

UMHV Series

Ultra-Miniature High Voltage DC to DC Converter

Ultra-Miniature Case Size (0.5" x 0.5" x 0.5")

High Impedance Programming Input (10k Ω)

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

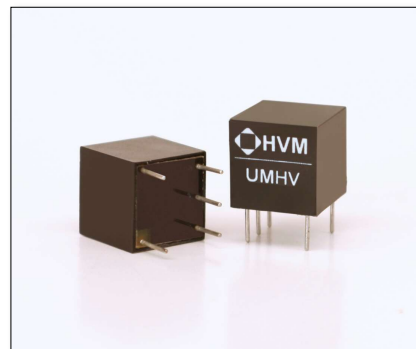


Mechanical Characteristics

- **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

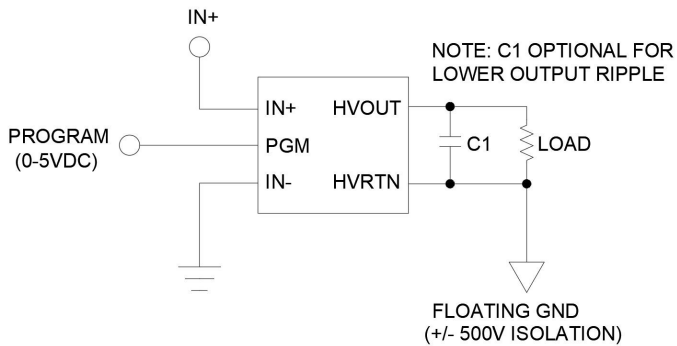
The **UMHV Series** is a family of ultra-miniature single-output DC to DC converters supplying up to 5kV in 0.125 cubic inches (0.5" x 0.5" x 0.5"). These ultra-compact converters are ideal for applications requiring small size and ease of use. A high impedance programming input makes it very easy to 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 1/10th of that of similar devices on the market, making it ideal for battery powered applications.

The devices operate directly from 5VDC or 12VDC \pm 0.5VDC input. Output voltage is independent of input power voltage and is proportional to the programming voltage (0 to 5VDC produces 0 to full scale output) and features excellent linearity. The output power rating is 0.5W and the input to output isolation is \pm 500V. The UMHV Series is very stable over a wide operating temperature range.

Available with alternate output voltages, consult sales for additional information.

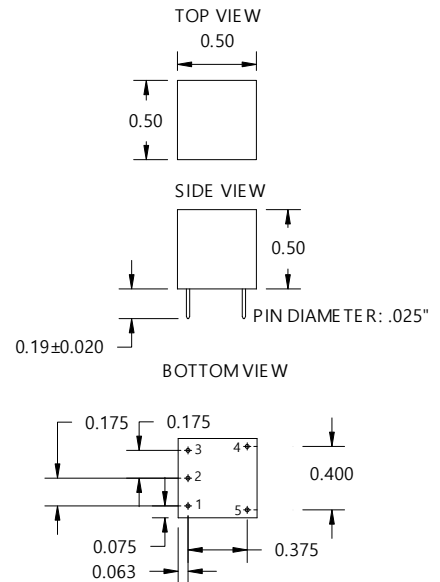
APPLICATION SCHEMATIC



ELECTRICAL CHARACTERISTICS

Input Power Voltage (V+):	5V or 12V $\pm 10\%$
Programming Voltage:	0 to 5V input results in 0 to rated output voltage
Programming Input Impedance:	10k Ω
Output Tolerance at No Load:	$\pm 5\%$
Input-Output Isolation:	$\pm 500Vdc$
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

MECHANICAL



Unless otherwise specified, dimensions are in inches.

Tolerances
X.XX = $\pm 0.01"$
X.XXX = $\pm 0.005"$

PIN#	FUNCTION
1	Program
2	IN -
3	IN +
4	HVOUT
5	HVRTN

Note: White dot on bottom view indicates pin 1.

Model Selection Guide

Model	Input Voltage	Output Voltage	MAX Output Current	Input Current	
				NO Load	MAX Load
UMHV0505	5V	0 to ± 500 V	1mA	<10mA	<175mA
UMHV1205	12V	0 to ± 500 V	1mA	<10mA	<100mA
UMHV0510	5V	0 to +1kV	500 μ A	<10mA	<175mA
UMHV0510N	5V	0 to -1kV	500 μ A	<10mA	<175mA
UMHV1210	12V	0 to +1kV	500 μ A	<10mA	<100mA
UMHV1210N	12V	0 to -1kV	500 μ A	<10mA	<100mA
UMHV0512	5V	0 to +1.2kV	417 μ A	<10mA	<175mA
UMHV0512N	5V	0 to -1.2kV	417 μ A	<10mA	<175mA
UMHV1212	12V	0 to +1.2kV	417 μ A	<10mA	<100mA
UMHV1212N	12V	0 to -1.2kV	417 μ A	<10mA	<100mA
UMHV0520	5V	0 to +2kV	250 μ A	<10mA	<175mA
UMHV0520N	5V	0 to -2kV	250 μ A	<10mA	<175mA
UMHV1220	12V	0 to +2kV	250 μ A	<10mA	<100mA
UMHV1220N	12V	0 to -2kV	250 μ A	<10mA	<100mA
UMHV0530	5V	0 to +3kV	167 μ A	<15mA	<175mA
UMHV0530N	5V	0 to -3kV	167 μ A	<15mA	<175mA
UMHV1230	12V	0 to +3kV	167 μ A	<15mA	<100mA
UMHV1230N	12V	0 to -3kV	167 μ A	<15mA	<100mA
UMHV0540	5V	0 to +4kV	125 μ A	<15mA	<175mA
UMHV0540N	5V	0 to -4kV	125 μ A	<15mA	<175mA
UMHV1240	12V	0 to +4kV	125 μ A	<15mA	<100mA
UMHV1240N	12V	0 to -4kV	125 μ A	<15mA	<100mA
UMHV0550	5V	0 to +5kV	100 μ A	<15mA	<175mA
UMHV0550N	5V	0 to -5kV	100 μ A	<15mA	<175mA
UMHV1250	12V	0 to +5kV	100 μ A	<15mA	<100mA
UMHV1250N	12V	0 to -5kV	100 μ A	<15mA	<100mA