

P48WG-xxxxE/Z2:1LF



PM8-SERIES

Rev.10-2010

- ✓ 20 Watt
- ✓ **2:1 Wide Input**
- ✓ Regulated Output
- ✓ **Single and Dual Output**
- ✓ **1.5 kV DC I/O Isolation**
- ✓ **2" x 1" Case**
- ✓ Over Voltage Protection

The PM8 series is a family of cost effective 20 W, single & dual output DC/DC converters with a wide 2:1 Input. These converters are encapsulated in nickel coated copper 2"x1" case with high performance technology like active clamp, high efficiency operation and output voltage accuracy of $\pm 1\%$ maximum. Precise controlled design provides tight line / load regulation

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	PI Type
Input Reflected Ripple Current ¹	20 mA pk-pk
Start up Time (Nom. V_{in} and constant resistive load)	20mS, typ.

Output Specifications

Voltage Accuracy	$\pm 1\%$
Adjustability (Trim) (Only Single-out Models)	$\pm 10\%$, max
Short Circuit Protection	Indefinite (hiccup; Automatic Recovery)
Over Current Protection	140% of FL, typ.
Line Regulation	$\pm 0.5\%$
Load Regulation (0% - 100%)	$\pm 0.5\%$ (Single-out) $\pm 1.0\%$ (Dual-out)
Cross Regulation ² (dual output)	$\pm 5\%$
Ripple and Noise (20Mhz bandwidth)	75 mV pk-pk
Temperature Coefficient	$\pm 0.02\%$ / $^\circ\text{C}$
Transient Recovery Time ³	250us, typ.
Transient Response Deviation ³	$\pm 3\%$, max.

General Specifications

I/O Isolation Voltage (3 sec.)	1500 VDC
I/O Isolation Capacitance	1200 pF, typ.
I/O Isolation Resistance	1000 MOhm
Switching Frequency	330 kHz, typ.
Humidity	95% rel H
Reliability Calculated MTBF (MIL-HDBK-217F)	> 684 khrs

Physical Specifications

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

Environment Specifications

Operating Temperature	-40 to +70 $^\circ\text{C}$ (ambient)
Maximum Case Temperature	100 $^\circ\text{C}$
Storage Temperature	-40 to +125 $^\circ\text{C}$
Cooling	Free Air Convection
RoHS Conform	Soldering 260 $^\circ\text{C}$, max. (1.5mm from case 10s.)

Selection Guide

Single and Dual Output

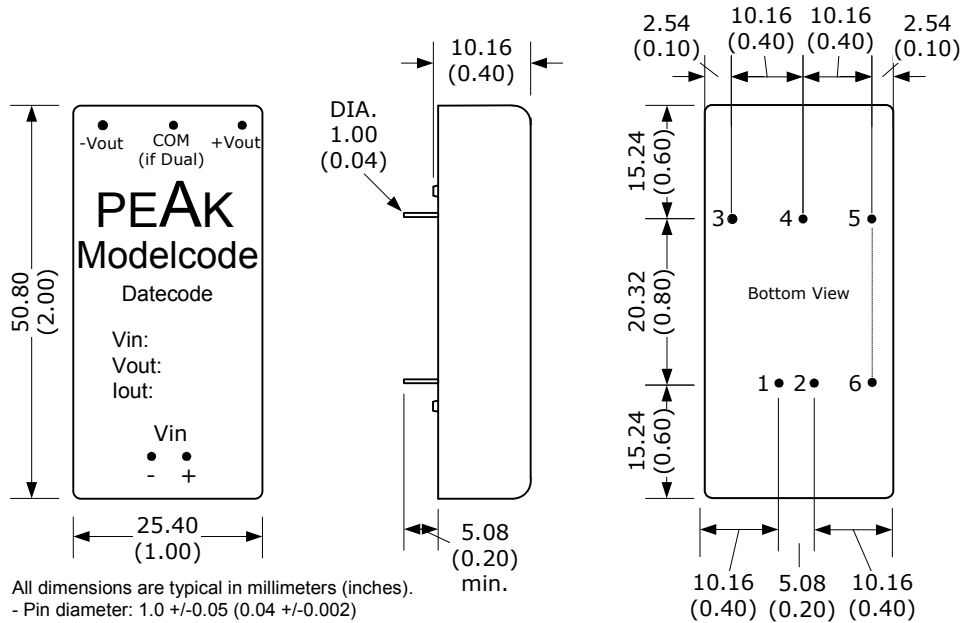
Order #	Input Voltage (VDC)	Input Current No Load (mA)	Input Current Full Load (mA)	Output Voltage (VDC)	Output Current Min. Load (mA)	Output Current Full Load (mA)	Efficiency (%)	Capacitor Load (uF)*
SINGLE OUTPUT								
P48WG-123R3E2:1LF	9-18	60	1738	3.3	0	5500	90	10000
P48WG-1205E2:1LF	9-18	60	1872	5	0	4000	92	6800
P48WG-1212E2:1LF	9-18	30	1915	12	0	1670	90	1000
P48WG-1215E2:1LF	9-18	30	1915	15	0	1330	90	680
P48WG-243R3E2:1LF	18-36	35	859	3.3	0	5500	91	10000
P48WG-2405E2:1LF	18-36	35	926	5	0	4000	93	6800
P48WG-2412E2:1LF	18-36	25	946	12	0	1670	91	1000
P48WG-2415E2:1LF	18-36	25	947	15	0	1330	91	680
P48WG-2418E2:1LF	18-36	25	957	18	0	1110	87	470
P48WG-483R3E2:1LF	36-72	25	425	3.3	0	5500	91	10000
P48WG-4805E2:1LF	36-72	25	463	5	0	4000	93	6800
P48WG-4812E2:1LF	36-72	15	473	12	0	1670	91	1000
P48WG-4815E2:1LF	36-72	15	473	15	0	1330	91	680

