

# MPM-04E Series

## Low Cost, Board Mount 4W Single And Dual Output AC/DC Power Supplies



### Key Features:

- 4W Output Power
- Miniature Size
- EN 60950 Approved (UL)
- ErP Directive Compliant
- Universal 85-264 VAC Input
- Meets IEC Safety Class II
- Single and Dual Outputs
- Meets EN 55022 B



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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		15.0		A Pk
	230 VAC		25.0		
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 2	±1.0		±1.0	%
Line Regulation, See Note 3	V <sub>IN</sub> = Min to Max	±0.5		±1.0	%
Load Regulation, Single Output	3.3V output, I <sub>o</sub> = 0% to 100%	±1.0		±1.5	%
Load Regulation, Single Output	5V to 24V output, I <sub>o</sub> = 0% to 100%	±0.5		±1.0	%
Load Regulation, Dual Output, See Note 4	I <sub>o</sub> = 10% to 100%	±0.5		±1.0	%
Ripple/Noise (20 MHz)	Single 3.3V & 5V Outputs	100		150	mVp-p
Ripple/Noise (20 MHz)	All Other Models	0.8		1.0	%V <sub>P-P</sub> of V <sub>o</sub>
Hold-Up Time	115 VAC	20			mSec
Temperature Coefficient		±0.01		±0.02	%/°C
Over Voltage Protection	Zener Diode Clamp	120			% of V <sub>o</sub>
Short Circuit Protection, See Note 4	Continuous (Autorecovery)				
Overload Protection, See Note 5		105			% 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
EMC Compliance	EMI/RFI	Conducted			EN 55022 Level B
		Electrostatic Discharge (ESD)			EN 61000-4-2 Level B
		RF Field Susceptibility			EN 61000-4-3 Level A
		Electrical Fast Transients/Bursts On Mains			EN 61000-4-4 Level B
		Surge			EN 61000-4-5 Level B
		Conducted Disturbances			EN 61000-4-6 Level B
		Power Frequency Field Immunity			EN 61000-4-8 Level A
Switching Frequency	Voltage Dip, Interruption & Variation		130		kHz

#### Environmental

Parameter	Conditions	Min.	Typ.	Max.	Units
Operating Temperature Range	Ambient	-25	+25	+60	°C
Storage Temperature Range		-40		+85	°C
Cooling	Free Air Convection (See Derating Curve)				
Humidity	RH, Non-condensing			95	%

#### Physical

Case Size	1.44 x 1.06 x 0.67 Inches (36.5 x 27.0 x 17.1 mm)				
Case Material	Non-Conductive Plastic & Fiberglass (UL94-V0)				
Weight	0.91 Oz (26g)				

#### Reliability Specifications

Parameter	Conditions	Min.	Typ.	Max.	Units
MTBF	MIL HDBK 217F, 25°C, Gnd Benign	330			kHours
Safety Standards	EN 60950				
Safety Class	IEC 60536 Class II				
ECO Design	ErP Directive 2009/125/EC				

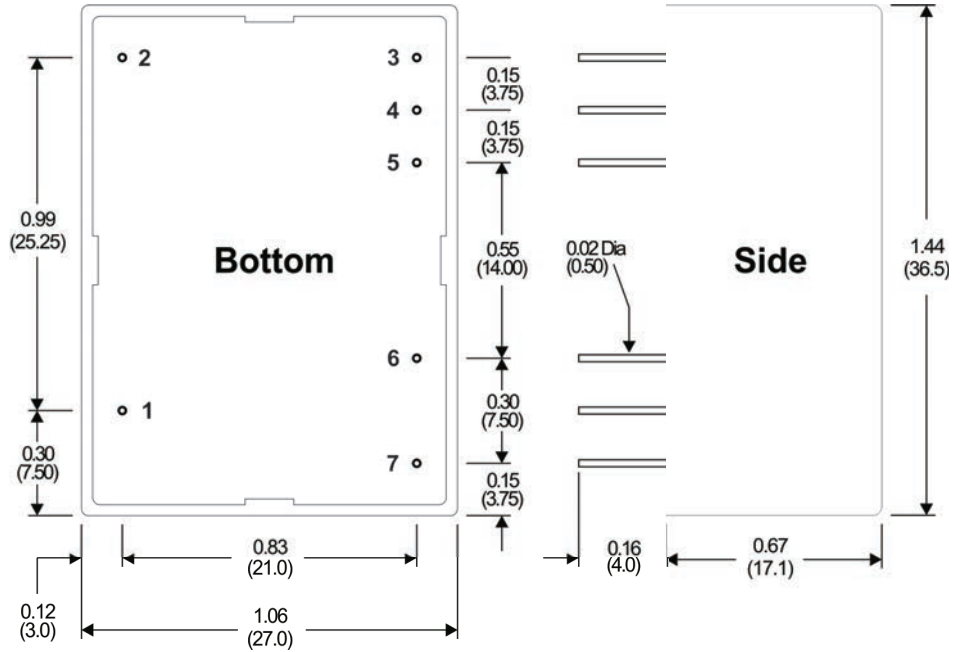
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Model Number	Input		Output 1				Output 2				Efficiency (% Typ)
	Current (A)		Voltage (VDC)	Current (mA)		Maximum Cap. Load (μF)	Voltage (VDC)	Current (mA)		Maximum Cap. Load (μF)	
	115 VAC	230 VAC		Max.	Min.			Max.	Min.		
MPM-04S-03E	0.082	0.065	3.3	1,200	0.0	14,000					70
MPM-04S-05E	0.082	0.065	5.0	800	0.0	8,000					72
MPM-04S-09E	0.077	0.065	9.0	444	0.0	2,400					75
MPM-04S-12E	0.076	0.065	12.0	333	0.0	1,000					76
MPM-04S-15E	0.076	0.065	15.0	267	0.0	700					76
MPM-04S-24E	0.076	0.065	24.0	167	0.0	220					77
MPM-04D-12E	0.076	0.065	+12.0	+166	0.0	330	-12.0	-166	0.0	330	77
MPM-04D-15E	0.076	0.065	+15.0	+133	0.0	260	-15.0	-133	0.0	260	77
MPM-04D-0503E	0.072	0.065	+5.0	+600	150.0	5,600	+3.3	+150	37.5	4,700	72
MPM-04D-1205E	0.072	0.065	+12.0	+250	62.5	330	+5.0	+120	30.0	4,700	75

