



WR-28 Waveguide 2x Active Frequency Multiplier,  
Ka-Band, 26.5 GHz to 40 GHz Output Frequency,  
+22 dBm Pout, Input SMA, UG-599/U Flange

## Waveguide Frequency Multipliers Technical Data

PE88X2021

### Features

- WR-28 Waveguide 2x Active Frequency Multiplier (2x)
- Output Frequency 26.5 GHz to 40 GHz, Ka Band
- Input Frequency 13.25 GHz to 20 GHz
- Pout +22 dBm typ
- DC Bias +6V @ 350 mA typ
- Max RF Input Power (CW) +10 dBm
- 50 Ohm Design
- Input RF Connector SMA Female
- Output Waveguide Flange UG-599/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 Electronic Systems
- Military & Commercial Communications
- Research & Development

### Description

The PE88X2021 is a WR-28 Waveguide 2x Active Frequency Multiplier that covers the full Ka frequency band from 26.5 GHz to 40 GHz with an input frequency band from 13.25 GHz to 20 GHz. Typical performance for the 50 ohm design includes +4 dBm input power, +22 dBm output power, and -15 dBc harmonics. Maximum input power (CW) is +10 dBm, and DC bias is +6 Vdc at 350 mA typ. The rugged and small size aluminum package design is gold plated and supports an SMA female connector for the RF input port, and a UG-599/U waveguide flange pattern at the RF output port. 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@ +25°C

Description	Minimum	Typical	Maximum	Units
Input Frequency Range	13.25		20	GHz
Output Frequency Range	26.5		40	GHz
Input Power	0	4	10	dBm
Output Power		22		dBm
DC Voltage	5	6	8	Volts
DC Current		350		mA
Input VSWR		2.5:1		
Harmonics		-15		dBc

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 2x Active Frequency Multiplier, Ka-Band, 26.5 GHz to 40 GHz Output Frequency, +22 dBm Pout, Input SMA, UG-599/U Flange PE88X2021](#)



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### Biasing Up and Power Down Procedure

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

#### Electrical Specification Notes:

- 1.) DC Supply must be able to source at least 0.5A DC at startup
- 2.) Open and short circuit loads are not recommended at the multiplier output.
- 3.) Ensure proper 50 Ohm load before turning the multiplier "ON".
- 4.) Do not put any foreign objects inside the waveguide. The warranty will be voided.

### Mechanical Specifications

#### Size

Length	1.5 in [38.1 mm]
Width	1.5 in [38.1 mm]
Height	1 in [25.4 mm]
Weight	0.2 lbs [90.72 g]

#### Body Material and Plating

Body Material and Plating	Aluminum
Finish	GLD
Input Port	SMA Female
Output Port	WR-28 Waveguide with UG-599/U Flange
DC Bias	Feed-thru Pin

### 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:

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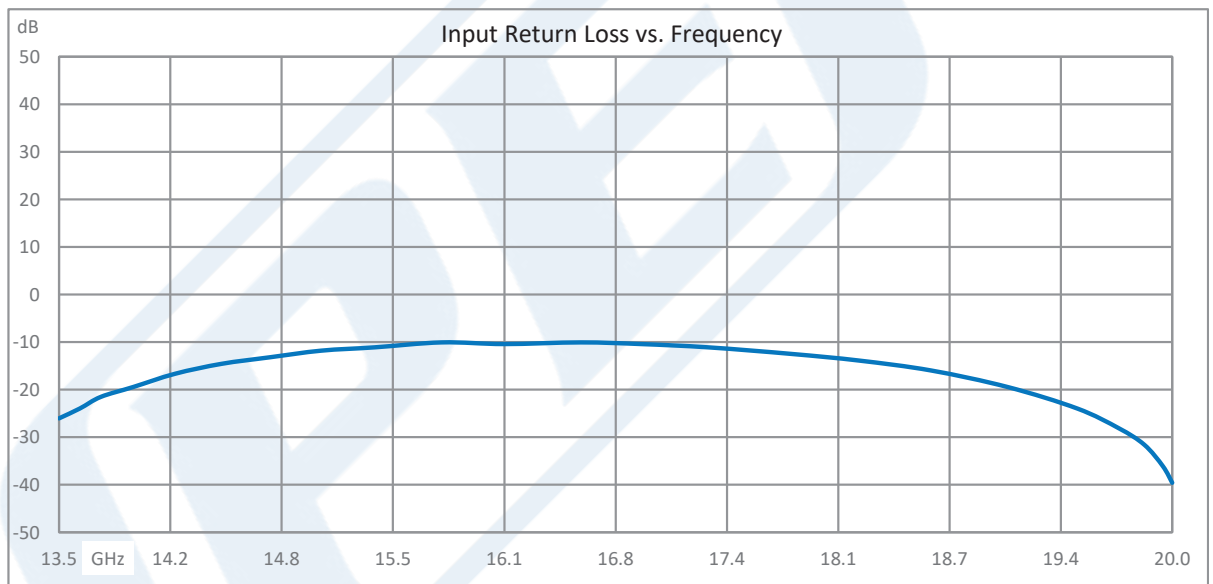
Waveguide Frequency Multipliers Technical Data

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**Absolute Maximum Rating**

Parameter	Rating
Operating Temperature	-40°C to +80°C
Storage Temperature	-40°C to +100°C
Total Power Dissipation	4.8W
Input Power (CW)	+10dBm
DC Operating Voltage	+12V

**Typical Performance Data**



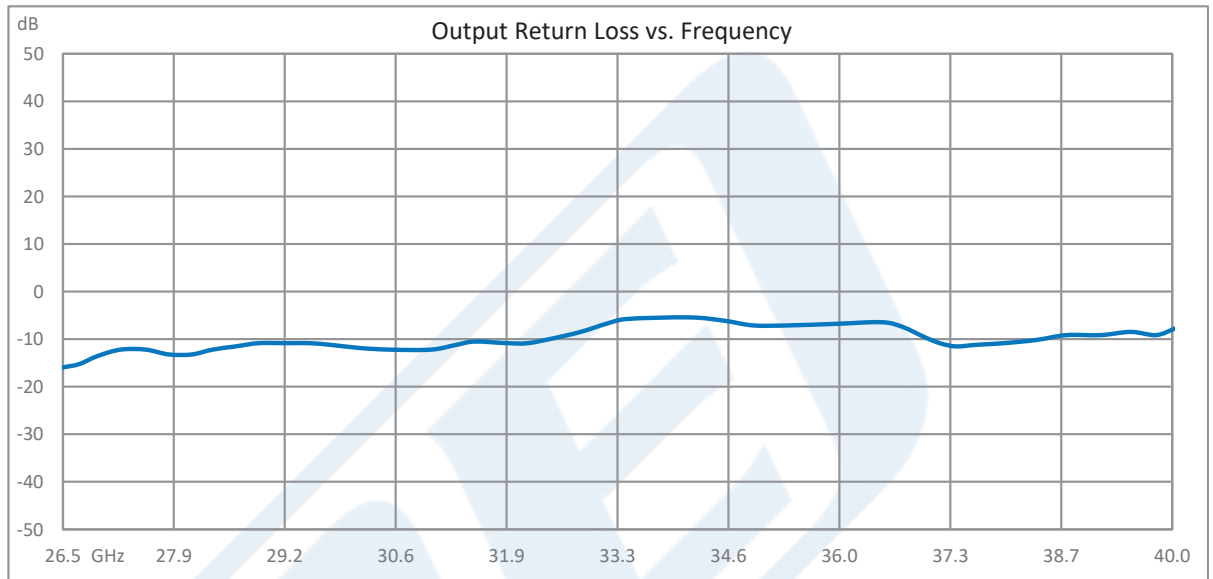
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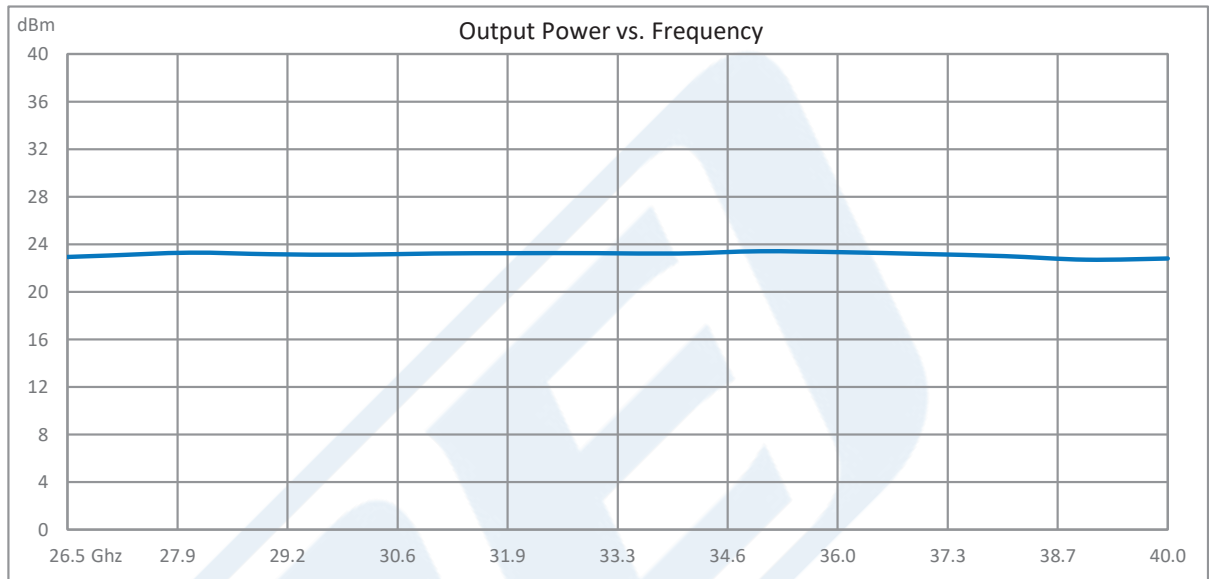
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WR-28 Waveguide 2x Active Frequency Multiplier, Ka-Band, 26.5 GHz to 40 GHz Output Frequency, +22 dBm Pout, Input SMA, UG-599/U Flange from Pasternack Enterprises has same day shipment for domestic and International orders. Our RF, microwave and millimeter 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 2x Active Frequency Multiplier, Ka-Band, 26.5 GHz to 40 GHz Output Frequency, +22 dBm Pout, Input SMA, UG-599/U Flange PE88X2021](https://www.pasternack.com/wr-28-waveguide-2x-frequency-multiplier-module-ka-band-26.5-ghz-to-40-ghz-output-frequency-+22-dbm-pout-input-sma-ug-599-u-flange-pe88x2021-p.aspx)

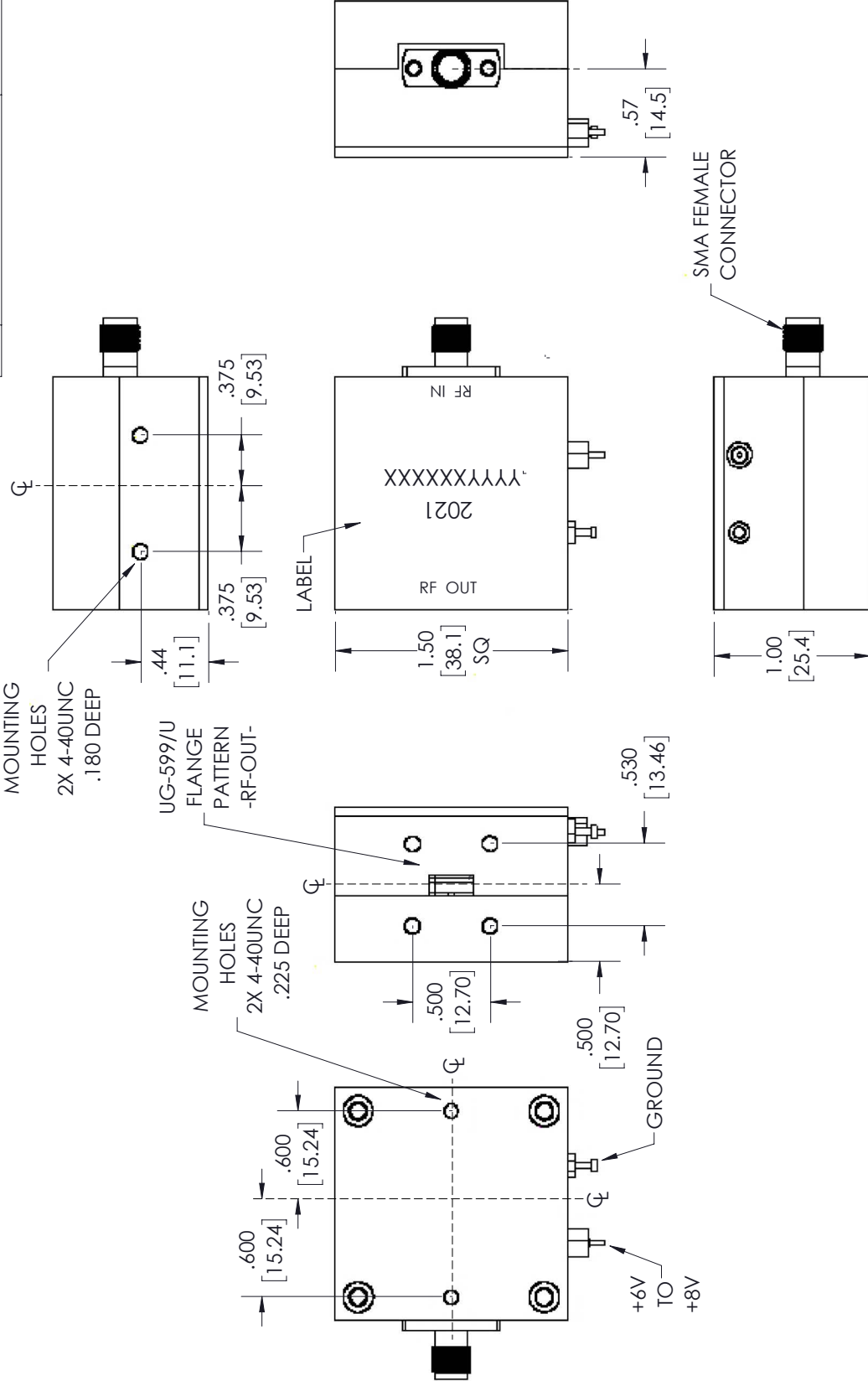
URL: <https://www.pasternack.com/wr-28-waveguide-2x-frequency-multiplier-module-ka-band-26.5-ghz-to-40-ghz-output-frequency-+20-dbm-pout-input-sma-ug-599-u-flange-pe88x2021-p.aspx>

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# PE88X2021 CAD Drawing

WR-28 Waveguide 2x Active Frequency Multiplier, Ka-Band, 26.5 GHz to 40 GHz Output Frequency, +22 dBm Pout, Input SMA, UG-599/U Flange

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



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

**TOLERANCES:**

.X = ±.2	[5.08]	FRACTIONS
.XX = ±.02	[.51]	± 1/32
.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%L / -0	

ALL DIMENSIONS SHOWN ARE FOR REFERENCE ONLY.

**THIRD-ANGLE PROJECTION**

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SHEET 1 OF 1

SCALE N/A

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A	53919	BPUCHASKI	PE88X2021
REV			A

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