



2x Frequency Multiplier, 4000 MHz to 8000 MHz
Output Frequency, 14 dB Conversion Loss, SMA

Frequency Multipliers Technical Data Sheet

PE88X2013

Features

- Passive Frequency Doubler (x2)
- 2000 to 4000 MHz input Frequency
- 4000 to 8000 MHz output frequency
- Conversion loss 14 dB typ
- Fundamental Isolation 25 dB typ
- RF Input Drive Level: 12 to 18 dBm
- Max RF Input Power: +27 dBm
- SMA Female Connectors
- -40° C to +85° C Operating Temperature
- 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 PE88X2013 is a passive Frequency Doubler (x2) module that covers a broad output frequency bandwidth from 4000 MHz to 8000 MHz. Typical performance includes 14 dB conversion loss, 25 dB fundamental Isolation, with an RF input drive level of 12 to 18 dBm. The design does not require any DC voltage to operate. Maximum RF input power is +27 dBm with an operational temperature range of -40° C to +85° C. The rugged and compact package assembly supports SMA female connectors. 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, Pin = +15 dBm)

Description	Minimum	Typical	Maximum	Units
Input Frequency Range	2,000		4,000	MHz
Output Frequency Range	4,000		8,000	MHz
Impedance		50		Ohms
Input Power (CW)	+12		+18	dBm
Conversion Loss		14	18	dB
Fundamental Isolation (F0)*	15	25		dB
3F0 Isolation*	20	30		dB
Input VSWR(S11 @ 3 GHz)		2.2:1	3:1	
Output VSWR(S22 @ 6 GHz)		1.5:1	2.5:1	

*Isolation with respect to output power level of 2F0

Click the following link (or enter part number in "SEARCH" on website) to obtain additional part information including price, inventory and certifications: [2x Frequency Multiplier, 4000 MHz to 8000 MHz Output Frequency, 14 dB Conversion Loss, SMA PE88X2013](#)



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Mechanical Specifications

Size

Length	1.25 in [31.75 mm]
Width	0.563 in [14.3 mm]
Height	1.25 in [31.75 mm]
Weight	0.003 lbs [1.36 g]
Input Connector	SMA Female
Output Connector	SMA Female

Environmental Specifications

Temperature

Operating Range	-40 to +85 deg C
Storage Range	-65 to +150 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

Absolute Maximum Ratings

Parameter	Maximum
RF Input Power	+27dB
Operating Temperature	-40 °C to +85 °
Storage Temperature	-65 °C to +150 °

Click the following link (or enter part number in "SEARCH" on website) to obtain additional part information including price, inventory and certifications: [2x Frequency Multiplier, 4000 MHz to 8000 MHz Output Frequency, 14 dB Conversion Loss, SMA PE88X2013](#)

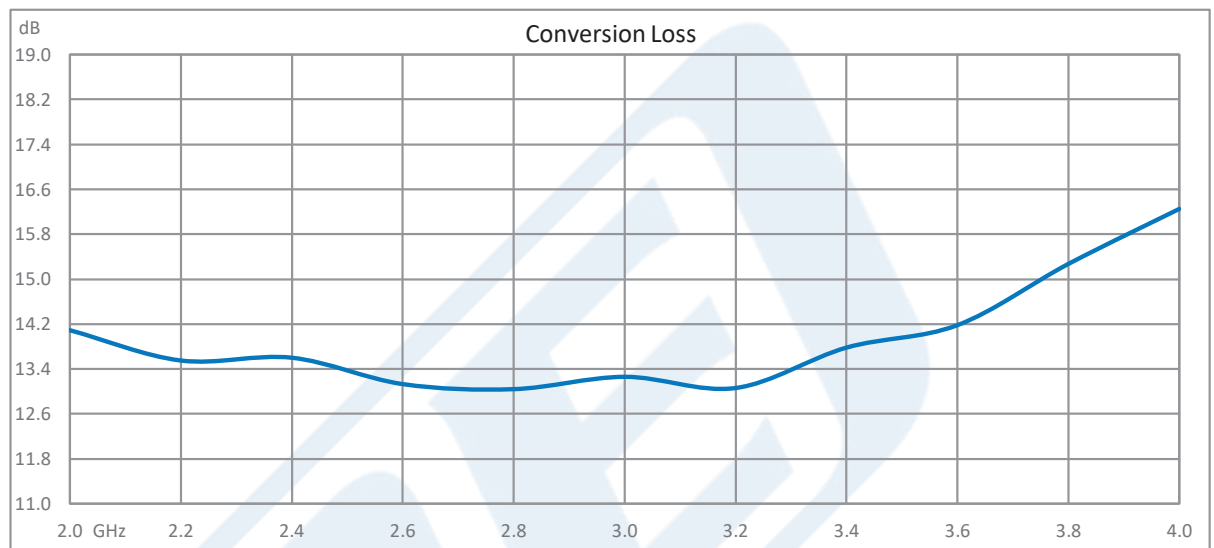


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Typical Performance Data



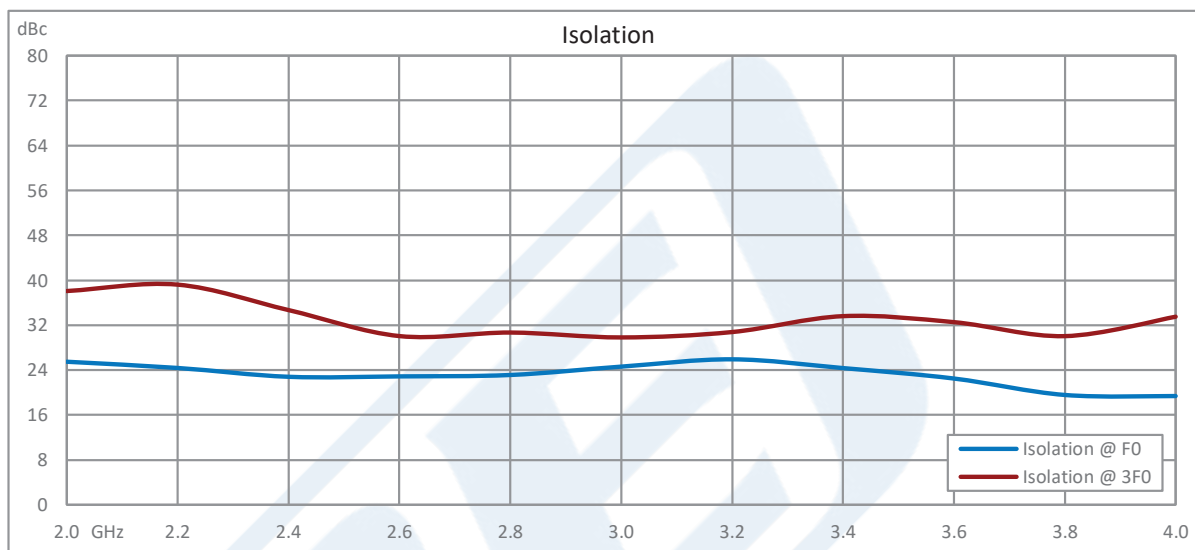
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2x Frequency Multiplier, 4000 MHz to 8000 MHz Output Frequency, 14 dB Conversion Loss, SMA from Pasternack Enterprises has same day shipment for domestic and International orders. Our RF, microwave and millimeter wave products maintain a 99.4% availability and are part of the broadest selection in the industry.

