

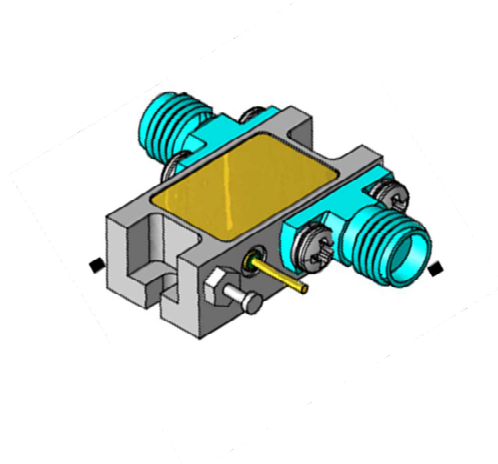
# AMT-A0446 16 GHz to 22.5 GHz Low Noise Amplifier

## Data Sheet



## Features

- 16 GHz to 22.5 GHz Frequency Range
- **Typical Noise Figure 1.8 dB**
- Gain 24dB typical
- Gain Flatness  $< \pm 0.5$  dB typical  $\pm 1$  dB max
- P1dB +15 dBm minimum
- VSWR 1.8:1 typical
- Internally Regulated
- Operates from a Single +8V Supply



## Description

The AMT-A0446 is a Low Noise amplifier with 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-A0446 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 RATINGS<sup>1</sup>

Parameter	Symbol	Units	MIN	MAX
Operating Temperature – Case	$T_{MO}$	° C	-40	+85
Storage Temperature - Case	$T_{MS}$	° C	-40	+125
RF Input power (CW)	Pin	dBm		+20
Die $T_{Junction}$	$T_J$	° C		+150
Positive Supply Voltage	$V_{+SS}$	V		+12

**Do NOT apply DC to RF Input**

**Must be attached to proper Heat Sink**

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	16		22.5
Gain	Small Signal	dB	20	24	
Gain Flatness		dB		±0.5	±1.5
Input Power	CW, without damage	dBm	+20		
Output Power (P1dB)	1 dB compression point @ 20 GHz	dBm	+12	+16	
OIP3	OIP3 @ 20 GHz Two tone F1-F2= 10MHz	dB		24	
Noise Figure		dB		1.8	2.5
RF Input Impedance	Reference to 50 ohms VSWR			1.8:1	2.4:1
RF Output Impedance	Reference to 50 ohms			1.5:1	2.0:1
Supply Voltage Positive:		V		+8	
Supply Current Positive:		mA		130	150

Notes:

1/ Unconditional Stability

Note: Electrical Specifications Guaranteed only at +23 ° C

Test data provided by SN @ room S-Parameter over Frequency Range, P1dB @ 20 GHz, NF at every 500 MHz using Low ENR HP346A noise source

Customized configurations of the above specifications are available

## ELECTRICAL SPECIFICATIONS @ 23°C

Parameter	Conditions	Units	MIN	Typical	MAX
Frequency Range		GHz	17.45		21.5
Gain	Small Signal	dB	21	24	
Gain Flatness		dB		±0.5	±1
Input Power	CW, without damage	dBm	+20		
Output Power (P1dB)	1 dB compression point @ 20 GHz	dBm	+12	+16	
OIP3	OIP3 @ 20 GHz Two tone F1-F2= 10MHz	dB		24	
Noise Figure		dB		1.6	2
RF Input Impedance	Reference to 50 ohms VSWR			1.8:1	2.2:1
RF Output Impedance	Reference to 50 ohms			1.4:1	1.5:1
Supply Voltage Positive:		V		+8	
Supply Current Positive:		mA		130	150

Notes:

1/ Unconditional Stability

Note: Electrical Specifications Guaranteed only at +23 ° C

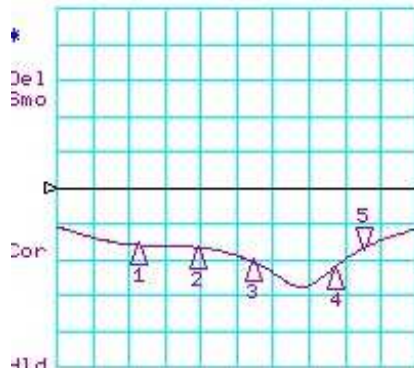
Test data provided by SN @ room S-Parameter over Frequency Range, P1dB @ 20 GHz, NF at every 500 MHz using Low ENR HP346A noise source

Customized configurations of the above specifications are available

Linear Phase change ± 5 deg typical

# Typical S-Parameters @ 25°C

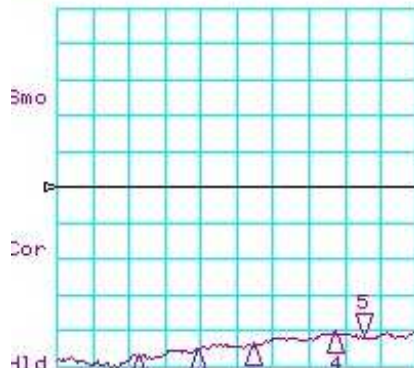
CH1 LOG 10 dB/ REF 0 dB  
S11 5: -16.999 dB 21.500 000 000 GHz



CH1 Markers  
1: -15.843 dB  
17.4500 GHz  
2: -16.442 dB  
18.5000 GHz  
3: -20.239 dB  
19.5000 GHz  
4: -22.138 dB  
21.0000 GHz  
5: -16.999 dB  
21.5000 GHz

H1d  
START16000.000 MHz STOP22500.000 MHz

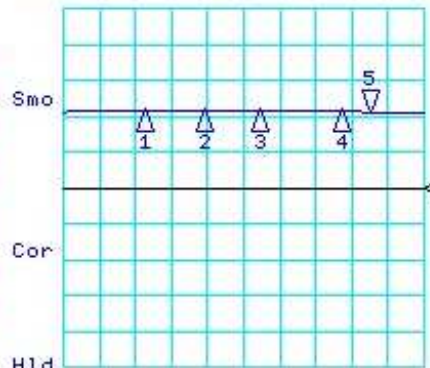
CH3 LOG 10 dB/ REF 0 dB  
S12 5: -41.733 dB 21.500 000 000 GHz



CH3 Markers  
1: -47.207 dB  
17.4500 GHz  
2: -45.412 dB  
18.5000 GHz  
3: -44.073 dB  
19.5000 GHz  
4: -40.560 dB  
21.0000 GHz  
5: -41.733 dB  
21.5000 GHz

H1d  
START16000.000 MHz STOP22500.000 MHz

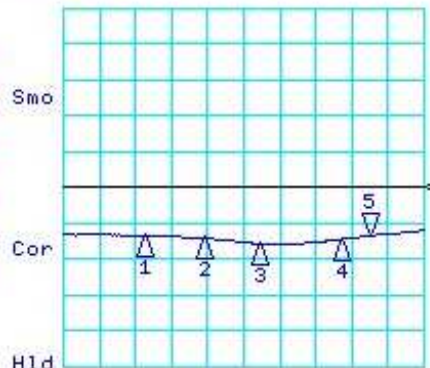
CH2 LOG 10 dB/ REF 0 dB  
S21 5: 21.184 dB 21.500 000 000 GHz



CH2 Markers  
1: 21.416 dB  
17.4500 GHz  
2: 21.356 dB  
18.5000 GHz  
3: 21.413 dB  
19.5000 GHz  
4: 21.360 dB  
21.0000 GHz  
5: 21.184 dB  
21.5000 GHz

H1d  
START16000.000 MHz STOP22500.000 MHz

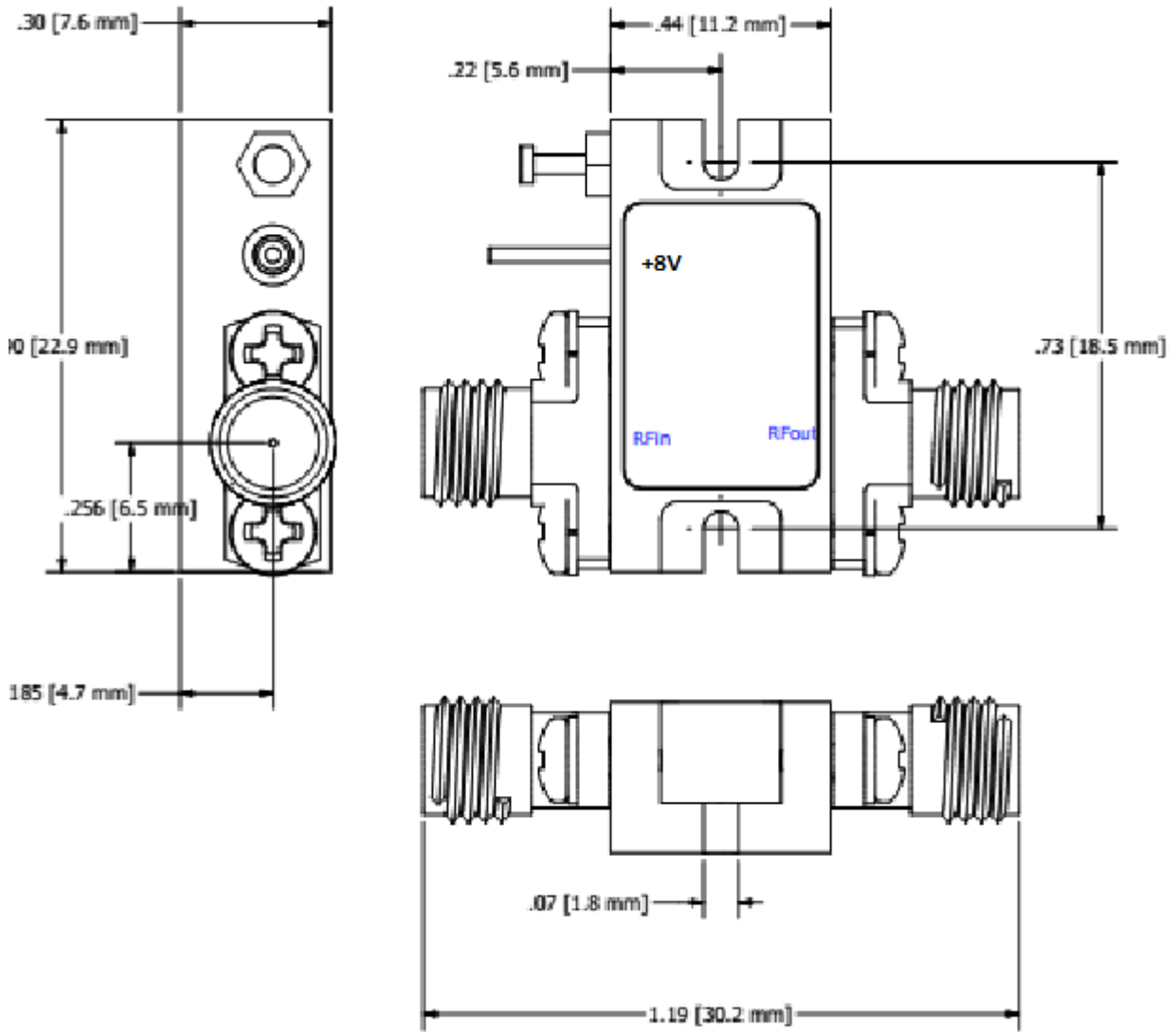
CH4 LOG 10 dB/ REF 0 dB  
S22 5: -13.479 dB 21.500 000 000 GHz



CH4 Markers  
1: -13.403 dB  
17.4500 GHz  
2: -14.164 dB  
18.5000 GHz  
3: -15.630 dB  
19.5000 GHz  
4: -14.469 dB  
21.0000 GHz  
5: -13.479 dB  
21.5000 GHz

H1d  
START16000.000 MHz STOP22500.000 MHz

### Package Outline: M120 SMA Connectorized (inches)



Model Number	Description	Hermeticity	Package
AMT-A0446	SMA Female	Non-Hermetic	Outline: M120

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.

### Contact Information:

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**ISO 9001:2015  
Certified Company**



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