

# Cascadable Thin Film Amplifier, 13 dB Gain, 5 - 1000 MHz

AM-176

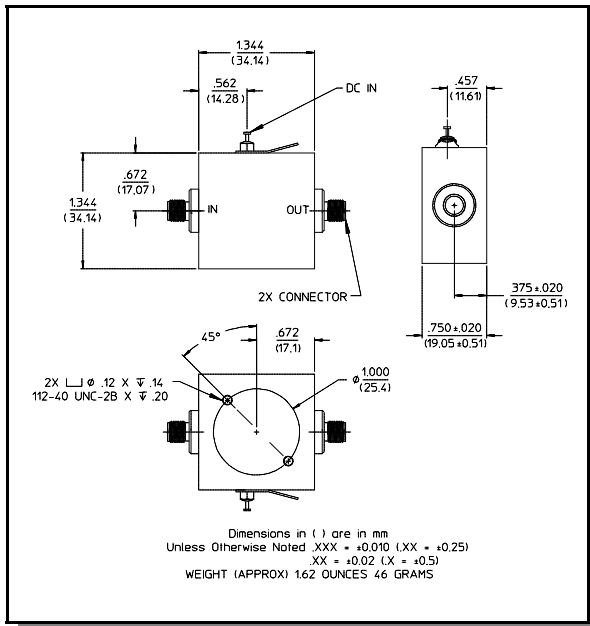
## Features

- 4.0 dB Typical Noise Figure
- 13.5 dBm Typical Midband 1 dB Compression
- 1.25:1 Typical VSWR

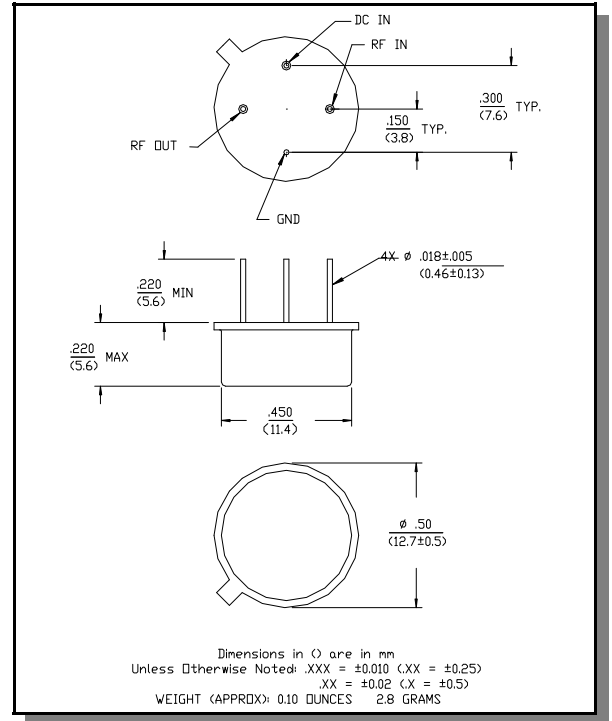
## Description

M/A-COM's AM-176 is a feedback amplifier with high intercept and compression points. This amplifier is packaged in a TO-8 package. Due to the internal power dissipation the thermal rise should be minimized. The ground plane on the PC board should be configured to remove heat from under the package. AM-176 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
Vbias	+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	500 MHz	dB	12.2	13.2	14.2
Frequency Response	—	5 - 1000 MHz	dB	—	—	±1.0
Gain Variation with Temperature	—	5 - 1000 MHz	dB	—	—	±1.0
1 dB Compression	Output Power	5 - 1000 MHz	dBm	+12	—	—
Noise Figure	—	5 - 1000 MHz	dB	—	—	5.0
Reverse Transmission	—	5 - 1000 MHz	dB	—	-17	-14
VSWR	—	5 - 1000 MHz	Ratio	—	—	1.8:1
Output IP <sub>2</sub>	Two-tone inputs up to 0 dBm	5 - 1000 MHz	dBm	+37	—	—
Output IP <sub>3</sub>	Two-tone inputs up to 0 dBm	5 - 1000 MHz	dBm	+25	—	—
Vbias	—	—	V	+14.5	+15.0	+15.5
Ibias	Vbias = +15.0 VDC	—	mA	—	38	43
Power Dissipation	@ +15V Bias	—	mW	—	570	—

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 650 mW must be provided in use.

## S-Parameter Data

Frequency (MHz)	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
5	0.14	151.3	4.59	-168.1	0.13	-0.9	0.12	144.6
10	0.14	168.4	4.67	-175.5	0.13	0.1	0.10	156.3
20	0.14	178.2	4.61	-179.6	0.13	0.0	0.09	166.5
50	0.14	167.9	4.61	174.5	0.13	-0.1	0.09	170.5
100	0.13	161.6	4.58	168.6	0.13	-1.0	0.08	166.8
250	0.12	132.4	4.56	150.1	0.14	-3.5	0.08	149.9
500	0.10	83.9	4.57	119.8	0.15	-9.0	0.07	121.3
750	0.08	39.7	4.52	89.1	0.16	-17.7	0.05	76.1
1000	0.04	-91.4	4.39	58.4	0.16	-28.4	0.07	-9.9

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

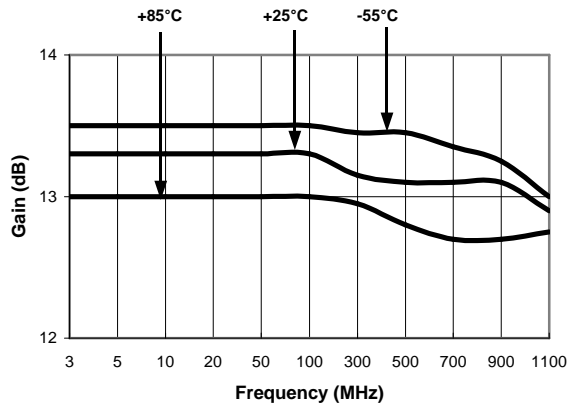
Visit [www.macom.com](http://www.macom.com) for additional data sheets and product information.

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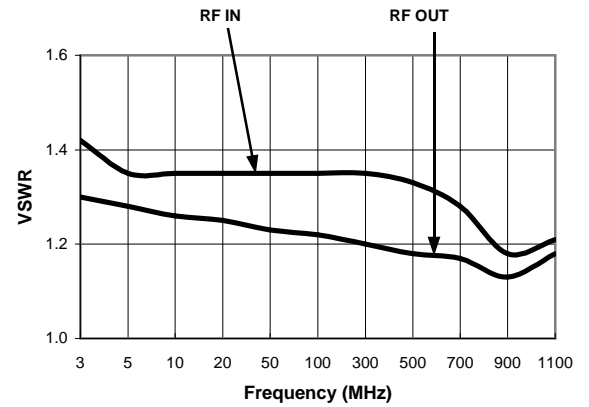
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### Typical Performance Curves

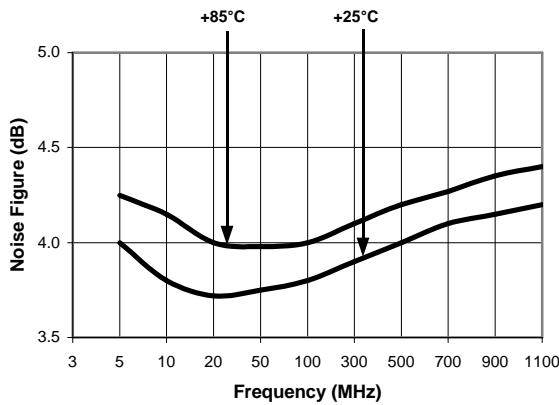
**Gain vs. Frequency**



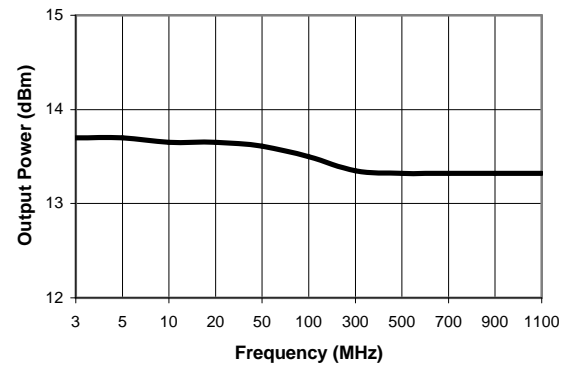
**VSWR vs. Frequency**



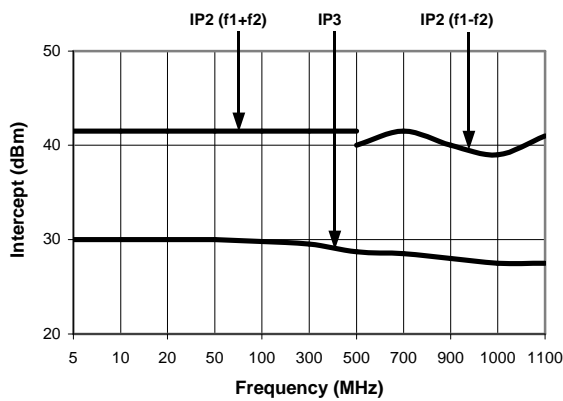
**Noise Figure**



**1 dB Compression**



**Intermodulation Intercept**



### Ordering Information

Part Number	Package
AM-176 PIN	TO-8-1
AMC-176 SMA	C-32

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