

RoHS



# UMHVP Series

High Voltage DC to DC Converter

- Case Size (0.5" x 0.5" x 0.5")**
- PCB Mountable**
- No External Components Required**
- Extremely Low Quiescent Current**
- Low Ripple and EMI/RFI**
- High Input/Output Isolation**
- Wide Operating Temp Range (-55°C to +70°C)**
- Available in positive or negative outputs**

## 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)

## Environmental Characteristics

- **Operating Temp Range:** -55°C to +70°C
- **Storage Temp Range:** -55°C to +85°C

## Description

The UMHVP Series is a family of low cost 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.

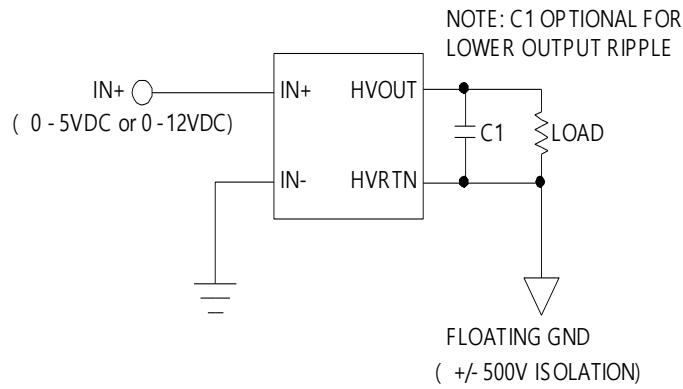
HVM's proprietary resonant converter design minimizes quiescent current and operating noise while delivering maximum performance and reliability. A special feature of this power supply is its extremely low input current at no load, making it ideal for battery powered applications.

The output voltage is directly proportional to the input voltage from approximately 0.7V input to maximum input voltage, allowing for a controllable output voltage and features excellent linearity.

The output power rating is 0.5W and the input to output isolation is  $\pm 500V$ .

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

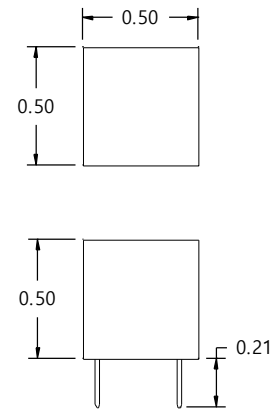
### APPLICATION SCHEMATIC



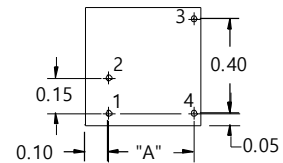
### ELECTRICAL CHARACTERISTICS

<b>Input Voltage (IN+)</b>	0 - 5VDC or 0 - 12VDC
<b>Typical Input Current</b>	5V input: <175mA @ full load 12V input: <90mA @ full load
<b>Output Voltage (HVOUT)</b>	Output Voltage (HVOUT): Linear function of IN+ from approx. 0.7V < IN+ < IN+max
<b>Output Tolerance</b>	+5%/-10%
<b>Input-Output Isolation</b>	± 500Vdc
<b>Load Regulation</b>	20% (drop from no load to full load)
<b>Output Ripple</b>	<2% typical at full load
<b>Oscillator Frequency</b>	80 kHz – 150 kHz
<b>Efficiency</b>	55% - 65% typical at full output/full load

### MECHANICAL



### BOTTOM VIEW



**Note:**

For models up to 2kV: Dimension "A" is .35", pin diameter is .025"  
For models greater than 2kV: Dimension "A" is .37", pin diameter is .016

PIN#	FUNCTION
1	IN -
2	IN +
3	HV RTN
4	HV OUT



## Model Selection Guide

Model	Input Voltage	Output Voltage	Max Output Current
UMHVP-0505	5V	±500V	1mA
UMHVP-0510	5V	+1kV	500µA
UMHVP-0510N	5V	-1kV	500µA
UMHVP-0512	5V	+1.2kV	417µA
UMHVP-0512N	5V	-1.2kV	417µA
UMHVP-0520	5V	+2kV	250µA
UMHVP-0520N	5V	-2kV	250µA
UMHVP-0530	5V	+3kV	167µA
UMHVP-0530N	5V	-3kV	167µA
UMHVP-0540	5V	+4kV	125µA
UMHVP-0540N	5V	-4kV	125µA
UMHVP-0550	5V	+5kV	100µA
UMHVP-0550N	5V	-5kV	100µA

Model	Input Voltage	Output Voltage	Max Output Current
UMHVP -1205	12V	±500V	1mA
UMHVP -1210	12V	+1kV	500µA
UMHVP -1210N	12V	-1kV	500µA
UMHVP -1212	12V	+1.2kV	417µA
UMHVP -1212N	12V	-1.2kV	417µA
UMHVP -1220	12V	+2kV	250µA
UMHVP -1220N	12V	-2kV	250µA
UMHVP -1230	12V	+3kV	167µA
UMHVP -1230N	12V	-3kV	167µA
UMHVP -1240	12V	+4kV	125µA
UMHVP -1240N	12V	-4kV	125µA
UMHVP -1250	12V	+5kV	100µA
UMHVP -1250N	12V	-5kV	100µA