

# MPM-05S Series

## Universal Input, 5W Miniature PC Mount AC/DC Power Supplies



### Key Features:

- 5W Output Power
- Universal 85-264 VAC Input
- EN 60950 Approved (UL)
- Five Single Output Models
- Meets EN 55022 B
- >200 kHour MTBF
- Compact PC Mount Case



### 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           |                                 | 85   |      | 264  | VAC   |
|                               |                                 | 120  |      | 370  | VDC   |
| Input Frequency               |                                 | 47   |      | 63   | Hz    |
| Input Current                 | See Model Selection Guide       |      |      |      |       |
| Inrush Current                | 115 VAC                         |      | 10.0 |      | A Pk  |
|                               | 230 VAC                         |      | 20.0 |      |       |
| EMI                           | Meets CISPR Pub. 22/FCC Class B |      |      |      |       |
| Safety Ground Leakage Current | 115 VAC                         |      |      | 0.1  | mA    |
|                               | 230 VAC                         |      |      | 0.3  |       |

#### Output

| Parameter                | Conditions                | Min. | Typ.  | Max. | Units      |
|--------------------------|---------------------------|------|-------|------|------------|
| Output Voltage           | See Model Selection Guide |      |       |      |            |
| Output Current           | See Model Selection Guide |      |       |      |            |
| Output Voltage Accuracy  |                           |      | ±2.0  |      | %          |
| Line Regulation          |                           |      | ±0.5  |      | %          |
| Load Regulation          | See Model Selection Guide |      |       |      |            |
| Ripple & Noise (20 MHz)  |                           |      | 50    |      | mV Pk - Pk |
| Hold-Up Time             | 115 VAC                   |      | 20    |      | mSec       |
|                          | 230 VAC                   |      | 80    |      |            |
| Temperature Coefficient  |                           |      | ±0.02 |      | %/°C       |
| Short Circuit Protection | Continuous (Autorecovery) |      |       |      |            |
| Overload Protection      | Typ. 110% of Output Power |      |       |      |            |

#### General

| Parameter           | Conditions                                 | Min.                          | Typ. | Max. | Units |
|---------------------|--|-------------------------------|------|------|-------|
| Isolation Voltage   | Input to Output                            | 3,000                         |      |      | VAC   |
|                     | Input to Ground                            | 1,500                         |      |      |       |
|                     | Output to Ground                           | 500                           |      |      |       |
| EMI/RFI             | Conducted                                  | EN 55022 Level B              |      |      |       |
|                     | Electrostatic Discharge (ESD)              | EN 61000-4-2 Level 3          |      |      |       |
|                     | RF Field Susceptibility                    | EN 61000-4-3                  |      |      |       |
|                     | Electrical Fast Transients/Bursts On Mains | EN 61000-4-4 Level 3 2 kV     |      |      |       |
| Surge               |  | EN 61000-4-5 Level 3 1kV/2 kV |      |      |       |
|                     |  |                               |      |      |       |
| Switching Frequency |  |                               | 150  |      | kHz   |

#### Environmental

| Parameter                   | Conditions                               | Min. | Typ. | Max. | Units |
|-----------------------------|--|------|------|------|-------|
| Operating Temperature Range | Ambient                                  | -20  | +25  | +70  | °C    |
|                             | Case                                     |      |      | +90  | °C    |
| Storage Temperature Range   |  | -25  |      | +105 | °C    |
| Cooling                     | Free Air Convection (See Derating Curve) |      |      |      |       |
| Humidity                    | RH, Non-condensing                       |      |      | 85   | %     |

#### Physical

|               |   |  |  |  |  |
|---------------|---|--|--|--|--|
| Case Size     | 1.91 x 1.42 x 0.81 Inches (48.5 x 36.0 x 20.5 mm) |  |  |  |  |
| Case Material | Non-Conductive Black Plastic (UL94-V0)            |  |  |  |  |
| Weight        | 3.77 Oz (107g)                                    |  |  |  |  |

#### Reliability Specifications

| Parameter        | Conditions                      | Min. | Typ. | Max. | Units  |
|------------------|---------------------------------|------|------|------|--------|
| MTBF             | MIL HDBK 217F, 25°C, Gnd Benign | 200  |      |      | kHours |
| Safety Standards | UL 60950, EN 60950              |      |      |      |        |
| Safety Approvals | UL, cUL; File No. E245422       |      |      |      |        |

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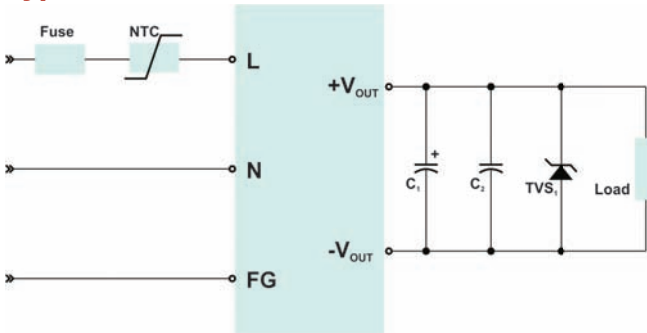
| Model Number | Input       |         | Output        |             |           | Efficiency (% Typ) |                             |
|--------------|-------------|---------|---------------|-------------|-----------|--------------------|-----------------------------|
|              | Current (A) |         | Voltage (VDC) | Current (A) |           |                    | Over Volt. Protection (VDC) |
|              | 115 VAC     | 230 VAC |               | Rated       | Load Reg. |                    |                             |
| MPM-05S-03   | 0.12        | 0.07    | 3.3           | 1.00        | ±1.0%     | 6.5                | 76                          |
| MPM-05S-05   | 0.12        | 0.07    | 5.0           | 1.00        | ±1.0%     | 6.5                | 76                          |
| MPM-05S-12   | 0.12        | 0.07    | 12.0          | 0.42        | ±1.0%     | 20.0               | 76                          |
| MPM-05S-15   | 0.12        | 0.07    | 15.0          | 0.33        | ±1.0%     | 20.0               | 76                          |
| MPM-05S-24   | 0.12        | 0.07    | 24.0          | 0.23        | ±1.0%     | 30.0               | 76                          |

