

MPM-50S Series



Compact, Encapsulated, PC Board Mount, 50W AC/DC Power Supplies

Key Features:

- 50W Output Power
- Universal 90-264 VAC Input
- Compact Module
- EN 60950 Approved (UL)
- Meets EN 55022 B
- Meets EN 55024 B
- Meets IEC Safety Class II
- -40°C to +70°C Temp Range
- High Efficiency
- >300 kHour MTBF



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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		264	VAC	
		120		370	VDC	
Input Frequency		47		63	Hz	
Input Current	See Model Selection Guide					
Inrush Current	115 VAC			40.0	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 _{IN} = Min to Max		±1.0		%	
Load Regulation	I _O = 0% to 100%		±1.0		%	
Ripple/Noise, See Note 1	5V Output			120.0	mVp-p	
	12V Output			120.0		
	15V Output			150.0		
	24V Output			240.0		
	48V Output			480.0		
Hold-Up Time	115 VAC	10			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	3,000			VAC	
	Input to FG	1,500				
	Output to FG	500				
Isolation Resistance		30			MΩ	
Isolation Capacitance		2.0			kpF	
Switching Frequency	See Note 3		65		kHz	

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 3)					
Case Material	Non-Conductive Plastic Resin (UL94-V0)					
Weight	See Mechanical Diagram (Page 3)					

Reliability Specifications						
Parameter	Conditions	Min.	Typ.	Max.	Units	
MTBF	MIL HDBK 217F, 25°C, Gnd Benign	300			kHours	
Safety Standards	UL/cUL 60950-1 recognition (UL certificate)					
Safety Class	IEC 61140 Class II					

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Model Number	Input		Output			Maximum Cap. Load (μF)	Efficiency (% Typ)	Fuse Rating Slow-Blow (A)
	Current (A)		Voltage (VDC)	Current (mA)				
	115 VAC	230 VAC		Max.	Min.			
MPM-50S-05	1.00	0.60	5.0	8,000	0.0	10,000	86	3.15
MPM-50S-12	1.00	0.60	12.0	4,167	0.0	3,500	90	3.15
MPM-50S-15	1.00	0.60	15.0	3,333	0.0	3,000	87	3.15
MPM-50S-24	1.00	0.60	24.0	2,083	0.0	2,200	88	3.15
MPM-50S-48	1.00	0.60	48.0	1,040	0.0	330	89	3.15

Notes:

- Ripple and noise are measured at 20 Mhz bandwidth with a 0.1 μF and a 47 μF capacitor connected in parallel as close to the unit output terminals as possible.
- Output short circuit protection is provided by a "hiccup mode" circuit. The unit recovers automatically when the fault condition is removed.
- Switching frequency is specified with the input at 230 VAC.
- Efficiency is specified with the input at 230 VAC.
- Operation at under no load conditions will not damage these units.
- It is recommended that a fuse be used on the input of a power supply for protection. For the **MPM-50S** series, a 3.15A/250 VAC slow blow should be used.

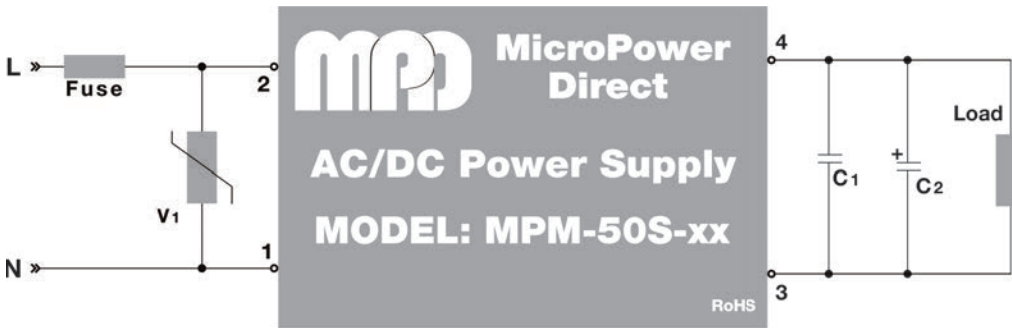
EMI Characteristics

Parameter	Standard	Criteria	Level
Radiated Emissions	EN 55022		B
Conducted Emissions	EN 55024		B
ESD	EN 61000-4-2	A	±8 kV Air
			±4 kV Contact
RS	EN 61000-4-3	A	3 V/m
EFT , See Note 3	EN 61000-4-4	A	±1 kV
Surge , See Note 3	EN 61000-4-5	A	±2 kV
CS	EN 61000-4-6	A	3 Vrms
PFMF	EN 61000-4-8	A	1 A/m
Voltage Dips	EN 61000-4-11	A	30% 500 ms

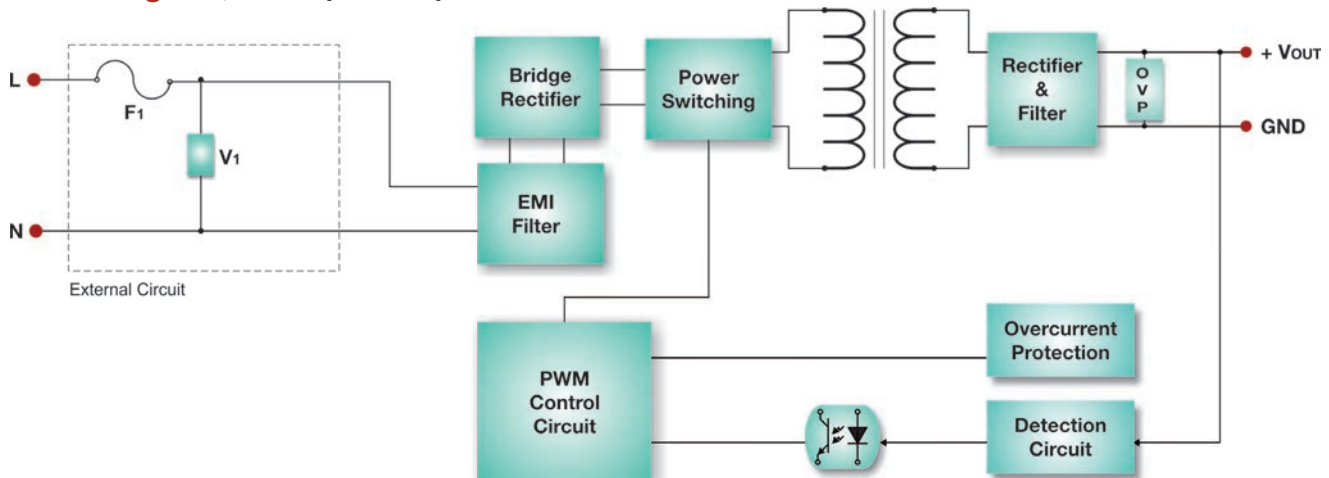
The typical connection diagram shows the external components recommended for optimum performance. The block diagram below illustrates the major internal circuits of the MPM50S power supply. Notes on the external components are:

- The external fuse (F₁) is required to protect the supply from input line current surges. A 3.15A/250 VAC slow blow should be used.
- A varistor (V₁) is connected in parallel with the input to the AC module. The varistor helps protect the power module against high voltage transients on the input line. A 14S471K is recommended. The varistor is not required to meet EN 61000-4-5, but does improve the units ability to withstand high voltage transients.
- Capacitors C₁ and C₂ are used to reduce the output ripple. C₁ is a 0.1 μF ceramic disc capacitor and C₂ is a 47 μF aluminum electrolytic capacitor. They should be mounted as close to the power supply as possible.

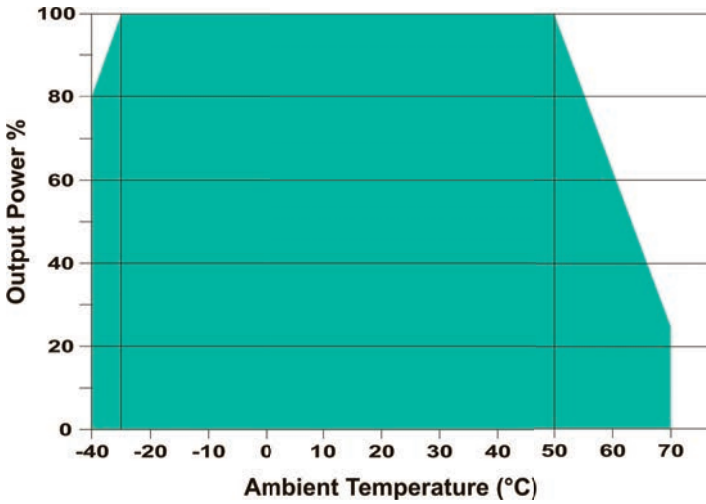
Typical Connection Diagram



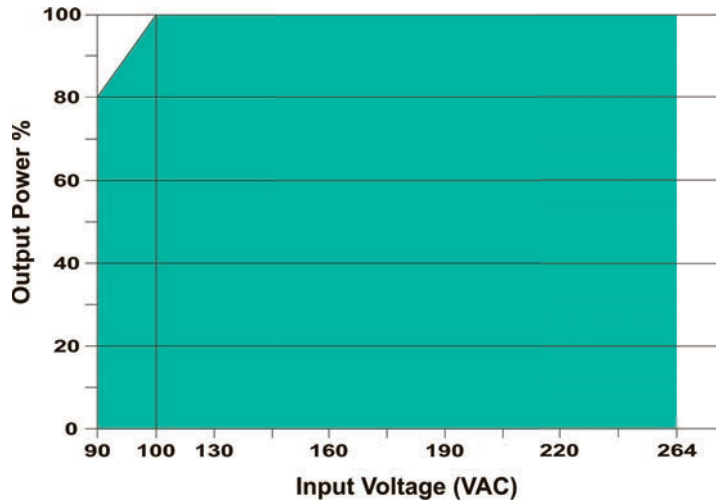
Block Diagram, With Input Components



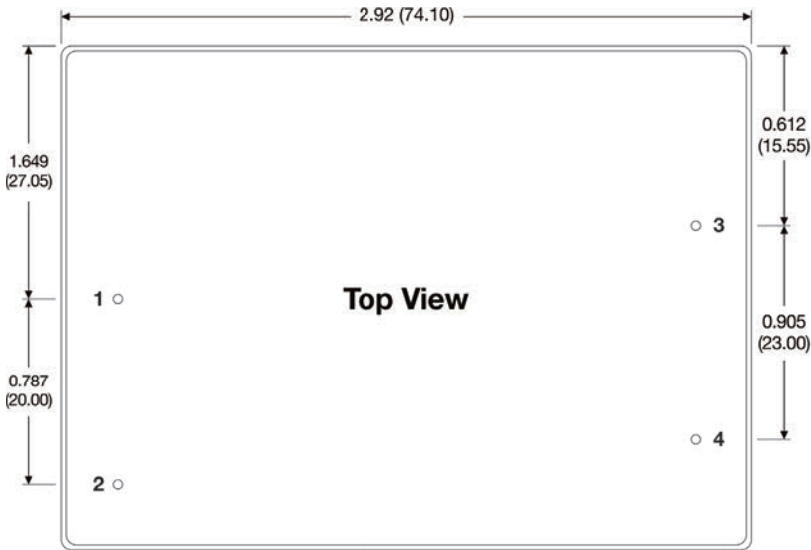
Power Derating Curve, Temperature



Power Derating Curve, Input Voltage



Mechanical Dimensions



Pin Connections

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

Notes:

- All dimensions are typical in inches (mm)
- Tolerance x.xx = ±0.01 (±0.25)
- Module Weight is: 5.86 Oz (166g)

