

**Cascadable Thin Film Amplifier,  
10 dB Gain, 10 - 2000 MHz**

**AM-180/AMC-180  
V3**

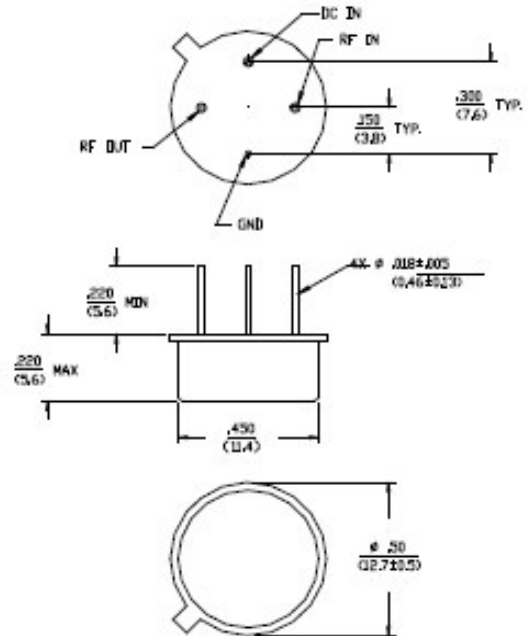
**Features**

- +14 dBm Typical 1 dB Compression
- 5 dB Typical Noise Figure
- 1.4:1 Typical VSWR

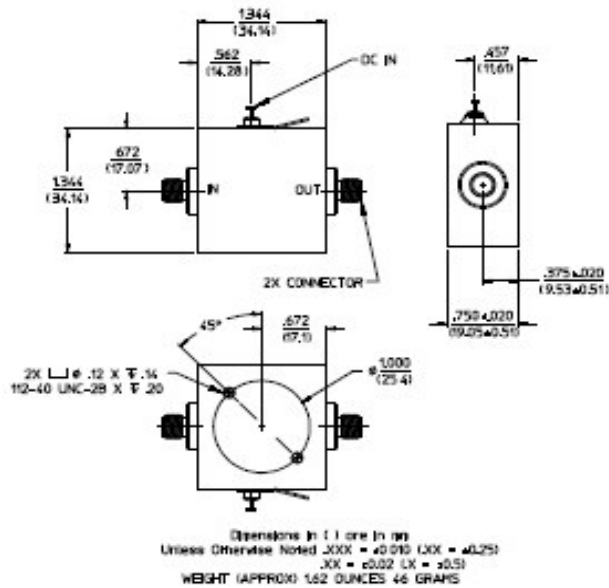
**Description**

M/A-COM's AM-180 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-180 is ideally suited for use where a high intercept, high reliability amplifier is required.

**TO-8-1**



**C-32**



Dimensions in  $\phi$  are in mm  
Unless Otherwise Noted .XXX =  $\pm 0.010$  (.XX =  $\pm 0.25$ )  
.XX =  $\pm 0.02$  (.X =  $\pm 0.5$ )  
WEIGHT (APPROX) 0.0 DUNCES 2.8 GRAMS

**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.

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**Electrical Specifications: <sup>2,3</sup> T<sub>A</sub> = -55°C to +85°C Case Temperature**

| Parameter                       | Test Conditions             | Frequency     | Units | Min.  | Typ.  | Max.  |
|---------------------------------|-----------------------------|---------------|-------|-------|-------|-------|
| Gain                            | @+25°C                      | 1000 MHz      | dB    | 8.7   | 9.7   | 10.7  |
| Frequency Response              | —                           | 10 - 2000 MHz | dB    | —     | —     | ±1.0  |
| Gain Variation with Temperature | —                           | 10 - 2000 MHz | dB    | —     | —     | ±1.0  |
| 1 dB Compression                | Output Power                | 10 - 2000 MHz | dBm   | +13   | —     | —     |
| Noise Figure                    | —                           | 10 - 2000 MHz | dB    | —     | —     | 7.0   |
| Reverse Transmission            | —                           | 10 - 2000 MHz | dB    | —     | -14   | -12   |
| VSWR                            | —                           | 10 - 2000 MHz | Ratio | —     | —     | 2:1   |
| Output IP <sub>2</sub>          | Two-Tone inputs up to 0 dBm | 10 - 2000 MHz | dBm   | +39   | —     | —     |
| Output IP <sub>3</sub>          | Two-Tone inputs up to 0 dBm | 10 - 2000 MHz | dBm   | +25   | —     | —     |
| Vbias                           | —                           | —             | VDC   | +14.5 | +15.0 | +15.5 |
| Ibias                           | Vbias = +15.0 VDC           | —             | mA    | —     | 45    | 50    |
| Power Dissipation               | @ +15 V Bias                | —             | mW    | —     | 680   | —     |

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 800 mW must be provided in use.

**S-Parameter Data**

| Frequency (MHz) | S11 MAG/ANG | S21 MAG/ANG | S12 MAG/ANG | S22 MAG/ANG |
|-----------------|-------------|-------------|-------------|-------------|
| 10              | 0.20/-156.1 | 2.97/-173.1 | 0.17/8.6    | 0.24/166.9  |
| 20              | 0.21/-169.7 | 2.98/-177.4 | 0.17/4.4    | 0.23/170.3  |
| 40              | 0.22/-174.2 | 3.01/179.0  | 0.18/1.7    | 0.22/171.1  |
| 100             | 0.23/174.3  | 3.02/171.6  | 0.18/-1.4   | 0.21/166.1  |
| 200             | 0.18/170.9  | 3.01/162.0  | 0.18/-4.5   | 0.20/154.5  |
| 500             | 0.13/149.3  | 3.05/134.3  | 0.19/-14.1  | 0.18/113.3  |
| 1000            | 0.07/-140.6 | 3.12/86.4   | 0.20/-35.9  | 0.17/5.5    |
| 1500            | 0.18/-133.3 | 3.05/32.4   | 0.18/-59.6  | 0.20/-93.3  |
| 2000            | 0.24/168.2  | 3.01/-23.7  | 0.17/-76.2  | 0.26/-147.3 |

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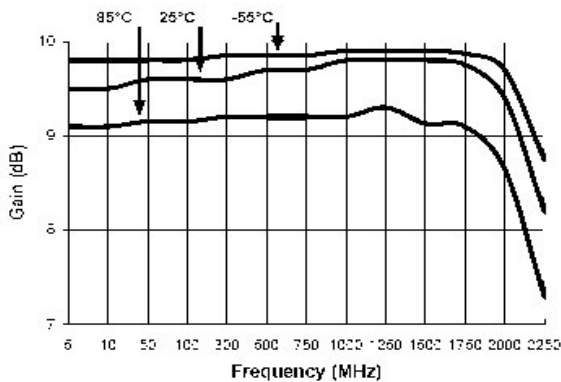
Visit [www.macom.com](http://www.macom.com) for additional data sheets and product information.

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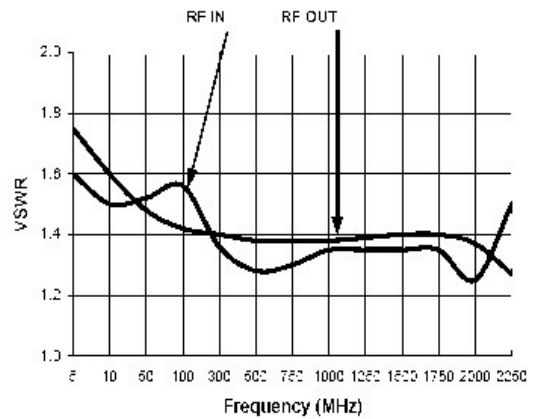
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**Typical Performance Curves**

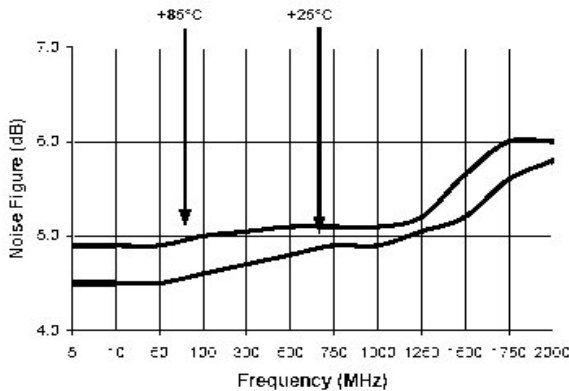
**Gain vs. Frequency**



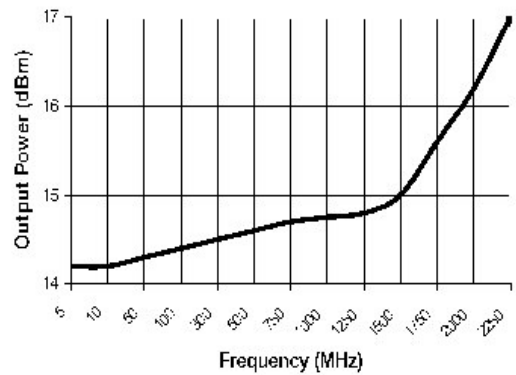
**VSWR vs. Frequency**



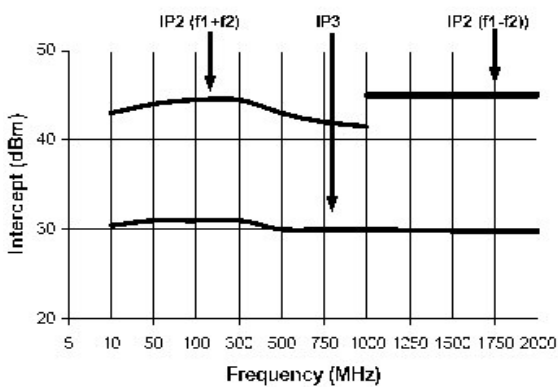
**Noise Figure**



**1 dB Compression**



**Intermodulation Intercept**



**Ordering Information**

| Part Number | Package |
|-------------|---------|
| AM-180 PIN  | TO-8-1  |
| AMC-180 SMA | C-32    |