

P15VG-xxxxE/Z2:1LF



PMN-SERIES

Rev. 05-2013

- ✓ 15 Watt
- ✓ 2:1 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 PMN 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	2:1 Input (see table)
Input Filter	Pi-Type
Input Reflected Ripple Current ¹	20mA pk-pk
Start up Time	20mS

Output Specifications

Voltage Accuracy	± 1%
Short Circuit Protection	Indefinite (hiccup, automatic recovery)
Output Voltage Adjustable (trim)	± 10%, max. (only single output)
Cross Regulation ² (dual output)	± 5%
Line Regulation	± 0.2%, max.
Load Regulation (0% - 100%)	± 0.5%, max. (single) ± 1%, max. (dual)
Ripple and Noise (20Mhz bandwidth) ³	100 mV pk-pk, max.
Over Current Protection	150% of FL
Transient Recovery ⁴	250 us, typ.
Transient Response Deviation ⁴	± 3%, max.
Temperature Coefficient	± 0.02% / °C

General Specifications

Efficiency	See Table
I/O Isolation Voltage (3 sec.)	1600 VDC
Isolation Resistance	1000 MOhm, min.
Isolation Capacity	1200 pF, max.
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.)

PMN-Series – P15VG-xxxxE/Z2:1LF – Single and Dual Output – 1"x1" - Metal Case

Specification can change without a notice – We accept no liability for any inaccuracy or printing errors.

Selection Guide

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

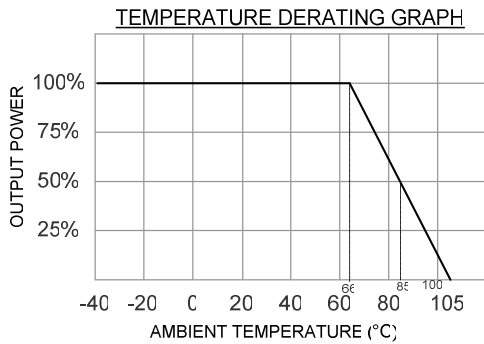
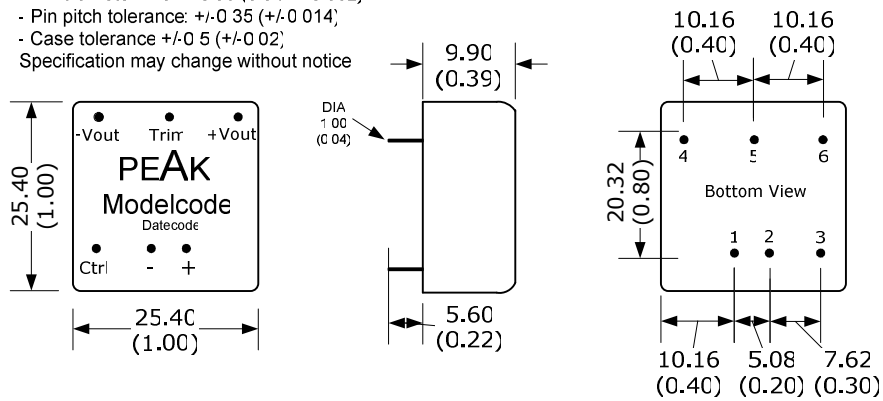
Order #	Input Voltage (VDC)	Input Current No Load (mA)	Input Current Full Load (mA)	Output Voltage (VDC)	Output Current Min. Load (mA)	Output Current Full Load (mA)	Efficiency (%)	Capacitor Load (µF) ⁵
SINGLE OUTPUT								
P15VG-123R3E2:1LF	9-18	20	1310	3.3	0	4000	85	1000
P15VG-1205E2:1LF	9-18	20	1471	5	0	3000	86	1000
P15VG-1212E2:1LF	9-18	20	1494	12	0	1300	88	330
P15VG-1215E2:1LF	9-18	20	1420	15	0	1000	89	220
P15VG-243R3E2:1LF	18-36	15	647	3.3	0	4000	86	1000
P15VG-2405E2:1LF	18-36	15	727	5	0	3000	87	1000
P15VG-2412E2:1LF	18-36	15	747	12	0	1300	88	330
P15VG-2415E2:1LF	18-36	15	710	15	0	1000	89	220
P15VG-483R3E2:1LF	36-75	10	327	3.3	0	4000	85	1000
P15VG-4805E2:1LF	36-75	10	368	5	0	3000	86	1000
P15VG-4812E2:1LF	36-75	10	374	12	0	1300	88	330
P15VG-4815E2:1LF	36-75	10	359	15	0	1000	88	220
DUAL OUTPUT								
P15VG-1205Z2:1LF	9-18	20	1488	± 5	0	± 1500	85	± 470
P15VG-1212Z2:1LF	9-18	20	1420	± 12	0	± 625	89	± 220
P15VG-1215Z2:1LF	9-18	20	1437	± 15	0	± 500	89	± 100
P15VG-2405Z2:1LF	18-36	15	744	± 5	0	± 1500	85	± 470
P15VG-2412Z2:1LF	18-36	15	718	± 12	0	± 625	88	± 220
P15VG-2415Z2:1LF	18-36	15	710	± 15	0	± 500	89	± 100
P15VG-4805Z2:1LF	36-75	10	377	± 5	0	± 1500	84	± 470
P15VG-4812Z2:1LF	36-75	10	363	± 12	0	± 625	87	± 220
P15VG-4815Z2:1LF	36-75	10	359	± 15	0	± 500	88	± 100

Notes:

Package / Pinning / Derating

All dimensions are typical in millimeters (inches)
 - Pin diameter: ± 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

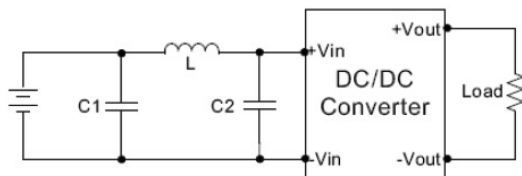


PIN CONNECTION		
#	SINGLE	DUAL
1	+Vin	+Vin
2	- Vin	- Vin
3	CTRL	CTRL
4	+Vout	+Vout
5	Trim	Common
6	- Vout	- Vout

Notes:

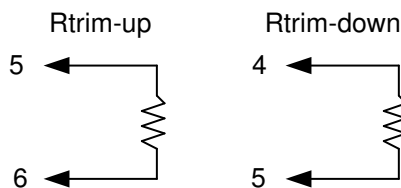
App Notes

- 1 = Measured Input reflected ripple current with a simulated source inductance of 12 uH
- 2 = One load is 25% to 100% load, the other load is 100% load, the output voltage variable rate is within $\pm 5\%$
- 3 = Measured with a 1.0uF ceramic capacitor and 10uF tantalum capacitor
- 4 = Tested by normal Vin and 25% load step change (75% - 50% - 25% of Io)
- 5 = Tested by minimal Vin and constant resistive load
- 6 = Input filter components (C1, L, C2) 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
- 7 = An external filter capacitor is required if the module has to meet EN61000-4-4 and EN61000-4-5
- 8 = The remote ON/OFF control pin is referenced to -Vin (pin2)



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

EMC SPECIFICATIONS		
Radiated Emissions	EN 55022	CLASS A
Conducted Emissions ⁶	EN 55022	CLASS A
ESD	EN 61000-4-2	Perf. Criteria A
RS	EN 61000-4-3	Perf. Criteria A
EFT ⁷	EN 61000-4-4	Perf. Criteria A
Surge ⁷	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.)	
12 Vin Models	Module ON/OFF 8.5V / 7V
24 Vin Models	Module ON/OFF 17V / 15V
48 Vin Models	Module ON/OFF 35V / 34V

Remote ON/OFF Control ⁸	
ON:	3 -12 VDC or open circuit
OFF:	0 - 1.2 VDC or short circuit PIN2 and PIN3
OFF idle current:	5mA, typ.