

# MPM-10S

## Compact, Wide Input, PC Board Mount, 10W AC/DC Power Supplies



### Key Features:

- 10W Output Power
- Universal 90-305 VAC Input
- Compact 2.05 x 1.05" Size
- EN 62368 Approved (UL)
- -40°C to +85°C Temp Range
- Meets EN 55032 B
- >450 kHour MTBF
- 4,000 VAC Isolation
- Efficiency to 86%
- Meets EN 60335
- Meets EN 61558
- Mounting Board Option



### MicroPower Direct

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### Electrical Specifications

Specifications typical @ +25°C, 230 VAC input voltage & rated output current, unless otherwise noted. Specifications subject to change without notice.

| Input                                |                                                                             |                  |       |      |                   |
|--------------------------------------|-----------------------------------------------------------------------------|------------------|-------|------|-------------------|
| Parameter                            | Conditions                                                                  | Min.             | Typ.  | Max. | Units             |
| Input Voltage Range                  |                                                                             | 90               |       | 305  | VAC               |
|                                      |                                                                             | 120              |       | 430  | VDC               |
| Input Frequency                      |                                                                             | 47               |       | 440  | Hz                |
| Input Current                        | See Model Selection Guide                                                   |                  |       |      |                   |
| Inrush Current                       | 115 VAC                                                                     |                  |       | 30.0 | A Pk              |
|                                      | 230 VAC                                                                     |                  |       | 60.0 |                   |
| Leakage Current                      |                                                                             |                  |       | 0.25 | mA                |
| Output                               |                                                                             |                  |       |      |                   |
| Parameter                            | Conditions                                                                  | Min.             | Typ.  | Max. | Units             |
| Output Voltage Accuracy              |                                                                             |                  | ±2.0  |      | %                 |
| Line Regulation                      | V <sub>IN</sub> = Min to Max                                                |                  | ±0.2  |      | %                 |
| Load Regulation, 0 to 100%           | 5V & 12V Output                                                             |                  | ±1.0  |      | %                 |
|                                      | 15V & 24V Output                                                            |                  | ±0.5  |      |                   |
| Ripple/Noise, See Note 1             | 5V & 12V Output                                                             |                  |       | 100  | mV <sub>P-P</sub> |
|                                      | 15V & 24V Output                                                            |                  |       | 150  |                   |
| Hold-Up Time                         | 230 VAC                                                                     | 30               |       |      | mSec              |
| Temperature Coefficient              |                                                                             |                  | ±0.02 |      | %/°C              |
| Over Voltage Protection              | Zener Diode Clamp                                                           |                  |       |      |                   |
| Over Power Protection                | Hiccup Mode (Autorecovery)                                                  |                  |       |      |                   |
| Short Circuit Protection, See Note 2 | Continuous (Autorecovery)                                                   |                  |       |      |                   |
| General                              |                                                                             |                  |       |      |                   |
| Parameter                            | Conditions                                                                  | Min.             | Typ.  | Max. | Units             |
| Isolation Voltage                    | Input to Output                                                             | 4,000            |       |      | VAC               |
| EMC                                  | EMI (Conducted/Radiated Emmisions)                                          | EN 55032 Level B |       |      |                   |
|                                      | EMS (Noise Immunity)                                                        | EN 55035         |       |      |                   |
| Environmental                        |                                                                             |                  |       |      |                   |
| Parameter                            | Conditions                                                                  | Min.             | Typ.  | Max. | Units             |
| Operating Temperature Range          | Ambient (See Derating Curve Page 2)                                         | -40              | +25   | +85  | °C                |
| Storage Temperature Range            |                                                                             | -40              |       | +85  | °C                |
| Cooling                              | Free Air Convection (See Derating Curve)                                    |                  |       |      |                   |
| Altitude                             |                                                                             |                  | 5,000 |      | m                 |
| Humidity                             | RH, Non-condensing                                                          |                  |       | 95   | %                 |
| Physical                             |                                                                             |                  |       |      |                   |
| Case Size & Weight                   | See Mechanical Diagram (Page 2)                                             |                  |       |      |                   |
| Case Material                        | Non-Conductive Plastic Resin (UL94-V0)                                      |                  |       |      |                   |
| Reliability Specifications           |                                                                             |                  |       |      |                   |
| Parameter                            | Conditions                                                                  | Min.             | Typ.  | Max. | Units             |
| MTBF                                 | MIL HDBK 217F, 25°C, Gnd Benign                                             | 450              |       |      | kHours            |
| Safety Standards                     | UL/cUL 62368-1 recognition (UL certificate)                                 |                  |       |      |                   |
| Vibration                            | IEC 60068-2-6, 10-500 Hz, 2G 10 min/1 cycle, 60 min each along X, Y, Z axis |                  |       |      |                   |
| Shock                                | IEC 60068-2-27                                                              |                  |       |      |                   |

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| Model Number    | Input            |         | Output           |                     | Capacitive Load<br>(μF, Max) | Efficiency<br>(230 VAC, %, Typ) | Fuse Rating<br>Slow-Blow<br>(See Note 3) |
|-----------------|------------------|---------|------------------|---------------------|------------------------------|---------------------------------|------------------------------------------|
|                 | Current (mA Max) |         | Voltage<br>(VDC) | Current<br>(mA Max) |                              |                                 |                                          |
|                 | 115 VAC          | 230 VAC |                  |                     |                              |                                 |                                          |
| MPM-10S-05(-A2) | 230.0            | 140.0   | 5.0              | 2,000               | 3,500                        | 80.5                            | 2.0A/300V                                |
| MPM-10S-12(-A2) | 230.0            | 140.0   | 12.0             | 833                 | 630                          | 85                              | 2.0A/300V                                |
| MPM-10S-15(-A2) | 230.0            | 140.0   | 15.0             | 667                 | 470                          | 86                              | 2.0A/300V                                |
| MPM-10S-24(-A2) | 230.0            | 140.0   | 24.0             | 417                 | 180                          | 85.5                            | 2.0A/300V                                |

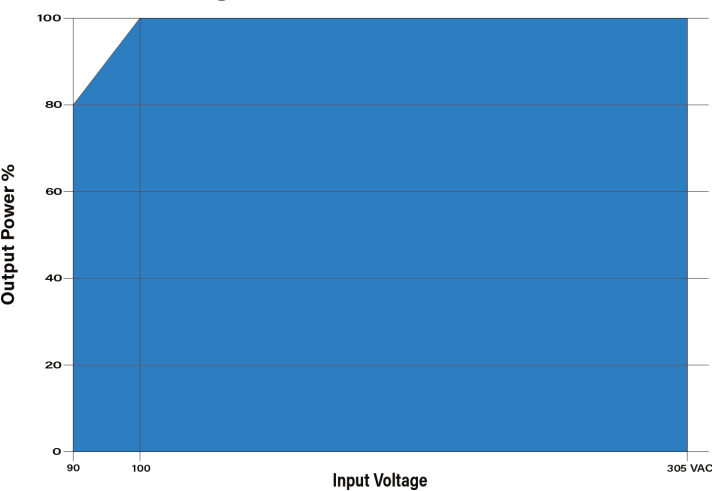
- Notes:
1. Ripple and noise are measured at 20 Mhz bandwidth with a 0.1 $\mu$ F and a 47  $\mu$ F capacitor connected in parallel as close to the unit output terminals as possible.

2. Output short circuit protection is provided by a "hiccup mode" circuit. The unit recovers automatically when the fault condition is removed.

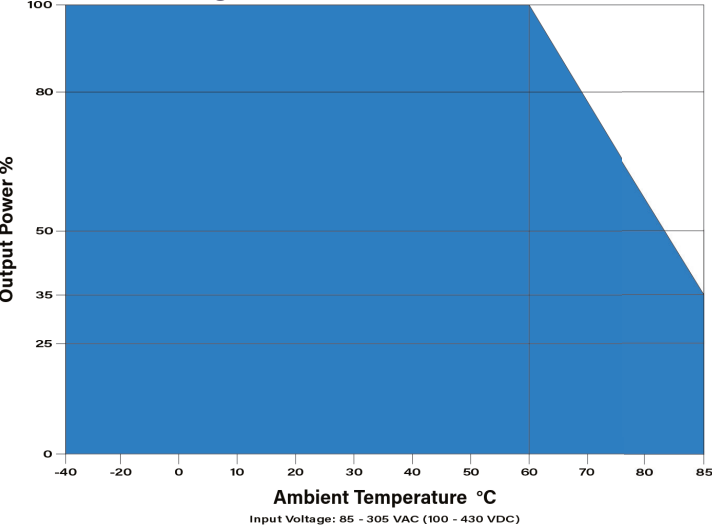
3. When connecting the fuse to the input of the supply, care must be taken to ensure the fuse is at least 3.2mm away from the input connections.

4. The **MPM-10S** series is available mounted on a Screw Terminal adapter board. For more information, see page 3 or call the factory.

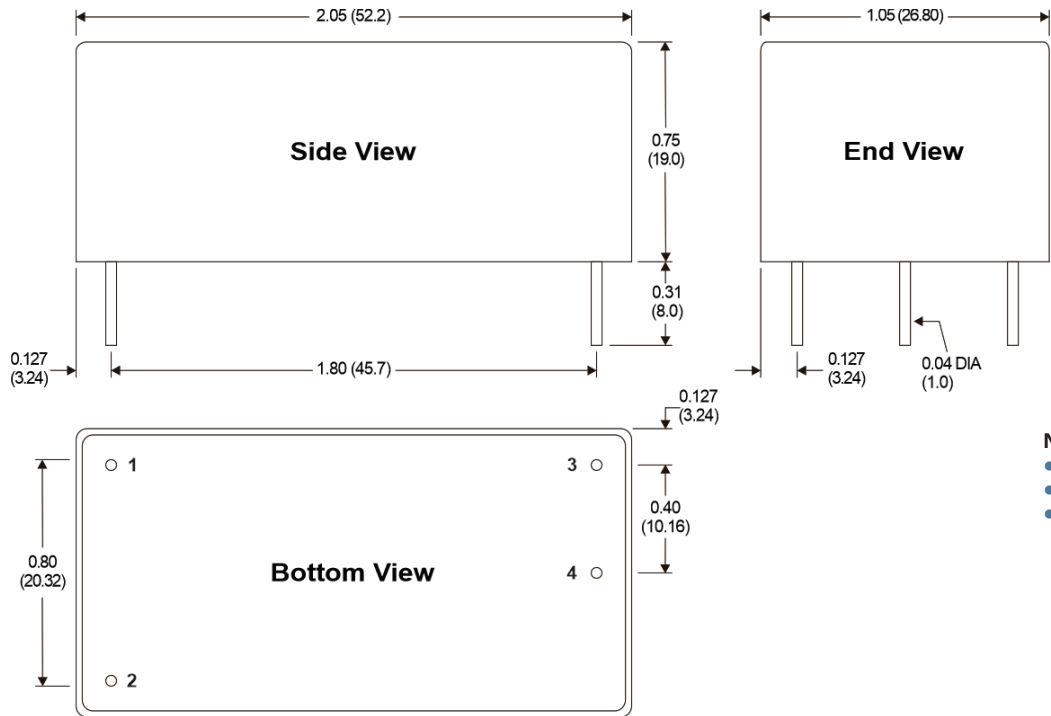
Power Derating Curve, Input Voltage



Power Derating Curve, Temperature



Mechanical Dimensions



Pin Connections

| Pin | Function          |
|-----|-------------------|
| 1   | AC-Neutral        |
| 2   | AC-Line           |
| 3   | +V <sub>OUT</sub> |
| 4   | -V <sub>OUT</sub> |

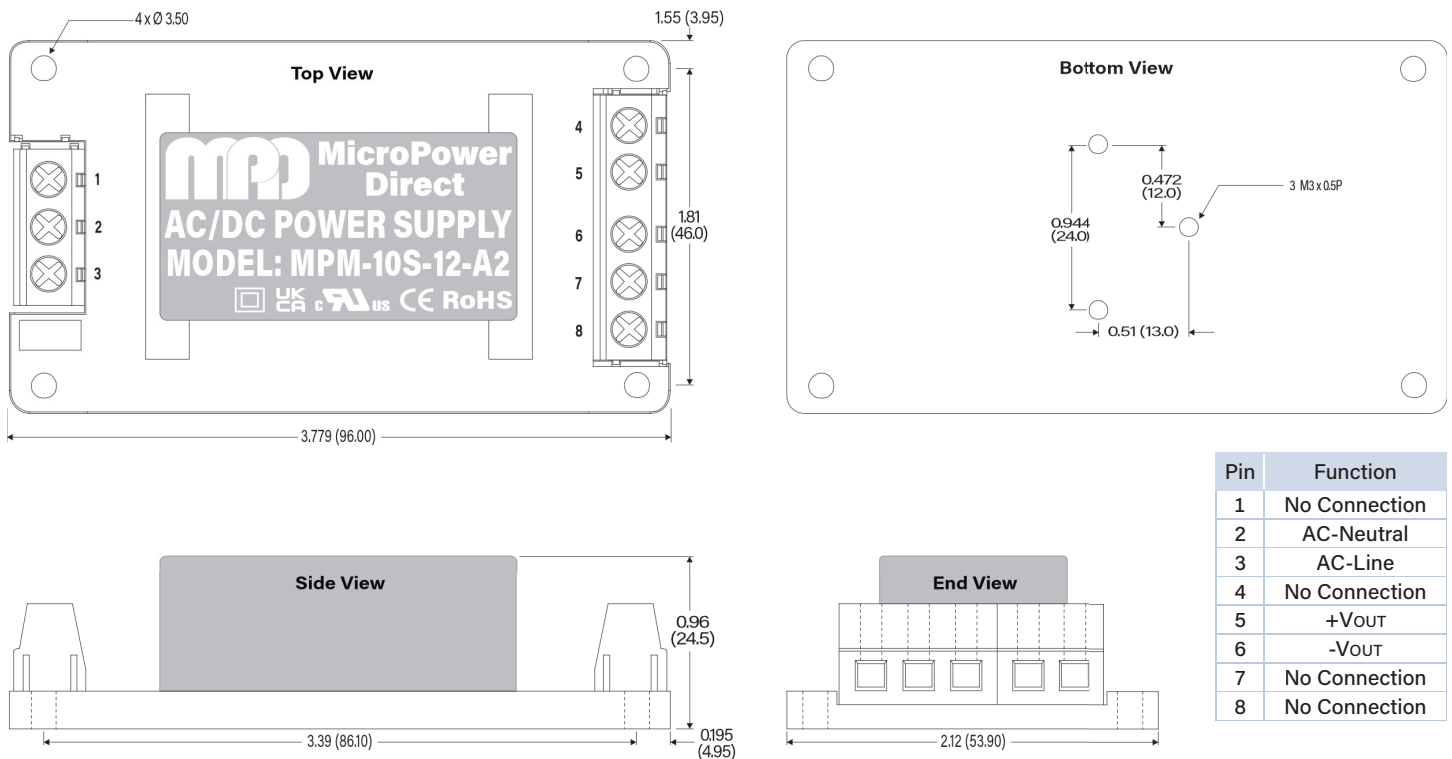
- Notes:
- All dimensions are typical in inches (mm)

• Tolerance x.xx = ±0.02 (±0.50)

• Module Weight is: 1.305 Oz (37g)



### Mechanical Dimensions: With A2 Adapter Board



#### Notes:

- All dimensions are typical in inches (mm)
- Tolerance x.xx =  $\pm 0.0193$  ( $\pm 0.5$ )
- Height Tolerance  $\pm 0.0393$  ( $\pm 1.0$ )

MPD offers a wide range of high performance AC/DC power supplies ranging from 600W UChannel units to models in miniature packages. All are designed and certified to international safety and EMC/EMI standards. These units are designed to be used in a very wide variety of customer applications.

We also offer a wide variety of DC/DC converters, POL regulators and IGBT drivers. Call today for complete information or product samples. Or go to our website: <https://micropowerdirect.com/>

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