AC/DC Enclosed Switching Power Supply

LMF150-23Bxx, LMF150-23Bxx-C, LMF150-23Bxx-Q Series

MORNSUN®

CE EN62368-1 CB IEC62368-1 GB4943.1 RoHS

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
- Output short circuit, over-current (Built-in constant current limiting circuit), over-voltage, over-temperature protection
- Remote ON-OFF control
- Over-voltage class Ⅲ (designed to meet EN61558)
- Operating altitude up to 5000m

LMF150-23Bxx 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, 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)
EN/IEC/CCC	LMF150-23B12	150	12V/12.5A	10.2-13.8	85.5	5000
	LMF150-23B15	150	15V/10A	13.5-18	86	5000
	LMF150-23B24	151.2	24V/6.3A	21.6-28.8	87	5000
	LMF150-23B48	153.6	48V/3.2A	45.6-55.2	88	3000

Note: *Use suffix "C" for terminal with protective cover and suffix "Q" for conformal coating.

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		--	--	2.5	A
	115VAC		--	--	2.0	
	230VAC		--	--	1.0	
Inrush Current	115VAC	Cold Start	--	--	30	
	230VAC		--	--	45	
Power Factor	115VAC	At full Load	0.97	0.99	--	--
	230VAC		0.91	0.98	--	
Leakage Current	277VAC		<2mA			
Hot Plug			Unavailable			

Output Specifications

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

Output Ripple & Noise*	20MHz bandwidth (peak-to-peak value)	12V/15V	--	100	--	mV
		24V	--	150	--	
		48V	--	250	--	
Temperature Coefficient			--	±0.05	--	%/℃
Minimum Load			0	--	--	%
Hold-up Time	230VAC		16	--	--	ms
Short Circuit Protection	Recovery time <3s after the short circuit disappear.		Constant current, continuous, self-recover			
Over-current Protection			105%-150% Io, constant current mode, self-recover			
Over-voltage Protection	12V		≤16.8V (output voltage turn off, re-power on for recover)			
	15V		≤24.5V (output voltage turn off, re-power on for recover)			
	24V		≤33.6V (output voltage turn off, re-power on for recover)			
	48V		≤60V (output voltage turn off, re-power on for recover)			
Over-temperature Protection*	Over-temperature Protection Activation		--	--	85	℃
	Over-temperature Protection Deactivation		50	--	--	
Remote Control	Open or 0~0.8VDC 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		4000	--	--	
	Output - ⏚	Electric Strength Test for 1min., leakage current <5mA	500	--	--	
Insulation Resistance	Input - ⏚	500VDC, 25±5℃, Humidity < 95%RH, non-condensing 500VDC	100	--	--	MΩ
	Input - output		100	--	--	
	Output - ⏚		100	--	--	
Operating Temperature			-30	--	+70	℃
Storage Temperature			-40	--	+85	
Storage Humidity		Non-condensing	10	--	95	%RH
Switching Frequency			--	--	--	kHz
Power Derating		+50℃ to +70℃	2	--	--	%/℃
		-30℃ to -20℃	4	--	--	
		85VAC-100VAC	1.3	--	--	%/VAC
		2000m-5000m	5	--	--	%/Km
Altitude			--	--	5000	m
Safety Standard			IEC62368-1, GB4943.1 safety approved & EN62368-1 Design refer to UL62368-1, EN60335-1			
Safety Class			CLASS I			
MTBF	MIL-HDBK-217F@25℃		>300,000 h			

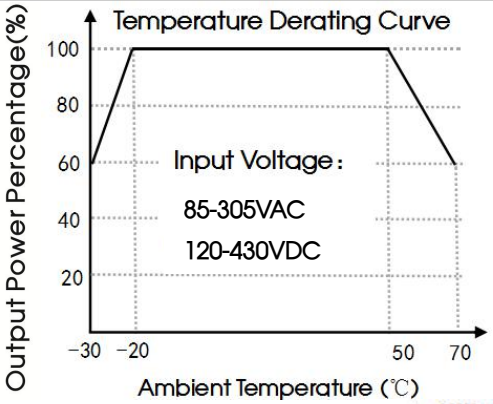
Mechanical Specifications

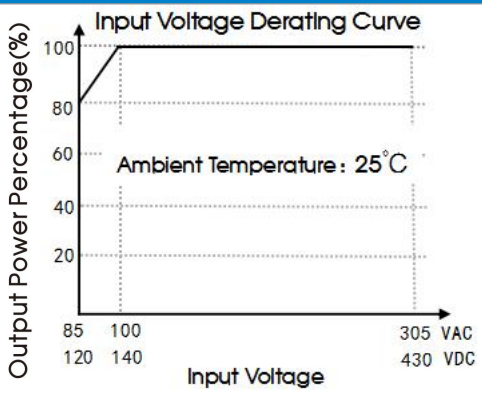
Case Material	Metal (AL1100, SGCC)
Dimensions	179.00 x 99.00 x 30.00mm
Weight	500g (Typ.)
Cooling Method	Free air convection

