



FEATURES

- AC input range: 176 - 264VAC
- DC input range: 240 - 370VDC
- Ultra low standby power consumption: < 0.75W @230VAC
- Operating ambient temperature range: - 30°C to +70°C
- High efficiency, high reliability
- LED indicator for power on
- Output short circuit, over-current, over-voltage, over-temperature protection
- UL/EN/IEC62368, EN60335, EN61558, GB4943 safety approved
- Operating altitude up to 5000m



LM200-12Bxx series is one of Mornsun's enclosed AC-DC switching power supply. It features AC input and at the same time accepts DC input voltage, cost-effective, low no load power consumption, high efficiency and high reliability. These power supply offer excellent EMC performance and meet IEC/EN61000-4, CISPR32/EN55032, UL/EN/IEC62368, EN60335, GB4943 standards and they are widely used in areas of industrial, LED, street light control, electricity, security, telecommunications, smart home etc.

Selection Guide

Certification	Part No.*	Output Power(W)		Nominal Output Voltage and Current (Vo/Io)	Output Voltage Adjustable Range (V)	Efficiency at 230VAC (%) Typ.	Max. Capacitive Load (μF)
		Steady state	transient*				
UL/CE/CB/CQC	LM200-12B05	150	200	5V/30A	4.5-5.5	87	10000
	LM200-12B12	204	--	12V/17A	10.2-13.8	87.5	4000
	LM200-12B15	210	--	15V/14A	13.5-18	88	3300
	LM200-12B24	211.2	--	24V/8.8A	21.6-28.8	88.5	1500
	LM200-12B36	212.4	--	36V/5.9A	32.4-39.6	89	1500
	LM200-12B48	211.2	--	48V/4.4A	43.2-52.8	89.5	470

Note: 1.*Use suffix "C" for terminal with protective cover and suffix "Q" for conformal coating;
2.*Hold-up time 1min (Typ.).

Input Specifications

Item	Operating Conditions	Min.	Typ.	Max.	Unit
Input Voltage Range (by switch)	AC input	176	--	264	VAC
	DC input	240	--	370	VDC
Input Voltage Frequency		47	--	53	Hz
Input Current	230VAC	--	2.2	3	A
Inrush Current	230VAC Cold start	--	60	80	
Hot Plug		Unavailable			

Output Specifications

Item	Operating Conditions	Min.	Typ.	Max.	Unit	
Output Voltage Accuracy	Full load range	5V	--	±3	--	%
		12V	--	±1.5	--	
		15V/24V/36V/48V	--	±1	--	
Line Regulation	Rated load	--	±0.5	--		
Load Regulation	0% - 100% load	5V	--	±2	--	
		12V	--	±1	--	

		15V/24V/36V/48V	--	±0.5	--	
Output Ripple & Noise*	20MHz bandwidth (peak-to-peak value)	5V/12V/15V/24V	--	150	--	mV
		36V/48V	--	200	--	
Temperature Coefficient			--	--	±0.03	%/°C
Minimum Load			0	--	--	%
Stand-by Power Consumption	230VAC, 25°C		--	--	0.75	W
Hold-up Time	230VAC		16	--	--	ms
Short Circuit Protection	Recovery time <5s after the short circuit disappear.		Hiccup, continuous, self-recover			
Over-current Protection			110% - 185% I _o , self-recover			
Over-voltage Protection	5V		≤8VDC (Output voltage turn off, re-power on for recover)			
	12V		≤18VDC (Output voltage turn off, re-power on for recover)			
	15V		≤22VDC (Output voltage turn off, re-power on for recover)			
	24V		≤33.6VDC (Output voltage turn off, re-power on for recover)			
	36V		≤46.8VDC (Output voltage turn off, re-power on for recover)			
	48V		≤60VDC (Output voltage turn off, re-power on for recover)			
Over-temperature Protection			Output voltage turn off, re-power on for 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 <10mA	2000	--	--	VAC	
	Input - output		3000	--	--		
	Output - ⊕	Electric strength test for 1min., leakage current <5mA	500	--	--		
Insulation Resistance	Input - ⊕	At 500VDC	100	--	--	MΩ	
	Input - output		100	--	--		
	Output - ⊕		100	--	--		
Operating Temperature			-30	--	+70	°C	
Storage Temperature			-40	--	+85		
Storage Humidity	Non-condensing		10	--	95	%RH	
Operating Humidity			20	--	90		
Switching Frequency			--	65	--	kHz	
Power Derating	Operating temperature derating	5V output	+40°C to +70°C	1.66	--	--	% / °C
		Other output	+50°C to +70°C	2.5	--	--	
	Input voltage derating	176VAC - 264VAC	0	--	--	% / VAC	
Safety Standard			Meet UL/EN/IEC62368/EN60335/GB4943 EN61558				
Safety Certification			UL/EN/IEC62368/GB4943				
Safety Class			CLASS I				
MTBF	MIL-HDBK-217F@25°C		>300,000 h				

Mechanical Specifications

Case Material	Metal (AL1100, SGCC)
Dimensions	179.00 x 99.00 x 30.00 mm
Weight	520g (Typ.)
Cooling Method	Free air convection

Electromagnetic Compatibility (EMC)

Emissions	CE	CISPR32/EN55032	CLASS A	
	RE	CISPR32/EN55032	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	IEC/EN61000-4-11	0%, 70%	perf. Criteria B

Remark:

1. One magnetic bead(nickel-zinc ferrite) should be coupled with the output load line during CE/RE testing;
2. This power supply does not meet the harmonic current requirements specified in EN61000-3-2.

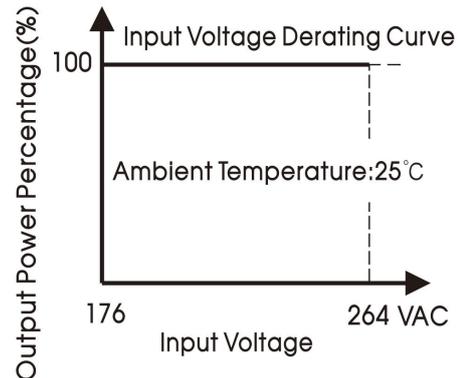
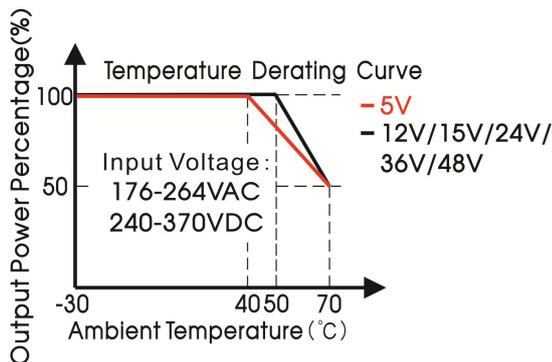
Please do not use this power supply under the following conditions:

- 1) The terminal equipment is used in the European Union.
- 2) Supporting terminals are connected to a public power grid with 220VAC or a higher voltage that comply with the requirements of EN61000-3-2.
- 3) The power supply is installed in terminal equipment with average or continuous input power greater than 75W.
- 4) The power supply belong to a part of lighting system.

Exception: The power supply used in the following terminal equipment does not need to meet EN61000-3-2.

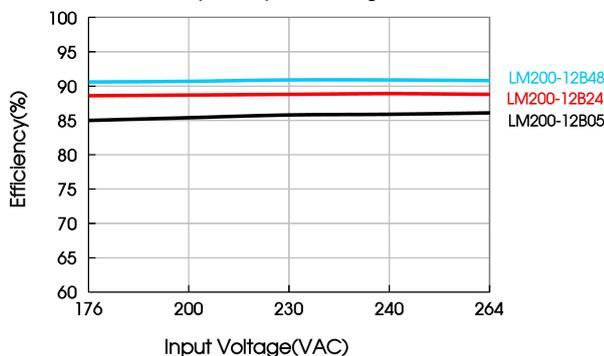
- 1) Professional equipment with a total rated input power greater than 1000W.
- 2) Symmetrically controlled heating element with a rated power less than or equal to 200W.

Product Characteristic Curve

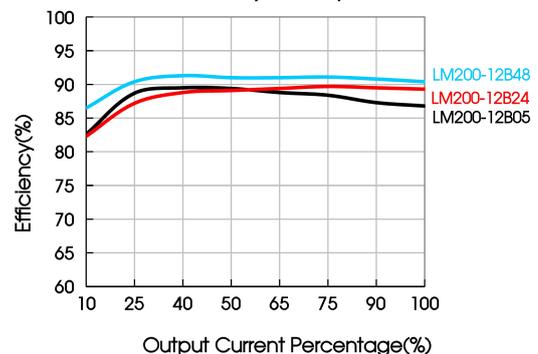


Note: This product is suitable for applications using natural air cooling; for applications in closed environment please consult our FAE.

Efficiency Vs Input Voltage (Full Load)

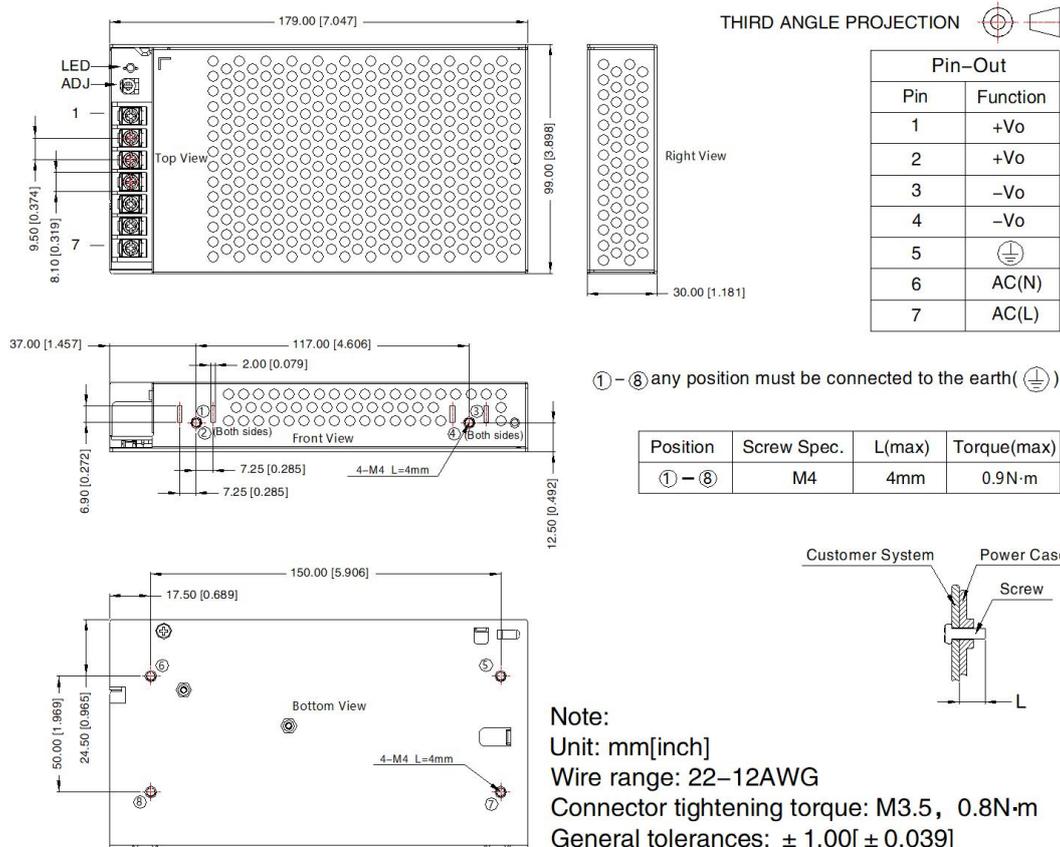


Efficiency Vs Output Load

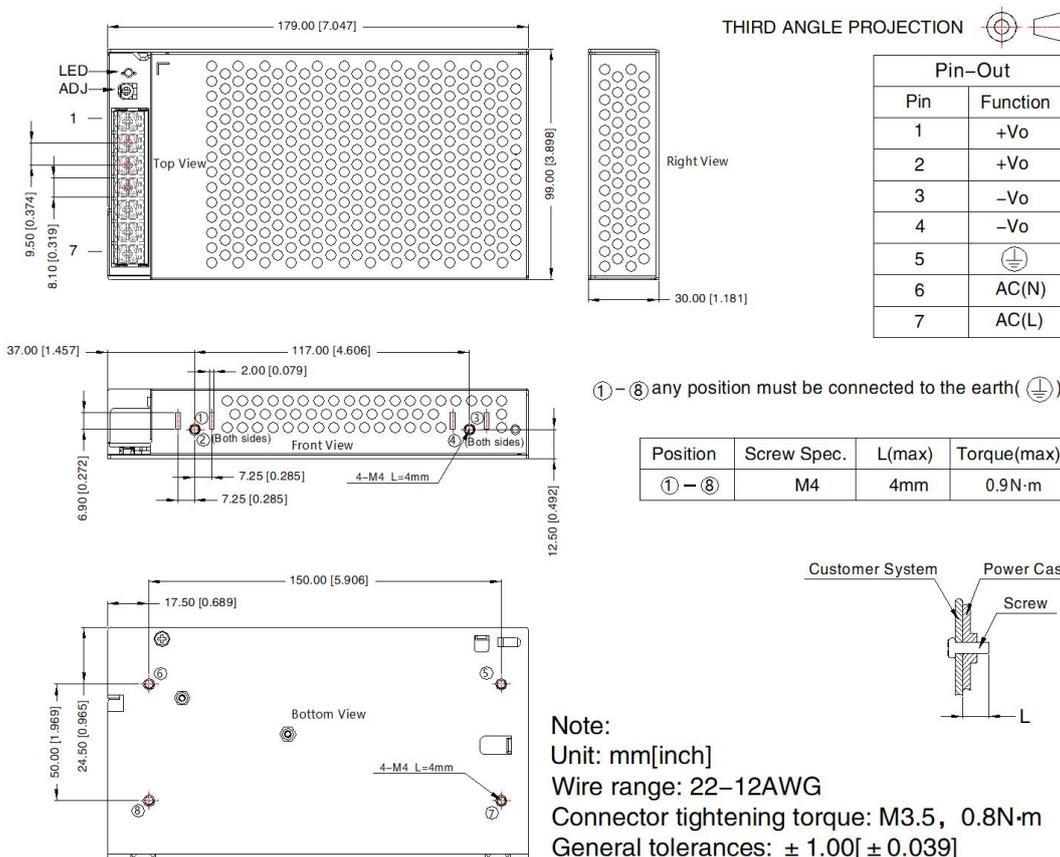


Dimensions and Recommended Layout

LM200-12Bxx, LM200-12Bxx-Q Series



LM200-12Bxx-C Series



Note:

1. For additional information on Product Packaging please refer to www.mornsun-power.com. Packaging bag number: 58220136;
2. 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;
3. The ambient temperature derating of $5^{\circ}\text{C}/1000\text{m}$ is needed for operating altitude greater than 2000m;
4. All index testing methods in this datasheet are based on our company corporate standards;
5. 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;
6. We can provide product customization service, please contact our technicians directly for specific information;
7. Products are related to laws and regulations: see "Features" and "EMC";
8. The out case needs to be connected to PE(⊕)of system when the terminal equipment in operating;
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 final equipment. All EMC tests should be confirmed with the final equipment. Please consult our FAE for EMC test operation instructions.

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