



RoHS



### FEATURES

- Universal 80 - 305VAC or 100 - 430VDC Input voltage
- Accepts AC or DC input (dual-use of same terminal)
- Operating ambient temperature range: -40°C to +85°C
- Low standby power consumption, high efficiency, small size
- High I/O isolation voltage up to 4000VAC
- Output short circuit, over-current, over-voltage, over-temperature protection
- Operating altitude up to 5000m
- OVC III (designed to meet EN62477)
- Safety according to UL/EN/IEC/BS EN62368, EN/IEC60335

LM150-23BxxR2 series is the ultra-small second-generation new industrial standard metal case-type power supply that Mornsun has innovated the industrial chassis power supply standard from the dimensions of size, performance, technology, and structure. 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, EN/IEC60335, IEC/UL/EN/BS EN62368, EN61558, EN62477, 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 ADJ (V)	Efficiency at 230VAC (%) Typ.	Capacitive Load (μF) Max.
EN/CQC (Pending)	LM150-23B12R2	150.0	12V/12.5A	11.4-13.8	91.5	10000
	LM150-23B15R2	150.0	15V/10.0A	14.2-17.3	91.5	6000
	LM150-23B24R2	156.0	24V/6.5A	22.8-27.6	91.5	2400
	LM150-23B36R2	154.8	36V/4.3A	34.2-41.4	91.5	1200
	LM150-23B48R2	158.4	48V/3.3A	43.2-52.8	92.0	600
	LM150-23B54R2	151.2	54V/2.8A	51.3-56.7	92.0	600

Note: \*Use suffix "C" for terminal with protective cover, suffix "Q" for bottom conformal coating and "QQ" for both sides conformal coating.

### Input Specifications

Item	Operating Conditions	Min.	Typ.	Max.	Unit
Input Voltage Range	AC input	80	--	305	VAC
	DC input	100	--	430	VDC
Input Voltage Frequency		47	--	63	Hz
Input Current	115VAC	--	--	4	A
	230VAC	--	--	2	
Inrush Current	115VAC	--	30	--	
	230VAC	--	60	--	
Leakage Current	277VAC	<0.5mA RMS			
Hot Plug		Unavailable			

### Output Specifications

Item	Operating Conditions		Min.	Typ.	Max.	Unit
Output Voltage Accuracy	Full load range		--	--	±1.0	%
Line Regulation	Rated load		--	--	±0.5	
Load Regulation	230VAC		--	--	±0.5	
Ripple & Noise*	20MHz bandwidth (peak-to-peak value)	12V/15V	--	--	150	mV
		24V/36V/48V/54V	--	--	200	
Temperature Coefficient			--	±0.03	--	%/°C
Minimum Load			0	--	--	%
Stand-by Power Consumption	Room temperature, 230VAC		--	0.3	0.5	W
Hold-up Time	115VAC		--	8	--	ms
	230VAC		--	40	--	
Short Circuit Protection			Hiccup, continuous, self-recovery			
Over-current Protection	Normal temperature, high temperature		120% - 200% Io, hiccup, self-recover			
	Low temperature		≥ 120% Io, hiccup, self-recover			
Over-voltage Protection	12V		≤ 16.00V	Output voltage clamp or hiccup, self-recover		
	15V		≤ 21.75V			
	24V		≤ 33.60V			
	36V		≤ 48.60V			
	48V		≤ 60.00V			
	54V		≤ 63.00V			
Over-temperature Protection			Output voltage turn off, self-recovery			

