

RoHS

Key features

- Ultra small size,the thickness is only 1.5CM
- Wide Input Range: 90-264 Vac,50/60Hz
- Low ripple and noise, output protection
- Lower power, RoHS , no-load loss<0.1W
- Semiconductor devices adopt international ON first line brand
- 3 Years product warranty

ZP04 series --- a super small size modular module power supply offered by Zhongyiguang. The output power of this series module power supply is 4 W, with extremely low no-load loss (< 0.1W), low leakage current,which is only 0.1mA, small size (32.00*20.00*15.00mm) and isolated pressure up to 4kv,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 smart home, high-end decorative lighting, medical, industrial, office and civil industries, such as applied to a relatively harsh environment electromagnetic compatibility must refer to the application circuit.

Electrical specifications

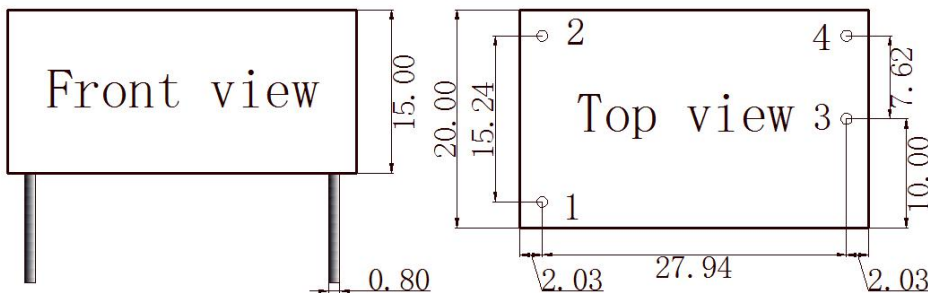
Model	Input voltage	Output Power(W)	Output voltage(V)	Output current(A)	Ripple(mv)	Efficiency (%)
ZP04-S03	85-305Vac	2.64	3.3	0.80	50	70
ZP04-S05	85-305Vac	4	5.0	0.80	50	76
ZP04-S09	85-305Vac	4	9.0	0.44	50	77
ZP04-S12	85-305Vac	4	12	0.33	50	79
ZP04-S15	85-305Vac	4	15	0.26	50	79
ZP04-S17V5	85-305Vac	4	17.5	0.23	50	80
ZP04-S24	85-305Vac	4	24	0.16	50	82

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~ 305VAC	80 ~ 400VDC
	Input frequency range	47 ~ 440Hz	
	Input current(TYP)	75m A / 115VAC	47m A / 230VAC
	Inrush current(TYP)	30 A / 230 VAC	

	Recommended values for External Fuses	T1A/250
	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(≥50°C, According to 0.05W/°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:3000VAC ★ZP04-S24 only 1500Vac
	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	32.00*20.00*15.00mm.
	Weight	15g/PC 233g/TUBE 17.33kg/BOX
	Package	13PCS/TUBE 72TUBES/BOX
	size of packing box	360*300*250mm
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	

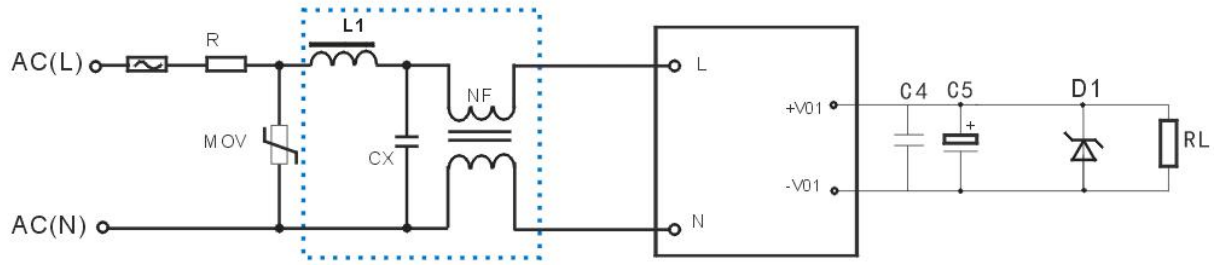
机械尺寸图



ZP03-SXX Pin function	
PIN	SINGLE
1	AC IN(N)
2	AC IN(L)
3	-DC OUT
4	+DC OUT

Remark: unit of Measurement: mm; terminal length: ≥4.0mm; size of terminal section: 0.8mm; terminal tolerance: ±0.1mm; no tolerance: ±0.5mm

Typical application diagram



Remark:

1. The output filter capacitor C5 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. C4 is use to remove high frequency noise.
2. In FIG. 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. Our company makes the circuit(L1、CX、NF) in the dashed box into products, and named: FA01 and can be used with switching power supply.

Typical values for external circuit components

Component Model	FUSE	R	NF	MOV	CX	L1	C5	C4	D1
ZP04-S03	Safety resistor: 10Ω /1W	No connect	NF is a common mode inductance, the inductance value is 30mH, current 0.2A-0.5A.	MOV is a piezoelectric resistor, recommended value is 14D471K	CX is the safety capacitor , 104K/275V	1mH/0.5A	470uF/16V	104K/50V (ceramic capacitor)	P6KE6.8A
ZP04-S05							470uF/16V		P6KE6.8A
ZP04-S09							150uF/16V		P6KE16A
ZP04-S12							120uF/16V		P6KE16A
ZP04-S15							120uF/25V		P6KE20A
ZP04-S24							100uF/35V		P6KE33A



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