

**2 GHz to 20 GHz, Broadband Amplifier with 16 dBm, 13 dB Gain and SMA**

FMAM3271 low noise amplifier operates across a wide frequency range from 2 GHz to 20 GHz. The design utilizes leading edge GaAs PHEMT MMIC technology for high efficiency and high linearity. Typical performance includes 13 dB small signal gain, 2.5 dB noise figure, up to +18 dBm of output power at P1dB and +26 dBm output IP3, while using a +12V single DC supply. The design exhibits a very flat gain response across a wide frequency band.

Input/output ports are matched for 50 ohms and are DC blocked. The design also incorporates integrated bias sequencing circuitry and voltage regulators to allow for flexible biasing for both the negative and positive voltage supplies. 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.

**Electrical Specifications** (TA = +25°C)

Description	Min	Typ	Max	Unit
Frequency Range	2		20	GHz
Gain		13		dB
P1dB		+16		dBm
Noise Figure		2		dB
Operating Temperature Range (OTR)	-55		+85	°C



**Features:**

- LNA Module
- Extremely wide frequency band
- GaAs PHEMT MMIC Technology
- Flat Gain 13 dB +/- 0.5 dB
- High Output IP3 +26 dBm
- Output P1dB up to +18 dBm typical
- Regulated Supply and Bias Sequencing
- Hermetically Sealed Module
- Mil Spec Compliant
- Field Replaceable SMA Connectors
- -55°C to +85°C Operating Temperature

**Applications:**

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

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**Performance by Frequency**

Description	Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.	Units
Frequency Range	2.0 - 6.0			6.0 - 12.0			12.0 - 20.0			GHz
Gain	12	14		11	13		10	12		dB
Gain Flatness	±.025			±0.5			±0.5			dB
Gain Variation Over Temperature	0.008	0.015		0.008	0.015		0.008	0.015		dB/ °C
Noise Figure	2.5	4.5		2.0	3.0		3.0	5.0		dB
Input Return Loss	17			18			18			dB
Output Return Loss	12			15			8			dB
Output Power For 1 dB Compression (P1dB)	15	18		13	16		9	12		dBm
Saturated Output Power (Psat)	21.5			21			19			dBm
Output Third Order Intercept (IP3)	26.5			26			23			dBm
Spurious Response	-50			-60			-60			dBc
Supply Current	93			93			93			mA

**Mechanical Specifications**

**Size**

Length	0.75 in [19.05 mm]
Width	0.7 in [17.78 mm]
Height	0.29 in [7.37 mm]
Weight	0.06 lbs [27.22 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 <sup>-8</sup> atm cc
ESD Sensitivity	ESD Sensitive Material, Transport material in Approved ESD bags. Handle only in ESD Workstation.



