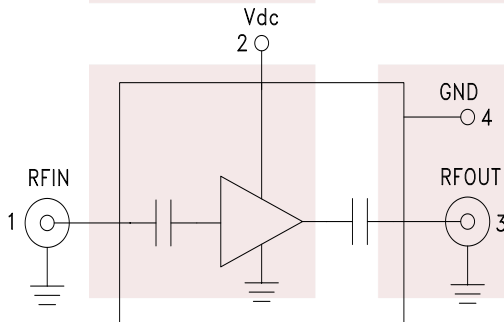


**6.5 dB NF Low Phase Noise Amplifier, Operating From 2 GHz to 18 GHz with 12.5 dB Gain, 16 dBm Psat and SMA**

The FMAM1030 is a low phase noise amplifier that operates across the frequency range from 2 GHz to 18 GHz. The design utilizes leading edge GaAs HBT MMIC technology and exhibits ultra low phase noise of -160 dBc/Hz @ 10 kHz offset frequency. The design also exhibits high dynamic range with typical performance that includes 12.5 dB of small signal gain, 6.5 dB noise figure, up to +13 dBm of output power at P1dB, +20 dBm output IP3, while using a +5V 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.

**Functional Block Diagram**



**Electrical Specifications** (TA = +25°C , DC Voltage = 5Vdc , DC Current = 80mA)

Description	Min	Typ	Max	Unit
Frequency Range	2		18	GHz
Small Signal Gain		12.5		dB
Output at 1 dB Compression Point		+13		dBm
Saturated Output Power (Psat)		+16		dBm
Noise Figure		6.5		dB
Operating DC Voltage		5		Volts
Operating DC Current		80		mA
Operating Temperature Range	-55		+85	°C



**Features:**

- Low Phase Noise Amplifier
- Wide frequency band
- Highly Linear GaAs HBT MMIC Technology
- Phase Noise -160 dBc/Hz @ 10KHz offset
- Gain 12.5 dB typ
- Output IP3 +20 dBm
- P1dB up to +13 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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[www.fairviewmicrowave.com](http://www.fairviewmicrowave.com)  
[sales@fairviewmicrowave.com](mailto:sales@fairviewmicrowave.com)

**Performance by Frequency**

Description	Min.	Typ.	Max.	Min.	Typ.	Max.	Units
Frequency Range		8 - 12.5			2 - 18		GHz
Gain	10.5	13.5		9.5	12.5		dB
Gain Flatness		±1.2			±2.2		dB
Gain Variation Over Temperature		0.021			0.027		dB/ °C
Noise Figure		4.5			6.5		dB
Input Return Loss		18			16		dB
Output Return Loss		17			15		dB
Output Power For 1 dB Compression (P1dB)	13	15		8	13		dBm
Saturated Output Power (Psat)		18.5			16		dBm
Output Third Order Intercept (IP3)		22.5			20		dBm
Phase Noise @ 100 Hz		-140			-150		dBc/Hz
Phase Noise @ 1 KHz		-150			-150		dBc/Hz
Phase Noise @ 10 KHz		-160			-150		dBc/Hz
Phase Noise @ 1 MHz		-165			-160		dBc/Hz
Supply Current		80	104		80	104	mA

**Mechanical Specifications**

**Size**

Length 0.64 in [16.26 mm]  
 Width 0.7 in [17.78 mm]  
 Height 0.29 in [7.37 mm]

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 Sensitivity

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



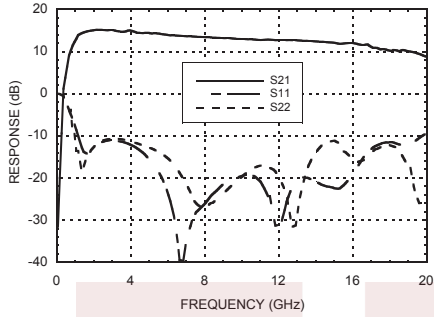
**Compliance Certifications** (see [product page](#) for current document)