Dual & Triple Output Models Are Available.  
For more information, contact the factory:  
sales@micropowerdirect.com

**Notes:**

1. Load regulation is measured for an output change of 10% to 90% at nominal input line. For multiple output models, the loads are balanced.
2. The **MPM-05** series is specified for operation over the wide operating temperature range of -20°C to +55°C without derating. For operation over +55°C, derate the power linearly by 3.75%/°C from +55°C to +70°C.
3. It is recommended that a fuse be used on the input of a power supply for protection. For the **MPM-05** series, a 1A/250 VAC slow blow should be used.

**Typical Connection**



**Typical Component Values**

| Vout | C1                 | C2                 | Fuse                 | TVS      |
|------|--------------------|--------------------|----------------------|----------|
| 3.3  | 330 ~ 1,000 µF/16V | 0.1 µF/50V Ceramic | 1A/250 VAC Slow Blow | P6KE6.8A |
| 5.0  | 330 ~ 1,000 µF/16V |                    |                      | P6KE6.8A |
| 12.0 | 220 µF/25V         |                    |                      | P6KE16A  |
| 15.0 | 220 µF/25V         |                    |                      | P6KE20A  |
| 24.0 | 120 µF/35V         |                    |                      | P6KE33A  |

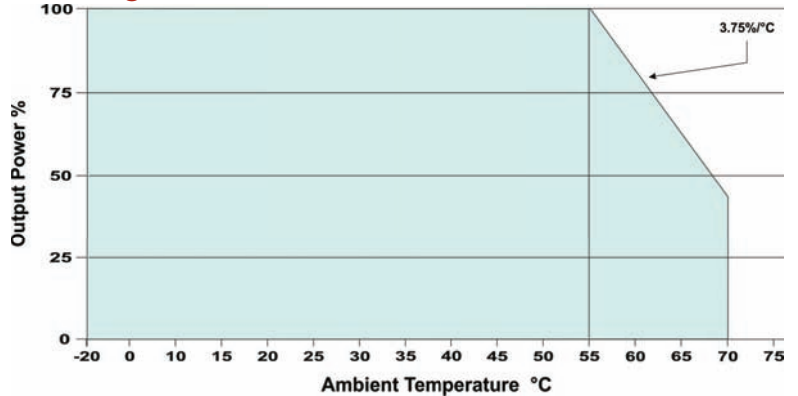
**Notes:**

1. C1 is a high frequency, low resistance electrolytic capacitor. Refer to the suppliers specifications for capacitance/current ratings.
2. Voltage derating on all capacitors should be 80% or higher.
3. C2 reduces high frequency noise.
4. The TVS is recommended to protect load circuitry in the event of a module failure.

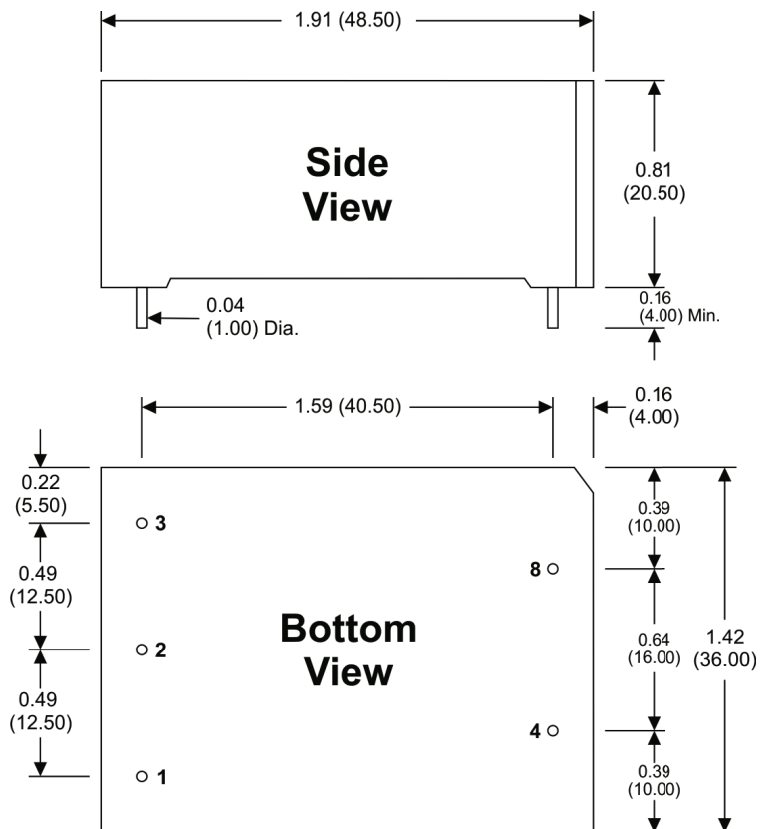
**Pin Connections**

| Pin | Function   |
|-----|------------|
| 1   | AC-Ground  |
| 2   | AC-Neutral |
| 3   | AC-Line    |
| 4   | -Vout      |
| 8   | +Vout      |

**Derating Curve**



**Mechanical Dimensions**



**Notes:**

- All dimensions are typical in inches (mm)
- Tolerance x.xx = ±0.01 (±0.25)



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