



WR-28 Waveguide Low Noise Amplifier, Ka Band, 26.5 GHz to 40 GHz, 22 dB Gain, 13.5 dBm P1 dB, UG-599/U Flange

Waveguide Low Noise Amplifiers

PEWGA3208

The PEWGA3208 is a Ka Band Waveguide Low Noise Amplifier, operating in the full 26.5 to 40 GHz frequency range. This 50 ohm design is unconditionally stable and exhibits impressive typical performance which includes 22 dB gain, 3.5 dB noise figure, 1.7:1 VSWR, +13.5 dBm output P1dB, and +22 dBm output IP3. Also, high reverse isolation of 45 dB and low spurious suppression of 60 dBc. The amplifier has an integrated voltage regulator with typical DC voltage of +12Vdc and 125 mA, and operates over a full temperature range of -40°C to +75°C. The module is ruggedly built and has WR-28 I/O waveguide ports that match to UG-599/U waveguide flanges.

Features

- WR28 / UG599-U I/O Waveguide Ports
- Full WR28 Operational Bandwidth: 26.5-40 GHz
- High Small Signal Gain: 22 dB typ
- Low Noise Figure: 3.5 dB typ
- Low VSWR: 1.7:1
- Unconditionally Stable Design
- 50 Ohm Input and Output Matched
- Output P1dB: +13.5 dBm
- Output IP3: +22 dBm
- High Reverse Isolation: 45 dB
- Spurious Suppression: 60 dBc
- Operating Temperature: -40°C to +75°C
- Single DC Positive Supply: +12Vdc
- Built-in Voltage Regulator

Applications

- Laboratory Applications
- Military & Space
- General Purpose Amplification
- R&D Labs
- Communication Systems
- General Purpose Wireless
- Military Radio
- Wireless Communication
- Wideband Gain Block
- Radar Systems
- Microwave Radio Systems
- IF Amplifier/RF Driver Amplifier
- Telecom Infrastructure
- Cellular Base Stations
- RF Wideband Front Ends
- Test Instrumentation
- Low Noise Amplifier
- RF Pre-amplification

Electrical Specifications

Description	Minimum	Typical	Maximum	Units
Frequency	26.5		40	GHz
Small Signal Gain	20	22	26	dB
Gain Flatness		±0.75	±1.25	dB
Output at 1dB Compression Point	12	13.5		dBm
Output 3rd Order Intercept Point	20	22		dBm
Noise Figure		2.5	3	dB
Output VSWR		1.7	2.5	
Input VSWR		1.7	2.5	
Reverse Isolation		45		dB
Spurious		-60		dBc
Operating DC Voltage	8	12	15	Volts
Operating DC Current	mA	125	150	mA
Operating Temperature Range	-40		75	°C
Gain Variation vs OTR		1.5		dB

Click the following link (or enter part number in "SEARCH" on website) to obtain additional part information including price, inventory and certifications: [WR-28 Waveguide Low Noise Amplifier, Ka Band, 26.5 GHz to 40 GHz, 22 dB Gain, 13.5 dBm P1 dB, UG-599/U Flange PEWGA3208](#)



WR-28 Waveguide Low Noise Amplifier, Ka Band, 26.5 GHz to 40 GHz, 22 dB Gain, 13.5 dBm P1 dB, UG-599/U Flange

Waveguide Low Noise Amplifiers

Absolute Maximum Rating

Parameter	Rating
DC Voltage	+18V
RF Input Power	+10 dBm
Storage Temperature	-55 to +125°C
Operating Temperature	-40 to 85°C



ESD Sensitive Material,
Transport material in
Approved ESD bags.
Handle only in approved
ESD Workstation.

