

AC-DC Enclosed Switching Power Supply 200W

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RoHS Compliant

Features

- Universal 85V AC to 305V AC or 120V DC to 430V DC Input voltage
- Accepts AC or DC input (dual-use of same terminal)
- Operating temperature range: -30°C to +70°C
- Built-in active PFC function
- High I/O isolation test voltage up to 4000V AC
- Output short circuit, over-current, over-voltage, over-temperature protection
- LED indicator for power on
- Emissions meets CISPR32/EN55032 CLASS B
- Start-up delay time less than 5 seconds at -30°C
- Operating altitude up to 5000m



UL62368-1 EN62368-1 GB4943.1

These series is one of enclosed AC-DC switching power supply. It features universal AC input and at the same time accepts DC input voltage, cost-effective, built-in active PFC function, high efficiency and high reliability. These converters offer excellent EMC performance and meet IEC/EN61000-4, CISPR32/EN55032, IEC/EN/UL62368, EN60335, 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)
MPMF200-23B12	200.4	12V/16.7A	11.4-12.6	88.0	4000
MPMF200-23B15	201.0	15V/13.4A	14.25-15.75	88.0	3300
MPMF200-23B24	201.6	24V/8.4A	22.8-25.2	90.0	1500
MPMF200-23B48	201.6	48V/4.2A	45.6-50.4	89.0	470

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		--	2.5	3.0	A
	230V AC		--	1.3	2.0	
Input Inrush Current	115V AC		--	35	--	A
	230V AC			65		
Power Factor	115V AC		--	0.98	--	--
	230V AC			0.95		
Leakage Current	277V AC		<2 mA			
Hot Plug			Unavailable			

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Output Specifications

Item	Operating Conditions	Min.	Typ.	Max.	Unit	
Output Voltage Accuracy	Full load range	--	±1	--	%	
Line Regulat	Rated load	--	±0.5	--		
Load Regulation	230VAC, 0% - 100% load	--	±0.5	--		
Output Ripple & Noise*	20MHz bandwidth (peak-to-peak value)	12V/15V/24V	--	150	--	mV
		48V	--	240	--	
Stand-by Power Consumption	Normal temperature, 230VAC	--	0.75	1.0	W	
Temperature Coefficient	0°C to 45°C	--	±0.03	--	%/°C	
Minimum Load		0	--	--	%	
Hold-up Time	Normal temperature, full Load	--	8	--	ms	
Short Circuit Protection	Recovery time <3s after the short circuit disappear.	Hiccup , continuous, self-recover				
Over-current Protection*		105%-200% Io, self-recover				
Over-voltage Protection	12V	≤16.2V (Output voltage turn off, re-power on for recover)				
	15V	≤21.8V (Output voltage turn off, re-power on for recover)				
	24V	≤32.4V (Output voltage turn off, re-power on for recover)				
	48V	≤60V (Output voltage turn off, re-power on for recover)				
Over-temperature Protection*	Over-temperature protection activation	--	--	85	°C	
	Over-temperature protection deactivation	55	--	--		

Note: 1.*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.
 2.*Over-current Protection: Test at rated output voltage, Io is rated output current load.
 3.*Over-temperature Protection needs to be tested under rated full load conditions.

Mechanical Specifications

Case Material	Metal (AL1100)
Dimensions	179.00mm x 99.00mm x 30.00mm
Weight	475.0g (Typ.)
Cooling Method	Free air convection

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General Specifications							
Item		Operating Conditions	Min.	Typ.	Max.	Unit	
Isolation Test	Input - \perp	Electric Strength Test for 1min., leakage current <10mA	2000	--	--	VAC	
	Input - output		4000	--	--		
	Output - \perp		500	--	--		
Insulation Resistance	Input - \perp	500V DC, 25±5°C, Humidity < 95%RH, non-condensing	100	--	--	MΩ	
	Input - output		100	--	--		
	Output - \perp		100	--	--		
Operating Temperature			-30	--	+70	°C	
Storage Temperature			-40	--	+85		
Operating Humidity		Non-condensing	20	--	90	%RH	
Storage Humidity			10	--	95		
Switching Frequency			--	--	--	kHz	
Power Derating	Operating temperature derating		+45°C to +70°C	2.0	--	--	%/°C
	Input voltage derating	85VAC -100VAC@50Hz		2.0	--	--	%VAC
		85VAC -100VAC@60Hz		1.67	--	--	
		120VDC - 140VDC		1.25	--	--	
Safety Standard		12V/15V/24V/48V	UL62368-1, GB4943.1 safety approved & EN62368-1 (Report) Design refer to IEC/EN/UL62368-1, EN60335-1, GB4943.1				
Safety Class			CLASS I				
MTBF		MIL-HDBK-217F@25°C	>250,000 h				

