

## Key features

- Global voltage input : 85-305, 50/60Hz
- Low ripple and noise
- Output overload and short circuit protection
- High efficiency and high power density
- Industrial design
- Lower power, RoHS , no-load loss<0.05W
- 100% test and work
- 3 years product warranty

ZPB04 series --- a super small size modular switching power supply offered by Zhongyiguang. This series is extremely low no-load loss (< 0.05W), low leakage current, which is only 0.1mA, small size (35\*25.4\*18mm) and isolation voltage, etc. The product is safe and reliable, which has a good EMC. EMC and safety specifications meet the IEC/EN61000-4, CISPR22/EN55022, UL60950/EN60950/EN60601 and other related standards. This series of products are widely used in medical industrial, office and civil industries, such as applied to a relatively harsh environment electromagnetic compatibility must refer to the application circuit.

## Electrical specifications

Model	Input voltage	Output Power(W)	Output voltage(V)	Output current(A)	Ripple(mv)	Efficiency (%)
ZPB04-S03	85-305Vac	2.6	3.3	0.80	100	66
ZPB04-S05	85-305Vac	4	5.0	0.80	100	76
ZPB04-S09	85-305Vac	4	9.0	0.33	100	78
ZPB04-S12	85-305Vac	4	12	0.33	100	79
ZPB04-S15	85-305Vac	4	15	0.26	100	80
ZPB04-S24	85-305Vac	4	24	0.16	100	81

**Notes: The connection type product is added directly to A after the product model, such as: ZP04-S05A**

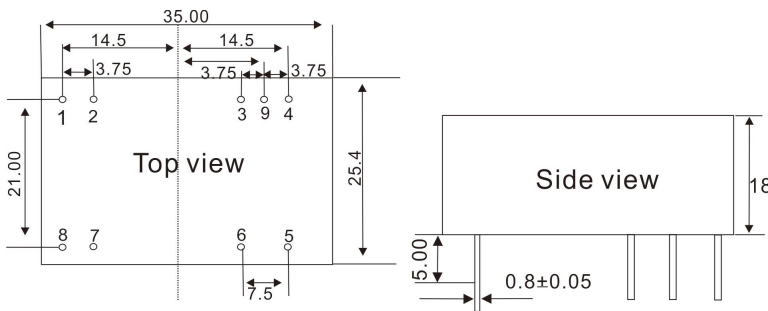
## General features

Output	Output voltage accuracy	±2.0%	
	Source effect	±1.0%	
	Load effect	±1.0%	
	Starting time (TYP)	100ms/230VAC	200ms/115VAC at full load
	Output hold time (TYP)	40ms/230VAC	15ms/115VAC at full load
Input	Input voltage range	85~ 305VAC	120 ~ 430VDC
	Input frequency range	47 ~ 440Hz	
	Input current (TYP)	95m A / 115VAC	46m A / 230VAC
	Inrush current (TYP)	30 A / 230 VAC	
	Recommended values for External Fuses	T1A / 250Vac	(Disconnected slowly)



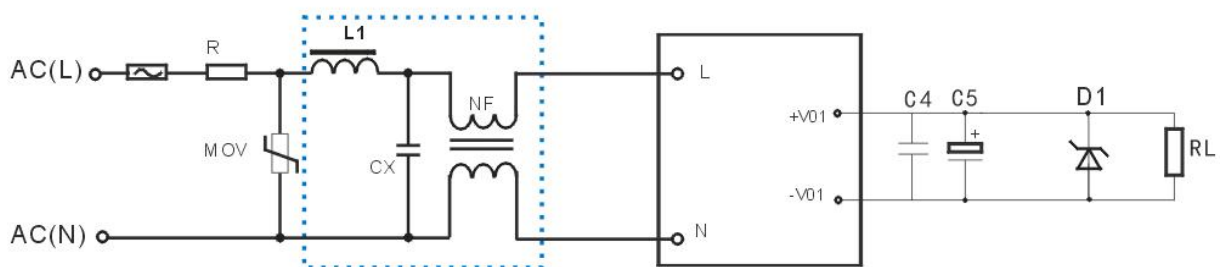
	Leakage current (TYP)	< 0.1mA at 265VAC/50Hz
Protection	Over-voltage, Over-current and short circuit protection, automatic recovery after troubleshooting	
Work environment	Operating Temperature	-40 ~ +70 °C (≥40°C ,According to 0.12W/°C derating)
	Humidity	85% .RH max
	Storage Temperature	-40 ~ +85, 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	EN60950,EN60601,UL60950
	I/O-Isolation voltage	I/P-O/P:4000VAC
	Isolation resistance	I/P-O/P>100M Ohms/500VDC 25°C 70% RH
	EMI / RFI conducted	EN55011, EN55022 (CISPR22) CLASS B (Note: See the application circuit for details)
	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)
	SURGE	IEC/EN 61000-4-5 level 4 2kV
Others	MTBF	200K hrs min. MIL-HDBK-217F(25)
	Dimension	35.0*25.4*18.0mm
Notes	1. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25 of ambient temperature	
	2. Ripple & noise are measured in accordance with the link of the application circuit in this manual, using a 300mm twisted pair-wire and 20MHZ bandwidth	
	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								
PIN	1	2	3	4	5	6	7,8	9
One output	NC	NOPIN	+Vo	NC	AC	AC	NOPIN	-Vo
Doal output	+Vo1	-Vo1	+Vo2	-Vo2	AC	AC	NOPIN	NOPIN

## Typical application diagram





Remarks:

1. output filter capacitor C4 is electrolytic capacitor, it is recommended to use high frequency low resistance electrolytic capacitor, capacity and flow current, please refer to the technical specifications provided by manufacturers. C5 for removing high frequency noise.
2. in Figure 2, the EMC filter in order to meet the higher EMC requirements in the dashed line frame, such as general applications, can be omitted.
- 3., the company has dashed line frame of L1, CX, NF to form a filter, for customer support, model FA01.

## Typical values for external circuit components

Component Model	FUSE	R	NF	MOV	CX	L1	C5	C4	D1
ZPB04-S03	T1A/250 V	Recomm ended external NTC Thermist or, type: 10D-9	NF is common mode inductor, and the inductance value is in the range of 30mH, I=0.5A.	MOV is a piezoelect ric resistor, recommen ded value is 14D471K	CX is the safety capacitor , 104K/275 V	1mH/0.5 A	470uF/16V	104K/50V ( ceramic capacitor)	P6KE6.8A
ZPB04-S05							470uF/16V		P6KE6.8A
ZPB04-S09							150uF/16V		P6KE16A
ZPB04-S12							120uF/16V		P6KE16A
ZPB04-S15							120uF/25V		P6KE20A
ZPB04-S24							100uF/35V		P6KE33A



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