

# AC/DC 75W Enclosed Switching Power Supply

## LM75-23BxxR2, LM75-23BxxR2-C, LM75-23BxxR2-Q Series

# MORNSUN®



CE Report  
EN62368-1

CB  
IEC62368-1

UK  
BS EN 62368-1

CCC  
GB4943.1

RoHS



IEC62368-1  
IEC60950-1  
R-41202550  
www.mornsun.cn

## 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
- High I/O Isolation test voltage up to 4000VAC
- Low ripple & noise
- Operating altitude up to 5000m
- Output short circuit, over-current, over-voltage protection
- OVC III (designed to meet EN62477)
- Safety according to UL62368, EN60335, EN61558, EN62477

LM75-23BxxR2 series is the ultra-small second-generation new industrial standard mental 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, IEC/UL/EN/BS EN62368, EN60335, 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 (V)	Efficiency at 230VAC (%) Typ.	Max. Capacitive Load (μF)
EN/IEC/CCC/ BIS	LM75-23B05R2	70	5V/14A	4.5-5.5	86.5	10000
	LM75-23B12R2	72	12V/6A	10.2-13.8	89	6000
	LM75-23B15R2	75	15V/5A	13.5-18	91	5000
	LM75-23B24R2	76.8	24V/3.2A	21.6-28.8		1500
	LM75-23B36R2	75.6	36V/2.1A	32.4-39.6		1000
	LM75-23B48R2	76.8	48V/1.6A	43.2-52.8	92.5	680
EN/IEC/CCC	LM75-23B54R2	75.6	54V/1.4A	48.6-59.4		

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		80	--	305	VAC
	DC input		100	--	430	VDC
Input Voltage Frequency			47	--	63	Hz
Input Current	115VAC		--	--	2	A
	230VAC		--	--	1	
Inrush Current	115VAC	Cold start	--	40	--	
	230VAC		--	75	--	
Leakage Current	277VAC		<0.75mA			
Hot Plug			Unavailable			

## Output Specifications

Item	Operating Conditions		Min.	Typ.	Max.	Unit
Output Voltage Accuracy	Full load range	5V	--	±2	--	%
		12V/15V/24V/36V/48V/54V	--	±1	--	

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Line Regulation	Rated load		--	±0.5	--	
Load Regulation	0% - 100% load	5V	--	±1	--	
		12V/15V/24V/36V/48V/54V	--	±0.5	--	
Ripple & Noise*	20MHz bandwidth (peak-to-peak value)	5V/12V/15V	--	120	--	mV
		24V	--	150	--	
		36V/48V/54V	--	200	--	
Temperature Coefficient			--	±0.03	--	%/°C
Minimum Load			0	--	--	%
Stand-by Power Consumption	5V/12V/15V/24V		--	--	0.3	W
	36V/48V/54V		--	--	0.5	
Hold-up Time	115VAC		8	--	--	ms
	230VAC		55	--	--	
Short Circuit Protection	Recovery time <5s after the short circuit disappear.		Hiccup, continuous, self-recover			
Over-current Protection	230VAC, rated load	Normal temperature, high temperature	120% - 200% Io, hiccup, self-recover			
		Low temperature	≥ 120% Io, hiccup, self-recover			
Over-voltage Protection	5V		≤7.3VDC (Hiccup, self-recover)			
	12V		≤16VDC (Clamp, self-recover)			
	15V		≤21.75VDC (Clamp, self-recover)			
	24V		≤33.6VDC (Hiccup, self-recover)			
	36V		≤48.6VDC (Hiccup, self-recover)			
	48V		≤60VDC (Hiccup, self-recover)			
	54V		≤70VDC (Hiccup, self-recover)			
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 - $\oplus$	Electric strength test for 1min., leakage current <5mA		2000	--	--	VAC	
	Input - output			4000	--	--		
	Output - $\oplus$			1250	--	--		
Insulation Resistance	Input - $\oplus$	At 500VDC		100	--	--	M $\Omega$	
	Input - output			100	--	--		
	Output - $\oplus$			100	--	--		
Operating Temperature				-40	--	+85	$^{\circ}\text{C}$	
Storage Temperature				-40	--	+85		
Operating Humidity		Non-condensing		20	--	90	%RH	
Storage Humidity				--	--	95		
Switching Frequency				--	--	150	kHz	
Power Derating		Operating temperature derating	5V	+40 $^{\circ}\text{C}$ to +70 $^{\circ}\text{C}$	1.33	--	--	%/ $^{\circ}\text{C}$
				+70 $^{\circ}\text{C}$ to +85 $^{\circ}\text{C}$	2	--	--	
			Others	+50 $^{\circ}\text{C}$ to +85 $^{\circ}\text{C}$	2	--	--	
			-40 $^{\circ}\text{C}$ to -30 $^{\circ}\text{C}$		5	--	--	
		Input voltage derating	80VAC - 100VAC		1.33	--	--	% /VAC
			277VAC - 305VAC		0.71	--	--	
Safety Standard		5V/12V/15V/24V/36V/48V		IEC/EN/BS EN62368-1, GB4943.1, IS13252 (Part1) safety approved; Design refer to UL62368-1, EN60335-1, EN61558-1, EN62477-1				

