MPM-25VPB Series

Compact, PC Mount Encapsulated, 25W AC/DC Power Supplies



Key Features:

- 25W Output Power
- Universal 90-305 VAC Input
- 4 kVAC I/O Isolation
- EN 62368 Approved (UL)
- Meets IEC Safety Class II
- -40°C to +70°C Temp Range
- Meets EN 55032 B
- >400 kHour MTBF

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	VIN = Min to Max		±1.0		%
Load Regulation, See Note 1	5.1V Output		±3.0		%
	Other Outputs		±2.0		
Ripple/Noise, See Note 2	5.1V Output			120.0	mVP-P
	12V Output			150.0	
	15V Output			160.0	
	24V Output			240.0	
Hold-Up Time	230 VAC		36		mSec
Temperature Coefficient			±0.05		%/°C
Over Voltage Protection	Zener Diode Clamp				
Over Power Protection	Hiccup Mode (Autorecovery)				
Short Circuit Protection, See Note 3	Continuous (Autorecovery)				

General

Parameter	Conditions	Min.	Typ.	Max.	Units
Isolation Voltage	Input to Output	4,000			VAC
Isolation Resistance	500 VDC	100			MΩ

Environmental

Parameter	Conditions	Min.	Typ.	Max.	Units
Operating Temperature Range	Ambient	-40	+25	+70	°C
Storage Temperature Range		-40		+85	°C
Cooling	Free Air Convection (See Derating Curve)				
Humidity	RH, Non-condensing			95	%

Physical

Case Size	See Mechanical Diagram (Page 4)
Case Material	Non-Conductive Plastic Resin (UL94-V0)
Weight	See Mechanical Diagram (Page 4)

Reliability Specifications

Parameter	Conditions	Min.	Typ.	Max.	Units
MTBF	MIL HDBK 217F, 25°C, Gnd Benign	400			kHours
Safety Standards	UL/cUL 62368 recognition (UL certificate), Meets EN 60335-1				
Safety Class	IEC 61140 Class II				
Vibration	IEC 60068-2-27 10~500 Hz, 2G 10 min/1 cycle, 60 min each along X, Y, Z Axis				
Shock	IEC 60068-2-6				

MicroPower Direct

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CME CompuMess Elektronik
Power mit System

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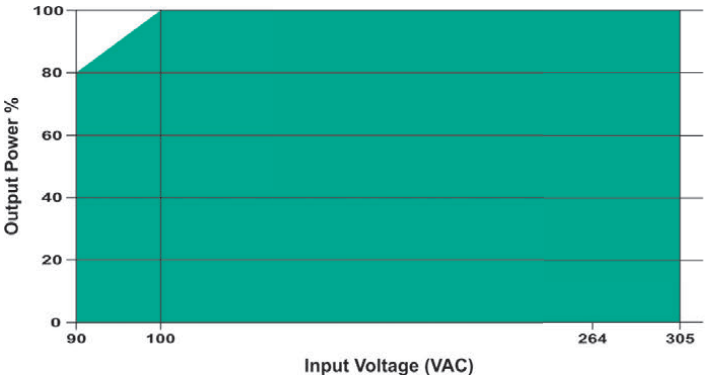
Model Selection Guide

Model Number	Input		Output			Maximum Cap. Load (μF)	Efficiency (%, Typ)
	Current (A)		Voltage (VDC)	Current (mA)			
	115 VAC	230 VAC		Max.	Min.		
MPM-25SV-05PB	0.490	0.320	5.1	3.922	0.0	2,000	84
MPM-25SV-12PB	0.490	0.320	12.0	2,083	0.0	680	88
MPM-25SV-15PB	0.490	0.320	15.0	1,666	0.0	220	88
MPM-25SV-24PB	0.490	0.320	24.0	1,042	0.0	220	87

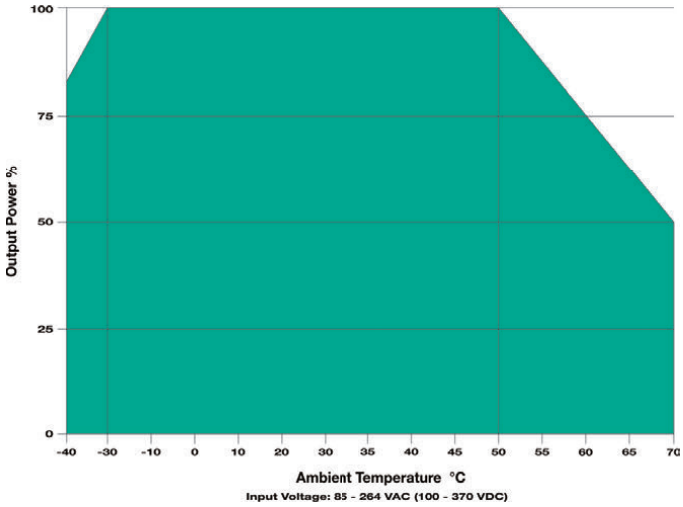
Notes:
1. Output load regulation is measured over an output load change of 5% to 100%.
2. Ripple and noise are measured at 20 Mhz bandwidth with a 0.1μF and a 47 μF capacitor connected in parallel as close to the unit output terminals as possible.
3. Output short circuit protection is provided by a "hiccup mode" circuit. The unit recovers automatically when the fault condition is removed.
4. Operation under no load conditions will not damage these units.
5. It is recommended that a fuse be used on the input of a power supply for protection. For the **MPM-25VPB** series, a 3.15A/300 VAC slow blow should be used.

For the A2 adapter board option, add the suffix "-A2" to the model number (i.e. **MPM-25SV-15PB-A2**)

Power Derating Curve, Input Voltage

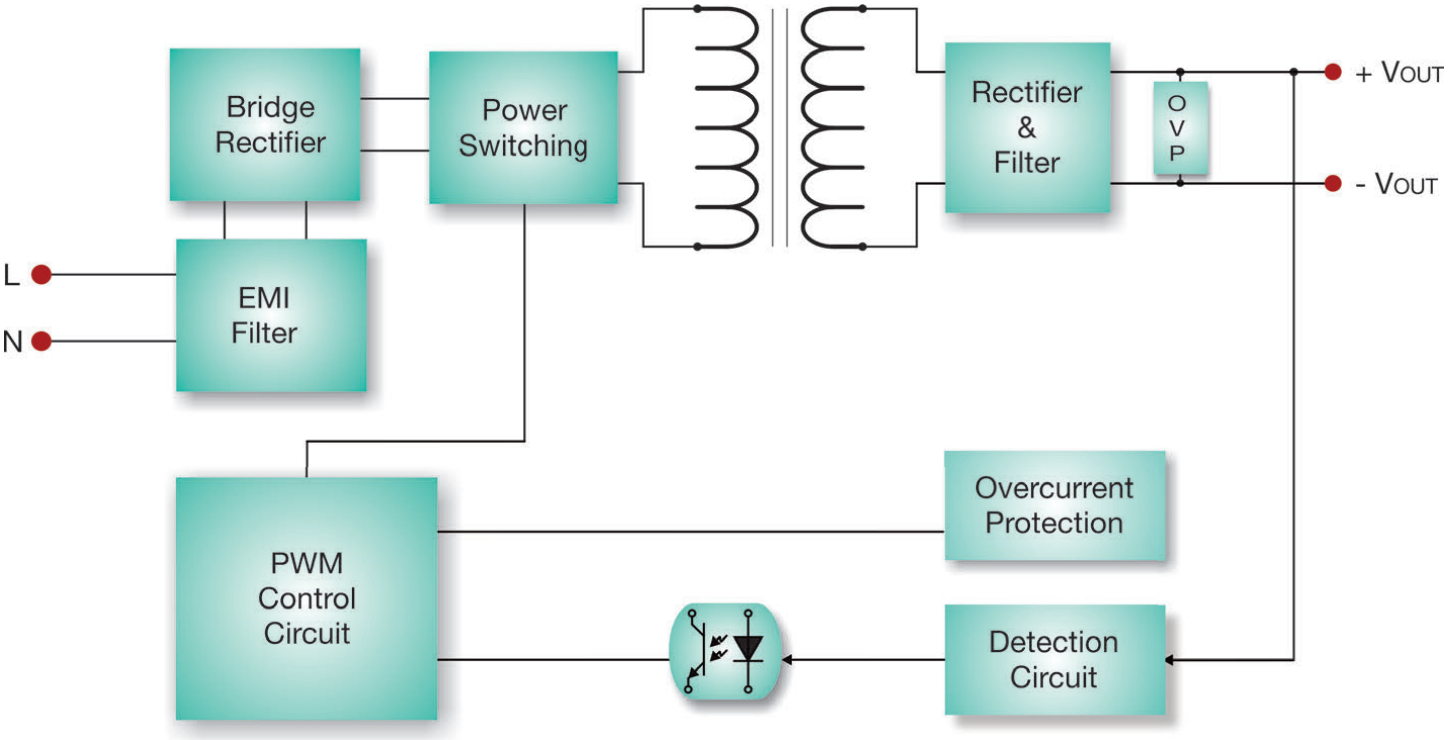


Power Derating Curve, Temperature



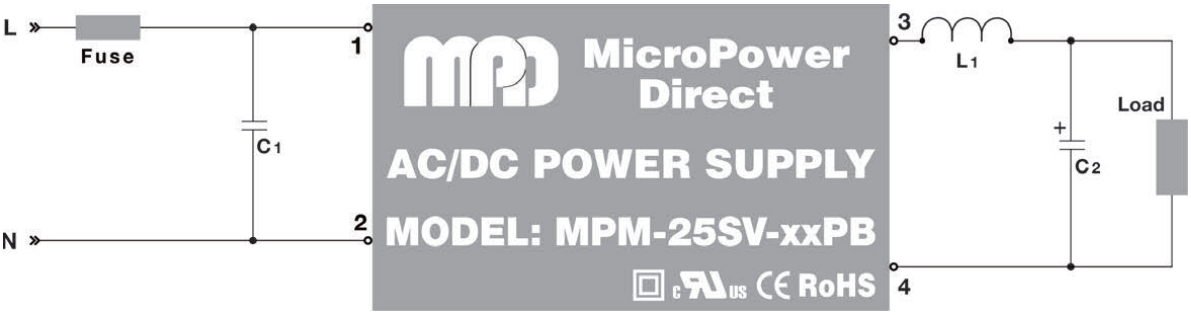
Block Diagram

The block diagram is illustrated without external components. See page three for circuit recommendations.



We Power Your Success - For Less

Simple Connection



The diagram above illustrates a simple connection of the MPM-25VPB. For applications that do not require the circuit to meet EMI/EMC specifications, the circuit illustrated above will provide excellent performance and protection. The capacitors C_1 and C_2 will reduce input/output ripple and improve the converter stability over time and temperature. It is recommended that an input fuse be used to help protect the circuit. The recommended component values are given in the table at right.

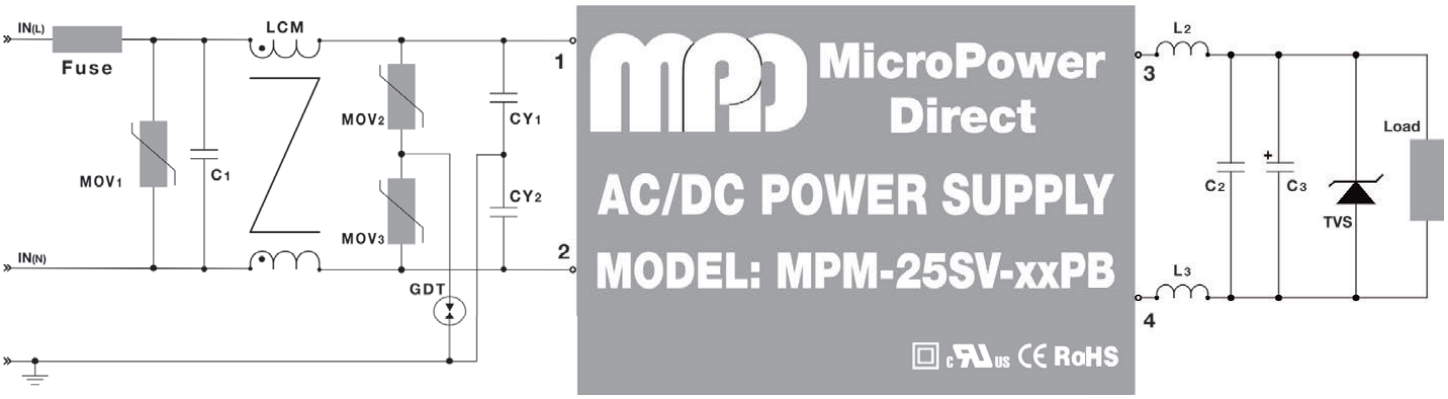
External Components	
Fuse	2.5A/300 VAC slow blow
C_1	0.1 - 0.68 μF - 300V
L_1	3.3 μH
C_2	47.0 μF

EMI Characteristics

Parameter	Standard		Criteria	Level
Radiated Emissions		EN 55032		Class B (See Typical Connection below)
Conducted Emissions		EN 55032		Class B (See Typical Connection below)
ESD		EN 61000-4-2	B	±8 kV Air
				±4 kV Contact
RS		EN 61000-4-3	A	3V/m
EFT	See Note 2	EN 61000-4-4	B	±1 kV
Surge	See Note 3	EN 61000-4-5	B	±1 kV
CS		EN 61000-4-6	A	3 Vrms
PFM		EN 61000-4-8	A	1A/m
Voltage Dips		EN 61000-4-11	B	0% - 70%

Notes:
1. If the application does not require that emmissions meet international standards see the Typiical Connection diagram above.
2. To meet the requirements of EN 61000-4-4, external components are needed. The Typical Connection diagram below shows an external input filter that would typically achieve this. Contact the factory for more information.
3. To meet the requirements of EN 61000-4-5, external components are needed. This can be done as shown in the Typical Connection diagram below. Contact the factory for more information.

Typical Connection



For applications that require meeting EMC standards, the diagram above illustrates a typical connection of the **MPM-25SVPB** series. The units do not require external components to operate as specified. Some notes on this diagram (starting with the input circuit) are:

1. An external fuse should be used in all power module applications. The recommended fuse is shown in the chart at right.
2. All input/output filtering capacitors should have a low equivalent impedance. Any output capcitors used should be high frequency, low resistance electrolytic capacitors. Care must be taken in choosing this capacitor not to exceed the capacitive load specification for the unit. Voltage derating of all capacitors should be 60% or greater.

3. Suggested component values are:

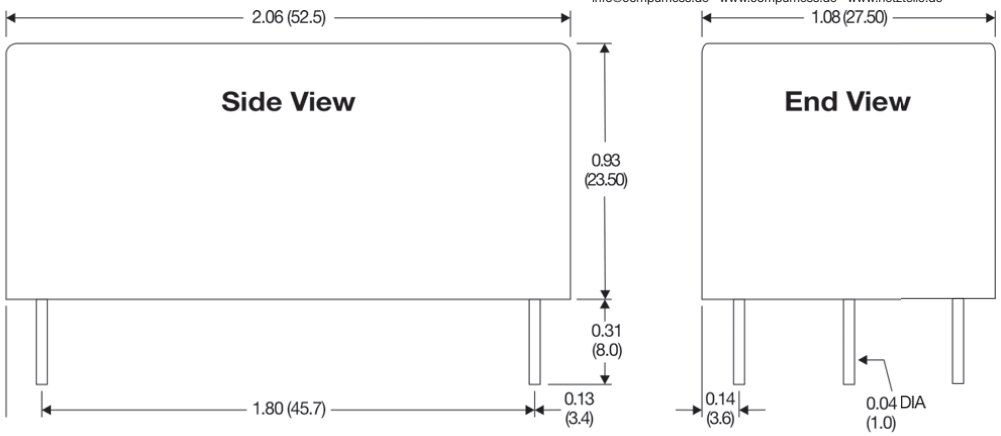
Component	Value
Fuse	3.15A/300 VAC
MOV1	14S561K
C_1	0.1 - 0.68 μF - 300V
LCM	10 - 50 mH
MOV2	14S561K
MOV3	14S561K
GDT	EM3600xS

Component	Value
CY_1	220 - 4,700 pF/400 VAC
CY_2	220 - 4,700 pF/400 VAC
L_2	3.3 - 100 μH
L_3	3.3 - 100 μH
C_2	47 μF
C_3	0.1 μF

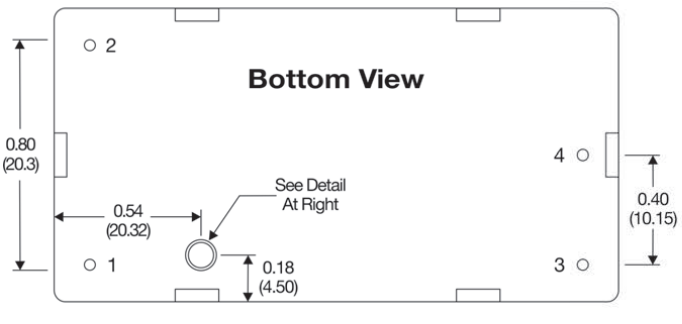
Component	Value
TVS - 5.1 V_{OUT}	SMBJ7.0A
TVS - 12 V_{OUT}	SMBJ20A
TVS - 15 V_{OUT}	SMBJ20A
TVS - 24 V_{OUT}	SMBJ30A

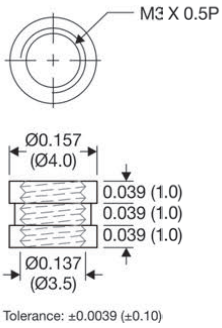
4. Input protection and filtering modules are available for a number of **MPD** AC/DC power supplies. For pricing or full technical information please contact the factory.

Mechanical Dimensions



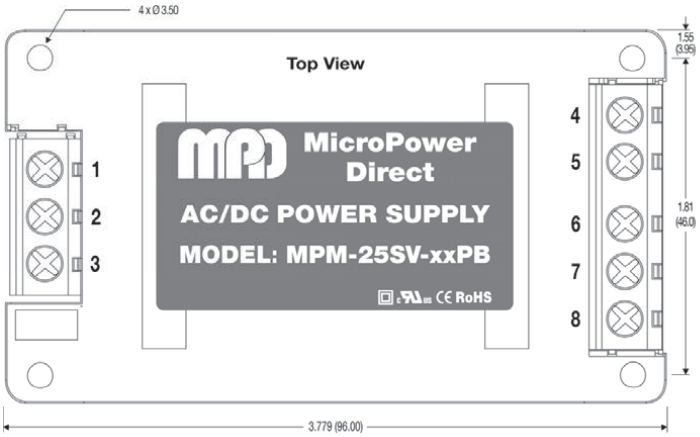
Pin	Function
1	AC-Line
2	AC-Neutral
3	+VOUT
4	-VOUT

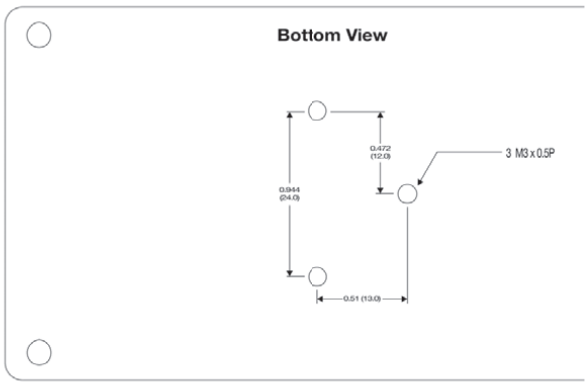


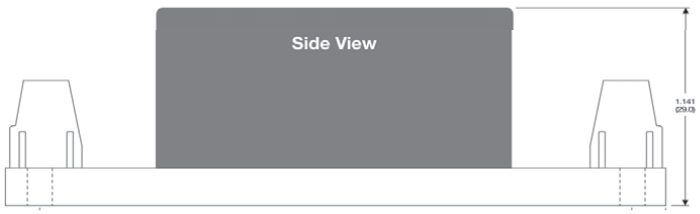


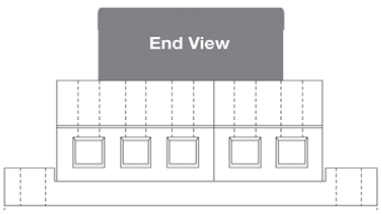
Notes:
- All dimensions are typical in inches (mm)
- Tolerance x.xx = ±0.01 (±0.25)
- Module Weight is: 1.94 Oz (55g)

Mechanical Dimensions: With A2 Adapter Board









Pin	Function
1	No Connection
2	AC-Line
3	AC-Neutral
4	No Connection
5	+VOUT
6	-VOUT
7	No Connection
8	No Connection

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