

AC/DC POWER MODULS



PPM SERIES 5W, 10W, 15W, 20W

PPM---- are high efficiency green power modules with various packaging provided by PEAK. The features of this series are: wide input voltage, DC and AC all in one, high efficiency, high reliability, low loss, safety isolation etc. They are widely used in industrial, office and civil equipments. EMC and safety standards meet international standards IEC61000 and IEC60950.

PRODUCT FEATURES

1. Universal Input :85 to 264VAC,50/60Hz
2. AC and DC all in one (input from the same terminal)
3. Low Ripple and Noise
4. Overload protection and short circuit protection
5. High Efficiency, High power density
6. Low power with no load, green power
7. Multiple models available
8. Meet industrial level specifications and requirements
9. 3 years warranty

MODEL SHEET

| Model | Package | Power | Output (Vo1/Io1) | Output (Vo2/Io2) | Ripple and Noise | Efficiency (%) (TYP) | | | | |
|--|-----------------------|-------|--|---|------------------|----------------------|--|---|------|----|
| PPM5-A-05ELF PPM5-A-12ELF PPM5-A-15ELF PPM5-A-24ELF | 48.5X36X20.5mm -A- | 5W | 5V/1000mA 12V/420mA 15V/330mA 24V/230mA | | 50mV | 76 | | | | |
| PPM5-A-05ZLF PPM5-A-12ZLF PPM5-A-15ZLF | | | +5V/500mA +12V/210mA +15V/160mA | -5V/500mA -12V/210mA -15V/160mA | | | | | | |
| PPM5-A-0505DLF PPM5-A-0512DLF PPM5-A-0515DLF PPM5-A-0524DLF | | | 5V/900mA 5V/700mA 5V/700mA 5V/700mA | ± 5V/100mA ± 12V/100mA ± 15V/80mA ± 24V/50mA | | | | | | |
| PPM5-A-0505ZSLF PPM5-A-0512ZSLF PPM5-A-0515ZSLF PPM5-A-0524ZSLF | | | 5V/900mA 5V/750mA 5V/700mA 5V/600mA | 5V/100mA 12V/100mA 15V/100mA 24V/100mA | | | | | | |
| PPM10-B-05ELF PPM10-B-12ELF PPM10-B-15ELF PPM10-B-24ELF | | | 55X45X20.5mm -B- | 10W | | | 5V/2000mA 12V/900mA 15V/700mA 24V/450mA | | 50mV | 78 |
| PPM10-B-05ZLF PPM10-B-12ZLF PPM10-B-15ZLF | | | | | | | +5V/1000mA +12V/450mA +15V/350Ma | -5V/1000mA -12V/450mA -15V/350mA | | |
| PPM10-B-0505DLF PPM10-B-0512DLF PPM10-B-0515DLF PPM10-B-0524DLF | | | | | | | 5V/1800mA 5V/1600mA 5V/1400mA 5V/1000mA | ± 5V/100mA ± 12V/100mA ± 15V/100mA ± 24V/100mA | | |
| PPM10-B-0505ZSLF PPM10-B-0512ZSLF PPM10-B-0515ZSLF PPM10-B-0524ZSLF | | | | | | | 5V/1800mA 5V/1500mA 5V/1400mA 5V/1000mA | 5V/200mA 12V/200mA 15V/200mA 24V/200mA | | |

MODEL SHEET

| Model | Package | Power | Output (Vo1/Io1) | Output (Vo2/Io2) | Ripple and Noise | Efficiency (%) (TYP) |
|--|---------------------|-------|--|---|------------------|----------------------|
| PPM15-C-05ELF PPM15-C-12ELF PPM15-C-15ELF PPM15-C-24ELF | 62X45X22.5mm -C- | 15W | 5V/2800mA 12V/1250mA 15V/1000mA 24V/625mA | | 50mV | 80 |
| PPM15-C-05ZLF PPM15-C-12ZLF PPM15-C-15ZLF | | | +5V/1500mA +12V/650mA +15V/500mA | -5V/1500mA -12V/650mA -15V/500mA | | |
| PPM15-C-0505DLF PPM15-C-0512DLF PPM15-C-0515DLF PPM15-C-0524DLF | | | 5V/2600mA 5V/2000mA 5V/1800mA 5V/2000mA | ±5V/200mA ±12V/200mA ±15V/200mA ±24V/100mA | | |
| PPM15-C-0505ZSLF PPM15-C-0512ZSLF PPM15-C-0515ZSLF PPM15-C-0524ZSLF | | | 5V/2800mA 5V/2500mA 5V/2400mA 5V/2000mA | 5V/200mA 12V/200mA 15V/200mA 24V/200mA | | |
| PPM20-C-48ELF | 62X45X22.5mm | 20W | 48V/420mA | | 50mV | 85 |
| PPM20-D-05ELF PPM20-D-12ELF PPM20-D-15ELF PPM20-D-24ELF | 70X48X23.5mm -D- | 20W | 5V/3500mA 12V/1600mA 15V/1300mA 24V/850mA | | 50mV | 82 |
| PPM20-D-05ZLF PPM20-D-12ZLF PPM20-D-15ZLF | | | +5V/2000mA +12V/830mA +15V/650mA | -5V/2000mA -12V/830mA -15V/650mA | | |
| PPM20-D-0505DLF PPM20-D-0512DLF PPM20-D-0515DLF PPM20-D-0524DLF | | | 5V/3200mA 5V/2500mA 5V/2800mA 5V/2000mA | ±5V/400mA ±12V/300mA ±15V/200mA ±24V/200mA | | |
| PPM20-D-0505ZSLF PPM20-D-0512ZSLF PPM20-D-0515ZSLF PPM20-D-0524ZSLF | | | 5V/3400mA 5V/2800mA 5V/2500mA 5V/2500mA | 5V/600mA 12V/500mA 15V/500mA 24V/300mA | | |

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 models only. For specifications of non-standard models, please contact our technical support team.

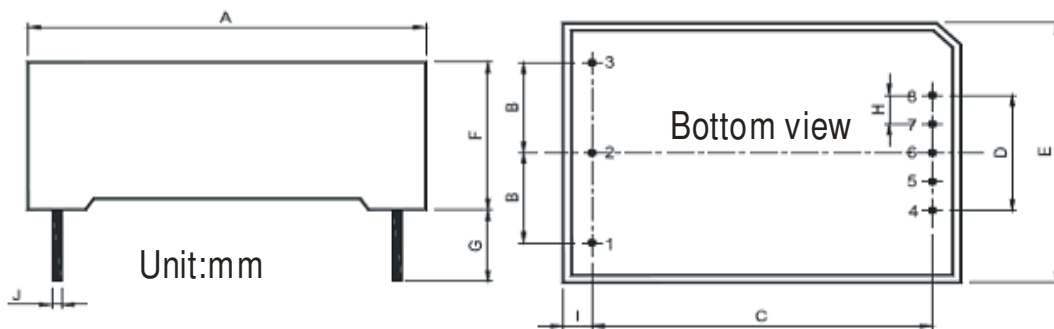
| INPUT SPECIFICATIONS | |
|----------------------------------|---|
| Input voltage range | 100VAC to240VAC (85 to264VAC) 140VDC to340VDC (120 to370VDC) |
| Input frequency | 47Hz to 63Hz |
| External input fuse(recommended) | 2A slow blow |

| OUTPUT SPECIFICATIONS | |
|---------------------------------------|--|
| Voltage set accuracy | ± 2% |
| Input variation | ± 0.5% |
| Load variation (10-90%) | ± 1% |
| Single output models | ± 2% |
| Dual output models | ± 2% |
| Isolated triple output | Vo1 ±3% (Main output) ± Vo2 ±5% (Supplement output) |
| Isolated and separated twin output | Vo1 ±3% (Main output) Vo2 ±5% (Supplement output) |
| Ripple & Noise(p-p) (20MHz Bandwidth) | ≤ 100mV |
| Short circuit protection | Continuous, and auto resume |
| Over current protection | > 115%Io |

| GENERAL SPECIFICATIONS | |
|---|----------------------------------|
| Temperature ranges | |
| Operating : | -20 °C to +70 °C |
| Storage: | -25 °C to +105 °C |
| Case temperature | +90 °C |
| Reducing rating temperature: | 55 °C |
| Hold-up time | 80ms typ / at Vin:230VAC |
| Humidity (non condensing) | 85%(max) |
| Temperature coefficient | 0.02% / °C |
| Switching frequency | 150kHz max |
| Efficiency | 78% typ |
| I/O-isolation voltage | 3000VAC 1Min |
| Leakage current | 0.3mA RMS typ./230VAC/50Hz |
| EMI/RFI conducted | EN55022, level B |
| EMC compliance | |
| Electrostatic discharge ESD | IEC/EN 61000-4-2 level 3 |
| RF field susceptibility | IEC/EN 61000-4-3 |
| Electrical fast transients/bursts on main sline | IEC/EN 61000-4-4 level 3 2kV |
| Surge | IEC/EN 61000-4-5 level 3 1kV/2kV |
| Safety standards | IEC60950, IEN60950, |
| Safety approvals | IEN60950, IEC60950 |
| Safety Class | CLASS 1 |
| Case material | UL94V-0 |
| Install | PCB |
| MTBF | 200,000h @25 °C |

OUTLINE AND DIMENSIONS

PACKAGE DIMENSIONS: (mm)



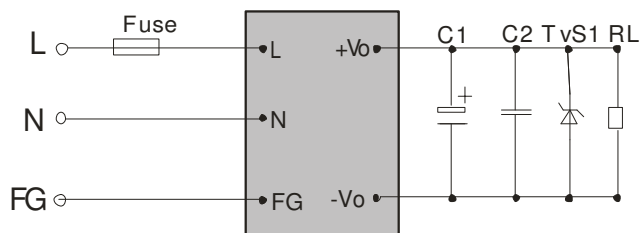
| | PPM05-XXXX | PPM10-XXXX | PPM15-XXXX | PPM20-XXXX |
|---|------------|------------|------------|------------|
| A | 48.5±0.5 | 55±0.5 | 62±0.5 | 70±0.5 |
| B | 12.5±0.5 | 17.5±0.3 | 17.5±0.3 | 20.0±0.3 |
| C | 40.5±0.5 | 47±0.5 | 54±0.5 | 62±0.5 |
| D | 16±0.3 | 20±0.3 | 20±0.5 | 23±0.3 |
| E | 36±0.5 | 45±0.5 | 45±0.5 | 48±0.5 |
| F | 20.5±0.5 | 20.5±0.5 | 22.5±0.5 | 23.5±0.5 |
| G | 4min | 4min | 4min | 4min |
| H | 4.0±0.3 | 5.0±0.3 | 5.0±0.3 | 5.75±0.3 |
| I | 4.0 | 4.0 | 4.0 | 4.0 |
| J | 1.0±0.1 | 1.0±0.1 | 1.0±0.1 | 1.0±0.1 |

PIN DEFINITION

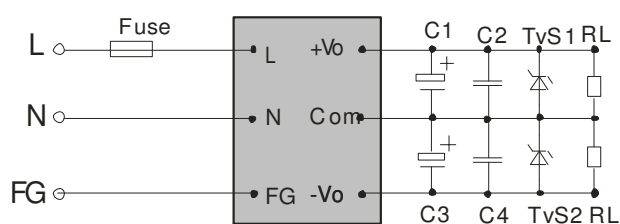
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|-------------------|----|--------|--------|------|------|------|------|------|
| E - SINGLE | FG | AC (N) | AC (L) | -Vo1 | NP | NP | NP | +Vo1 |
| Z - DUAL | FG | AC (N) | AC (L) | -Vo2 | NP | COM | NP | +Vo1 |
| D - TRIPLE | FG | AC (N) | AC (L) | -Vo1 | +Vo1 | -Vo2 | COM | +Vo2 |
| ZS- DUAL SEPARATE | FG | AC (N) | AC (L) | -Vo1 | +Vo1 | NP | -Vo2 | +Vo2 |

TYPICAL APPLICATIONS

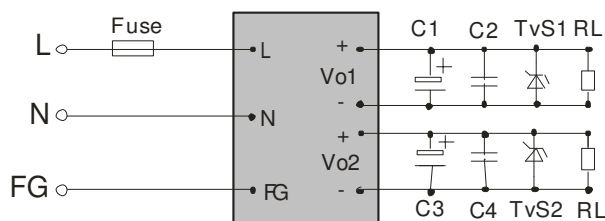
Single output:



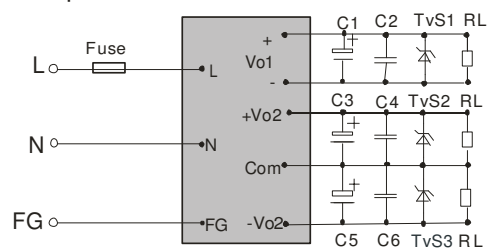
Dual output:



Isolate Twin Output:



Triple output:



EXTERNAL TYPICAL VALUE

| Vout | C1/C3/C5 | C2/C4/C6 | FUSE | TVS | REMARKS |
|------|-----------|-----------------------------------|---------|----------|---|
| 5V | 680uF/16V | 0.1uF/50V Ceramic Capacitor | 1A/250V | P6KE6.8A | 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). |
| 12V | 220uF/25V | | | P6KE16A | |
| 15V | 220uF/25V | | | P6KE20A | |
| 24V | 120uF/35V | | | P6KE33A | |
| | | | | | |
| | | | | | |
| | | | | | |

PARALLEL LINES MEASURE

