PPMxx-SIP-xxELF

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PPM-SIP-SERIES Rev.09-2013

- ✓ **1.65 - 3 Watt**
- ✓ Univ. **100-400VDC** / **85-264VAC***
- ✓ **Single** Output
- ✓ **Over Temperature Protection**
- ✓ **Short Circuit Protection**
- ✓ **2 kV** AC I/O Isolation
- ✓ **High Efficiency** / **Density**

The PPM-SIP-Series are high efficiency green power modules with miniature 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, as well as applications where no special requirement for EMC performance. It is recommended to add EMI suppression circuit or take measure to shield when there is strict requirement for EMC performance.

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

Input Specifications

Input Voltage Range	100 – 400 VDC **or** 85 – 264 VAC* universal
Input Current	40mA, typ.
External Input Fuse (recommended)	1A / 250V

**** Attention: For AC-Input a capacitor between PIN 7 and PIN 10 is needed!! (See page 3)***

Output Specifications

Voltage Accuracy	±2%
Input variation	±0.5%, typ.
Load variation (10-100%)	±1%, typ.
Ripple and Noise (20Mhz bandwidth)	
3.3 / 5 / 9 VDC models	≤ 100mV pk-pk (50mV pk-pk typ.)
12 VDC models	≤ 120mV pk-pk (60mV pk-pk typ.)
15 VDC models	≤ 150mV pk-pk (75mV pk-pk typ.)
24VDC models	≤ 240mV pk-pk (120mV pk-pk typ.)
Short Circuit Protection	Continuous, auto recovery
Over Temperature Protection	150℃, max.

Common Specifications

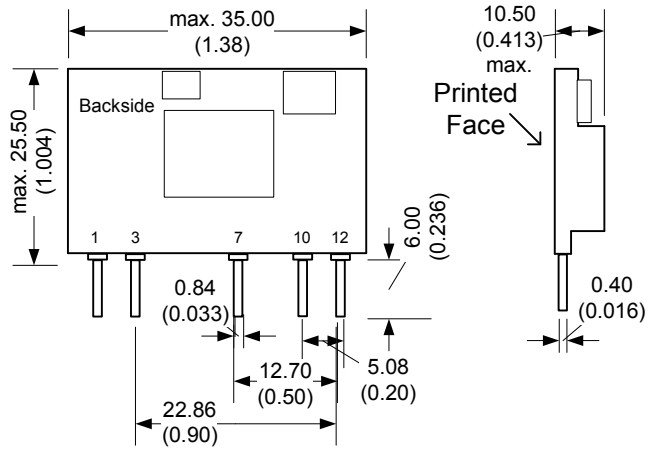
Temperature range	-40℃ to +85 ℃
Power derating	1.33% / ℃ (above 55℃)
Case temperature	+90℃, max.
Storage	-40℃ to +105 ℃
Humidity (non condensing)	85%, max.
Temperature Coefficient	0.02%/℃
Switching Frequency	100kHz, typ.
I/O Isolation Voltage	2000VAC / 1min.
Leakage current	None
Case Material	UL94V-0 rated
Reliability Calculated MTBF (MIL-HDBK-217F)	> 300,000 hrs

Selection Guide

Order #	Power (W)	Output Voltage (Vdc)	Output Current Full Load (mA)	Efficiency (%)
SINGLE OUTPUT				
PPM1.65-SIP-3R3ELF	1.65	3.3	500	70
PPM2.5-SIP-05ELF	2.5	5	500	70
PPM3-SIP-09ELF	3	9	330	75
PPM3-SIP-12ELF	3	12	250	78
PPM3-SIP-15ELF	3	15	200	78
PPM3-SIP-24ELF	3	24	125	78

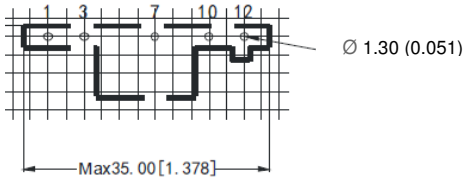
If you need other specifications, please enquire.

Package / Pinning / Derating

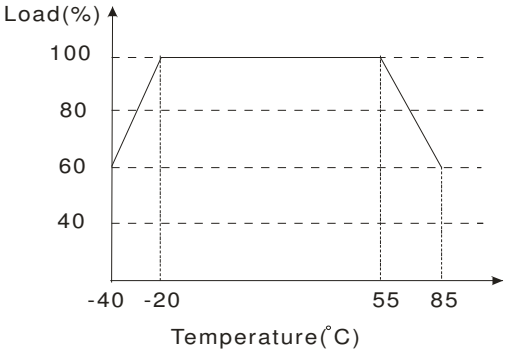


All dimensions are typical in millimeters (inches).
- Pin section tolerance: +/-0.10 (+/-0.004)
- Case tolerance +/-0.5 (+/-0.02)
Specification may change without notice.

SIP – AC/DC

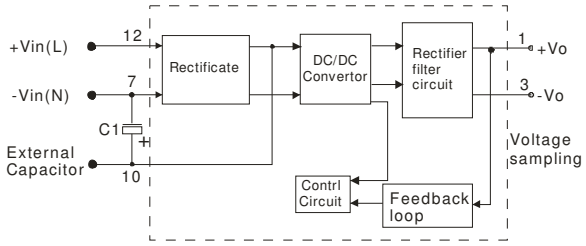


PIN CONNECTIONS	
#	SINGLE
1	+Vout
3	- Vout
7	- Vin
10	CAP
12	+Vin

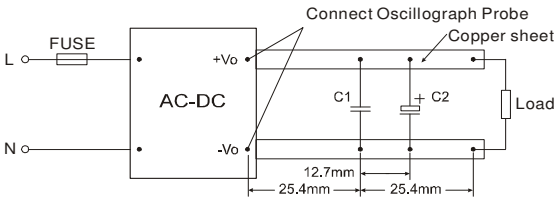


App Notes:

Structure Figure



Anear Measure



Note:
C1: 1μF (Ceramic capacitor)
C2: 10μF (Electrolytic capacitor)

Typical Application

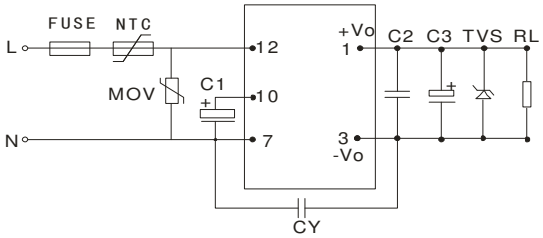


Fig. 1: Standard

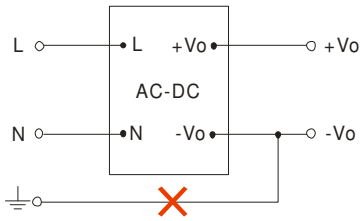


Fig. 2: This application is not supported for this Series.

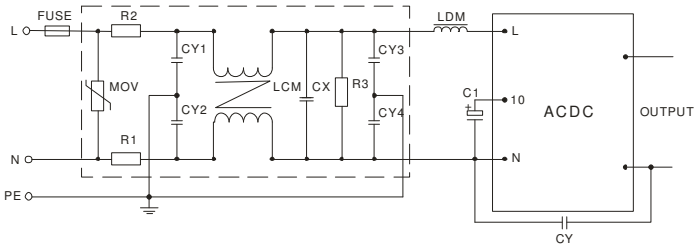


Fig. 3: PPM-SIP-Series Recommended circuit for application require higher EMC standard
(external circuit output same as above)

Attention: For AC-Input a capacitor (10uF/400V) between PIN 7 and PIN 10 is needed!!

External Capacitor Typical Value

Output Voltage	C1	C2	C3	FUSE	TVS
3.3V	10μF/400V	1μF/50V	150μF/25V	1A/250V	SMBJ7.0A
5V					
9V					SMBJ12A
12V					SMBJ20A
15V			100μF/35V		
24V					SMBJ30A

Note:

1. C1: **AC input**, is a filtering electrolytic capacitor, which is required when input voltage is below 100VAC, and the value of C1 is 22μF/400V. **DC input**, is a filtering capacitor in EMC Filter, the value of C1 is 10μF/400V (when input voltage is above 370VDC, and the value of C1 is 10μF/450V), If EMC performance is not required, C1 could not need.
2. C2 is ceramic capacitor, it is used to filter high frequency noise. Output filtering capacitor C3 (which is required by AC input or DC input) is recommended to use high frequency and low impedance electrolytic capacitors. Voltage derating of capacitor should be 80% or above. TVS is a recommended component to protect post-circuits (if converter fails).
3. Recommended external circuit parameters in Figure 3:
   MOV: Varistor, model: 561KD14，it is used to protect the device under surge;
   R1、R2：2Ω/3W Winding resistor；R3：1MΩ/2W；
   CY、CY1、CY2、CY3、CY4：102M/400VAC；CX：0.22μF/275VAC；
   LCM：10mH-30mH；LDM：300μH；
4. FUSE：1A/250V Slow-Blow