

0.85 dB NF Input Protected Low Noise Amplifier, Operating from 2 GHz to 2.6 GHz with 30 dB Gain, 12 dBm P1dB and SMA

FMAM63007 is an Input Protected Low Noise RF coaxial amplifier operating in the 2 GHz to 2.6 GHz frequency range. The amplifier has a 0.85 dB typical noise figure and can handle up to 1 Watt CW input power without damage. Additional typical performance includes 30 dB small signal gain +/- 0.35 dB flatness, 1.35:1 VSWR, and +12.5 dBm P1dB. The exceptional technical performance is achieved through the use of a 4 stage hybrid MIC assembly that incorporates a low loss input Pin Diode Limiter protective circuit followed by gain stages that use Enhancement Mode (Emode) GaAs pHEMT devices. The 50 Ohm SMA connectorized module is unconditionally stable, includes built-in DC voltage regulation, and supports DC blocking Capacitors on the RF ports. The Amplifier operates with a bias voltage of +12V typical and over the temperature range of -40°C to +85°C. This model is RoHS compliant and has an EAR99 export classification.



Electrical Specifications (TA = +25°C , DC Voltage = +12Vdc , DC Current = 110mA)

Description	Min	Typ	Max	Unit
Frequency Range	2		2.6	GHz
Small Signal Gain	28	30	33	dB
Gain Flatness		±0.35	±0.55	dB
Gain Variance at OTR*			±1	dB
Output at 1 dB Compression Point	+10	+12		dBm
Noise Figure		0.85	1.2	dB
Input VSWR		1.35:1	1.5:1	
Output VSWR		1.35:1	1.5:1	
Reverse Isolation		45		dB
Spurious			-70	dBc
Input Power (CW)			+30	dBm
Operating DC Voltage	+10	+12	+15	Volts
Operating DC Current	90	110	130	mA
Operating Temperature Range	-40		+85	°C

*OTR= Base Plate Operating Temperature Range

Absolute Maximum Rating

Parameter	Rating	Units
Source Voltage	+15	Volts
RF input Power	+30	dBm
Operating Temperature	-40 to +85	°C
Storage Temperature	-55 to +125	°C



ESD Sensitive Material, Transport material in Approved ESD bags. Handle only in approved ESD Workstation.

Features:

- 2 GHz to 2.6 GHz Frequency Range
- P1dB: 12.5 dBm
- High Small Signal Gain: 30 dB typical
- Gain Flatness: ±0.35 dB
- Noise Figure: 0.85 dB typical
- 50 Ohm Input and Output Matched
- -40°C to +85°C Operating Temperature
- Single DC Positive Supply
- DC Blocking Capacitors

Applications:

- R&D Labs
- Radar Systems
- Test Instrumentation
- Communication Systems
- IF Amplifier/RF Driver Amplifier
- RF Wideband Front Ends

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Mechanical Specifications

Size

Length	1.7 in [43.18 mm]
Width	0.95 in [24.13 mm]
Height	0.375 in [9.53 mm]
Weight	0.0615 lbs [27.9 g]
Input Connector	SMA Female
Output Connector	SMA Female

Environmental Specifications

Temperature

Operating Range	-40 to +85 deg C
Storage Range	-55 to +125 deg C

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

Plotted and Other Data

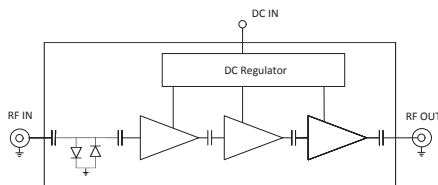
Notes:

- Values at 25 °C, sea level

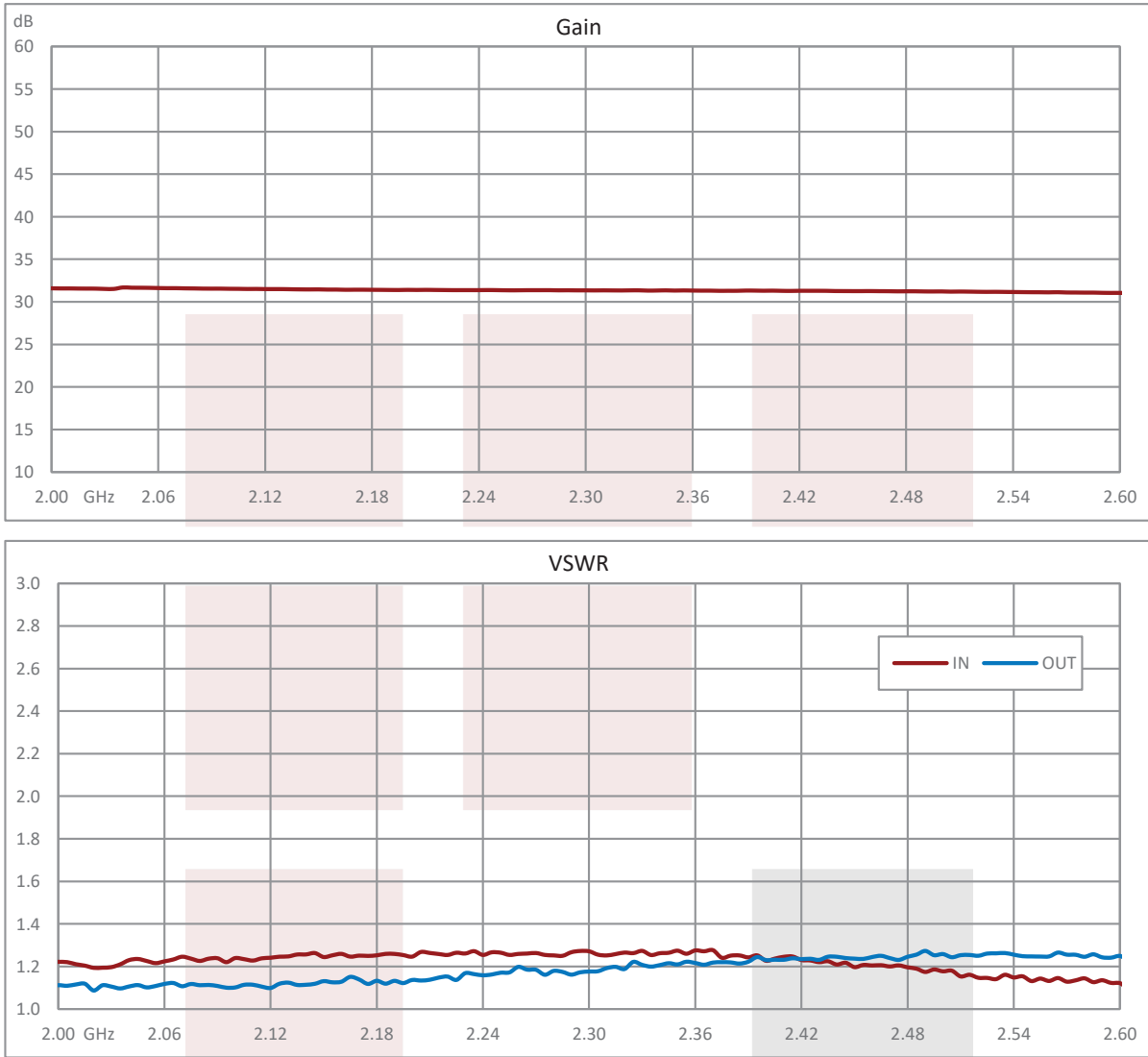
Amplifier Power-up Precautions

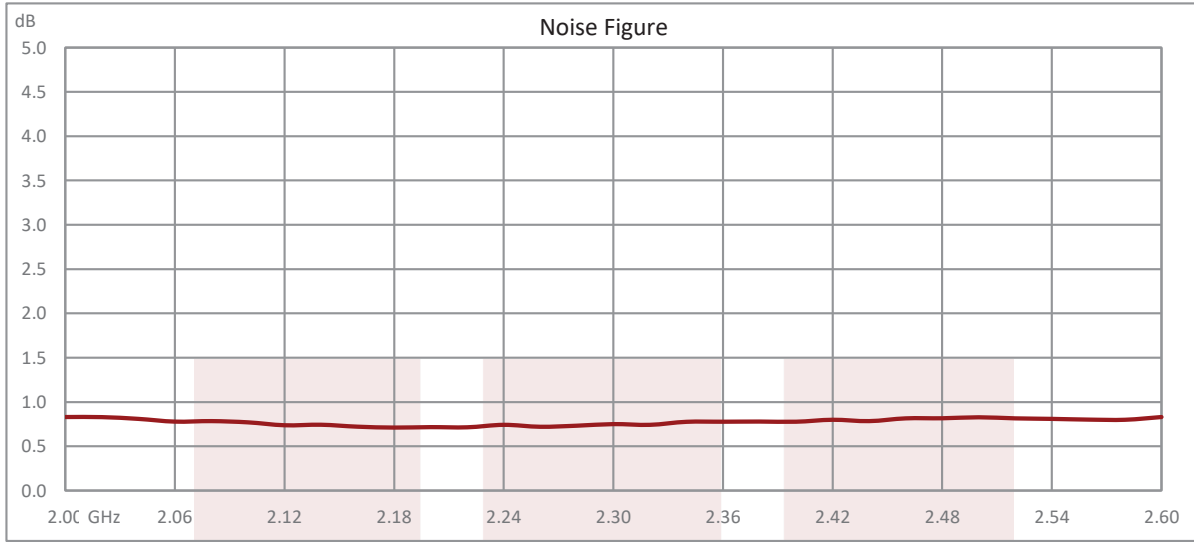
- 1.) Confirm that proper ESD precautions and controls are always in place before handling any Amplifier module.
- 2.) Confirm adequate thermal management is in place to effectively dissipate heat away from the Amplifier package. The Amplifier operational baseplate temperature must be within the operational temperature range stated in the Amplifier datasheet. Depending on the design and thermal requirements, using a heatsink with cooling fan is always recommended for safe reliable operation. A heat sink without a cooling fan may also be used. Damage caused from overheating will void the warranty.
- 3.) Confirm adequate system grounding is established. The DC power supply and Amplifier must have a common ground in order to operate properly.
- 4.) Power Amplifiers may require additional DC Current when initially powered-up. Depending on the design, the input current draw could range from an additional 10% to 100% above the maximum rated DC current of the Amplifier. This varies based on product part number.
- 5.) Confirm the DC power supply, if limited, is set to allow for additional start-up current that's rated for the Power Amplifier.
- 6.) Confirm the system is designed and calibrated for 50 ohms. Any impedance mismatch may cause performance issues.
- 7.) Perform a CALIBRATION (if required) with the loads before connecting the Amplifier to the Network Analyzer to ensure proper performance.
- 8.) Use a fixed attenuator between the signal source and input port of the Amplifier to optimize the input VSWR match.
- 9.) Confirm the input power level at the input port of the amplifier does not exceed the maximum rated limit for input power (as stated in the Amplifier datasheet).
 P_{in} for Small Signal Gain = P1dB-SSG-10 dB
 P_{in} for P1dB = P1dB-SSG+1 dB
- 10.) Confirm the Network Analyzer is always connected to the Amplifier first before DC power is applied to the Amplifier.
- 11.) As long as the input and output ports of the amplifier are connected to a 50ohm load and RF signal power is applied, the Amplifier can be powered up with DC voltage.
- 12.) Confirm the Amplifier output load is matched for a 50 Ohm impedance and will not exceed the maximum rated VSWR or Return Loss limit for the Amplifier. Exceeding the maximum rated VSWR or Return Loss limit will result in reflected signal power that could damage the Amplifier and void the warranty.
- 13.) **Power Amplifier connected to an Antenna for signal transmission** - It's strongly recommended to use a high power fixed attenuator pad or an Isolator between the output port of the Amplifier and input port to the antenna. Any reflected signal power due to impedance mismatch will likely damage the Amplifier and void the warranty.
- 14.) The attenuator or isolator used at the output port of the Amplifier must be rated to handle the output power level and operational frequency band of the amplifier.

