



HITEK POWER® MPM SERIES
MINIATURE HIGH VOLTAGE DC-TO-DC CONVERTERS





The MPM series offers a unique range of low cost, general purpose high voltage DC-to-DC converters. All units are configured for direct PCB mounting and are intended to be “designed in” to equipment as a component.

DESCRIPTION

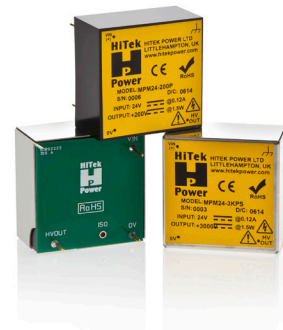
The MPM series is suitable for ink jet printing, electrostatic precipitation, Geiger-Muller tubes, photomultiplier tubes, electron beam deflection and focusing, as well as various general purpose applications.

These units’ unregulated output is proportional to the input voltage. Alternatively, customers can add their own external feedback control loops to provide regulated outputs. The converters are vacuum encapsulated in an ABS case to ensure maximum reliability and safety. Standard MPM models are three-pin devices that provide a common 0 V for input and output. All models are available with a range of input and output voltages, with either positive or negative output.

MPM series units are fully encapsulated in silicone rubber to give reliable and consistent operation over wide environmental conditions. All units are fully ATE tested to ensure consistent performance.

FEATURES

- › Output power: 1.5 W, continuous
- › Output voltage: 100 V to 3 kV
- › Output isolation option
- › Ripple: 0.05% peak to peak (screened versions)
- › Temperature coefficient: < 300 ppm/°C
- › Stability: < 0.1% per hour after stabilization, over eight hour period
- › PCB Mounting
- › Small size
- › Positive or negative polarity
- › Output proportional to input
- › No minimum load requirements
- › Input polarity protected
- › Open- and short-circuit protected
- › EU RoHS compliant to 2011/65/EU





SPECIFICATIONS

| | |
|---------------------------------|--|
| Output Power | 1.5 W, max, continuous |
| Output Voltage | Units available with max output voltages from 100 V to 3 kV (see table for specific versions). |
| Input Voltage | 12 V units: 1.2 to 12 V for 10 to 100% output voltage 24 V units: 2.4 to 24 V for 10 to 100% output voltage |
| Input Current | 12 V units: typically 40 mA offload, 200 mA fully loaded 24 V units: typically 25 mA offload, 110 mA fully loaded |
| Polarity | Positive or negative to order |
| Load Regulation | Typically < 10% (for a 0 to 1.5 W load change), max 20% |
| Line Regulation | Output is proportional to input over a 10 to 100% input range. |
| Stability | < 0.1% after stabilization and over an eight hour period |
| Ripple | 0.5% peak to peak (0.05% for screened case version) |
| MTBF | > 500,000 hours MTBF as per IEC62380:2004 |
| Efficiency | > 50% at 1.5 W load |
| Oscillator Frequency | 30 to 200 kHz, depending on model |
| Protection | Protected against intermittent short circuit and flashover |
| Operating Temperature | -10 to +60°C (14 to 140°F) |
| Storage Temperature | -40 to +85°C (-40 to 185°F) |
| Humidity | 80% max relative humidity up to 31°C (88°F), reducing linearly to 50% at 40°C (104°F); non-condensing |
| Altitude | Sea level to 2000 m (6500') |
| Temperature Coefficient | < 300 ppm/°C |
| Screened Case (Optional) | Screened case of tin plate construction with its own pin reduces radiated noise and output ripple. |
| Isolated Unit (Optional) | Isolated units give input to output isolation of up to 100 V. This can allow, for example, a sense resistor to be added for load current measurements. A capacitor may be added between the input 0 V and output 0 V to reduce common mode ripple. |
| Safety | Meets the requirements of the Low Voltage Directive (LVD) 2006/95/EC, by complying with BS EN60950 when it is installed as a component part of other equipment and is CE marked accordingly |
| RoHS | Meets the requirements of EU Directive 2011/65/EU on the Restriction of use of certain Hazardous Substances in Electrical and Electronic Equipment (RoHS) |

Mechanical Specification

| | |
|-------------------|---------------------------------|
| Dimensions | See outline drawing, on page 5. |
| Weight | 60 g (2 oz), approx. |



