

150W isolated DC-DC converter with ultra-wide , ultra-high 250 -1500VDC input for Renewable Energy



RoHS

### FEATURES

- Ultra-wide input voltage range of 250 - 1500VDC
- Industrial grade operating temperature -40°C to +70°C
- High I/O isolation test voltage of 4000VAC
- High efficiency, low ripple & noise
- High reliability, long lifespan
- Input undervoltage protection, reverse input voltage protection, output short circuit, over-current, over-voltage protection
- Meets CSA-C22.2 No.107.1, EN62109 standards
- Operating up to 5000m altitude

PV150-29Bxx is a regulated DC-DC converter with an ultra-wide and ultra-high DC input of 250-1500VDC, which design based on standard of CSA-C22.2 No.107.1, EN62109, the products feature high efficiency, high reliability, high insulation and a high level of safety protection. It is widely used in renewable energy industries such as photovoltaic inverter, energy storage systems, charging pile, industrial control. The converters provide multiple protection features and guarantee stable and safe operating environments even under abnormal working conditions.

### Selection Guide

Part No.	Output Power	Nominal Output Voltage and Current (Vo/Io)	Efficiency at 800VDC(%) Typ.	Capacitive Load (μF) Max.
PV150-29B12	120W	12V/10000mA	84	3500
PV150-29B15	120W	15V/8000mA	85	3000
PV150-29B24	150W	24V/6250mA	87	2000
PV150-29B48	150W	48V/3125mA	88	1000

### Input Specifications

Item	Operating Conditions	Min.	Typ.	Max.	Unit
Input Voltage Range		250	--	1500	VDC
Input Current	250VDC	--	--	1	A
	800VDC	--	--	0.4	
Inrush Current	800VDC	--	--	100	
	1500VDC	--	--	200	
Input Undervoltage Protection	Lockout activation range	215	--	235	VDC
	Lockout deactivation range	230	--	250	
External Input fuse		4A/1500VDC, required			
Hot Plug		Unavailable			

### Output Specifications

Item	Operating Conditions	Min.	Typ.	Max.	Unit
Output Voltage Accuracy	Full load	--	±2	--	%
Line Regulation	Rated load	--	±1	--	
Load Regulation	0% - 100% load	--	±2	--	
Ripple & Noise*	20MHz bandwidth (peak-to-peak value)	--	--	300	mV
Temperature Coefficient		--	±0.02	--	%/°C
Short Circuit Protection		Hiccup, continuous, self-recovery			
Over-current Protection		≥110%Io, hiccup, self-recovery			
Over-voltage Protection	12V output	≤20VDC			
	15V output	≤25VDC			
	24V output	≤32VDC			
	48V output	≤60VDC			

Minimum Load		0	--	--	%	
Hold-up Time	Room temperature, Full load	800VDC input	--	2	--	ms
		1500VDC input	--	10	--	

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

### General Specifications

Item	Operating Conditions	Min.	Typ.	Max.	Unit
Isolation Test	Input - output	4000	--	--	VAC
	Input - PE	2000	--	--	
	Output - PE	2000	--	--	
Insulation	Input - output	500VDC $\geq 50 \times 10^6$			$\Omega$
Operating Temperature		-40	--	+70	$^{\circ}\text{C}$
Storage Temperature		-40	--	+85	
Storage Humidity		--	--	95	%RH
Power Derating	-40 $^{\circ}\text{C}$ to -25 $^{\circ}\text{C}$	3.33	--	--	%/ $^{\circ}\text{C}$
	+55 $^{\circ}\text{C}$ to +70 $^{\circ}\text{C}$	2.4	--	--	
	250VDC - 300VDC	0.8	--	--	%/VDC
	1400VDC - 1500VDC	0.2	--	--	
Switching Frequency	2000m - 5000m	10	--	--	%/Km
Safety Standard		CSA-C22.2 No.107.1, EN62109			
MTBF		MIL-HDBK-217F@25 $^{\circ}\text{C}$ $\geq 300,000$ h			

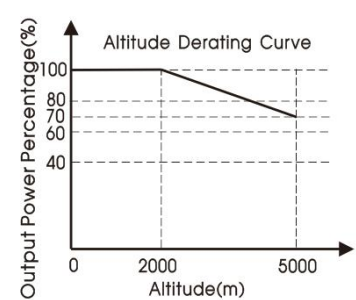
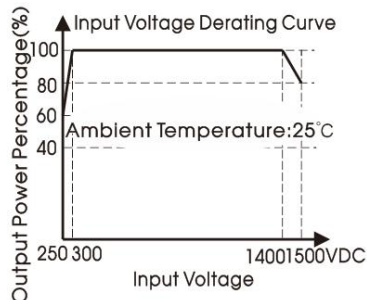
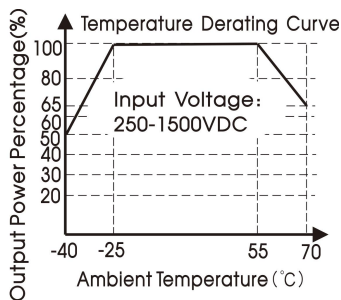
### Mechanical Specifications

Case Material	Metal
Dimensions	168.00 x 111.20 x 42.50mm
Weight	900g (Typ.)
Cooling method	Free air convection

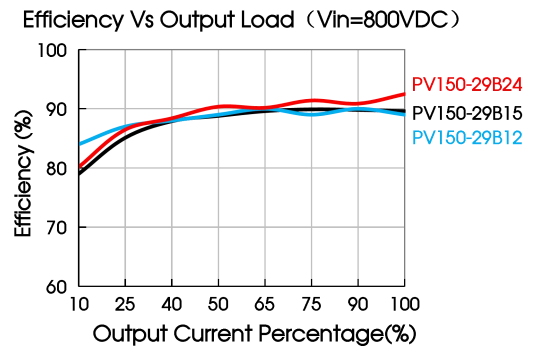
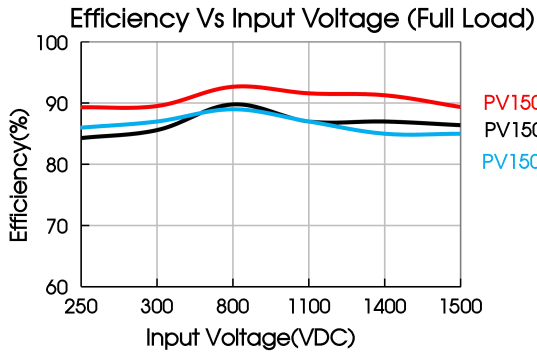
### Electromagnetic Compatibility (EMC)

Emissions	CE	CISPR32/EN55032	CLASS A	
	RE	CISPR32/EN55032	CLASS A	
Immunity	ESD	IEC/EN61000-4-2	Contact $\pm 6\text{KV}$ /Air $\pm 8\text{KV}$	Perf. Criteria B
	RS	IEC/EN61000-4-3	10V/m	perf. Criteria A
	EFT	IEC/EN61000-4-4	$\pm 2\text{KV}$	perf. Criteria B
	Surge	IEC/EN61000-4-5	line to line $\pm 1\text{KV}$ /line to ground $\pm 2\text{KV}$	perf. Criteria B
	CS	IEC/EN61000-4-6	10Vr.m.s	perf. Criteria A

### Product Characteristic Curve

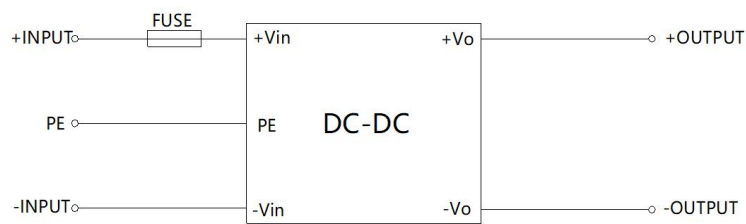


Note: ① With an input between 250 - 300VDC/1400 - 1500VDC, the output power of PV150-29Bxx parts must be derated as per temperature derating curves;  
 ② This product is suitable for use in natural air cooling environments, if in a closed environment, please contact our company's FAE.



## Design Reference

### 1. Typical application circuit

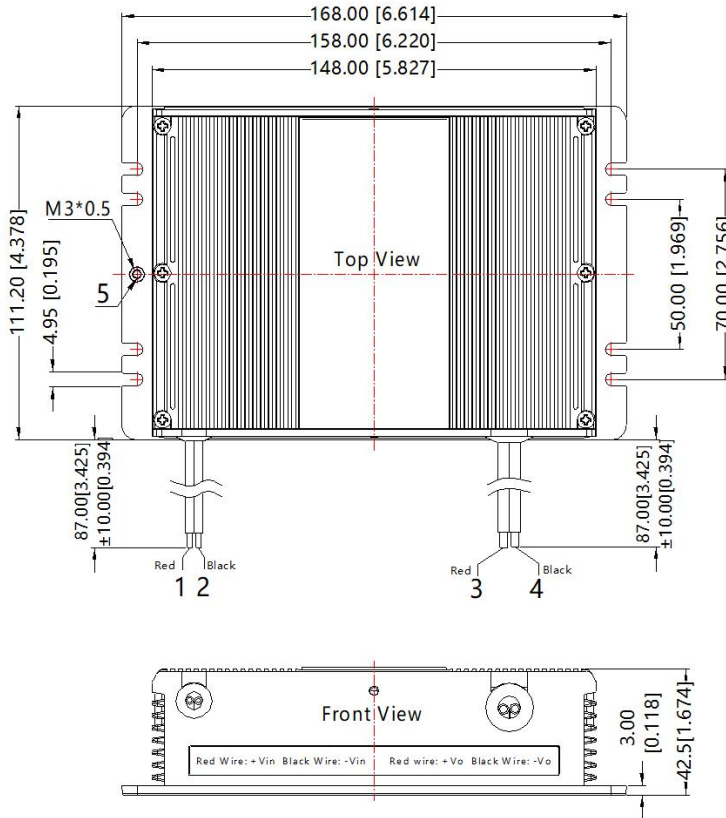


Model	Recommended value
FUSE	4A/1500VDC, required

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

Dimensions and Recommended Layout

THIRD ANGLE PROJECTION 



Pin-Out	
Pin	Function
1	+Vin
2	-Vin
3	+Vo
4	-Vo
5	PE

Note:  
Input wire spec: UL1015 18AWG 600V 105°C  
Output wire spec: UL1015 14AWG 600V 105°C  
Unit: mm[inch]  
General tolerances: ±1.00[±0.039]

Note:

1. For additional information on Product Packaging please refer to [www.mornsun-power.com](http://www.mornsun-power.com). Packaging bag number: 58220034;
2. 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;
3. All index testing methods in this datasheet are based on our company corporate standards;
4. We can provide product customization service, please contact our technicians directly for specific information;
5. Products are related to laws and regulations: see "Features" and "EMC";
6. 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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