

2x Active Frequency Multiplier, 23 GHz to 33 GHz Output Frequency, 12.0 dB Conversion Gain, 2.92mm Output

Frequency Multipliers Technical Data Sheet

PE88X2028

Features

- 2x Active Frequency Multiplier
- 11.5 GHz to 16.5 GHz Input Frequency
- 23 GHz to 33 GHz Output Frequency
- Conversion Gain 12 dB typ
- Fundamental Isolation 20 dB typ
- RF Input Drive Level +3 dBm
- Max RF Input Power +13 dBm
- DC Bias +12Vdc @ 110 mA
- SMA Female Input and 2.92mm Female Output Connectors
- -40°C to +85°C Operating Temperature
- RoHS & REACH Compliant
- 50 Ohm Design
- Rugged Design meets MIL-STD-202 Test Conditions

Applications

- Aerospace & Defense
- Test & Measurement
- Microwave Radio Systems
- Military & Commercial Communication Systems
- Research & Development
- SATCOM
- Wireless Communications

Description

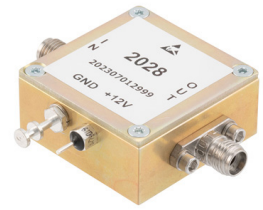
The PE88X2028 is an active Frequency Multiplier (2x) module that covers a broad output frequency bandwidth from 23 GHz to 33 GHz. Typical performance includes 12 dB conversion gain, 20 dB fundamental Isolation, with an RF input drive level of +3 dBm. DC bias is +12Vdc with 110 mA DC current. Maximum RF input power is +13 dBm with an operational temperature range of -40°C to +85°C. The rugged and compact package assembly supports an input SMA female connector and output 2.92mm female connector. And for highly reliable operation, the model is designed to meet a variety of MIL-STD-202 test conditions including shock, vibration, altitude, and humidity.

Electrical Specifications (TA= 25°C, VDC1 = 12 Vdc, IDC1 = 110 mA)

Description	Minimum	Typical	Maximum	Units
Input Frequency Range	11.5		16.5	GHz
Output Frequency Range	23		33	GHz
Impedance		50		Ohms
Input Power (CW)	+0	+3	+6	dBm
Output Power (Fin=14GHz/Fout=28GHz)	+10	+14		dBm
Conversion Gain (Pin = +3 dBm)	8	12		dB
Fundamental Isolation (F0)*(Fin=14GHz/Fout=14GHz)	15	20		dB
3F0 Isolation*(Fin=14GHz/Fout=42GHz)	20	25		dB
Phase Noise @100kHz Offset		-132		dBc/Hz
Input VSWR(Fin=14GHz)		1.3:1	2:1	
Output VSWR(Fout=28GHz)		1.6:1	2.2:1	
Operating DC Voltage 1	9	12	15	V
Operating DC Current 1		110	125	mA

*Isolation with respect to desired frequency output power level at 14GHz

Click the following link (or enter part number in "SEARCH" on website) to obtain additional part information including price, inventory and certifications: [2x Active Frequency Multiplier, 23 GHz to 33 GHz Output Frequency, 12.0 dB Conversion Gain, SMA PE88X2028](#)



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Mechanical Specifications

Size

Length	1.25 in [31.75 mm]
Width	1.25 in [31.75 mm]
Height	0.563 in [14.3 mm]
Weight	0.085 lbs [38.56 g]
Package Type	Drop-In
Input Connector	SMA Female
Output Connector	SMA Female

Environmental Specifications

Temperature

Operating Range	-40 to +85 deg C
Storage Range	-55 to +105 deg C

Humidity

Shock

Vibration

Altitude

MIL-STD-202, Method 103B, Condition B
MIL-STD-202F, Method 213B, Condition B
MIL-STD-202F, Method 204D, Condition B
MIL-STD-202F, Method 105C, Condition B

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

Plotted and Other Data

Notes:

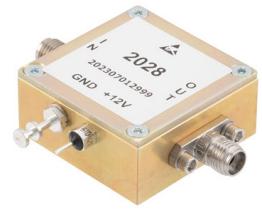
Absolute Maximum Rating

Parameter	Absolute Maximum
RF Input Power	+13dBm
DC Supply Voltage	+25V
Operating Temperature	-40 °C to +85 °C
Storage Temperature	-55 °C to +125 °C



