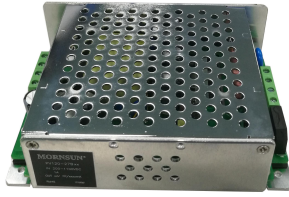


DC/DC Converter

PV120-27Bxx Series

MORNSUN®

120W isolated DC-DC converter with ultra-wide, ultra-high 200-1100V DC input for Renewable Energy



RoHS



FEATURES

- Ultra-wide input voltage range of 200 - 1100VDC
- High I/O isolation test voltage of 4000VAC
- Operating ambient temperature range: -40°C to +70°C
- 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 are regulated DC-DC converters with an ultra-high DC input of 200-1100VDC. This type of power supply is widely used in renewable energy industries such as photovoltaic, power generation, energy storage, inverters and high-voltage DC conversions. 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)	Output Voltage Adjustable Range(V)	Efficiency at 600VDC (%) Typ.	Capacitive Load (μF) Max.
PV120-27B12	90W	12V/7.500A	/	84	3000
PV120-27B15	100W	15V/6.670A	/	85	2500
PV120-27B24	120W	24V/5.000A	/	87	2000
PV120-27B26		26V/4.616A	26-28	87	1700
PV120-27B28		28V/4.286A	26-28	87	1450
PV120-27B48		48V/2.500A	/	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	Lockout activation range	165	--	185	VDC
	Lockout deactivation range	180	--	200	
External Input Fuse		5A/1000VDC, required			
Hot Plug		Unavailable			

Output Specifications

Item	Operating Conditions	Min.	Typ.	Max.	Unit
Output Voltage Accuracy	Full load range	--	±2	--	%
Line Regulation	Full 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	≤20VDC			
	24V/26V output	≤30VDC			
	28V output	≤35VDC			
	48V output	≤60VDC			
Minimum Load		0	--	--	%

MORNSUN®

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Hold-up Time	Room temperature, Full load	600VDC input	--	1.5	--	ms
		1100VDC 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	Electric Strength Test for 1min., leakage current $\leq 8\text{mA}$	4000	--	--	VAC
	Input - PE	Electric Strength Test for 1min., leakage current $\leq 10\text{mA}$	2500	--	--	
	Output - PE		2500	--	--	
Operating Temperature			-40	--	+70	°C
Storage Temperature			-40	--	+85	
Storage Humidity			--	--	95	%RH
Power Derating		-40°C to -25°C	1.0	--	--	% / °C
		+55°C to +70°C	2.66	--	--	
		200VDC-250VDC	0.4	--	--	% / VDC
		1000VDC-1100VDC	0.2	--	--	
		2000m-5000m	10	--	--	% / Km
Switching Frequency			--	65	--	kHz
MTBF		MIL-HDBK-217F@25°C $\geq 300,000$ h				

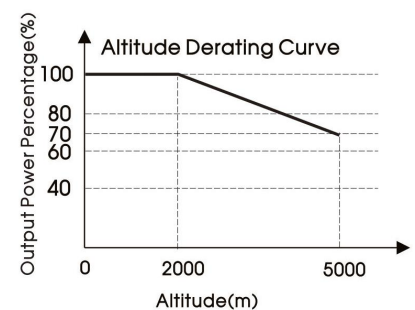
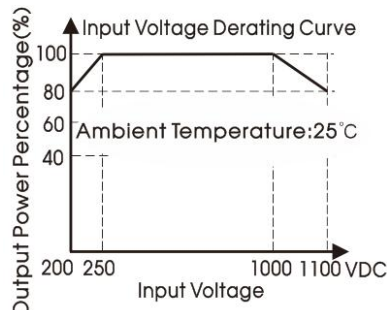
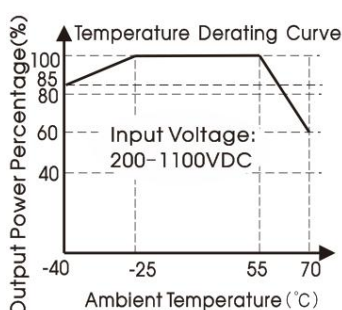
Mechanical Specifications

Case Material	Metal
Dimensions	144.50 x 105.00 x 40.00mm
Weight	485g (Typ.)
Cooling method	Free air convection

Electromagnetic Compatibility (EMC)

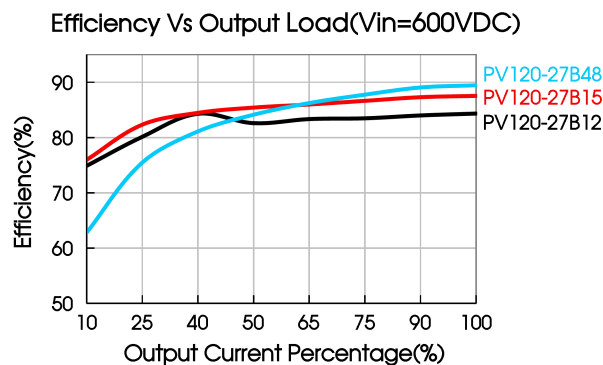
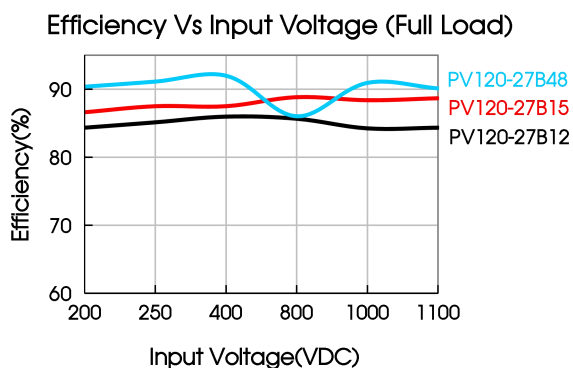
Emissions	CE	CISPR32/EN55032	CLASS A (See Fig.1 for recommended circuit)	
	RE	CISPR32/EN55032	CLASS A (See Fig.1 for recommended circuit)	
Immunity	ESD	IEC/EN61000-4-2	Contact ±6KV/Air ±8KV	Perf. Criteria B
	RS	IEC/EN61000-4-3	10V/m	perf. Criteria A
	EFT	IEC/EN61000-4-4	±2KV	perf. Criteria B
	Surge	IEC/EN61000-4-5	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: ① With an input between 200-250VDC or 1000-1100VDC, 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.





Design Reference

1. EMC compliance recommended circuit

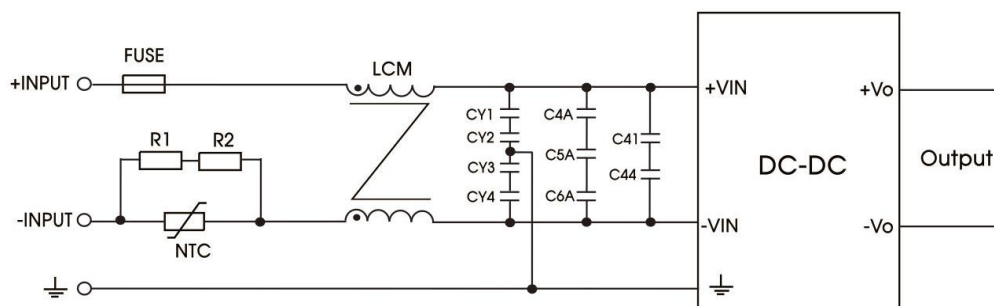


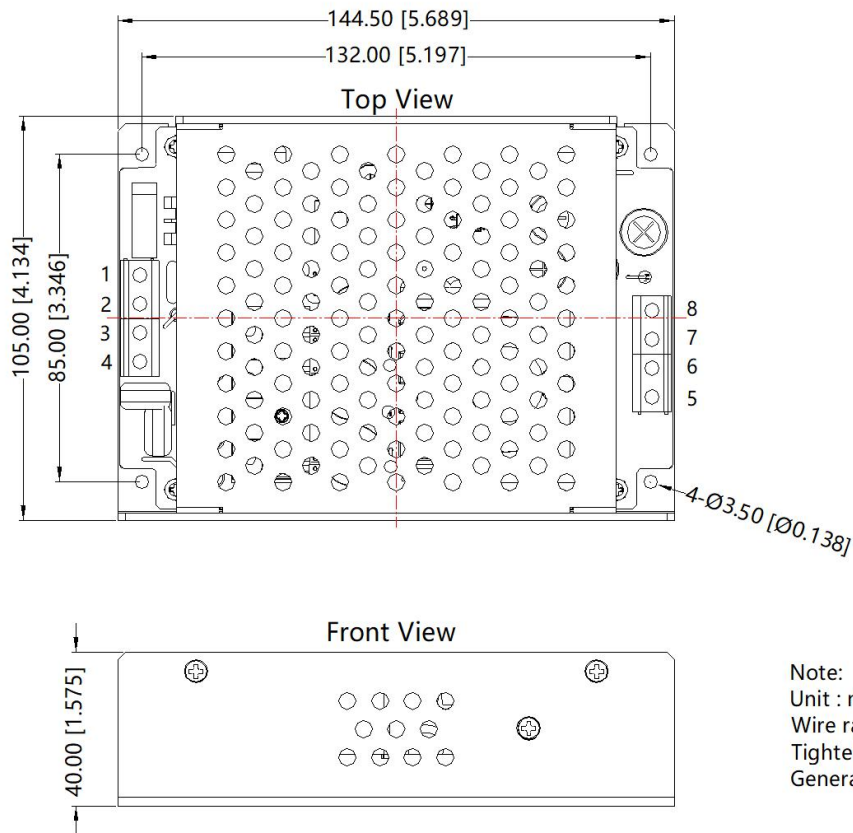
Fig. 1

Component	Recommended value
R1, R2	DIP Resistor 12Ω/2W
FUSE	5A/1000VDC
NTC	5Ω /3.6A/11D
LCM	Min: 693μH, Typ: 750μH
CY1, CY2, CY3, CY4	Y1/472M/400VAC
C4A, C5A, C6A	Film Capacitance 225K/450V
C41, C44	Ceramic Capacitor 472Z/1000V

2. For additional information please refer to application notes on www.mornsun-power.com.

Dimensions and Recommended Layout

THIRD ANGLE PROJECTION 



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 : $\pm 1.00[\pm 0.039]$

Note:

1. For additional information on Product Packaging please refer to www.mornsun-power.com. Packaging bag number: 58220039;
2. Unless otherwise specified, parameters in this datasheet were measured under the conditions of $T_a=25^{\circ}\text{C}$, 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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