ECONOLINE - DC/DC-Converter

RS Series, 2 Watt, SIP8, Regulated, Isolated (Single Output)

NEW

RECOM

Features

- 2:1 Wide Range Voltage Input
- 1kVDC Isolation
- Efficiency up to 85%
- UL 94V-0 Package Material
- 0.05% Line Regulation
- Continuous Short Circuit Protection with Current Foldback
- Low Noise

Selection Guide

Part Number SIP8	Input Voltage Range (VDC)	Rated Output Voltage (VDC)	Output Current at Full Load (mA)	Efficiency Typial (%)	Package Style
RS-053.3	4.5-9	3.3	500	65	
RS-0505	4.5-9	5	400	70	
RS-0509	4.5-9	9	222	75	
RS-0512	4.5-9	12	167	76	
RS-0515	4.5-9	15	133	78	
RS-123.3	9-18	3.3	500	72	
RS-1205	9-18	5	400	76	
RS-1209	9-18	9	222	79	
RS-1212	9-18	12	167	82	SIP8
RS-1215	9-18	15	133	83	
RS-243.3	18-36	3.3	500	75	
RS-2405	18-36	5	400	78	
RS-2409	18-36	9	222	81	
RS-2412	18-36	12	167	84	
RS-2415	18-36	15	133	85	
RS-483.3	36-72	3.3	500	75	
RS-4805	36-72	5	400	79	
RS-4809	36-72	9	222	81	
RS-4812	36-72	12	167	84	
RS-4815	36-72	15	133	84	

Capacitance

Cin	5-9V, 9-18V & 18-36V input types 36V -72V input types	10µF, 50V 10µF, 100V
Cout	36V-72V input types	100µF, 25V

Electrical Specifications (measured at T_A = 25°C, at nominal input voltage and rated output current unless otherwise specified)

Input Voltage Range	2:1
Output Accuracy	±1% typ.
Rated Power	2 W max.
Isolation Voltage	1kVDC
Isolation Capacity	40pF

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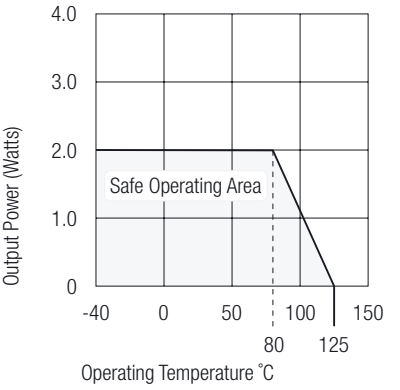
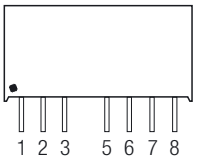
Electrical Specifications (measured at T_A = 25°C, at nominal input voltage and rated output current unless otherwise specified)

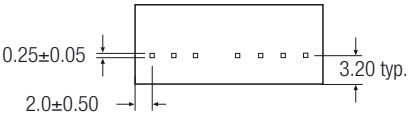
Isolation Resistance		1GΩ
Ripple & Noise (B/W = 20MHz)	3.3V, 5V Output 9V, 12V, 15V Output	60mV p-p max. 40mV p-p max.
Line Regulation (LL-HL at FL)		±0.2% max.
Load Regulation (10% to 100% Load)		±0,5% typ.
Operating Frequency (10% to 100% Load)		100kHz - 400kHz dep. on load (PFM)
Short Circuit Protection		Continuous
Operating Temperature Range	Vin = 5V Vin = 12V, 24V, 48V	–40°C to +80°C –40°C to +85°C
Storage Temperature Range		–50°C to +125°C
Efficiency		up to 85%
MTBF (MIL-HDBK-217F)		10^6 Hours
Weight		4.6g

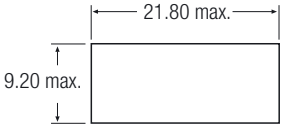


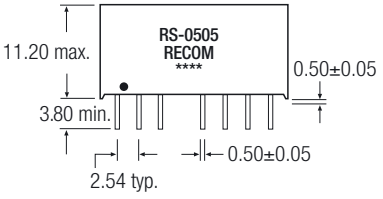
Package Style and Pinning (mm)

8 Pin SIP Package Style

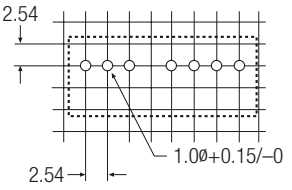








Recommended Footprint Details



Pin Connections

Pin #	Single	Description
1	GND	Negative input
2	+Vin	Positive input
3	CTRL	Control input (can be left open)
5	NE	No exernal connection allowed
6	+Vout	Positive output
7	–Vout	Negative output
8	CS	Optional external capacitor

Tolerance: ±0,25mm

Control Pin Input Current:	10mA
Voltage Set Point Accuracy with external input/output capacitors refer to recommended test circuit:	typ. ± 1% max. ±2%
Control Pin (CTRL) Input Current, control voltage applied via 1K resistor, output voltage must reduce to 0V:	typ. 3mA max. 6mA

External capacitance

Although these converter will work without external capacitors, they are necessary in order to guarantee the full parametric performance over the full line load range. All parts have been tested and characterised using the following recommended values and test circuit.

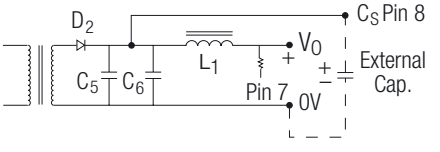
C_{in}	All RS-XXXX types 10uF, 100V Philips Part No. 15162109
C_{out}	100uF, 25V Philips Part No. 13556101

Pin 3 (CTRL)

This pin provides an Off function which puts the converter into a low power mode. When the pin is 'high' the converter is OFF and when the pin is high 'Z' the converter is ON. There is no allowed low state for this pin. Voltage to be applied via a limiting resistor with a recommended value of 1K for RS-05xx; 3.3K for RS-12xx; RS-24xx and 10K for RS-48xx)

Pin 5 (NE)

This pin is used internally and must have no external connection.

Pin 8 (Cs)

This pin provides a connection point to the main reservoir capacitor. Additional capacitance can be added from this to pin 7. Any low esr capacitor will improve ripple and noise in some measure. The benefit of this access point over simple additional output filter inductor. Maximum values of external capacitance will be depend on the output voltage/loading of the converter and the desired ripple figure. Starting values can be in the range of 100uF.