

# ECONOLINE - DC/DC-Converter

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



# RECOM

## Features

- 2:1 Wide Range Voltage Input
- 1kVDC Isolation
- Efficiency to 83%
- UL 94V-0 Package Material
- 0.05% Line Regulation
- Continuous Short Circuit Protection with Current Foldback
- Low Noise



## Selection Guide

Part Number	Input Voltage Range (VDC)	Rated Output Voltage (VDC)	Output Current at Full Load (mA)	Package Style
SIP8				
RS-0505	5-9	5	400	
RS-0509	5-9	9	222	
RS-0512	5-9	12	167	
RS-0515	5-9	15	133	
RS-1205	9-18	5	400	
RS-1209	9-18	9	222	
RS-1212	9-18	12	167	SIP8
RS-1215	9-18	15	133	
RS-2405	18-36	5	400	
RS-2409	18-36	9	222	
RS-2412	18-36	12	167	
RS-2415	18-36	15	133	
RS-4805	36-72	5	400	
RS-4809	36-72	9	222	
RS-4812	36-72	12	167	
RS-4815	36-72	15	133	

## 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

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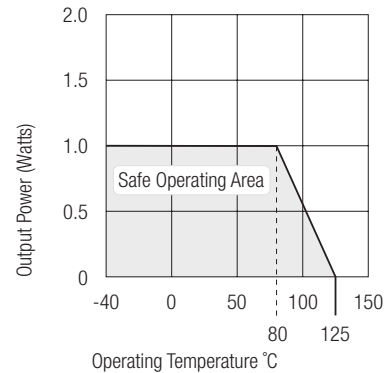
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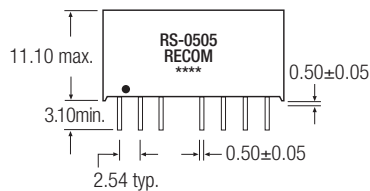
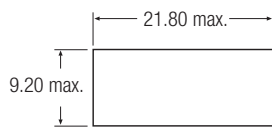
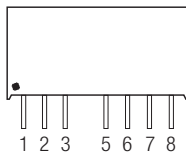
## Electrical Specifications (measured at $T_A = 25^\circ\text{C}$ , at nominal input voltage and rated output current unless otherwise specified)

Input Voltage Range	2:1
Output Accuracy	$\pm 1\%$ typ.
Rated Power	2 W max.
Isolation Voltage	1kVDC
Ripple & Noise (B/W = 20MHz)	50mV p-p max.
Line Regulation	$\pm 0.2\%$ max.
Load Regulation (10% to 100% Load)	$\pm 0.5\%$ typ.
Switching Frequency at Full Load	85kHz min.
Short Circuit Protection	Continuous
Operating Temperature Range	$-40^\circ\text{C}$ to $+80^\circ\text{C}$ (see graph)
Storage Temperature Range	$-50^\circ\text{C}$ to $+125^\circ\text{C}$
Efficiency	up to 83%



## Package Style and Pinning (mm)

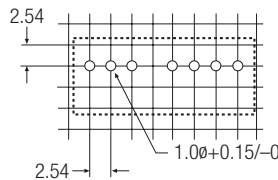
### 8 Pin SIP Package Style



### Pin Connections

Pin #	Single	Description
1	GND	Negative input
2	+Vin	Positive input
3	CTRL	Control input (can be left open)
4		Not fitted
5	NE	No external connection allowed
6	+Vout	Positive output
7	OVout	Negative output
8	CS	Optional external capacitor

### Recommended Footprint Details



Control Pin Input Current: 10mA

Voltage Set Point Accuracy with external input/output capacitors refer to recommended test circuit: typ.  $\pm 1\%$  max.  $\pm 2\%$

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.

<b>C<sub>in</sub></b>	All RS-XXXX types 10uF, 100V Philips Part No. 15162109
<b>C<sub>out</sub></b>	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.

