

SR7805 Series

Low Cost, Non-isolated Positive/Negative Output POL Switching Regulators



Key Features:

- Efficiency to 96%
- 500 mA Output Current
- Compact SIP Case
- LM78xx Replacement
- Wide Input Range
- Positive or Negative Output
- Short Circuit Protected
- Thermal Shutdown
- Low Noise
- **Low Low Cost**

RoHS



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Electrical Specifications

Specifications typical @ +25°C, nominal input voltage & rated output current, unless otherwise noted. Specifications subject to change without notice.

Output

Parameter	Conditions	Min.	Typ.	Max.	Units
Output Voltage Accuracy			±2.0	±3.0	%
Line Regulation	Vin = Min to Max		±0.2	±0.4	%
Load Regulation	Iout = 10% to 100%		±0.4	±0.6	%
Ripple & Noise (20 MHz)			25	35	mV P - P
Thermal Shutdown	See Note 2		150		°C
Quiescent Current, Note 3	Positive Output		5	8	mA
	Negative Output		7	13	
Temperature Coefficient				0.02	%/°C
Maximum Capacitive Load				1,000	µF
Short Circuit Input Power			0.5	1.8	W
Output Short Circuit	Continuous (Autorecovery)				

General

Parameter	Conditions	Min.	Typ.	Max.	Units
Isolation Voltage	Not Isolated				
Switching Frequency		280	330	450	kHz

Environmental

Parameter	Conditions	Min.	Typ.	Max.	Units
Operating Temperature Range	Ambient	-40	+25	+85	°C
Operating Temperature Range	Case			+100	°C
Storage Temperature Range		-55		+125	°C
Lead Temperature	1.5 mm From Case For 10 Sec			300	°C
Cooling	Free Air Convection				
Humidity	RH, Non-condensing			95	%

Physical

Case Size	0.45 x 0.30 x 0.40 Inches (11.5 x 7.55 x 10.2 mm)				
Case Material	Non-Conductive Black Plastic (UL-94V0)				
Weight	0.07 Oz (2.0g)				

Reliability Specifications

Parameter	Conditions	Min.	Typ.	Max.	Units
MTBF	MIL HDBK 217F, 25°C, Gnd Benign	2.0			MHours

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Model Selection Guide

Model Number	Input Voltage (VDC)		Output		Efficiency (% , Typ)	
	Nom.	Range	Voltage (VDC)	Current (mA, Max)	Min Vin	Max Vin
SR7805-03W	12	4.75 - 28.0	3.3	500.0	90	80
	12	4.75 - 25.0	-3.3	-400.0	73	78
SR7805-05W	12	6.50 - 32.0	5.0	500.0	93	84
	12	6.00 - 27.0	-5.0	-400.0	78	83
SR7805-06W	24	8.00 - 32.0	6.5	500.0	94	87
	12	6.00 - 25.0	-6.5	-300.0	83	85
SR7805-09W	24	11.0 - 32.0	9.0	500.0	95	91
	12	7.00 - 23.0	-9.0	-200.0	87	86
SR7805-12W	24	15.0 - 32.0	12.0	500.0	95	92
	12	7.00 - 22.0	-12.0	-200.0	85	87
SR7805-15W	24	18.0 - 32.0	15.0	500.0	96	93
	12	7.00 - 17.0	-15.0	-200.0	84	89

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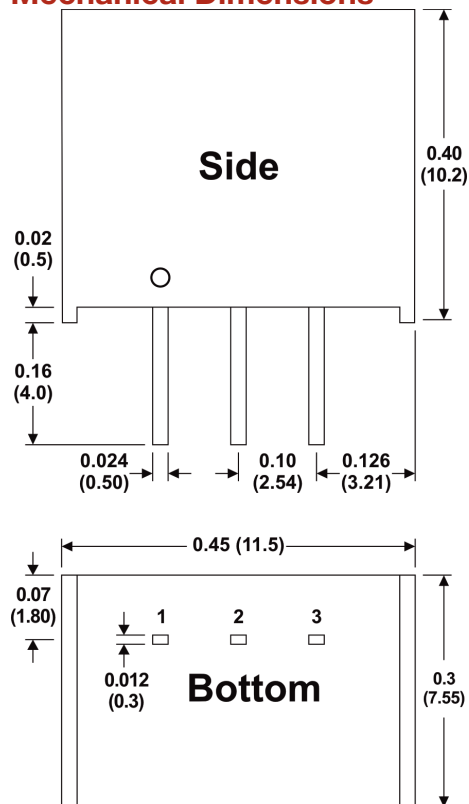
Notes:

1. Load regulation is specified for an output load change of 10% to 100%.
2. Measured at an internal IC junction.
3. Quiescent current is specified at 0% load for Vin = min to max.
4. This regulator is not designed to be used in parallel with another unit to increase output power.
5. The input should not exceed the range given in the model selection chart. Exceeding this limit could damage the unit.

Pin Connection

Pin	Function
1	+Vin
2	Gnd
3	+Vout

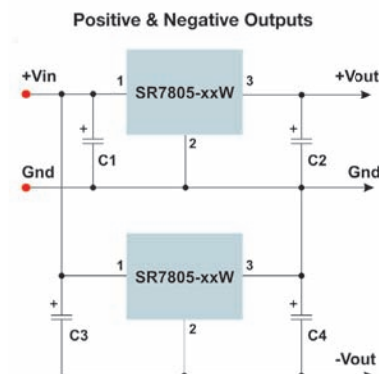
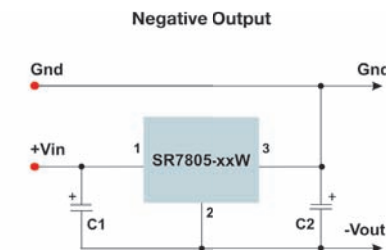
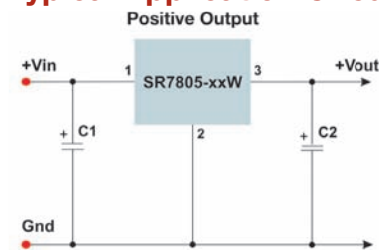
Mechanical Dimensions



Notes:

- All dimensions are typical in inches (mm)
- Tolerance x.xx = ±0.01 (±0.25)
- Pin 1 is marked by a "dot" or indentation on the side of the unit

Typical Application Circuits



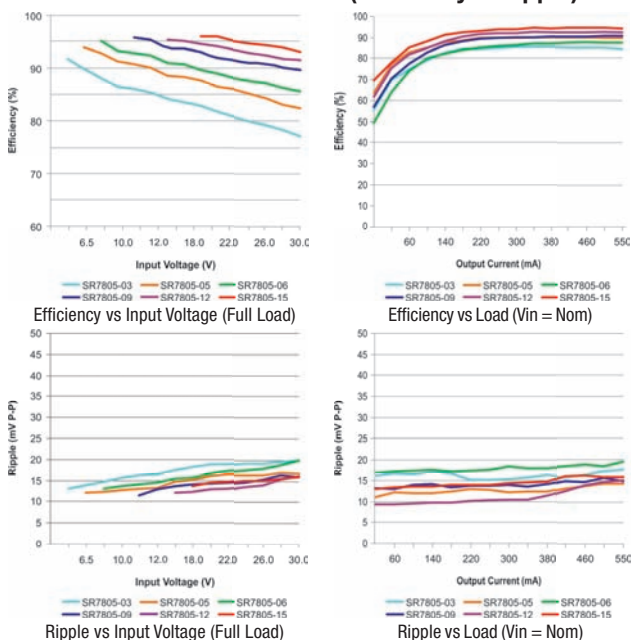
Component Values

Model Number	Ceramic Capacitors	
	C1, C3	C2, C4
SR7805-03W	10 μ F/50V	22 μ F/ 16V
SR7805-05W	10 μ F/50V	22 μ F/ 16V
SR7805-06W	10 μ F/50V	10 μ F/ 16V
SR7805-09W	10 μ F/50V	10 μ F/ 16V
SR7805-12W	10 μ F/50V	10 μ F/ 25V
SR7805-15W	10 μ F/50V	10 μ F/ 25V

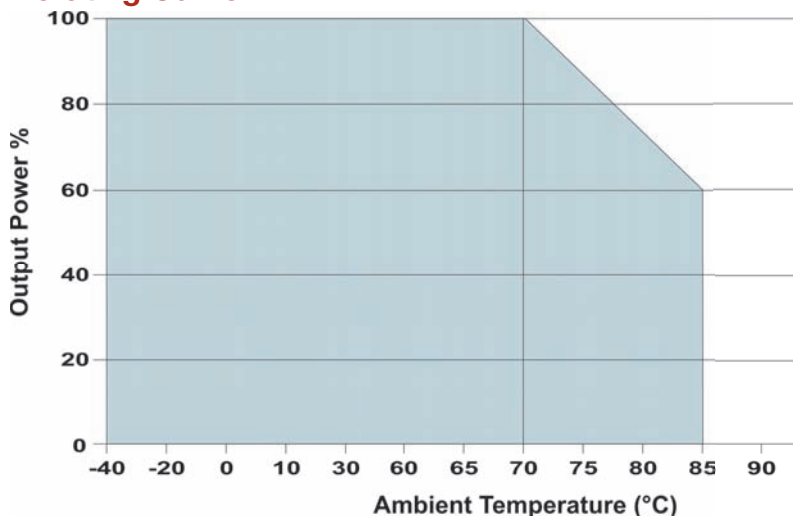
Notes:

1. C1 & C3 are low ESR ceramic capacitors used to minimize noise at the regulator.
A tantalum or low ESR electrolytic capacitor may also be used.
2. C1 & C2 (and if used C3 & C4) are required and should be mounted as close to the regulator pins as possible.

Characteristic Curves (Efficiency & Ripple)



Derating Curve



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