RHENXY
Your Vision, Our Solutions

AC - DC CONVERTERS

20 WATTS

ACE20W-xxV

UK CA CE RoHS

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
- 3 years warranty

ACE20W-xxV 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.

MODEL NUMBERING

ACE20W-xxV

- Series Name
- Enclosed
- Rated Wattage
- Output Voltage

SELECTION GUIDE

Product Model	DC Voltage	Rated Current	Rated Power	Max.Capacitive Load
ACE20W-03V	3.3V	4500mA	14.85W	8000uF
ACE20W-05V	5V	4000mA	20W	8000uF
ACE20W-09V	9V	2200mA	19.8W	5400uF
ACE20W-12V	12V	1670mA	20.04W	4000uF
ACE20W-15V	15V	1330mA	19.95W	3000uF
ACE20W-24V	24V	830mA	19.92W	1000uF

Note : Add Suffix "ST" for Panel Mount & Suffix "DT" for Din Mount

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20 WATTS

INPUT

Parameter	Units	Model
VOLTAGE RANGE	100-277VAC	
FREQUENCY RANGE	50/60Hz	
AVERAGE EFFICIENCY(TYP.)	81%	ACE20W-03V
	85%	ACE20W-05V
	84%	ACE20W-09V
	86%	ACE20W-12V
	87%	ACE20W-15V
	87%	ACE20W-24V
AC CURRENT(TYP.)	0.45A/115VAC	
	0.30A/230VAC	
INRUSH CURRENT(TYP.)	COLD START 60A AT 230VAC 50HZ	
	COLD START 30A AT 115VAC 50HZ	
LEAKAGE CURRENT	<0.1mA/277VAC	
RATED VOLTAGE RANGE	85-305VAC/100-430VDC	

OUTPUT

Parameter	Units
RIPPLE & NOISE (MAX.)	150mVp-p
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)

PROTECTION

Parameter	Units
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 : 13~15VDC
	15V : 17~24VDC
	24V : 26~34VDC
	Output voltage clamp or Hiccup mode.

ENVIRONMENT

Parameter	Units
WORKING TEMP.	-40°C ~ +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%/(0°C ~ 50°C)
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°C,10s(max.); Manual soldering:360°C,5s(max.)
OVER VOLTAGE CATEGORY	OVC II; According to EN61558-1; altitude up to 4000 meters
SAFETY PROTECTION	Class II

SAFETY & EMC

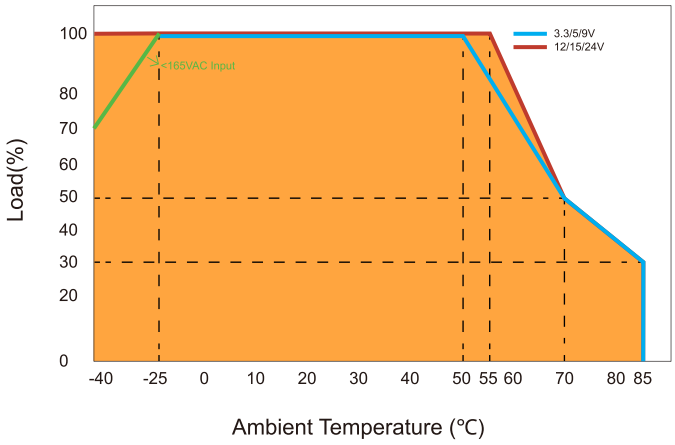
Parameter	Units		Model
SAFETY STANDARDS	IEC/EN/BS EN62368-1, EN61558-1, EN60335-1		
	CONFORM TO IEC/EN60601-1,ANSI/AAMI ES60601-1		
WITHSTAND VOLTAGE	I/P-O/P: 4KVAC/1min		
ISOLATION RESISTANCE	I/P-O/P:100M Ohms / 500VDC / 25°C/ 70% RH		
EMC EMISSION	Parameter	Standard	Test Level/Note
	Conducted	EN55014-1	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/Note
	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/Burst	EN61000-4-4	Level 3, ±2KV criteria B
			Level 3, ±4KV criteria A(consider figure 2 or figure 3
	Surge	EN61000-4-5	Level 3, ±1KV/L-L criteria B
			Level 3, ±2KV/L-L criteria A(consider figure 2 or figure 3
	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

DIMENSION, WEIGHT & PACKING

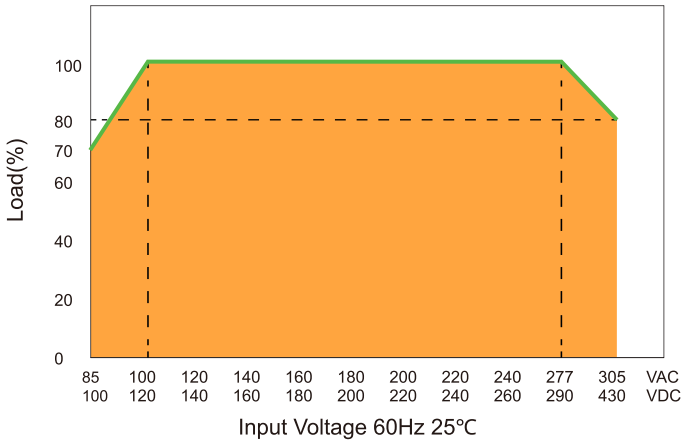
Parameter	Units
Weight	PCB Mounting: 55g/pcs; Terminal Blocks: 75g/pcs;
Packing	PCB Mounting: 42.5 × 39.5 × 18.5cm 200pcs/Carton;
	Terminal Blocks: 57 × 27 × 19cm 100pcs/Carton
Dimension (LxWxH)	PCB Mounting: 52.6 × 27.4 × 24.3 mm;
	Terminal Blocks: 75.8 × 31.3 × 33 mm
Housing material	Plastic / UL94-V0
MTBF	300Khrs min. MIL-HDBK-217F(25°C)

ENGINEERING DATA

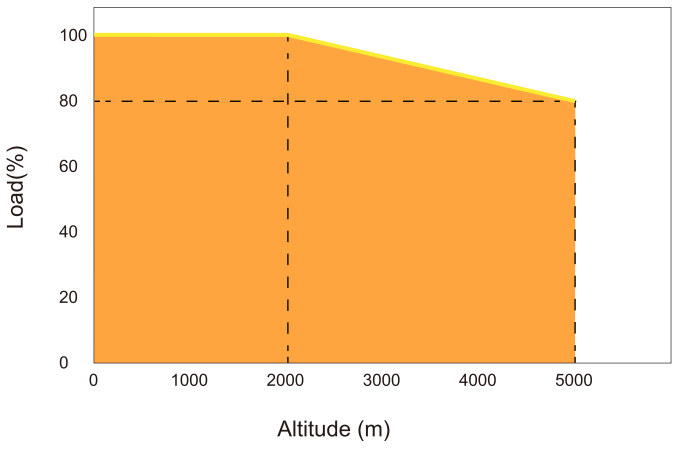
Derating Curve



Static Characteristics



Altitude Derating Curve

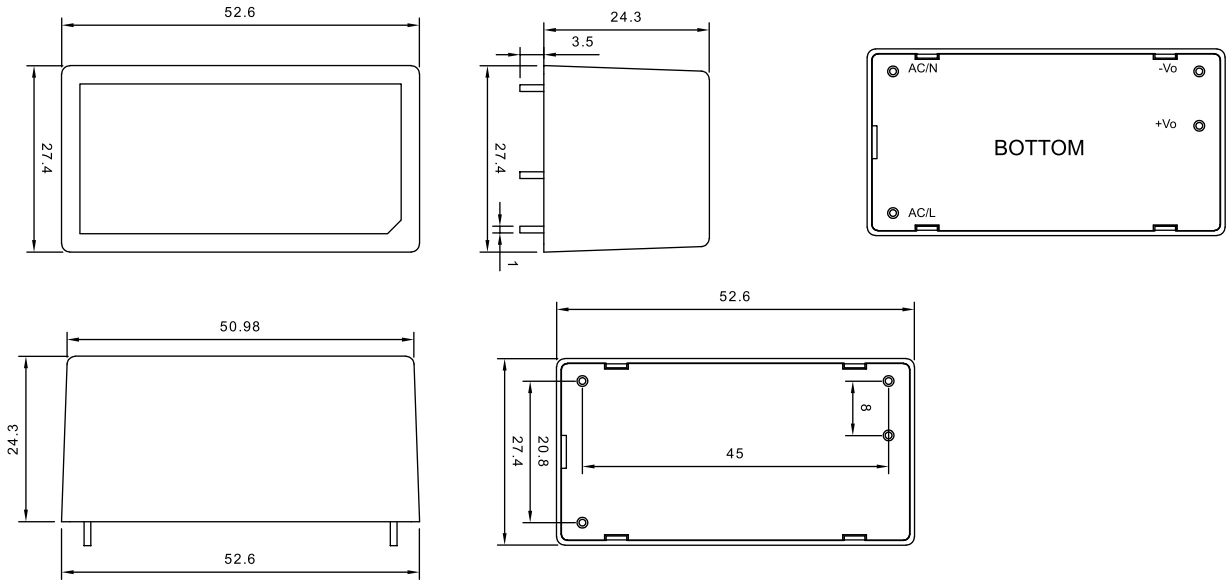


Note：1.With an AC input between 85-115VAC and a DC input between 100-165VDC, the output power must be derated as per temperature deratingcurves.

2.This product is suitable for applications using natural air cooling.

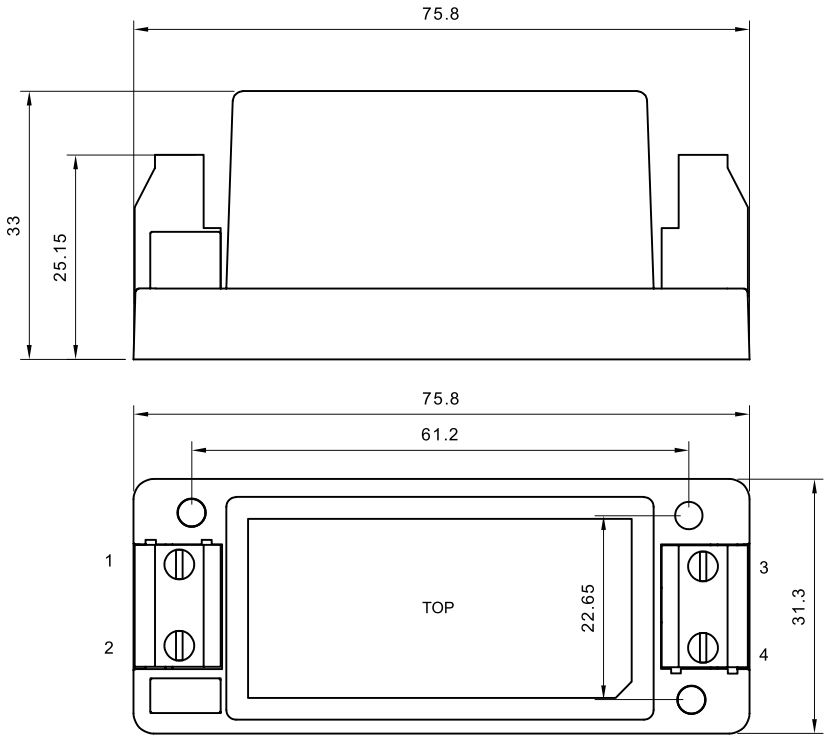
DIMENSIONS AND INSTALLATION (ACE20W-xxV)

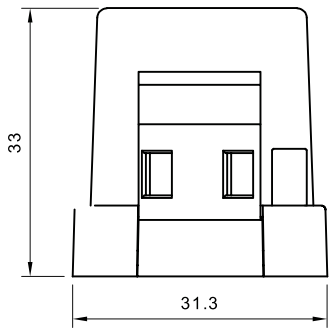
(Unit: mm , tolerance: ±0.5mm)



DIMENSIONS AND INSTALLATION (ACE20W-xxVST)

(Unit: mm , tolerance: ±0.5mm)





Pin Mode

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

DESIGN REFERENCE

1.Typical application

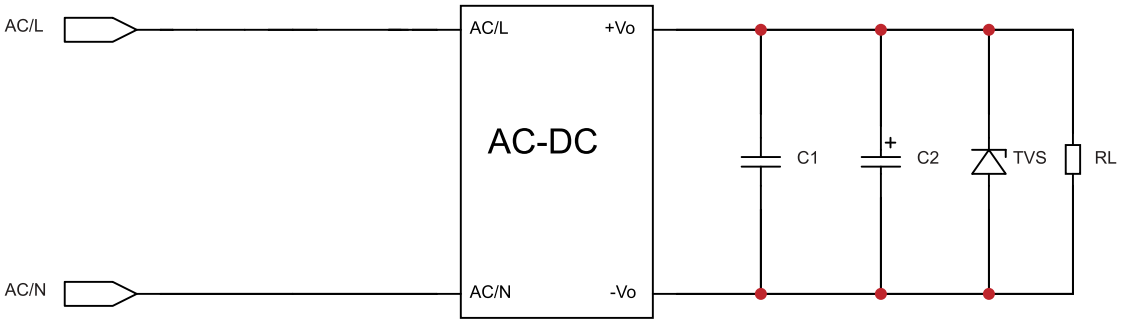


Fig.1:Typical circuit diagram

Product model	C1	C2	TVS
ACE20W-03V	1uF/50V	10uF/16V	SMBJ7.0A
ACE20W-05V		10uF/16V	SMBJ7.0A
ACE20W-09V		10uF/25V	SMBJ12A
ACE20W-12V		10uF/25V	SMBJ20A
ACE20W-15V		10uF/25V	SMBJ20A
ACE20W-24V		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 a converter failure.

2.EMC Solution - Recommended circuit

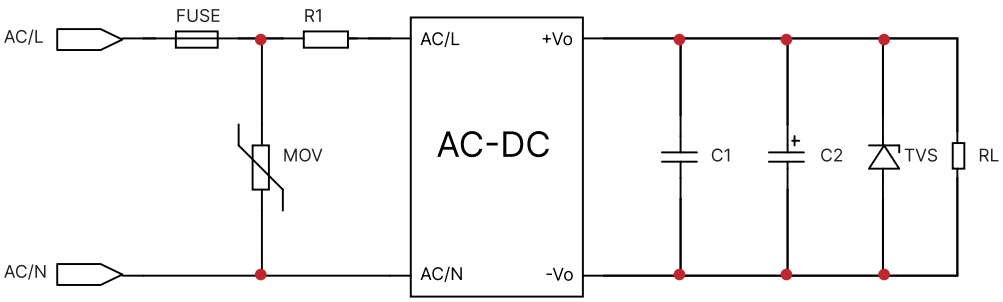


Figure 2:EMC application circuit with higher requirements

Component Type	Recommended Value
FUSE	3.15A/300V Slow fuse, must be connected
MOV	14D561K
R1	3Ω/3W(Wire wound resistor must be connected)

3.EMC Solution - Recommended circuit

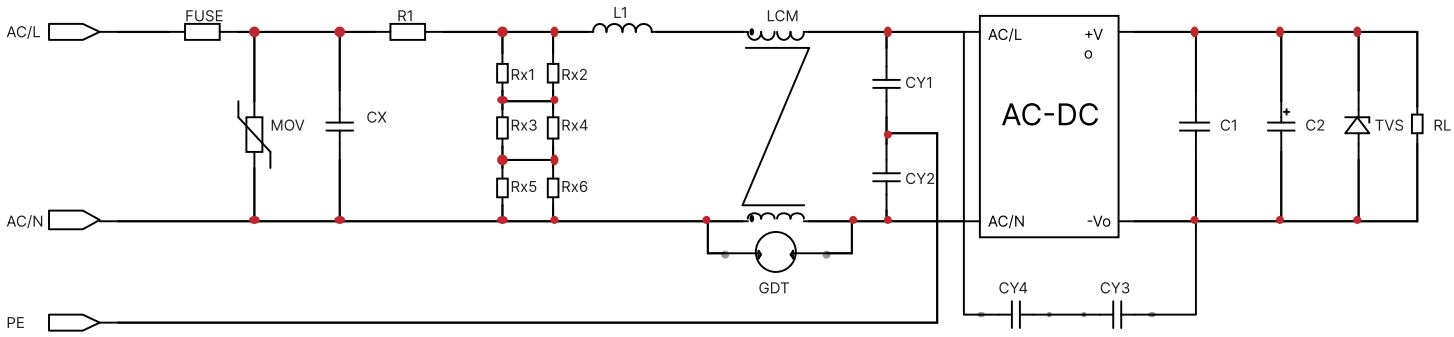


Figure 3 : category I device recommendation circuit

(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(Wire wound resistor, must be connected)
L1	1.2mH/0.5A
CY1/CY2/CY3/CY4	1nF/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	

NOTE

1. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25°C 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°C/1000m with fan less models and of 5 °C/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.

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 recommend ed circuit.

7.Unless otherwise specified, EMC performance indicators are tested according to typical application circuits (Fig. 1).