

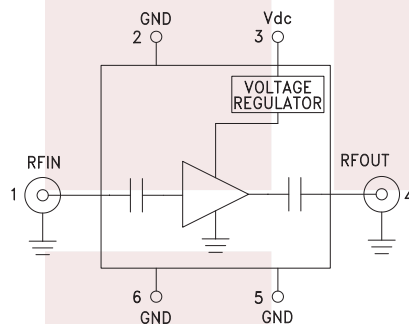
1.75 dB NF Low Noise Amplifier Operating From 5 GHz to 9 GHz with 22.5 dB Gain, 16.7 dBm Psat and SMA

FMAM9002 is a low noise amplifier that operates across the frequency range from 5 GHz to 9 GHz. The design utilizes GaAs HBT MMIC technology and exhibits high dynamic range with typical performance that includes 22 dB of small signal gain, 1.75 dB noise figure, up to +14.8 dBm of output power at P1dB, +25 dBm output IP3, while using a +12V single DC supply.

The wideband distributed amplifier design input/output ports are internally matched to 50 ohms and are DC blocked. The drop-in package is hermetically sealed with field replaceable SMA connectors and has an operating temperature range of -55°C to +85°C. And for added confidence, this rugged package assembly is designed to meet MIL-STD-883 test conditions for Hermeticity and Temperature Cycle.

This Broadband Low Noise Amplifier Module is part of Fairview Microwave's expanding line of Amplifier offerings. These modules offer very wide Frequency Range coverage and outstanding electrical performance in the band.

Functional Block Diagram



Electrical Specifications (TA = +25°C , DC Voltage = 12Vdc , DC Current = 105mA)

Description	Min	Typ	Max	Unit
Frequency Range	5		9	GHz
Small Signal Gain	18.5	22.5		dB
Gain Variance at OTR*			±0.02	dB
Output at 1 dB Compression Point		+14.8		dBm
Saturated Output Power (Psat)		+16.7		dBm
Output 3rd Intercept Point		+25		dBm
Noise Figure		1.75	2.3	dB
Input VSWR		1.5:1		
Output VSWR		1.43:1		
Operating DC Voltage		12		Volts
Operating DC Current		105	140	mA



Features:

- Low Noise Amplifier
- Noise Figure 1.75 dB typ
- Highly Linear GaAs HBT MMIC Technology
- Gain 22 dB typ
- High Output IP3 +25 dBm
- P1dB up to +14.8 dBm
- Hermetically Sealed Module
- Mil Spec Compliant
- Field Replaceable SMA Connectors
- -55°C to +85°C Operating Temperature

Applications:

- Electronic Warfare
- Microwave Radio
- VSAT
- Radar
- Space Systems
- Test Instrumentation
- Telecom Infrastructure

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Operating Temperature Range -55 +85 °C

*OTR= Base Plate Operating Temperature Range

Performance by Frequency

Parameter	Min.	Typ.	Max.	Units
Frequency Range		5 - 9		GHz
Gain	18.5	22.5		dB
Gain Variation Over Temperature		0.015		dB/ °C
Noise Figure		1.75	2.3	dB
Input Return Loss		14		dB
Output Return Loss		15		dB
Output Power for 1dB Compression (P1dB)	12	14.8		dBm
Saturated Output Power (PSAT)		16.7		dBm
Output Third Order Intercept (IP3)		25		dBm
Supply Current		105	140	mA

Mechanical Specifications

Size

Length 1.086 in [27.58 mm]
Width 0.85 in [21.59 mm]
Height 0.36 in [9.14 mm]
Weight 0.09 lbs [40.82 g]

Connector Option Field Replaceable
Input Connector SMA Female
Output Connector SMA Female

Environmental Specifications

Temperature

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

Temperature Cycling MIL-STD-883, Method 101C, Cond B
Hermetic Seal Gross Leak MIL-STD-883 Method 1014C1/Fine Leak MIL-STD-883, Method 1014A2, 5 x 10⁻⁸ atm cc
ESD Sensitivity ESD Sensitive Material, Transport in Approved ESD bags. Handle only in approved ESD Workstation.



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

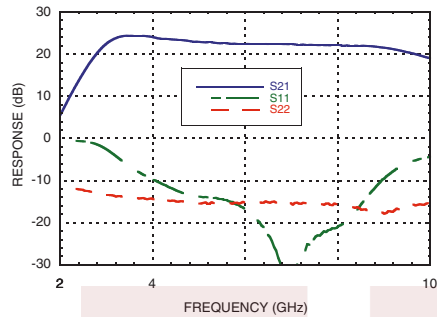
Plotted and Other Data

Notes:

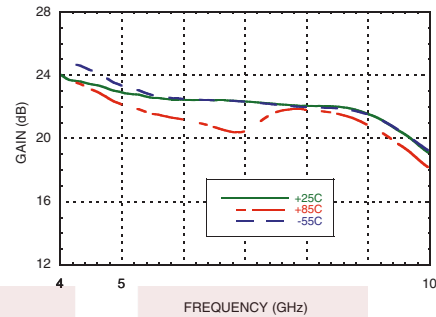
- Values at 25 °C, sea level

Typical Performance Data

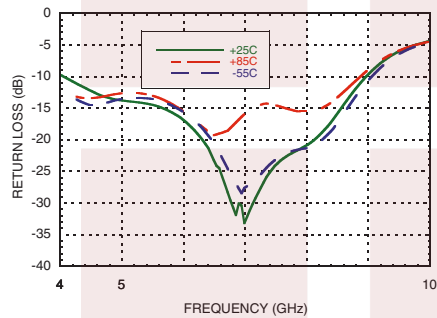
Broadband Gain & Return Loss



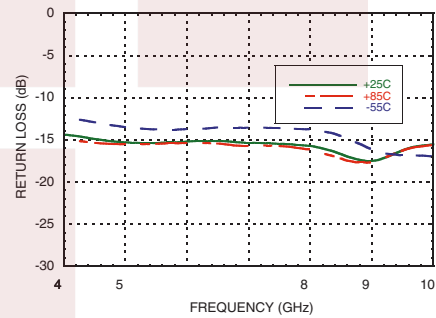
Gain vs. Temperature



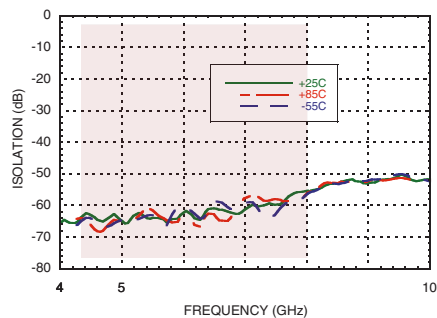
Input Return Loss vs. Temperature



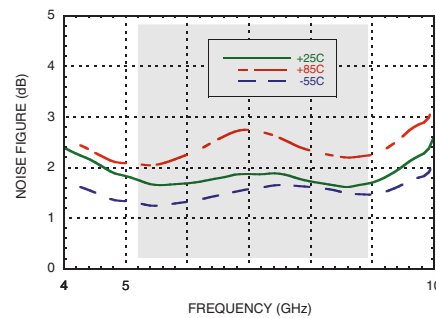
Output Return Loss vs. Temperature



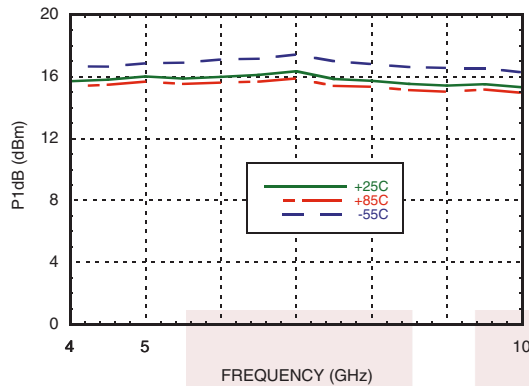
Reverse Isolation vs. Temperature



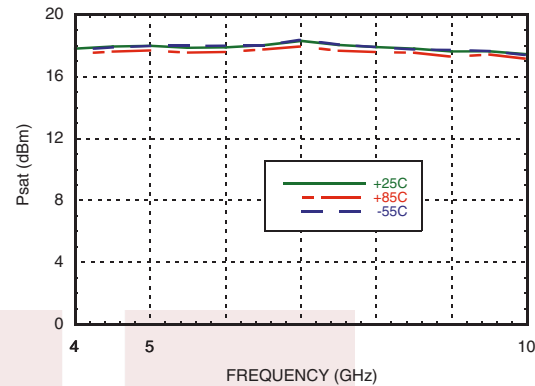
Noise Figure vs. Temperature



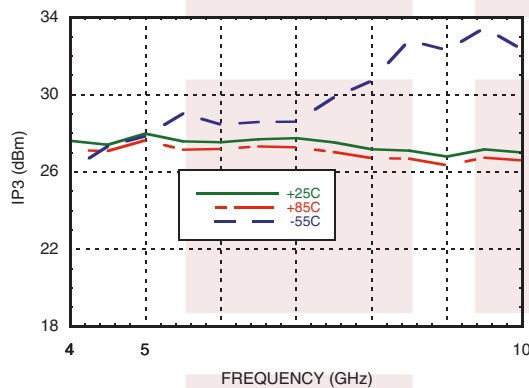
Output P1dB vs. Temperature



Psat vs. Temperature



Output IP3 vs. Temperature



1.75 dB NF Low Noise Amplifier Operating From 5 GHz to 9 GHz with 22.5 dB Gain, 16.7 dBm Psat and SMA from Fairview Microwave is in-stock and available to ship same-day. All of our RF/microwave products are available off-the-shelf from our ISO 9001:2008 certified facilities in Allen, Texas. Fairview Microwave is RF on-demand.

For additional information on this product, please click the following link: [1.75 dB NF Low Noise Amplifier Operating From 5 GHz to 9 GHz with 22.5 dB Gain, 16.7 dBm Psat and SMA FMAM9002](https://www.fairviewmicrowave.com/1.75db-nf-low-noise-amplifier-22.5db-fmam9002-p.aspx)

URL: <https://www.fairviewmicrowave.com/1.75db-nf-low-noise-amplifier-22.5db-fmam9002-p.aspx>

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