

10 MHz to 20 GHz, Medium Power Broadband Amplifier with 25 dBm, 13 dB Gain and SMA

FMAM4029 distributed amplifier operates across an extremely wide frequency band from 2 to 35 GHz. The design utilizes GaAs PHEMT MMIC technology for high efficiency and high linearity. Typical performance at 10 GHz includes 12 dB of small signal gain, 3 dB noise figure, +29 dBm output IP3, and up to +18 dBm of P1dB. The design exhibits a very flat gain response across the entire 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 2.92mm connectors. And for added confidence, this rugged package assembly is designed to meet MIL-STD-883 test conditions for Hermiticity and Temperature Cycle.

Electrical Specifications (TA= 25°C, VDC1 = 15 Vdc, VDC2 = -10 Vdc)

Description	Min	Typ	Max	Unit
Frequency Range	0.01		20	GHz
Gain		13		dB
Gain Flatness		±0.75		dB
P1dB	+17	+23		dBm
Saturation Output Power		+25		dBm
IP3		+30		dBm
Noise Figure		3		dB
Operating DC Voltage 1		15		Volts
Operating DC Voltage 2		-10		Volts
Operating DC Current		225		mA
Operating Temperature Range (OTR)	-55		+85	°C



Features:

- Driver Amplifier
- Extremely wide Frequency band
- GaAs PHEMT MMIC Technology
- Gain 12 dB @ 10 GHz
- High Output IP3 +29 dBm @ 10 GHz
- P1dB up to +18 dBm
- Regulated Supply and Bias Sequencing
- Hermetically Sealed Module
- Mil Spec Compliant
- Field Replaceable 2.92mm Connectors
- -54°C to +85°C Operating Temperature

Applications:

- Electronic Warfare
- Electronic Countermeasures
- Microwave Radio
- VSAT
- Radar
- 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	0.010 - 6.0			6.0 - 12.0			12.0 - 20.0			GHz
Gain	14	16		13	15		10	13		dB
Gain Flatness	±0.75			±0.75			±1.0			dB
Gain Variation Over Temperature	0.018	0.025		0.018	0.025		0.018	0.025		dB/ °C
Noise Figure	3.5			3			4			dB
Input Return Loss	19			17			10			dB
Output Return Loss	14			14			12			dB
Output Power For 1 dB Compression (P1dB)	20	24		19	23		17	20		dBm
Saturated Output Power (Psat)	26			25			22			dBm
Output Third Order Intercept (IP3)	33			30			25			dBm
Saturated Output Voltage	10			10			8			Vpk-pk
Group Delay	±3			±3			±3			ps
Positive Supply Current (+Idc)	225			225			225			mA
Negative Supply Current (-Idc)	1.6			1.6			1.6			mA

Mechanical Specifications

Size

Length 0.86 in [21.84 mm]
Width 0.7 in [17.78 mm]
Height 0.29 in [7.37 mm]
Weight 0.064 lbs [29.03 g]

Connector Option
Input Connector
Output Connector

Field Replaceable
SMA Female
SMA Female

Environmental Specifications

Temperature

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

Temperature Cycling
Hermetic Seal

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

ESD Sensitivity



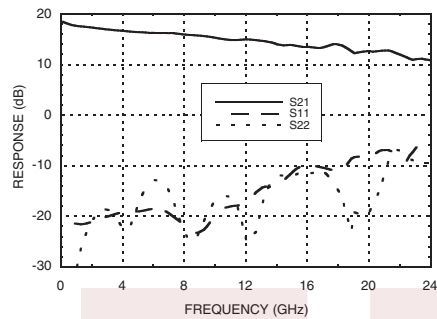
Compliance Certifications (see [product page](#) for current document)

Plotted and Other Data

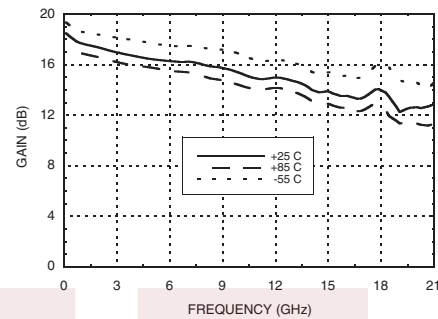
Notes:

