

PSD1-B-xxxxZ



PSD-SERIES

Rev.07-2015

- ✓ 1 Watt
- ✓ Unregulated
- ✓ Dual Output
- ✓ SMD Case
- ✓ 1.5 kV - 3 kV DC I/O Isolation
- ✓ Continuous Short Circuit Prot.
- ✓ 2 Years Warranty (Date Code)

The PSD1-B series is a family of cost effective 1 W dual output DC/DC converters. These converters are in an ultra miniature SMD 6-pin case. Devices are encapsulated. High performance features: 1500VDC and 3000VDC 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%
Current max.	52 – 389mA (See table)
Current No-Load	10 – 25mA (See table)
Filter	Capacitors
Reflected Ripple Current (@12uH)	15mA pk-pk

General Specifications

Efficiency	Up to 82% (See table)
Isolation I/O (60 sec)	1500VDC (standard) 3000VDC (add "H30")
Isolation I/O Capacitance	20 pF
Isolation I/O Resistance	1000 MΩ, min.
Switching Frequency	100 kHz
Humidity (rel.)	95%
MTBF (Calculated MIL-HDBK-217F)	>3500 Khrs
Pin Welding Temperature	300°C, max.
Reflow Soldering	245°C, peak (217°C ≤60s)

EMC Specifications

Radiated Emissions*	CISPR22/EN55022	Class B
Conducted Emissions*	CISPR22/EN55022	Class B
ESD (contact ±6KV)	IEC-61000-4-2	Pref. Criteria B

*Input filter components are required to meet (see App Note)

Output Specifications

Voltage accuracy	See App Note
Line regulation (per 1% Vin change)	±1.2% , max.
Load regulation (10% to 100%)	See Table
Ripple & noise (20 MHz bandwidth)	60 mV pk-pk
Temperature coefficient	±0.03%/°C
Capacitor load (Test: min. Vin + const. load)	100uF
Short Circuit Protection	Continuous (exceptions see Table)

Environment / Physical Specifications

Operation Temp.	-40°C to 105°C
Case Temp. Rise (nominal Input and full load)	25°C
Storage	-55°C to 125°C
Cooling	Nature / Free Air
Case Material	Plastic (UL94V-0 rated)
Potting	Epoxy (UL94V-0 rated)
Weight	~2.0 g

Selection Guide

Dual Output

Order #	Input Voltage (VDC)	Output Voltage (VDC)	Output Current max. (mA)	Output Current min. (mA)	Input Current Full Load typ. (mA)	Input Current no Load typ. (mA)	Load Regulation (%)	Efficiency (%)
DUAL OUTPUT								
PSD1-B-3R305Z	3.3	±5	±100	±10	389	25	12	76
PSD1-B-3R312Z	3.3	±12	±42	±5	389	25	8	77
PSD1-B-3R315Z	3.3	±15	±33	±3	389	25	7	78
PSD1-B-0505Z	5	±5	±100	±10	250	20	12	80
PSD1-B-0509Z	5	±9	±56	±6	250	20	9	80
PSD1-B-0512Z	5	±12	±42	±5	250	20	8	79
PSD1-B-0515Z	5	±15	±33	±3	250	20	7	81
PSD1-B-0524Z*	5	±24	±21	±2	250	20	6	81
PSD1-B-1205Z	12	±5	±100	±10	104	15	12	80
PSD1-B-1209Z	12	±9	±56	±6	104	15	9	80
PSD1-B-1212Z	12	±12	±42	±5	104	15	8	81
PSD1-B-1215Z	12	±15	±33	±3	104	15	7	81
PSD1-B-1224Z	12	±24	±21	±2	104	15	6	81
PSD1-B-1515Z	15	±15	±33	±3	83	12	7	81
PSD1-B-2405Z*	24	±5	±100	±10	52	10	12	80
PSD1-B-2409Z*	24	±9	±56	±6	52	10	9	80
PSD1-B-2412Z*	24	±12	±42	±5	52	10	8	81
PSD1-B-2415Z*	24	±15	±33	±3	52	10	7	82
PSD1-B-2424Z*	24	±24	±21	±2	52	10	6	80

* Converters marked with a star: Short circuit Protection ist only 1s, max

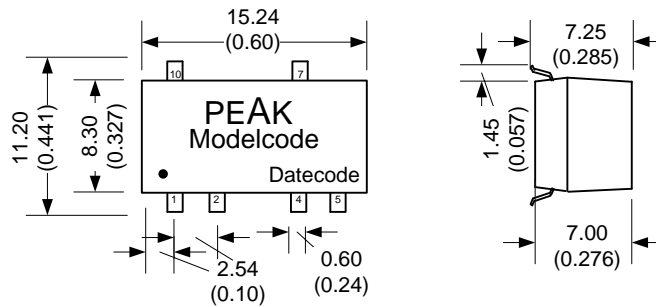
* Supply voltage must be discontinued at the end of short circuit.

If you need other specifications, please enquire.

For optional 3000KV isolation, please add “H30”
For example: PSD1-B-1205ZH30

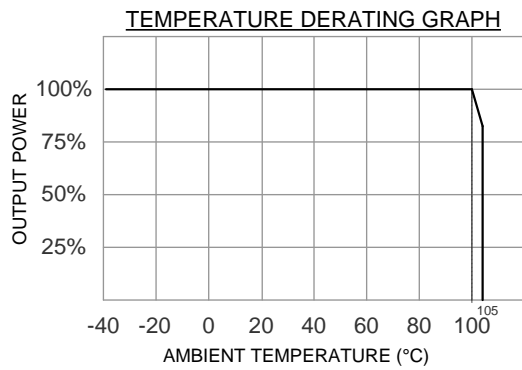
Notes:

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.

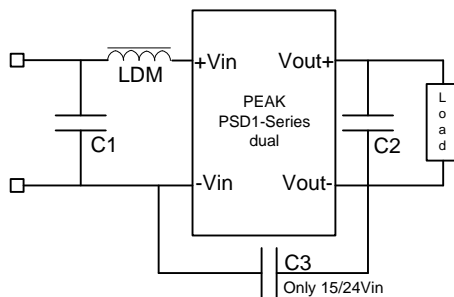
PSD1-Series
Dual output



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

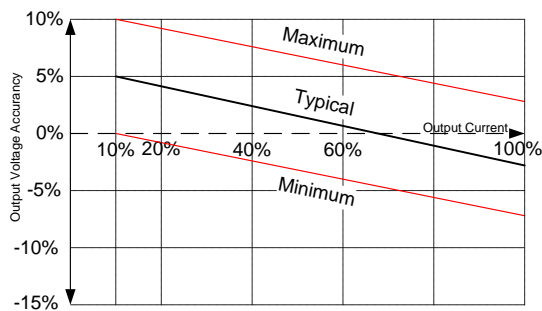
App Notes

EMC Typical Recommended Circuit (CLASS B)



Vout	C1	C2	C3 Only 15/24Vin or 24Vout	LDM
±5	4.7uF/50V	4.7 uF	1nF/2kV	6.8uH
±9	4.7uF/50V	2.2 uF	1nF/2kV	6.8uH
±12	4.7uF/50V	1 uF	1nF/2kV	6.8uH
±15	4.7uF/50V	1 uF	1nF/2kV	6.8uH
±24	4.7uF/50V	0.47 uF	1nF/2kV	6.8uH

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.

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.