

Low Noise Amplifier, 12.5 dB Gain, 10 - 100 MHz

Rev. V5

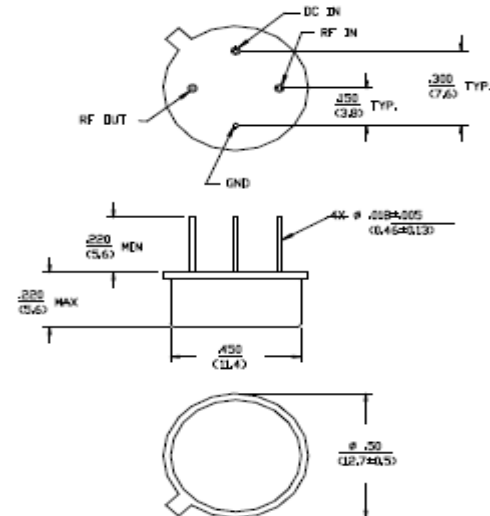
Features

- 1.1 dB Typical Low Noise Figure @ 50 MHz
- +15 dBm Typical High Output Power @ 50 MHz
- +32 dBm Typical Third Order Intercept @ 50 MHz
- Fully Hermetic Package (AM-162, AMS-162)

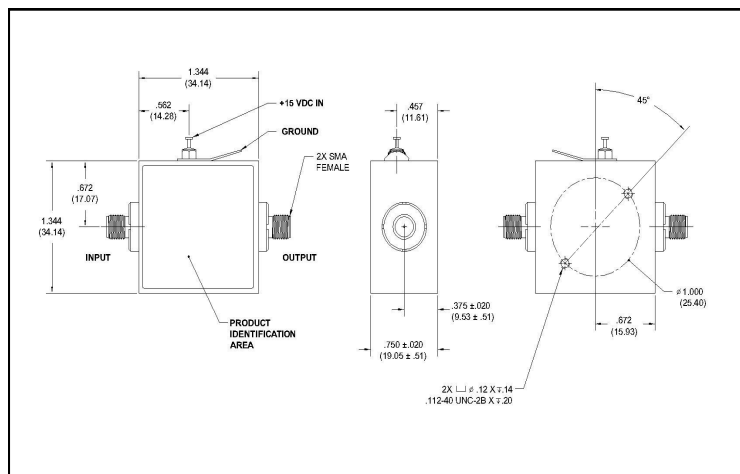
Description

M/A-COM's AM-162 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-8-1 package, a surface mount package and a connectorized version. The ground plane on the PC board should be configured to remove heat from under the package. AM-162 are ideally suited for use where a high intercept, high reliability amplifier is required.

TO-8-1

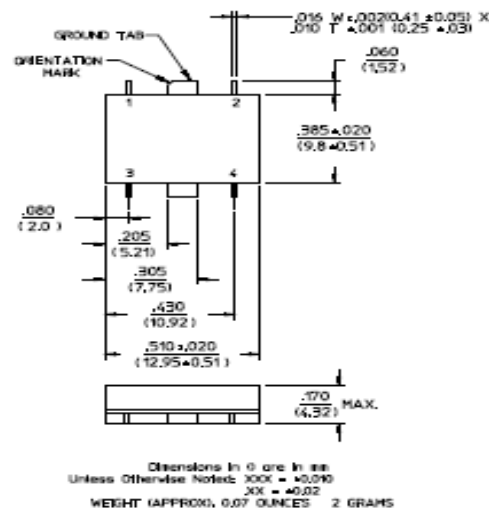


Outline Drawing: SMA Connectorized *



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

SF-1



Absolute Maximum Ratings ¹

| 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 |

Pin Configuration (For AMS-162)

| Pin No. | Function | Pin No. | Function |
|---------|----------|---------|----------|
| 1 | RF OUT | 3 | RF IN |
| 2 | VDC | 4 | GND |

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

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Electrical Specifications: ² T_A = -55°C to +85°C Case Temperature

| Parameter | Test Conditions | Frequency | Units | Min. | Typ. | Max. |
|---------------------------------|-----------------------------|--------------|-------|-------|-------|-------|
| Gain | @+25°C | 50 MHz | dB | 12.0 | 12.5 | 13.0 |
| Frequency Response | — | 10 - 100 MHz | dB | — | — | ±0.6 |
| Gain Variation with Temperature | — | 10 - 100 MHz | dB | — | — | ±0.6 |
| 1 dB Compression | Output Power | 10 - 100 MHz | dBm | +13 | — | — |
| Noise Figure | — | 10 - 100 MHz | dB | — | — | 1.6 |
| Reverse Transmission | — | 10 - 100 MHz | dB | — | -15 | -14 |
| VSWR | — | 10 - 100 MHz | Ratio | — | — | 2.0:1 |
| Output IP ₂ | Two-Tone inputs up to 0 dBm | 10 - 100 MHz | dBm | +40 | — | — |
| Output IP ₃ | Two-Tone inputs up to 0 dBm | 10 - 100 MHz | dBm | +26 | — | — |
| Vbias | — | — | VDC | +14.5 | +15.0 | +15.5 |
| Ibias | Vbias = +15.0 VDC | — | mA | — | 11 | 15 |
| Power Dissipation | @ +15 V Bias | — | mW | — | 165 | — |

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

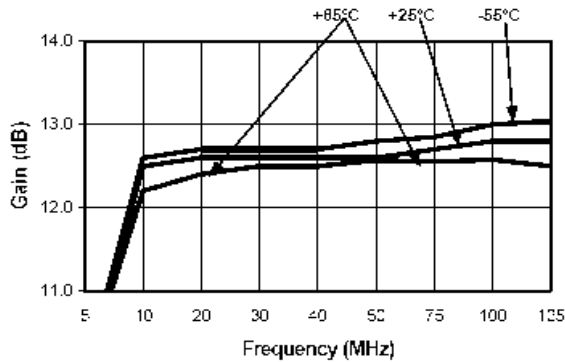
S-Parameter Data

| Frequency (MHz) | S11 MAG/ANG | S21 MAG/ANG | S12 MAG/ANG | S22 MAG/ANG |
|-----------------|-------------|-------------|-------------|-------------|
| 10 | 0.07/165 | 4.06/66 | 0.18 | 0.09/169.1 |
| 20 | 0.09/-166.8 | 4.13/-6.5 | 0.17 | 0.09/-159.2 |
| 30 | 0.08/-151.5 | 4.18/-15.8 | 0.17 | 0.09/-129.5 |
| 40 | 0.10/-146.9 | 4.20/-24.0 | 0.17 | 0.11/-120.3 |
| 50 | 0.11/-147.9 | 4.23/-32.2 | 0.17 1 | 0.12/-117.7 |
| 60 | 0.11/-152.0 | 4.19/-39.8 | 0.17 | 0.13/-118.5 |
| 70 | 0.12/-159.7 | 4.20/-47.7 | 0.17 | 0.14/-120.3 |
| 85 | 0.12/-171.2 | 4.17/-59.5 | 0.16 | 0.14/-122.6 |
| 100 | 0.12/174.1 | 4.15/-72.1 | 0.16 | 0.15/-123.6 |

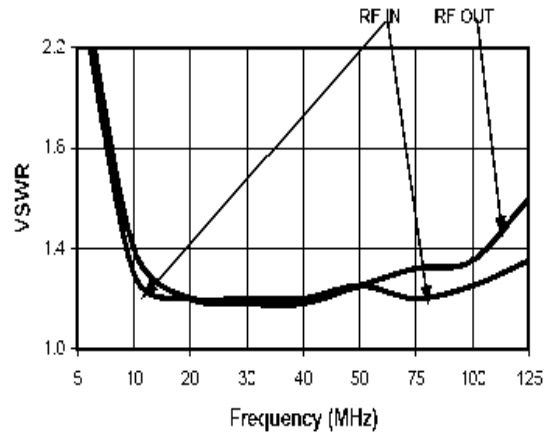
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Typical Performance Curves

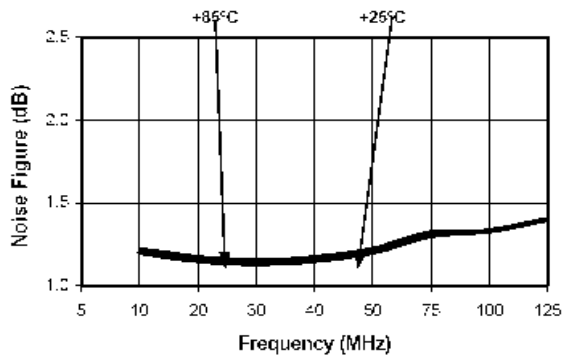
Gain vs. Frequency



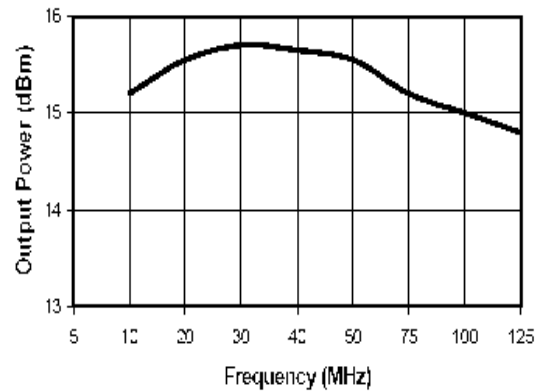
VSWR vs. Frequency



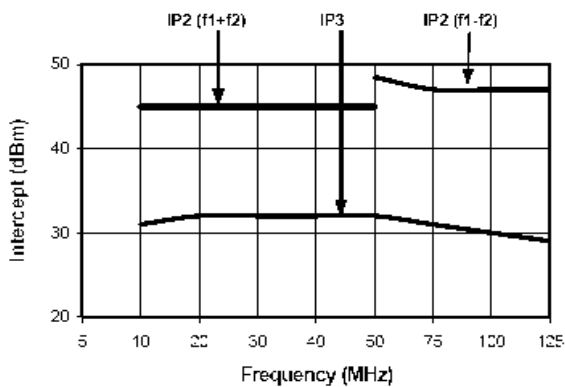
Noise Figure



1 dB Compression



Intermodulation Intercept



Ordering Information

| Part Number | Package |
|----------------|---------------|
| AM-162 PIN | TO-8-1 |
| AMC-162 SMA ** | Connectorized |
| AMS-162 PIN | SF-1 |

** The connectorized version is not RoHS compliant.

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