

# High Performance Amplifier, 17 dB Gain, 5 - 500 MHz

AM-147

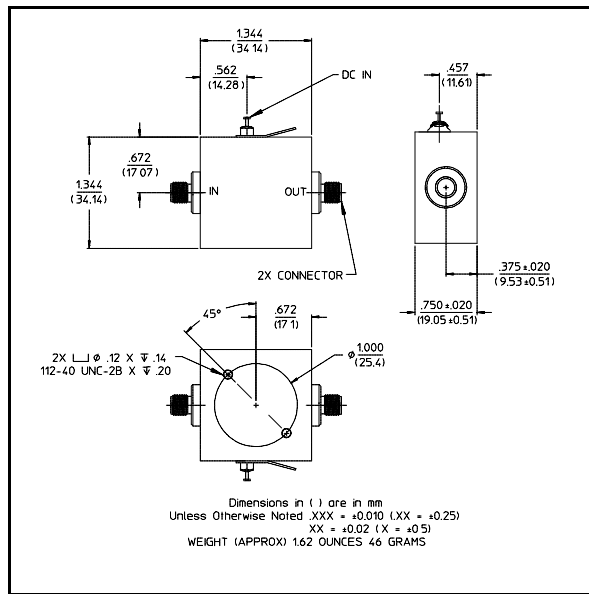
## Features

- 2 dB Typical Midband Noise Figure
- +20 dBm Typical Midband Output Power
- +38 dBm Typical Midband Third Order Intercept

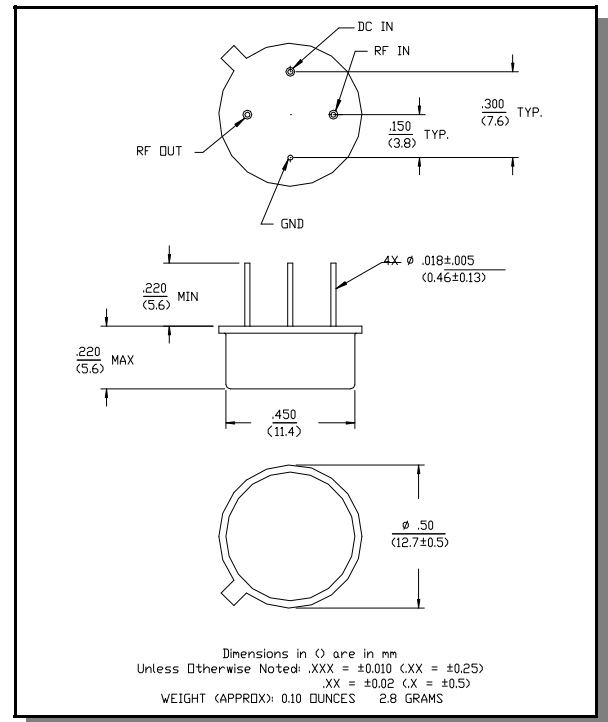
## Description

M/A-COM's AM-147 is a coupler feedback amplifier with high intercept and compression points. The use of coupler feedback minimizes noise figure and current in a high intercept amplifier. This amplifier is packaged in a TO-8 package. Due to the internal power dissipation the thermal rise minimized. The ground plane on the PC board should be configured to remove heat from under the package. AM-147 is ideally suited for use where a high intercept, high reliability amplifier is required.

## C-32



## TO-8-1



## Absolute Maximum Ratings <sup>1</sup>

Parameter	Absolute Maximum
Max. Input Power	+10 dBm
V <sub>bias</sub>	+15.75 V
Operating Temperature	-55°C to +85°C
Storage Temperature	-65°C to +125°C

1. Operation of this device above any one of these parameters may cause permanent damage.

Electrical Specifications <sup>2,3</sup>  $T_A = -55^\circ\text{C}$  to  $+85^\circ\text{C}$  Case Temperature

Parameter	Test Conditions	Frequency	Units	Min.	Typ.	Max.
Gain	@ +25°C	50 MHz	dB	16.4	17.0	17.6
Frequency Response	—	5 - 500 MHz	dB	—	—	± 1.0
Gain Variation with Temperature	—	5 - 500 MHz	dB	—	—	-1.2,+0.5
1 dB Compression	Output Power	5 - 500 MHz	dBm	+19	—	—
Noise Figure	—	5 - 500 MHz 5 - 300 MHz	dB dB	— —	— —	4.5 3.5
Reverse Transmission	—	5 - 500 MHz	dB	—	-20	-16
VSWR	—	5 - 500 MHz	Ratio	—	—	2.0:1
Output IP <sub>2</sub>	Two-tone inputs up to +5 dBm	5 - 500 MHz	dBm	+38	—	—
Output IP <sub>3</sub>	Two-tone inputs up to +5 dBm	5 - 500 MHz	dBm	+28	—	—
Vbias	—	—	VDC	+14.5	+15.0	+15.5
Ibias	Vbias = +15.0 VDC	—	mA	—	50	60
Power Dissipation	@ +15V Bias	—	mW	—	750	—

2. All specifications apply when operated at +15 VDC, with 50 ohms source and load impedance.

3. Heat Sinking: Operation at case temperature above 95°C is not recommended. Heat sinking adequate to dissipate 850 mW must be provided in use.

