

AMT-A0111 7 GHz to 12 GHz Broadband Low Noise Amplifier

Data Sheet



Features

- 7 GHz to 12 GHz Frequency Range
- Typical Noise Figure < 1.2 dB
- Typical Gain 40 dB
- Gain Flatness < ± 1.5 dB
- +12 dBm P1dB Typical
- Internally Regulated
- Operates from a +12V Single Supply
- Unconditionally Stable
- State-of-the-Art GaAs Technology



Description

The AMT-A0111 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-A0111 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}	$^{\circ}C$	-54	+150
RF Input power (CW)	P_{in}	dBm		+10
Die $T_{Junction}$	T_J	$^{\circ}C$		+150
Positive Supply Voltage	V_{+SS}	V		+8.5

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	7		12
Gain	Small Signal	dB	38	40	
Gain Flatness		dB		±1.5	±2
Input Power	CW, without damage	dBm	+10		
Output Power (P1dB)	1 dB compression point @ 8 GHz	dBm		12	
OIP3	OIP3 measured @ 8 GHz Two tone F1-F2= 10MHz	dBm		20	
Noise Figure		dB		1.2	1.6
RF Input Impedance	Reference to 50 ohms VSWR			2.0:1	2.3:1
RF Output Impedance	Reference to 50 ohms			1:8:1	2.2:1
Stability Factor K	Unconditionally Stable		1		
Stability Factor B1	Unconditionally Stable		0		
Supply Voltage Positive:		V		+12	
Supply Current Positive:		mA		90	130

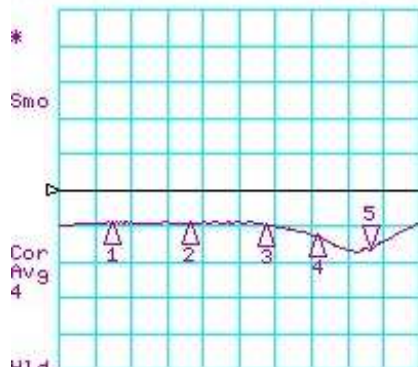
Notes:

1/ Unconditional Stability: ($K > 1$) and ($B1 > 0$)

Customized configurations of the above specifications are available

Typical S-Parameters @ 25°C

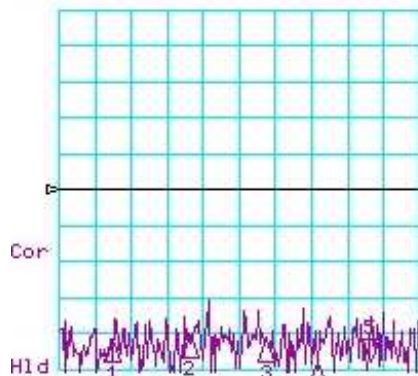
CH1 LOG 10 dB/ REF 0 dB
 S11 5: -16.313 dB 12.000 000 000 GHz



CH1 Markers
 1: -9.0970 dB
 7.00000 GHz
 2: -9.1330 dB
 8.50000 GHz
 3: -9.6810 dB
 10.0000 GHz
 4: -12.784 dB
 11.0000 GHz

START 6000.000 MHz STOP 13000.000 MHz

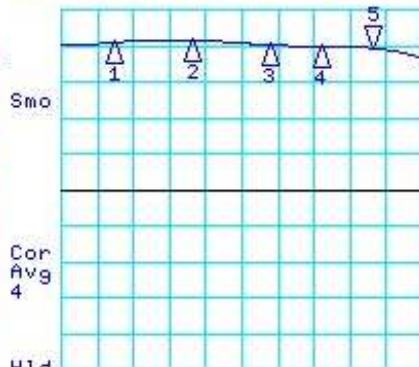
CH3 LOG 10 dB/ REF -10 dB
 S12 5: -57.597 dB 12.000 000 000 GHz



CH3 Markers
 1: -52.156 dB
 7.00000 GHz
 2: -50.882 dB
 8.50000 GHz
 3: -52.303 dB
 10.0000 GHz
 4: -58.498 dB
 11.0000 GHz

START 6000.000 MHz STOP 13000.000 MHz

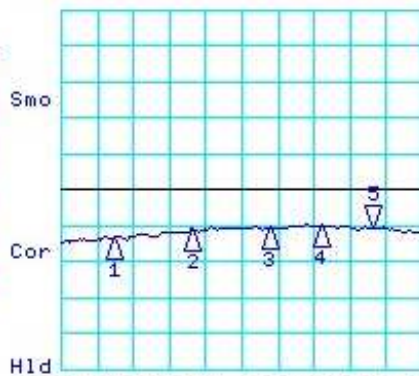
CH2 LOG 10 dB/ REF 0 dB
 S21 5: 39.555 dB 12.000 000 000 GHz



CH2 Markers
 1: 41.032 dB
 7.00000 GHz
 2: 41.731 dB
 8.50000 GHz
 3: 40.391 dB
 10.0000 GHz
 4: 39.862 dB
 11.0000 GHz

START 6000.000 MHz STOP 13000.000 MHz

CH4 LOG 10 dB/ REF 0 dB
 S22 5: -10.631 dB 12.000 000 000 GHz

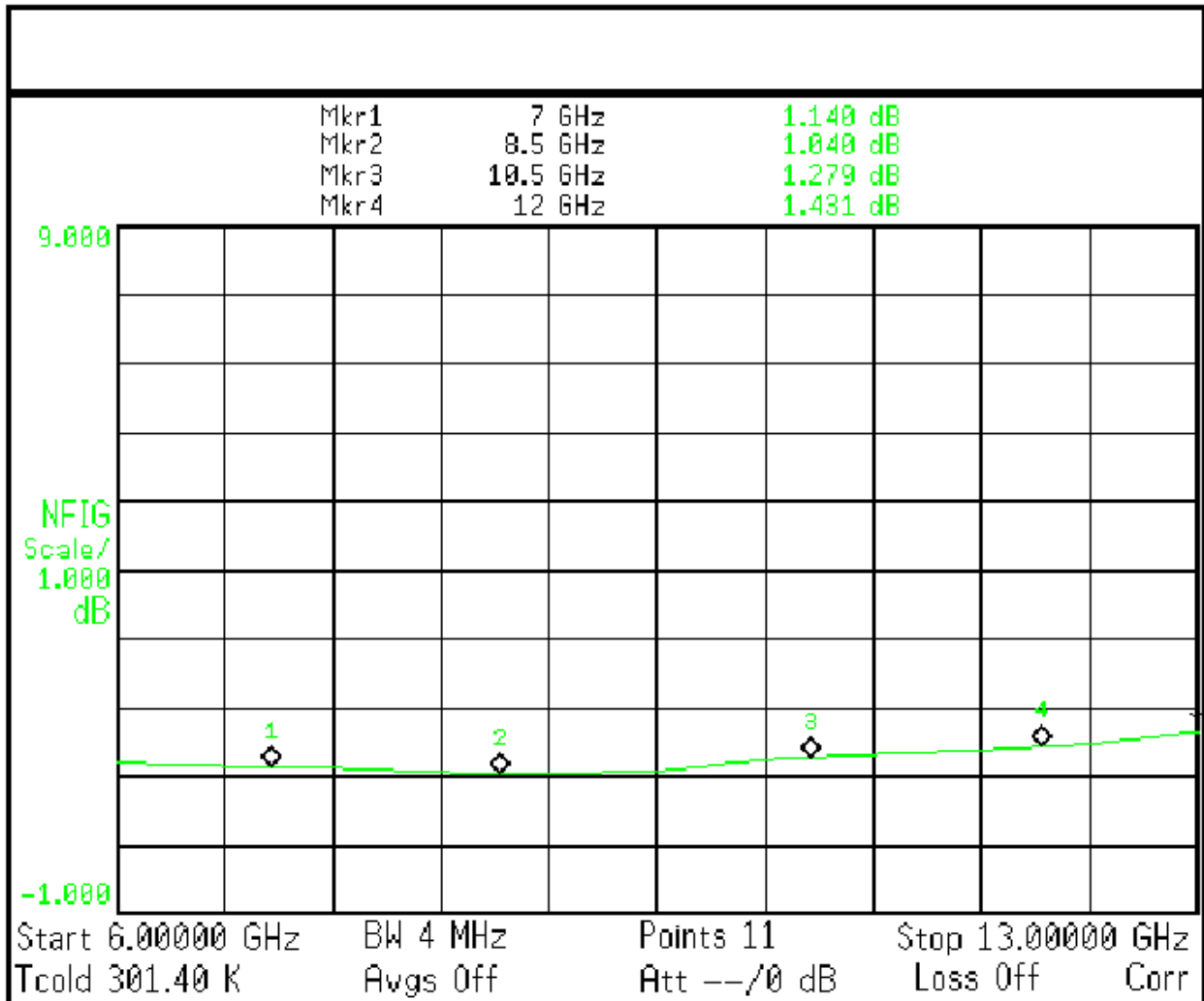


CH4 Markers
 1: -13.474 dB
 7.00000 GHz
 2: -11.202 dB
 8.50000 GHz