**Plotted and Other Data**

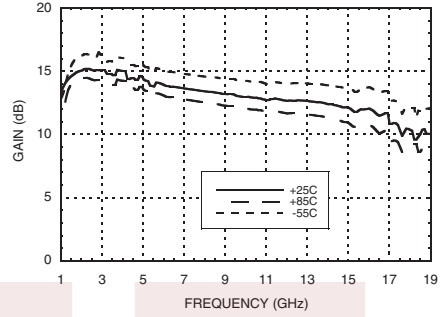
Notes:  
 • Values at 25 °C, sea level

**Typical Performance Data**

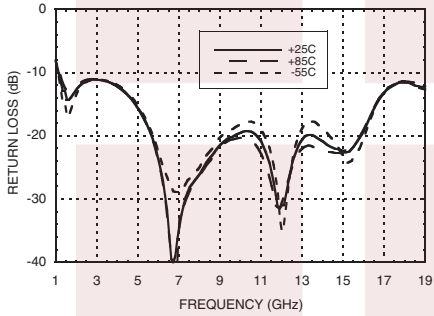
**Gain & Return Loss**



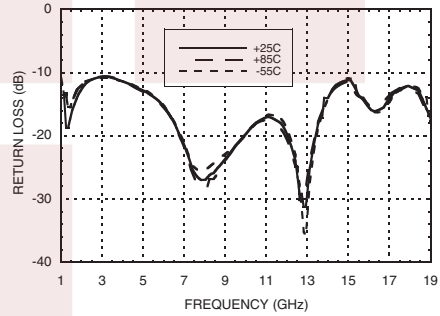
**Gain vs. Temperature**



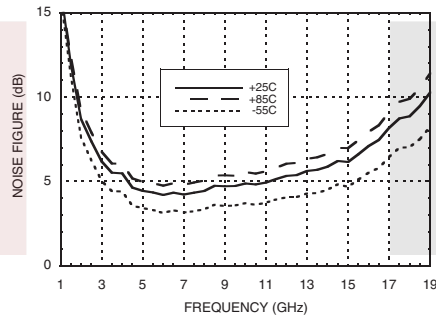
**Input Return Loss vs. Temperature**



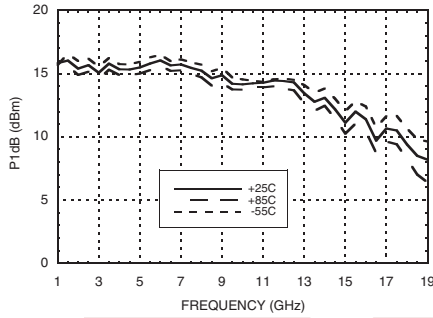
**Output Return Loss vs. Temperature**



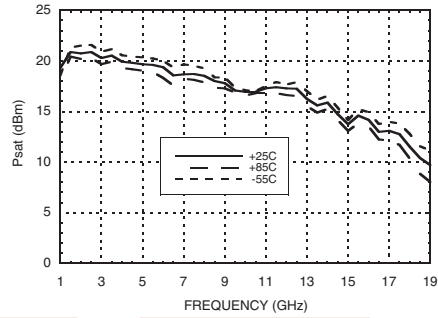
**Noise Figure vs. Temperature**



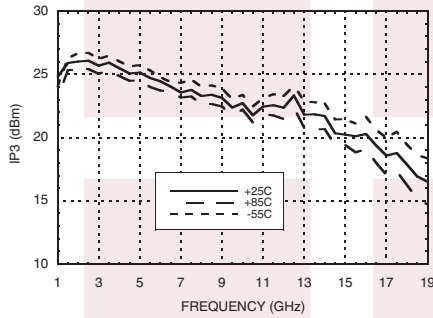
**P1dB vs. Temperature**



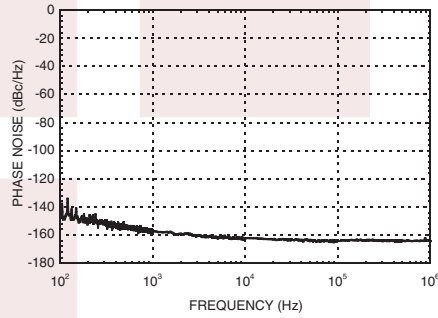
**Psat vs. Temperature**



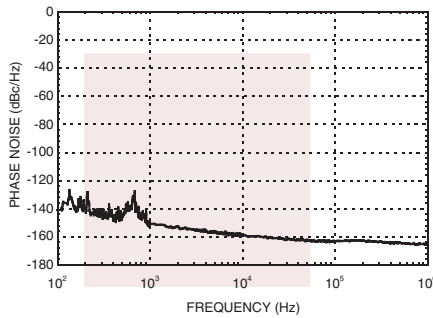
**Output IP3 vs. Temperature**



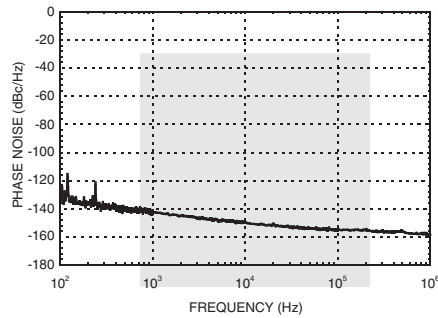
**Phase Noise at Pout = 0 dBm @ 2 GHz**



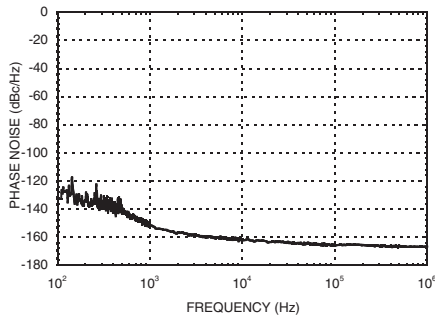
**Phase Noise at Pout = 0 dBm @ 12 GHz**



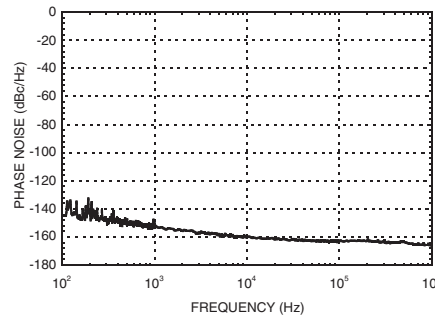
**Phase Noise at Pout = 0 dBm @ 18 GHz**



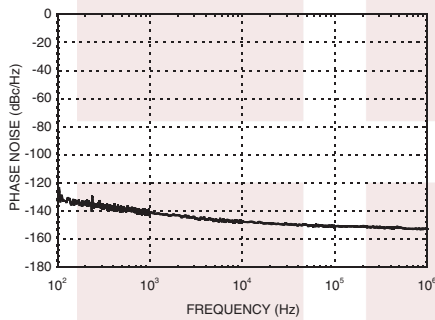
**Phase Noise at Psat @ 2 GHz**



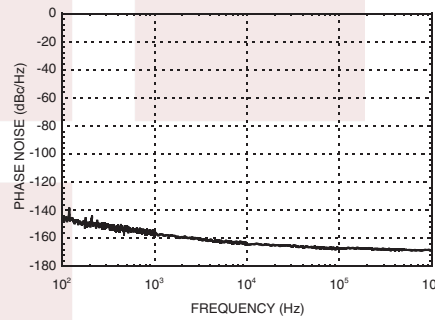
**Phase Noise at Psat @ 12 GHz**



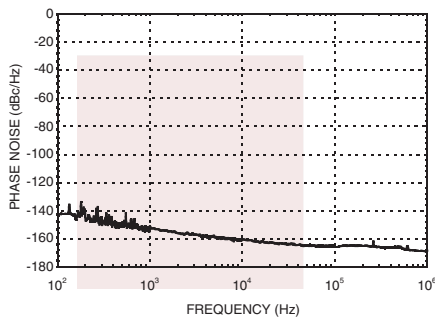
**Phase Noise at Psat @ 18 GHz**



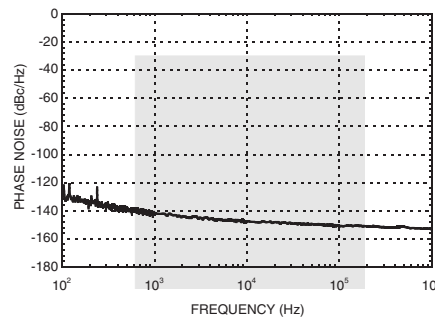
**Phase Noise at P1dB @ 2 GHz**



**Phase Noise at P1dB @ 12 GHz**



**Phase Noise at P1dB @ 18 GHz**

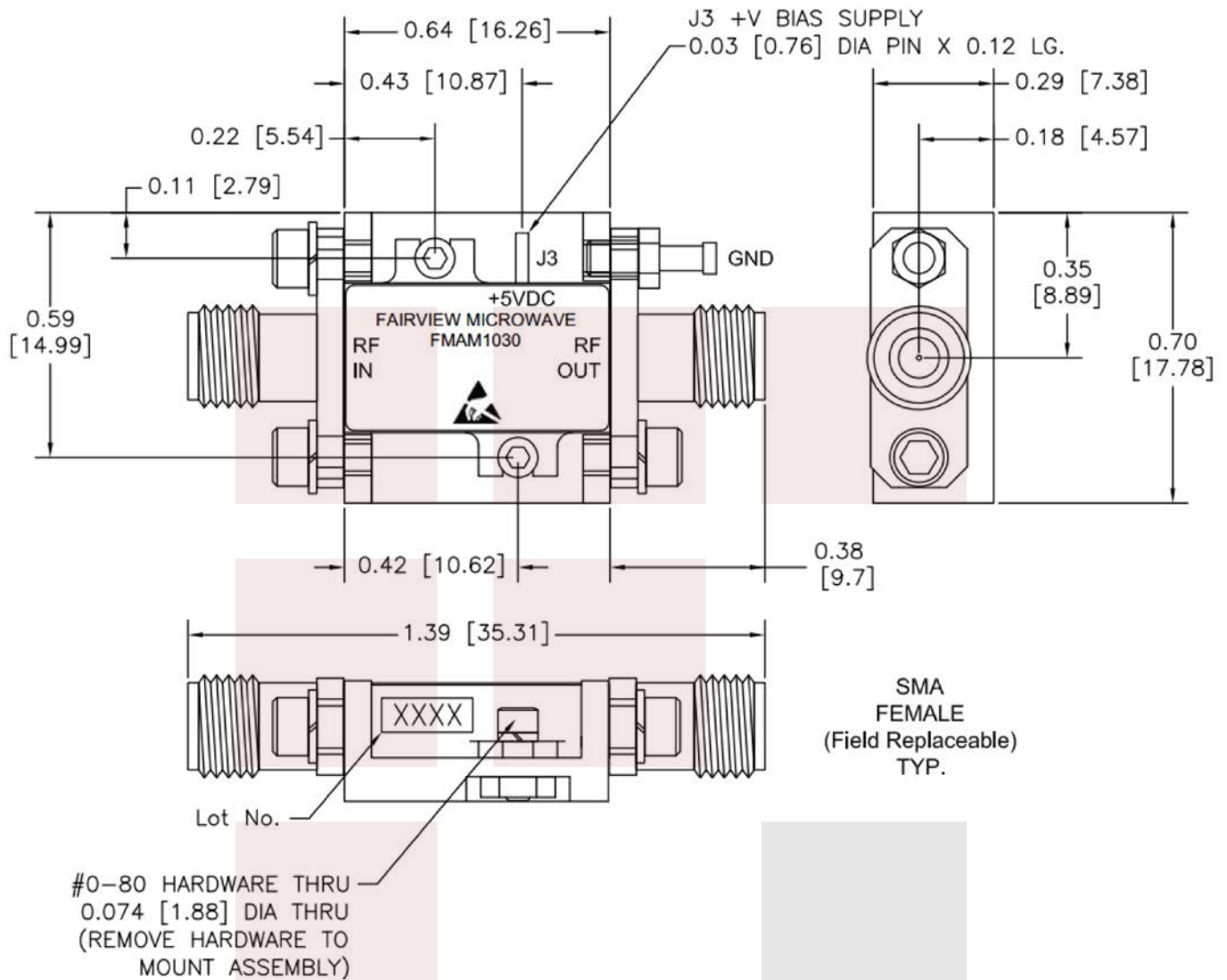


6.5 dB NF Low Phase Noise Amplifier, Operating From 2 GHz to 18 GHz with 12.5 dB Gain, 16 dBm Psat and SMA from Fairview Microwave is in-stock and available to ship same-day. All of our RF/microwave products are available off-the-shelf from our ISO 9001:2008 certified facilities in Allen, Texas. Fairview Microwave is RF on-demand.

For additional information on this product, please click the following link: [6.5 dB NF Low Phase Noise Amplifier, Operating From 2 GHz to 18 GHz with 12.5 dB Gain, 16 dBm Psat and SMA FMAM1030](#)

URL: <https://www.fairviewmicrowave.com/6.5db-nf-low-phase-noise-amplifier-12.5db-fmam1030-p.aspx>

The information contained in this document is accurate to the best of our knowledge and representative of the part described herein. It may be necessary to make modifications to the part and/or the documentation of the part, in order to implement improvements. Fairview Microwave reserves the right to make such changes as required. Unless otherwise stated, all specifications are nominal. Fairview Microwave does not make any representation or warranty regarding the suitability of the part described herein for any particular purpose, and Fairview Microwave does not assume any liability arising out of the use of any part or documentation.



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

STANDARD TOLERANCES

.X ±0.2  
 .XX ±0.01  
 .XXX ±0.005

\*STANDARD TOLERANCES APPLY  
 ONLY TO DIMENSIONS IN INCHES

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].

TITLE  
 6.5 dB NF Low Phase Noise Amplifier, Operating From  
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 SMA

DWG NO	FMAM1030	CAGE CODE	3FKR5					
CAD FILE	05/18/18	SHEET	1 OF 1	SCALE	N/A	SIZE	A	7361