

P8SG-xxxxE/Z(H30)MLF



PM5-SERIES

Rev.11-2008

- ✓ 1.5 Watt
- ✓ Regulated
- ✓ **DIP24 Metal Case**
- ✓ **1 - 3 kV DC I/O Isolation**
- ✓ **Single and Dual Output**
- ✓ **Continuous Short Circuit Prot.**
- ✓ **Full SMD Technology**

The PM5 series P8SG-xxxxE/Z(H30)MLF is a family of cost effective 1.5 W single and dual output DC/DC converters. These converters are encapsulated in an ultra miniature DIP24 metal case. High performance features: 1000VDC, optional up to 3000VDC input/output isolation, high efficiency operation, output voltage accuracy of $\pm 2\%$ maximum, input range of $\pm 10\%$ tolerance and low output ripple and noise.

All specifications typical at $T_a=25^\circ\text{C}$, nominal input voltage and full load unless otherwise specified

Input Specifications

Voltage Range	$\pm 10\%$
Input Filter	Pi Type
Input Reflected Ripple Current ¹	35 mA pk-pk

Output Specifications

Voltage Accuracy	$\pm 2\%$
Short Circuit Protection	Indefinite (automatic recovery)
Line Regulation	$\pm 0.5\%$
Load Regulation (0% - 100%)	$\pm 0.5\%$ (3.3V _{out} Models: $\pm 1.5\%$)
Ripple and Noise (20Mhz bandwidth)	75 mV pk-pk
Temperature Coefficient	$\pm 0.02\% / ^\circ\text{C}$

General Specifications

Efficiency	See Table
I/O Isolation Voltage (3 sec.)	1000 VDC (up to 3000 VDC optional)*
I/O Isolation Capacity	60 pF, typ.
I/O Isolation Resistance	1000 M Ohm
Switching Frequency (typical)	40 kHz (Single out); 350 kHz (Dual out)
Humidity	95% rel H
Reliability Calculated MTBF (MIL-HDBK-217F)	> 3.072 Mhrs

Physical Specifications

Case Material	Nickel Coated Copper
Potting Material	Epoxy (UL94V-0 rated)
Weight	~ 15g, typ.

Environment Specifications

Operating Temperature	-40 to +85 °C (ambient)
Maximum Case Temperature	100 °C
Storage Temperature	-40 to +125 °C
Cooling	Free Air Convection
RoHS Conform	Soldering 260 °C, max. (1.5mm from case 10s.)

Selection Guide

Single/Dual Output

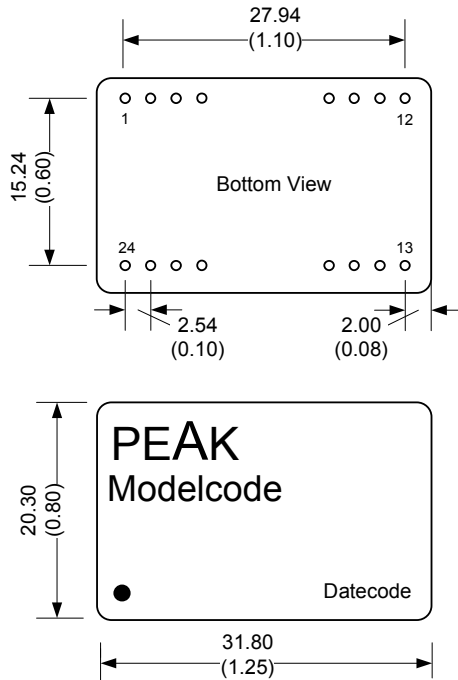
Order #	Input Voltage (VDC)	Input Current No Load (mA)	Input Current Full Load (mA)	Output Voltage (VDC)	Output Current Full Load (mA)	Efficiency (%)	Capacitor Load (µF)
SINGLE OUTPUT							
P8SG-053R3EMLF	5	50	517	3.3	400	51	220
P8SG-0505EMLF	5	50	454	5	300	66	220
P8SG-0509EMLF	5	50	468	9	167	64	220
P8SG-0512EMLF	5	50	441	12	125	68	220
P8SG-0515EMLF	5	50	441	15	100	68	220
P8SG-0524EMLF	5	50	461	24	62	65	220
P8SG-123R3EMLF	12	40	203	3.3	400	54	220
P8SG-1205EMLF	12	40	189	5	300	66	220
P8SG-1209EMLF	12	40	186	9	167	67	220
P8SG-1212EMLF	12	40	178	12	125	70	220
P8SG-1215EMLF	12	40	195	15	100	64	220
P8SG-1224EMLF	12	40	201	24	62	62	220
P8SG-243R3EMLF	24	35	103	3.3	400	53	220
P8SG-2405EMLF	24	35	100	5	300	62	220
P8SG-2409EMLF	24	35	97	9	167	64	220
P8SG-2412EMLF	24	35	93	12	125	67	220
P8SG-2415EMLF	24	35	94	15	100	66	220
P8SG-2424EMLF	24	35	94	24	62	66	220
DUAL OUTPUT							
P8SG-053R3ZMLF	5	50	440	± 3.3	± 200	60	± 1000
P8SG-0505ZMLF	5	50	461	± 5	± 150	65	± 1000
P8SG-0509ZMLF	5	50	447	± 9	± 83	67	± 470
P8SG-0512ZMLF	5	50	428	± 12	± 63	70	± 470
P8SG-0515ZMLF	5	50	447	± 15	± 50	67	± 470
P8SG-0524ZMLF	5	50	454	± 24	± 31	66	± 220
P8SG-123R3ZMLF	12	35	171	± 3.3	± 200	64	± 1000
P8SG-1205ZMLF	12	35	183	± 5	± 150	68	± 1000
P8SG-1209ZMLF	12	35	178	± 9	± 83	70	± 470
P8SG-1212ZMLF	12	35	166	± 12	± 63	75	± 470
P8SG-1215ZMLF	12	35	173	± 15	± 50	72	± 470
P8SG-1224ZMLF	12	35	176	± 24	± 31	71	± 220
P8SG-243R3ZMLF	24	15	83	± 3.3	± 200	66	± 1000
P8SG-2405ZMLF	24	15	89	± 5	± 150	70	± 1000
P8SG-2409ZMLF	24	15	85	± 9	± 83	73	± 470
P8SG-2412ZMLF	24	15	80	± 12	± 63	78	± 470
P8SG-2415ZMLF	24	15	83	± 15	± 50	75	± 470
P8SG-2424ZMLF	24	15	84	± 24	± 31	74	± 220

If you need other specifications, please enquire.

*** For optional 3kV DC I/O Isolation, please add “H30” before MLF!**

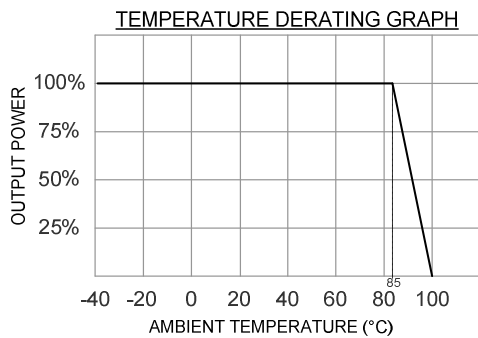
→ Example: P8SG-1205ZH30MLF for 3kV

Package / Pinning / Derating



All dimensions are typical in millimeters (inches).
 - Pin diameter: 0.5 +/-0.05 (0.02 +/-0.002)
 - Pin pitch tolerance: +/-0.35 (+/-0.014)
 - Case tolerance +/-0.5 (+/-0.02)
 Standard Drawing
 For exact pinning please see connection table!
 Specification may change without notice.

DIP24 – METAL CASE



PIN CONNECTIONS				
#	SINGLE	DUAL	SINGLE 3KV	DUAL 3KV
1	+Vin	+Vin	+Vin	+Vin
2	N.C.	- Vout	+Vin	+Vin
3	N.C.	Common	Omitted	Omitted
10	- Vout	Common	Omitted	Common
11	+Vout	+Vout	Omitted	Common
12	- Vin	- Vin	- Vout	Omitted
13	- Vin	- Vin	+Vout	- Vout
14	+Vout	+Vout	Omitted	Omitted
15	- Vout	Common	Omitted	+ Vout
22	N.C.	Common	Omitted	Omitted
23	N.C.	- Vout	- Vin	- Vin
24	+Vin	+Vin	- Vin	- Vin

App Notes:

¹ = Measured Input reflected ripple current with a simulated source inductance of 12uH.

² = Tested by minimal Vin and constant resistive load.