



# MicroPower Direct



Compact, High Efficiency  
10W, Wide Input Range  
Step-Down Switching Regulator  
**SR1000W Series**

## Key Features

- 10W Output Power
- Wide Input Voltage Range
- Remote On/Off Control
- Compact SIP Construction
- Efficiency to 93%
- Low Cost

## Electrical Specifications

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

### Input

Parameter	Conditions	Min.	Typ.	Max.	Units
Input Start Range	5 VDC Input	3.5		3.90	VDC
	12 VDC Input	5.5		6.0	
	24 VDC Input	12.0		15.0	

### Output

Parameter	Conditions	Min.	Typ.	Max.	Units
Output Voltage Accuracy			±1.0	±2.0	%
Output Voltage Trim Range	SR1001W, SR1021W	1.8		3.3	VDC
	SR1011W, SR1022W	3.0		5.0	
Line Regulation	V <sub>in</sub> = Min to Max		±0.2	±0.5	%
Load Regulation	I <sub>out</sub> = 10% to 100%		±0.5	±1.5	%
Ripple & Noise (20 MHz) (Note 1)			30	50	mV P - P
Ripple & Noise (20 MHz)	Over Line, Load & Temp.			120	mV P - P
Ripple & Noise (20 MHz)				15	mV rms
Output Power Protection		120			%
Transient Recovery Time (Note 2)	25% Load Step Change		100	150	µSec
Transient Response Deviation			±2.0	±4.0	%
Temperature Coefficient			±0.01	±0.02	%/°C
Output Short Circuit	Continuous				

### General

Parameter	Conditions	Min.	Typ.	Max.	Units
Isolation Voltage	Not Isolated				
Switching Frequency			300		kHz

### Environmental

Parameter	Conditions	Min.	Typ.	Max.	Units
Operating Temperature Range	Ambient	-25	+25	+70	°C
Storage Temperature Range		-25		+125	°C
Cooling	Free Air Convection				
Humidity	RH, Non-condensing			95	%

### Physical

Size	0.8 x 0.327 x 0.95 Inches (20.2 x 8.3 x 24.0 mm)				
Weight	0.30 Oz (8.6g)				
Vibration	5 to 10 Hz Amplitude, 10 mm Pk-Pk				
	10 to 55 Hz Acceleration 2G				
Shock	Acceleration 20G Max., Time 11 mS				

### Reliability Specifications

Parameter	Conditions	Min.	Typ.	Max.	Units
MTBF	MIL HDBK 217F, 25°C, Gnd Benign	1.5			MHours

### Absolute Maximum Ratings

Parameter	Conditions	Min.	Typ.	Max.	Units
Input Voltage Surge (1 Sec)	5 VDC Input	-0.7		16.0	VDC
	12 VDC Input	-0.7		25.0	
	24 VDC Input	-0.7		30.0	
Lead Temperature	1.5 mm From Case For 10 Sec			235.0	°C
Internal Power Dissipation	All Models			1,500	mW

Caution: Exceeding Absolute Maximum Ratings may damage the module. These are not continuous operating ratings.

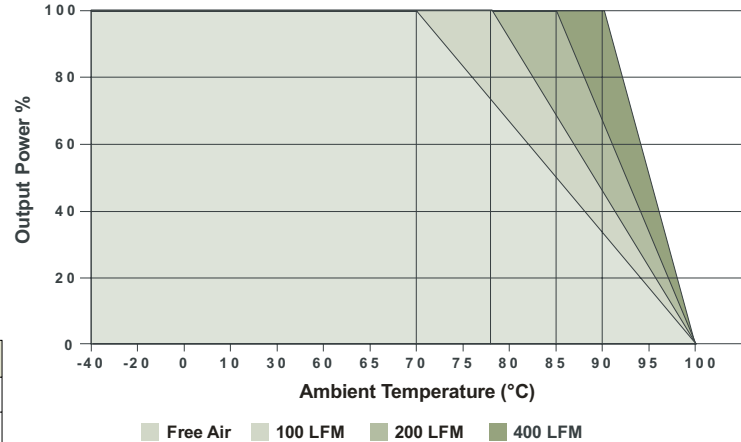
# Model Selection Guide

Model Number	Input				Output			Efficiency (% Typ)	Fuse Rating Slow-Blow (mA)
	Voltage (VDC)		Current (mA)		Voltage (VDC)	Current (mA, Max)	Current (mA, Min)		
	Nominal	Range	Full-Load	No-Load					
SR1001W	5	4.75 - 13.6	1,434	21	3.3	2,000	200	92	4,000
SR1011W	12	6.00 - 16.5	896	27	5.0	2,000	200	93	3,000
SR1021W	24	16.0 - 28.0	331	45	3.3	2,000	200	83	1,000
SR1022W	24	16.0 - 28.0	490	45	5.0	2,000	200	85	1,000

