

AC-DC Enclosed Power Supplies

50W

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**RoHS
Compliant**

Features

- Universal 85 - 305V AC or 120 - 430V DC Input voltage
- Accepts AC or DC input (dual-use of same terminal)
- Operating ambient temperature range: -30°C to +70°C
- Low standby power consumption, high efficiency
- High I/O isolation test voltage up to 4000V AC
- Low ripple & noise
- Output short circuit, over-current, over-voltage protection
- IEC/EN/UL62368, EN60335, EN61558, GB4943 safety approved
- Over-voltage class III (designed to meet EN61558)
- Operating altitude up to 5000m

MPM50-23Bxx series is an enclosed AC-DC switching power supply. It features universal AC input and at the same time accepts DC input voltage, cost-effective, low no load power consumption, high efficiency, high reliability and double or reinforced insulation. These converters offer excellent EMC performance and meet IEC/EN61000-4, CISPR32/EN55032, IEC/UL/EN62368, EN60335, EN61558, GB4943 standards and they are widely used in areas of industrial, LED, street light control, electricity, security, telecommunications, smart home etc.

Selection Guide

Part Number	Output Power (W)	Nominal Output Voltage and Current (Vo/Io)	Output Voltage Adjustable Range (V)	Efficiency at 230VAC (%) Typ.	Max. Capacitive Load (µF)
MPM50-23B05	50	5V/10A	4.5-5.5	83	8500
MPM50-23B12	50.4	12V/4.2A	10.2-13.8	86	2000
MPM50-23B15	51	15V/3.4A	13.5-18	87	1500
MPM50-23B24	52.8	24V/2.2A	21.6-28.8	88	1000
MPM50-23B48	52.8	48V/1.1A	43.2-52.8	90	220

Input Specifications

Item	Operating Conditions		Min.	Typ.	Max.	Unit	
Input Voltage Range	AC input		85		305	V AC	
	DC input		120		430	V DC	
Input Voltage Frequency			47	--	63	Hz	
Input Current	115V AC		--	--	1.2	A	
	230V AC		--	--	0.8		
Inrush Current	115V AC	Cold start	--	30	--		
	230V AC		--	60	--		
Leakage Current	277V AC		<0.75mA				
Hot Plug			Unavailable				

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Output Specifications

Item	Operating Conditions		Min.	Typ.	Max.	Unit
Output Voltage Accuracy	Full load range	5V	--	±2	--	%
		12V/15V/24V/48V	--	±1	--	
Line Regulation	Rated load		--	±0.5	--	
Load Regulation	0%-100% load	5V		±1	--	
		12V/15V/24V/48V	--	±0.5	--	
Ripple & Noise*	20MHz bandwidth (peak-peak value)	5V	--	80	--	mV
		12V/15V	--	120	--	
		24V	--	150	--	
		48V	--	240	--	
Temperature Coefficient			--	±0.03	--	%/°C
Minimum Load			0	--	--	%
Stand-by Power Consumption			--	--	0.5	W
Hold-up Time	115V AC		--	8	--	ms
	230V AC		--	30	--	
Short Circuit Protection	Recovery time < 5s after the short circuit disappear.		Hiccup, continuous, self-recovery			
Over-current Protection	230VAC, Rated load	Normal temperature, Hightemperature	110%-200% Io, self-recovery			
		Low temperature	≥110% Io, self-recovery			
Over-voltage Protection	5V		≤6.3VDC (Clamp, self-recovery)			
	12V		≤16.2VDC (Hiccup, self-recovery)			
	15V		≤21.75VDC (Hiccup, self-recovery)			
	24V		≤33.6VDC (Hiccup, self-recovery)			
	48V		≤60VDC (Hiccup, self-recovery)			
Note: *The “Tip and barrel method” is used for ripple and noise test, output parallel 47uF electrolytic capacitor and 0.1uF ceramic capacitor, please refer to Enclosed Switching Power Supply Application Notes for specific information.						

General Specifications

Item		Operating Conditions	Min.	Typ.	Max.	Unit
Isolation	Input - 	Electric strength test for 1min., leakage current <10mA	2000	--	--	V AC
	Input-output		4000	--	--	
	Output - 		1250	--	--	
Insulation Resistance	Input - 	At 500V DC	100	--	--	MΩ
	Input-output		100	--	--	
	Output - 		100	--	--	

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Item	Operating Conditions				Min.	Typ.	Max.	Unit
Operating Temperature					-30	--	+70	°C
Storage Temperature					-40	--	+85	
Operating Humidity	Non-condensing				20	--	90	%RH
Storage Humidity					--	--	95	
Switching Frequency					--	65	--	kHz
Power Derating	Operating temperature derating	85VAC-100VAC		-30°C to -25°C	6	--	--	% / °C
		5V output	85VAC-165VAC	+40°C to +70°C	2	--	--	
			165VAC-305VAC	+50°C to +70°C				
		Other output	85VAC-305VAC	+50°C to +70°C				
	Input voltage derating	85V AC-100V AC			1.33	--	--	% / V AC
		277V AC - 305V AC			0.72	--	--	
Safety Standard					Meet IEC/EN/UL62368/EN60335/EN61558/GB4943			
Safety Certification					IEC/EN/UL62368/EN60335/EN61558/ GB4943			
Safety Class					CLASS I			
MTBF	MIL-HDBK-217F@25°C				>300,000 h			

Mechanical Specifications

Case Material	Metal (AL1100, SGCC)
Dimensions	99mm × 82mm × 30mm
Weight	190g (Typ.)
Cooling Method	Free air convection

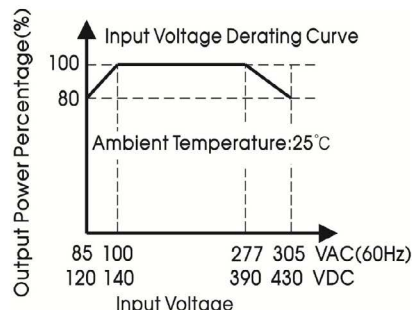
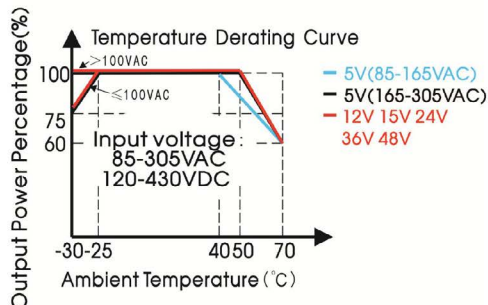
EMC Specifications

Emissions	CE	CISPR32/EN55032 CLASS B		
	RE	CISPR32/EN55032 CLASS B		
	Harmonic current	IEC/EN61000-3-2 CLASS A		
Immunity	ESD	IEC/EN 61000-4-2	Contact ±6KV/Air ±8KV	perf. Criteria A
	RS	IEC/EN 61000-4-3	10V/m	perf. Criteria A
	EFT	IEC/EN 61000-4-4	±2KV	perf. Criteria A
	Surge	IEC/EN 61000-4-5	line to line ±2KV/line to ground ±4KV	perf. Criteria A
	CS	IEC/EN61000-4-6	10 Vr.m.s	perf. Criteria A
	Voltage dips, short interruptions and voltage variations immunity	IEC/EN61000-4-11	0%, 70%	perf. Criteria B

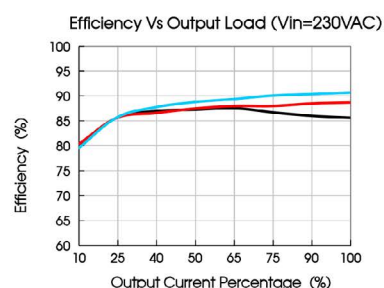
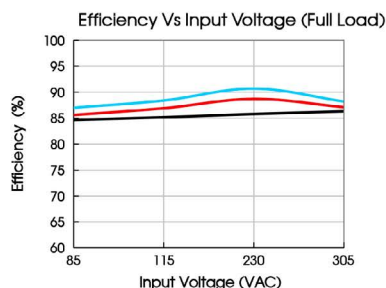
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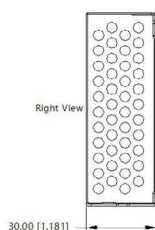
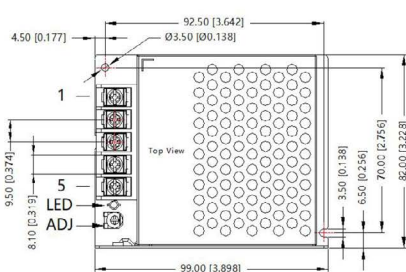
Product Characteristic Curve



Note: 1. With an AC input voltage between 85 -100VAC and a DC input between 120 -140VDC the output power must be derated as per the temperature derating curves;
2. This product is suitable for applications using natural air cooling; for applications in closed environment please consult FAE.



Dimensions and Recommended Layout

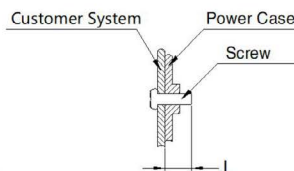


THIRD ANGLE PROJECTION

Pin-Out	
Pin	Function
1	AC(L)
2	AC(N)
3	⊕
4	-Vo
5	+Vo

①-⑧ any position must be connected to the earth (⊕)

Position	Screw Spec.	L(max)	Torque(max)
② - ③	M3	5mm	0.4N·m
⑥ - ⑦	M3	3mm	0.4N·m



Note:
Unit: mm[inch]
Wire range: 22-12AWG
Connector tightening torque: M3.5 , 0.8N·m
General tolerances: ± 1.00[± 0.039]

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Notes:

1. Unless otherwise specified, parameters in this datasheet were measured under the conditions of Ta=25°C, humidity<75% RH with nominal input voltage and rated output load;
2. The room temperature derating of 5°C/1000m is needed for operating altitude greater than 2000m;
3. All index testing methods in this datasheet are based on our company corporate standards;
4. In order to improve the efficiency at high input voltage, there will be audible noise generated, but it does not affect product performance and reliability;
5. We can provide product customization service, please contact our technicians directly for specific information;
6. Products are related to laws and regulations: see "Features" and "EMC";
7. The out case needs to be connected to the earth (⊕) of system when the terminal equipment in operating;
8. Our products shall be classified according to ISO14001 and related environmental laws and regulations, and shall be handled by qualified units.
9. The power supply is considered a component which will be installed into a final equipment. All EMC tests should be confirmed with the final equipment. Please consult our FAE for EMC test operation instructions.

Part Number Table

Description	Part Number
Enclosed Power Supply, 50W, 5V DC, 10A	MPM50-23B05
Enclosed Power Supply, 50W, 12V DC, 4.2A	MPM50-23B12
Enclosed Power Supply, 50W, 15V DC, 3.4A	MPM50-23B15
Enclosed Power Supply, 50W, 24V DC, 2.2A	MPM50-23B24
Enclosed Power Supply, 50W, 48V DC, 1.1A	MPM50-23B48

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