

PPM05-E-xxELF



PPM-SERIES

Rev.02-2015

- ✓ **5 Watt**
- ✓ Univ. **85-305VAC** (110-430VDC)
- ✓ **Single Output**
- ✓ **Over Current/Voltage Protect**
- ✓ **4 kV AC I/O Isolation**
- ✓ **Low Ripple and Noise**
- ✓ **High Efficiency**

The PPM-Series are high efficiency green power moduls 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..

All specifications typical at Ta=25°C, nominal input voltage and full load unless otherwise specified

Input Specifications

| | | |
|-----------------------------------|---|---|
| Input Voltage Range | 85 – 305 VAC or 110 – 430 VDC | |
| Input Frequency | 47 – 440 Hz | |
| Input (Inrush) Current | <u>110 VAC</u> 120mA, max. (10A, typ.) | <u>230 VAC</u> 70mA, max. (20A, typ) |
| External Input Fuse (recommended) | 1A / 300V slow fusing | |

Output Specifications

| | |
|------------------------------------|----------------------------|
| Voltage Accuracy | ±2%, typ (±3% at 3.3 Vout) |
| Input variation | ±0.5%, typ |
| Load variation (10-100%) | ±1% , typ |
| Ripple and Noise (20Mhz bandwidth) | 50mV pk-pk, typ |
| Short Circuit Protection | Continuous, self-recovery |
| Over output voltage protection | TVS clamp |
| Over current Protection | ≥ 110% Iout self-recovery |

Common Specifications

| | |
|---|---|
| Temperature range (Storage) | -25°C~ +70 °C case max: 95°C (-25°C~ +105 °C) |
| Power derating | 2% / °C |
| Hold up Time | 80mS, typ. (230VAC) |
| Humidity (non condensing) | 95%, max. |
| Temperature Drift Coefficient | ±0.02%/°C |
| Switching Frequency | 100kHz, typ |
| I/O Isolation Voltage | 4000VAC / 1min. |
| Safety Standards | IEC60601, EN60601 |
| Safety Class | CLASS II |
| Case Material | UL94V-0 rated |
| Reliability Calculated MTBF (MIL-HDBK-217F) | > 300,000 hrs |
| Weight | ~ 35g |

EMV Specifications

See AppNote

Selection Guide

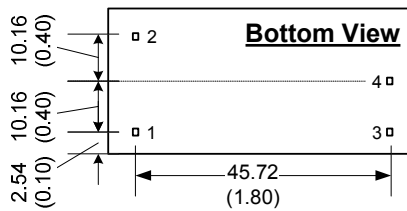
Single Output

| Order # | Power (W) | Output Voltage (Vdc) | Output Current Full Load (mA) | Max. Capacitive Load* (µF) | Efficiency (%) |
|----------------------|-----------|----------------------|-------------------------------|----------------------------|----------------|
| SINGLE OUTPUT | | | | | |
| PPM05-E-3R3ELF | 4.2 | 3.3 | 1250 | 4000 | 74 |
| PPM05-E-05ELF | 5 | 5 | 1000 | 4000 | 78 |
| PPM05-E-09ELF | 5 | 9 | 550 | 1000 | 78 |
| PPM05-E-12ELF | 5 | 12 | 420 | 820 | 80 |
| PPM05-E-15ELF | 5 | 15 | 333 | 820 | 82 |
| PPM05-E-24ELF | 5.5 | 24 | 230 | 680 | 83 |

* without external circuit

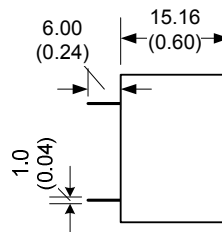
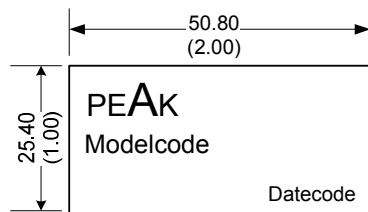
If you need other specifications, please enquire.

Package / Pinning / Derating

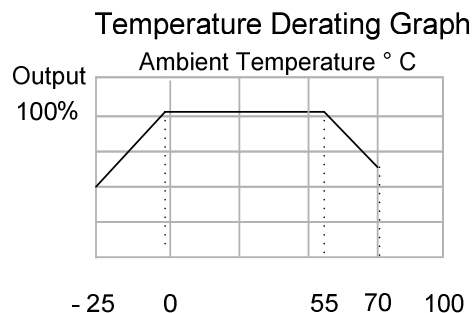


All dimensions are typical in millimeters (inches).
 - Pin diameter: 0.5 +/-0.05 (0.02 +/-0.002)
 - Pin pitch tolerance: +/-0.35 (+/-0.014)
 - Case tolerance +/-0.5 (+/-0.02)
 Specification may change without notice.

2" x 1" – PLASTIC CASE



| PIN CONNECTIONS | |
|-----------------|--------|
| # | SINGLE |
| 1 | AC (N) |
| 2 | AC (L) |
| 3 | + Vout |
| 4 | - Vout |

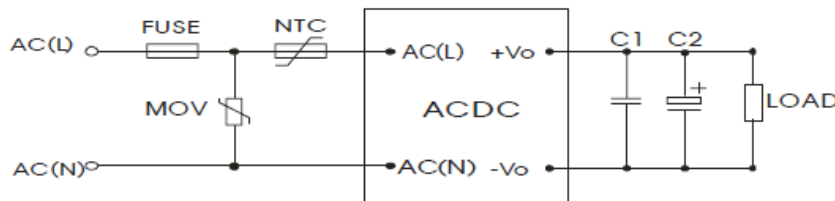


App Notes:

EMV Specifications (without ext. circuit)

| | | |
|-----|--|--|
| EMI | Conducted Disturbance | CISPR22/EN55022, CLASS B |
| | Radiated Emission | CISPR22/EN55022, CLASS B |
| EMS | Electrostatic Discharge | IEC/EN61000-4-2 ±6KV/8KV Perf. Criteria B |
| | Radiation Immunity | IEC/EN61000-4-3 10V/m perf. Criteria A |
| | EFT | IEC/EN61000-4-4 ±2KV perf. Criteria B |
| | Surge Immunity | IEC/EN61000-4-5 ±1KV perf. Criteria B |
| | Conducted Disturbance immunity | IEC/EN61000-4-6 10 Vr.m.s perf. Criteria A |
| | Immunity for Power frequency magnetic field | IEC/EN61000-4-8 10A/m perf. Criteria A |
| | Immunities of voltage dip, drop and short interruption | IEC/EN61000-4-11 0%-70% perf. Criteria B |

Typical Applications PPM-Series

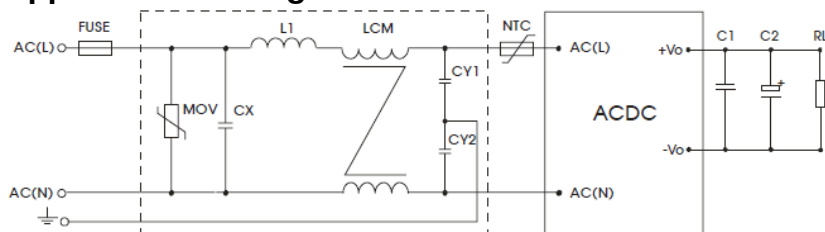


| Model | C1 (µF) | C2 (µF) |
|----------------|---------|---------|
| PPM05-E-3R3ELF | 1 | 220 |
| PPM05-E-05ELF | 1 | 220 |
| PPM05-E-09ELF | 1 | 100 |
| PPM05-E-12ELF | 1 | 100 |
| PPM05-E-15ELF | 1 | 100 |
| PPM05-E-24ELF | 1 | 47 |

Note:

Output filtering capacitor C2 is electrolytic capacitor, it is recommended to apply electrolytic capacitor with high frequency and low resistance. Capacitance withstand voltage derating should be 80% or above. C1 is ceramic capacitor, which is used to filter high-frequency noise. External input NTC is recommended to use 13D-5.

Applications for higher EMC



| Component | Recommended |
|-----------|----------------|
| MOV2 | S14K350 |
| CY1, CY2 | 1nF / 400VAC |
| CX | 0.1µF / 310VAC |
| L1 | 4.7µH / 2.0 A |
| LCM | 2.2mH |