DC/DC Converter
PV200-27Bxx Series

MORNSUN®

New energy 250 - 1000VDC over wide and over high input voltage isolation converter

CE RoHS 3 years Warranty

FEATURES

- Ultra wide input voltage range: 250 - 1000VDC
- 4000VAC high isolation voltage
- Industrial grade operating temperature: -40℃ to +70℃
- High efficiency, Low ripple & noise
- Reverse input voltage protection, Output short circuit, over-current, over-voltage protection
- High reliability, Long lifespan
- Meets EN62109 standards (Pending)

PV200-27Bxx series -----is 250-1000VDC ultra wide input voltage regulated DC-DC converter, which has advantages such as high efficiency, high reliability and high safety isolation. The series products are widely used in industries such as photovoltaic power generation, stored energy and high voltage frequency conversion, provide a stable operating voltage for the load device, Its multiple protection features can enhance the safety performance of the module power supply and the load under abnormal working conditions.

Selection Guide

Certification	Part No.	Output Power	Nominal Output Voltage and Current(Vo/Io)	Efficiency (600VDC, %/Typ.)	Max. Capacitive Load(μF)
CE (Pending)	PV200-27B24	200W	24V/8.333A	87	2000
	PV200-27B26		26V/7.692A	87	2000
	PV200-27B48		48V/4.166A	87	1000

Input Specifications

Item	Operating Conditions	Min.	Typ.	Max.	Unit
Input Voltage Range		250	--	1000	VDC
Input current	250VDC	--	--	1.0	A
	600VDC	--	--	0.5	
Inrush current	600VDC	--	100	--	
	1000VDC	--	180	--	
Input under-voltage protection	Under-voltage protection begins	205	--	230	VDC
	Under-voltage protection release	230	--	250	
External input fuse		10A/1000VDC, necessary			
Hot Plug		Unavailable			

Output Specifications

Item	Operating Conditions		Min.	Typ.	Max.	Unit
Output Voltage Accuracy			--	±2	--	%
Line Regulation	Full load		--	±0.5	--	
Load Regulation	0% - 100% load		--	±2	--	
Ripple & Noise*	20MHz bandwidth (peak-peak value)		--	--	200	mV
Temperature Drift Coefficient			--	±0.02	--	%/℃
Short Circuit Protection			Hiccup, Continuous, self-recovery			
Over-current Protection			≥110%Io, hiccup, self-recovery			
Over-voltage Protection	24V output		≤33VDC or hiccup protection			
	26V output		≤35VDC or hiccup protection			
	48V output		≤60VDC or hiccup protection			
Min. Load			0	--	--	%
Trim			--	--	±10	
Hold-up Time	Room temperature, Full load	600VDC input	--	8	--	ms
		1000VDC input	--	20	--	

Note: * Ripple and noise are measured by "Contact measuring method " method, please see AC-DC Converter Application Notes for specific operation.

General Specifications

Item		Operating Conditions	Min.	Typ.	Max.	Unit
Isolation Voltage	Input - output	Test time: 1min, Leakage current ≤5mA	4000	--	--	VAC
	Input - PE		2000	--	--	
	Output - PE		2000	--	--	VDC
Operating Temperature			-40	--	+70	℃
Storage Temperature			-40	--	+85	
Storage Humidity			--	--	95	%RH
Power Derating		-40℃ to -25℃	1.0	--	--	%/℃
		+50℃ to +70℃	2.5	--	--	
		250VDC-300VDC	1.5	--	--	%/VDC
Switching Frequency			--	65	--	kHz
Safety Certification			EN62109 (Pending)			
MTBF			MIL-HDBK-217F@25℃ ≥ 300,000 h			

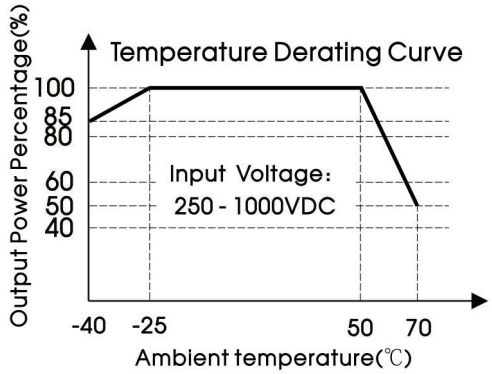
Physical Specifications

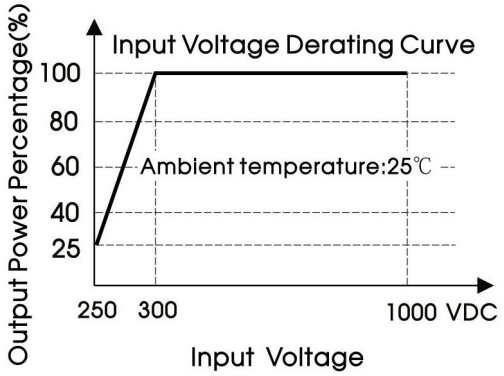
Casing Material	Meta
Dimensions	168.00*121.35*42.50mm
Weight	1000g (Typ.)
Cooling method	Free air convection

EMC Specifications

EMI	CE	CISPR32/EN55032 CLASS A	
	RE	CISPR32/EN55032 CLASS A	
EMS	ESD	IEC/EN61000-4-2 Contact ±6KV/Air ±8KV	Perf. Criteria B
	RS	IEC/EN61000-4-3 10V/m	perf. Criteria A
	EFT	IEC/EN61000-4-4 ±2KV	perf. Criteria B
	Surge	IEC/EN61000-4-5 line to line ±1KV/line to ground±2KV	perf. Criteria B
	CS	IEC/EN61000-4-6 10Vr.m.s	perf. Criteria A

Product Characteristic Curve





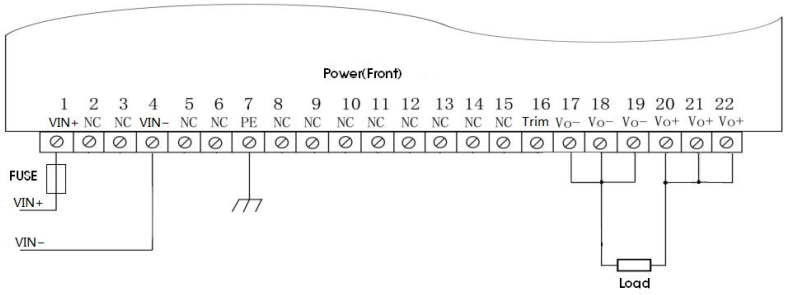
Note: ①When input 250-300VDC, it need to be voltage derated on basis of temperature derating;
②This product is suitable for use in natural air cooling environments, if in a closed environment, please contact our company's FAE.

Wiring Description

1.Terminal Definition

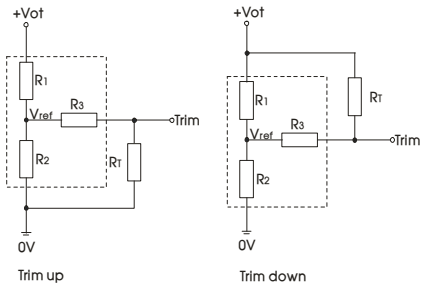
Terminal No.	Terminal name	Definition	Terminal No.	Terminal name	Definition	Terminal No.	Terminal name	Definition
1	VIN+	Input (+)	9	NC	No electrical connection	17	Vo-	Load output (-)
2	NC	No electrical connection	10	NC	No electrical connection	18	Vo-	Load output (-)
3	NC	No electrical connection	11	NC	No electrical connection	19	Vo-	Load output (-)
4	VIN-	Input (-)	12	NC	No electrical connection	20	Vo+	Load output (+)
5	NC	No electrical connection	13	NC	No electrical connection	21	Vo+	Load output (+)
6	NC	No electrical connection	14	NC	No electrical connection	22	Vo+	Load output (+)
7	PE	Protective grounding	15	NC	No electrical connection			
8	NC	No electrical connection	16	Trim	Adjustable Output Voltage			

2.Wiring diagram



设计参考

1. Application of Trim and calculation of Trim resistance



Applied circuits of Trim (Part in broken line is the interior of models)

Calculation formula of Trim resistance:

$$\text{up: } R_T = \frac{aR_2}{R_2-a} - R_3 \qquad a = \frac{Vref}{Vot-Vref} \cdot R_1$$

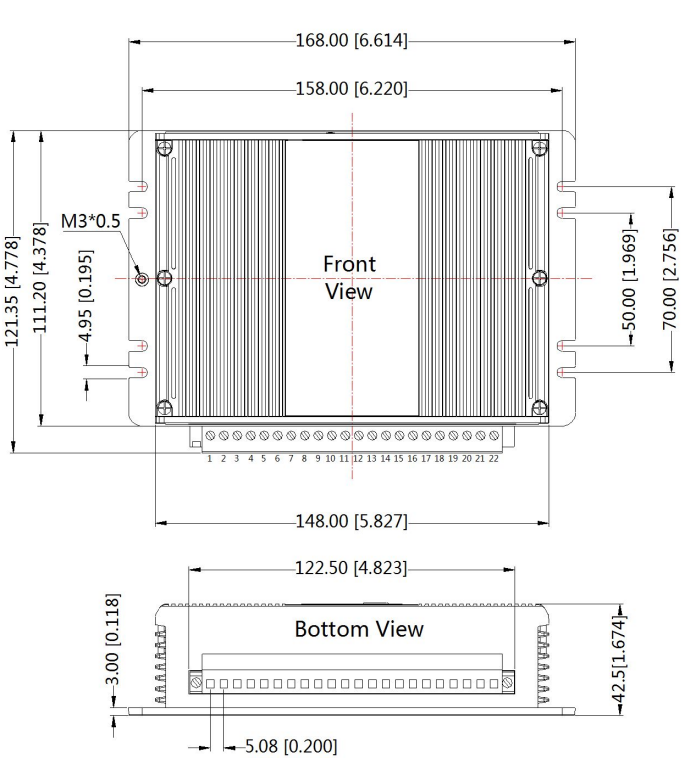
$$\text{down: } R_T = \frac{aR_1}{R_1-a} - R_3 \qquad a = \frac{Vot-Vref}{Vref} \cdot R_2$$

R_T is Trim resistance
a is a self-defined parameter, with no real meaning.

Vout	R1(KΩ)	R2(KΩ)	R3(KΩ)	Vref(V)	Vot(V)
24V	8.66	1	1	2.5	Output voltage after regulation, variation ≤ ±10%
26V	8.66	0.91	1	2.5	
48V	33	1.8	1	2.5	

2.For more information Please find the application note on www.mornsun-power.com

Dimensions and Recommended Layout



Pin-Out			
Pin	Function	Pin	Function
1	Vin+	12	NC
2	NC	13	NC
3	NC	14	NC
4	Vin-	15	NC
5	NC	16	Trim
6	NC	17	Vo-
7	PE	18	Vo-
8	NC	19	Vo-
9	NC	20	Vo+
10	NC	21	Vo+
11	NC	22	Vo+

Note:
Unit: mm[inch]
Wire range: 28-12 AWG
Tightening torque: Max 0.4 N·m
General tolerances: ±1.00[±0.039]

Note:

1. Packing information please refer to Product Packing Information which can be downloaded from www.mornsun-power.com. Packing bag number of Horizontal package: 58220034;
2. Unless otherwise specified, data in this datasheet should be tested under the conditions of Ta=25° C, humidity<75% when inputting nominal voltage and outputting rated load;
3. All index testing methods in this datasheet are based on our Company's 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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