

# P20VG-xxxxE/Z2:1LF



## PMN-SERIES

Rev.11-2012

- ✓ 20 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 20W 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

### Output Specifications

Voltage Accuracy	± 1%
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	± 0.5%, max.
Load Regulation (0% - 100%)	± 0.5%, max. (single) ± 1%, max. (dual)
Ripple and Noise (20Mhz bandwidth)	3.3 & 5.0 V: 75mV pk-pk, max Other modules: 100 mV pk-pk, max.
Transient Recovery <sup>2</sup>	250 us, typ.
Temperature Coefficient	± 0.02% / °C

### General Specifications

Efficiency	See Table
I/O Isolation Voltage (3 sec.)	1600 VDC
I/O Isolation Resistance	1000 MOhm, min.
Switching Frequency	330 kHz, typ.
Humidity	95% rel H
Reliability Calculated MTBF (MIL-HDBK-217F)	> 560 khrs

### Physical Specifications

Case Material	Nickel Coated Copper
Weight	~ 19 g, typ.

### Environment Specifications

Operating Temperature	-40 to +55 °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)

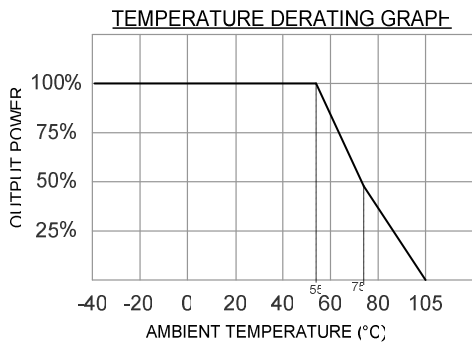
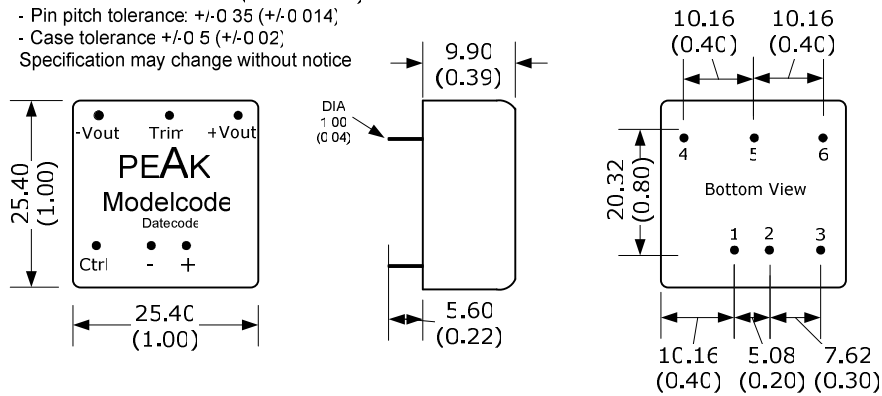
Order #	Input Voltage (VDC)	Input Current No Load (mA)	Input Current Full Load (mA)	Output Voltage (VDC)	Output Current Min. Load (mA)	Output Current Full Load (mA)	Efficiency (%)	Capacitor Load (uF) <sup>3</sup>
<b>SINGLE OUTPUT</b>								
P20VG-123R3E2:1LF	9-18	60	1439	3.3	0	4500	86	7000
P20VG-1205E2:1LF	9-18	60	1852	5	0	4000	90	5000
P20VG-1212E2:1LF	9-18	30	1873	12	0	1670	89	850
P20VG-1215E2:1LF	9-18	30	1873	15	0	1330	89	700
P20VG-243R3E2:1LF	18-36	35	720	3.3	0	4500	86	7000
P20VG-2405E2:1LF	18-36	35	936	5	0	4000	89	5000
P20VG-2412E2:1LF	18-36	25	936	12	0	1670	89	850
P20VG-2415E2:1LF	18-36	25	936	15	0	1330	89	700
P20VG-483R3E2:1LF	36-75	25	360	3.3	0	4500	86	7000
P20VG-4805E2:1LF	36-75	25	468	5	0	4000	89	5000
P20VG-4812E2:1LF	36-75	15	468	12	0	1670	89	850
P20VG-4815E2:1LF	36-75	15	463	15	0	1330	90	700
<b>DUAL OUTPUT</b>								
P20VG-1212Z2:1LF	9-18	30	1873	± 12	0	± 833	89	± 470
P20VG-1215Z2:1LF	9-18	30	1873	± 15	0	± 667	89	± 330
P20VG-2412Z2:1LF	18-36	30	936	± 12	0	± 833	89	± 470
P20VG-2415Z2:1LF	18-36	30	936	± 15	0	± 667	89	± 330
P20VG-4812Z2:1LF	36-75	20	468	± 12	0	± 833	89	± 470
P20VG-4815Z2:1LF	36-75	20	468	± 15	0	± 667	89	± 330

Notes:

# Package / Pinning / Derating

All dimensions are typical in millimeters (inches)  
 - Pin diameter:  $\pm 0.05$  ( $0.04 \pm 0.002$ );  
 - 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



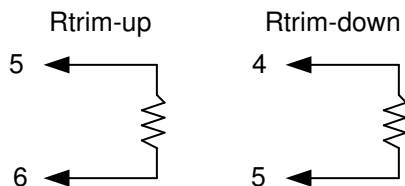
PIN CONNECTION		
#	SINGLE	DUAL
1	+Vin	+Vin
2	- Vin	- Vin
3	CTRL	CTRL
4	+Vout	+Vout
5	Trim	Common
6	- Vout	- Vout

Notes:

# 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 meets EN 55022 Class A without external components.
- 5 = An external filter capacitor is required if the module has to meet EN61000-4-4 and EN61000-4-5

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
$\pm 12$ Vout	$\pm 15$ V
$\pm 15$ Vout	$\pm 18$ V

Under Input Voltage Lockout (typ.)	
12 Vin Models	Module ON/OFF 8.6V / 7.9V
24 Vin Models	Module ON/OFF 17.8V / 15.5V
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 PIN3
OFF idle current:	5mA, typ.

Notes: