



## Ka-Band Wide Mechanical Tuning Bandwidth Gunn Oscillator, 28 to 38 GHz

### Description:

**Model SOF-2820-M1** is a Ka-Band, wide mechanical tuning bandwidth Gunn oscillator that utilizes a high performance GaAs Gunn diode and proprietary cavity design to deliver +18 dBm typical power with low AM/FM noise and harmonic emissions. The oscillator has a center frequency of 32 GHz and a mechanical tuning range of  $\pm 5$  GHz. Compared to its multiplier based counterparts, the Gunn oscillator is a lower cost alternative and a cleaner source. The Gunn oscillator is equipped with a micrometer for quick frequency tuning when used as a bench top unit. Models with a self-locking set screw for frequency tuning are available under a different model number for use in system integration applications. The performance of the oscillator can be further enhanced by adding an optional integrated isolator, Gunn oscillator modulator/regulator, and temperature heater.



### Features:

- Low AM/FM Noise and Harmonics
- Broad Mechanical Tuning Bandwidth
- Micrometer Tuner

### Applications:

- Test Sources
- Signal Generation
- Lab Test Setups

### Electrical Specifications:

Parameter	Minimum	Typical	Maximum
Center Frequency	28 GHz	32 GHz	38 GHz
Mechanical Tuning Range		$\pm 5$ GHz	
Output Power		+18 dBm	
Bias Voltage		+5.0 V <sub>DC</sub>	+5.5 V <sub>DC</sub>
Bias Current		850 mA	
Specification Temperature		+25°C	
Case Temperature	0°C		+50°C

### Mechanical Specifications:

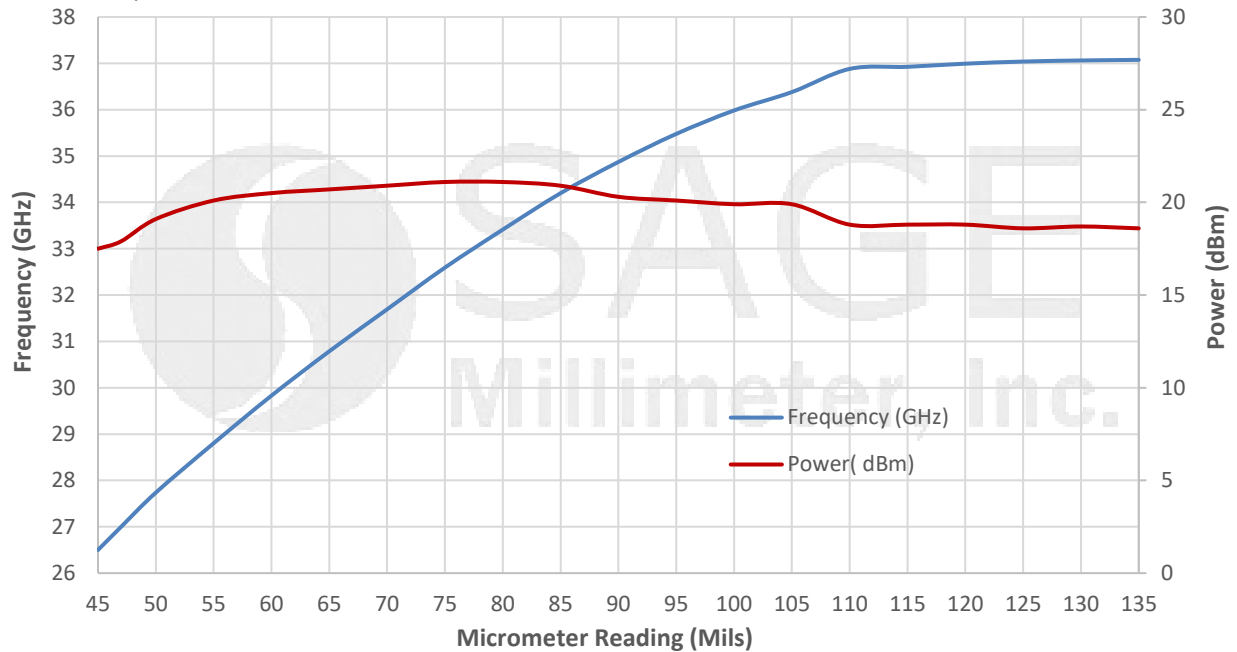
Item	Specification
RF Port	WR-28 Waveguide with UG-599/U Flange
Bias Port	SMA (F)
Case Material	Aluminum
Finish	Gold Plated
Weight	3 Oz
Outline	OF-MA-C-M



