



CE Report
EN62368-1

UK
CA Report
BS EN 62368-1

RoHS



FEATURES

- Wide input voltage range: 176 - 418VAC/240 - 590VDC
- Accepts AC or DC input (dual-use of same terminal)
- Operating ambient temperature range: -40°C to +70°C
- High efficiency, low ripple & noise
- High I/O isolation test voltage up to 4000VAC
- Output short circuit, over-current, over-voltage, over-temperature protection
- Conformal coating on both sides of the substrate
- Operating altitude up to 5000m
- Meets pollution degree 3
- 3 years warranty

LM450-25Bxx series is one of Mornsun's 450W single output enclosed switching power supplies for customers. It features wide AC input and at the same time accepts DC input voltage, cost-effective, high efficiency, high reliability and double or reinforced isolation. The converter offer excellent EMC performance and meet UL/IEC/EN/BS EN62368-1, EN60335-1, EN61558-1, EN62477-1, BIS, GB4943.1 standards and it is widely used in areas of industrial control.

Selection Guide

Certification	Part No.	Cooling Method	Output Power (W)	Nominal Output Voltage and Current (Vo/Io)	Output Voltage Adjustable Range (V)	Efficiency at 230VAC (%) Typ.	Max. Capacitive Load (uF)
EN/BS EN	LM450-25B24	Forced air cooling	451.2	24V/18.8A	22.8-26.4	88	8000
	LM450-25B48		451.2	48V/9.4A	45.6-52.8	89	4000

Note:

1. Under any conditions, the total power of the product should not exceed the rated power. When the output voltage is increased, the total output power cannot exceed the rated output power, when the output voltage is decreased, the output current cannot exceed the rated output current.
2. If the terminal cover is required, please order "PJA-049" for self-installation.
3. The product picture is for reference only. For details, please refer to the actual product.

Input Specifications

Item	Operating Conditions	Min.	Typ.	Max.	Unit
Input Voltage Range	Rated input (Certified voltage)	200	--	240	VAC
	AC input	176	--	418	
	DC input	240	--	590	VDC
Input Voltage Frequency		47	--	63	Hz
Input Current	230VAC	--	--	5	A
Inrush Current	230VAC Cold start	--	60	--	
Start-up Delay Time	230VAC	--	1.5	--	s
Input Fuse	Built-in fuse	--	8	--	A
Hot Plug		Unavailable			

Output Specifications

Item	Operating Conditions	Min.	Typ.	Max.	Unit
Output Voltage Accuracy	Full load range	--	±1	--	%
Line Regulation	Rated load	--	±0.5	--	
Load Regulation	0% - 100% load	--	±0.5	--	
Minimum Load		0	--	--	
Stand-by Power Consumption	230VAC	--	--	10	W
Ripple & Noise*	20MHz bandwidth (peak-peak value)	24V	--	240	mV
		48V	--	360	
Temperature Coefficient		--	±0.03	--	%/°C

Hold-up Time	230VAC	--	16	--	ms
Short Circuit Protection		Hiccup, continuous, self-recover			
Over-current Protection	230VAC	≥ 120%Io, hiccup, self-recover			
Over-voltage Protection	24V output	28.8V-32.4V (Hiccup, self-recover)			
	48V output	57.6V-64.8V (Hiccup, self-recover)			
Over-temperature Protection		Hiccup, self-recover			

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 <5mA	2000	--	--	VAC
	Input - output		4000	--	--	
	Output - ⊕		500	--	--	
Insulation Resistance	Input - ⊕	Ambient temperature: 25 ± 5°C Relative humidity: < 95%RH, no condensation Test voltage: 500VDC	100	--	--	MΩ
	Input - output		100	--	--	
	Output - ⊕		100	--	--	
Touch Leakage Current	240VAC, 60Hz		--	--	0.75	mA
Operating Temperature			-40	--	+70	°C
Storage Temperature	Non-condensing		-40	--	+85	
Operating Humidity	Non-condensing		20	--	90	%RH
Storage Humidity	Non-condensing		10	--	95	
Power Derating	Operating temperature derating	-40°C to -20°C	3	--	--	% / °C
		+50°C to +70°C	2	--	--	
	Input voltage derating	176VAC - 200VAC	0.83	--	--	% / VAC
		305VAC - 418VAC	0.265	--	--	
Safety Standard			EN/BS EN62368-1(report) safety approved ; Design refer to UL/IEC62368-1, IEC60950-1, EN60335-1, EN61558-1, EN62477-1, IS13252 (Part1), GB4943.1			
Safety Class			CLASS I			
MTBF	MIL-HDBK-217F@25°C		≥300,000 h			
Warranty	Ambient temperature: <70°C		3 years			

General Specifications

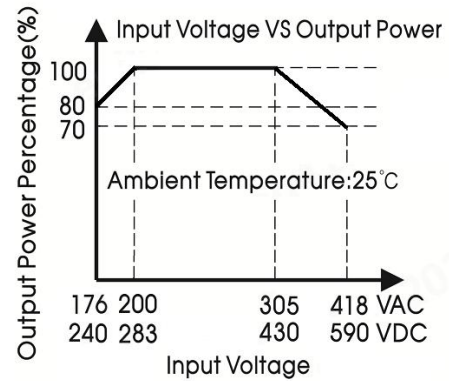
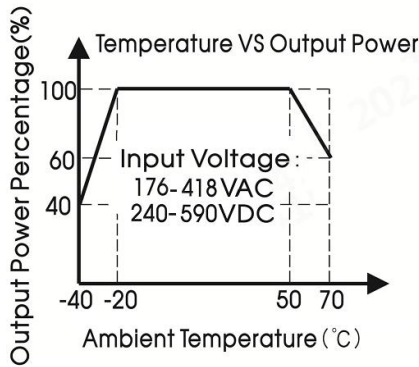
Case Material	Metal (AL5052, SGCC)
Dimensions	225.00mm x 124.00mm x 41.00mm
Weight	910g (Typ.)
Cooling Method	Forced air cooling

Electromagnetic Compatibility (EMC)

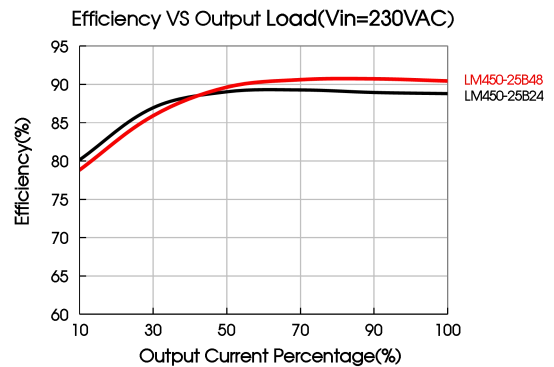
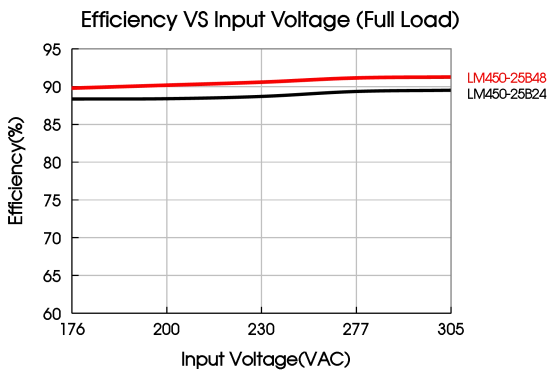
Emissions	CE (Input port)*	CISPR32 EN55032 150K - 30MHz	CLASS A
	RE	CISPR32 EN55032 30MHz - 1GHz	CLASS A
Immunity	ESD	IEC/EN61000-4-2 Contact ±6KV/Air ±8KV	perf. Criteria A
	RS	IEC/EN61000-4-3 10V/m	perf. Criteria A
	EFT (Input port)	IEC/EN61000-4-4 ±4KV	perf. Criteria A
	EFT (Output port)	IEC/EN61000-4-4 ±2KV	perf. Criteria A
	Surge (Input port)	IEC/EN61000-4-5 line to line ±2KV/line to PE ±4KV	perf. Criteria A
	Surge (Output port)	IEC/EN61000-4-5 line to line ±0.5KV/line to PE ±1KV	perf. Criteria A

CS	IEC/EN61000-4-8	30A/m	perf. Criteria A
MS	IEC/EN61000-4-6	0.15 - 80MHz 10Vr.m.s	perf. Criteria A
Voltage variation	IEC61000-6-2/IEC61000-4-11	70% Un, 25/30 cycle(50/60Hz) 40% Un, 10/12 cycle(50/60Hz) 0% Un, 1 cycle (Un is the maximum input nominal voltage)	perf. Criteria B
Voltage interruption	IEC61000-6-2/IEC61000-4-11	0% Un, 250/300 cycle(50/60Hz) (Un is the maximum input nominal voltage)	perf. Criteria C

Product Characteristic Curve

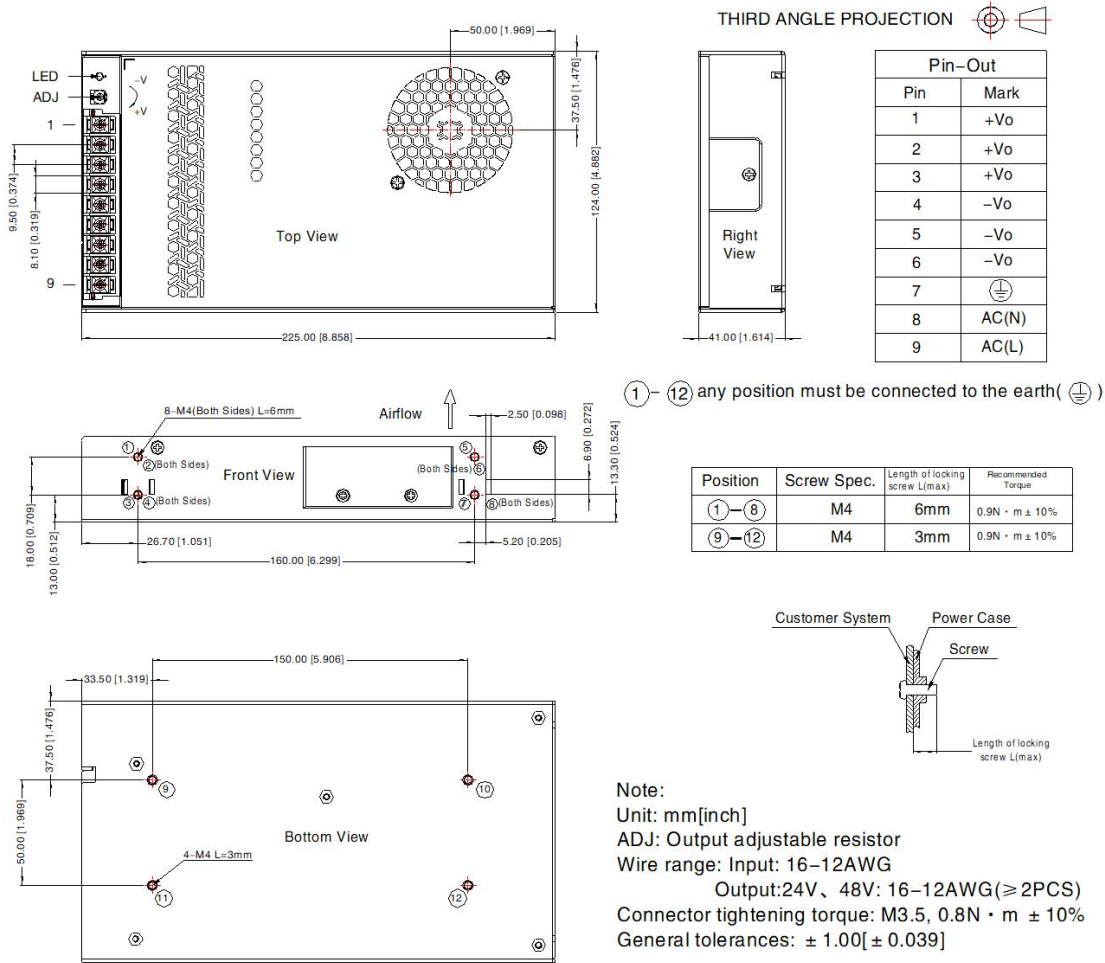


- Note: 1. With an AC input voltage between 176-200VAC/305-418VAC and DC input between 240-283VDC/430-590VDC must be derated as per the temperature derating curves;
2. This product is suitable for applications using forced air cooling; for applications in closed environment please consult Mornsun FAE.



Note:
The product is equipped with a built-in cooling fan. Keep the air intake clear of debris. If the environment cannot meet this requirement, a fanless model is recommended.

Dimensions and Recommended Layout



Note:

- For additional information on Product Packaging please refer to www.mornsun-power.com. Packaging bag number: 58220569;
- 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;
- The room temperature derating of 5°C/1000m is needed for operating altitude greater than 2000m;
- All index testing methods in this datasheet are based on our company corporate standards;
- 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;
- We can provide product customization service, please contact our technicians directly for specific information;
- Products are related to laws and regulations: see "Features" and "EMC";
- The out case needs to be connected to PE (⊕) of system when the terminal equipment in operating;
- The output voltage can be adjusted by the ADJ, clockwise to increase;
- Our products shall be classified according to ISO14001 and related environmental laws and regulations, and shall be handled by qualified units;
- 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.

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