

# P15VG-xxxxE/Z4:1LF



## PMNW-SERIES

Rev.08-2009

- ✓ 15 Watt
- ✓ 4:1 Wide Input
- ✓ 1" x 1" Case
- ✓ 1.6 kV DC I/O Isolation
- ✓ Reg. Single and Dual Output
- ✓ Remote ON/OFF Control
- ✓ Continuous Short Circuit Prot.

The PMNW series is a family of high performance 15W single & dual output DC-DC converters. These are encapsulated in nickel coated copper 1" x 1" case with non conductive base.

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

### Input Specifications

Voltage Range	4:1 Wide Input (see table)
Input Filter	Pi-Type

### Output Specifications

Voltage Accuracy	± 1%, max.
Short Circuit Protection	Indefinite (hiccup, automatic recovery)
Output Voltage Adjustable (trim)	± 10%, max. (only single output)
Cross Regulation <sup>1</sup> (dual output)	± 5%
Line Regulation	± 0.2%, max.
Load Regulation (0% - 100%)	± 0.5%, max. (single) ± 1%, max. (dual)
Ripple and Noise (20Mhz bandwidth)	100 mV pk-pk, max.
Transient Recovery <sup>2</sup>	250 us, typ.
Transient Response Deviation <sup>2</sup>	± 3%, max.
Temperature Coefficient	± 0.02% / °C, max.

### General Specifications

Efficiency	See Table
I/O Isolation Voltage (3 sec.)	1600 VDC
I/O Isolation Resistance	1000 MOhm, min.
Switching Frequency	375 kHz, typ.
Humidity	95% rel H
Reliability Calculated MTBF (MIL-HDBK-217F)	> 560 khrs

### Physical Specifications

Case Material	Nickel Coated Copper
Weight	~ 18 g, typ.

### Environment Specifications

Operating Temperature	-40 to +66 °C (for 100%)
Maximum Case Temperature	105 °C
Storage Temperature	-40 to +125 °C
Cooling	Free Air Convection (10 mm distance required)
RoHS Conform	Soldering 260 °C, max. (1.5mm from case 10s.)

# Selection Guide

Single and Dual Output\_(If you need other specifications, please enquire)

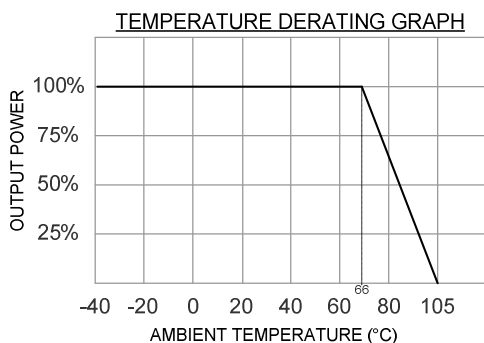
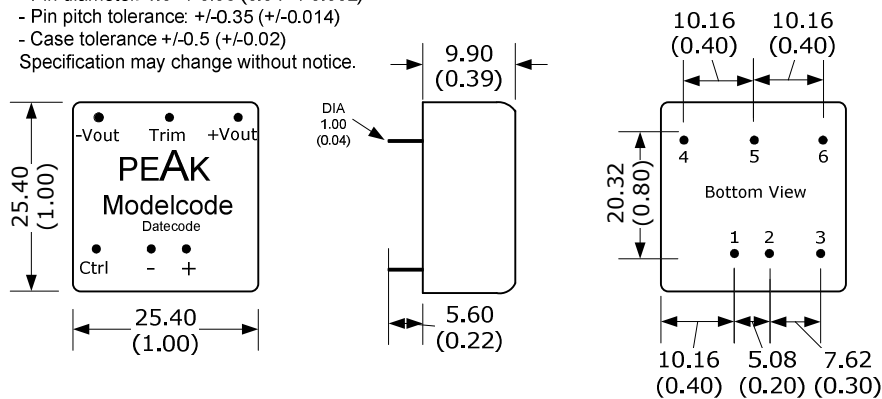
Order #	Input Voltage (VDC)	Input Current No Load (mA)	Input Current Full Load (mA)	Output Voltage (VDC)	Output Current Min. Load (mA)	Output Current Full Load (mA)	Efficiency (%)	Capacitor Load ( $\mu\text{F}$ ) <sup>3</sup>
<b>SINGLE OUTPUT</b>								
P15VG-243R3E4:1LF	9-36	15	647	3.3	0	4000	86	1000
P15VG-2405E4:1LF	9-36	15	727	5	0	3000	87	1000
P15VG-2412E4:1LF	9-36	15	747	12	0	1300	88	330
P15VG-2415E4:1LF	9-36	15	710	15	0	1000	89	220
P15VG-483R3E4:1LF	18-75	10	331	3.3	0	4000	84	1000
P15VG-4805E4:1LF	18-75	10	368	5	0	3000	86	1000
P15VG-4812E4:1LF	18-75	10	378	12	0	1300	87	330
P15VG-4815E4:1LF	18-75	10	360	15	0	1000	88	220

<b>DUAL OUTPUT</b>								
P15VG-2405Z4:1LF	9-36	15	744	$\pm 5$	0	$\pm 1500$	85	$\pm 470$
P15VG-2412Z4:1LF	9-36	15	718	$\pm 12$	0	$\pm 625$	88	$\pm 220$
P15VG-2415Z4:1LF	9-36	15	710	$\pm 15$	0	$\pm 500$	89	$\pm 100$
P15VG-4805Z4:1LF	18-75	10	376	$\pm 5$	0	$\pm 1500$	84	$\pm 470$
P15VG-4812Z4:1LF	18-75	10	363	$\pm 12$	0	$\pm 625$	87	$\pm 220$
P15VG-4815Z4:1LF	18-75	10	359	$\pm 15$	0	$\pm 500$	88	$\pm 100$

## Package / Pinning / Derating

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

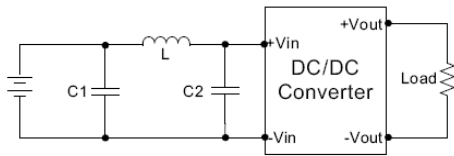
### 1" x 1" – METAL CASE



PIN CONNECTION		
#	SINGLE	DUAL
1	+Vin	+Vin
2	- Vin	- Vin
3	CTRL	CTRL
4	+Vout	+Vout
5	Trim	Common
6	- Vout	- Vout

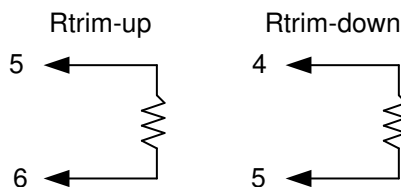
# App Notes

- 1 = One load is 25% to 100% load, the other load is 100% load, the output voltage variable rate is within  $\pm 5\%$ .
- 2 = Tested by nominal  $V_{in}$  and 25% load step change (75% - 50% - 25% of  $I_o$ )
- 3 = Tested by minimal  $V_{in}$  and constant resistive load.
- 4 = 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; all leads should be minimized to decrease radiated noise.
- 5 = An external filter capacitor is required if the module has to meet EN61000-4-4 and EN61000-4-5



Part #	C1 / C2	L
P15VG-24xx	1210, 2.2uF/100V	12uH
P15VG-48xx	1210, 2.2uF/100V	12uH

EMC SPECIFICATIONS		
Radiated Emissions	EN 55022	CLASS A
Conducted Emissions <sup>4</sup>	EN 55022	CLASS A
ESD	EN 61000-4-2	Perf. Criteria A
RS	EN 61000-4-3	Perf. Criteria A
EFT <sup>5</sup>	EN 61000-4-4	Perf. Criteria A
Surge <sup>5</sup>	EN 61000-4-5	Perf. Criteria A
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
$\pm 5$ Vout	$\pm 6.2$ V
$\pm 12$ Vout	$\pm 15$ V
$\pm 15$ Vout	$\pm 18$ V

Under Input Voltage Lockout (typ.)	
24 Vin Models	Module ON/OFF 8.5V / 7V
48 Vin Models	Module ON/OFF 17V / 15V

Remote ON/OFF Control	
ON:	3 -12 VDC or open circuit
OFF:	0 - 1.2 VDC or short circuit PIN2 and PIN3
OFF idle current:	5mA, typ.

Notes: