

SR7820 Series

Low Cost, 2A Output Non-isolated POL Switching Regulators



Key Features:

- Efficiency to 92%
- 2A Output Current
- Compact SIP Case
- LM78xx Replacement
- Wide Input Range
- Short Circuit Protected
- Thermal Shutdown
- Low Noise
- **Low Low Cost**

RoHS



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	V _{in} = Min to Max		±0.5	±0.75	%	
Load Regulation	I _{out} = 10% to 100%		±0.5	±1.0	%	
Ripple & Noise (20 MHz)			25	45	mV P - P	
Thermal Shutdown	See Note 2		150		°C	
Quiescent Current	See Note 3		5	10	mA	
Temperature Coefficient				0.03	%/°C	
Maximum Capacitive Load				1,000	µF	
Output Current Limit			5,000		mA	
Short Circuit Input Power			0.5	1.8	W	
Output Short Circuit	Continuous (Autorecovery)					

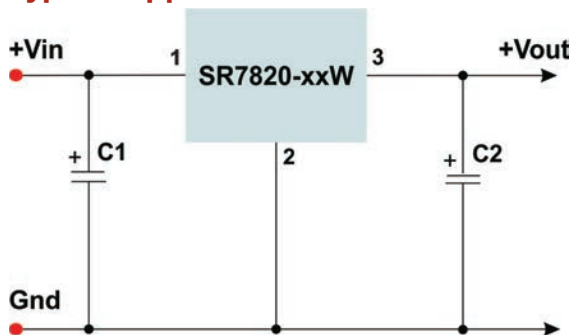
General						
Parameter	Conditions	Min.	Typ.	Max.	Units	
Isolation Voltage	Not Isolated					
Switching Frequency		280	330	450	kHz	

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						
Parameter	Conditions	Min.	Typ.	Max.	Units	
Case Size		0.45 x 0.35 x 0.69 Inches (11.5 x 9.0 x 17.50 mm)				
Case Material		Non-Conductive Black Plastic (UL-94V0)				
Weight		0.13 Oz (3.7g)				

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

Typical Application Circuit



Component Values

Model Number	Capacitors	
	C1, C3 (µF/V)	C2, C4 (µF/V)
SR7820-015W	10 / 25	22 / 6.3
SR7820-018W	10 / 25	22 / 6.3
SR7820-02W	10 / 25	22 / 6.3
SR7820-03W	10 / 25	22 / 6.3
SR7820-05W	10 / 25	22 / 16
SR7820-06W	10 / 25	22 / 16

Notes:

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

MicroPower Direct

292 Page Street
Suite D
Stoughton, MA 02072
USA

T: (781) 344-8226
F: (781) 344-8481
E: sales@micropowerdirect.com
W: www.micropowerdirect.com



www.micropowerdirect.com

Model Selection Guide

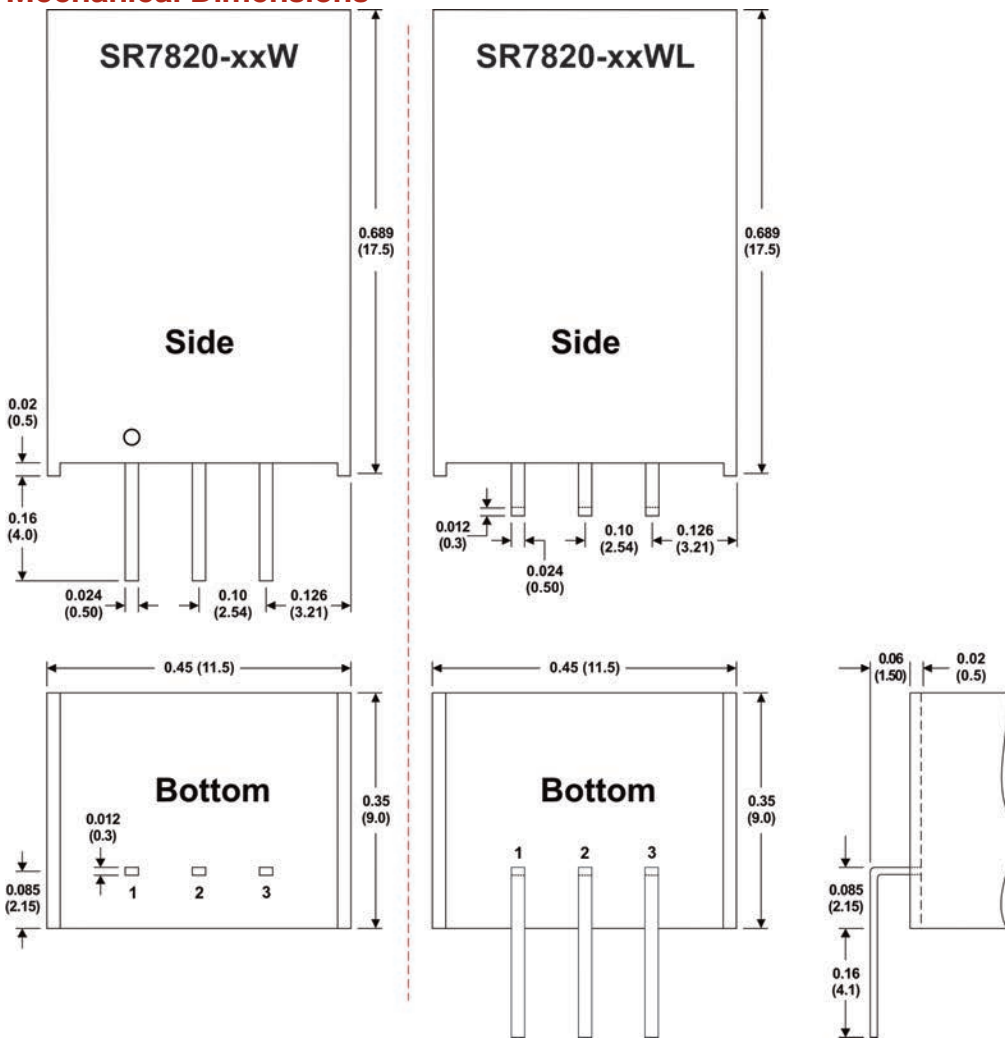
Model Number	Input Voltage Range (VDC)	Output		Efficiency (% Typ)	
		Voltage (VDC)	Current (mA, Max)	Min Vin	Max Vin
SR7820-015W(L)	4.75 - 18.0	1.5	2,000.0	79	76
SR7820-018W(L)	4.75 - 18.0	1.8	2,000.0	81	79
SR7820-02W(L)	4.75 - 18.0	2.5	2,000.0	85	83
SR7820-03W(L)	4.75 - 18.0	3.3	2,000.0	87	86
SR7820-05W(L)	7.00 - 18.0	5.0	2,000.0	91	88
SR7820-06W(L)	8.50 - 18.0	6.5	2,000.0	92	91

For right-angle pin option, add suffix "L" to model number (i.e. SR7820-05WL)

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.

Mechanical Dimensions



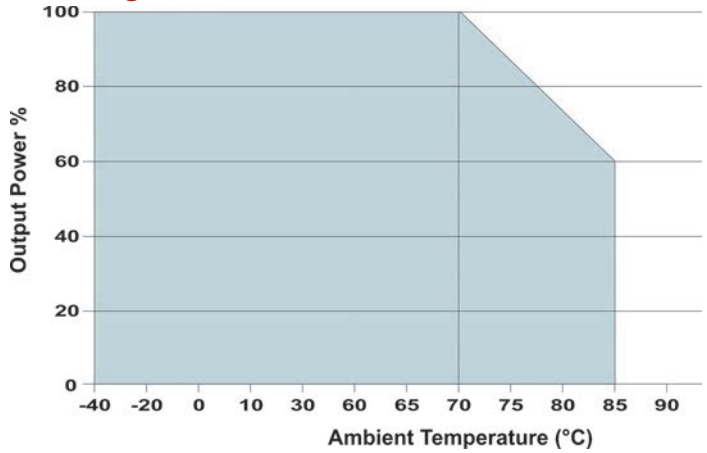
Pin Connection

Pin	1	2	3
Function	+Vin	Gnd	+Vout

Notes:

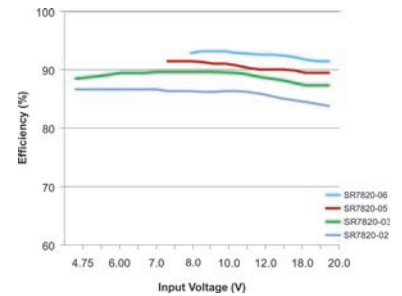
- All dimensions are typical in inches (mm)
- Tolerance x.xx = ±0.01 (±0.25)
- Pin 1 is marked by a "dot" or indentation on the side of the unit

Derating Curve

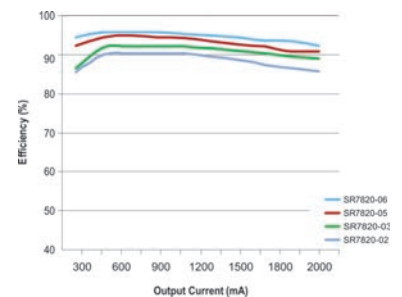


Ambient Temperature (°C)

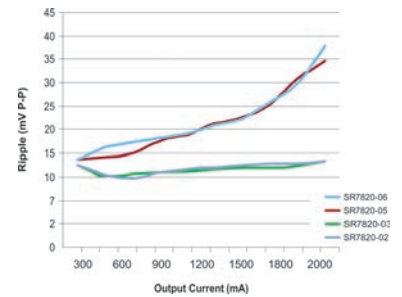
Characteristic Curves (Efficiency & Ripple)



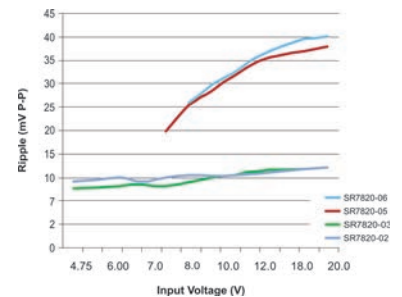
Efficiency vs Input Voltage (Full Load)



Efficiency vs Load (Vin = Nom)



Ripple vs Load (Vin = Nom)



Ripple vs Input Voltage (Full Load)



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