## Features:

1. Input voltage range: 176-528VAC/248-746VDC
2. Operating ambient temperature range: -40℃ to +85℃
3. Up to 88% efficiency
4. No-load power consumption as low as 0.3W
5. 4000VAC isolation voltage
6. Meet EN/IEC62368-1
7. 3 years warranty


RoHS CE 3 years Warranty

## Selection Guide

| Part No.* | Output Power (W) | Nominal Output Voltage and Current (Vo/Io) | Efficiency at 230VAC (%) Typ. | Capacitive Load (uF) Max. |
|---|---|---|---|---|
| QM30-25B03 | 19.8 | 3.3V/6000mA | 82 | 15000 |
| QM30-25B05 | 30 | 5V/6000mA | 84 | 15000 |
| QM30-25B09 | 30.6 | 9V/3340mA | 85 | 8200 |
| QM30-25B12 | 30 | 12V/2500mA | 85 | 4700 |
| QM30-25B15 | 30 | 15V/2000mA | 85 | 3300 |
| QM30-25B24 | 30 | 24V/1250mA | 86 | 1500 |
| QM30-25B48 | 30 | 48V/625mA | 88 | 820 |

## Input Specifications

| Item | Operating Conditions | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|
| Input Voltage Range | AC input | 176 | -- | 528 | VAC |
| | DC input | 248 | -- | 746 | VDC |
| Input Frequency | | 47 | -- | 63 | Hz |
| Input Current | 230VAC | -- | -- | 0.5 | A |
| | 380VAC | -- | -- | 0.35 | |
| Inrush Current | 230VAC | -- | 35 | -- | |
| | 380VAC | -- | 60 | -- | |
| Leakage Current | 480VAC/50Hz | 0.5mA RMS Max. | | | |
| Built In Fuse | | 3.15A/500V, slow-blow | | | |
| Hot Plug | | Unavailable | | | |

## Output Specifications

| Item | Operating Conditions | | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|
| Output Voltage Accuracy | 3.3V | | -- | ±3 | -- | % |
| | 5V/9V/12V/15V/24V/48V | | -- | ±2 | -- | |
| Line Regulation | Full load | 3.3V | -- | ±1 | -- | |
| | | 5V/9V/12V/15V/24V/48V | -- | ±0.5 | -- | |
| Load Regulation | 0%-100% load | 3.3V | -- | ±0.5 | -- | |
| | | 5V/9V/12V/15V/24V/48V | -- | ±2 | -- | |
| Ripple & Noise* | 20MHz bandwidth (peak-to-peak value) | | -- | 80 | 150 | mV |
| Stand-by Power Consumption | 230VAC | | -- | -- | 0.3 | W |
| | 380VAC | | -- | -- | 0.5 | |
| Temperature Coefficient | | | -- | ±0.02 | -- | %/℃ |
| Short Circuit Protection | | | Hiccup, continuous, self-recover | | | |
| Over-current Protection | | | ≥110%Io, self-recover | | | |
| Over-voltage Protection | 3.3/5VDC Output | | ≤7.5VDC (Output voltage hiccup) | | | |
| | 9/12VDC Output | | ≤16VDC (Output voltage hiccup) | | | |
| | 15VDC Output | | ≤25VDC (Output voltage hiccup) | | | |
| | 24VDC Output | | ≤35VDC (Output voltage hiccup) | | | |
| | 48VDC Output | | ≤60VDC (Output voltage hiccup) | | | |
| Minimum Load | | | 0 | -- | -- | % |
| Hold-up Time | 230VAC input | | -- | 45 | -- | ms |
| | 380VAC input | | -- | 120 | -- | |

Note: *The "Tip and barrel method" is used for ripple and noise test, output parallel 10uF electrolytic capacitor and 1uF ceramic capacitor, please refer to AC-DC Converter Application Notes for specific information.

