

17 GHz to 24 GHz, Medium Power Broadband Amplifier with 25 dBm, 22 dB Gain and 2.92mm

The FMAM4028 distributed amplifier operates across a wide frequency range from 17 GHz to 24 GHz. The design utilizes leading edge GaAs PHEMT MMIC technology for high efficiency and high linearity. Typical performance at 17-20 GHz includes 22 dB of small signal gain, 3.5 dB noise figure, +33 dBm output IP3, and up to +25 dBm of Saturated Power. 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 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.



Features:

- Driver Amplifier
- Wide Frequency Band
- GaAs PHEMT MMIC Technology
- Spurious-Free Operation
- Gain 22 dB
- High Output IP3 +33 dBm
- Saturated Output Power up to + 26 dBm typical
- Regulated Supply and Bias Sequencing
- Hermetically Sealed Module
- Mil Spec Compliant
- Field Replaceable 2.92mm Connectors
- -55°C to +85°C Operating Temperature

Electrical Specifications (TA= 25°C, VDC1 = 12 Vdc, VDC2 = -5 Vdc)

Description	Min	Typ	Max	Unit
Frequency Range	17		24	GHz
Gain		22		dB
Gain Flatness		±1		dB
P1dB	+20	+24		dBm
Saturation Output Power		+25		dBm
IP3		+33		dBm
Noise Figure		3.5		dB
Operating DC Voltage 1		12		Volts
Operating DC Voltage 2		-5		Volts
Operating DC Current		250		mA
Operating Temperature Range (OTR)	-55		+85	°C

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.	Units
Frequency Range		17 - 20		20 - 24			GHz
Gain	19	22	24	19	22	24	dB
Gain Flatness		±1.0			±0.5		dB
Gain Variation Over Temperature		-0.03	-0.04		-0.03	-0.04	dB/ °C
Noise Figure		3.5	5.5		4.5	6.5	dB
Input Return Loss		7			7		dB
Output Return Loss		10			10		dB
Output Power For 1 dB Compression (P1dB)	20	23		20	24		dBm
Saturated Output Power (Psat)		25			26		dBm
Output Third Order Intercept (IP3)		33			33		dBm
Positive Supply Current (+Idc)		250			250		mA
Negative Supply Current (-Idc)		5.2			5.2		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 0.091 lbs [41.28 g]

Connector Option Field Replaceable
 Input Connector 2.92mm Female
 Output Connector 2.92mm 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 material in Approved ESD bags. Handle only in ESD Workstation.

