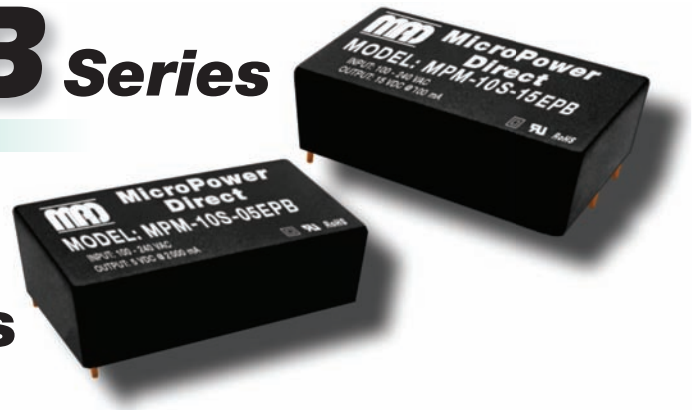


MPM-10EPB Series

Very Low Cost, 10W Compact "Power Brick" AC/DC Power Supplies



Key Features:

- 10W Output Power
- Compact 1.1 x 2.1 Inch Case
- Universal 85-264 VAC Input
- EN 60950 Approved (UL)
- Meets IEC Safety Class II
- Industry Standard Pin-Out
- Meets EN 55022 Class B
- >200 kHour MTBF
- **Low, Low Cost**



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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 | | 440 | 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 | | | | |

Output

| Parameter | Conditions | Min. | Typ. | Max. | Units |
|--------------------------|------------------------------|------|-------|------|--------|
| Output Voltage | See Model Selection Guide | | | | |
| Output Current | See Model Selection Guide | | | | |
| Output Voltage Accuracy | See Note 1 | | ±2.0 | | % |
| Line Regulation | V _{IN} = Min to Max | | ±0.5 | | % |
| Load Regulation | See Note 2 | | ±1.0 | | % |
| Ripple & Noise (20 MHz) | | | 50 | | mV P-P |
| Hold-Up Time | 230 VAC, 60 Hz | | 50 | | mSec |
| Temperature Coefficient | | | ±0.02 | | %/°C |
| Short Circuit Protection | Continuous (Autorecovery) | | | | |
| Overload Protection | | 110 | | | %W |

General

| Parameter | Conditions | Min. | Typ. | Max. | Units |
|----------------------|--|--------------------------------|------|------|-------|
| Isolation Voltage | Input to Output, Flash Tested For 60S | 4,000 | | | VAC |
| Isolation Resistance | 500 VDC | 100 | | | MΩ |
| EMI/RFI | Conducted | EN 55022 Level B | | | |
| | Electrostatic Discharge (ESD) | EN 61000-4-2 Level 4 8kV/15 kV | | | |
| EMC Compliance | RF Field Susceptibility | EN 61000-4-3 | | | |
| | Electrical Fast Transients/Bursts On Mains | EN 61000-4-4 Level 4 4 kV | | | |
| | Surge | EN 61000-4-5 Level 4 2kV/2 kV | | | |
| Switching Frequency | | | 60 | | kHz |

Environmental

| Parameter | Conditions | Min. | Typ. | Max. | Units |
|-----------------------------|--|------|------|------|-------|
| Operating Temperature Range | Ambient | -25 | +25 | +70 | °C |
| Operating Temperature Range | Case | | | +95 | °C |
| Storage Temperature Range | | -40 | | +105 | °C |
| Cooling | Free Air Convection (See Derating Curve) | | | | |
| Humidity | RH, Non-condensing | | | 95 | % |

Physical

| | | | | | |
|---------------|--|--|--|--|--|
| Case Size | 2.10 x 1.12 x 0.75 Inches (53.5 x 28.5 x 19.00 mm) | | | | |
| Case Material | Non-Conductive Black Plastic (UL94-V0) | | | | |
| Weight | 1.76 Oz (50g) | | | | |

