



# Digital Attenuator, 31.5 dB, 6-Bit, TTL Driver, DC-4.0 GHz

V 7.00

AT90-1107

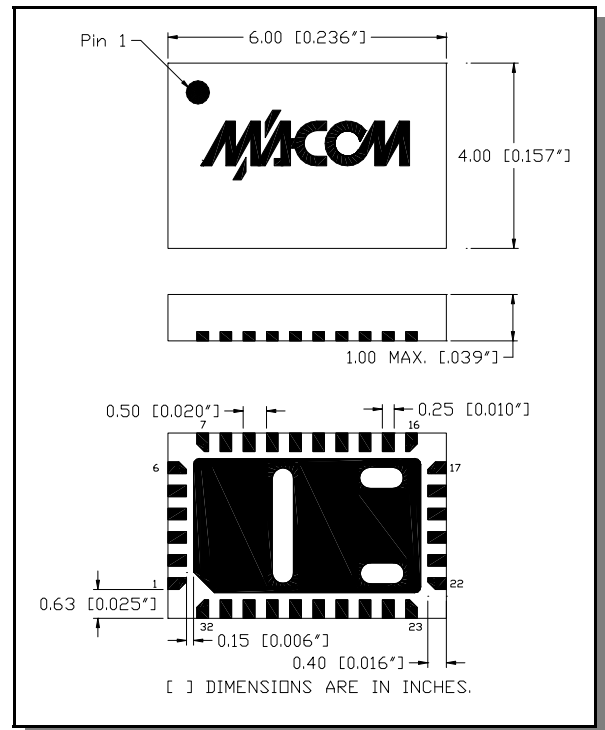
## Features

- Attenuation: 0.5 dB Steps to 31.5 dB
- Single Positive Supply
- Contains internal DC to DC converter
- Low DC Power Consumption
- Small Footprint, JEDEC Package
- Integral TTL Driver
- 50 ohm Impedance

## Description

M/A-COM's AT90-1107 is a GaAs FET 6-bit digital attenuator with integral TTL driver. Step size is 0.5 dB providing a 31.5 dB total attenuation range. This device is in an FQFP-N plastic surface mount package. The AT90-1107 is ideally suited for use where accuracy, fast speed, very low power consumption and low costs are required.

## CSP-1



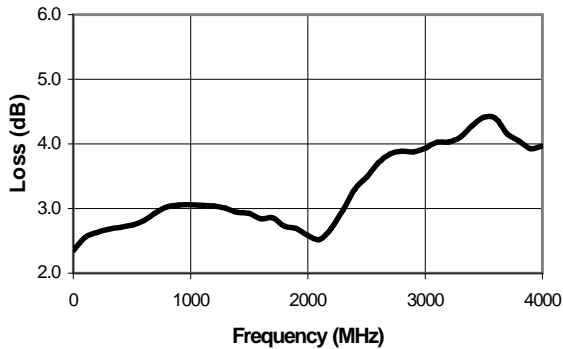
## Electrical Specifications $T_A = +25^\circ\text{C}$

Parameter	Test Conditions	Frequency	Units	Min	Typical	Max
Insertion Loss	—	DC - 4.0 GHz	dB	—	4.5	5.1
Attenuation Accuracy	Individual Bits 0.5-1-2-4-8-16 dB Any Combination of Bits 1 to 31.5 dB	DC - 4.0 GHz DC - 4.0 GHz	dB dB	— —	— —	$\pm(,3 +7\%$ of atten setting) $\pm(,5 +8\%$ of atten setting)
VSWR	Full Range	DC - 4.0 GHz	Ratio	—	2.0:1	2.2:1
Switching Speed	50% Cntl to 90%/10% RF 10% to 90% or 90% to 10%	— —	nS nS	— —	75 20	150 50
1 dB Compression	— —	50 MHz 0.5 - 4.0 GHz	dBm dBm	— —	+21 +29	— —
Input $IP_3$	Two-tone inputs up to +5 dBm	50 MHz 0.5-4.0 GHz	dB dB	— —	+35 +48	— —
+Vcc	—	—	V	4.75	5.0	5.25
Logic "0"	Sink Current is 20 $\mu\text{A}$ max.	—	V	0.0	—	0.8
Logic "1"	Source Current is 20 $\mu\text{A}$ max.	—	V	2.0	—	5.0
Icc	Vcc min to max, Logic "0" or "1"	—	mA	—	6	10

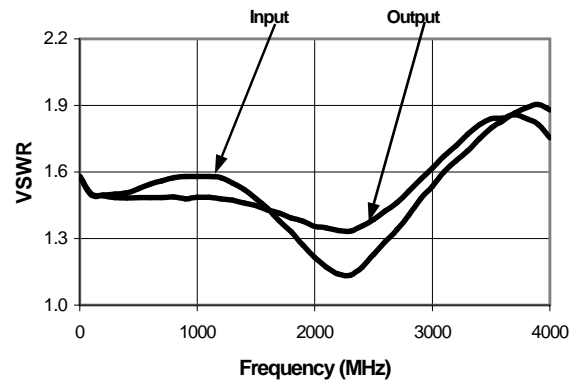


Typical Performance Curves

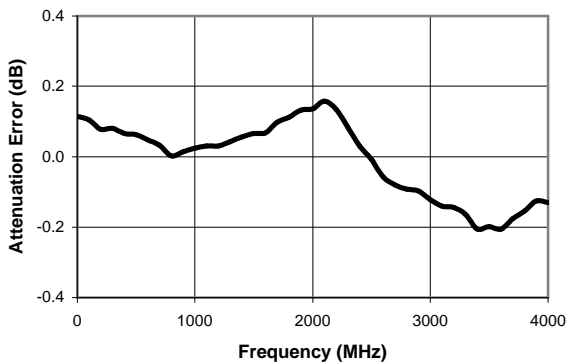
Insertion Loss



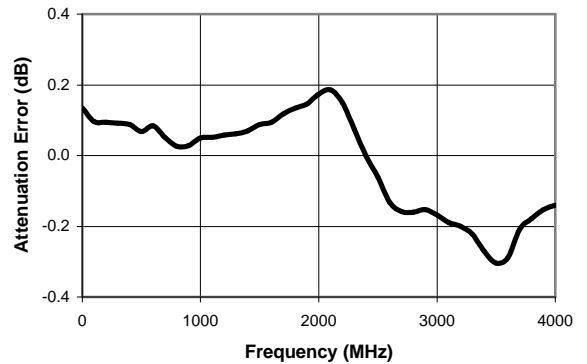
VSWR @ Insertion Loss



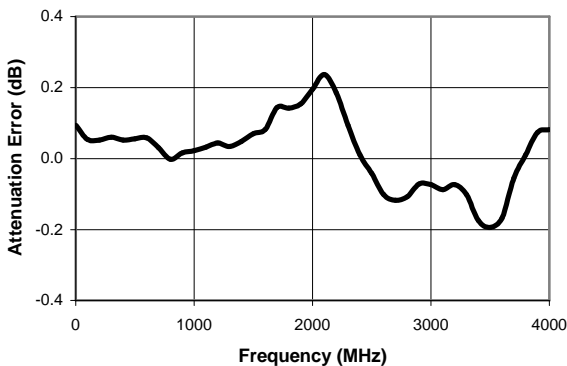
Attenuation Error, 0.5 dB Bit



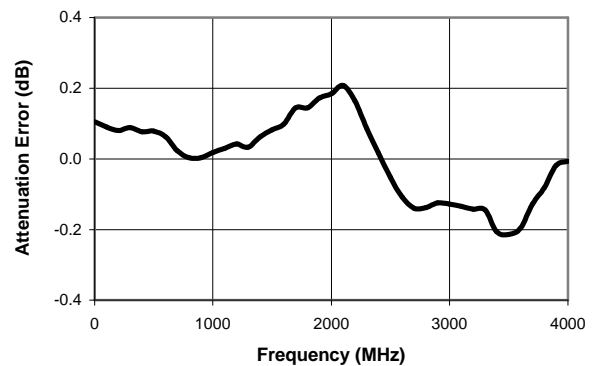
Attenuation Error, 1 dB Bit



Attenuation Error, 2 dB Bit



Attenuation Error, 4 dB Bit



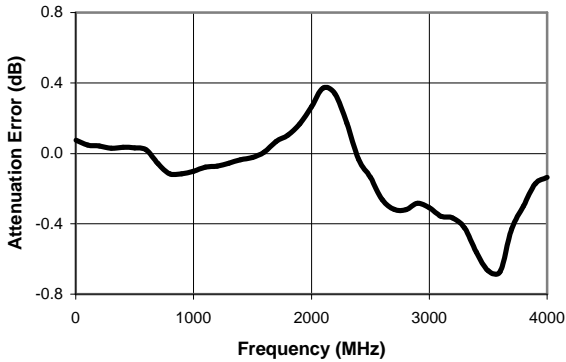
Specifications subject to change without notice.

- North America: Tel. (800) 366-2266
- Asia/Pacific: Tel.+81-44-844-8296, Fax +81-44-844-8298
- Europe: Tel. +44 (1344) 869 595, Fax+44 (1344) 300 020

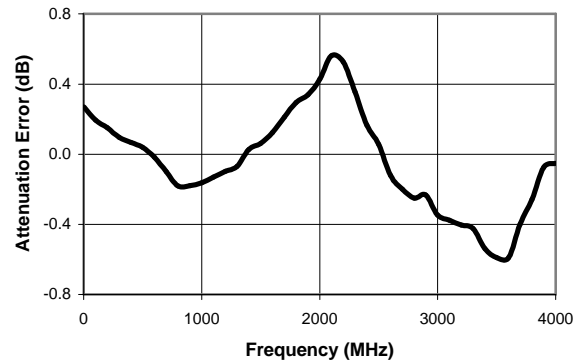
Visit [www.macom.com](http://www.macom.com) for additional data sheets and product information.

Typical Performance Curves

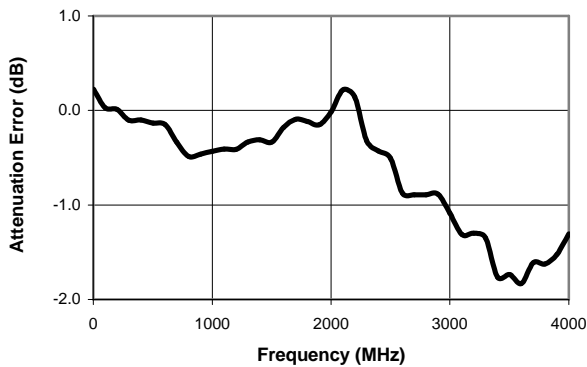
Attenuation Error, 8 dB Bit



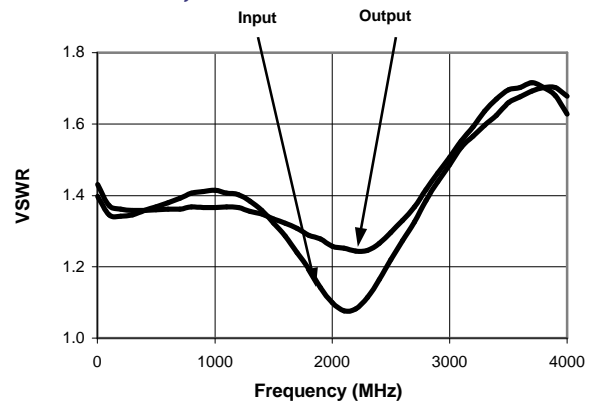
Attenuation Error, 16 dB Bit



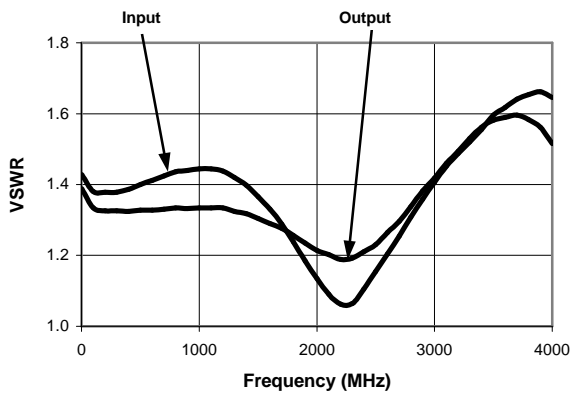
Attenuation Error, Max. Attenuation



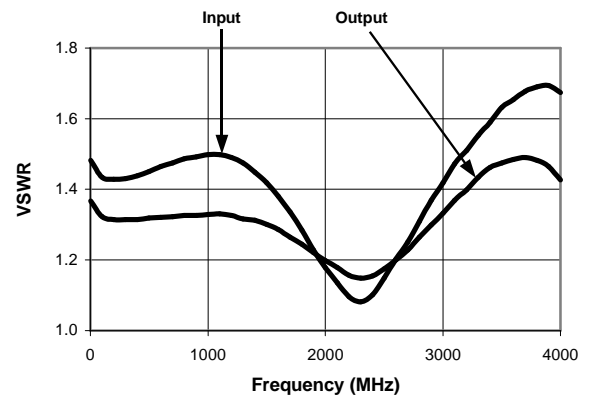
VSWR, 0.5 dB Bit



VSWR, 1 dB Bit



VSWR, 2 dB Bit



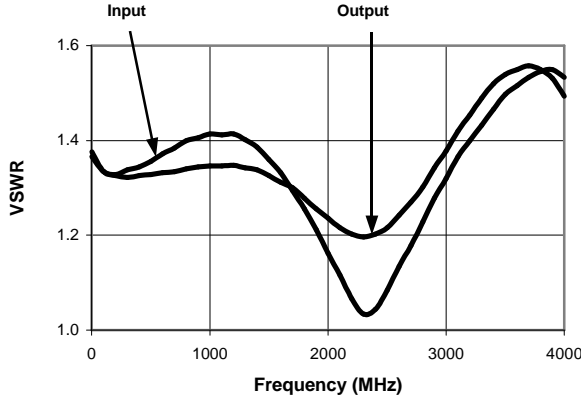
Specifications subject to change without notice.

- North America: Tel. (800) 366-2266
- Asia/Pacific: Tel.+81-44-844-8296, Fax +81-44-844-8298
- Europe: Tel. +44 (1344) 869 595, Fax+44 (1344) 300 020

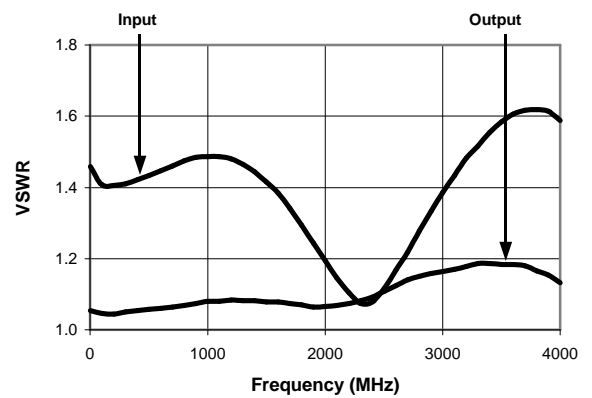
Visit [www.macom.com](http://www.macom.com) for additional data sheets and product information.

Typical Performance Curves

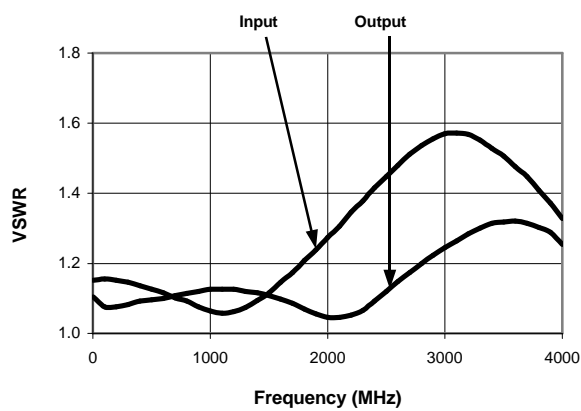
VSWR, 4 dB Bit



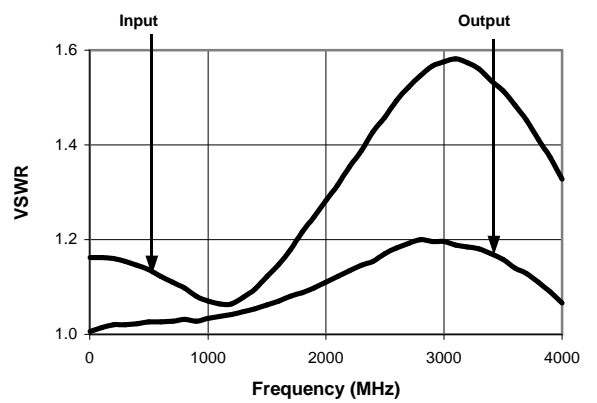
VSWR, 8 dB Bit



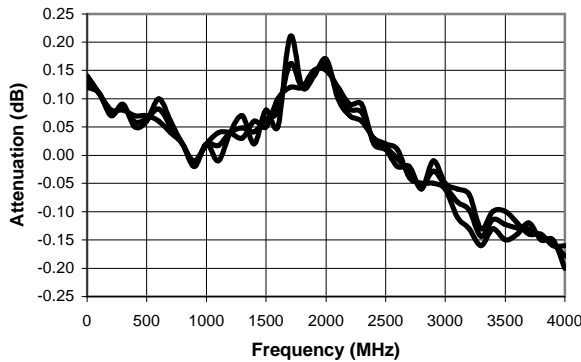
VSWR, 16 dB Bit



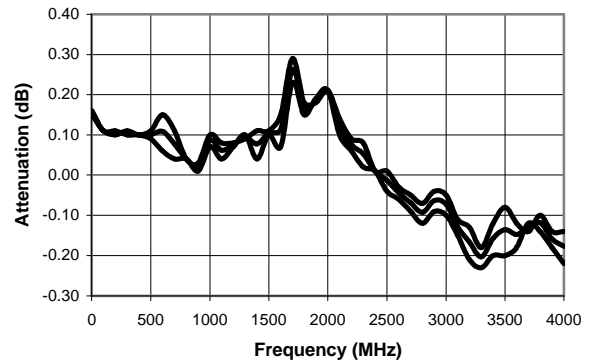
VSWR, Max. Attenuation



Typical Attenuation Deviation vs. Temperature for 0.5 dB Bit



Typical Attenuation Deviation vs. Temperature for 1 dB Bit



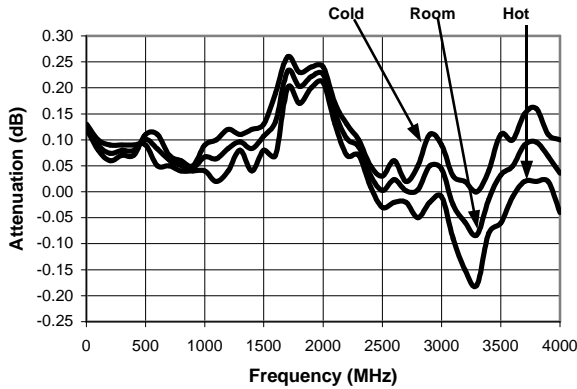
Specifications subject to change without notice.

- North America: Tel. (800) 366-2266
- Asia/Pacific: Tel.+81-44-844-8296, Fax +81-44-844-8298
- Europe: Tel. +44 (1344) 869 595, Fax+44 (1344) 300 020

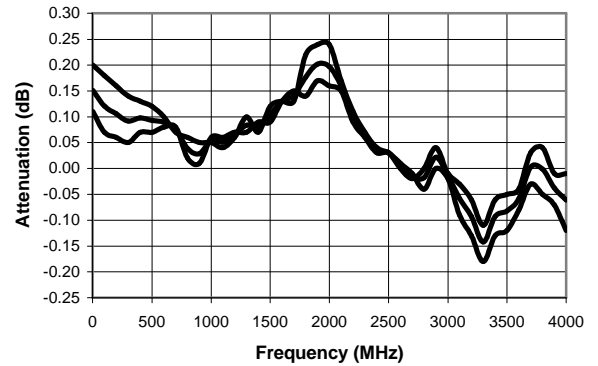
Visit [www.macom.com](http://www.macom.com) for additional data sheets and product information.

Typical Performance Curves

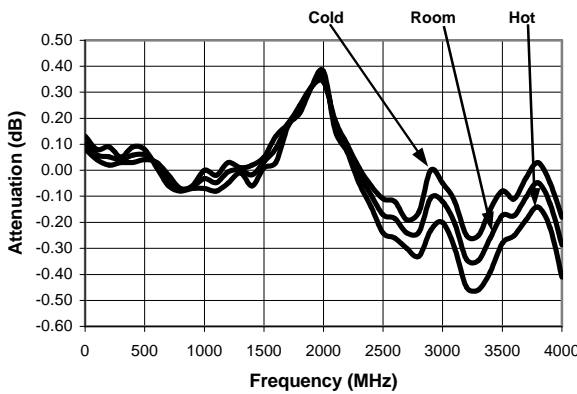
Typical Attenuation Deviation vs. Temperature for 2 dB Bit



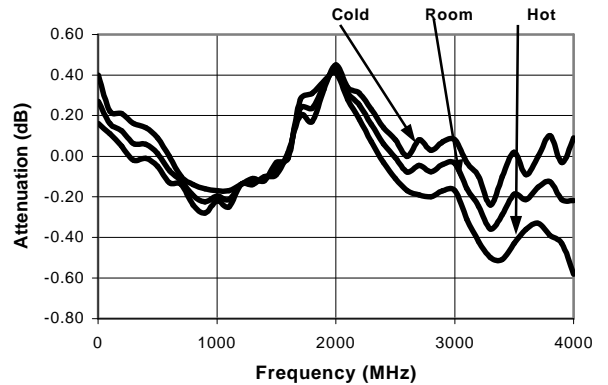
Typical Attenuation Deviation vs. Temperature for 4 dB Bit



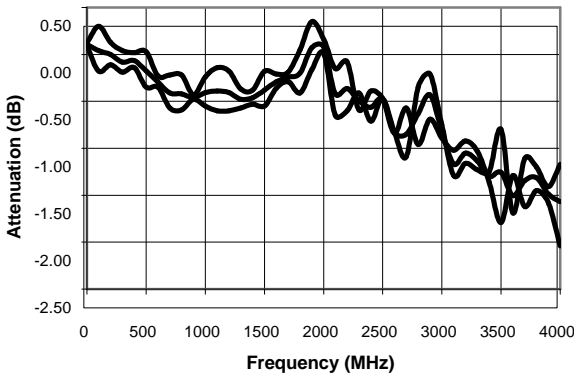
Typical Attenuation Deviation vs. Temperature for 8 dB Bit



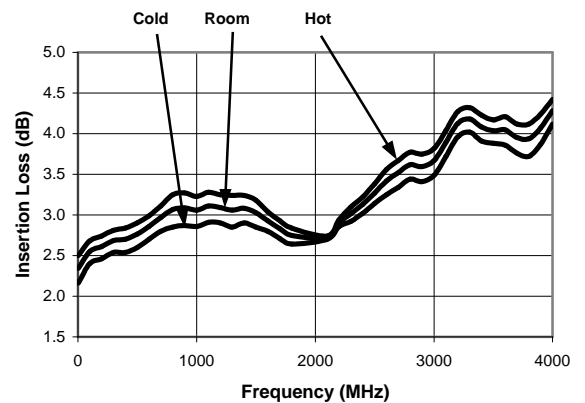
Typical Attenuation Deviation vs. Temperature for 16 dB Bit



Typical Attenuation Deviation vs. Temperature at Maximum Atten.



Insertion Loss vs. Temperature



Specifications subject to change without notice.

- North America: Tel. (800) 366-2266
- Asia/Pacific: Tel.+81-44-844-8296, Fax +81-44-844-8298
- Europe: Tel. +44 (1344) 869 595, Fax+44 (1344) 300 020

Visit [www.macom.com](http://www.macom.com) for additional data sheets and product information.

## Ordering Information

Part Number	Package
AT90-1107	Bulk Packaging
AT90-1107TR	Tape and Reel (1K Reel)
AT90-1107-TB	Units Mounted on Test Board

*Specifications subject to change without notice.*

- **North America:** Tel. (800) 366-2266
- **Asia/Pacific:** Tel.+81-44-844-8296, Fax +81-44-844-8298
- **Europe:** Tel. +44 (1344) 869 595, Fax+44 (1344) 300 020

Visit [www.macom.com](http://www.macom.com) for additional data sheets and product information.

**tyco** / Electronics

**MACOM**