## S-Parameter Data

Frequency (MHz)	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
5	0.19	-68.2	6.75	-153.1	0.09	-152.0	0.20	-21.0
10	0.11	-78.1	7.05	-167.3	0.09	-168.0	0.12	-22.9
20	0.07	-83.8	7.17	-176.4	0.10	-177.7	0.10	-13.5
50	0.06	-95.0	7.15	171.4	0.10	170.1	0.09	-1.9
100	0.07	-100.1	7.14	159.2	0.10	156.7	0.10	2.6
200	0.11	-122.1	7.17	136.3	0.11	130.3	0.13	3.8
300	0.14	-141.7	7.08	114.7	0.11	108.4	0.14	-5.5
400	0.15	-166.3	7.16	91.0	0.11	86.6	0.17	-19.9
500	0.17	164.6	7.24	67.9	0.12	66.5	0.19	-38.9

Specifications subject to change without notice.

- North America: Tel. (800) 366-2266
- Asia/Pacific: Tel.+81-44-844-8296, Fax +81-44-844-8298
- Europe: Tel. +44 (1344) 869 595, Fax+44 (1344) 300 020

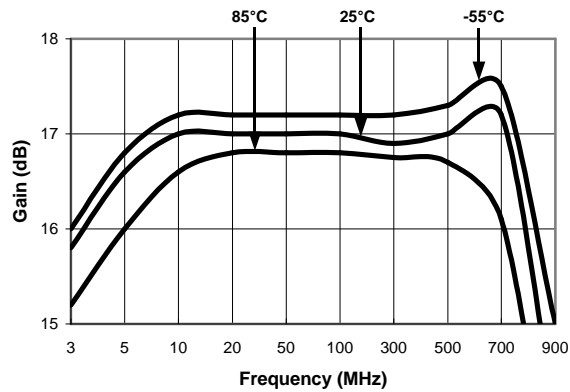
Visit [www.macom.com](http://www.macom.com) for additional data sheets and product information.

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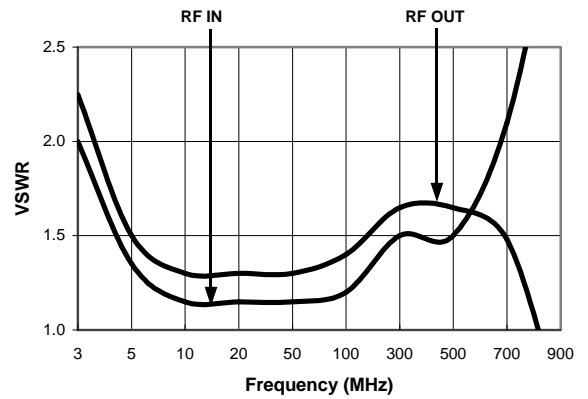
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Typical Performance Curves

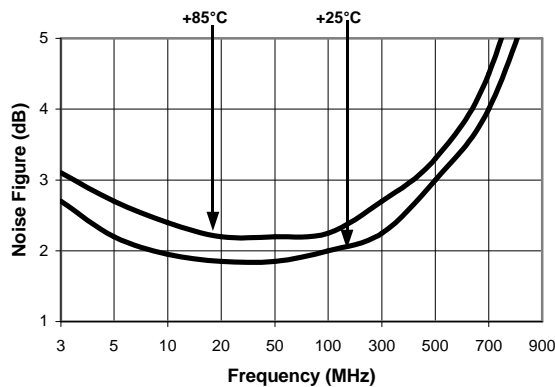
Gain vs. Frequency



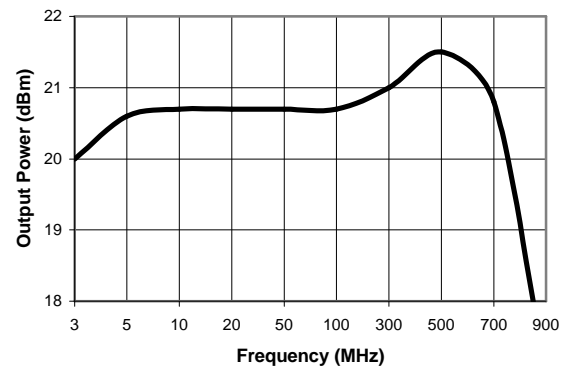
VSWR vs. Frequency



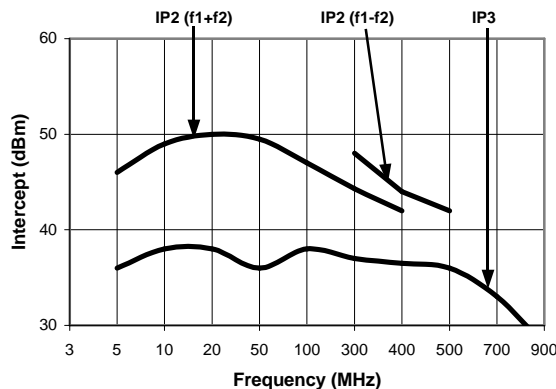
Noise Figure



1 dB Compression



Intermodulation Intercept



Ordering Information

Part Number	Package
AM-147 PIN <sup>4</sup>	TO-8-1
AMC-147 SMA	Connectorized

4. Mounting kit part number AU00071 required for PCB applications.

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Visit [www.macom.com](http://www.macom.com) for additional data sheets and product information.