

UMHV-DI Series

Ultra-Miniature HV DC to DC Converter



Features

- ❖ Higher Performance Drop-In Replacement for EMCO Q-Series or PICO AV-Series
- ❖ Ultra-Miniature Case Size (0.5" x 0.5" x 0.5")
- ❖ PCB Mountable
- ❖ No External Components Required
- ❖ Extremely Low Quiescent Current (5mA typical)
- ❖ 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-DI 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"). They are intended to be higher performance, lower cost direct drop-in replacements for EMCO Q-Series and Pico AV-Series devices. These ultra-compact converters are ideal for applications requiring small size and ease of use.

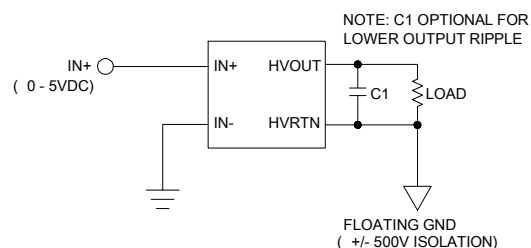
HVM's proprietary resonant converter design minimizes quiescent current and operating noise while delivering maximum performance and reliability. A special feature of this power supply is its extremely low input current at no load, typically 1/10th of that of similar devices on the market, making it 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.

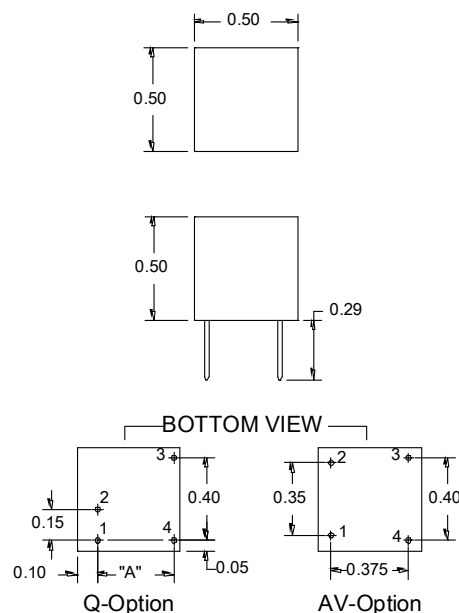
The output power rating is 0.5W and the input to output isolation is ± 500V.

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

Application Schematic



Mechanical Dimensions



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"

Pinouts

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

Note: Also available with wires

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

UMHV-DI Series

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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)

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Electrical Characteristics (at +23°C)

Input Voltage (IN+): 0 - 5VDC

Typical Input Current: 5V input: <15 mA @ no load, <175mA @ full load; 12V input: <10mA @ no load, <100mA @ full load

Output Voltage (HVOUT): Linear function of IN+ from approx. $0.7V < IN+ < 5V$; full scale output at $IN+ = 5V$

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

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 (See Note 1)	Input Voltage	Output Voltage	Max Output Current
UMHV-DI-0505-*	5V	0 to $\pm 500V$	1mA
UMHV-DI-0510-*	5V	0 to +1kV	500 μA
UMHV-DI-0510N-*	5V	0 to -1kV	500 μA
UMHV-DI-0520-*	5V	0 to +2kV	250 μA
UMHV-DI-0520N-*	5V	0 to -2kV	250 μA
UMHV-DI-0530-*	5V	0 to 3kV	167 μA
UMHV-DI-0530N-*	5V	0 to -3kV	167 μA
UMHV-DI-0540-*	5V	0 to +4kV	125 μA
UMHV-DI-0540N*	5V	0 to -4kV	125 μA
UMHV-DI-0550-*	5V	0 to +5kV	100 μA
UMHV-DI-0550N-*	5V	0 to -5kV	100 μA

Model (See Note 1)	Input Voltage	Output Voltage	Max Output Current
UMHV-DI-1205-*	12V	0 to $\pm 500V$	1mA
UMHV-DI-1210-*	12V	0 to +1kV	500 μA
UMHV-DI-1210N-*	12V	0 to -1kV	500 μA
UMHV-DI-1220-*	12V	0 to +2kV	250 μA
UMHV-DI-1220N-*	12V	0 to -2kV	250 μA
UMHV-DI-1230-*	12V	0 to 3kV	167 μA
UMHV-DI-1230N-*	12V	0 to -3kV	167 μA
UMHV-DI-1240-*	12V	0 to +4kV	125 μA
UMHV-DI-1240N*	12V	0 to -4kV	125 μA
UMHV-DI-1250-*	12V	0 to +5kV	100 μA
UMHV-DI-1250N-*	12V	0 to -5kV	100 μA

Note 1: * indicates package option; indicate either Q or AV when ordering

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