

# PPM05-E-xxELF



## PPM-SERIES

Rev.04-2012

- ✓ **5 Watt**
- ✓ Univ. **85-264VAC** (110-370VDC)
- ✓ **Single Output**
- ✓ **Over Voltage Protection** (out)
- ✓ **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 – 264 VAC or 110 – 370 VDC universal	
Input Frequency	47 – 440 Hz	
Input (Inrush) Current	<u>110 VAC</u>	<u>230 VAC</u>
PPM05 models	110 mA (10A), typ.	70mA (20A), typ.
External Input Fuse (recommended)	1A / 250V	slow blow

### 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)	30mV pk-pk, typ
Short Circuit Protection	Continuous, auto resume
Over output voltage protection	Diode clamp

### Common Specifications

Temperature range	-25°C to +70 °C	
Power derating	2% / °C	
Case temperature	+95°C (max)	
Storage	-40°C to +105 °C	
Hold up Time	50mS, typ. (230VAC)	
Humidity (non condensing)	95%, max.	
Temperature Coefficient	0.02%/°C	
Switching Frequency	100kHz, typ	
I/O Isolation Voltage	4000VAC / 1min.	
Leakage current	None	
EMI / RFI conducted	EN55011, level A	
EMC compliance	ESD	IEC/EN 61000-4-2 ±15kV/±15kV
	RF	IEC/EN 61000-4-3 10V/m
	EFT / bursts	IEC/EN 61000-4-4 ±4kV
	Surge	IEC/EN 61000-4-5 ±2kV/±4kV
Safety Standards	IEC60601, EN60601	

Safety Class	CLASS 2
Case Material	UL94V-0 rated
Reliability Calculated MTBF (MIL-HDBK-217F)	> 300,000 hrs
Weight	~ 35g

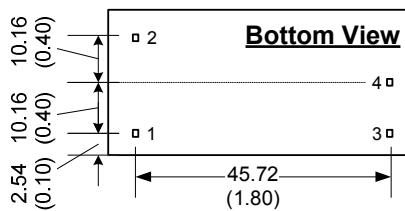
# Selection Guide

## Single Output

Order #	Power (W)	Output Voltage (Vdc)	Output Current Full Load (mA)	Efficiency (%)
<b>SINGLE OUTPUT</b>				
PPM05-E-3R3ELF	4.2	3.3	1250	66
PPM05-E-05ELF	5	5	1000	72
PPM05-E-09ELF	5	9	550	74
PPM05-E-12ELF	5	12	420	76
PPM05-E-15ELF	5	15	333	76
PPM05-E-24ELF	5.5	24	230	78

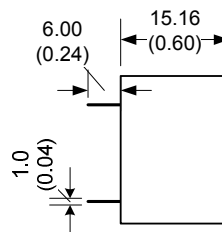
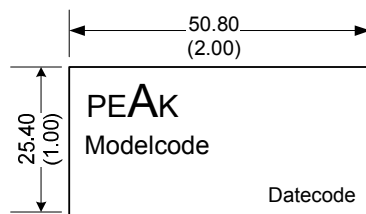
If you need other specifications, please enquire.

## Package / Pinning / Derating

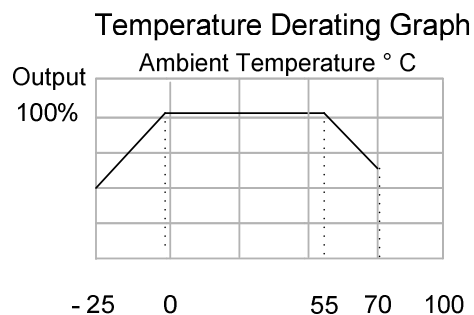


All dimensions are typical in millimeters (inches).  
 - Pin diameter: 0.5 +/-0.05 (0.02 +/-0.002)  
 - Pin pitch tolerance: +/-0.35 (+/-0.014)  
 - Case tolerance +/-0.5 (+/-0.02)  
 Specification may change without notice.

### 2" x 1" – PLASTIC CASE

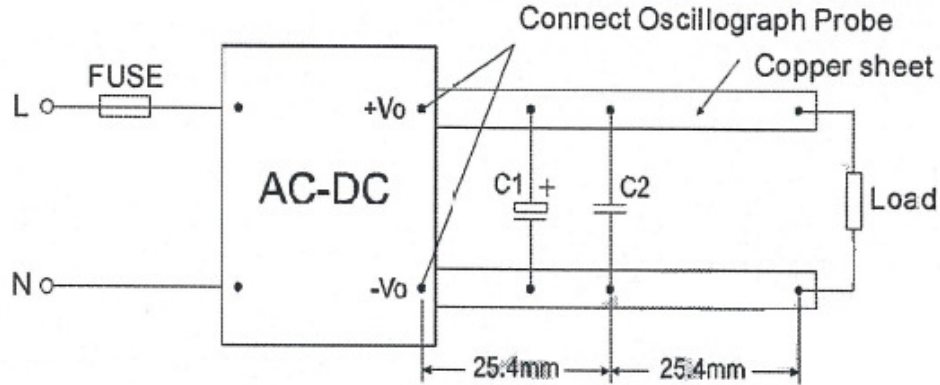


PIN CONNECTIONS	
#	SINGLE
1	AC (N)
2	AC (L)
3	+ Vout
4	- Vout

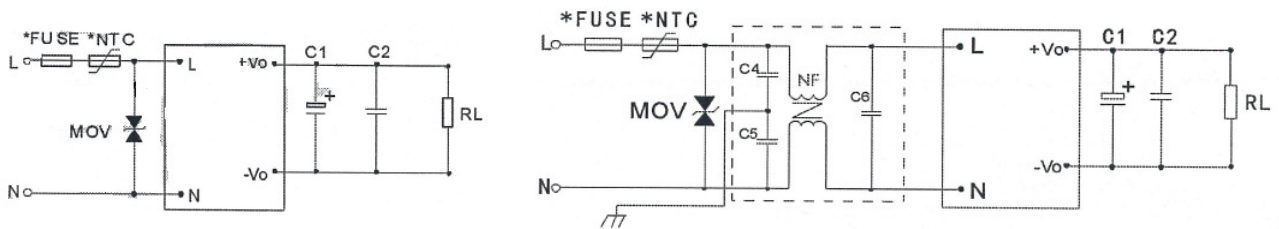


# App Notes:

## Measure



## Typical Applications PPM-Series



### External Typical Value

Model	C1	C2
PPM05-E-3R3ELF	47	0.1
PPM05-E-05ELF	47	0.1
PPM05-E-09ELF	33	0.1
PPM05-E-12ELF	33	0.1
PPM05-E-15ELF	33	0.1
PPM05-E-24ELF	10	0.1

### Note

1. Output filtering capacitors C1 and C3 are electrolytic capacitors, it is recommended to use high frequency and low impedance electrolytic capacitors. For capacitance and current of capacitor please refer to manufacture's datasheet. Voltage derating of capacitor should be 80% or above. C2 is ceramic capacitor, it is used to filter high frequency noise. TVS is a recommended component to protect post-circuits (if converter fails).
2. To protect the device from damage, external circuit is required to models at inrush and electrical fast transients experiment, MOV is required to PPM05 models, model: 471KD14; It is recommended to connect FUSE, the parameter for PPM05 models is 1A/250V slow blow. External input NTC is recommended to use 5D-14 or 10Ω/2W wire-round resistor.
3. If EMC performance is required, recommended to add "EMC filter" at the input end  
 C6:X capacitor, recommended parameter 0.1uF/275V;  
 C7,C8:Y capacitor, recommended parameter 2200pF/400V;  
 NF: common model choke, recommended inductance is about 10mH-30mH.