AC/DC 150W Enclosed Switching Power Supply

LM150-23Bxx, LM150-23Bxx-C, LM150-23Bxx-Q series

MORNSUN®

FEATURES

- Universal 85 - 305VAC or 120 - 430VDC 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, over-temperature protection
- OVC Ⅲ (designed to meet EN61558)
- Operating altitude up to 5000m

CE Report EN62368-1 EN60335-1 EN61558-2-16 | CB IEC62368-1 | GB4943.1 | UKCA BS EN 62368-1 | RoHS

LM150-23Bxx 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, low no load power consumption, high efficiency, high reliability and double or reinforced insulation. These converters offer excellent EMC performance and meet IEC/EN61000-4, CISPR32/EN55032, IEC/EN/UL62368, 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/CCC/IEC	LM150-23B12	150	12V/12.5A	10.2-13.8	86	10000
	LM150-23B15	150	15V/10A	13.5 -18	87	6000
	LM150-23B24	156	24V/6.5A	21.6 - 28.8	88	2400
	LM150-23B36	154.8	36V/4.3A	32.4 - 39.6	88	1200
	LM150-23B48	158.4	48V/3.3A	43.2 -52.8	89	600
EN	LM150-23B55	150.15	55V/2.73A	49.5 - 60.5	90	600

Note: 1. *Use suffix "C" for terminal with protective cover and suffix "Q" for conformal coating.
2. 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	115VAC		--	--	4	A
	230VAC		--	--	2	
Inrush Current	115VAC	Cold start	--	30	--	
	230VAC		--	60	--	
Leakage Current	277VAC		<0.75mA			
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	--	
Ripple & Noise*	20MHz bandwidth (peak-to-peak value)	12V/15V	--	--	150	mV
		24V/36V/48V/55V	--	--	200	
Temperature Coefficient			--	±0.03	--	%/℃
Minimum Load			0	--	--	%

Stand-by Power Consumption	Room temperature, 230VAC	--	--	0.5	W
Hold-up Time	115VAC	8	--	--	ms
	230VAC	40	--	--	
Short Circuit Protection	Recovery time <5s after the short circuit disappear.	Hiccup, continuous, self-recover			
Over-current Protection		110%-150% Io, self-recover			
Over-voltage Protection	12V	⩽16.2VDC (Output voltage turn off or hiccup)			
	15V	⩽21.75VDC (Output voltage turn off or hiccup)			
	24V	⩽33.6VDC (Output voltage turn off or hiccup)			
	36V	⩽48.6VDC (Output voltage turn off or hiccup)			
	48V	⩽60VDC (Output voltage turn off or hiccup)			
	55V	⩽70VDC (Output voltage turn off or hiccup)			
Over-temperature Protection		Output voltage turn off, self-recovery			

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				4000	--	--	
	Output - ⏚				1250	--	--	
Insulation Resistance	Input - ⏚	At 500VDC			50	--	--	MΩ
	Input - output				50	--	--	
	Output - ⏚				50	--	--	
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	85VAC-100VAC	-30℃ to -25℃	5	--	--	%/℃
			12V	+45℃ to +70℃	2	--	--	
			15V/24V/36V/48V/55V	+50℃ to +70℃	2.5	--	--	
		Input voltage derating	85VAC-100VAC		1.33	--	--	%/VAC
			277VAC-305VAC		0.714	--	--	
Safety Standard		12V/15V/24V/36V/48V			EN/IEC/BS EN62368-1, EN60335-1, EN61558-2-16, GB4943.1 safety approved; Design refer to UL62368-1			
		55V			EN/BS EN62368-1 safety approved			
Safety Class					CLASS I			
MTBF		MIL-HDBK-217F@25℃			>300,000 h			

Mechanical Specifications

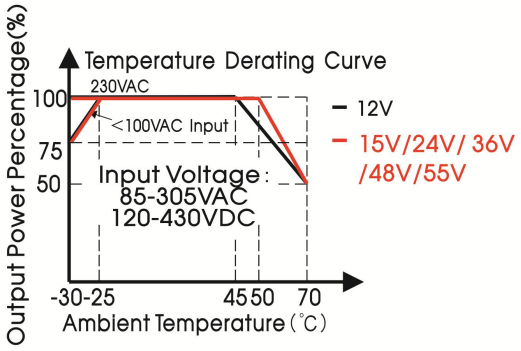
Case Material	Metal (AL1100, SGCC)	
Dimensions	159.00 x 97.00 x 30.00 mm	
Weight	12V/15V	430g (Typ.)
	24V/36V/48V/55V	410 (Typ.)

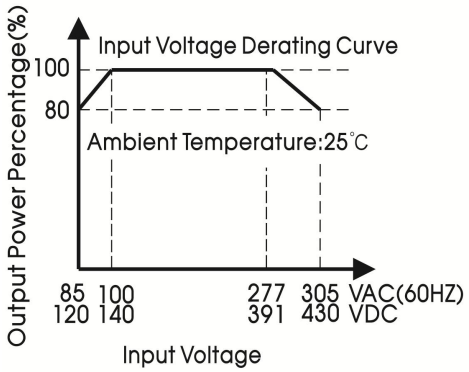
Cooling Method	Free air convection

Electromagnetic Compatibility (EMC)

Emissions	CE	CISPR32/EN55032 CLASS B	
	RE	CISPR32/EN55032 CLASS B	
	Harmonic current	IEC/EN61000-3-2 CLASS A (≤80% Load)	
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 ±4KV	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 dip, short interruption and voltage variation	IEC/EN61000-4-11 0%, 70%	perf. Criteria B

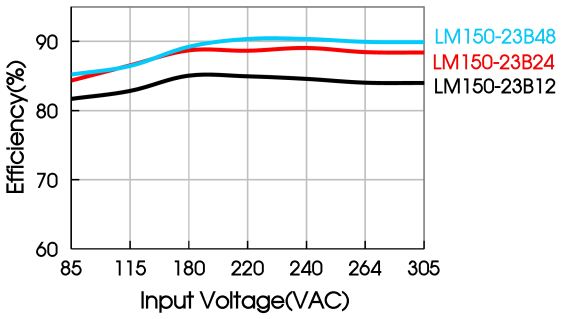
Product Characteristic Curve



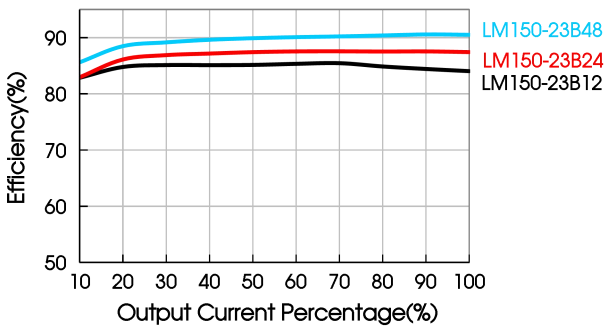


Note: 1. With an AC input voltage between 85 -100VAC/277-305VAC and a DC input between 120 -140VDC/391-430VDC the output power must be derated as per the temperature derating curves;
2. This product is suitable for applications using natural air cooling; for applications in closed environment please consult Mornsun FAE.

Efficiency Vs Input Voltage (Full Load)

