

# Features and Benefits

**ANTRONIX®**

## MVRA502B MoCA Enhanced VoIP Residential Amplifier (42/54 MHz)

With MoCA (Multimedia over Coax Alliance) having widespread deployment for high speed in-home networking, this amplifier has enhanced performance in the MoCA band to optimize the data rates for video sharing, multi-room DVR service, video conferencing and other MoCA applications. The amplifier has four amplified output ports and a reliable passive VoIP port, which maintains RF integrity even when power is disrupted to the amplifier. The passive VoIP port provides a MoCA path to the amplified output ports to ensure full MoCA compatibility. This amplifier utilizes the Antronix patented CamPort®. This auto-seizing F-port ensures maximum contact area and reliability for multimedia applications. The amplifier can be mounted in an all-ports-down configuration which allows for ease of installation in a NID enclosure. The integrated MoCA point of entry filter prevents MoCA signals from interfering with an adjacent subscriber.



- **MoCA Enhanced**  
Optimized RF performance in the MoCA band ensures maximum data rates for MoCA enabled devices. Integrated MoCA point of entry filter prevents MoCA signals from interfering with adjacent subscribers.
- **Passive VoIP Port for Critical Voice Service**  
The passive VoIP port provides continuous service when power is disrupted to maintain critical voice service. The VoIP port also supports MoCA band communications to the amplified output ports.
- **Self-Terminating Internal Switch**  
An internal self-terminating switch provides excellent bi-directional RF performance between the input port and VoIP port even when power is disrupted.
- **Unity Gain Forward and Return**  
Active gain in the forward and return band provides unity gain in both directions for ease of installation.
- **CamPort® Auto-Seizing F-port**  
Patented auto-seizing brass F-port features a “Cam Activated Mechanism” to provide full contact pressure (> 2000 grams) on the center conductor for maximum reliability.
- **All-Ports-Down Configuration for NID Enclosures**  
Amplifier can be mounted with all ports facing down configuration to provide clean wiring within a NID enclosure.
- **6 kV Surge Protection**  
Unique 6 kV surge protection without the use of arc gaps which may cause high impulse noise during discharge.
- **Powder Coated Aluminum Housing**  
Provides the most corrosion resistant protection against salt fog and rust.
- **Optional Power Inserter for Remote Powering**  
The amplifier can be powered remotely with a dual isolation compartment power inserter for high AC to RF isolation to prevent ingress.
- **PTC Short-Circuit Protected UL Listed Adaptor**  
Self-resetting circuit provides safe protection against short-circuits to minimize maintenance costs.

