

# PPM10-E-xxELF



## PPM-SERIES

Rev.04-2012

- ✓ **10 Watt**
- ✓ Univ. **85-264VAC** (120-370VDC)
- ✓ **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 <b>or</b> 120 – 370 VDC universal	
Input Frequency	47 – 440 Hz	
Input (Inrush) Current	<u>110 VAC</u> 230 mA (10A), typ.	<u>230 VAC</u> 150mA (20A), typ.
External Input Fuse (recommended)	2A / 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)	50mV pk-pk, typ
Short Circuit Protection	Continuous, auto resume
Over current protection	> 110% Io

### 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	60kHz, typ		
I/O Isolation Voltage	4000VAC / 1min.		
Leakage current	0.1mA, typ		
EMI / RFI conducted	EN55011, level B		
EMC compliance	ESD	IEC/EN 61000-4-2	±15kV/±8kV
	RF	IEC/EN 61000-4-3	10V/m
	EFT / bursts	IEC/EN 61000-4-4	±4 kV
	Surge	IEC/EN 61000-4-5	±2kV/±4kV
Safety Standards	IEC60601, EN60601, UL60950		
Safety Approvals	EN60601, UL60950 (pending)		
Safety Class	CLASS 2		
Case Material	UL94V-0 rated		
Reliability Calculated MTBF (MIL-HDBK-217F)	> 300,000 hrs		
Weight	~ 50g		

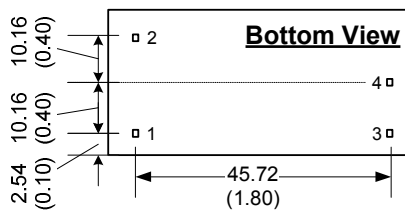
# Selection Guide

## Single Output

Order #	Power (W)	Output Voltage (Vdc)	Output Current Full Load (mA)	Efficiency (%)
<b>SINGLE OUTPUT</b>				
PPM10-E-3R3ELF	6.6	3.3	2000	70
PPM10-E-05ELF	10	5	2000	74
PPM10-E-09ELF	10	9	1100	76
PPM10-E-12ELF	10	12	900	76
PPM10-E-15ELF	10	15	700	78
PPM10-E-24ELF	10	24	450	80

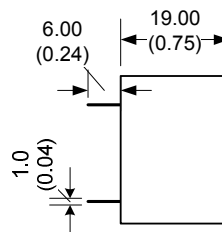
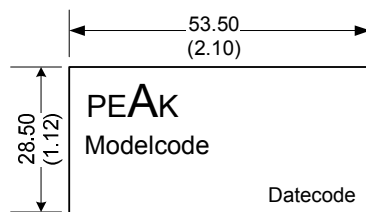
If you need other specifications, please enquire.

## Package / Pinning / Derating

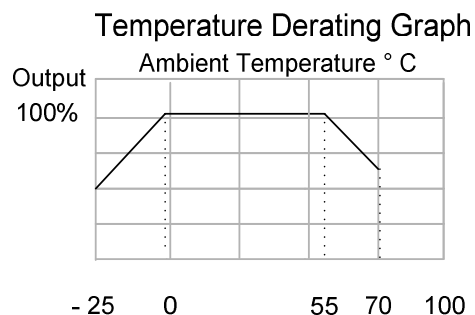


All dimensions are typical in millimeters (inches).  
 - Pin diameter: 1.0 +/-0.10 (0.04 +/-0.004)  
 - Pin pitch tolerance: +/-0.35 (+/-0.014)  
 - Case tolerance +/-0.5 (+/-0.02)  
 Specification may change without notice.

### 2" x 1" – PLASTIC CASE

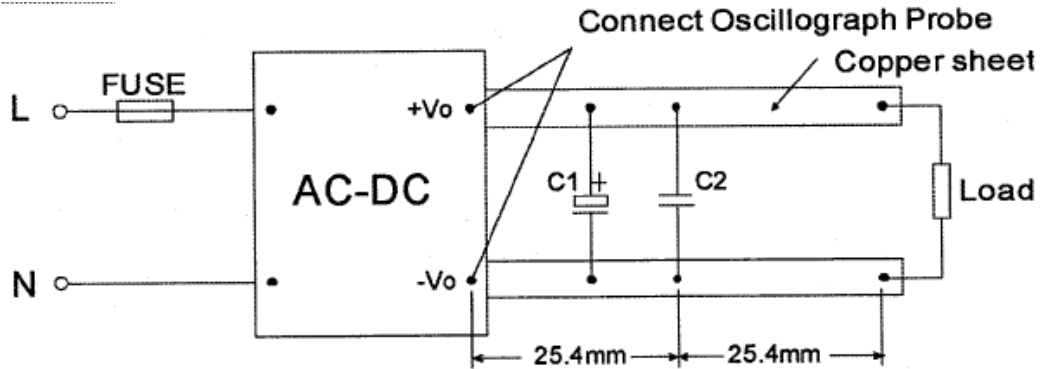


PIN CONNECTIONS	
#	SINGLE
1	AC (N)
2	AC (L)
3	+ Vout
4	- Vout



# App Notes:

## Measure



## Typical Applications PPM-Series

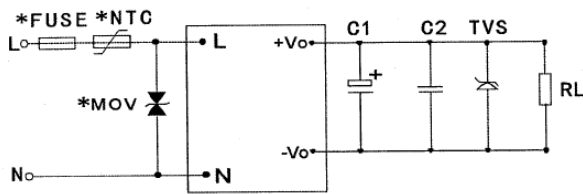


FIGURE 1

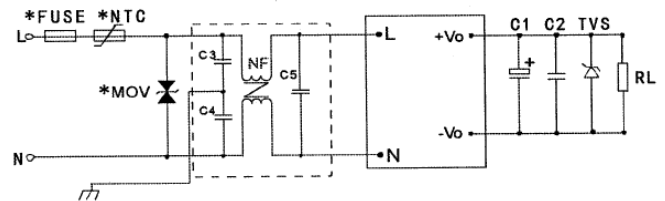


FIGURE 2

### External Typical Value

Model	C1	C2	TVS
PPM10-E-3.3ELF	220 $\mu$ F/10V	0.1 $\mu$ F/50V	P6KE6.8A
PPM10-E-05ELF	220 $\mu$ F/10V	0.1 $\mu$ F/50V	P6KE6.8A
PPM10-E-09ELF	120 $\mu$ F/25V	0.1 $\mu$ F/50V	P6KE12A
PPM10-E-12ELF	120 $\mu$ F/25V	0.1 $\mu$ F/50V	P6KE20A
PPM10-E-15ELF	120 $\mu$ F/25V	0.1 $\mu$ F/50V	P6KE20A
PPM10-E-24ELF	68 $\mu$ F/35V	0.1 $\mu$ F/50V	P6KE30A

### Note

- Output filtering capacitors C1 is 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).
- MOV is required for PPM10-E-xxELF models. Model 471KD05 is used to protect the device under surge.
- It is recommended to connect FUSE (2A/250V slow blow). External input NTC model is recommended to use (5D-9).
- If common requirement to EMC performance, refer to figure 1, if higher requirement to EMC performance, refer to figure 2.  
 C3,C4:Y capacitor, recommended parameter 2200pF/400V;  
 C5:X capacitor, recommended parameter 0.1uF/275V;  
 NF: common model choke, recommended inductance is about 10mH-30mH.