

PSD-xxxxZLF



PSD-SERIES

Rev.09-2009

- ✓ 1 Watt
- ✓ Unregulated
- ✓ **Dual** Output
- ✓ **SMD** Case
- ✓ **1 kV** DC I/O Isolation
- ✓ Low Ripple and Noise

The PSD-xxxxZLF series is a family of cost effective 1 W dual output DC/DC converters. These converters are in an ultra miniature SMD case. Devices are encapsulated. High performance features: 1000VDC input/output isolation, industrial standard pinout, high power density, no heatsink required

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

Input Specifications

Voltage Range $\pm 10\%$

Output Specifications

Voltage Accuracy $\pm 5\%$, typ.
Short Circuit Protection Short Term
Line Regulation $\pm 1.2\%$, max. (For V_{in} Change of 1%)
Load Regulation (10% - 100%) $5 V_{out}$ 15%, max.
 $9, 12, 15, 24 V_{out}$ 10%, max.
Ripple and Noise (20Mhz bandwidth) 75 mV pk-pk, max.
Temperature Coefficient $\pm 0.03\% / ^\circ\text{C}$

General Specifications

Efficiency See Table
I/O Isolation Voltage (3 sec.) 1000 VDC
I/O Isolation Resistance (Tested at 500 VDC) 1000 M Ohm
Switching Frequency 100 kHz, typ (5, 12 V_{in}); 500 kHz (24 V_{in})
Humidity 95% rel H
Reliability Calculated MTBF (MIL-HDBK-217F) > 3500 khrs

Physical Specifications

Case Material Non Conductive Black Plastic (UL94V-0 rated)
Potting Material Epoxy (UL94V-0 rated)
Weight ~ 1.7g, max.

Environment Specifications

Operating Temperature -40 to +85 $^\circ\text{C}$ (ambient)
Storage Temperature -55 to +125 $^\circ\text{C}$
Cooling Free Air Convection (10mm distance required)
Soldering Not usable for heat steam soldering
RoHS Conform

Selection Guide

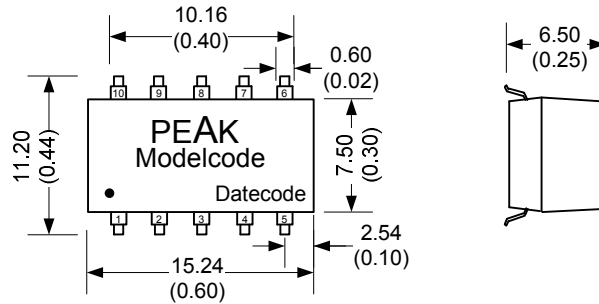
Dual Output

Order #	Input Voltage (VDC)	Output Voltage (VDC)	Output Current max. (mA)	Output Current min. (mA)	Efficiency (%)
DUAL OUTPUT					
PSD-0505ZLF	5	± 5	± 100	± 10	71
PSD-0509ZLF	5	± 9	± 56	± 6	77
PSD-0512ZLF	5	± 12	± 42	± 5	78
PSD-0515ZLF	5	± 15	± 33	± 4	78
PSD-1205ZLF	12	± 5	± 100	± 10	71
PSD-1209ZLF	12	± 9	± 56	± 6	73
PSD-1212ZLF	12	± 12	± 42	± 5	74
PSD-1215ZLF	12	± 15	± 33	± 4	74
PSD-2405ZLF	24	± 5	± 100	± 10	72
PSD-2409ZLF	24	± 9	± 56	± 6	74
PSD-2412ZLF	24	± 12	± 42	± 5	76
PSD-2415ZLF	24	± 15	± 33	± 4	77
PSD-2424ZLF	24	± 24	± 21	± 2	78

If you need other specifications, please enquire.

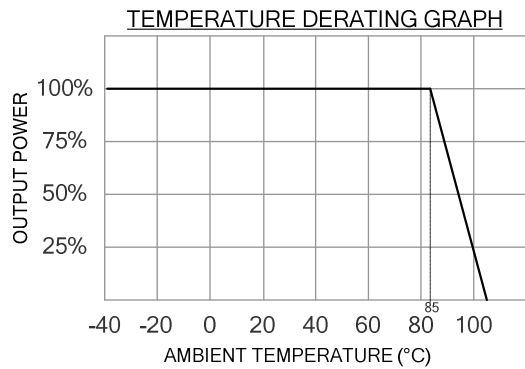
Notes:

Package / Pinning / Derating



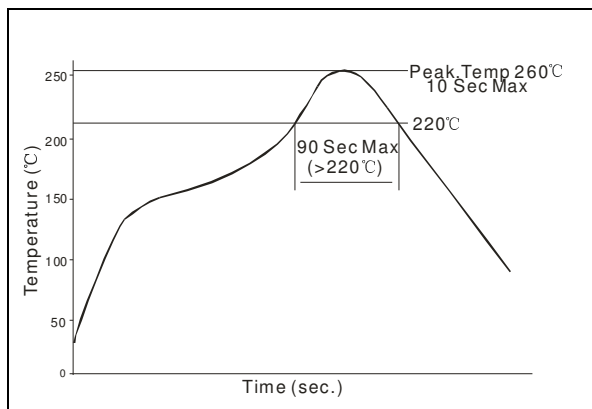
All dimensions are typical in millimeters (inches).
 - Pin pitch tolerance: +/-0.35 (+/-0.014)
 - Case tolerance +/-0.5 (+/-0.02)
 Specification may change without notice.

PSD-Series



PIN CONNECTIONS	
#	SINGLE
1	- Vin
2	+Vin
4	Common
5	- Vout
7	+Vout
10	N.C.
Others	Omitted

Reflow:



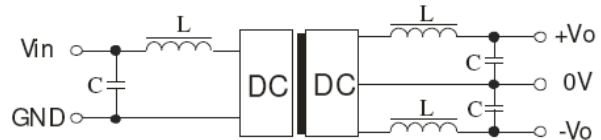
App Notes

Requirement on output load

To ensure this module can operate efficiently and reliably, during operation, the minimum output load is **not less than 10%** of the full load, and that **this product should never be operated under no-load!** If the actual output power is very small, please connect a resistor with proper resistance at the output end in parallel to increase the load.

Recommended testing circuit

If you want to further decrease the input/output ripple, an “LC” filtering network may be connected to the input and output ends if the DC/DC converter, see Figure on the right hand side.



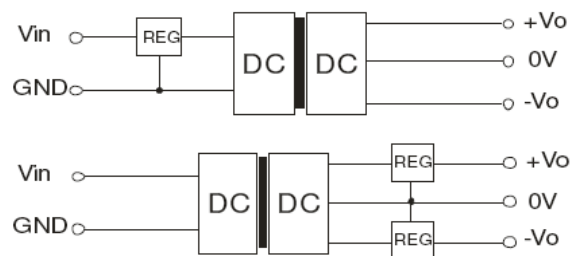
It should also be noted that the inductance and the frequency of the “LC” filtering network should be staggered with the DC/DC frequency to avoid mutual interference. However, the capacitance of the output filter capacitor must be proper. If the capacitance is too big, a start-up problem might arise. For every channel of output, provided the safe and reliable operation is ensured, the greatest capacitance of its filter capacitor sees (see Table).

EXTERNAL CAPACITOR TABLE			
Vin (VDC)	Cin (uF)	Vout (VDC)	Cout (uF)
5	4.7	± 5	4.7
12	2.2	± 9	2.2
24	1	± 12	1
--	--	± 15	1

It's not recommended to connect any external capacitor in the application field with less than 0.5 watt output.

Output Voltage Regulation and Over-voltage Protection Circuit

The simplest device for output voltage regulation, over-voltage and over-current protection is a linear voltage regulator with overheat protection that is connected to the input or output end in series.



Overload Protection

Under normal operating conditions, the output circuit of these products has no protection against over-current and short-circuits. The simplest method is to connect a self-recovery fuse in series at the input end or add a circuit breaker to the circuit.

No parallel connection or plug and play.