# YMC5 SERIES 5W



PENDING

YMC5 series is super small size up to 1*1 inch,
adopting the full range:85-305VAC/100-430VDC input
The series has extremely low no-load power consumption
High efficiency to reduce power loss

The series cost-effective,, high reliability,operates from-40 ~85℃.A variety of appearance sizes are available for easy installation and use.

These converfers offer excellent EMC performance and meet internation standards , they are widely used in areas of iIndustrial design, household appliances, communications, testing instruments.

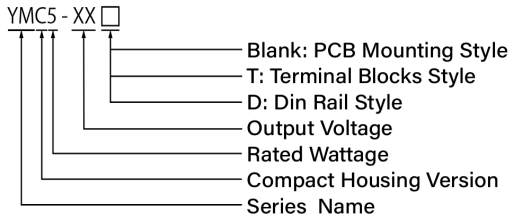
## Features

- Ultra-wide voltage input range
- Super Small Design
- Low no-load power consumption
- Low Ripple & Noise, high efficiency
- Protection:Short Circuit/Over Current/ Over Voltage
- Three Years Warranty

## Model Information

| Yingjiao Part Number | DC Voltage | Rated Current | Rated Power | Max.Capacitive Load |
|---|---|---|---|---|
| YMC5-3.3□ | 3.3V | 1.515A | 4.99W | 4000uF |
| YMC5-5□ | 5V | 1A | 5W | 3000uF |
| YMC5-9□ | 9V | 0.555A | 4.995W | 1200uF |
| YMC5-12□ | 12V | 0.416A | 4.992W | 1200uF |
| YMC5-15□ | 15V | 0.333A | 4.995W | 680uF |
| YMC5-24□ | 24V | 0.208A | 4.992W | 220uF |

## Model Encoding




## Input

| | | |
|---|---|---|
| VOLTAGE RANGE | 85~305VAC | |
| | 100~430VDC | |
| FREQUENCY RANGE | 47-63Hz | |
| AVERAGE EFFICIENCY(Typ.) | 71.5% | YMC5-3.3□ |
| | 77.5% | YMC5-5□ |
| | 80.5% | YMC5-9□ |
| | 80.5% | YMC5-12□ |
| | 81.5% | YMC5-15□ |
| | 81.5% | YMC5-24□ |
| AC CURRENT(Typ.) | 0.13A/115VAC | |
| | 0.07A/230VAC | |
| INRUSH CURRENT(Typ.) | Cold Start 15A/115VAC | |
| | Cold Start 25A/230VAC | |
| LEAKAGE CURRENT | <0.25mA/277VAC,50Hz | |

## Output

| | | |
|---|---|---|
| RIPPLE & NOSE(max.) | 100mVp-p | ALL SERIES |
| VOLTAGE TOLERANCE | ±3.0% | YMC5-3.3□ |
| | ±2.0% | OTHER |
| LINE REGULATION | ±0.5% | ALL SERIES |
| LOAD REGULATION | ±1.0% | ALL SERIES |
| SETUP,RISE TIME | 600ms, 30ms/230VAC at full load | |
| | 600ms, 30ms/115VAC at full load | |
| HOLD UP TIME (Typ.) | 50ms/230VAC at full load | |
| | 5ms/115VAC at full load | |

## Protection

| | |
|---|---|
| OVER CURRENT | ≥130% Rated Output current |
| | Protection type: Shut down O/P voltage, |
| | recovers automatically after current goes down |
| SHORT CIRCUIT | Protection type: Hiccup mode, allowing long short circuit mode, |
| | re-power on to recover |
| OVER VOLTAGE | YMC5-3.3□: ≤7.5VDC |
| | YMC5-5□: ≤7.5VDC |
| | YMC5-9□: ≤15VDC |
| | YMC5-12□: ≤16VDC |
| | YMC5-15□: ≤20VDC |
| | YMC5-24□: ≤30VDC |
| | Protection type: Output voltage clamp or Hiccup mode |

## Environment

| | |
|---|---|
| WORKING TEMP. | -40 ℃ to +85 ℃ (Refer to "Derating Curve") |
| WORKING HUMIDITY | 20 ~ 95% RH Non-Condensing |
| STORAGE TEMP, HUMIDITY | - 40℃~+105℃,10 ~ 95% RH non-condensing |
| TEMP. COEFFICIENT | ± 0.02%/℃(0~50℃) |
| MTBF | 2602K hrs min. MIL-HDBK-217F (25℃) |
| PROJECTED LIFETIME | > 130Kh/230VAC,25℃ at full load |
| | > 20Kh/220VAC,55℃ at full load |
| | > 27Kh/220VAC,55℃ at 80%load |
| ALTITUDE APPLICATION | 5000m |

## SAFETY & EMC

| | |
|---|---|
| SAFETY STANDARDS | IEC/UL62368-1, EN61558-1, EN60335-1 safety approval |
| WITHSTAND VOLTAGE | I/P-O/P:3.00KVAC |
| ISOLATION RESISTANCE | I/P-O/P, I/P-FG, O/P-FG:100M Ohms/ 500VDC/25 ℃/70% RH |
| EMC EMISSION | EN55032(CISPR32) Class B,EN55014-1 |
| EMC IMMUNITY | IEC/EN55014-2IEC/EN61000-4-2,3,4,5,6,11 |

## Note

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 band width 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 regulation 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 a final equipment. The final equipment must be re-confirmed that it still meets EMC directives. For guidance on how to perform 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).

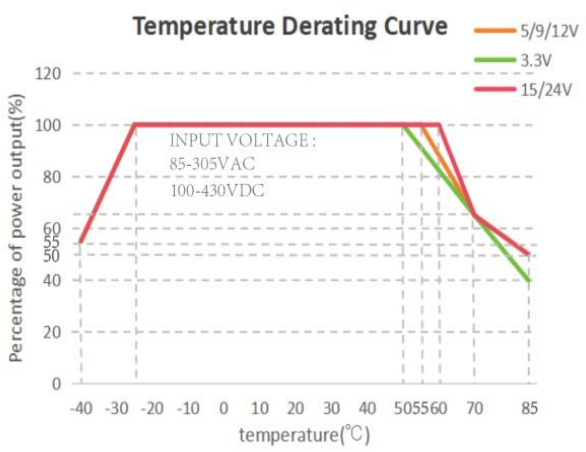
## PHYSICAL PROPERTY

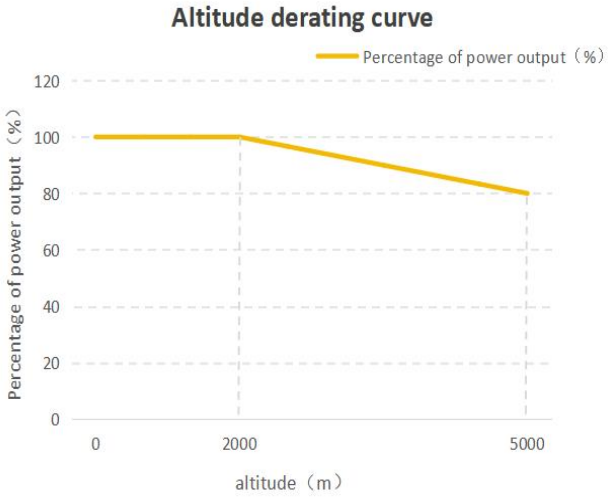
| | |
|---|---|
| LENGTH*WIDTH*HEIGHT: | 25.4*25.4*17.6mm PCB Mounting Style |
| | 76.0*31.5*26.4mm Terminal Blocks Style |
| | 76.0*31.5*31.0mm Din Rail Style |
| WEIGHT: | 17.5g(PCB Mounting Style) |
| | 38.0g(Terminal Blocks Style) |
| | 58.0g(Din Rail Style) |
| COOLING METHOD: | Natural Air Cooling |
| TEXTURE: | Black flame retardant and heat resistant plastic |

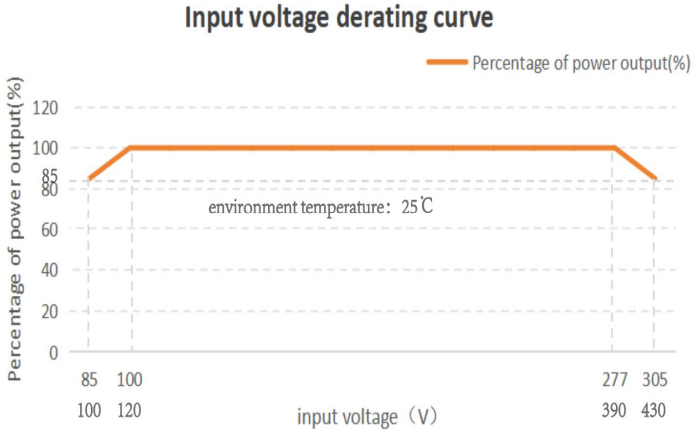
## Packing

| | |
|---|---|
| Carton Size: | 28 × 15 x 24 CM |
| | 11 x 5.9 x9.44 in |
| Master Carton Quantities: | 500pcs/Carton(PCB Mounting Style) |
| | 96pcs/Carton(Terminal Blocks Style) |
| | 84pcs/Carton(Din Rail Style) |

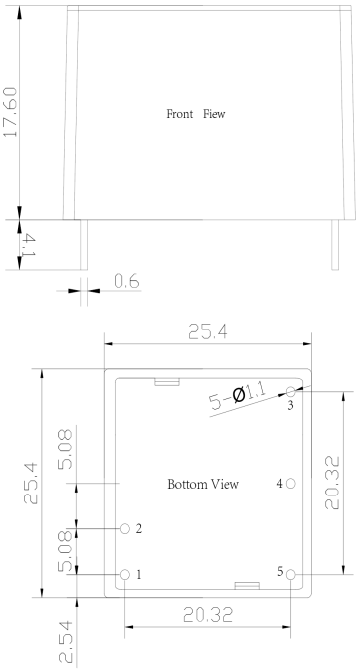
## Curve



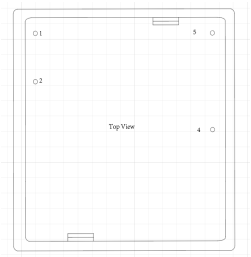




## Dimensions and Installation



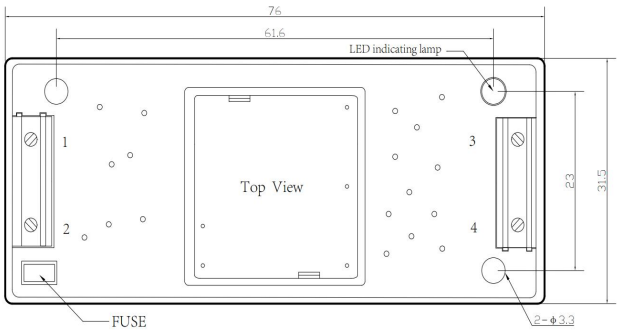

third-angle projection




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

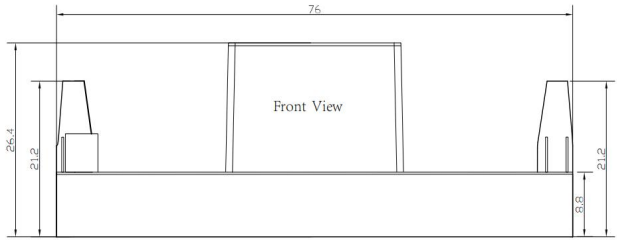
annotation:
unit of size:mm
Pin diameter tolerances:±0.10
General tolerances:±0.50

## Terminal Blocks Style External Dimension



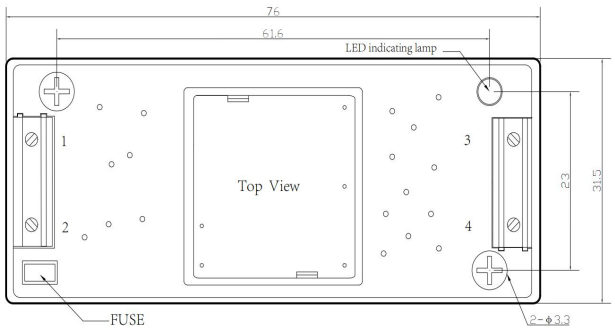

third-angle projection

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



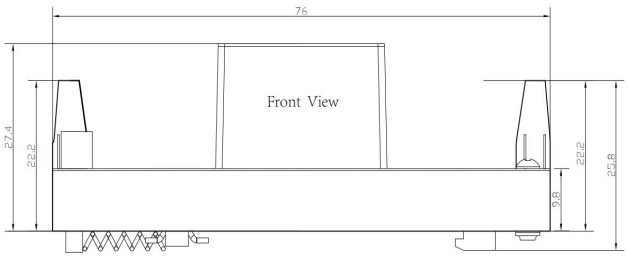

annotation:
unit of size:mm
Connection wire diameter:24-12AWG
tightening torque:Max 0.4 N*m
Unmarked tolerance:±1.00

## Din Rail Style External Dimension



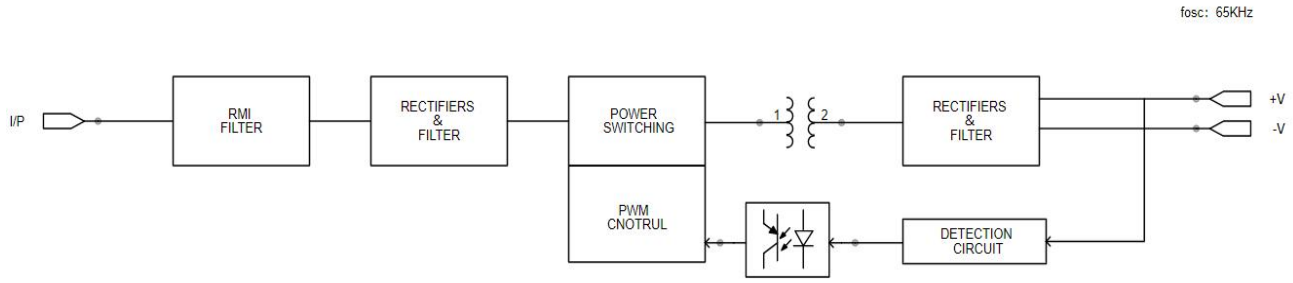

third-angle projection

| 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

## Functional Diagram




## Typical application circuit

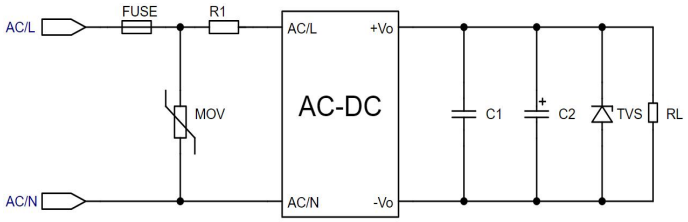



Figure 1:Typical application circuit

| MODEL | C1(uF) | C2(uF) | FUSE | R1 | TVS | MOV |
|---|---|---|---|---|---|---|
| YMC5-3.3□ | 1 | 150 | 1A/300V Slow fuse, must be connected | 12Ω/3W (Winding resistor , must be connected) | SMBJ7.0A | 10D561K |
| YMC5-5□ | | 150 | | | SMBJ7.0A | |
| YMC5-9□ | | 120 | | | SMBJ12A | |
| YMC5-12□ | | 120 | | | SMBJ20A | |
| YMC5-15□ | | 120 | | | SMBJ20A | |
| YMC5-24□ | | 68 | | | SMBJ30A | |

## EMC Solution - Recommended circuit

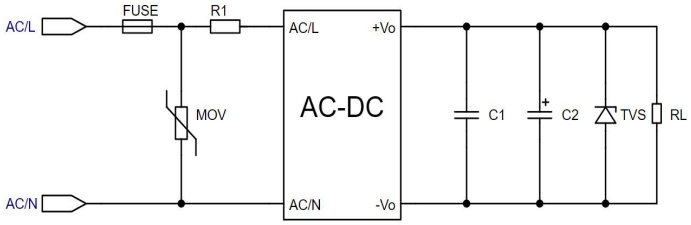



Figure 2:EMC Recommended circuits for higher requirements

| Component Type | Recommended Value |
|---|---|
| MOV | 14D561K |
| R1 | 33Ω/3W(Winding resistor ,must be connected) |
| FUSE | 2A/300V Slow fuse, must be connected |

## EMC Solution - Recommended circuit

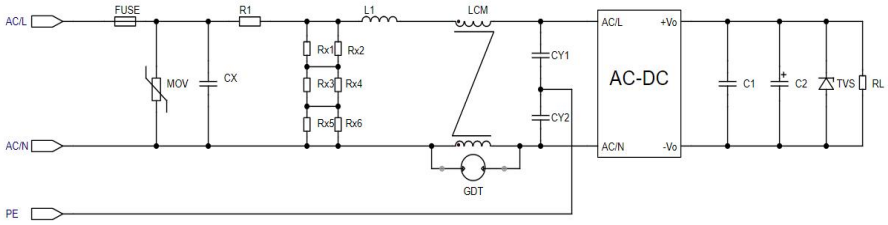



Figure 3 : Ⅰ device recommendation circuit
(Recommended when the output end of the product needs to be connected to PE or connected to PE through a Y cap

| Component Type | Recommended Value |
|---|---|
| FUSE | 2A/300V Slow fuse, must be connected |
| MOV | 14D561K |
| CX | 334K/305VAC |
| R1 | 33Ω/3W(Winding resistor ,must be connected) |
| L1 | 1.2mH/0.3A |
| CY1/CY2 | 1nF/400VAC |
| GDT | 300V/1KA |
| LCM | 20mH |

annotation:Rx1/Rx2/Rx3/Rx4/Rx5/Rx6 is the bleed resistance of CX, the recommended resistance value is 1.5MΩ