Functional Block Diagram



Typical Performance Data



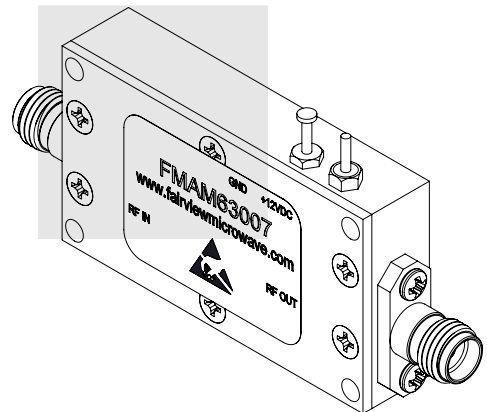
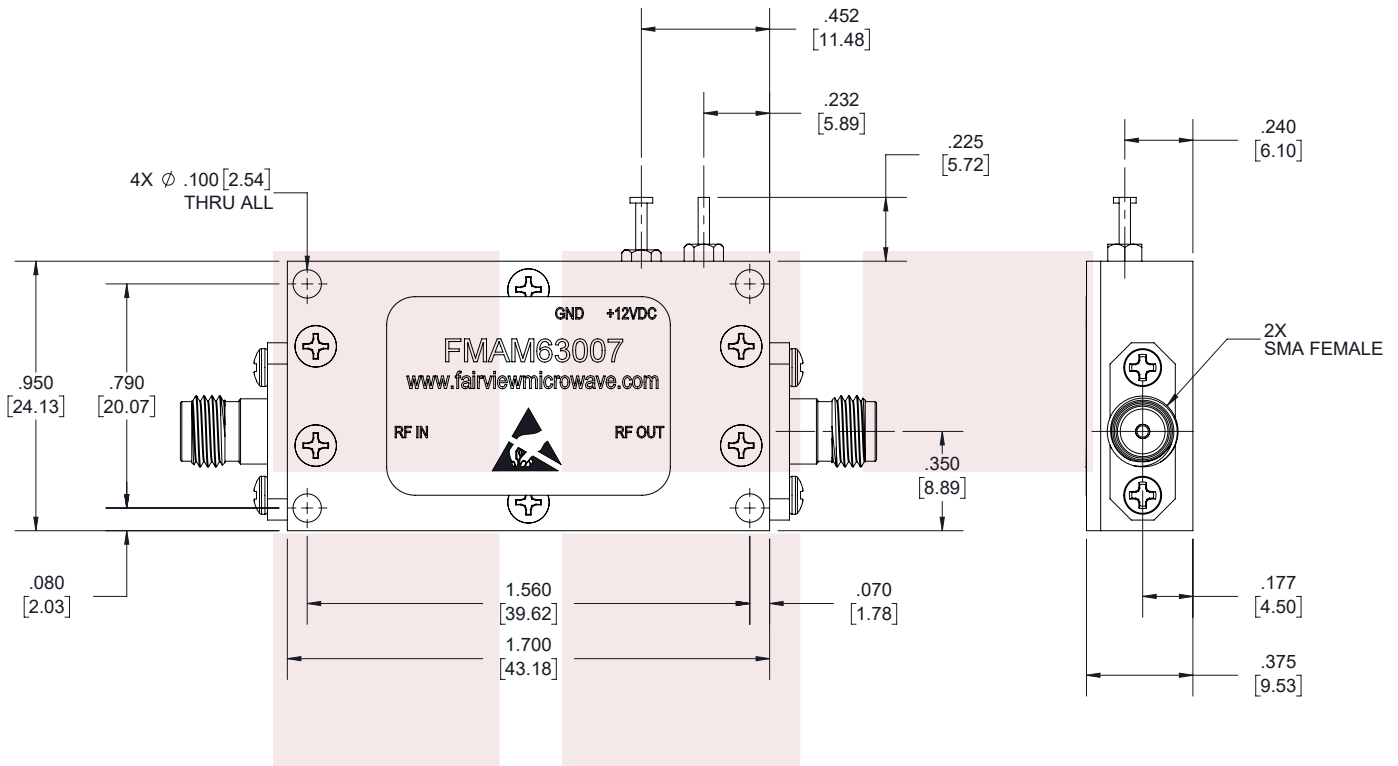


0.85 dB NF Input Protected Low Noise Amplifier, Operating from 2 GHz to 2.6 GHz with 30 dB Gain, 12 dBm P1dB and SMA from Fairview Microwave is in-stock and available to ship same-day. All of our RF/microwave products are available off-the-shelf from our ISO 9001:2008 certified facilities in Lewisville, Texas. Fairview Microwave is RF on-demand.

For additional information on this product, please click the following link: [0.85 dB NF Input Protected Low Noise Amplifier, Operating from 2 GHz to 2.6 GHz with 30 dB Gain, 12 dBm P1dB and SMA FMAM63007](#)

URL: <https://www.fairviewmicrowave.com/0.85db-nf-low-noise-amplifier-30db-fmam63007-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

<p>Fairview Microwave RF COMPONENTS ON DEMAND. <i>Done!</i></p>	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].									
	DWG NO FMAM63007			CAGE CODE 3FKR5						
TITLE 0.85 dB NF Input Protected Low Noise Amplifier, Operating from 2 GHz to 2.6 GHz with 30 dB Gain, 12 dBm P1dB and SMA		CAD FILE	12/20/18	SHEET	1 OF 1	SCALE	N/A	SIZE	A	XXXX