Features

Unregulated Converters

- 1kVDC/1 second basic isolation
- Optional continuous short circuit protection
- UL94 V-0 package material
- No heatsink required
- Efficiency up to 85%

RECOM
DC/DC Converter

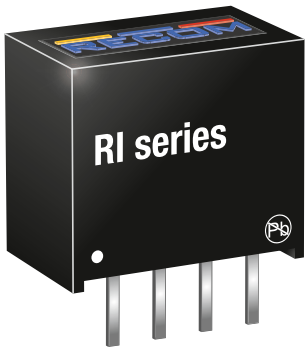
RI

2 Watt SIP4 Sinlge Output

3 YEAR Warranty

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 85%, 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	nom. Input Voltage [VDC]	Output Voltage [VDC]	Output Current [mA]	Efficiency typ. (1) [%]	max. Capacitive Load (2) [µF]
RI-xx05S (3)	5, 12, 15, 24	5	400	78-83	1200
RI-xx12S (3)	5, 12, 15, 24	12	167	80-85	680
RI-xx15S (3)	5, 12, 15, 24	15	133	80-85	680

Notes:

Note1: Efficiency is tested at nominal input and full load at +25°C ambient

Note2: Max Cap Load is tested at nominal input and full resistive load and is defined as the capacitive load that will allow start up in under 1s without damage to the converter

EN60950-1 certified
IEC60950-1 certified

Model Numbering



Notes:

Note3: standard part is without Continuous Short Circuit Protection
add suffix „/P“ for Continuous Short Circuit Protection

Ordering Examples:

RI-123.3S/P: 12V Input Voltage, 3.3V Output Voltage, Single Output with continuous short circuit protection
RI-0509S: 5V Input Voltage, 9V Output Voltage, Single Output

Specifications (measured @ Ta= 25°C, nom. Vin and full load unless otherwise stated)

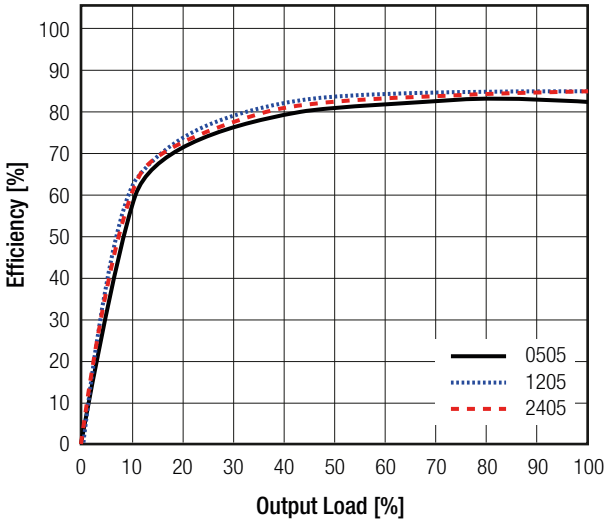
BASIC CHARACTERISTICS				
Parameter	**Condition**	**Min.**	**Typ.**	**Max.**
Input Voltage Range			±10%	
Minimum Load [4]		0%		
Internal Operating Frequency		20kHz	50kHz	85kHz
Output Ripple and Noise	20MHz BW			200mVp-p

Notes:

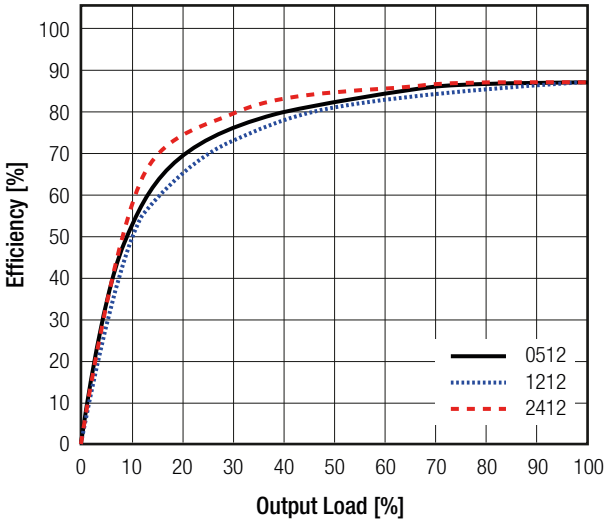
Note4: Operation below 10% load will not harm the converter, but specifications may not be met

Efficiency vs. Load

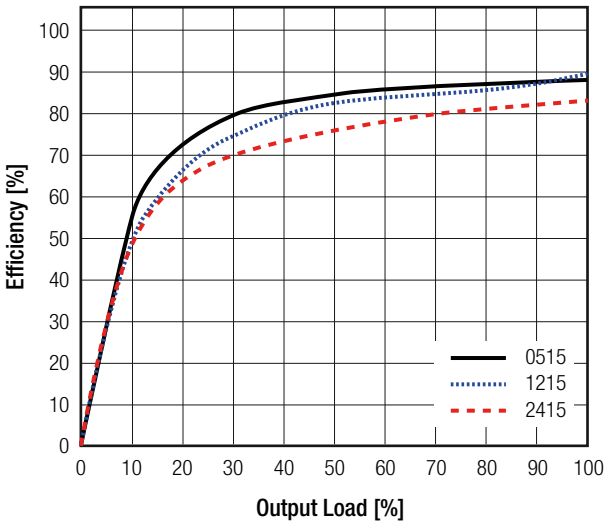
RI-xx05S



RI-xx12S



RI-xx15S



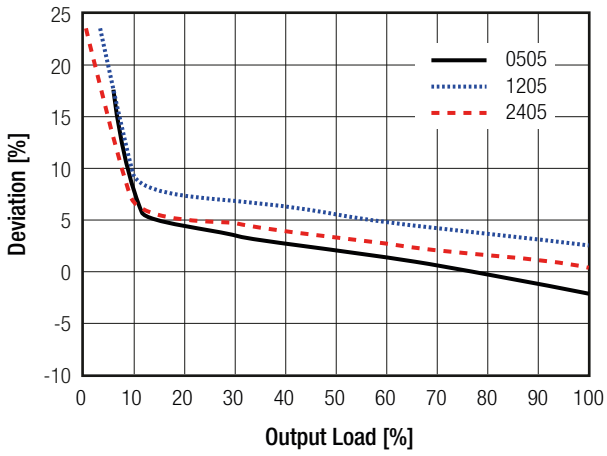
Specifications (measured @ Ta= 25°C, nom. Vin and full load unless otherwise stated)

REGULATIONS

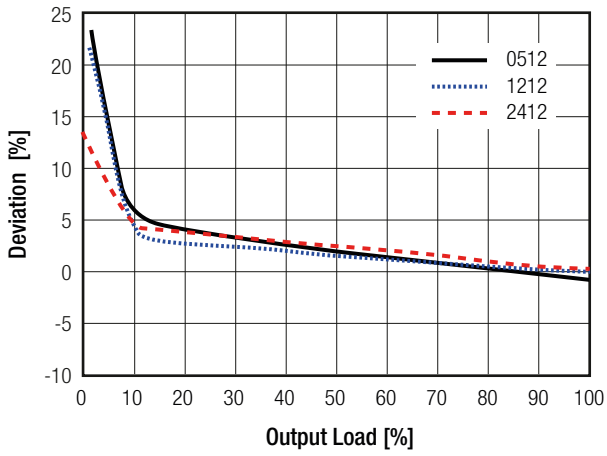
Parameter	Condition		Value
Output Accuracy			±5.0% max.
Line Regulation	low line to high line, full load		±1.2% of 1.0% Vin typ.
Load Regulation	10% to 100% load	5Vout 12, 15Vout	15.0% max. 10.0% max.

Deviation vs. Load

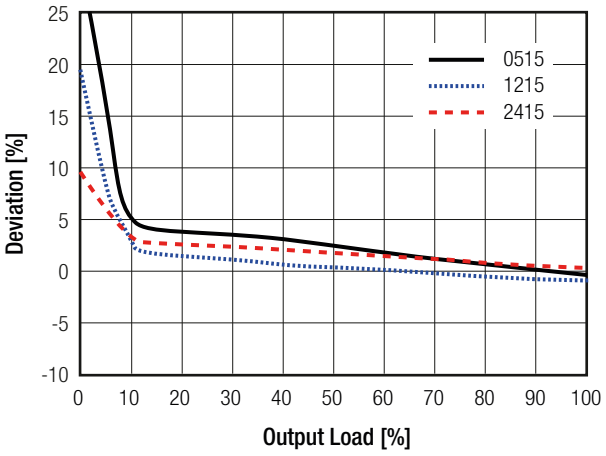
RI-xx05S



RI-xx12S



RI-xx15S



PROTECTIONS

Parameter	Type		Value
Short Circuit Protection (SCP)	without suffix with suffix "/P"		1 second continuous
Isolation Voltage [5]	I/P to O/P	tested for 1 second tested for 1 minute	1kVDC 500VAC/60Hz
Isolation Resistance			10GΩ min.
Isolation Capacitance			30pF min./ 85pF max.
Insulation Grade			basic

Notes:

Note5: For repeat Hi-Pot testing, reduce the time and/or the test voltage

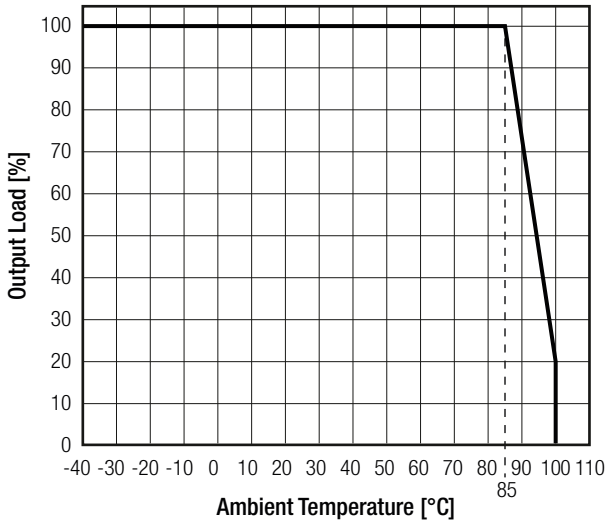
Note6: Refer to local wiring regulations if input over-current protection is also required. Recommended fuse: T2A slow blow type

Specifications (measured @ Ta= 25°C, nom. Vin and full load unless otherwise stated)

ENVIRONMENTAL

Parameter	Condition		Value
Operating Temperature Range	full load @ free air convection (see graph)		-40°C to +85°C
Operating Altitude			2000m
Operating Humidity	non-condensing		95% RH max.
Pollution Degree			PD2
MTBF	according to MIL-HDBK-217F, G.B.	+25°C +85°C	17900 x 10^3 hours 7800 x 10^3 hours

Derating Graph
(@ free air convection)



SAFETY AND CERTIFICATIONS

Certificate Type (Safety)	Report / File Number	Standard
Information Technology Equipment, General Requirements for Safety	1602031	IEC60950-1:2005, 2nd Edition + A2:2013 EN60950-1:2006 + A2:2013
EAC	RU-AT.49.09571	TP TC 004/2011
RoHs 2+		RoHS-2011/65/EU + AM-2015/863

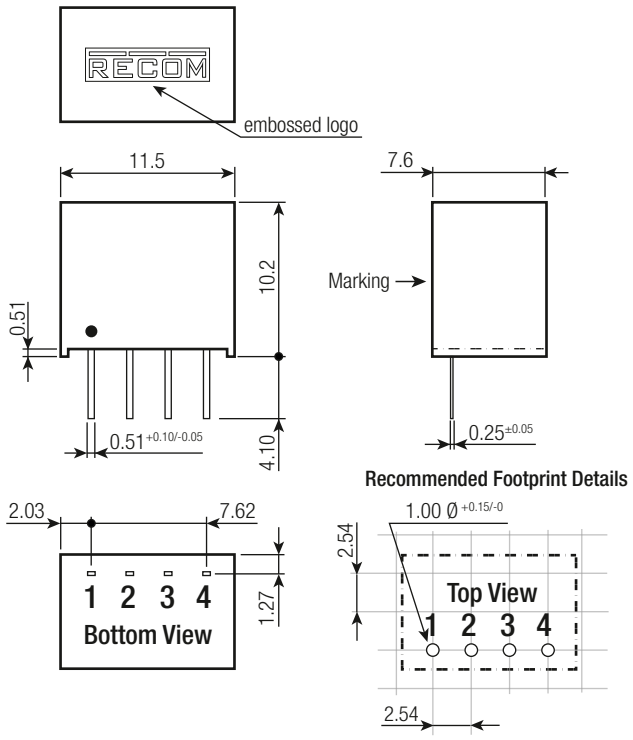
DIMENSION AND PHYSICAL CHARACTERISTICS

Parameter	Type	Value
Material	case potting PCB	non-conductive black plastic (UL94 V-1) epoxy, (UL94 V-0) FR4, (UL94 V-0)
Dimension (LxWxH)		11.5 x 7.6 x 10.2mm
Weight		2.0g typ.

continued on next page

Specifications (measured @ Ta= 25°C, nom. Vin and full load unless otherwise stated)

Dimension Drawing (mm)



Pinning information

Pin #	Dual
1	-Vin
2	+Vin
3	-Vout
4	+Vout

Tolerance: xx.x= ±0.5mm
xx.xx= ±0.25mm

PACKAGING INFORMATION		
Parameter	**Type**	**Value**
Packaging Dimension (LxWxH)	tube	520.0 x 16.0 x 9.0mm
Packaging Quantity	tube	42pcs
Storage Temperature Range		-55°C to +125°C
Storage Humidity		95% RH max.

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