### Notes:

- When measuring output ripple, it is recommended that an external 22 µF ceramic capacitor be placed from the +Vout pin to the -Vout pin for single output units and from each output to common for dual output units.
- Transient recovery is measured to within a 1% error band for a load step change of 75% to 100%.
- Operation at no-load will not damage these units. However, they may not meet all specifications.
- It is recommended that a fuse be used on the input of a power supply for protection. See the table above for the correct rating.

### Derating Curve



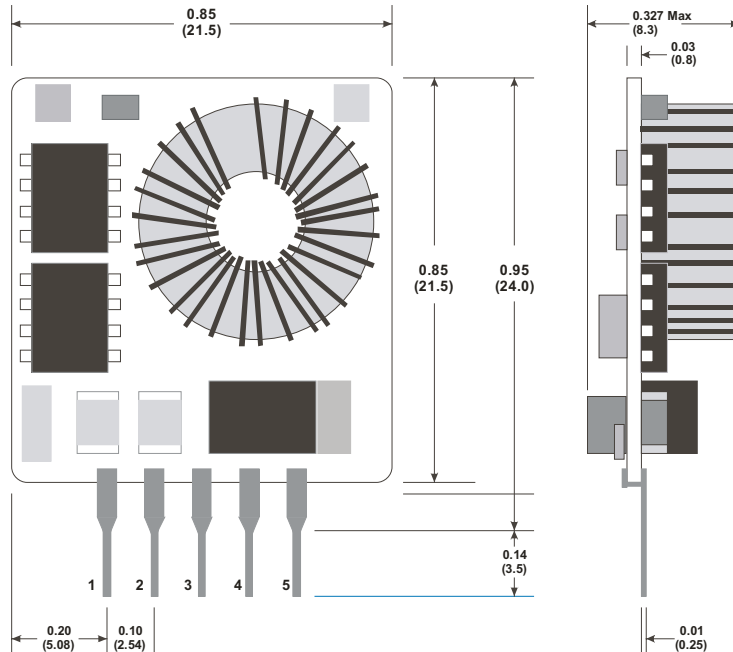
### Remote ON/OFF (Optional, see below)

Parameter	Min	Max	Units
Supply On	3.0	5.0 or Open	VDC
Supply Off	-0.3	1.2	VDC
Standby Input Current		300	µA
Control Input Current (On)		50	µA
Control Input Current (Off)		-100	µA
Control Common	Referenced to Neg. Input		

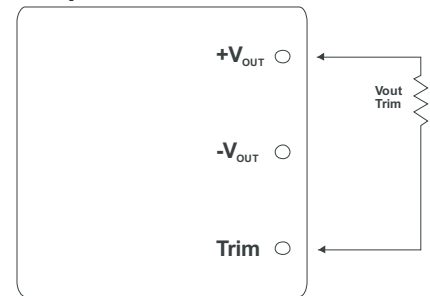
### Remote ON/OFF Notes:

- Maximum sink current at the on/off terminal (Pin 1) during a logic low is 100 µA.
- Maximum allowable leakage current of a switch connected to the on/off terminal (Pin 1) at logic high (3.0V to 5.0V) is 50 µA.

### Mechanical Dimensions



### Output Trim



The output voltage of the **SR1000W** may be trimmed down by connecting an external resistor between the +Vout (pin 4) and Output Trim (pin 5). This resistor value (in Ω) is given by:

$$V_{out\ Trim} = \frac{(R_x \bullet 1200) \bullet (V_{out} - 1.195)}{(R_x \bullet 1.195) - (1200 \bullet (V_{out} - 1.195))}$$

For SR1001W & SR1021RW:

$$R_x = 2,130\Omega$$

$$V_{out} = 1.8 \text{ to } 3.3\text{VDC}$$

For SR1011W & SR1022RW:

$$R_x = 3,840\Omega$$

$$V_{out} = 3.0 \text{ to } 5.0\text{VDC}$$

### Pin Connections

Pin	Function
1	Remote On/Off
2	+Vin
3	-Vin (Gnd)
4	+Vout
5	Output Trim

### Mechanical Notes:

- All dimensions are typical in inches (mm)
- Tolerance x.xx = ±0.01 (±0.25)
- Leads are gold plated for improved solderability.



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