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

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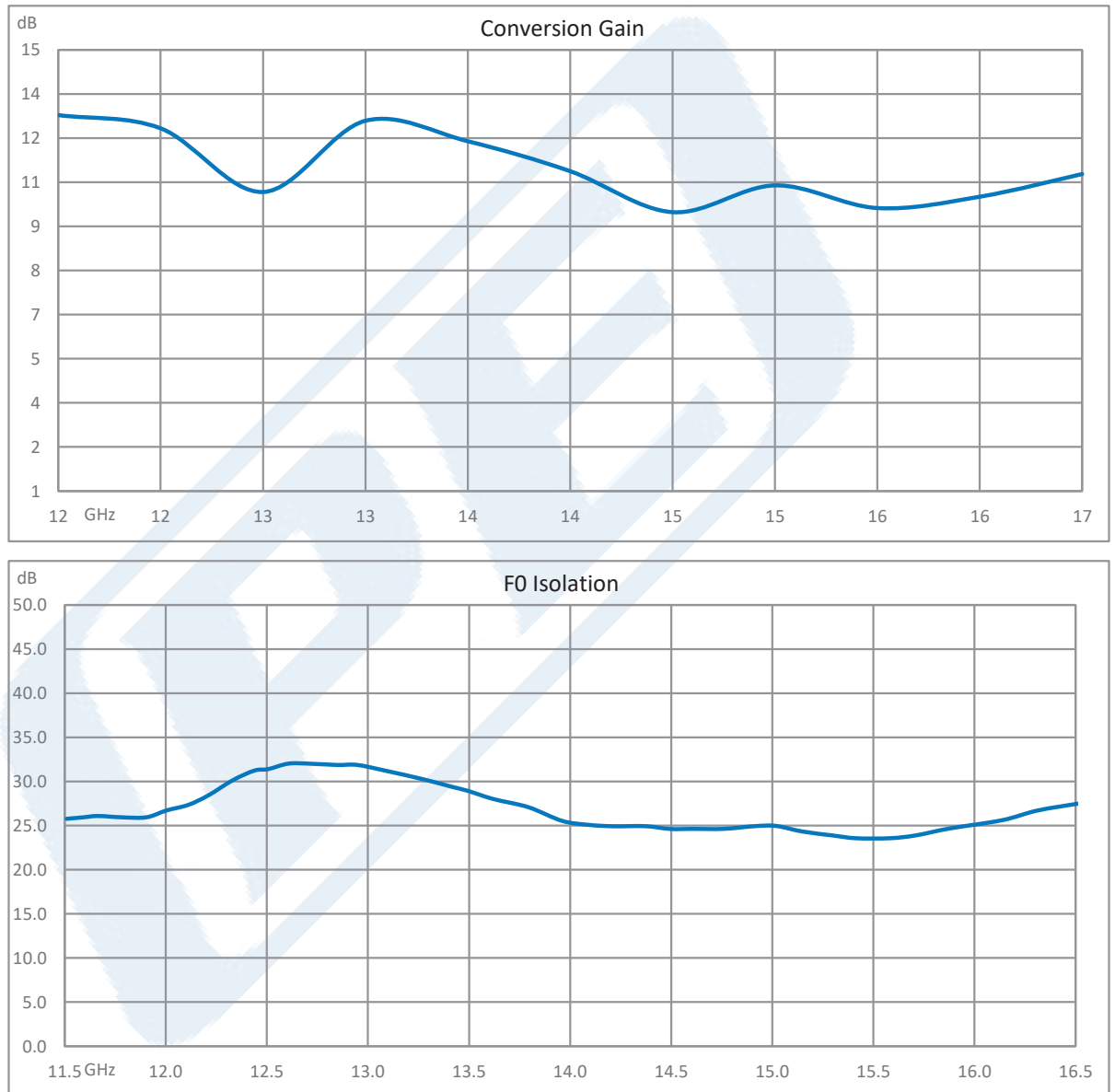


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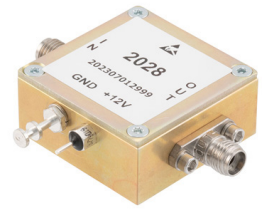
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Typical Performance Data



