

# P44WG-xxxxE/Z2:1(H35)LF



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## PM7-SERIES

Rev.03-2009

- ✓ 12 Watt
- ✓ 2:1 Wide Input
- ✓ 2" x 1" Case
- ✓ 1.5 - 3.5 kV DC I/O Isolation
- ✓ Regulated Output
- ✓ **Single** and **Dual** Output
- ✓ Continuous Short Circuit Prot.

The PM7 series P44WG-xxxxE/Z2:1(H35)LF is a family of cost effective 12W, single & dual output DC-DC converters with a wide input range of 2:1. These converters are encapsulated in nickel coated brass 2"x1" case with high performance features: 1500VDC up to 3500VDC 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	2:1 Wide Input (See Table)
Input Filter	Capacitors
Input Reflected Ripple Current <sup>1</sup>	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 <sub>out</sub>
Line Regulation	$\pm 0.5\%$
Load Regulation (10% - 100%)	$\pm 0.5\%$
Ripple and Noise (20Mhz bandwidth)	100 mV pk-pk
Temperature Coefficient	$\pm 0.02\% / ^\circ\text{C}$

### General Specifications

Efficiency	See Table
I/O Isolation Voltage (3 sec.)	1500 VDC (3000 VDC optional)*
I/O Isolation Capacitance	470 pF, typ.
I/O Isolation Resistance	1000 M Ohm
Switching Frequency	200 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 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) <sup>2</sup>
<b>SINGLE OUTPUT</b>								
P44WG-123R3E2:1LF	9-18	30	835	3.3	240	2400	79	3300
P44WG-1205E2:1LF	9-18	30	1219	5	240	2400	82	3300
P44WG-127R2E2:1LF	9-18	30	1204	7.2	166	1666	83	2200
P44WG-1209E2:1LF	9-18	30	1204	9	133	1333	83	1000
P44WG-1212E2:1LF	9-18	30	1190	12	100	1000	84	1000
P44WG-1215E2:1LF	9-18	30	1190	15	80	800	84	680
P44WG-1218E2:1LF	9-18	30	1176	18	66	666	85	470
P44WG-1224E2:1LF	9-18	30	1176	24	50	500	85	470
P44WG-243R3E2:1LF	18-36	25	417	3.3	240	2400	79	3300
P44WG-2405E2:1LF	18-36	25	609	5	240	2400	82	3300
P44WG-247R2E2:1LF	18-36	25	602	7.2	166	1666	83	2200
P44WG-2409E2:1LF	18-36	25	595	9	133	1333	84	1000
P44WG-2412E2:1LF	18-36	25	595	12	100	1000	84	1000
P44WG-2415E2:1LF	18-36	25	588	15	80	800	85	680
P44WG-2418E2:1LF	18-36	25	588	18	66	666	85	470
P44WG-2424E2:1LF	18-36	25	581	24	50	500	86	470
P44WG-483R3E2:1LF	36-72	20	208	3.3	240	2400	79	3300
P44WG-4805E2:1LF	36-72	20	301	5	240	2400	83	3300
P44WG-487R2E2:1LF	36-72	20	301	7.2	166	1666	83	2200
P44WG-4809E2:1LF	36-72	20	297	9	133	1333	84	1000
P44WG-4812E2:1LF	36-72	20	297	12	100	1000	84	1000
P44WG-4815E2:1LF	36-72	20	297	15	80	800	84	680
P44WG-4818E2:1LF	36-72	20	294	18	66	666	85	470
P44WG-4824E2:1LF	36-72	20	294	24	50	500	86	470

If you need other specifications, please enquire.

**\* For optional 3.5kV DC I/O Isolation, please add "H35" before LF!**

→ Example: P44WG-2409E2:1H35LF for 3.5kV

Notes:

# Selection Guide

## 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) <sup>2</sup>
<b>DUAL OUTPUT</b>								
P44WG-123R3Z2:1LF	9-18	30	835	± 3.3	± 120	± 1200	79	± 1000
P44WG-1205Z2:1LF	9-18	30	1219	± 5	± 120	± 1200	82	± 1000
P44WG-127R2Z2:1LF	9-18	30	1204	± 7.2	± 83	± 833	83	± 680
P44WG-1209Z2:1LF	9-18	30	1190	± 9	± 66	± 666	84	± 470
P44WG-1212Z2:1LF	9-18	30	1190	± 12	± 50	± 500	84	± 470
P44WG-1215Z2:1LF	9-18	30	1176	± 15	± 40	± 400	85	± 330
P44WG-1218Z2:1LF	9-18	30	1176	± 18	± 33	± 333	85	± 220
P44WG-1224Z2:1LF	9-18	30	1176	± 24	± 25	± 250	85	± 220
P44WG-243R3Z2:1LF	18-36	25	417	± 3.3	± 120	± 1200	79	± 1000
P44WG-2405Z2:1LF	18-36	25	609	± 5	± 120	± 1200	82	± 1000
P44WG-247R2Z2:1LF	18-36	25	602	± 7.2	± 83	± 833	83	± 680
P44WG-2409Z2:1LF	18-36	25	602	± 9	± 66	± 666	83	± 470
P44WG-2412Z2:1LF	18-36	25	595	± 12	± 50	± 500	84	± 470
P44WG-2415Z2:1LF	18-36	25	595	± 15	± 40	± 400	84	± 330
P44WG-2418Z2:1LF	18-36	25	588	± 18	± 33	± 333	85	± 220
P44WG-2424Z2:1LF	18-36	25	588	± 24	± 25	± 250	85	± 220
P44WG-483R3Z2:1LF	36-72	20	208	± 3.3	± 120	± 1200	79	± 1000
P44WG-4805Z2:1LF	36-72	20	304	± 5	± 120	± 1200	82	± 1000
P44WG-487R2Z2:1LF	36-72	20	297	± 7.2	± 83	± 833	84	± 680
P44WG-4809Z2:1LF	36-72	20	297	± 9	± 66	± 666	84	± 470
P44WG-4812Z2:1LF	36-72	20	294	± 12	± 50	± 500	85	± 470
P44WG-4815Z2:1LF	36-72	20	294	± 15	± 40	± 400	85	± 330
P44WG-4818Z2:1LF	36-72	20	290	± 18	± 33	± 333	86	± 220
P44WG-4824Z2:1LF	36-72	20	290	± 24	± 25	± 250	86	± 220

