



2x Frequency Multiplier Module, 24 GHz to 33 GHz Output  
Frequency, +14 dBm Output Power, Field Replaceable 2.92mm

## Frequency Multipliers Technical Data Sheet

PE88X2001

### Features

- X2 Frequency Multiplier
- Wide Frequency Band
- GaAs HBT MMIC Technology
- Low Phase Noise -132 dBc/Hz @ 100 kHz offset
- Output Power +17 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 PE88X2001 is a low noise X2 Active Broadband Frequency Multiplier Module that covers a wide output frequency bandwidth from 24 GHz to 33 GHz. The design utilizes advanced GaAs HBT MMIC semiconductor technology that produces low additive SSB phase noise performance with a typical level of -132 dBc/Hz at 100 kHz offset. Additional typical performance includes an output power level of +17 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, VDC1 = 5 Vdc)

Description	Minimum	Typical	Maximum	Units
Input Frequency Range	12		16.5	GHz
Output Frequency Range	24		33	GHz
Impedance		50		Ohms
Output Power	+14	+17		dBm
Operating DC Voltage 1		5		V

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 Module, 24 GHz to 33 GHz Output Frequency, +14 dBm Output Power, Field Replaceable 2.92mm PE88X2001](#)



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### Performance by Frequency

Description	Min.	Typ.	Max.	Units
Frequency Range, Input		12 - 16.5		GHz
Frequency Range, Output		24 - 33		GHz
Output Power	+14	+17		dBm
Fo Isolation (With Respect To Output Level)		20		dBc
3Fo Isolation (With Respect To Output Level)		30		dBc
Input Return Loss		13		dB
Output Return Loss		20		dB
SSB Phase Noise (100 KHz Offset)		-132		dBc/Hz
Supply Current		81		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	0.09 lbs [40.82 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](http://www.Pasternack.com) for current document)

RoHS Compliant

### Plotted and Other Data

Notes:

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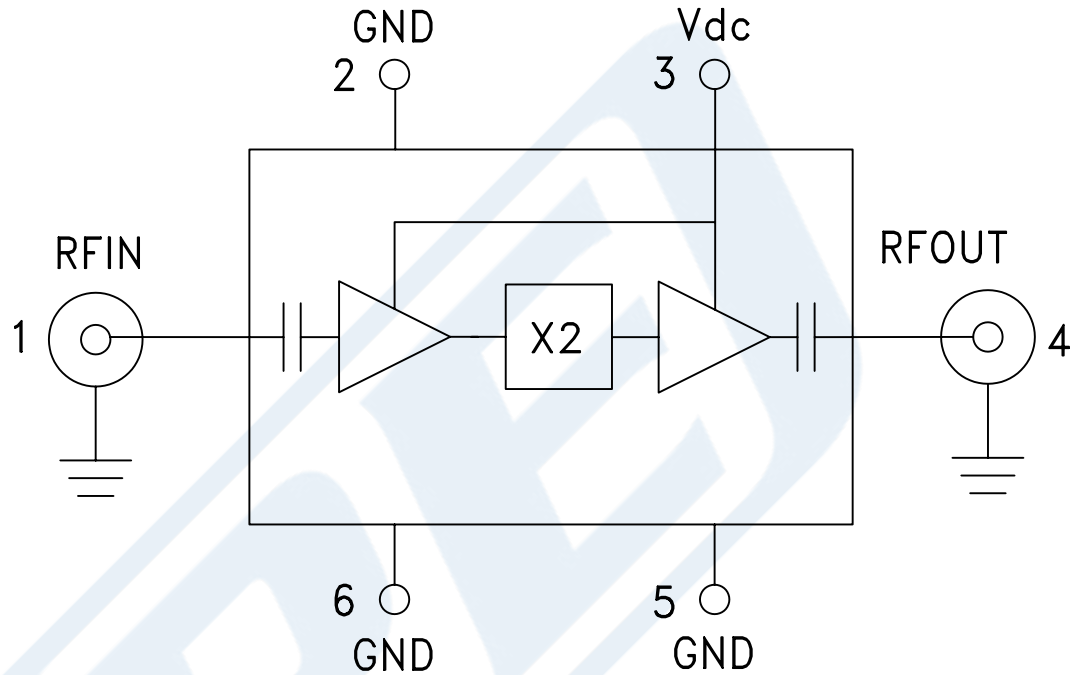


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Functional Block Diagram



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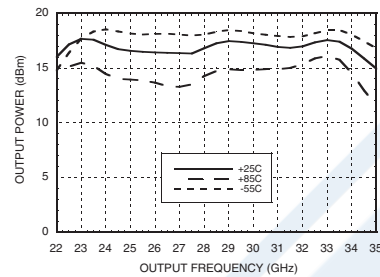
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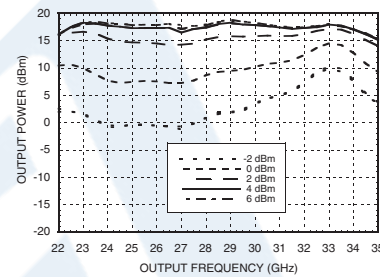
PE88X2001

### Typical Performance Data

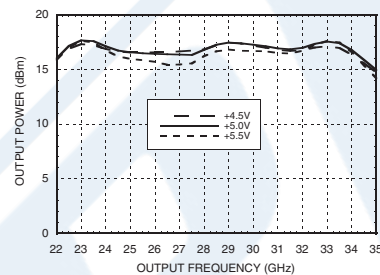
**Output Power vs. Temperature @ 3 dBm Drive Level**



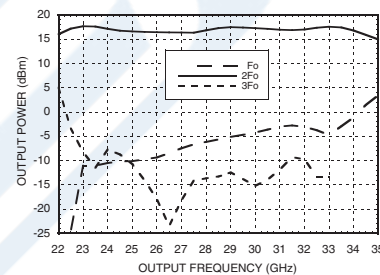
**Output Power vs. Drive Level**



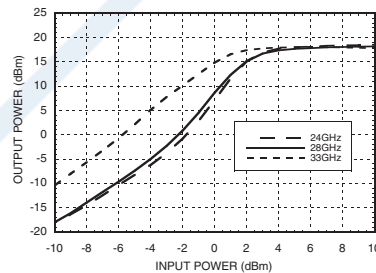
**Output Power vs. Supply Voltage @ 3 dBm Drive Level**



**Isolation @ 3 dBm Drive Level**



**Output Power vs. Input Power**



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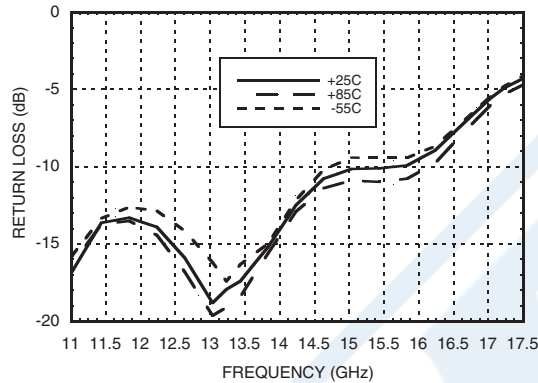


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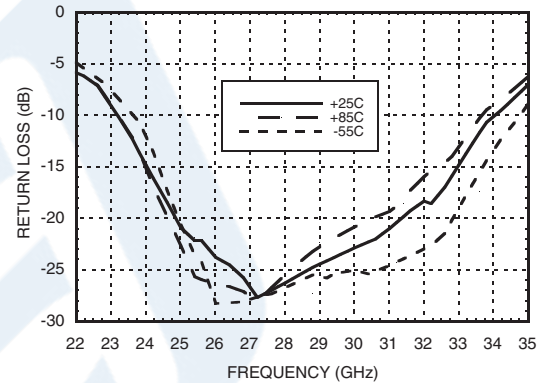
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**Input Return Loss vs. Temperature @ 0 dBm Drive Level**