Notes:

- For models, MPM-04D-0503E and MPM-04D-1205E output voltage accuracy is specified as ±2% typical and ±5% Max.
- For models, MPM-04D-0503E and MPM-04D-1205E line regulation is specified as ±0.5% typical/±1.0% Max for V01 and ±1.0% typical/±3.0% Max for V02.
- For models, MPM-04D-0503E and MPM-04D-1205E load regulation is specified as ±0.5% typical/±1.0% Max for V01 and ±2.5% typical/±5.0% Max for V02.
- Output short circuit protection is provided by a "hiccup mode" circuit. The unit recovers automatically when the fault condition is removed.
- Overload protection is provided by a foldback circuit. Extended operation under an overload condition could damage the unit.
- Operation at under no load conditions will not damage these units. It is recommended that the minimum load values in the table above be used.
- It is recommended that a fuse be used on the input of a power supply for protection. For the MPM-04E series, a 1A/250 VAC slow blow should be used.

Mechanical Dimensions

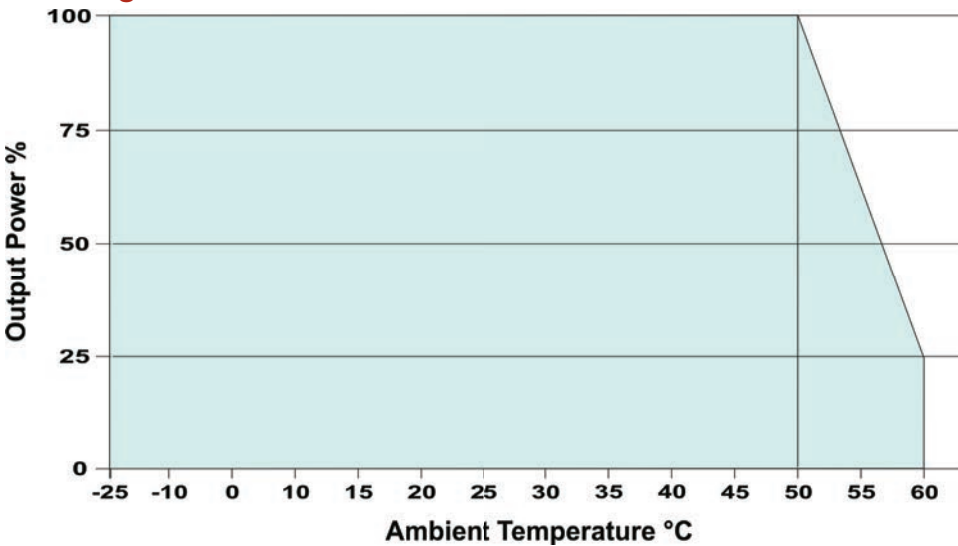


MPM-04X-YYYYE

Outputs  
S = Single  
D = Dual

Output Voltage Selection  
(i.e. 05 = 5 VDC, 1205 = 12 & 5 VDC, etc)

Derating Curve



Notes:

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

Pin Connections

Pin	Single	Dual (±)	Dual (Sep)
1		NC	
2		NC	
3	+VOUT	+VOUT	+VOUT1
4	-VOUT	Common	Common
5	NP	-VOUT	+VOUT2
6		AC-Neutral	
7		AC-Line	

NC = No Connection

NP = No Pin



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