

AM-176 / AMC-176



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

Rev. V4

Features

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

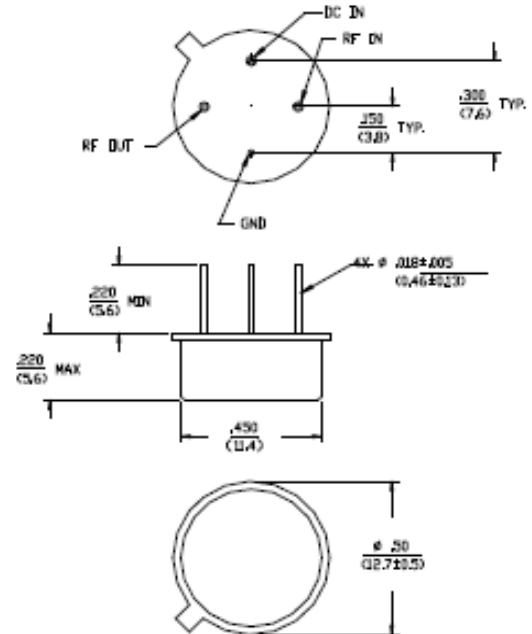
Description

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.

Ordering Information

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

TO-8-1



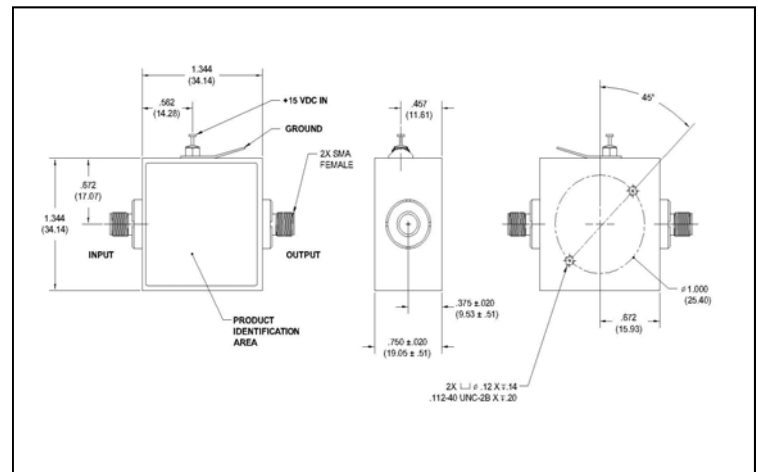
Dimensions in ϕ are in mm
Unless Otherwise Noted .XXX = ± 0.010 .XX = ± 0.25
.XX = ± 0.02 (X = ± 0.5)
WEIGHT (APPROX) (10) DUNCES 2.0 GRAMS

Outline Drawing: SMA Connectorized *

Absolute Maximum Ratings ¹

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.



* Dimensions are inches (millimeters) ± 0.015 (0.38) unless otherwise specified.

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Electrical Specifications: ^{2,3} T_A = -55°C to +85°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 ₂	Two-Tone inputs up to 0 dBm	5 - 1000 MHz	dBm	+37	—	—
Output IP ₃	Two-Tone inputs up to 0 dBm	5 - 1000 MHz	dBm	+25	—	—
V _{bias}	—	—	VDC	+14.5	+15.0	+15.5
I _{bias}	V _{bias} = +15.0 VDC	—	mA	—	38	43
Power Dissipation	@ +15 V 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 MAG/ANG	S21 MAG/ANG	S12 MAG/ANG	S22 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	4.56/10.1	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

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ADVANCED: Data Sheets contain information regarding a product M/A-COM Technology Solutions is considering for development. Performance is based on target specifications, simulated results, and/or prototype measurements. Commitment to develop is not guaranteed.

PRELIMINARY: Data Sheets contain information regarding a product M/A-COM Technology Solutions has under development. Performance is based on engineering tests. Specifications are typical. Mechanical outline has been fixed. Engineering samples and/or test data may be available. Commitment to produce in volume is not guaranteed.

• **North America** Tel: 800.366.2266 • **Europe** Tel: +353.21.244.6400

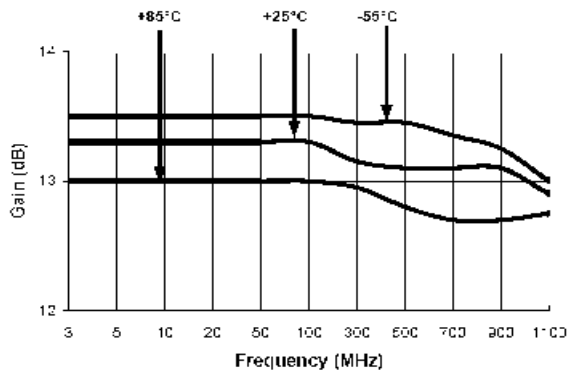
• **India** Tel: +91.80.4155721 • **China** Tel: +86.21.2407.1588

Visit www.macomtech.com for additional data sheets and product information.

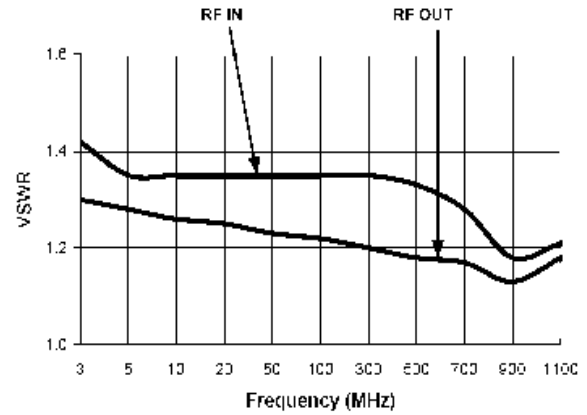
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Typical Performance Curves

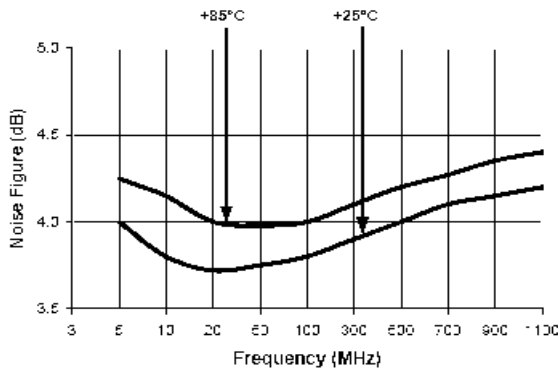
Gain vs. Frequency



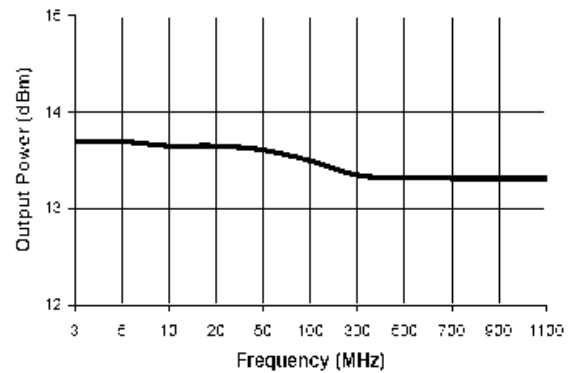
VSWR vs. Frequency



Noise Figure



1 dB Compression



Intermodulation Intercept