# Electrical Specifications

## MVRA502B

### MoCA Enhanced VoIP Residential Amplifier (42/54 MHz)

| Forward Specifications                        | Frequency (MHz) | Specifications |
|-----------------------------------------------|-----------------|----------------|
| <b>Gain (Outputs 1–4)</b> (dB nom)            | 54-1002         | 0±1.5          |
| <b>Return Loss<sup>1</sup></b> (dB min)       | 54-1002         | 18             |
| <b>Output Port to Port Isolation</b> (dB min) | 54-1002         | 23             |
| <b>VoIP to Output Port Isolation</b> (dB min) | 54-1002         | 25             |
| <b>Noise Figure<sup>4</sup></b> (dB max)      | 54-1002         | 4              |
| <b>Group Delay</b> (ns/3.58 MHz)              | Ch. 2           | 30             |
|                                               | Ch. 3           | 15             |
|                                               | CH. 4 & up      | 5              |
| <b>Distortions<sup>2</sup></b>                |                 |                |
| Composite Triple Beat (dBc)                   |                 | -75            |
| Composite Second Order (dBc)                  |                 | -63            |
| Cross Modulation (dBc)                        |                 | -70            |
| Hum Modulation (dBc)                          |                 | -80            |
| Return Specifications                         | Frequency (MHz) | Specifications |
| <b>Gain (Outputs 1–4)</b> (dB nom)            | 5-42            | 0±1.5          |
| <b>Return Loss<sup>1</sup></b> (dB min)       | 5-42            | 18             |
| <b>Output Port to Port Isolation</b> (dB min) | 5-42            | 25             |
| <b>VoIP to Output Port Isolation</b> (dB min) | 5-42            | 25             |
| <b>Noise Figure<sup>4</sup></b> (dB max)      | 5-42            | 7              |
| <b>Group Delay</b> (ns/1.0 MHz)               | 5-8             | 30             |
|                                               | 8-38            | 10             |
|                                               | 38-42           | 20             |
| <b>Distortions<sup>3</sup></b>                |                 |                |
| Discrete Second Order (dBc)                   |                 | -60            |
| Discrete Third Order (dBc)                    |                 | -60            |
| Cross Modulation (dBc)                        |                 | -65            |
| MoCA Specifications                           | Frequency (MHz) | Specifications |
| <b>Insertion Loss</b>                         |                 |                |
| Output Port to Output Port (dB max)           | 1125-1675       | 30             |
| Output Port to VoIP Port (dB max)             | 1125-1525       | 30             |
|                                               | 1525-1675       | 35             |
| <b>Isolation</b>                              |                 |                |
| Output Port to Input Port (dB min)            | 1125-1675       | 40             |
| VoIP Port to Input Port (dB min)              | 1125-1675       | 35             |
| VoIP Port Specifications                      | Frequency (MHz) | Specifications |
| <b>Insertion Loss</b> (dB nom)                | 5-1002          | 5.5            |
| <b>Return Loss<sup>1</sup></b> (dB min)       | 5-1002          | 18             |

**Notes:**

1. Input port and VoIP port return loss remains at 18 dB even upon power failure.
2. +10 dBmV flat input, analog channels from 54 MHz to 550 MHz. Digital channels from 550 MHz to 1002 MHz at 6 dB below the analog channels.
3. Two +55 dBmV carriers at 13 MHz and 19 MHz.
4. Noise figure of gain chip.

## Specifications MVRA502B

### MoCA Enhanced VoIP Residential Amplifier (42/54 MHz)

| General                     |                                                                                                                                    |
|-----------------------------|------------------------------------------------------------------------------------------------------------------------------------|
| Nominal Impedance           | 75 Ω                                                                                                                               |
| F-connector Type            | ANSI/SCTE 01 Brass Compliant Sealed CamPort®                                                                                       |
| Power Adaptor               | 15 VDC/500 mA output, UL, PTC short-circuit protected                                                                              |
| Dimensions/Weight           | 6.0" W x 3.8" H x 1.5" D/0.72 lb.                                                                                                  |
| Environmental               |                                                                                                                                    |
| Pressure Seal               | 15 psi                                                                                                                             |
| Surge Withstand             | 6 kV/3 kA Combo Wave (IEEE C62.41-1991 Cat. B3) on all RF ports<br>6 kV/200 A Ring Wave (IEEE C62.41-1991 Cat. A3) on all RF ports |
| RFI Screening Effectiveness | -100 dB                                                                                                                            |
| Operating Temperature       | -40 °C to +60 °C                                                                                                                   |
| Corrosion Resistance        | Meets ANSI/SCTE specification                                                                                                      |

## Ordering Guide

|                        |                                                                                                                                      |
|------------------------|--------------------------------------------------------------------------------------------------------------------------------------|
| <b>MVRA502B/AC</b>     | 4 amplified outputs + 1 VoIP port amplifier. Active return. AC power adaptor included.                                               |
| <b>MVRA502B/ACP-EZ</b> | 4 amplified outputs + 1 VoIP port amplifier. Active return. AC power adaptor included, power inserter and mounting bracket included. |
| <b>ARPI-2000B</b>      | Optional power inserter for remote powering                                                                                          |
| <b>ARAC-12N-50E6</b>   | AC Power adaptor, 120 VAC/60 Hz Input, 15 VDC output, 500 mA, Efficiency Level VI                                                    |
| <b>MB100P</b>          | NID enclosure mounting bracket                                                                                                       |

