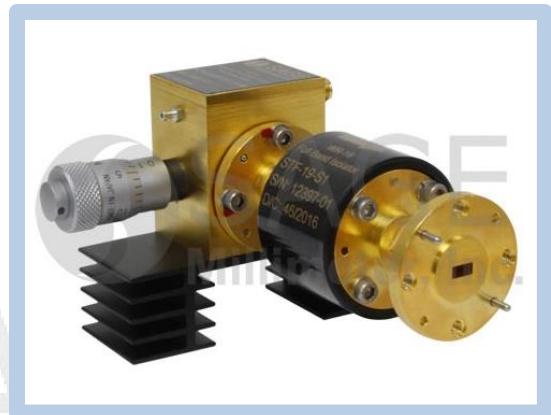


## Q-Band Wide Mechanical Tuning Bandwidth Gunn Oscillator, 33 to 43 GHz

### Description:

**Model SOF-2220-MI** is a Q-Band, wide mechanical tuning bandwidth Gunn oscillator that utilizes a high performance GaAs Gunn diode and proprietary cavity design to deliver +20 dBm typical power with low AM/FM noise and harmonic emissions. The oscillator has a center frequency of 38 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. In addition, this model features an integrated isolator to achieve a more stable performance. By adding a Gunn oscillator modulator/regulator and temperature heater, the performance of the oscillator can be enhanced even further.



### Features:

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

### Applications:

- Test Sources
- Signal Generation
- Lab Test Setups

### Electrical Specifications:

Parameter	Minimum	Typical	Maximum
Center Frequency		38 GHz	
Mechanical Tuning Range		$\pm 5$ GHz	
Output Power		+20 dBm	
Bias Voltage		+4.2 V <sub>DC</sub>	+5.2 V <sub>DC</sub>
Bias Current		700 mA	
Specification Temperature		+25 °C	
Case Temperature	0 °C		+50 °C

### Mechanical Specifications:

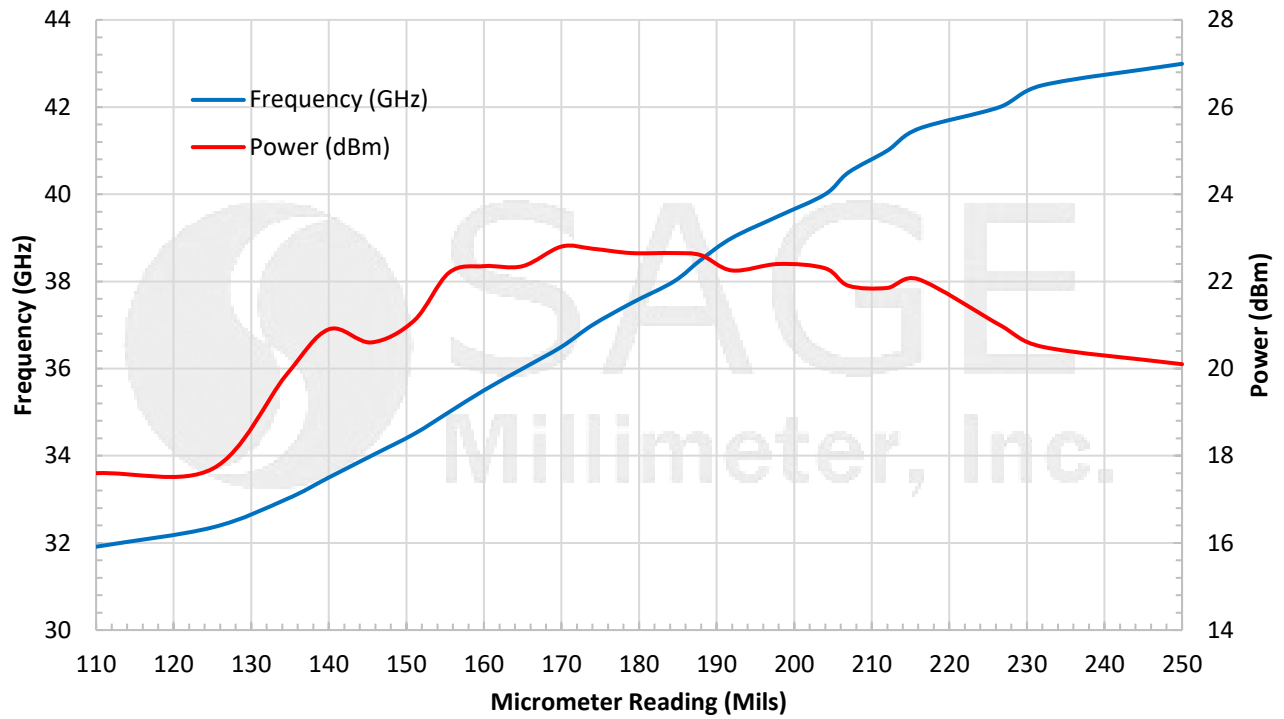
Item	Specification
RF Port	WR-22 Waveguide with UG-383/U Flange
Bias Port	SMA (F) and/or Soldered Pin
Mechanical Tuning	Micrometer
Case Material	Aluminum
Finish	Gold Plated
Weight	9.5 Oz
Outline	OM-MQ-C-I



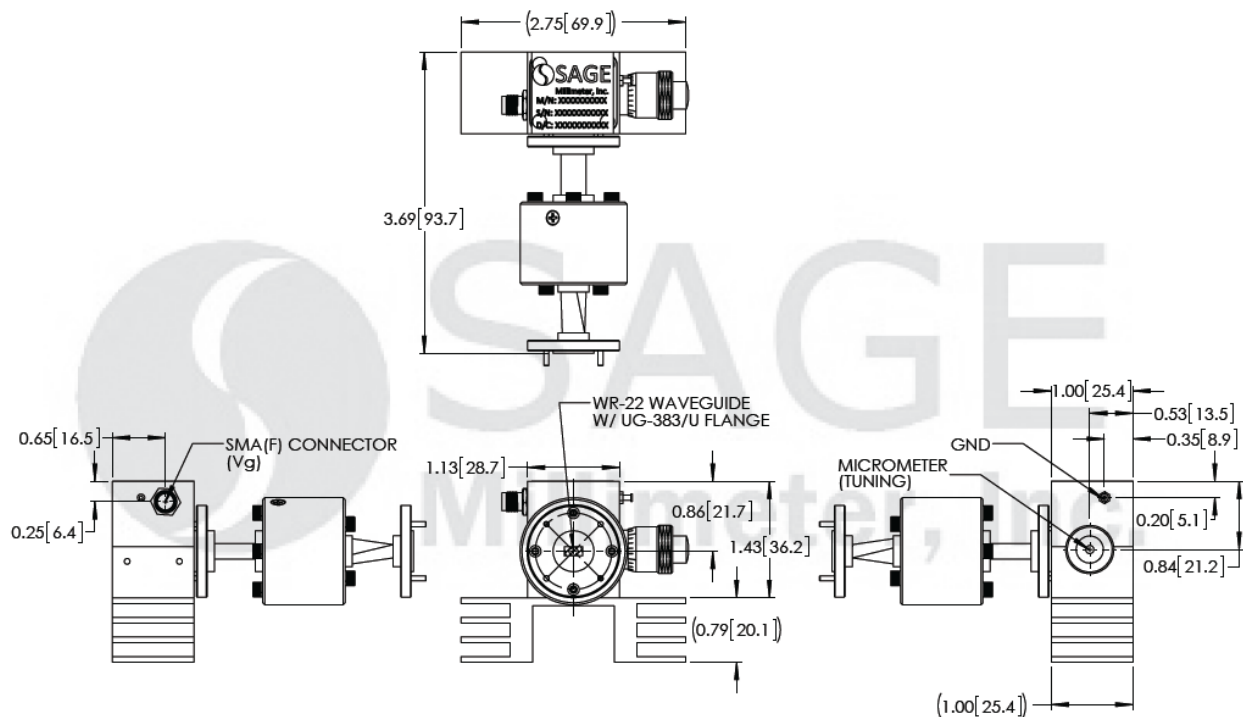
## Q-Band Wide Mechanical Tuning Bandwidth Gunn Oscillator, 33 to 43 GHz

### Frequency and Power Output vs. Micrometer Reading

Bias: +4.2 VDC /880 mA



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





## Q-Band Wide Mechanical Tuning Bandwidth Gunn Oscillator, 33 to 43 GHz

### 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 the micrometer reading to around **38 GHz** when turning on the oscillator to ensure the 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 **+5.2 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,  $8.0 \pm 0.15$  inch-pounds ( $0.92 \pm 0.05$  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

