PSD2-A-xxxxE

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PSD-SERIES Rev.07-2015

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

The PSD2-A series is a family of cost effective 2 W single output DC/DC converters. These converters are in an ultra miniature SMD 5-pin case. Devices are encapsulated. High performance features: 1500VDC and 3000VDC (for the most types) 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.	105 – 506mA (See table)
Current No-Load	15 – 30mA (See table)
Filter	Capacitors
Reflected Ripple Current (@12uH)	15mA pk-pk

General Specifications

Efficiency	Up to 84% (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)

Output Specifications

Voltage accuracy	See App Note
Line regulation (per 1% Vin change)	±1.2% (1.5% for 3.3Vout)
Load regulation (10% to 100%)	See Table
Ripple & noise (20 MHz bandwidth)	100 mV pk-pk
Temperature coefficient	±0.03%/°C
Capacitor load (Test: min. Vin + const. load)	220uF
Short Circuit Protection (Supply voltage must be discontinued at the end of short circuit)	1 s

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	~1.6 g

EMC Specifications

Radiated Emissions*	CISPR22/EN55022	Class B
Conducted Emissions*	CISPR22/EN55022	Class B
ESD (contact ±8KV)	IEC-61000-4-2	Pref. Criteria B

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

Selection Guide
Single Output

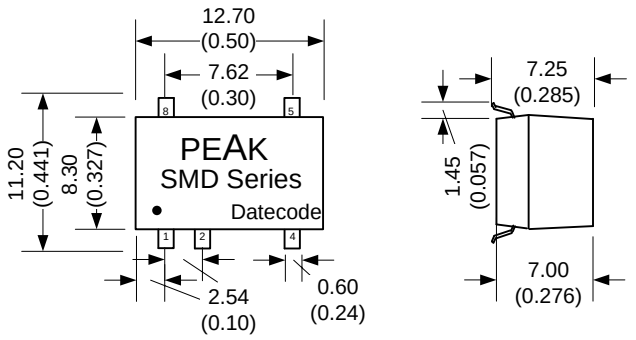
Order #	Input Voltage (VDC)	Output Voltage (VDC)	Output Current max. (mA)	Output Current min. (mA)	Input Current Full Load typ. (mA)	Input Current no Load typ. (mA)	Load Regulation (%)	Efficiency (%)
SINGLE OUTPUT								
PSD2-A-053R3E	5	3.3	400	40	506	30	18	78
PSD2-A-0505E	5	5	400	40	506	30	12	79
PSD2-A-0509E	5	9	222	22	506	30	9	82
PSD2-A-0512E	5	12	167	17	506	30	8	82
PSD2-A-0515E	5	15	133	13	506	30	7	83
PSD2-A-1205E	12	5	400	40	212	25	12	79
PSD2-A-1209E	12	9	222	22	212	25	9	82
PSD2-A-1212E	12	12	167	17	212	25	8	82
PSD2-A-1215E	12	15	133	13	212	25	7	83
PSD2-A-1224E	12	24	83	8	212	25	6	84
PSD2-A-1515E	15	15	133	13	169	18	7	83
PSD2-A-2405E	24	5	400	40	105	15	12	79
PSD2-A-2409E	24	9	222	22	105	15	9	82
PSD2-A-2412E	24	12	167	17	105	15	8	82
PSD2-A-2415E	24	15	133	13	105	15	7	83
PSD2-A-2424E	24	24	83	8	105	15	6	84

If you need other specifications, please enquire.

For optional 3000KV isolation, please add “H30”
For example: PSD2-A-1205E**H30**

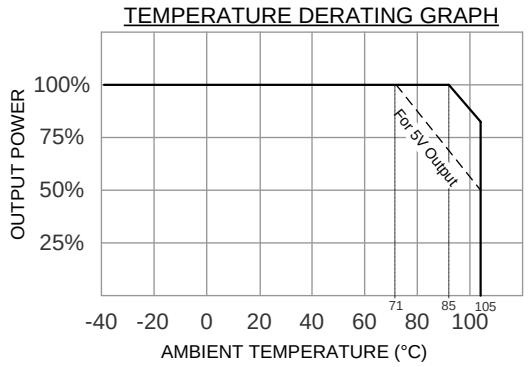
Notes:

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.

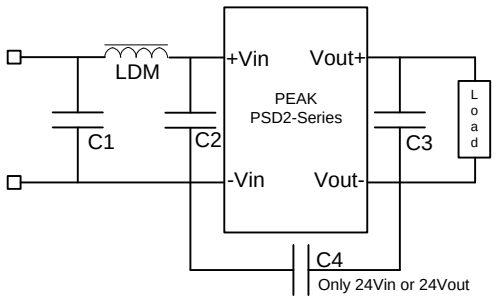
PSD2-Series
Single output



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

App Notes

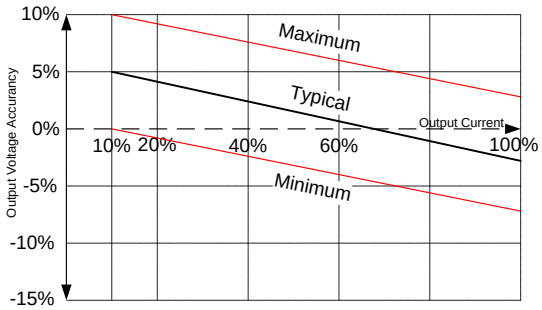
EMC Typical Recommended Circuit (CLASS B)



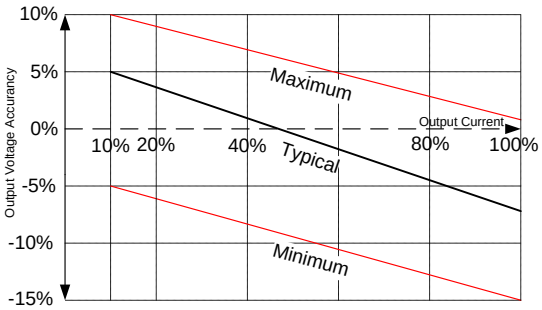
Vout	C1 + C2	C3	C4 24Vin or 24Vout	LDM
3.3	4.7uF/50V	10 uF	1nF/2kV	6.8uH
5	4.7uF/50V	10 uF	1nF/2kV	6.8uH
9	4.7uF/50V	4.7 uF	1nF/2kV	6.8uH
12	4.7uF/50V	2.2 uF	1nF/2kV	6.8uH
15	4.7uF/50V	1 uF	1nF/2kV	6.8uH
24	4.7uF/50V	0.47 uF	1nF/2kV	6.8uH

Tolerance Envelope Curve

5, 9, 12, 15, 24 Vout:



3.3 Vout:



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.