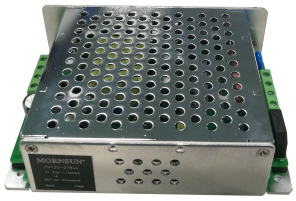
DC/DC Converter
PV120-27Bxx Series

MORNSUN®

New energy over wide and over high input voltage isolation converter



RoHS

FEATURES

- Ultra wide input voltage range: 200 - 1100VDC
- 4000VAC high isolation voltage
- Industrial grade operating temperature: -40℃ to +70℃
- High efficiency, Low ripple & noise
- Input under-voltage protection, reverse input voltage protection, Output short circuit, over-current, over-voltage protection
- High reliability, Long lifespan

PV120-27Bxx series ----- 200-1100VDC high voltage input high efficiency and high reliability DC-DC switching regulator module, which can be widely used in photovoltaic power generation and high voltage frequency conversion, provides stable working voltage for the load equipment, and its own multiple protection functions can improve the safety performance of the power source and its load under the abnormal condition of the module power supply.

Selection Guide

Part No.	Output Power	Nominal Output Voltage and Current (Vo/Io)	Efficiency (600VDC, %/Typ.)	Max. Capacitive Load(μF)
PV120-27B12	90W	12V/7.50A	84	3000
PV120-27B15	100W	15V/6.67A	85	2500
PV120-27B24	120W	24V/5.00A	87	2000
PV120-27B48		48V/2.5A	89	680

Input Specifications

Item	Operating Conditions	Min.	Typ.	Max.	Unit
Input Voltage Range		200	--	1100	VDC
Input current	250VDC	--	--	0.75	A
	600VDC	--	--	0.3	
Inrush current	600VDC	--	--	85	
	1000VDC	--	--	160	
Input under-voltage protection	Under-voltage protection begins	165	--	185	VDC
	Under-voltage protection release	180	--	200	
External input fuse		5A/1000VDC, necessary			
Hot Plug		Unavailable			

Output Specifications

Item	Operating Conditions		Min.	Typ.	Max.	Unit
Output Voltage Accuracy			--	±2	--	%
Line Regulation	Full load		--	±1	--	
Load Regulation	0% - 100% load		--	±2	--	
Ripple & Noise*	20MHz bandwidth (peak-peak value)		--	--	300	mV
Temperature Drift Coefficient			--	±0.02	--	%/℃
Short Circuit Protection			Hiccup, Continuous, self-recovery			
Over-current Protection			⩾110%Io, hiccup, self-recovery			
Over-voltage Protection	12V output		⩽20VDC			
	15V output		⩽20VDC			
	24V output		⩽30VDC			
	48V output		⩽60VDC			
Min. Load			0	--	--	%
Hold-up Time	Room temperature, Full load	600VDC input	--	1.5	--	ms
		1100VDC input	--	10	--	

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 ≤8mA	4000	--	--	VAC
	Input - PE	Test time: 1min, Leakage current ≤10mA	2500	--	--	
	Output - PE		2500	--	--	
Operating Temperature			-40	--	+70	℃
Storage Temperature			-40	--	+85	
Storage Humidity			--	--	95	%RH
Power Derating		-40℃ to -25℃	1.0	--	--	%/℃
		+55℃ to +70℃	2.66	--	--	
		200VDC-250VDC	0.4	--	--	
		1000VDC-1100VDC	0.2	--	--	%/VDC
		2000m-5000m	10	--	--	%/Km
Switching Frequency			--	65	--	kHz
MTBF			MIL-HDBK-217F@25℃≥ 300,000 h			

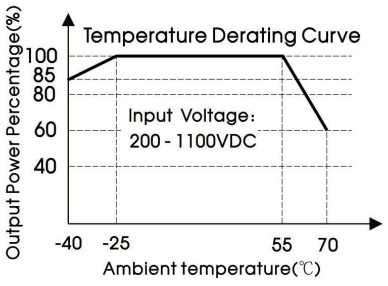
Physical Specifications

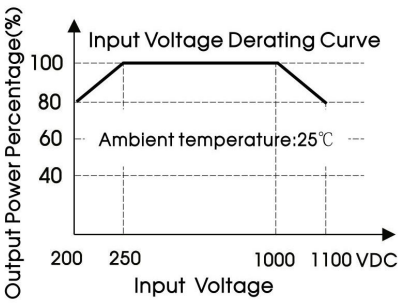
Casing Material	Meta
Dimensions	144.50*105.00*40.00mm
Weight	485g (Typ.)
Cooling method	Free air convection

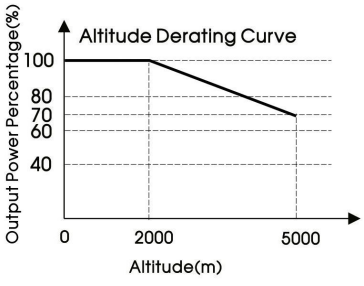
EMC Specifications

EMI	CE	CISPR32/EN55032 CLASS A(See Fig.1 for recommended circuit)	
	RE	CISPR32/EN55032 CLASS A(See Fig.1 for recommended circuit)	
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 200-250VDC, 1000-1100VDC, 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.

Design Reference

1. EMC solution-recommended circuit

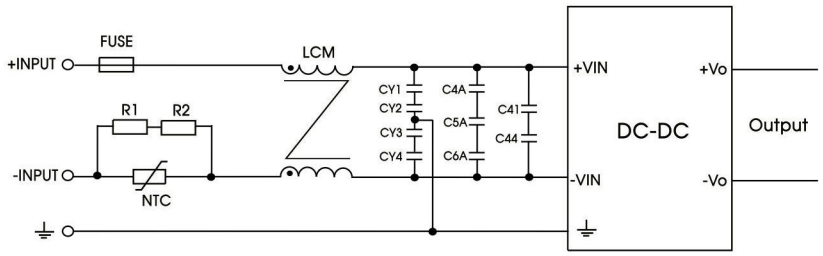
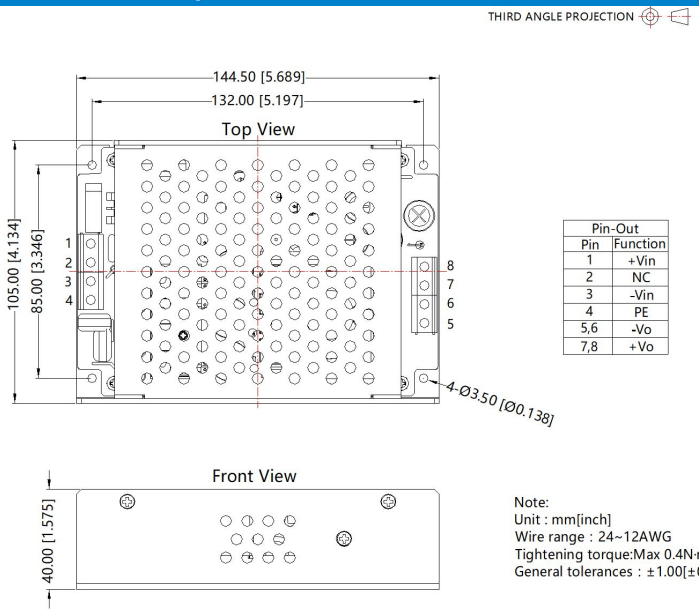


Fig. 1

Element model	Recommended value
R1, R2	DIP Resistor12Ω/2W
FUSE	5A/1000VDC
NTC	5Ω/3.6A/11D
LCM	Min:693uH, Typ:750μH
CY1, CY2, CY3, CY4	Y1/472M/400VAC
C4A, C5A, C6A	Film Capacitance 225K/450V
C41, C44	Ceramic Capacitor 472Z/1000V

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

Dimensions and Recommended Layout



Pin-Out	
Pin	Function
1	+Vin
2	NC
3	-Vin
4	PE
5,6	-Vo
7,8	+Vo

Note:
Unit : mm[inch]
Wire range : 24~12AWG
Tightening torque:Max 0.4N·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: 58220039;
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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