

# HVA Series

## Zero-Crossing Bi-polar HV Amplifier



### Features

- **Easy to Use, No External Components Required**
- **Bipolar, Zero-Crossing HV Output**
- **Current Sourcing and Sinking**
- **Fast Response**
- **Excellent Load and Line Regulation**
- **5V or 12V Input Models Available**
- **Miniature PC Board Mountable Package**
- **$\pm 1\text{kV}$ ,  $\pm 3\text{kV}$ , and  $\pm 6\text{kV}$  Models Available**
- **Wide Operating Temp Range (-40°C to +60°C)**



### Mechanical Characteristics

- **Packaging:** Encapsulated in high performance epoxy
- **Case Materials:** Thermoset Plastic (Diallyl Phthalate)

### Environmental Characteristics

- **Operating Temp Range:** -40°C to +60°C
- **Storage Temp Range:** -55°C to +85°C

### Description

The **HVA Series** is a miniature, bi-polar, zero-crossing high voltage amplifier capable of producing a high voltage up to  $\pm 6\text{kV}$  in response to a low voltage (0 to 5V) programming input. Designed for ease of use, the **HVA Series** contains a dual polarity high voltage generator and a high speed, high voltage amplifier in a space-saving (3.0"L x 1.5"W x 0.5"H) encapsulated package.

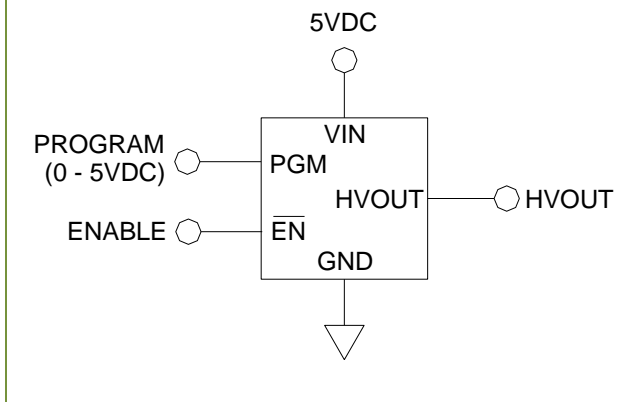
The HVA05XX operates from a 5VDC input, while the HVA12XX operates from a 12VDC input. Output voltage is independent of input power voltage and is proportional to the programming voltage (0 to 5V produces negative full scale to positive full scale output) and features excellent linearity. The **HVA Series** also has an enable input that allows the user to disable the internal high voltage generator.

HVM's proprietary, ultra-compact resonant converter design minimizes quiescent current and operating noise while delivering maximum performance and reliability.

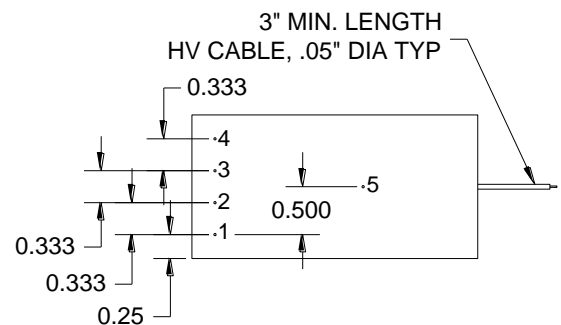
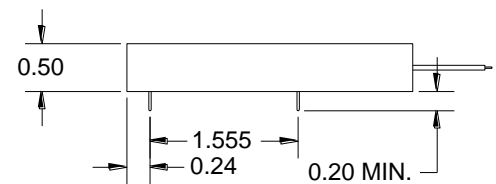
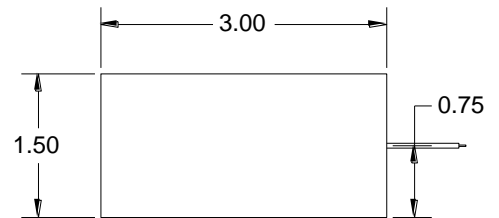
Typical applications for this module include mass spectrometry, electrostatic chucks, pockel cells, and electron microscopes.



### APPLICATION SCHEMATIC



### DIMENSIONS



### ELECTRICAL CHARACTERISTICS

<b>Input Voltage (VIN)</b>	5V or 12V $\pm$ 10%
<b>HV Output (HVOUT)</b>	$\pm$ 1kV, $\pm$ 3kV and $\pm$ 6kV Models Available (see model selection guide)
<b>Output Tolerance at No Load</b>	$\pm$ 5%
<b>Programming Voltage</b>	0 to 5V (produces -FS to +FS)
<b>Enable Pin (EN)</b>	Logic controlled enable input. Logic low enables high voltage generator.
<b>Load Regulation</b>	< 0.5%
<b>Output Ripple at Full Load</b>	<1% of FS
<b>Oscillator Frequency</b>	30kHz to 100kHz
<b>Rise/Fall Time w/ 30pF Load</b>	<5ms (-90%FS to +90%FS)
<b>Rise/Fall Time w/ 10nF Load</b>	<500ms (-90%FS to +90%FS)
<b>Steady-State Input Current @ NL</b>	<100mA

PIN #	FUNCTION
1	VIN
2	ENABLE (Active Low)
3	PROGRAM
4	GND
5	GND



## Model Selection Guide

MODEL	Input Voltage	Output Voltage	MAX Output Current	Input Current No Load	Input Current Max Load
HVA0510	5V	0 to $\pm$ 1000V	100 $\mu$ A	<100mA	<350mA
HVA1210	12V	0 to $\pm$ 1000V	100 $\mu$ A	<100mA	<350mA
HVA0530	5V	0 to $\pm$ 3000V	100 $\mu$ A	<100mA	<350mA
HVA1230	12V	0 to $\pm$ 3000V	100 $\mu$ A	<100mA	<350mA
HVA0560	5V	0 to $\pm$ 6000V	100 $\mu$ A	<100mA	<350mA
HVA1260	12V	0 to $\pm$ 6000V	100 $\mu$ A	<100mA	<350mA