

WR-28 Waveguide Gunn Oscillator at a 35 GHz Center Frequency with 3 GHz Tuning Range and -95 dBc/Hz Phase Noise, Ku Band, UG-599/U



FMWGN1011

Features

- WR-28 Waveguide Gunn Diode Oscillator
- 35 GHz with a Tuning Range of +/- 3 GHz
- Pout: +15 dBm typ
- Harmonics: +20 dBc typ
- Phase Noise: -95 dBc/Hz typ at 100 KHz offset
- Frequency Stability: -0.4 MHz/°C typ
- Power Stability: -0.03 dB/°C typ
- Bias Voltage: +4.5 Vdc
- DC Current: 250 mA
- Waveguide Flange UG-599/U
- 0°C to +50°C Operating Temperature
- 50 Ohm Design
- Mechanical Tuning Screw
- Rugged Design meets MIL-STD-202 Test Conditions

Applications

- Aerospace & Defense
- Test & Measurement
- Microwave Radio Systems
- Doppler Sensors
- Tranceivers
- Military & Commercial Communication Systems
- Research & Development

Description

The FMWGN1011 is a Waveguide Gunn Diode Oscillator that operates in Ka band with a center frequency of 35 GHz and wide tuning range of +/- 3 GHz by use of a mechanical tuning screw. This Indium Phosphate (InP) Gunn Diode design yields higher output power, higher efficiency, and lower AM noise than GaAs counterparts. Impressive performance at 50 ohms includes a high output power level of +15 dBm min with a harmonic response of -20 dBc typ. Additional typical performance includes Phase Noise of -95 dBc/Hz at 100 kHz offset, Frequency Stability of -0.4 MHz/°C, and Power Stability of -0.03 dB/°C. Nominal bias voltage is +4.5 Vdc at 250 mA current, and the operational temperature range is 0°C to +50°C. The compact package supports a WR-28 waveguide size with a UG-599/U flange. Also, this highly reliable oscillator module is designed to meet MIL-STD-202 test conditions including shock, vibration, altitude, and humidity, for highly reliable operation.

Electrical Specifications (TA = +25°C, Bias Voltage= 4.5V, Bias Current= 250mA)

| Description | Minimum | Typical | Maximum | Units |
|-----------------------------|---------|---------|---------|-----------|
| Center Frequency | | 35 | | GHz |
| Tuning Range | ±0 | ±3 | | GHz |
| Output Power | 13 | 15 | | dBm |
| Frequency Stability | | -0.4 | | MHz/deg C |
| Power Stability | | -0.03 | | dB/deg C |
| Phase Noise @ 100kHz Offset | | -95 | | dBc/Hz |
| Harmonics | | -20 | | dBc |
| Bias Voltage | | 4.5 | 5 | V |
| Bias Current | | 250 | | mA |

Mechanical Specifications

Size

- Length 1 in [25.4 mm]
- Width 1 in [25.4 mm]
- Height 1.25 in [31.75 mm]
- Weight 0.0625 lbs [28.35 g]

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Configuration

| | |
|----------------|----------|
| Waveguide Size | WR-28 |
| Flange | UG-599/U |
| Bias Connector | Pin |

Environmental Specifications

Temperature

| | |
|-----------------|------------------|
| Operating Range | 0 to 50 deg C |
| Storage Range | -40 to 100 deg C |

Environment

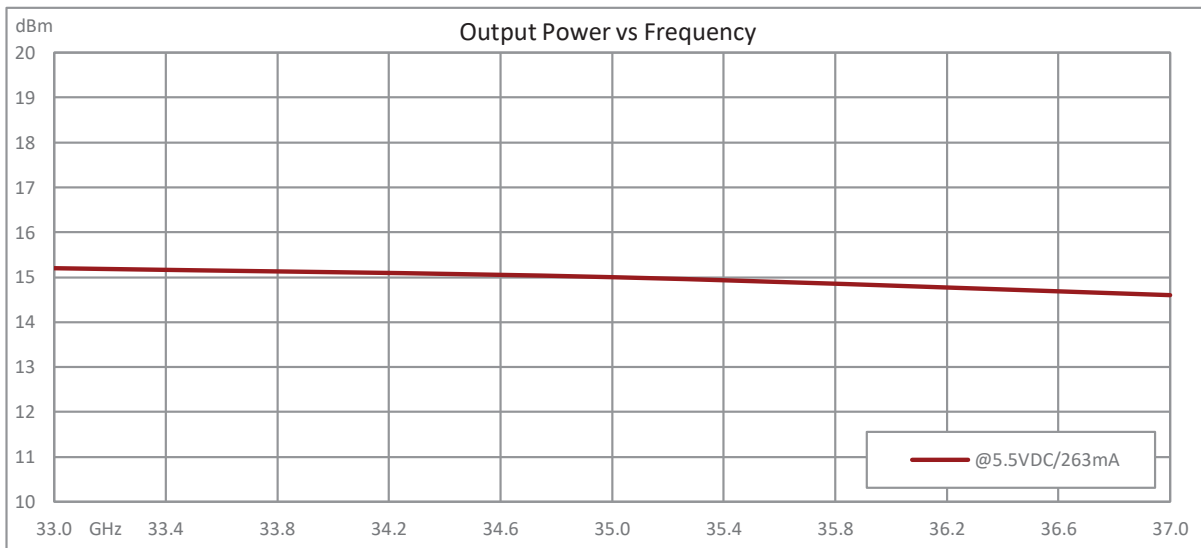
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|-----------|--|
| Humidity | MIL-STD-202, Method 103B, Condition B |
| Shock | MIL-STD-202F, Method 213B, Condition B |
| Vibration | MIL-STD-202F, Method 204D, Condition B |
| Altitude | MIL-STD-202F, Method 105C, Condition B |

Compliance Certifications (see [product page](#) for current document)

Plotted and Other Data

Notes:

Typical Performance Data



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WR-28 Waveguide Gunn Oscillator at a 35 GHz Center Frequency with 3 GHz Tuning Range and -95 dBc/Hz Phase Noise, Ku Band, UG-599/U from Fairview Microwave is in-stock and available to ship same-day. All of our RF/microwave products are available off-the-shelf from our ISO 9001:2008 certified facilities in Lewisville, Texas. Fairview Microwave is RF on-demand.

For additional information on this product, please click the following link: [WR-28 Waveguide Gunn Oscillator at a 35 GHz Center Frequency with 3 GHz Tuning Range and -95 dBc/Hz Phase Noise, Ku Band, UG-599/U FMWGN1011](https://www.fairviewmicrowave.com/wr28-waveguide-gunn-oscillator-35-ghz-center-frequency-band-ug599-fm-wgn1011-p.aspx)

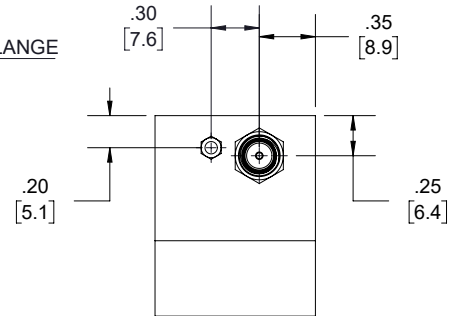
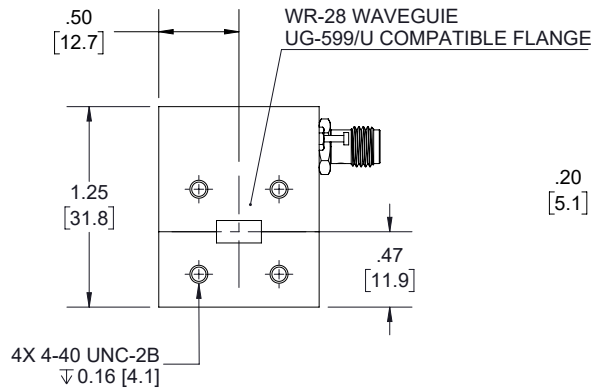
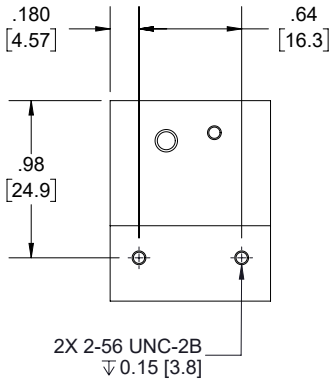
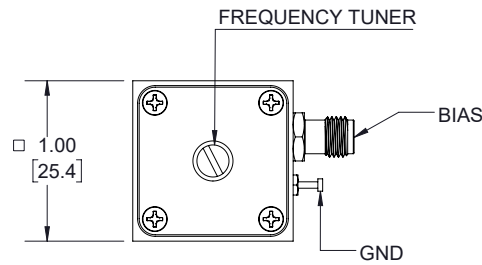
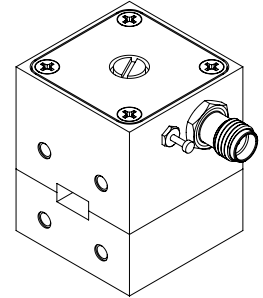
URL: <https://www.fairviewmicrowave.com/wr28-waveguide-gunn-oscillator-35-ghz-center-frequency-band-ug599-fm-wgn1011-p.aspx>

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FMWGN1011 CAD Drawing

WR-28 Waveguide Gunn Oscillator at a 35 GHz Center Frequency with 3 GHz Tuning Range and -95 dBc/Hz Phase Noise, Ku Band, UG-599/U

| REVISIONS | | | |
|-----------|-----------------|-----------|----------|
| REV. | DESCRIPTION | DATE | APPROVED |
| A | INITIAL RELEASE | 5/18/2021 | T.GALLA |



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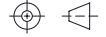


TITLE

UNLESS OTHERWISE SPECIFIED LEADING DIMENSIONS ARE INCHES
DIMENSIONS IN [] ARE MILLIMETERS

| | | | |
|---------------------|-------------|------------------------------|-----------------|
| TOLERANCES: | | CABLE LENGTH (L) TOLERANCES: | |
| X = ±.2 [5.08] | FRACTIONS | L ≤ 12 [305] | = +1 [25] / -0 |
| .XX = ±.02 [.51] | ± 1/32 | 12 [305] < L ≤ 60 [1524] | = +2 [51] / -0 |
| .XXX = ±.005 [.13] | ANGLES ± 1° | 60 [1524] < L ≤ 120 [3048] | = +4 [102] / -0 |
| | | 120 [3048] < L ≤ 300 [7620] | = +6 [152] / -0 |
| | | 300 [7620] < L | = +5%L / -0 |

THIRD-ANGLE PROJECTION



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SHEET 1 OF 1

ALL DIMENSIONS SHOWN ARE FOR REFERENCE ONLY.

SCALE

N/A

| | | | | |
|-----------|--------------------|--------------------|-----------------------|----------|
| SIZE A | CAGE CODE 3FKR5 | DRAWN BY K.DANG | ITEM NO. FMWGN1011 | REV A |
|-----------|--------------------|--------------------|-----------------------|----------|

T-Rev.D