OUTPUT AND ORDERING INFORMATION

| Model | Input Voltage | Output Voltage | Output Current |
|------------|---------------|----------------|----------------|
| MPM12-100* | 12 V | 100 V | 15 mA |
| MPM24-100* | 24 V | 100 V | 15 mA |
| MPM12-200* | 12 V | 200 V | 7.5 mA |
| MPM24-200* | 24 V | 200 V | 7.5 mA |
| MPM12-300* | 12 V | 300 V | 5 mA |
| MPM24-300* | 24 V | 300 V | 5 mA |
| MPM12-500* | 12 V | 500 V | 3 mA |
| MPM24-500* | 24 V | 500 V | 3 mA |
| MPM12-1K* | 12 V | 1 kV | 1.5 mA |
| MPM24-1K* | 24 V | 1 kV | 1.5 mA |
| MPM12-1K5* | 12 V | 1.5 kV | 1 mA |
| MPM24-1K5* | 24 V | 1.5 kV | 1 mA |
| MPM12-2K* | 12 V | 2 kV | 0.75 mA |
| MPM24-2K* | 24 V | 2 kV | 0.75 mA |
| MPM12-3K* | 12 V | 3 kV | 0.5 mA |
| MPM24-3K* | 24 V | 3 kV | 0.5 mA |

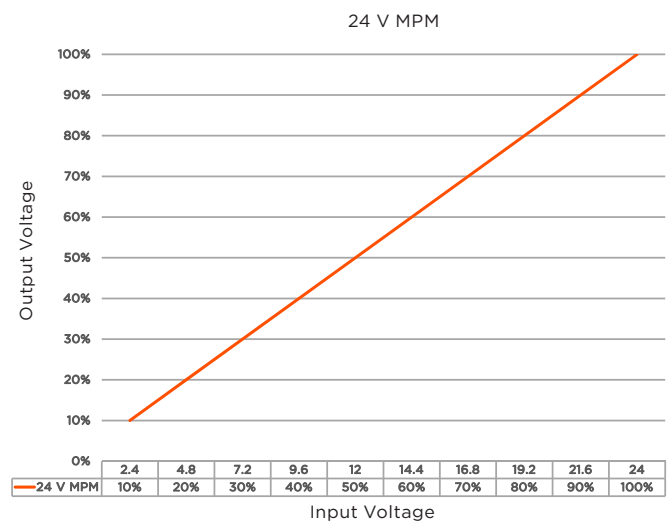
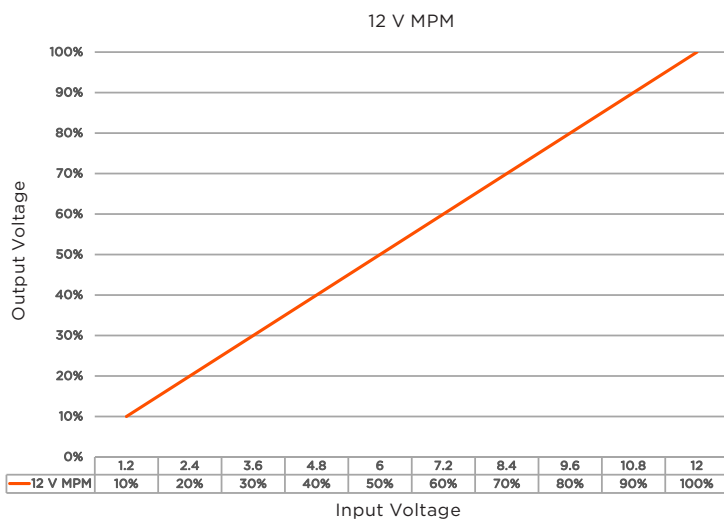
*Please add the required suffix to the model number:

P or N: Positive or negative polarity

S: Screened version

I: Isolated unit

e.g. MPM12-300PS for a 12 V input voltage, 300 V output voltage, positive, screened unit

