



Mechanically Tuned Gunn Diode Oscillator: WR-90, CF: 9.375GHz Output Power: +18.5dBm, Tuning Range: +/- 0.25GHz, UG-39/U

## Waveguide Gunn Oscillators Technical Data Sheet

**PEWGN1013**

### Features

- WR-90 Waveguide Gunn Diode Oscillator
- 9.375 GHz with a Tuning Range of +/- 250 MHz
- Pout: +18.5 dBm typ
- Harmonics: -20 dBc typ
- Phase Noise: -105 dBc/Hz typ at 100 KHz offset
- Frequency Stability: -0.1 MHz/°C
- Power Stability: -0.01 dB/°C
- Bias Voltage: +8.5 Vdc
- DC Current: 200 mA
- Waveguide Flange UG-39/U
- -40°C to +85°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 PEWGN1013 is a Waveguide Gunn Diode Oscillator that operates in X band with a center frequency of 9.375 GHz and wide tuning range of +/- 1 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 an output power level of +18.5 dBm typical with a harmonic response of -20 dBc typical. Additional typical performance includes Phase Noise of -105 dBc/Hz at 100 kHz offset, Frequency Stability of -0.1 MHz/°C, and Power Stability of -0.01 dB/°C. Nominal bias voltage is +8.5 Vdc at 200 mA current, and the operational temperature range is -40°C to +85°C. The compact package supports a WR-90 waveguide size with a UG-39/U flange. Also, this highly reliable oscillator module is designed to meet a variety of MIL-STD-202 test conditions including shock, vibration, altitude, and humidity.

### Electrical Specifications (TA = +25°C, Bias Voltage= 8.5V, Bias Current= 200mA)

| Description                 | Minimum | Typical | Maximum | Units     |
|-----------------------------|---------|---------|---------|-----------|
| Center Frequency            |         | 9.375   |         | GHz       |
| Tuning Range                | ±0      | ±250    |         | kHz       |
| Output Power                | 10      | 18.5    |         | dBm       |
| Frequency Stability         |         | -0.1    |         | MHz/deg C |
| Power Stability             |         | -0.01   |         | dB/deg C  |
| Phase Noise @ 100kHz Offset |         | -105    |         | dBc/Hz    |
| Harmonics                   |         | -20     |         | dBc       |
| Bias Voltage                |         | 8.5     | 10      | V         |
| Bias Current                |         | 200     |         | mA        |

Click the following link (or enter part number in "SEARCH" on website) to obtain additional part information including price, inventory and certifications: [Mechanically Tuned Gunn Diode Oscillator: WR-90, CF: 9.375GHz Output Power: +18.5dBm, Tuning Range: +/- 0.25GHz, UG-39/U PEWGN1013](#)



Mechanically Tuned Gunn Diode Oscillator: WR-90, CF: 9.375GHz Output Power: +18.5dBm, Tuning Range: +/- 0.25GHz, UG-39/U

## Waveguide Gunn Oscillators Technical Data Sheet

**PEWGN1013**

### Mechanical Specifications

#### Size

|        |                    |
|--------|--------------------|
| Length | 1.62 in [41.15 mm] |
| Width  | 1.62 in [41.15 mm] |
| Height | 0.7 in [17.78 mm]  |
| Weight | 0.25 lbs [113.4 g] |

#### Configuration

|                |         |
|----------------|---------|
| Waveguide Size | WR-90   |
| Flange         | UG-39/U |
| Bias Connector | Pin     |

### Environmental Specifications

#### Temperature

|                 |                  |
|-----------------|------------------|
| Operating Range | -40 to 85 deg C  |
| Storage Range   | -40 to 100 deg C |

#### Environment

|           |  |
|-----------|--|
| 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:

Mechanically Tuned Gunn Diode Oscillator: WR-90, CF: 9.375GHz Output Power: +18.5dBm, Tuning Range: +/- 0.25GHz, UG-39/U from Pasternack Enterprises has same day shipment for domestic and International orders. Our RF, microwave and millimeter wave products maintain a 99.4% availability and are part of the broadest selection in the industry.

