

## Features

### Regulated Converters

- 2:1 Wide Range Voltage Input
- 1kVDC, 2kVD & 3kVDC Isolation
- UL94V-0 Package Material
- Continuous Short Circuit Protection with Current Foldback
- Low Noise
- No External Capacitor needed
- Efficiency to 83%

#### Selection Guide 5V, 12V, 24V and 48V Input Types

Part Number	Input Voltage Range (VDC)	Rated Output Voltage (VDC)	Output Current Full Load (mA)	Efficiency typ. (%)	Capacitive Load max. (µF)
SIP8					
RS-053.3S (H2/H3)	4.5 - 9	3.3	500	68	1000
RS-0505S (H2/H3)	4.5 - 9	5	400	73	1000
RS-0509S (H2/H3)	4.5 - 9	9	222	74	470
RS-0512S (H2/H3)	4.5 - 9	12	166	75	220
RS-0515S (H2/H3)	4.5 - 9	15	134	75	100
RS-123.3S (H2/H3)	9 - 18	3.3	500	69	1000
RS-1205S (H2/H3)	9 - 18	5	400	75	1000
RS-1209S (H2/H3)	9 - 18	9	222	78	470
RS-1212S (H2/H3)	9 - 18	12	166	80	220
RS-1215S (H2/H3)	9 - 18	15	134	80	100
RS-243.3S (H2/H3)	18 - 36	3.3	500	70	1000
RS-2405S (H2/H3)	18 - 36	5	400	78	1000
RS-2409S (H2/H3)	18 - 36	9	222	81	470
RS-2412S (H2/H3)	18 - 36	12	166	83	220
RS-2415S (H2/H3)	18 - 36	15	134	83	100
RS-483.3S (H2/H3)	36 - 72	3.3	500	73	1000
RS-4805S (H2/H3)	36 - 72	5	400	78	1000
RS-4809S (H2/H3)	36 - 72	9	222	81	470
RS-4812S (H2/H3)	36 - 72	12	166	83	220
RS-4815S (H2/H3)	36 - 72	15	134	83	100
RS-053.3D (H2/H3)	4.5 - 9	±3.3	±250	68	±470
RS-0505D (H2/H3)	4.5 - 9	±5	±200	73	±470
RS-0509D (H2/H3)	4.5 - 9	±9	±111	74	±220
RS-0512D (H2/H3)	4.5 - 9	±12	±83	75	±100
RS-0515D (H2/H3)	4.5 - 9	±15	±67	75	±47
RS-123.3D (H2/H3)	9 - 18	±3.3	±250	69	±470
RS-1205D (H2/H3)	9 - 18	±5	±200	75	±470
RS-1209D (H2/H3)	9 - 18	±9	±111	78	±220
RS-1212D (H2/H3)	9 - 18	±12	±83	80	±100
RS-1215D (H2/H3)	9 - 18	±15	±67	80	±47
RS-243.3D (H2/H3)	18 - 36	±3.3	±250	70	±470
RS-2405D (H2/H3)	18 - 36	±5	±200	78	±470
RS-2409D (H2/H3)	18 - 36	±9	±111	81	±220
RS-2412D (H2/H3)	18 - 36	±12	±83	83	±100
RS-2415D (H2/H3)	18 - 36	±15	±67	83	±47
RS-483.3D (H2/H3)	36 - 72	±3.3	±250	73	±470
RS-4805D (H2/H3)	36 - 72	±5	±200	78	±470
RS-4809D (H2/H3)	36 - 72	±9	±111	81	±220
RS-4812D (H2/H3)	36 - 72	±12	±83	83	±100
RS-4815D (H2/H3)	36 - 72	±15	±67	83	±47

## ECONOLINE

DC/DC-Converter

# RS Series

## 2 Watt SIP8 Isolated Single & Dual Output



**EN-60950-1 Certified**

**EN-60601-1 Certified  
(Suffix H2/H3)**

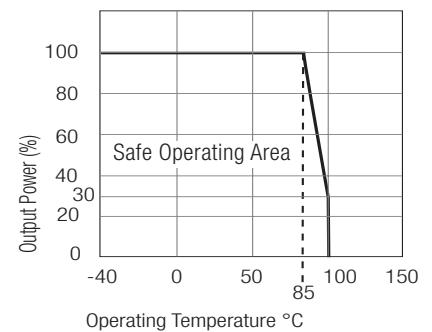
### Description

High power-density, an industrial temperature range of  $-40^{\circ}\text{C}$  to  $+85^{\circ}\text{C}$  and extra features like Remote-On-Off-control are just some of the characteristics of this converter, ideal for highly sophisticated industrial designs. The RS series is available with isolation of 2kV or 3kV by choosing option "/H2" or "/H3" in which case it is also ideal for medical applications which additionally require EN-60601-1 certification.

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

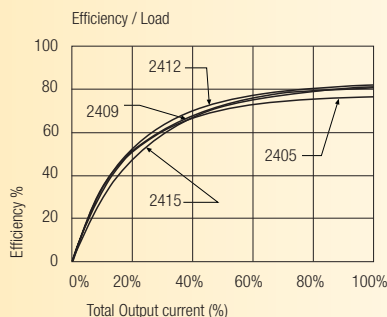
Input Voltage Range	2:1		
Output Accuracy	Single output	$\pm 1\%$	
	Dual output	$\pm 2\%$	
Line Voltage Regulation	Single output	$\pm 0.2\%$ max.	
	Dual output	$\pm 0.5\%$ max.	
Load Voltage Regulation (25% to 100% full load)	Single & Dual output	$\pm 0.5\%$ typ.	
Output Ripple and Noise (20MHz limited)	50mVp-p max.		
Switching Frequency (at full Load)	Single output	85kHz min.	
	Dual output	100kHz min. / 700kHz max.	
Efficiency at Full Load	70% min. / 80% typ.		
No Load Power Consumption	50mW min. / 139mW typ. / 250mW max.		
Isolation Voltage (tested for 1 second)	1000VDC min.		
	H2	2000VDC min.	
	H3	3000VDC min.	
Rated Working Voltage (long term isolation)	see Application Notes		
Isolation Capacitance (1000V version)	Single	10pF min. / 40pF typ. / 60pF max.	
Isolation Capacitance (H2 and H3)	Single	5pF min. / 30pF typ. / 60pF max.	
Isolation Capacitance (1000V version)	Dual	120pF min. / 170pF typ. / 250pF max.	
Isolation Capacitance (H2 and H3)	Dual	5pF min. / 30pF typ. / 60pF max.	
Isolation Resistance	1G $\Omega$ min.		
Short Circuit Protection	Continuous		
Operating Temperature Range	$-40^{\circ}\text{C}$ to $+85^{\circ}\text{C}$		
Storage Temperature Range	$-55^{\circ}\text{C}$ to $+125^{\circ}\text{C}$		
Relative Humidity	95% RH		
Package Weight	4.8g		
MTBF ( $+25^{\circ}\text{C}$ )	} Detailed Information see Application Notes chapter "MTBF"	using MIL-HDBK 217F	$1398 \times 10^3$ hours
		using MIL-HDBK 217F	$210 \times 10^3$ hours

### Derating-Graph (Ambient Temperature)

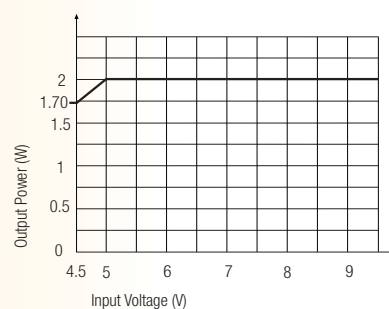


### Typical Characteristics

#### RS-24xx



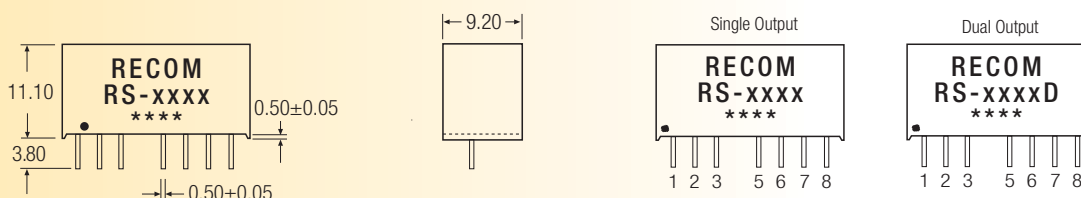
#### RS-types



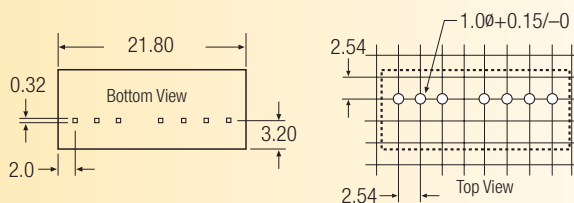
## Package Style and Pinning (mm)



### 8 PIN SIP Package



### Recommended Footprint Details



### Pin Connections

Pin #	Single	Dual
1	-Vin	-Vin
2	+Vin	+Vin
3	CTRL	CTRL
5	NC	NC
6	+Vout	+Vout
7	-Vout	Com
8	NC*	-Vout

NC = No Connection

NC\* = NC, but no external Connection allowed.

XX.X ± 0.5 mm

XX.XX ± 0.25 mm

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

#### 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 (NC)

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

#### Pin 8 (NC\*)

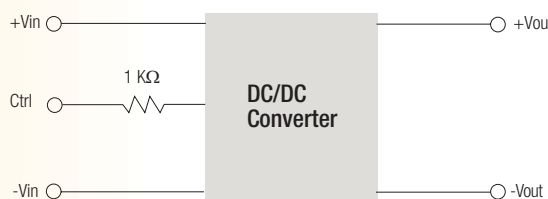
No external connection allowed.

### Application circuit

Remote ON/OFF

ON: open or high impedance.

OFF: 3---6mA input current applied Via 1KΩ resistor (OFF stand by current 10mA max.)



**Lin** RS- types 4.7μH ~ 100μH

**Cout** RS- types 22μF ~ 100μF/25V