

# Cascadable Thin Film Amplifier, 10 dB Gain, 10 - 1000 MHz

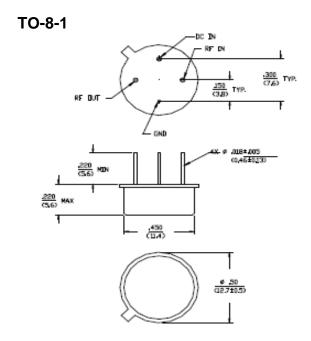
Rev. V4

#### **Features**

- +22 dBm Typical High 1 dB Compression
- +38 dBm Typical High Third Order Intercept
- 1.2:1 Typical VSWR

### **Description**

M/A-COM's AM-177 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-177 is ideally suited for use where a high intercept, high reliability amplifier is required.



Discriptions in O are in an Unless Discription Note:  $\pm 0.25$   $\pm 0.00$   $\pm 0.00$ 

# Electrical Specifications: <sup>1,2</sup> T<sub>A</sub> = -55°C to +85°C Case Temperature

| Parameter                          | Test Conditions             | Frequency     | Units | Min.  | Тур.  | Max.  |
|------------------------------------|-----------------------------|---------------|-------|-------|-------|-------|
| Gain                               | @+25°C                      | 500 MHz       | dB    | 9.5   | 10.0  | 10.5  |
| Frequency Response                 | _                           | 10 - 1000 MHz | dB    | _     | _     | ±0.5  |
| Gain Variation with<br>Temperature | _                           | 10 - 1000 MHz | dB    | _     | _     | +0.8  |
| 1 dB Compression                   | Output Power                | 10 - 1000 MHz | dBm   | +20   | +22   | _     |
| Noise Figure                       | _                           | 10 - 1000 MHz | dB    |       | 5.8   | 8.5   |
| Reverse Transmission               | _                           | 10 - 1000 MHz | dB    | _     | -16   | -14   |
| VSWR                               | _                           | 10 - 1000 MHz | Ratio | _     | 1.6:1 | 2.0:1 |
| Output IP <sub>2</sub>             | Two-Tone inputs up to 0 dBm | 10 - 1000 MHz | dBm   | +42   | _     | _     |
| Output IP <sub>3</sub>             | Two-Tone inputs up to 0 dBm | 10 - 1000 MHz | dBm   | +30   | _     | _     |
| Vbias                              | _                           | _             | VDC   | +14.5 | +15.0 | +15.5 |
| Ibias                              | Vbias = +15.0 VDC           | _             | mA    | _     | 105   | 115   |
| Power Dissipation                  | @ +15 V Bias                | _             | mW    | _     | 1575  | _     |

<sup>1.</sup> All specifications apply when operated at +15 VDC, with 50 ohms source and load impedance.

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 sets open fical tops are typical. Mechanical outline has been fixed I primetering setmeers up to 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
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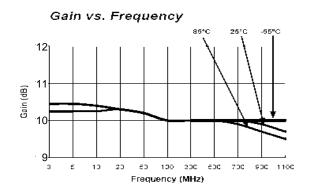
<sup>2.</sup> Heat Sinking: Operation at case temperature above 95°C is not recommended. Heat sinking adequate to dissipate 1.75W must be provided in use.



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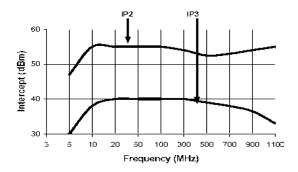
## **Typical Performance Curves**



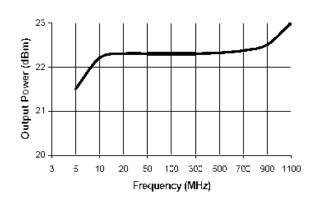
#### VSWR vs. Frequency RF OUT 2.0 1.5 VSWR 1.2 1.0 13 20 ēΟ 100 800 600 700 900 1100 Frequency (MHz)

#### Noise Figure 10 Noise Figure (dB) 10 20 100 300 500 700 900 1100 Frequency (MHz)

#### Intermodulation Intercept



## 1 dB Compression



# Absolute Maximum Ratings <sup>4</sup>

| Parameter             | Absolute Maximum |  |  |
|-----------------------|------------------|--|--|
| Max. Input Power      | +20 dBm          |  |  |
| Vbias                 | +15.75 V         |  |  |
| Operating Temperature | -55°C to +85°C   |  |  |
| Storage Temperature   | -65°C to +125°C  |  |  |

# **Ordering Information**

| Part Number             | Package |  |  |
|-------------------------|---------|--|--|
| AM-177 PIN <sup>3</sup> | TO-8-1  |  |  |

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

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

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