



2x Frequency Multiplier Module, 32 GHz to 46 GHz Output Frequency, +8 dBm Output Power, Field Replaceable 2.92mm

Frequency Multipliers Technical Data Sheet

PE88X2002

Features

- X2 Frequency Multiplier
- Wide Frequency Band
- GaAs HBT MMIC Technology
- Low Phase Noise -130 dBc/Hz @ 100 kHz offset
- Output Power +13 dBm
- Single +5V Bias Voltage
- Integrated DC Blocking Capacitors
- Hermetically Sealed Module
- Mil Spec Compliant
- Field Replaceable 2.92mm Connectors
- -55°C to +85°C Operating Temperature

Applications

- Electronic Warfare
- Electronic Countermeasures
- Point-To-Point Radio
- Point-To-Multipoint Radio
- VSAT Radios
- Fiber Optic
- Space Systems
- Test Instrumentation
- Telecom Infrastructure

Description

The PE88X2002 is a low noise X2 Active Broadband Frequency Multiplier Module that covers a wide output frequency bandwidth from 32 GHz to 46 GHz. The design utilizes advanced GaAs HBT MMIC semiconductor technology that produces low additive SSB phase noise performance with a typical level of -130 dBc/Hz at 100 kHz offset. Additional typical performance includes an output power level of +13 dBm with an input signal of +3 dBm. Input/output ports are matched for 50 ohms and are DC blocked. The design requires a single +5V DC supply. The compact drop-in package is RoHS compliant and hermetically sealed with field replaceable 2.92mm connectors. And for added confidence, this rugged package assembly is designed to meet MIL-STD-883 test conditions for Hermeticity and Temperature Cycle.

Electrical Specifications (TA= 25°C)

Description	Minimum	Typical	Maximum	Units
Input Frequency Range	16		23	GHz
Output Frequency Range	32		46	GHz
Impedance		50		Ohms
Output Power	+8	+13		dBm
Spurious Suppression				dBc

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Performance by Frequency

Description	Min.	Typ.	Max.	Units
Frequency Range, Input		16 - 23		GHz
Frequency Range, Output		32 - 46		GHz
Output Power	+8	+13		dBm
Fo Isolation (With Respect To Output Level)		30		dBc
Input Return Loss		12		dB
Output Return Loss		8		dB
SSB Phase Noise (100 KHz Offset)		-130		dBc/Hz
Supply Current		70		mA

Mechanical Specifications

Size

Length	1.086 in [27.58 mm]
Width	0.85 in [21.59 mm]
Height	0.28 in [7.11 mm]
Weight	0.088 lbs [39.92 g]
Input Connector	Field Replaceable 2.92mm Female
Output Connector	Field Replaceable 2.92mm Female

Environmental Specifications

Temperature

Operating Range	-55 to +85 deg C
Storage Range	-65 to +150 deg C

ESD Sensitivity

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



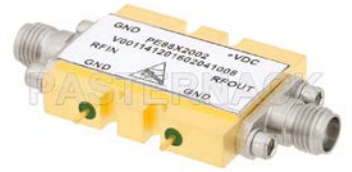
Compliance Certifications (visit www.Pasternack.com for current document)

RoHS Compliant

Plotted and Other Data

Notes:

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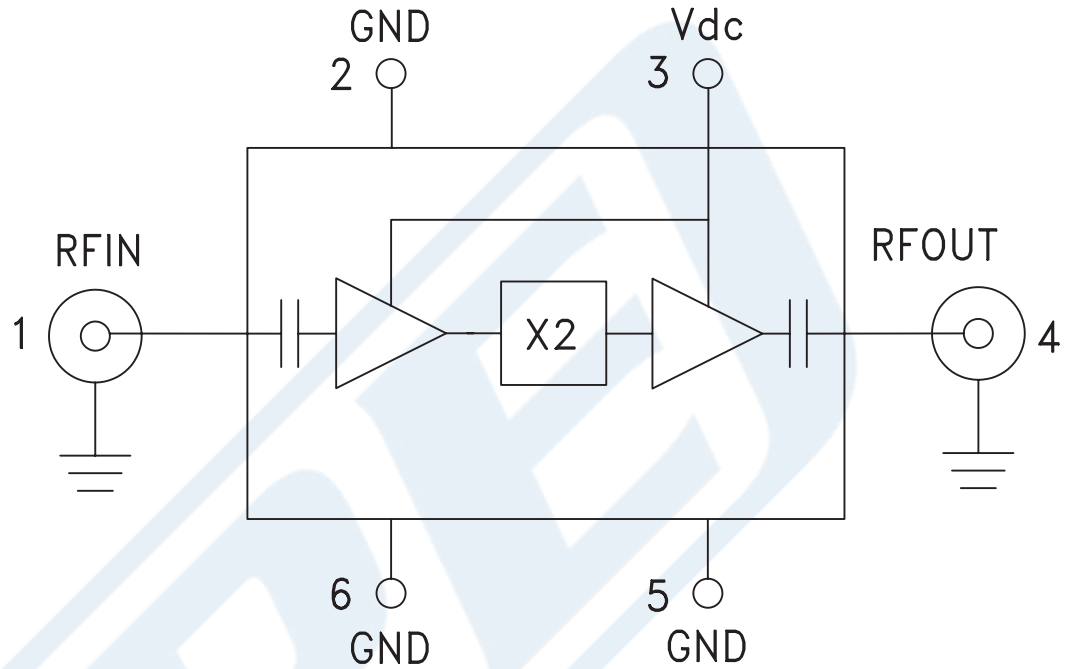


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Functional Block Diagram



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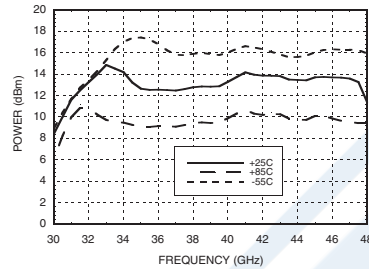
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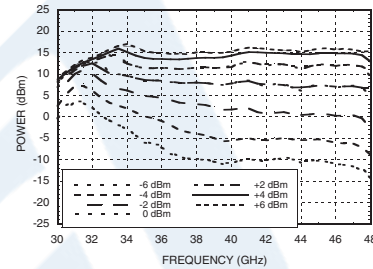
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Typical Performance Data

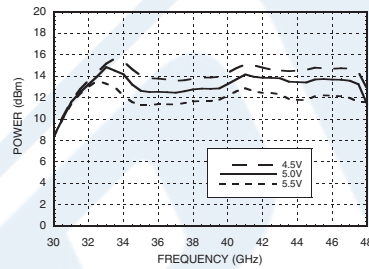
Output Power vs. Temperature @ 3 dBm Drive Level



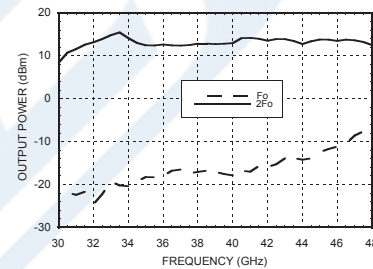
Output Power vs. Drive Level



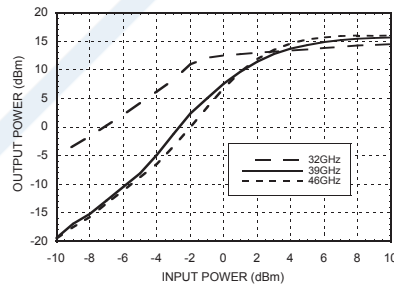
Output Power vs. Supply Voltage @ 3 dBm Drive Level



Isolation @ 3 dBm Drive Level



Output Power vs. Input Power



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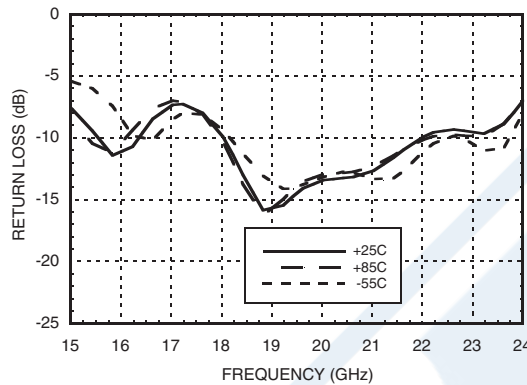


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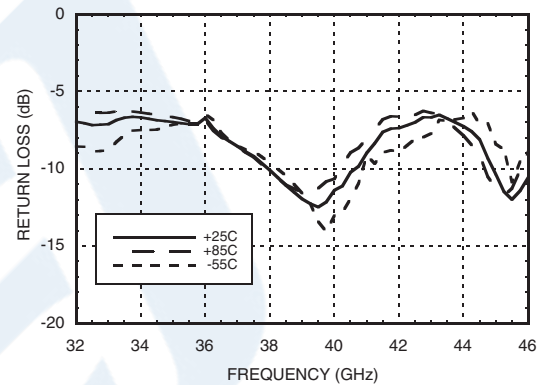
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Input Return Loss vs. Temperature @ 0 dBm Drive Level



Output Return Loss vs. Temperature @ 0 dBm Drive Level



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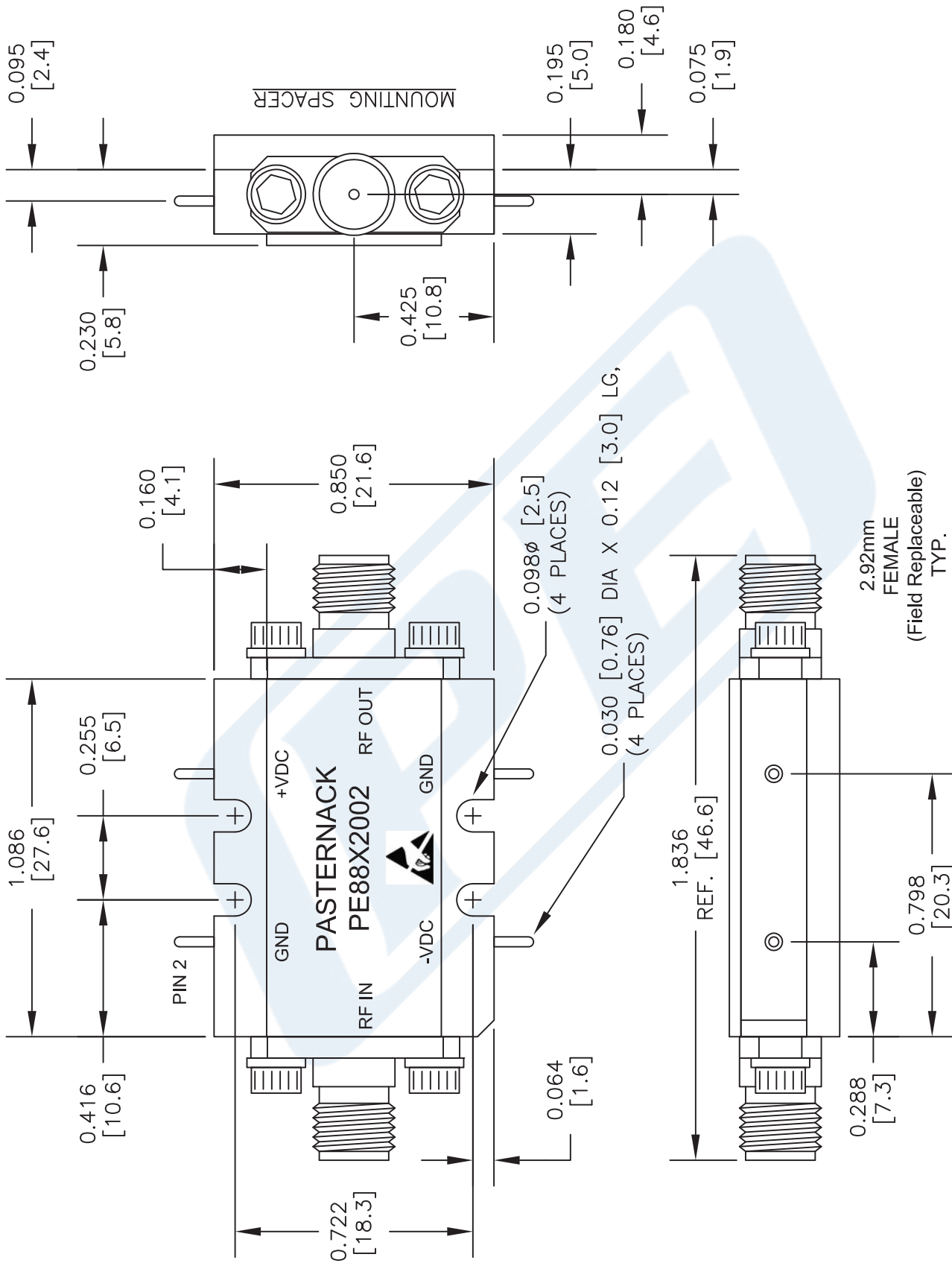
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PE88X2002 CAD Drawing

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DWG TITLE

PE88X2002

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].

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FSCM NO. 53919

CAD FILE 042216

SCALE N/A

SIZE A

2233