

AMT-A0389 6 GHz to 18 GHz Low Noise & Low EMI Leakage Amplifier

Data Sheet



Features

- 6 GHz to 18 GHz Frequency Range
- Gain 40 dB typ
- Gain Flatness $\pm 1\text{ dB typ } \pm 1.8\text{ dB max}$
- Typical Noise Figure <math>< 1.8\text{ dB } 2\text{ dB max}</math>
- Internally Regulated
- High EMI performance
DC to RF leakage $-90\text{ dBc typ } -70\text{ dBc max}$
- Operates from a Single +12V Supply
- Unconditionally Stable
- State-of-the-Art GaAs Technology



Description

The AMT-A0389 is a Broadband Low Noise amplifier with and low EMI leakage 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-A0389 is ideal for use in communication system, or where amplification is required without adding excessive noise in a Hi-Rel communications system for Com-

Applications

- Communication systems
- Microwave Radio systems
- Test Equipment
- Point to Point Radios

MAXIMUM RATINGS¹

Do NOT apply DC to RF Input

| Parameter | Symbol | Units | MIN | MAX |
|------------------------------|-----------|--------------------|-----|------|
| Operating Temperature – Case | T_{MO} | $^{\circ}\text{C}$ | -40 | +85 |
| Storage Temperature - Case | T_{MS} | $^{\circ}\text{C}$ | -54 | +95 |
| RF Input power (CW) | P_{in} | dBm | | +12 |
| Die $T_{Junction}$ | T_J | $^{\circ}\text{C}$ | | +150 |
| Positive Supply Voltage | V_{+SS} | V | | +16 |

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 | 6 | | 18 |
| Gain | Small Signal | dB | 38 | 42 | |
| Gain Flatness | | dB | | ±1 | ±1.8 |
| Input Power | CW, without damage | dBm | +12 | | |
| Output Power (P1dB) ² | 1 dB compression point @ 14 GHz | dBm | 10 | 12 | |
| Noise Figure | | dB | | 1.8 | 2.1 |
| RF Input Impedance | Reference to 50 ohms VSWR | | | 1.8:1 | 2:3:1 |
| RF Output Impedance | Reference to 50 ohms | | | 1:8:1 | 2.3:1 |
| EMI Leakage | DC supply pin to RFout | dBc | -70 | | |
| Supply Voltage Positive: | | V | | +12 +15 | |
| Supply Current Positive: | | mA | | 160 | 190 |

Notes:

1/ Unconditional Stability

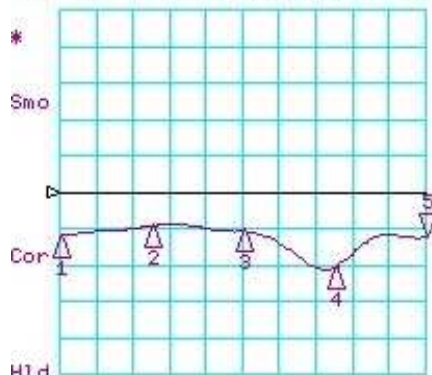
High EMI shielding

Measured NF has standard (Agilent/HP equipment) uncertainty of 0.15 dB

Customized configurations of the above specifications are available

Typical S-Parameters @ 25C

CH1 LOG 10 dB/ REF 0 dB
S11 5: -12.331 dB 18.000 000 000 GHz

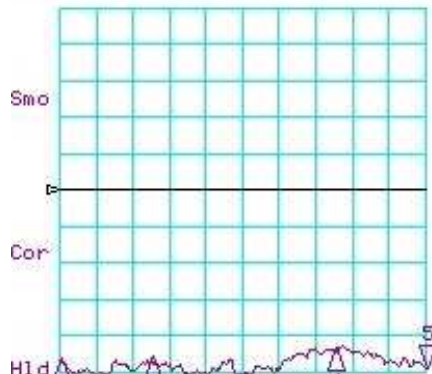


CH1 Markers

- 1: -12.053 dB
6.00000 GHz
- 2: -9.3400 dB
9.00000 GHz
- 3: -10.753 dB
12.0000 GHz
- 4: -20.819 dB
15.0000 GHz

