

PSD1-A-xxxxE



PSD-SERIES

Rev.02-2015

- ✓ 1 Watt
- ✓ Unregulated
- ✓ **Single** Output
- ✓ **SMD** Case
- ✓ **1500 V** DC I/O Isolation
- ✓ **Continuous** Short Circuit Prot.

The PSD1-A series is a family of cost effective 1 W single output DC/DC converters. These converters are in an ultra miniature SMD 5-pin case. Devices are encapsulated. High performance features: 1500VDC 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	$\pm 10\%$
Input Filter	Capacitor

Output Specifications

Voltage Accuracy	See tolerance envelope curve	
Short Circuit Protection	Continuous, auto recovery	
Line Regulation	<i>3.3 Vout</i>	$\pm 1.5\%$, max. (For V_{in} Change of $\pm 1\%$)
	<i>Others</i>	$\pm 1.2\%$, max. (For V_{in} Change of $\pm 1\%$)
Load Regulation (10% - 100%)	<i>3.3 Vout</i>	18%, typ.
	<i>5 Vout</i>	12%, typ.
	<i>9, 12, 15, 24 Vout</i>	5 - 8%, typ.
Ripple and Noise (20Mhz bandwidth)	30 mV ($\leq 12V_{out}$) – 60 mV (others) pk-pk, typ.	
Temperature Coefficient	$\pm 0.03\% / ^\circ\text{C}$	

General Specifications

Efficiency	See Table
I/O Isolation Voltage (1 min.)	1500 VDC
I/O Isolation Resistance (Tested at 500 VDC)	1000 M Ohm
Switching Frequency	100 kHz, typ, 300 kHz, max.
Humidity	95% rel H
Reliability Calculated MTBF (MIL-HDBK-217F)	> 3500 khrs

Physical Specifications

Case Material	Epoxy Resin (UL94V-0 rated)
Weight	~ 1.5g, typ.

Environment Specifications

Operating Temperature	-40 to +105 $^\circ\text{C}$ (ambient)
Storage Temperature	-55 to +125 $^\circ\text{C}$
Cooling	Free Air Convection (10mm distance required)

EMC Specifications

EMI CE / RE	CISPR22/EN55022 Class B (see Figure 1)
EMS ESD	IEC/EN61000-4-2 ($\pm 8\text{kV}$, perf. Criteria B)

Selection Guide

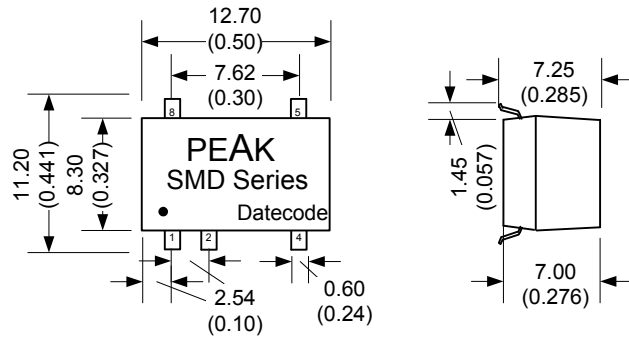
Single Output

Order #	Input Voltage (VDC)	Output Voltage (VDC)	Output Current max. (mA)	Output Current min. (mA)	Input Current max. (mA)	Input Current min. (mA)	Max. Capacitive Load (uF)	Efficiency (%)
SINGLE OUTPUT								
PSD1-A-3R33R3E	3.3	3.3	303	30	415	25	220	73
PSD1-A-3R305E	3.3	5	200	20	388	25	220	78
PSD1-A-053R3E	5	3.3	303	30	263	20	220	76
PSD1-A-0505E	5	5	200	20	250	20	220	80
PSD1-A-0509E	5	9	111	12	250	20	220	80
PSD1-A-0512E	5	12	84	9	250	20	220	80
PSD1-A-0515E	5	15	67	7	250	20	220	80
PSD1-A-0524E	5	24	42	4	250	20	220	80
PSD1-A-123R3E	12	3.3	303	30	111	15	220	75
PSD1-A-1205E	12	5	200	20	104	15	220	80
PSD1-A-1209E	12	9	111	12	104	15	220	80
PSD1-A-1212E	12	12	84	9	103	15	220	81
PSD1-A-1215E	12	15	67	7	103	15	220	81
PSD1-A-1515E	15	15	67	7	82	10	220	81
PSD1-A-2405E	24	5	200	20	52	7	220	80
PSD1-A-2409E	24	9	110	11	52	7	220	80
PSD1-A-2415E	24	15	67	7	51	7	220	81
PSD1-A-2424E	24	24	42	4	51	7	220	81

If you need other specifications, please enquire.

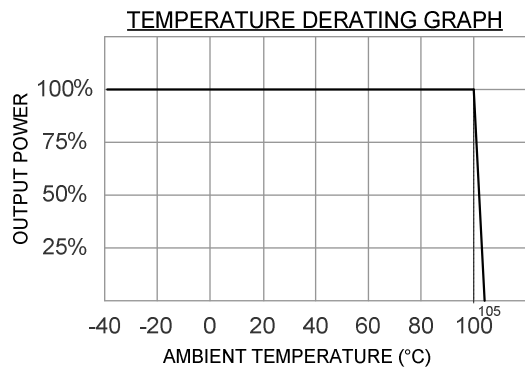
Notes:

Package / Pinning / Derating



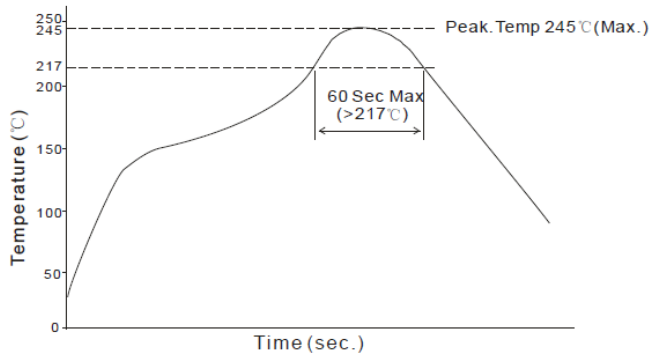
All dimensions are typical in millimeters (inches).
 - Pin pitch tolerance: +/-0.35 (+/-0.014)
 - Case tolerance +/-0.7 (+/-0.028)
 Specification may change without notice.

PSD-Series
Single output



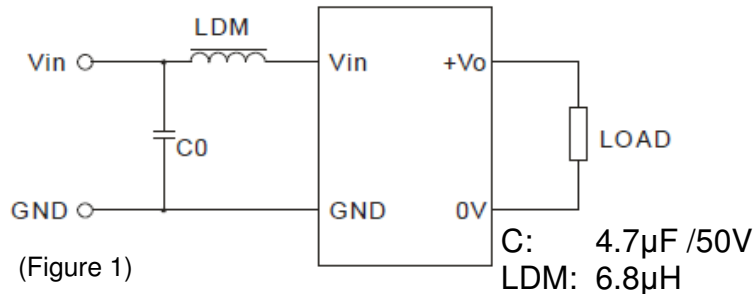
PIN CONNECTIONS	
#	SINGLE
1	- Vin
2	+Vin
4	- Vout
5	+Vout
8	N.C.

Reflow:

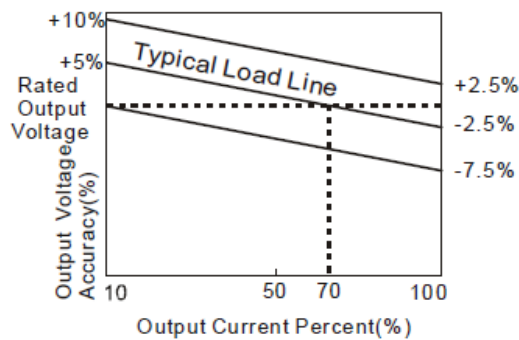


App Notes

EMI Typical Recommended Circuit (CLASS B)



Tolerance Envelope Curve



Requirement on output load

This module can operate efficiently and reliably if the minimum output load is **not less than 10%** of the full 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.

Overload Protection

Under normal operating conditions, the output circuit of these products has no protection against over-load.

It is recommended to connect ceramic capacitor or electrolytic capacitor at the input and output of the DCDC converter. Do not use Tantalum capacitors.

It is not recommended to increase the output power capability by connecting two or more converters in parallel. The product is not hot-swappable.

No parallel connection or plug and play.