

# AC/DC Converter

Marine power supply: LI150-13B29

# MORNSUN®

High isolation ultra wide input voltage range AC-DC switching power supply



## FEATURES

- High reliability power supply specially designed for Marine engineering installation electrical gas system
- Ultra-wide input voltage range: 85 - 305VAC/100 - 430VDC
- Isolation: Input - output 3000VAC  
Input -  $\perp$  1500VAC
- Have input under-voltage, protection of the meter
- With Short - circuit, over - voltage, over - current protection
- Reliable process design, meeting the needs of the salt spray test
- Industrial operating temperature range: -25 °C to + 70 °C

LI150-13B29— MORNSUN one of the first Marine power supply series. According to the relevant standards of China classification society, this product is specially designed and developed for shipborne satellite communication, shipborne navigation equipment, shipborne positioning equipment and other systems. This product has an ultra-wide voltage range, which can meet the reliable application when the 220VAC voltage of ship is unstable. This product has the advantages of high isolation and pressure resistance, good EMI performance, multiple protection function, high efficiency and so on.

## Selection Guide

Part No.	Output Power	Nominal Output Voltage and Current(Vo/Io)	Efficiency (230VAC, %/Typ.)	Max. Capacitive Load (μF)
LI150-13B29	150W	29V/5.2A	85	4000

## 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	--	--	3.0	A
	230VAC	--	--	1.7	
Inrush Current	115VAC	--	40	--	A
	230VAC	--	70	--	
Input Under-voltage Protection	Underpressure protection point	65	--	--	VAC
	Underpressure release point	--	--	84	
Input over-voltage Protection	Overpressure protection poin	--	--	350	
	Overpressure release point	290	--	--	
Hot Plug		Unavailable			

## Output Specifications

Item	Operating Conditions	Min.	Typ.	Max.	Unit
Output Voltage Accuracy		-2.0	--	+4.0	%
Line Regulation	Full load	--	±1.0	--	
Load Regulation	Rated Input Voltage	--	±2.0	--	
Low ripple & noise	20MHz bandwidth (peak-peak value)	--	--	200	mV
Temperature Coefficient		--	±0.1	--	%/°C
Stand-by Power Consumption		--	--	2.0	W
Short circuit protection		Hiccup, continuous, self-recovery			
Current Protection		≥110% Io After the overflow exception is lifted self-recovery			

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Page 1 of 3

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Over-voltage Protection		$\leq 35V$			
Min. Load		0	--	--	%load
Hold-up Time	230VAC	--	35	--	ms

Note: \* Rely test method is adopted test the ripple and noise, please see AC-DC Converter Application Notes for specific operation methods.

## General Specifications

Item	Operating Conditions	Min.	Typ.	Max.	Unit
Isolation Voltage	Input-output	--	3000	--	VAC
	Input	--	1500	--	
Operating Temperature		-25	--	+70	°C
Storage Temperature		-25	--	+85	
Storage Humidity		--	--	95	%RH
Welding Temperature	Wave-soldering	$260 \pm 5^{\circ}C$ ; time: 5 - 10s			
	Manual-welding	$360 \pm 10^{\circ}C$ ; time: 3 - 5s			
Switching Frequency		--	65	--	kHz
Power Derating	+50°C to +70°C	2.5	--	--	%/°C
Safety Class		CLASS I			
salt spray test		IEC 60068-2-52			
MTBF		MIL-HDBK-217F@25°C $\geq 300,000$ h			

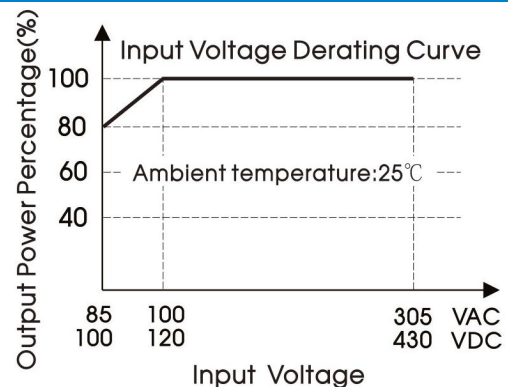
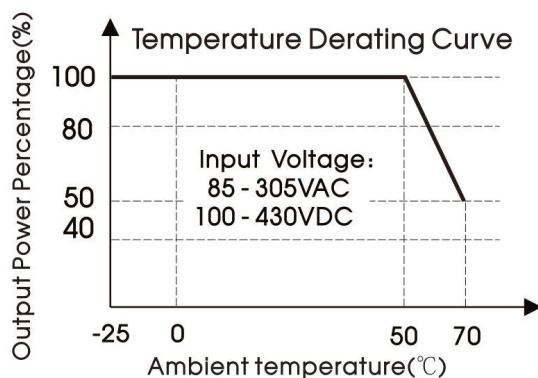
## Physical Specifications

Casing Material	metal
Dimensions	35.00*132.00*149.00mm
Weight	1100g (Typ.)
Cooling Method	Free air convection

