PMA-xxxxTLF

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PSD-SERIES Rev.04-2009

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

The PMA-xxxxZLF series is a family of cost effective 1 W dual output DC/DC converters. These converters are in an ultra miniature SMD 10-pin case. Devices are encapsulated. High performance features: 1000VDC input/output isolation, industrial standard pinout, high power density, no heatsink required

All specifications typical at Ta=25°C, nominal input voltage and full load unless otherwise specified

Input Specifications	
Voltage Range	± 10%
Output Specifications	
Voltage Accuracy	± 5%, typ.
Short Circuit Protection	Short Term
Line Regulation	± 1.2%, max. (For Vin Change of 1%)
Load Regulation (10% - 100%) *5 Vout*	15%, max.
9, 12, 15, 24 Vout	10%, max.
Ripple and Noise (20Mhz bandwidth)	75 mV pk-pk, max.
Temperature Coefficient	± 0.03% / °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 Vin); 500 kHz (24Vin)
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, typ.
Environment Specifications	
Operating Temperature	-40 to +85°C (ambient)
Storage Temperature	-55 to +125°C
Cooling	Free Air Convection (10mm distance required)
Soldering	Not usable for heat steam soldering
RoHS Conform	

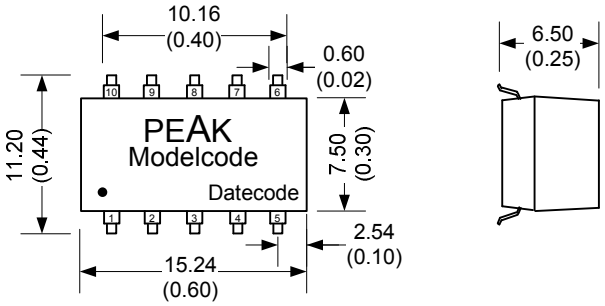
Selection Guide
Dual Output

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

If you need other specifications, please enquire.

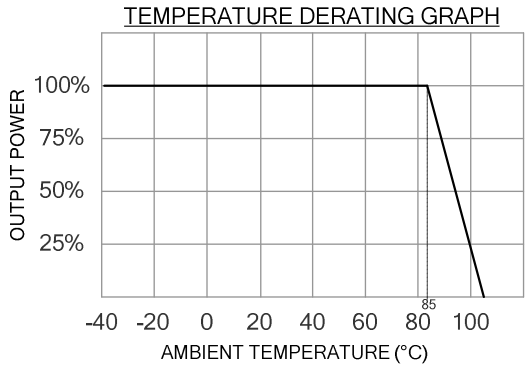
Notes:

Package / Pinning / Derating



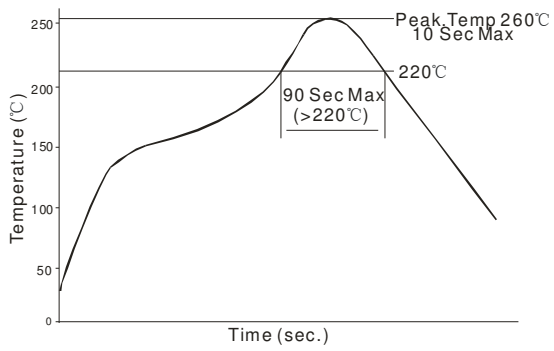
All dimensions are typical in millimeters (inches).
- Pin pitch tolerance: +/-0.35 (+/-0.014)
- Case tolerance +/-0.5 (+/-0.02)
Specification may change without notice.

PSD-Series



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

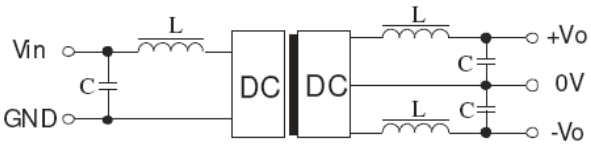
Reflow:



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.

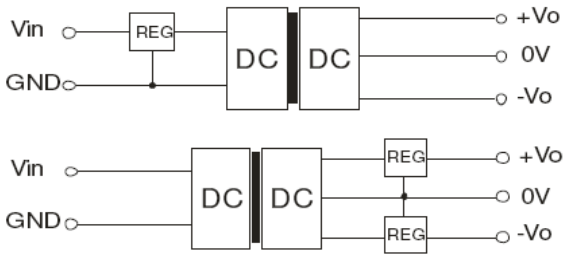
Recommended testing circuit
If you want to further decrease the input/output ripple, an “LC” filtering network may be connected to the input and output ends if the DC/DC converter, see Figure on the right hand side.



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.