

PSR-78xxPW



PSR-SERIES

Rev.04-2015

- ✓ 500 mA **Switching Regulator**
- ✓ **Wide** Input Voltage Range
- ✓ **SIP3** Plastic Package
- ✓ Non-Isolated & Non-Regulated
- ✓ Short Circuit Protection
- ✓ Low Ripple and Noise

The PSR series is a family of cost effective single output buck DC-DC converters. These converters are encapsulated in a non conductive black plastic 3-pin SIP case, continuous short circuit protection with automatic restart, good line / load regulation and ultra low quiescence current. Devices are filled up with flame retardant resin. High performance features include high efficiency operation up to 94%.

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

Input Specifications

Voltage Range	Wide Input (See Table)
Start up Time	10mS, typ.
Filter	Capacitors
Input Reflected Ripple Current (1)	35mA pk-pk

Output Specifications

Voltage Accuracy	± 3%
Output Current	5mA, min. / 500mA, max.
Short Circuit Protection	Indefinite (Automatic Recovery)
Line Regulation	± 0.5%
Load Regulation (10% - 100% load)	± 0.8%
Ripple and Noise (20Mhz bandwidth)	60 mV pk-pk
Temperature Coefficient	± 0.02% / °C
Capacitor Load (2)	See Table
Transient Recovery Time (3)	250 us, typ.
Transient Response Deviation (3)	± 3%, max.

General Specifications

Efficiency	See Table
Switching Frequency	570 kHz, typ.
Humidity	95% rel H
Reliability Calculated MTBF (MIL-HDBK-217F)	> 4.0 Mhrs

Physical Specifications

Case Material	Non Conductive Black Plastic (UL94V-0 rated)
Potting Material	Epoxy (UL94V-0 rated)
Weight	~ 2.0 g

Environment Specifications

Operating Temperature (for 100%)	-40 to +70°C at 3.3Vout/5Vout -40 to +65°C at 12Vout/15Vout
Maximum Case Temperature	100°C
Storage Temperature	-55 to +125°C
Cooling	Free Air Convection (10mm distance required)
RoHS Conform	Soldering 260°C, max (1.5mm from case 10sec.)

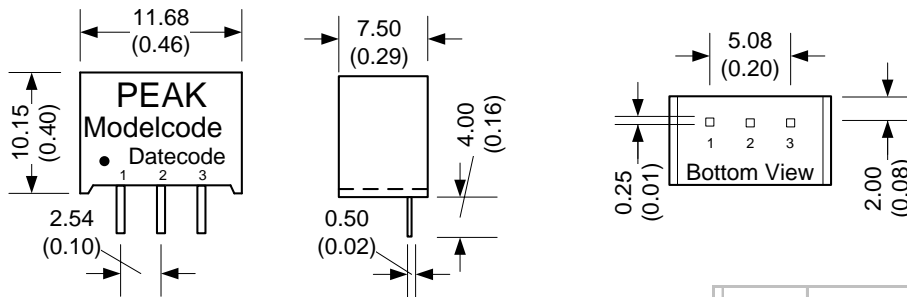
PSR-Series – PSR-78xxPW – Switching Regulator – SIP3 – Plastic Case
Specification can change without a notice – We accept no liability for any inaccuracy or printing errors.

Selection Guide

Order #	Input Voltage Range (VDC)	Input Current no Load (mA)	Input Current full Load (Vin min.)	Input Current full Load (Vin max.)	Output Voltage (V)	Efficiency (Vin min.) (%)	Efficiency (Vin max.) (%)	Capacitor Load (uF) ²
PSR-783R3PW	4.5-28	1.0	411.99	78.57	3.3	89	75	100
PSR-7805PW	7-28	1.0	388.20	111.61	5	92	80	100
PSR-7812PW	14-28	1.5	455.93	238.10	12	94	90	100
PSR-7815PW	17-28	2.0	469.33	291.15	15	94	92	47

If you need other specifications, please enquire.

Package / Pinning / Derating

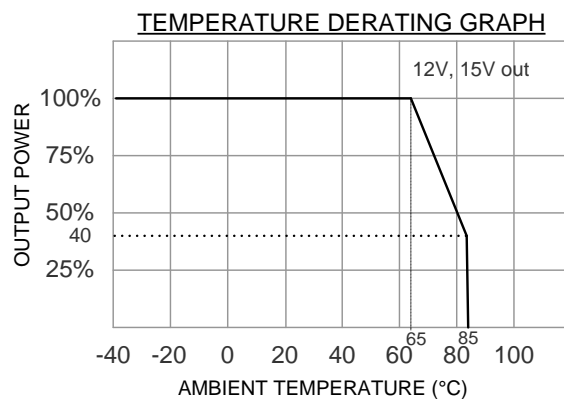
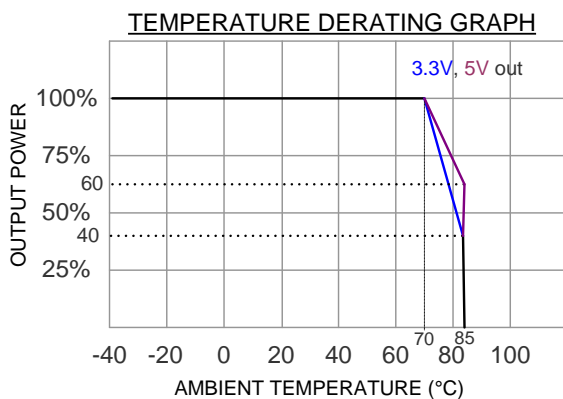


Notes : All dimensions are typical in millimeters (inches).

1. Pin diameter: 0.5 ± 0.05 (0.02 ± 0.002)
2. Pin pitch tolerance: ± 0.35 (± 0.014)
3. Case Tolerance: ± 0.5 (± 0.02)

Specification may change without notice. Pin length is typical.

PIN CONNECTIONS	
#	Switching Reg.
1	+Vin
2	GND
3	+Vout

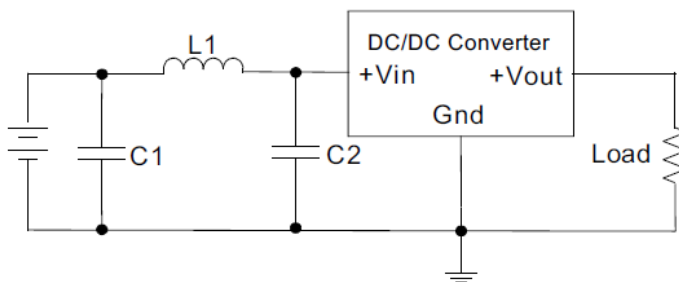


App Notes

EMC

Radiated Emission	EN55022, Class B
Conducted Emissions	
ESD	IEC 61000-4-2 perf. Criteria A
RS	IEC 61000-4-3 perf. Criteria A
EFT	IEC 61000-4-4 perf. Criteria A
Surge	IEC 61000-4-5 perf. Criteria A
CS	IEC 61000-4-6 perf. Criteria A
PFMF	IEC 61000-4-8 perf. Criteria A

EMC Countermeasures



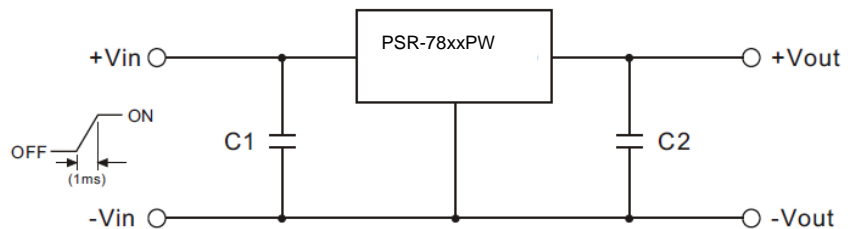
Input filter components (C1, C2, L1) are used to help meet EMI & EMS requirement for the module. These components should be mounted as close as possible to the module. All leads should be minimized to decrease radiated noise.

C1	L1	C2
10uF, 35V	6.8uH	10uF, 35V

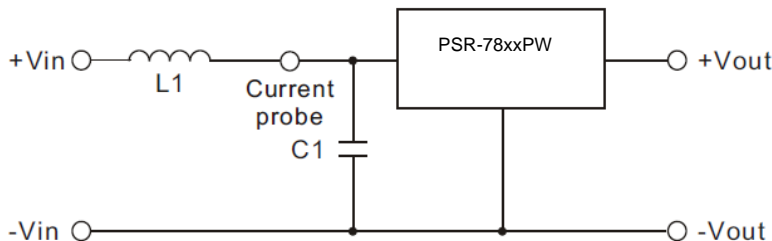
Standard Application Circuit

1. To protect the converter during power-up, use soft start Vin and C1=22uF

2. C2=47uF (optional)



Test Configuration



Input reflected ripple current is measured through a source inductor L1 (12uH) and a source capacitor C1=47uF at nominal input and full load.

Notes:

1. Input reflected ripple current is measured through a source inductor L1 (12uH) and a source capacitor C1=47uF at nominal input and full load.
2. Tested by minimal Vin and constant resistive from 2% to 100% load
3. Tested by normal Vin and 25% load step change (75-20-25 % of Io)