

# Features

## Unregulated Converter

- Industry Standard Pinout
- 1kVDC or 2kVDC Isolation
- UL94V-0 Package Material
- Optional Continuous Short Circuit Protected
- Fully Encapsulated
- Custom Solutions Available
- Efficiency to 85 %

### Description

The RO DC/DC converters are typically used in general purpose power isolation and voltage matching applications, and feature a full industrial operating temperature range of -40°C to +85°C without derating.

### Selection Guide

Part Number	SIP 4 (2kV)	Input Voltage (VDC)	Output Voltage (VDC)	Output Current (mA)	Efficiency (%)	Max. Capacitive Load <sup>(1)</sup>
RO-xx3.3S	(H)	3.3, 5, 12, 15, 24	3.3	303	75	2200µF
RO-xx05S	(H)	3.3, 5, 12, 15, 24	5	200	78-80	1000µF
RO-xx09S	(H)	3.3, 5, 12, 15, 24	9	111	78-80	1000µF
RO-xx12S	(H)	3.3, 5, 12, 15, 24	12	83	80-84	470µF
RO-xx15S	(H)	3.3, 5, 12, 15, 24	15	66	80-84	470µF
RO-xx24S	(H)	3.3, 5, 12, 15, 24	24	42	78-85	220µF

xx = Input Voltage (other input and output voltage combinations available on request)

\* add Suffix "P" for Continuous Short Circuit Protection, e.g. RO-0505S/P, RO-0505S/HP

### Specifications (measured at T<sub>A</sub> = 25°C, nominal input voltage, full load and after warm-up)

Input Voltage Range		±10%
Output Voltage Accuracy		±5%
Line Voltage Regulation		1.2%/1% of Vin typ.
Load Voltage Regulation (10% to 100% full load)	3.3V output type	20% max.
	5V output type	15% max.
	9V, 12V, 15V, 24V output types	10% max.
Output Ripple and Noise (20MHz limited)		100mVp-p max.
Operating Frequency		50kHz min. / 100kHz typ. / 105kHz max.
Efficiency at Full Load		70% min. / 80% typ.
Minimum Load = 0%	Specifications valid for 10% minimum load only.	
Isolation Voltage	(tested for 1 second)	1000VDC
	(rated for 1 minute)	500VAC / 60Hz
Isolation Voltage	H-Suffix (tested for 1 second)	2000VDC
	H-Suffix (rated for 1 minute)	1000VAC / 60Hz
Isolation Capacitance		20pF min. / 75pF max.
Isolation Resistance		10 GΩ min.
Short Circuit Protection		1 Second
P-Suffix		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		1.4g
Packing Quantity		42 pcs per Tube
MTBF (+25°C)	} Detailed Information see Application Notes chapter "MTBF"	using MIL-HDBK 217F
(+85°C)		using MIL-HDBK 217F
		985 x 10 <sup>3</sup> hours
		200 x 10 <sup>3</sup> hours

# ECONOLINE

## DC/DC-Converter

with 3 year Warranty



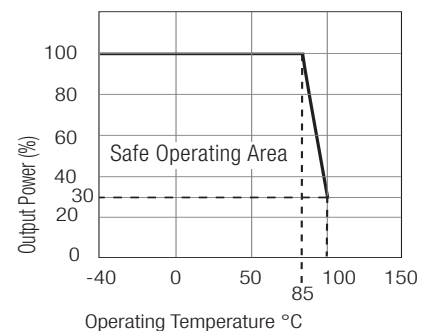
# 1 Watt SIP4 Single Output



**EN-60950-1 Certified**  
**UL-60950-1 Certified**

# RO

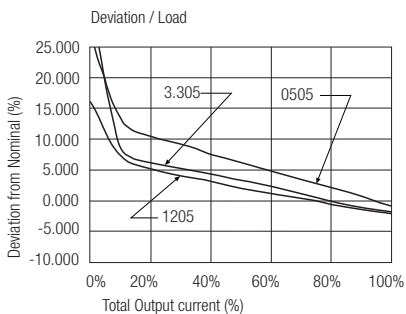
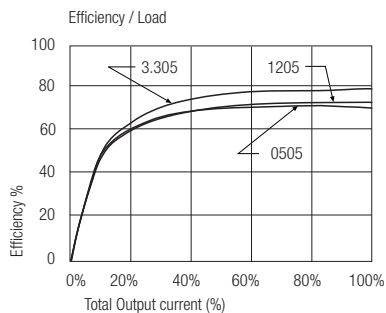
## Derating-Graph (Ambient Temperature)



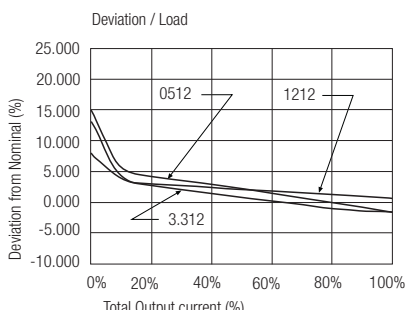
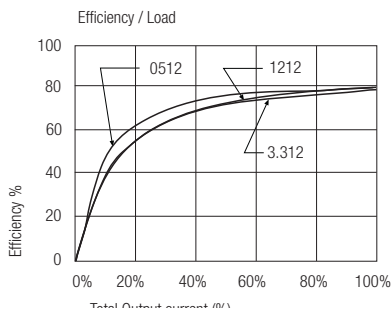
Refer to Application Notes

## Typical Characteristics

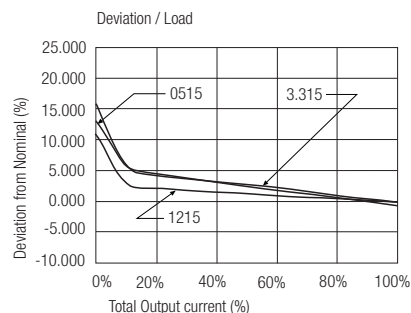
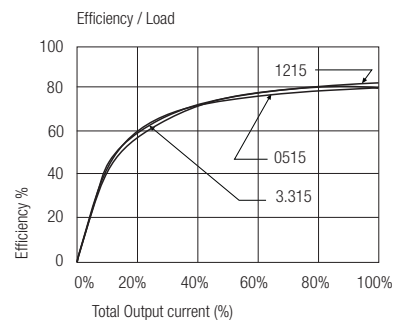
### RO-xx05S



### RO-xx12S



### RO-xx15S



#### Notes

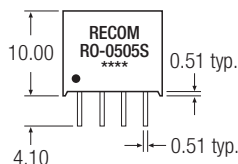
Note 1 Maximum capacitive load is defined as the capacitive load that will allow start up in under 1 second without damage to the converter.

#### Certifications

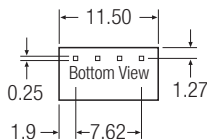
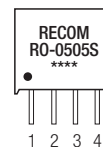
CB Test Report	Report: US/15348/UL	IEC 60950-1:2005 2nd Ed.
UL General Safety	Report: E224736	UL 60950-1 1st Ed.
EN General Safety	Report: PS080804950C2	EN60950-1:2001 + A11:2004

## Package Style and Pinning (mm)

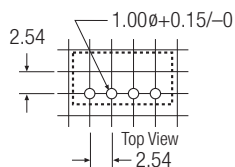
#### 4 PIN SIP Package



3rd angle projection



#### Recommended Footprint Details



#### RO Pin Connections

Pin #	Single
1	-Vin
2	+Vin
3	-Vout
4	+Vout
XX.X ± 0.5 mm	
XX.XX ± 0.25 mm	