

P(C)14NG-xxxxE/Z2:1(M)LF



PMB-SERIES

Rev.02-2011

- ✓ 3 Watt
- ✓ 2:1 Wide Input
- ✓ **Reg. Single and Dual Output**
- ✓ 1.6 kV DC I/O Isolation
- ✓ **SIP8 Plastic or Metal*** case
- ✓ **On/Off Control** (optional)
- ✓ **Contin. Short Circuit Protection**

The PMB series is a family of cost effective 1, 2 and 3 W single and dual output DC/DC converters with an optional control Pin. These converters are in an ultra miniature SIP8 or DIP16 plastic or metal case. Devices are encapsulated using flame retardant resin. High performance features include continuous / long time short circuit protection with automatic restart and tight line / load regulation. High performance features include high efficiency operation and output voltage accuracy of $\pm 1-2\%$ maximum. PMB-Series is a good substitution of traditional DC/DC converters 3W in DIP24 package.

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	Capacitor
Input Reflected Ripple Current ¹	35 mA pk-pk
Start Up Time	20ms, typ.

Output Specifications

Voltage Accuracy	$\pm 1\%$
Short Circuit Protection	Indefinite (Automatic Recovery)
Line Regulation	$\pm 0.5\%$, max.
Load Regulation (25% - 100%)	$\pm 1\%$, max.
Cross Regulation (for dual output only)	$\pm 5\%$
Ripple and Noise (20Mhz bandwidth)	75 mV pk-pk, max.
Temperature Coefficient	$\pm 0.02\% / ^\circ\text{C}$
Transient Recovery Time / Response Dev.	300us, typ. / $\pm 3\%$, max.

General Specifications

I/O Isolation Voltage (3 sec.)	1600 VDC
I/O Isolation Capacity	680 pF, max.
I/O Isolation Resistance	1000 M Ohm, min.
Switching Frequency	100 - 650 kHz
Humidity	95% rel H
Reliability Calculated MTBF (MIL-HDBK-217F)	> 1.34 Mhrs
Safety Standard (designed to meet)	IEC/EN 60950-1

Physical Specifications

Case Material	Non Conductive Black Plastic (UL94V-0 rated) Nickel Coated Copper* (optional)
Potting Material	Epoxy (UL94V-0 rated)
Weight	~ 4.8g, typ. (~ 6.5g, for Metal Case)

Environment Specifications

Operating Temperature	-40 to +71 $^\circ\text{C}$ (ambient, for 100% load)
Maximum Case Temperature	100 $^\circ\text{C}$
Storage Temperature	-40 to +125 $^\circ\text{C}$
Cooling	Free Air Convection (10mm distance required)
RoHS Conform	Soldering 260 $^\circ\text{C}$, max. (1.5mm from case 10s.)

PMB-Series – P(C)14NG-xxxxE/Z2:1(M)LF – Single / Dual Output – SIP8 - Metal / Plastic Case

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

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) ^a
SINGLE OUTPUT								
P14NG-053R3E2:1LF	4.5-9	65	640	3.3	175	700	74	2200
P14NG-0505E2:1LF	4.5-9	70	800	5	150	600	76	1000
P14NG-0512E2:1LF	4.5-9	75	750	12	62.5	250	82	470
P14NG-0515E2:1LF	4.5-9	75	750	15	50	200	82	220
P14NG-123R3E2:1LF	9-18	25	260	3.3	175	700	76	2200
P14NG-1205E2:1LF	9-18	15	320	5	150	600	81	1000
P14NG-1212E2:1LF	9-18	35	305	12	62.5	250	84	470
P14NG-1215E2:1LF	9-18	35	305	15	50	200	84	220
P14NG-2015E2:1LF	15 - 30	25	180	15	50	200	83	220
P14NG-243R3E2:1LF	18-36	15	133	3.3	175	700	74	2200
P14NG-2405E2:1LF	18-36	15	160	5	150	600	79	1000
P14NG-2412E2:1LF	18-36	20	156	12	62.5	250	82	470
P14NG-2415E2:1LF	18-36	20	152	15	50	200	84	220
P14NG-483R3E2:1LF	36-72	10	66	3.3	175	700	75	2200
P14NG-4805E2:1LF	36-72	10	82	5	150	600	78	1000
P14NG-4812E2:1LF	36-72	15	78	12	62.5	250	81	470
P14NG-4815E2:1LF	36-72	15	78	15	50	200	81	220

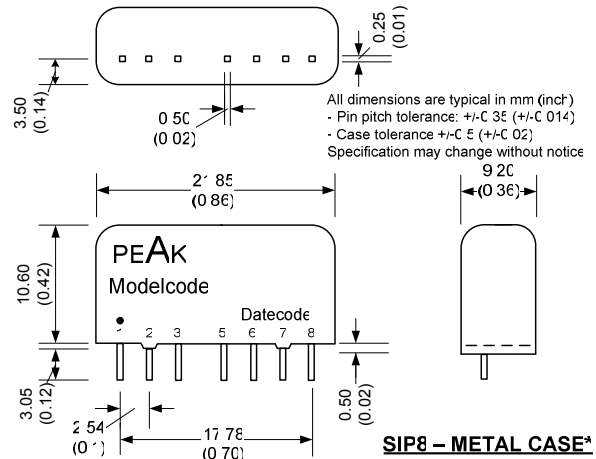
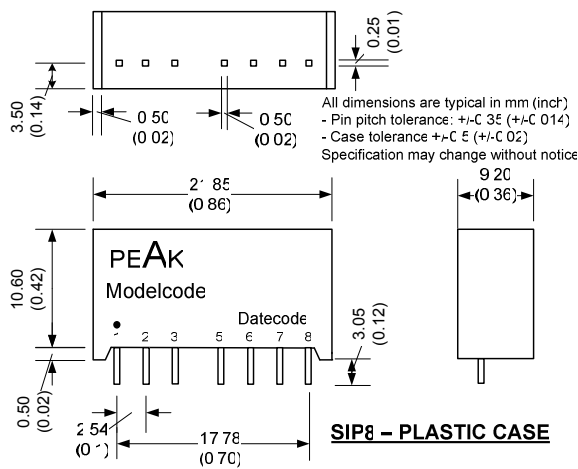
DUAL OUTPUT								
P14NG-0505Z2:1LF	4.5-9	90	800	± 5	± 75	± 300	77	± 470
P14NG-0512Z2:1LF	4.5-9	90	760	± 12	± 31.25	± 125	81	± 220
P14NG-0515Z2:1LF	4.5-9	90	750	± 15	± 25	± 100	82	± 100
P14NG-1205Z2:1LF	9-18	45	320	± 5	± 75	± 300	80	± 470
P14NG-1212Z2:1LF	9-18	45	308	± 12	± 31.25	± 125	83	± 220
P14NG-1215Z2:1LF	9-18	45	312	± 15	± 25	± 100	82	± 100
P14NG-2405Z2:1LF	18-36	20	160	± 5	± 75	± 300	80	± 470
P14NG-2412Z2:1LF	18-36	20	154	± 12	± 31.25	± 125	83	± 220
P14NG-2415Z2:1LF	18-36	20	154	± 15	± 25	± 100	83	± 100
P14NG-4805Z2:1LF	36-72	15	82	± 5	± 75	± 300	78	± 470
P14NG-4812Z2:1LF	36-72	20	80	± 12	± 31.25	± 125	80	± 220
P14NG-4815Z2:1LF	36-72	15	78	± 15	± 25	± 100	81	± 100

If you need other specifications, please enquire.

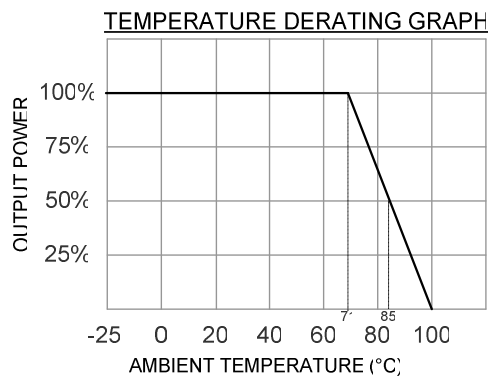
*OPTIONS:

Control On/Off	For Optional control Pin please add "C" between P and 14 (for example: PC 14NG-2424E2:1LF)
Metal Case	For optional Metal Case, please add "M" before LF! (P14NG-2424E2:1 MLF for Metal Case)

Package / Pinning / Derating



FOR METAL CASE PLEASE ADD „M“ BEFORE „LF“
 E.G.: PC14NG-0505EMLF



PIN CONNECTIONS				
#	SINGLE	DUAL	SINGLE "C"	DUAL "C"
1	- Vin	- Vin	- Vin	- Vin
2	+Vin	+Vin	+Vin	+Vin
3	Omitted	N.C.	Ctrl.	Ctrl.
5	Omitted	N.C.	N.C.	N.C.
6	+Vout	+Vout	+Vout	+Vout
7	- Vout	Common	- Vout	Common
8	N.C.	- Vout	N.C.	- Vout

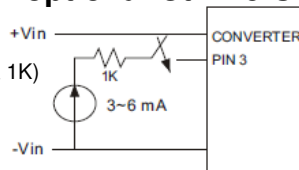
(Same pinning for 3kv I/O isolation)

App Notes:

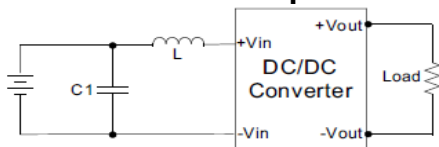
- ¹ = Measured Input reflected ripple current with a simulated source inductance of 12uH
- ² = Tested by nominal Vin and constant resistive load.

Remote ON/OFF Control (Only for optional Ctrl Version -> PC14NG...)

ON: Open or high impedance
 OFF: 3mA to 6mA input current (via 1K)



EMI Filter / EMC Specifications



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; and all leads should be minimized to decrease radiated noise.

5Vin:	C1: 220uF / 25V	L: 5.6uH
12Vin, single:	C1: 100uF / 100V	L: 18uH
12Vin, dual:	C1: 1210, 2.2uF / 100V	L: 18uH
24Vin:	C1: 1210, 10uF / 35V	L: 18uH
48Vin:	C1: 100uF / 100V	L: 56uH

EMC SPECIFICATIONS		
Radiated Emissions	EN 55022	CLASS A
Conducted Emissions	EN 55022	CLASS A
ESD	IEC 61000-4-2	Perf. Criteria B
RS	IEC 61000-4-3	Perf. Criteria A
EFT	IEC 61000-4-4	Perf. Criteria B
Surge	IEC 61000-4-5	Perf. Criteria B
CS	IEC 61000-4-6	Perf. Criteria A
PfMF	IEC 61000-4-8	Perf. Criteria A
An external filter capacitor is required if the module has to meet EN61000-4-4 and EN61000-4-5. (e.g. 220uF/100V)		