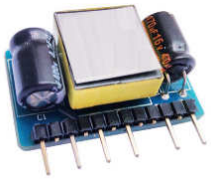
TOPPOWER

TP03AL Series



DESCRIPTION :

3W 3KVAC Isolation Wide Input AC/DC Converters

The rated output power of TP03AL series is 3W 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, which do not have high requirement on EMC.

The EMC external circuit must be added if the products need to be applied to EMC harsh environment .

FEATURES

Universal input voltage range	Both for AC and DC input voltage	Low Ripple &Noise
High efficiency, high power density, miniature dimensions	Low power consumption ⩽30mW	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.) %
	Voltage (VAC)		Voltage (VDC)	Current (A)	
	Rated	Range values			
TP03AL220S03LSW	220(4:1)	85-265	3.3	0.60	63
TP03AL220S05LSW	220(4:1)	85-265	5	0.60	68
TP03AL220S09LSW	220(4:1)	85-265	9	0.33	72
TP03AL220S12LSW	220(4:1)	85-265	12	0.25	74
TP03AL220S15LSW	220(4:1)	85-265	15	0.20	76
TP03AL220S24LSW	220(4:1)	85-265	24	0.125	80

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

INPUT CHARACTERISTICS

Input Voltage	85-265VAC (70-400VDC)
Input frequency	47 ~ 440Hz
Input Current (Typ.)	120mA / 115VAC 60m A / 230VAC
Inrush current(Typ.)	Cold start 13A / 115 VAC 23A / 230 VAC

OUTPUT CHARACTERISTICS

Output Voltage accuracy	±5.0%	±5.0%	±5.0%	±5.0%	±5.0%	±5.0%
Line regulation	±1.5%	±1.5%	±1.5%	±1.5%	±1.5%	±1.5%
Load regulation	±2.5%	±2.5%	±2.5%	±2.5%	±2.5%	±2.5%

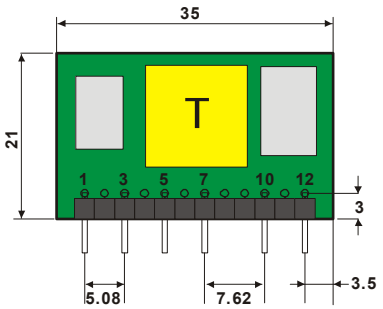
GENERAL CHARACTERISTICS

Min. Load	10%		
Switch	60(TYP)		
Protection	OverLoad protection ,Over current protection, Auto recovery		
Operating environment	Operating temperature	—40 ~ +70 ℃ (According to the output load derating curve)	
	Operating humidity	85% .RH max	
	Storage temperature	–40 ~ +85℃	
	Temperature coefficient	±0.15%/ ℃	
	Isolation voltage	3000VAC 60S	
EMC	EMI	Conduction interference	CISPR22 /EN55022,CLASSA (Typical application circuit diagram 1)
		Radiation interference	CISPR22 /EN55022,CLASSA (Typical application circuit diagram 1)
	EMS	Static discharge	IEC/EN61000-4-2 ±4KV
		Radiation immunity	IEC/EN61000-4-3 10V/m
		Burst immunity (EFT)	IEC/EN61000-4-4 ±2KV (Typical application circuit diagram 1)
		Surge immunity	IEC/EN61000-4-5 ±1KV/±2KV
		Conducted interference immunity	IEC/EN61000-4-6 3Vr .m.s.
		Frequency magnetic field immunity	IEC/EN61000-4-8 10A/m
Others	MTBF		>3000,000hours @ 25℃
	Weight		10g

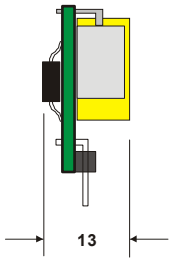
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Dimensions	35*21*13mm (L*W*H)
Remarks	1.This model is open Frame, in order to meet the safety requirements of the module primary and secondary external components
	2.The data in this manual are measured at TA = 25 ° C, humidity <75%, input nominal 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

MECHANICAL DIMENSIONS

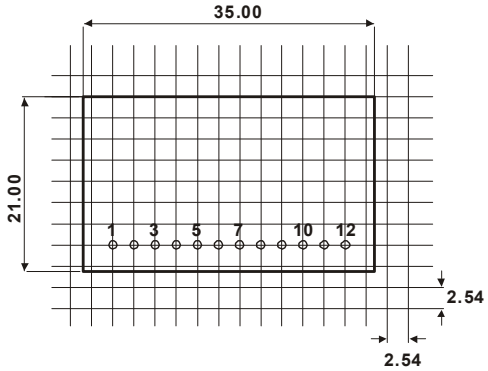


Front view



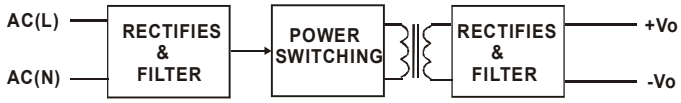
Side view

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

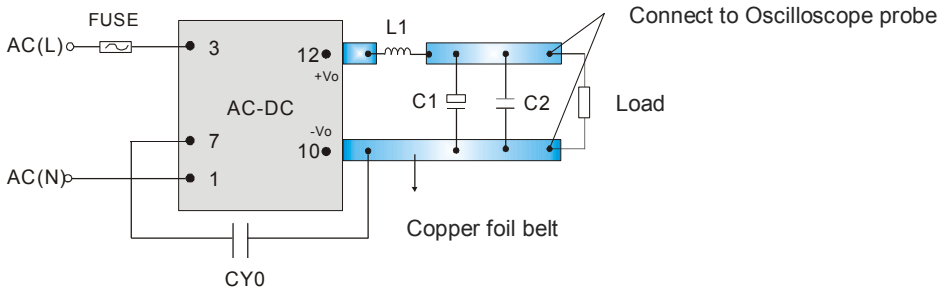


Grid spacing : 2.54mm

PRODUCT SCHEMATIC

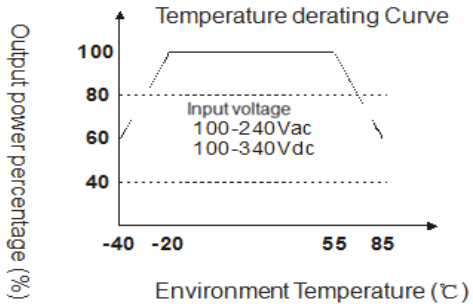


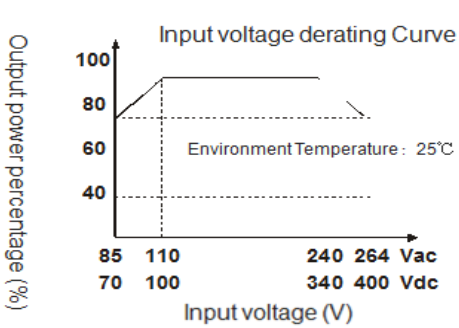
RIPPLE AND NOISE TEST METHODS



Notes： CY0 is 1nF / 400VAC Y1 capacitor, L1, C1, C2 Please refer to the external circuit parameters typical

PRODUCT CHARACTERISTICS CURVE





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TYPICAL APPLICATION CIRCUIT

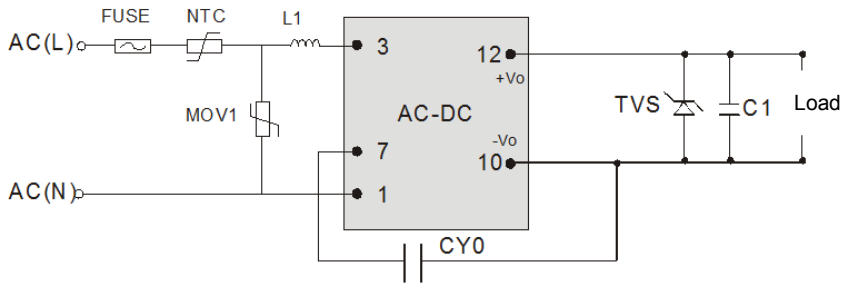
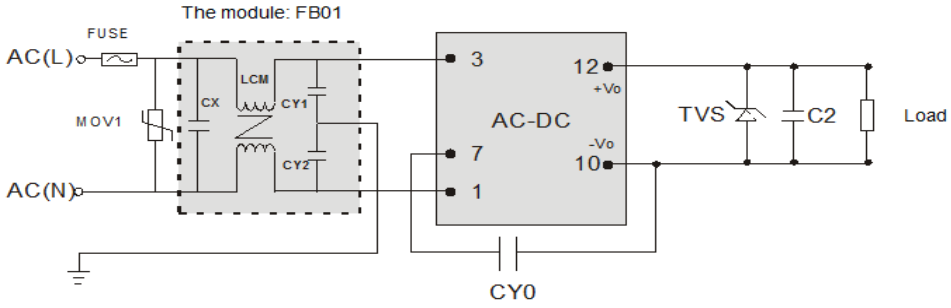


diagram 1

Notes: 1. C1 is a ceramic capacitor to filter out high frequency noise. L1 current flows please refer to the technical specifications provided by the manufacturers, the current derating more than 80%. TVS tube in the module exception protection after the circuit, it is recommended to use.

2. To meet the needs of customers, the dashed line of the circuit made of the product, named: FB01, as a supporting use of the customer.

3. For technical support, please contact our engineers.



Application circuit parameter typical value

Part Number	FUSE	NTC	MOV1	L1	C1	CY0	TVS Tube
TP03AL220S03LSW	1A/250V	5D-9	10D471K	5mH	0.1μF/50V	1nF/400Vac	SMBJ7.0A
TP03AL220S05LSW							
TP03AL220S09LSW							SMBJ12A
TP03AL220S12LSW							SMBJ20A
TP03AL220S15LSW							
TP03AL220S24LSW							SMBJ30A

SELECTION GUIDE

TP 03 A L 220 S 05 LSW

- LSW: W:4:1 Wide voltage input range
- 05: Main (auxiliary) output voltage
- S: S:single output, D:Dual output
- 220: Rated input voltage
- L: Package type
- A: AC-DC
- 03: Rated output power
- TP: Brand name

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