

# AM-155 / AMC-155



**High Dynamic Range Amplifier,  
12.5 dB Gain, 300 - 1000 MHz**

Rev. V4

## Features

- 2.5 dB Typical Midband Noise Figure
- +21 dBm Typical Midband Output Power
- +37 dBm Typical Midband Third Order Intercept

## Description

M/A-COM's AM-155 is a coupler feedback amplifier with high intercept and compression points. The use of coupler feedback minimizes noise figure and current in a high intercept amplifier. This amplifier is packaged in a TO-8 package. Due to the internal power dissipation the thermal rise minimized. The ground plane on the PC board should be configured to remove heat from under the package. AM-155 is ideally suited for use where a high intercept, high reliability amplifier is required.

## Ordering Information

| Part Number             | Package       |
|-------------------------|---------------|
| AM-155 PIN <sup>3</sup> | TO-8-1        |
| AMC-155 SMA             | Connectorized |

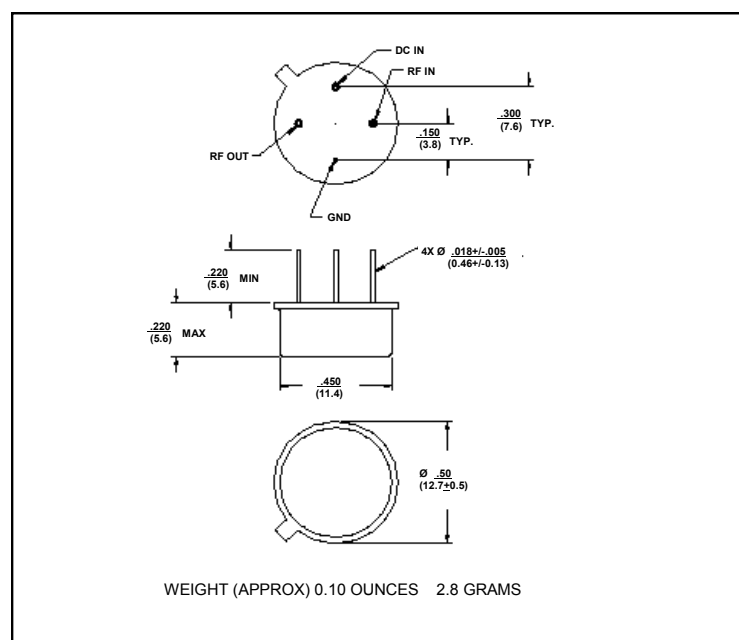
3. Mounting kit part number AU00071 required for PCB applications.

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

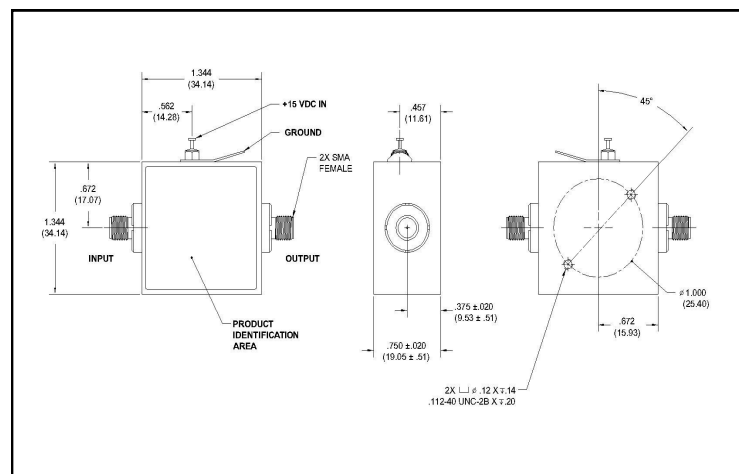
| Parameter             | Absolute Maximum |
|-----------------------|------------------|
| Max. Input Power      | +10 dBm          |
| Vbias                 | +15.75 V         |
| Operating Temperature | -55°C to +85°C   |
| Storage Temperature   | -65°C to +125°C  |

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

## Outline Drawing: TO-8-1 \*



## Outline Drawing: SMA Connectorized \*



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

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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                        | 600 MHz                         | dB             | 11.25  | 12.25  | 13.25          |
| Frequency Response              | —                             | 300 - 1000 MHz                  | dB             | —      | —      | ±0.5           |
| Gain Variation with Temperature | —                             | 300 - 1000 MHz                  | dB             | —      | —      | ±0.7           |
| 1 dB Compression                | Output Power                  | 300 - 1000 MHz                  | dBm            | +18    | —      | —              |
| Noise Figure                    | —                             | 300 - 700 MHz<br>300 - 1000 MHz | dB<br>dB       | —<br>— | —<br>— | 4.0<br>5.5     |
| Reverse Transmission            | —                             | 300 - 1000 MHz                  | dB             | —      | -14    | -10            |
| VSWR                            | Input<br>Output               | 300 - 1000 MHz                  | Ratio<br>Ratio | —<br>— | —<br>— | 2.0:1<br>3.0:1 |
| Output IP <sub>2</sub>          | Two-Tone inputs up to +5 dBm  | 300 - 1000 MHz                  | dBm            | +40    | —      | —              |
| Output IP <sub>3</sub>          | Two-Tone inputs up to +5 dBm  | 300 - 1000 MHz                  | dBm            | +27    | —      | —              |
| V <sub>bias</sub>               | —                             | —                               | VDC            | +14.5  | +15.0  | +15.5          |
| I <sub>bias</sub>               | V <sub>bias</sub> = +15.0 VDC | —                               | mA             | —      | 50     | 60             |
| Power Dissipation               | @ +15 V Bias                  | —                               | mW             | —      | 750    | —              |

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

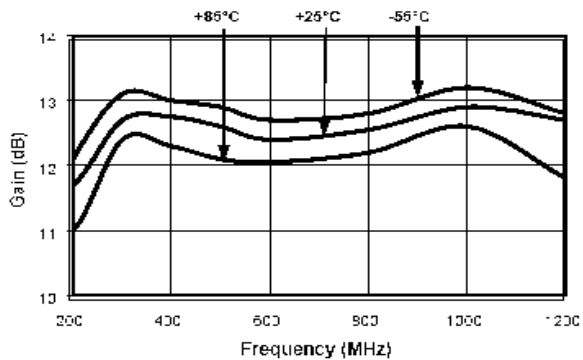
3. Heat Sinking: Operation at case temperature above 95°C is not recommended. Heat sinking adequate to dissipate 0.8W must be provided in use.

### S-Parameter Data

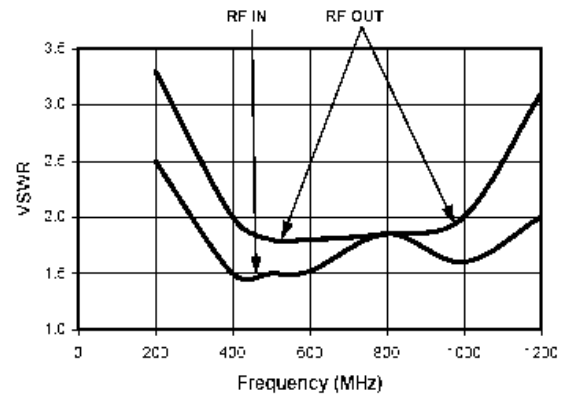
| Frequency (MHz) | S11 MAG/ANG | S21 MAG/ANG | S12 MAG/ANG | S22 MAG/ANG |
|-----------------|-------------|-------------|-------------|-------------|
| 300             | 0.30/42.3   | 4.05/166.3  | 0.18/173.3  | 0.36/87.8   |
| 350             | 0.26/12.9   | 4.12/153.2  | 0.18/161.3  | 0.33/80.5   |
| 400             | 0.24/-25.7  | 4.13/142.0  | 0.19/150.6  | 0.30/76.2   |
| 500             | 0.20/-88.2  | 4.03/122.0  | 0.20/131.8  | 0.28/73.4   |
| 600             | 0.23/-123.0 | 3.94/104.9  | 0.20/115.3  | 0.27/67.8   |
| 700             | 0.26/-144.7 | 3.88/89.4   | 0.21/100.1  | 0.28/51.3   |
| 800             | 0.29/-163.9 | 3.88/74.5   | 0.21/85.2   | 0.28/21.3   |
| 900             | 0.27/175.6  | 4.01/59.5   | 0.22/69.8   | 0.30/-20.2  |
| 1000            | 0.25/147.1  | 4.22/41.3   | 0.23/53.6   | 0.32/-63.0  |

## Typical Performance Curves

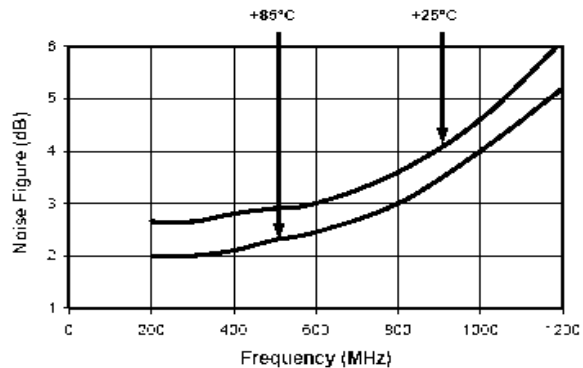
Gain vs. Frequency



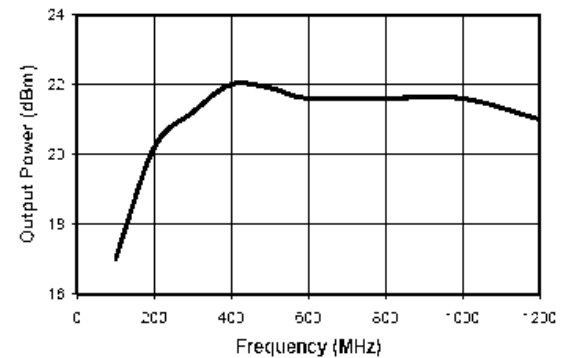
VSWR vs. Frequency



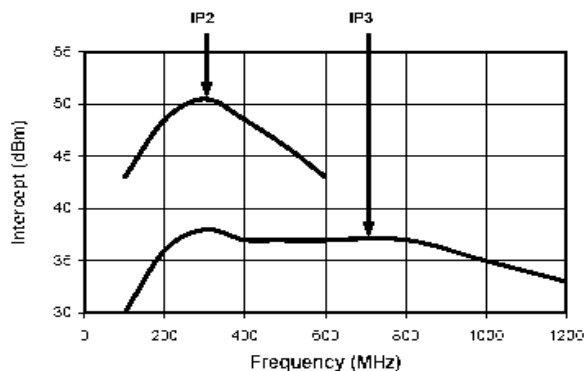
Noise Figure



1 dB Compression



Intermodulation Intercept



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