Features

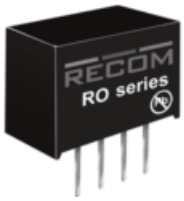
Unregulated Converter

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

ECONOLINE
DC/DC-Converter
with 3 year Warranty

RECOM

1 Watt SIP4 Single Output



RoHS 2011/65/EU 6/6

E-358085

EN-60950-1 Certified
UL-60950-1 Certified
EN-60601-1 Certified*
(*/H suffix)

RO

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

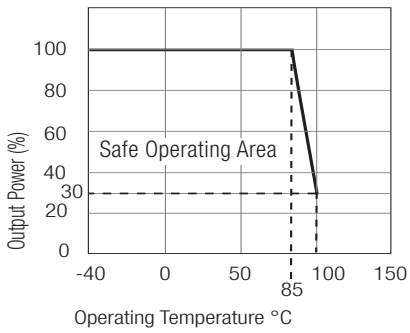
Specifications (measured at T_A = 25°C, nominal input voltage, full load and after warm-up)

Input Voltage Range			±10%
Output Voltage Accuracy			±5%
Line Voltage Regulation			1.2%/1% of Vin typ.
Load Voltage Regulation		3.3V output type	20% max.
(10% to 100% full load)		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	985 x 10^3 hours
(+85°C) } *Detailed Information see Application Notes chapter "MTBF"*		using MIL-HDBK 217F	200 x 10^3 hours

continued on next page

**Any data referred to in this datasheet are of indicative nature and based on our practical experience only. For further details, please refer to our Application Notes.

Derating-Graph
(Ambient Temperature)



Refer to Application Notes

Specifications (measured at T_A = 25°C, nominal input voltage, full load and after warm-up)

Certifications

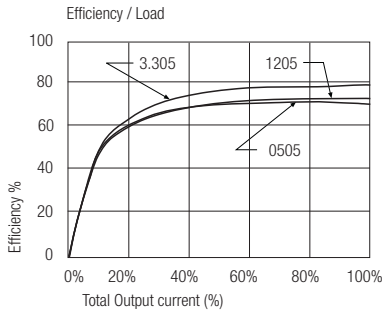
CB Test Report	Report: US/15348/UL	IEC 60950-1:2005 2nd Ed.
UL General Safety	Report: E358085	UL 60950-1 2nd Ed.
EN General Safety	Report: SPCLVD1109103	EN60950-1:2006 + A12:2011
EN Medical Safety	Report: MDD1112018 + RM1112018	IEC/EN 60601-1 3rd Edition Medical Report + ISO14971 Risk Assessment

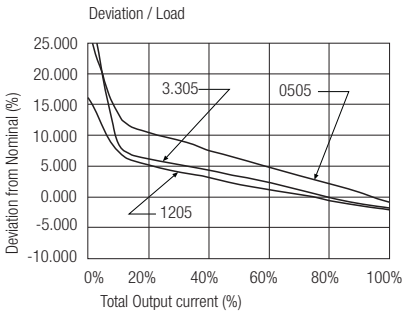
Notes

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.

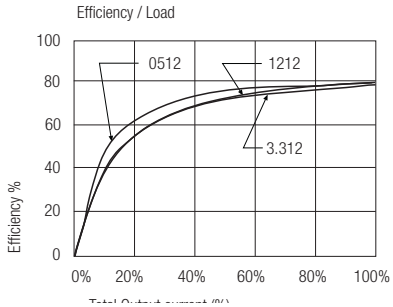
Typical Characteristics

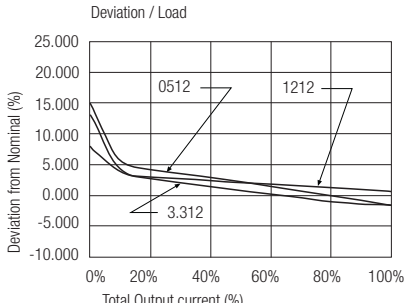
RO-xx05S



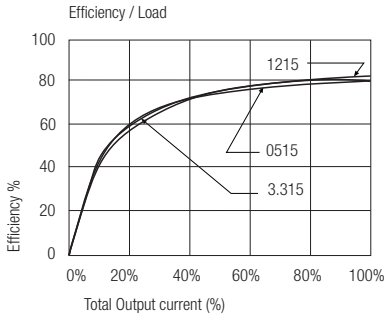


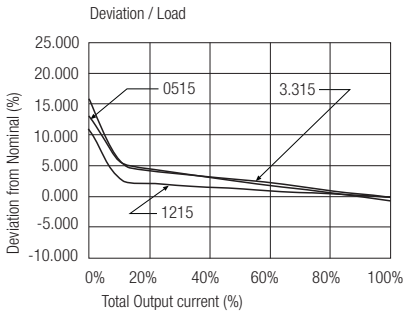
RO-xx12S





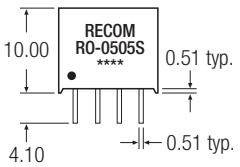
RO-xx15S

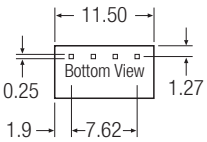




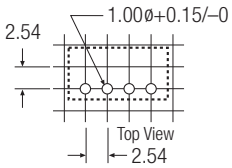
Package Style and Pinning (mm)

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

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