

Features

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

Unregulated Converters



RI

**2 Watt
SIP4
Single Output**



Description

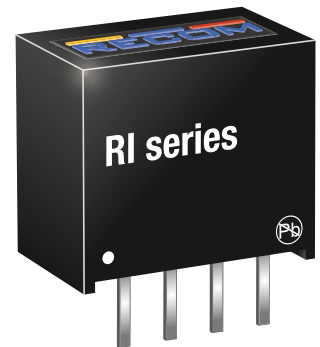
The RI series has been specifically designed for applications where board space is at a premium since these 2 Watt converters have only a slightly larger foot print than the RO series 1 Watt converters. With efficiencies up to 85%, the full output power is available over the operating temperature range -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



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

EN60950-1 certified
IEC60950-1 certified

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

BASIC CHARACTERISTICS

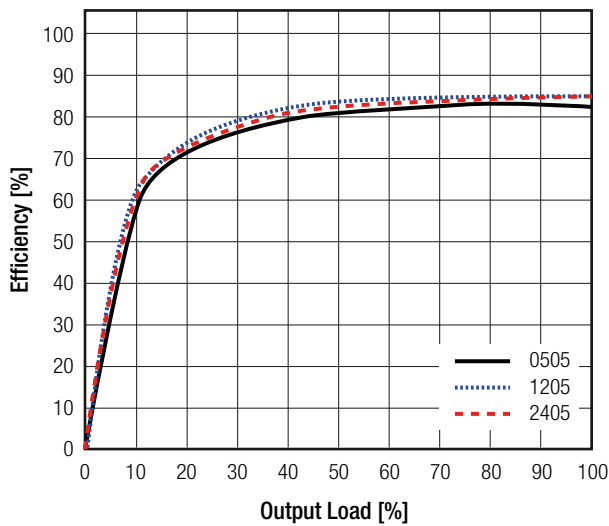
Parameter	Condition	Min.	Typ.	Max.
Input Voltage Range			±10%	
Minimum Load ⁽⁴⁾		0%		
Internal Operating Frequency		20kHz	50kHz	85kHz
Output Ripple and Noise	20MHz BW			200mVp-p

Notes:

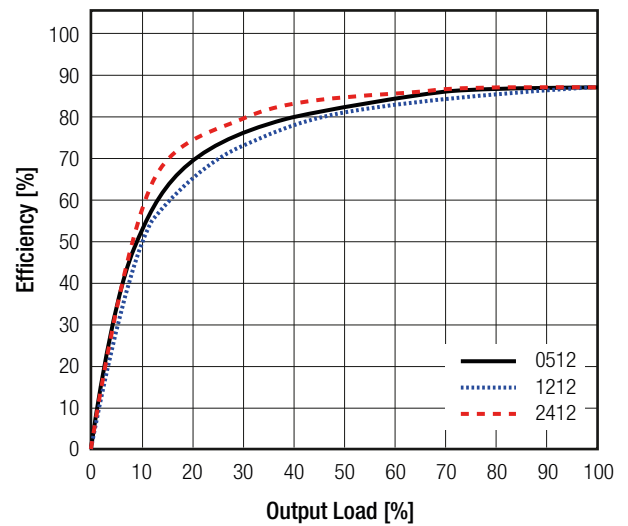
Note4: Operation below 10% load will not harm the converter, but specifications may not be met

