

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
- Lower power, RoSH , no-load loss < 0.75W
- 100% test and work
- 3 Years product warranty



RoHS

SP-D/T series --- a small size modular switching power supply with the high stability of 2 road /3 output which offered by Zhongyiguang. This series of module power supply has the characteristics of small size, high reliability, high isolation voltage, high cost performance and so on.And this series of products mainly used in the heavy industry environment of instruments and other related equipment, 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 (%) |
|------------|------------------------------|-----------------|-------------------|-------------------|------------|----------------|
| SP05-D0512 | 85 ~ 280VAC (80 ~ 390VDC) | 5W | 5V | 0.6A | 100mVp | 75% |
| | | | 12V | 0.2A | | |
| SP05-D0524 | | 5W | 5V | 0.6A | 100mVp | 76% |
| | | | 24V | 0.15A | | |
| SP10-D0512 | | 10W | 5V | 1A | 100mVp | 78% |
| | | | 12V | 0.5A | | |
| SP10-D0524 | | 10W | 5V | 1A | 100mVp | 79% |
| | | | 24V | 0.25A | | |
| SP10-D12 | | 10W | 12V | 0.45A | 100mVp | 80% |
| | | | -12V | 0.45A | | |
| SP10-D15 | | 10W | 15V | 0.35A | 100mVp | 81% |
| | | | ±15V | 0.2A | | |
| SP10-TA | | 10W | 5V | 1A | 100mVp | 79% |
| | | | ±12V | 0.25A | | |
| SP10-TB | | 10W | 15V | 1A | 100mVp | 80% |
| | ±15V | | 0.2A | | | |
| SP15-D0512 | 15W | 5V | 1.5A | 100mVp | 79% | |
| | | 12V | 0.625A | | | |
| SP15-D0524 | 15W | 5V | 1.5A | 100mVp | 80% | |
| | | 15V | 0.32A | | | |



| | | | | | |
|------------|-----|------|--------|--------|-----|
| SP15-D12 | 15W | 12V | 0.625A | 100mVp | 79% |
| | | -12V | 0.625A | | |
| SP15-D15 | 15W | 15V | 0.5A | 100mVp | 80% |
| | | -15V | 0.5A | | |
| SP15-TA | 15W | 5V | 1.5A | 100mVp | 80% |
| | | ±12V | 0.32A | | |
| SP15-TB | 15W | 5V | 1.5A | 100mVp | 80% |
| | | ±15V | 0.25A | | |
| SP25-D0512 | 25W | 5V | 3A | 100mVp | 82% |
| | | 12V | 0.83A | | |
| SP25-D0524 | 25W | 5V | 3A | 100mVp | 83% |
| | | 15V | 0.7A | | |
| SP25-D12 | 25W | 12V | 1.1A | 100mVp | 82% |
| | | -12V | 1.1A | | |
| SP25-D15 | 25W | 15V | 0.83A | 100mVp | 84% |
| | | -15V | 0.83A | | |
| SP25-TA | 25W | 5V | 3A | 100mVp | 82% |
| | | ±12V | 0.5A | | |
| SP25-TB | 25W | 15V | 3A | 100mVp | 83% |
| | | ±15V | 0.5A | | |
| SP30-D0512 | 30W | 5V | 4A | 100mVp | 83% |
| | | 12V | 1A | | |
| SP30-D0524 | 30W | 5V | 4A | 100mVp | 84% |
| | | 24V | 0.5A | | |

Description of power

Such as SP15-D0512, The output of the main road (5VDC) , main current is (0-2A) , The output auxiliary current is (0-1A) ,Total power is less than or equal to 15W

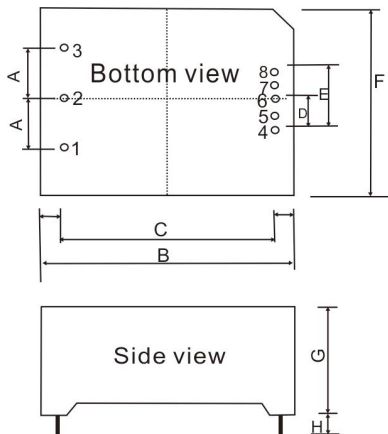
一般特性

| | | | | | | | |
|-----------------------|---------------------------------------|--------------------------------|-------|--------------------------------|-----------------------------------|-------|-------|
| Output | Output voltage accuracy | -DXX | | -DXXYY | | -TX | |
| | | +Vo | -Vo2 | Vo1 | Vo2 | +Vo | ±Vo2 |
| | | ±2.0% | ±6.0% | ±2.0% | ±6.0% | ±2.0% | ±6.0% |
| | Source effect | ±1.0% | ±5.0% | ±1.0% | ±5.0% | ±1.0% | ±5.0% |
| | Load effect | ±1.0% | ±5.0% | ±1.0% | ±5.0% | ±1.0% | ±5.0% |
| | Starting time (TYP) | 40ms/230VAC | | 100ms/115VAC at full load | | | |
| | Output hold time (TYP) | 40ms/230VAC | | 15ms/115VAC at full load | | | |
| Input | Input voltage range | 85 ~ 280VAC,50/60Hz | | 70 ~ 390VDC | | | |
| | Input frequency range | 47 ~ 440Hz | | | | | |
| | Input current(TYP) | | SP05 | SP10 | SP15 | SP25 | SP30 |
| | | 115VAC | 0.11A | 0.21A | 0.31A | 0.51A | 0.61A |
| | | 230VAC | 0.06A | 0.12A | 0.17A | 0.27A | 0.32A |
| | Inrush current (TYP) | Cold boot 20 A / 115 VAC | | 40 A / 230 VAC | | | |
| | Recommended values for External Fuses | | SP05 | SP10 | SP15 | SP25 | SP30 |
| | | T1A/250Vac (Slowly disconnect) | | T2A/250Vac (Slowly disconnect) | T3.15A/250Vac (Slowly disconnect) | | |
| 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 | 95% .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:3.0KVAC 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 | Conform to 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) |
| | SURGE | IEC/EN 61000-4-5 level 4 2kV |
| Others | MTBF | 200K hrs min. MIL-HDBK-217F(25) |
| | Dimension | 70*48*23.5mm (L*W*H) |
| Remarks | 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 regarded as a component in the system, and the electromagnetic compatibility of the terminal equipment is required. | |

Dimension



Remark:

Unit of measurement : mm

Terminal diameter: 1.00mm

Length of the terminal ≥3.50mm

Terminal tolerance: ±0.1mm

No to larence: ±0.5mm

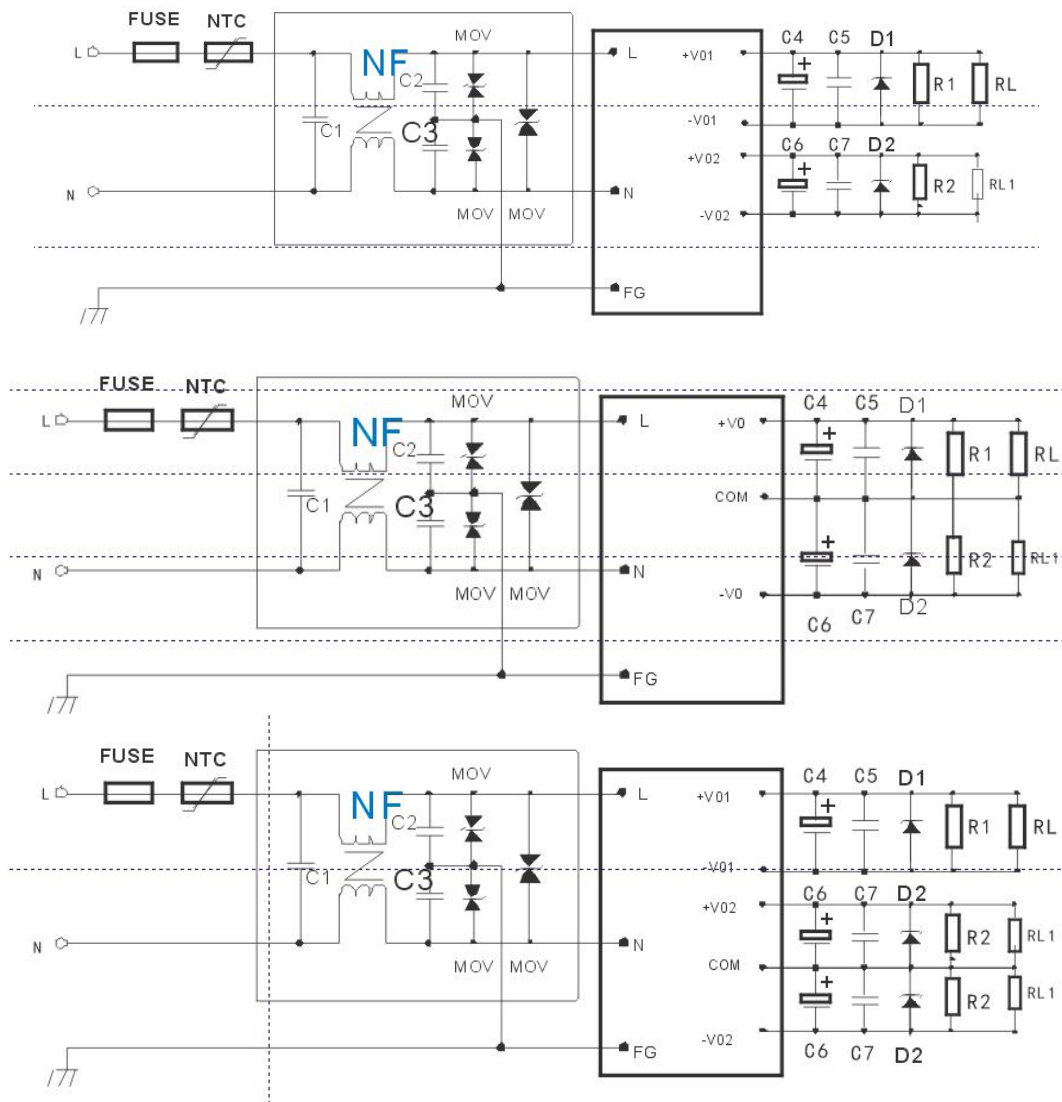
Module weight: SP05:60g; SP10:70g

SP15:80g; SP25:120g

| | SP05 | SP10 | SP15 | SP25/30 |
|---|------|------|------|---------|
| A | 12.5 | 17.5 | 17.5 | 20.0 |
| B | 48 | 55.0 | 62.0 | 70.0 |
| C | 40.5 | 47 | 54 | 62.0 |
| D | 8.0 | 10.0 | 10.0 | 11.5 |
| E | 16.0 | 20.0 | 20.0 | 23.0 |
| F | 36.0 | 45.0 | 45.0 | 48.0 |
| G | 20.5 | 21.5 | 22.5 | 23.5 |
| H | ≥4.0 | ≥4.0 | ≥4.0 | ≥4.0 |

| Pin | Pin function | | |
|-----|--------------|--------|-------|
| | -DXX | -DXXYY | -TX |
| 1 | FG | FG | FG |
| 2 | AC(N) | AC(N) | AC(N) |
| 3 | AC(L) | AC(L) | AC(L) |
| 4 | -Vo | -Vo1 | -Vo1 |
| 5 | No pin | +Vo1 | +Vo1 |
| 6 | COM | No pin | -Vo2 |
| 7 | No pin | -Vo2 | COM |
| 8 | +Vo | +Vo2 | +Vo2 |

Typical application diagram



Remark:

1. The output filter capacitance C4 is the electrolytic capacitor. It is recommended to use the high frequency low resistance electrolytic capacitance, the capacity and the current of the flow. Please refer to the technical specifications provided by the manufacturers. Capacitance pressure reduction is greater than 80%. C5 is to remove high frequency noise. D1 is recommended for the TVS tube to protect the rear circuit (when the module is abnormal).
2. In the dotted line, the EMC filter is connected to meet higher EMC requirements. In general applications, it can be omitted.
3. In order to meet the needs of customers, our company has made the circuit in the dotted line into the product, and named it: FA01, FA02, as the supporting use of customers. See FA01, FA02 technical manual. For technical support, please contact our engineer.



Typical values for external circuit components

| Component Model | FUSE | NTC | NF | MOV | C1 | C2,C3 | C4 | C5 | D1 |
|-----------------|-------------|-------------------------------------|---|-------------------------------------|---|---|-----------|------------------------------|-----------|
| -TA | T3.15A/250V | Model: 10D-9 is recommended for NTC | NF is common mode inductor, L= 3-10mH,I=0.2A - 0.5A | Model: 7D471 is recommended for MOV | Model: 104K/275V Safety capacitor X is recommended for C1 | Model: 102K/400V Safety capacitor is recommended for C2, C3 | 470uF/16V | 104K/50V(Ceramic capacitors) | 100uF/35V |
| -TB | | | | | | | 470uF/16V | | |
| -TC | | | | | | | 470uF/16V | | |



Zhongyiguang Guangzhou Technology Ltd

✉ : vice@zygkj.com

☎ : +86(20) 3287 4481 / 2292 1551

📍 : NO.2, building 4, NO.8, DouTang Road, YongHe Economic Zone, GuangZhou City, P. R. China