



DESCRIPTION :

20W 4KV Isolation Wide Input AC/DC Converters

TP20AC series is 20W with wide input voltage range, for both AC input and DC input application, come with low power consumption <0.1W , low Leakage current @0.1mA, miniature size: 50.8*25.4*15.5mm ,and good EMC performance, can meet the EMC and safety specifications : IEC/EN61000-4、 CISPR22/EN55022、 UL60950/EN60950/EN60601 and other related standards.This series of products are widely used in smart home, high-end lighting, medical, industrial control, office and civil industries ,etc. ***please refer to the application circuit when the parts is applied in the environment with severe electromagnetic compatibility.

FEATURES

Miniature @ height 1.55CM	High efficiency, up to 89%	Input voltage range (90-264 Vac,50/60Hz)
Low Ripple &Noise,Output protection	EMC surge> level 4	Low power consumption <0.1W
RoHS compliant	Operating temperature: -40℃ to 70℃	/

SELECTION GUIDE

Part Number	Input		Output		Efficiency (%) (Typ)	Ripple & Noise (mv)
	Voltage VAC	Voltage VDC	Voltage (VDC)	Current (A)		
TP20AC220S03W	90-264	100-370	3.3	4.0	84	100
TP20AC220S05W	90-264	100-370	5	4.0	86	100
TP20AC220S09W	90-264	100-370	9	2.2	86	100
TP20AC220S12W	90-264	100-370	12	1.66	88	100
TP20AC220S15W	90-264	100-370	15	1.33	88	100
TP20AC220S24W	90-264	100-370	24	0.83	88	100

Above PN suffix with "A" for wire package, for example: TP20AC220S05WA

All specifications typical at TA=25°C, nominal input voltage and rated output current unless otherwise specified.

INPUT SPECIFICATIONS

Input Voltage Range	90~ 264VAC (≧115VAC derating @0.2W/VAC)	100~ 370VDC
Input Frequency	47 ~ 440Hz	
Input Current (typ.)	360mA /115VAC	205mA /230VAC
Inrush Current (typ.)	30A/230 VAC	
Recommended External Fuse	T2A/250	
Leakage current (typ.)	<0.1mA at 265VAC/50Hz	

PROTECTION SPECIFICATIONS

over-voltage/over-current/short circuit protection, self-recovery

OUTPUT SPECIFICATIONS

Output Voltage Accuracy	±2.0%	
Line Regulation	±1.0%	
Load Regulation	±1.0%	
Start rising time (typ.)	100ms/230VAC	200ms/115VAC at full load
Output hold time (typ.)	40ms/230VAC	15ms/115VAC at full load

ENVIRONMENT CHARACTERISTICS

Operating Temperature	-40~+70 °C (≧40℃ derating @0.2W/℃)
Operating Humidity	85% .RH max
Storage Temperature	-40~+85, 10~95% RH
Temperature Coefficient	0.03%/(0~ 50℃)
Vibration coefficient	10~500Hz,2G10min./1cycle, 60min.each along X,Y,Z axes

SAFETY & ELECTROMAGNETIC COMPATIBILITY

Safety Standard	EN60950,EN60601,UL60950
Isolation voltage	I/P-O/P:4000VAC
Isolation resistance	I/P-O/P>100M Ohms/500VDC 25°C 70% RH
Conduction and Radiation	EN55011, EN55022 (CISPR22) CLASS B(refer toTypical application circuit)
Electrostatic Discharge (ESD)	IEC/EN 61000-4-2 level 4 8kV/15kV(refer toTypical application circuit)
RF radiation immunity (RF)	IEC/EN 61000-4-3 (refer toTypical application circuit)
Electrical Fast Transient Burst (EFT)	IEC/EN 61000-4-4 level 4 4kV (refer toTypical application circuit)
Surge	IEC/EN 61000-4-5 level 4 2kV

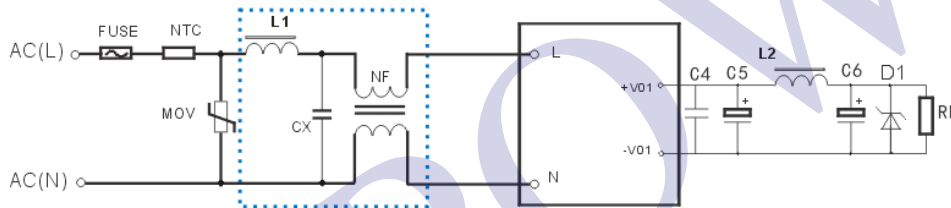
OTHERS

MTBF	200K hrs min. MIL-HDBK-217F(25)
Dimensions	50.80*25.40*15.50mm

NOTES

1. The data in this manual are measured at TA=25 ° C, humidity <75%, input nominal voltage 230Vac and output rated load,except for special instructions.
2. Ripple and noise are measured with a bandwidth of 20MHz, using a 300mm twisted pair, base on the application circuit in this data sheet
3. This power supply is considered as a component in the system, and it is necessary to confirm the electromagnetic compatibility with the terminal equipment.

APPLICATION CIRCUIT



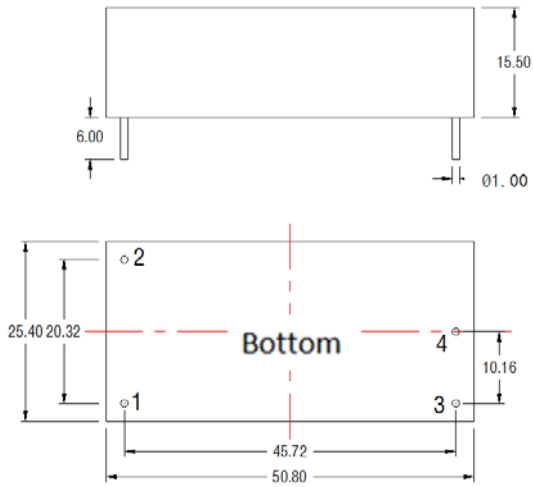
Notes:

1. C5/C6 is electrolytic capacitor ,recommend to use High-frequency low-resistance electrolytic capacitor (the capacitance and current refer to data sheet) ,C4is to filter out high frequency noise
2. The EMC filter within the dashed box is connected to meet the higher EMC requirements.it is not necessary in the general application
3. The components L1,CX,NF in the dashed box, we have made them into a filter , Named PN: FA01

APPLICATION CIRCUIT TYPICAL VALUES											
PN	Component	FUSE	NTC	MOV	L1	CX	NF	L2	C5/C6	C4	D1
TP20AC220S03W	Component	T2A /250V	External connect to NTC (Thermistor), model: 10D-9	MOV (Varistors) recommend value 14D471K	1mH/ 0.8A	CX is Safety grade X capacitance 104K/275V	NF is Common-mode inductance, the value 30mH, current 0.5A.	10uH /3A	2200uF/16	104K/50V (ceramic capacitor)	P6KE6.8A
TP20AC220S05W									2200uF/16		P6KE6.8A
TP20AC220S09W									1000uF/16		P6KE16A
TP20AC220S12W									680uF/16V		P6KE16A
TP20AC220S15W									470uF/25V		P6KE20A
TP20AC220S24W									220uF/35V		P6KE33A

MECHANICAL DIMENSIONS **PIN DESIGN**

DIP package

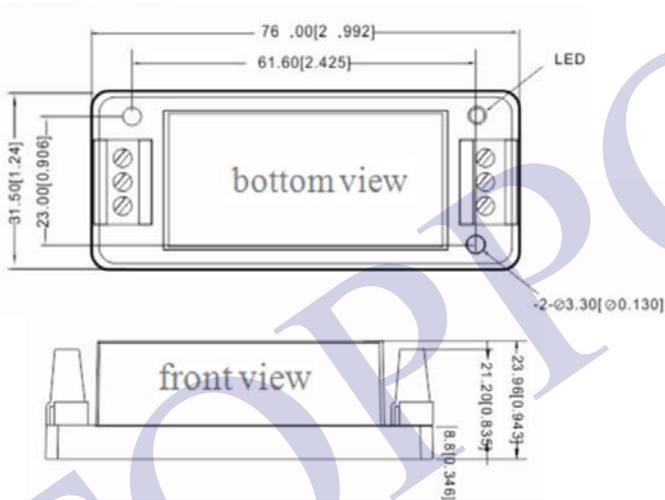


PIN	Single
1	N
2	L
3	+V0
4	-V0

Units:mm

Tolerance:±0.2mm

Wire package (PN suffix with "A")



Units:mm

Wire diameter: 24-12AWG

Tolerance:±0.5mm(±0.02mm)

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