AC/DC 100W Enclosed Switching Power Supply

LM100-20BxxSR(-Q)Series

MORNSUN®

CE Report EN62368-1 | UKCA Report BS EN 62368-1 | RoHS | 3 year Warranty

FEATURES

- Universal 85 - 264VAC or 120 - 370VDC input voltage
- Accepts AC or DC input (dual-use of same terminal)
- Operating ambient temperature range: -30℃ to +70℃
- Low standby power consumption, high efficiency
- High I/O isolation test voltage up to 4000VAC
- Low ripple & noise
- Output short circuit, over-current, over-voltage protection
- OVC Ⅲ (designed to meet EN62477)
- Operating up to 5000m altitude

LM100-20BxxSR series is one of Mornsun's 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 and high reliability. These converters offer excellent EMC performance and meet IEC/EN61000-4, CISPR32/EN55032, IEC/EN/UL62368, EN60335, GB4943, EN61558 standards and they are widely used in areas of industrial, LED, street light control, 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.	Capacitive Load (uF) Max.
EN/BS EN	LM100-20B12SR	102	12V/8.5A	10.2-13.8	86.5	6800
	LM100-20B24SR	108	24V/4.5A	21.6-28.8	89.5	2200

Note:
1. *Use suffix "Q" for conformal coating.
2. If the terminal cover is required, please order "PJA-033" for self-installation.
3. 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.
4. 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)		100	--	240	VAC
	AC input		85	--	264	
	DC input		120	--	370	VDC
Input Voltage Frequency			47	--	63	Hz
Input Current	115VAC		--	--	3	A
	230VAC		--	--	1.5	
Inrush Current	115VAC	Cold start	--	35	--	
	230VAC		--	65	--	
Leakage Current	240VAC		< 0.75mA			
Hot Plug			Unavailable			

Output Specifications

Item	Operating Conditions		Min.	Typ.	Max.	Unit
Output Voltage Accuracy	Full load range	12V/24V	--	±1	--	%
Line Regulation	Rated load		--	±0.5	--	
Load Regulation	0% - 100% load	12V/24V	--	±0.5	--	
Minimum Load			0	--	--	
Output Ripple & Noise*	20MHz bandwidth (peak-to-peak value)	12V	--	120	--	mV
		24V	--	150	--	
Temperature Coefficient			--	±0.03	--	%/℃
Stand-by Power Consumption	230VAC		--	--	0.5	W

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Hold-up Time	115VAC	5	10	--	ms
	230VAC	45	55	--	
Short Circuit Protection	Recovery time < 5s after the short circuit disappear	Hiccup, continuous, self-recover			
Over-current Protection		110% - 200% Io, self-recover			
Over-voltage Protection	12V	⩽19.2VDC	Hiccup, self-recover		
	24V	⩽38.4VDC			

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 <3mA	24V	2000	--	--	VAC
	Input - output	Electric strength test for 1min., leakage current <5mA		4000	--	--	
	Output - ⏚	Electric strength test for 1min., leakage current <5mA		1250	--	--	
	Input - ⏚	Electric strength test for 1min., leakage current <10mA	12V	2000	--	--	
	Input - output			4000	--	--	
	Output - ⏚			1250	--	--	
Insulation Resistance	Input - ⏚	At 500VDC		100	--	--	MΩ
	Input - output			100	--	--	
	Output - ⏚			100	--	--	
Operating Temperature				-30	--	+70	℃
Storage Temperature				-40	--	+85	
Storage Humidity		Non-condensing		10	--	95	%RH
Operating Humidity				20	--	90	
Switching Frequency				--	65	--	kHz
Power Derating		Operating temperature derating	+50℃ to +70℃	2	--	--	%/℃
		Input voltage derating	85VAC-115VAC	0.67	--	--	%/VAC
Safety Standard				BS EN/EN62368-1(Report) safety approved Design refer to UL/IEC62368-1, GB4943.1, IS13252 (Part1) & EN60335-1, EN61558-1, EN61558-2-16			
Safety Class				CLASS I			
MTBF		MIL-HDBK-217F@25℃		>30,0000 h			
Warranty		Ambient temperature: <70℃		3 years			

Mechanical Specifications

Case Material	Metal (AL1100, SGCC)
Dimension	129.00 x 97.00 x 30.00mm
Weight	305g (Typ.)
Cooling Method	Free air convection

Electromagnetic Compatibility (EMC)

Emissions	CE	CISPR32/EN55032	CLASS B	
	RE	CISPR32/EN55032	CLASS B	
	Harmonic current	IEC/EN61000-3-2	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

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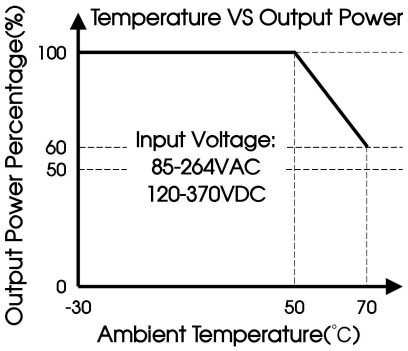
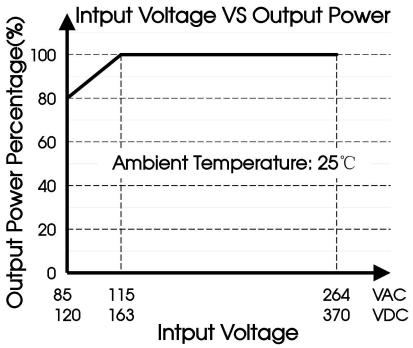
	EFT	IEC/EN61000-4-4 ±2KV		perf. Criteria A
	Surge	IEC/EN61000-4-5 line to line ±2KV/line to PE ±4KV		perf. Criteria A
	CS	IEC/EN61000-4-6 10 Vr.m.s		perf. Criteria A
	MS	IEC/EN61000-4-8 30A/m		perf. Criteria A
	Voltage variation	IEC61000-6-2/IEC61000-4-11	70% Un, 25/30 cycle(50/60Hz) 40% Un, 10/12 cycle(50/60Hz) 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

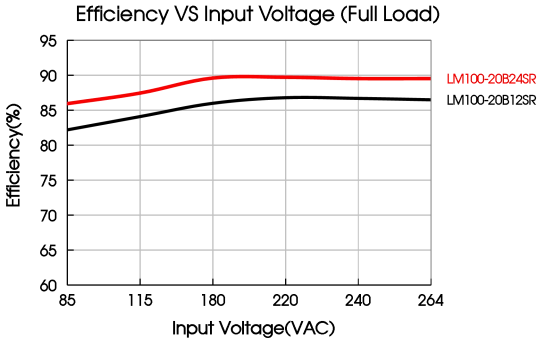


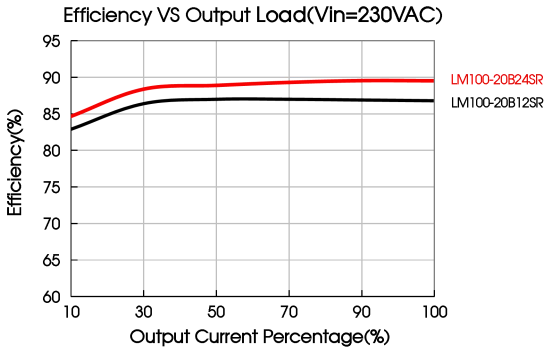


Note: 1. With an AC input voltage between 85-115 VAC and a DC input between 120-163 VDC the output power must be derated as per the temperature derating curves;

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

3. Product start at 50% output power under low temperature and low input voltage (-30℃, below 100VAC).





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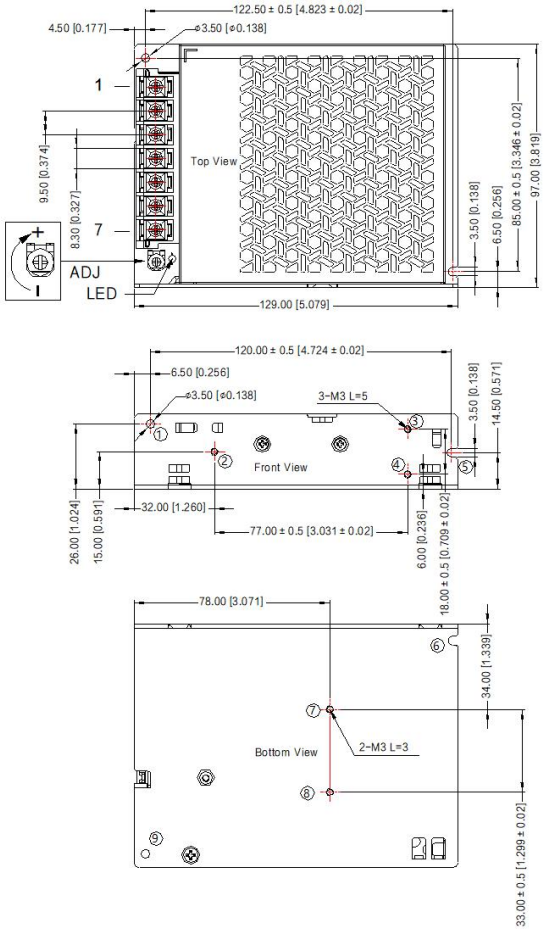
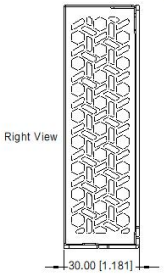
Dimensions and Recommended Layout



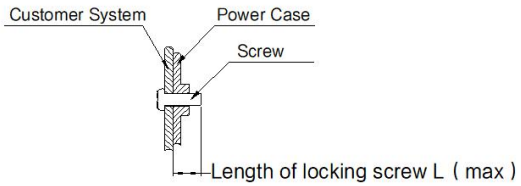


THIRD ANGLE PROJECTION

Pin-Out	
Pin	Mark
1	AC(L)
2	AC(N)
3	⏚
4	-Vo
5	-Vo
6	+Vo
7	+Vo

①- ⑨any position must be connected to the earth(⏚)

Position	Screw Spec.	Length of locking screw L (max)	Recommended Torque
② – ④	M3	5mm	0.4N·m ± 10%
⑦ – ⑧	M3	3mm	0.4N·m ± 10%



Note:
Unit: mm[inch]
ADJ: Output adjustable resistor
Wire range: 22-12AWG
Terminal recommended torque: M3.5，0.8N·m ± 10%
General tolerances: ± 1.00[± 0.039]

Note:

1. For additional information on Product Packaging please refer to www.mornsun-power.com. Packaging bag number: 58220723;
2. Unless otherwise specified, parameters in this datasheet were measured under the conditions of Ta=25℃, humidity <75%RH with nominal input voltage and rated output load;
3. The room temperature derating of 5℃/1000m 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. The output voltage can be adjusted by the ADJ, clockwise to increase;
10. Our products shall be classified according to ISO14001 and related environmental laws and regulations, and shall be handled by qualified units;
11. 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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