

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 ⁽¹⁾ |
|-------------|-------------|---------------------|----------------------|---------------------|----------------|-------------------------------------|
| 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_A = 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 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. |
| Minimum Load = 0% | Specifications valid for 10% minimum load only. | |
| Isolation Voltage | (tested for 1 second) (rated for 1 minute) | 1000VDC 500VAC / 60Hz |
| Isolation Voltage | H-Suffix (tested for 1 second) H-Suffix (rated for 1 minute) | 2000VDC 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 ³ hours |
| | | 200 x 10 ³ hours |

ECONOLINE

DC/DC-Converter

with 3 year Warranty



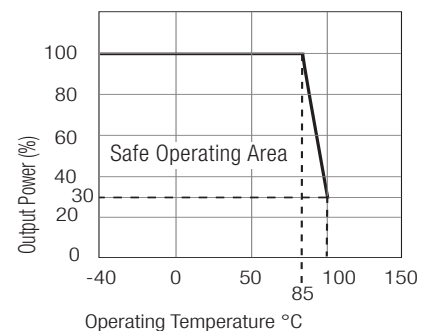
1 Watt SIP4 Single Output



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

RO

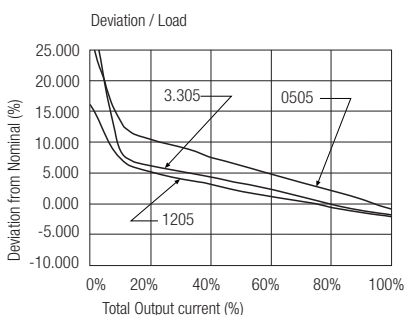
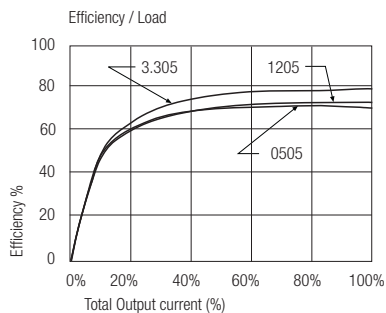
Derating-Graph (Ambient Temperature)



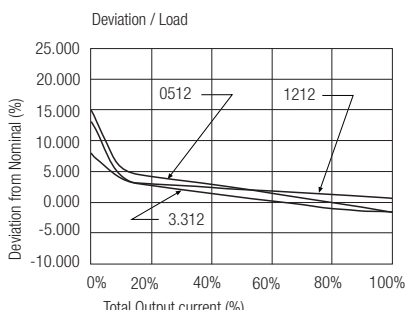
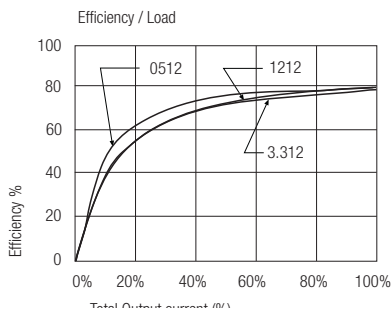
Refer to Application Notes

Typical Characteristics

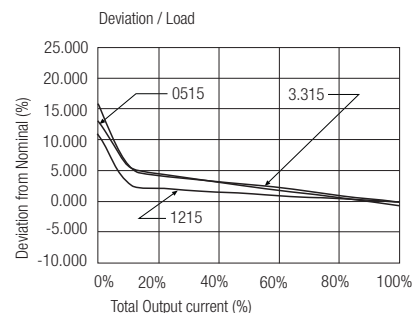
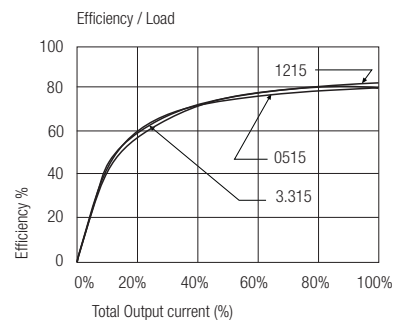
RO-xx05S



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.

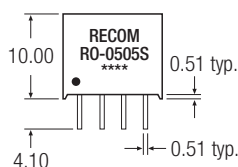
Certifications

| | | |
|-------------------|-----------------------|---------------------------|
| 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 |

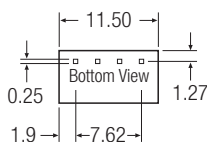
RO

Package Style and Pinning (mm)

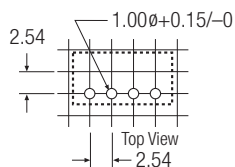
4 PIN SIP Package



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 | |