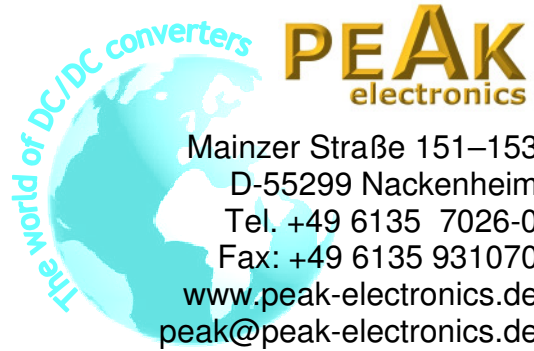


# PPM02-S-xxELF



## PPM-SERIES

Rev.12-2014

- ✓ **2 Watt**
- ✓ Univ. **85-305VAC** (120-430VDC)
- ✓ **Single Output**
- ✓ **Over Voltage Protection** (out)
- ✓ **3 kV AC I/O Isolation**
- ✓ **Low Ripple and Noise**
- ✓ **High Efficiency**

The PPM-Series is a compact size power converter 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, UL60950 and IEC60950, and Multi-certificate is in processing.

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 120 – 430 VDC universal	
Input Frequency	47 – 63 Hz	
Input (Inrush) Current	<u>115 VAC</u> 44 mA (5A, typ.)	<u>230 VAC</u> 25mA (11A, typ.)
External Input Fuse (recommended)	1A / 300V slow blow	

### Output Specifications

Voltage Accuracy	±5%, typ (±6% @3.3 Vout)
Line Regulation (at full load)	±2%
Load variation (10-100%)	±5%
Ripple and Noise (20Mhz bandwidth)	≤ 100mV pk-pk
Short Circuit Protection	Continuous, auto recovery

### Common Specifications

Temperature range	-25°C to +70 °C		
Power derating	3.3% / °C, min		
Storage	-40°C to +85 °C		
Humidity (non condensing)	95%, max.		
Switching Frequency	100kHz		
I/O Isolation Voltage	3000VAC / 1min.		
EMI / RFI conducted	EN55022, Class B		
EMC compliance	ESD	IEC/EN 61000-4-2 Contact±8KV/Air±8KV	perf. Criteria B
	RS	IEC/EN 61000-4-3 10V/m	perf. Criteria A
	EFT	IEC/EN 61000-4-4 ±2KV	perf. Criteria B
	Surge	IEC/EN 61000-4-5 ±1KV/±2KV	perf. Criteria B
	CS	IEC/EN 61000-4-6 10Vr.m.s	perf. Criteria A
	PFM	IEC/EN 61000-4-8 10A/m	perf. Criteria A
Voltage dips, short and interruptions immunity	IEC/EN 610004-11	0%-70%	perf. Criteria B

Safety Standards	IEC60950, EN60950, UL60950
Safety Class	CLASS 2
Case Material	UL94V-0 rated
Reliability Calculated MTBF (MIL-HDBK-217F)	> 300,000 hrs
Weight	~ 20g

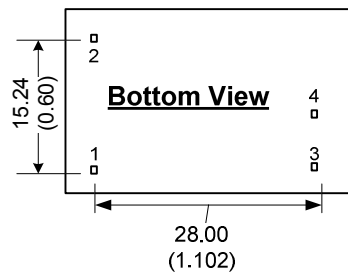
# Selection Guide

## Single Output

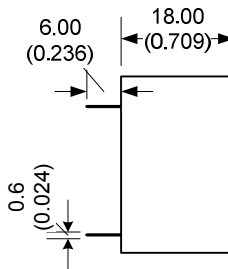
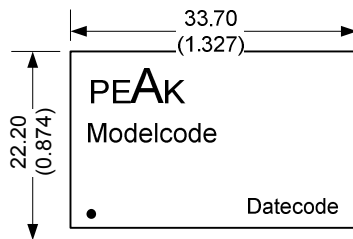
Order #	Power (W)	Output Voltage (Vdc)	Output Current Full Load (mA)	Capacitor Load $\mu\text{F}$ (max.)	Efficiency (%)
<b>SINGLE OUTPUT</b>					
PPM02-S-3R3ELF	2	3.3	600	4000	65
PPM02-S-05ELF	2	5	400	4000	70
PPM02-S-09ELF	2	9	222	2200	72
PPM02-S-12ELF	2	12	167	2200	76
PPM02-S-15ELF	2	15	133	1000	76
PPM02-S-24ELF	2	24	82	680	78

If you need other specifications, please enquire.