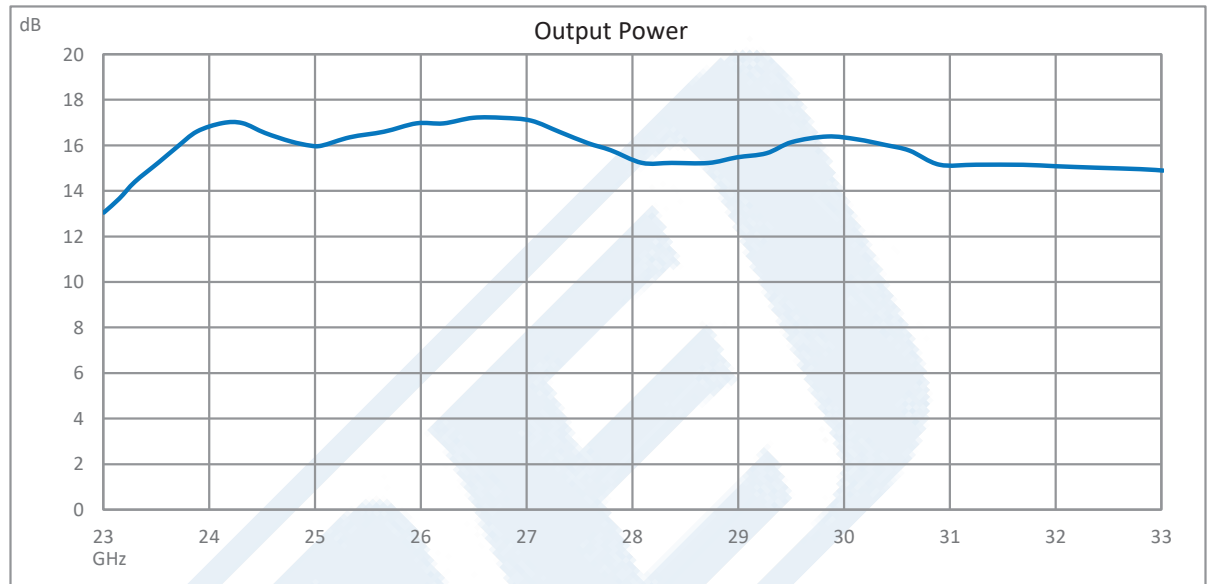
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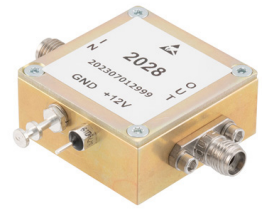
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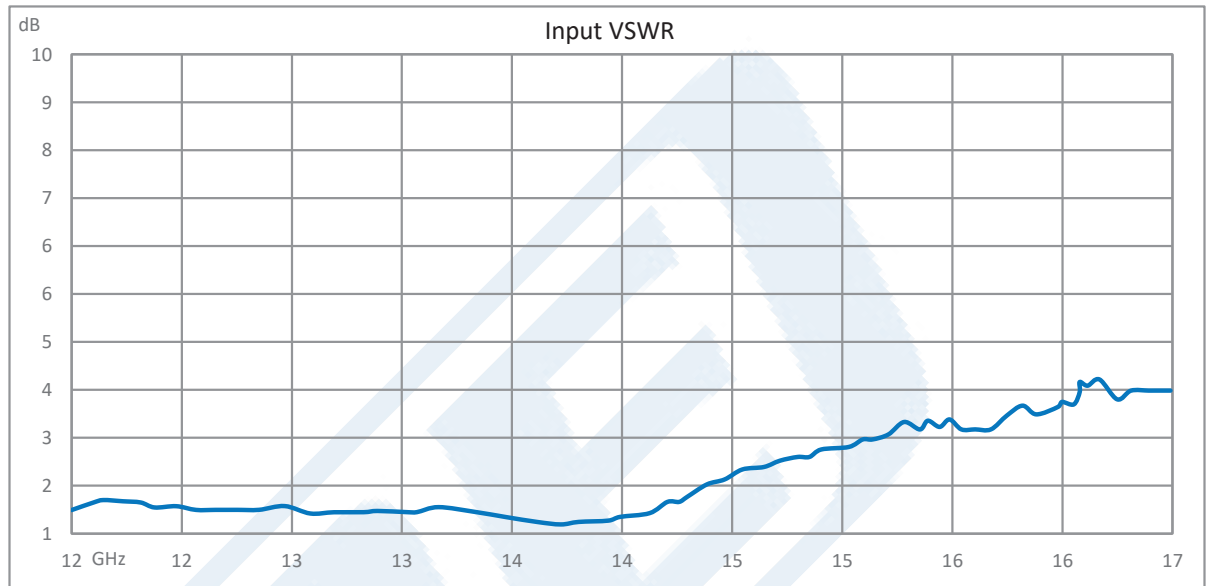
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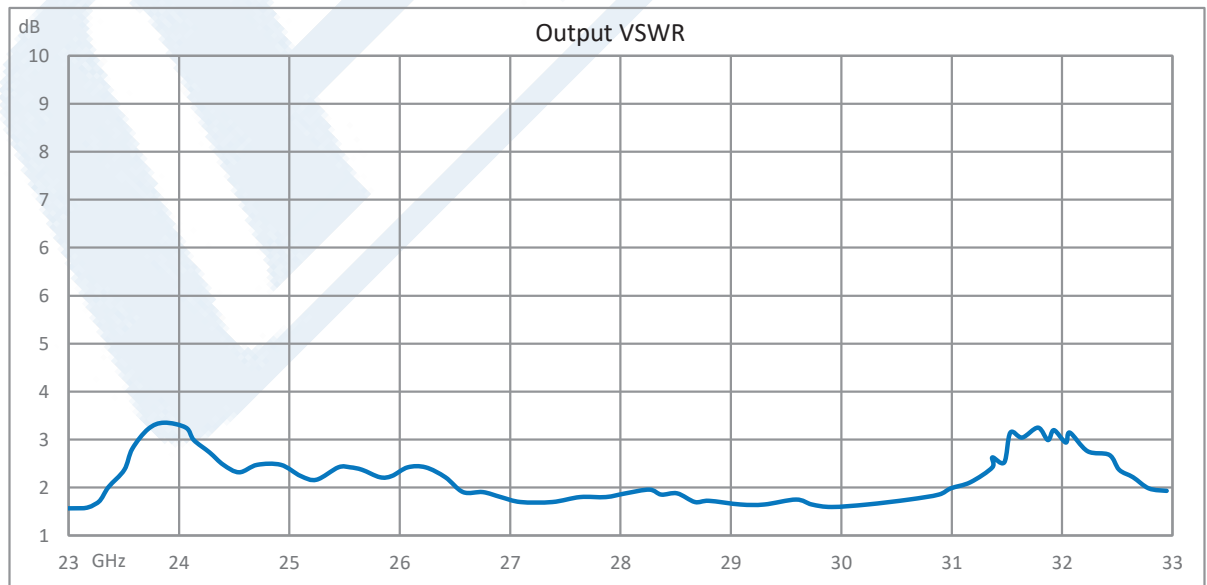
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2x Active Frequency Multiplier, 23 GHz to 33 GHz Output Frequency, 12.0 dB Conversion Gain, 2.92mm Output from Pasternack Enterprises has same day shipment for domestic and International orders. Our RF, microwave and millimeter wave products maintain a 99.4% availability and are part of the broadest selection in the industry.



