

# SCHMID-M

## SPV SERIES

### NEW POWER SOURCES 200-1200VDC OVERWIDE AND OVERHIGH INPUT VOLTAGE ISOLATION CONVERTER

SPV series are 200-1200VDC input voltage regulated DC-DC converter. It features ultra-high input voltage, high efficiency, high reliability, it can be widely used in PV power generation and high voltage inverter occasion, provide a stable operating voltage to the load equipment. Its own multiple protection features can enhance the safety performance of the power and load when module work under abnormal conditions.

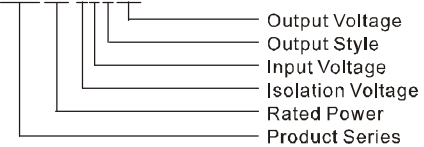


#### PRODUCT FEATURES

- 6:1 ultra-wide input voltage range: 200 ~ 1200VDC
- Industrial operating temperature: -40°C ~ 70°C
- 4000VDC high isolation voltage
- high efficiency, Low ripple& noise
- Under input voltage protection (automatic recovery)
- Over output voltage protection(automatic recovery)
- Short circuit protection(automatic recovery)
- Input against reverse protection
- MTBF>300 K hours
- High reliability, long life, three years warranty
- Offer custom products

#### PART NUMBER SYSTEM

SPV05-27B05



INPUT VOLTAGE:1200VDC

#### SELECTION GUIDE

Model	Package	Input Voltage Range (VDC)	Output		Isolation Voltage (VDC)	Efficiency (% Typ)	Ripple& noise (Max.)
			Voltage (VDC)	Current (mA)			
SPV05-27B05	74.0x52.0x28.0mm	200~1200	5	1000	4000	73	100mV
SPV10-27B05			5	2000		75	
SPV10-27B09			9	1111		78	
SPV10-27B24			24	420		83	

#### INPUT SPECIFICATIONS

Input Voltage Range		200~1200VDC		
Input Current	SPV05 models	200VDC	600VDC	1200VDC
	SPV10 models	34mA(Typ.) 66mA (Typ.)	12mA (Typ.) 22mA (Typ.)	9mA (Typ.) 14mA (Typ.)
Inrush Current		200VDC	600VDC	1200VDC
		8A (Typ.)	12A (Typ.)	25A (Typ.)
External input fuse		1A Slow blow		

#### OUTPUT SPECIFICATIONS

Output voltage accuracy		±1% (Typ.)	±2% (Typ.)
Line regulation		±0.5% (Typ.)	±1% (Typ.)
Load regulation		±0.5% (Typ.)	±1% (Typ.)
Ripple& noise(p-p)	20MHz Bandwidth	50mV (Typ.)	100mV (Typ.)
Short circuit protection		Continuous, and auto resume	
Under input voltage protection		Undervoltage protection range: 175~ 185V Undervoltage release range:185~195V	
Over output voltage protection	SPV05-27B05	(Feedback-clamp) Voltage limited < 6.5V	
	SPV10-27B05	(Feedback-clamp) Voltage limited < 6.5V	
	SPV10-27B09	(Feedback-clamp) Voltage limited < 11.5V	
	SPV10-27B24	(Feedback-clamp) Voltage limited < 27V	
Max. Capacitive Load(Full load)	SPV05-27B05	10000µF	
	SPV10-27B05	6000µF	
	SPV10-27B09	4000µF	
	SPV10-27B24	1500µF	
Output Power	SPV05-27B05	5W	
	SPV10-27B24	10W	

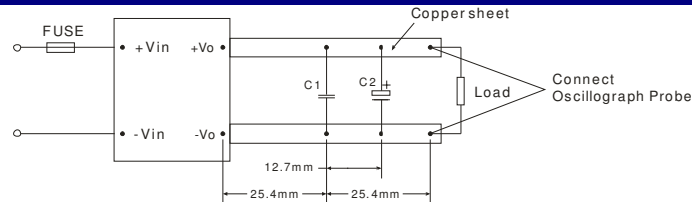
## COMMON SPECIFICATIONS

Temperature ranges	Operating Storage Case temperature Temperature Drift	-40°C ~ +70°C -40°C ~ +105°C +90°C Max. ±0.02 %/°C (Max.)			
Humidity		20 ~ 95%			
Delay time		1s (Max.)			
Cooling		Free air convection			
Hot-plugging		No support			
Isolation Voltage		4000VDC/1Min			
Isolation Resistance	Test at 500VDC	> 100 MΩ			
EMC*	EMI	CE*	CISPR22/EN55022	CLASS A	
		RE*	CISPR22/EN55022	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	±4KV	perf. Criteria B
		Surge*	IEC/EN61000-4-5	±2KV/±4KV	perf. Criteria B
		CS	IEC/EN61000-4-6	10 Vr.m.s	perf. Criteria A
		PFM	IEC/EN61000-4-8	10A/m	perf. Criteria A
	Voltage dips, short and interruptions immunity	IEC/EN61000-4-11	0%-70%	perf. Criteria B	
Case Material		Aluminium			
Install		PCB			
MTBF		>300,000h @25°C			
Weight		190 g			

Note:

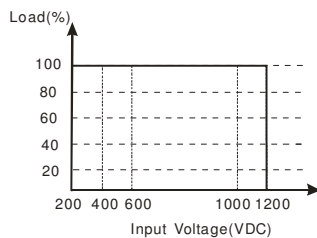
- \* External circuit is required to models, refer to EMC typical application.
- Test ripple and noise by "parallel cable" method. Test efficiency at normal temperature and input voltage is 200VDC.
- Unless otherwise specified, all specifications above are measured at rated input voltage and rated output load, TA=25°C, humidity < 75%;
- All specifications stated in this datasheet are subject to the above listed models only. For specifications of non-standard models, please contact our technical support team.

## PARALLEL LINES MEASURE



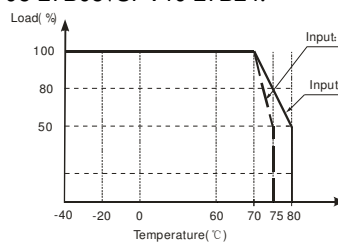
Note: C1: 1µF (ceramic capacitor) C2: 10µF (electrolytic capacitor)

## INPUT VOLTAGE VS LOAD

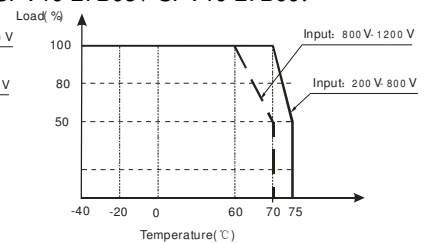


## TEMPERATURE VS LOAD

SPV05-27B05, SPV10-27B24:

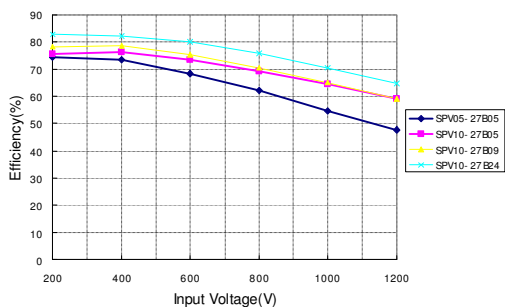


SPV10-27B05, SPV10-27B09:

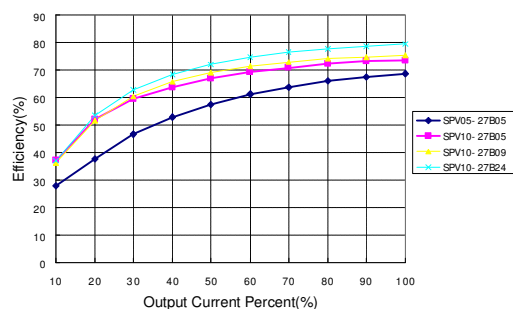


## TYPICAL EFFICIENCY CURVE

Efficiency VS Input Voltage Curve

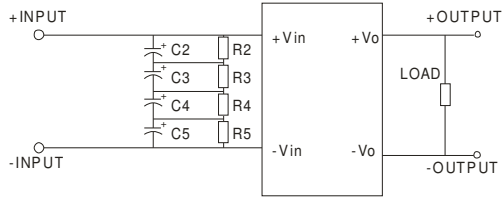


Efficiency VS Output Load curve (Vin=600VDC)



## EMC TYPICAL APPLICATIONS

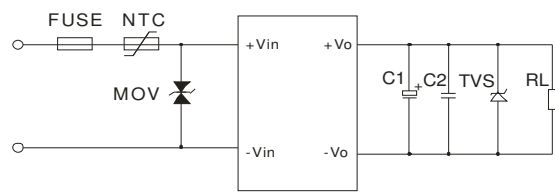
EMI Recommended Circuit:



Recommended parameters:

- ① C2, C3, C4, C5: 47µF/450V
- ② R2, R3, R4, R5: 1MΩ/2W

EMS Recommended Circuit:



Recommended parameters:

Vout	5V	24V
TVS	SMCJ7.0A	SMCJ33A
C2	224K/50V	224K/50V

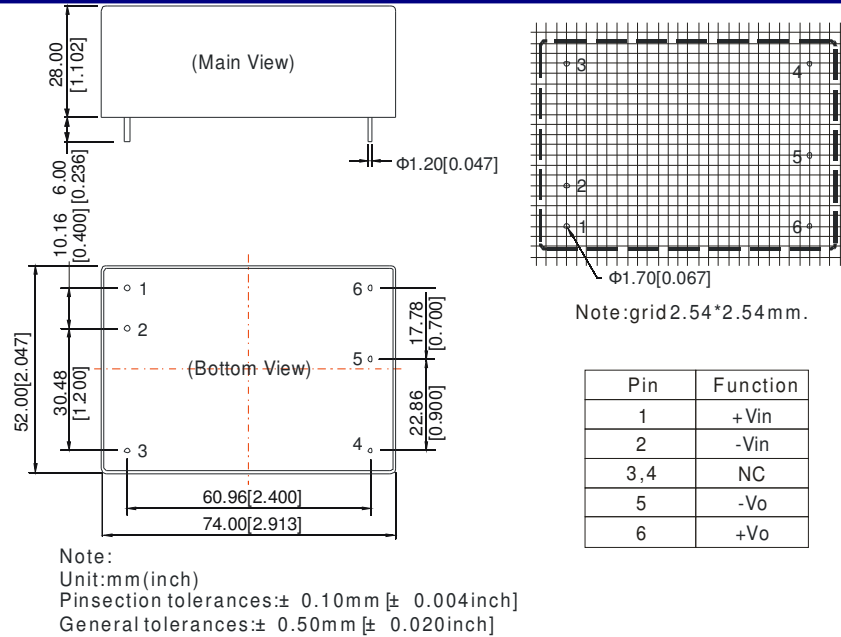
Note:

Output filtering capacitor C1 is electrolytic capacitors, It is recommended to use high frequency and low impedance electrolytic capacitors. For capacitance and current of capacitor please refer to manufacture's datasheet. Voltage derating of capacitor should be 80%. TVS is a recommended component to protect post-circuits (if converter fails).

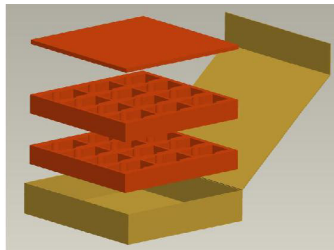
External input NTC is recommended to use 5D-9.

MOV: Varistor, model: 162KD20, it is used to protect the device under surge. Access as needed.

## OUTLINE DIMENSIONS & RECOMMENDED FOOTPRINT



## PACKAGE DIAGRAM



Inner packaging box dimensions:L\*W\*H=365\*350\*105mm

Package quantity: 24 PCS

Outer package box dimensions:L\*W\*H=390\*360\*245mm

Package quantity: 48 PCS