HVM TECHNOLOGY
Innovative High Voltage Products



SMHV Series

High-Precision Regulated HV DC to DC Converter

Models up to 10kV@1W
Sub-Miniature Case Size (.85"x.85"x.6")
Adjustable, 0 to full output
Low Ripple, High Impedance,
Operating Temp (-55ºC to +70ºC)
DC/DC Converters

RoHS

Description

The SMHV Series is a family of sub-miniature single-output, fully regulated DC to DC converters supplying up to 10kV @1W in 0.434 cubic inches (0.85" x 0.85" x 0.6"). These ultra-compact converters are ideal for applications requiring small size, high performance, and ease of use. HVM's proprietary, ultra-compact resonant converter design minimizes quiescent current and operating noise while delivering maximum performance and reliability.

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 5V produces 0 to full scale output) and features excellent linearity.

Voltage and current monitor outputs provide the user with operational information for maximum control.

The SMHV Series has additional features such as voltage and current monitor outputs, and current limit control input. The SMHV Series is very stable over a wide operating temperature range.

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

Mechanical Characteristics

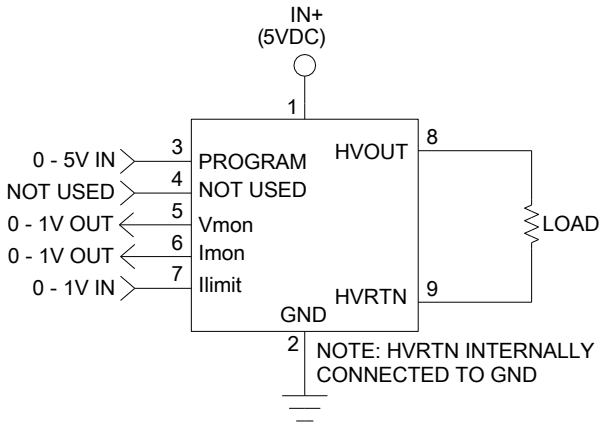
- **Weight:** 15 grams typical
- **Packaging:** Encapsulated in high performance epoxy
- **Case Materials:** Thermoset Plastic (Diallyl Phthalate) –Optional Metal shield Case Available

Environmental Characteristics

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

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APPLICATION SCHEMATIC

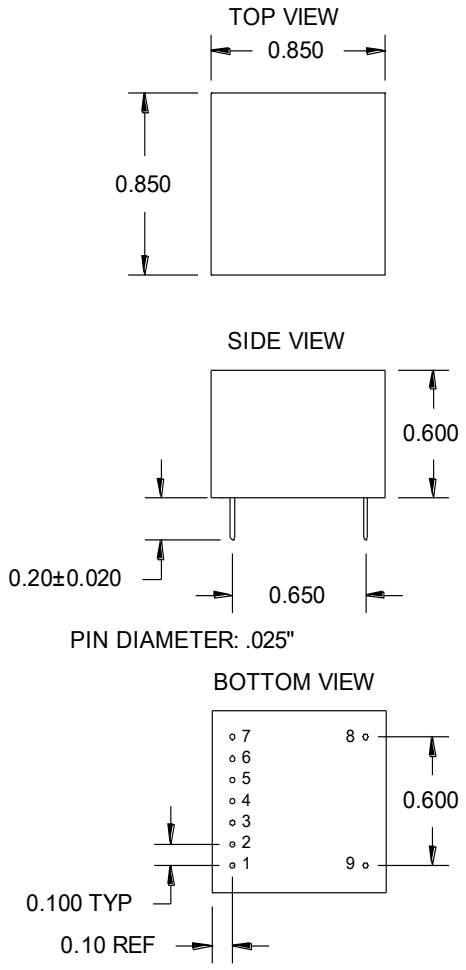


ELECTRICAL CHARACTERISTICS

Input Power Voltage (IN+):	5V ± 10%
Programming Voltage:	0 to 5VDC results in 0 to rated output
Programming Input Impedance:	10kΩ
Input Current Limit:	0 to 1VDC input results in a current load limit to 0 to 100% of rated current; input impedance: 10kΩ **Note: To disable current limit, connect Ilimit pin to 5V.**
Output Tolerance at No Load:	± 5%
Output Voltage Monitor:	0 to 1VDC output, corresponding to 0 to 100% of rated output; output impedance: 1kΩ
Output Current Monitor:	0 to 1VDC output, corresponding to 0 to 100% of rated current; output impedance: 1kΩ
Input-Output Isolation:	Not isolated, HVRTN internally connected to GND
Load Regulation:	0.2% (over entire load range)
Line Regulation:	0.01%
Output Ripple:	<.01%
Oscillator Frequency:	45 kHz – 80 kHz
Efficiency:	60% typical at full load

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DIMENSIONS



PIN#	FUNCTION	PIN#	FUNCTION
1	V in	6	Imonitor
2	GND	7	Ilimit
3	Program	8	HVOUT
4	Not Used	9	HVRTN
5	Vmonitor		

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Model Selection Guide

MODEL	Input Voltage	Output Voltage	MAX Output Current	Input Current No Load	Input Current Max Load
SMHV0505	5V	0 to +500V	2mA	<35mA	<350mA
SMHV0505N	5V	0 to -500V	2mA	<35mA	<350mA
SMHV0510	5V	0 to +1kV	1mA	<35mA	<350mA
SMHV0510N	5V	0 to -1kV	1mA	<35mA	<350mA
SMHV0520	5V	0 to +2kV	500µA	<35mA	<350mA
SMHV0520N	5V	0 to -2kV	500µA	<35mA	<350mA
SMHV0530	5V	0 to +3kV	333µA	<35mA	<350mA
SMHV0530N	5V	0 to -3kV	333µA	<35mA	<350mA
SMHV0540	5V	0 to +4kV	250µA	<35mA	<350mA
SMHV0540N	5V	0 to -4kV	250µA	<35mA	<350mA
SMHV0550	5V	0 to +5kV	200µA	<35mA	<350mA
SMHV0550N	5v	0 to -5kV	200µA	<35mA	<350mA
SMHV0560	5V	0 to +6kV	167µA	<35mA	<350mA
SMHV0560N	5V	0 to -6kV	167µA	<35mA	<350mA
SMHV0580	5V	0 to +8kV	125µA	<35mA	<350mA
SMHV0580N	5V	0 to -8kV	125µA	<35mA	<350mA
SMHV05100	5V	0 to +10kV	100µA	<35mA	<350mA
SMHV05100N	5V	0 to -10kV	100µA	<35mA	<350mA

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