

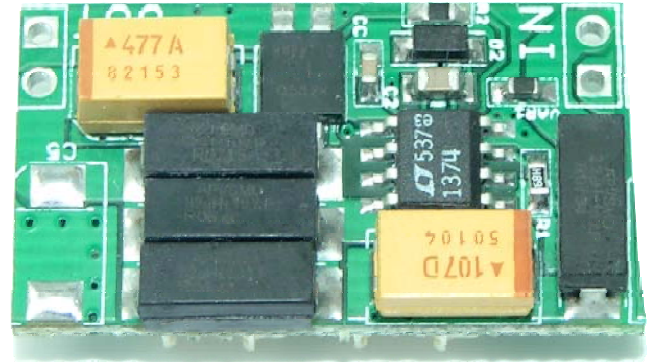
Low Noise Switching Regulator

FEATURES

- Up to 1A Constant Supply
- Up to 18V Input Voltage
- Small Size: 1.13" x 0.64" x 0.35"
- Light Weight: 3.1g
- 3A Max Current Option
- Configurable Output Voltage (3.3V, 5V, 9V, etc.)
- Constant 500kHz Switching Frequency
- Solder Through Hole, and 2 pin Molex Connection

APPLICATION

- Noise Sensitive Analog Circuits
- UAV Video Camera and Transmitter Supply
- Ground Station Supply
- Servo Motor Supply
- Battery-Powered Systems
- Distributed Power



DESCRIPTION

The SRv1.1 is a low noise 500kHz switching voltage regulator. It was designed as a supply for noise sensitive video circuitry. With a supply current up to 1A, weight less than 3.1g, and size less than 1in square, the SRv1.1 is ideal for small UAV applications.

The output voltage is adjustable to any voltage from 0V to 18V by change of a single resistor. Standard shipping outputs include 3.3V, 5V, or 9V. The output current can be increased to 3A by increasing the output filter corner frequency.

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TYPICAL APPLICATION

Figure 1 demonstrates how the SRv1.1 might power a UAV video system. This system contains gimbaled EO and IR cameras, a video switch, and a video transmitter.

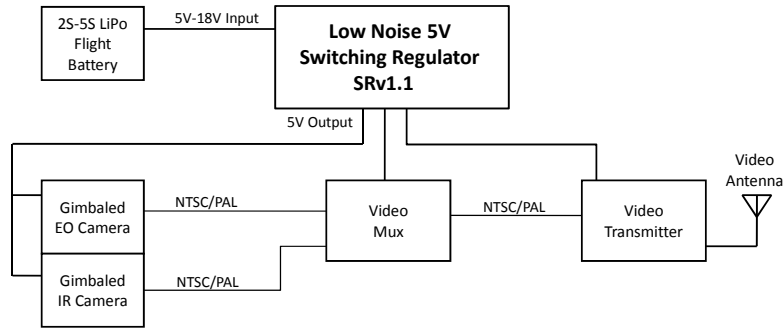


Figure 1 - Typical Use of the SRv1.1.

ABSOLUTE MAXIMUM RATINGS

Input Supply Voltage 18V
 Operating Temperature Range..... -40°C to 80°C
 Storage Temperature Range -40°C to 125°C
 Humidity 5% to 95%, no condensing

Stresses above those listed under the Absolute Maximum Ratings may cause permanent damage to this device. This is a stress rating only; functional operation of this device at these or any other conditions above those indicated in the operational section of this specification are not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

ELECTRICAL CHARACTERISTICS

Parameter	Conditions	Min	Typ	Max	Units
Input Voltage		Vout		18	V
Output Voltage					
Output Error (Low Noise Version)				±20	mV
Ripple Noise					mV
Output Current					
Standard Low Noise Version				1	A
Optional Higher Current Config.				3	A

PHYSICAL CHARACTERISTICS

Parameter	Conditions	Typ	Units
Dimensions		1.13" x 0.64" x 0.35"	Inches
Weight		3.1	Grams

PORT DESCRIPTIONS

This section describes the associated input and output connection points on the SRv1.1. Figure 2 shows the connection points on the bottom surface of the SRv1.1

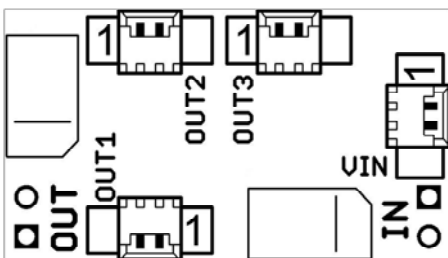


Figure 2 – Connection Points On Bottom Surface.

Both a two pin Molex socket and a 0.1" pitch through hole solder connections are available for input and output. Pin 1 is

ground and Pin 2 is power. The Pin 1 is identified in Figure 2 as that closest to the label "1" for each socket and by the square pad for the through hole connection.

Output Ports: All output connections are tied together and are equivalent.

Connectors: Machine crimped two pin 1.25mm Molex pigtails with 12" wire lengths are available for sale from Procerus Technologies. These machine crimped pigtails are recommended for use as they are generally more reliable than hand crimped pigtails. Parts for used for making hand crimped pigtail connections are listed in the Related Parts section.

ADJUSTABLE OUTPUT VOLTAGE

The output voltage of the SRv1.1 can be configured for 0V to 18V by changing the SMT resistor R2 shown in Figure 3 - Output Voltage Configuration Resistor (R2). The resistor value can be determined given a desired output voltage by using the following equation.

$$R2 = (2160 \times \text{Output Voltage}) - 5149$$

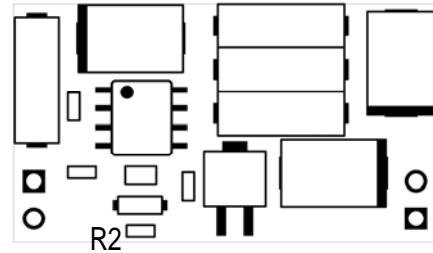


Figure 3 - Output Voltage Configuration Resistor (R2)

RELATED PARTS

Part Number	Manufacturer	Description	Comments
MOLEX2POS-L12	Procerus Technologies	2 PIN 1.25MM 12" WIRE PIGTAIL CONNECTOR	
P1330R-222K	API Develan	INDUCTOR POWER 2.2UH SMD	3A Output Current Option (Higher Current Option)
P1330R-823K	API Develan	INDUCTOR POWER 82.0UH SMD	1A Output Current Option (Low Noise Option)
50058-8000	Molex/Walden	CONN TERM FEMALE 28-32AWG TIN	Crimp Terminal (Used For Hand Crimping)
51021-0200	Molex/Walden	CONN HOUSING 2POS 1.25MM	2 Pin Connector Housing (Used For Hand Crimping)
53261-0271	Molex/Walden	CONN HEADER 2POS 1.25MM R/A SMD	2 Pin Header
LT1374HV	Linear Technology	IC SW REG 4.5A ADJ STP-DWN 8SOIC	High Input Voltage (32V) Version