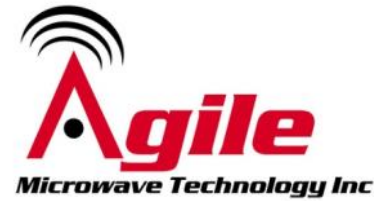


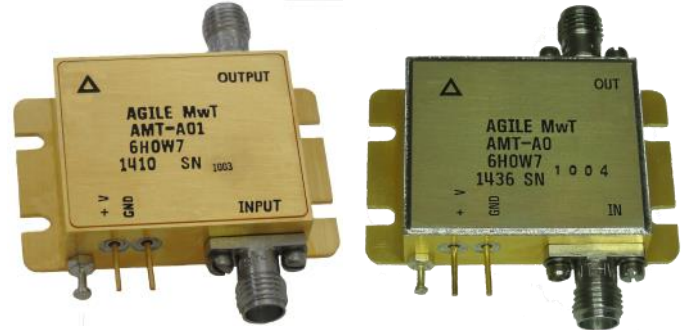
# AMT-A0253 0.1 GHz to 20 GHz Broadband LNA with Medium Power & Flat Gain



## Data Sheet

### Features

- 0.1 GHz to 20 GHz Frequency Range
- Typical P1dB power > +22 dBm
- Gain 33 dB Typical
- Gain Flatness  $\pm 1.5$  dB Typical
- 2.7 dB Typical Noise Figure
- Internally Regulated
- Operates from Single +12V Supply
- Unconditionally Stable
- Available in Hermetic Laser sealed version



Laser Sealed Hermetic

### Description

The AMT-A0253 is a +22 dBm P1dB Broadband medium power amplifier with Low Noise Figure in a compact size. The performance is achieved through the use of AMTI's proprietary matching technology and latest in GaAs technology. The amplifier I/Os are Internally matched to 50 Ohms and DC Blocked. The AMT-A0253 is ideal for use as medium power with low noise for test equipment, Communication systems or where broadband amplification and power are required without adding significant noise in a Hi-Rel communications system for Commercial or Military applications

### Applications

- Test Equipment
- Communication Systems
- EW Systems
- Lab Applications
- Radar

### MAXIMUM RATINGS<sup>1</sup>

### EAR99 NLR

Parameter	Symbol	Units	MIN	MAX
Operating Temperature – Case	T <sub>MO</sub>	° C	-40	+85
Storage Temperature - Case	T <sub>MS</sub>	° C	-40	+125
RF Input power (CW)	P <sub>in</sub>	dBm		+15
Die T <sub>Junction</sub>	T <sub>J</sub>	° C		+150
Positive Supply Voltage	V <sub>+SS</sub>	V		+15

### Appropriate Heat sink must be used

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	0.1		20
Gain <sup>2</sup>	Small Signal	dB	29	33	
Gain Flatness <sup>2</sup>		dB		±1.5	±2.5
Noise Figure <sup>2</sup>	0.1 to 20 GHz	dB		2.7	5
Output Power (P1dB)	0.1 to 16 GHz, measured @10GHz	dBm	+20	+22	
Output Power (P1dB)	16 to 20 GHz	dBm	+19.5	+21	
OIP3	OPI3 @ 10 GHz Two tone F1-F2= 10MHz	dB		30	
RF Input Impedance <sup>2</sup>	Reference to 50 ohms VSWR			1.8:1	2.3:1
RF Output Impedance <sup>2</sup>	Reference to 50 ohms VSWR			1.8:1	2.3:1
Supply Voltage Positive:		V		+12	
Supply Current Positive:	Small signal	mA		270	350

Notes:

1/ Unconditional Stability

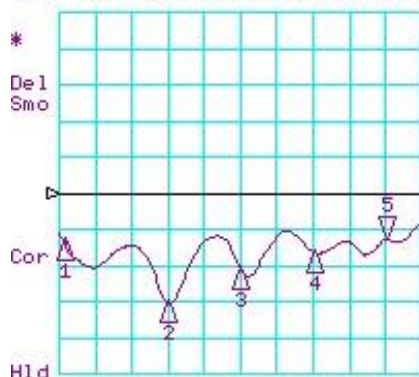
2/ Maybe higher below 300 MHz and above 18 GHz

