

AMT-A0439 7.5 GHz to 10 GHz Broadband Low Noise Amplifier with flat gain

Data Sheet



Features

- 7.5 GHz to 10 GHz Frequency Range
- Typical Noise Figure 2.4 dB 3dB max
- Typical Gain 26 dB with window of 24 to 28 dB
- Gain Flatness $< \pm 0.5$ dB typical
- P1dB +18 dBm minimum
- Internally Regulated, Compact Size
- Operates from a Single +12V Supply 140 mA typical
- Unconditionally Stable



Description

The AMT-A0439 is a Broadband Low Noise amplifier with medium power and flat gain over the full frequency range. The performance is achieved through the use of AMTI's proprietary technology. The amplifier I/Os are Internally matched to 50 Ohms. The AMT-A0439 is ideal for use as Front End of receiver system, or where amplification is required without adding excessive noise in a Hi-Rel communications system for Commercial or Military applications.

Applications

- Receiver front end,
- Radar
- Communication systems
- Microwave Radio systems
- Test Equipment

MAXIMUM RATINGS¹

| Parameter | Symbol | Units | MIN | MAX |
|------------------------------|-----------|-------------|-----|------|
| Operating Temperature – Case | T_{MO} | $^{\circ}C$ | -40 | +85 |
| Storage Temperature - Case | T_{MS} | $^{\circ}C$ | -40 | +125 |
| RF Input power (CW) | P_{in} | dBm | | +10 |
| Die $T_{Junction}$ | T_J | $^{\circ}C$ | | +150 |
| Positive Supply Voltage | V_{+SS} | V | | +15 |

Do Not apply DC to RF Ports

1. Stresses above those listed under "Absolute Maximum Rating" may cause permanent damage to the device. This is a stress rating only and functional operation of the device at these or any other conditions above those indicated in the operational sections of this specification is not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

ELECTRICAL SPECIFICATIONS @ 23°C

| Parameter | Conditions | Units | MIN | Typical | MAX |
|----------------------------------|--|-------|------|---------|-------|
| Frequency Range | | GHz | 7.5 | | 10 |
| Gain | Small Signal | dB | 24 | 26 | 28 |
| Gain Flatness | | dB | | ±0.5 | ± 1.1 |
| Spurious ² | Self generated Spurs Pout = ~ 1 dBm | dBc | <-70 | | |
| Output Power (P1dB) | 1 dB compression point @ 10GHz | dBm | 18 | 20 | |
| OIP3 | OIP3 measured @ 10 GHz Two tone F1-F2= 10MHz | dB | 28 | 29 | |
| Noise Figure ⁴ | | dB | | 2.4 | 3 |
| RF Input Impedance | Reference to 50 ohms VSWR | | | 1.8:1 | 2:1 |
| RF Output Impedance ³ | Reference to 50 ohms | | | 1:5:1 | 2:1 |
| Supply Voltage Positive: | | V | | +12 | |
| Supply Current Positive: | | mA | | 140 | 300 |

Notes:

1/Unconditionally stable

2/Excluding Harmonics

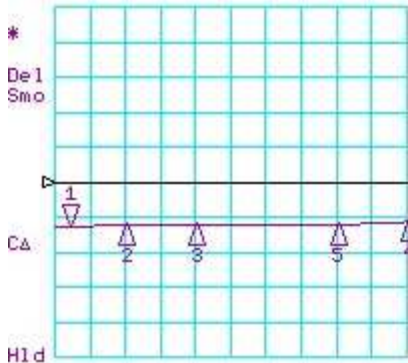
3/May be 2.2:1 near 7.5 GHz

4/Measured with Agilent/HP equipment standard manufacturer variations apply

Customized configurations of the above specifications are available

Typical S-Parameters @ 25°C

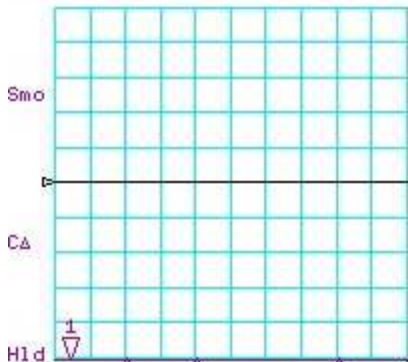
CH1 LOG 10 dB/ REF 0 dB
S11 1:-12.764 dB 7.600 000 000 GHz



CH1 Markers
2:-12.156 dB
8.00000 GHz
3:-12.124 dB
8.50000 GHz
4:-11.255 dB
10.00000 GHz
5:-12.186 dB
9.50000 GHz

START 7500.000 MHz STOP10000.000 MHz

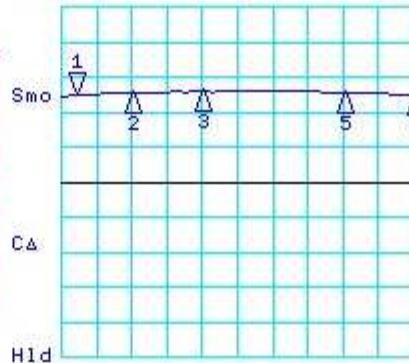
CH3 LOG 10 dB/ REF 0 dB
S12 1:-57.025 dB 7.600 000 000 GHz



CH3 Markers
2:-55.944 dB
8.00000 GHz
3:-57.464 dB
8.50000 GHz
4:-57.527 dB
10.00000 GHz
5:-56.535 dB
9.50000 GHz

START 7500.000 MHz STOP10000.000 MHz

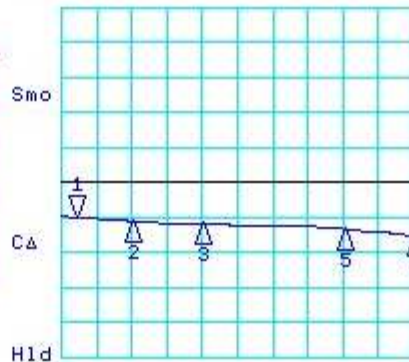
CH2 LOG 10 dB/ REF 0 dB
S21 1: 25.091 dB 7.600 000 000 GHz



CH2 Markers
2: 25.501 dB
8.00000 GHz
3: 25.956 dB
8.50000 GHz
4: 25.006 dB
10.00000 GHz
5: 25.726 dB
9.50000 GHz

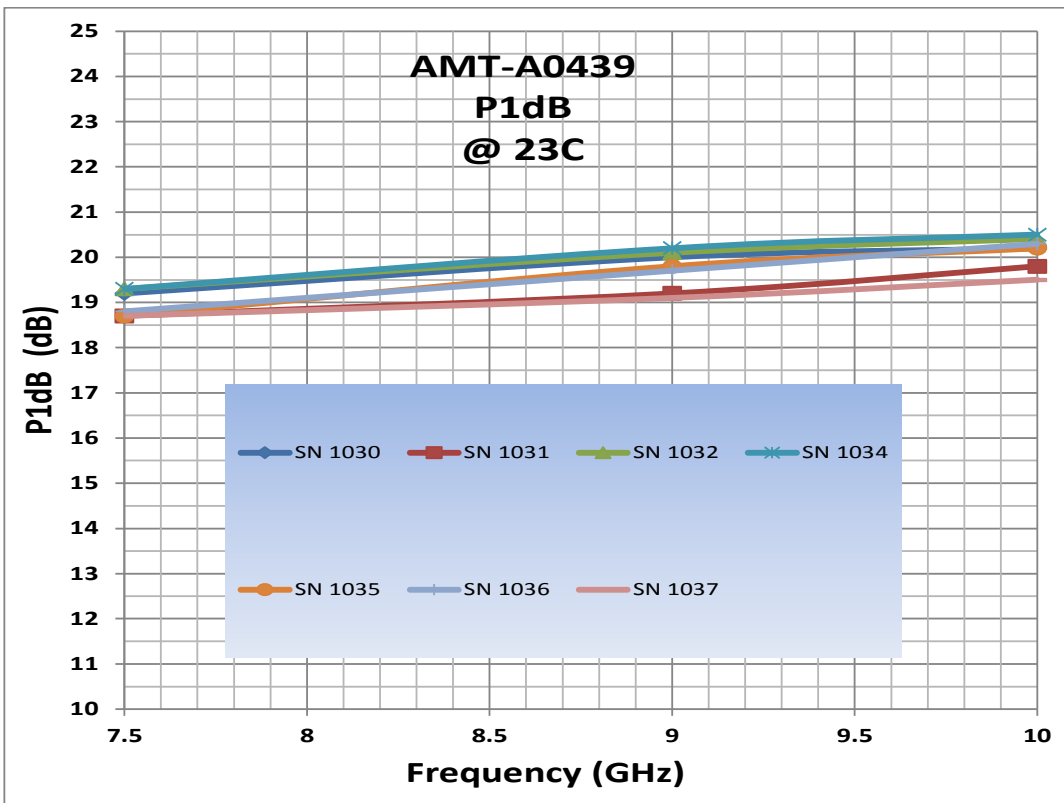
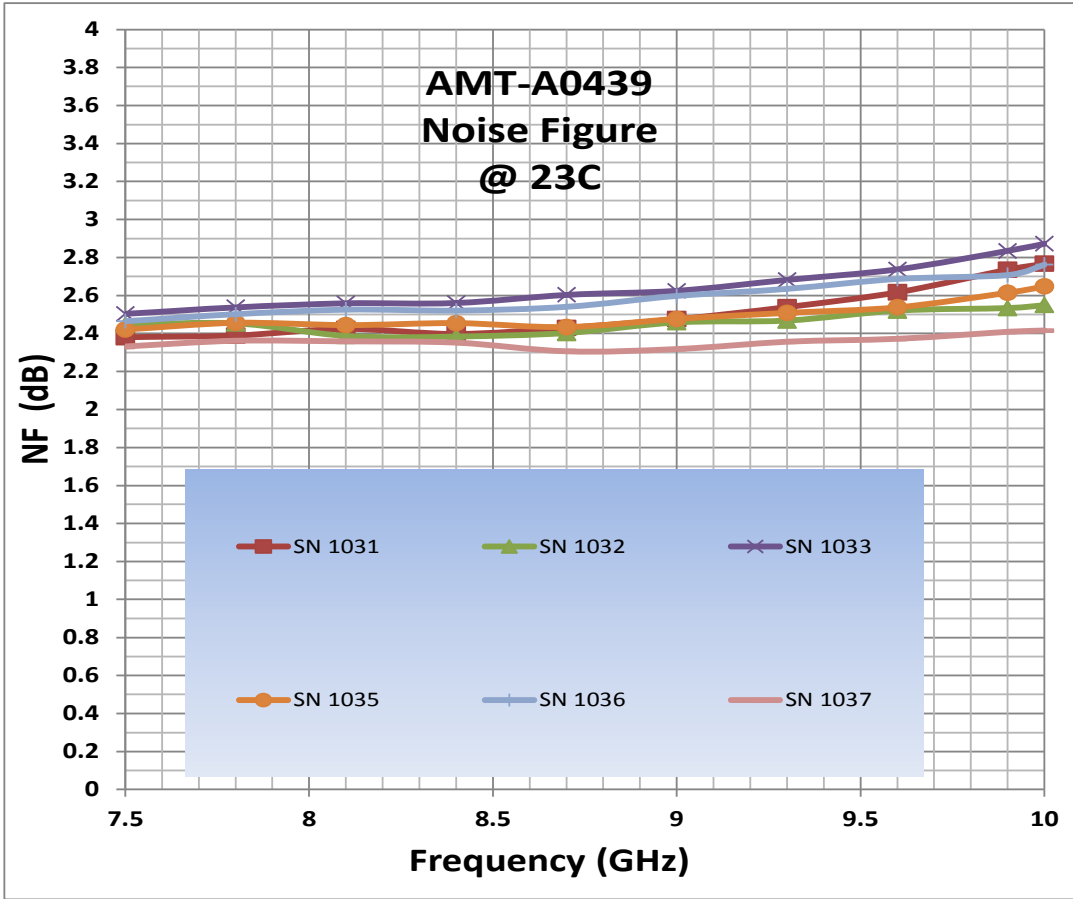
START 7500.000 MHz STOP10000.000 MHz

CH4 LOG 10 dB/ REF 0 dB
S22 1:-9.9360 dB 7.600 000 000 GHz

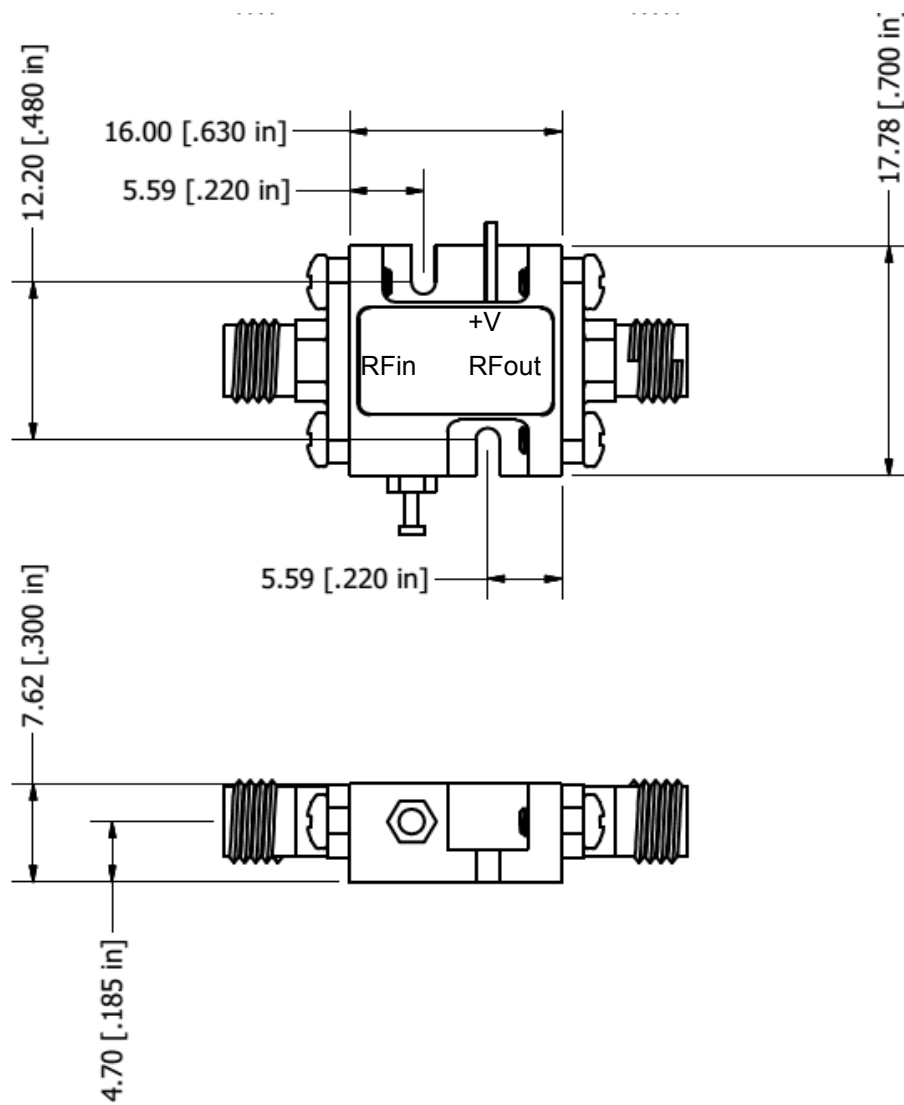


CH4 Markers
2:-11.091 dB
8.00000 GHz
3:-12.053 dB
8.50000 GHz
4:-15.351 dB
10.00000 GHz
5:-13.307 dB
9.50000 GHz

START 7500.000 MHz STOP10000.000 MHz



Package Outline: M088 SMA Connectorized (inches)



Housing: Aluminum Gold over Nickel plated
Removable SMA and Ground Slug

| Model Number | Description | Hermeticity | Package |
|--------------|-------------|--------------|---------------|
| AMT-A0439 | SMA Female | Non-Hermetic | Outline: M088 |

Contact us for custom configurations and special requirements.

Our highly experienced team of engineers can quickly identify and implement innovative solutions using latest technology to improve performance and reduce cost.

- Add additional functionality: Input limiter, Temperature compensation, Amplitude/Phase matching, Amplitude/Phase Tracking, Automatic Gain control, Gain sloping, Bypass path, Specific supply voltage, Regulation, Power detector, Health status, and others
- Integrated: Filters, Switches, Limiter, Digital attenuator, Phase shifter, Microcontroller, Multiple amplifiers, Switch matrix, Comb generators and others
- Mechanical: Custom packages - Surface Mount, Connectorized, Waveguide, Carrier, Drop-in, Hermetic and others

Agile Microwave Technology Inc is the logical choice for all your commercial or military RF/Microwave components/module requirements.

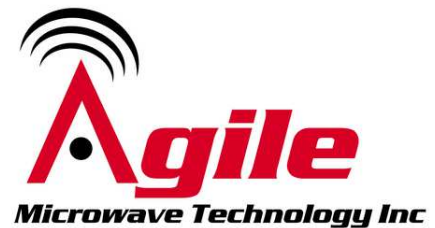
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