

FEATURES

- Universal 85 - 305VAC and 100 - 430VDC
- Industry standard footprint
- Efficiency up to 86%
- No Load power consumption < 0.1W
- Operating temperature range - 40°C to +85°C
- 5000m altitude operation
- Over-voltage category OVC 111 (meet EN61558)
- EMI performance meets. CISPR32 / EN55032 CLASS B EN55014
- IEC/EN/UL62368-1/EN60335-1 EN61558-1 safety approval

RS PRO PCB mount Switch Mode Power Supplies

2333527, 2333528, 2333529



RS Professionally Approved Products bring to you professional quality parts across all product categories. Our product range has been tested by engineers and provides a comparable quality to the leading brands without paying a premium price

Product Description

AC-DC PCB mount power supply suitable for a wide range of industrial, consumer and telecom instruments and applications. This compact, high efficiency series provides reinforced insulation and excellent EMC performance. The converters are approved to UL62368, EN62368, IEC62368, EN60335 and EN61558 and perform with the CLASS B limits of CISPR32 / EN55032/ EN55014 without external components.

General Specifications

| | |
|----------------------|--|
| Model | AC-DC 15W power supply |
| Mounting Type | PCB mount |
| Package Type | Black plastic, flame-retardant and heat-resistant (UL94V-0) |
| MTBF | MIL-HDBK-217F@25°C > 3,200,000 h |
| Applications | Industrial control systems, instrumentation and electrical equipment |

| RS Item No. | Input Voltage | Output Voltage | Output Current | Output Wattage | Efficiency (Typ) |
|-------------|---------------------------------|----------------|----------------|----------------|------------------|
| 2333527 | 85 to 305V ac 100 to 430V dc | + 5V DC | 3A | 15W | 85% |
| 2333528 | 85 to 305V ac 100 to 430V dc | + 12V DC | 1.25A | 15W | 85% |
| 2333529 | 85 to 305V ac 100 to 430V dc | + 24V DC | 0.625A | 15W | 86% |

Electrical Specifications

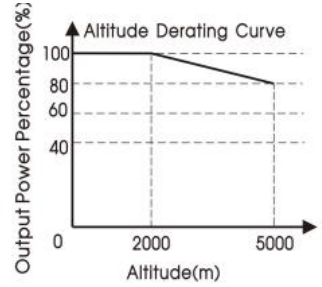
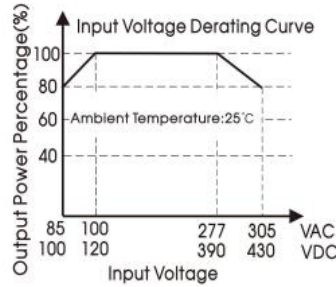
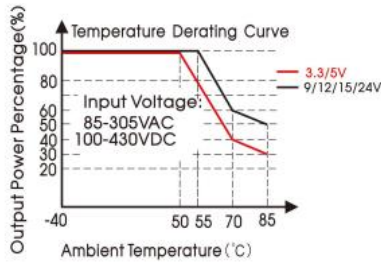
| Input Specification | |
|--------------------------|-------------------------------|
| Voltage Range | 85 to 305V ac, 100 to 430V dc |
| Frequency | 47 to 63Hz |
| AC Current Rating | 0.45A/115V ac, 0.3A/230V ac |
| Inrush Current | 30A / 115 ac, 60A / 230V ac |
| Input Protection | 2A/300V, slow-blow |

| Output Specification | | | |
|-------------------------|----------|----------|----------|
| Output voltage | 5V | 12V | 24V |
| Rated Current | 3A | 1.25A | 0.625A |
| Ripple & Noise (typ.) | 70mVp-p | 70mVp-p | 70mVp-p |
| Ripple & Noise (max.) | 120mVp-p | 120mVp-p | 120mVp-p |
| Rated Power | 15W | 15W | 15W |
| Max. Capacitive Load | 5000uF | 2000uF | 680uF |
| Output Voltage Accuracy | ±2% | ±2% | ±2% |
| Line Regulation typ. | ±0.5% | ±0.5% | ±0.5% |
| Load Regulation typ. | ±1% | ±1% | ±1% |
| Minimum Load | 0% | 0% | 0% |

| | | | |
|--------------------------|-----------------------------------|--|--|
| Hold Up Time | 55ms/230V ac, 10ms/115V ac | | |
| Over Voltage Protection | 5VDC | ≤7.5VDC (Output voltage clamp or hiccup) | |
| | 12VDC | ≤20VDC (Output voltage clamp or hiccup) | |
| | 24VDC | ≤30VDC (Output voltage clamp or hiccup) | |
| Over-current Protection | ≥110%Io, self-recovery | | |
| Short Circuit Protection | Hiccup, continuous, self-recovery | | |
| Switching Frequency | 65KHz | | |
| Isolation | 4KVAC | | |

Operation Environment Specifications

| | | | |
|-----------------------------|------------------------------|------|---------|
| Storage Humidity | 95% RH | | |
| Cooling | Free air convection | | |
| Operating Temperature Range | -40 to 85°C | | |
| Storage Temperature Range | -40 to 85°C | | |
| Power Derating | +50°C to +70°C (5V) | 3 | % / °C |
| | +50°C to +70°C (12V and 24V) | 2.67 | |
| | +70°C to +85°C | 0.66 | |
| | 85VAC - 100VAC | 1.33 | % / VAC |
| | 277VAC - 305VAC | 0.71 | |
| | 2000m - 5000m | 6.7 | |



Note: ① With an AC input between 85-100V/277-305VAC and a DC input between 100-120V/390-430VDC, the output power must be derated as per temperature derating curves;
 ② This product is suitable for applications using natural air cooling; for applications in closed environment please consult factory or one of our FAE.

EMC Specifications

| | | | |
|---|--------------------------|---|------------------|
| Emissions | CE | CISPR32/EN55032 CLASS B CISPR11/EN55011 CLASS B EN55014-1 | |
| | RE | CISPR32/EN55032 CLASS B CISPR11/EN55011 CLASS B EN55014-1 | |
| Immunity | ESD | IEC/EN 61000-4-2 Contact ±8KV | Perf. Criteria B |
| | | IEC/EN55014-2 | Perf. Criteria B |
| | RS | IEC/EN 61000-4-3 10V/m | Perf. Criteria A |
| | | IEC/EN55014-2 | Perf. Criteria A |
| | EFT | IEC/EN 61000-4-4 ±2KV | Perf. Criteria B |
| | | IEC/EN61000-4-4 ±4KV (See Fig.2 for recommended circuit) | Perf. Criteria B |
| | Surge | IEC/EN55014-2 | Perf. Criteria B |
| | | IEC/EN61000-4-5 line to line ±1KV | Perf. Criteria B |
| | | IEC/EN61000-4-5 line to line ±2KV (See Fig.2 for recommended circuit) | Perf. Criteria A |
| | CS | IEC/EN55014-2 | Perf. Criteria B |
| IEC/EN61000-4-6 10 Vr.m.s | | Perf. Criteria A | |
| PFMF | IEC/EN55014-2 | Perf. Criteria A | |
| | IEC/EN6100-4-8 10A/m | Perf. Criteria A | |
| Voltage dips, short interruptions and voltage variations immunity | IEC/EN55014-2 | Perf. Criteria A | |
| | IEC/EN61000-4-11 0%, 70% | Perf. Criteria B | |

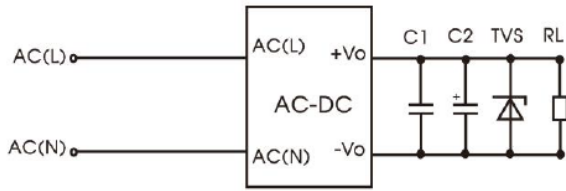


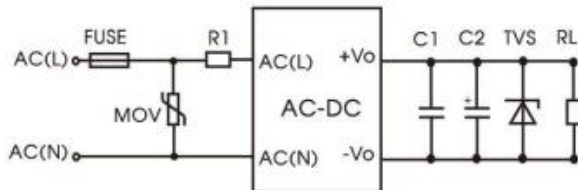
Fig. 1: Typical circuit diagram

| RS Item No. | C1(μF) | C2(μF) | TVS |
|-------------|---------|------------|----------|
| 2333527 | 1μF/50V | 220μF /16V | SMBJ7.0A |
| 2333528 | | 100μF /25V | SMBJ20A |
| 2333529 | | 100μF /35V | SMBJ30A |

Output Filter Components:

C1 is a ceramic capacitor used for filtering high-frequency noise and TVS is a recommended suppressor diode to protect the application in case of a converter failure.

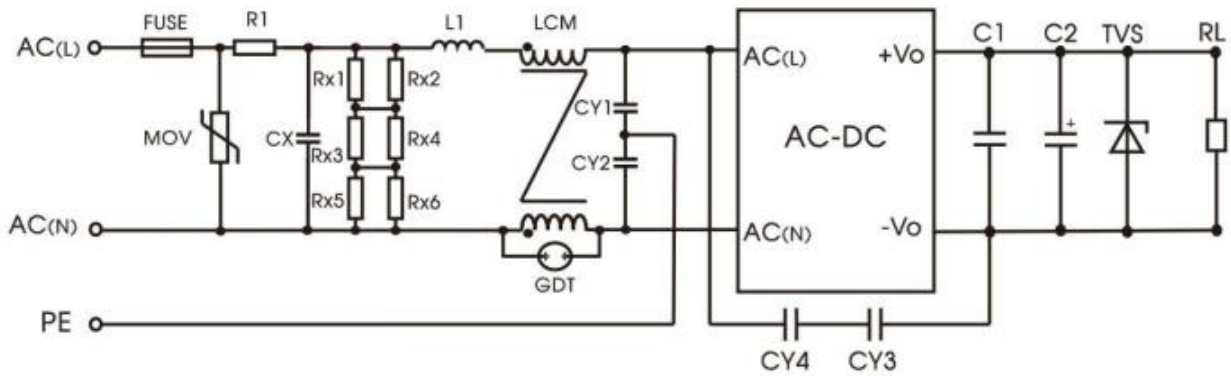
Fig 2 Recommended circuit compliance IEC/EN61000-4-4 ±4KV and IEC/EN61000-4-5 line to line ±2KV



| Component | Recommended value |
|-----------|---------------------------------|
| FUSE | 3.15A/300V, slow-blow, required |
| MOV1 | S14K350 |
| R1 | 6.8Ω/3W (wire-wound resistor) |
| C1 | As above |
| C2 | As above |

Recommended circuit Class I equipment

Fig 3 Recommended circuit for Class I equipment

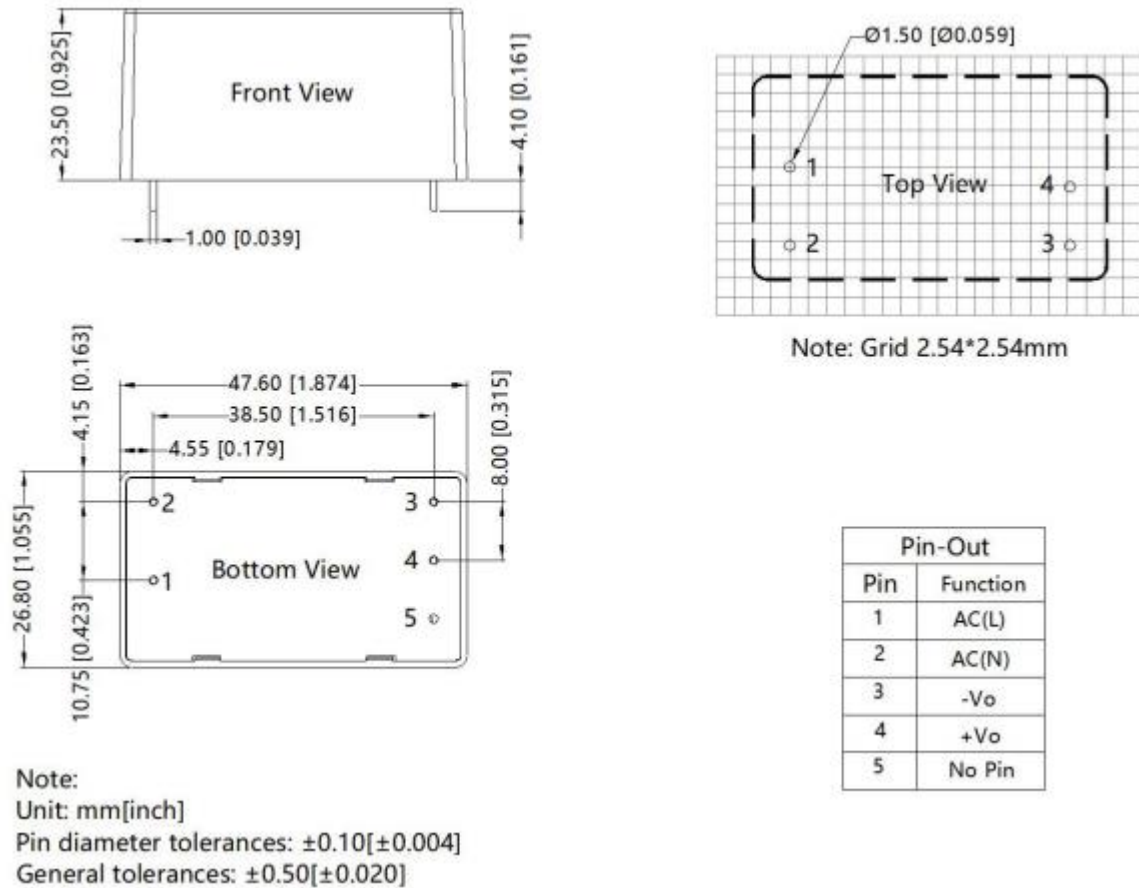


| Component | Recommended value |
|---|---|
| FUSE | 3.15A/300V, slow-blow, |
| MOV1 | S14K350 |
| CX | 334K/305VAC |
| R1 | 12Ω/5W (wire-wound resistor) |
| L1 | 1.2mH/0.5A |
| CY1/CY2 | 2.2nF/400VAC |
| CY3/CY4 | 1nF/400VAC |
| GDT | 300V/1KA |
| LCM | 20mH, we recommended using part no. FL2D-10-203 (MORNSUN) |
| Note: Rx1/Rx2/Rx3/Rx4/Rx5/Rx6 is the bleeder resistance of CX, and the recommended resistance value is 1.5MΩ/150VDC | |

Mechanical Specifications

| | |
|----------------|------------|
| Overall Length | 47.6mm |
| Overall Depth | 23.5mm |
| Overall Width | 26.8mm |
| Weight | 48g (Typ.) |

Dimensions and recommended layout



Approvals

| | |
|--------------------|--------------------------------|
| Safety Standard | IEC/EN/UL62368/EN60335/EN61558 |
| Safety Certificate | IEC/EN/UL62368/EN60335/EN61558 |
| Safety Class | CLASS II |
| Declaration | CE and UKCA |

Additional Information

| | |
|----------------------|----------|
| Custom Tariff Number | 85044030 |
|----------------------|----------|

Notes

1. If the product is not operated within the required load range, the product performance cannot be guaranteed to comply with all parameters in the datasheet.
2. Unless otherwise specified, parameters in this datasheet were measured under the conditions of $T_a=25^{\circ}\text{C}$, humidity<75% with nominal input voltage and rated output load.
3. All index testing methods in this datasheet are based on our Company's corporate standards.
4. Products are related to laws and regulations: see "Features" and "EMC".
5. Our products shall be classified according to ISO14001 and related environmental laws and regulations and shall be handled by qualified units.

Connection Diagrams / Assembly Diagrams / Illustrations / Accessories