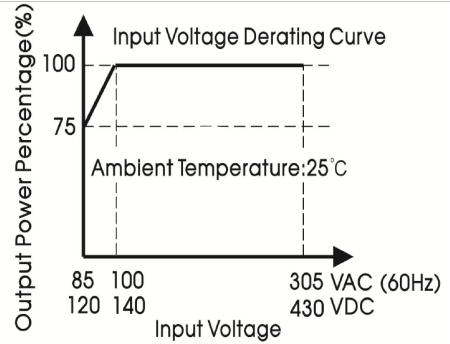
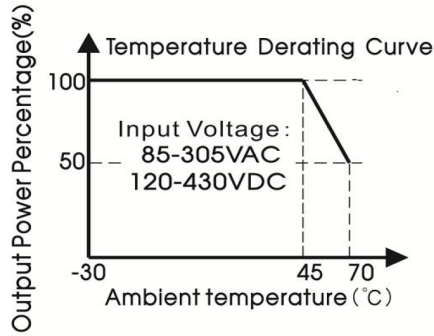
EMC Specifications

Emissions	CE	CISPR32/EN55032 CLASS B				
	RE	CISPR32/EN55032 CLASS B				
	Harmonic current	IEC/EN61000-3-2 CLASS A and CLASS D				
	Voltage flicker	IEC/EN61000-3-3				
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	±4KV	perf. Criteria A		
	Surge	IEC/EN 61000-4-5	±2KV/±4KV	perf. Criteria A		
	CS	IEC/EN61000-4-6	10 Vr.m.s	perf. Criteria A		
	DIP (AC input)	IEC/EN61000-4-11	0%, 70%	perf. Criteria B		
Note: 1.* One magnetic bead(nickel-zinc ferrite)should be coupled with the output load line during CE/RE testing; 2.* The power supply is considered a component as part of system, all EMC items are tested on a metal plate (L x W x H, 450mm x 450mm x 3mm). Power supply should be combined with final equipment for EMC confirmation.						

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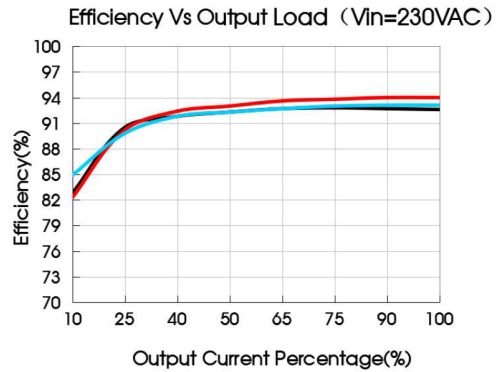
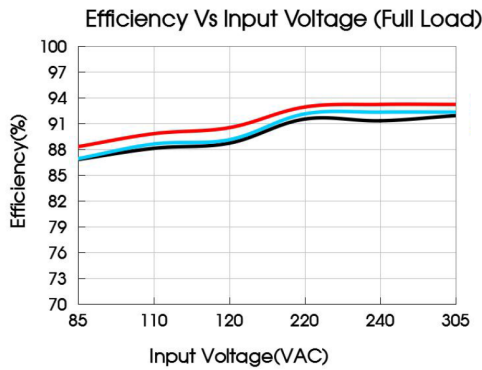
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Product Characteristic Curve



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;

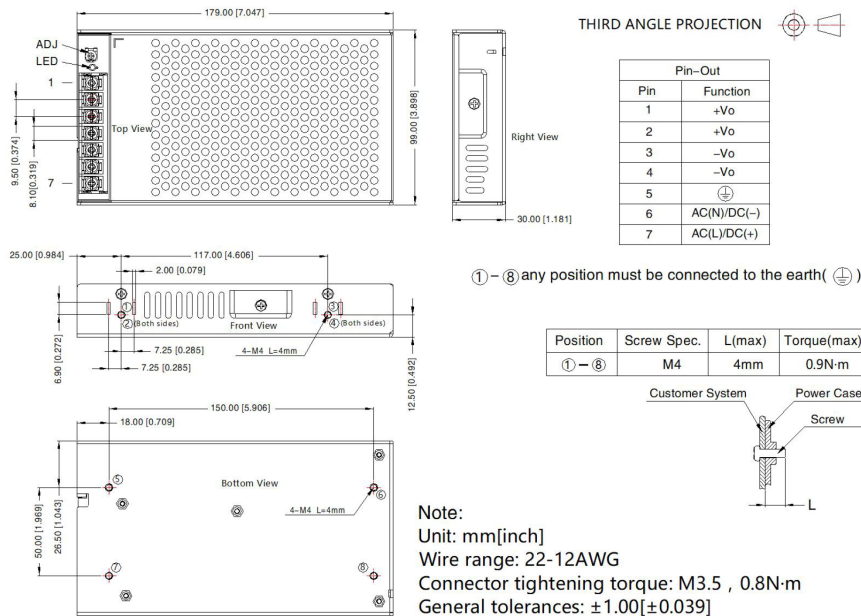
2. This product is suitable for applications using natural air cooling; for applications in closed environment please consult Mornsun FAE.



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Dimensions and Recommended Layout



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 ambient 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
AC/DC Enclosed Switching Power Supply, 200W, 12V, 16.7A	MPMF200-23B12
AC/DC Enclosed Switching Power Supply, 200W, 15V, 13.4A	MPMF200-23B15
AC/DC Enclosed Switching Power Supply, 200W, 24V, 8.4A	MPMF200-23B24
AC/DC Enclosed Switching Power Supply, 200W, 48V, 4.2A	MPMF200-23B48

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