**Output Return Loss vs. Temperature @ 0 dBm Drive Level**



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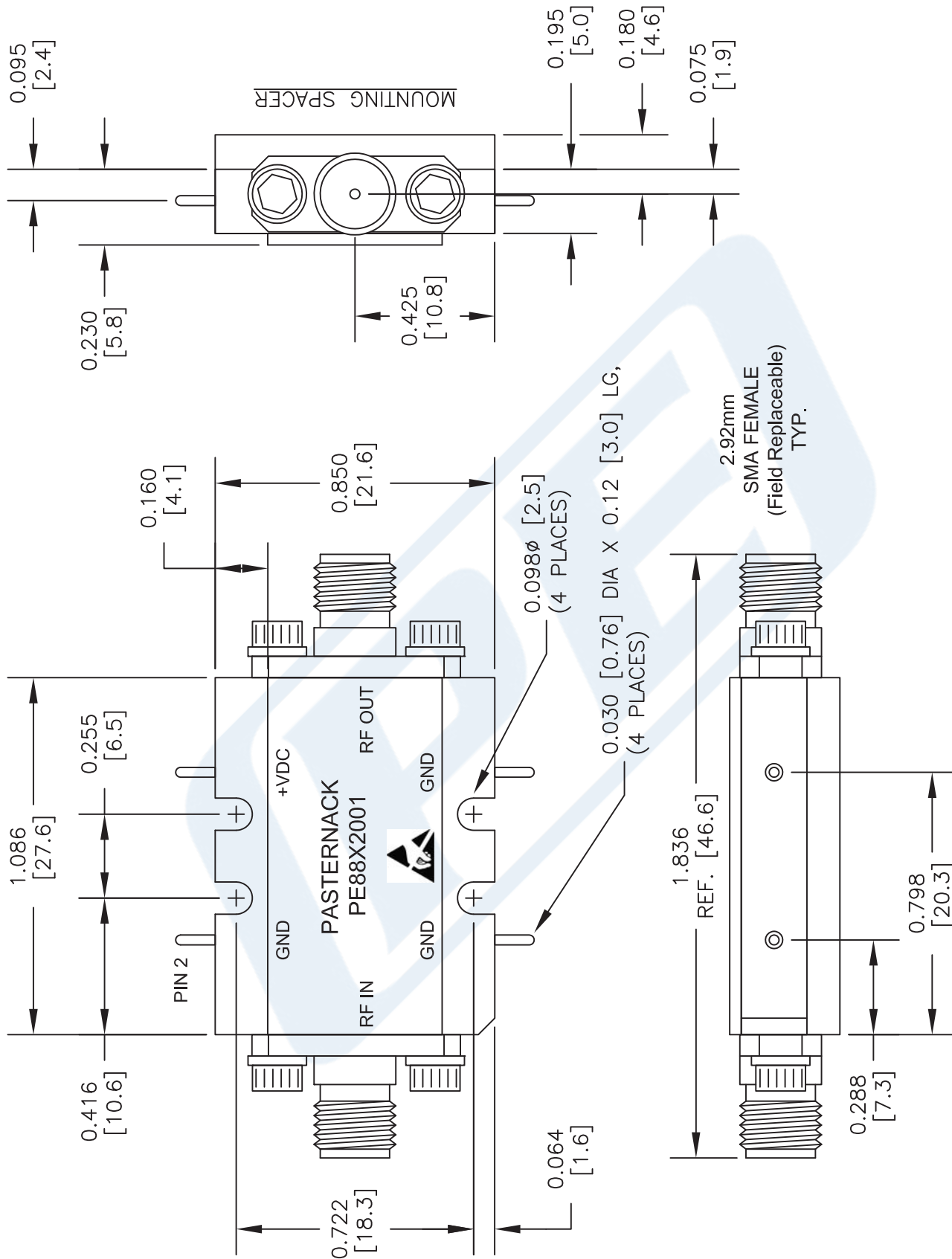
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# PE88X2001 CAD Drawing

2x Frequency Multiplier Module, 24 GHz to 33 GHz Output Frequency,  
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DWG TITLE

**PE88X2001**

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 051616

SCALE N/A

SIZE A

2233