

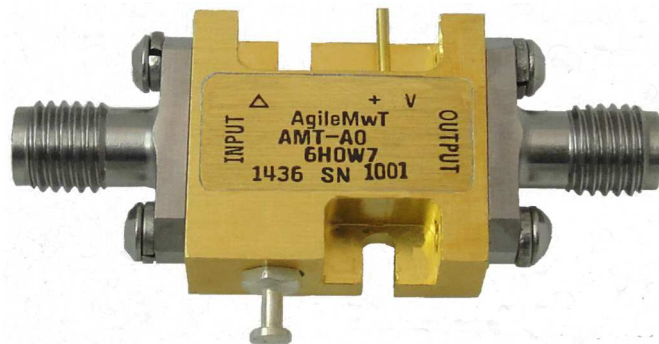
# AMT-A0396 3.5 GHz to 9 GHz Broadband Low Noise Amplifier

## Data Sheet



## Features

- 3.5 GHz to 9 GHz Frequency Range
- Typical Noise Figure < 1 dB ,1.5 dB max
- Typical Gain 37 dB
- Gain Flatness <  $\pm 1$  dB Typical
- +10.7 dBm P1dB Typical
- Internally Regulated
- Operates from a +8V Single Supply
- Unconditionally Stable
- State-of-the-Art GaAs Technology



## Description

The AMT-A0396 is a Broadband Low Noise amplifier with very low noise figure 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-A0396 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 RATINGS<sup>1</sup>

| Parameter                    | Symbol    | Units       | MIN | MAX  |
|------------------------------|-----------|-------------|-----|------|
| Operating Temperature – Case | $T_{MO}$  | $^{\circ}C$ | -40 | +85  |
| Storage Temperature - Case   | $T_{MS}$  | $^{\circ}C$ | -54 | +150 |
| RF Input power (CW)          | $P_{in}$  | dBm         |     | +10  |
| Die $T_{Junction}$           | $T_J$     | $^{\circ}C$ |     | +150 |
| Positive Supply Voltage      | $V_{+SS}$ | V           |     | +15  |

Note: Do Not apply DC to RF Input

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   | 3.5 |         | 9     |
| Gain                     | Small Signal                                   | dB    | 30  | 37      |       |
| Gain Flatness            |  | dB    |     | ±1      | ±1.5  |
| Input Power              | CW, without damage                             | dBm   | +10 |         |       |
| Output Power (P1dB)      | 1 dB compression point @ 6 GHz                 | dBm   |     | 10.7    |       |
| OIP3                     | OIP3 measured @ 6 GHz<br>Two tone F1-F2= 10MHz | dBm   |     | 20      |       |
| Noise Figure             |  | dB    |     | 1       | 1.5   |
| RF Input Impedance       | Reference to 50 ohms<br>VSWR                   |       |     | 1.8:1   | 2.3:1 |
| RF Output Impedance      | Reference to 50 ohms                           |       |     | 1:8:1   | 2.3:1 |
| Supply Voltage Positive: |  | V     |     | +8      |       |
| Supply Current Positive: |  | mA    |     | 85      | 100   |

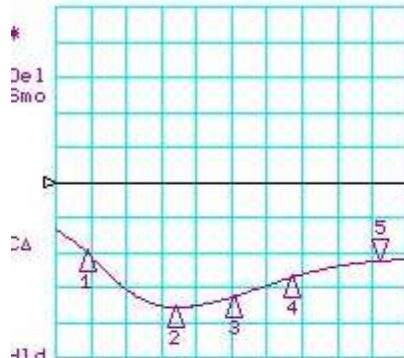
Notes:

1/ Unconditional Stability:

Customized configurations of the above specifications are available

# Typical S-Parameters @ 25°C

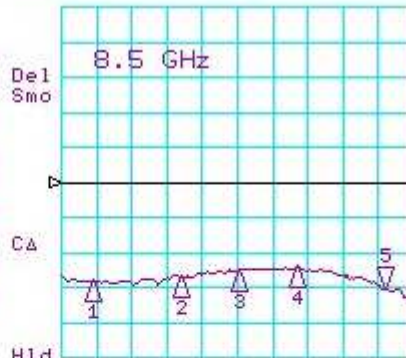
CH1 LOG 5 dB/ REF 0 dB  
 S11 5: -11.205 dB 8.500 000 000 GHz



CH1 Markers  
 1: -9.7660 dB  
 3.50000 GHz  
 2: -17.815 dB  
 5.00000 GHz  
 3: -16.384 dB  
 6.00000 GHz  
 4: -13.600 dB  
 7.00000 GHz

