Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!

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Features

Unregulated Converters

- 3 Watt in a SIP4 Package
- 1-3kVDC Isolation
- Efficiency up to 90%
- -40°C to +100°C Operating Temperature Range
- IEC/EN/UL60950 Certified
- CB Report
- Industry Standard Pinout

RECOM
DC/DC Converter

RI3

3 Watt SIP4 Single Output

3 YEAR 3 warranty

Description

The RI3 series has been specifically designed for applications where board space is at a premium since these 3 Watt converters have the same foot print as the RI series 2 Watt converters. With efficiencies up to 90%, 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, 2kVDC or 3kVDC makes these converters suitable for many industrial applications.

Selection Guide

Part Number	Input Voltage [VDC]	Output Voltage [VDC]	Output Current [mA]	Efficiency typ. @ full load [%]	max. Capacitive Load (1) [µF]
RI3-0505S	5	5	600	83	2200
RI3-0509S	5	9	333	86	1200
RI3-0512S	5	12	250	87	1000
RI3-0515S	5	15	200	88	820
RI3-1205S	12	5	600	85	2000
RI3-1209S	12	9	333	88	1200
RI3-1212S	12	12	250	89	1000
RI3-1215S	12	15	200	89	820
RI3-1505S	15	5	600	85	2000
RI3-1509S	15	9	333	88	1200
RI3-1512S	15	12	250	88	1000
RI3-1515S	15	15	200	88	820
RI3-2405S	24	5	600	86	2000
RI3-2409S	24	9	333	89	1200
RI3-2412S	24	12	250	90	1000
RI3-2415S	24	15	200	90	820

Notes:

Note1: Max. capacitive load is tested at nominal input and constant resistive load.

c UL us
E224736

IEC/EN60950-1 Certified
UL60950-1 Certified
CSA C22.2 NO. 60950 Certified
EN55022

Model Numbering

Notes:

Note2: add suffix "H2" for 2kVDC/1second or "H3" for 3kVDC/1second isolation
without suffix standard 1kVDC/1second isolation

Examples:

e.g. RI3-1212S, Single Output, 12Vin and 12Vout, 1kVDC isolation
e.g. RI3-1212S/H2, Single Output, 12Vin and 12Vout, 2kVDC isolation
e.g. RI3-1212S/H3, Single Output, 12Vin and 12Vout, 3kVDC isolation
e.g. RI3-2405S, Single Output, 24Vin and 5Vout, 1kVDC isolation
e.g. RI3-2405S/H2, Single Output, 24Vin and 5Vout, 2kVDC isolation
e.g. RI3-2405S/H3, Single Output, 24Vin and 5Vout, 3kVDC isolation

Specifications (measured at T_a= 25°C, nominal input voltage, full load and after warm up unless otherwise specified)

BASIC CHARACTERISTICS

Parameter	Condition		Min.	Typ.	Max.
Input Voltage Range	nom. Vin=	5VDC	4.5VDC	5VDC	5.5VDC
		12VDC	10.8VDC	12VDC	13.2VDC
		15VDC	13.5VDC	15VDC	16.5VDC
		24VDC	21.6VDC	24VDC	26.4VDC
Operating Frequency			20kHz	40kHz	
Minimum Load (3)			0%		
Output Ripple and Noise (4)	20MHz BW		50mVp-p	100mVp-p	

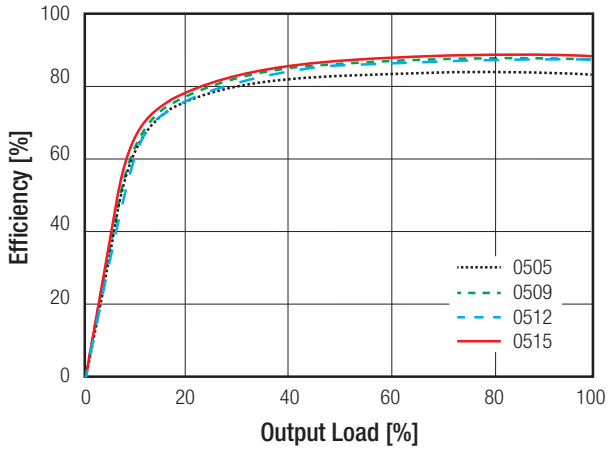
Notes:

Note3: Operation below no load won't harm the converter, but specifications may not be met

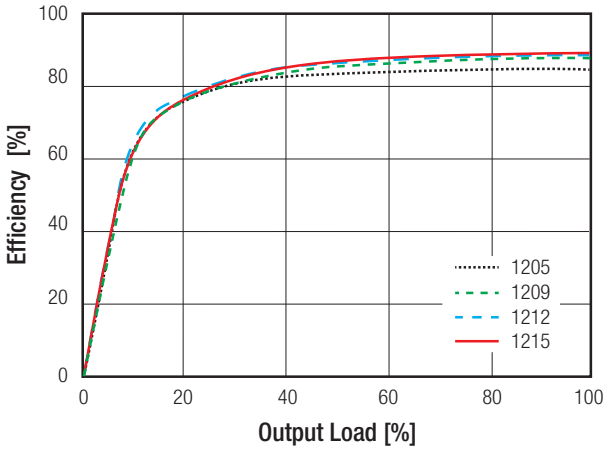
Note4: Measurements are made with a 100nF MLCC across output. (low ESR)

Efficiency vs. Load

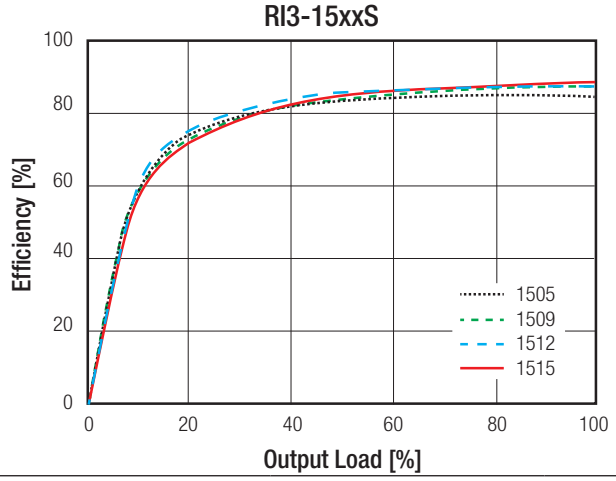
RI3-05xxS



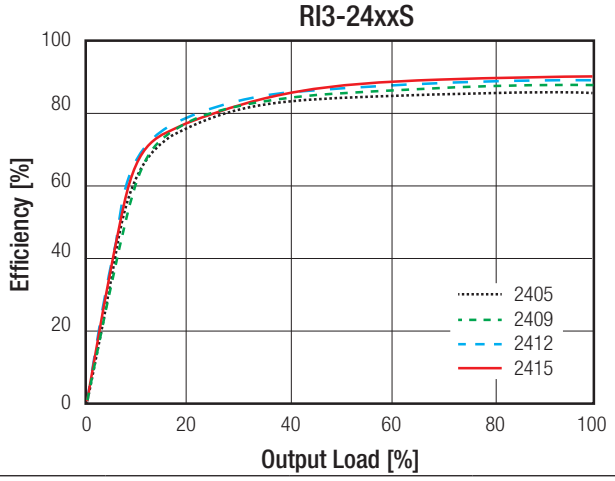
RI3-12xxS



RI3-15xxS



RI3-24xxS



REGULATIONS

Parameter	Condition		Values
Output Voltage Accuracy	5Vout		±3.0% min. / ±4.0% typ.
	all other		±2.0% min. / ±3.0% typ.
Line Voltage Regulation	low line to high line, load @1% of Vin		±1.2% max.
Load Voltage Regulation	10% to 100% load	5Vout	±8.0% typ. / ±10.0% max.
		all other	±6.0% typ. / ±10.0% max.

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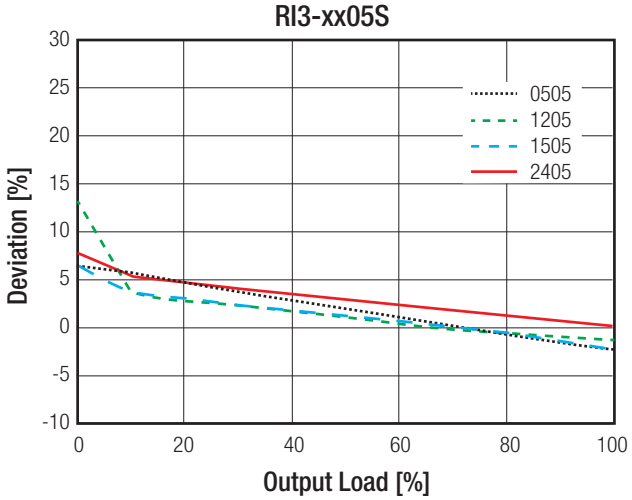
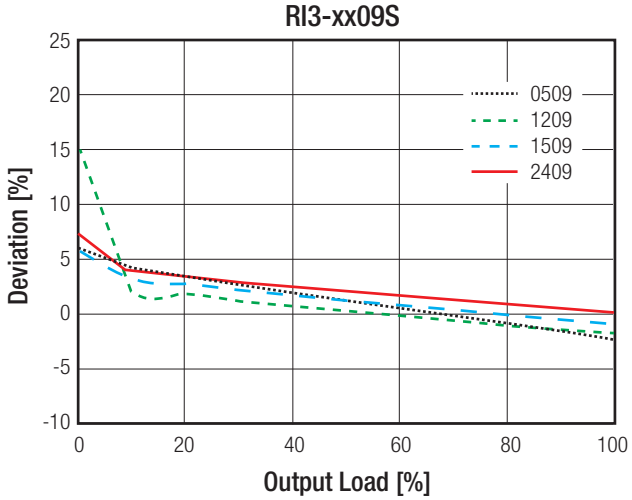
Specifications (measured at T_a= 25°C, nominal input voltage, full load and after warm up unless otherwise specified)

Deviation vs. Load

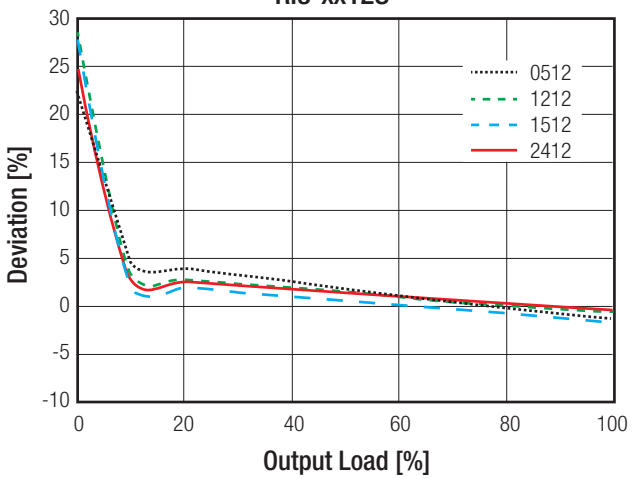
RI3-xx05S



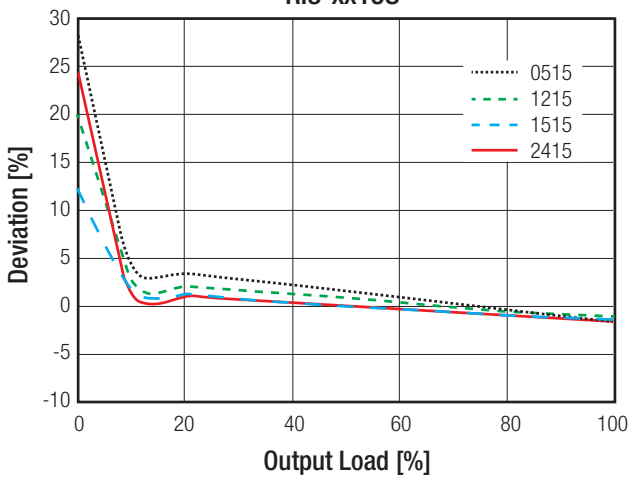
RI3-xx09S



RI3-xx12S



RI3-xx15S



PROTECTIONS			
Parameter	**Condition**		**Value**
Isolation Voltage	tested for 1 second	standard without suffix with suffix "H2" with suffix "H3"	1kVDC 2kVDC 3kVDC
Isolation Capacitance			37pF typ. / 130pF max.
Isolation Resistance			10GΩ min.