Mechanical Specifications

Size

Length	1.6 in [40.64 mm]
Width	1.2 in [30.48 mm]
Height	0.75 in [19.05 mm]
Weight	0.131 lbs [59.42 g]
Power Supply Connector: Pin	

Description	Input Port	Output Port
Waveguide	WR-28	WR-28
Flange	UG-599/U	UG-599/U

Environmental Specifications

Temperature

Operating Range	-40 to 75 deg C
Storage Range	-45 to 125 deg C
ESD Sensitive	ESD Sensitive Material, Transport material in Approved ESD bags. Handle only in ESD Workstation.

Click the following link (or enter part number in "SEARCH" on website) to obtain additional part information including price, inventory and certifications: [WR-28 Waveguide Low Noise Amplifier, Ka Band, 26.5 GHz to 40 GHz, 22 dB Gain, 13.5 dBm P1 dB, UG-599/U Flange PEWGA3208](#)



WR-28 Waveguide Low Noise Amplifier, Ka Band, 26.5 GHz to 40 GHz, 22 dB Gain, 13.5 dBm P1 dB, UG-599/U Flange

Waveguide Low Noise Amplifiers

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

Plotted and Other Data

Amplifier Power-up Precautions

- 1.) Confirm that proper ESD precautions and controls are always in place before handling any Amplifier module.
- 2.) Confirm adequate thermal management is in place to effectively dissipate heat away from the Amplifier package. The Amplifier operational baseplate temperature must be within the operational temperature range stated in the Amplifier datasheet. Depending on the design and thermal requirements, using a heatsink with cooling fan is always recommended for safe reliable operation. A heat sink without a cooling fan may also be used. Damage caused from overheating will void the warranty.
- 3.) Confirm adequate system grounding is established. The DC power supply and Amplifier must have a common ground in order to operate properly.
- 4.) Power Amplifiers may require additional DC Current when initially powered-up. Depending on the design, the input current draw could range from an additional 10% to 100% above the maximum rated DC current of the Amplifier. This varies based on product part number.
- 5.) Confirm the DC power supply, if limited, is set to allow for additional start-up current that's rated for the Power Amplifier.
- 6.) Confirm the system is designed and calibrated for 50 ohms. Any impedance mismatch may cause performance issues.
- 7.) Perform a CALIBRATION (if required) with the loads before connecting the Amplifier to the Network Analyzer to ensure proper performance.
- 8.) Use a fixed attenuator between the signal source and input port of the Amplifier to optimize the input VSWR match.
- 9.) Confirm the input power level at the input port of the amplifier does not exceed the maximum rated limit for input power (as stated in the Amplifier datasheet).
 P_{in} for Small Signal Gain = P1dB-SSG-10 dB
 P_{in} for P1dB = P1dB-SSG+1 dB
- 10.) Confirm the Network Analyzer is always connected to the Amplifier first before DC power is applied to the Amplifier.
- 11.) As long as the input and output ports of the amplifier are connected to a 50Ohm load and RF signal power is applied, the Amplifier can be powered up with DC voltage.
- 12.) Confirm the Amplifier output load is matched for a 50 Ohm impedance and will not exceed the maximum rated VSWR or Return Loss limit for the Amplifier. Exceeding the maximum rated VSWR or Return Loss limit will result in reflected signal power that could damage the Amplifier and void the warranty.
- 13.) **Power Amplifier connected to an Antenna for signal transmission** - It's strongly recommended to use a high power fixed attenuator pad or an Isolator between the output port of the Amplifier and input port to the antenna. Any reflected signal power due to impedance mismatch will likely damage the Amplifier and void the warranty.
- 14.) The attenuator or isolator used at the output port of the Amplifier must be rated to handle the output power level and operational frequency band of the amplifier.

