YINGJIAO

YMC20 SERIES
20W

YMC20 is a 20W miniature (52.6*27.4*24.3mm) AC-DC module-type power supply, ready to be soldered onto the PCB boards of various kinds of electronic instruments or industriai automation equipments. This product allows the universal input voltage range of 85～305VAC.

c UL us UL62368-1 RoHS CE

Features

- Universal AC Input/ Full Range
- No load power consumption<0.12W
- Wide operating temperature range -40～85℃
- High efficiency up to 87%
- 4.74x2.68cm compact size
- Protections: Short circuit/Over load/Over voltage
- Operating attitude up to 5000 meters
- Three years warranty

Model Description

YMC 20 - XX □

- Blank: PCB Mounting Style
- T: Terminal Blocks Style
- Output Voltage
- Output Wattage
- Series Name

Model Information

Part number	DC Voltage	Rated Current(max.)	Rated Power	Efficiency	Max.Capacitive Load	Ripple & Noise
YMC20-3.3□	3.3V	4.5A	14.85W	81%	8000uF	150mVp-p
YMC20-5□	5V	4A	20W	85%	8000uF	150mVp-p
YMC20-9□	9V	2.2A	19.8W	84%	5400uF	150mVp-p
YMC20-12□	12V	1.67A	20.04W	86%	4000uF	150mVp-p
YMC20-15□	15V	1.33A	19.95W	87%	3000uF	150mVp-p
YMC20-24□	24V	0.83A	19.92W	87%	1000uF	150mVp-p

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Specification

Model	Safety Model No.	YMC20-XX□		
Output	Voltage Tolerance	±1.5%		
	Line Regulation	±0.5%		
	Load Regulation	±1.0%		
	Setup,Rise,Hold up Time	1.5s,40ms,50ms/230VAC(at full load) 1.5s,40ms,8ms/115VAC(at full load)		
Input	Rated Voltage Range	100-277VAC		
	Voltage Range	85-305VAC/100-430VDC		
	Frequency Range	47-63Hz		
	AC Current	0.45A/115VAC 0.30A/230VAC		
	Inrush Current	Cold Start 60A/400us at 230VAC 50Hz Cold Start 30A/600us at 115VAC 50Hz		
	Leakage Current	<0.1mA/277VAC		
Protection	Over Load	>110%		
		Shut down o/p voltage, recovers automatically after fault condition is removed.		
	Short Circuit	Hiccup mode, recovers automatically after fault condition is removed.		
	Over Voltage	3.3V: 3.8~9VDC 5V:5.5~9VDC 9V: 10~16VDC 12V:13~16VDC 15V: 17~24VDC 24V: 26~34VDC		
		Output voltage clamp or Hiccup mode.		
Ambient	Working TEMP.	-40 ~ +85℃(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℃)		
	Vibration	PCB Mounting: 10 ~ 500Hz, 2G 10min./1cycle, period for 60min. each along X, Y, Z axes Terminal Blocks: 10 ~ 500Hz, 5G 10min./1cycle, period for 60min. each along X, Y, Z axes		
	Soldering Temperature	Wave soldering:260℃,10s(max.); Manual soldering:360℃,5s(max.)		
	Over Voltage Category	OVC II; According to EN61558-1; altitude up to 4000 meters		
	Safety Protection	Class II		
Safety	Safety Standards	IEC/EN/BS EN62368-1, EN61558-1, EN60335-1; CONFORM TO UL62368-1,IEC/EN60601-1,ANSI/AAMI ES60601-1		
	Withstand Voltage	I/P-O/P: 4KVAC/1min		
	Isolation Resistance	I/P-O/P:100M Ohms / 500VDC / 25℃/ 70% RH		
EMC	EMC Emission	Parameter	Standard	Test Level
		Conducted	EN55014-1	CLASS B
		Radiated	EN55014-1	CLASS B
		Harmonic Current	EN61000-3-2	CLASS A
		Voltage flicker	EN61000-3-3	.....
	EMC Immunity	BS EN/EN55035, BS EN/EN61000-6-2		
		Parameter	Standard	Test Level
		ESD	EN61000-4-2	Level 3, 8KV air, Level 2, 4KV contact, criteria B
		RF field susceptibility	EN61000-4-3	Level 3, 10V/m criteria A
		EFT/Burest	EN61000-4-4	Level 3, ±2KV criteria B
		Surge	EN61000-4-5	Level 3, 1KV/L-L criteria B
		Conducted	EN61000-4-6	Level 3, 10Vr.m.s criteria A
		Voltage Dips and interruptions	EN61000-4-11	＞95% dip 0.5 periods, 30% dip 25 periods, ＞95% interruptions 250 periods
Others	Weight	PCB Mounting: 55g/pcs; Terminal Blocks: 75g/pcs;		
	Packing	PCB Mounting: 42.5 x 39.5 x 18.5cm 200pcs/Carton; Terminal Blocks: 57 x 27 x 19cm 100pcs/Carton		
	Dimension (LxWxH)	PCB Mounting: 52.6 x 27.4 x 24.3 mm; Terminal Blocks: 75.8 x 31.3 x 33 mm		
	Housing material	Plastic / UL94-V0		
	MTBF	300Khrs min. MIL-HDBK-217F(25℃)		
Note	1. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25℃ of ambient temperature. 2. Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1μF & 47μF parallel capacitor. 3. The ambient temperature derating of 3.5℃/1000m with fanless models and of 5 ℃/1000m with fan models for operating altitude higher than 2000m (6500ft). 4. The power supply is considered as an independent unit ,but the final equipment still need to re-confirm that the whole system complies with the EMC directives.For guidance on how to perform these EMC tests,please refer to "EMI testing of component power supplies". (as available on https://yingjiao.com/wp-content/uploads/2025/06/EMI_Testing_of_Component_Power_Supplies_Yingjiao.pdf) 5. If the product is not operated within the required load range the product performance cannot be guaranteed to comply with all parameters in the datasheet. 6.When the output terminal of the product needs to be connected to PE through a Y capacitor, or close to the metal frame, please refer to the Fig. 3 for recommended circuit. 7.Unless otherwise specified, EMC performance indicators are tested according to typical application circuits (Fig. 1).			

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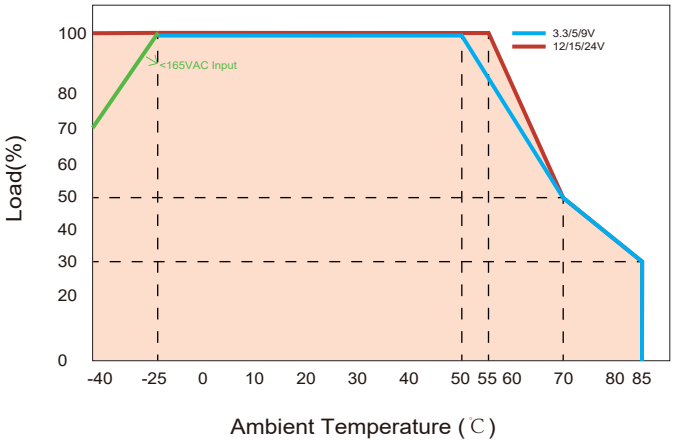
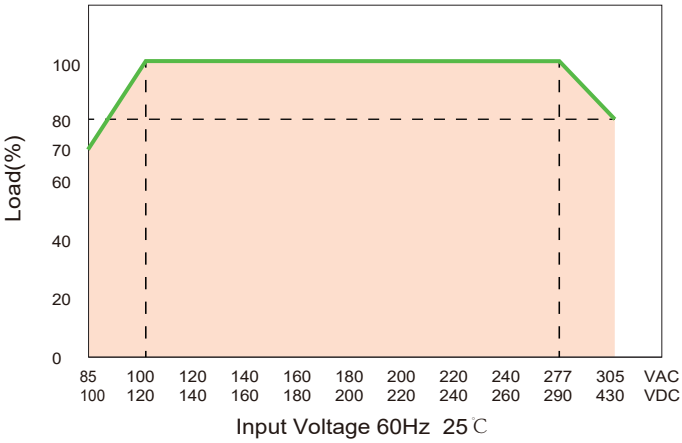
Engineering Data

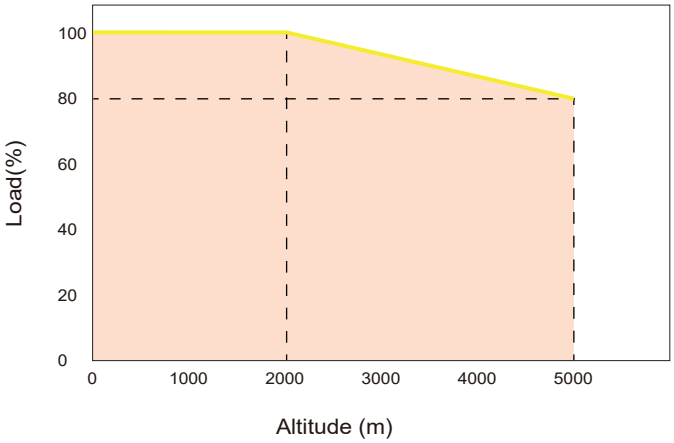
Derating Curve



Static Characteristics



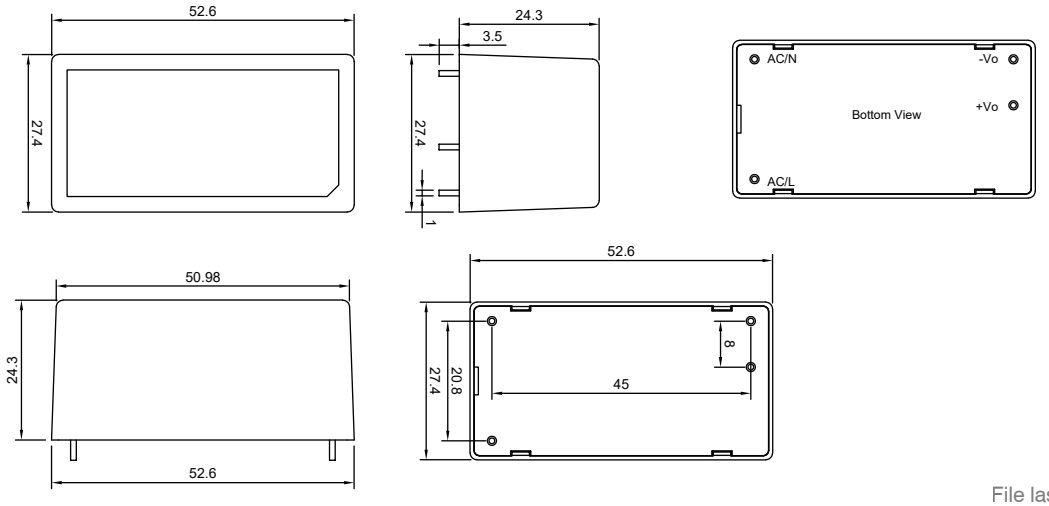
Derating Curve



Note: 1.With an AC input between 85-115VAC and a DC input between 100-165VDC, the output power must be derated as per temperature deratingcurves.
2.This product is suitable for applications using natural air cooling; for applications in closed environment please consult YINGJIAO.

Dimensions and installation (YMC10-XX)

(Unit: mm , tolerance: ±0.5mm)



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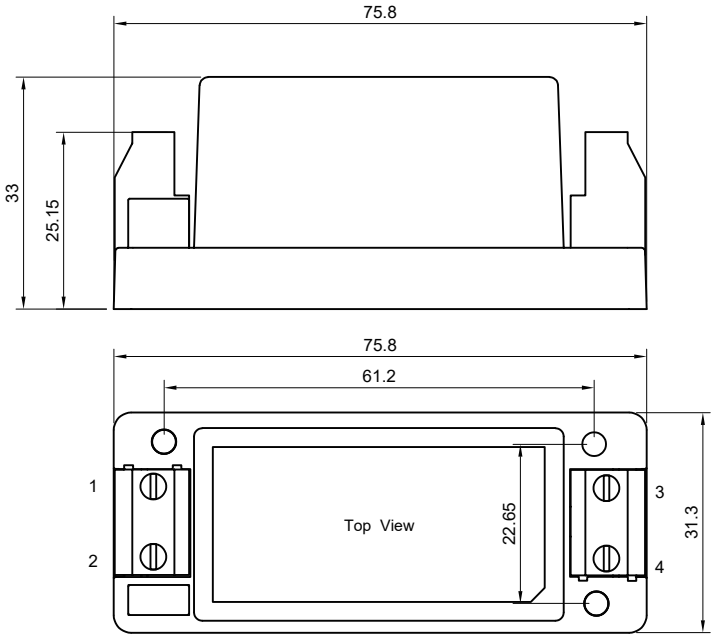
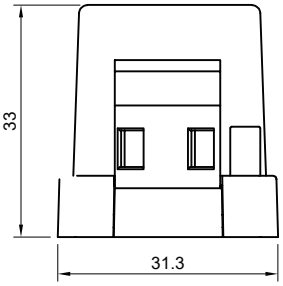
Dimensions and installation (YMC10-XXT)

(Unit: mm , tolerance: ±0.5mm)





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

Design Reference

1.Typical application

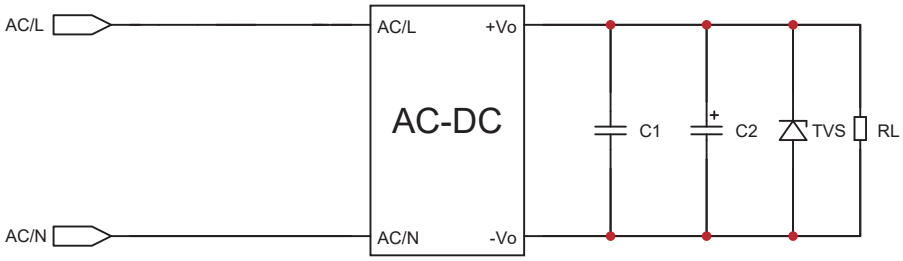


Fig.1: Typical circuit diagram

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

Output Filter Components:
C1 is a ceramic capacitor used for filtering high-frequency noise and TVS is a recommended suppressor diode to protect the application in case of aconverterfailure.

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Design Reference

2.EMC Solution - Recommended circuit

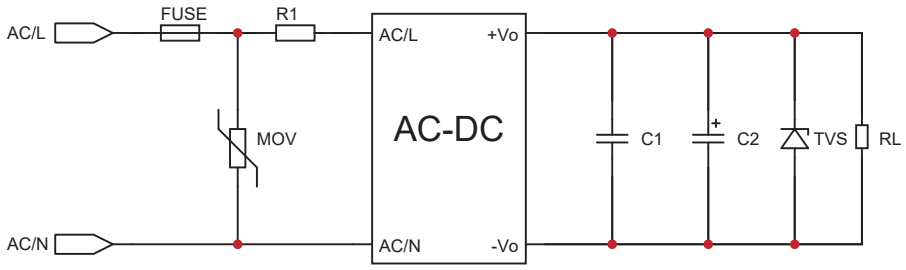

Figure 2:EMC application circuit with higher requirements

Component Type	Recommended Value
FUSE	3.15A/300V Slow fuse, must be connected
MOV	14D561K
MOV	3Ω/3W(Winding resistor)

3.EMC Solution - Recommended circuit

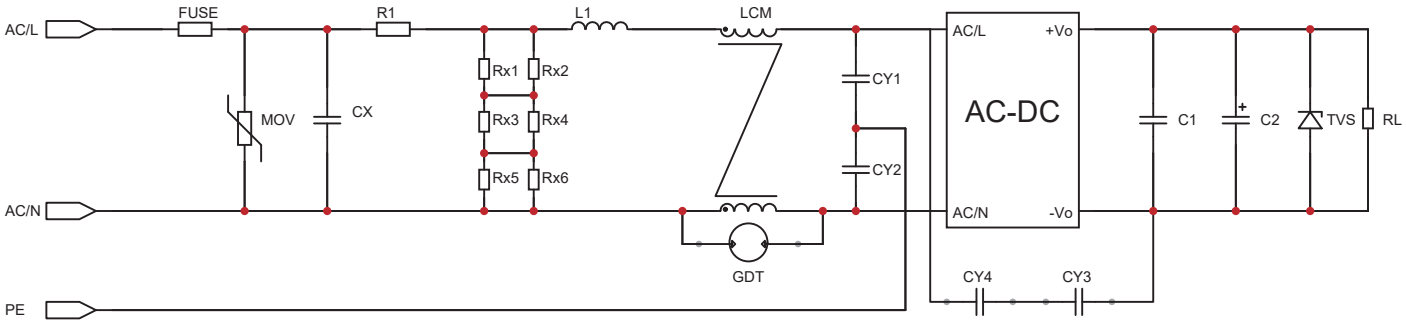

Figure 3 : category I device recommendation circuit

(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	6.8Ω/5W(Winding resistor ,must be connected)
L1	1.2mH/0.3A
CY1/CY2	2.2nF/400VAC
GDT	300V/1KA
LCM	20mH
Note:Rx1/Rx2/Rx3/Rx4/Rx5/Rx6 is the bleed resistance of CX, the recommended resistance value is 1.5MΩ/150VDC	