



## FEATURES

- Universal 176 - 264VAC or 250 - 373VDC Input voltage
- Operating ambient temperature range: -30℃ to +70℃
- Low standby power consumption, high efficiency
- Output short circuit, over-current, over-voltage protection
- High I/O isolation test voltage up to 3000VAC
- Safety according to IEC/EN/UL62368, EN60335, GB4943
- EMI performance meets CISPR32/EN55032 CLASS B
- Operating altitude up to 5000m
- 3 years warranty
- Low ripple & noise
- 105℃ high temperature long life capacitor

LM150-12D0512-40 is an dual output product customized for shared power bank system. The products can be used in harsh working environments with an ambient temperature range from -30℃ to +70℃. In addition, the converters EMC immunity performance meets the requirements of IEC61000 standard and meet emission standard CISPR32/EN55032 CLASS B without any external components, thus providing excellent EMC protection. The products also meet IEC/EN/UL62368, GB4943 safety standards. The converters integrate variety of protection features and offer a high-performance with cost-effective, providing the best power solution for area of shared power bank.

## 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 (μF)	
			(Vo1/Io1)	(Vo2/Io2)	Io1	Io2		Io1	Io2
--	LM150-12D0512-40	150W	+5V/20A	+12V/4.17A	0.1-20A	0.05-4.17A	80	6000	2000

Note:\*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;

## Input Specifications

Item	Operating Conditions		Min.	Typ.	Max.	Unit
Input Voltage Range	AC input		176	--	264	VAC
	DC input		250	--	373	VDC
Input Voltage Frequency			47	--	63	Hz
Input Current	230VAC		--	--	2.5	A
Inrush Current	230VAC	Cold start	--	60	--	
Hot Plug			Unavailable			

## Output Specifications

Item	Operating Conditions		Min.	Typ.	Max.	Unit
Output Voltage Accuracy	Full load range	Primary output Vo1	--	±2.0	--	%
		Secondary output Vo2	--	±10.0	--	
Line Regulation	Rated load	Primary output Vo1	--	±1.0	--	
		Secondary output Vo2	--	±1.0	--	
Load Regulation	Two way output 10% - 100% balance load	Primary output Vo1	--	±2.0	--	mV
		Secondary output Vo2	--	±10.0	--	
Ripple & Noise*	20MHz bandwidth (peak-to-peak value)	Primary output Vo1	--	80	--	
		Secondary output Vo2	--	120	--	
Temperature Coefficient	Primary output Vo1		--	±0.03	--	%/℃
Minimum Load			Reference operating current range			
Start-up Delay Time	230VAC		--	--	600	ms
Output Voltage Rise Time	230VAC		--	--	30	

# AC/DC 150W Enclosed Switching Power Supply

## LM150-12D0512-40

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Hold-up Time	230VAC	20	--	--	
Short Circuit Protection	Recovery time <3s after the short circuit disappear.	Hiccup, continuous, self-recover			
Over-current Protection	Two output equal proportional load.	≥ 110% Io, self-recover			
Over-voltage Protection (Vo1)		≤6.75VDC (Output voltage lock up)			
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 Test	Input - $\oplus$	Electric strength test for 1min., leakage current <10mA		2000	--	--	VAC	
	Input-output			3000	--	--		
	Output - $\oplus$			500	--	--		
Insulation Resistance	Input - $\oplus$	Ambient temperature: 25 ± 5℃		100	--	--	M Ω	
	Input - output	Relative humidity: < 95%RH, no condensation		100	--	--		
	Output - $\oplus$	Test voltage: 500VDC		100	--	--		
Touch leakage current		240VAC		--	--	0.75	mA	
Operating Temperature				-30	--	+70	℃	
Storage Temperature				-40	--	+85		
Storage Humidity		Non-condensing		--	--	95	%RH	
Power Derating	Input voltage derating	176VAC - 200VAC		0.833	--	--	%VAC	
		200VAC - 264VAC		0	--	--		
		Operating temperature derating	250VDC - 280VDC		0.833	--	--	%VDC
			280VDC - 373VDC		0	--	--	
	-30℃ to -10℃		1	--	--	% /℃		
	-10℃ to +40℃		0	--	--			
	+40℃ to +70℃		1.667	--	--			
Safety Standard				Design refer to IEC/EN/UL62368-1, EN60335-1, GB4943.1				
Safety Class				CLASS I				
MTBF		MIL-HDBK-217F@25℃		>300,000 h				

### Mechanical Specifications

Case Material	Metal (AL1100, SGCC)
Dimensions	179.00mm x 99.00mm x 30.00mm
Weight	525g (Typ.)
Cooling Method	6.27CFM

### 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 A
	RS	IEC/EN 61000-4-3 10V/m			Perf. Criteria A
	EFT	IEC/EN 61000-4-4 ±2KV			Perf. Criteria A
	Surge	IEC/EN 61000-4-5 line to line ±1KV/line to ground ±2KV			Perf. Criteria A
	CS	IEC/EN61000-4-6 10 V.r.m.s			Perf. Criteria A
	Voltage dips, short interruptions and voltage variations immunity	IEC/EN61000-4-11 0%, 70%	70% Un ,25/30 Cycles (50/60Hz) 40% Un ,10/12 Cycles (50/60Hz) 0% Un ,1 Cycles		Perf. Criteria B

Note: \* Un maximum input nominal voltage.

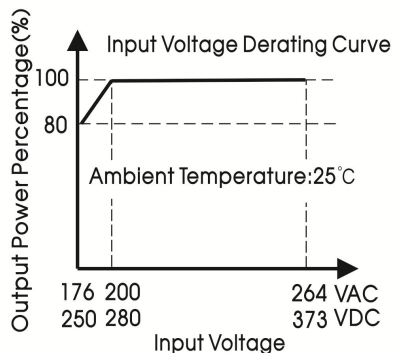
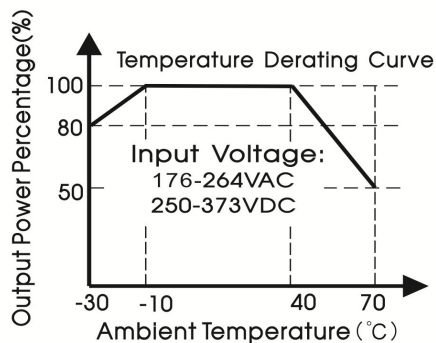
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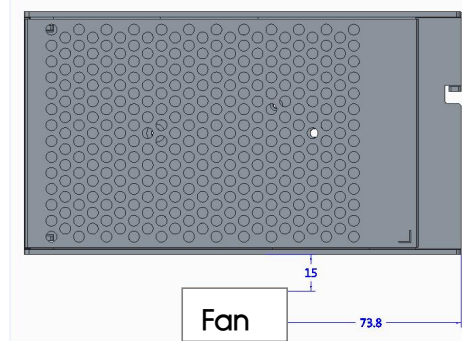
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Product Characteristic Curve

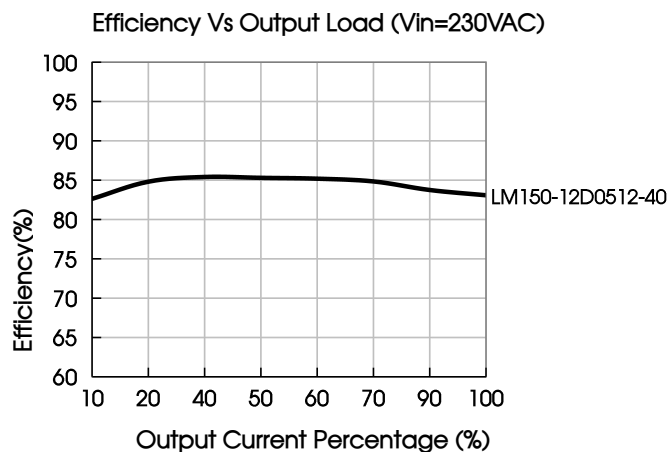
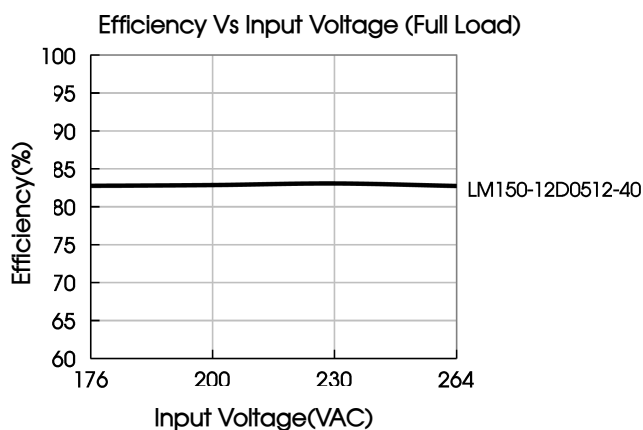