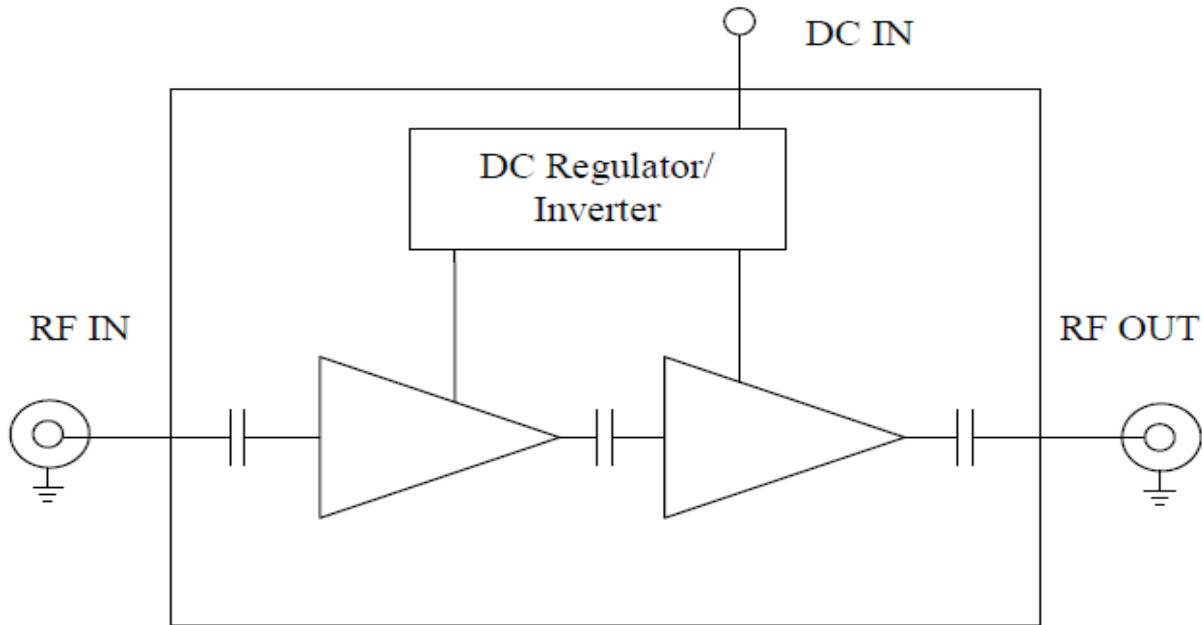
Click the following link (or enter part number in "SEARCH" on website) to obtain additional part information including price, inventory and certifications: [WR-28 Waveguide Low Noise Amplifier, Ka Band, 26.5 GHz to 40 GHz, 22 dB Gain, 13.5 dBm P1 dB, UG-599/U Flange PEWGA3208](#)



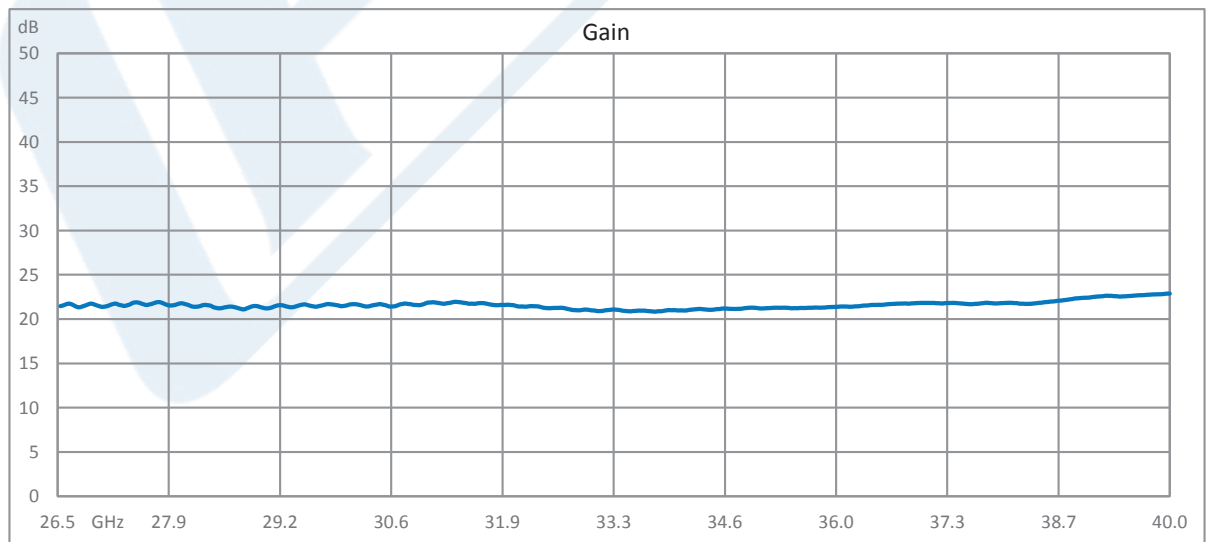
WR-28 Waveguide Low Noise Amplifier, Ka Band, 26.5 GHz to 40 GHz, 22 dB Gain, 13.5 dBm P1 dB, UG-599/U Flange

