

# Features

## Unregulated Converter

- Industry Standard Pinout
- 1kVDC or 2kVDC Isolation
- UL94V-O 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 ~ +85°C without derating.

### Selection Guide

Part Number	(2kV)	Input Voltage (VDC)	Output Voltage (VDC)	Output Current (mA)	Efficiency (%)
RO-xx3.3S	(H)	3.3, 5, 12, 15, 24	3.3	303	75
RO-xx05S	(H)	3.3, 5, 12, 15, 24	5	200	78-80
RO-xx09S	(H)	3.3, 5, 12, 15, 24	9	111	78-80
RO-xx12S	(H)	3.3, 5, 12, 15, 24	12	83	80-84
RO-xx15S	(H)	3.3, 5, 12, 15, 24	15	66	80-84
RO-xx24S	(H)	3.3, 5, 12, 15, 24	24	42	78-85

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 $T_A = 25^\circ\text{C}$ , nominal input voltage, full load and after warm-up)

Input Voltage Range		±10%	
Output Voltage Accuracy		±5%	
Line Voltage Regulation		1.2%/1% of $V_{in}$ typ.	
Load Voltage Regulation (10% to 100% full load)	3.3V output type 5V output type 9V, 12V, 15V, 24V output types	20% max. 15% max. 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.	
No Load Power Consumption		101mW min. / 126mW typ. / 220mW max.	
Maximum Capacitive Load		33µF	
Isolation Voltage (tested for 1 second)		1000VDC min.	
Rated Working Voltage (long term isolation)		see Application Notes	
Isolation Voltage (tested for 1 second)	H-Suffix	2000VDC min.	
Rated Working Voltage (long term isolation)	H-Suffix	see Application Notes	
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	985 x 10 <sup>3</sup> hours
(+85°C)		using MIL-HDBK 217F	200 x 10 <sup>3</sup> hours

**ECONOLINE**  
DC/DC-Converter

**RECOM**

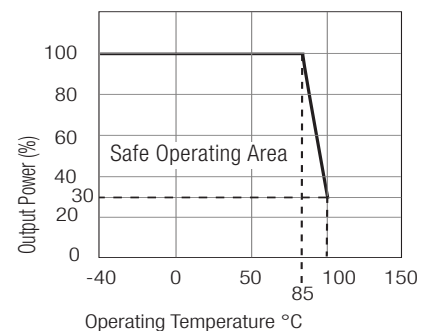
**1 Watt**  
**SIP4**  
**Single Output**



**EN-60950-1 Certified**

**RO**

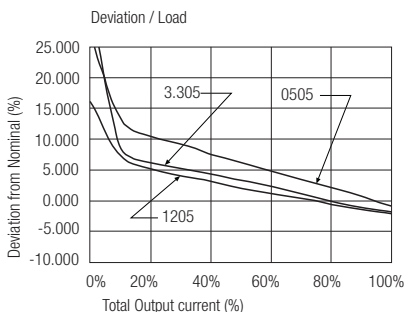
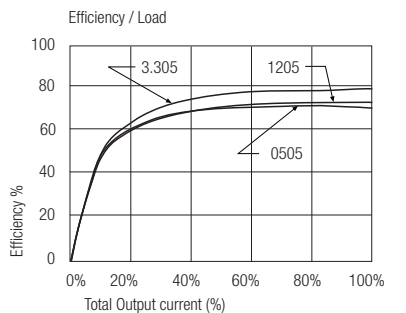
## Derating-Graph (Ambient Temperature)



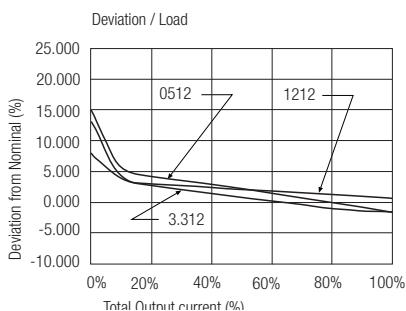
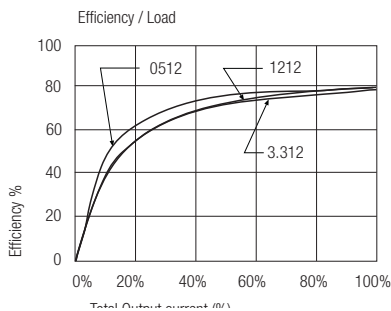
**Refer to Application Notes**

Typical Characteristics

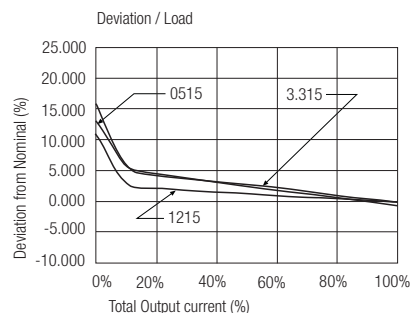
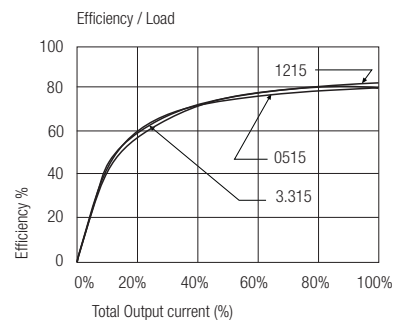
**RO-xx05S**



**RO-xx12S**



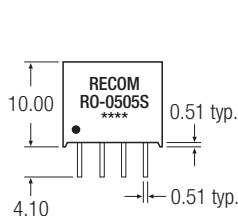
**RO-xx15S**



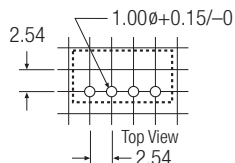
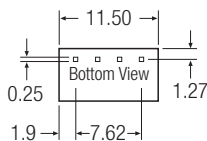
Package Style and Pinning (mm)

RO

4 PIN SIP Package



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