Note: 1. With an input voltage between 176 - 200VAC and a DC input between 250 - 280VDC the output power must be derated as per the temperature derating curves;

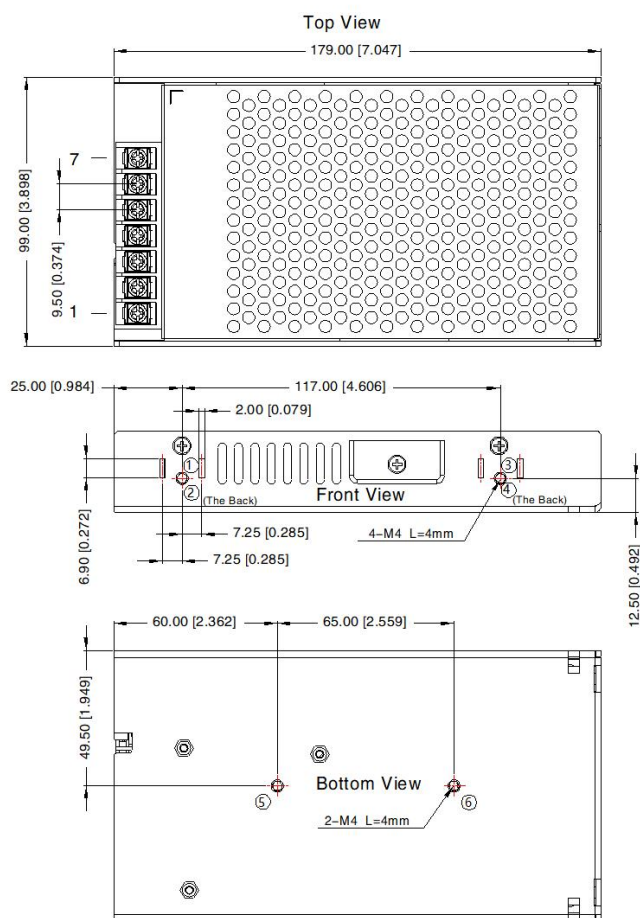
2. This product is suitable for forced air cooling, recommended fan (40\*40\*20mm), 12V power supply, air volume 6.27CFM, air pressure 2.79mmH<sub>2</sub>O. The position of the fan and the power supply body is shown in the figure below (unit mm):



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



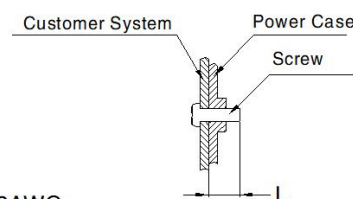
Dimensions and Recommended Layout



THIRD ANGLE PROJECTION

Pin-Out	
Pin	Mark
1	AC(L)
2	AC(N)
3	$\perp$
4	+Vo2
5	COM
6	COM
7	+Vo1

Position	Screw Spec.	L(max)	Torque
① - ⑥	M4	4mm	0.9N · m ± 10%



Note:  
Unit: mm[inch]  
Wire range: 22-12AWG  
Connector Tightening torque: M3.5, 0.8N · m ± 10%  
General tolerances: ± 1.00[± 0.039]  
① - ⑥ any position must be connected to the earth( $\perp$ )

LM150-12D0512-40-V1

Note:

- For additional information on Product Packaging please refer to [www.mornsun-power.com](http://www.mornsun-power.com), Packaging bag number: 58220068;
- 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 room 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";
- Our products shall be classified according to ISO14001 and related environmental laws and regulations, and shall be handled by qualified units.

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