

AMT-A0091 0.01 GHz to 6 GHz Broadband Low Noise Medium Power Amplifier

Data Sheet



Features

- 0.01 GHz to 6 GHz Frequency Range
- Typical Noise Figure < 1.2 dB
- Typical Gain 43 dB
- Gain Flatness < ± 1.2 dB
- +20 dBm P1dB
- Internally Regulated
- Operates from a +12 V Single Supply
- Unconditionally Stable
- State-of-the-Art GaAs Technology



Description

The AMT-A0091 is a Broadband Low Noise medium power amplifier with very low noise figure and Pout of + 20 dBm 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-A0091 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}	° C	-40	+85
Storage Temperature - Case	T _{MS}	° C	-54	+150
RF Input power (CW)	P _{in}	dBm		+10
Die T _{Junction}	T _J	° 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	0.01		6
Gain	Small Signal	dB	38	43	
Gain Flatness ²		dB		±1.2	±2.0
Input Power	CW, without damage	dBm	+10		
Output Power (P1dB)	1 dB compression point @ 3 GHz	dBm	+20		
OIP3	OPI3 measured @ 3 GHz Two tone F1-F2= 10MHz	dB		30	
Noise Figure ²		dB		1.2	2.2
RF Input Impedance ²	Reference to 50 ohms VSWR			1.8:1	2.3:1
RF Output Impedance ²	Reference to 50 ohms			1:7:1	2.0:1
Stability Factor K	Unconditionally Stable		1		
Stability Factor B1	Unconditionally Stable		0		
Supply Voltage Positive:		V		+12	
Supply Current Positive:		mA		190	280

Notes:

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

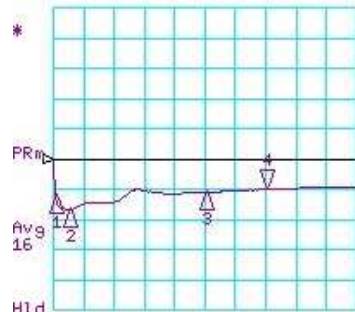
2/ Maybe higher below 300 MHz and NF higher below 500 MHz

Customized configurations of the above specifications are available

Typical S-Parameters @ 23C

S-Par from 30kHz to 2000 MHz

CH1 LOG 10 dB/ REF 0 dB
S11 4:-9.9840 dB 1 400.000 000 MHz

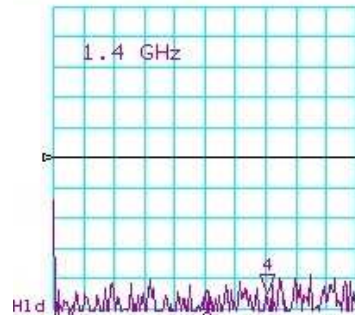


CH1 Markers

1:-11.908 dB
10.0000 MHz
2:-16.636 dB
100.000 MHz
3:-11.074 dB
1.00000 GHz

START .030 MHz STOP 2000.000 MHz

CH3 LOG 10 dB/ REF -20 dB
S12 4:-64.890 dB 1 400.000 000 MHz

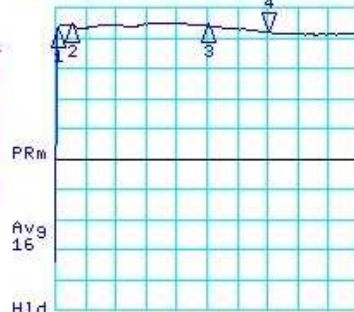


CH3 Markers

1:-71.794 dB
10.0000 MHz
2:-74.381 dB
100.000 MHz
3:-64.308 dB
1.00000 GHz

START .030 MHz STOP 2000.000 MHz

CH2 LOG 10 dB/ REF 0 dB
S21 4: 42.069 dB 1 400.000 000 MHz

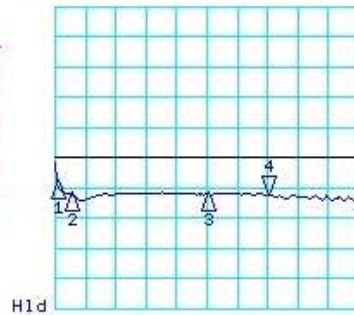


CH2 Markers

1: 42.911 dB
10.0000 MHz
2: 44.510 dB
100.000 MHz
3: 44.124 dB
1.00000 GHz

START .030 MHz STOP 2000.000 MHz

CH4 LOG 10 dB/ REF 0 dB
S22 4:-12.383 dB 1 400.000 000 MHz



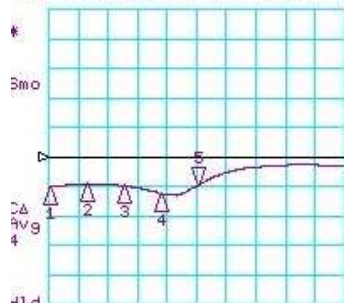
CH4 Markers

1:-7.8451 dB
10.0000 MHz
2:-12.092 dB
100.000 MHz
3:-12.062 dB
1.00000 GHz

START .030 MHz STOP 2000.000 MHz

S-Par from 2 GHz to 10 GHz

CH1 LOG 10 dB/ REF 0 dB
S11 5:-9.9180 dB 6.000 000 000 GHz

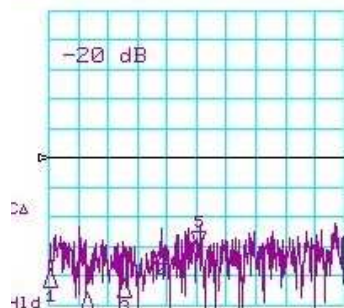


CH1 Markers

1:-10.206 dB
2.00000 GHz
2:-9.4050 dB
3.00000 GHz
3:-9.7920 dB
4.00000 GHz
4:-12.605 dB
5.00000 GHz

START 2000.000 MHz STOP10000.000 MHz

CH3 LOG 10 dB/ REF -20 dB
S12 5:-51.457 dB 6.000 000 000 GHz

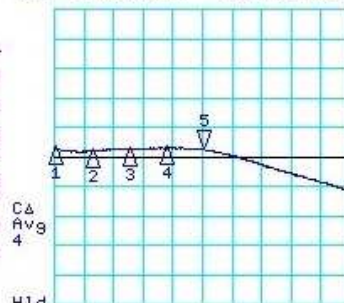


CH3 Markers

1:-58.276 dB
2.00000 GHz
2:-66.267 dB
3.00000 GHz
3:-61.744 dB
4.00000 GHz
4:-50.024 dB
5.00000 GHz

START 2000.000 MHz STOP10000.000 MHz

CH2 LOG 10 dB/ REF 40 dB
S21 5: 42.401 dB 6.000 000 000 GHz

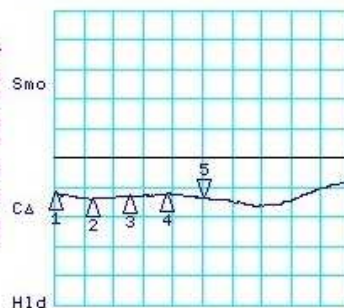


CH2 Markers

1: 43.007 dB
2.00000 GHz
2: 42.024 dB
3.00000 GHz
3: 42.792 dB
4.00000 GHz
4: 43.132 dB
5.00000 GHz

START 2000.000 MHz STOP10000.000 MHz

CH4 LOG 10 dB/ REF 0 dB
S22 5:-13.298 dB 6.000 000 000 GHz



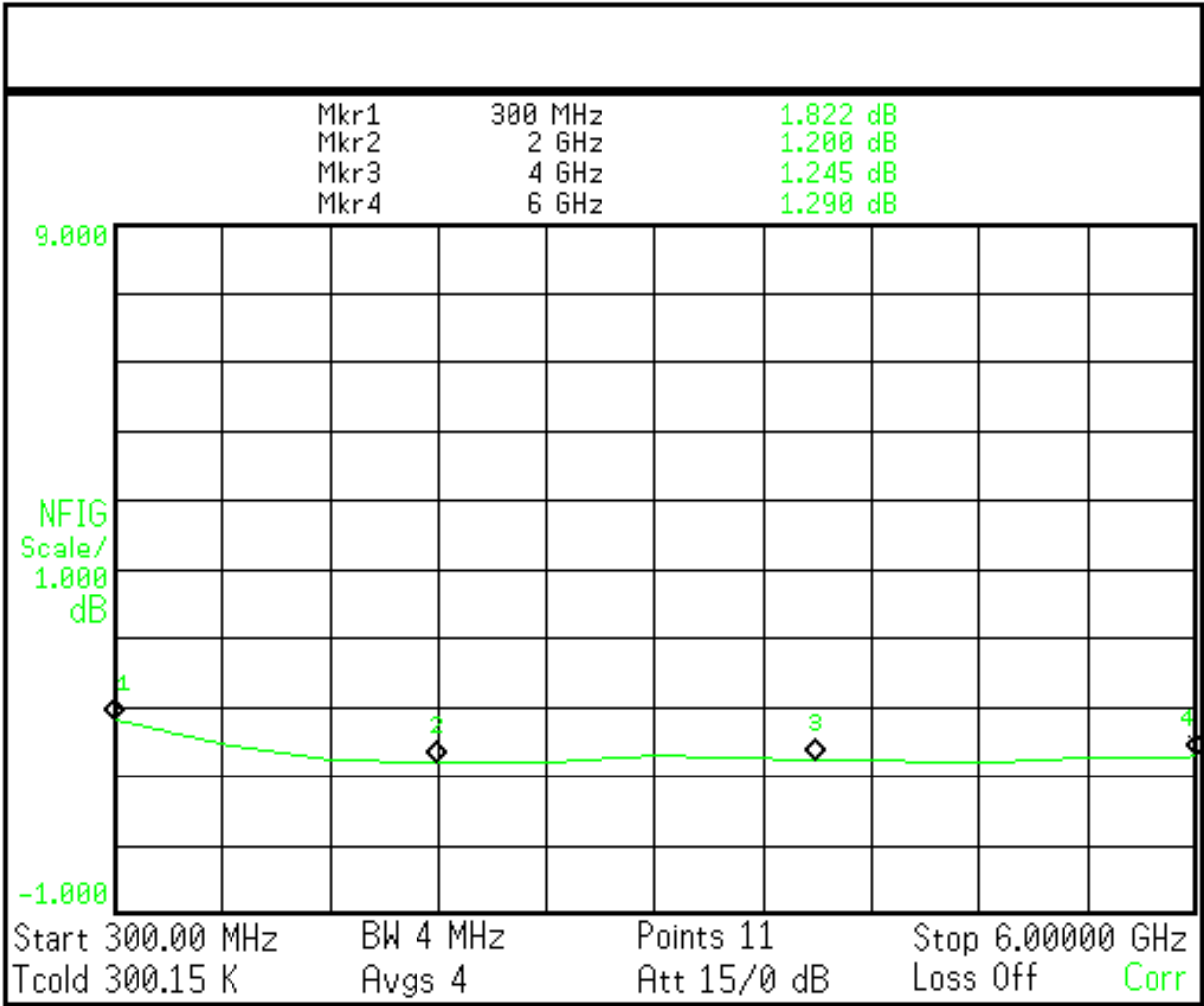
CH4 Markers

1:-11.893 dB
2.00000 GHz
2:-13.877 dB
3.00000 GHz
3:-12.798 dB
4.00000 GHz
4:-12.184 dB
5.00000 GHz

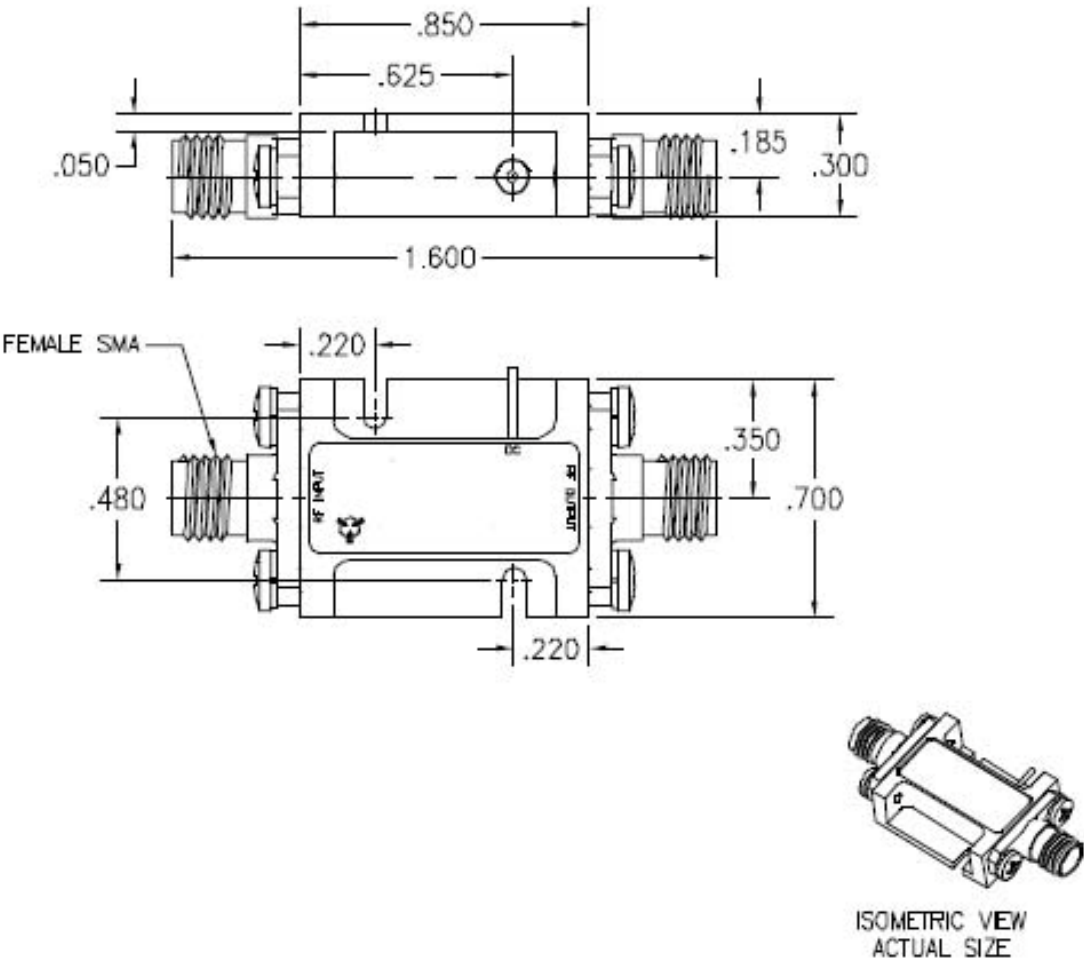
START 2000.000 MHz STOP10000.000 MHz

Typical Noise Figure @ 23C

Agilent



Package Outline: M006 SMA Connectorized (inches)



Amplifier requires proper heat dissipation

Model Number	Description	Hermeticity	Package
AMT-A0091	SMA Female	Non-Hermetic	Outline: M006
AMT-A0091-H	SMA Female	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

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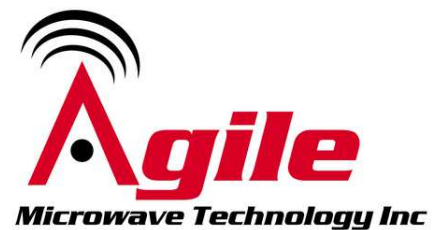
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