



Key features

- Universal input :85-264 VAC, 50/60 Hz
- Low ripple and noise
- Over load protection ,short circuit protection
- High efficiency, high density, fine quality and low price
- Industrial design
- Six sides metal shielding
- Lower power, RoSH , no-load loss < 0.5W
- 100% Test and work, 10 years production quality
- 3 Years product warranty



RoHS

SPM50 series --- a super small size modular AC/DC power supply offered by Zhongyiguang. This series of power supply is global, ac/dc input voltage range, low power consumption, high efficiency, high reliability, safety isolation, etc. Safe and reliable products, surge resistance is superior, the EMC and safety specifications meet the IEC/EN61000-4, CISPR22 / EN55022, UL60950 and EN60950 standards.

Electrical specifications

Model	Input voltage	Output Power(W)	Output voltage(V)	Output current(A)	Ripple(mv)	Efficiency (%)
SPM50-S03	85 ~ 264VAC 70 ~ 370VDC	26.4	3.3	8	100	74
SPM50-S05		40	5.0	8	100	80
SPM50-S09		45	9.0	5	100	81
SPM50-S12		50	12.0	4.2	100	84
SPM50-S15		50	15.0	3.3	100	85
SPM50-S24		50	24.0	2.1	150	86
SPM50-S36		50	36.0	1.4	150	87
SPM50-S48		50	48.0	48.0	1.1	150

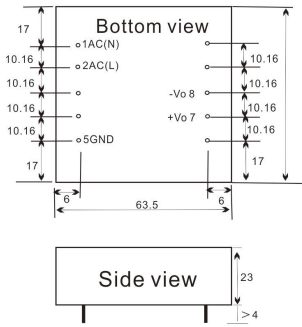
General features

Output	Output voltage accuracy	±2.0%
	Source effect	±1.0%
	Load effect	±1.0%
	Starting time (TYP)	20ms/230VAC 50ms/115VAC at full load
	Output hold time (TYP)	40ms/230VAC 15ms/115VAC at full load
Input	Input voltage range	85 ~ 264VAC 70 ~ 370VDC
	Input frequency range	47 ~ 440Hz
	Input current (TYP)	500mA / 115VAC 270m A / 230VAC
	Inrush current (TYP)	Cold Boot 20 A / 115 VAC 40 A / 230 VAC
	Recommended values for External Fuses	T3.15A / 250Vac (disconnected slowly)
	Leakage current (TYP)	< 1mA at 230VAC/50Hz
Protection	Short circuit protection: automatic recovery after troubleshooting; Over-current protection, 110%--150% load, automatic recovery after troubleshooting.	



Work environment	Operating Temperature	-40 ~ +70 °C (According to the output load derating)
	Humidity	85% .RH max
	Storage Temperature	-40 ~ +85, 10 ~ 95% RH
	Temperature coefficient	0.03%/ (0~ 50°C)
	Vibration coefficient	10~500Hz,2G10min./1cycle, 60min.each along X,Y,Z axes
Safety and EMC (Note:3)	Safety Standard	UL1012,EN60950,UL60950
	I/O-Isolation voltage	I/P-O/P:1.5KVAC I/P-FG:1.5KVAC O/P-FG:0.5KVAC
	Isolation resistance	I/P-O/P,I/P-FG,O/P-FG:> 100M Ohms/500VDC @ 25°C 70% RH
	EMI / RFI conducted	EN55011, EN55022 (CISPR22)
	ESD	IEC/EN 61000-4-2 level 4 8kV/15kV (Note: See the application circuit for details)
	RF	IEC/EN 61000-4-3 (Note: See the application circuit for details)
	EFT	IEC/EN 61000-4-4 level 4 4kV (Note: See the application circuit for details)
Others	SURGE	IEC/EN 61000-4-5 level 4 2kV
	MTBF	200K hrs min. MIL-HDBK-217F @ 25°C
Notes	Dimension	76*76*23.mm (L*W*H)
	1. Unless otherwise indicated of the above data,Our products are tested in the condition of TA=25o°C, humidity <75%, 230Vac nominal voltage input and rated load output.	
	2. Ripple & noise are measured at 20MHz of bandwidth by using a 300mm twisted pair-wire terminated with a 0.1uf & 47uf parallel capacitor.	
	3. The power supply is considered a component which will be installed into a final equipment. The final equipment must be re-confirmed that it still meets EMC directives.	

Dimension

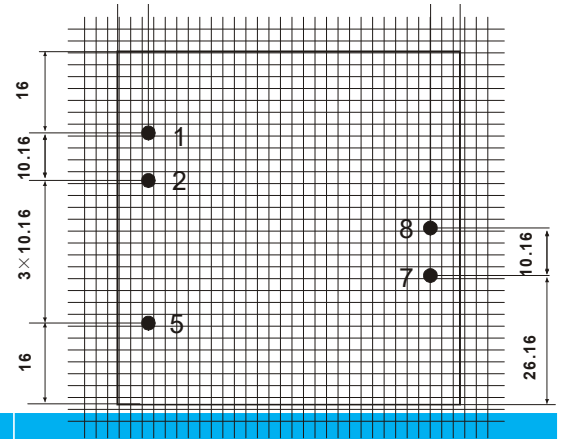


Pin	Function
1	AC(N)
2	AC(L)
3	No Pin
4	No Pin
5	FG
6	No Pin
7	+Vo
8	-Vo
9	No Pin
10	No Pin

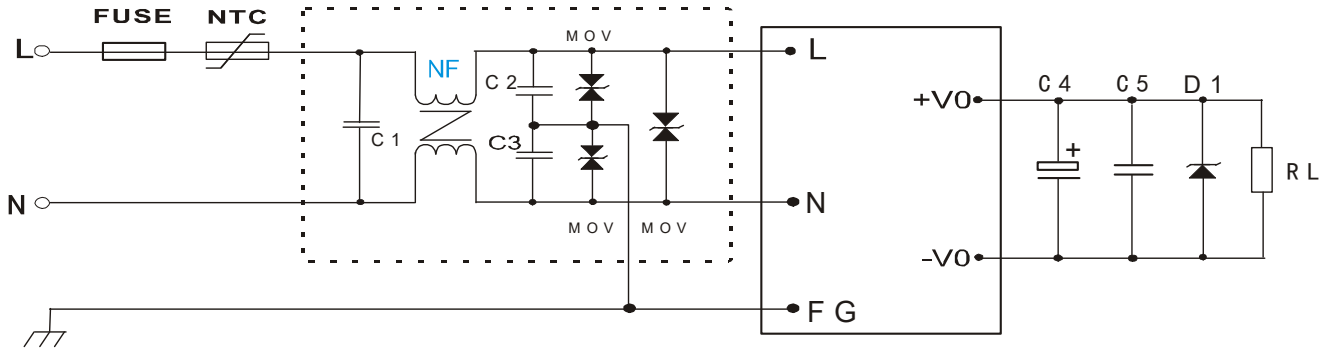
Remark:unit of measurement:mm
Size of terminalsection:1.00mm
Terminal to larence:±0.1mm
Leng of the terminal:≥4.00mm
No to larence:± 0.15mm
Module weight:180g(typical value)

PCB LAYOUT

Note: each cell in the graph is 2.54mm (100mil)



Typical application diagram



Remarks:

1. The output filter capacitor C4 is electrolytic capacitor, recommend using of high frequency and low resistance of electrolytic capacitors, the capacity and the current flowing-through need refer to the technical specifications provided by the manufacturer. Capacitance voltage derating is greater than 80% .C5 is use to remove high frequency noise.TVS D1 is used for protecting flow-up circuit (when module be abnormal) and recommended to use.
2. EMC filter used in the dashed box is to meet the higher requirements, if it is used in general applications, it can be omitted.
3. In order to meet customer demand,our company makes the circuit in the dashed box into products, and named: FA01 FA02 and can be used with switching power supply.Refer to technical manual to get more information.If you need technical support, please contact with our engineer.

Typical values for external circuit components

Component Model	FUSE	NTC	NF	MOV	C1	C2, C3	C4	C5	D1
SPM50-S03	T3.15A/ 250V	Model: 10D-9 is recomme nded for NTC	NF is common mode inductor, L= 3 -10mH,I≥ 0.7A	7D471 is recommen ded for MOV	104K/275 V Safety capacitor X is recommen ded for C1	102K/400 V Safety capacitor is recommen ded for C2, C3	1000uF/16 V	104K/50V (Ceramic capacitor s)	P6KE6.8A
SPM50-S05							1000uF/16 V		P6KE16A
SPM50-S09							470uF/16V		P6KE20A
SPM50-S12							470uF/16V		P6KE33A
SPM50-S15							330uF/16V		P6KE33A
SPM50-S24							220uF/16V		P6KE36A
SPM50-S36							120uF/16V		P6KE51A
SPM50-S48							100uF/16V		P6KE68A



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AC-DC Switching Power Supply 50W SPM50-SXX Series