

# PCB Mount Power Supply AC To DC

**multicomp** PRO

**RoHS  
Compliant**



## Description

MPC15 series is super small size up to 1.87 × 1.06 inch, adopting the full range: 85-305V AC/100-430V DC 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°C to 85°C . A variety of appearance sizes are available for easy installation and use.

These converters offer excellent EMC performance and meet international standards. They are widely used in areas of industrial design, household appliances, communications, testing instruments.

## Features

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

## Model Information

Part Number	DC Voltage	Rated Current	Rated Power	Max. Capacitive Load
MPC15-5	5V	3A	15W	5000uF
MPC15-12	12V	1.25A	15W	2000uF
MPC15-24	24V	0.625A	15W	680uF

## Input

Voltage Range	85-305V AC, 100-430V DC
Frequency Range	47-63Hz
Average Efficiency(Typ.)	85% MPC15-5
	85% MPC15-12
	86% MPC15-24
AC Current (Typ.)	0.45A/115V AC, 0.30A/230V AC
Inrush Current(Typ.)	Cold Start 30A/115V AC
	Cold Start 60A/230V AC
Leakage Current	<0.1mA/277V AC, 50Hz

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## Output

Ripple & Noise(max.)	70mVp-p All Series
Voltage Tolerance	±2.0% All Series
Line Regulation	±0.5% All Series
Load Regulation	±1.0% All Series
No Load Power Consumption(Typ.)	0.1W/230V AC MPC15/5/12
	0.12W/230V AC MPC15-24
Setup,Rise Time	1000ms, 30ms/230V AC at full load
	1000ms, 30ms/115V AC at full load
Hold Up Time (Typ.)	55ms/230V AC at full load
	10ms/115V AC at full load

## Protection

Over Current	≥110% 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	MPC15-5 : ≤7.5V DC
	MPC15-12 : ≤20V DC
	MPC15-24 : ≤30V DC
	Protection type: Output voltage clamp or Hiccup mode

## Environment

Working Temp.	-40°C to +85°C (Refer to "Derating Curve")
Working Humidity	20 ~ 95% RH Non-Condensing
Storage Temp, Humidity	-40°C~+85°C, 10 ~ 95% RH non-condensing
Temp. Coefficient	± 0.02%/°C(0~50°C)
MTBF	>3200K hrs min. MIL-HDBK-217F (25°C)
Projected Lifetime	>130Kh/220V AC, 25°C at full load
	>20Kh/220V AC, 55°C at full load
	>27Kh/220V AC, 55°C at 80%load
Altitude Application	5000m

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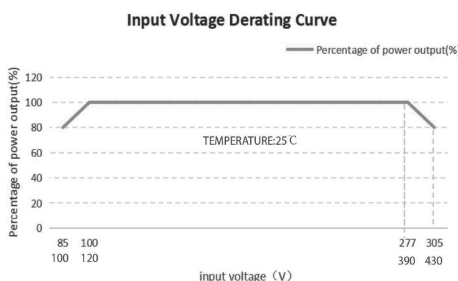
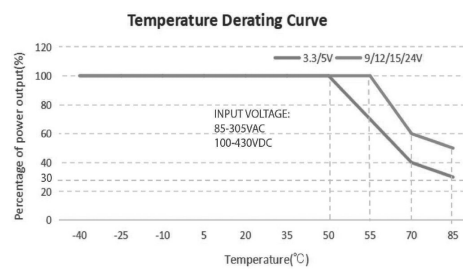
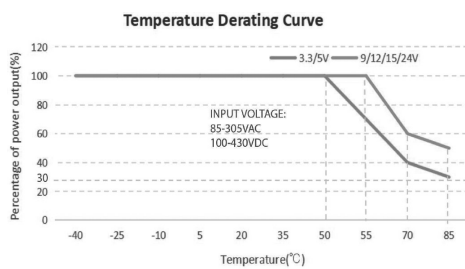


1. All parameters without special description are measured under the conditions of input 230V AC, rated load, ambient temperature 25°C, and ambient humidity less than 75%.
2. Ripple & noise are measured from peak to peak with band width limit of 20MHz (0.1µf and 47µf /50V parallel capacitor under DC output full load, AC nominal input 25°C 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°C/1000m is needed for operating altitude greater than 2000m(6500ft).

## Physical Property

Length × Width × Height	47.4 × 26.8 × 23.5mm PCB Mounting Style
	76 × 31.5 × 32.3mm Terminal Blocks Style
	76 × 31.5 × 36.9mm Din Rail Style
Weight	48g(PCB Mounting Style)
	88g (Terminal Blocks Style)
	88g (Din Rail Style)
Cooling Method	Natural Air Cooling
Texture	Black flame retardant and heat resistant plastic

## Curve



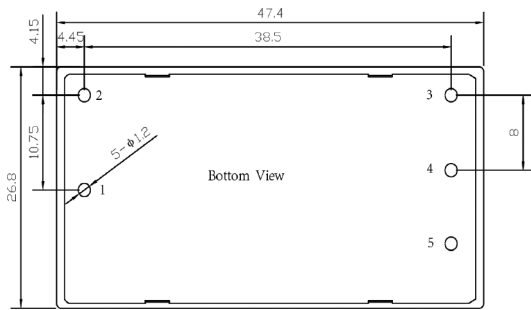
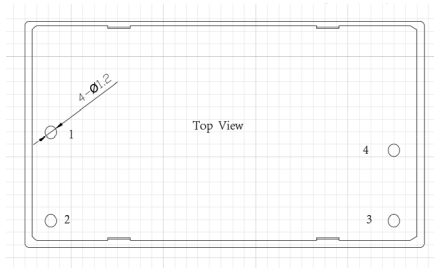
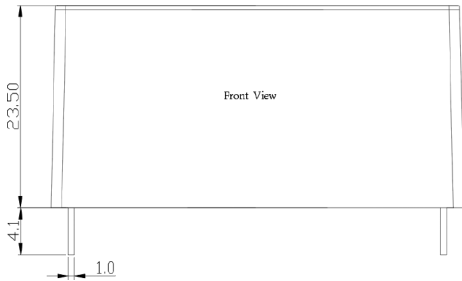
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## Dimensions and Installation



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

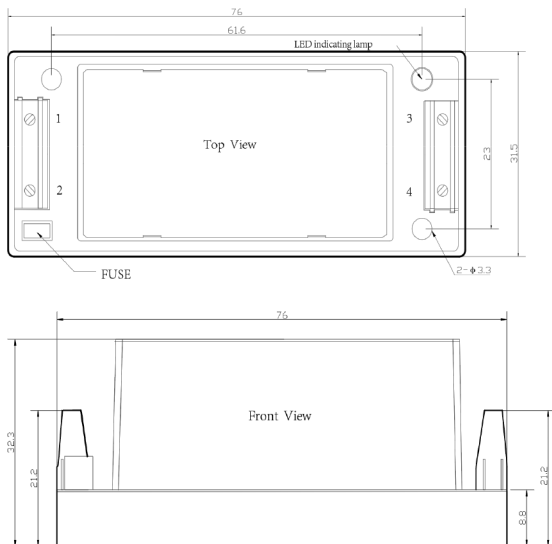
annotation:

unit of size:mm

Pin diameter tolerances:±0.1 [±0.004]

General tolerances:±0.5 [±0.02]

## Terminal Blocks Style External Dimension



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

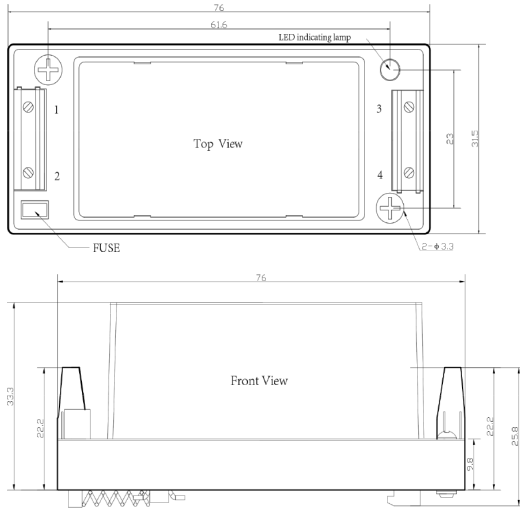
Unmarked tolerance:±1 [±0.039]



# PCB Mount Power Supply AC To DC



## Din Rail Style External Dimension



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 [±0.039]

## Typical application circuit

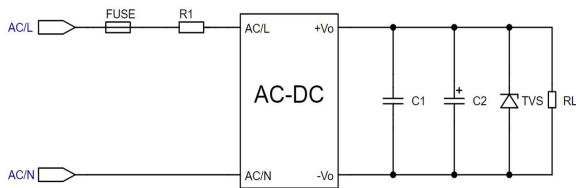


Figure 1:Typical application circuit

MODEL	FUSE	R1	C1	C2	TVS
MPC15-5	3.15A/300V, Slow fuse, must be connected	6.8Ω/3W(Wire wound resistor, must be connected)	1uF/50V	220uF/16V	SMBJ7A
MPC15-12				100uF/25V	SMBJ20A
MPC15-24				100uF/35V	SMBJ30A

## EMC Solution - Recommended circuit

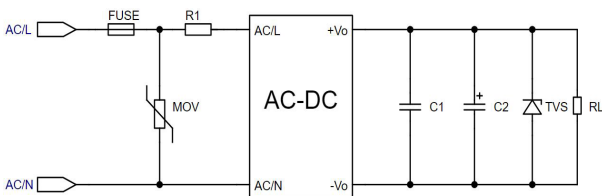


Figure 2:EMC Recommended circuits for higher requirements

Component Type	Recommended Value
MOV	14D561K



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## EMC Solution - Recommended circuit

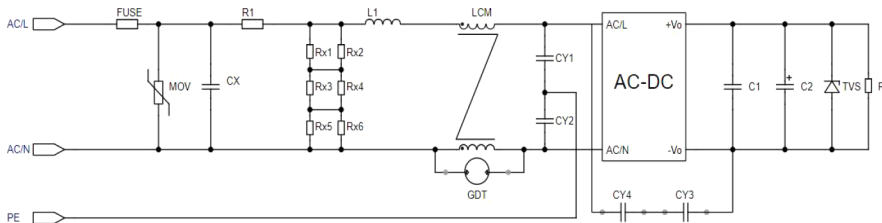


Figure 3 : category I device recommendation circuit

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

Component Type	Recommended Value
FUSE	3.15A/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

annotation:Rx1/Rx2/Rx3/Rx4/Rx5/Rx6 is the bleed resistance of CX, the recommended resistance value is 1.5MΩ/150VDC

## Part Number Table

Description	Part Number
PCB Mount Power Supply, 5V, 3A	MPC15-5
PCB Mount Power Supply, 12V, 1.25A	MPC15-12
PCB Mount Power Supply, 24V, 0.625A	MPC15-24

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