

MPM-03 Series

Single Output, 3W Ultra-Miniature DIP AC/DC Power Supplies



Key Features:

- 3W Output Power
- Universal 85-264 VAC Input
- -20°C to +85°C Operation
- Single Regulated Output
- >200 kHour MTBF
- **Ultra-Miniature DIP Case**



RoHS Compliant

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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		7.0		A Pk
	230 VAC		14.0		
EMI	Meets EN55022				
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			±1.0	±1.0	%
Line Regulation				±0.2	
Load Regulation	See Model Selection Guide				
Ripple & Noise (20 MHz)			50		mV Pk - Pk
Hold-Up Time	115 VAC		20		mSec
	230 VAC		80		
Starting Delay				≤1	S
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	2,500			VAC
	Input to Ground	2,000			
	Output to Ground	500			
Switching Frequency		40		130	kHz

Environmental

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

Physical

Case Size	1.46 x 0.90 x 0.59 Inches (37.0 x 23.0 x 15.0 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

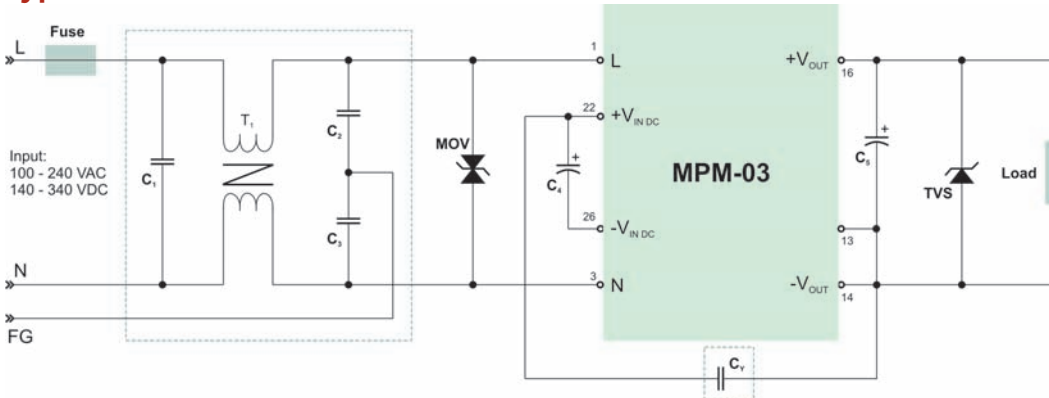
Model Selection Guide

Model Number	Input		Voltage (VDC)	Output		Ripple & Noise (mV)	Efficiency (% Typ)
	Current (A)			Current (mA)			
	115 VAC	230 VAC		Typ.	Load Reg.		
MPM-03S-03	0.08	0.05	3.3	700	±1.0%	≤150	65
MPM-03S-05	0.08	0.05	5.0	500	±1.0%	≤100	70
MPM-03S-09	0.08	0.05	9.0	300	±1.0%	≤100	71
MPM-03S-12	0.08	0.05	12.0	250	±1.0%	≤100	72
MPM-03S-15	0.08	0.05	15.0	200	±1.0%	≤100	72
MPM-03S-24	0.08	0.05	24.0	120	±1.0%	≤100	70

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. 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



The diagram above illustrates a typical application connection of the MPM-03 series. Notes on this circuit (starting with the input circuit) are:

1. To maintain clearance and creepage distances (for Class I & Class II devices) the board layout should guarantee the following spacing between the L and N inputs (before the fuse):

Clearance - 2 mm
Creepage - 2.5 mm

2. The recommended fuse is a 1A/250V slow blow. A 10Ω/2W wire wound resistor may also be used.
3. For EMI sensitive applications, the input filtering circuit (inside the dotted boxes) may be added. The filter consists of:

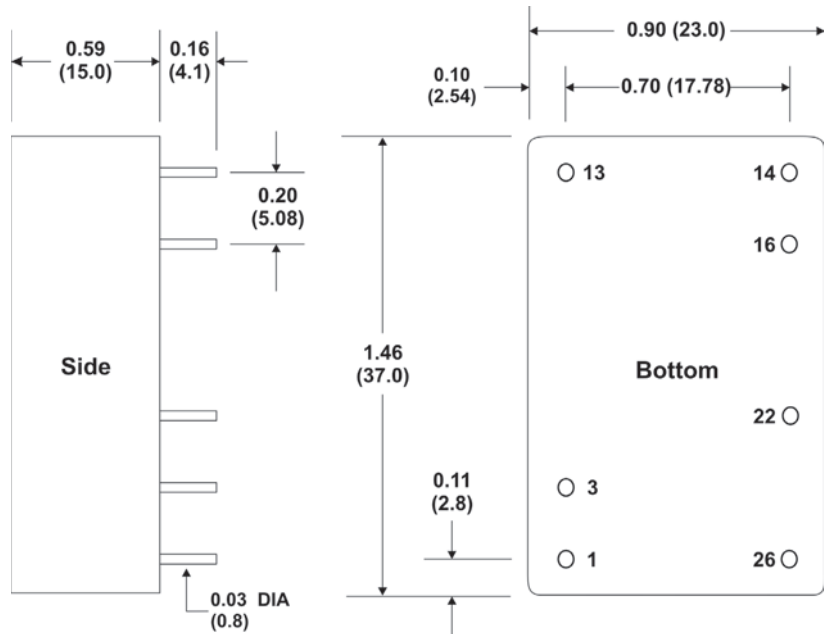
C₁: Capacitors C₁, C₂ and C₃ are 0.01 μF/275V

C₄: 102 kμF/400V

T₁: Common mode choke, UU9.8 or ring core. Inductance is about 10 mH & wire diameter of 0.22 mm.

4. The MOV is added for protection. Recommended is a 471KD07.
5. The input filtering capacitor (C₄) is an electrolytic 4.7 μF/400V. This capacitor can be removed if the application input is between 160 to 264 VAC.
6. The output filtering capacitor (C₅) is a high frequency, low resistance electrolytic capacitor.
7. The TVS is recommended to protect application circuitry in the event of a fault.

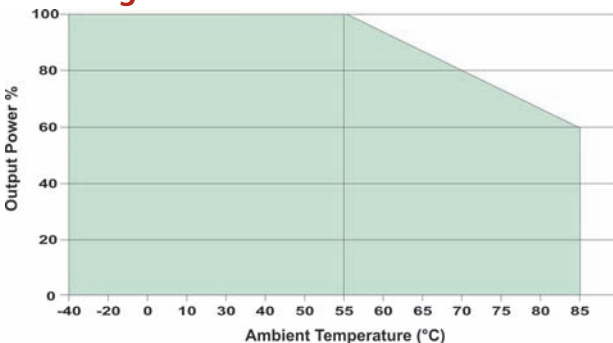
Mechanical Dimensions



Notes:

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

Derating Curve



Pin Connections

Pin	Function
1	AC-Line
3	AC-Neutral
13	NC
14	-Vout
16	+Vout
22	+Vin (DC)
26	-Vin (DC)



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