## EMC Specifications

EMI	CE	CISPR32/EN55032	CLASS A	
	RE	CISPR32/EN55032	CLASS A	
EMS	ESD	IEC/EN61000-4-2	Contact $\pm 6KV$ /Air $\pm 8KV$	Perf. Criteria B
	RS	IEC/EN61000-4-3	10V/m	perf. Criteria A
	EFT	IEC/EN61000-4-4	$\pm 4KV$	perf. Criteria B
	Surge	IEC/EN61000-4-5	line to line $\pm 2KV$ /line to ground $\pm 4KV$	perf. Criteria B
	CS	IEC/EN61000-4-6	10 Vr.m.s	perf. Criteria A
	Voltage dips, short interruptions and voltage variations immunity	IEC/EN61000-4-11	0%, 70%	perf. Criteria B

## Product Characteristic Curve

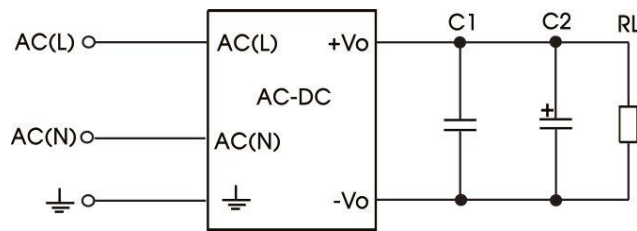


Note: ① Input voltage should be derated based on temperature derating when it is 85-100VAC/100-120VDC;

② This product is suitable for use in natural air cooling environments, if in a closed environment, please contact our company's FAE.

Design Reference

1. Typical application circuit

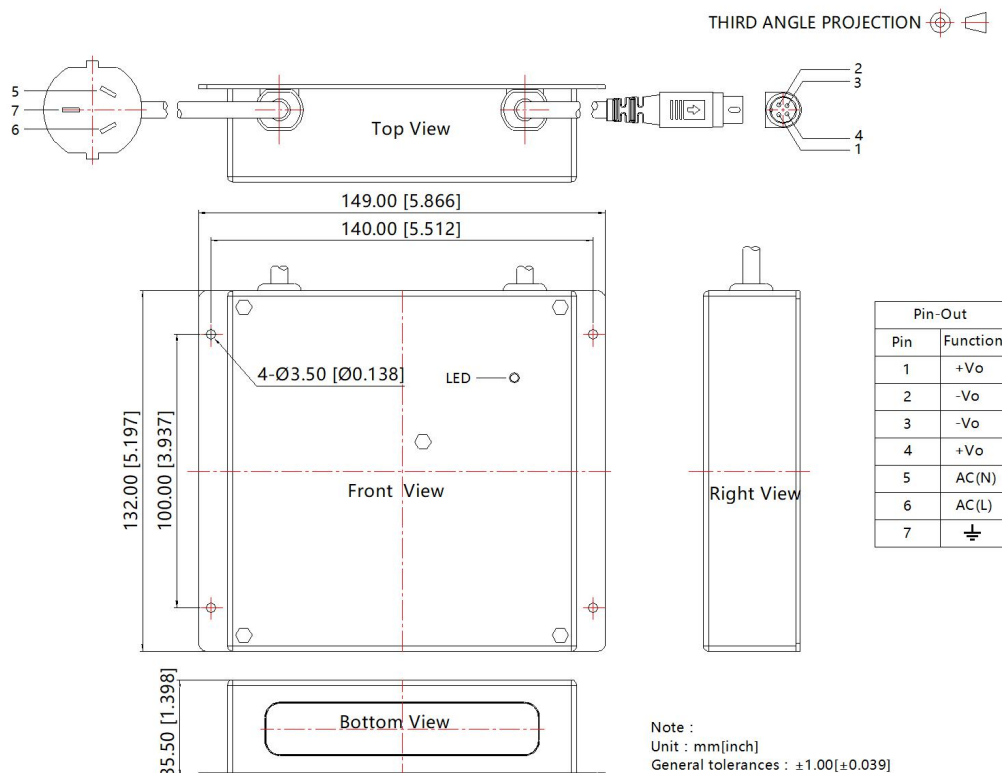


Model	C1(μF)	C2(μF)
LI150-13B29	0.1	10

Fig. 1

2. For more information, Please find the application note on [www.mornsun-power.com](http://www.mornsun-power.com)

Dimensions and Recommended Layout



Note:

1. Packing information please refer to Product Packing Information which can be downloaded from [www.mornsun-power.com](http://www.mornsun-power.com). Packing bag number of Horizontal package: 58220056;
2. If the product is not operated within the required load range, the product performance cannot be guaranteed to comply with all parameters in the datasheet;
3. Unless otherwise specified, parameters in this datasheet were measured under the conditions of Ta=25°C, humidity<75% with nominal input voltage and rated output load;
4. All index testing methods in this datasheet are based on our Company's corporate standards;
5. We can provide product customization service, please contact our technicians directly for specific information;
6. Products are related to laws and regulations: see "Features" and "EMC";
7. 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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