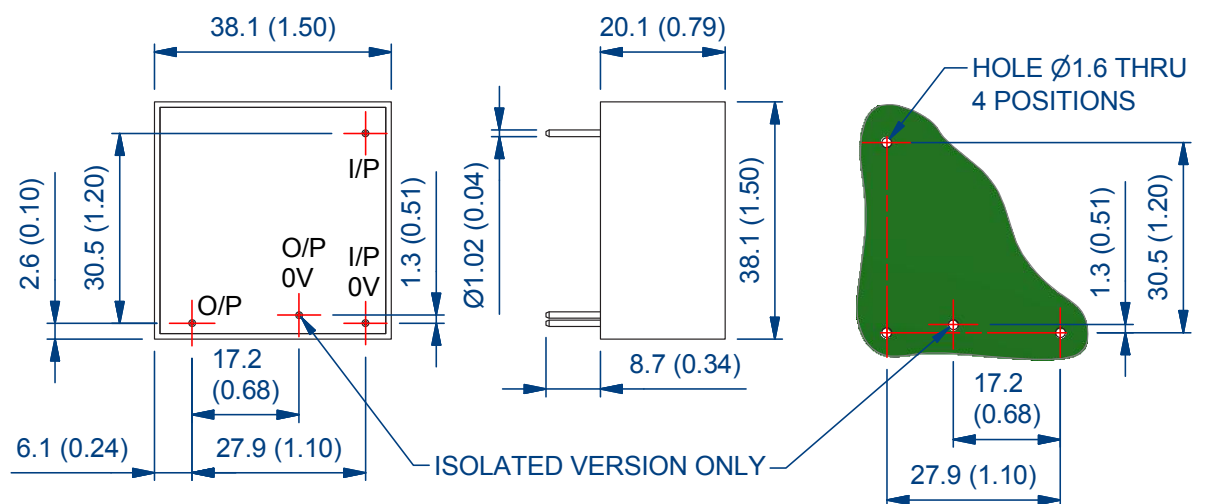


Ⓒ These component power supplies meet the requirements of EC Directive 2006/95/EC (LVD).

Drawing dimensions are in mm (inches).

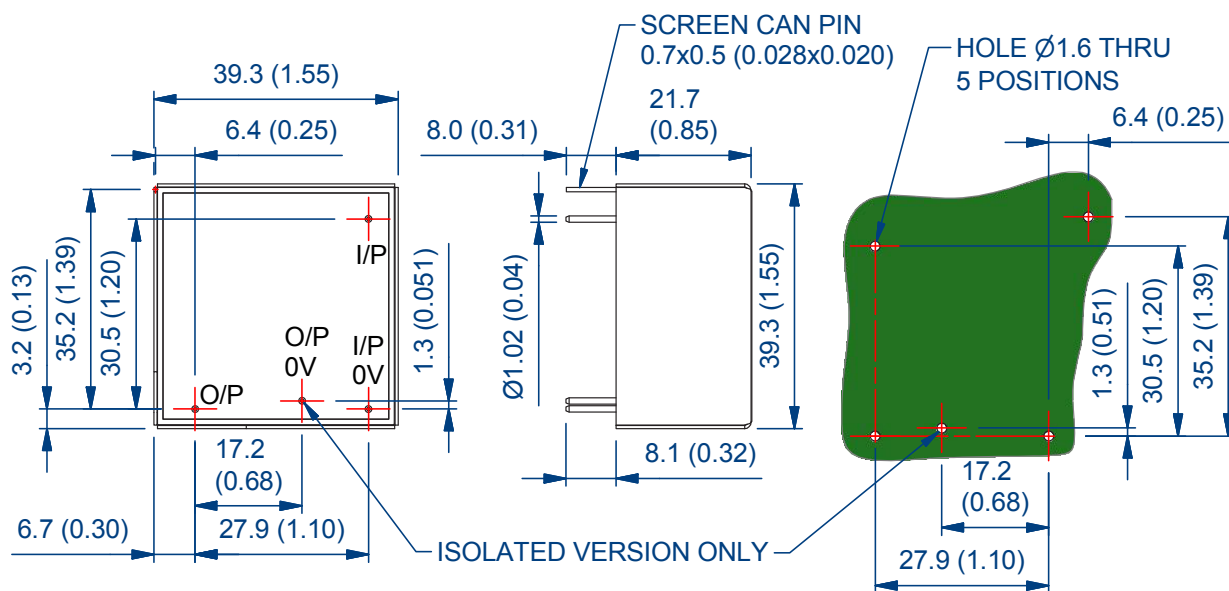
Design developments may result in specification changes.

UNSCREENED VERSION



RECOMMENDED PCB FOOTPRINT

SCREENED VERSION



RECOMMENDED PCB FOOTPRINT



For international contact information, visit
advanced-energy.com.