**Compliance Certifications** (visit [www.FairviewMicrowave.com](http://www.FairviewMicrowave.com) for current document)

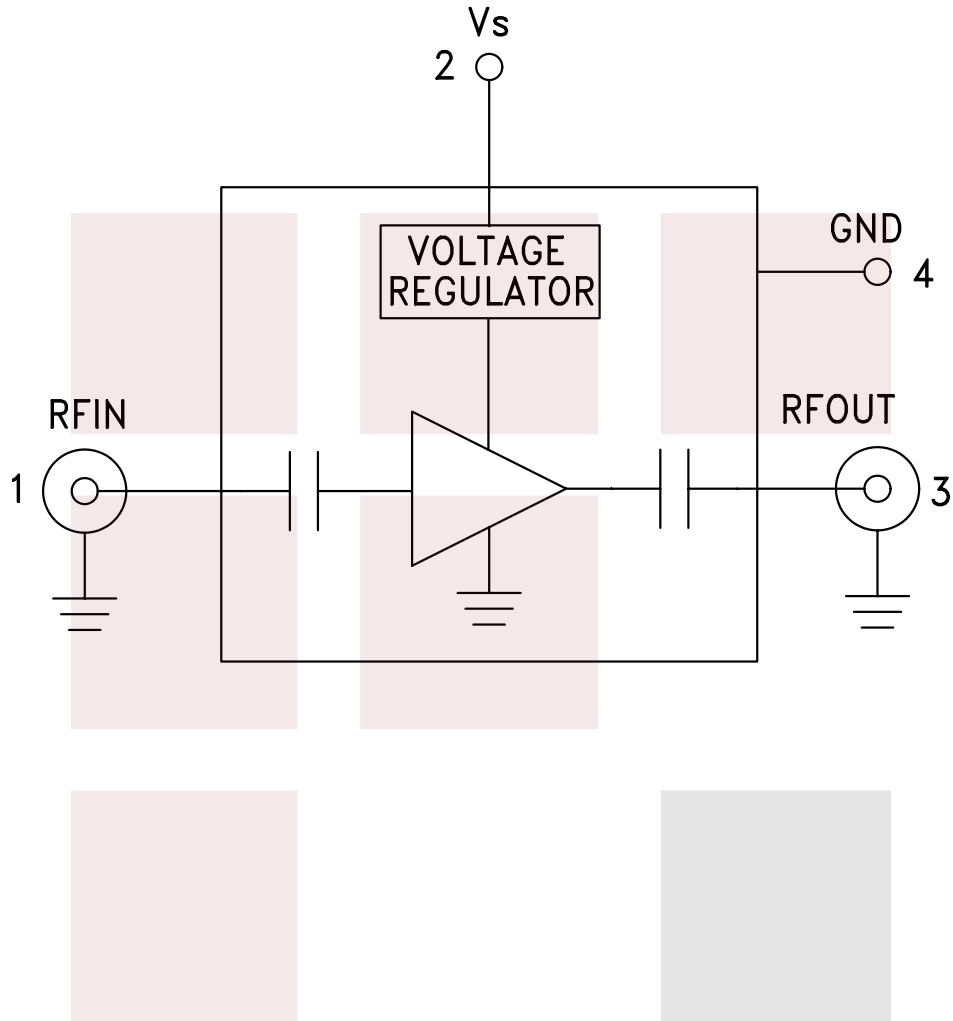
RoHS Compliant Yes

**Plotted and Other Data**

Notes:

