

PPMxx-X-xxZLF



PPM-SERIES

Rev.09-2013

- ✓ **5 - 20 Watt**
- ✓ Univ. **85-264VAC** and **50/60Hz**
- ✓ **Dual Output**
- ✓ **Overload Protection**
- ✓ **3 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. 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 – 264 VAC or 120 – 370 VDC universal	
Input Frequency	47 – 63 Hz	
Input (Inrush) Current	<u>110 VAC</u>	<u>230 VAC</u>
PPM05 models	120mA (10A), typ.	70mA (20A), typ.
PPM10 models	230mA (10A), typ.	120mA (20A), typ.
PPM15 models (5/12/15V)	250mA (10A), typ.	140mA (20A), typ.
PPM15 model (24V)	280mA (16A), typ.	160mA (30A), typ.
PPM20 models	330mA (16A), typ.	180mA (30A), typ.
External Input Fuse (recommended)		
PPM05 models	1A / 250V slow blow	
PPM10 / 15 models	2A / 250V slow blow	
PPM20 models	3.15A / 250V slow blow	

Output Specifications

Voltage Accuracy	±2% (main output)
Line Regulation	±0.5% (main output) ±1.5% (supplement output)
Load Regulation (10-100%)	±2% (Balanced load)
Minimum load	10%
Ripple and Noise (20Mhz bandwidth)	≤ 100mV pk-pk (main output)
Short Circuit Protection	Continuous, auto recovery
Over Current Protection	≥ 110% Io
Over output voltage protection	
5VDC models	≤7.5VDC
12 / 15VDC models	≤20VDC
24VDC models	≤30VDC

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Common Specifications

Temperature range	-40 °C to +70 °C
Power derating	3.75% / °C (above 55 °C)
Case temperature	+90 °C (max)
Storage	-40 °C to +105 °C
Hold up Time	80mS, typ. (230VAC)
Humidity (non condensing)	95%, max.
Temperature Coefficient	0.02%/°C (main output) 0.15%/°C (supplement output)
Switching Frequency	150kHz, max.
I/O Isolation Voltage	3000VAC / 1min.
Leakage current	0.3mA RMS typ. (230VAC / 50Hz)
EMI / RFI conducted	EN55022, level B
EMC compliance	ESD IEC/EN 61000-4-2 level 3 6KV/8KV RF IEC/EN 61000-4-3 EFT / bursts IEC/EN 61000-4-4 level 3 2KV Surge IEC/EN 61000-4-5 level 3 1KV / 2KV
Safety Standards	IEC60950, EN60950, UL60950
Safety Approvals*	EN60950, IEC60950, UL60950
Safety Class	CLASS 1
Case Material	UL94V-0 rated
Reliability Calculated MTBF (MIL-HDBK-217F)	> 300,000 hrs
Weight	50g (PPM05) 70g (PPM10) 80g (PPM15) 120g (PPM20)

*pending for PPM15-C-24ZLF

Notes:

Selection Guide

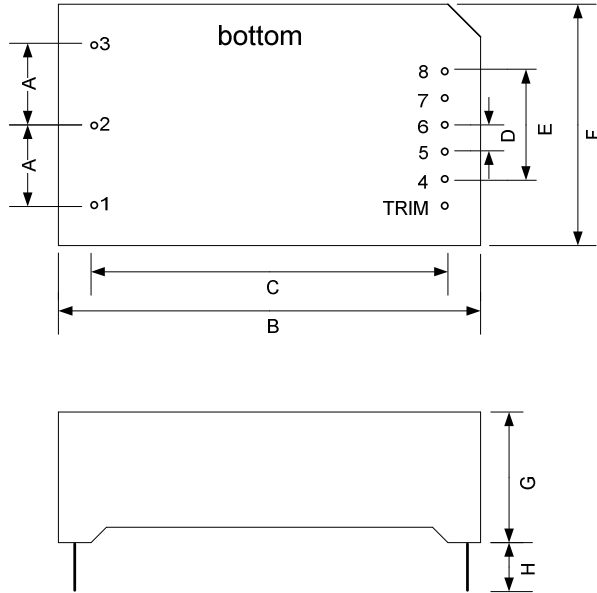
Dual Output

Order #	Power (W)	Output Voltage (Vdc)	Output Current Full Load (mA)	Efficiency (%)
DUAL OUTPUT				
PPM05-A-05ZLF	5	± 5	± 500	75
PPM05-A-12ZLF	5	± 12	± 210	79
PPM05-A-15ZLF	5	± 15	± 160	79
PPM05-A-24ZLF	5	± 24	± 100	80
PPM10-B-05ZLF	10	± 5	± 1000	76
PPM10-B-12ZLF	10	± 12	± 450	80
PPM10-B-15ZLF	10	± 15	± 350	81
PPM10-B-24ZLF	10	± 24	± 200	84
PPM15-C-05ZLF	15	± 5	± 1500	76
PPM15-C-12ZLF	15	± 12	± 650	81
PPM15-C-15ZLF	15	± 15	± 500	83
PPM15-C-24ZLF	15	± 24	± 310	80
PPM20-D-05ZLF	20	± 5	± 2000	75
PPM20-D-12ZLF	20	± 12	± 830	82
PPM20-D-15ZLF	20	± 15	± 650	83

If you need other specifications, please enquire.

Notes:

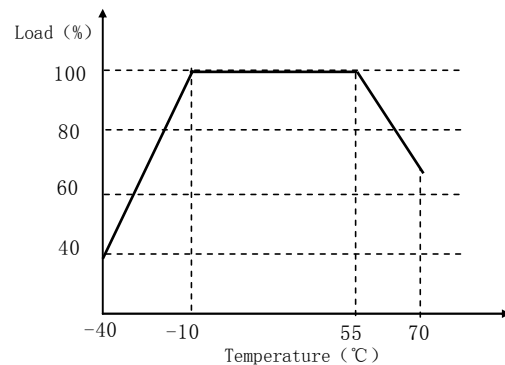
Package / Pinning / Derating



No.	PPM05-A	No.	PPM10-B
A	12.5	A	17.5
B	48.5	B	55.0
C	40.5	C	47.0
D	4.0	D	5.0
E	16.0	E	20.0
F	36.0	F	45.0
G	20.5	G	20.5
H	min. 6.0	H	min. 6.0

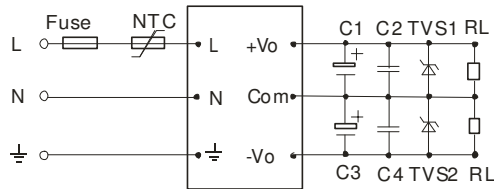
No.	PPM15-C	No.	PPM20-D
A	17.5	A	20.0
B	62.0	B	70.0
C	54.0	C	62.0
D	5.0	D	5.75
E	20.0	E	23.0
F	48.0	F	48.0
G	22.5	G	23.5
H	min. 6.0	H	min. 6.0

PIN CONNECTIONS	
#	DUAL
1	Ground
2	AC (N)
3	AC (L)
4	- Vout
5	No Pin
6	Common
7	No Pin
8	+Vout
TRIM	No Pin



App Notes:

Typical Application



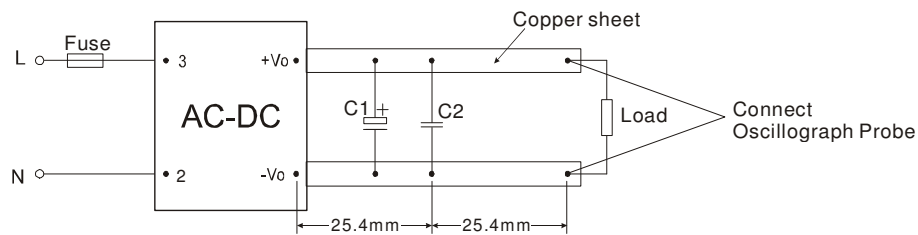
Remark:

1. Output filtering capacitors C1, C2 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, C4, C6 are used to filter high frequency noise. TVS is a recommended component to protect post-circuits (if converter fails).
2. External input NTC is recommended to use 5D-9 (Only PPM10 models and PPM15 models)

EXTERNAL CAPACITORS TYPICAL VALUE (μF)

MODEL	C1	C3
PPM05-A-05ZLF	120	120
PPM05-A-12ZLF	68	68
PPM05-A-15ZLF	47	47
PPM05-A-24ZLF	10	10
PPM10-B-05ZLF	220	220
PPM10-B-12ZLF	120	120
PPM10-B-15ZLF	47	47
PPM10-B-24ZLF	33	33
PPM15-C-05ZLF	470	470
PPM15-C-12ZLF	220	220
PPM15-C-15ZLF	120	120
PPM20-D-05ZLF	470	470
PPM20-D-12ZLF	120	120
PPM20-D-15ZLF	68	68

Parallel Lines Measure



Notes: