AC – DC

Features

- Wide Input Voltage Range 85-305V AC
- 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

The 56YMC20-xx Series is a versatile and reliable 20W Encapsulated AC/DC PCB Mount Power Supply. Designed for use in applications such as automation and control within IT and AV systems. This series supports input voltages of 85~305V AC 47~63Hz.

Model Number Information

56YMC	20	xx	□
Series Name	Rated Wattage	Output Voltage	: Enclosed T: Terminal Block D: DIN Rail

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	1.8	21.6	86.0	4000
56YMC20-15□	15	1.4	21	87.0	3000
56YMC20-24□	24	0.9	21.6	87.0	1000

Input Specifications

Input Voltage	85~305V AC
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).

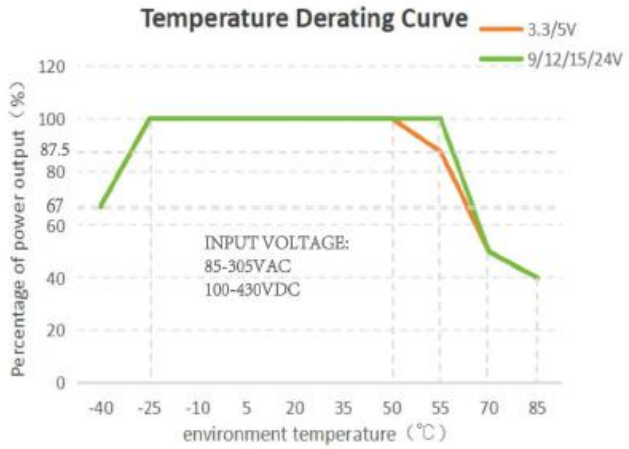
Dimensions & Weight

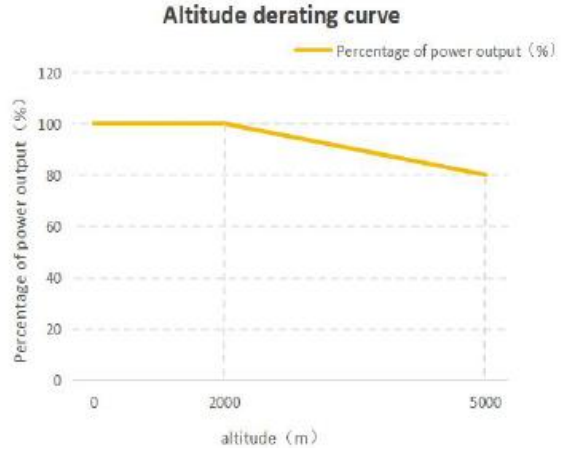
	Measurements	Weight
56YMC20-xx	52.4 x 27.2 x 24.0mm/2.07 x 1.07 x 0.94in	55g
56YMC20-xxT	76.0 x 31.5 x 32.8mm/2.99 x 1.24 x 1.29in	75g
56YMC20-xxD	76.0 x 31.5 x 37.4mm/2.99 x 1.24 x 1.46in	95g

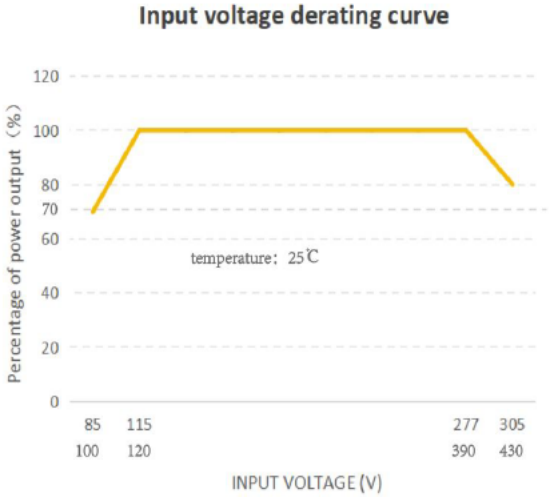
Packaging

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

Derating Curves

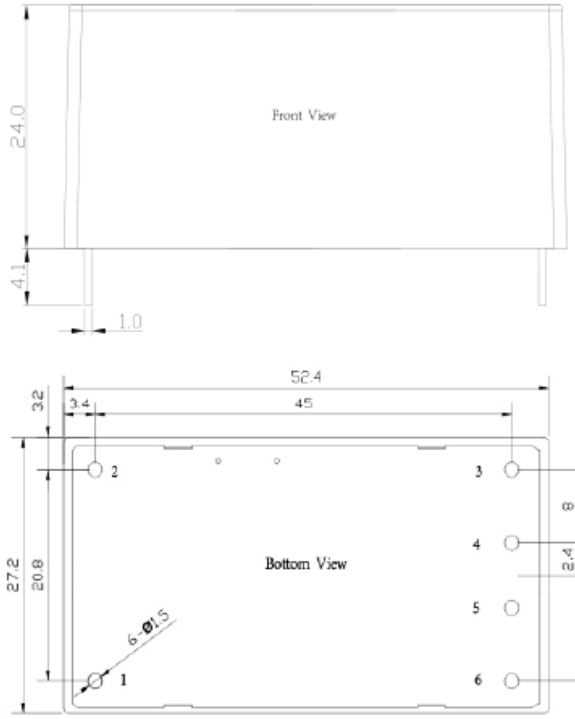






AC – DC

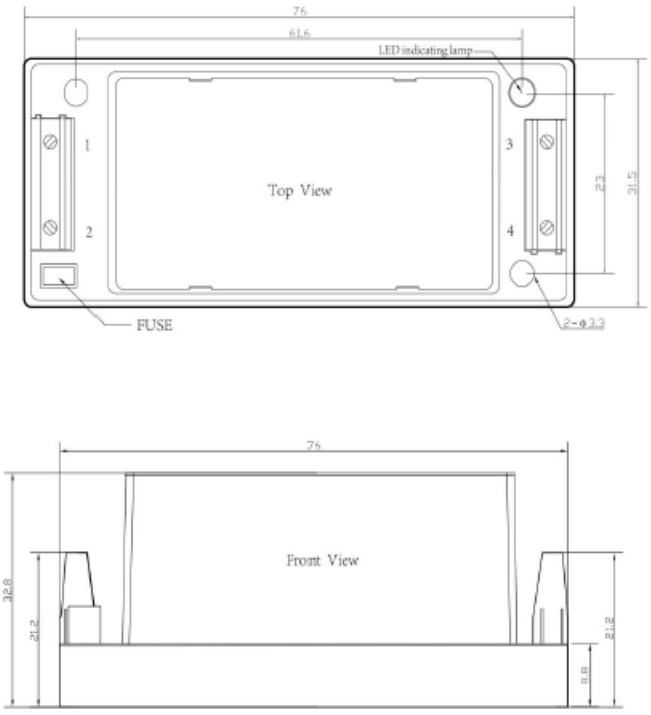
56YMC20-xx Dimensions and Recommended Layout



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

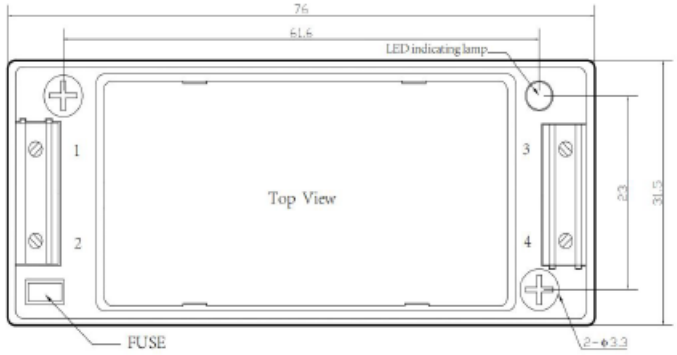
56YMC20-xxT Dimensions and Recommended Layout



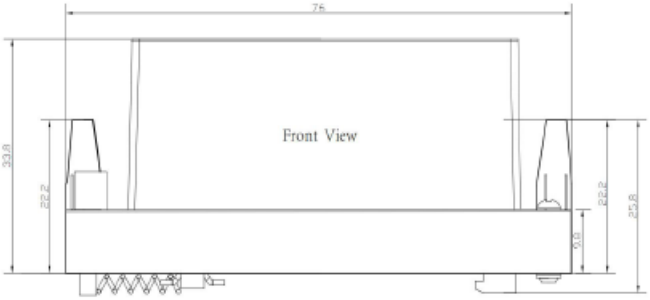
Pin Mode	
Pin	Function
1	AC/N
2	AC/L
3	+VO
4	-VO

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

56YMC20-xxD Dimensions and Recommended Layout



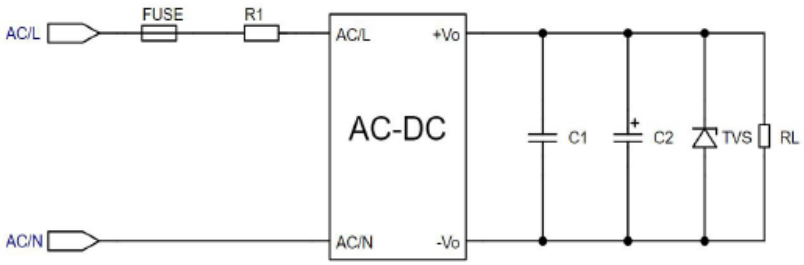
Pin Mode	
Pin	Function
1	AC/N
2	AC/L
3	+VO
4	-VO



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

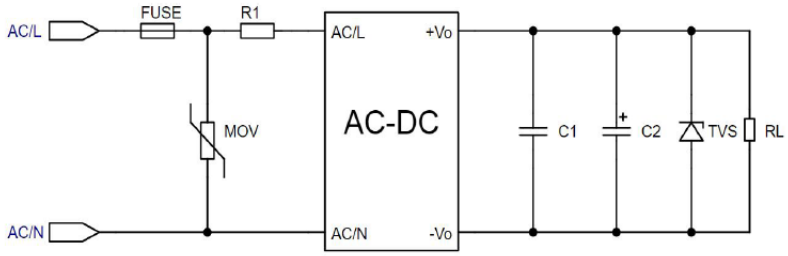
Figure 1: Typical application circuit



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

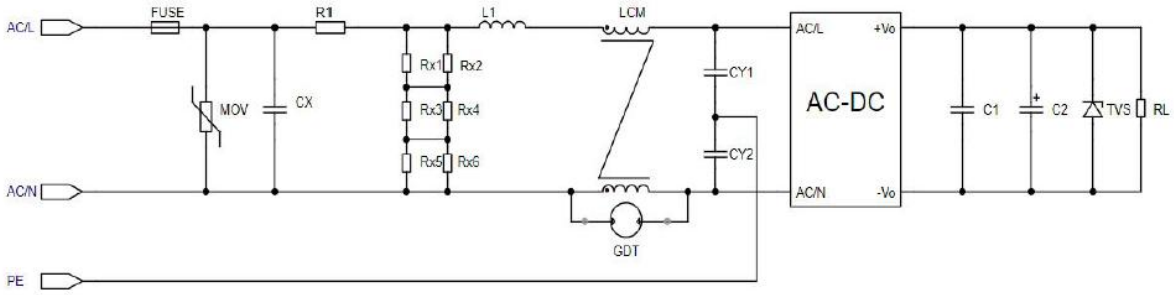
Figure 2: EMC Recommended circuits for higher requirements



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