AC – DC

## Features

- Ultra-wide Voltage Input Range 85~305V AC or 100~430V DC
- Super Small Design
- Operating Temperature: 40°C~+85°C
- Low Ripple & Noise, High Efficiency
- Low no-load Power Consumption
- Safety Standards to IEC/EN 62368-1
- Certified to UKCA, CE, TUV-GS, RoHS & REACH
- Protection: SCP, OCP, OVP
- Three Years Warranty

Certified to UKCA, CE, TUV-GS, RoHS & REACH & EN 62368-1/IEC 62368-1 Standards and complies with Efficiency Regulations. These are primarily used in ITE, Audio & Video Industries and customised solutions are available upon request.

## Model Number Information

| 56YMC | 20 | □ | xx |
|---|---|---|---|
| Series Name | Rated Wattage | : Enclosed<br>T: Terminal Block<br>D: DIN Rail | Output Voltage |

## Models

| Model Number | DC Voltage (V) | Rated Current (A) | Rated Power (W) | Efficiency (%) | Max. Capacitive Load (uF) |
|---|---|---|---|---|---|
| 56YMC20□-3.3 | 3.3 | 4.5 | 14.85 | 81.0 | 8000 |
| 56YMC20□-5 | 5 | 4 | 20 | 85.0 | 8000 |
| 56YMC20□-9 | 9 | 2.2 | 19.8 | 84.0 | 5400 |
| 56YMC20□-12 | 12 | 1.67 | 20.04 | 86.0 | 4000 |
| 56YMC20□-15 | 15 | 1.33 | 19.95 | 87.0 | 3000 |
| 56YMC20□-24 | 24 | 0.83 | 19.92 | 87.0 | 1000 |

## Input Specifications

| | |
|---|---|
| Input Voltage | 85~305V AC/100~430V DC |
| Frequency Range | 47-63Hz |
| AC Current | 0.50A at 115VAC / 0.30A at 230VAC |
| Inrush Current | Cold Start 45A at 115V AC / 45A at 230V AC |
| Leakage Current | < 0.1mA/277V AC, 50Hz |

## Output Specifications

| | | |
|---|---|---|
| Ripple & Noise | 150mVp-p | All Models |
| Voltage Tolerance | ±1.5% | All Models |
| Line Regulation | ±0.5% | All Models |
| Load Regulation | ±1.0% | All Models |
| No Load Power Consumption | 0.1W/230VAC | 3.3v, 5v, 9v, 12v, 15v |
| | 0.12W/230VAC | 24v |
| Set up | 1500ms, 40ms at 230VAC at full load | |
| Rise Time | 1500ms, 40ms at 115VAC at full load | |
| Hold up Time | 50ms at 230VAC at full load / 8ms at 115VAC at full load | |

## Protection

| | | |
|---|---|---|
| Over Current | ≥110% Rated Output current, recovers automatically after current goes down. | |
| Short Circuit | Hiccup mode allows long short circuit mode and re-powers on to recover. | |
| Over Voltage | ≤7.5V DC | 3.3v |
| | ≤7.5V DC | 5v |
| | ≤16V DC | 9v |
| | ≤20V DC | 12v |
| | ≤20V DC | 15v |
| | ≤30V DC | 24v |
| | Output voltage clamp or Hiccup mode | |

## Environmental Characteristics

| | |
|---|---|
| Working Temp | -40 ℃ to +80 ℃ (Refer to "Derating Curve") |
| Working Humidity | 20~95% RH non-condensing |
| Storage Temp., Humidity | - 40℃~+85℃,10 ~ 95% RH non-condensing |
| Temp. Coefficient | ± 0.02%/℃(0~50℃) |
| MTBF | 1500K hrs min. MIL-HDBK-217F (25℃) |
| Projected Lifetime | ＞130Kh/220V AC,25℃ at full load |
| | ＞20Kh/220V AC,55℃ at full load |
| | ＞27Kh/220V AC,55℃ at 80%load |
| Altitude Application | 5000m |
| Cooling Method | Natural Air Cooling |

## Safety & EMC

| | |
|---|---|
| Safety Standards | IEC/EN/BS EN 62368-1, EN61558-1, EN60335-1 |
| Withstand Voltage | I/P-O/P:3.00KV AC |
| Isolation Resistance | I/P-O/P, I/P-FG, O/P-FG:100M Ohms/ 500V DC/25 ℃/70% RH |
| EMC Emission | EN55032(CISPR32) Class B,EN55014-1 |
| EMC Immunity | IEC/EN55014-2IEC/EN61000-4-2,3,4,5,6,11 |

**Notes:**

1. All parameters without special description are measured under the conditions of input 230VAC, rated load, ambient temperature 25 ° C, and ambient humidity less than 75%.
2. Ripple & noise are measured from peak to peak with a bandwidth limit of 20MHz(0.1uf and 47uf /50V parallel capacitor under DC output full load, AC nominal input 25 ℃ ambient temperature).
3. Tolerance: includes set up tolerance, line and load regulation.

4. Derating may be needed under low input voltages. Please check the derating curve for more details.
5. The power supply is considered a component which will be installed into the final equipment. The final equipment must be confirmed to meet EMC directives. For guidance on performing these EMC tests, please refer to “EMI testing of component power supplies."
6. The ambient temperature derating of 3.5℃/1000m is needed for operating altitude greater than 2000m(6500ft).

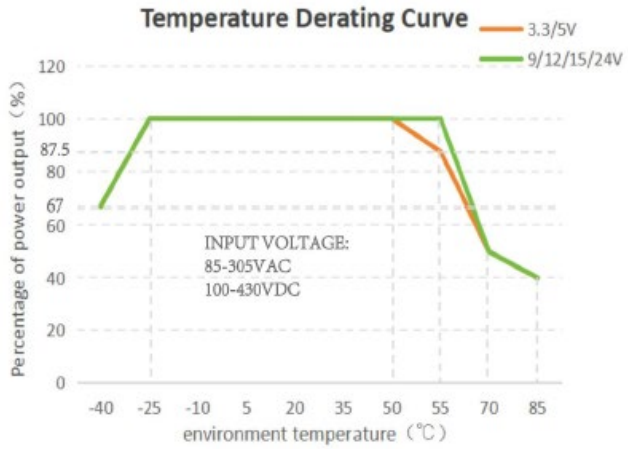
## Dimensions & Weight

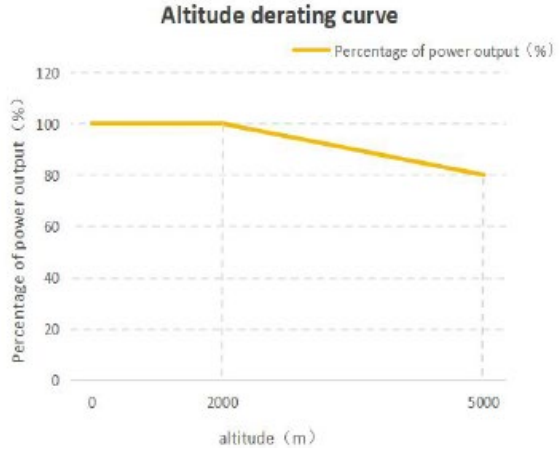
| | Measurements | Weight |
|---|---|---|
| 56YMC20 | 52.4 x 27.2 x 24.0mm/2.07 x 1.07 x 0.94in | 55g |
| 56YMC10T | 76.0 x 31.5 x 32.8mm/2.99 x 1.24 x 1.29in | 75g |
| 56YMC10D | 76.0 x 31.5 x 37.4mm/2.99 x 1.24 x 1.46in | 95g |

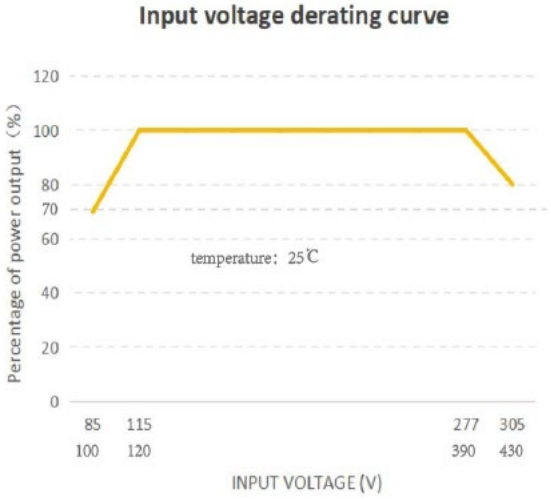
## Packaging

| | | |
|---|---|---|
| Carton Size | 28 x 15 x 24cm / 11 x 5.9 x 9.44 in | |
| Master Carton Quantities | 600pcs/Carton | 56YMC20 |
| | 72pcs/Carton | 56YMC10T |
| | 72pcs/Carton | 56YMC10D |

## Derating Curves



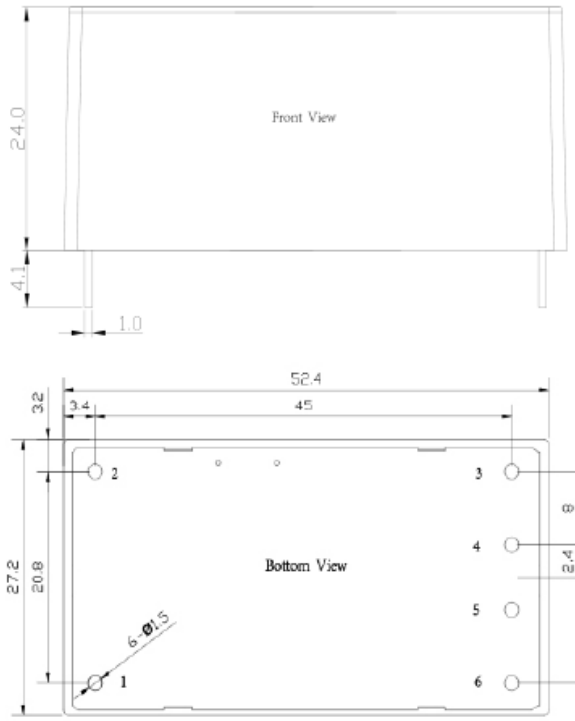



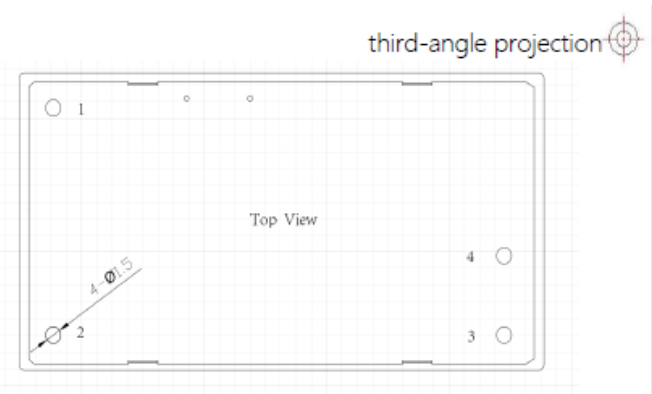






AC – DC

## 56YMC20 Dimensions and Recommended Layout

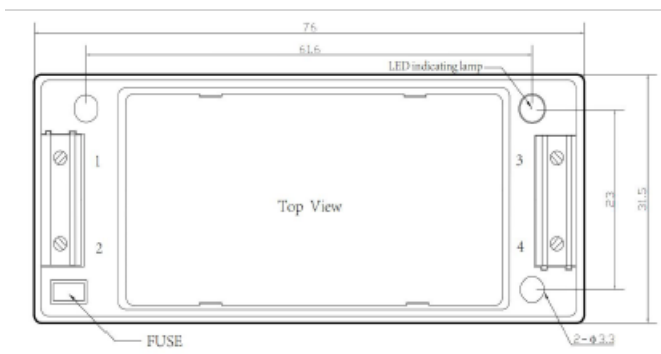


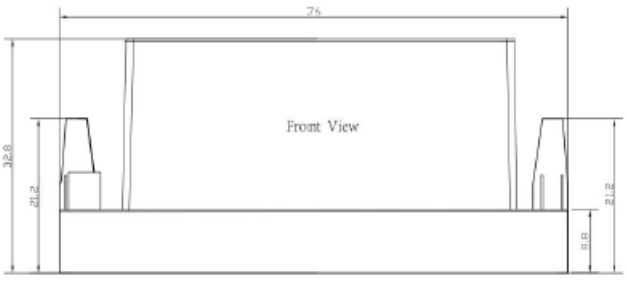

| Pin-Out | |
|---|---|