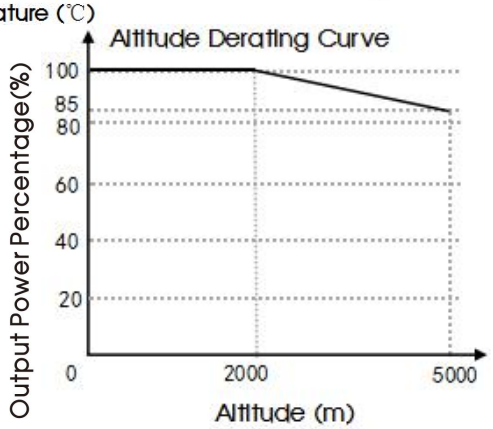
Electromagnetic Compatibility (EMC)

Emissions	CE	CISPR32/EN55032 CLASS B	
	RE	CISPR32/EN55032 CLASS B	
	Harmonic current	IEC/EN61000-3-2 CLASS A and CLASS D	
	Voltage flicker	IEC/EN61000-3-3	
Immunity	ESD	IEC/EN 61000-4-2 Contact ±6KV/Air ±8KV	perf. Criteria A
	RS	IEC/EN 61000-4-3 10V/m	perf. Criteria B
	EFT	IEC/EN 61000-4-4 ±2KV	perf. Criteria A
	Surge	IEC/EN 61000-4-5 ±1KV/±2KV	perf. Criteria A
	CS	IEC/EN61000-4-6 10 Vr.m.s	perf. Criteria A
	DIP (AC input)	IEC/EN61000-4-11 0%, 70%	perf. Criteria B

Product Characteristic Curve

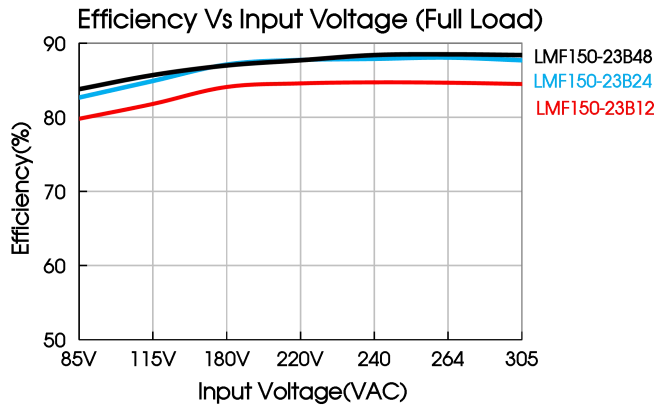


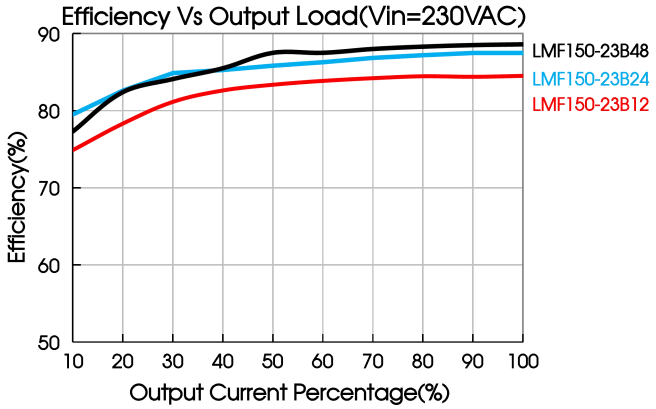




Note: 1. With an AC input voltage between 85-100VAC and a DC input between 120-140VDC the output power must be derated as per the temperature derating curves;

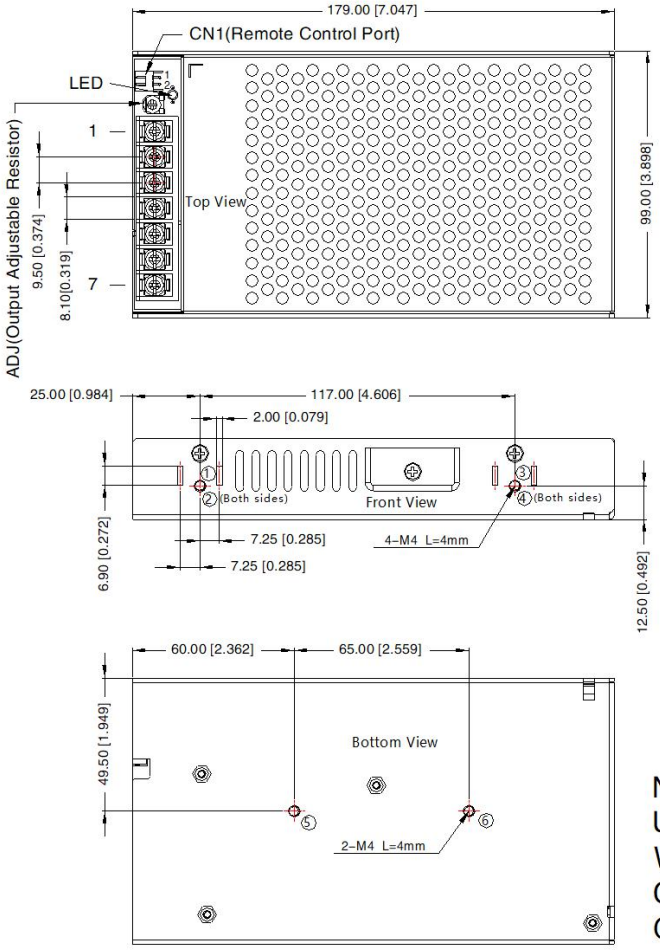
2. This product is suitable for applications using natural air cooling; for applications in closed environment please consult Mornsun FAE.





Dimensions and Recommended Layout

LMF150-23Bxx, LMF150-23Bxx-Q Series



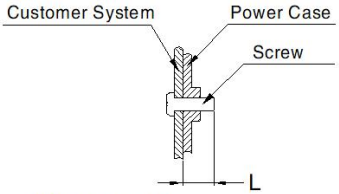
THIRD ANGLE PROJECTION

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

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

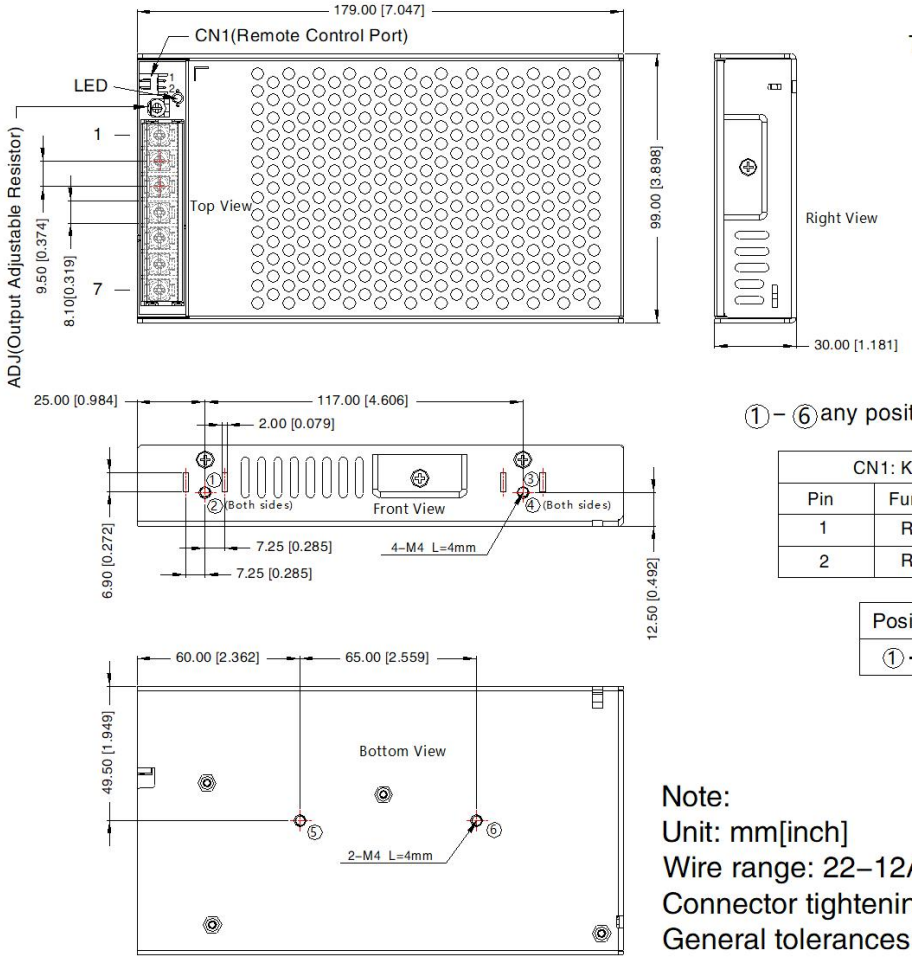
CN1: KANGDAO TJC3-NAWD-2P or the same spec.			
Pin	Function	Connector	Terminal
1	RC+	KANGDAO XH25001-2Y or the same spec.	KANGDAO XH2.54-TE or the same spec.
2	RC-		

Position	Screw Spec.	L(max)	Torque(max)
①－⑥	M4	4mm	0.9N・m



Note:
Unit: mm[inch]
Wire range: 22-12AWG
Connector tightening torque: M3.5, 0.8N・m
General tolerances: ± 1.00[± 0.039]

LMF150-23Bxx-C Series



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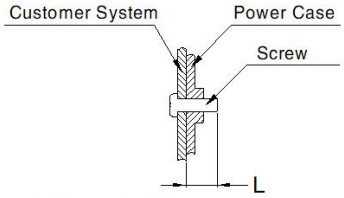

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Note:

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 PE(⏚)of system when the terminal equipment in operating;
8. Our products shall be classified according to ISO14001 and related environmental laws and regulations, and shall be handled by qualified units;
9. 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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