START 3000.000 MHz STOP 9000.000 MHz

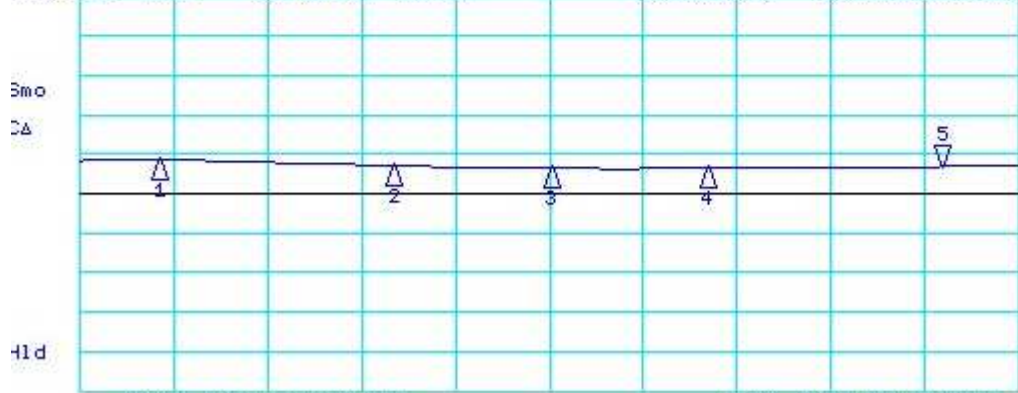
CH3 LOG 5 dB/ REF 0 dB  
 S22 5: -15.129 dB 8.500 000 000 GHz



CH3 Markers  
 1: -14.181 dB  
 3.50000 GHz  
 2: -13.453 dB  
 5.00000 GHz  
 3: -12.692 dB  
 6.00000 GHz  
 4: -12.112 dB  
 7.00000 GHz

START 3000.000 MHz STOP 9000.000 MHz

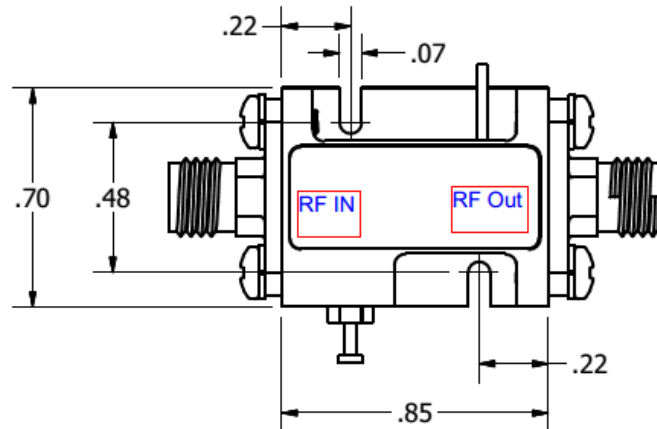
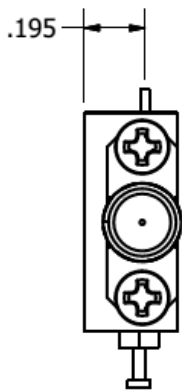
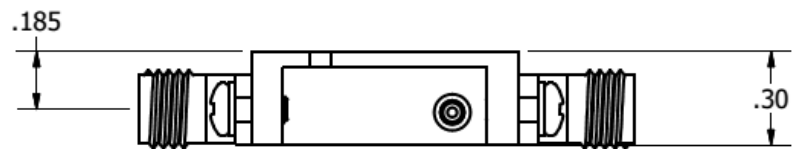
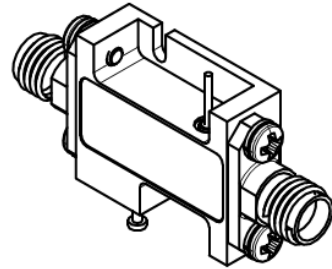
CH2 S21 LOG 10 dB/ REF 30 dB 5: 36.902 dB 8.500 000 000 GHz



CH2 Markers  
 1: 38.528 dB  
 3.50000 GHz  
 2: 37.088 dB  
 5.00000 GHz  
 3: 36.452 dB  
 6.00000 GHz  
 4: 36.408 dB  
 7.00000 GHz

START 3.000 000 000 GHz STOP 9.000 000 000 GHz

## Package Outline: M110 SMA Connectorized (inches)



Amplifier must be properly attached for heat dissipation  
Removeable SMA and Ground slug

| Model Number | Description | Hermeticity  | Package       |
|--------------|-------------|--------------|---------------|
| AMT-A0396    | SMA Female  | Non-Hermetic | Outline: M110 |

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.

## Contact Information:

**701 Cascade Pointe Lane  
Cary, NC 27513**

**ISO 9001:2015  
Certified Company**



**Phone: (984) 228-8001    [info@agilemwt.com](mailto:info@agilemwt.com)    [www.agilemwt.com](http://www.agilemwt.com)**

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