



# Voltage Variable Absorptive Attenuator 800 - 1000 MHz

V 2.00

MAAVCC0001

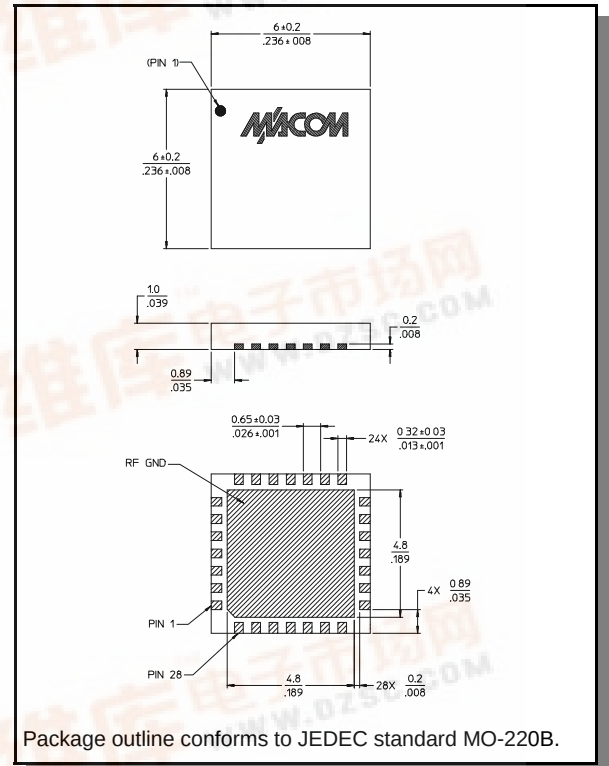
## Features

- Input IP<sub>3</sub>: +31 dBm Min. (Full Attenuation Range)
- Input IP<sub>3</sub> is **15 -20 dB** Better Than GaAs
- Linear Operation: +20 dBm Min.
- Plastic, 28 Lead, 6 mm CSP, SMT Package
- 38 dB Dynamic Range (With 30 mA Bias Current)
- Single Control Voltage
- 50 ohm Impedance
- Linear Driver, DR65-0002, Available
- Test Boards are Available
- Tape and Reel Packaging Available

## Description

M/A-COM's MAAVCC0001 is a PIN diode based voltage variable attenuator. This device is in a 6mm square, 28 lead, plastic CSP Package, suitable for surface mounting on PCBs. These attenuators have linear operating power and input intercept point levels 15 - 20 dB better than GaAs FET MMIC voltage variable attenuators. They are ideally suited for use where low distortion, high linear operating power and high dynamic range are required. These devices are optimized for the GSM frequency band, but exhibit excellent performance and repeatability over the entire specified frequency band. The MAAVCC0001 is ideally suited for wireless communications systems.

## CSP-8, 28 Lead, 6mm



Package outline conforms to JEDEC standard MO-220B.

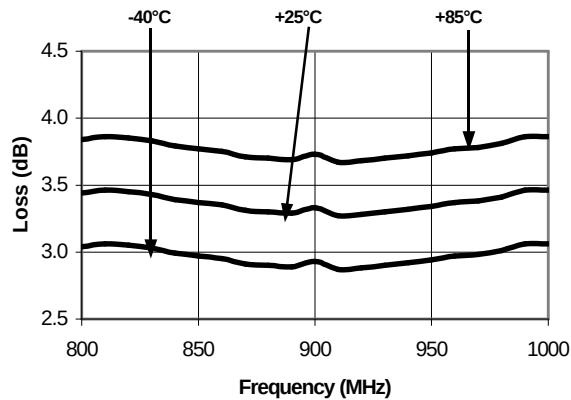
## Electrical Specifications: T<sub>A</sub> = 25°C

| Parameter                   | Test Conditions               | Frequency                     | Units          | Min.     | Typ.           | Max.           |
|-----------------------------|-------------------------------|-------------------------------|----------------|----------|----------------|----------------|
| Insertion Loss              | 0 volts                       | 800-1000 MHz<br>925 - 960 MHz | dB<br>dB       | —<br>—   | 3.6<br>3.5     | 4.2<br>3.9     |
| Attenuation<br>(Above Loss) | 12 mA bias current            | 800-1000 MHz<br>925 - 960 MHz | dB<br>dB       | 30<br>30 | 34<br>34       | —<br>—         |
| Frequency<br>Flatness       | 0 to 30 dB attenuation        | 800-1000 MHz<br>925 - 960 MHz | dB<br>dB       | —<br>—   | 2.3<br>0.4     | 3.0<br>0.8     |
| VSWR                        | 0 to 30 dB attenuation        | 800-1000 MHz<br>925 - 960 MHz | Ratio<br>Ratio | —<br>—   | 1.5:1<br>1.3:1 | 1.9:1<br>1.8:1 |
| Switching Speed             | 50% Control to 90%/10% RF     | 800-1000 MHz                  | μS             | —        | —              | 10.0           |
| Linear Operation            | —                             | 800-1000 MHz                  | dBm            | —        | +20            | —              |
| Input IP <sub>3</sub>       | Two-tone inputs up to +10 dBm | 800-1000 MHz                  | dBm            | +35      | +40            | —              |
| I <sub>Control</sub>        | —                             | 800-1000 MHz                  | mA             | —        | —              | 30             |

