

# Features

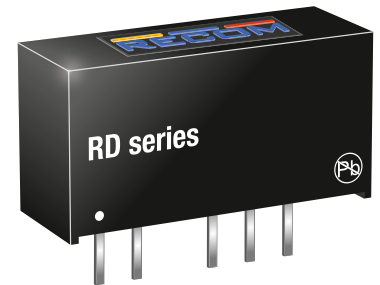
# Unregulated Converters

- 2W dual output converter
- Industry standard SIP7 packages
- Power sharing on outputs
- Optional continuous short circuit protection
- 1kVDC and 2kVDC basic isolation
- UL94 V-0 package material
- Efficiency up to 87%



## RD

**2 Watt  
SIP7  
Dual Output**



EN60950-1 certified  
IEC60950-1 certified

## Description

The RD series have been specifically designed for applications where dual power rails need to be created from a single rail supply and a low cost solution is required. 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 industry standard input voltage and output voltage options plus an input to output isolation of 1kVDC or 2kVDC makes these converters suitable for many industrial applications.

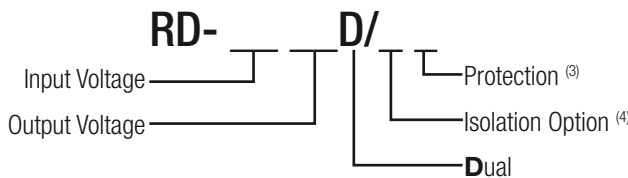
## Selection Guide

Part Number	nom. Input Voltage [VDC]	Output Voltage [VDC]	Output Current [mA]	Efficiency typ. <sup>(1)</sup> [%]	max. Capacitive Load <sup>(2)</sup> [µF]
RD-xx05D <sup>(3,4)</sup>	5, 12, 24	±5	±200	75-86	±470
RD-xx12D <sup>(3,4)</sup>	5, 12, 24	±12	±84	81-85	±330
RD-xx15D <sup>(3,4)</sup>	5, 12, 24	±15	±66	82-86	±330
RD-xx24D <sup>(3,4)</sup>	5, 12, 24	±24	±42	82-86	±100

### 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  
 Note4: add suffix „/H“ for 2kVDC Isolation  
 or add suffix „/HP“ for Continuous Short Circuit Protection and 2kVDC Isolation

### Ordering Examples:

- RD-123.3D/P: 12V Input Voltage, ±3.3V Output Voltage, Dual Output with continuous short circuit protection  
 RD-0509D/HP: 5V Input Voltage, ±9V Output Voltage, Dual Output with 2kVDC Isolation and continuous short circuit protection

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

**BASIC CHARACTERISTICS**

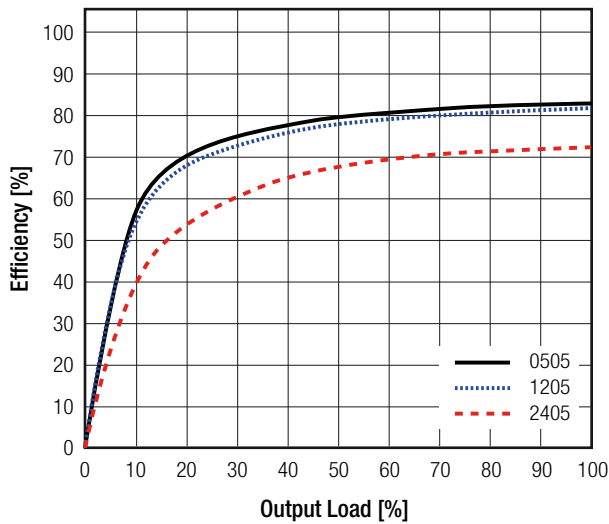
Parameter	Condition	Min.	Typ.	Max.
Input Voltage Range			±10%	
Minimum Load <sup>(5)</sup>		0%		
Internal Operating Frequency		20kHz	50kHz	85kHz
Output Ripple and Noise	20MHz BW			150mVp-p

**Notes:**

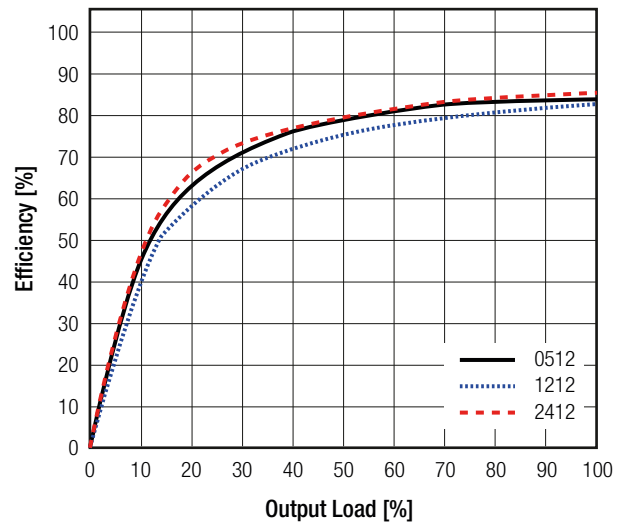
Note5: Operation below 10% load will not harm the converter, but specifications may not be met

**Efficiency vs. Load**

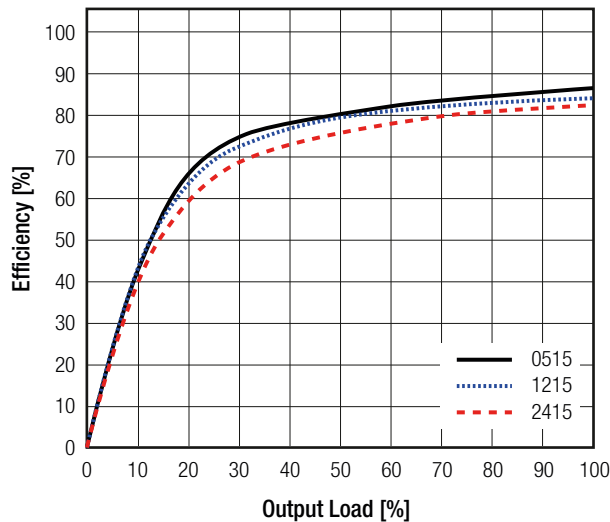
**RD-xx05D**



**RD-xx12D**



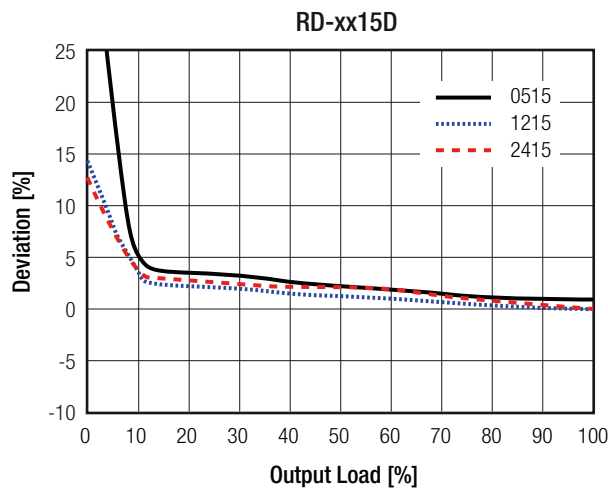
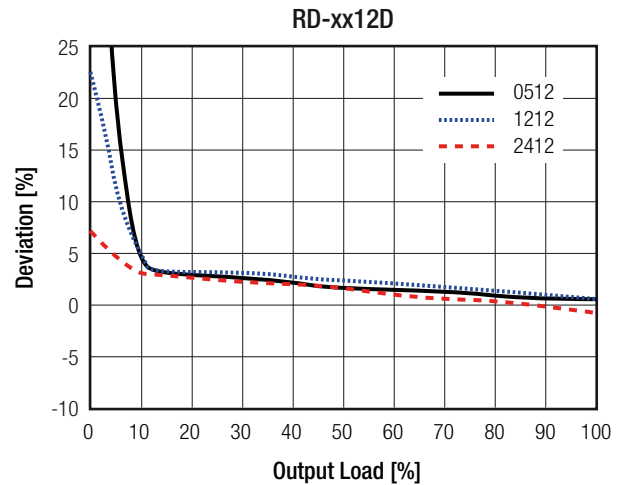
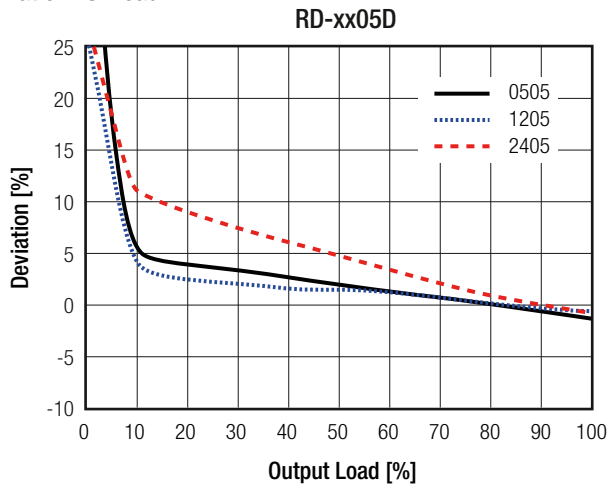
**RD-xx15D**



**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, 15 and 24Vout	10.0% max.

**Deviation vs. Load**



PROTECTIONS			
Parameter	Type		Value
Short Circuit Protection (SCP)	without suffix		1 second
	with suffix "/P"		continuous
Isolation Voltage <sup>(6)</sup>	I/P to O/P	without suffix	tested for 1 second rated for 1 minute 1kVDC 500VAC/60Hz
		with suffix "/H"	tested for 1 second rated for 1 minute 2kVDC 1kVAC/60Hz
Isolation Resistance			10GΩ min.
Isolation Capacitance			40pF min. /115pF max.
Insulation Grade			basic

**Notes:**

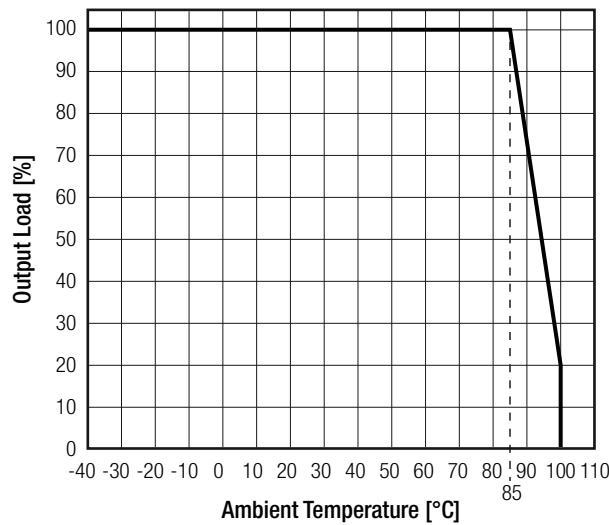
Note6: For repeat Hi-Pot testing, reduce the time and/or the test voltage

Note7: 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	18300 x 10 <sup>3</sup> hours
		+85°C	8070 x 10 <sup>3</sup> hours

**Derating Graph**  
(@ free air convection)

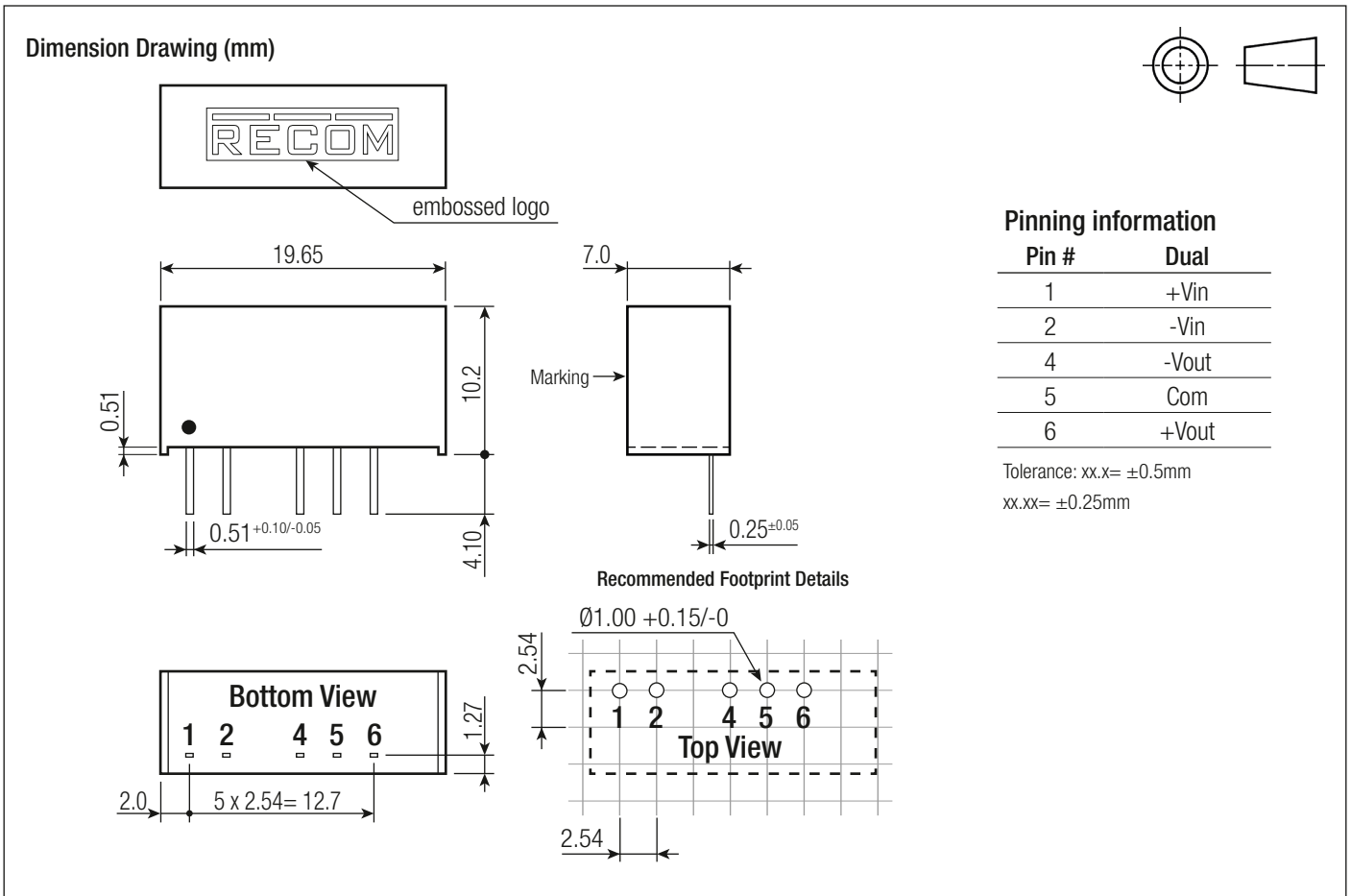


SAFETY AND CERTIFICATIONS		
Certificate Type (Safety)	Report / File Number	Standard
Information Technology Equipment, General Requirements for Safety	1602031	IEC60950-1:2005, 2nd Edition + A2:2013 EN60950-1:2006 + A2:2013
EAC	RU-AT.49.09571	TP TC 004/2011
RoHs 2+		RoHS-2011/65/EU + AM-2015/863

DIMENSION AND PHYSICAL CHARACTERISTICS		
Parameter	Type	Value
Material	case	non-conductive black plastic (JL94 V-1)
	potting	epoxy, (JL94 V-0)
	PCB	FR4, (JL94 V-0)
Dimension (LxWxH)		19.65x 7.05 x 10.2mm
Weight		2.8g 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	25pcs
Storage Temperature Range		-55°C to +125°C
Storage Humidity		95% RH max.

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