

AC/DC 15W Enclosed Switching Power Supply **MORNSUN**[®]

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
- OVC 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.	Max. Capacitive Load (uF)
EN/IEC/ CCC/BIS	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: 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	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	

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		24V/48V	--	--	150	
Temperature Coefficient			--	±0.03	--	%/°C
Minimum Load			0	--	--	%
Stand-by Power Consumption	230VAC		--	0.3	0.5	W
Hold-up Time	115VAC		--	7	--	ms
	230VAC		--	48	--	
Short Circuit Protection	Recovery time <5s after the short circuit disappear.		Hiccup, continuous, self-recover			
Over-current Protection			≥110% Io, self-recover			
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, 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	100	--	--	MΩ	
	Input - output		100	--	--		
	Output - ⊕		100	--	--		
Operating Temperature			-30	--	+70	°C	
Storage Temperature			-40	--	+85		
Storage Humidity	Non-condensing		--	--	95	%RH	
Operating Humidity			20	--	90		
Switching Frequency			--	65	--	kHz	
Power Derating	Operating temperature derating	-30°C to -25°C	85VAC - 100VAC	6.0	--	--	%/%C
		+50°C to +70°C		2.0	--	--	
	Input voltage derating	85VAC - 100VAC		1.33	--	--	%/%AC
		277VAC - 305VAC		0.72	--	--	
Safety Standard			IEC/EN/BS EN 62368-1, GB4943.1, IS13252(Part1) Safety Approval; Design refer to UL62368-1				
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

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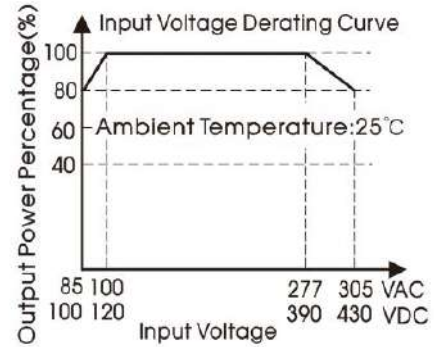
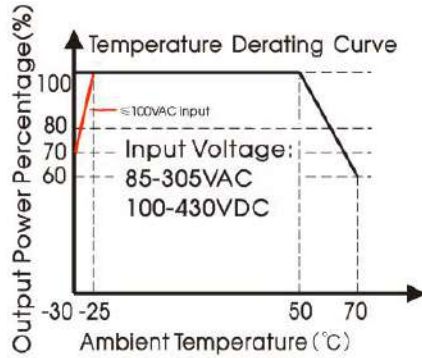
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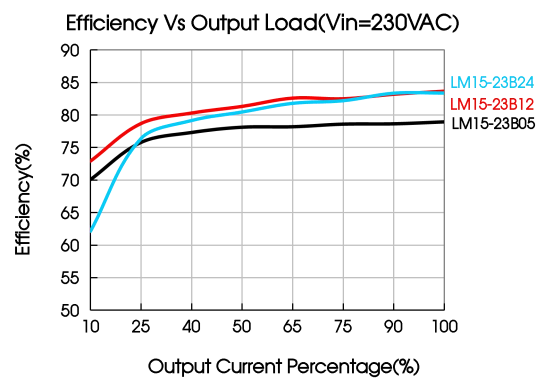
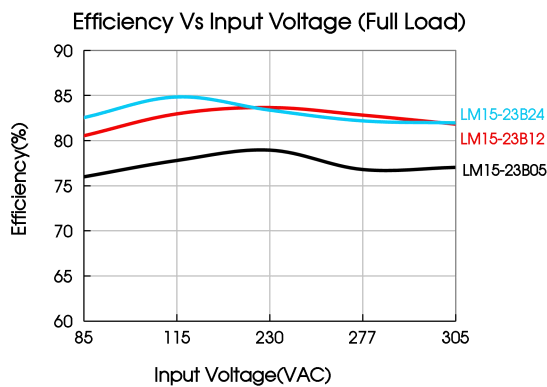
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	EFT	IEC/EN61000-4-4	±2KV	perf. Criteria A
	Surge	IEC/EN61000-4-5	line to line ±1KV/line to PE ±2KV	perf. Criteria A
	CS	IEC/EN61000-4-6	10Vr.m.s	perf. Criteria A
	Voltage dip, short interruption and voltage variation	IEC/EN61000-4-11	0%, 70%	perf. Criteria B

Product Characteristic Curve

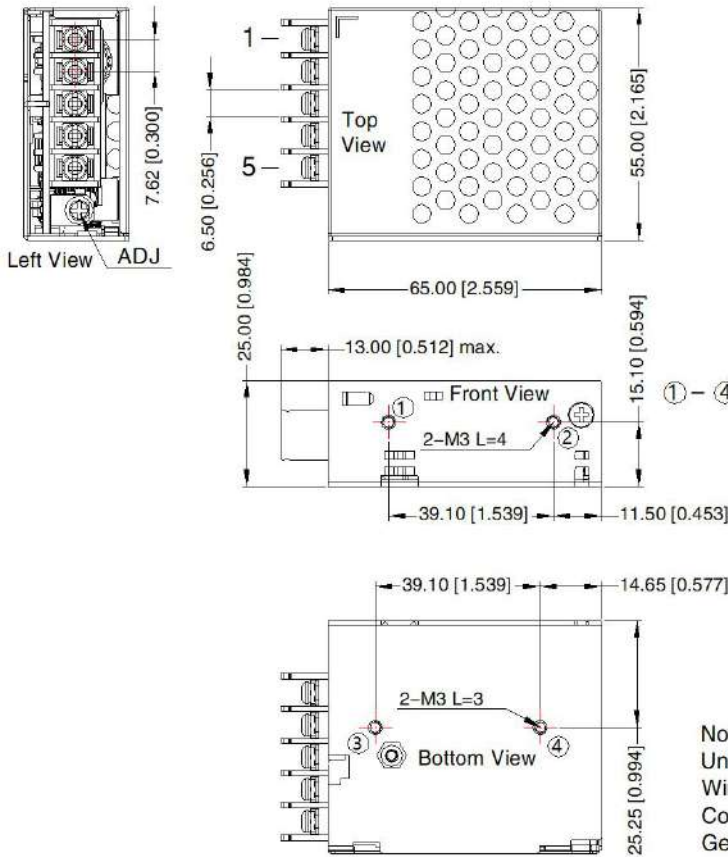


Note: 1. With an AC input between 85-100V/277-305VAC and a DC input between 100-120VDC/390-430VDC, the output power must be derated as per temperature derating curves;
 2. This product is suitable for applications using natural air cooling; for applications in closed environment please consult Mornsun FAE.



Dimensions and Recommended Layout

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

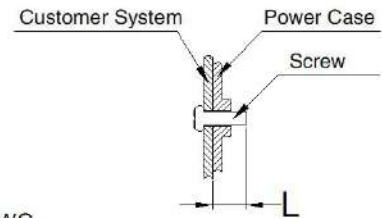


THIRD ANGLE PROJECTION

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

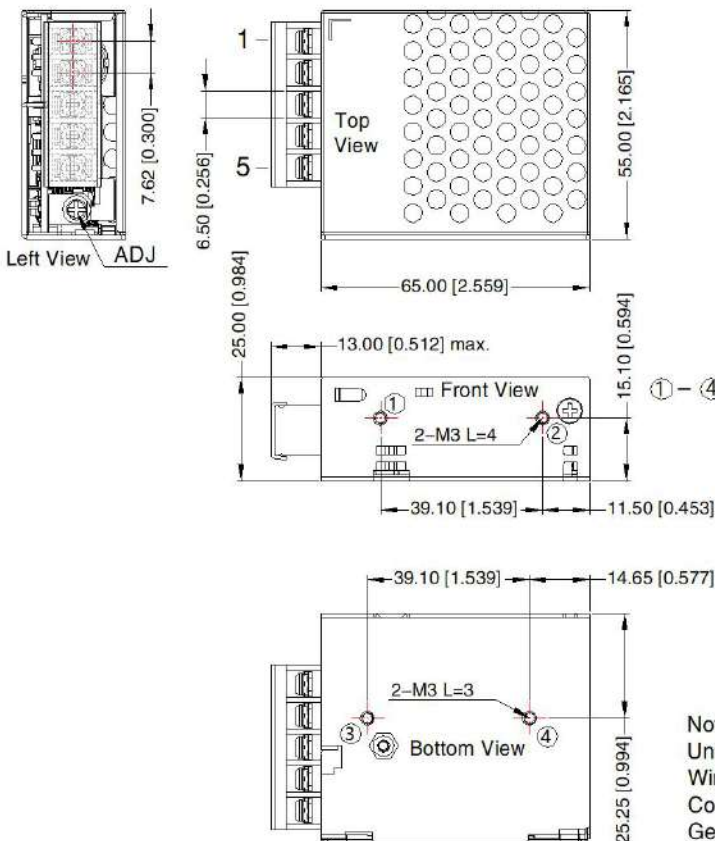
① - ④ any position must be connected to the earth ()

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]

LM15-23Bxx-C Series

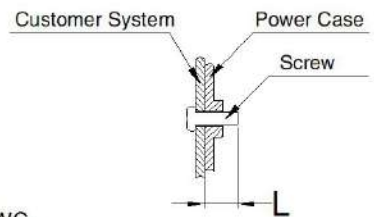


THIRD ANGLE PROJECTION

Pin-Out	
Pin	Function
1	AC(L)
2	AC(N)
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① - ④ any position must be connected to the earth ()

Position	Screw Spec.	L(max)	Torque(max)
① - ②	M3	4mm	0.4N·m
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Note:
Unit: mm[inch]
Wire range: 22-14AWG
Connector tightening torque: M3, 0.4N·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: 58220147;
2. 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;
3. The ambient temperature derating of $5^{\circ}\text{C}/1000\text{m}$ 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.
10. 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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