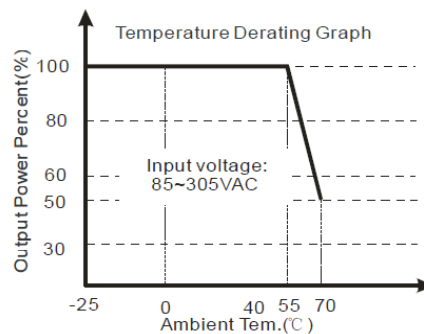
## Package / Pinning / Derating



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.

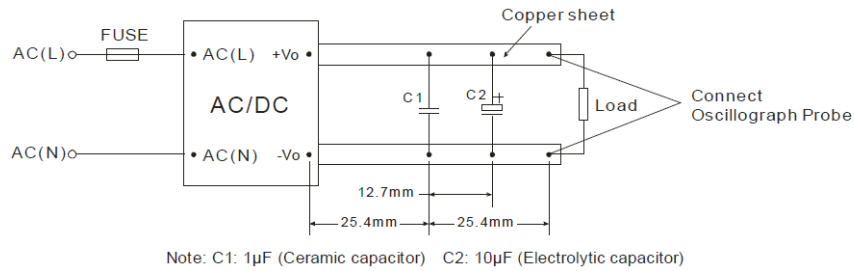


PIN CONNECTIONS	
#	SINGLE
1	AC (N)
2	AC (L)
3	- Vout
4	+ Vout

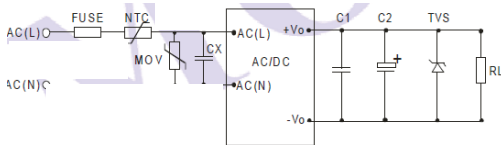


# App Notes:

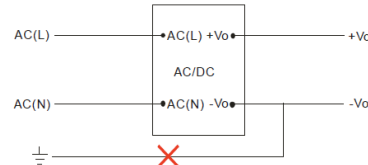
## Parallel Line Measure



## Typical Application

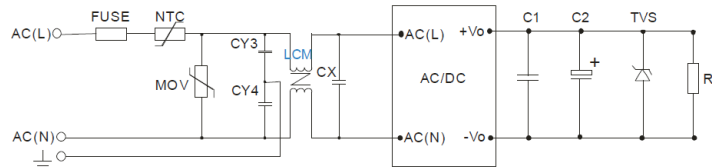


(Figure 1): Typical application circuit



(Figure 2): This application is not available for this series.

## EMC Recommended Circuit



(Figure 3): This recommended circuit above is available for higher EMC requirements.

EXTERNAL CAPACITORS TYPICAL VALUE(Unit: µF)				
Model	C1	C2	TVS	
PPM02-S-3R3ELF	1µF/50V	220	SMBJ7.0A	
PPM02-S-05ELF	1µF/50V	220	SMBJ7.0A	
PPM02-S-09ELF	1µF/50V	120	SMBJ12A	
PPM02-S-12ELF	1µF/50V	120	SMBJ20A	
PPM02-S-15ELF	1µF/50V	120	SMBJ20A	
PPM02-S-24ELF	1µF/50V	68	SMBJ30A	

Note:

1. C1 is ceramic capacitor, it is used to filter high frequency noise. C2 is electrolytic capacitor, 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. TVS is a recommended component to protect post-circuits (if converter fails).

2. For standard EMC requirement, please refer to figure 1. If higher EMC requirement, please refer to figure 3, recommended parameters are shown in the table below.

Recommend Parameter For Higher EMC Standard Circuit	
Components	Recommend Parameter
MOV	S14K350
CY3	2.2nF/400V
CY4	2.2nF/400V
CX	0.1µF/305VAC
LCM	10 mH
NTC	5D-9
FUSE	1A/300V, slow blow, it must be connected to FUSE