

# 5-Bit Digital Attenuator

## 20 - 1000 MHz

# AT-103

V2.00

### Features

- Attenuation 0.5 dB Steps to 15.5 dB
- CMOS Control Interface
- Internal Latch on Control Input
- Hermetic Case

### Guaranteed Specifications\* (From -55°C to +85°C)

<b>Frequency Range</b>	20-1000 MHz	
<b>Nominal Attenuation**</b>	0.5 dB Steps to 15.5 dB	
<b>Attenuation Accuracy</b>	20-500 MHz	$\pm 0.25$ dB $\pm 2\%$ Max
	20-1000 MHz	$\pm 0.35$ dB $\pm 2\%$ Max
<b>VSWR</b>	20-500 MHz	1.6:1 Max
	20-1000 MHz	2.0:1 Max
<b>Reference Insertion Loss</b>	5.0 dB Max	

### Operating Characteristics

<b>Impedance</b>	50 Ohms Nominal	
<b>Switching Characteristics</b>		
Switching Time (50% CTL to 90%/10% RF)	8 $\mu$ S Typ	
Transients (In-Band)	20 mV Typ	
<b>Input Power for 1 dB Compression</b>	20-1000 MHz	+ 18 dBm Typ
<b>Intermodulation Intercept Point (for two-tone input power up to + 5 dBm)</b>		
Second Order	+ 40 dBm Typ	
Third Order	+ 30 dBm Typ	
<b>Bias Power</b>	+10 to + 15 VDC @ 30 mA Max (330 mW Typ)	
<b>Control</b>	5 line, CMOS Data Bus with Internal Latch controlled by Clock (Data Strobe) and reset inputs.	

### Environmental

MIL-STD-883 screening available.

\* All specifications apply when operated with bias voltage of +15 VDC and a 50 ohm impedance at both RF ports.

\*\* Above reference insertion loss.

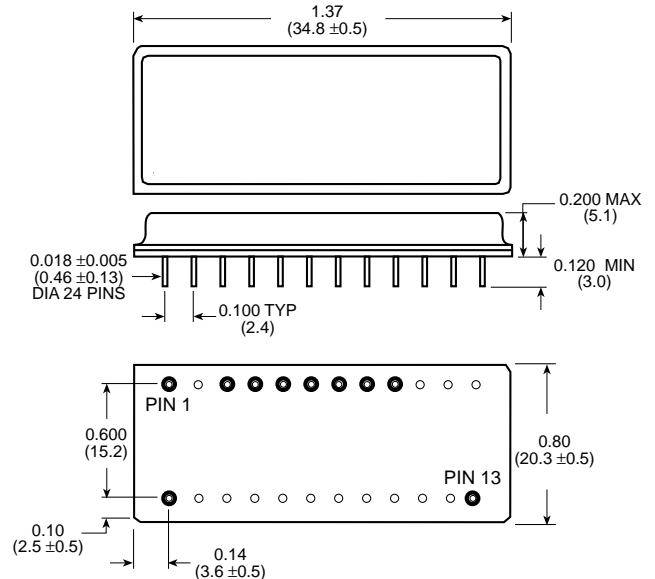
### Ordering Information

<b>Model No.</b>	<b>Package</b>
AT-103 PIN	Dual Inline

### Pin Configuration

1	2	3	4	5	6	7	8	9	10 - 12	13	14 - 23	24
+5V	GND	C	R	0.5	1	2	4	8	GND	RF2	GND	RF1

### DI-3



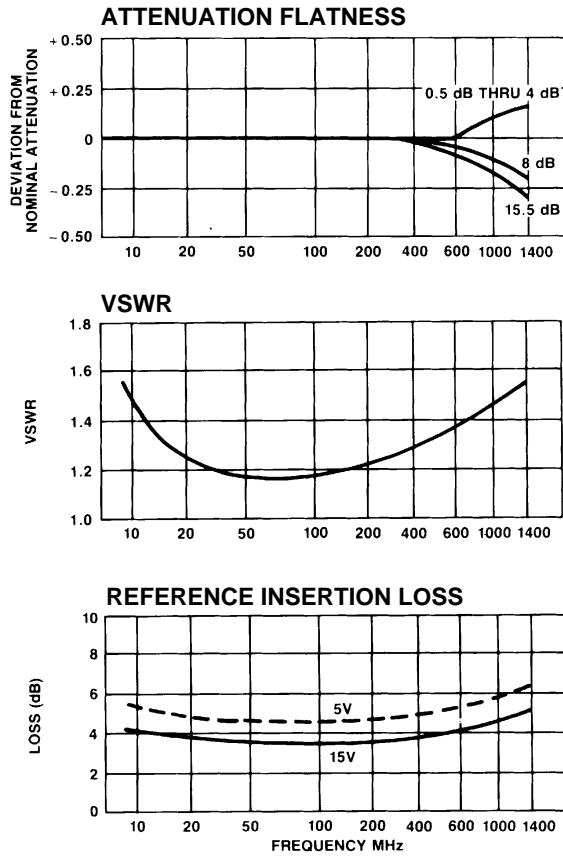
Dimensions in ( ) are in mm.  
 Unless Otherwise Noted: .xxx =  $\pm 0.010$  (.xx =  $\pm 0.25$ )  
 .xx =  $\pm 0.02$  (.x =  $\pm 0.5$ )  
 WEIGHT (APPROX.): 0.39 OUNCES 11 GRAMS

Specifications Subject to Change Without Notice.

M/A-COM, Inc.

North America: Tel. (800) 366-2266 ■ Asia/Pacific: Tel. +81 (03) 3226-1671 ■ Europe: Tel. +44 (1344) 869 595  
 Fax (800) 618-8883 Fax +81 (03) 3226-1451 Fax +44 (1344) 300 020

Typical Performance



Truth Table

CONTROL INPUT							ATTENUATOR SETTING	
0.5	1	2	4	8	C*	R		
0	0	0	0	0	1	1	REFERENCE	
1	0	0	0	0	1	1	0.5 dB	
0	1	0	0	0	1	1	1 dB	
0	0	1	0	0	1	1	2 dB	
0	0	0	1	0	1	1	4 dB	
0	0	0	0	1	1	1	8 dB	
ANY COMBINATION						1	1	SUM OF BITS SELECTED
X	X	X	X	X	0	1	NO CHANGE IN ATTENUATION	
X	X	X	X	X	X	0	RESET TO REFERENCE	

\* 1 = LOGIC HIGH  
 \* 0 = LOGIC LOW  
 \* X = DON'T CARE  
 \* CLOCK INPUT STROBES DATA ON RISING EDGE

Specifications Subject to Change Without Notice.