Typical Performance Data

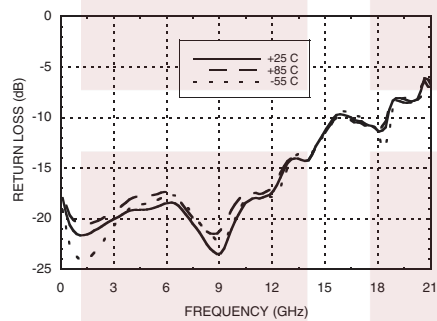
Gain & Return Loss



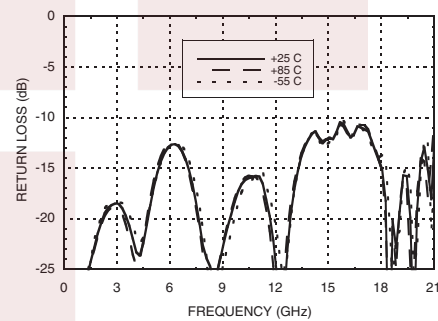
Gain vs. Temperature



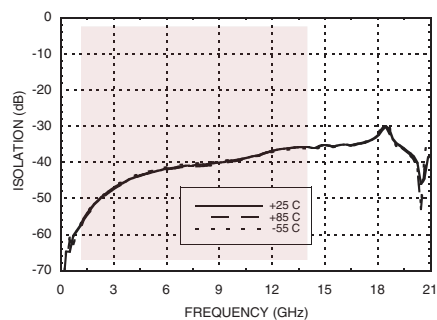
Input Return Loss vs. Temperature



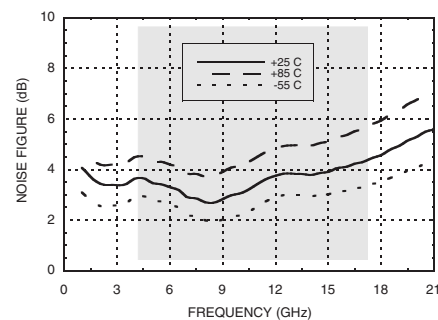
Output Return Loss vs. Temperature



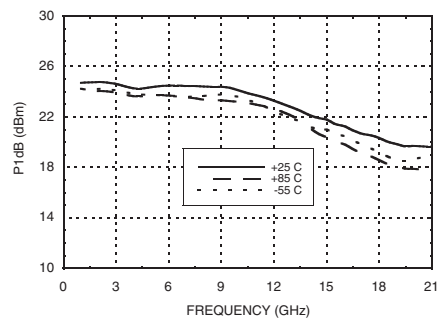
Reverse Isolation vs. Temperature



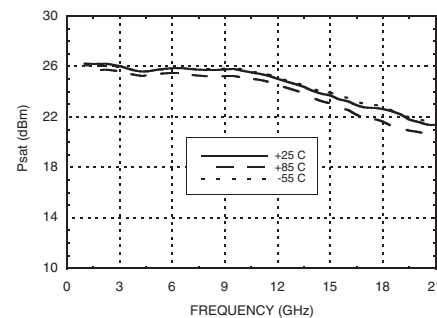
Noise Figure vs. Temperature



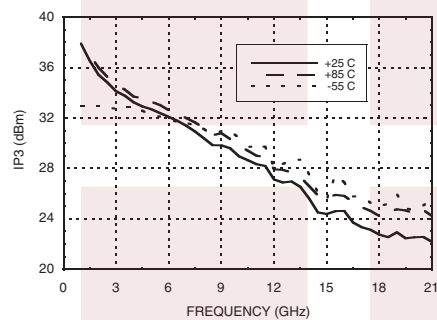
P1dB vs. Temperature



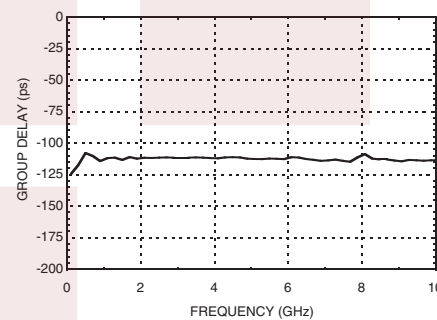
Psat vs. Temperature



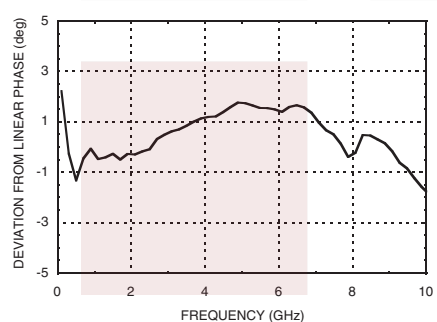
Output IP3 vs. Temperature



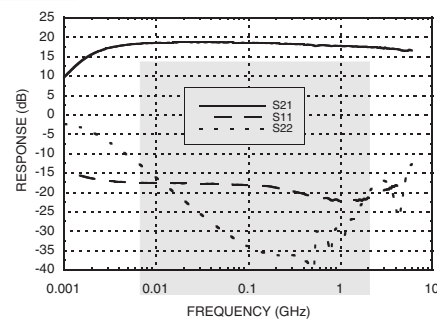
Group Delay



Deviation from Linear Phase



Low Frequency Gain and Return Loss

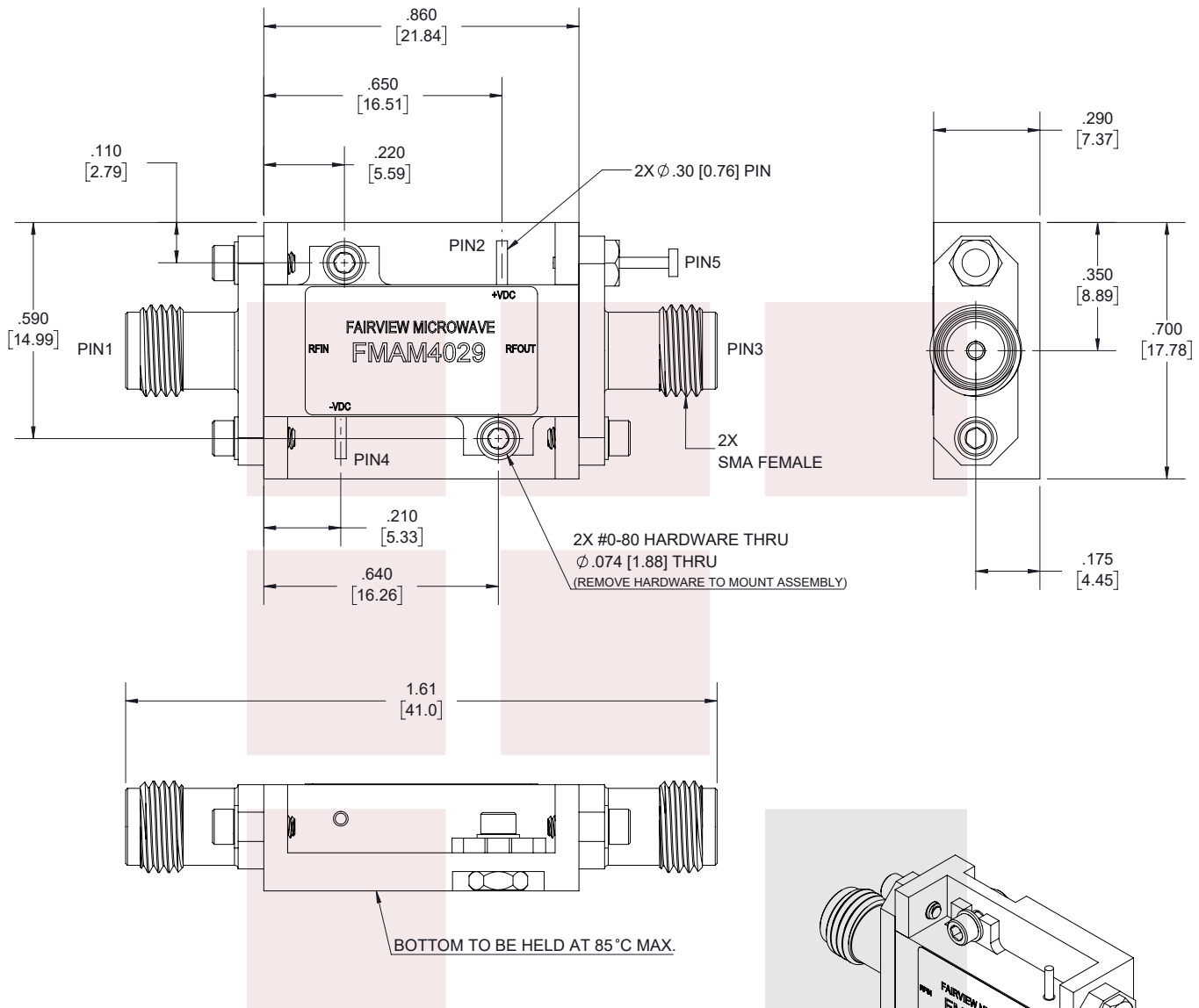


10 MHz to 20 GHz, Medium Power Broadband Amplifier with 25 dBm, 13 dB Gain and SMA from Fairview Microwave is in-stock and available to ship same-day. All of our RF/microwave products are available off-the-shelf from our ISO 9001:2008 certified facilities in Allen, Texas. Fairview Microwave is RF on-demand.

For additional information on this product, please click the following link: [10 MHz to 20 GHz, Medium Power Broadband Amplifier with 25 dBm, 13 dB Gain and SMA FMAM4029](https://www.fairviewmicrowave.com/10-mhz-20-ghz-medium-power-broadband-amplifier-fmam4029-p.aspx)

URL: <https://www.fairviewmicrowave.com/10-mhz-20-ghz-medium-power-broadband-amplifier-fmam4029-p.aspx>

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STANDARD TOLERANCES

.X ± 0.2
.XX ± 0.01
.XXX ± 0.005

*STANDARD TOLERANCES APPLY
ONLY TO DIMENSIONS IN INCHES

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NOTES:

1. UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE NOMINAL.
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3. DIMENSIONS ARE IN INCHES [mm].

TITLE

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DWG NO

FMAM4029

CAGE CODE

3FKR5

CAD FILE

012618

SHEET

1 OF 2

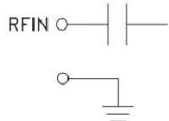
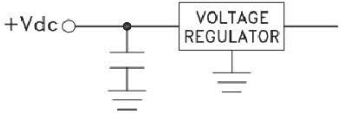
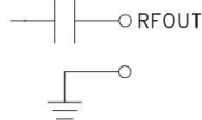
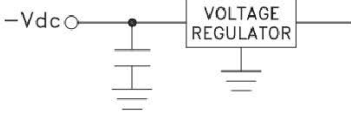
SCALE

N/A

SIZE

A 7361

Pin Descriptions

Pin Number	Function	Description	Interface Schematic
1	RFIN & RF Ground	RF input connector, SMA female, field replaceable. This pin is AC coupled and matched to 50 Ohms.	
2	+Vdc	Positive power supply voltage for the amplifier.	
3	RFOUT & RF Ground	RF output connector, SMA female. This pin is AC coupled and matched to 50 Ohms.	
4	-Vdc	Negative power supply voltage for the amplifier	
5	GND	Power supply ground.	

STANDARD TOLERANCES

.X ±0.2
.XX ±0.01
.XXX ±0.005

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SHEET 2 OF 2

SCALE N/A

SIZE A

7361