



E-Band Bias Tuned Gunn Oscillator, 76.5 GHz, ±250 MHz, +17 dBm

Description:

Model SOB-77305217-12-S1 is an E-band, bias tuned Gunn oscillator that utilizes a high performance GaAs Gunn diode and proprietary cavity design to deliver +17 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:

- Communication Systems
- Phase Locked Sources
- FMCW Radar

Electrical Specifications:

| Parameter | Minimum | Typical | Maximum |
|---|----------------------|----------------------|----------------------|
| Center Frequency | 76.25 GHz | 76.5 GHz | 76.75 GHz |
| Power Output | | +17 dBm | |
| Mechanical Tuning Range | | ±100 MHz | |
| Bias Tuning Range (+5.0 to +6.0 V _{DC}) | | ±250 MHz | |
| Bias Voltage | +4.5 V _{DC} | +5.5 V _{DC} | +6.2 V _{DC} |
| Bias Tuning Speed | | 100 μS | |
| Bias Current | | 750 mA | |
| Specification Temperature | | +25 °C | |
| Operating Temperature | 0 °C | | +50 °C |

Mechanical Specifications:

| Item | Specification |
|-------------------|------------------------------------|
| RF Port | WR-12 Waveguide with UG-387/Flange |
| External Bias | Solder Pin |
| Mechanical Tuning | Self-Locking Set Screw |
| Body Material | Aluminum |
| Finish | Gold Plated |
| Weight | 3.0 Oz |
| Outline | OM-SE-C |

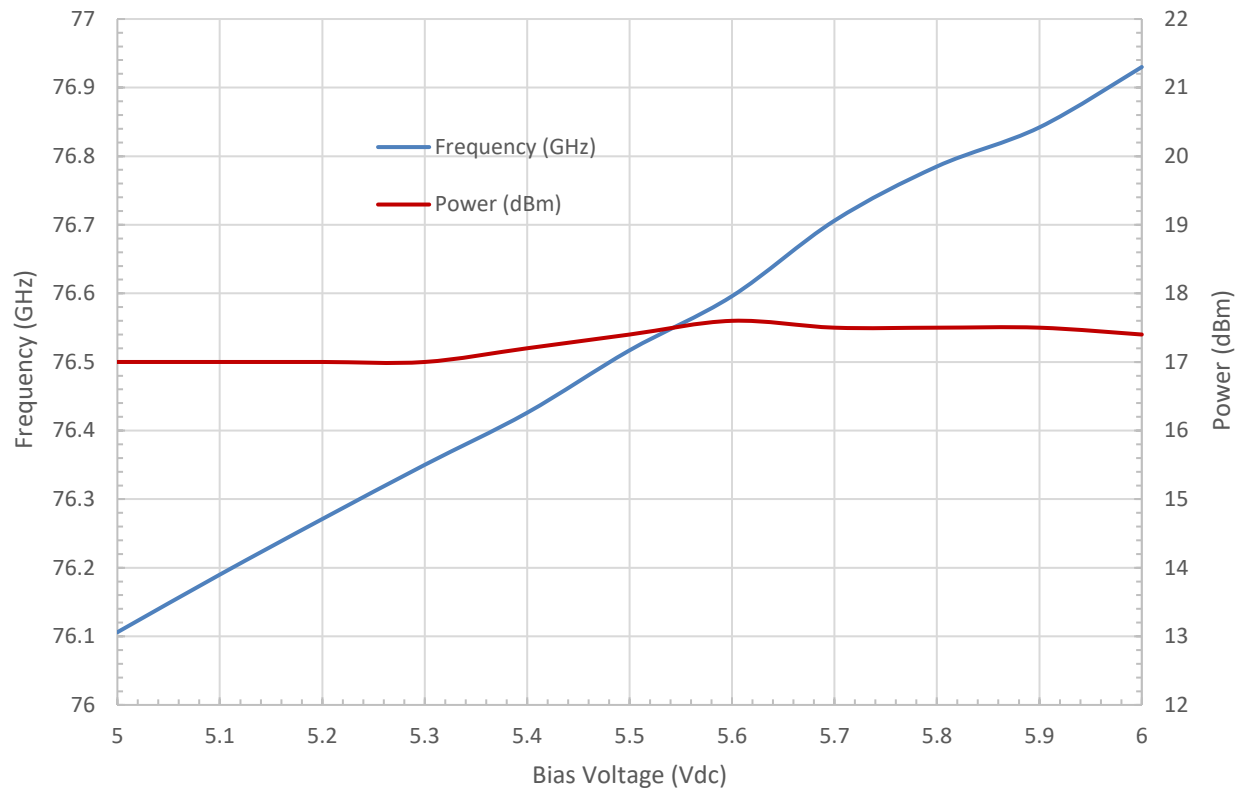




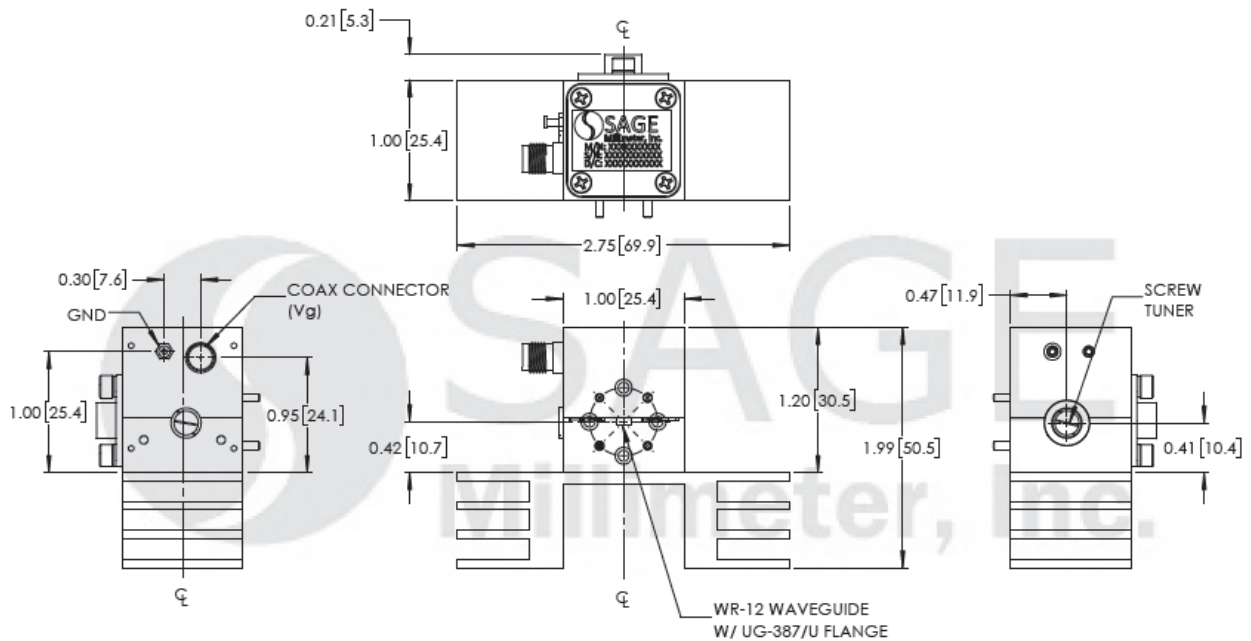
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Typical Frequency and Power Output vs. Bias Voltage

Bias: +5.0 to +6.0Vdc/640 mA



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





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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 **+6.2 Volts**, otherwise the oscillator will be damaged.
- 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.

