

uHVA Series

Micro-Size Zero-Crossing
Bi-Polar High Voltage Amplifier
With Current and Voltage Monitors

Features

- **Easy to Use, No External Components Required**
- **Bipolar, Zero-Crossing HV Output**
- **Current Sourcing and Sinking**
- **Current and Voltage Monitors**
- **Fast Response**
- **Excellent Load and Line Regulation**
- **5V Input Models Available**
- **Miniature PC Board Mountable Package**
- **$\pm 1\text{kV}$, $\pm 3\text{kV}$, and $\pm 5\text{kV}$ Models Available**
- **Wide Operating Temperature 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 **uHVA** series is a family of miniature, bi-polar, zero-crossing high voltage amplifiers capable of producing a high voltage up to $\pm 5\text{kV}$ in response to a low voltage (0 to 5V) programming input. Designed for ease of use, the **uHVA** contains a dual polarity high voltage generator and a high speed, high voltage amplifier in a space-saving (2.0”L x 1.0”W x 0.5”H) encapsulated package.

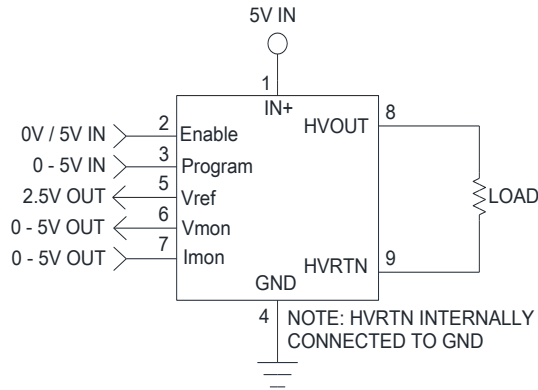
The **uHVA** is equipped with both a voltage and current monitor for user feedback. Output voltage is independent of input power voltage and is proportional to the programming voltage (0 to 5V produces negative full scale to positive full scale output) and features excellent linearity. The **uHVA** also 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, electron microscopes, and threat detection.



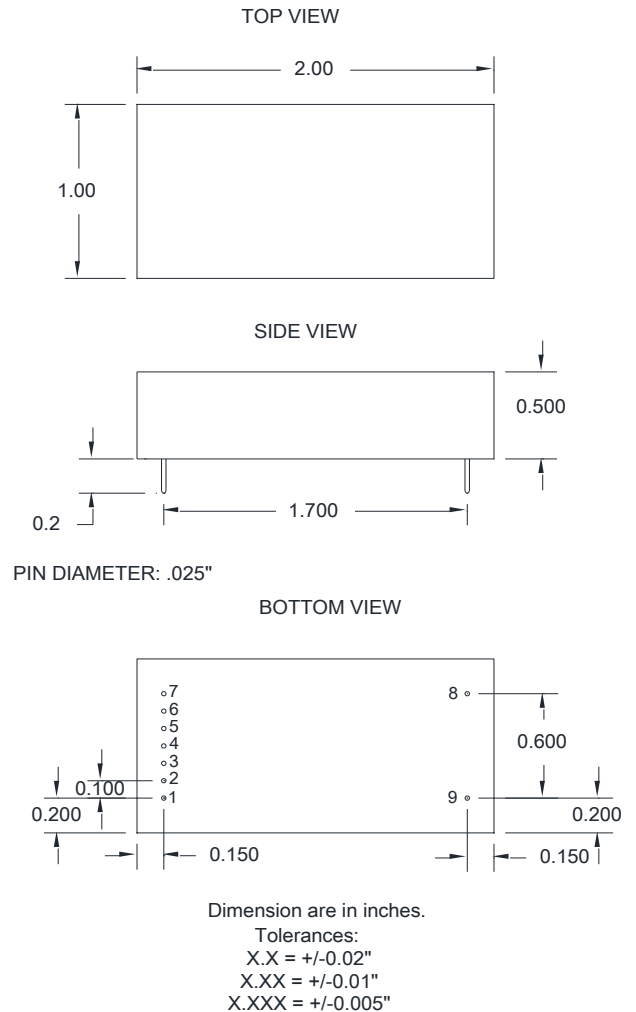
APPLICATION SCHEMATIC



ELECTRICAL CHARACTERISTICS

Input Voltage (VIN)	5V ± 10%
HV Output (HVOUT)	±1kV, ±3kV and ±5kV Models Available (see model selection guide)
Output Tolerance at No Load	± 5%
Programming Voltage	0.5V to 4.5V (produces -FS to +FS)
Voltage Monitor	0.5V - 4.5V output represents -FS to +FS HV output
Current Monitor	0.5V – 4.5V output represents -100uA to +100uA HV output current
Enable Pin (EN)	Logic controlled enable input. Logic low enables high voltage generator.
Load Regulation	< 0.5%
Output Ripple at Full Load	<1% of FS
Oscillator Frequency	30kHz to 100kHz
Rise/Fall Time w/ 30pF Load	<5ms (-90%FS to +90%FS)
Rise/Fall Time w/ 10nF Load	<500ms (-90%FS to +90%FS)
Voltage Reference	2.5V zero-line, for use in calibration of monitors

DIMENSIONS



PIN #	FUNCTION
1	VIN
2	ENABLE (Active Low)
3	PROGRAM
4	GND
5	VREF
6	VMON
7	IMON
8	HVOUT
9	HVRTN



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Model Selection Guide

MODEL	Input Voltage	Output Voltage	MAX Output Current	Input Current No Load	Input Current Max Load
uHVA0510	5V	0 to \pm 1000V	100 μ A	<100mA	<350mA
uHVA0530	5V	0 to \pm 3000V	100 μ A	<100mA	<350mA
uHVA0550	5V	0 to \pm 5000V	100 μ A	<100mA	<350mA

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