H1d
START 6000.000 MHz STOP 18000.000 MHz

CH3 LOG 10 dB/ REF 0 dB
S12 5: -48.727 dB 18.000 000 000 GHz

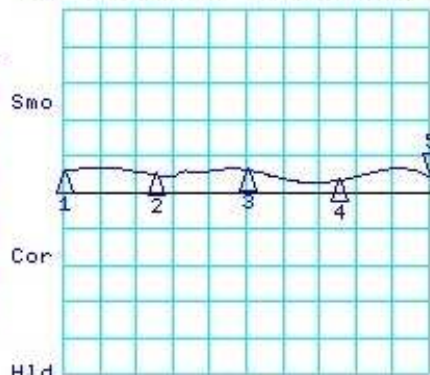


CH3 Markers

- 1: -47.019 dB
6.00000 GHz
- 2: -46.301 dB
9.00000 GHz
- 3: -51.428 dB
12.0000 GHz
- 4: -44.104 dB
15.0000 GHz

H1d
START 6000.000 MHz STOP 18000.000 MHz

CH2 LOG 10 dB/ REF 38 dB
S21 5: 42.540 dB 18.000 000 000 GHz

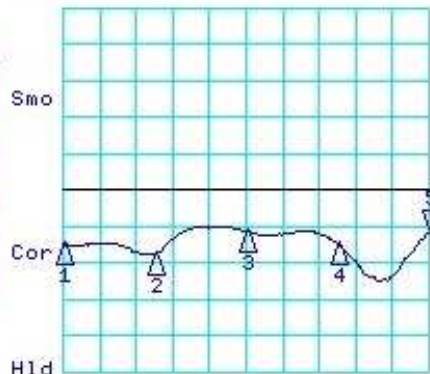


CH2 Markers

- 1: 43.826 dB
6.00000 GHz
- 2: 42.813 dB
9.00000 GHz
- 3: 44.193 dB
12.0000 GHz
- 4: 41.233 dB
15.0000 GHz

