

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

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

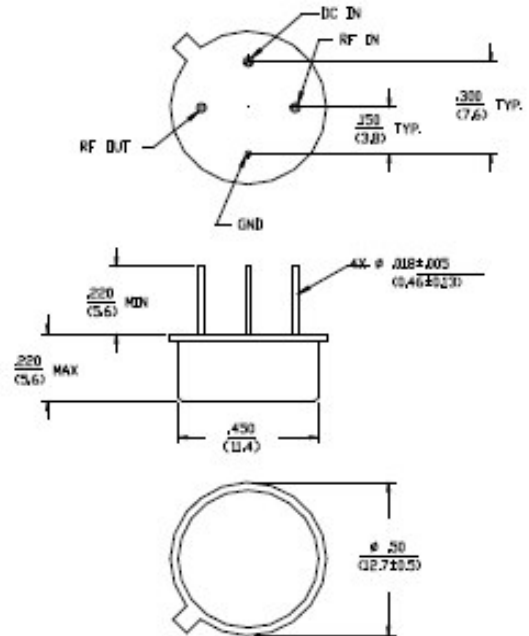
Features

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

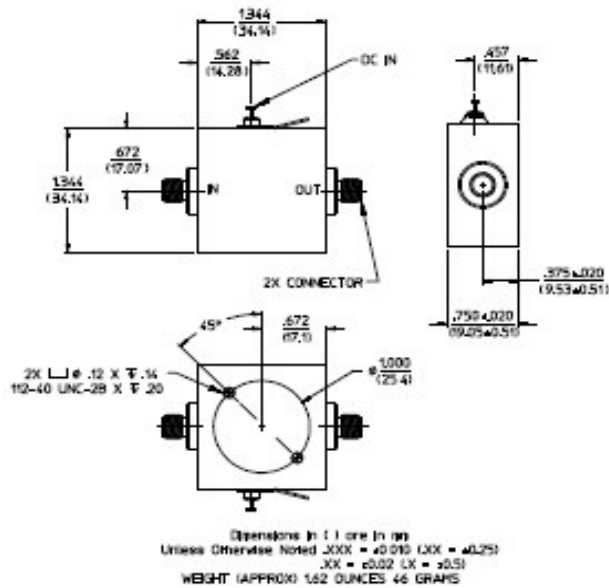
Description

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 () are in mm
Unless Otherwise Noted .XXX = ±0.010 (XX = ±0.25)
.XX = ±0.02 (X = ±0.5)
WEIGHT (APPROX) 0.0 OUNCES 2.0 GRAMS

Absolute Maximum Ratings ¹

| Parameter | Absolute Maximum |
|-----------------------|------------------|
| Max. Input Power | +10 dBm |
| V _{bias} | +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: ^{2,3} T_A = -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 ₂ | Two-Tone inputs up to 0 dBm | 10 - 2000 MHz | dBm | +39 | — | — |
| Output IP ₃ | 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 |

2

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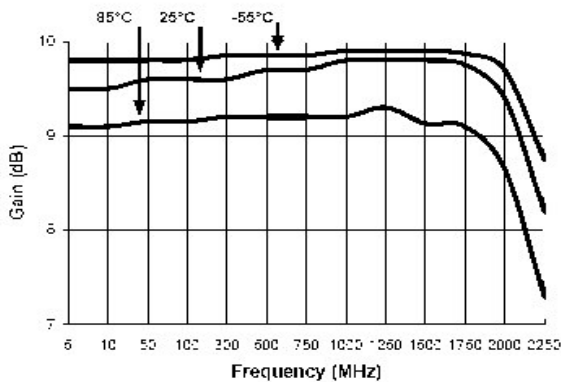
Visit www.macom.com for additional data sheets and product information.

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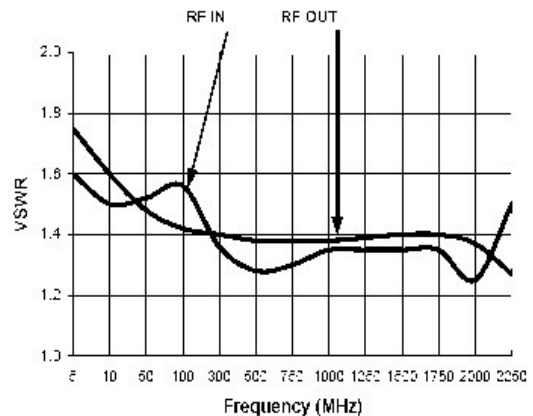
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Typical Performance Curves

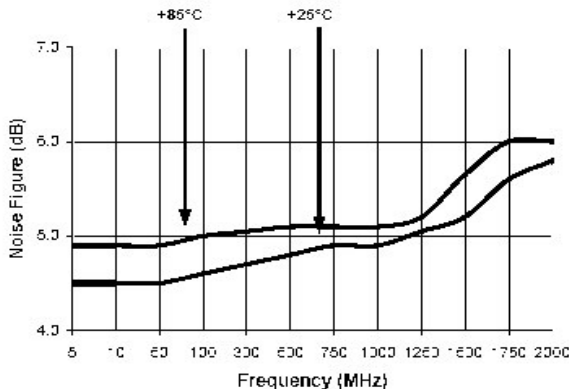
Gain vs. Frequency



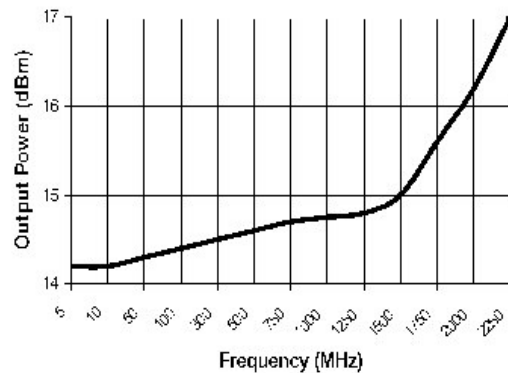
VSWR vs. Frequency



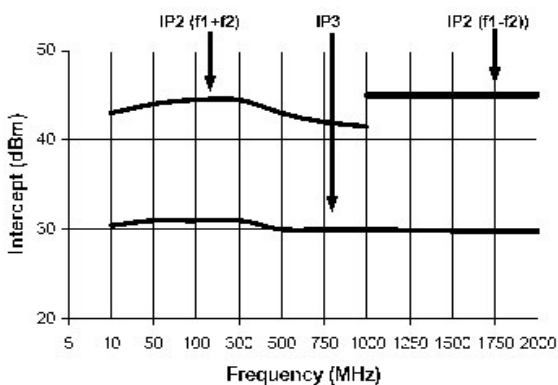
Noise Figure



1 dB Compression



Intermodulation Intercept



Ordering Information

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