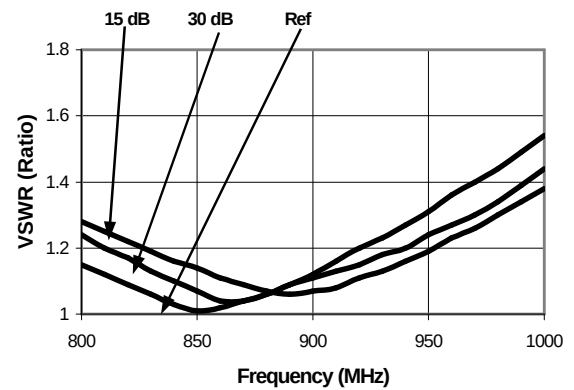


## Typical Performance Curves

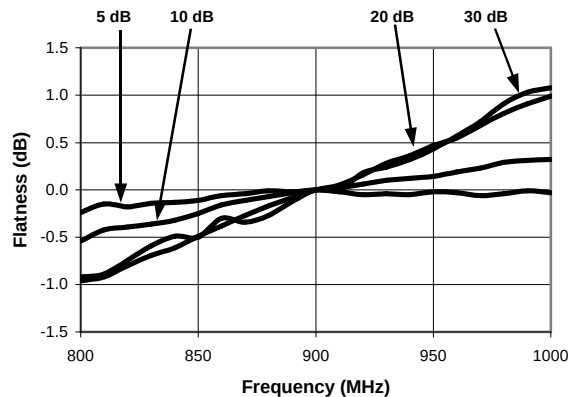
### Insertion Loss



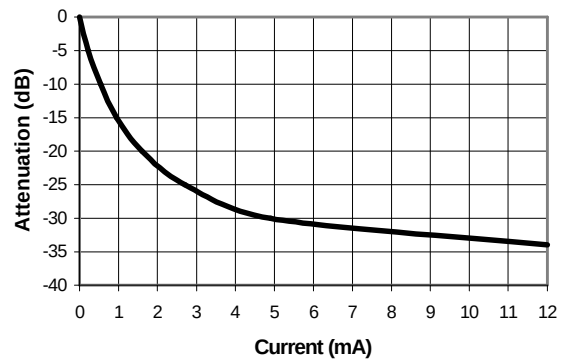
### Typical VSWR @ +25°C



### Attenuation Flatness @ +25°C



### Atten. vs. Bias Current @ +25°C



Specifications subject to change without notice.

## Pin Configuration

| Pin # | Function          | Pin # | Function          |
|-------|-------------------|-------|-------------------|
| 1     | N/C               | 15    | N/C               |
| 2     | N/C               | 16    | N/C               |
| 3     | N/C               | 17    | N/C               |
| 4     | N/C               | 18    | N/C               |
| 5     | N/C               | 19    | N/C               |
| 6     | N/C               | 20    | N/C               |
| 7     | N/C               | 21    | N/C               |
| 8     | N/C               | 22    | N/C               |
| 9     | Bias <sup>1</sup> | 23    | N/c               |
| 10    | N/C               | 24    | Bias <sup>1</sup> |
| 11    | N/C               | 25    | N/C               |
| 12    | GND               | 26    | GND               |
| 13    | RF out            | 27    | RF in             |
| 14    | GND               | 28    | GND               |

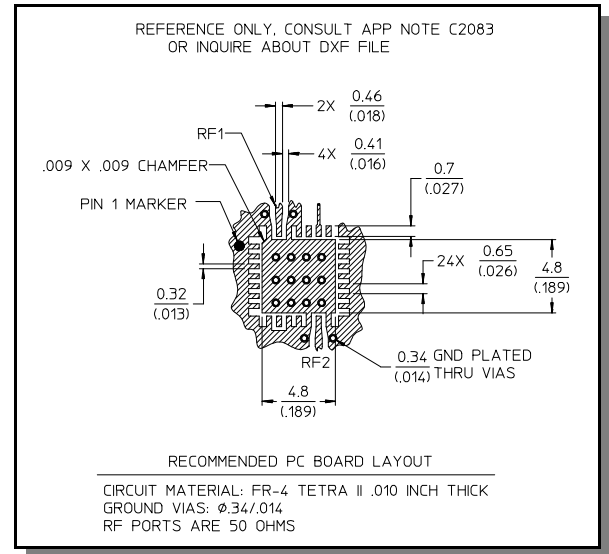
1. Bias current may be applied to Pin 9 or 24. However, the unused Pin must be isolated.

Absolute Maximum Ratings <sup>2</sup>

| Parameter             | Absolute Maximum |
|-----------------------|------------------|
| Max. Input Power      | +27 dBm          |
| Operating Temperature | -40°C to +85°C   |
| Storage Temperature   | -65°C to +125°C  |

2. Operation of this device above any one of these parameters may cause permanent damage.

## Recommended PCB Layout



## Ordering Information

| Part Number   | Package                    |
|---------------|----------------------------|
| MAAVCC0001    | Bulk Packaging             |
| MAAVCC0001TR  | Tape and Reel (1K Reel)    |
| MAAVCC0001-TB | Unit Mounted on Test Board |