Waveguide Low Noise Amplifiers

Functional Block Diagram



Typical Performance Data

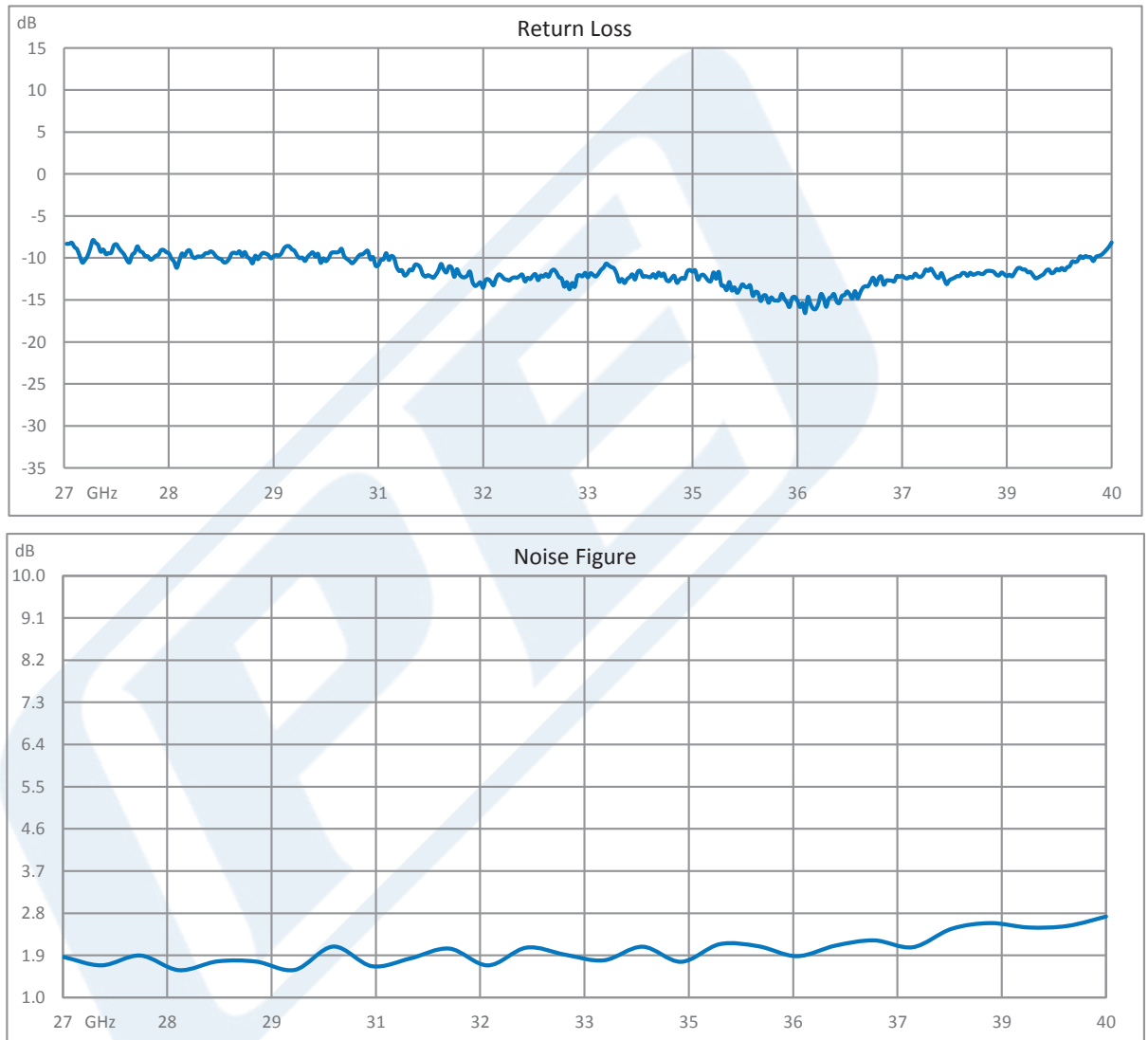


Click the following link (or enter part number in "SEARCH" on website) to obtain additional part information including price, inventory and certifications: [WR-28 Waveguide Low Noise Amplifier, Ka Band, 26.5 GHz to 40 GHz, 22 dB Gain, 13.5 dBm P1 dB, UG-599/U Flange PEWGA3208](#)



WR-28 Waveguide Low Noise Amplifier, Ka Band, 26.5 GHz to 40 GHz, 22 dB Gain, 13.5 dBm P1 dB, UG-599/U Flange

Waveguide Low Noise Amplifiers



Click the following link (or enter part number in "SEARCH" on website) to obtain additional part information including price, inventory and certifications: [WR-28 Waveguide Low Noise Amplifier, Ka Band, 26.5 GHz to 40 GHz, 22 dB Gain, 13.5 dBm P1 dB, UG-599/U Flange PEWGA3208](#)



WR-28 Waveguide Low Noise Amplifier, Ka Band, 26.5 GHz to 40 GHz, 22 dB Gain, 13.5 dBm P1 dB, UG-599/U Flange

Waveguide Low Noise Amplifiers

WR-28 Waveguide Low Noise Amplifier, Ka Band, 26.5 GHz to 40 GHz, 22 dB Gain, 13.5 dBm P1 dB, UG-599/U Flange 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.

