

AC/DC 100W Enclosed Switching Power Supply

LM100-23BxxR2(-C, -Q, -CQ, -QQ, -CQQ) Series

MORNSUN®



FEATURES

- Universal 80 - 305VAC or 100 - 430VDC input voltage
- Accepts AC or DC input (dual-use of same terminal)
- Operating ambient temperature range: -40℃ to +85℃
- Compact size, high power density
- 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 protection
- OVC III (meet EN62477)
- Operating altitude up to 5000m

LM100-23BxxR2 series is the ultra-small Mornsun second-generation new industrial standard enclosed power supply, which has innovated the industrial power supply standard from the aspect of dimension, 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 reinforced isolation. These converters offer excellent EMC performance and meet IEC/EN61000-4, CISPR32/EN55032, UL/IEC/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. For extremely harsh EMC environment, we recommend using the application circuit show in Design Reference of this datasheet.

Selection Guide

Certification	Part No.*	Output Power (W)	Nominal Output Voltage and Current (Vo/Io)	Output Voltage Adjustable Range (V)	Efficiency at 230VAC (%) Typ.	Capacitive Load (uF) Max.
IEC/CCC/EN/BIS	LM100-23B05R2	90	5V/18A	4.75-5.75	87.0	10000
	LM100-23B12R2	102	12V/8.5A	11.4-13.8	90.0	6800
	LM100-23B15R2	105	15V/7.0A	14.25-17.25	90.0	3300
	LM100-23B24R2	108	24V/4.5A	22.8-27.6	90.5	2200
	LM100-23B36R2	100.8	36V/2.8A	34.2-41.4	90.5	1000
	LM100-23B48R2	110.4	48V/2.3A	43.2-52.8	91.5	470
IEC/CCC/EN	LM100-23B54R2	102.6	54V/1.9A	51.3-56.7	91.5	220

Note: *1. Use suffix "C" for terminal with protective cover, suffix "Q" for bottom conformal coating and "QQ" for both sides 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		80	--	305	VAC	
	DC input		100	--	430	VDC	
Input Voltage Frequency			47	--	63	Hz	
Input Current	115VAC		--	--	3	A	
	230VAC		--	--	1.5		
Inrush Current	115VAC	Cold start	--	35	--		
	230VAC		--	65	--		
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*	230V, Rated load; 20MHz bandwidth (peak-to-peak value)	5V	--	150	--	mV
		12V/15V	--	120	--	
		24V		150		
		36V/48V/54V	--	200	--	
Temperature Coefficient			--	±0.03	--	%/°C
Minimum Load			0	--	--	%
Stand-by Power Consumption			--	0.3	0.5	W
Hold-up Time	115VAC		--	10	--	ms
	230VAC		--	55	--	
Short Circuit Protection	Recovery time <5s after the short circuit disappear.		Hiccup, continuous, self-recover			
Over-current Protection			115% - 200% Io, Hiccup, self-recover			
Over-voltage Protection	5V		≤7.5VDC (Clamp, self-recover)			
	12V		≤19.2VDC (Hiccup, self-recover)			
	15V		≤24VDC (Hiccup, self-recover)			
	24V		≤38.4VDC (Hiccup, self-recover)			
	36V		≤57.6VDC (Hiccup, self-recover)			
	48V		≤60VDC (Clamp, 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 - ⊕	Electric strength test for 1min., leakage current <10mA		2000	--	--	VAC
	Input - output	Electric strength test for 1min., leakage current <5mA		4000	--	--	
	Output - ⊕	Electric strength test for 1min., leakage current <5mA		1250	--	--	
Insulation Resistance	Input - ⊕	Test voltage at 500VDC		100	--	--	MΩ
	Input - output			100	--	--	
	Output - ⊕			100	--	--	
Operating Temperature				-40	--	+85	℃
Storage Temperature				-40	--	+85	
Operating Humidity		Non-condensing		20	--	90	%RH
Storage Humidity				10	--	95	
Switching Frequency				--	80	--	kHz
Power Derating	+45℃ to +70℃		5V	1.60	--	--	% /℃
	+50℃ to +70℃		12V/15V/24V/36V/48V/54V	2.00	--	--	
	+70℃ to +85℃			2.00			
	-40℃ to -30℃			5.00	--	--	
	80VAC - 100VAC			1.25	--	--	% /VAC
	277VAC - 305VAC			0.71	--	--	
Safety Standard		5V/12V/15V/24V/36V/48V		IEC/ BS EN/EN62368-1, GB4943.1, IS13252 (Part1), BS EN/EN60335-1, BS EN/ EN61558-1safety approved; Design refer to UL62368-1, EN62477-1			
		54V		IEC/ BS EN/EN62368-1, GB4943.1, BS EN/ EN60335-1, BS EN/EN61558-1safety approved; Design refer to UL62368-1, EN62477-1			

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Safety Class		CLASS I
MTBF	MIL-HDBK-217F@25°C	≥300,000 h