Note: \*The "Tip and barrel method" is used for ripple and noise test, output parallel 47μF electrolytic capacitor and 0.1μF 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 - output	Electric strength test for 1min., leakage current <5mA	4000	--	--	VAC
	Input - ⊕		2000	--	--	
	Output - ⊕		1250	--	--	
Insulation Resistance	Input - output	500VDC	100	--	--	MΩ
	Input - ⊕					
	Output - ⊕					
Operating Temperature			-40	--	+85	°C
Storage Temperature			-40	--	+85	
Storage Humidity	Non-condensing		--	--	95	%RH
Operating Humidity			--	--	95	
Power Derating	-40°C to -25°C		3.33	--	--	% / °C
	+50°C to +70°C		2.5	--	--	
	+70°C to +85°C		1.33	--	--	
	85VAC-120VAC		0.57	--	--	% / VAC
	80VAC-85VAC		2.00	--	--	
Switching Frequency			--	90	--	kHz
Safety Standard			Design refer to UL/EN/IEC/BS EN62368-1, EN/IEC60335-1, EN61558-1, EN62477, GB4943.1			
Safety Class			CLASS I			
MTBF			MIL-HDBK-217F@25°C > 300,000 h			

### Mechanical Specifications

Case Material	Metal (AL5052, SGCC)
Dimensions	99.00 x 97.00 x 30.00 mm
Weight	270g (Typ.)
Cooling Method	Free air convection

### Electromagnetic Compatibility (EMC)

Emissions	CE	CISPR32/EN55032	CLASS B	
	RE	CISPR32/EN55032	CLASS B	
Immunity	ESD	IEC/EN61000-4-2	Contact $\pm 6\text{KV}$ /Air $\pm 8\text{KV}$	Perf. Criteria A
	RS	IEC/EN61000-4-3	10V/m	Perf. Criteria A
	EFT	IEC/EN61000-4-4	$\pm 4\text{KV}$	Perf. Criteria A
	Surge	IEC/EN61000-4-5	Line to line $\pm 2\text{KV}$ /line to ground $\pm 4\text{KV}$	Perf. Criteria A
	CS	IEC/EN61000-4-6	10Vr.m.s	Perf. Criteria A
	PFMF	IEC/EN61000-4-8	30A/m	Perf. Criteria A
	Voltage dips, short interruptions and voltage variations immunity	IEC/EN61000-4-11	100% dip 1 periods, 30% dip 25 periods, 100% interruptions 250 periods	Perf. Criteria B

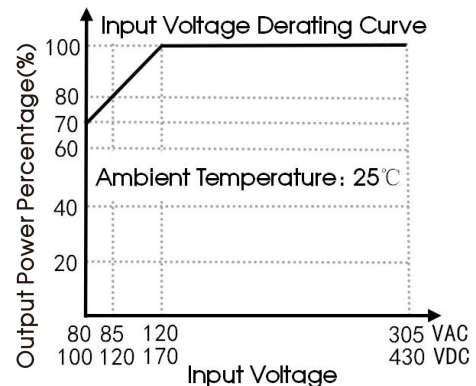
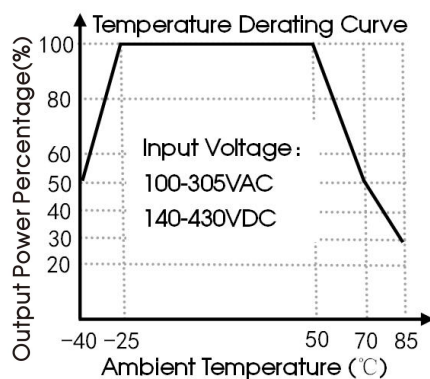
**Remark:**

1. When the power supply is used in the European Union or in applications that mandatory to meet the requirements of EN61000-3-2, users need to handle the harmonic current requirements, details please refer to Mornsun FAE. Applications like:

- 1) The terminal equipment is used in the European Union;
- 2) The terminal equipment is connected to public mains supply with 220VAC or greater rated nominal voltage that mandatory to meet 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 belongs to a part of lighting system.

