AC/DC 150W Enclosed Switching Power Supply

LM150-22BxxS(-QQ) series

MORNSUN®

RoHS

FEATURES

- Universal 165 - 264VAC or 180 - 370VDC Input voltage
- Accepts AC or DC input (dual-use of same terminal)
- Operating ambient temperature range: -30℃ to +70℃
- Low standby power consumption, high efficiency
- High I/O isolation test voltage up to 4000VAC
- 150% peak load output for 5s
- Output short circuit, over-current, over-voltage, over-temperature protection
- OVC Ⅲ (designed to meet EN62477)
- Operating altitude up to 5000m
- 3 years warranty

LM150-22BxxS series is one of Mornsun's enclosed AC-DC switching power supply. It features 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, UL/EN/IEC62368, EN60335, GB4943, EN61558 standards and they are widely used in areas of industrial, LED, street light control, 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.	Max. Capacitive Load (uF)
--	LM150-22B12S	150	12V/12.5A	10.2 -13.8	86	10000
	LM150-22B24S	156	24V/6.5A	21.6 - 28.8	88	2500

Note:
1. *Use suffix "QQ" for both sides conformal coating;
2. If the terminal cover is required, please order "PJA-033" for self-installation.
3. Under any conditions, the total power of the product should not exceed the rated power. When the output voltage is increased, the total output power cannot exceed the rated output power, when the output voltage is decreased, the output current cannot exceed the rated output current.
4. 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		165	--	264	VAC
	DC input		180	--	370	VDC
Input Voltage Frequency			47	--	63	Hz
Input Current	230VAC		--	--	2	A
Inrush Current	230VAC	Cold start	--	60	--	
Leakage Current	240VAC		<0.75mA			
Hot Plug			Unavailable			

Output Specifications

Item	Operating Conditions		Min.	Typ.	Max.	Unit
Output Voltage Accuracy	Full load range		--	±1	--	%
Line Regulation	Rated load		--	±0.5	--	
Load Regulation	0% - 100% load		--	±0.5	--	
Minimum Load			0	--	--	
Ripple & Noise*	20MHz bandwidth (peak-to-peak value)	12V	--	--	150	mV
		24V	--	--	200	
Temperature Coefficient			--	±0.03	--	%/℃

Stand-by Power Consumption		--	--	0.5	W
Hold-up Time	230VAC	--	16	--	ms
Short Circuit Protection	Recovery time <5s after the short circuit disappear.	Hiccup, continuous, self-recover			
Over-current Protection		⩾110% Io, shut down after 5s, turn off, self-recover after fault clearance			
Over-voltage Protection	12V	⩽18VDC	Output voltage hiccup, self-recover after fault clearance		
	24V	⩽33.6VDC			
Over-temperature Protection		Output voltage turn off, 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				4000	--	--	
	Output - ⏚				1250	--	--	
Insulation Resistance	Input - ⏚	At 500VDC			100	--	--	MΩ
	Input - output				100	--	--	
	Output - ⏚				100	--	--	
Operating Temperature					-30	--	+70	℃
Storage Temperature					-40	--	+85	
Storage Humidity		Non-condensing			20	--	90	%RH
Operating Humidity					10	--	95	
Switching Frequency					--	65	--	kHz
Power Derating		Operating temperature derating	12V output	+45℃ to +70℃	2	--	--	%/℃
			24V output	+50℃ to +70℃	2.5	--	--	
Safety Standard		Design refer to UL/IEC/EN/BS EN 62368-1, IS13252 (Part1), GB4943.1 & EN60335-1, EN61558-1, EN61558-2-16						
Safety Class		CLASS I						
MTBF		MIL-HDBK-217F@25℃			⩾300,000 h			
Warranty		3 years						

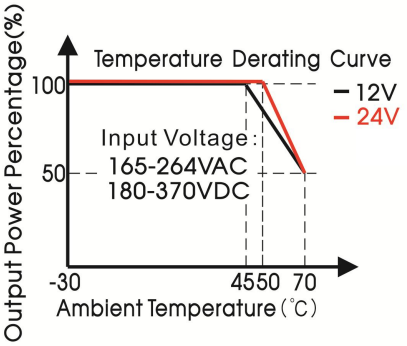
Mechanical Specifications

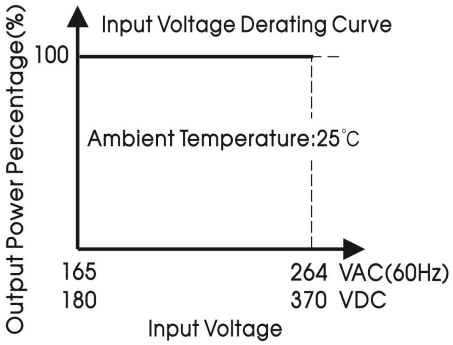
Case Material	Metal (AL1100, SGCC)
Dimensions	159.00 x 97.00 x 30.00mm
Weight	390g (Typ.)
Cooling Method	Free air convection

Electromagnetic Compatibility (EMC)

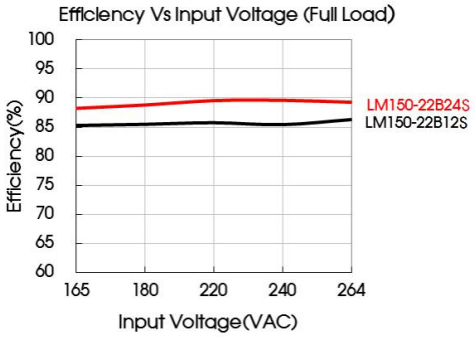
Emissions	CE	CISPR32/EN55032	CLASS B	
	RE	CISPR32/EN55032	CLASS B	
	Harmonic current	IEC/EN61000-3-2	CLASS A (⩽80% Load)	
Immunity	ESD	IEC/EN61000-4-2	Contact ±6KV/Air ±8KV	perf. Criteria A
	RS	IEC/EN61000-4-3	10V/m	perf. Criteria A
	EFT	IEC/EN61000-4-4	±4KV	perf. Criteria A
	Surge	IEC/EN61000-4-5	line to line ±2KV/line to PE ±4KV	perf. Criteria A
	CS	IEC/EN61000-4-6	10Vr.m.s	perf. Criteria A
	MS	IEC/EN61000-4-8	30A/m	perf. Criteria A
	Voltage dip, short interruption and voltage variation	IEC/EN61000-4-11	100% dip 1 periods, 30% dip 25 periods, 100% interruptions 250 periods	perf. Criteria B

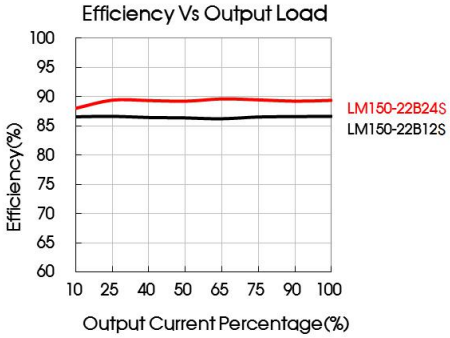
Product Characteristic Curve



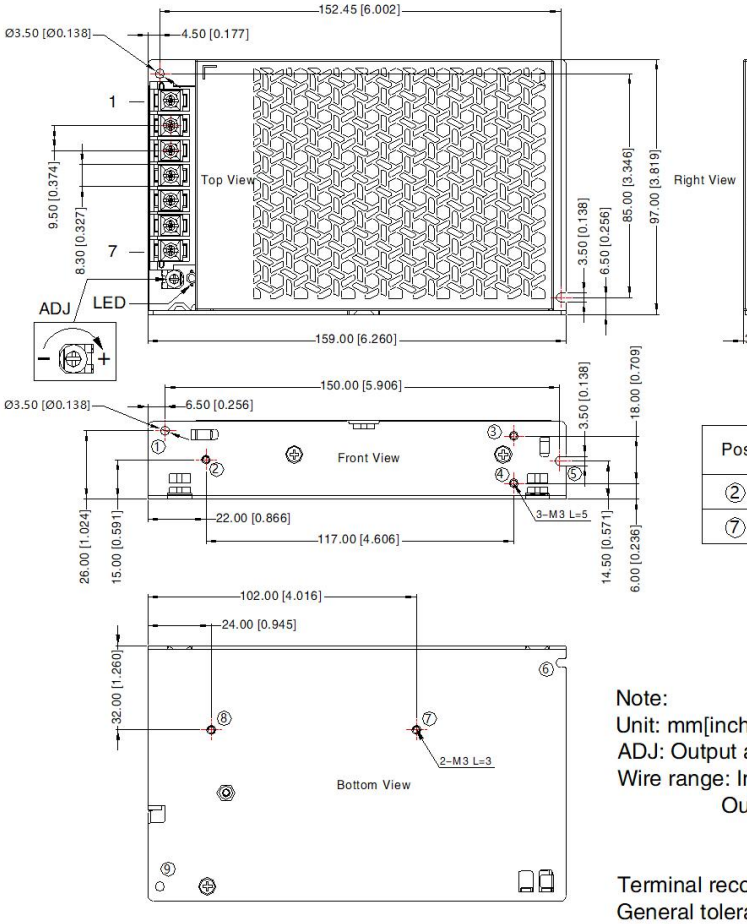


Note: This product is suitable for applications using natural air cooling; for applications in closed environment please consult Mornsun FAE.





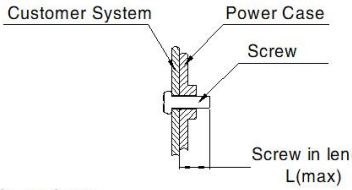
Dimensions and Recommended Layout



THIRD ANGLE PROJECTION

Pin–Out	
Pin	Mark
1	AC(L)
2	AC(N)
3	⏚
4	–Vo
5	–Vo
6	+Vo
7	+Vo

Position	Screw Spec.	Screw in length L(max)	Recommended torque
②–④	M3	5mm	0.4N · m ± 10%
⑦–⑧	M3	3mm	0.4N · m ± 10%



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: 20–10AWG
Terminal recommended torque: M3.5, 0.8N · m ± 10%
General tolerances: ± 1.00[± 0.039]
①– ⑨ any position must be connected to PE

Note:

1. For additional information on Product Packaging please refer to www.mornsun-power.com. Packaging bag number: 58220726;
2. Unless otherwise specified, parameters in this datasheet were measured under the conditions of Ta=25℃, humidity <75%RH with nominal input voltage and rated output load;
3. The room temperature derating of 5℃/1000m 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 PE (⏚) of system when the terminal equipment in operating;
9. The output voltage can be adjusted by the ADJ, clockwise to increase;
10. Our products shall be classified according to ISO14001 and related environmental laws and regulations, and shall be handled by qualified units;
11. 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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