SPV40-27BxxR4

Product Feature

◆Package Type：89.00*63.50*25.00mm

◆Input voltage range：200-1200VDC

◆Input Power：40W

◆Operating temperature range：-40℃ - +70℃

◆Isolation voltage：4000VAC

◆High efficiency up：83%（Typ.）

◆Input characteristics :Equipped with input undervoltage protection and anti reverse connection protection;

◆Output characteristic :Output short-circuit protection, overcurrent protection, overvoltage protection, and over-temperature protection etc.

◆Fields of application：Photovoltaic tracking systems, combiner boxes, SVG,energy storage systems, and other fields.

Selection Guide

Part No.	Input Voltage (VDC)	Output Power（W)	Voltage (VDC)	Current Max (A)	Full Load Efficiency (Typ）	Capacitive Load (μF)Max.
SPV40-27B12R4	200 - 1200	40	12	3.33	82	2200
SPV40-27B15R4		40	15	2.67	83	1500
SPV40-27B24R4		40	24	1.67	83	820

Note: 1. All the above data were tested within the parameter range of typical application circuits;

2.The product images are for reference only. Please refer to the actual product for details.

Input Specifications

Item	Operating Conditions	Min.	Typ.	Max.	Unit
Input voltage range		200	--	1200	V
Input current	200VDC	--	--	0.32	A
	600VDC	--	--	0.1	
Impact current	600VDC	--	60	--	
	1200VDC	--	100	--	
Undervoltage protection		Under-voltage protection point: <195V, under-voltage release point: ≥200V			
Fuses		4A/1500VDC、must be connected			
Hot plug		Unavailable			

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Output Specifications

Item	Operating Conditions	Min.	Typ.	Max.	Unit
Output Voltage Accuracy		--	±1.0	±5.0	%
Linear Regulation Rate	loaded to capacity	--	±0.5	±3.0	
Load Regulation Rate	0% -100% load 3.3DC output	--	±0.5	±3.0	
Ripple Noise	20MHz bandwidth (peak-to-peak)	--	100	200	mV
Temperature Drift Coefficient		--	±0.02	--	%/℃
Stand-by Power Consumption	Full voltage range	--	0.5	3	W
Min. Load		0	--	--	%
Over Current Protection		More than 105%Io, self-recovery			
Short-Circuit Protection		Hiccup type, can long-term short circuit protection, self-recovery			
Hold-up Time	600VDC input	--	5	--	ms
Note: The test method for ripple and noise adopts the proximity test method, with a 10uF electrolytic capacitor and a 1uF ceramic capacitor					

General Specifications

Item	Operating Conditions	Min.	Typ.	Max.	Unit
Insulation voltage	Input-output, test time 1 minute, leakage current<5mA	4000	--	--	VAC
Power Derating	-40℃ - -25℃	2.67	--	--	%/℃
	+50℃ - +70℃	2.50	--	--	
	2000m - 5000m	6.70	--	--	%/Km
Operating Temperature		-40	--	+70	℃
Storage Temperature		-40	--	+85	
Storage Humidity		--	--	95	%RH
Soldering Profile	Wave-soldering	260 ± 5℃; time: 5 - 10s			
	Manual-welding	360 ± 10℃; time: 3 - 5s			
Safety Class		Complies with UL1741, CSA-C22.2 No.107.1, EN62109-1			
MTBF	MIL-HDBK-217F@25℃	≥300,000h			

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Mechanical Specifications

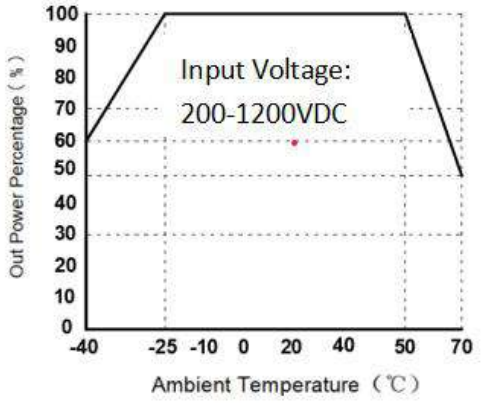
Case Material	Black plastic; flame-retardant and heat-resistant（UL94V-0）
Package Dimensions	89.00 x 63.50 x 25.00mm
Weight	195.0g Typ.
Cooling Method	Free air convection