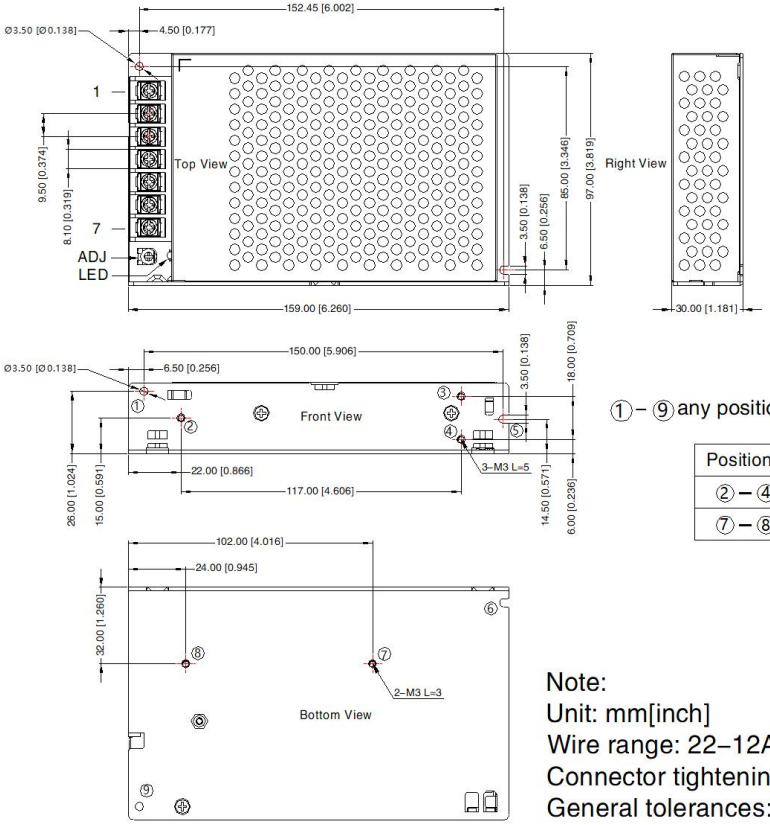


Efficiency Vs Output Load(Vin=230VAC)



Dimensions and Recommended Layout

LM150-23Bxx, LM150-23Bxx-Q Series

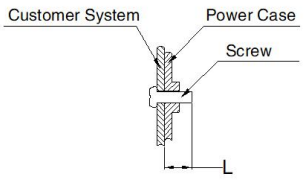


THIRD ANGLE PROJECTION

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

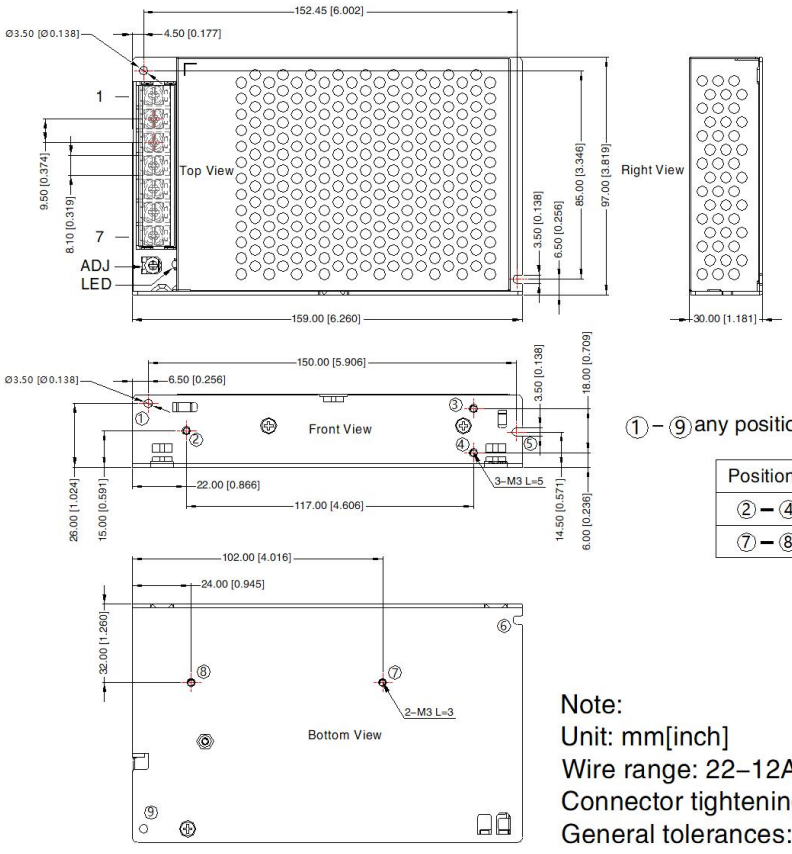
①- ⑨any position must be connected to the earth(⏚)

Position	Screw Spec.	L(max)	Torque(max)
②－④	M3	5mm	0.4N·m
⑦－⑧	M3	3mm	0.4N·m



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

LM150-23Bxx-C Series



THIRD ANGLE PROJECTION

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

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

Position	Screw Spec.	L(max)	Torque(max)
②－④	M3	5mm	0.4N·m
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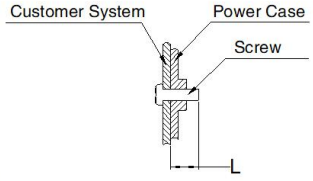

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Unit: mm[inch]
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Connector tightening torque: M3.5，0.8N·m
General tolerances: ± 1.00[± 0.039]

Note:

1. For additional information on Product Packaging please refer to www.mornsun-power.com. Packaging bag number: 58220111;
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 the earth (⏚) 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.

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