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# Features

# Unregulated Converters

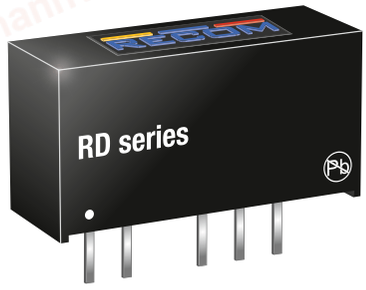
- 2W dual output converter
- Industry standard SIP7 packages
- Power sharing on outputs
- Optional continuous short circuit protection
- 1kVDC and 2kVDC basic isolation
- UL94 V-0 package material
- Efficiency up to 87%

RECOM
DC/DC Converter

# RD

## 2 Watt SIP7 Dual Output

3 YEAR warranty




## 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. (1) [%] | max. Capacitive Load (2) [µF] |
|---|---|---|---|---|---|
| RD-xx05D (3,4) | 5, 12, 24 | ±5 | ±200 | 75-86 | ±470 |
| RD-xx12D (3,4) | 5, 12, 24 | ±12 | ±84 | 81-85 | ±330 |
| RD-xx15D (3,4) | 5, 12, 24 | ±15 | ±66 | 82-86 | ±330 |
| RD-xx24D (3,4) | 5, 12, 24 | ±24 | ±42 | 82-86 | ±100 |

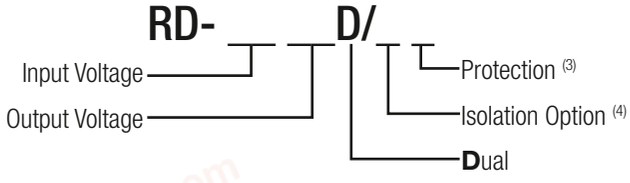
**Notes:**

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

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

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

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

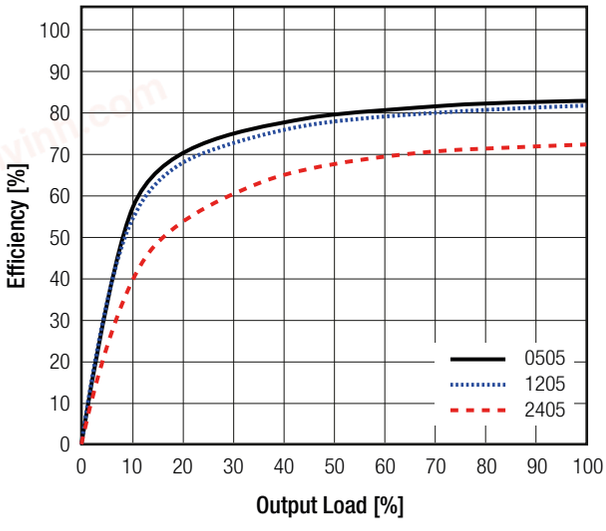
| BASIC CHARACTERISTICS | | | | |
|---|---|---|---|---|
| **Parameter** | **Condition** | **Min.** | **Typ.** | **Max.** |
| Input Voltage Range | | | ±10% | |
| Minimum Load (5) | | 0% | | |
| Internal Operating Frequency | | 20kHz | 50kHz | 85kHz |
| Output Ripple and Noise | 20MHz BW | | | 150mVp-p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

**Notes:**

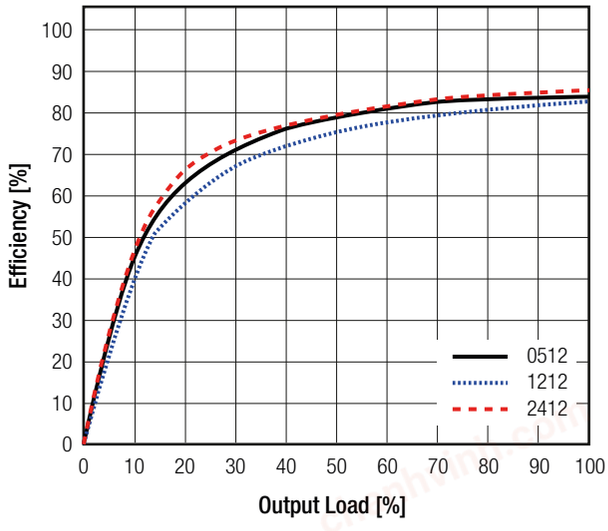
Note5: Operation below 10% load will not harm the converter, but specifications may not be met

### Efficiency vs. Load

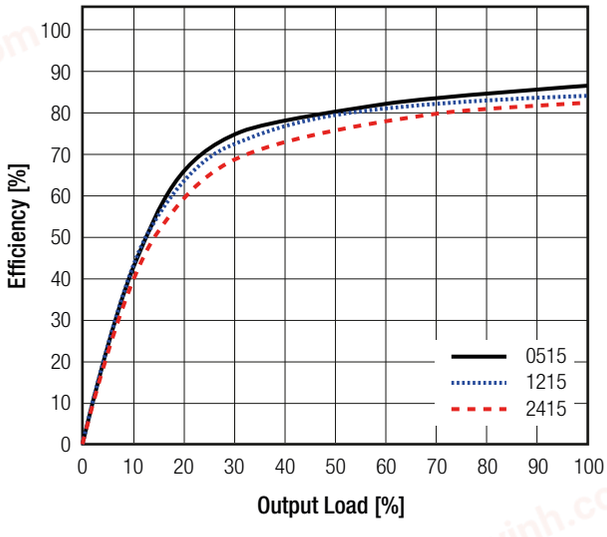
RD-xx05D




RD-xx12D




RD-xx15D



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# RD Series

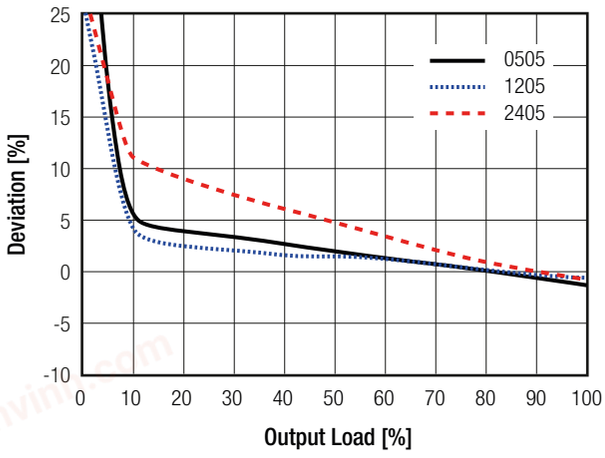
## Specifications (measured @ Ta= 25°C, nom. Vin and full load unless otherwise stated)

### REGULATIONS

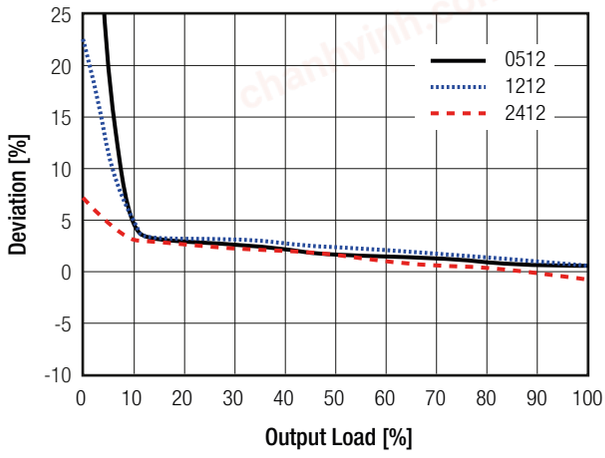
| Parameter | Condition | | Value |
|---|---|---|---|
| Output Accuracy | | | ±5.0% max. |
| Line Regulation | low line to high line, full load | | ±1.2% of 1.0% Vin typ. |
| Load Regulation | 10% to 100% load | 5Vout | 15.0% max. |
| | | 12, 15 and 24Vout | 10.0% max. |