Mechanical Specifications

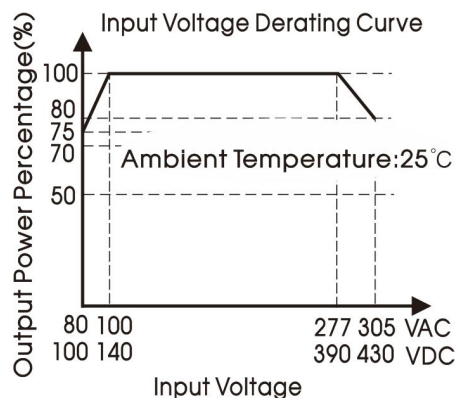
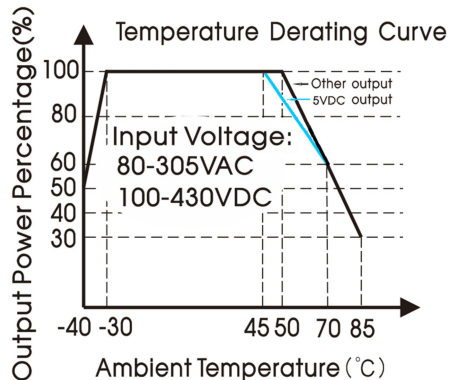
Case Material	Metal (AL5052, SGCC)
Dimensions	99.00 x 97.00 x 30.00 mm
Weight	260g (Typ.)
Cooling Method	Free air convection

Electromagnetic Compatibility (EMC)

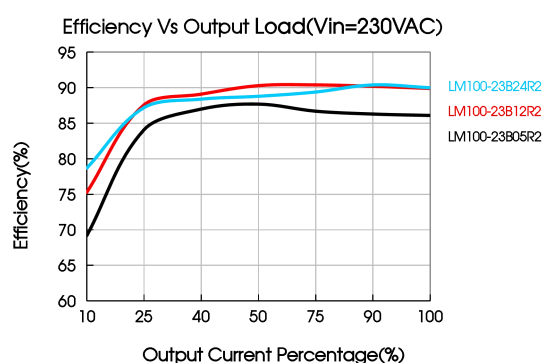
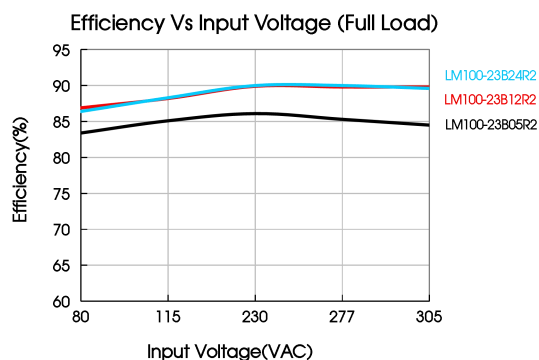
Emissions	CE	CISPR32/EN55032	CLASS B	
	RE	CISPR32/EN55032	CLASS B	
	Harmonic current	IEC/EN61000-3-2	CLASS A	
Immunity	ESD	IEC/EN61000-4-2	Contact ±6KV/Air ±8KV	perf. Criteria A
	RS	IEC/EN61000-4-3	10V/m	perf. Criteria A
	EFT	IEC/EN61000-4-4	±4KV	perf. Criteria A
	Surge	IEC/EN61000-4-5	line to line ±2KV/line to PE ±4KV	perf. Criteria A
	CS	IEC/EN61000-4-6	10 Vr.m.s	perf. Criteria A
	PFMF	IEC/EN61000-4-8	30A/m	perf. Criteria A
	Voltage dip, short interruption and voltage variation	IEC/EN61000-4-11	0%, 70%	perf. Criteria B

Note: If the EMC performance needed to be improved, please add EMC filter FC-L03Wx series (see wiring diagram 1). Details of specific indicators please refer to filter datasheet.

Product Characteristic Curve



- Note: 1. With an AC input voltage between 80 -100VAC/277-305VAC and a DC input between 100 -140VDC/390-430VDC 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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FC-L03Wx & LM100-23BxxR2 Wiring Diagram

