



FEATURES

- Input voltage range: 165 - 264VAC or 180 - 370VDC
- Accepts AC or DC input (dual-use of same terminal)
- Operating ambient temperature range: -25°C to +70°C
- LED indicator for power on
- Operating up to 5000m altitude
- Output short circuit, over-current, over-voltage protection
- Built-in DC fan
- 3 years warranty

LM350-12BxxN series is one of Mornsun's enclosed AC-DC switching power supplies. They feature 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, EC/UL/EN62368, EN61558, GB4943 standards and they are widely used in areas of Intelligent cabinet, self-service machine, gate machine, laser, etc.

Selection Guide

Certification	Part No.	Output Power (W)	Nominal Output Voltage and Current (Vo/Io)	Efficiency at 230VAC (%) Typ.	Max. Capacitive Load (μF)
CQC/ EN/BS EN	LM350-12B12N	348	12V/29A	85	4000
	LM350-12B24N	350.4	24V/14.6A	87	1500
--	LM350-12B15N*	348	15V/23.2A	87	3300
	LM350-12B36N*	349.2	36V/9.7A	88	1500
	LM350-12B48N*	350.4	48V/7.3A	89	470

Note:

1. Use suffix "Q" for conformal coating.
2. *The 15V, 36V, and 48V are currently under development, for detail please consult Mornsun sales or FAE.
3. 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		--	--	4	A
Inrush Current	230VAC	Cold start	--	60	--	
Input Fuse	Built-in fuse		--	6.3	--	
Hot Plug			Unavailable			

Output Specifications

Item	Operating Conditions		Min.	Typ.	Max.	Unit
Output Voltage Accuracy	Full load range		--	±2	--	%
Line Regulation	Rated load		--	±0.5	--	
Load Regulation	0% - 100% load		--	±1	--	
Minimum Load			0	--	--	
Output Ripple & Noise*	20MHz bandwidth (peak-to-peak value)	12V/15V/24V	--	150	--	mV
		36V/48V	--	200	--	
Temperature Coefficient			--	±0.03	--	%/°C
Stand-by Power Consumption	230VAC		--	1	1.5	W
Hold-up Time	230VAC		--	14	--	ms
Short Circuit Protection	Recovery time <8s after the short circuit disappear		Hiccup, continuous, self-recover			

AC/DC 350W Enclosed Switching Power Supply

LM350-12BxxN(-Q) Series

MORNSUN®

Over-current Protection		≥110% Io, hiccup, self-recover
Over-voltage Protection	12V	≤16V (Clamp, self-recover)
	15V	≤25V (Clamp, self-recover)
	24V	≤35V (Clamp, self-recover)
	36V	≤48V (Clamp, self-recover)
	48V	≤60V (Clamp, 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, details please refer to Enclosed Switching Power Supply Application Notes.

General Specifications

Item	Operating Conditions		Min.	Typ.	Max.	Unit
Isolation	Input - ⊕	Electric strength test for 1min., leakage current <5mA	2000	--	--	VAC
	Input - output		3000	--	--	
	Output - ⊕		750	--	--	
Insulation Resistance	Input - ⊕	Ambient temperature: 25 ± 5℃ Relative humidity: < 95%RH, no condensation Test voltage: 500VDC	100	--	--	MΩ
	Input - output		100	--	--	
	Output - ⊕		100	--	--	
Touch Leakage Current	240VAC		--	--	0.5	mA
Operating Temperature			-25	--	+70	℃
Storage Temperature			-40	--	+85	
Operating Humidity	Non-condensing		20	--	90	%RH
Storage Humidity			10	--	95	
Switching Frequency			--	110	--	kHz
Power Derating	Operating temperature derating	+50℃ to +70℃	2.5	--	--	%/℃
	Input voltage derating	165VAC-176VAC	2.72	--	--	%/VAC
Safety Standard	12V/24V		GB4943.1 safety approved & EN/BS EN62368-1 (Report) Design refer to UL/IEC62368-1, EN61558-1			
Safety Class			CLASS I			
MTBF	MIL-HDBK-217F@25℃		≥300,000 h			
Warranty			3 years			

Mechanical Specifications

Case Material	Metal (AL1100, SGCC)
Dimensions	215.00 mm x 115.00 mm x 30.00 mm
Weight	610g (Typ.)
Cooling Method	Forced air cooling

Electromagnetic Compatibility (EMC)

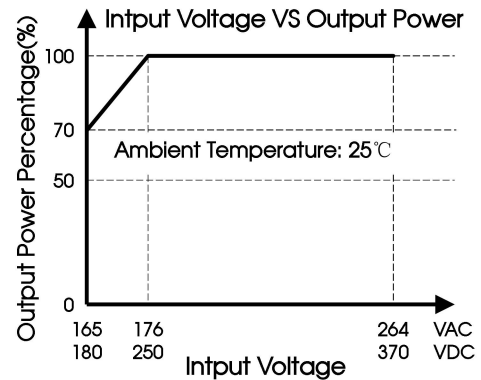
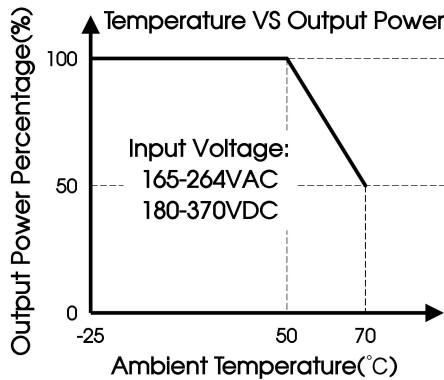
Emissions	CE	CISPR32/EN55032	CLASS A	
	RE	CISPR32/EN55032	CLASS A	
Immunity	ESD	IEC/EN 61000-4-2	Contact ±6KV/Air ±8KV	perf. Criteria A
	RS	IEC/EN 61000-4-3	10V/m	perf. Criteria A
	EFT	IEC/EN 61000-4-4	±4KV	perf. Criteria A
	Surge	IEC/EN 61000-4-5	line to line ±2KV/line to PE ±4KV	perf. Criteria A
	CS	IEC/EN61000-4-6	10 Vr.m.s	perf. Criteria A
	MS	IEC/EN61000-4-8	30A/m	perf. Criteria A

	Voltage variation	IEC61000-6-2/IEC61000-4-11	70% Un, 25/30 cycle(50/60Hz) 40% Un, 10/12 cycle(50/60Hz) 0% Un, 1 cycle (Un is the maximum input nominal voltage)	perf. Criteria B
	Voltage interruption	IEC61000-6-2/IEC61000-4-11	0%Un, 250/300 cycle(50/60Hz) (Un is the maximum input nominal voltage)	perf. Criteria C

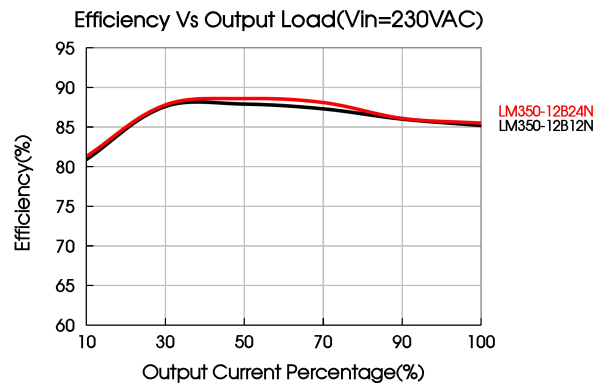
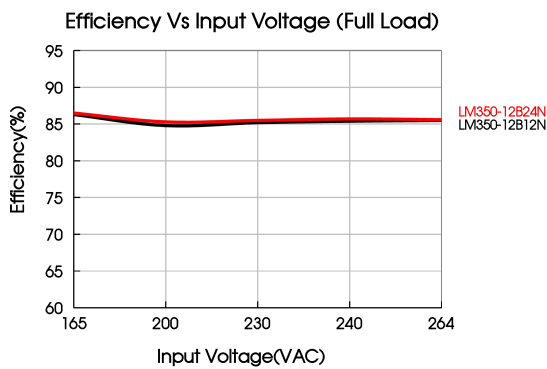
Remark:

- One magnetic bead should be coupled with the output load line during CE/RE testing.
- The power supply does not meet the requirements of harmonic current stipulated in EN61000-3-2; This power supply is not suitable for the following situations.
 - The terminal equipment is used in the European Union;
 - The terminal equipment is connected to public mains supply with 220VAC or greater rated nominal voltage that mandatory to meet the requirements of EN61000-3-2;
 - The power supply is installed in terminal equipment with average or continuous input power greater than 75W;
 - The power supply belong to a part of lighting system;
 In addition, the power supply can be used in the following terminals which do not need to meet EN61000-3-2;
 - Professional equipment with total fixed input power greater than 1000W;
 - symmetrical controlled heating element with rated power less than or equal to 200W.
- If no harmonic current is required or customers can solve harmonic current problems by themselves, this product can be used.

