YMC20 SERIES 20W



PENDING

YMC20 series is super small size up to 2.07*1.08 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.

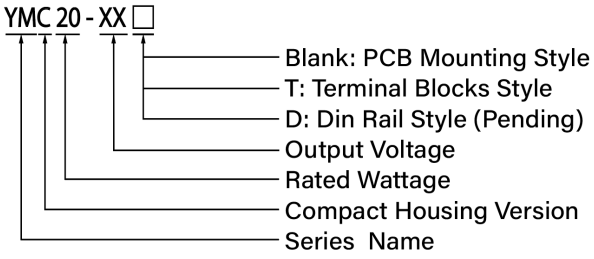
Features

- 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
YMC20-3.3□	3.3V	4.5A	14.85W	8000uF
YMC20-5□	5V	4A	20W	8000uF
YMC20-9□	9V	2.2A	19.8W	5400uF
YMC20-12□	12V	1.67A	20.04W	4000uF
YMC20-15□	15V	1.33A	19.95W	3000uF
YMC20-24□	24V	0.83A	19.92W	1000uF

Model Encoding



Input

VOLTAGE RANGE	85-305VAC	
	100-430VDC	
FREQUENCY RANGE	47-440Hz	
NO LOAD POWER CONSUMPTION(Typ.)	0.1W/277VAC, 50Hz	
AVERAGE EFFICIENCY(Typ.)	81.0%	YMC20-3.3□
	85.0%	YMC20-5□
	84.0%	YMC20-9□
	86.0%	YMC20-12□
	87.0%	YMC20-15□
	87.0%	YMC20-24□
AC CURRENT(Typ.)	0.50A/115VAC	
	0.30A/230VAC	
INRUSH CURRENT(Typ.)	Cold Start 20A/115VAC	
	Cold Start 45A/230VAC	
LEAKAGE CURRENT	<0.1mA/277VAC,50Hz	

Output

RIPPLE & NOSE(max.)	150mVp-p	ALL SERIES
VOLTAGE TOLERANCE	±1.5%	ALL SERIES
LINE REGULATION	±0.5%	ALL SERIES
LOAD REGULATION	±1.0%	ALL SERIES
SETUP,RISE TIME	1500ms, 40ms/230VAC at full load	
	1500ms, 40ms/115VAC at full load	
HOLD UP TIME (Typ.)	50ms/230VAC at full load	
	8ms/115VAC at full load	

Protection

OVER CURRENT	≥110% Rated Output current
	Protection type: Hiccup mode, shut down O/P voltage,
	recovers automatically after current goes down
SHORT CIRCUIT	Protection type: Recovers automatically after
	fault condition is removed
OVER VOLTAGE	YMC20-3.3□: 3.8-9VDC
	YMC20-5□: 5.5-9VDC
	YMC20-9□: 10-16VDC
	YMC20-12□: 13-16.5VDC
	YMC20-15□: 17-24VDC
	YMC20-24□: 26-34VDC
	Protection type: Hiccup mode, re-power on to recover

Environment

WORKING TEMP.	-40 ℃ to +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	III; According to EN61558-1
SAFETY PROTECTION	CLASS II
ALTITUDE APPLICATION	5000m
MTBF	＞1500K hrs min. MIL-HDBK-217F (25℃)

SAFETY & EMC

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:4.00KVAC
ISOLATION RESISTANCE	I/P-O/P, I/P-FG, O/P-FG:100M Ohms/ 500VDC/25 ℃/70% RH

EMC

EMC EMISSION	Parameter	Standard	Test Level/Note
	Conducted	BS EN/EN55032(CISPR32)	CLASS B
	Radiated	BS EN/EN55032(CISPR32)	CLASS B
	Harmonic Current	BS EN/EN61000-3-2	CLASS A
	Voltage Flicker	BS EN/EN61000-3-3	.....
EMC IMMUNITY	BS EN/EN55035, BS EN/EN61000-6-2		
	Parameter	Standard	Test Level/Note
	ESD	BS EN/EN61000-4-2	Level 3, 8KV air; Level 2, 4KV contact, criteria A
	Radiated Susceptibility	BS EN/EN61000-4-3	10V/m, criteria A
	EFT/Burest	BS EN/EN61000-4-4	±2KV, criteria A
	Surge	BS EN/EN61000-4-5	1KV/L-L, criteria A
	Conducted	BS EN/EN61000-4-6	10Vr.m.s, criteria A
	Magnetic Field	BS EN/EN61000-4-8	10A/m, criteria A
	Voltage Dips and interruptions	BS EN/EN61000-4-11	> 95% dip 0.5 periods, 30% dip 25 periods, > 95% interruptions 250

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 1μF & 10μF parallel capacitor.
3. Tolerance : includes set up tolerance, line regulation and load regulation.
4. 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).
5. 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.

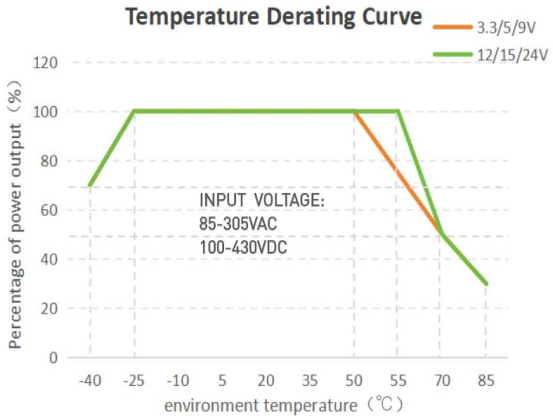
PHYSICAL PROPERTY

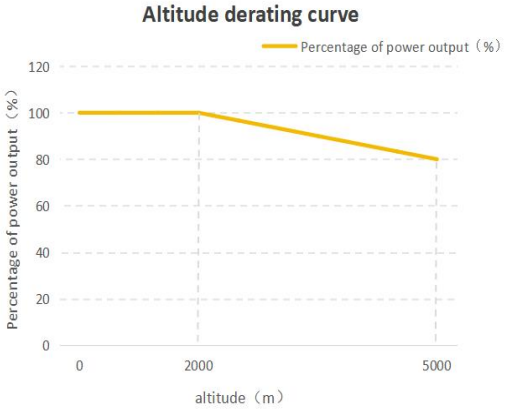
LENGTH*WIDTH*HEIGHT:	52.6*27.4*24.3mm PCB Mounting Style
	76.0*31.5*32.8mm Terminal Blocks Style
WEIGHT:	55.0g(PCB Mounting Style)
	75.0g(Terminal Blocks Style)
COOLING METHOD:	Natural Air Cooling
TEXTURE:	Black flame retardant and heat resistant plastic

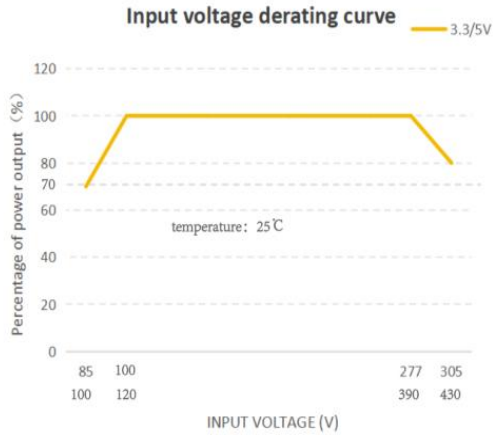
Packing

Carton Size:	58 × 28 x 19 cm
	22.83 x 11.02 x 7.48 in
Master Carton Quantities:	160pcs/Carton(PCB Mounting Style)
	100pcs/Carton(Terminal Blocks Style)

Curve

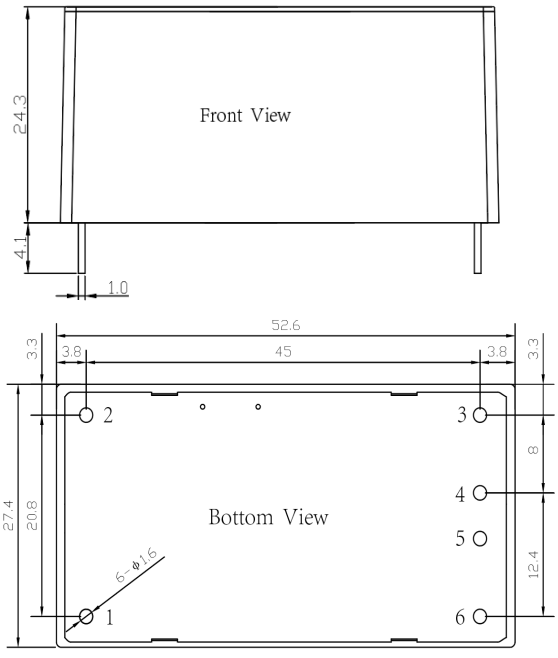


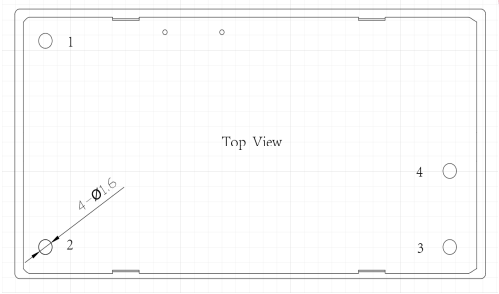




Dimensions and Installation

third-angle projection



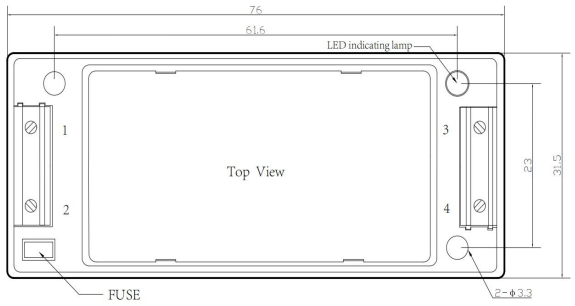


Pin-Out	
Pin	Function
1	AC/L
2	AC/N
3	-VO
4	+VO
5	No Pin
6	No Pin

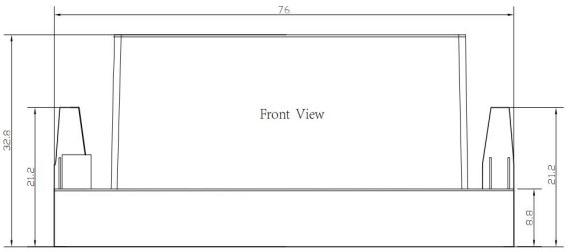
annotation:
unit of size:mm
Pin diameter tolerances:±0.10
General tolerances:±0.50

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

Typical application circuit

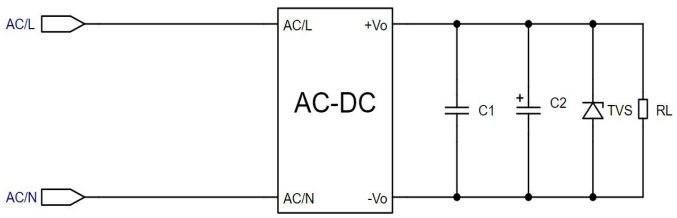


Figure 1:Typical application circuit

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

EMC Solution - Recommended circuit

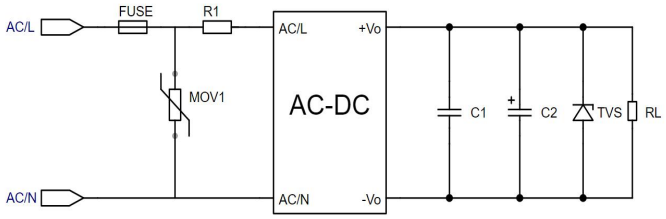


Figure 2:EMC Recommended circuits for higher requirements

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

EMC Solution - Recommended circuit

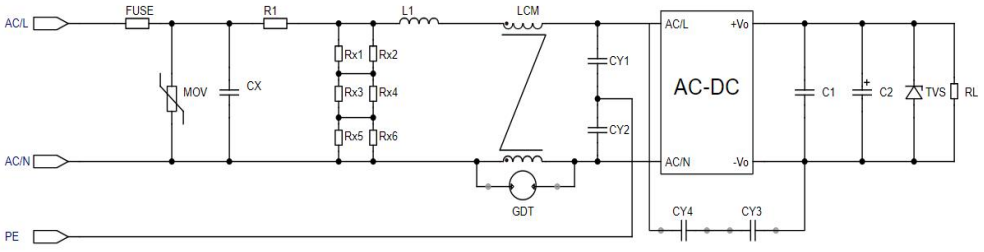


Figure 3 : category Ⅰ device recommendation circuit
(Recommended when the output end of the product needs to be connected to PE or connected to PE through a Y cap

Component Type	Recommended Value
FUSE	3.15A/300V Slow fuse, must be connected
MOV	14D561K
CX	334K/305VAC
R1	6.8Ω/5W (Winding resistor)
L1	1.2mH/0.5A
CY1/CY2	2.2nF/400VAC
CY3/CY4	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 /150VDC