

AMT-A0112 11 GHz to 18 GHz Broadband Low Noise Amplifier

Data Sheet



Features

- 11 GHz to 18 GHz Frequency Range
- Typical Noise Figure < 1.4 dB
- Typical Gain 40 dB
- Gain Flatness < ± 2 dB
- +14 dBm P1dB
- Internally Regulated
- Operates from a +12V Single Supply
- Unconditionally Stable
- State-of-the-Art GaAs Technology



Description

The AMT-A0112 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-A0112 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		+15.5

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	11		18
Gain	Small Signal	dB	37	40	
Gain Flatness		dB		±1.5	
Input Power	CW, without damage	dBm	+10		
Output Power (P1dB)	1 dB compression point @ 15 GHz	dBm	12	14	
OIP3	OIP3 measured @ 8 GHz Two tone F1-F2= 10MHz	dBm		24	
Noise Figure		dB		1.4	1.8
RF Input Impedance	Reference to 50 ohms VSWR			2.0:1	2.5:1
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		105	130

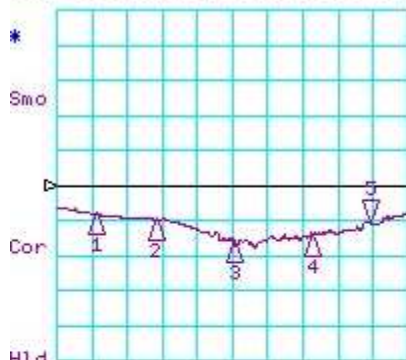
Notes:

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

Customized configurations of the above specifications are available

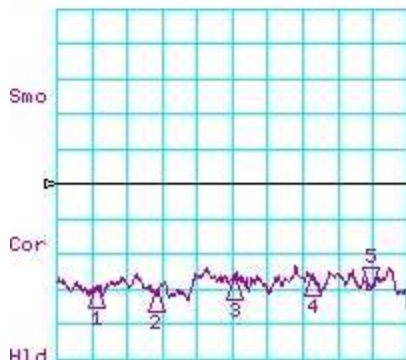
Typical S-Parameters @ 25°C

CH1 LOG 10 dB/ REF 0 dB
 S11 5: -10.621 dB 18.000 000 000 GHz



CH1 Markers
 1: -8.2820 dB
 11.0000 GHz
 2: -9.8360 dB
 12.5000 GHz
 3: -16.016 dB
 14.5000 GHz
 4: -14.276 dB
 16.5000 GHz

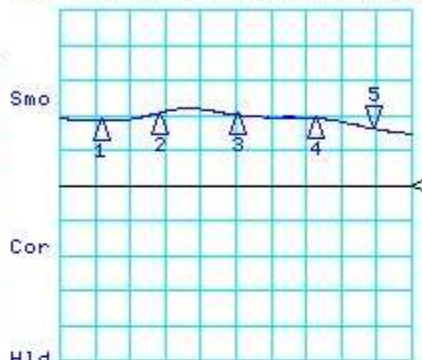
H1d
 START10000.000 MHz STOP19000.000 MHz
 CH3 LOG 10 dB/ REF -20 dB
 S12 5: -50.229 dB 18.000 000 000 GHz



CH3 Markers
 1: -49.517 dB
 11.0000 GHz
 2: -50.811 dB
 12.5000 GHz
 3: -47.249 dB
 14.5000 GHz
 4: -46.201 dB
 16.5000 GHz

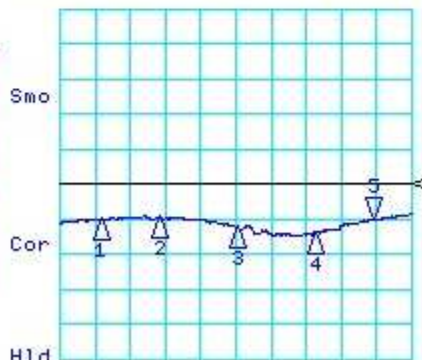
H1d
 START10000.000 MHz STOP19000.000 MHz

CH2 LOG 5 dB/ REF 30 dB
 S21 5: 38.184 dB 18.000 000 000 GHz



CH2 Markers
 1: 39.215 dB
 11.0000 GHz
 2: 40.322 dB
 12.5000 GHz
 3: 40.117 dB
 14.5000 GHz
 4: 39.663 dB
 16.5000 GHz

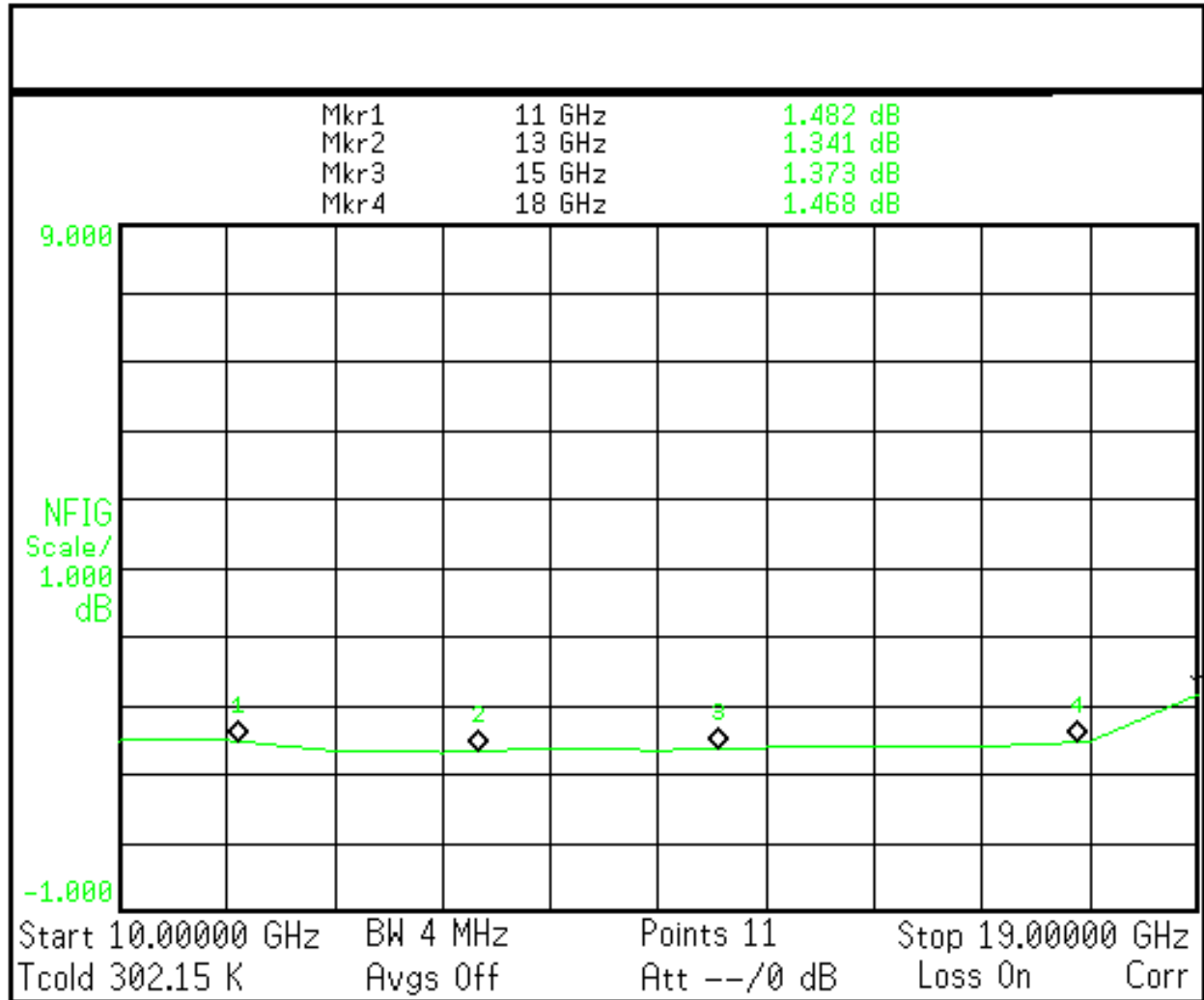
H1d
 START10000.000 MHz STOP19000.000 MHz
 CH4 LOG 10 dB/ REF 0 dB
 S22 5: -10.147 dB 18.000 000 000 GHz



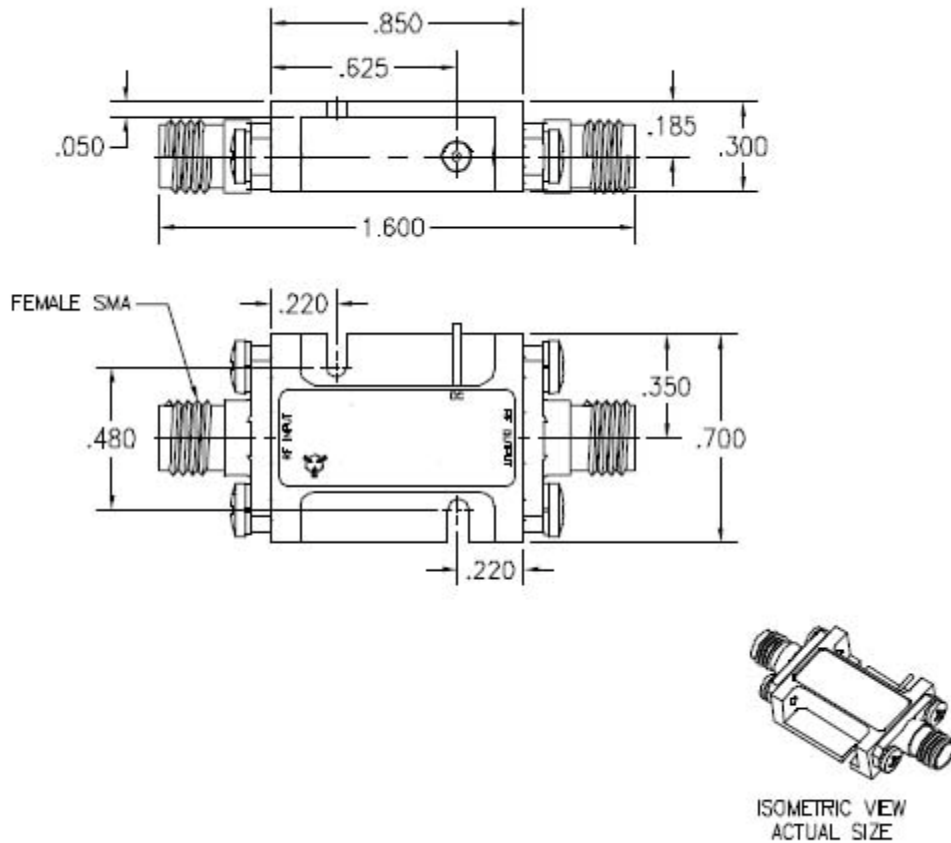
CH4 Markers
 1: -10.320 dB
 11.0000 GHz
 2: -9.6720 dB
 12.5000 GHz
 3: -12.187 dB
 14.5000 GHz
 4: -13.799 dB
 16.5000 GHz

H1d
 START10000.000 MHz STOP19000.000 MHz

Typical Noise Figure @ 25°C



Package Outline: M006 SMA Connectorized (inches)



Amplifier must be attached properly to dissipate heat

Model Number	Description	Hermeticity	Package
AMT-A0112	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.

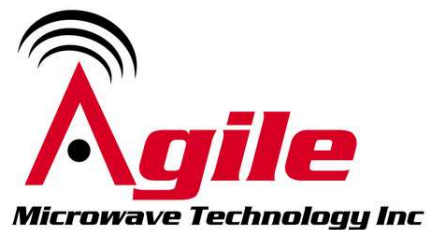
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