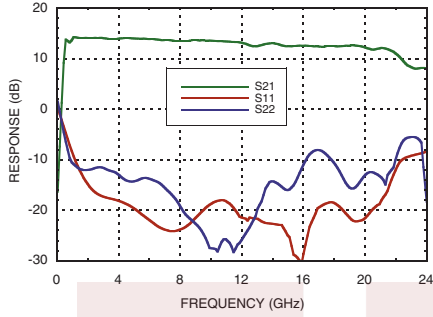
- Values at 25 °C, sea level

**Functional Block Diagram**

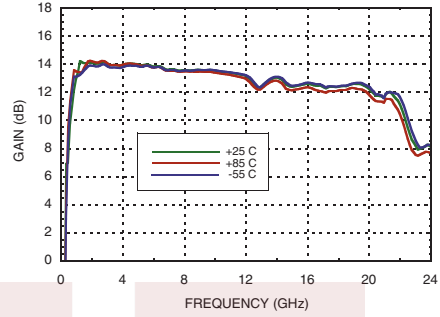


**Typical Performance Data**

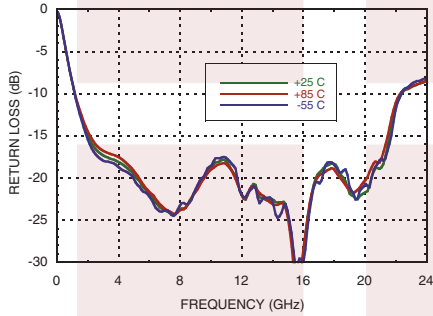
**Gain & Return Loss**



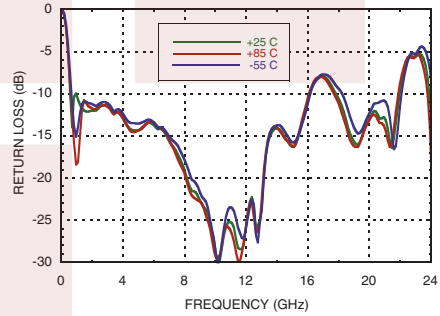
**Gain vs. Temperature**



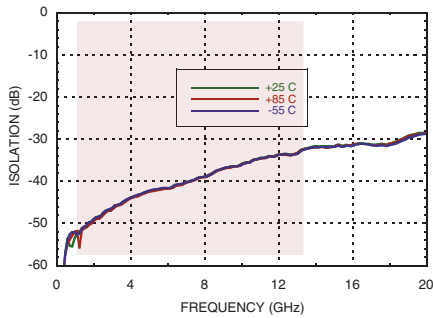
**Input Return Loss vs. Temperature**



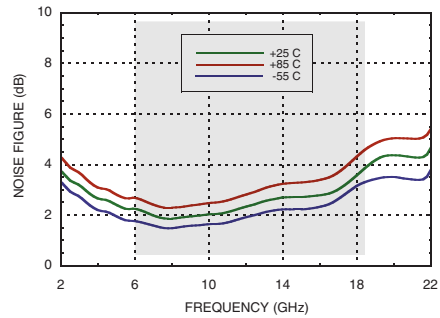
**Output Return Loss vs. Temperature**



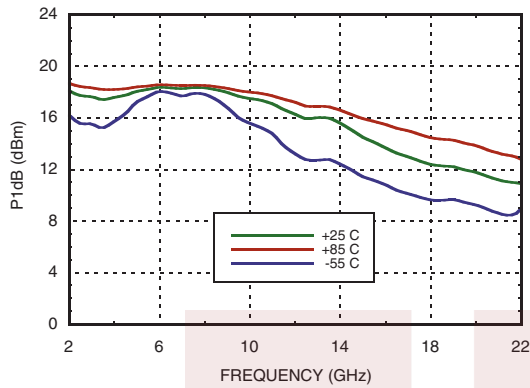
**Reverse Isolation vs. Temperature**



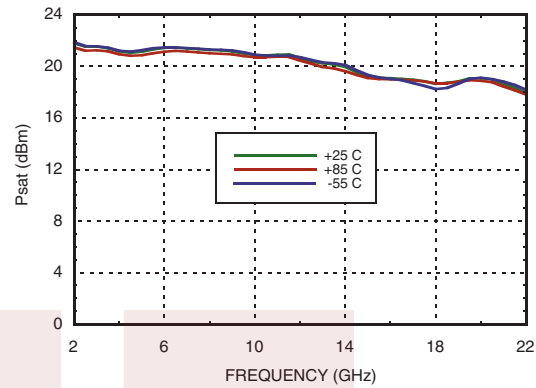
**Noise Figure vs. Temperature**



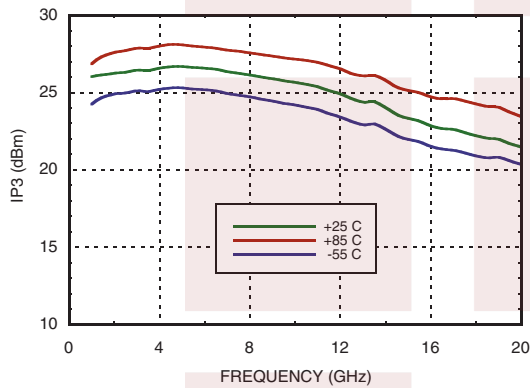
**P1dB vs. Temperature**



**Psat vs. Temperature**



**Output IP3 vs. Temperature**

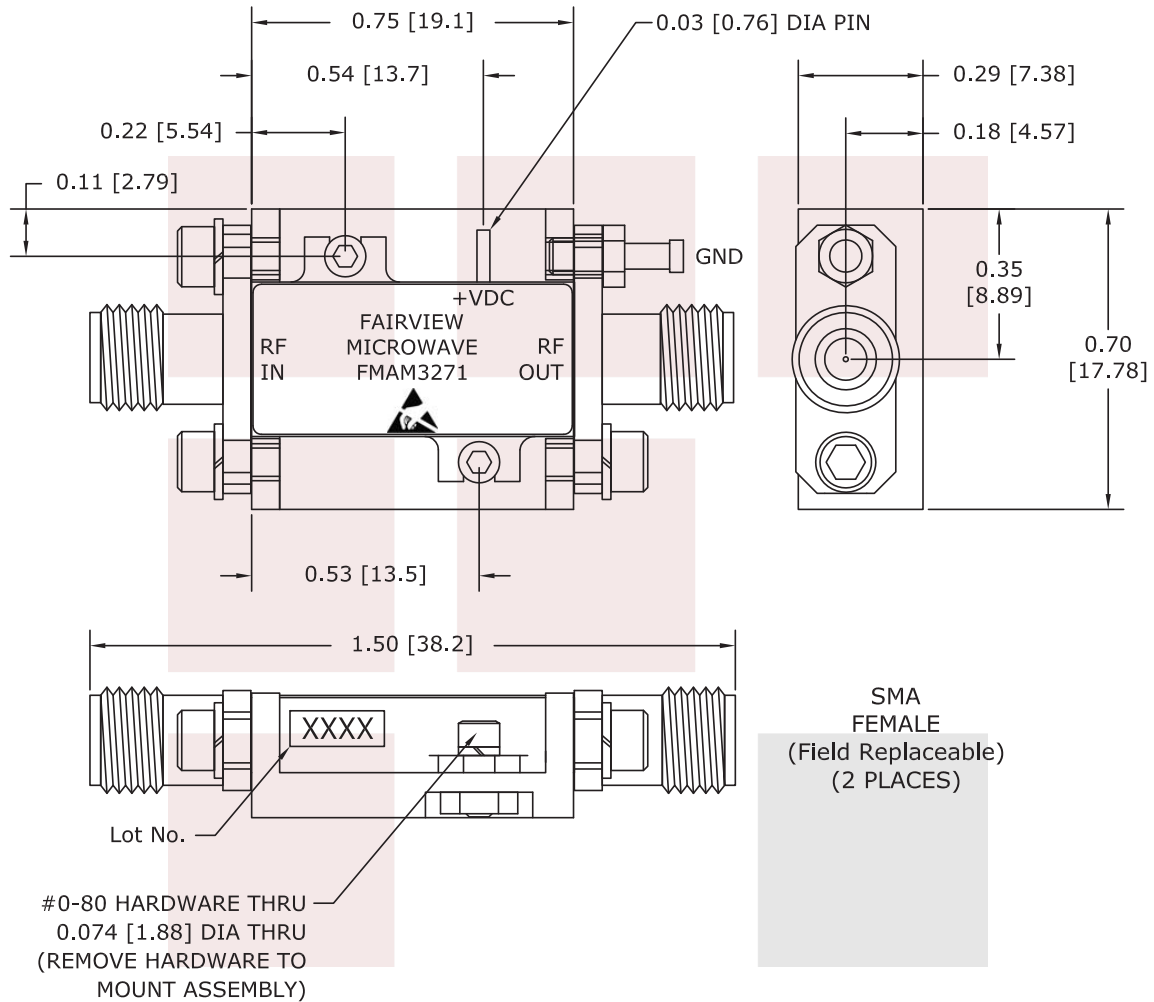


2 GHz to 20 GHz, Broadband Amplifier with 16 dBm, 13 dB Gain and SMA from Fairview Microwave is in-stock and available to ship same-day. All of our RF/microwave products are available off-the-shelf from our ISO 9001:2008 certified facilities in Allen, Texas. Fairview Microwave is RF on-demand.

For additional information on this product, please click the following link: [2 GHz to 20 GHz, Broadband Amplifier with 16 dBm, 13 dB Gain and SMA FMAM3271](http://www.fairviewmicrowave.com/2-20-ghz-broadband-amplifier-fmam3271-p.aspx)

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**NOTE:**  
 HEAT SINK REQUIRED FOR PROPER OPERATION,  
 UNIT IS COOLED BY CONDUCTING TO HEAT SINK.

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TITLE 2 GHz to 20 GHz, Broadband Amplifier with 16 dBm, 13 dB Gain and SMA		DWG NO FMAM3271		CAGE CODE 3FKR5	
CAD FILE	051016	SHEET	SCALE	N/A	SIZE A 2233