

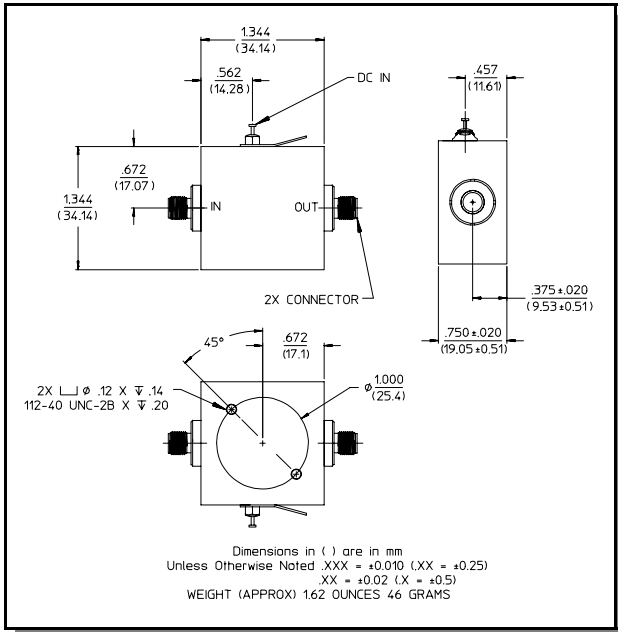
## Features

- 1.9 dB Typical Midband Noise Figure
- +7 dBm Typical Midband Output Power
- +20 dBm Typical Third Order Intercept

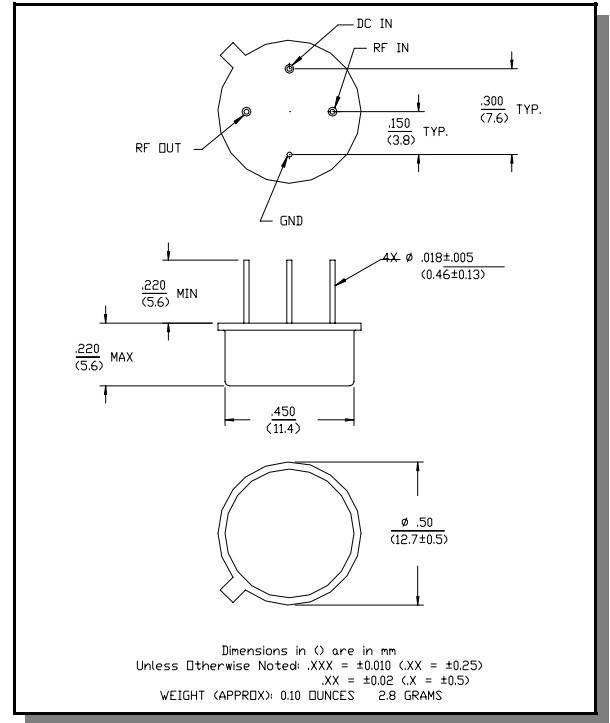
## Description

M/A-COM's AM-143 is a coupler feedback amplifier with low noise figure and high intercept points for the low bias current. The use of coupler feedback minimizes noise figure and current in a high intercept amplifier. This amplifier is packaged in a TO-8 package. The ground plane on the PC board should be configured to remove heat from under the package. AM-143 are ideally suited for use where a low noise, high reliability amplifier is required.

## C-32



## TO-8-1



## Absolute Maximum Ratings <sup>1</sup>

| Parameter             | Absolute Maximum |
|-----------------------|------------------|
| Max. Input Power      | +20 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.

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

| Parameter                       | Test Conditions               | Frequency                  | Units    | Min.   | Typ.   | Max.       |
|---------------------------------|-------------------------------|----------------------------|----------|--------|--------|------------|
| Gain                            | @ +25°C                       | 50 MHz                     | dB       | 15.3   | 15.8   | 16.3       |
| Frequency Response              | —                             | 5 - 500 MHz                | dB       | —      | —      | ± 1.0      |
| Gain Variation with Temperature | —                             | 5 - 500 MHz                | dB       | —      | —      | ± 0.8      |
| 1 dB Compression                | Output Power                  | 5 - 500 MHz                | dBm      | +4     | —      | —          |
| Noise Figure                    | —                             | 5 - 500 MHz<br>5 - 100 MHz | dB<br>dB | —<br>— | —<br>— | 3.5<br>2.7 |
| Reverse Transmission            | —                             | 5 - 500 MHz                | dB       | —      | -21    | -16        |
| VSWR                            | —                             | 5 - 500 MHz                | Ratio    | —      | —      | 2.5:1      |
| Output IP <sub>2</sub>          | Two-tone inputs up to -10 dBm | 5 - 500 MHz                | dBm      | +24    | —      | —          |
| Output IP <sub>3</sub>          | Two-tone inputs up to -10 dBm | 5 - 500 MHz                | dBm      | +16    | —      | —          |
| Vbias                           | —                             | —                          | VDC      | +14.5  | +15.0  | +15.5      |
| Ibias                           | Vbias = +15.0 VDC             | —                          | mA       | —      | 13     | 15         |
| Power Dissipation               | @ +15.0V Bias                 | —                          | mW       | —      | 200    | —          |

2. All specifications apply when operated at +15 VDC, with 50 ohms source and load impedance.

**S-Parameter Data**

| Frequency (MHz) | S11  |        | S21  |        | S12  |        | S22  |        |
|-----------------|------|--------|------|--------|------|--------|------|--------|
|                 | MAG  | ANG    | MAG  | ANG    | MAG  | ANG    | MAG  | ANG    |
| 5               | 0.20 | -60.7  | 5.90 | -161.0 | 0.09 | -160.5 | 0.32 | -24.9  |
| 10              | 0.12 | -63.8  | 6.07 | -171.8 | 0.09 | -172.6 | 0.27 | -24.9  |
| 20              | 0.09 | -65.3  | 6.16 | -179.8 | 0.10 | 178.9  | 0.26 | -17.4  |
| 50              | 0.10 | -82.7  | 6.08 | 167.5  | 0.10 | 166.3  | 0.25 | -28.0  |
| 100             | 0.14 | -101.0 | 6.06 | 153.3  | 0.10 | 150.5  | 0.26 | -49.3  |
| 200             | 0.21 | -130.6 | 6.00 | 126.7  | 0.10 | 119.8  | 0.26 | -82.3  |
| 300             | 0.23 | -149.2 | 6.01 | 100.9  | 0.10 | 93.6   | 0.24 | -104.5 |
| 400             | 0.20 | -155.5 | 6.09 | 70.7   | 0.10 | 67.4   | 0.22 | -100.5 |
| 500             | 0.22 | -142.9 | 6.11 | 36.8   | 0.10 | 43.3   | 0.20 | -79.8  |

Specifications subject to change without notice.

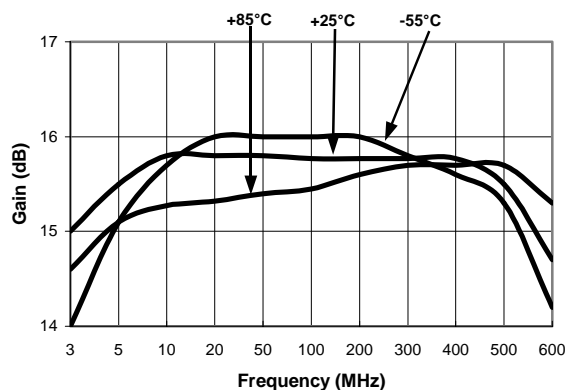
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Visit [www.macom.com](http://www.macom.com) for additional data sheets and product information.

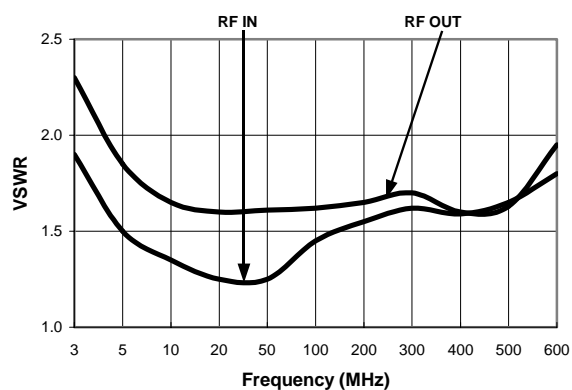


### Typical Performance Curves

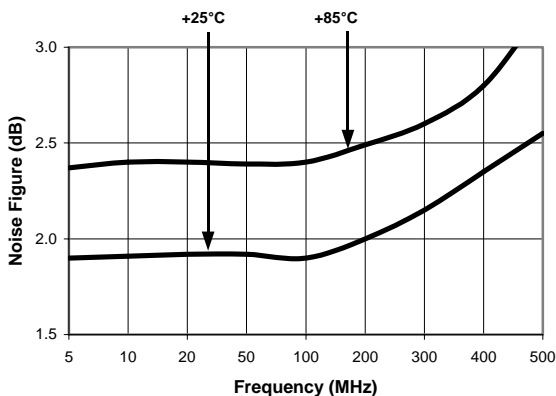
**Gain vs. Frequency**



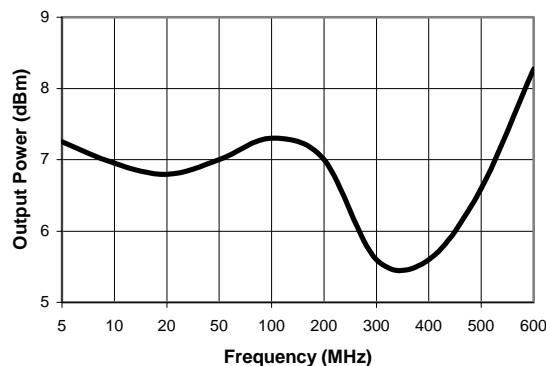
**VSWR vs. Frequency**



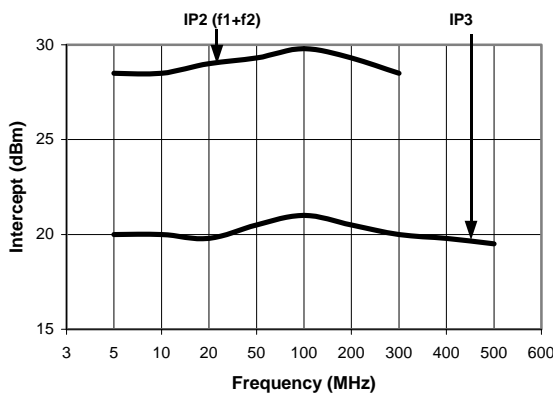
**Noise Figure**



**1 dB Compression**



**Intermodulation Intercept**



### Ordering Information

| Part Number             | Package       |
|-------------------------|---------------|
| AM-143 PIN <sup>3</sup> | TO-8-1        |
| AMC-143 SMA             | Connectorized |

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

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