

P42WG-xxxxE/Z4:1LF



PM7W-SERIES

Rev.10-2014

- ✓ 10 Watt
- ✓ 4:1 Ultra Wide Input
- ✓ 2" x 1" Case
- ✓ 1.5 kV DC I/O Isolation
- ✓ Regulated Output
- ✓ Single and Dual Output
- ✓ Continuous Short Circuit Prot.

The PM7W series P42WG-xxxxE/Z4:1LF is a family of cost effective 10 W, single & dual output DC-DC converters with an ultra wide input range of 4:1. These converters are encapsulated in nickel coated brass 2"x1" case with high performance features: 1500VDC input/output isolation voltage, continuous short circuit protection with automatic restart and tight line / load regulation, high efficiency operation and output voltage accuracy of $\pm 1\%$ maximum.

All specifications typical at $T_a=25^\circ\text{C}$, nominal input voltage and full load unless otherwise specified

Input Specifications

Voltage Range	4:1 Ultra Wide Input (See Table)
Input Filter	PI Type
Input Reflected Ripple Current ¹	35 mA pk-pk
Start up Time (Nom. V_{in} and constant resistive load)	20mS, typ.

Output Specifications

Voltage Accuracy	$\pm 1\%$
Short Circuit Protection	Indefinite (Automatic Recovery)
Over Current Protection	140% of max. I_{out}
Line Regulation	$\pm 0.5\%$
Load Regulation (10% - 100%)	$\pm 0.5\%$ (10% - 100% load) $\pm 1.0\%$ (< 10% load)
Cross Regulation (Dual Output) ³	$\pm 5\%$
Ripple and Noise (20Mhz bandwidth)	75 mV pk-pk
Temperature Coefficient	$\pm 0.02\% / ^\circ\text{C}$

General Specifications

Efficiency	See Table
I/O Isolation Voltage (3 sec.)	1500 VDC
I/O Isolation Capacitance	1200 pF, typ.
I/O Isolation Resistance	1000 M Ohm
Switching Frequency	300 kHz, typ.
Humidity	95% rel H
Reliability Calculated MTBF (MIL-HDBK-217F)	> 1.121 Mhrs

Physical Specifications

Case Material	Nickel Coated Brass
Potting Material	Epoxy (UL94V-0 rated)
Weight	~ 30g, typ.

Environment Specifications

Operating Temperature	-40 to +85°C (ambient)
Maximum Case Temperature	100°C
Storage Temperature	-40 to +125°C
Cooling	Free Air Convection
RoHS Conform	Soldering 260°C, max. (1.5mm from case 10s.)

Selection Guide

Single and Dual Output

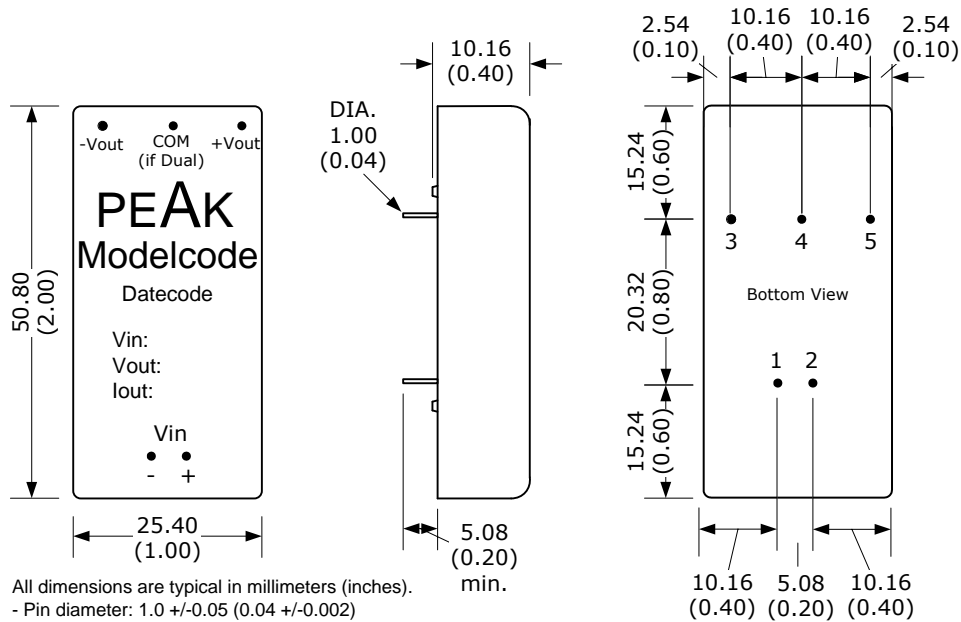
Order #	Input Voltage (VDC)	Input Current No Load (mA)	Input Current Full Load (mA)	Output Voltage (VDC)	Output Current Min. Load (mA)	Output Current Full Load (mA)	Efficiency (%)	Capacitor Load (uF) ²
SINGLE OUTPUT								
P42WG-243R3E4:1LF	9-36	25	348	3.3	0	2000	80	3300
P42WG-2405E4:1LF	9-36	25	508	5	0	2000	82	3300
P42WG-247R2E4:1LF	9-36	25	502	7.2	0	1388	83	1000
P42WG-2409E4:1LF	9-36	25	502	9	0	1111	83	680
P42WG-2412E4:1LF	9-36	25	490	12	0	833	85	680
P42WG-2415E4:1LF	9-36	25	490	15	0	666	85	470
P42WG-2424E4:1LF	9-36	25	496	24	0	416	84	330
P42WG-483R3E4:1LF	18-72	20	174	3.3	0	2000	79	3300
P42WG-4805E4:1LF	18-72	20	254	5	0	2000	82	3300
P42WG-487R2E4:1LF	18-72	20	251	7.2	0	1388	83	1000
P42WG-4809E4:1LF	18-72	20	251	9	0	1111	83	680
P42WG-4812E4:1LF	18-72	20	245	12	0	833	85	680
P42WG-4815E4:1LF	18-72	20	245	15	0	666	85	470

DUAL OUTPUT								
P42WG-2405Z4:1LF	9-36	25	508	± 5	0	± 1000	82	± 2200
P42WG-247R2Z4:1LF	9-36	25	502	± 7.2	0	± 694	83	± 470
P42WG-2409Z4:1LF	9-36	25	502	± 9	0	± 555	83	± 470
P42WG-2412Z4:1LF	9-36	25	490	± 12	0	± 416	85	± 470
P42WG-2415Z4:1LF	9-36	25	490	± 15	0	± 333	85	± 330
P42WG-4805Z4:1LF	18-72	20	254	± 5	0	± 1000	82	± 2200
P42WG-487R2Z4:1LF	18-72	20	251	± 7.2	0	± 694	83	± 470
P42WG-4809Z4:1LF	18-72	20	251	± 9	0	± 555	83	± 470
P42WG-4812Z4:1LF	18-72	20	245	± 12	0	± 416	85	± 470
P42WG-4815Z4:1LF	18-72	20	245	± 15	0	± 333	85	± 330

If you need other specifications, please enquire.

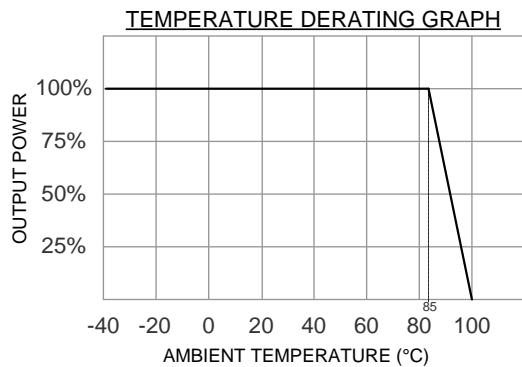
Notes:

Package / Pinning / Derating



All dimensions are typical in millimeters (inches).
 - Pin diameter: 1.0 +/-0.05 (0.04 +/-0.002)
 - Pin pitch tolerance: +/-0.35 (+/-0.014)
 - Case tolerance +/-0.5 (+/-0.02)
 Specification may change without notice.

2" x 1" – METAL CASE



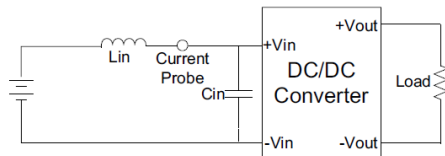
PIN CONNECTIONS		
#	SINGLE	DUAL
1	+Vin	+Vin
2	- Vin	- Vin
3	+Vout	+Vout
4	Omitted	Common
5	- Vout	- Vout

App Notes

Test Configurations

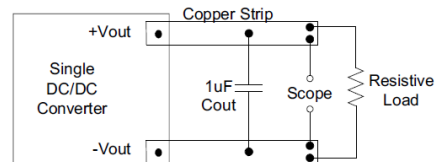
Input Reflected Ripple Current Test Step

Input reflected ripple current is measured through a source inductor L_{in} (12uH) and a source capacitor C_{in} (47uF, ESR<1.0Ω at 100KHz) at nominal input and full load.



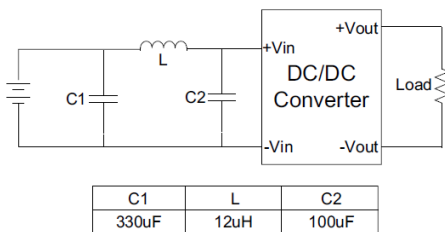
Output Ripple & Noise Measurement Test

Use a capacitor C_{out} (1.0uF) measurement. The Scope measurement bandwidth is 0-20MHz.



EMI Filter

Input Filter Components ($C1$, $C2$, L) are used to help meet conducted emissions requirement for the module. These components should be mounted as close as possible to the module; and all leads should be minimized to decrease radiated noise.



EMC SPECIFICATIONS		
Radiated Emissions	EN 55022	CLASS A
Conducted Emissions	EN 55022	CLASS A
ESD	IEC 61000-4-2	Perf. Criteria B
RS	IEC 61000-4-3	Perf. Criteria A
EFT	IEC 61000-4-4	Perf. Criteria A
Surge ⁴	IEC 61000-4-5	Perf. Criteria A
CS	IEC 61000-4-6	Perf. Criteria A
PFMF	IEC 61000-4-8	Perf. Criteria A

App Notes:

¹ = Measured Input reflected ripple current with a simulated source inductance of 12uH.

² = Tested by minimal V_{in} and constant resistive load.

³ = One load is 25% to 100% load, the other load is 100% load, the output voltage variable rate is within $\pm 5\%$.

⁴ = An external filter capacitor is required if the module has to meet IEC 61000-4-4 and IEC 61000-4-5.