NF Above 18 GHz Guaranteed by design

Customized configurations of the above specifications are available

# Typical S-Parameters @ 25°C

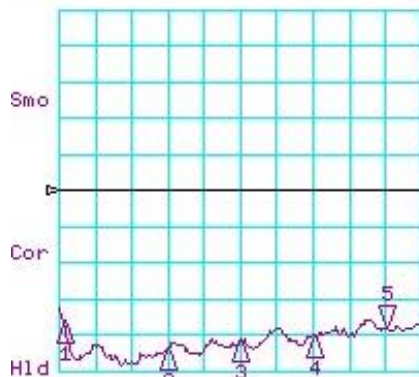
CH1 LOG 10 dB/ REF 0 dB  
S11 5: -12.724 dB 18.000 000 000 GHz



CH1 Markers  
1: -12.778 dB  
300.000 MHz  
2: -30.006 dB  
6.00000 GHz  
3: -20.478 dB  
10.0000 GHz  
4: -16.074 dB  
14.0000 GHz  
5: -12.724 dB  
18.0000 GHz

START 100.000 MHz STOP 20000.000 MHz

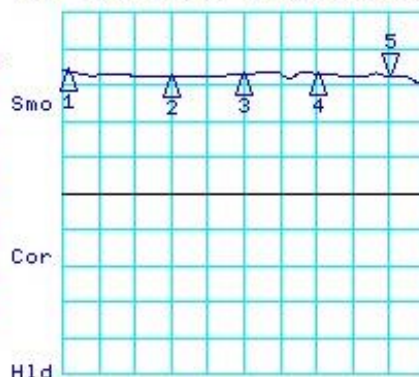
CH3 LOG 10 dB/ REF -10 dB  
S12 5: -48.293 dB 18.000 000 000 GHz



CH3 Markers  
1: -46.228 dB  
300.000 MHz  
2: -53.805 dB  
6.00000 GHz  
3: -51.381 dB  
10.0000 GHz  
4: -50.181 dB  
14.0000 GHz  
5: -48.293 dB  
18.0000 GHz

START 100.000 MHz STOP 20000.000 MHz

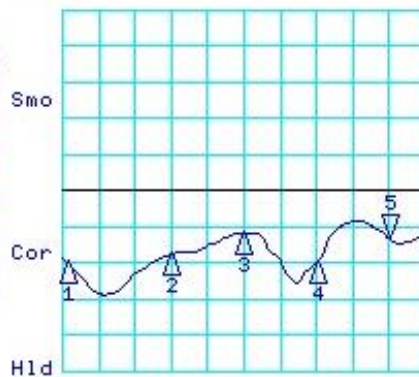
CH2 LOG 10 dB/ REF 0 dB  
S21 5: 32.173 dB 18.000 000 000 GHz



CH2 Markers  
1: 33.956 dB  
300.000 MHz  
2: 32.454 dB  
6.00000 GHz  
3: 33.074 dB  
10.0000 GHz  
4: 33.154 dB  
14.0000 GHz  
5: 32.173 dB  
18.0000 GHz

START 100.000 MHz STOP 20000.000 MHz

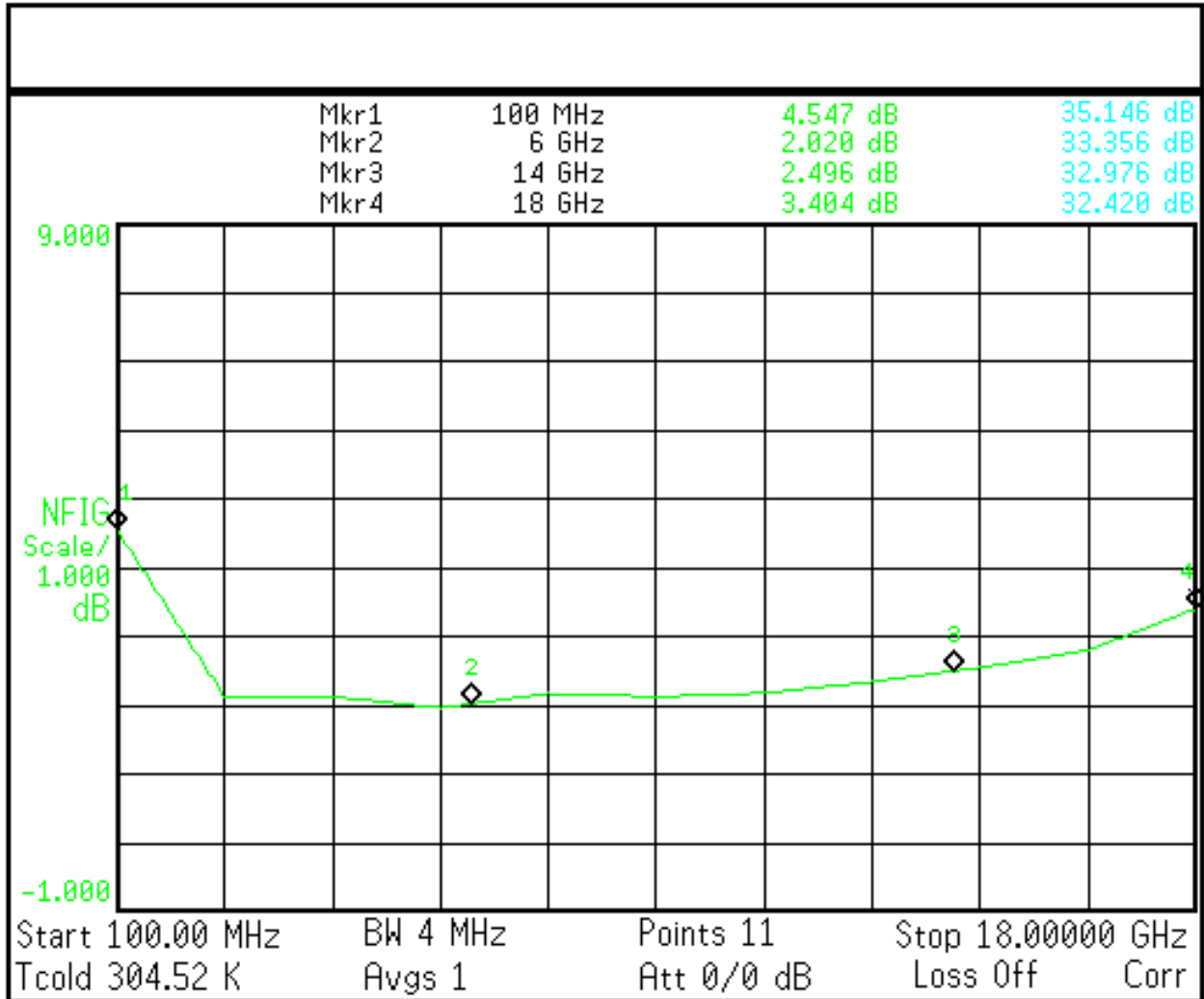
CH4 LOG 10 dB/ REF 0 dB  
S22 5: -13.112 dB 18.000 000 000 GHz



