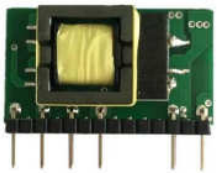
TP05AL Series



DESCRIPTION : **5W 3KVAC Isolation Wide Input AC/DC Converters**

TP05AL series is an economical open frame AC/DC switching power supply,The rated output power is 5W with wide input voltage range, for both AC input and DC input application. High reliability, Low power consumption, safety isolation .Widely used in industrial control and electrical instrumentation, smart home,etc.

FEATURES

Universal input voltage range	Both for AC and DC input voltage	Low Ripple &Noise
High efficiency, high power density, miniature	Low power consumption≤50mW	Overheat protection ,Over current protection
International standard Footprint&Pinouts	Industrial product design	Operating temperature : -40℃ to 70℃

SELECTION GUIDE

Part Number	Input Voltage		Output		Efficiency (Typ.) %	Ripple &Noise mVp-p (Typ.)
	Voltage (VAC)		Voltag(VDC)	Current(A)		
	Rated	Range values				
TP05AL220S03W	220(4:1)	85-305	3.3	1.00	67	50
TP05AL220S05W	220(4:1)	85-305	5	1.00	74	50
TP05AL220S09W	220(4:1)	85-305	9	0.55	76	50
TP05AL220S12W	220(4:1)	85-305	12	0.42	78	50
TP05AL220S15W	220(4:1)	85-305	15	0.33	80	50
TP05AL220S24W	220(4:1)	85-305	24	0.21	82	50

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

OUTPUT CHARACTERISTICS

Output Voltage accuracy (3.3Voutput)	±2.0%
Output Voltage accuracy (others)	±1.0%
Line regulation (3.3V output)	±1.0%
Line regulation (others)	±0.5%
Load regulation (3.3V output)	±1.5%
Load regulation (others)	±1.0%
Start rising time (Typ.)	10ms/230VAC
Output hold time (Typ.)	50ms/230VAC

INPUT CHARACTERISTICS

Input Voltage	85-305VAC
Nominal Input Voltage	100-240VAC
Input frequency	47 ~ 63Hz
Input Current (Typ.)	120mA / 115VAC 60m A / 230VAC
Inrush current(Typ.)	Cold start 40A / 230 VAC
Leakage current(Typ.)	<1mA at 230VAC/50Hz

PROTECTION CHARACTERISTICS

Over-current protection	120--150% load, Automatic recovery after troubleshooting
Over-voltage protection	yes

ENVIRONMENT CHARACTERISTICS

Operating temperature	-40 ~ +70 ℃ (According to the output load derating curve)
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
Cooling method	Natural cooling

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SAFETY & ELECTROMAGNETIC COMPATIBILITY

Safety Standard	UL60950,EN60950
Safety Level	CLASS II
Isolation voltage	I/P-O/P:3KVAC
Isolation resistance	I/P-O/P,:>100M Ohms/500VDC 25℃ 70% RH
Conduction and Radiation	EN55011, EN55022 (CISPR22) class B (Typical application circuit diagram 1)
Electrostatic Discharge	IEC/EN 61000-4-2 level 4 8kV/15kV (Typical application circuit diagram 1)
RF radiation immunity	IEC/EN 61000-4-3 level 4 (Typical application circuit diagram 1)
Electrical Fast Transient Burst	IEC/EN 61000-4-4 level 4 4kV (Typical application circuit diagram 1)
Surge	IEC/EN 61000-4-5 level 4 2kV (Typical application circuit diagram 1)
Harmonic Current	EN61000-3-2 (Typical application circuit diagram 1)

OTHERS

MTBF	≥300K hrs min. MIL-HDBK-217F(25)
Dimensions	37*18.5*12mm (L*W*H)
Weight	10g
packaging	360*300*250mm

NOTES

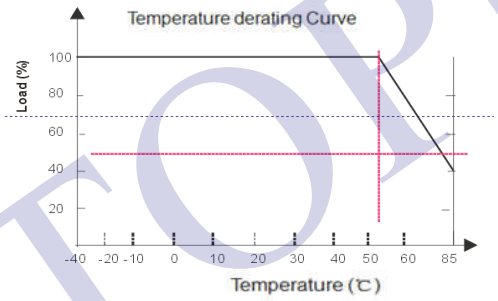
1.This model is open Frame, in order to meet the safety requirements of the module primary and secondary external components between the need to maintain a safe distance of at least 6.4mm.

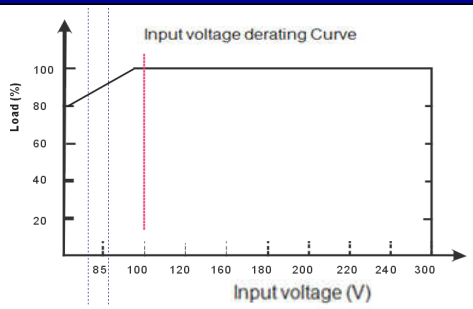
2.The data in this manual are measured at TA=25 ° C, humidity <75%, input nominal voltage (115Vac and 230Vac) and output rated load,except for special instructions.

3.In order to improve the efficiency of light load conversion, when the module load <30% of the rated load, the module may have weak audio noise, but does not affect the product performance and reliability.

4. After the module is assembled, it needs to be Dispensing fixed

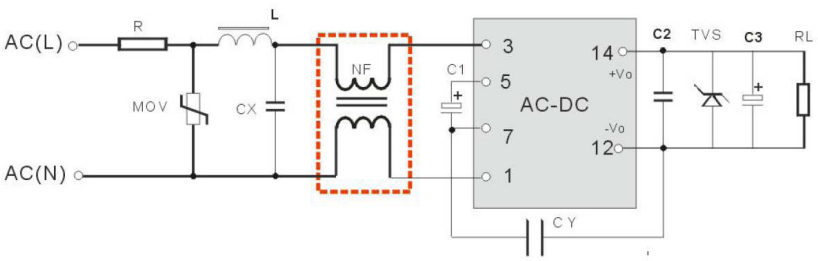
PRODUCT CHARACTERISTICS CURVE





TYPICAL APPLICATION CIRCUIT

diagram 1



Notes：

1.C2 is a ceramic capacitor to filter out high frequency noise.C3 is High-frequency low-resistance electrolytic capacitor ,TVS tube in the module exception protection after the circuit, it is recommended to use.

2. In the general application, Its not mandatory to use the common-mode inductance within the dashed box;
You can use this common-mode inductance (L=30mH) to meet the higher EMC requirements.

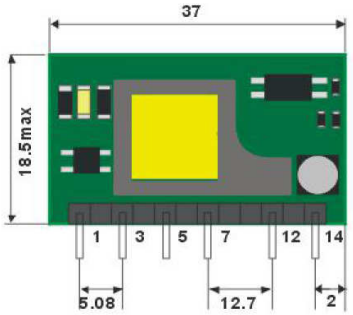
3. For technical support, please contact our engineers.

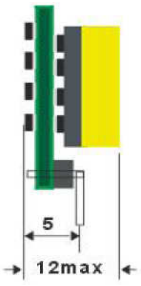
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APPLICATION CIRCUIT TYPICAL VALUES

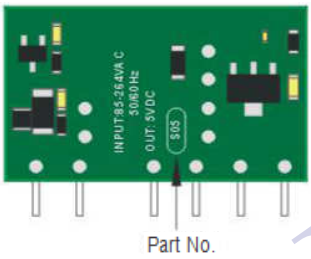
PN	R	MOV	L	C1	C2	CX	CY	C3	TVS tubes
TP05AL220S03W	10Ω/1W	10D561K	2mH	10μF/450V	104K/50V	104K/275Vac	1nF/400Vac	330uF/16V	SMBJ7.0A
TP05AL220S05W								330uF/16V	SMBJ7.0A
TP05AL220S09W								330uF/16V	SMBJ12A
TP05AL220S12W								220uF/16V	SMBJ20A
TP05AL220S15W								150uF/25V	SMBJ30A
TP05AL220S24W								150uF/35V	SMBJ30A

MECHANICAL DIMENSIONS

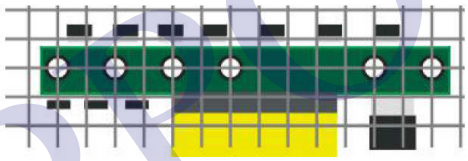




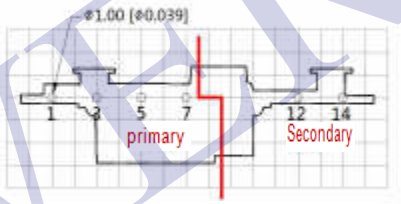
PIN	
1	AC
3	AC
5	+V(cap)
7	-V(cap)
12	-Vo
14	+Vo



All dimensions in mm ±0.2~±0.5mm

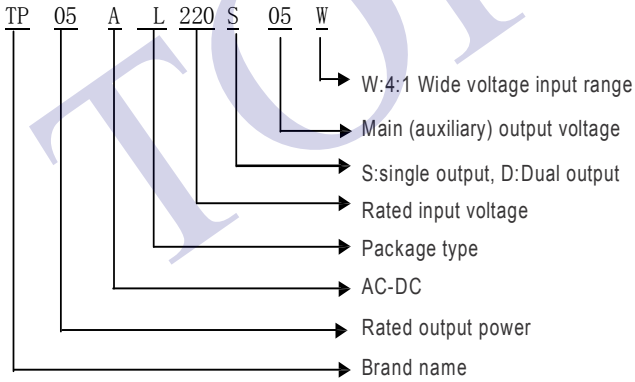


Third-angle projection



Grid spacing: 2.54mm *2.54mm

MODEL SELECTION



TOPPOWER

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