ECHV Series

Miniature HV DC to DC Converter

PRELIMINARY SPECIFICATION

HVM TECHNOLOGY

Features

- Miniature Case Size (1.8”L x 1.0”W x 0.40”H) in a Low Profile PCB Mount Configuration
- High Impedance Programming Input
- Low Quiescent Input Current (< 20mA typical at no load)
- 5V or 12V Input, Models up to 10kV @ 1W
- Adjustable from 3% to Full Output
- Low Ripple and EMI/RFI
- Wide Operating Temp Range
- ±10kV Input/Output Isolation

Description

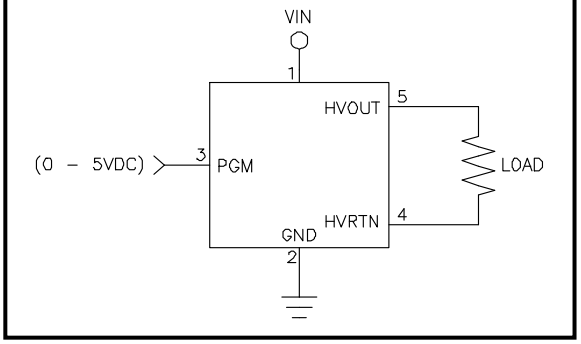
The ECHV Series is an economical and versatile high voltage DC to DC converter perfectly suited for small, portable, high performance equipment requiring high voltage biasing. Designed for affordability and reliability, the ECHV Series is manufactured using all surface mount construction and tested using state-of-the-art automatic test equipment.

The ECHV Series includes a range of models with output voltages up to 10kV and input/output isolation of ± 10kV. Fully encapsulated in a compact (1.8”L x 1.0”W x 0.40”H) package, the ECHV Series has easy-to-use features that enable the designer to quickly integrate high voltage into any design. A high impedance programming input makes the ECHV Series very easy to use.

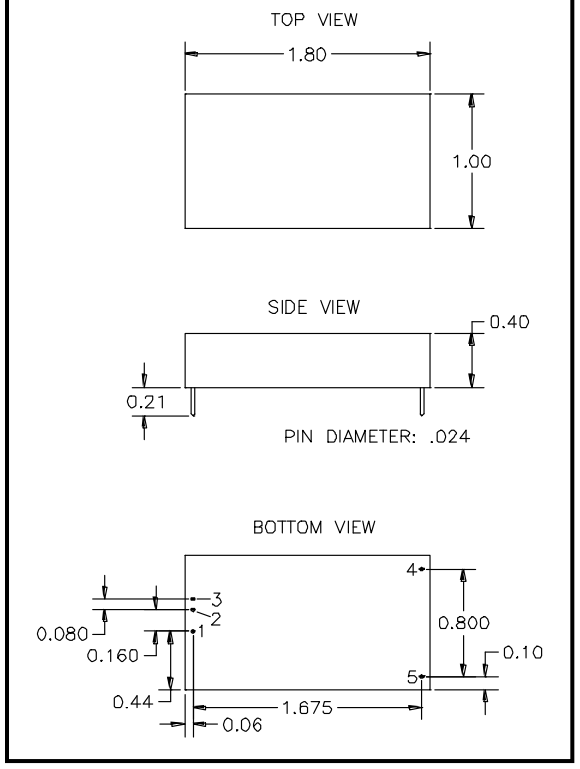
HVM’s proprietary resonant converter design minimizes quiescent current and operating noise while delivering maximum performance and reliability. A special feature of this power supply is its extremely low input current, making it ideal for battery powered applications.

The devices operate directly from optional 5V or 12V input and the output power rating is 1W. 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. The ECHV Series is designed for stable operation over a wide temperature range of -55°C to +70°C.

Application Schematic



Mechanical Dimensions



PIN #	FUNCTION
1	Vin
2	GND
3	Program
4	HVRTN
5	HVOUT

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ECHV Series

Regulated Miniature HV DC to DC Converter

Mechanical Characteristics

Size: 1.8”L x 1.0”W x 0.40”H
Weight: 15 grams typical
Packaging: Encapsulated in high performance epoxy

Electrical Characteristics (at +23◦C)

Input Power Voltage (VIN): 5V or 12V ± 0.5V
Programming Voltage: 0 to 5VDC results in 0 to rated output; note: regulation not guaranteed below 3% of full scale
Programming Input Impedance: >50kΩ
Output Tolerance at No Load: ± 2%
Input/Output Isolation: ± 10kV
Load Regulation: 20% (over entire load range)
Output Ripple: <0.1%
Oscillator Frequency: 45 kHz – 100 kHz
Efficiency: 60% typical at full load

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Environmental Characteristics

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

Model	Output Voltage	MAX Output Current
ECHV**05	0 to +500V	2mA
ECHV**05N	0 to -500V	2mA
ECHV**10	0 to +1kV	1mA
ECHV**10N	0 to -1kV	1mA
ECHV**20	0 to +2kV	500µA
ECHV**20N	0 to -2kV	500µA
ECHV**30	0 to +3kV	333µA
ECHV**30N	0 to -3kV	333µA
ECHV**40	0 to +4kV	250µA
ECHV**40N	0 to -4kV	250µA
ECHV**50	0 to +5kV	200µA
ECHV**50N	0 to -5kV	200µA
ECHV**60	0 to +6kV	167µA
ECHV**60N	0 to -6kV	167µA
ECHV**80	0 to +8kV	125µA
ECHV**80N	0 to -8kV	125µA
ECHV**100	0 to +10kV	100µA
ECHV**100N	0 to -10kV	100µA

** Indicates input voltage option: 05 = 5V; 12 = 12V