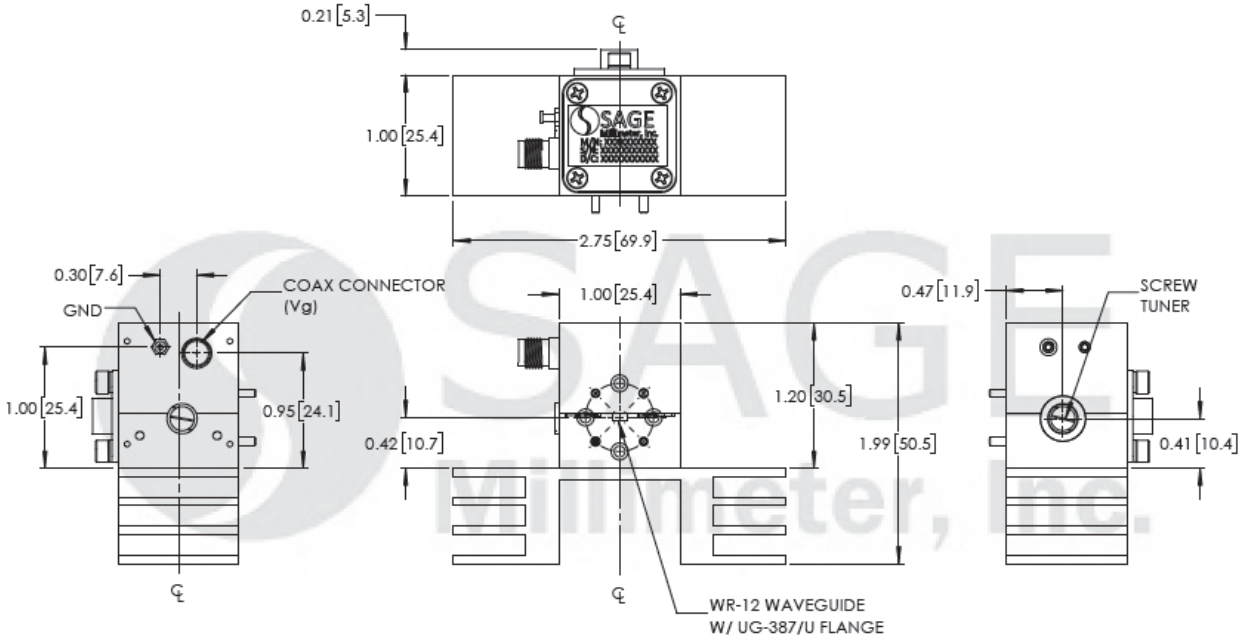
Typical Frequency and Power Output vs. Bias Voltage

Bias: +3.5 to 5.5 Vdc/320 mA



Mechanical Outline: (Unless otherwise specified, all dimensions are in inches [millimeter])



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Note:

- All data presented is collected from a sample lot. Actual data may vary unit to unit.
- The data given above was tested under case temperature **+35 °C**.
- The bias tuning feature is used for electrical tuning and phase lock loop applications.
- The tuning speed can be improved per request.
- The mechanical tuning feature is provided for frequency trimming only. To tune the oscillator more than the specified bandwidth mechanically will damage or degrade the oscillator.
- SAGE Millimeter, Inc. reserves the right to change the information presented without notice.

Caution:

- Reversing polarity will destroy the device.
- Bias voltage should never exceed **+5.5 Volts**, otherwise the oscillator will be damages.
- The case temperature of the device should never exceed **+50 ˚C**. Use an additional heatsink or fan if necessary.
- Proper torque, 8.0 ± 0.4 inch-pounds (0.90 ± 0.02 Nm), should be applied. **SAGE Millimeter torque wrench, model SCH-08008-S1, is highly recommended.**
- Any foreign objects in the waveguide will destroy the device.

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