

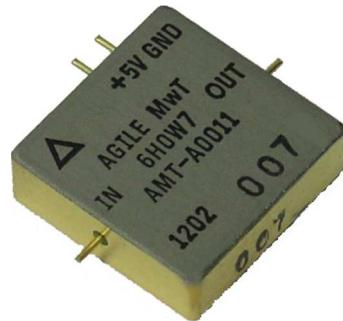
# AMT-A0016 50MHz to 500MHz Limiting Amplifier

## Data Sheet



## Features

- Limiting Amplifier provides  $P_{out} > +12$  dBm even with  $P_{in}$  varying from  $-18$  dBm to  $0$  dBm
- Small Signal Gain  $33$  dB
- Phase Noise  $-150$  dB @  $1\text{KHz}$  offset
- $2.7$  dB Noise Figure
- High Efficiency,  $350\text{mW}$  ( $5\text{V}, 70\text{mA}$ )
- Steady Output Power level over Temperature
- Operates from a Single  $+5\text{V}$  Supply
- Unconditionally Stable



## Description

The AMT-A0016 is a Limiting amplifier with steady Output power over frequency and temperature. The performance is achieved through the use of AMTI's proprietary technology. The amplifier I/Os are Internally matched to  $50$  Ohms and are DC blocked. The AMT-A0016 is ideal for use as LO driver, IF amplifier or limiting driver stage in a Hi-Rel communications system for Commercial or Military applications

## Applications

- IF Amplifier,
- LO Driver
- Limiting Amplifier

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

Parameter	Symbol	Units	MIN	MAX
Operating Temperature – Case	$T_{MO}$	$^{\circ}\text{C}$	-54	+85
Storage Temperature - Case	$T_{MS}$	$^{\circ}\text{C}$	-55	+150
RF Input power (CW)	$P_{in}$	dBm		+23
Die $T_{Junction}$	$T_J$	$^{\circ}\text{C}$		+150
Thermal Resistance	$\Theta_{jc}$	$^{\circ}\text{C}/\text{Watt}$		+65
ESD	V	$<400^2$		
Positive Supply Voltage	$V_{+ss}$	V		+7

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.

2. ESD Human Body Model =400V, ESD machine model = 50V

## ELECTRICAL SPECIFICATIONS @ 23°C

Parameter	Conditions	Units	MIN	Typical	MAX
Frequency Range		MHz	50		500
Gain <sup>2</sup>	Small Signal	dB	28	33	
Output Power	Saturated Power	dBm	+10	+12.7	
Input Power Range	Psat power	dBm	-16	-18	
Phase Noise	Offset Frequency 1kHz @ 100MHz	dB		-152	
Noise Figure	Higher for < 100 MHz	dB		2.7	3.0
RF Input Impedance	Reference to 50 ohms up to Pin = -2 dBm			1.8:1	2.0:1
RF Output Impedance	Reference to 50 ohms			1:4:1	1.5:1
Stability Factor K	Unconditionally Stable		1		
Stability Factor B1	Unconditionally Stable		0		
Supply Voltage Positive:		V		+5V	
Supply Current Positive:	Psat	mA		70	80

Notes:

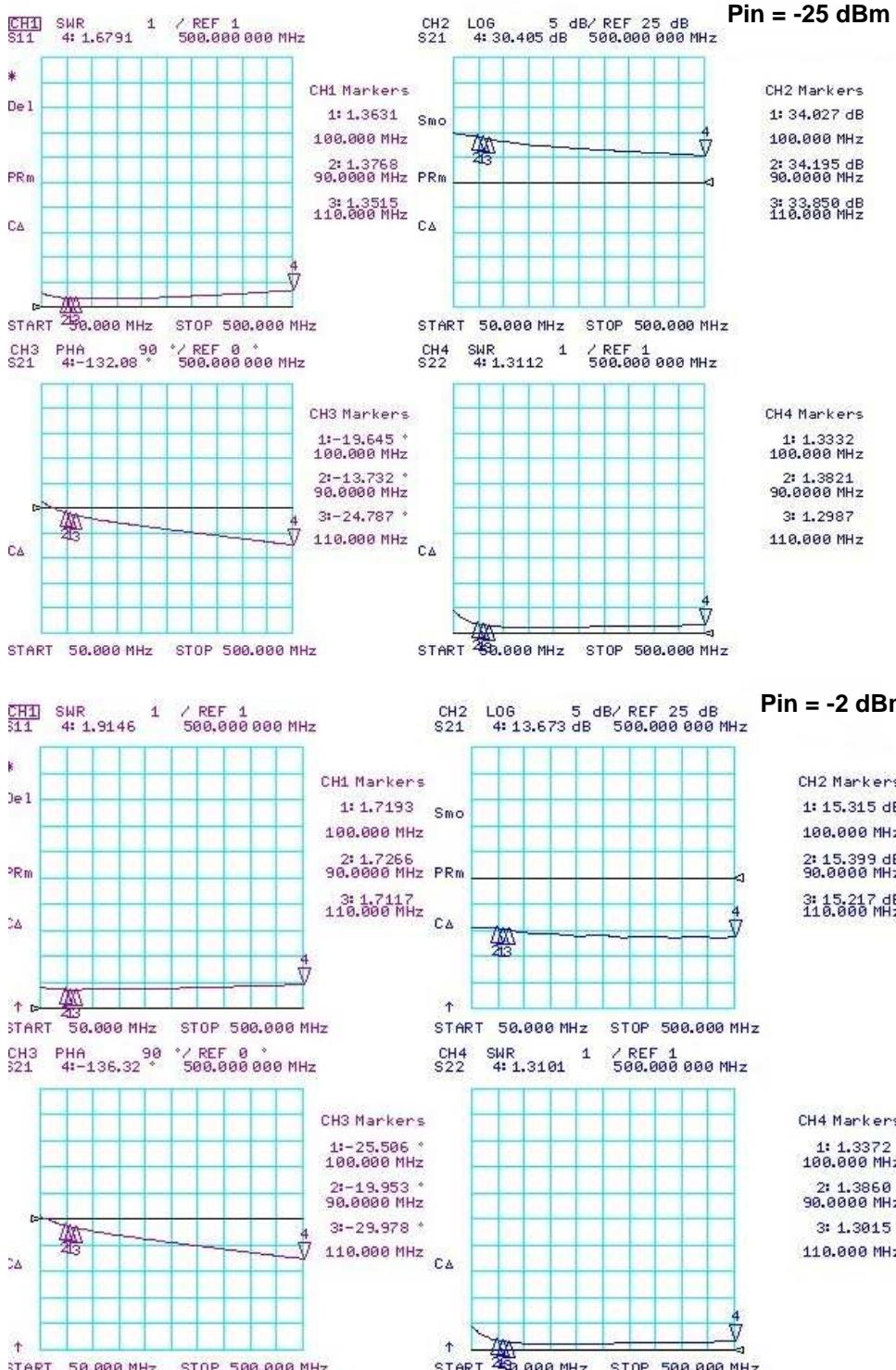
1/ Unconditional Stability: (K > 1) and (B1 > 0)

2/ Measured with VNA input power of -25dBm

Customized configurations of the above specifications are available

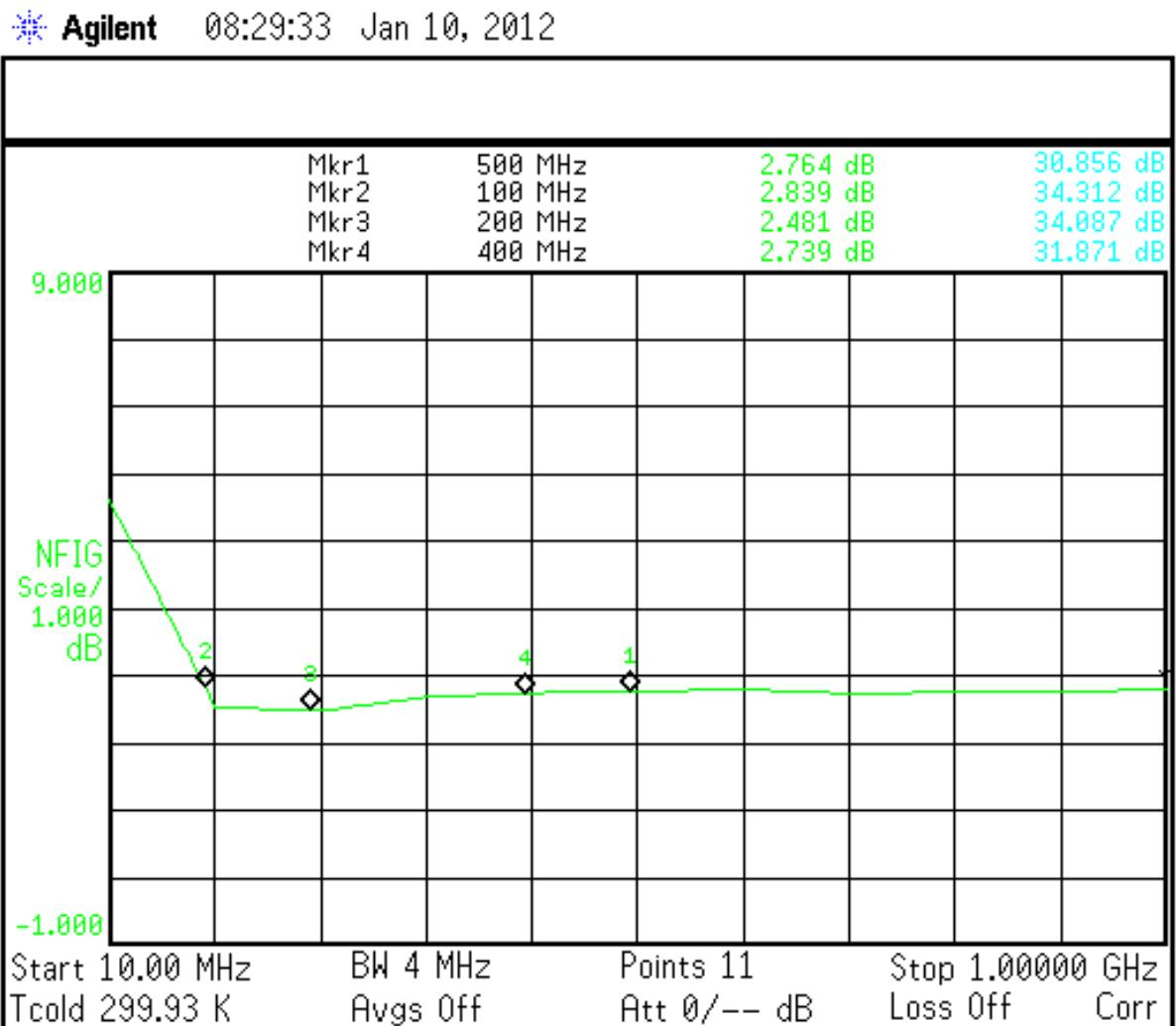
## Typical Performance @ 23°C

### S- Parameters



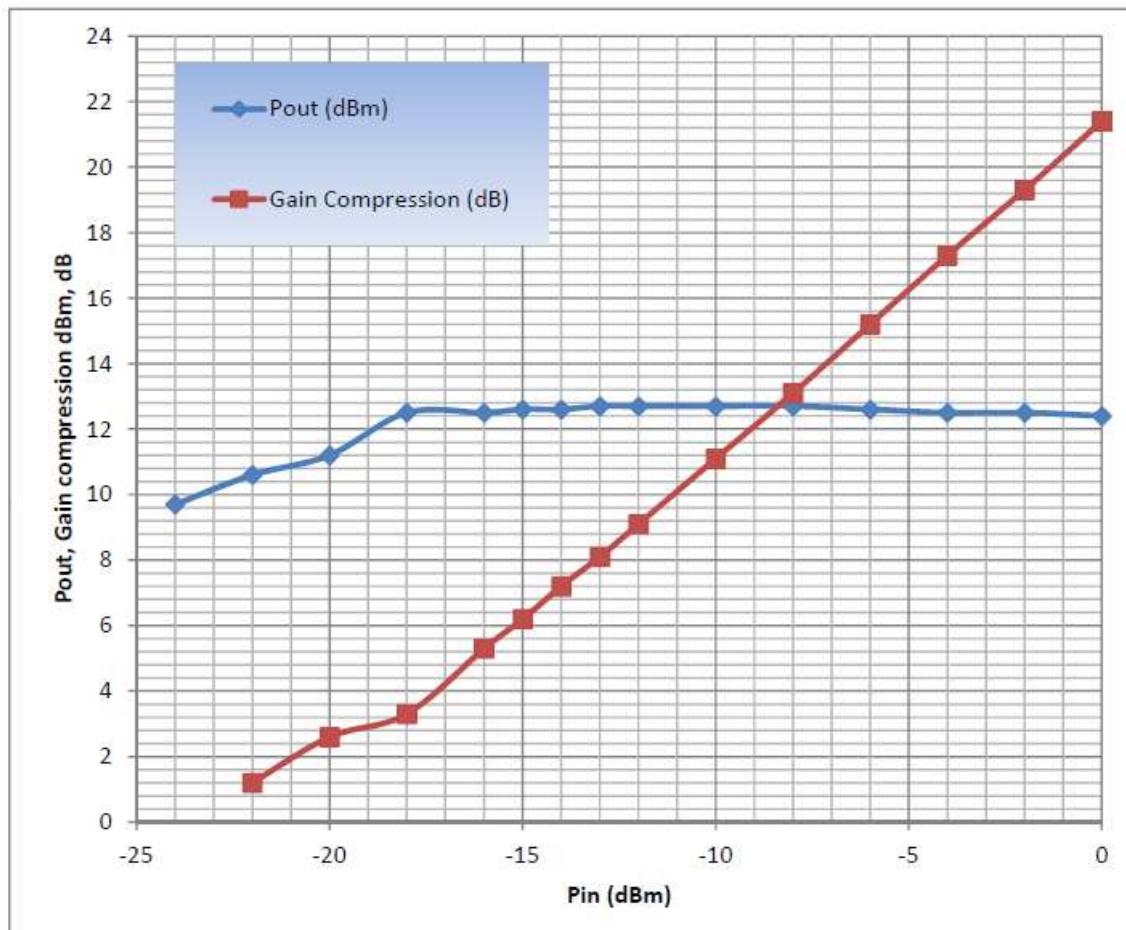
## Typical Performance

### Noise Figure @ 23C



## Typical Performance

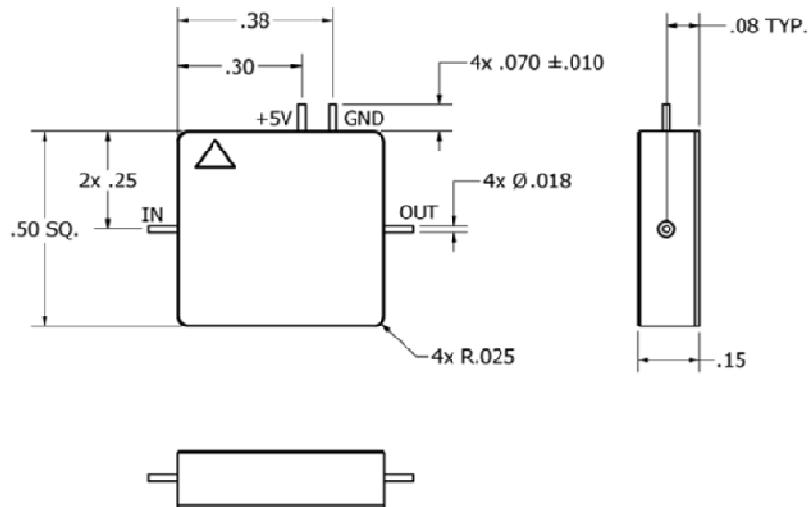
### Pin VS Pout



Pin Numbers	Function
1	RF Input
2	+5V
3	Ground
4	RF Output
Case	Ground
RFin and RFout pins have internal DC blocking capacitor	

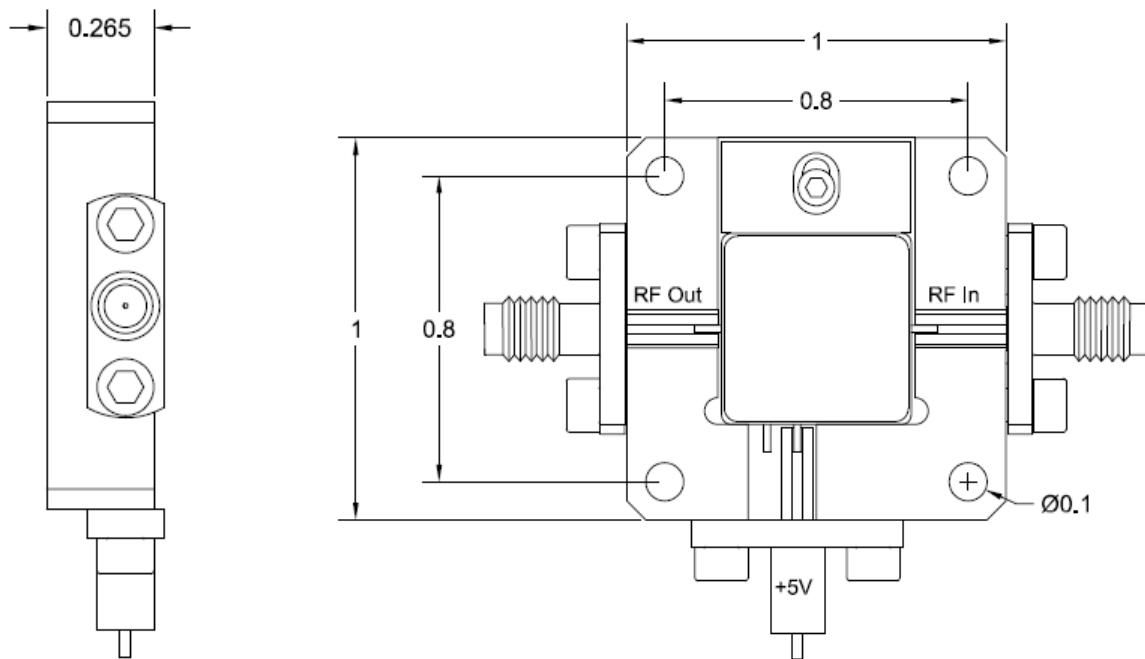
Model Number	Description	Package
AMT-A0016-FP	4 pin Flat Pack	FP 0.500SQ, 0.170Ht AMT-M001
AMT-A0016-SMA	SMA Connectorized Fixture	Outline: AMT-M011

## Package Outline: Flat Pack 0.500SQ (inches)



PIN	FUNCTION	PIN	FUNCTION
1	RFIN	3	GND
2	+5V	4	RFOUT
CASE = GND			

## Package Outline: SMA Connectorized (inches)



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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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