ENVIRONMENTAL			
Parameter	**Condition**		**Value**
Operating Temperature Range	free air convection, without derating with derating		-40°C to +85°C -40°C to +100°C
Maximum Case Temperature			+115°C
Operating Humidity	non-condensing		5% - 95% RH max.
Vibration			MIL-STD-202G
MTBF	according to MIL-HDBK-217F, G.B.	+25°C +85°C	4395 x 10^3 hours 1740 x 10^3 hours

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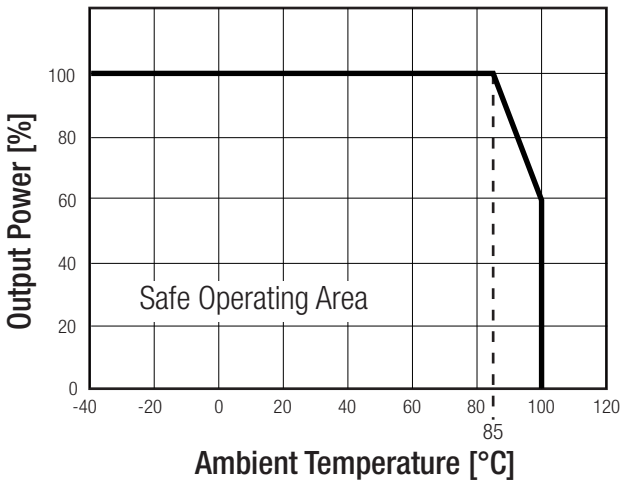
Specifications (measured at T_a= 25°C, nominal input voltage, full load and after warm up unless otherwise specified)

Derating Graph

(@ Chamber and natural convection 0.1m/s)

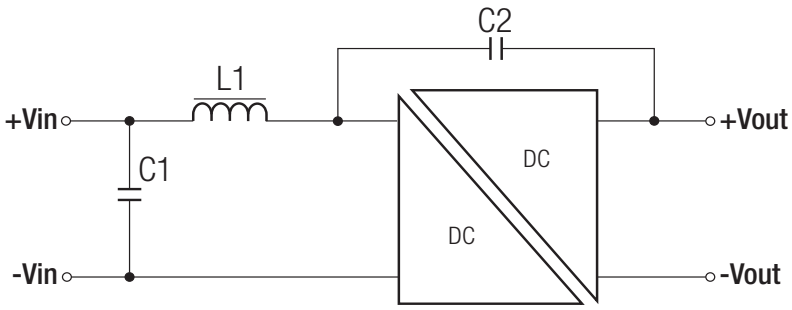


SAFETY AND CERTIFICATIONS

Certificate Type	Report / File Number	Standard
Information Technology Equipment - General Requirments for Safety (CB Scheme)	E224736-A31	IEC60950-1, 2nd Edition, 2013 EN60950-1, 2nd Endition, 2013
Information Technology Equipment - General Requirments for Safety	E224736-A32	UL60950-1, 2nd Edition, 2014
		C22.2 No. 60950-1-07, 2nd Edition, 2014
RoHs2		RoHS 2011/65/EU + AM2015/863

EMC Compliance	Condition	Standard / Criterion
Information technology equipment - Radio disturbance characteristics - Limits and methods of measuremen	without external filter with external filter	EN55022, Class A EN55022, Class B

EMC Filtering - Suggestions for Class B



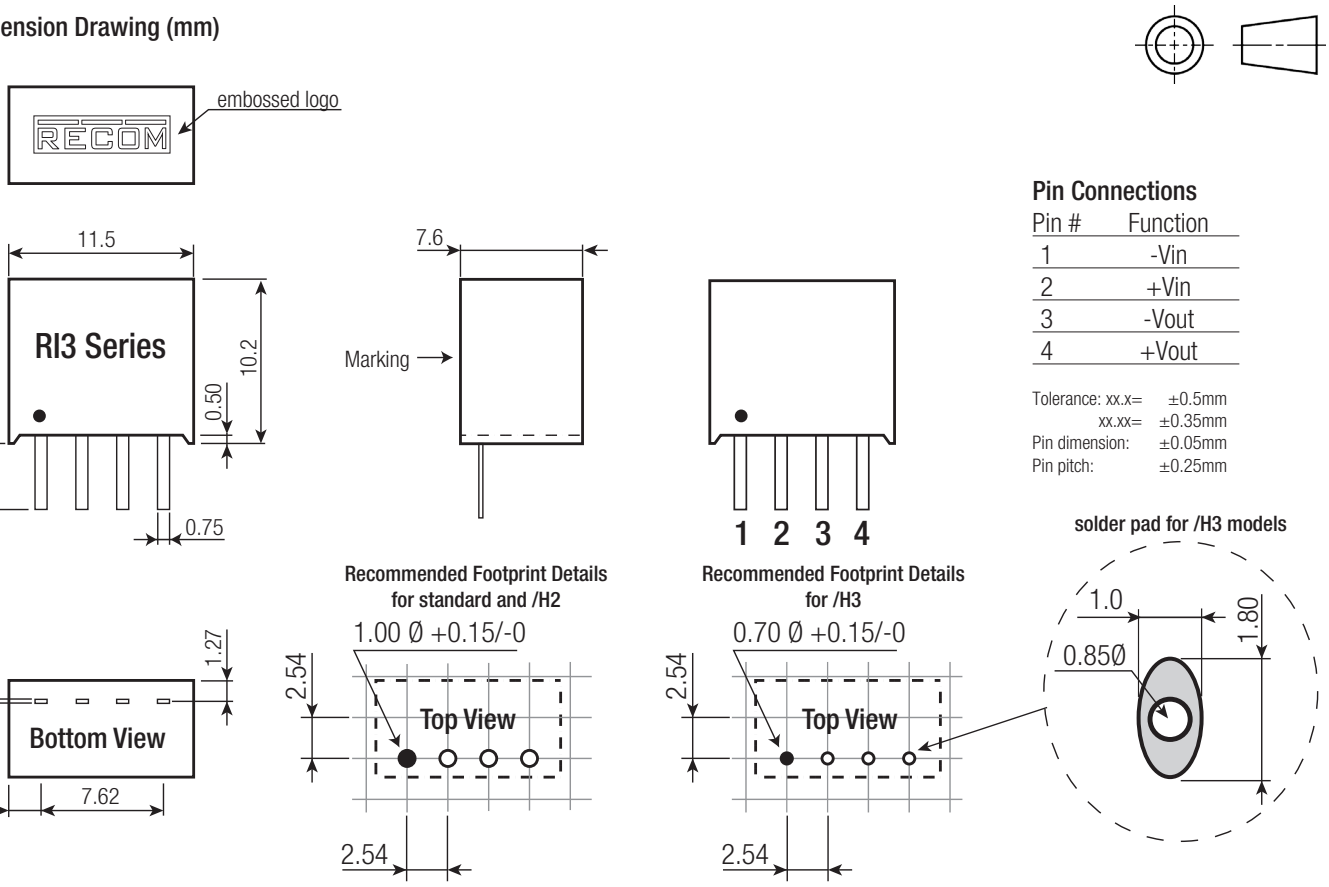
MODEL	C1	C2	L1
RI3-05xxS	4.7µF	470pF/4kV	10µH Choke
RI3-12xxS	4.7µF	470pF/4kV	10µH Choke
RI3-15xxS RI3-24xxS	2.2µF	470pF/4kV	10µH, Choke

Specifications (measured at T_a= 25°C, nominal input voltage, full load and after warm up unless otherwise specified)

DIMENSION and PHYSICAL CHARACTERISTICS

Parameter	Type	Value
Material	Case Potting	non conductive plastic (UL94V-0) silicone (UL94V-0)
Package Dimension (LxWxH)		11.5 x 10.2 x 7.6mm
Package Weight		2.2g typ.

Dimension Drawing (mm)



Pin Connections

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

Tolerance: xx.x= ±0.5mm
xx.xx= ±0.35mm
Pin dimension: ±0.05mm
Pin pitch: ±0.25mm

PACKAGING INFORMATION

Packaging Dimension (LxWxH)	tube	520.0 x 9.3 x 16.5mm
Packaging Quantity		42pcs
Storage Temperature Range		-55°C to +125°C