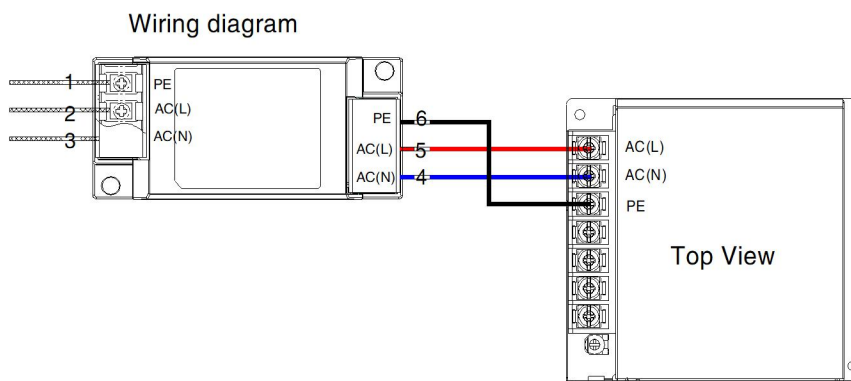
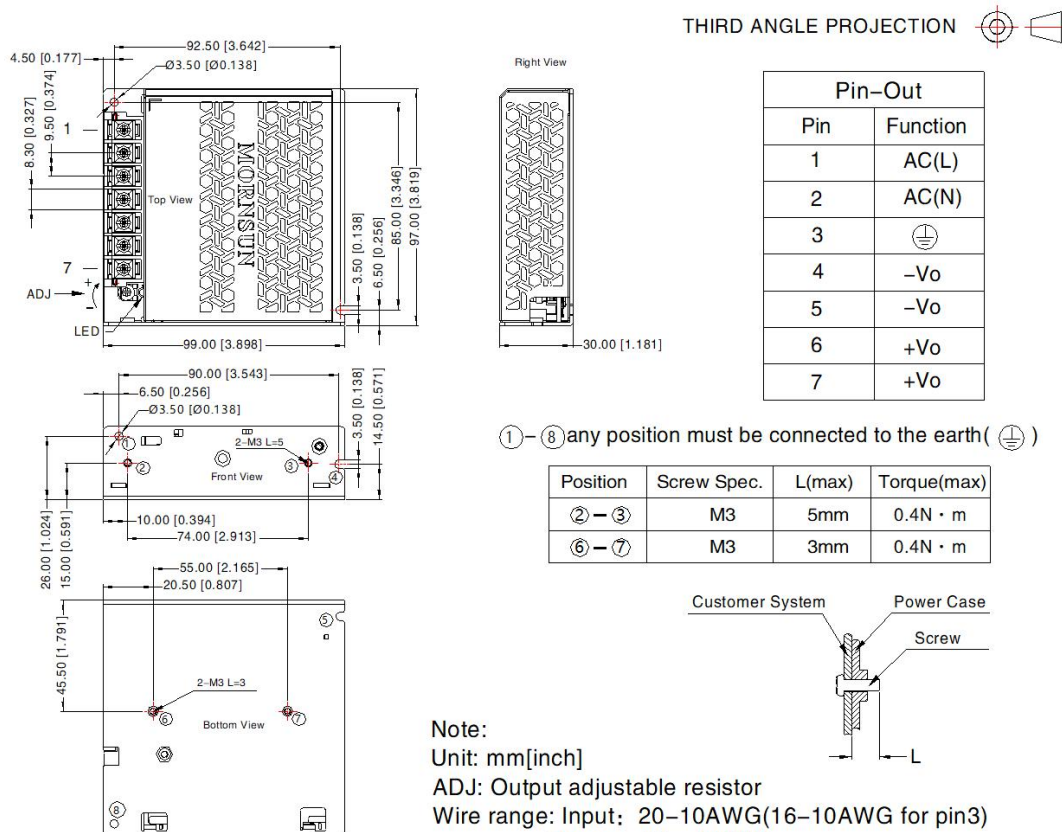


Fig. 1: EMC application circuit with higher requirement

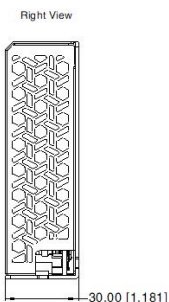
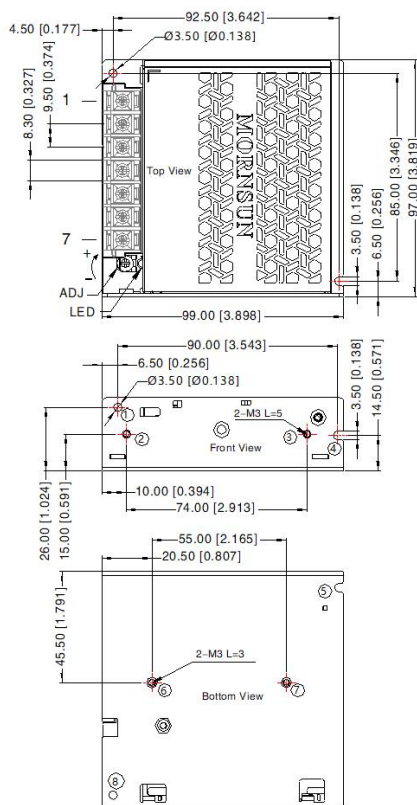
Dimensions and Recommended Layout

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LM100-23BxxR2-C (-CQ, -CQQ) Series

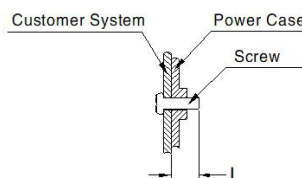
THIRD ANGLE PROJECTION



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: 5V: 10AWG

12V, 15V: 14-10AWG

24V, 36V: 17-10AWG

48V, 54V: 20-10AWG

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

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