Efficiency vs. Load

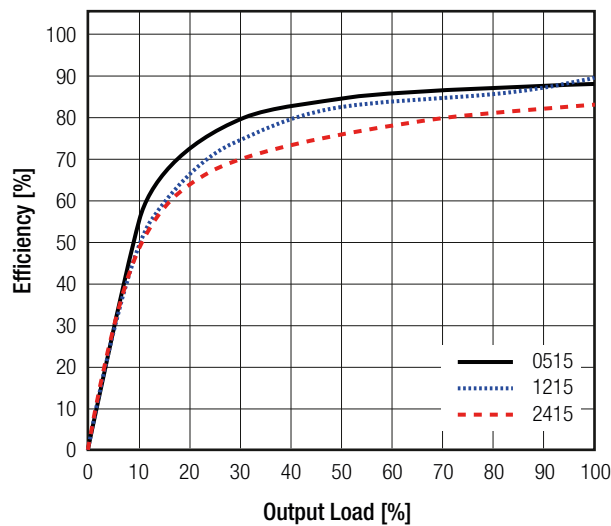
RI-xx05S



RI-xx12S



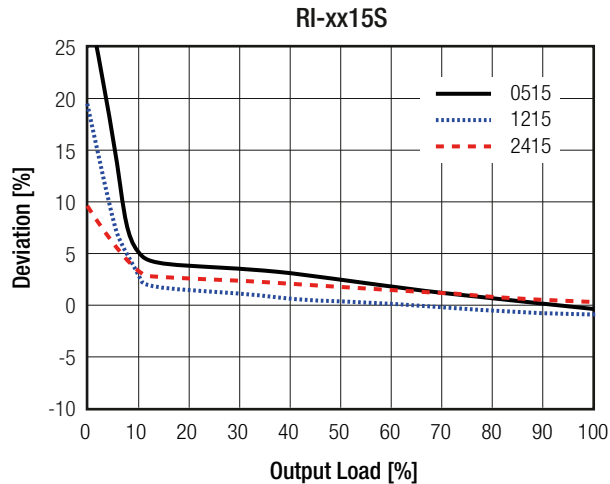
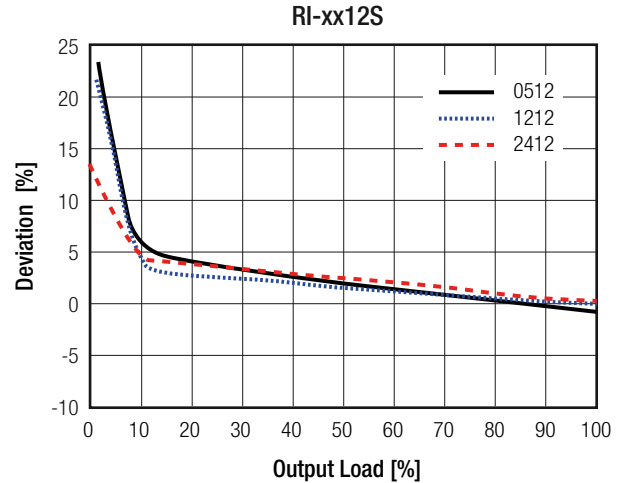
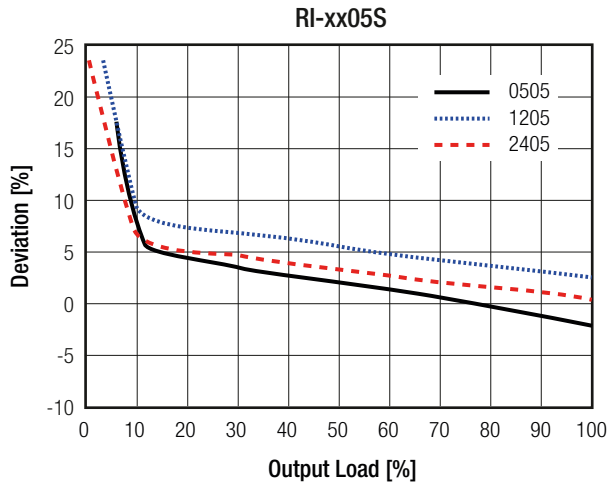
RI-xx15S



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	15.0% max.
		12, 15Vout	10.0% max.

Deviation vs. Load



PROTECTIONS			
Parameter	Type		Value
Short Circuit Protection (SCP)	without suffix with suffix "/P"		1 second continuous
Isolation Voltage ⁽⁶⁾	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:

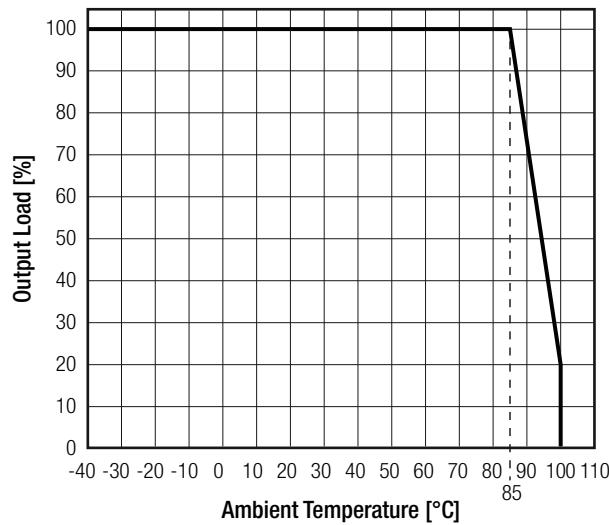
Note5: For repeat Hi-Pot testing, reduce the time and/or the test voltage

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	17900 x 10 ³ hours
		+85°C	7800 x 10 ³ hours

Derating Graph
(@ free air convection)

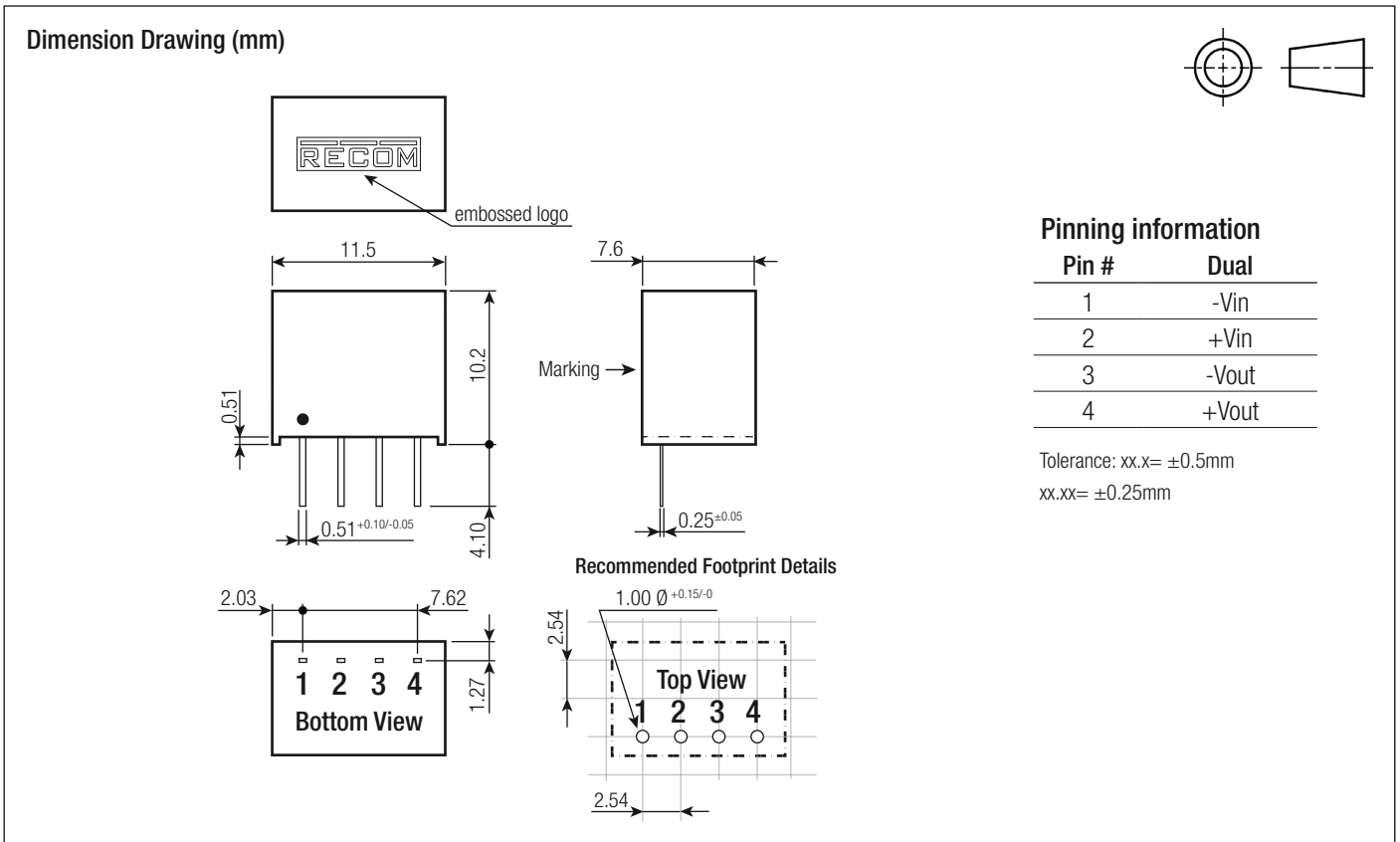


SAFETY AND CERTIFICATIONS		
Certificate Type (Safety)	Report / File Number	Standard
Information Technology Equipment, General Requirements for Safety	1602031	IEC60950-1:2005, 2nd Edition + A2:2013 EN60950-1:2006 + A2:2013
EAC	RU-AT.49.09571	TP TC 004/2011
RoHs 2+		RoHS-2011/65/EU + AM-2015/863

DIMENSION AND PHYSICAL CHARACTERISTICS		
Parameter	Type	Value
Material	case	non-conductive black plastic (UL94 V-1)
	potting	epoxy, (UL94 V-0)
	PCB	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)



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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