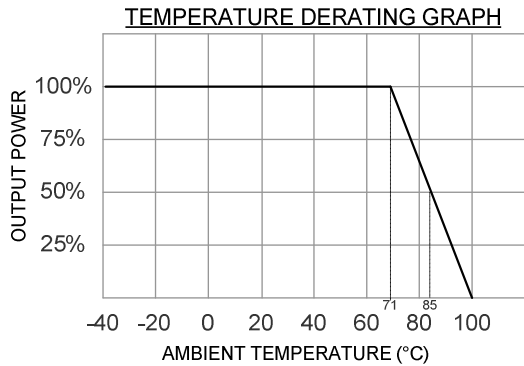
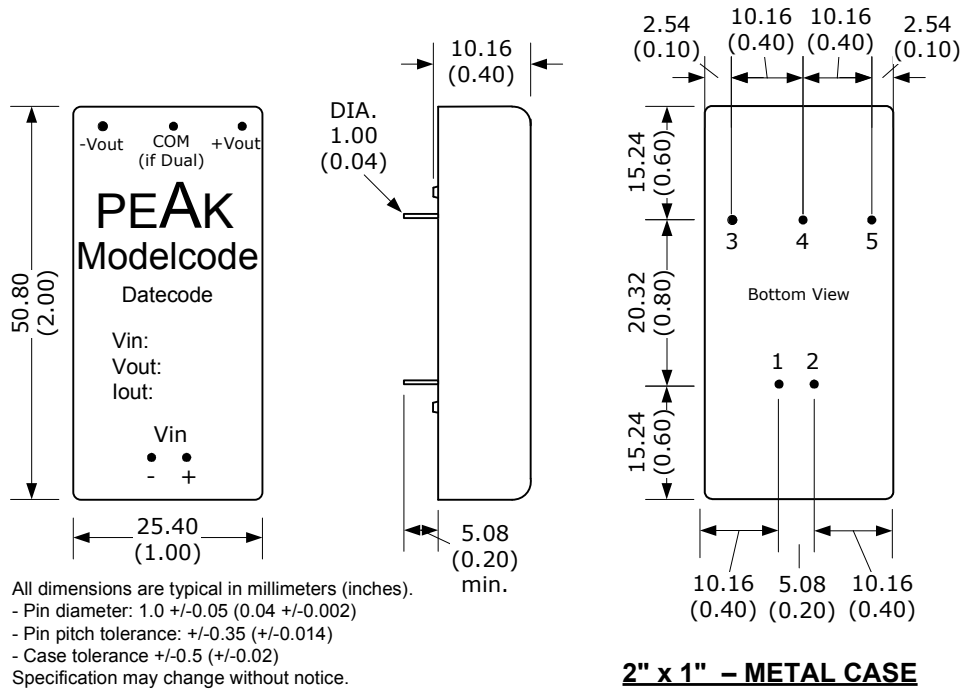
If you need other specifications, please enquire.

**\* For optional 3.5kV DC I/O Isolation, please add “H35” before LF!**

→ Example: P44WG-2409Z2:1H35LF for 3.5kV

Notes:

# Package / Pinning / Derating



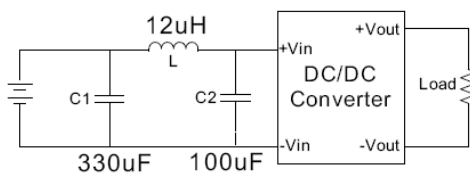
PIN CONNECTIONS		
#	SINGLE	DUAL
1	+Vin	+Vin
2	- Vin	- Vin
3	+Vout	+Vout
4	Omitted	Common
5	- Vout	- Vout

same Pinning for 3.5 kV Isolation

## App Notes:

- <sup>1</sup> = Measured Input reflected ripple current with a simulated source inductance of 12uH.
- <sup>2</sup> = Tested by minimal Vin and constant resistive load.

- Operation under no-load conditions will not damage these devices, but they will not observe the listed specifications.
- Suggest adding input external filter ( C1 , C2 , L ) to meet conducted emissions (En55022 class A).



EMC SPECIFICATIONS		
Radiated Emissions	EN 55022 FCC 47CFR Part 15/A	CLASS A CLASS A
ESD	IEC 61000-4-2	Perf. Criteria B
RS	IEC 61000-4-3	Perf. Criteria A