

WR-22 Waveguide Low Noise Amplifier, Q Band, 33 GHz to 50 GHz, 32 dB Gain, 20.5 dBm P1dB, UG- 383/U Flange

The FMWGA3202 is a WR-22 Waveguide Low Noise Amplifier, operating across the Q Band from 33 GHz to 50 GHz. This 50 Ohm design exhibits impressive typical performance which includes 32 dB gain, 5.5 dB noise figure, and +20.5 dBm P1dB. Maximum RF input power (CW) is +5 dBm, and DC bias is +6 Vdc at 675 mA typ. The rugged and small size aluminum package design is gold plated and supports a UG-383/U waveguide flange pattern at RF input and output ports. Solder pins are used for DC bias voltage and ground. The module operates across a wide temperature range from -40°C to +80°C.

Electrical Specifications

| Description | Min | Typ | Max | Units |
|-------------------------------------|-----|-------|-----|-------|
| Frequency | 33 | | 50 | GHz |
| Small Signal Gain | | 32 | | dB |
| P1 dB | | 22 | | dBm |
| Psat | | 20.5 | | dBm |
| Noise Figure | | 5.5 | | dB |
| VSWR | | 1.9:1 | | |
| RF Input Power | | | 5 | dBm |
| Operating DC Voltage ^{1,4} | 6 | 6 | 8 | Volts |
| Operating DC Current | | 700 | | mA |
| Input Power (CW) | | | 5 | dBm |
| Operating Temperature Range | -40 | | 80 | °C |

Biasing Up and Down Procedure

| Biasing Up Procedure | | Power Down Procedure | |
|----------------------|-------------------------|----------------------|----------------------------|
| Step 1 | Connect Ground Pin | Step 1 | Turn OFF RF input |
| Step 2 | Apply DC Supply Voltage | Step 2 | Turn OFF DC Supply Voltage |
| Step 3 | Turn ON RF input | Step 3 | Remove Ground |

Electrical Specification Notes:

- 1.) DC Supply must be able to source at least 1.32A DC at startup
- 2.) Open and short-circuit loads are not recommended at the amplifier output.
- 3.) Ensure proper 50 Ohm load before turning the amplifier "ON".
- 4.) Reverse biasing will destroy the amplifier
- 5.) Do not put any foreign objects inside the waveguide. Warranty Void.

Absolute Maximum Rating

| Parameter | Rating |
|-------------------------|-----------------|
| Operating Temperature | -40°C to +80°C |
| Storage Temperature | -40°C to +100°C |
| Total Power Dissipation | 6.5W |
| Input Power (CW) | +5dBm |
| DC Operating Voltage | +12Vdc |

Mechanical Specifications

| | |
|-------------|------------------|
| Size | |
| Length | 1.5 in [38.1 mm] |



Features:

- WR-22 Waveguide Low Noise Amplifier
- UG-383/U Flange
- 33 GHz to 50 GHz
- Q Band
- Small Signal Gain 32 dB typ
- Noise Figure 2.8 dB typ
- VSWR 1.9:1 typ
- Output P1dB +18 dBm typ
- Output Psat +22 dBm typ
- DC Bias +6V @ 675 mA typ
- Max RF Input Power (CW) +5 dBm
- 50 Ohm Design
- RF Input and Output Waveguide Flange UG-383/U
- Solder Pins for DC Bias Voltage and Ground
- Operational Temperature Range -40°C to +80°C
- Rugged and Compact Aluminum Gold Plated Package Design

Applications:

- Test & Measurement
- Military and Commercial Communications
- Military Electronic Systems
- Research & Development

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| | |
|---------------------------|--------------------|
| Width | 1.5 in [38.1 mm] |
| Height | 1.2 in [30.48 mm] |
| Weight | 0.25 lbs [113.4 g] |
| Body Material and Plating | Aluminum, Gold |
| Design | |
| DC Bias Connector | |
| Flange | UG-383/U |

Environmental Specifications

Temperature

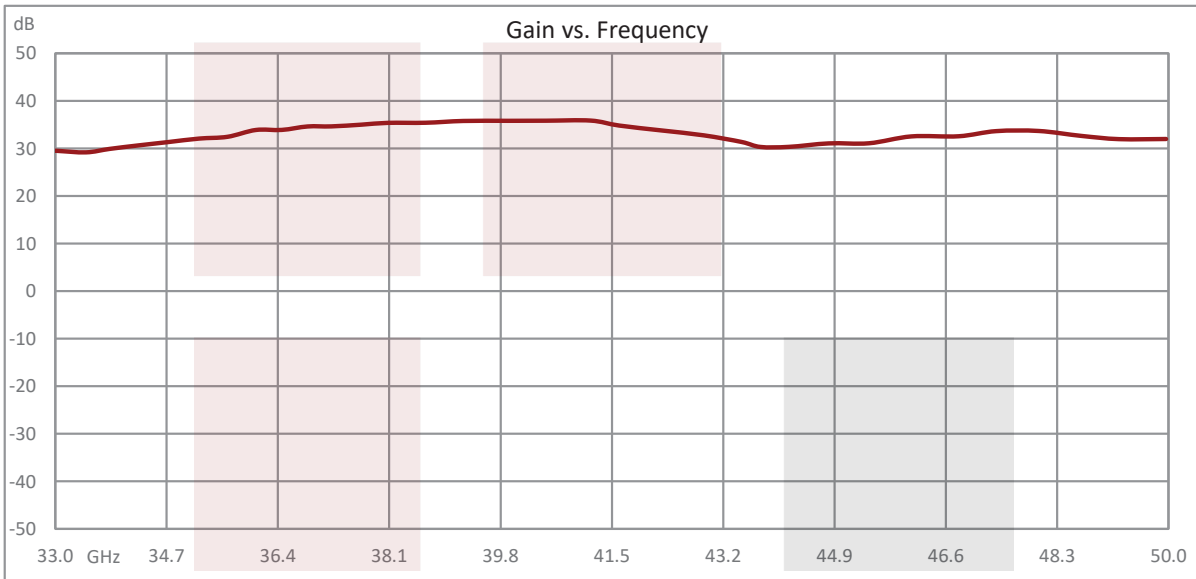
| | |
|-----------------|------------------|
| Operating Range | -40 to 80 deg C |
| Storage Range | -40 to 100 deg C |

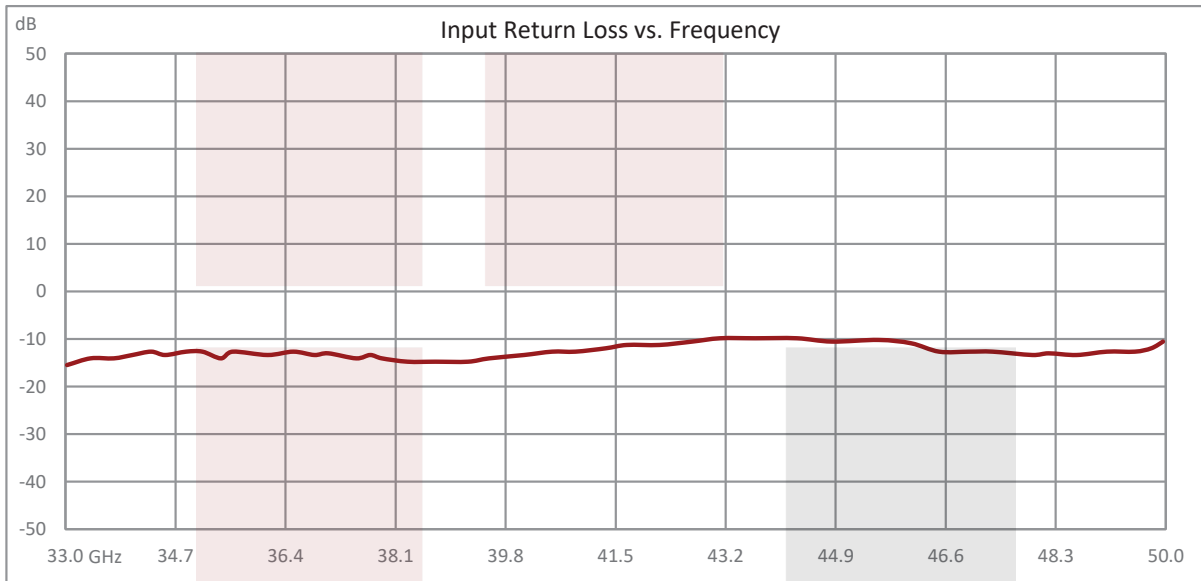
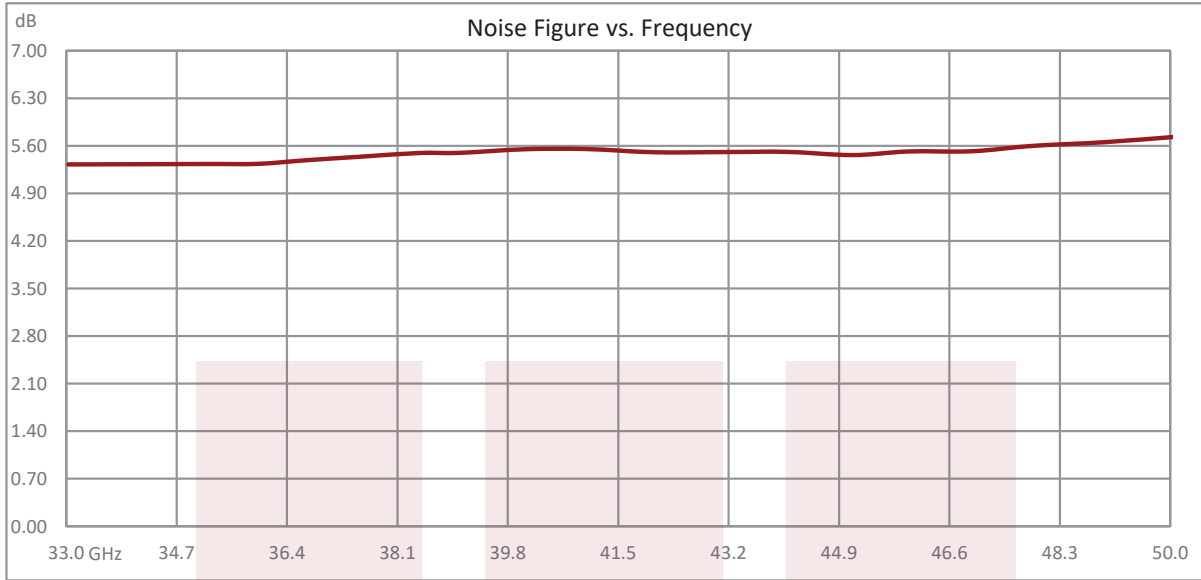
Compliance Certifications (see [product page](#) for current document)