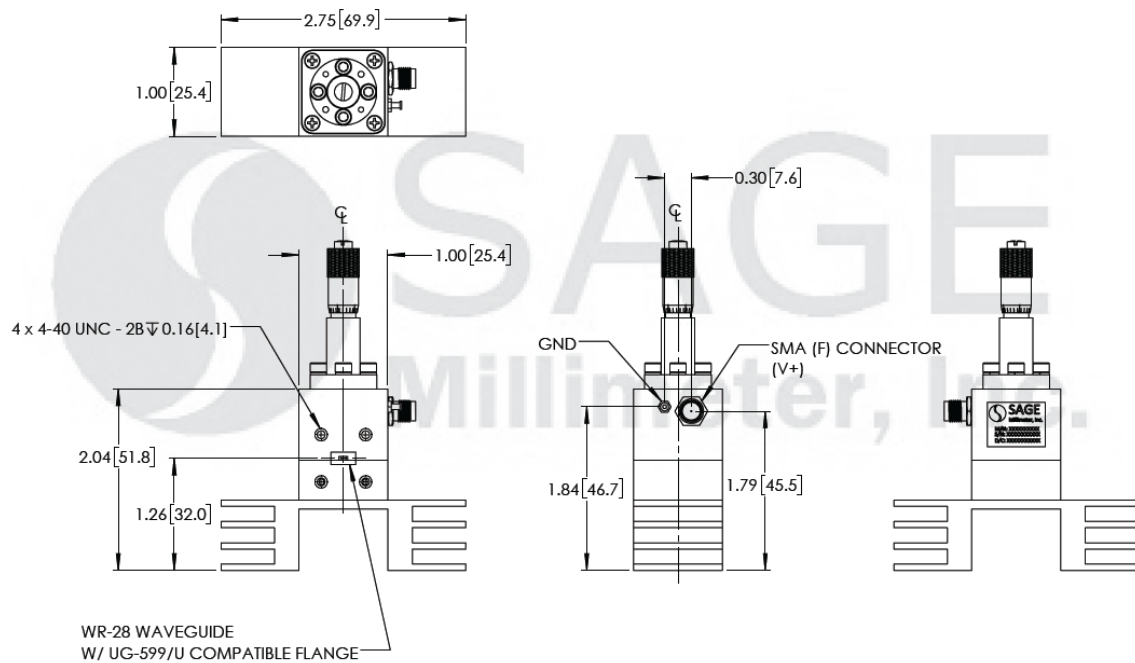
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### Frequency and Power Output vs. Micrometer Reading

Bias: +5 Vdc/846 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. It is for illustration only. Actual data varies unit to unit.
- The data given above was tested under case temperature **+35 °C**.
- Always set micrometer reading to around **32 GHz** when turning on the oscillator to ensure correct mode operation.
- SAGE Millimeter Gunn oscillator regulator, **model SOR-R3**, is highly recommended to prevent the Gunn oscillator damage due to possible over voltage and/or reverse bias. The outline of the regulator is shown in the appendix section below.
- SAGE Millimeter, Inc. reserves the right to change the information presented without notice.

### Caution:

- Reversing polarity will destroy the device.
- Bias voltage should not exceed **+5.5 Volts**.
- The case temperature of the device should not exceed **+50 °C**. Use an additional heatsink or fan if necessary.
- When handling coax connectors, proper torque,  $8.0 \pm 0.4$  inch-pounds ( $0.90 \pm 0.02$  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.

### Appendix: Outline of Gunn Oscillator Regulator, Model SOR-R3