EMC Specifications

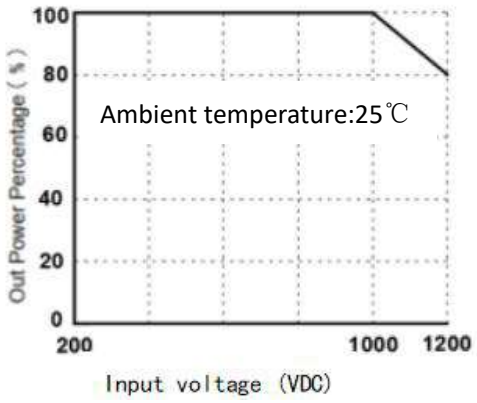
EMI	CE	CISPR32/EN55032 CLASS A (Recommended Circuit（Figure 2）)	
	RE	CISPR32/EN55032 CLASS A (Recommended Circuit（Figure 2）)	
EMS	RS	IEC/EN61000-4-3 10V/m	perf. Criteria A
	EFT	IEC/EN61000-4-4 ±2KV ±4KV (Recommended Circuit（Figure 2）)	perf. Criteria B
	Surge	IEC/EN61000-4-5 line to line ±1KV line to line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

Typical Characteristic Curves

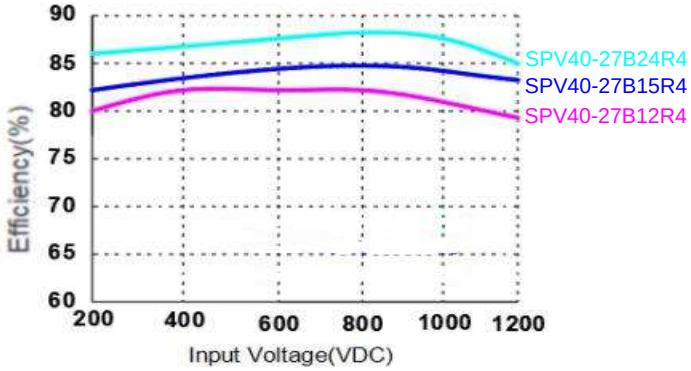
Temperature Derating Curve



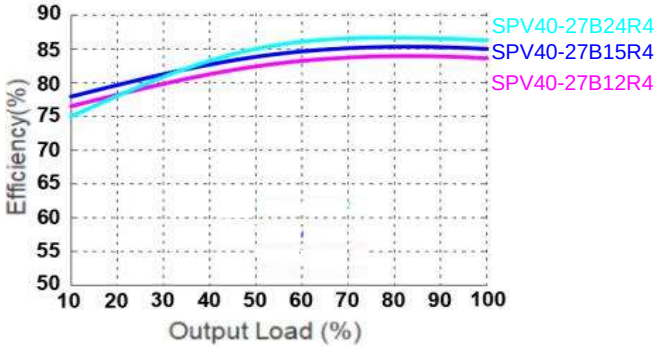
Input Voltage Derating Curve



Efficiency VS Input Voltage Curve （Full load）

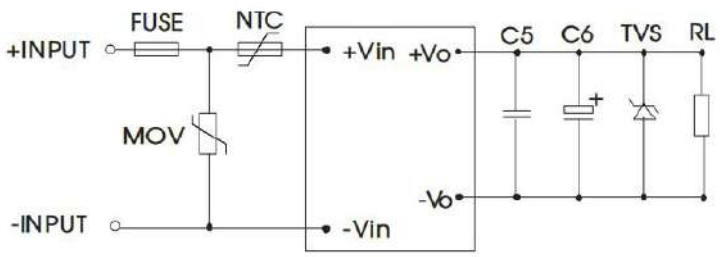


Efficiency VS Output Load Curve （Vin=600VDC）



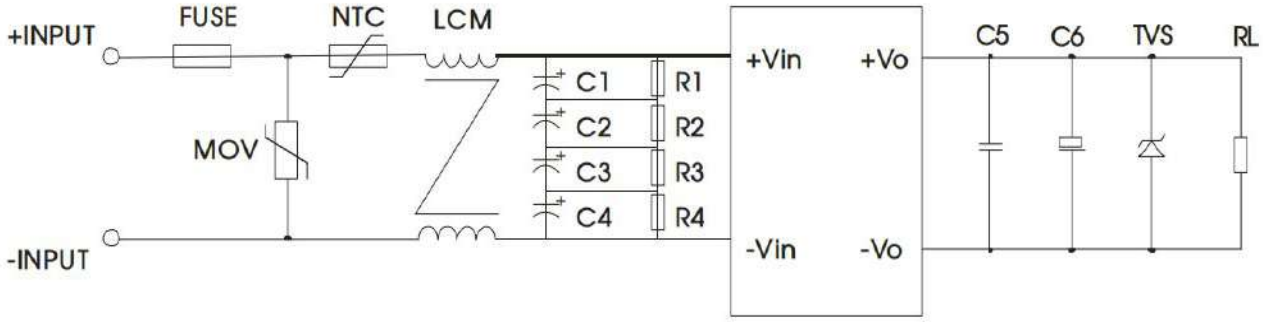
Note: 1. For input voltages of 1000-1200VDC, voltage derating should be carried out on the basis of temperature derating.
2.This product is suitable for use in a natural wind-cooled environment.

Typical Circuit Design and Application

Application circuit (Figure 1)	Recommendation of capacitive load value table		
	Output voltage	12/15VDC	24VDC
	FUSE	4A/1500VDC，Must be connected	
	MOV	20D162K	
	NTC	10D-20	
	C5（μF）	1	
	C6（μF）	220	120
	TVS	SMBJ20A	SMBJ30A

EMS Solutions - Recommended Circuitst

EMS Solutions - Recommended Circuitst（Figure 2）



Recommended parameter values for EMC solution circuits	
Model	Recommended value
MOV	20D162K
C1, C2, C3, C4	47μF/450V
R1, R2, R3, R4	1MΩ/2W
NTC	10D-20
LCM	10mH
FUSE	4A/ 1500VDC Must be connected

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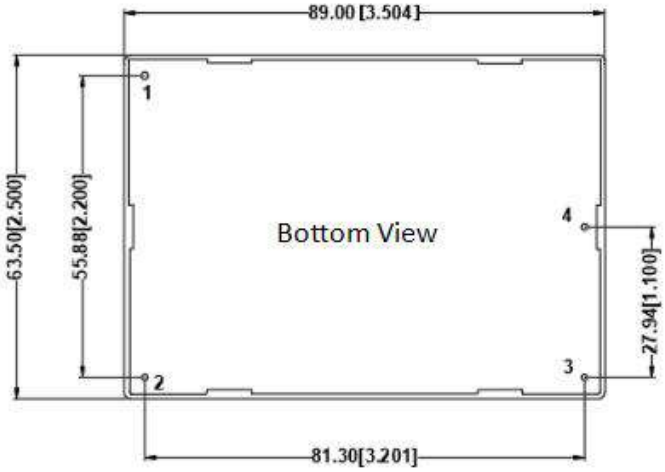
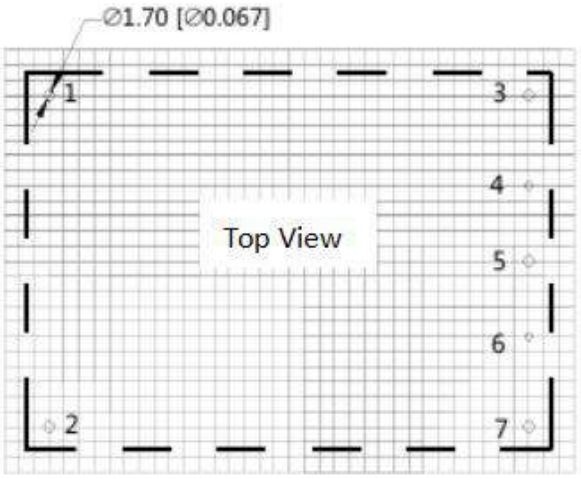
Dimensions and Recommended Layout

Dimensions	PCB Printing Layout





Grid size：2.54*2.54mm

Note:
Unit: mm[inch]
Pin section tolerances:±0.10[±0.004]
General tolerances:±0.50[±0.020]

Pin FunctionTable	
Pin	Function
1	+Vin
2	-Vin
3	+Vout
4	-Vout

Packaging instructions

Packaging Information		
Product quantity (pcs/ tray)	Inner carton quantity(pcs/carton)	Outer carton quantity (pcs/carton)
12	36	72

Note：

- The input voltage should not exceed the specified range value, otherwise it may cause permanent and irreparable damage;
- It is recommended to use at a load of over 5%. If the load is below 5%, the ripple index of the product may exceed the specifications, but it does not affect the reliability of the product;
- The maximum capacitive load is tested within the input voltage range and under full load conditions;
- Unless otherwise specified, all indicators in this manual are measured at Ta=25 ℃, humidity<75% RH, nominal input voltage, and output rated load;
- All indicator testing methods in this manual are based on our company's corporate standards;
- Our company can provide product customization, and specific requirements can be directly contacted by our technical personnel;
- Product specifications are subject to change without prior notice.