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 | | | | |
| Safety Class | IEC 61140 Class II | | | | |

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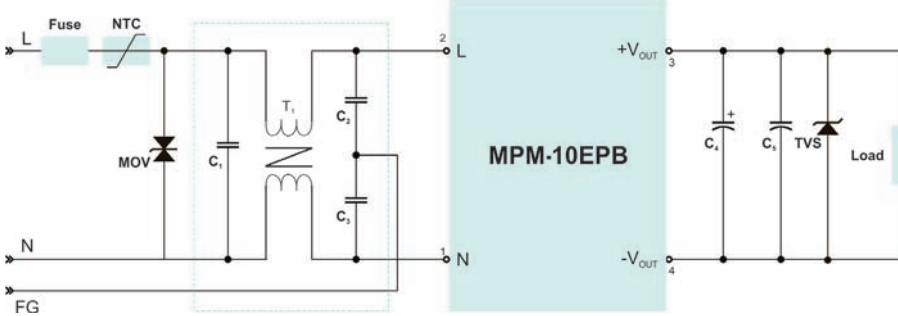
| Model Number | Input | | Output | | Efficiency (% Typ) |
|---------------|-------------|---------|---------------|------------------|--------------------|
| | Current (A) | | Voltage (VDC) | Current (A Max.) | |
| | 115 VAC | 230 VAC | | | |
| MPM-10S-03EPB | 0.230 | 0.150 | 3.3 | 2.000 | 70 |
| MPM-10S-05EPB | 0.230 | 0.150 | 5.0 | 2.000 | 74 |
| MPM-10S-09EPB | 0.230 | 0.150 | 9.0 | 1.100 | 76 |
| MPM-10S-12EPB | 0.230 | 0.150 | 12.0 | 0.900 | 76 |
| MPM-10S-15EPB | 0.230 | 0.150 | 15.0 | 0.700 | 78 |
| MPM-10S-24EPB | 0.230 | 0.150 | 24.0 | 0.450 | 80 |

Notes:

- For the 3.3V output model, Output Accuracy is $\pm 3.0\%$
- Load regulation is measured for an output change of 10% to 100% at nominal input line.
- It is recommended that a fuse be used on the input of a power supply for protection. For the **MPM-10EPB** series, a 2A/250 VAC slow blow should be used.

Typical Connection

The diagram below illustrates a typical application connection of the **MPM-10EPB** series. Notes on this circuit (starting with the input circuit) are:



- It is recommended that an external fuse and NTC be used. The recommended fuse is a 2A/250V slow blow and for the NTC, a 5D-9.
- An external MOV is required on the input to protect the unit in the event of a surge. A 471KD05 or equivalent is recommended.
- For EMI sensitive applications, the input filtering circuit (inside the dotted boxes) may be added. The filter consists of a common mode choke and x/y caps:

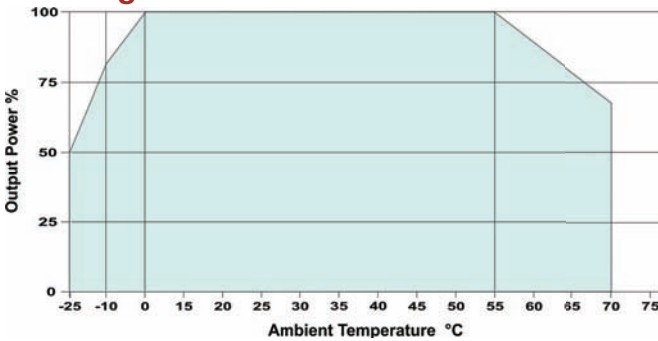
| C ₁ | C ₂ /C ₃ | T ₁ |
|------------------|--------------------------------|----------------|
| 0.1 μ F/275V | 220 pF/400V | 10 - 30 mH |

- Recommended output filtering capacitors are:

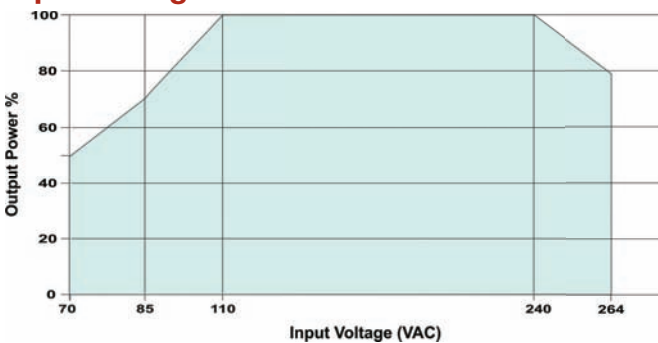
| | C ₄ | C ₅ | TVS |
|---------------|-----------------|-----------------|----------|
| MPM-10S-03EPB | 220 μ F/10V | 0.1 μ F/50V | P6KE6.8A |
| MPM-10S-05EPB | 220 μ F/10V | 0.1 μ F/50V | P6KE6.8A |
| MPM-10S-09EPB | 120 μ F/25V | 0.1 μ F/50V | P6KE12A |
| MPM-10S-12EPB | 120 μ F/25V | 0.1 μ F/50V | P6KE20A |
| MPM-10S-15EPB | 120 μ F/25V | 0.1 μ F/50V | P6KE20A |
| MPM-10S-24EPB | 68 μ F/35V | 0.1 μ F/50V | P6KE30A |

The output filtering capacitor (C₄) is a high frequency, low resistance electrolytic capacitor. Capacitor (C₅) is ceramic. Voltage derating of capacitors should be 80% or above.

Derating Curve



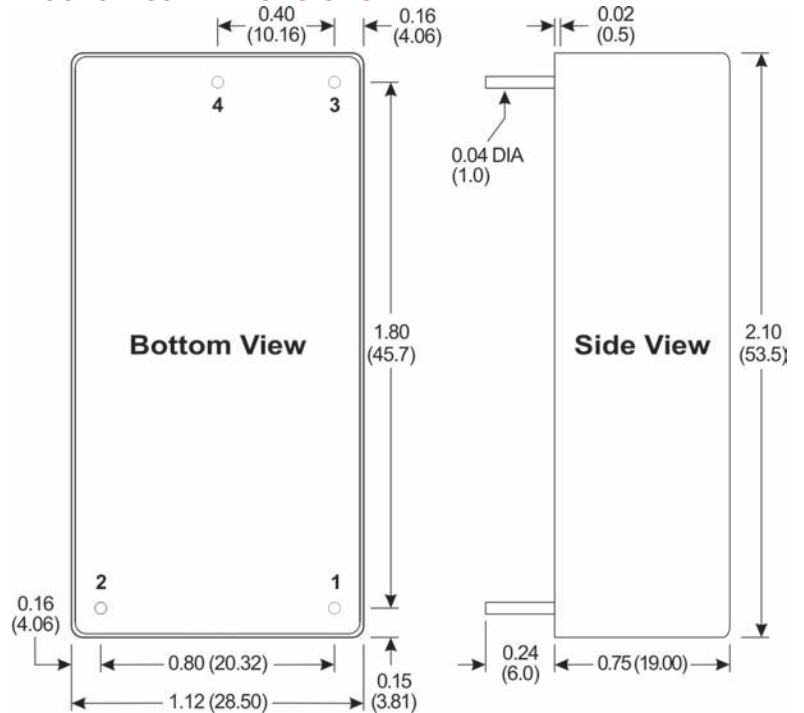
Input Voltage Vs Load



Pin Connections

| Pin | Function | Pin | Function |
|-----|------------|-----|----------|
| 1 | AC-Neutral | 3 | +Vo |
| 2 | AC-Line | 4 | -Vo |

Mechanical Dimensions



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



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