## General Specifications

| Item | | Operating Conditions | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|
| Isolation | Input-output | Electric Strength Test for 1min., leakage current <5mA | 4000 | -- | -- | VAC |
| Operating Temperature | | | -40 | -- | +85 | ℃ |
| Storage Temperature | | | -40 | -- | +85 | |
| Storage Humidity | | | -- | -- | 95 | %RH |
| Soldering Temperature | | Wave-soldering | 260 ± 5℃; Time: 5~10s | | | |
| | | Manual-welding | 360 ± 10℃; Time: 3~5s | | | |
| Switching Frequency | | | -- | 65 | -- | kHz |
| Power Derating | | +55℃ to +70℃ | 3 | -- | -- | %/℃ |
| | | +70℃ to +85℃ | 1.33 | -- | -- | |
| Safety Standard | | | Complies with IEC/EN/BS EN 62368-1, UL62368-1, IEC/EN61558-1 | | | |
| Safety Class | | | CLASS I I | | | |
| MTBF | | MIL-HDBK-217F@25℃ | ＞950,000 h | | | |

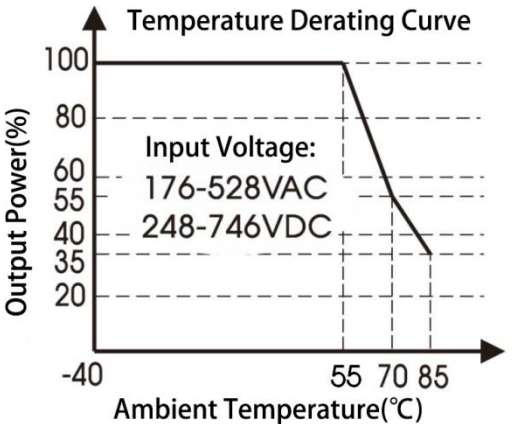
## Mechanical Specifications

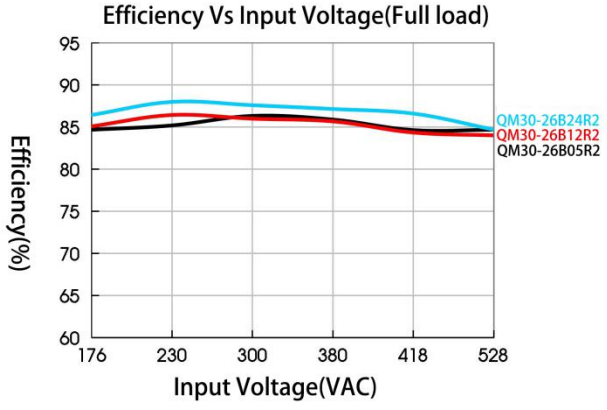
| | |
|---|---|
| Case Material | Black plastic, flame-retardant and heat-resistant (UL94V-0) |
| Dimensions | 70.00 x 48.00 x 30.00 mm |
| Weight | 152g (Typ.) |
| Cooling method | Free air convection |

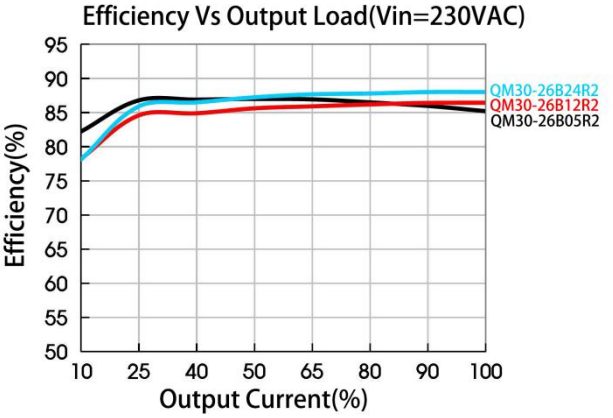
## EMC Specifications

| | | | |
|---|---|---|---|
| EMI | CE | CISPR32/EN55032 CLASS B | |
| | RE | CISPR32/EN55032 CLASS B | |
| EMS | ESD | IEC/EN61000-4-2 Contact ±6KV/Air ±8KV | perf. Criteria A |
| | RS | IEC/EN61000-4-3 10V/m | perf. Criteria A |
| | EFT | IEC/EN61000-4-4 ±2KV | perf. Criteria A |
| | | IEC/EN61000-4-4 ±4KV (see Fig.1 for typical application circuit;See Fig. 2, Fig. 3 for recommended circuit) | perf. Criteria A |
| | Surge | IEC/EN61000-4-5 line to line ±2KV(see Fig.1 for typical application circuit) | perf. Criteria A |
| | | IEC/EN61000-4-5 line to line ±4KV(See Fig. 2 for recommended circuit) | perf. Criteria A |
| | | IEC/EN61000-4-5 line to line ±4KV/line to PE ±4KV(See Fig. 3 for recommended circuit) | perf. Criteria A |
| | CS | IEC/EN61000-4-6 10Vr.m.s | perf. Criteria A |
| | Dips, Interruptions &Variations Immunity | IEC/EN61000-4-11 0%,70% | perf. Criteria B |

## Typical Characteristic Curves



# Typical Circuit Design And Application

## 1,Typical application circuit

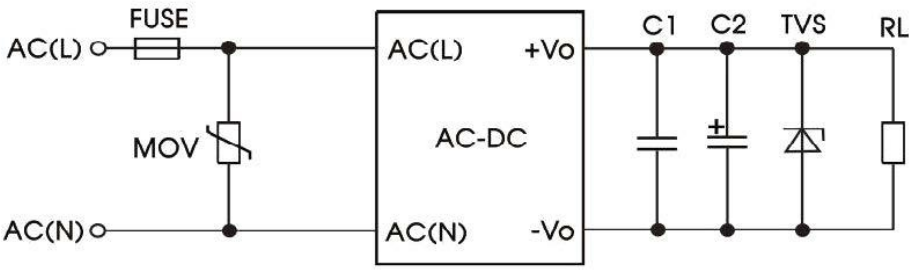



Fig. 1: Typical circuit diagram

| Part No. | FUSE | MOV | C1 | C2 | TVS |
|---|---|---|---|---|---|
| QM30-25B03 | 3.15A/500 V, Slow-blow, required | 14D911K | 1uF/50V | 330uF/25V | SMBJ7.0A |
| QM30-25B05 | | | | 330uF/25V | SMBJ7.0A |
| QM30-25B09 | | | | 220uF/25V | SMBJ12A |
| QM30-25B12 | | | | 220uF/25V | SMBJ20A |
| QM30-25B15 | | | | 220uF/35V | SMBJ30A |
| QM30-25B24 | | | | 220uF/35V | SMBJ30A |
| QM30-25B48 | | | | 10uF/63V | SMBJ64A |

Note:
*Output filter capacitor C2 is an electrolytic capacitor. It is recommended to use high-frequency low-ESR electrolytic capacitors. Refer to the technical specifications provided by each manufacturer for capacitance and current rating. Derate the capacitor voltage rating to at least 80%. C1 is a ceramic capacitor for removing high-frequency noise.*TVS diode is recommended to protect the subsequent circuit during line abnormalities.

## 2,EMC compliance recommended circuit

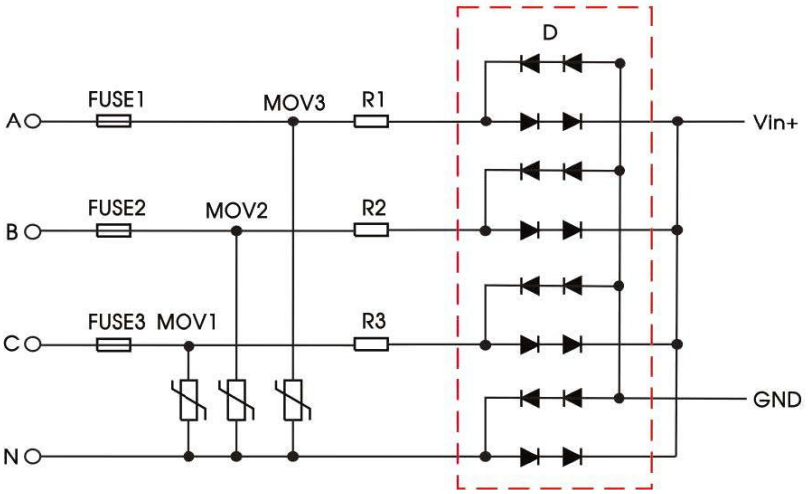



Fig. 2: Recommended Circuit for Higher Requirements (4KV Differential Mode Surge)

| Component | Recommended value |
|---|---|
| FUSE1/FUSE2/FUSE3 | 3.15A/500V, slow-blow, required |
| MOV1/MOV2/MOV3 | 20D911K |
| D | 2A/1000V |
| R1/R2/R3 | 12Ω/5W (Wirewound Resistor) |

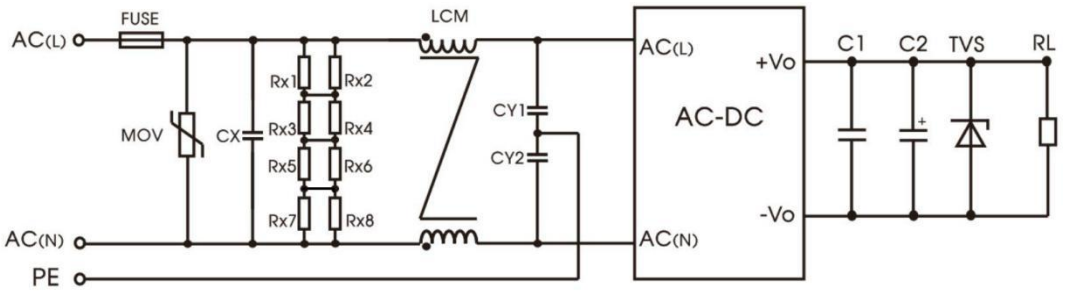
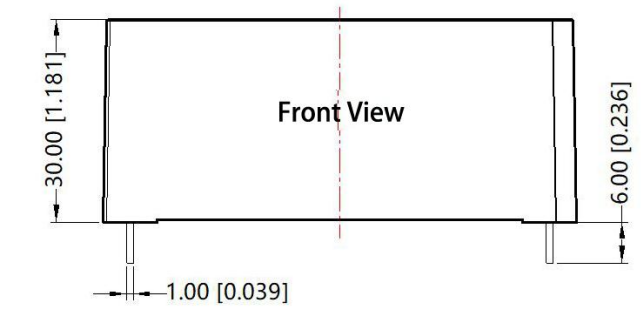
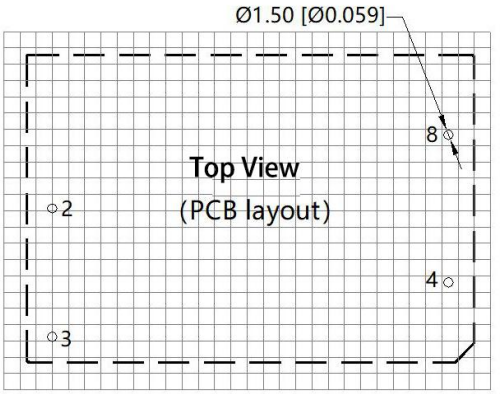



Fig. 3: Recommended circuit for class I equipment

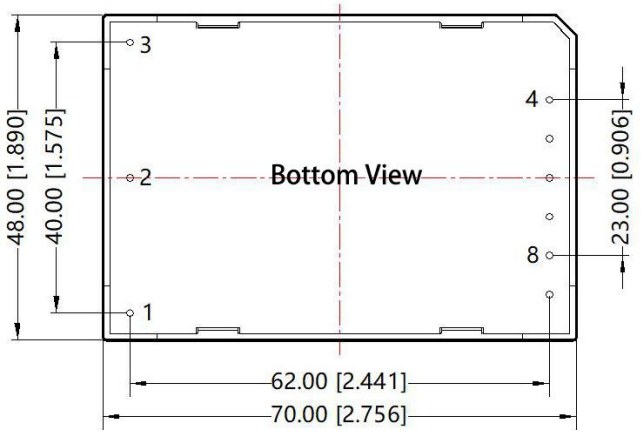
| Component | Recommended value |
|---|---|
| FUSE | 3.15A/500V, slow-blow, required |
| MOV | 14D911K |
| CX | 0.1uF/480VAC |
| CY1/CY2 | 1nF/400VAC |
| LCM | 10 mH |
| Note: Rx1/Rx2/Rx3/Rx4/Rx5/Rx6/Rx7/Rx8 is the bleeder resistance of CX, and the recommended resistance value is <2.5MΩ | |

## Dimensions and Recommended Layout




Note: Grid 2.54*2.54mm




| Pin | Function |
|---|---|
| 1 | No Pin |
| 2 | AC(N) |
| 3 | AC(L) |
| 4 | +Vo |
| 8 | -Vo |

Note:
Size unit: mm[inch]
Terminal diameter tolerance: ±0.10[±0.004]
Unmarked tolerance: ±0.50[±0.020]

**Note:**
1. If the product works under the minimum required load, it cannot guarantee that the performance of the product complies with all the performance indicators in this manual;
2. The maximum capacitive load is tested under the input voltage range and full load condition;
3. Unless otherwise stated, all indexes in this manual are measured at Ta=25℃, humidity <75%RH, nominal input voltage and rated output load;
4. All index testing methods in this manual are based on the enterprise standards of the company;
5. Our company can provide product customization, specific needs can directly contact our technical staff;
6. AMCHARD reserves the right to make changes to the product at any time without notice.