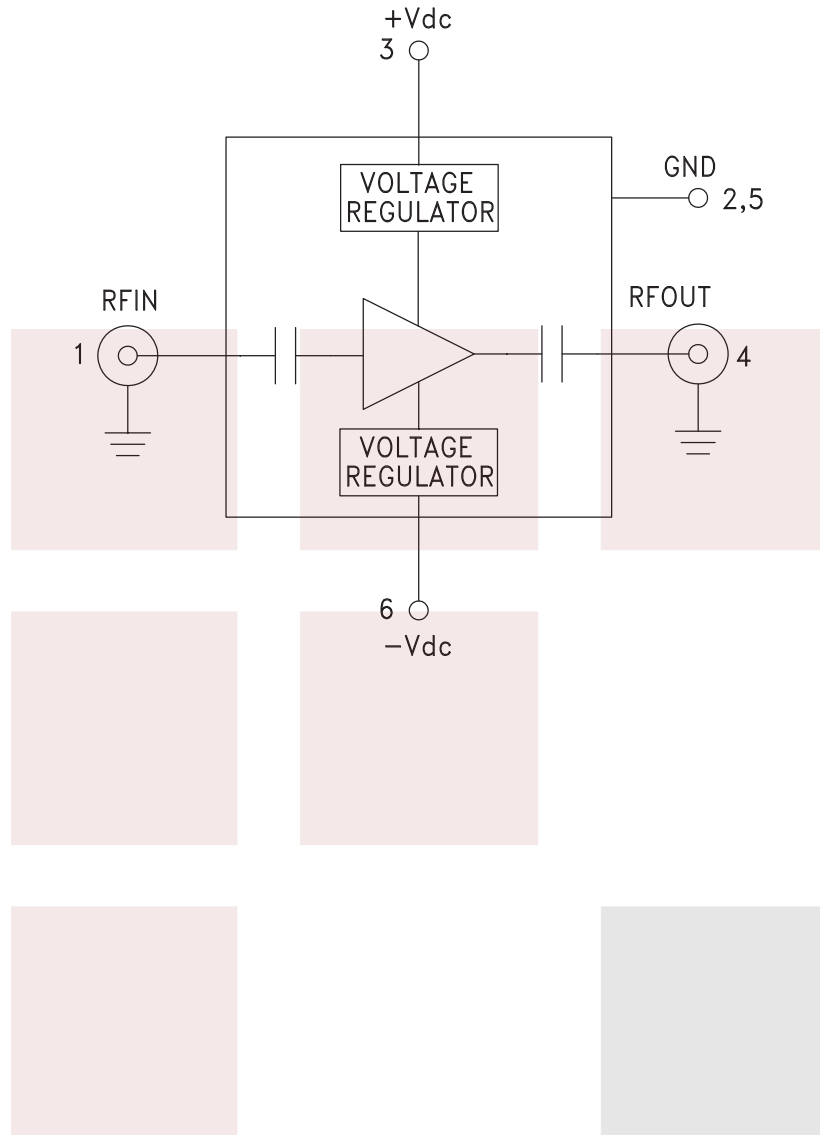


Compliance Certifications (see [product page](#) for current document)

Plotted and Other Data

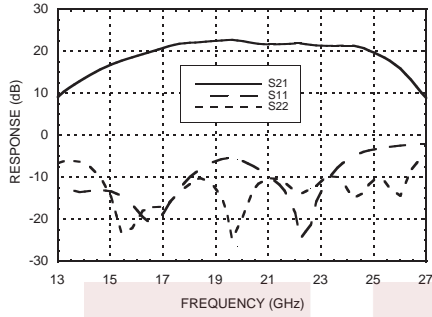
Notes:

Functional Block Diagram

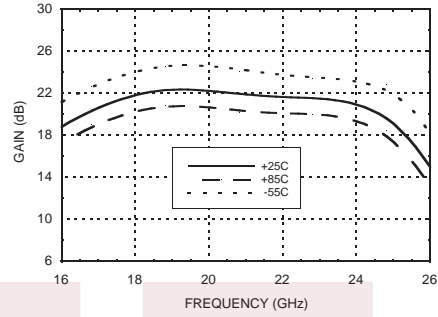


Typical Performance Data

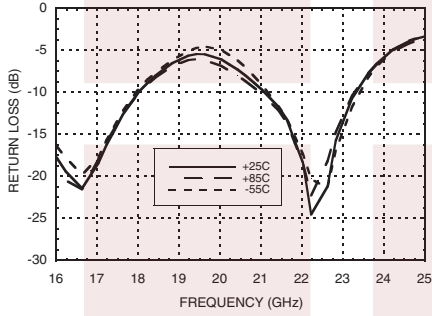
Gain & Return Loss



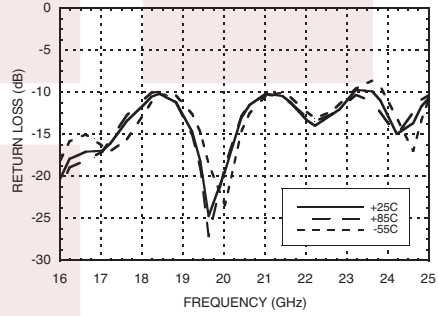
Gain vs. Temperature



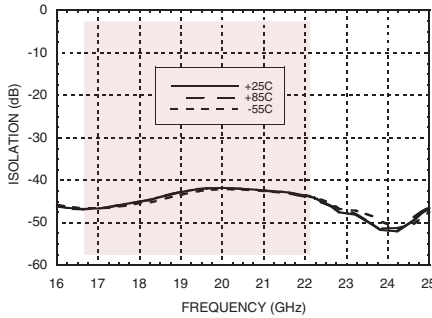
Input Return Loss vs. Temperature



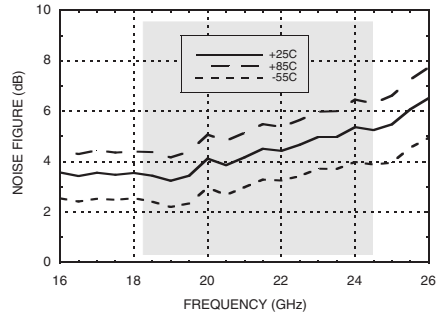
Output Return Loss vs. Temperature



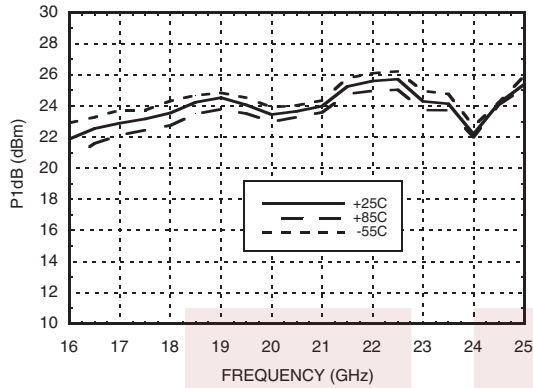
Reverse Isolation vs. Temperature



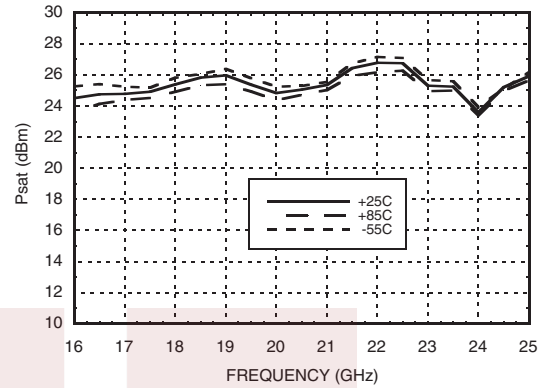
Noise Figure vs. Temperature



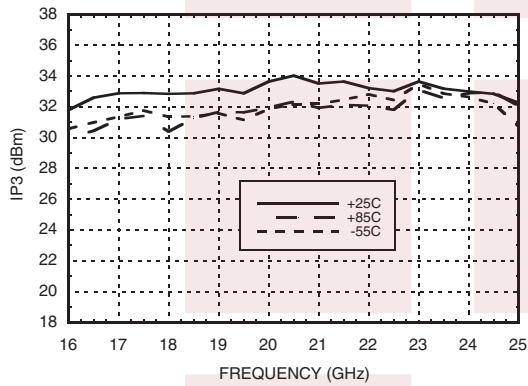
P1dB vs. Temperature



Psat vs. Temperature



Output IP3 vs. Temperature

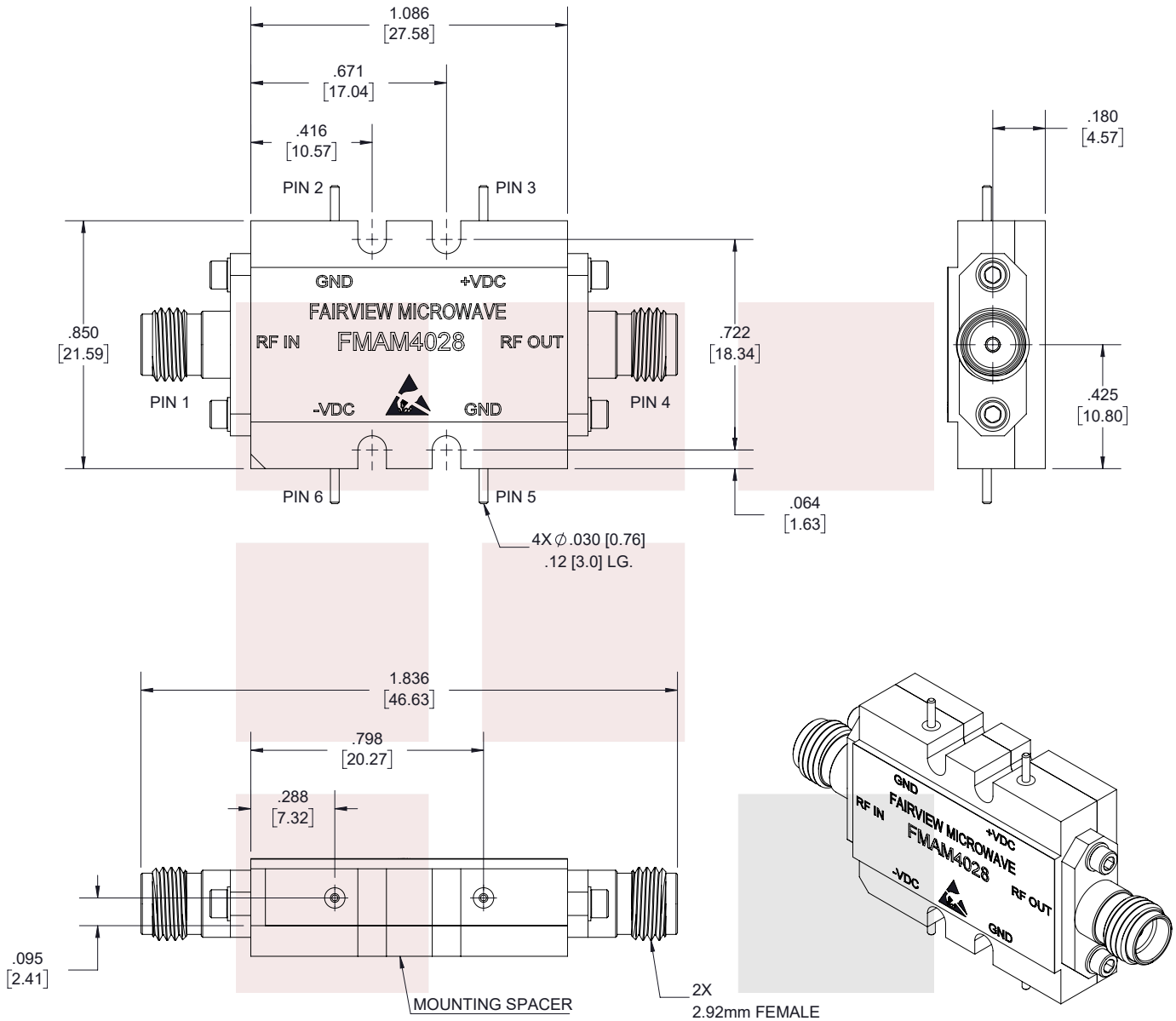


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For additional information on this product, please click the following link: [17 GHz to 24 GHz, Medium Power Broadband Amplifier with 25 dBm, 22 dB Gain and 2.92mm FMAM4028](https://www.fairviewmicrowave.com/17-24-ghz-medium-power-broadband-amplifier-fmam4028)