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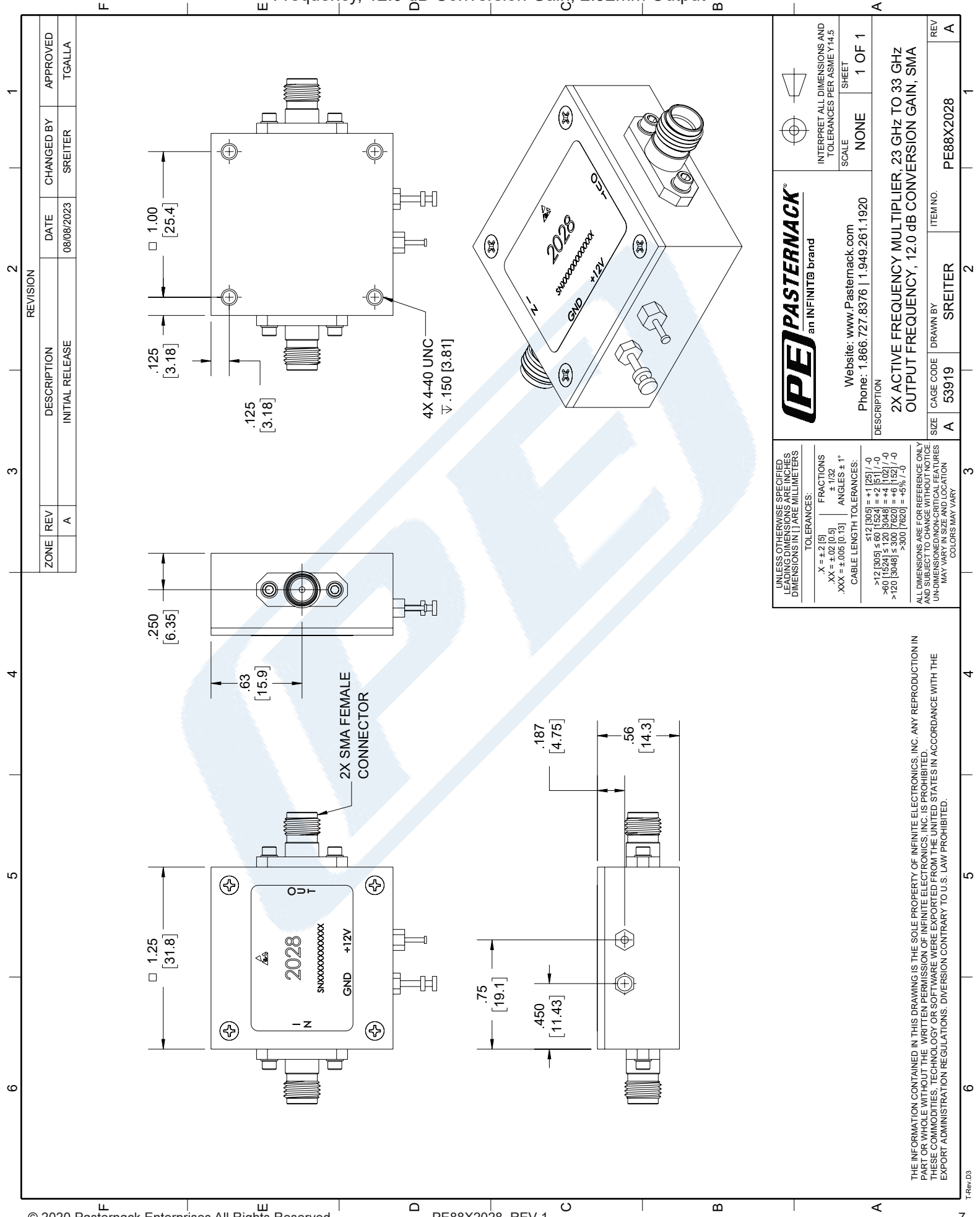
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PE88X2028 CAD Drawing

