

AC-DC Enclosed Switching Power Supply 320W

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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
- Built-in DC fan
- Emissions meets CISPR32/EN55032 CLASS B



UL62368-1 EN62368-1 GB4943.1

These series are 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, IEC62368, UL62368, EN62368, GB4943, EN60335 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)
MPMF320-23B05	300	5V/60A	4.5 - 5.5	84	5000
MPMF320-23B12	320.4	12V/26.7A	10 - 13.2	86.5	5000
MPMF320-23B15	321	15V/21.4A	13.5 - 18	89	5000
MPMF320-23B24	321.6	24V/13.4A	20 - 26.4	88.5	5000
MPMF320-23B48	321.6	48V/6.7A	41 - 56	89	5000

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		--	4	4.2	A
	230V AC		--	2	2.1	
Input Inrush Current	115V AC		Cold start	--	35	--
	230V AC			--	65	
Power Factor	115V AC		At full Load	--	0.98	--
	230V AC			--	0.95	
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	5V	--	±0.5	--	
		12V/15V	--	±0.3	--	
		24V/48V	--	±0.2	--	
Load Regulation	0% - 100% load	5V	--	±1	--	
		12V/15V/24V/48V	--	±0.5	--	
Output Ripple & Noise*	20MHz bandwidth (peak-to-peak value)	5V/12V/15V/24V	--	60	150	mV
		48V	--	60	200	
Temperature Coefficient			--	±0.03	--	%/°C
Minimum Load*			0	--	--	%
Hold-up Time	115VAC/230VAC		--	12	--	ms
Short Circuit Protection	Recovery time <5s after the short circuit disappear.		Hiccup , continuous, self-recover			
Over-current Protection*			105% - 150% Io, hiccup, self-recover			
Over-voltage Protection	5V		≤7V (Hiccup, self-recover)			
	12V		≤16.2V (Hiccup, self-recover)			
	15V		≤21.8V (Hiccup, self-recover)			
	24V		≤32.4V (Hiccup, self-recover)			
	48V		≤60.0V (Hiccup, self-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. *Minimum load: When the product is working at a temperature above 50°C, the minimum load is 5% of the rated load, so that the fan could work at high temperature to reduce the temperature rise of the product. 3.*Over-current Protection: Test at rated output voltage, Io is rated output current load. 4.*Over-temperature Protection needs to be tested under rated full load conditions.						

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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	
Storage Humidity		Non-condensing	10	--	95	%RH
Operating Humidity			20	--	90	
Switching Frequency			--	--	--	kHz
Power Derating	Operating temperature derating	+50°C to +70°C	2.0	--	--	%/°C
	Input voltage derating	85VAC -100VAC@50Hz	2.0	--	--	%VAC
		85VAC -100VAC@60Hz	1.33	--	--	
		120VDC - 140VDC	1.25	--	--	
Safety Standard	5V/15V/24V/48V		IEC/UL62368-1, GB4943.1 safety approved & EN62368-1 (Report) Design refer to IEC/EN/UL62368-1, GB4943.1, IEC60950-1, EN60335-1			
	12V		IEC/UL62368-1, GB4943.1, IEC60950-1 safety approved & EN62368-1 (Report) Design refer to IEC/EN/UL62368-1, GB4943.1, IEC60950-1, EN60335-1			
	4V		Design refer to IEC/EN/UL62368-1, GB4943.1, IEC60950-1, EN60335-1			
Safety Class			CLASS I			
MTBF		MIL-HDBK-217F@25°C	>250,000 h			

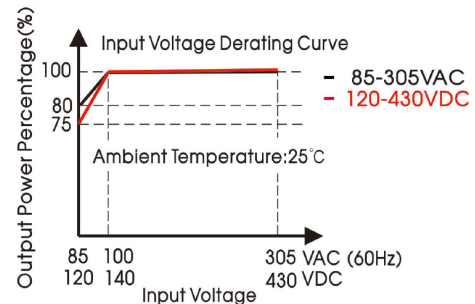
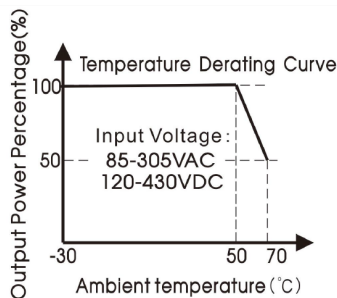
Mechanical Specifications	
Case Material	Metal (AL1100, SGCC)
Dimensions	215.00mm x 115.00mm x 30.00mm
Weight	750g (Typ.)
Cooling Method	Forced air cooling

Electromagnetic Compatibility (EMC)

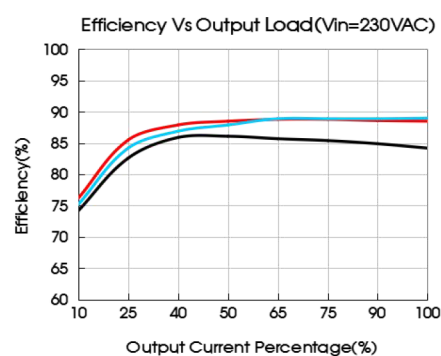
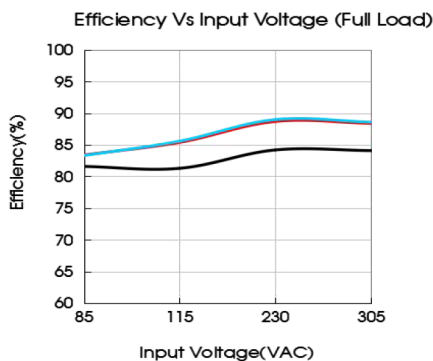
Emissions	CE	CISPR32/EN55032	CLASS B	
	RE	CISPR32/EN55032	CLASS B	
	Harmonic current	IEC/EN61000-3-2	CLASS A and CLASS D	
	Voltage flicker	IEC/EN61000-3-3		
Immunity	ESD	IEC/EN 61000-4-2	Contact $\pm 6KV$ /Air $\pm 8KV$	perf. Criteria A
	RS	IEC/EN 61000-4-3	10V/m	perf. Criteria A
	EFT	IEC/EN 61000-4-4	$\pm 2KV$	perf. Criteria A
	Surge	IEC/EN 61000-4-5	$\pm 1KV/\pm 2KV$	perf. Criteria A
	CS	IEC/EN61000-4-6	10 Vr.m.s	perf. Criteria A
	DIP	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.

Product Characteristic Curve



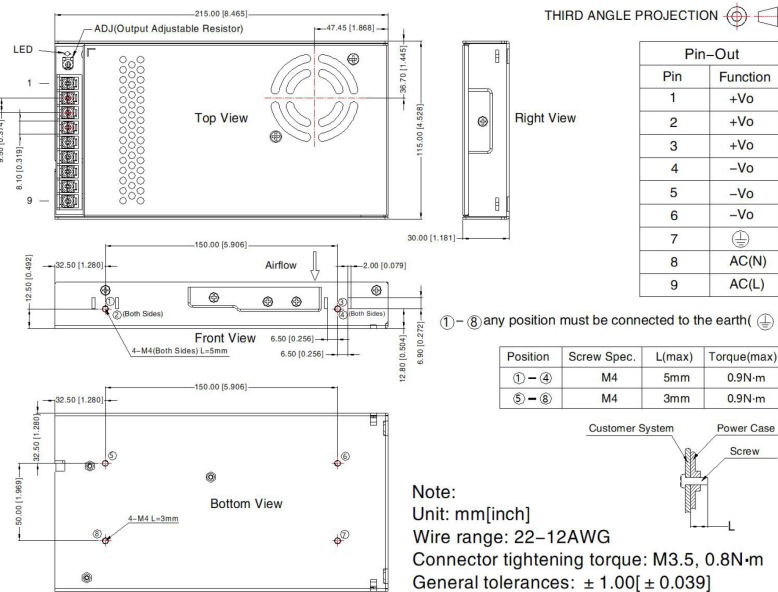
- Note: 1. With an AC input voltage between 85-100VAC and a DC input between 120-140VDC the output power must be derated as per the temperature derating curves;
 2. This product is suitable for applications using forced air cooling; for applications in closed environment please consult Mornsun FAE.



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Dimensions and Recommended Layout



Notes:

1. Unless otherwise specified, parameters in this datasheet were measured under the conditions of $T_a=25^{\circ}\text{C}$, humidity < 75% RH with nominal input voltage and rated output load;
2. The ambient temperature derating of $5^{\circ}\text{C}/1000\text{m}$ 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. The output voltage can be adjusted by the ADJ, clockwise to decrease;
9. Our products shall be classified according to ISO14001 and related environmental laws and regulations, and shall be handled by qualified units;
10. The power supply is considered a component which will be installed into a terminal 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, 320W, 5V, 60A	MPMF320-23B05
AC/DC Enclosed Switching Power Supply, 320W, 12V, 26.7A	MPMF320-23B12
AC/DC Enclosed Switching Power Supply, 320W, 15V, 21.4A	MPMF320-23B15
AC/DC Enclosed Switching Power Supply, 320W, 24V, 13.4A	MPMF320-23B24
AC/DC Enclosed Switching Power Supply, 320W, 48V, 6.7A	MPMF320-23B48

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