Click the following link (or enter part number in "SEARCH" on website) to obtain additional part information including price, inventory and certifications: [Mechanically Tuned Gunn Diode Oscillator: WR-90, CF: 9.375GHz Output Power: +18.5dBm, Tuning Range: +/- 0.25GHz, UG-39/U PEWGN1013](#)

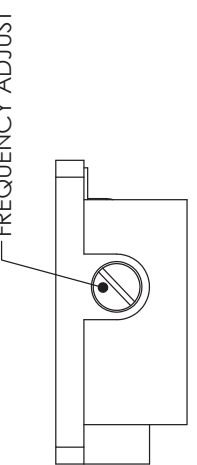
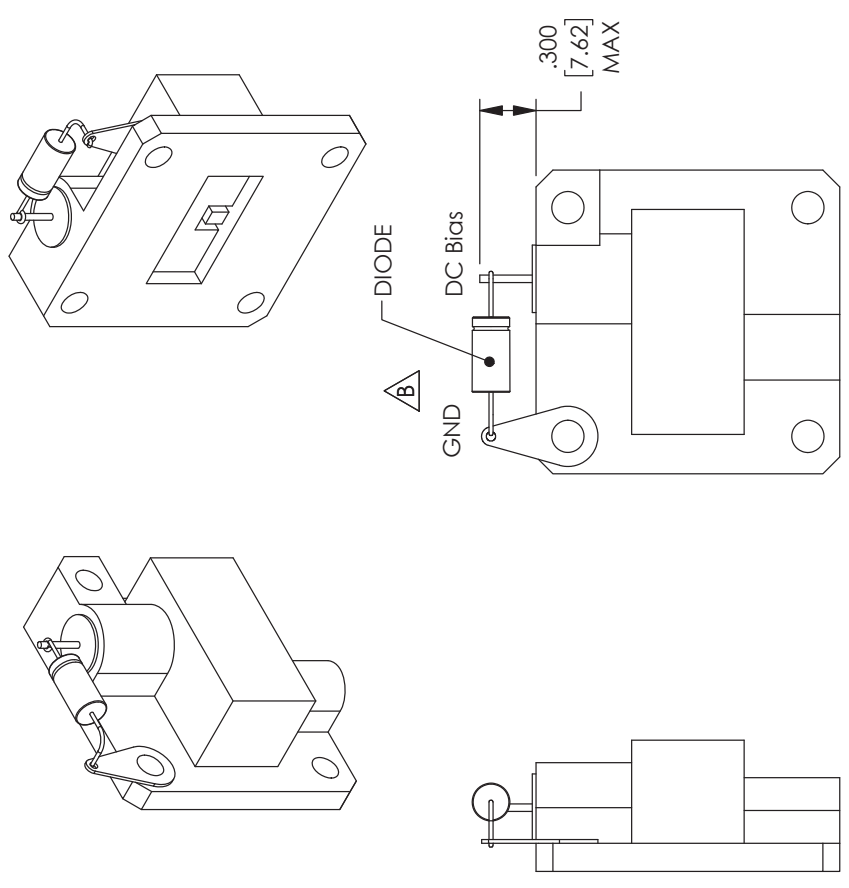
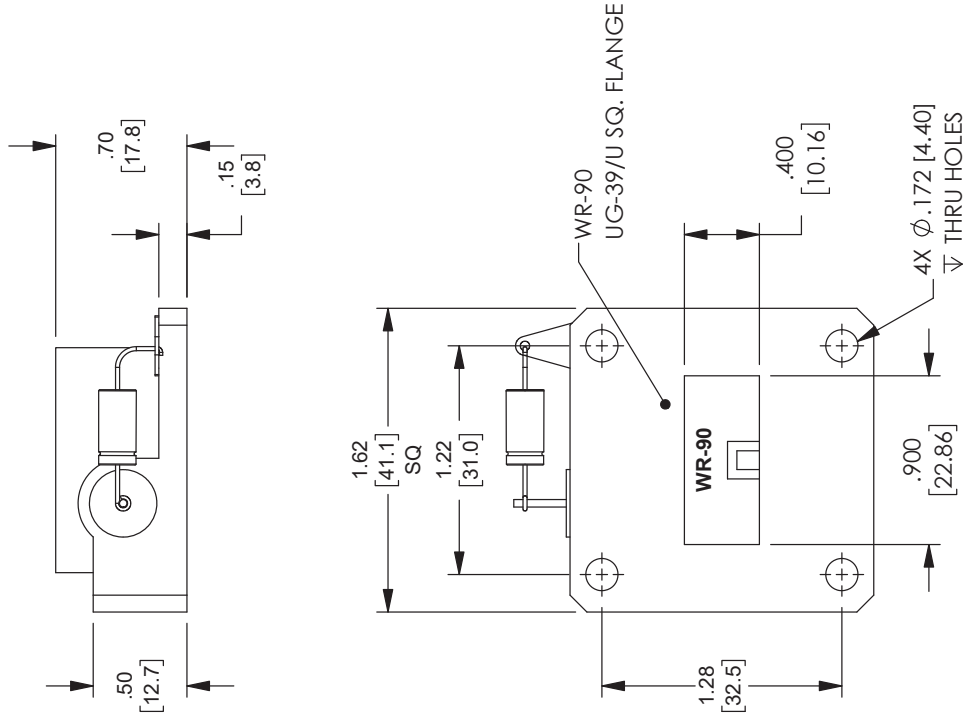
URL: <https://www.pasternack.com/waveguide-gunn-oscillator-9.375-ghz-tuning-range-250-mhz-pewgn1013-p.aspx>

The information contained in this document is accurate to the best of our knowledge and representative of the part described herein. It may be necessary to make modifications to the part and/or the documentation of the part, in order to implement improvements. Pasternack reserves the right to make such changes as required. Unless otherwise stated, all specifications are nominal. Pasternack does not make any representation or warranty regarding the suitability of the part described herein for any particular purpose, and Pasternack does not assume any liability arising out of the use of any part or documentation.

# PEWGN1013 CAD Drawing

Mechanically Tuned Gunn Diode Oscillator: WR-90, CF: 9.375GHz Output  
Power: +18.5dBm, Tuning Range: +/- 0.25GHz, UG-39/U

| REVISIONS |                        |            |          |
|-----------|------------------------|------------|----------|
| REV.      | DESCRIPTION            | DATE       | APPROVED |
| B         | PCR PEWGN1013 20220617 | 06/27/2022 | TGALLA   |



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

TOLERANCES:  
X = +.2 [5.08] FRACTIONS  
XX = +.02 [ .51 ] +.132  
XXX = ±.005 [ .13 ] ANGLES ± 1°

CABLE LENGTH (L) TOLERANCES:  
L ≤ 12 [305] = +1 [25] / -0  
12 [305] < L ≤ 60 [1524] = +2 [51] / -0  
60 [1524] < L ≤ 120 [3048] = +4 [102] / -0  
120 [3048] < L ≤ 300 [7620] = +6 [152] / -0  
300 [7620] < L = +5% / -0

ALL DIMENSIONS SHOWN  
ARE FOR REFERENCE ONLY.

**PE PASTERNAK**  
an INFINITI brand

Pasternack Enterprises, Inc.  
P. O. Box 16759, Irvine, CA 92623.  
Phone: 1.949.261.1920 | 1.866.727.8376  
Fax: 1.949.261.7451  
Website: www.pasternack.com  
E-mail: sales@pasternack.com

SIZE A CAGE CODE 53919 DRAWN BY KDANG ITEM NO. PEWGN1013 REV B

THIRD-ANGLE PROJECTION

THE INFORMATION AND DESIGN IN THIS DOCUMENT IS THE PROPERTY OF PASTERNAK CORPORATION. ALL RIGHTS RESERVED.

SHEET 1 OF 1

SCALE N/A

THESE COMMODITIES, TECHNOLOGY OR SOFTWARE WERE EXPORTED FROM THE UNITED STATES IN ACCORDANCE WITH THE EXPORT ADMINISTRATION REGULATIONS. DIVERSION CONTRARY TO U.S. LAW PROHIBITED.