

# Features

## Unregulated Converters

- Custom Solutions Available
- 1kVDC Isolation
- No External Components Required
- Optional Continuous Short Circuit Protected
- UL94V-0 Package Material
- No Heatsink Required
- Efficiency to 85%

# ECONOLINE

DC/DC-Converter

with 3 year Warranty



## 2 Watt

## SIP4

## Single Output

### Description

The RI series has been specifically designed for applications where board space is at a premium since these 2 Watt converters have only a slightly larger foot print than the RO series 1 Watt converters.

With efficiencies up to 87%, the full output power is available over the operating temperature range -40°C to +85°C and the converters can be used in ambient temperatures of up to 100°C with derating. The wide selection of input voltage and output voltage options plus an I/O-Isolation of 1kVDC as standard makes these converters suitable for many industrial applications.

### Selection Guide

Part Number SIP4	Input Voltage (VDC)	Output Voltage (VDC)	Output Current (mA)	Efficiency (%)	Max Capacitive Load <sup>1)</sup>
RI-xx05S	5, 12, 15, 24	5	400	78-83	1200µF
RI-xx12S	5, 12, 15, 24	12	167	80-85	680µF
RI-xx15S	5, 12, 15, 24	15	133	80-85	680µF

xx = Input Voltage. Other input and output voltage combinations available on request.

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



EN-60950-1 Certified

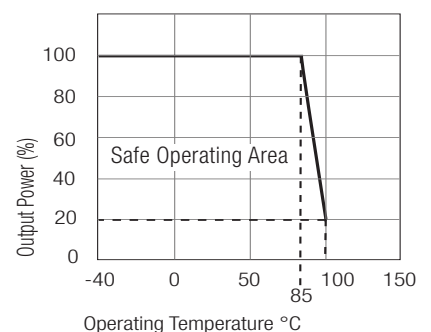
### Specifications (measured at T<sub>A</sub> = 25°C, nominal input voltage, full load and after warm-up)

Input Voltage Range			±10%
Output Voltage Accuracy			±5%
Line Voltage Regulation			1.2%/1% of Vin typ.
Load Voltage Regulation	5V Output types	15% max.	
(10% to 100% full load)	All others	10% max.	
Output Ripple and Noise (20MHz limited)			200mVp-p max.
Operating Frequency			35kHz min. / 50kHz typ. / 85kHz 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 Capacitance			30pF min. / 85pF 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	845 x 10 <sup>3</sup> hours
(+85°C)		using MIL-HDBK 217F	160 x 10 <sup>3</sup> hours

# RI

## Derating-Graph

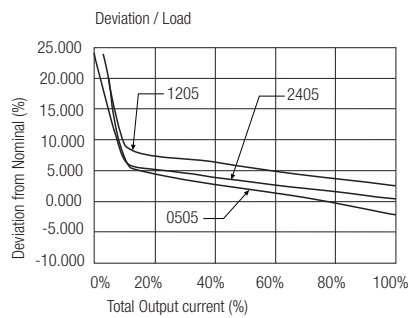
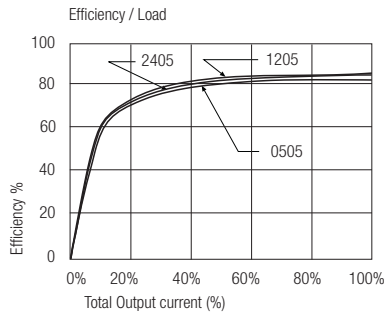
(Ambient Temperature)



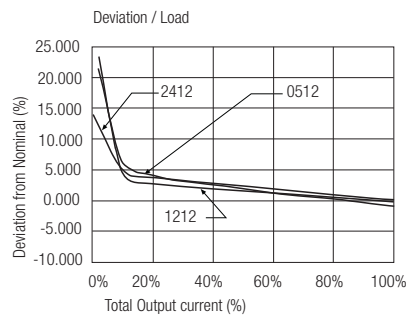
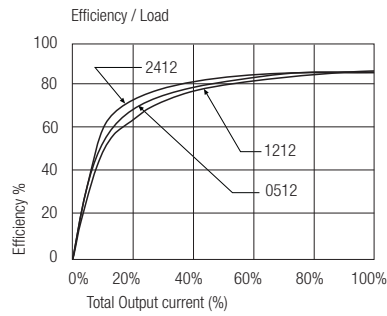
Refer to Application Notes

## Typical Characteristics

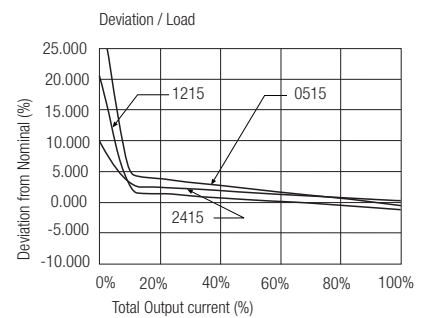
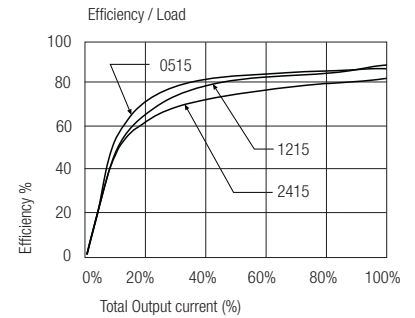
### RI-xx05S



### RI-xx12S



### RI-xx15S

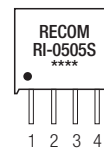
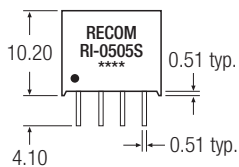


Notes		
Note 1	Maximum capacitive load is defined as the capacitive load that will allow start up in under 1 second without damage to the converter.	
Certifications		
EN General Safety	Report: PS080804950C2	EN60950-1:2001 + A11:2004

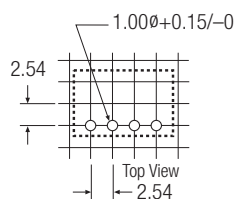
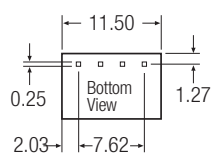
## Package Style and Pinning (mm)

### 4 PIN SIP Package

3rd angle projection



### Recommended Footprint Details



### Pin Connections

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