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INTERPRET ALL DIMENSIONS AND TOLERANCES PER ASME Y14.5		SCALE: NONE	
SHEET: 1 OF 1		DESCRIPTION: 2X ACTIVE FREQUENCY MULTIPLIER, 23 GHz TO 33 GHz OUTPUT FREQUENCY, 12.0 dB CONVERSION GAIN, SMA	
SIZE: A	CAGE CODE: 53919	DRAWN BY: SREITER	ITEM NO.: PE88X2028
UNLESS OTHERWISE SPECIFIED, LEAD DIMENSIONS ARE IN INCHES. DIMENSIONS IN [] ARE MILLIMETERS.		ALL DIMENSIONS ARE FOR REFERENCE ONLY AND SUBJECT TO CHANGE WITHOUT NOTICE. UNLESS OTHERWISE SPECIFIED, DIMENSIONS MAY VARY IN SIZE AND LOCATION. COLORS MAY VARY.	
TOLERANCES: .X = ±.2 [5] .XX = ±.02 [0.5] .XXX = ±.005 [0.13]		FRACTIONS: ± 1/32 ANGLES: ± 1° CABLE LENGTH TOLERANCES: ≤12 [305] = ±.1 [25] / -0 >12 [305] ≤120 [3048] = ±.1 [25] / -0 >120 [3048] ≤300 [7620] = ±.1 [25] / -0 >300 [7620] = ±.1 [25] / -0	