URL: <https://www.fairviewmicrowave.com/17-24-ghz-medium-power-broadband-amplifier-fmam4028-p.asp>

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STANDARD TOLERANCES

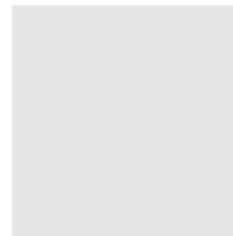
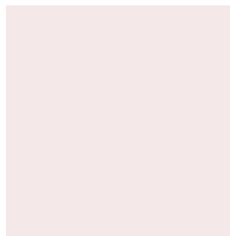
- .X ±0.2
- .XX ±0.02
- .XXX ±0.010

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TITLE 17 GHz to 24 GHz, Medium Power Broadband Amplifier with 25 dBm, 22 dB Gain and 2.92mm		DWG NO FMAM4028		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 input connector, 2.92mm female, field replaceable. This pin is AC coupled and matched to 50 Ohms.	RFIN ○ — —
2, 5	GND	Power supply ground.	○ GND ⏏
3	+Vdc	Positive power supply voltage for the amplifier.	+Vdc ○ —●— ⏏ VOLTAGE REGULATOR ⏏
4	RFOUT	RF output connector, 2.92mm female. This pin is AC coupled and matched to 50 Ohms.	— — ○ RFOUT
6	-Vdc	Negative power supply voltage for the amplifier	-Vdc ○ —●— ⏏ VOLTAGE REGULATOR ⏏



STANDARD TOLERANCES	
.X	±0.2
.XX	±0.02
.XXX	±0.010

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		SIZE	A		7361