



Standard package



Wiring A extension package



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

ZP12 series --- a super small size modular module power supply offered by Zhongyiguang. The output power of this series module power supply is 12 W, with extremely low no-load loss (< 0.1W), low leakage current,which is only 0.1mA, small size (50.80*25.40*15.50mm) 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 (%)
ZP12-S03	90-264Vac	7.2	3.3	2.20	50	74
ZP12-S05	90-264Vac	11	5.0	2.20	50	77
ZP12-S09	90-264Vac	12	9.0	1.33	50	79
ZP12-S12	90-264Vac	12	12	1.00	50	80
ZP12-S15	90-264Vac	12	15	0.80	50	82
ZP12-S24	90-264Vac	12	24	0.50	50	83

Notes: The connection type product is added directly to A after the product model, such as:ZP12-S05A

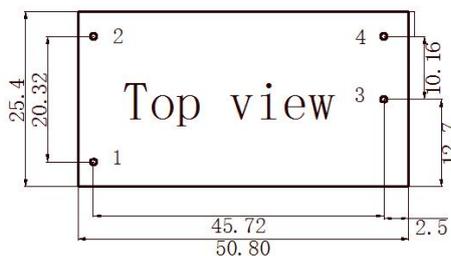
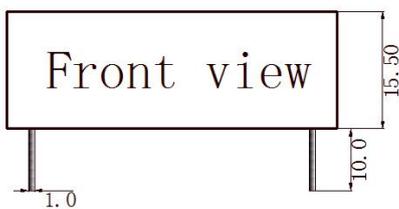
General features

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	90~ 264VAC	80 ~ 370VDC
	Input frequency range	47 ~ 440Hz	



	Input current(TYP)	285m A / 115VAC 175m A / 230VAC
	Inrush current (TYP)	30 A / 230 VAC
	Recommended values for External Fuses	10Ω/2W
	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)
Others	SURGE	IEC/EN 61000-4-5 level 4 2kV
	MTBF	200K hrs min. MIL-HDBK-217F(25)
	Dimension	50.80*25.40*15.50mm.
	Weight	30g/PCS 350g/Each tube 19.45kg/Per box
	Package	10PCS/Each tube 54Tube/Per box
Notes	size of packing box	360*300*250mm
	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

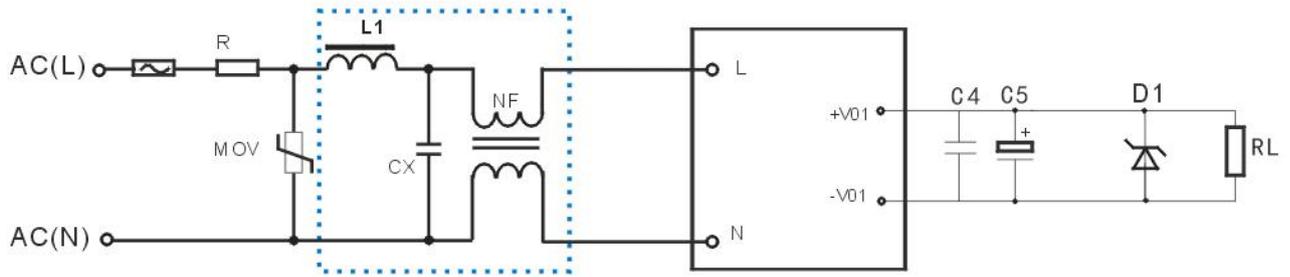
Dimension



ZP12-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: 1.00mm; terminal tolerance: ±0.1mm; no tolerance: ±0.5mm

Typical application diagram



Remark:

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. C5 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
ZP12-S03	T1A/250V	Recomm ended external NTC thermistor, model: 10D-9	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
ZP12-S05							470uF/16V		P6KE6.8A
ZP12-S09							150uF/16V		P6KE16A
ZP12-S12							120uF/16V		P6KE16A
ZP12-S15							120uF/25V		P6KE20A
ZP12-S24							100uF/35V		P6KE33A



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