H1d
START 6000.000 MHz STOP 18000.000 MHz

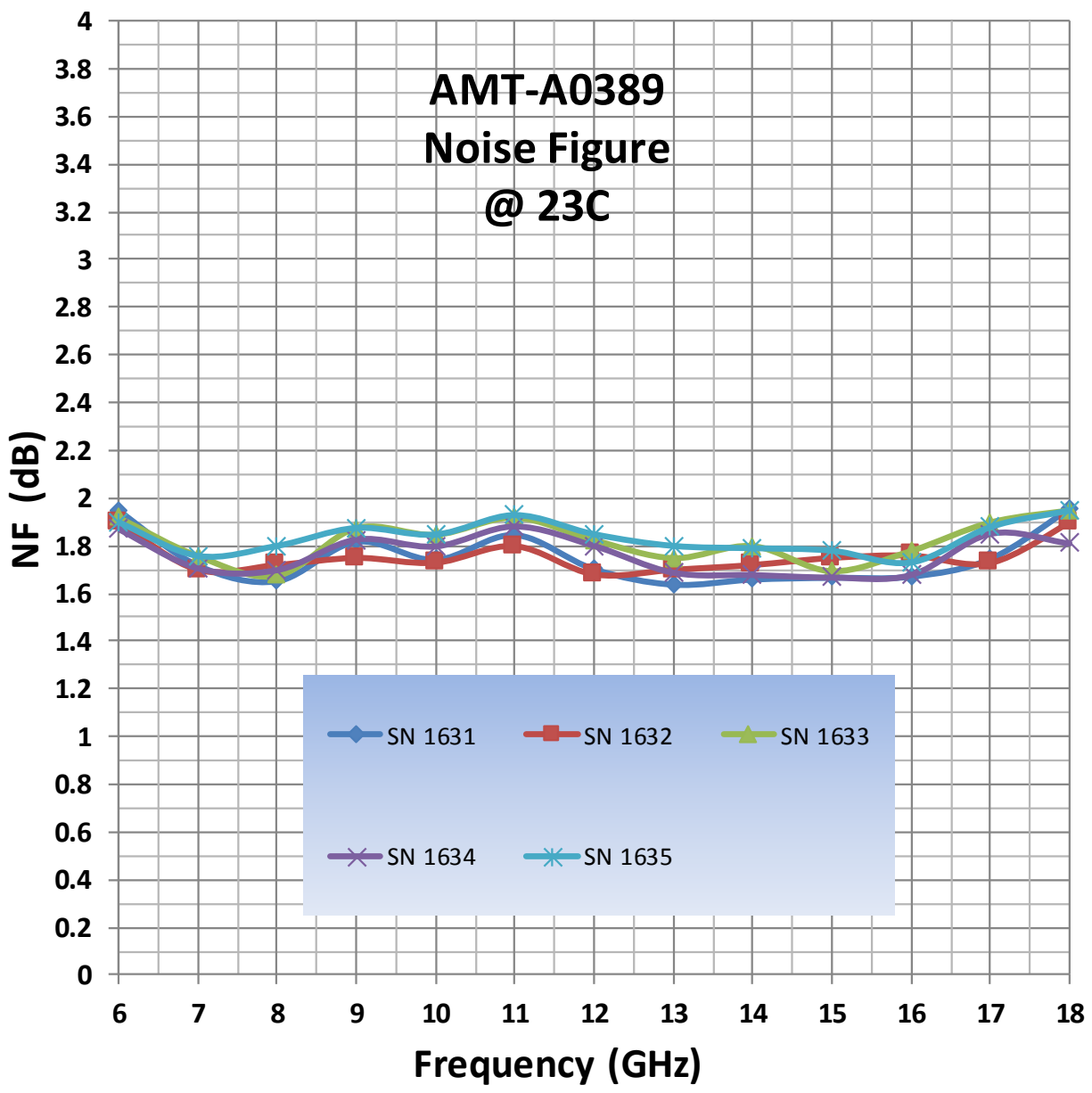
CH4 LOG 10 dB/ REF 0 dB
S22 5: -11.802 dB 18.000 000 000 GHz



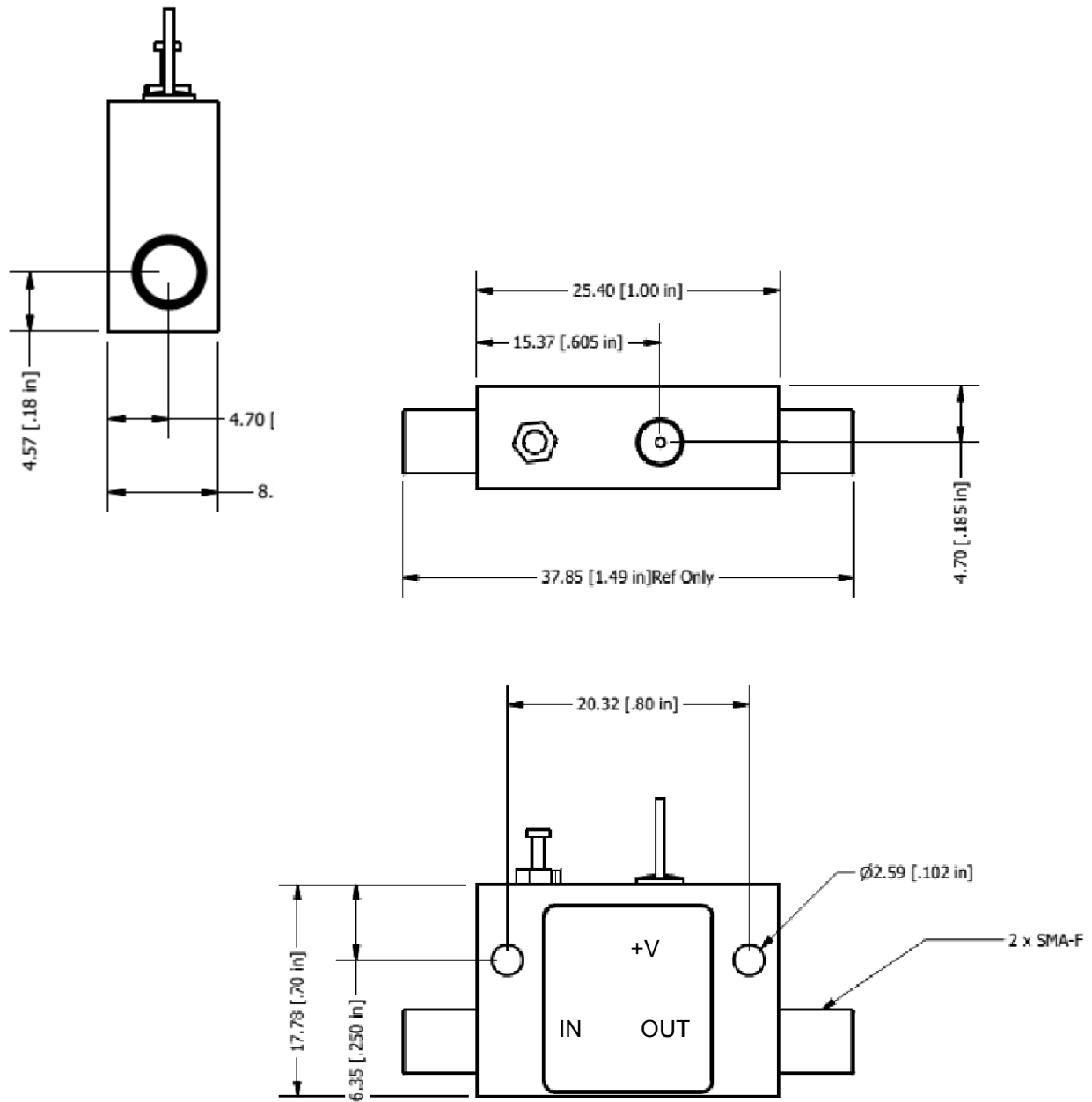
CH4 Markers

- 1: -14.985 dB
6.00000 GHz
- 2: -17.490 dB
9.00000 GHz
- 3: -11.245 dB
12.0000 GHz
- 4: -14.567 dB
15.0000 GHz

H1d
START 6000.000 MHz STOP 18000.000 MHz



Package Outline: SMA-F Connectorized mm [Inches]



| Model Number | Description | Hermeticity | Package |
|--------------|-----------------------------|--------------|---------------|
| AMT-A0389 | SMA Female Non-removable | Non-Hermetic | Outline: M101 |

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.

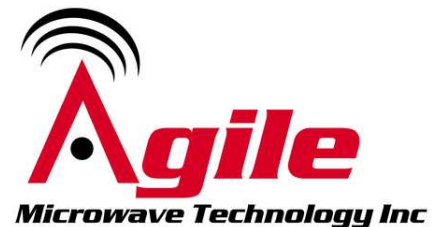
- Add additional functionality: Input limiter, Temperature compensation, Amplitude/Phase matching, Amplitude/Phase Tracking, Automatic Gain control, Gain sloping, Bypass path, Specific supply voltage, Regulation, Power detector, Health status, and others
- Integrated: Filters, Switches, Limiter, Digital 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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**ISO 9001:2015
Certified Company**



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