

# Low Power Consumption DC to HV DC Converters

0 to ±100 through 0 to ±6,000 VDC @ 1 Watt  
GP Series



## FEATURES

- Low Power Consumption
- Small Case Size
- Light Weight
- Short Circuit Protection
- Low EMI/RFI
- Isolated Output
- User-Selectable Output Polarity
- Low Cost/High Performance
- MTBF: >2.31 million hrs per Bellcore TR-332

## OPTIONS

- External Mounting Box, See AB Series
- Epoxy: **A.** Low Outgassing (NASA approved per ASTM E-595-93)
- B.** UL 94 V0 flammability rating
- RoHS(-R' suffix denotes the product is designed to meet RoHS requirements i.e GP01R)

## APPLICATIONS

- Portable, Battery Powered Applications
- Sustaining Ion Pumps
- Vacuum Gauges
- Photomultiplier Tubes
- Spectrometry
- Electrostatic Chucks
- Lamp Ignition
- Displays
- Non-impact Printers
- Electrostatic Field Generation
- Avalanche Photodiodes
- Piezo Devices
- Electrophoresis

## PHYSICAL CHARACTERISTICS

- SIZE: 1.5 x 1.5 x 0.63 (38 x 38 x 16)
- WEIGHT: 1.4 Ounces (40 GRAMS)
- PACKAGING: Fully Encapsulated
- CASE MATERIAL: Glass-filled Epoxy
- PINS: 0.031 (.79) Diameter, 0.2 (5.1) Long

## ELECTRICAL SPECIFICATIONS\*1

- INPUT VOLTAGE: 0 to 12 Volts
- TYPICAL TURN-ON VOLTAGE: 0.7 Volts
- OUTPUT VOLTAGE: See Table
- OUTPUT VOLTAGE TOLERANCE: (+/-3% typical)
- OUTPUT VARIANCE ACROSS LOAD RANGE: (-10%, typical)<sup>6</sup>
- TEMPERATURE :

- OPERATING: -20° to +70°C
- STORAGE: -20° to +105°C

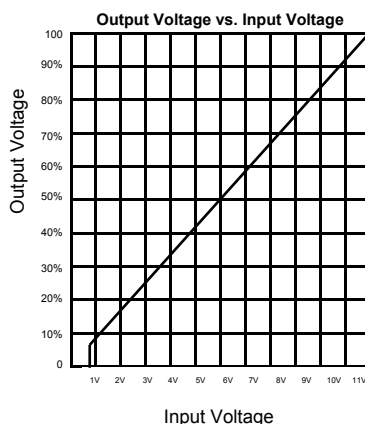
ISOLATION: 3,500 Volts +Vout

The GP Series is a line of miniature, DC to HV DC converters providing 100VDC to 6,000VDC, positive or negative, in a compact PC mount package. This line features low power consumption, making it ideal for portable, battery powered applications. The isolated output is proportional to the input, and is linear from

approximately 0.7 volts in. A low noise quasi-sinewave oscillator and shielded transformer provide clean, reliable DC to HV DC conversion with low EMI and RFI. The isolated output allows for user selectable output polarity. No minimum load is required. Contact our Applications Department for immediate technical assistance.

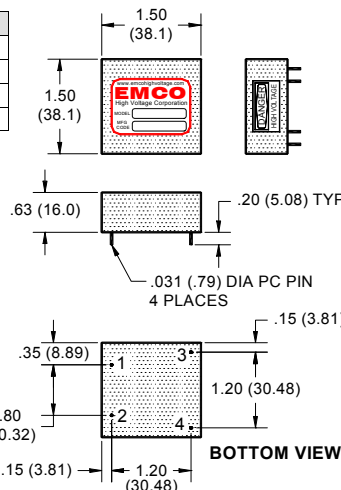
MODEL	INPUT <sup>3</sup> CURRENT (NO LOAD)	INPUT <sup>3</sup> CURRENT (FULL LOAD)	OUTPUT <sup>4</sup> VOLTAGE	OUTPUT <sup>5</sup> CURRENT	RIPPLE
GP01	<45mA	<150mA	0 to +/-100V	10mA	<0.75%
GP02	<45mA	<150mA	0 to +/-200V	5mA	<1.75%
GP03	<45mA	<125mA	0 to +/-300V	3mA	<0.50%
GP05	<15mA	<125mA	0 to +/-500V	2mA	<0.50%
GP06	<15mA	<125mA	0 to +/-600V	1.66mA	<0.50%
GP08	<25mA	<125mA	0 to +/-800V	1.25mA	<0.75%
GP10	<15mA	<125mA	0 to +/-1000V	1mA	<0.75%
GP12	<15mA	<125mA	0 to +/-1,200V	840uA	<0.75%
GP15	<20mA	<125mA	0 to +/-1,500V	660uA	<0.75%
GP20	<30mA	<130mA	0 to +/-2,000V	500uA	<0.75%
GP25	<30mA	<130mA	0 to +/-2,500V	400uA	<1.00%
GP30	<40mA	<130mA	0 to +/-3,000V	340uA	<1.00%
GP40 <sup>2</sup>	<50mA	<130mA	0 to +/-4,000V	250uA	<1.00%
GP50 <sup>2</sup>	<70mA	<150mA	0 to +/-5,000V	200uA	<1.50%
GP60 <sup>2</sup>	<85mA	<175mA	0 to +/-6,000V	166uA	<1.00%

- \*Notes 1: Specifications after 30 minute warm-up, full load, at +25°C unless otherwise noted.  
 2. Models G40, G50 & G60 do not have internal bleeder resistors on the output. Provisions must be made externally to discharge the output capacitors if this feature is desired.  
 3. At Maximum Rated Output Voltage.  
 4. Output Voltage is load dependent. Under light or no load conditions, reduce input voltage so maximum rated output voltage is not exceeded.  
 5. The rated output current is available at full output voltage and must be derated proportionally as the input voltage decreases. For example: a 500V, 1.5W unit, rated at 3mA at 500V will provide 1.5mA at 250V out.  
 6. Indicates the change in output voltage as the load current changes from 0mA to max rated output current.



Pin #	Function
1	(+) Input
2	(-) Input
3	(+) Output
4	(-) Output

Dimensions are in inches. Tolerances are ±.03 (±.76) (METRIC EQUIVALENTS IN PARENTHESIS)



- Design Tips:**  
 1) Select a higher voltage model and bias it at a lower input voltage to get the desired output voltage. Power consumption will be substantially lower.  
 2) Ripple can be further reduced by connecting a capacitor across the output.

e-mail sales@emcohighvoltage.com  
 Web site www.emcohighvoltage.com

Phone (209) 267-1630 Fax (209) 267-0282  
 70 Forest Products Road, Sutter Creek CA 95685