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	54V	IEC/EN/BS EN62368-1, GB4943.1 safety approved; Design refer to UL62368-1, EN60335-1, EN61558-1, EN62477-1
Safety Class		CLASS I
MTBF	MIL-HDBK-217F@25°C	>300,000 h

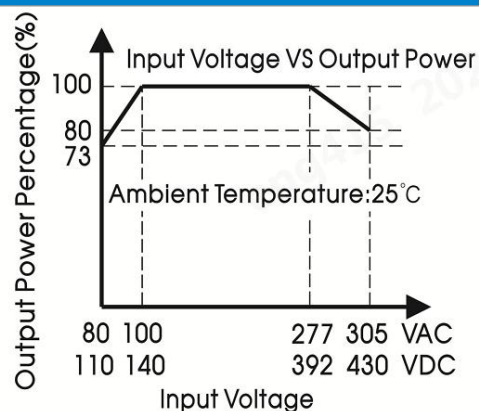
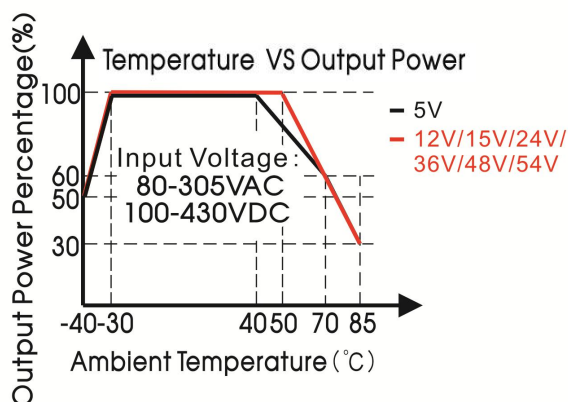
### Mechanical Specifications

Case Material	Metal (AL1100, SGCC)
Dimensions	99.00mm x 82.00mm x 30.00mm
Weight	220g (Typ.)
Cooling Method	Free air convection