DUAL OUTPUT								
P48WG-1212Z2:1LF	9-18	30	1937	± 12	0	± 835	89	± 470
P48WG-1215Z2:1LF	9-18	30	1937	± 15	0	± 665	89	± 330
P48WG-2412Z2:1LF	18-36	30	957	± 12	0	± 835	90	± 470
P48WG-2415Z2:1LF	18-36	30	957	± 15	0	± 665	90	± 330
P48WG-4812Z2:1LF	36-72	20	478	± 12	0	± 835	90	± 470
P48WG-4815Z2:1LF	36-72	20	484	± 15	0	± 665	89	± 330

If you need other specifications, please enquire.

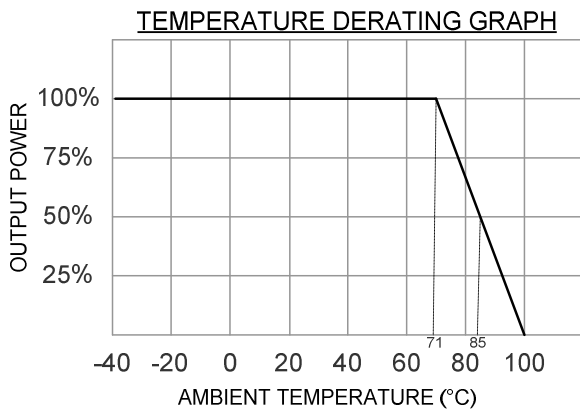
Notes:

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.

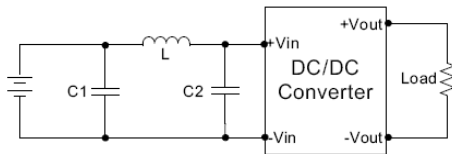
2" x 1" – METAL CASE



PIN CONNECTIONS		
#	SINGLE	DUAL
1	+Vin	+Vin
2	- Vin	- Vin
3	+Vout	+Vout
4	Trim	Common
5	- Vout	- Vout
6	Ctrl.	Ctrl.

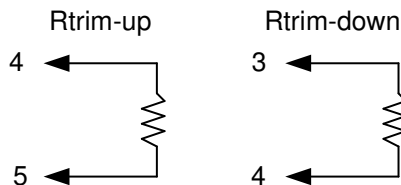
App Notes

- 1 = Measured Input reflected ripple current with a simulated source inductance of 12uH.
- 2 = One load is 25% to 100% load, the other load is 100% load, the output voltage variable rate is within ±5%.
- 3 = Tested by nominal Vin and 25% load step change (75% - 50% - 25% of Io)
- 4 = Tested by minimal Vin and constant resistive load.
- 5 = Input filter components (C1, L) are used to help meet conducted emissions requirement for the module. These components should be mounted as close as possible to the module; all leads should be minimized to decrease radiated noise.
- 6 = An external filter capacitor is required if the module has to meet EN61000-4-4 and EN61000-4-5



Part #	C1	C2	L
P48WG-12xx	330uF/100V	/	12uH
P48WG-24xx	220uF/100V	/	12uH
P48WG-48xx	220uF/100V	/	12uH

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



External Output Trimming
Output can be externally trimmed.
(Single output models only!)

Over Voltage Protection (Zener diode clamp)	
3.3 Vout:	3.9 V
5 Vout	6.2 V
12 Vout	15 V
15 Vout	18 V
18 Vout	20 V
± 12 Vout	± 15 V
± 15 Vout	± 18 V

Under Input Voltage Lockout (typ.)	
12 Vin Models	Module ON/OFF 8.6V / 7.9V
24 Vin Models	Module ON/OFF 17.8V / 16V
48 Vin Models	Module ON/OFF 33.5V / 30.5V

Remote ON/OFF Control	
ON:	3 -12 VDC or open circuit
OFF:	0 – 1.2 VDC or short circuit PIN2 and PIN6
OFF idle current:	5mA, typ.

Notes: