

## Ka-Band Varactor Tuned Gunn Oscillator, 34 GHz, ±500 MHz Bandwidth

### Description:

**Model SOV-34301320-28-G1** is a Ka-Band, Varactor tuned Gunn oscillator that utilizes a high performance GaAs Gunn diode and proprietary cavity design to deliver +20 dBm typical power. The oscillator features a varactor tuning range of ±500 MHz 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 center frequency of the oscillator can be mechanically trimmed within ±100 MHz using the self-locking set screw. The performance of the oscillator can be further enhanced by adding an isolator, Gunn oscillator modulator/regulator and temperature heater.



### Features:

- Low AM/FM Noise and Harmonics
- Mechanical Frequency Trimming

### Applications:

- Test Sources
- Signal Generation
- FMCW Radar Systems
- Communication Systems

### Electrical Specifications:

Parameter	Minimum	Typical	Maximum
Center Frequency		34.0 GHz	
Power Output		+20 dBm	
Varactor Tuning Range	±350 MHz	±500 MHz	
Mechanical Tuning Range		±100 MHz	
Bias Voltage		+5.0 V <sub>DC</sub>	+5.5 V <sub>DC</sub>
Bias Current		850 mA	
Varactor Tuning Voltage Range	0 V <sub>DC</sub>		+25 V <sub>DC</sub>
Specification Temperature		+25°C	
Operating Temperature	0°C		+50°C

### Mechanical Specifications:

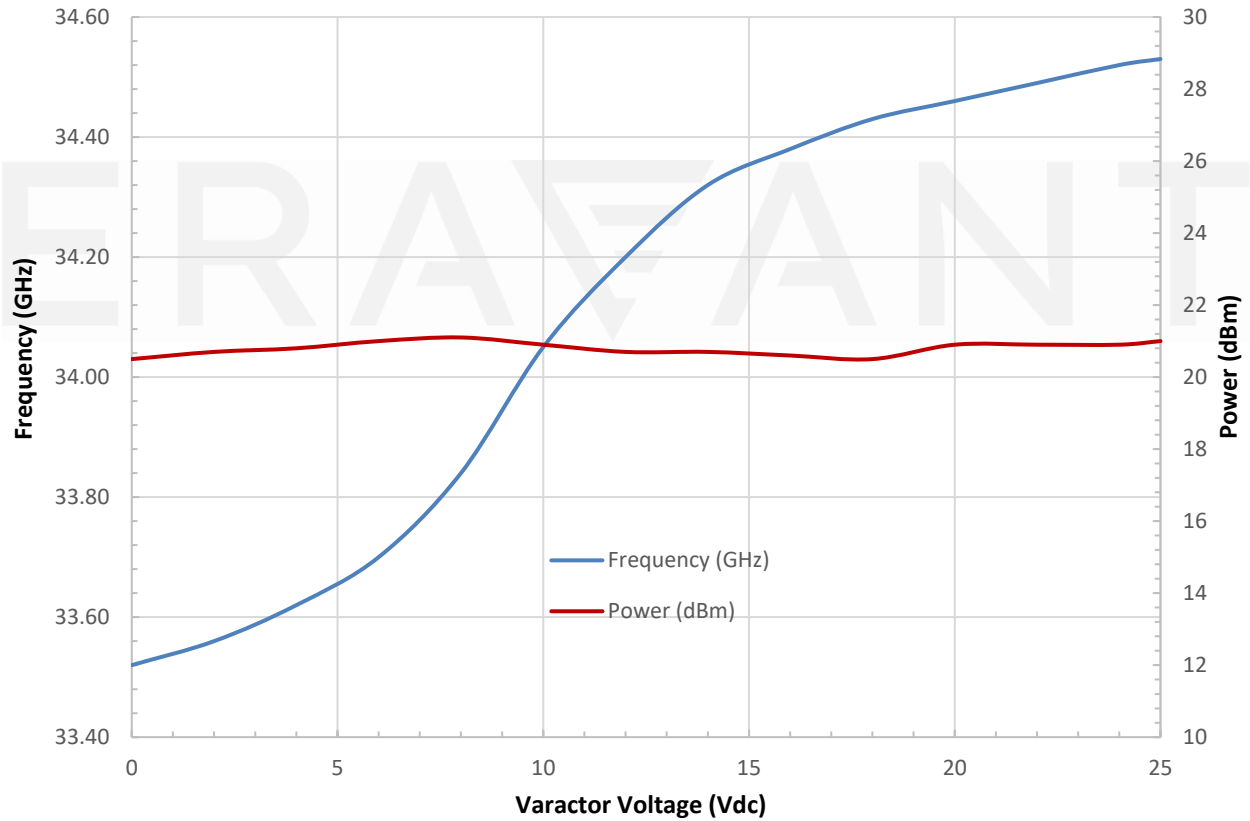
Item	Specification
RF Port	WR-28 Waveguide with UG-599/U Flange, 4-40 Threaded Holes
Bias Port	Solder Pins
Tuning Port	SMA (F)
Mechanical Trimming Mechanism	Self-Locking Set Screw
Housing Material	Aluminum
Finish	Gold Plated
Weight	4.0 Oz
Outline	OV-SA-C-2



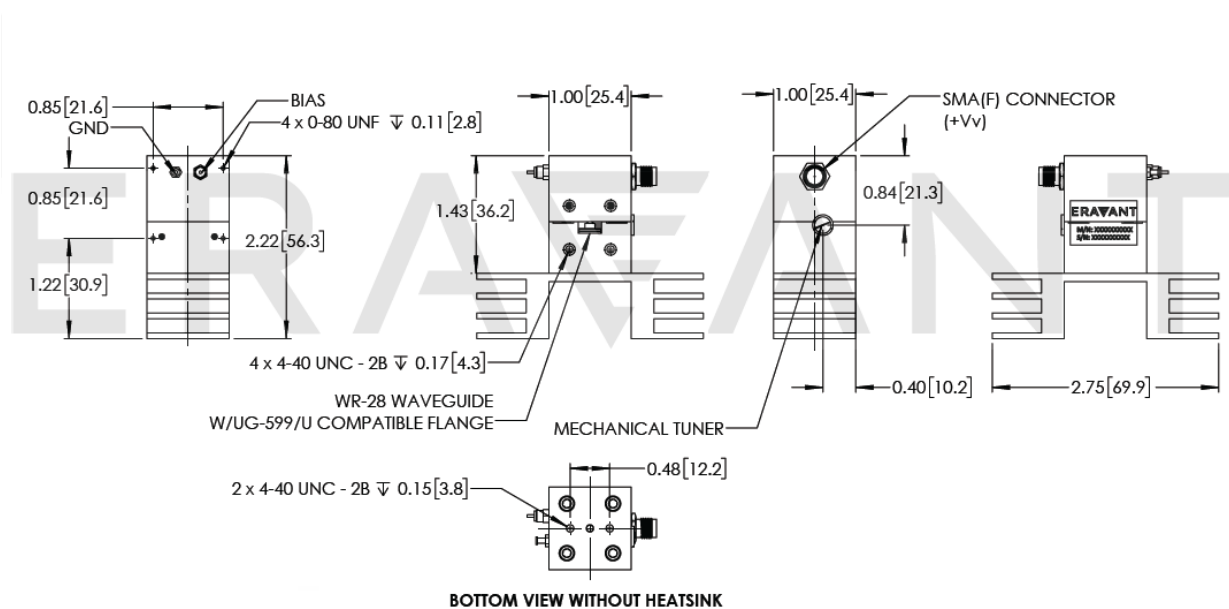
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### Typical Frequency and Power Output vs. Varactor Voltage

Bias: +5.0 Vdc/850 mA



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



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### Note:

- All data presented is collected by using a sample lot for illustration purpose. Actual data is different unit to unit.
- The data given above was tested under case temperature **+35 °C**.
- The Eravant Gunn oscillator regulator **SOR-R3** is highly recommended for over voltage and reverse bias protection. The outline of the model SOR-R3 is shown in below.
- Eravant reserves the right to change the information presented without notice.

### Caution:

- Reversing polarity will destroy the device.
- Gunn diode bias voltage should never exceed **+5.5 Volts** and Varactor bias voltage should never exceed **+25 Volts**.
- The case temperature of the device should never exceed **+50°C**. Use an additional heatsink or fan if necessary.
- Proper torque,  $8.0 \pm 0.15$  inch-pounds ( $0.90 \pm 0.02$  Nm), should be applied. **Eravant torque wrench, model SCH-08008-S1, is highly recommended.**
- Any foreign objects in the waveguide will destroy the device.

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