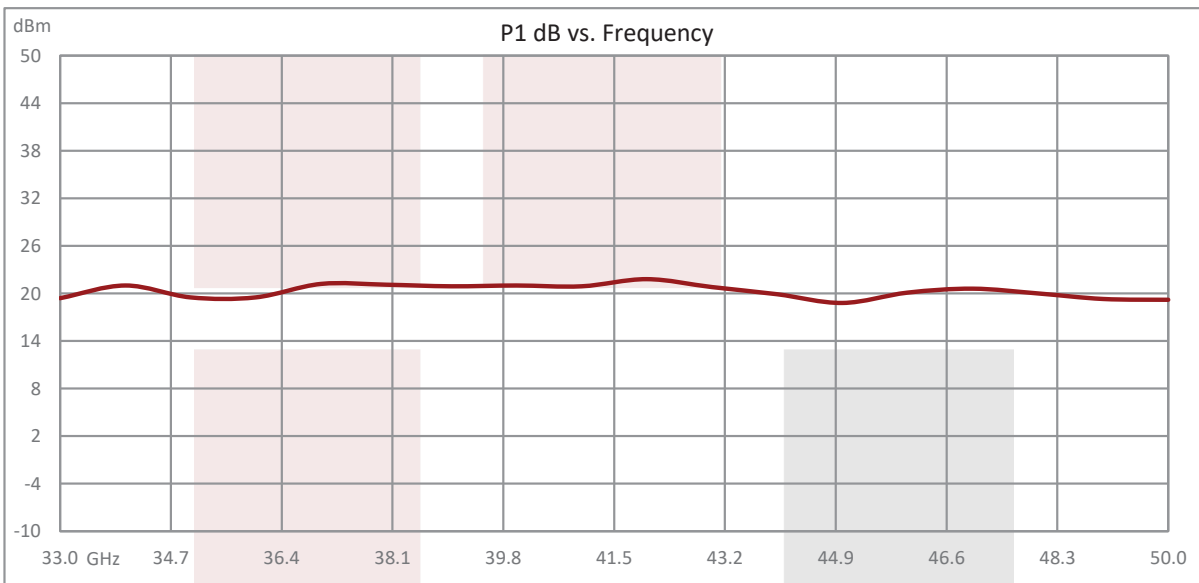
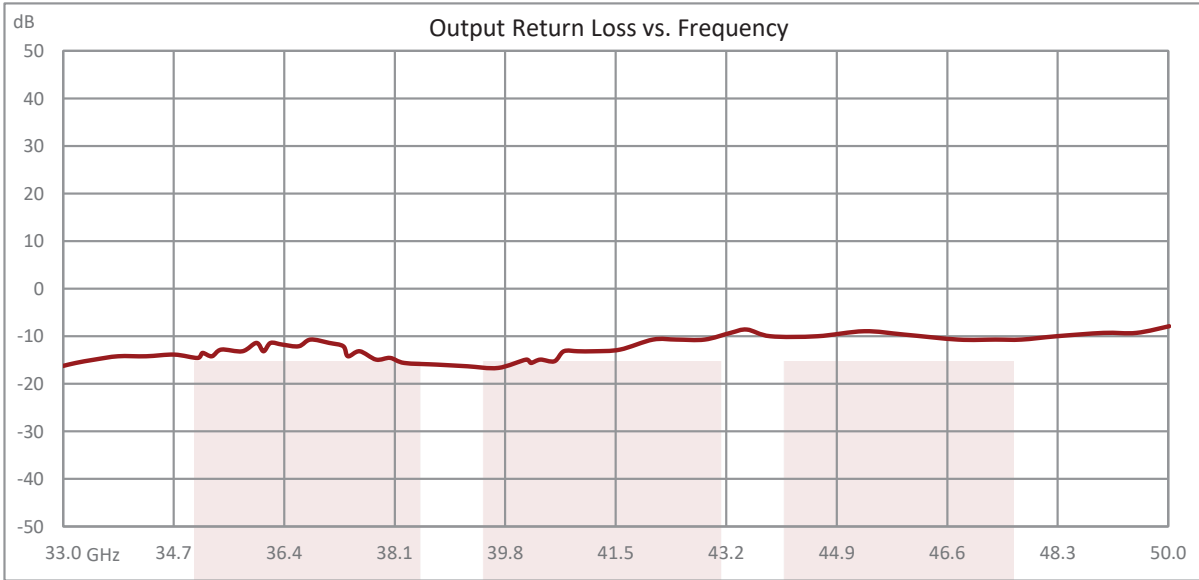
Plotted and Other Data

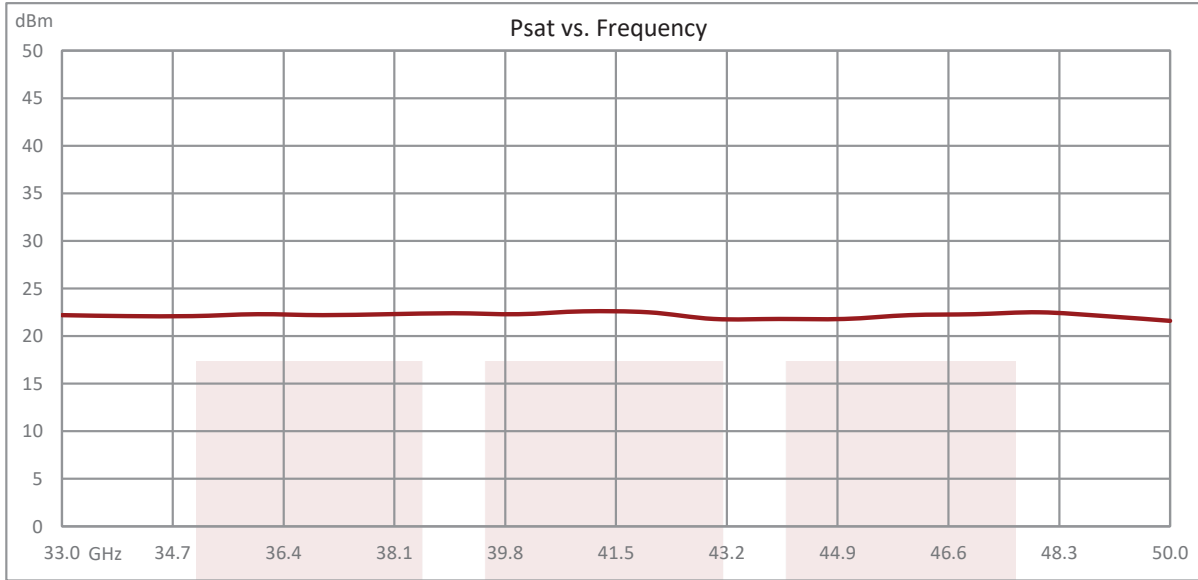
Notes:

Typical Performance Data







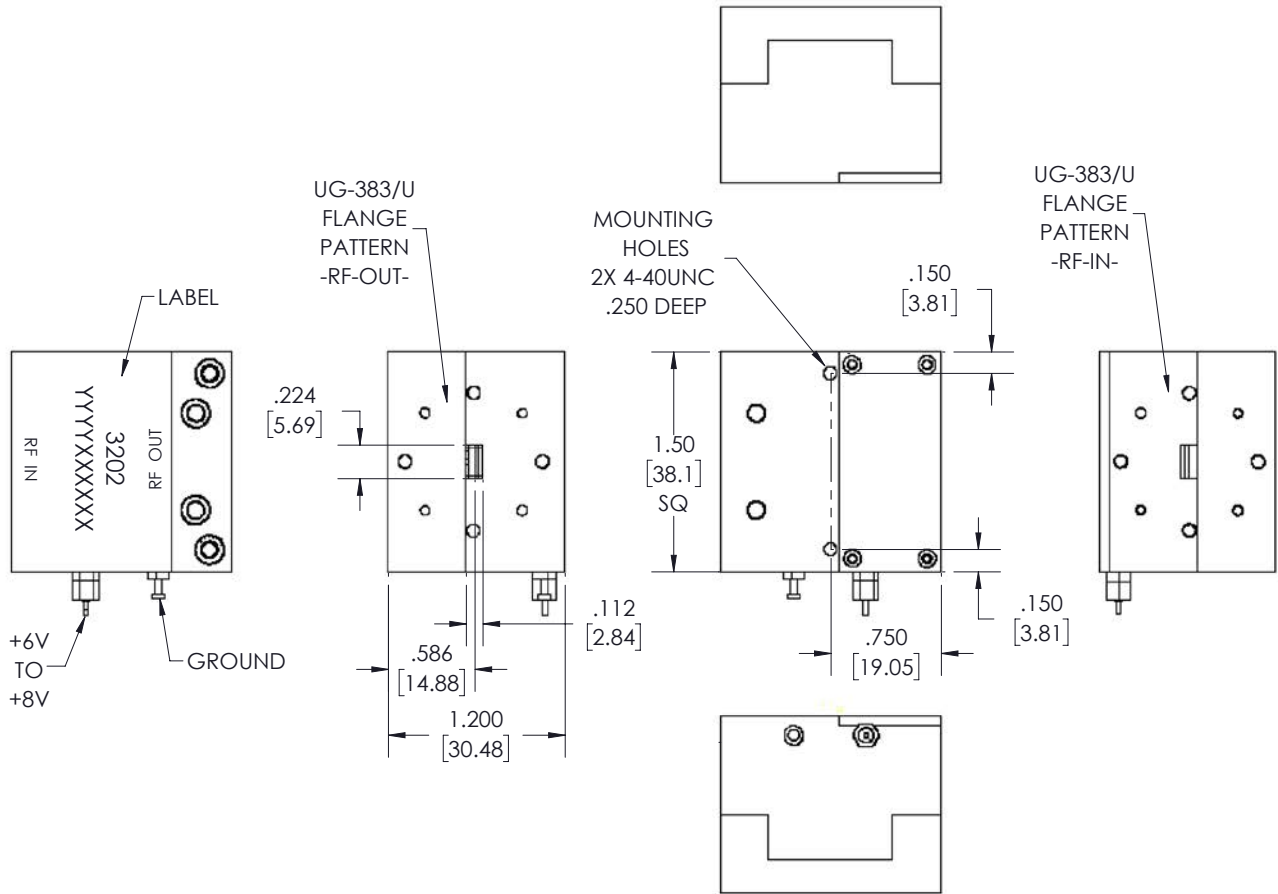


WR-22 Waveguide Low Noise Amplifier, Q Band, 33 GHz to 50 GHz, 32 dB Gain, 20.5 dBm P1dB, UG-383/U Flange from Fairview Microwave is in-stock and available to ship same-day. All of our RF/microwave products are available off-the-shelf from our ISO 9001:2008 certified facilities in Lewisville, Texas. Fairview Microwave is RF on-demand.

For additional information on this product, please click the following link: [WR-22 Waveguide Low Noise Amplifier, Q Band, 33 GHz to 50 GHz, 32 dB Gain, 20.5 dBm P1dB, UG-383/U Flange FMWGA3202](https://www.fairviewmicrowave.com/wr-22-waveguide-low-noise-amplifier-50-ghz-q-band-fmwga3202-p.aspx) URL: <https://www.fairviewmicrowave.com/wr-22-waveguide-low-noise-amplifier-50-ghz-q-band-fmwga3202-p.aspx>

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| REVISIONS | | | |
|-----------|-----------------|------------|----------|
| REV. | DESCRIPTION | DATE | APPROVED |
| A | INITIAL RELEASE | 03/11/2022 | TGALLA |



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TITLE

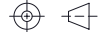
WR-22 Waveguide Low Noise Amplifier, Q Band, 33 GHz to 50 GHz, 32 dB Gain, 20.5 dBm P1dB, UG-383/U Flange

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

TOLERANCES: CABLE LENGTH (L) TOLERANCES:

X = ±.2 [5.08] FRACTIONS ± 1/32 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

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SCALE N/A

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|-----------|--------------------|-----------------------|-----------------------|----------|
| SIZE A | CAGE CODE 3FKR5 | DRAWN BY BPUCHASKI | ITEM NO. FMWGA3202 | REV A |
|-----------|--------------------|-----------------------|-----------------------|----------|