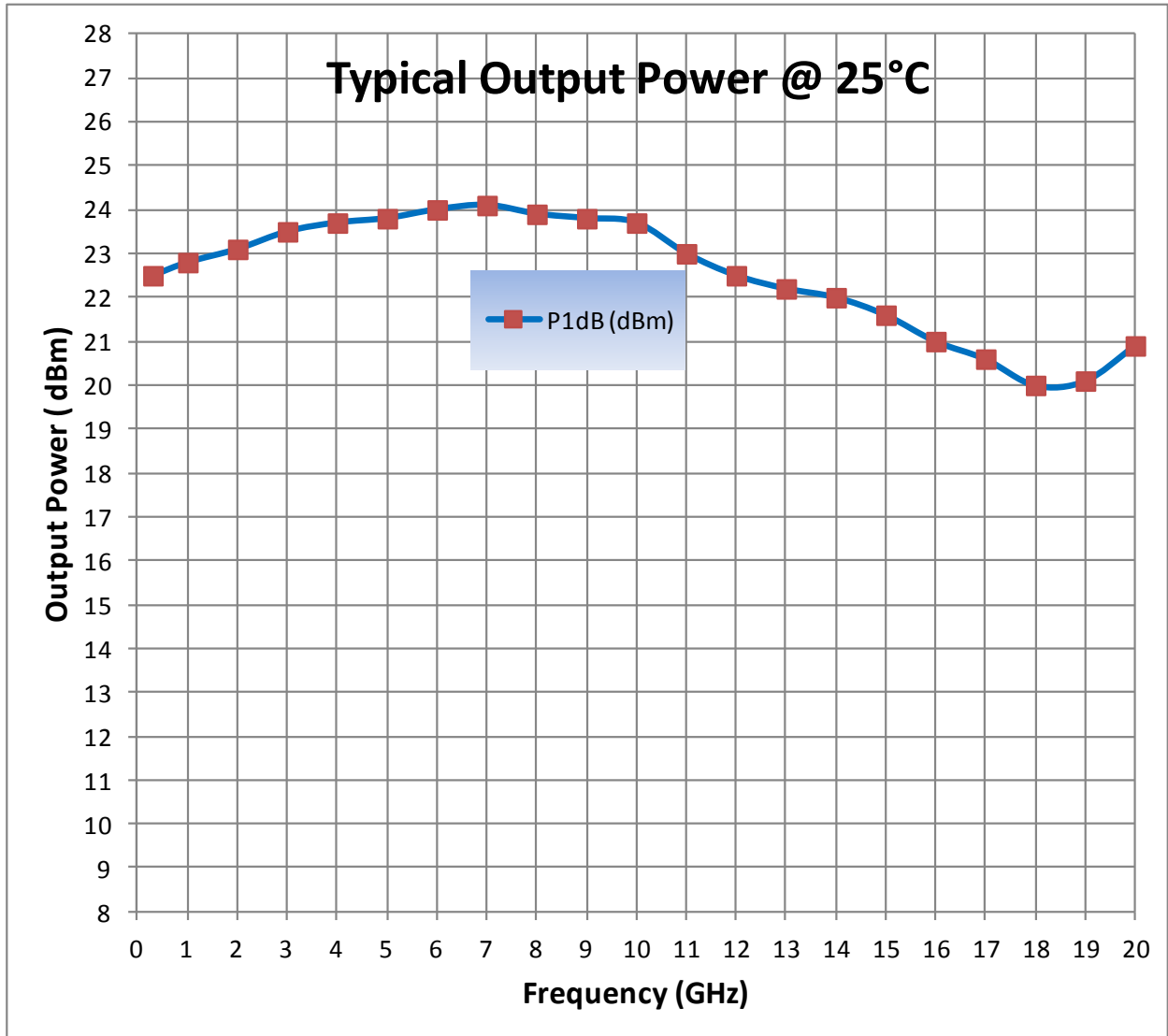
CH4 Markers  
1: -19.572 dB  
300.000 MHz  
2: -17.636 dB  
6.00000 GHz  
3: -12.038 dB  
10.0000 GHz  
4: -19.999 dB  
14.0000 GHz  
5: -13.112 dB  
18.0000 GHz

START 100.000 MHz STOP 20000.000 MHz

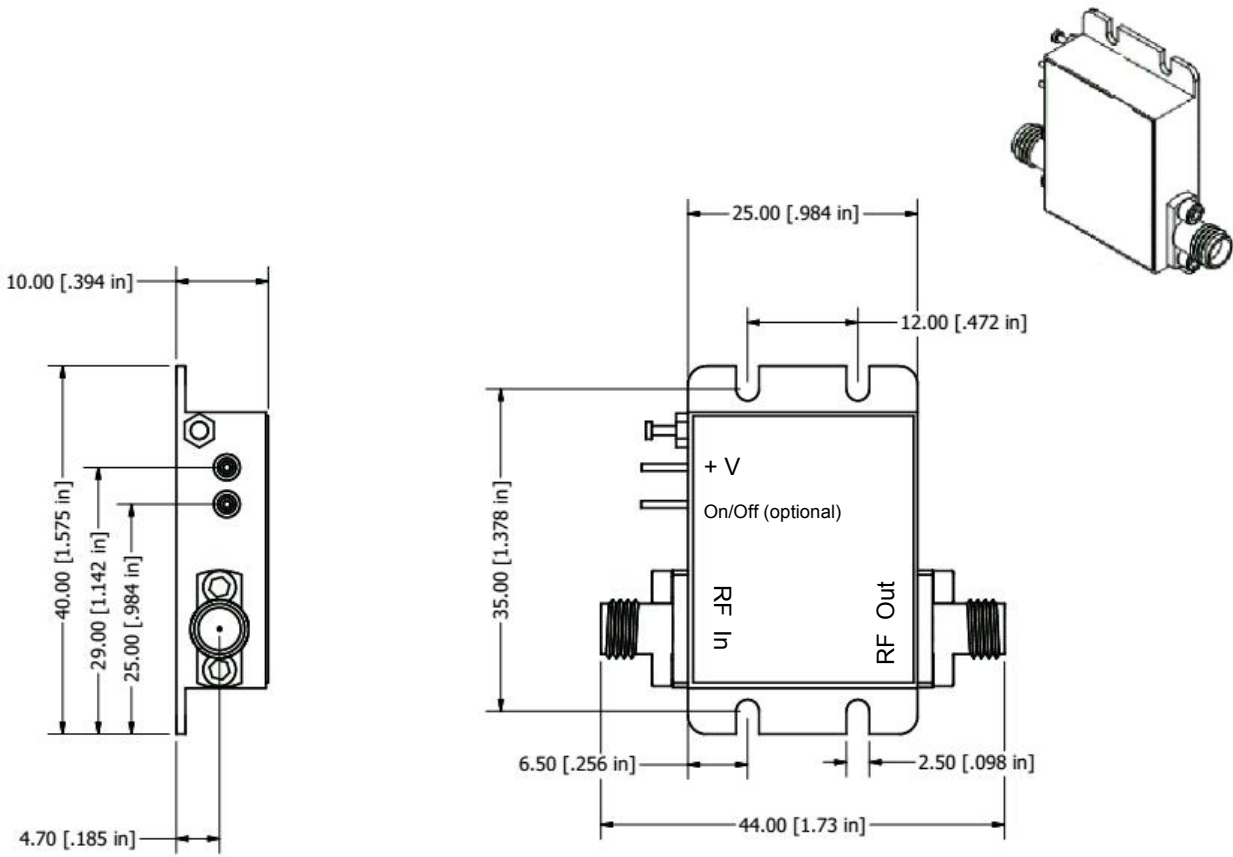
# Typical Noise Figure @ 23°C



### Typical P1dB @ 23°C



## Package Outline M020: SMA Connectorized mm(inches)



Field replaceable SMA Connectors, Removable Ground slug

**Note:** The unit must be attached to proper heat sink

Model Number	Description	Hermeticity	Package
AMT-A0253	SMA Female	Non-Hermetic	Outline: M020
AMT-A0253-H	SMA Female	Hermetic Laser Weld Tested to Leak Rate $<2.0 \times 10^{-8}$	Outline: M020

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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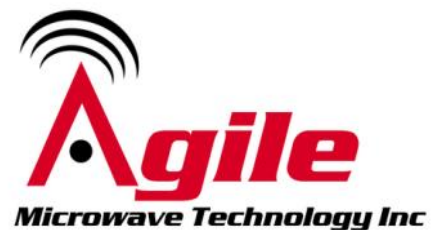
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