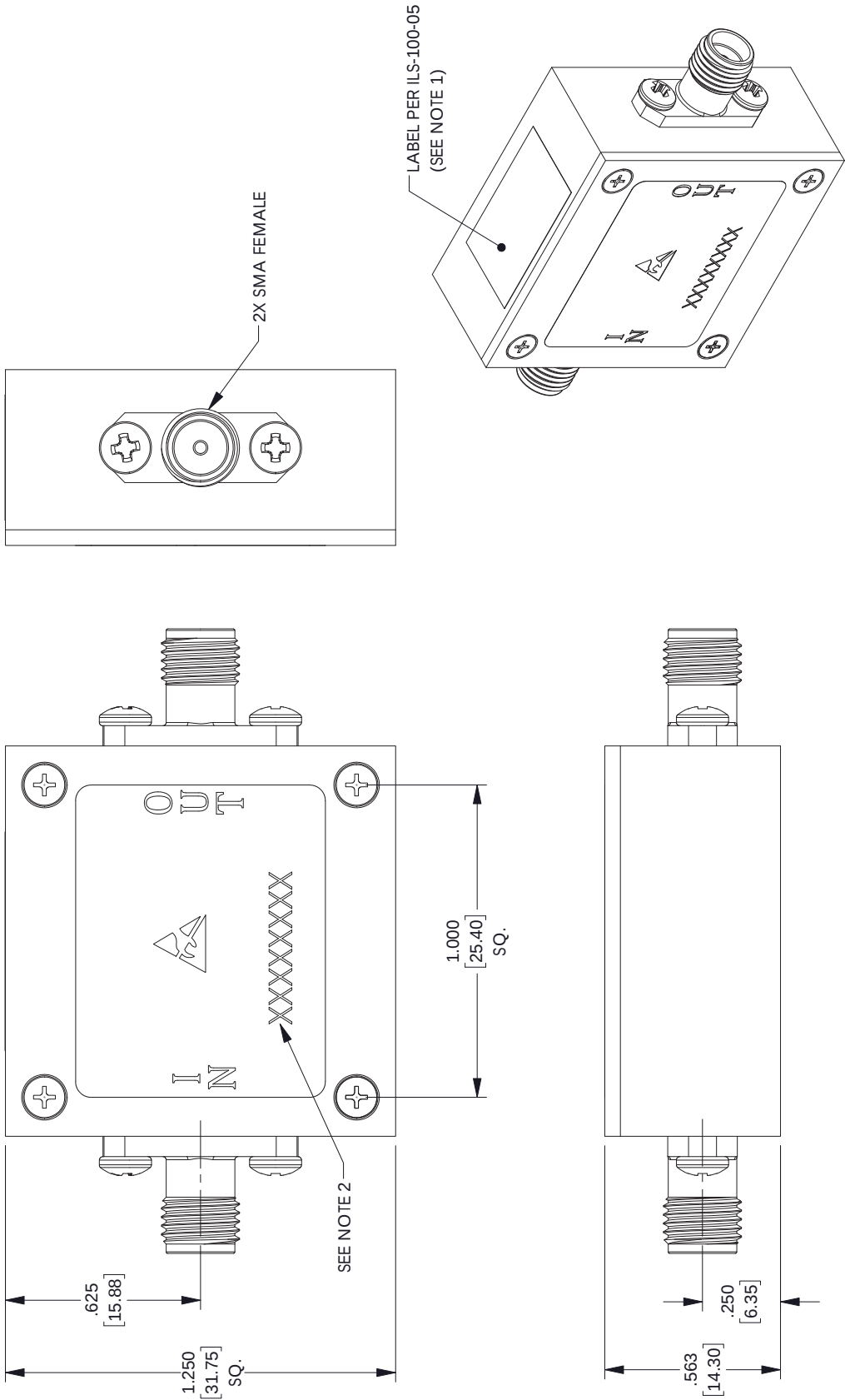
Click the following link (or enter part number in "SEARCH" on website) to obtain additional part information including price, inventory and certifications: [2x Frequency Multiplier, 4000 MHz to 8000 MHz Output Frequency, 14 dB Conversion Loss, SMA PE88X2013](https://www.pasternack.com/2x-frequency-multiplier-8-ghz-sma-14-db-pe88x2013-p.aspx)

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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.

PE88X2013 CAD Drawing
2x Frequency Multiplier, 4000 MHz to 8000 MHz Output
Frequency, 14 dB Conversion Loss, SMA

REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
A	INITIAL RELEASE	03-24-2021	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

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SHEET 1 OF 1

SCALE N/A

SIZE A

CAGE CODE 53919

DRAWN BY DFRISIELLO

ITEM NO. PE88X2013

REV A

- NOTES:
1. LABEL PER ILS-100-05. FOR INTERNAL REFERENCE ONLY.
LABEL LOCATION SHOULD BE SAME AS SHOWN.
 2. SERIAL NUMBER AND DATE CODE ARE COMBINED. EX: 2020082800001.

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