

# AC/DC Converter

Marine power supply: LI150-13B29

# MORNSUN®

150W AC-DC switching power supply  
High insulation and ultra-wide AC or DC input



## FEATURES

- High reliability power supply, specifically designed for Marine Installations (On or Off shore) and electrical gas system
- Ultra-wide 85 - 305V AC and 100 - 430V DC input voltage range
- High isolation test voltages: 3000VAC Input to Output and 1500VAC Input to Ground
- Input undervoltage and overvoltage protection
- Output overvoltage, short circuit and overcurrent protection
- Meets requirements of new salt mist / corrosion standard
- Industrial ambient temperature range: -25°C to +70°C

LI150-13B29 is one of the first MORNSUN power converters for Marine type applications. This product is designed and developed specifically for shipborne satellite communication, navigation and positioning equipment and similar offshore and onshore applications and systems. The converter has such a wide input voltage range that it can easily handle the 220VAC voltage supply of the ship, even when it becomes unstable and reliably provide the applications with stable power. This product offers a high level of insulation, a full set of protection features, high efficiency and excellent EMC performance.

## Selection Guide

Part No.	Output Power	Nominal Output Voltage and Current(Vo/Io)	Efficiency (230VAC, %/Typ.)	Max. Capacitive Load (µF)
LI150-13B29	150.8W	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 point	--	--	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-to-peak value)	--	--	200	mV
Temperature Coefficient		--	±0.1	--	%/°C
Stand-by Power Consumption		--	--	2.0	W
Short Circuit Protection		Hiccup, continuous, self-recovery			
Over-current Protection		≥110% Io After the overflow exception is lifted self-recovery			

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2019.10.23-A/1

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Over-voltage Protection		≤35V, output clamped			
Minimum Load		0	--	--	%
Hold-up Time	230VAC	--	35	--	ms

Note: \*The "Tip and barrel method" is used for ripple and noise test, please refer to AC-DC Converter Application Notes for specific information.

### General Specifications

Item	Operating Conditions		Min.	Typ.	Max.	Unit
Isolation Test	Input - Output	Electric strength test for 1min., leakage current <5mA	--	3000	--	VAC
	Input - $\perp$		--	1500	--	
Operating Temperature			-25	--	+70	°C
Storage Temperature			-25	--	+85	
Storage Humidity			--	--	95	%RH
Welding Temperature	Wave-soldering	260 ± 5°C; time: 5 - 10s				
	Manual-welding	360 ± 10°C; time: 3 - 5s				
Switching Frequency			--	65	--	kHz
Power Derating	Operating temperature derating	+50°C to +70°C	2.5	--	--	%/°C
	Input voltage derating	85VAC-100VAC	1.3	--	--	%/VAC
Safety Class			CLASS I			
Salt Spray Test			IEC 60068-2-52			
MTBF	MIL-HDBK-217F@25°C	> 300,000 h				

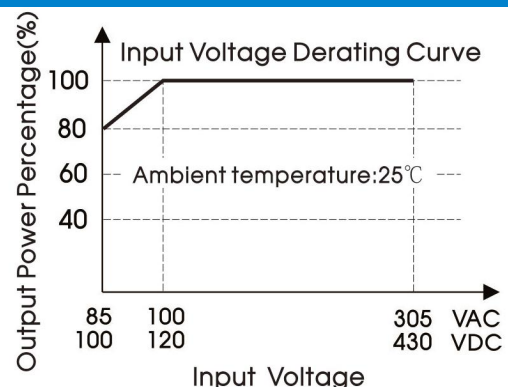
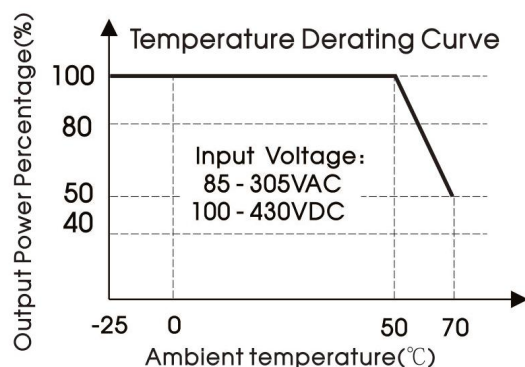
### Physical Specifications

Case Material	Metal
Dimensions	35.50 x 132.00 x 149.00mm
Weight	1100g (Typ.)
Cooling Method	Free air convection

### EMC Specifications

Emissions	CE	CISPR32/EN55032	CLASS A
	RE	CISPR32/EN55032	CLASS A
Immunity	ESD	IEC/EN61000-4-2	Contact ±6KV/Air ±8KV Perf. Criteria B
	RS	IEC/EN61000-4-3	10V/m perf. Criteria A
	EFT	IEC/EN61000-4-4	±4KV perf. Criteria B
	Surge	IEC/EN61000-4-5	line to line ±2KV/line to ground ±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

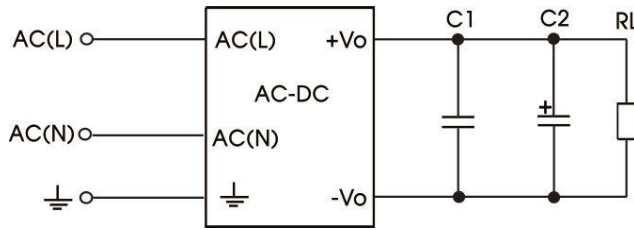


Note: ① With an AC input voltage between 85-100VAC and a DC input between 100-120VDC the output power must be derated as per temperature derating curves;

② This product is suitable for applications using natural air cooling; for applications in closed environment please consult factory or one of our FAE's.

Design Reference

1. Typical application circuit

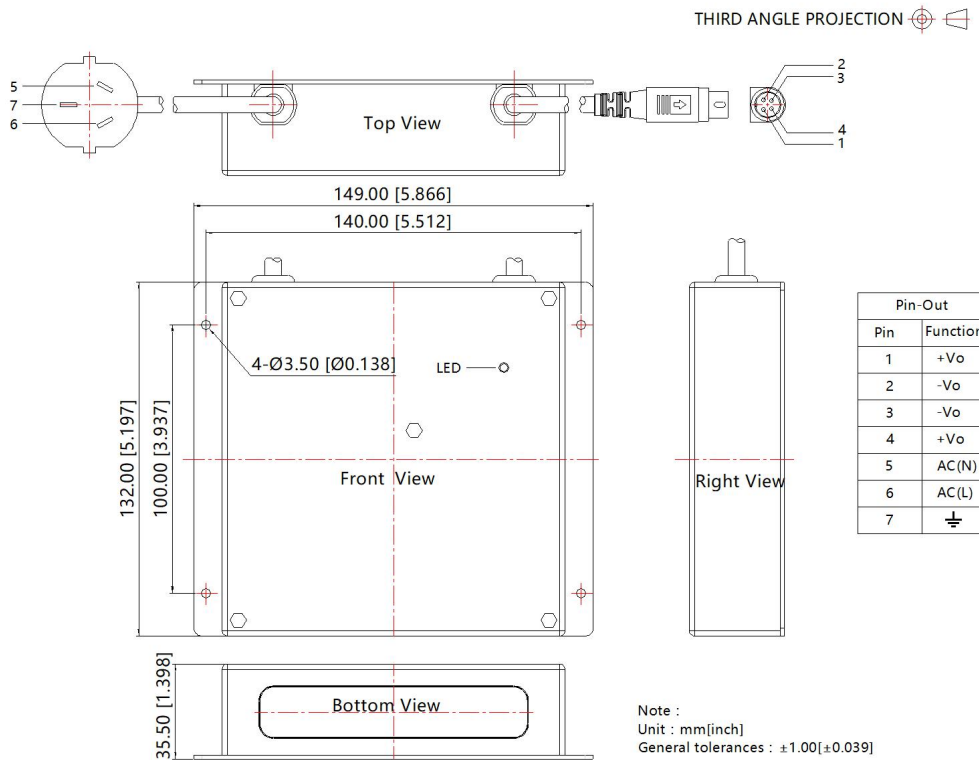


Model	C1(μF)	C2(μF)
LI150-13B29	0.1	10

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:
- For additional information on Product Packaging please refer to [www.mornsun-power.com](http://www.mornsun-power.com). Packaging bag number: 58220061;
  - 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;
  - 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;
  - All index testing methods in this datasheet are based on our company corporate standards;
  - 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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