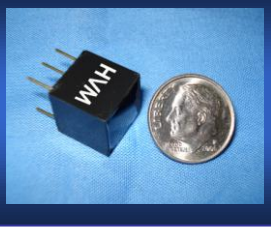
# UMHV Series

Ultra-Miniature HV Power Supply



## Features

- Ultra-Miniature Case Size (0.5” x 0.5” x 0.5”)
- High Impedance Programming Input (10kΩ)
- Extremely Low Quiescent Current (5mA typical)
- No External Components Required
- PCB Mountable
- Low Ripple and EMI/RFI
- High Input/Output Isolation
- Wide Operating Temp Range (-55°C to +70°C)
- Available in positive or negative outputs

## Description

The UMHV Series is a family of ultra-miniature single-output DC to DC converters supplying up to 5kV in 0.125 cubic inches (0.5” x 0.5” x 0.5”). These ultra-compact converters are ideal for applications requiring small size and ease of use.

A high impedance programming input makes it very easy to use, eliminating the need for a low impedance adjustable power source voltage.

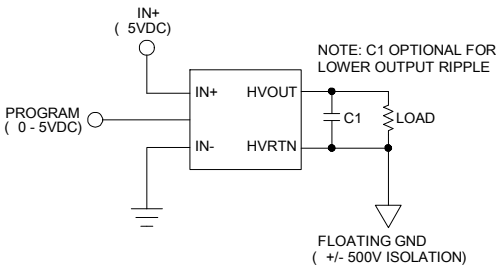
HVM’s proprietary resonant converter design minimizes quiescent current and operating noise while delivering maximum performance and reliability. A special feature of this power supply is its extremely low input current, typically 1/10$^{th}$ of that of similar devices on the market, making it ideal for battery powered applications.

The devices operate directly from 5VDC ± 0.5VDC input. Output voltage is independent of input power voltage and is proportional to the programming voltage (0 to IN+ produces 0 to full scale output) and features excellent linearity.

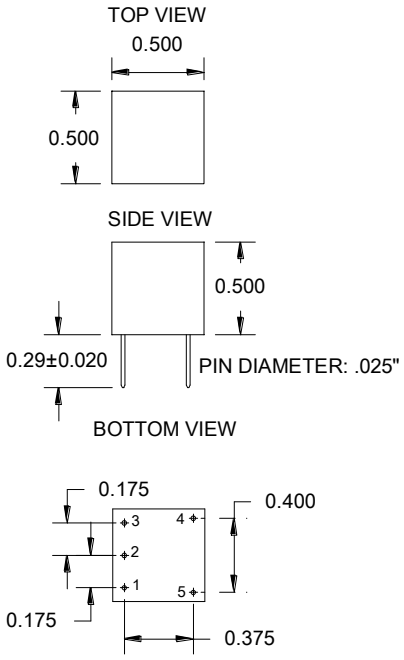
The output power rating is 0.5W and the input to output isolation is ± 500V.

The UMHV Series is very stable over a wide operating temperature range.

## Application Schematic




## Mechanical Dimensions




| PIN # | FUNCTION |
|---|---|
| 1 | PROGRAM |
| 2 | IN – |
| 3 | IN+ |
| 4 | HV OUT |
| 5 | HV RTN |

Note: Also available with wires

*Website: www.hvmtech.com*
*Email: sales@hvmtech.com*
*(877) 626-5552 Ext. 211*

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## Mechanical Characteristics

**Size:** 0.5” x 0.5” x 0.5”

**Weight:** 4.1 grams typical

**Packaging:** Encapsulated in high performance epoxy

**Case Material:** Thermoset plastic (Diallyl Phthalate)

Request Quote

## Electrical Characteristics (at +23◦C)

**Input Power Voltage (V+):** 5V ± 10%

**Programming Voltage:** 0 to IN+ results in 0 to rated output

**Programming Input Impedance:** 10kΩ

**Output Tolerance at No Load:** ± 5%

**Input-Output Isolation:** ± 500Vdc

**Load Regulation:** 20% (drop from no load to full load)

**Output Ripple:** <2% typical at full load; Note: additional external capacitance can be added to reduce ripple

**Oscillator Frequency:** 45 kHz – 80 kHz

**Efficiency:** 55% typical at full load

## Environmental Characteristics

**Operating Temp Range:** -55°C to +70°C

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

| Model | Input Voltage | Output Voltage | MAX Output Current | Input Current | |
|---|---|---|---|---|---|
| | | | | No Load | Max Load |
| UMHV0505 | 5V | 0 to ±500V | 1mA | <10mA | <175mA |
| UMHV0510 | 5V | 0 to +1kV | 500µA | <10mA | <175mA |
| UMHV0510N | 5V | 0 to -1kV | 500µA | <10mA | <175mA |
| UMHV0520 | 5V | 0 to +2kV | 250µA | <10mA | <175mA |
| UMHV0520N | 5V | 0 to -2kV | 250µA | <10mA | <175mA |
| UMHV0530 | 5V | 0 to 3kV | 167µA | <15mA | <175mA |
| UMHV0530N | 5V | 0 to -3kV | 167µA | <15mA | <175mA |
| UMHV0540 | 5V | 0 to +4kV | 125µA | <15mA | <175mA |
| UMHV0540N | 5V | 0 to -4kV | 125µA | <15mA | <175mA |
| UMHV0550 | 5V | 0 to +5kV | 100µA | <15mA | <175mA |
| UMHV0550N | 5V | 0 to -5kV | 100µA | <15mA | <175mA |