AC/DC 100W Enclosed Switching Power Supply

LMF100-23Bxx Series

MORNSUN®



RoHS

CE Report EN62368-1 | CB IEC62368-1 | UKCA Report BS EN 62368-1 | GB4943.1

FEATURES

- Universal 85 - 305V AC or 120 - 430VDC Input voltage
- Accepts AC or DC input (dual-use of same terminal)
- Operating temperature range: -30℃ to +70℃
- Built-in active PFC function
- High I/O isolation test voltage up to 4000VAC
- Up to 87% efficiency
- Output short circuit, over-current, over-voltage, over-temperature protection (Built-in constant current limiting circuit)
- Remote ON-OFF control
- Design refer to IEC/EN60335, IEC/EN61558
- Emissions meets CISPR32/EN55032 CLASS B without extra components

LMF100-23Bxx 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, built-in active PFC function, high efficiency and high reliability. These converters offer excellent EMC performance and meet IEC/EN61000-4, CISPR32/EN55032, IEC/UL/EN62368, 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 (uF)
EN/CCC/IEC	LMF100-23B12	102	12V/8.5A	11.4-13.8	85	5000
	LMF100-23B24	100.8	24V/4.2A	22.8-27.6	86	4200
	LMF100-23B48	100.8	48V/2.1A	45.6-55.2	87	2200

Note: *. 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	AC input		85	--	305	VAC
	DC input		120	--	430	VDC
Input Voltage Frequency			47	--	63	Hz
Input Current	85VAC		--	--	1.7	A
	115VAC		--	--	1.3	
	230VAC		--	--	0.7	
Inrush Current	115VAC	Cold start	--	25	--	
	230VAC		--	45	--	
Power Factor	115VAC	At full load	0.97	0.98	--	--
	230VAC		0.92	0.93	--	
Leakage Current	277VAC		<2mA			
Hot Plug			Unavailable			

Output Specifications

Item	Operating Conditions		Min.	Typ.	Max.	Unit
Output Voltage Accuracy	Full load range	12V	--	±2	--	%
		24V/48V	--	±1	--	
Line Regulation	Rated load		--	±0.5	--	

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Load Regulation	0% - 100% load	12V/24V/48V	--	±0.5	--	
Output Ripple & Noise*	20MHz bandwidth (peak-to-peak value)	12V	--	--	100	mV
		24V	--	--	150	
		48V	--	--	250	
Temperature Coefficient			--	±0.05	--	%/℃
Minimum Load			0	--	--	%
Hold-up Time	230VAC		16	--	--	ms
Stand-by Power Consumption	230VAC	12V/24V	--	--	2.0	W
		48V	--	--	2.5	
Short Circuit Protection	Recovery time <3s after the short circuit disappear.		Constant current, continuous, self-recovery			
Over-current Protection			105%-150% Io, constant current, self-recovery			
Over-voltage Protection	12V		≤16.8V (Output voltage hiccup)			
	24V		≤32.4V (Output voltage hiccup)			
	48V		≤60V (Output voltage hiccup)			
Over-temperature Protection*			Hiccup, self-recover			
Remote Control (CN1)	0-0.8VDC(Or Floating) Power ON		0	--	0.8	VDC
	4-10VDC Power OFF		4	--	10	

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-temperature Protection needs to be tested under rated full load conditions.

General Specifications

Item		Operating Conditions	Min.	Typ.	Max.	Unit
Isolation	Input -⏚	Electric Strength Test for 1min., leakage current <10mA	2000	--	--	VAC
	Input-output	Electric Strength Test for 1min., leakage current <10mA	4000	--	--	
	output -⏚	Electric Strength Test for 1min., leakage current <5mA	500	--	--	
Insulation Resistance	Input -⏚	Environment Temperature: 25±5℃, Relative Humidity: < 95%RH, non-condensing Testing Voltage: 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		Non-condensing	20	--	90	
Switching Frequency			--	65	--	kHz
Power Derating		+50℃ to +70℃	2	--	--	%/℃
		85VAC-100VAC	1.33	--	--	%/VAC
		2000m-5000m	6.66	--	--	%Km
Safety Standard			IEC62368-1, GB4943.1 safety approval & BS EN62368-1, EN62368-1 Design refer to UL62368-1, IEC/EN60335-1, IEC/EN61558-1			
Safety Class			CLASS I			
MTBF		MIL-HDBK-217F@25℃	>300,000 h			

Mechanical Specifications

Case Material	Metal (AL1100, SGCC)
Dimensions	179.00 × 99.00 × 30.00mm
Weight	460g (Typ.)
Cooling Method	Free air convection

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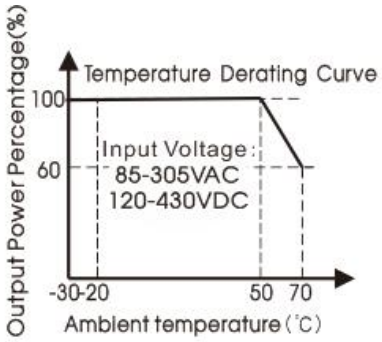
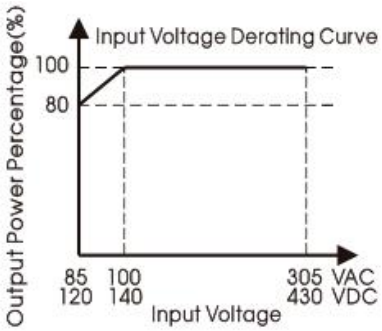
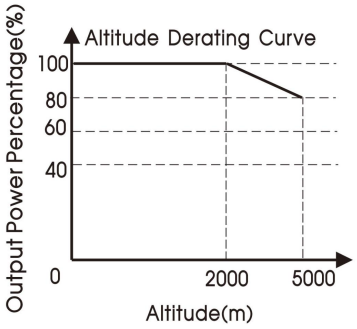
Electromagnetic Compatibility (EMC)

Emissions	CE	CISPR32/EN55032	CLASS B	
	RE	CISPR32/EN55032	CLASS B	
	Harmonic Current	IEC/EN61000-3-2	CLASS A	
	Voltage Flicker	IEC/EN61000-3-3		
Immunity	ESD	IEC/EN61000-4-2	Contact ±6KV /Air ±8KV	perf. Criteria A
	RS	IEC/EN61000-4-3	3V/m	perf. Criteria B
	EFT	IEC/EN61000-4-4	± 2KV	perf. Criteria A
	Surge	IEC/EN61000-4-5	line to line ±1KV/line to PE ± 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

Product Characteristic Curve



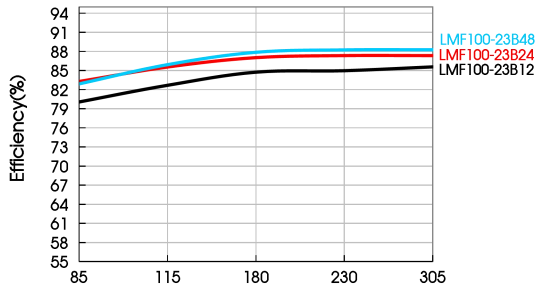




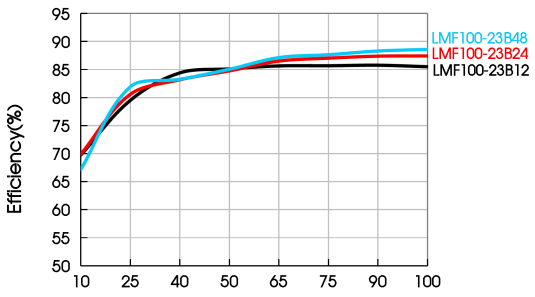
Note：①With an input voltage between 85-100VAC and a DC input between 120-140VDC the output power must be derated as per the temperature derating curves;

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

Efficiency Vs Input Voltage (Full Load)



Efficiency Vs Output Load(Vin=230VAC)



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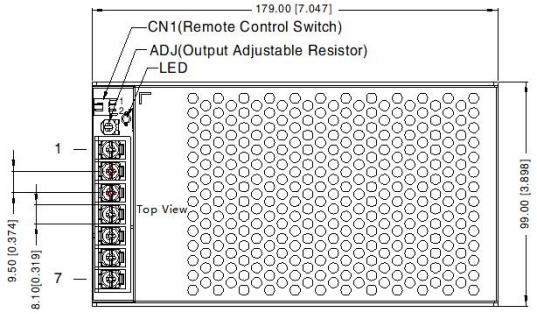
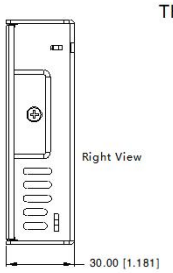
Dimensions and Recommended Layout

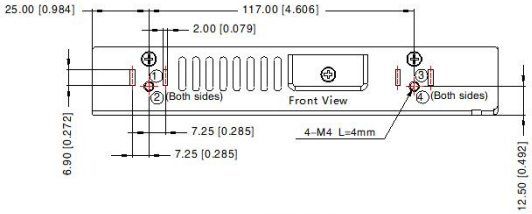
LMF100-23Bxx Series

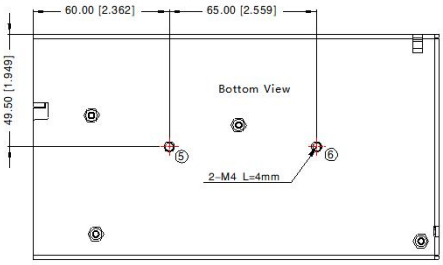




THIRD ANGLE PROJECTION

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

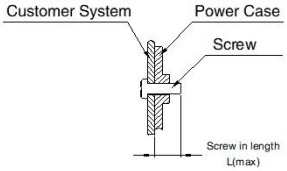




①–⑥ any position must be connected to the earth(⏚)

CN1: KANGDAO TJC3–NAWD–2P or the same spec.			
Pin	Function	Connector	Terminal
1	RC+	KANGDAO XH25001–2Y or the same spec.	KANGDAO XH2.54–TE or the same spec.
2	RC–		

Position	Screw Spec.	Screw in length L(max)	Recommended torque
①–⑥	M4	4mm	0.9N · m ± 10%



Note:
Unit: mm[inch]
Connector tightening torque: M3.5, 0.8N · m ± 10%
Wire range: Input: 22–10AWG (16–10AWG for pin5)
Output: 12V: 20–10AWG
24V/48V: 22–10AWG
General tolerances: ± 1.00[± 0.039]

Product Installation Notes:
If side-mounting is adopted for the product,
our accessory PJA-003 shall be used for fixing the side-mounting holes.
To ensure reliability, 4PCS shall be installed; under-installation is prohibited.
If other mounting methods are required, please consult our FAE engineers for confirmation in advance.

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 Ta=25℃, humidity<75%RH with nominal input voltage and rated output load;
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. If product involves multi-brand materials and there are differences in color etc, please refer to the standards of each manufacturer;
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.

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