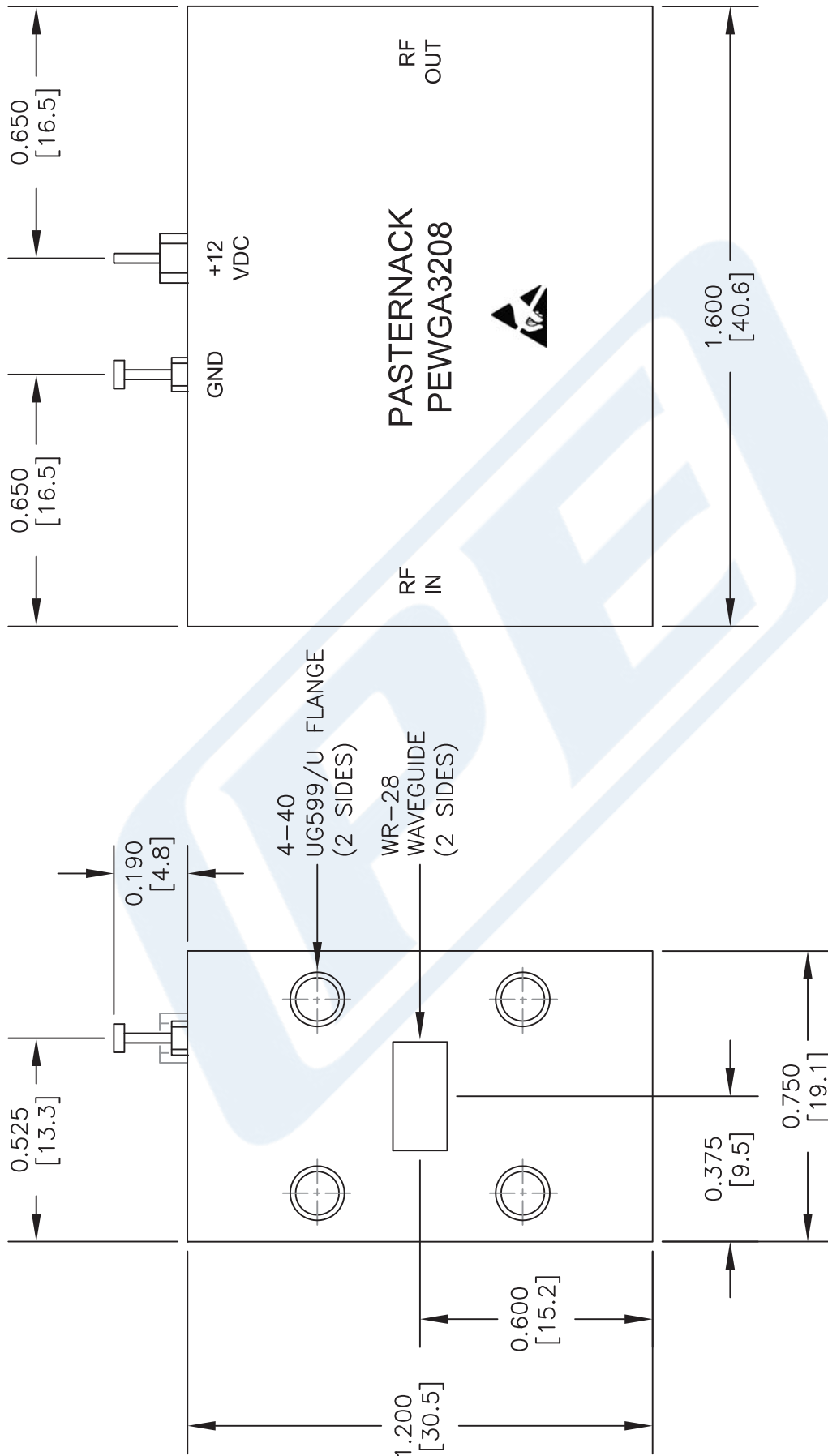
Click the following link (or enter part number in "SEARCH" on website) to obtain additional part information including price, inventory and certifications: [WR-28 Waveguide Low Noise Amplifier, Ka Band, 26.5 GHz to 40 GHz, 22 dB Gain, 13.5 dBm P1 dB, UG-599/U Flange PEWGA3208](https://www.pasternack.com/wr-28-waveguide-low-noise-amplifier-ka-band-40-ghz-22-dB-gain-13.5-dBm-p1-dB-UG-599/U-flange-PEWGA3208)

URL: <https://www.pasternack.com/wr-28-waveguide-low-noise-amplifier-ka-band-40-ghz-pewga3208-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.

PEWGA3208 CAD Drawing

WR-28 Waveguide Low Noise Amplifier, Ka Band, 26.5 GHz to 40 GHz, 22 dB Gain, 13.5 dBm P1 dB, UG-599/U Flange



DWG TITLE

PEWGA3208

FSCM NO. 53919

NOTES:
 1. UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE NOMINAL.
 2. ALL SPECIFICATIONS ARE SUBJECT TO CHANGE WITHOUT NOTICE AT ANY TIME.
 3. DIMENSIONS ARE IN INCHES [mm].

CAD FILE 071816

SCALE N/A

SIZE A

2233



Pasternack Enterprises, Inc.
 P.O. Box 16759 | Irvine | CA | 92623
 Phone: (949) 261-1920 | Fax: (949) 261-7451
 Website: www.pasternack.com | E-Mail: sales@pasternack.com