

### Input Specifications

Input voltage range		85- 264VAC, 120- 370VDC
Input frequency		47- 63Hz
Input current	PPM05 PPM10 PPM15 PPM20 PPM25	110VAC    230VAC 120mA , typ.    70mA , typ. 230mA , typ.    120mA , typ. 250mA , typ.    140mA , typ. 330mA , typ.    180mA , typ. 420mA , typ.    230mA , typ.
Inrush current	PPM05 PPM10 PPM15 PPM20/PPM25	110VAC    230VAC 10A, typ.    20A, typ. 10A, typ.    20A, typ. 10A, typ.    20A, typ. 16A, typ.    30A, typ.
External input fuse(recommended)	PPM05 PPM10/PPM15 PPM20/PPM25	1A/250V    slow blow 2A/250V    slow blow 3.15A/250V    slow blow

### Output Specifications

Voltage set accuracy		±2%(main output)
Input variation		±0.5% (main output) ±1.5% (supplement output)
Load variation (10-100%)	Dual output	±2%
Ripple& noise(p-p)	20MHz Bandwidth	≤100mV
Short circuit protection		Continuous, and auto resume
Over current protection		≥110% I <sub>o</sub>
Over output voltage protection	3.3 / 5VDC models 9VDC model 12 / 15VDC models 24VDC model 48VDC model	≤6.5VDC ≤12VDC ≤20VDC ≤30VDC ≤60VDC

### General Specifications

Temperature ranges	Operating : Power derating above 55°C: Storage: Case temperature:	-25°C to +70°C 3.75% / °C -25°C to +105°C +90°C max
Weight	PPM05, PPM10, PPM15, PPM20/25	~50g, ~70g, ~80g, ~120g
Hold-up time	(V <sub>in</sub> =230VAC)	80ms(typ.)
Humidity (non condensing)		85%(max)
Temperature coefficient		0.02% / °C (main output)
Switching frequency		150kHz max
Efficiency		See table
I/O-isolation voltage		3000VAC/1Min
Leakage current		0.3mA RMS typ.. 230VAC/50Hz
Case material		UL 94V-0 rated
Install		PCB
MTBF		>200.000h @25°C
RoHS compliant		Soldering 260°C / max. 10 sec.

**Examples of Partnumbers/Modelcode**

PART NO.	Power (Watt)	INPUT CURRENT (mA, typ.) 110V / 230V	OUTPUT	RIPPLE AND NOISE (typ.)	EFFICIENCY (% min.)
PPM05-A-05ZLF	5	120 / 70	± 5V / ±500mA	50mV	76
PPM05-A-12ZLF	5	120 / 70	±12V / ±210mA	50mV	76
PPM05-A-15ZLF	5	120 / 70	±15V / ±160mA	50mV	76
PPM05-A-24ZLF	5	120 / 70	±24V / ±100mA	50mV	76
PPM10-B-05ZLF	10	230 / 120	±5V / ±1000mA	50mV	78
PPM10-B-12ZLF	10	230 / 120	±12V / ±450mA	50mV	78
PPM10-B-15ZLF	10	230 / 120	±15V / ±350mA	50mV	78
PPM10-B-24ZLF	10	230 / 120	±24V / ±200mA	50mV	78
PPM15-C-05ZLF	15	250 / 140	±5V / ±1500mA	50mV	80
PPM15-C-12ZLF	15	250 / 140	±12V / ±650mA	50mV	80
PPM15-C-15ZLF	15	250 / 140	±15V / ±500mA	50mV	80
PPM20-D-05ZLF	20	250 / 140	±5V / ±2000mA	50mV	82
PPM20-D-12ZLF	20	250 / 140	±12V / ±830mA	50mV	82
PPM20-D-15ZLF	20	250 / 140	±15V / ±650mA	50mV	82

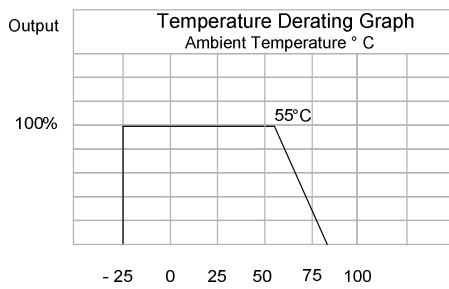
Other specifications please enquire.

**Dimensions / Pinning**

PINNING PPMxx-x-xxZLF	
#	Dual out
1	FG
2	AC (N)
3	AC (L)
4	- V Output
5	No Pin
6	COM
7	No Pin
8	+ V Output
TRIM	No Pin

**NOTE:**  
 Unit: mm  
 Pin section: 1.00mm  
 Pin tolerances: +/- 0.1mm  
 General tolerances: +/- 0.5mm

No.	PPMxx-A	No.	PPMxx-B	No.	PPMxx-C	No.	PPMxx-D
A	12.5	A	17.5	A	17.5	A	20.0
B	48.5	B	55.0	B	62.0	B	70.0
C	40.5	C	47.0	C	54.0	C	62.0
D	4.0	D	5.0	D	5.0	D	5.75
E	16.0	E	20.0	E	20.0	E	23.0
F	36.0	F	45.0	F	45.0	F	48.0
G	20.5	G	20.5	G	22.5	G	23.5
H	6.0	H	6.0	H	6.0	H	6.0

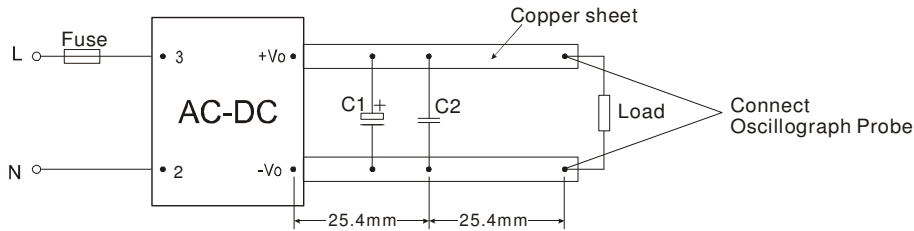


### App Notes

Remarks :

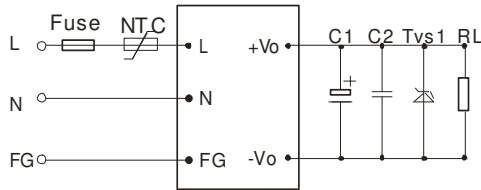
1. Ripple and Noise were measured by the method of parallel lines;
2. Unless otherwise specified, all specifications above are measured at rated input voltage and rated output load, TA=25°C, humidity < 75%;
3. All specifications stated in this datasheet are subject to the above listed model only. For specifications of non-standard model, please contact our technical support team.

### Parallel Lines Measure

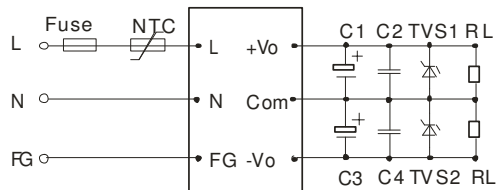


### Typical Applications PPM-Series

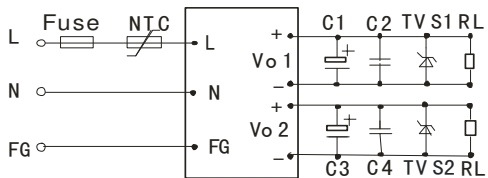
PPMxx-x-xxELF (single Output)



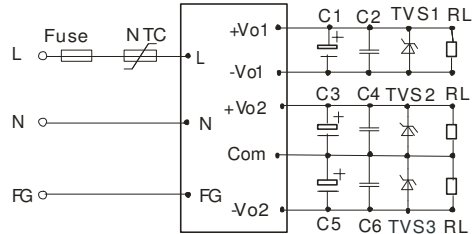
PPMxx-x-xxZLF (Dual output)



PPMxx-x-xxZSLF (Isolate Twin Output)



PPMxx-x-xxDLF (Triple Output)



External Typical Value

Vout	C1/C3/C5	C2/C4/C6	TVS
3.3V	330-1000uF/16V	0.1uF/50-100V (Ceramic Capacitor)	P6KE6.8A
5V	330-1000uF/16V		P6KE6.8A
12V	47-220uF/25V		P6KE16A
15V	47-220uF/25V		P6KE20A
24V	10-120uF/35V		P6KE33A
48V	10-68uF/63V		P6KE62A

### Remarks

1. Output filtering capacitor C5, C3 and C1 are electrolytic capacitor. It is recommended to use high frequency and low resistance electrolytic capacitor. For capacitance and current of the capacitor please refer to suppliers' specifications. Voltage derating of capacitor should be 80% or above. C2, C4 and C6 eliminate high frequency noise. TVS is a recommended component to protect post-circuits (when converter fails).
2. External input NTC is recommended to use 5D-9 (Only PPM10 model and PPM15 model)

Specification can be changed without notice.

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REV old: Jan. 08  
 REV new: Oct. 08  
 Changed: new Models