

# MPM-40 Series

## Board Mount, 40W Single, Dual & Triple Out AC/DC Power Supplies



### Key Features:

- 40W Output Power
- Universal 90-264 VAC Input
- EN 60950 Approved
- Meets IEC Safety Class II
- Industry Standard Pin-Out
- Single, Dual & Triple Outputs
- Meets EN55022 B
- >200 kHour MTBF

Chassis Mount Models  
& DIN Rail Mount  
Option Available!



### 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		90		264	VAC
Input Frequency		47		440	Hz
Input Current	See Model Selection Guide				
Inrush Current	115 VAC		30.0		A Pk
	230 VAC		50.0		
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, Note 1			±2.0		%
Line Regulation	V <sub>IN</sub> = Min to Max		±0.5		%
Load Regulation, Single Output	I <sub>o</sub> = 1% to 100%		±1.0		%
Load Regulation, Dual Output, Note 2	I <sub>o</sub> = 10% to 100%		±1.0		%
Load Regulation, Triple Output - Primary	I <sub>o</sub> = 10% to 100%		±3.0		%
Load Regulation, Triple Output - Aux.	I <sub>o</sub> = 10% to 100%		±7.0		%
Cross Regulation, Dual Output, Note 3	I <sub>o</sub> = 15% to 100%		±5.0		%
Cross Regulation, Triple Output - Primary	I <sub>o</sub> = 15% to 100%		±3.0		%
Cross Regulation, Triple Output - Aux.	I <sub>o</sub> = 15% to 100%		±7.0		%
Ripple & Noise (20 MHz)	3.3 VDC Output		50.0		mVp-p
	All Other Outputs		1.0		%Vp-p of V <sub>o</sub>
Hold-Up Time	115 VAC		15		mSec
Temperature Coefficient			±0.02		%/°C
Over Temperature Protection	Note 4		100		°C
Over Voltage Protection	Zener Diode Clamp		120		% of V <sub>o</sub>
Short Circuit Protection, Note 5	Continuous (Autorecovery)				
Overload Protection		105	120		% of I <sub>o</sub>

#### General

Parameter	Conditions	Min.	Typ.	Max.	Units
Isolation Voltage	Input to Output	3,000			VAC
Isolation Resistance	500 VDC	100			MΩ
EMI/RFI	Conducted	EN 55022 Level B			
	Electrostatic Discharge (ESD)	IEC/EN 61000-4-2 Level B			
	RF Field Susceptibility	IEC/EN61000-4-3			
EMC Compliance	Electrical Fast Transients/Bursts On Mains	IEC/EN 61000-4-4 Level 3 2 kV			
	Surge	IEC/EN 61000-4-5 Level 3 1kV/2 kV			
Switching Frequency			132		kHz

#### Environmental

Parameter	Conditions	Min.	Typ.	Max.	Units
Operating Temperature Range	Ambient	-40	+25	+70	°C
Operating Temperature Range	Case			+95	°C
Storage Temperature Range		-40		+100	°C
Cooling	Free Air Convection (See Derating Curve)				
Humidity	RH, Non-condensing			95	%

#### Physical

Case Size	3.50 x 2.50 x 0.98 Inches (89.0 x 63.5 x 25.0 mm)				
Case Material	Non-Conductive Plastic & Fiberglass (UL94-V0)				
Weight	9.85 Oz (280g)				

#### Reliability Specifications

Parameter	Conditions	Min.	Typ.	Max.	Units
MTBF	MIL HDBK 217F, 25°C, Gnd Benign	200		400	kHours
Safety Approvals	IEN 60950, IEC 60950				
Safety Class	IEC 61140 Class II				

[www.micropowerdirect.com](http://www.micropowerdirect.com)

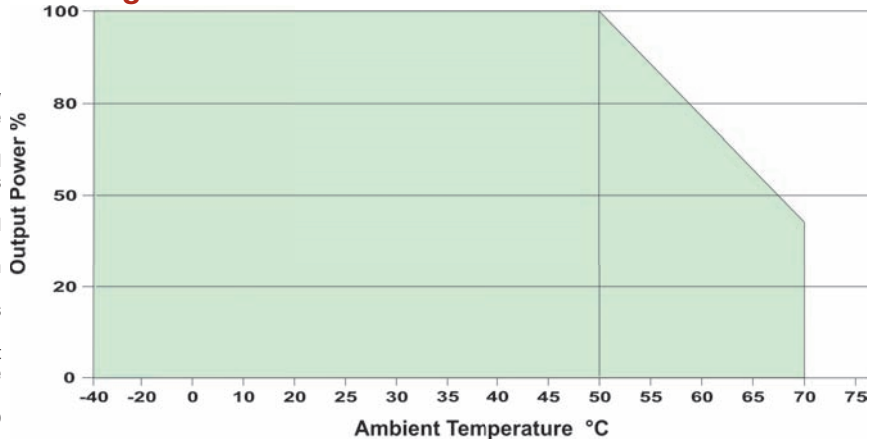
Model Number	Input		Output 1 (Vout 1)			Output 2 (Vout 2)			Output 3 (Vout 3)			Efficiency (% Typ)
	Current (A)		Voltage (VDC)	Current (A)		Voltage (VDC)	Current (A)		Voltage (VDC)	Current (A)		
	115 VAC	230 VAC		Max. (A)	Min. (%)		Max. (A)	Min. (%)		Max. (A)	Min. (%)	
MPM-40S-03	0.860	0.460	3.3	8.000	1.0							76
MPM-40S-05	0.860	0.460	5.0	8.000	1.0							80
MPM-40S-09	0.860	0.460	9.0	4.444	1.0							82
MPM-40S-12	0.860	0.460	12.0	3.333	1.0							83
MPM-40S-15	0.860	0.460	15.0	2.666	1.0							83
MPM-40S-24	0.860	0.460	24.0	1.667	1.0							83
MPM-40D-05	0.860	0.460	+5.0	+4.000	10.0	-5.0	-4.000	10.0				80
MPM-40D-12	0.860	0.460	+12.0	+1.666	10.0	-12.0	-1.666	10.0				83
MPM-40D-15	0.860	0.460	+15.0	+1.333	10.0	-15.0	-1.333	10.0				83
MPM-40D-0512	0.860	0.460	5.0	5.000	25.0	12.0	1.250	25.0				80
MPM-40D-0524	0.860	0.460	5.0	5.000	25.0	24.0	0.625	25.0				80
MPM-40T-0512	0.860	0.460	+5.0	+5.000	25.0	+12.0	+0.600	25.0	-12.0	-0.600	25.0	76
MPM-40T-0515	0.860	0.460	+5.0	+5.000	25.0	+15.0	+0.500	25.0	-15.0	-0.500	25.0	76

Other output combinations are available  
 Contact the factory for details at:  
[sales@micropowerdirect.com](mailto:sales@micropowerdirect.com)

Notes:

- For dual output models **MPM-40D-0512** and **MPM-40D-0524**, output voltage accuracy is  $\pm 3\%$  for output 1 and  $\pm 5\%$  for output 2. For triple output models, the output voltage accuracy is  $\pm 3\%$  for output 1 and  $\pm 5\%$  for output 2 & 3.
- For models **MPM-40D-05**, **MPM-40D-12** and **MPM-40D-15**, load regulation is measured with balanced loads. For the **MPM-40D-0512** and **MPM-40D-0524**, load regulation is  $\pm 2\%$  for output 1 and  $\pm 6\%$  for output 2.
- For the **MPM-40D-0512** and **MPM-40D-0524**, cross regulation is measured for a load change of 25% to 100%. It is  $\pm 1\%$  for output 1 and  $\pm 7\%$  for output 2.
- The overtemperature protection circuit will shut the unit down. The unit will restart when the operating temperature drops to approximately  $+80^{\circ}\text{C}$ .
- Output short circuit protection is provided by a "hiccup mode" circuit. The unit recovers automatically when the fault condition is removed.
- Operation at under no load conditions will not damage these units, however the output voltage may be unstable. It is recommended that the minimum load values in the table above be used.
- The maximum capacitive load for these units ranges from 23,000  $\mu\text{F}$  (**MPM-40S-03**) to 470  $\mu\text{F}$  (**MPM-40S-24**). Contact technical sales for information on specific models.
- It is recommended that a fuse be used on the input of a power supply for protection. For the **MPM-40** series, a 2A/250 VAC slow blow should be used.

Derating Curve



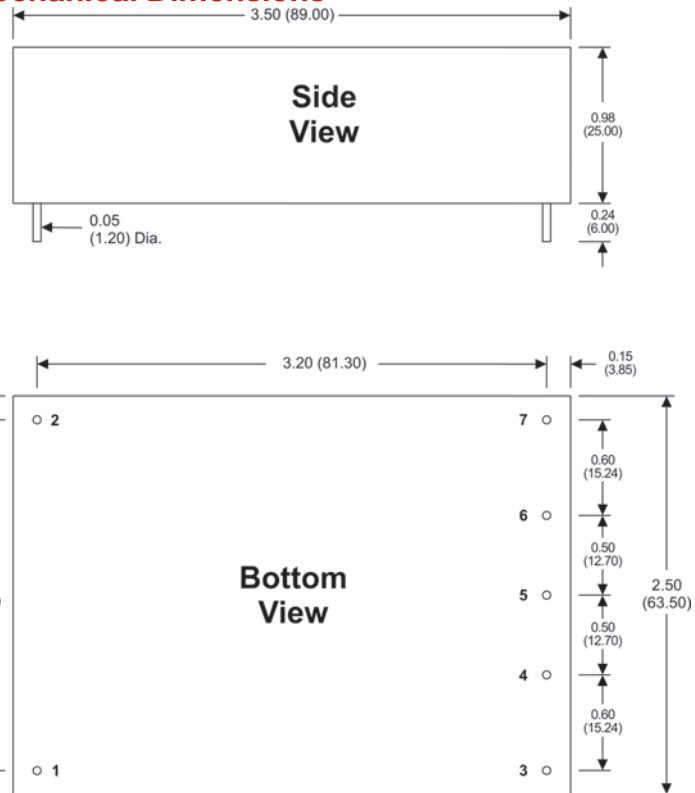
Derating Curve

MPM-40X-YY

Outputs  
 S = Single  
 D = Dual  
 T = Triple

Output Voltage Selection  
 (i.e. 05 = 5 VDC,  
 24 = 24 VDC, etc)

Mechanical Dimensions



Pin Connections

Pin	Single	Dual	Dual Separate	Triple
1			AC-Line	
2			AC-Neutral	
3	+Vo	+Vo	+Vo 2	+Vo 2
4	No Pin	No Pin	+Vo 1	+Vo 1
5	-Vo	Common	-Vo 2	Common 2/3
6	No Pin	No Pin	-Vo 1	-Vo 1
7	NC	-Vo	No Pin	-Vo 3

NC = No Connection

Dual Separate Models = **MPM-40D-0512** & **MPM-40D-0512**

Notes:

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



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