 3: -10.731 dB
 10.0000 GHz
 4: -10.238 dB
 11.0000 GHz

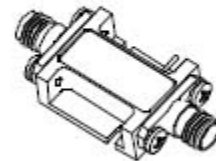
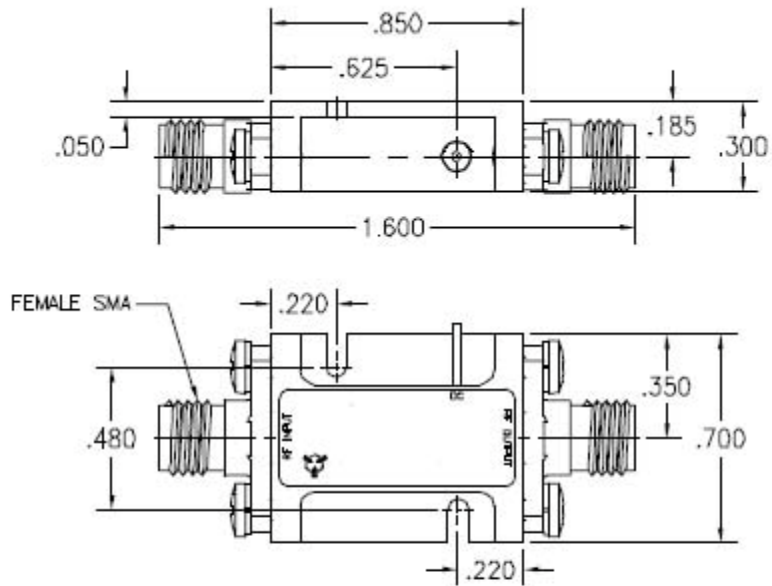
START 6000.000 MHz STOP 13000.000 MHz

Typical Noise Figure @ 25°C

Agilent



Package Outline: M006 SMA Connectorized (inches)



ISOMETRIC VIEW
ACTUAL SIZE

Amplifier must be properly attached for heat dissipation

Model Number	Description	Hermeticity	Package
AMT-A0111	SMA Female	Non-Hermetic	Outline: M006

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.

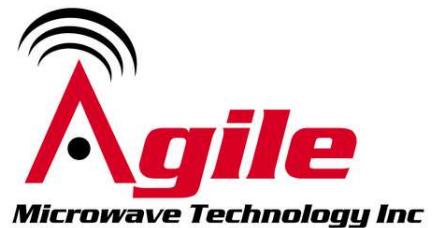
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