

## 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					
RSO-053.3S (H2/H3)	4.5 - 9	3.3	300	68	470
RSO-0505S (H2/H3)	4.5 - 9	5	200	73	470
RSO-0509S (H2/H3)	4.5 - 9	9	111	74	220
RSO-0512S (H2/H3)	4.5 - 9	12	83	75	100
RSO-0515S (H2/H3)	4.5 - 9	15	67	75	47
RSO-123.3S (H2/H3)	9 - 18	3.3	300	69	470
RSO-1205S (H2/H3)	9 - 18	5	200	75	470
RSO-1209S (H2/H3)	9 - 18	9	111	78	220
RSO-1212S (H2/H3)	9 - 18	12	83	80	100
RSO-1215S (H2/H3)	9 - 18	15	67	80	47
RSO-243.3S (H2/H3)	18 - 36	3.3	300	70	470
RSO-2405S (H2/H3)	18 - 36	5	200	78	470
RSO-2409S (H2/H3)	18 - 36	9	111	81	220
RSO-2412S (H2/H3)	18 - 36	12	83	83	100
RSO-2415S (H2/H3)	18 - 36	15	67	83	47
RSO-483.3S (H2/H3)	36 - 72	3.3	300	70	470
RSO-4805S (H2/H3)	36 - 72	5	200	75	470
RSO-4809S (H2/H3)	36 - 72	9	111	78	220
RSO-4812S (H2/H3)	36 - 72	12	83	80	100
RSO-4815S (H2/H3)	36 - 72	15	67	80	47
RSO-053.3D (H2/H3)	4.5 - 9	±3.3	±150	71	±220
RSO-0505D (H2/H3)	4.5 - 9	±5	±100	74	±220
RSO-0509D (H2/H3)	4.5 - 9	±9	±56	75	±100
RSO-0512D (H2/H3)	4.5 - 9	±12	±42	76	±47
RSO-0515D (H2/H3)	4.5 - 9	±15	±34	76	±22
RSO-123.3D (H2/H3)	9 - 18	±3.3	±150	76	±220
RSO-1205D (H2/H3)	9 - 18	±5	±100	79	±220
RSO-1209D (H2/H3)	9 - 18	±9	±56	80	±100
RSO-1212D (H2/H3)	9 - 18	±12	±42	81	±47
RSO-1215D (H2/H3)	9 - 18	±15	±34	81	±22
RSO-243.3D (H2/H3)	18 - 36	±3.3	±150	74	±220
RSO-2405D (H2/H3)	18 - 36	±5	±100	77	±220
RSO-2409D (H2/H3)	18 - 36	±9	±56	78	±100
RSO-2412D (H2/H3)	18 - 36	±12	±42	80	±47
RSO-2415D (H2/H3)	18 - 36	±15	±34	80	±22
RSO-483.3D (H2/H3)	36 - 72	±3.3	±150	70	±220
RSO-4805D (H2/H3)	36 - 72	±5	±100	75	±220
RSO-4809D (H2/H3)	36 - 72	±9	±56	78	±100
RSO-4812D (H2/H3)	36 - 72	±12	±42	80	±47
RSO-4815D (H2/H3)	36 - 72	±15	±34	80	±22

**ECONOLINE**

DC/DC-Converter

# RSO Series

## 1 Watt SIP8 Isolated Single & Dual Output



**EN-60950-1 Certified**  
**EN-60601-1 Certified**  
**(Suffix H2/H3)**

**RECOM**

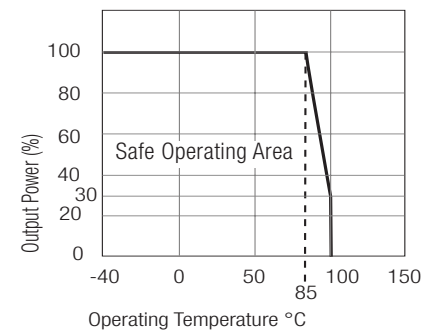
## Description

High power-density, an industrial temperature range of -40°C to +85°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 RSO 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.

## Specifications (Core Operating Area)

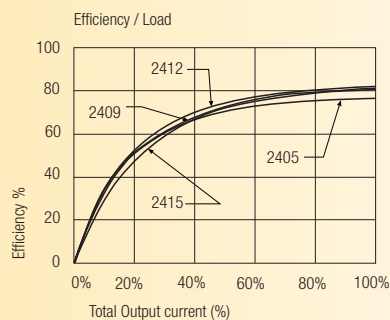
Input Voltage Range	2:1		
Output Voltage Accuracy	±2% typ.		
Line Voltage Regulation	±0.2% max.		
Load Voltage Regulation (10% to 100% full load)	±0.4% max.		
Output Ripple and Noise (20MHz limited)	50mVp-p max.		
Operating Frequency	100kHz typ.		
Efficiency at Full Load	up to 83%		
No Load Power Consumption	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	>1GΩ min.		
Short Circuit Protection	Continuous		
Operating Temperature Range (free air convection)	-40°C to +85°C (see Graph)		
Storage Temperature Range	-55°C to +125°C		
Relative Humidity	95% RH		
Package Weight	4.6g		
MTBF (+25°C)	} Detailed Information see Application Notes chapter "MTBF"	using MIL-HDBK 217F	1685 x 10 <sup>3</sup> hours
		using MIL-HDBK 217F	254 x 10 <sup>3</sup> hours

## Derating-Graph (Ambient Temperature)

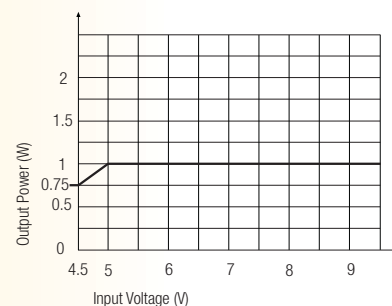


## Typical Characteristics

### RSO-24xx

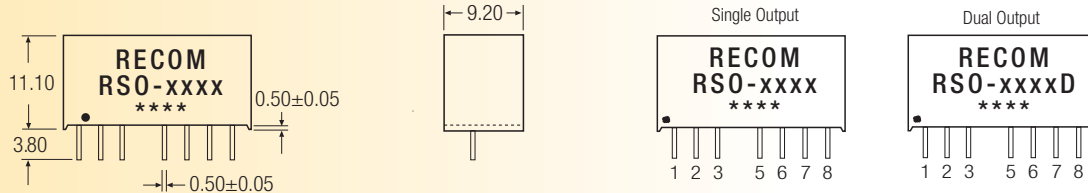


### RSO-types

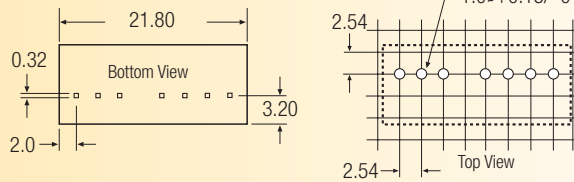


**Package Style and Pinning (mm)**

**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)**

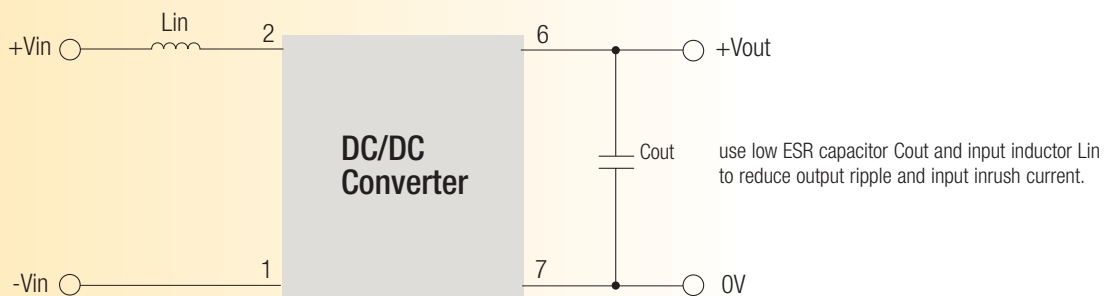
This pin provides an Off function which puts the converter into a low power mode. When the pin is 'high' the converter is OFF and when the pin is high 'Z' the converter is ON. There is no allowed low state for this pin. Voltage to be applied via a limiting resistor with a recommended value of 1K for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

**Pin 5 (NC)**

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

**Pin 8 (NC\*)**

No external connection allowed.



Lin RSO- types 4.7µH ~ 100µH

Cout RSO- types 22µF ~ 100µF/25V