

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 ¹ (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 ² | 250 us, typ. |
| Transient Response Deviation ² | ± 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)

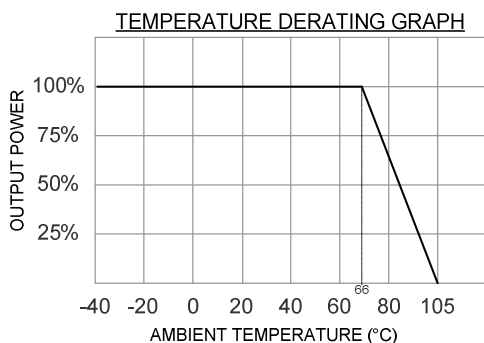
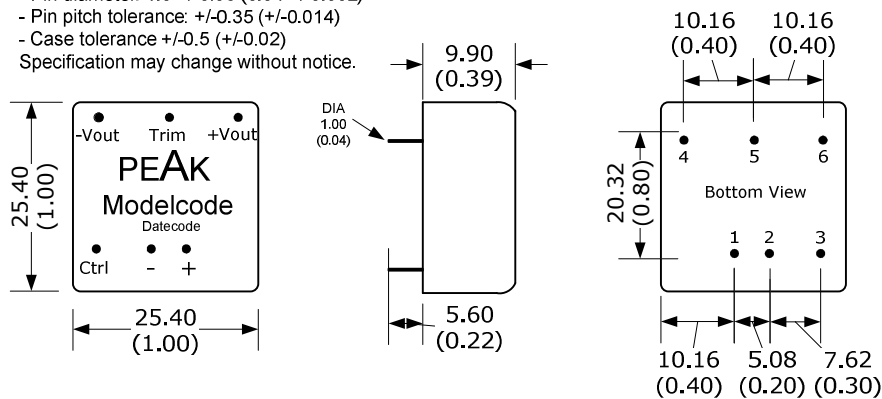
| Order # | Input Voltage (VDC) | Input Current No Load (mA) | Input Current Full Load (mA) | Output Voltage (VDC) | Output Current Min. Load (mA) | Output Current Full Load (mA) | Efficiency (%) | Capacitor Load (μF) ³ |
|----------------------|---------------------|----------------------------|------------------------------|----------------------|-------------------------------|-------------------------------|----------------|---|
| SINGLE OUTPUT | | | | | | | | |
| 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 |

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

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.

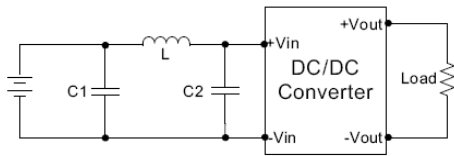
1" x 1" – METAL CASE



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

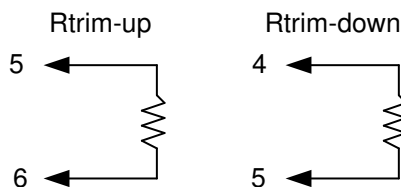
App Notes

- 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 ⁴ | EN 55022 | CLASS A |
| ESD | EN 61000-4-2 | Perf. Criteria A |
| RS | EN 61000-4-3 | Perf. Criteria A |
| EFT ⁵ | EN 61000-4-4 | Perf. Criteria A |
| Surge ⁵ | 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 |
| ± 5 Vout | ± 6.2 V |
| ± 12 Vout | ± 15 V |
| ± 15 Vout | ± 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: