AMT-L0014 100MHz to 2500MHz
High Linearity Limiter for A/D Converters

Data Sheet

Microwave Technology Inc

Features

- Ideal protection for A/D converters with high dynamic range
- Flat Insertion Loss < 1.7 dB from 300 to 2000MHz Frequency Range
- High Linearity, OIP3 > +32 dBm with Pin = +5 dBm
- Return Loss > 15 dB
- Leakage < 15 dBm
- +12 dBm P1dBm
- AM/PM Phase change with –10 to + 10 dBm sweep < 0.5 deg
- Operates from a Single +5V Supply

Patent Pending

Description

The AMT-L0014 is a broadband high linearity Limiter for high dynamic range A/D converters. The high performance is achieved through the use of AMTI's patent pending proprietary technology. It is designed to provide high linearity up to +5 dBm input power while providing protection against saturation with +14 dBm leakage power. The limiter allows for optimizing A/D's dynamic range without compromising linearity and protecting from saturation. The Limiter I/Os are Internally matched to 50 Ohms and are DC blocked. The AMT-L0014 is ideal for use as protection limiter in a high dynamic range communications system for Commercial or Military applications

Applications

- Protection for A/D converters
- Limiter for sensitive Rx systems
- Limiter for LNA

MAXIMUM RATINGS[1]

Parameter	Symbol	Units	MIN	MAX
Operating Temperature – Case	T_{MO}	° C	-40	+85
Storage Temperature - Case	T_{MS}	° C	-55	+150
RF Input power (CW)	Pin	dBm		+23
Die $T_{Junction}$	T_J	° C		+150
Positive Supply Voltage	V_{+SS}	V		+5.5

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.