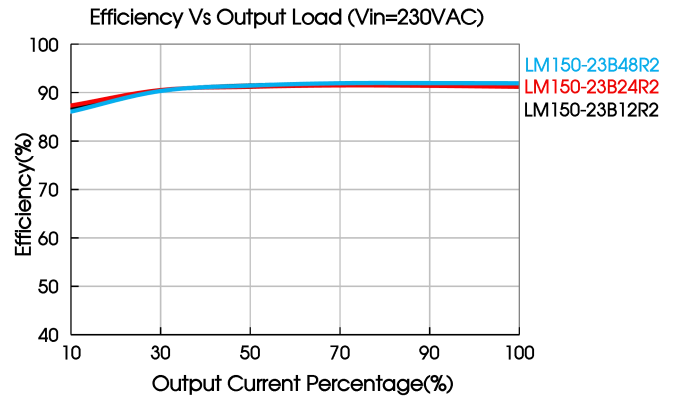
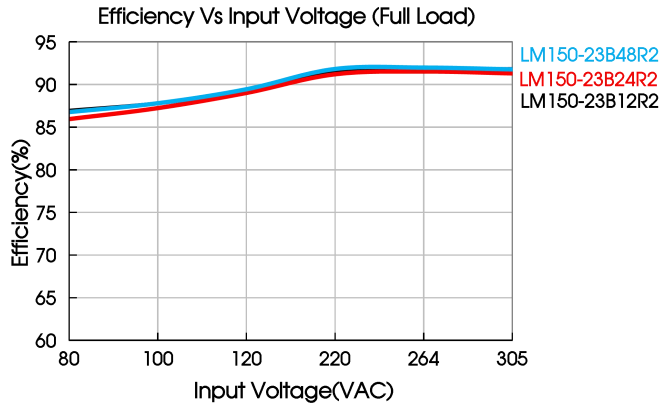
2. Unless otherwise specified, all specifications are tested under the input of 230VAC, rated load, and 25°C ambient temperature.

### Product Characteristic Curve



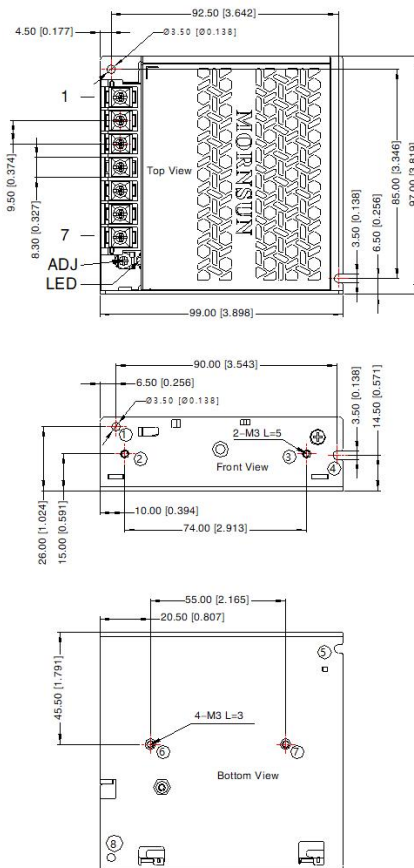
Note: ① With an AC input between 80-120VAC and a DC input between 100-170VDC, in addition to the voltage drop, temperature derating is also required. If it is used in a low temperature environment, please consult Mornsun FAE.

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

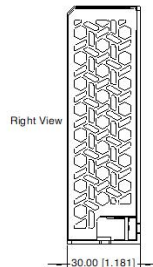


## Dimensions and Recommended Layout

### LM150-23BxxR2, LM150-23BxxR2-Q, LM150-23BxxR2-QQ Series



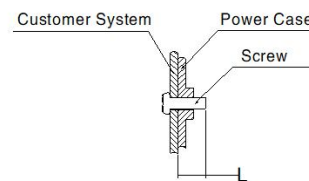
THIRD ANGLE PROJECTION



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

①-⑧ any position must be connected to the earth (⊕)

Position	Screw Spec.	L(max)	Torque(max)
②-③	M3	5mm	0.4N·m
⑥-⑦	M3	3mm	0.4N·m



Note:

Unit: mm[inch]

ADJ: Output adjustable resistor

Wire range: Input: 20-10AWG(16-10AWG for pin3)

Output: 12V, 15V: 14-10AWG

24V, 36V: 18-10AWG

48V, 54V: 20-10AWG

Connector tightening torque: M3.5, 0.8N·m max.

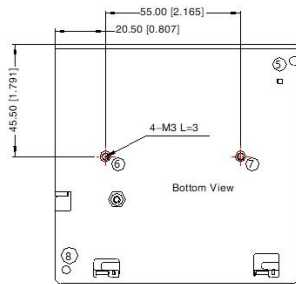
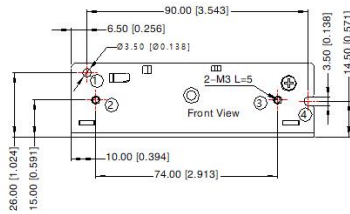
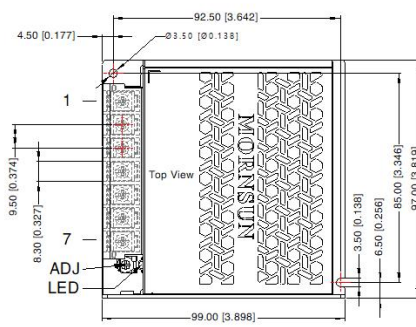
General tolerances: ± 1.00 [± 0.039]

# AC/DC 150W Enclosed Switching Power Supply

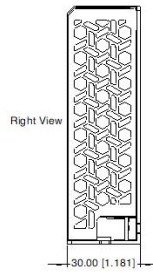
## LM150-23BxxR2(-C, -Q, -CQ, -QQ, -CQQ) Series

# MORNSUN®

### LM150-23BxxR2-C, LM150-23BxxR2-CQ, LM150-23BxxR2-CQQ Series



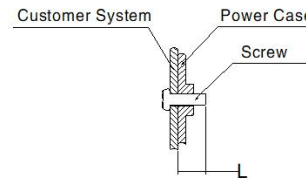
THIRD ANGLE PROJECTION



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

①-⑧ any position must be connected to the earth ( $\oplus$ )

Position	Screw Spec.	L(max)	Torque(max)
②-③	M3	5mm	0.4N · m
⑥-⑦	M3	3mm	0.4N · m



Note:

Unit: mm[inch]

ADJ: Output adjustable resistor

Wire range: Input: 20-10AWG(16-10AWG for pin3)

Output: 12V, 15V: 14-10AWG

24V, 36V: 18-10AWG

48V, 54V: 20-10AWG

Connector tightening torque: M3.5, 0.8N · m max.

General tolerances:  $\pm 1.00[\pm 0.039]$

Note:

- For additional information on Product Packaging please refer to [www.mornsun-power.com](http://www.mornsun-power.com). Packaging bag number: 58220269;
- 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;
- The room temperature derating of  $5^\circ\text{C}/1000\text{m}$  is needed for operating altitude greater than 2000m;
- All index testing methods in this datasheet are based on our company corporate standards;
- 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;
- We can provide product customization service, please contact our technicians directly for specific information;
- Products are related to laws and regulations: see "Features" and "EMC";
- The out case needs to be connected to the earth ( $\oplus$ ) of system when the terminal equipment in operating;
- Our products shall be classified according to ISO14001 and related environmental laws and regulations, and shall be handled by qualified units.

## MORNSUN Guangzhou Science & Technology Co., Ltd.

Address: No. 5, Kehui St. 1, Kehui Development Center, Science Ave., Guangzhou Science City, Huangpu District, Guangzhou, P. R. China

Tel: 86-20-38601850

Fax: 86-20-38601272

E-mail: [info@mornsun.cn](mailto:info@mornsun.cn)

[www.mornsun-power.com](http://www.mornsun-power.com)

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