### Electromagnetic Compatibility (EMC)

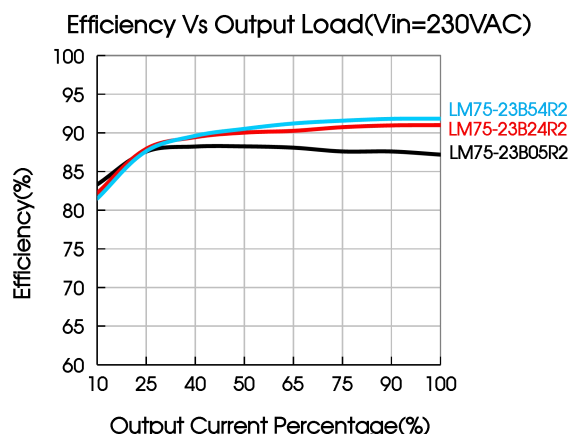
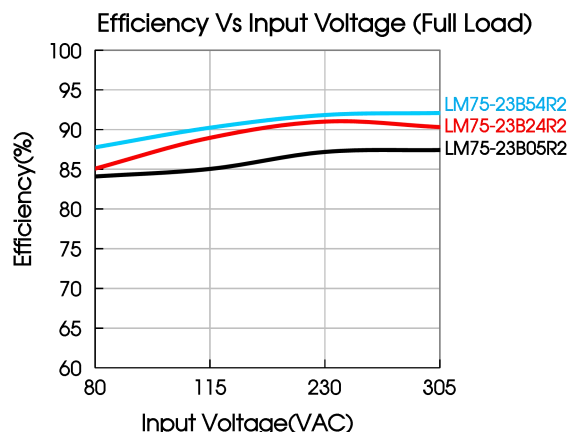
Emissions	CE	CISPR32/EN55032	CLASS B	
	RE	CISPR32/EN55032	CLASS B	
	Harmonic current	IEC/EN61000-3-2	CLASS A	
Immunity	ESD	IEC/EN 61000-4-2	Contact ±6KV/Air ±8KV	perf. Criteria A
	RS	IEC/EN 61000-4-3	10V/m	perf. Criteria A
	EFT	IEC/EN 61000-4-4	±4KV	perf. Criteria A
	Surge	IEC/EN 61000-4-5	line to line ±2KV/line to PE ±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 80 - 100VAC/277 - 305VAC and a DC input between 100 - 140VDC/392 - 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.



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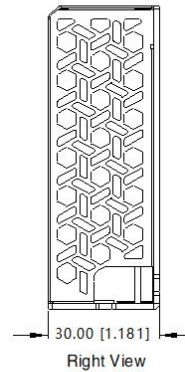
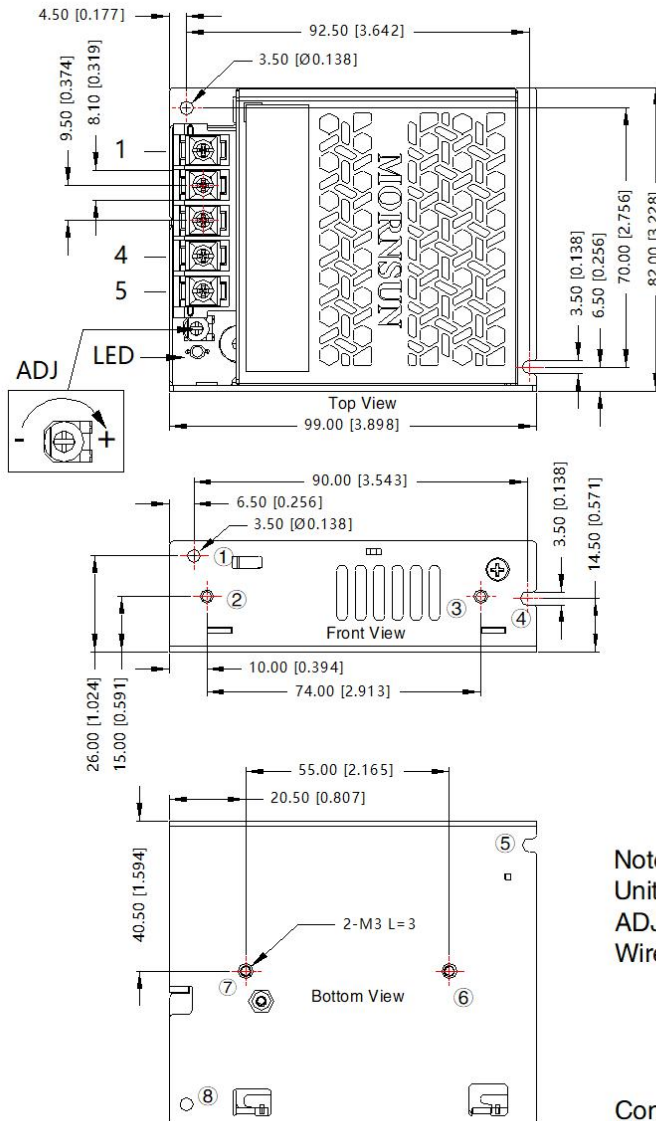
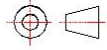
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## Dimensions and Recommended Layout