Patent Pending

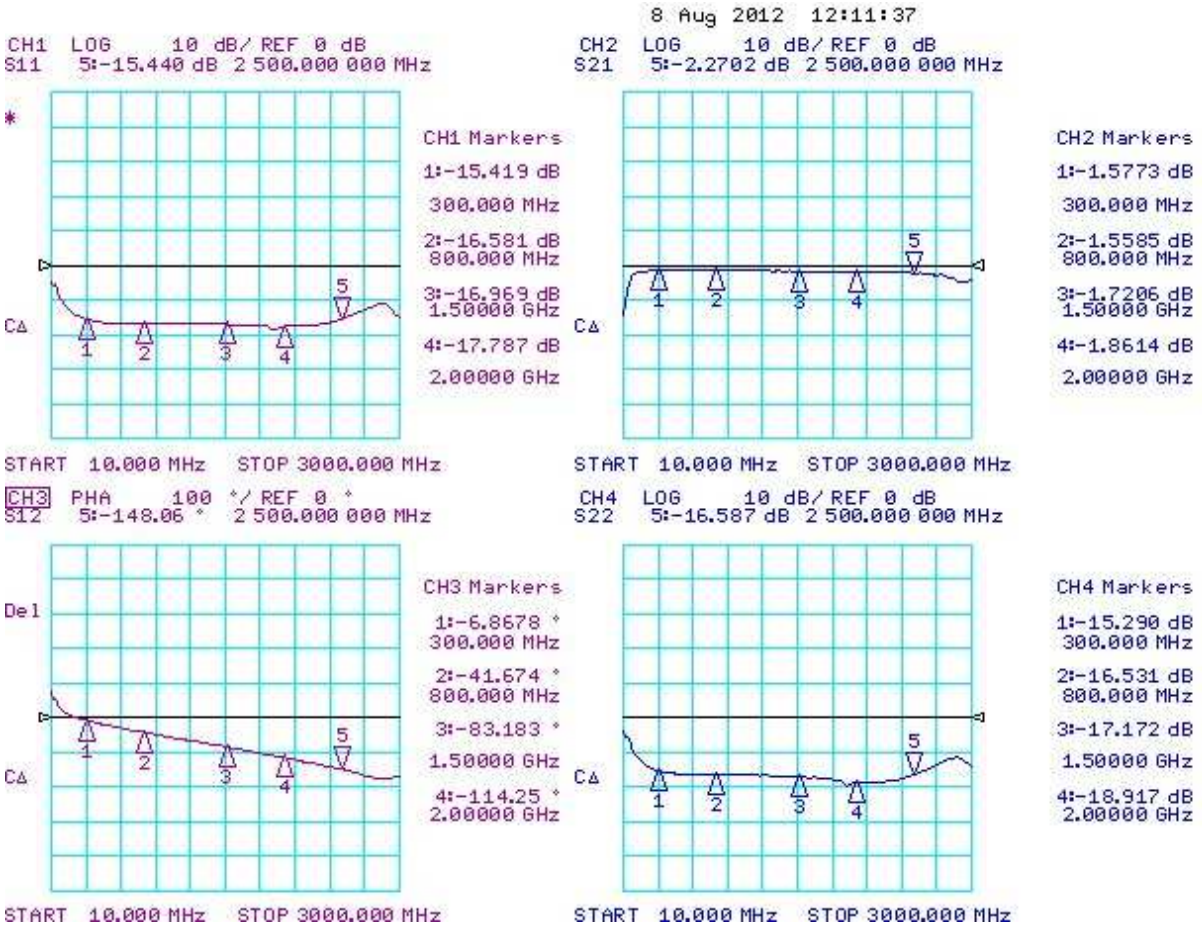
ELECTRICAL SPECIFICATIONS @ 23ºC

Parameter	Conditions	Units	MIN	Typical	MAX
Frequency Range		MHz	300		2000
Insertion Loss	Up to Pin = +5 dBm	dB		1.7	2.3
Leakage Power	Measured with Pin= +18 dBm	dBm		+14	+15
Output Power P1dB	1 dB compression point @ 1GHz	dBm	+7	+12	
OIP3	Two Tone F1—F2 = 10MHz @ 1 GHz	dBm		+33	
OIP2		dBm		+50	
Input Power Handling		dBm	+23		
AM/PM Phase shift	Measured @ 1 GHz power	deg		0.4	1
Recovery	Pin = +20 dBm to linear	nS			300
RF Input Return Loss		dB	13	16	
RF Output Return Loss		dB	14	16	
Supply Voltage Positive: Supply Current Positive:		V mA		+5V 55	 70

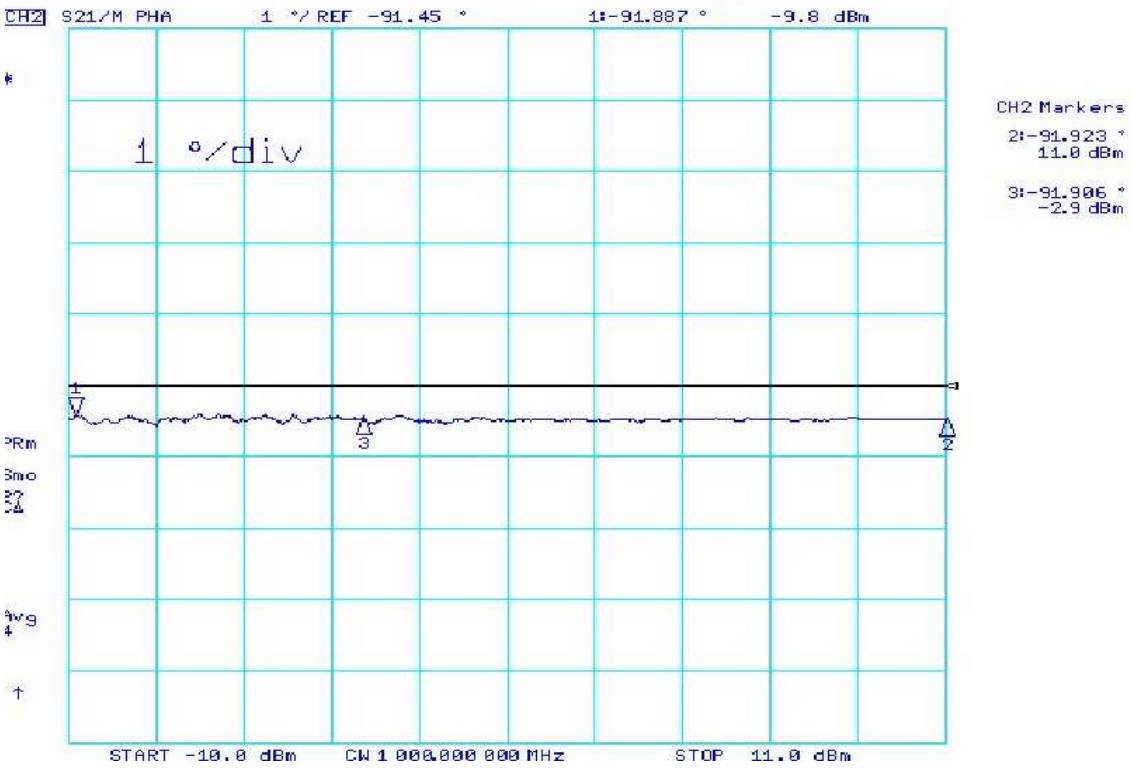
Customized configurations of the above specifications are available

Typical Performance @ 23ºC

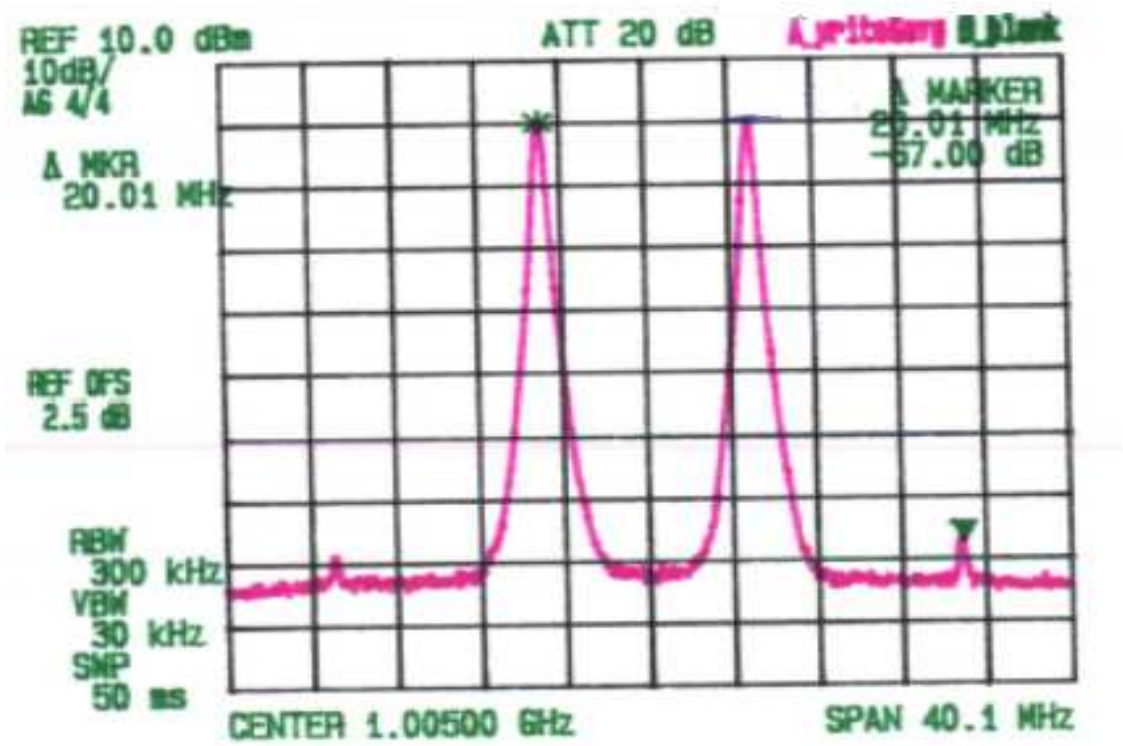
S– Parameters



AM/PM Phase Change with Pin Sweep from –10 to +11 dBm @ 1 GHz



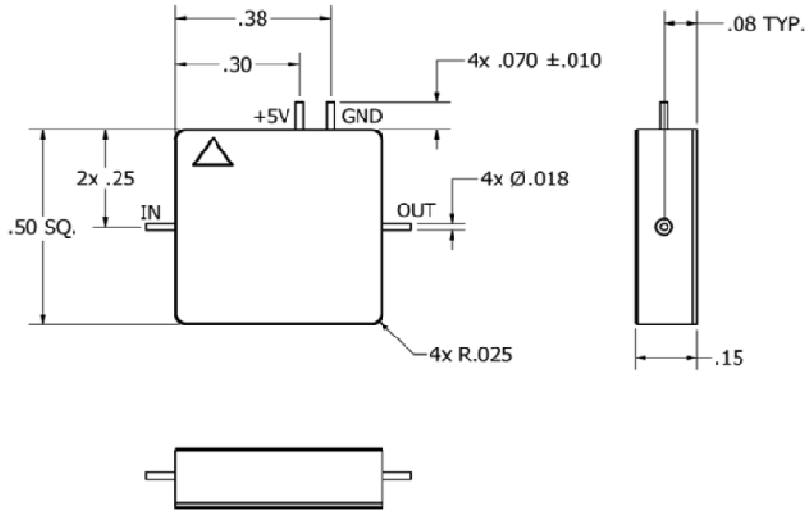
Two Tone IM (SN 0005)



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

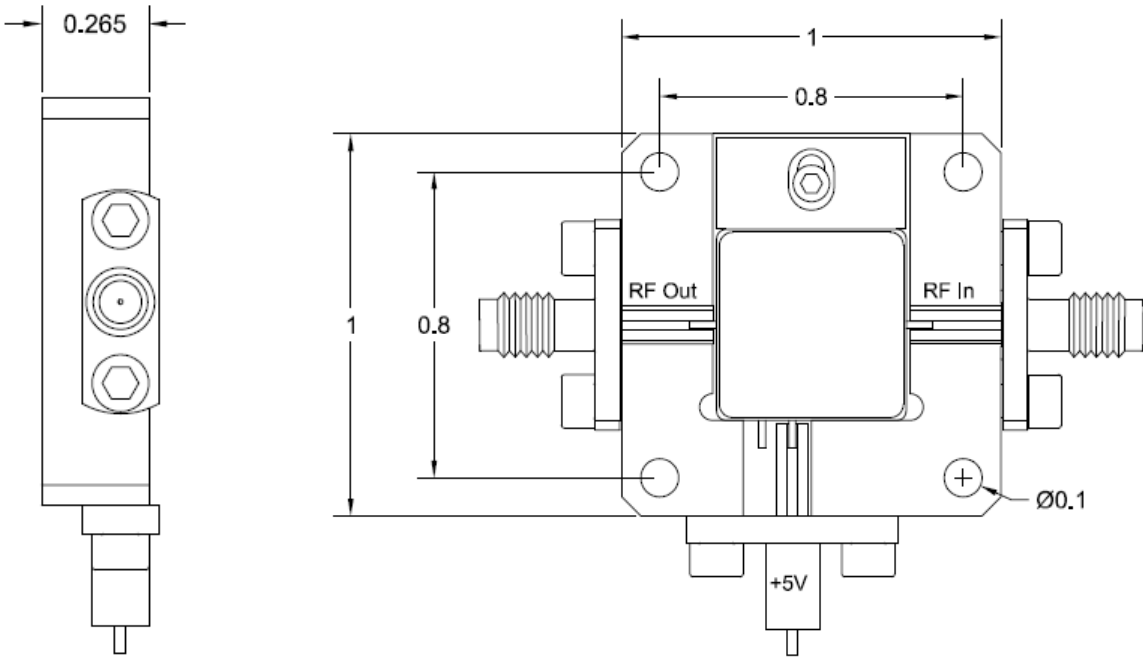
Model Number	Description	Package
AMT-L0014-FP	4 pin Flat Pack	FP 0.500SQ, 0.170Ht AMT-M001
AMT-L0014-SMA	SMA Connectorized Fixture	Outline: AMT-M011

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)



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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