

# AC/DC 15W Enclosed Switching Power Supply **MORNSUN**<sup>®</sup>

## LM15-23Bxx, LM15-23Bxx-C, LM15-23Bxx-Q Series



### FEATURES

- 85 - 305VAC or 100 - 430VDC input voltage
- Accepts AC or DC input (dual-use of same terminal)
- Operating ambient temperature range: -30°C to +70°C
- Up to 83% efficiency
- No-load power consumption < 0.5W
- High I/O isolation test voltage up to 4000VAC
- Output short circuit, over-current, over-voltage protection
- Over-voltage class III (designed to meet EN61558)
- Operating up to 5000m altitude

LM15-23Bxx 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 and high reliability. These converters offer excellent EMC performance and meet IEC/EN61000-4, CISPR32/EN55032, IEC/UL/EN62368, 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.	Capacitive Load (μF) Max.
UL/EN/IEC/CCC	LM15-23B03	9.9	3.3V/3.0A	2.85-3.6	73	3000
	LM15-23B05	15	5V/3.0A	4.5-5.5	78	2400
	LM15-23B12	15.6	12V/1.3A	10.2-13.8	82	1800
	LM15-23B15	15	15V/1.0A	13.5-18	82	1200
	LM15-23B24	15	24V/0.625A	21.6-28.8	83	600
	LM15-23B48	15.36	48V/0.32A	42-54	83	300

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	100	--	430	VDC
Input Frequency		47	--	63	Hz
Input Current	115VAC	--	--	0.35	A
	230VAC	--	--	0.25	
Inrush Current	115VAC	--	30	--	A
	230VAC	--	50	--	
Leakage Current	277VAC	<0.5mA			
Hot Plug		Unavailable			

### Output Specifications

Item	Operating Conditions	Min.	Typ.	Max.	Unit	
Output Voltage Accuracy	Full load range	3.3V	--	±3	--	%
		5V	--	±2	--	
		12V/15V/24V/48V	--	±1	--	
Line Regulation	Rated load	3.3V/5V	--	±1	--	%
		12V/15V/24V/48V	--	±0.5	--	
Load Regulation	0%-100% load	3.3V/5V	--	±1	--	%
		12V/15V/24V/48V	--	±0.5	--	
Ripple & Noise*	20MHz bandwidth (peak-to-peak value)	3.3V/5V	--	--	80	mV
		12V/15V	--	--	120	
		24V/48V	--	--	150	
Temperature Coefficient		--	±0.03	--	%/°C	

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Minimum Load		0	--	--	%
Stand-by Power Consumption	230VAC	--	0.3	0.5	W
Hold-up Time	115VAC input	--	7	--	ms
	230VAC input	--	48	--	
Short Circuit Protection	Recovery time <5s after the short circuit disappear.	Hiccup, continuous, self-recovery			
Over-current Protection		≥110% Io, self-recovery			
Over-voltage Protection	3.3V/5V	≤ 6.75VDC (Output voltage hiccup or clamp)			
	12V	≤ 16.2VDC (Output voltage hiccup or clamp)			
	15V	≤ 21.8VDC (Output voltage hiccup or clamp)			
	24V	≤ 33.6VDC (Output voltage hiccup or clamp)			
	48V	≤ 60.0VDC (Output voltage hiccup or clamp)			

Note: \*The "Tip and barrel method" is used for ripple and noise test, 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	100	--	--	MΩ	
	Input - Output		100	--	--		
	Output -⊕		100	--	--		
Operating Temperature			-30	--	+70	°C	
Storage Temperature			-40	--	+85		
Storage Humidity		Non-condensing	--	--	95	%RH	
Operating Humidity		Non-condensing	20	--	90		
Switching Frequency			--	65	--	kHz	
Power Derating	-30°C to -25°C		85VAC - 100VAC	6.0	--	--	% / °C
	+50°C to +70°C			2.0	--	--	
	85VAC - 100VAC			1.33	--	--	% / VAC
	277VAC - 305VAC			0.72	--	--	
Safety Standard			IEC/UL62368-1, GB4943.1 Safety Approval & EN62368-1 (Report)				
Safety Class			CLASS I				
MTBF		MIL-HDBK-217F@25°C	>700,000 h				

### Mechanical Specifications

Case Material	Metal (AL5052, SGCC)
Dimension	65.00 x 55.00 x 25.00 mm
Weight	90.0g (Typ.)
Cooling method	Free air convection

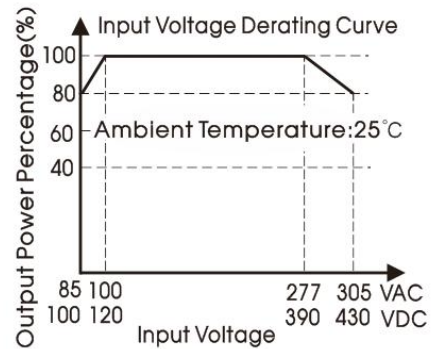
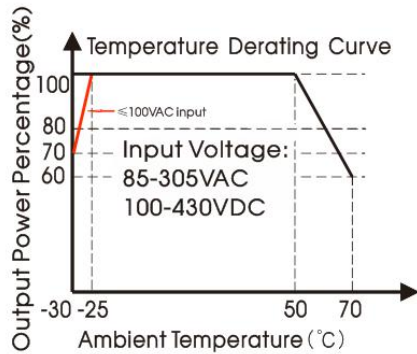
### Electromagnetic Compatibility (EMC)

Emissions	CE	CISPR32/EN55032	CLASS B	
	RE	CISPR32/EN55032	CLASS B	
Immunity	ESD	IEC/EN 61000-4-2	Contact ±6KV/Air ±8KV	Perf. Criteria B
	RS	IEC/EN61000-4-3	10V/m	perf. Criteria A
	EFT	IEC/EN61000-4-4	±2KV	perf. Criteria A
	Surge	IEC/EN61000-4-5	line to line ±1KV/line to ground ±2KV	perf. Criteria A
	CS	IEC/EN61000-4-6	10Vr.m.s	perf. Criteria A
	Voltage dip, short interruption and voltage variation	IEC/EN61000-4-11	0%, 70%	perf. Criteria B

# AC/DC 15W Enclosed Switching Power Supply **MORNSUN**<sup>®</sup>

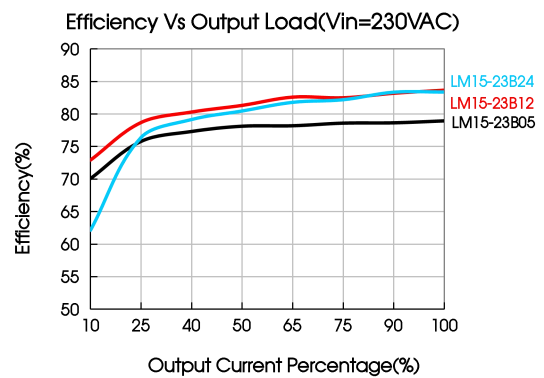
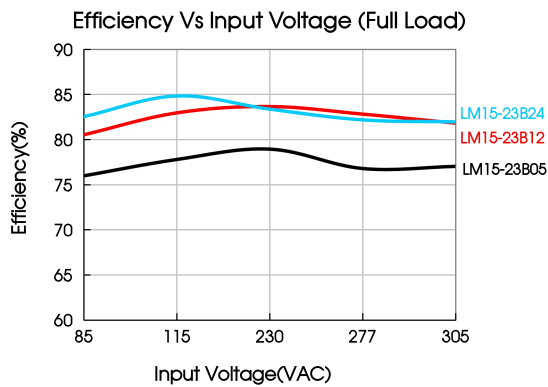
## LM15-23Bxx, LM15-23Bxx-C, LM15-23Bxx-Q Series

### Product Characteristic Curve



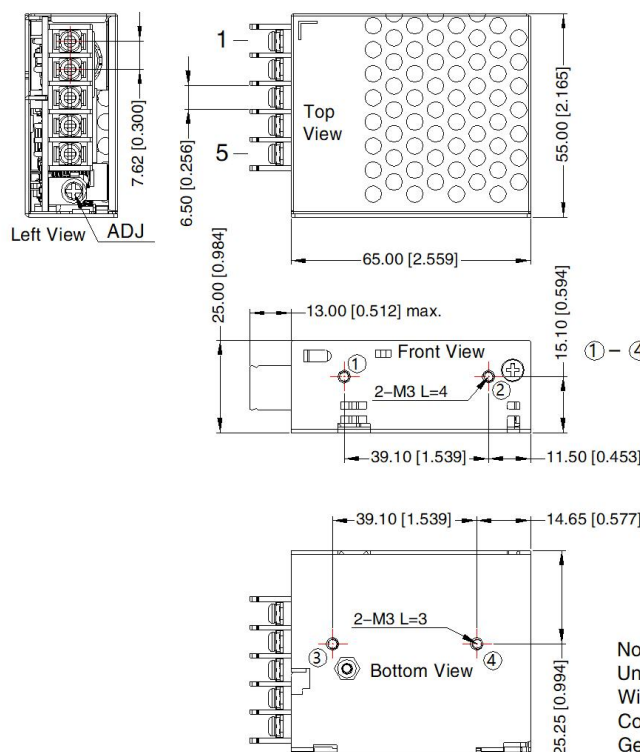
Note: ① With an AC input between 85-100V/277-305VAC and a DC input between 100-120VDC/390-430VDC, the output power must be derated as per temperature derating curves;

② This product is suitable for applications using natural air cooling; for applications in closed environment please consult factory or one of our FAE.



### Dimensions and Recommended Layout

#### LM15-23Bxx, LM15-23Bxx-Q Series

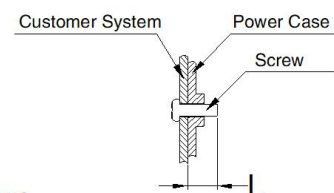


THIRD ANGLE PROJECTION

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

① - ④ any position must be connected to the earth (⊕)

Position	Screw Spec.	L(max)	Torque(max)
① - ②	M3	4mm	0.4N·m
③ - ④	M3	3mm	0.4N·m

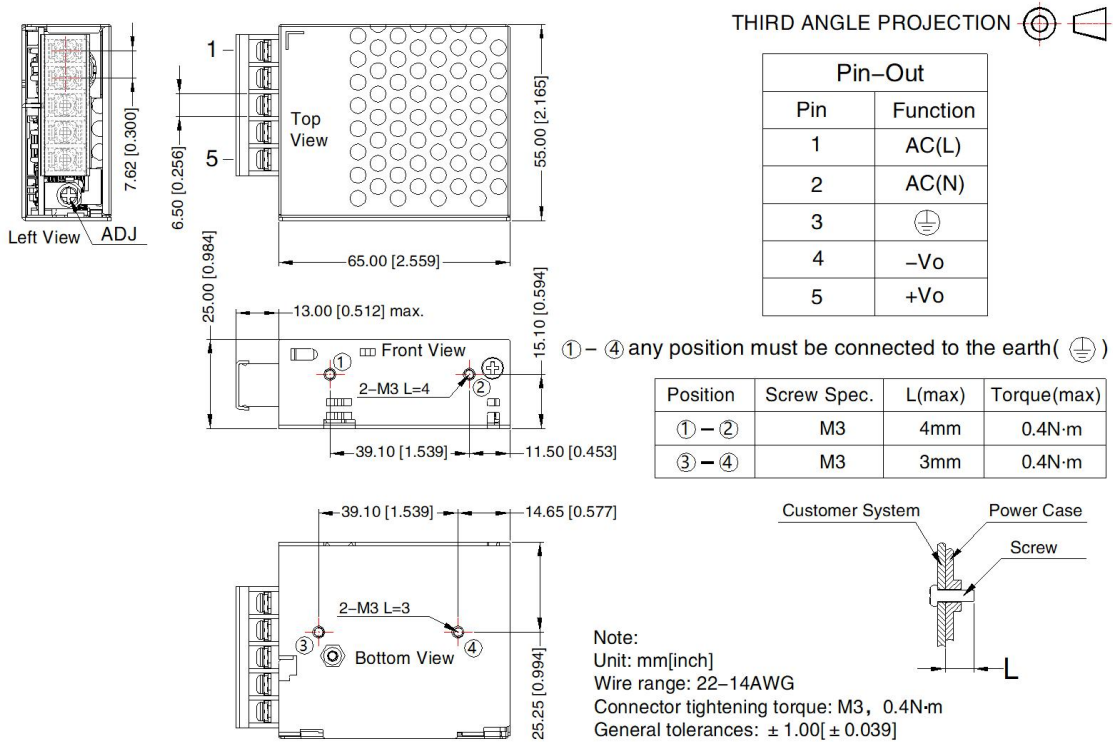


Note:  
Unit: mm[inch]  
Wire range: 22-14AWG  
Connector tightening torque: M3, 0.4N·m  
General tolerances: ± 1.00[± 0.039]

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### LM15-23Bxx-C Series



**Note:**

- For additional information on Product Packaging please refer to [www.mornsun-power.com](http://www.mornsun-power.com). Packaging bag number: 58220147;
- 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 ambient 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 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.
- The power supply is considered a component which will be installed into a final equipment. All EMC tests should be confirmed with the final equipment. Please consult our FAE for EMC test operation instructions.

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