### LM75-23BxxR2, LM75-23BxxR2-Q Series

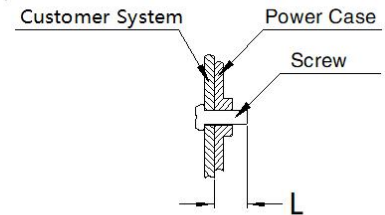
THIRD ANGLE PROJECTION



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

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

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



Note:

Unit: mm[inch]

ADJ: Output voltage adjustable resistor

Wire range: Input: 22-12AWG(16-12AWG for pin3)

Output: 5V: 16-12AWG

12V/15V: 18-12AWG

24V: 20-12AWG

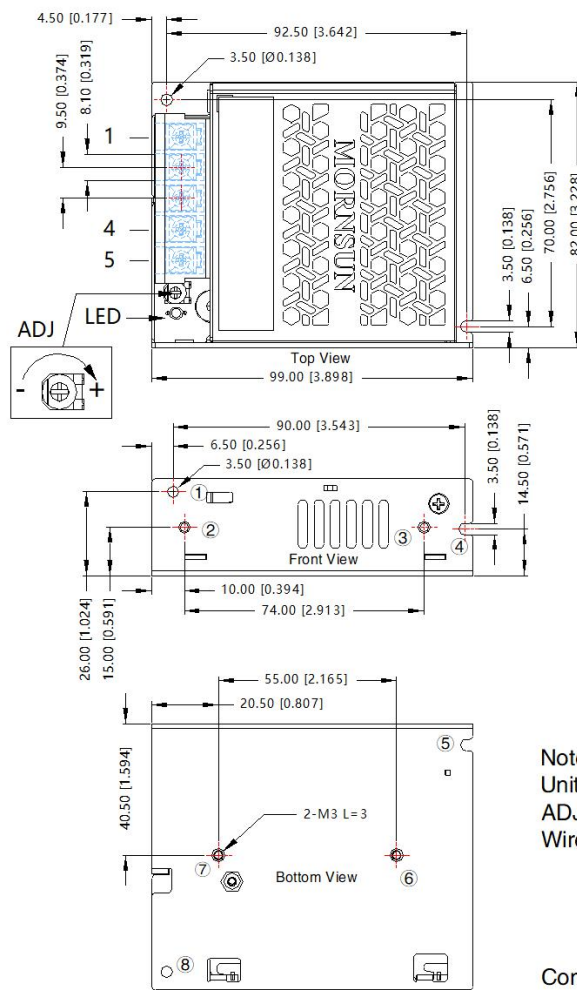
36V/48V/54V: 22-12AWG

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

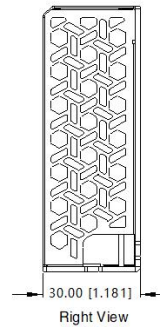
General tolerances:  $\pm 1.00[\pm 0.039]$



### LM75-23BxxR2-C Series



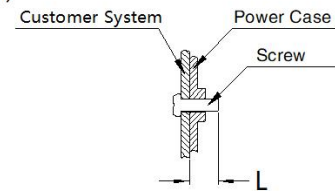
THIRD ANGLE PROJECTION



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

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

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



Note:

Unit: mm[inch]

ADJ: Output voltage adjustable resistor

Wire range: Input: 22-12AWG(16-12AWG for pin3)

Output: 5V: 16-12AWG

12V/15V: 18-12AWG

24V: 20-12AWG

36V/48V/54V: 22-12AWG

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: 58220268;
- 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 PE (⏏) of system when the terminal equipment in operating;
- The output voltage can be adjusted by the ADJ, clockwise to increase;
- Our products shall be classified according to ISO14001 and related environmental laws and regulations, and shall be handled by qualified units;
- 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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