| Pin | Function |
| 1 | AC/L |
| 2 | AC/N |
| 3 | -VO |
| 4 | +VO |
| 5 | No Pin |
| 6 | No Pin |

annotation:
unit of size:mm
Pin diameter tolerances:±0.10
General tolerances:±0.50

## 56YMC10T Dimensions and Recommended Layout

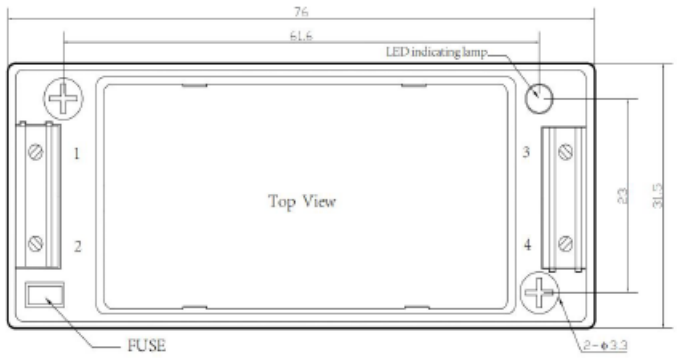



| Pin Mode | |
|---|---|
| Pin | Function |
| 1 | AC/N |
| 2 | AC/L |
| 3 | +VO |
| 4 | -VO |

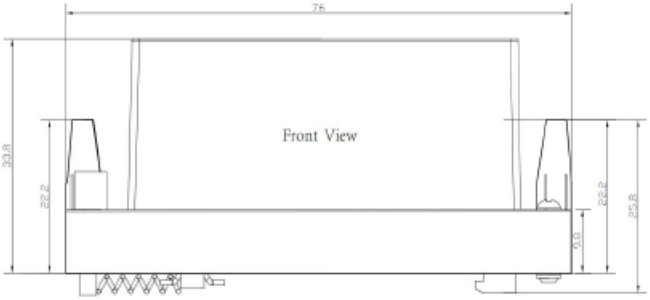



annotation:
unit of size:mm
Connection wire diameter:24-12AWG
tightening torque:Max 0.4 N*m
Unmarked tolerance:±1.00

## 56YMC5D Dimensions and Recommended Layout



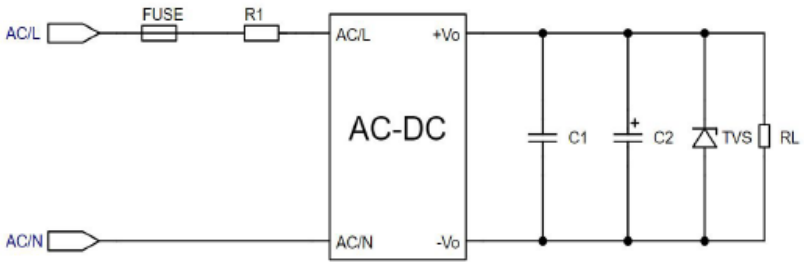

| Pin Mode | |
|---|---|
| Pin | Function |
| 1 | AC/N |
| 2 | AC/L |
| 3 | +VO |
| 4 | -VO |




annotation:
unit of size:mm
Connection wire diameter:24-12AWG
tightening torque:Max 0.4 N*m
Guide type:TS35,Guide rails need to be grounded
Unmarked tolerance:±1.00

## Typical Application Circuit

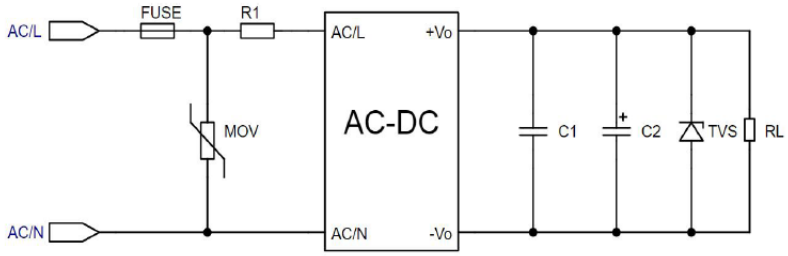
**Figure 1: Typical application circuit**




| MODEL | C1 | C2 | TVS |
|---|---|---|---|
| 56YMC20-3.3 | 1uF/50V | 10uF/16V | SMBJ7.0A |
| 56YMC20-5 | | 10uF/16V | SMBJ7.0A |
| 56YMC20-9 | | 10uF/25V | SMBJ12A |
| 56YMC20-12 | | 10uF/25V | SMBJ20A |
| 56YMC20-15 | | 10uF/25V | SMBJ20A |
| 56YMC20-24 | | 10uF/35V | SMBJ30A |

## EMC Solution, Recommended Circuit

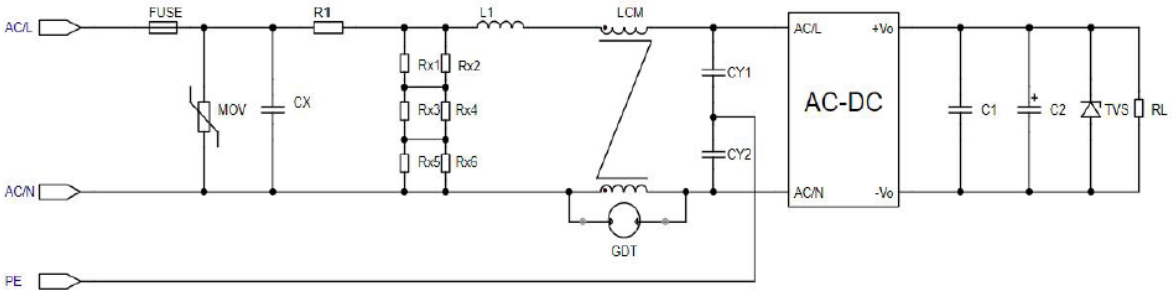
**Figure 2: EMC Recommended circuits for higher requirements**




| Component Type | Recommended Value |
|---|---|
| MOV | 14D561K |
| | |
| | |

**Figure 3: Ⅰ device recommendation circuit**

(Recommended when the output end of the product needs to be connected to PE or connected to PE through a Y cap)




| Component Type | Recommended Value |
|---|---|
| FUSE | 2A/300V Slow fuse must be connected |
| MOV | 14D561K |
| CX | 334K/305VAC |
| R1 | 12Ω/5W (Winding resistor, must be connected) |
| L1 | 1.2mH/0.5A |
| CY1/CY2 | 2.2nF/400VAC |
| GDT | 300V/1KA |
| LCM | 20mH |