Product Characteristic Curve



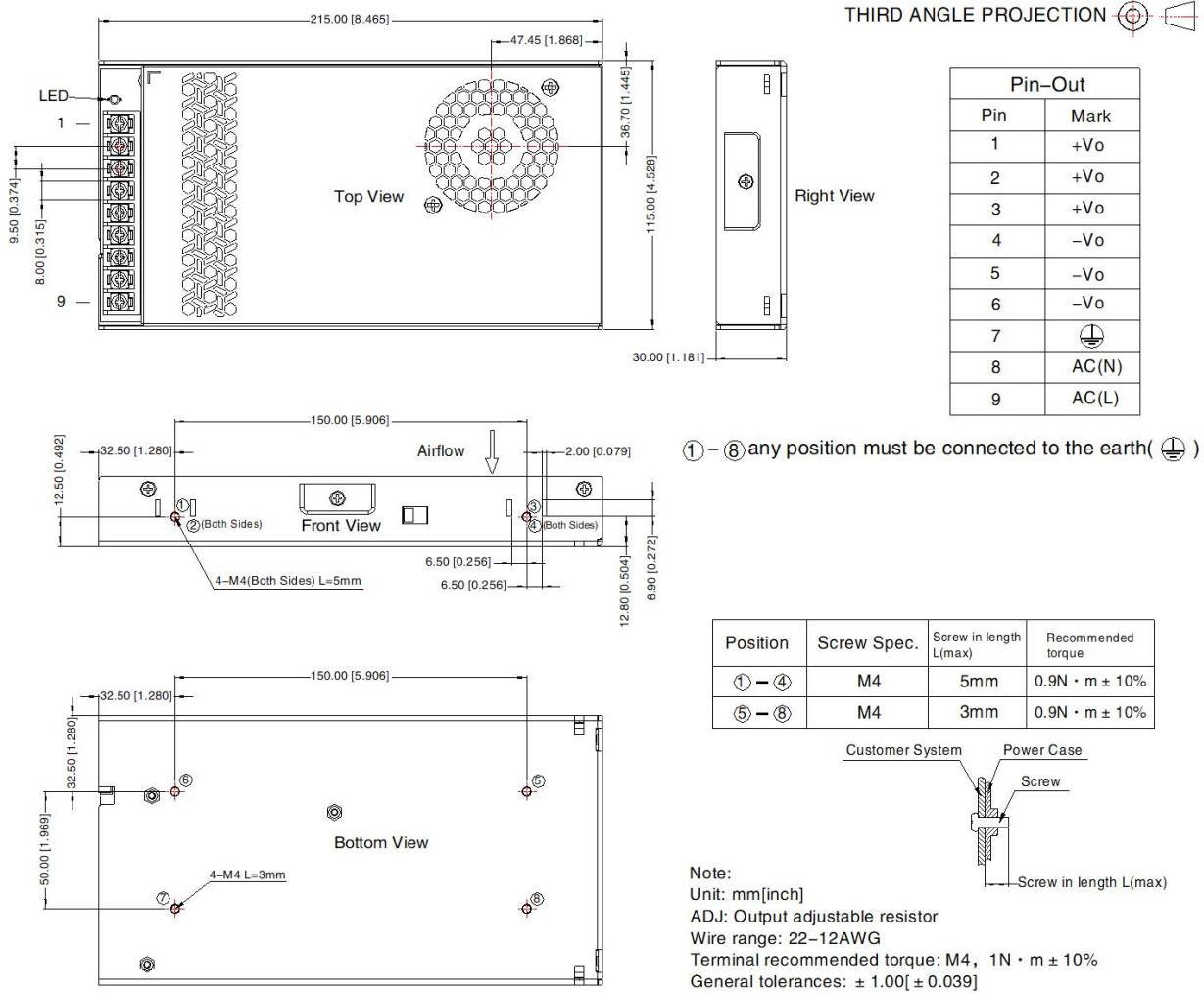
- Note: ① With an AC input between 165-176VAC and a DC input between 180-250VDC, the output power must be derated as per temperature derating curves;
- ② This product is suitable for applications using natural air cooling; for applications in closed environment please consult Mornsun FAE.



Note:

The product is equipped with a built-in cooling fan. Keep the air intake clear of debris. If the environment cannot meet this requirement, a fanless model is recommended.

Dimensions and Recommended Layout



Note:

- For additional information on Product Packaging please refer to www.mornsun-power.com. Packaging bag number: 58220891;
- 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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