

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	Input Voltage (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 V _{in} 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	985 x 10 ³ hours
(+85°C)		using MIL-HDBK 217F	200 x 10 ³ hours

ECONOLINE

DC/DC-Converter

with 3 year Warranty

RECOM

1 Watt

SIP4

Single Output

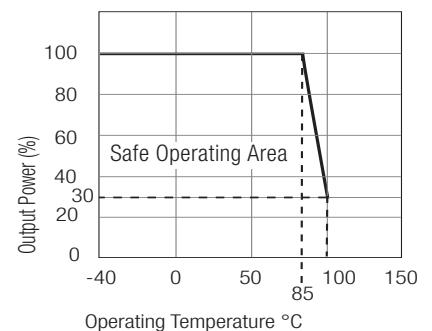


EN-60950-1 Certified
UL-60950-1 Certified
EN-60601-1 Certified*
 (* /H suffix)

RO

Derating-Graph

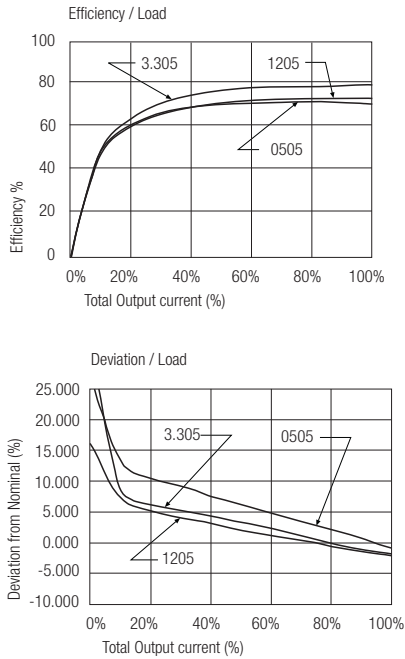
(Ambient Temperature)



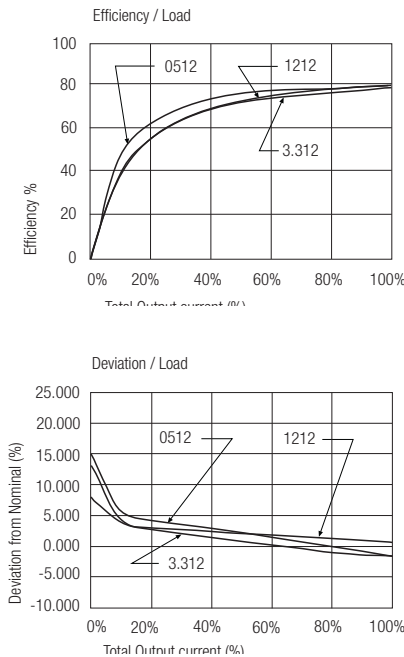
Refer to Application Notes

Typical Characteristics

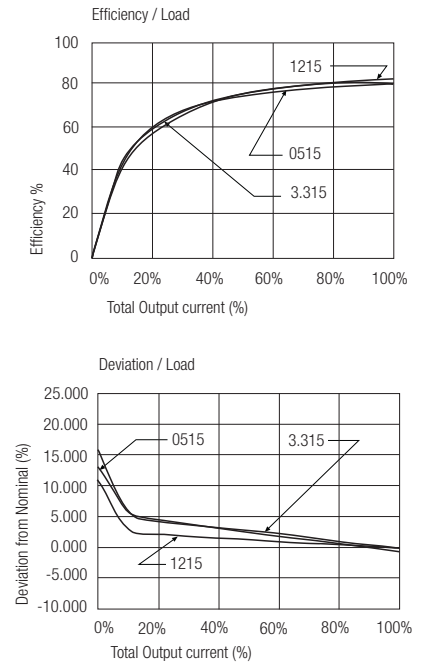
RO-xx05S



RO-xx12S



RO-xx15S



Notes

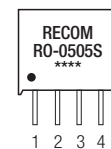
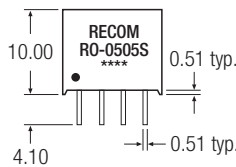
Note 1 Maximum capacitive load is defined as the capacitive load that will allow start up in under 1 second without damage to the converter.

Certifications

CB Test Report	Report: US/15348/UL	IEC 60950-1:2005 2nd Ed.
UL General Safety	Report: 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

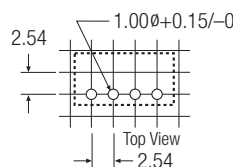
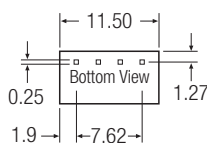
Package Style and Pinning (mm)

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