# AM-160

## Low Noise Amplifier, 28 dB Gain, 100 - 600 MHz

Rev. V3

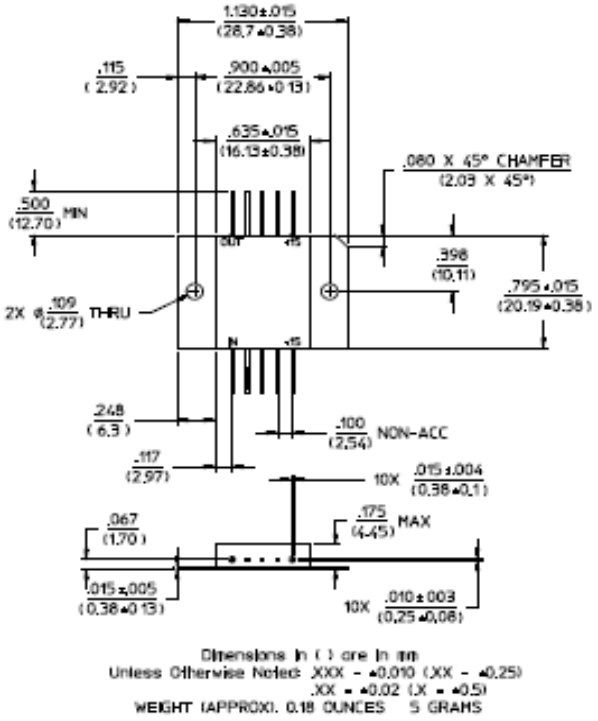
### Features

- 1.6 dB Typical Midband Noise Figure
- +19 dBm Typical 1 dB Compression Point
- +30 dBm Typical Third Order Intercept

### Description

M/A-COM's AM-160 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 flatpack with flanges. Due to the metal flatpack the thermal rise is minimized. The ground plane on the PC board should be configured to remove heat from under the package. AM-160 is ideally suited for use where a high intercept, high reliability amplifier is required.

### FP-9




### 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 |

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

### Pin Configuration

| Pin No. | Function | Pin No. | Function |
|---|---|---|---|
| 1 | RF OUT | 6 | RF IN |
| 2 | GND | 7 | GND |
| 3 | GND | 8 | GND |
| 4 | GND | 9 | GND |
| 5 | VDC | 10 | VDC |

### Ordering Information

| Part Number | Package |
|---|---|
| AM-160 PIN | Flatpack |

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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 | 250 MHz | dB | 27.2 | 28.2 | 29.2 |
| Frequency Response | — | 100 - 600 MHz | dB | — | — | ±1.25 |
| Gain Variation with Temperature | — | 100 - 600 MHz | dB | — | — | ±1.0 |
| 1 dB Compression | Output Power | 100 - 600 MHz | dBm | +16 | — | — |
| Noise Figure | — | 100 - 600 MHz | dB | — | — | 3.0 |
| Reverse Transmission | — | 100 - 600 MHz | dB | — | -38 | -32 |
| VSWR | — | 100 - 600 MHz<br>100 - 400 MHz | Ratio<br>Ratio | —<br>— | —<br>— | 2.5:1<br>2:1 |
| Output $IP_2$ | Two-Tone inputs up to +5 dBm | 100 - 600 MHz | dBm | +36 | — | — |
| Output $IP_3$ | Two-Tone inputs up to +5 dBm | 100 - 600 MHz | dBm | +27 | — | — |
| Vbias | — | — | VDC | +14.5 | +15.0 | +15.5 |
| Ibias | Vbias = +15.0 VDC | — | mA | — | 70 | 75 |
| Power Dissipation | @ +15 V Bias | — | mW | — | 1050 | — |

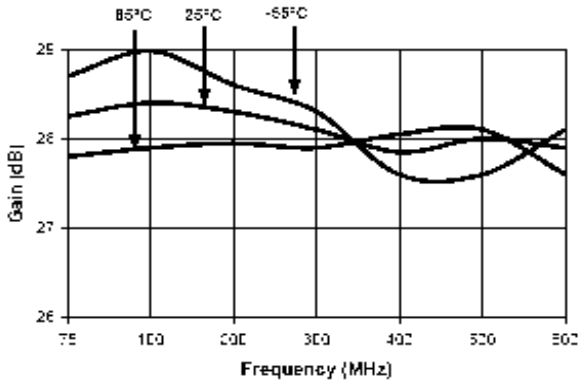
2. All specifications apply when operated at +15 VDC, with 50 ohms source and load impedance.
3. Heat Sinking: Operation at case temperature above 95°C is not recommended. Heat sinking adequate to dissipate 1.2 W must be provided in use.

## S-Parameter Data

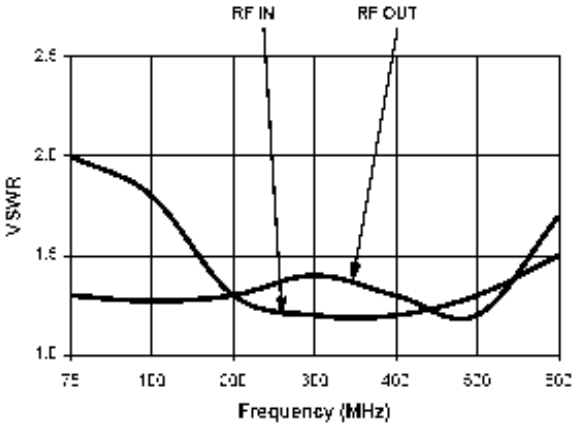
| Frequency (MHz) | S11 MAG/ANG | S21 MAG/ANG | S12 MAG/ANG | S22 MAG/ANG |
|---|---|---|---|---|
| 100 | 0.14/126.3 | 28.21/-5.6 | 0.01/-18.0 | 0.07/-73.4 |
| 150 | 0.12/56.7 | 28.30/-53.5 | 0.01/-68.5 | 0.08/-144.7 |
| 200 | 0.08/-15.5 | 27.45/-93.3 | 0.01/-108.2 | 0.09/150.5 |
| 250 | 0.17/-67.8 | 26.79/-126.3 | 0.01/-143.8 | 0.10/101.3 |
| 300 | 0.18/-87.7 | 25.37/-155.5 | 0.01/-178.1 | 0.12/64.4 |
| 350 | 0.18/-96.1 | 25.42/172.0 | 0.01/149.5 | 0.14/34.6 |
| 400 | 0.23/-115.4 | 24.92/141.7 | 0.02/120.6 | 0.11/4.7 |
| 500 | 0.27/175.5 | 25.67/78.7 | 0.02/59.1 | 0.10/-101.1 |
| 600 | 0.32/19.1 | 25.58/0.7 | 0.02/-14.6 | 0.24/143.7 |

### Typical Performance Curves

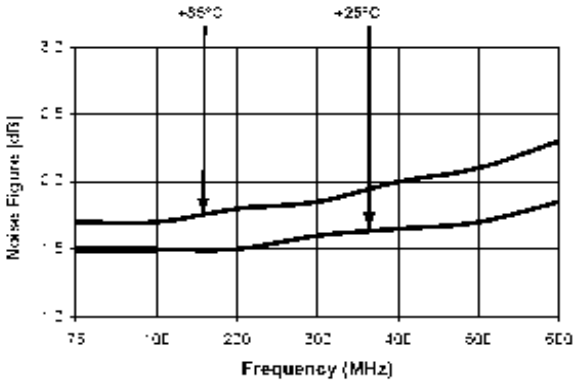
*Gain vs. Frequency*



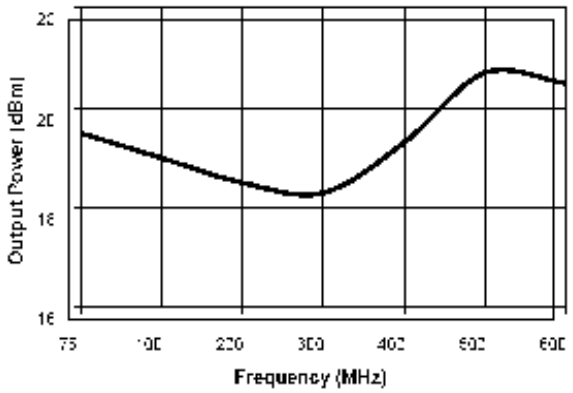

*VSWR vs. Frequency*




*Noise Figure*




*1 dB Compression*




*Intermodulation Intercept*