**Deviation vs. Load**

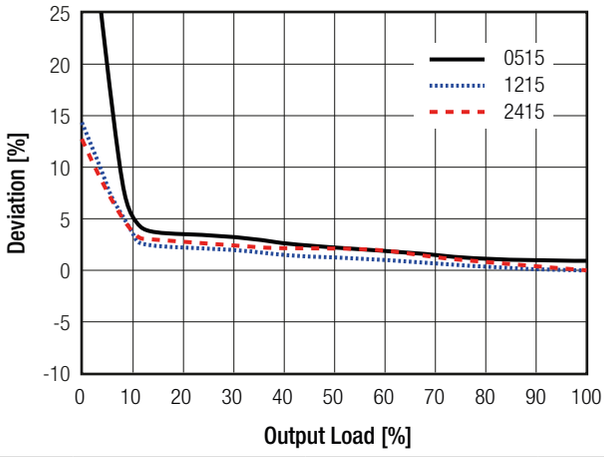
RD-xx05D




RD-xx12D




RD-xx15D




### PROTECTIONS

| Parameter | Type | | | Value |
|---|---|---|---|---|
| Short Circuit Protection (SCP) | without suffix<br>with suffix "/P" | | | 1 second<br>continuous |
| Isolation Voltage [6] | I/P to O/P | without suffix | tested for 1 second<br>rated for 1 minute | 1kVDC<br>500VAC/60Hz |
| | | with suffix "/H" | tested for 1 second<br>rated for 1 minute | 2kVDC<br>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

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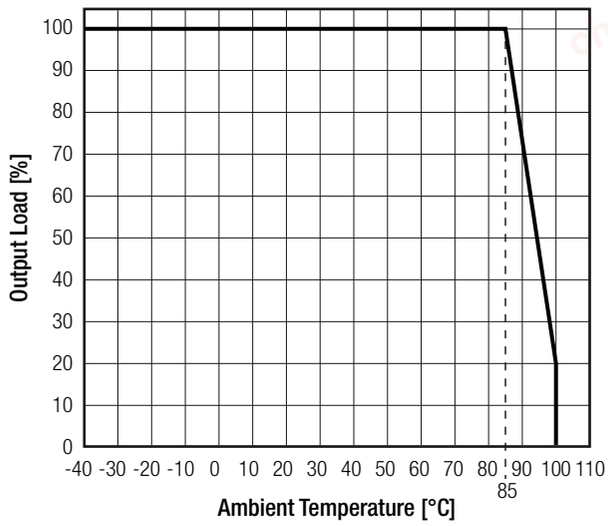
# RD Series

## 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<br>+85°C | 18300 x $10^3$ hours<br>8070 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<br>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<br>potting<br>PCB | non-conductive black plastic (UL94 V-1)<br>epoxy, (UL94 V-0)<br>FR4, (UL94 V-0) |
| Dimension (LxWxH) | | 19.65x 7.05 x 10.2mm |
| Weight | | 2.8g typ. |

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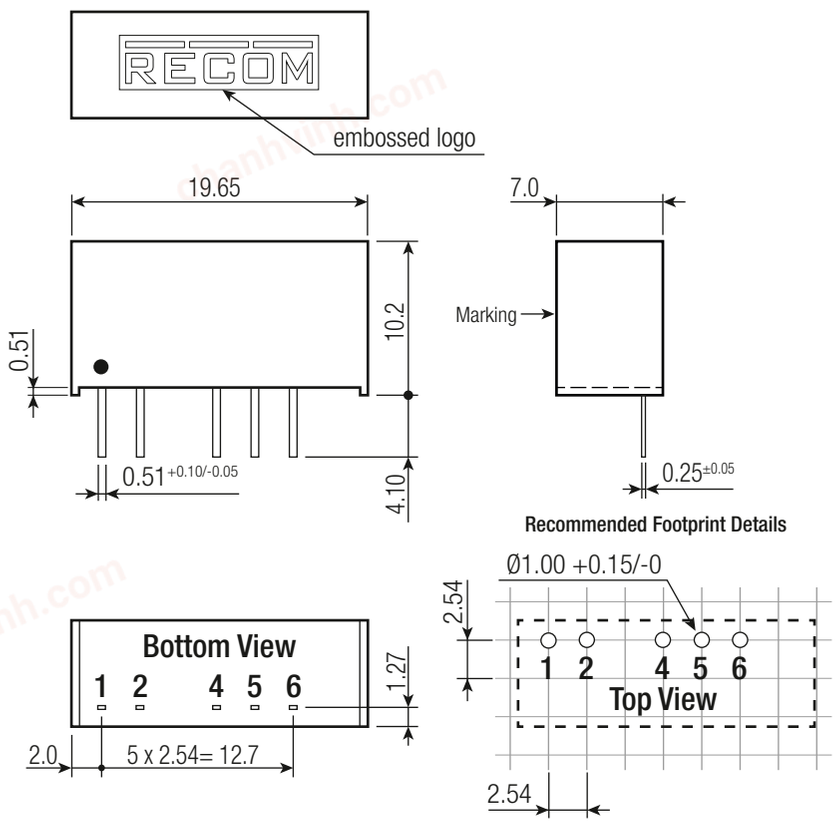
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# RD Series

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

### Dimension Drawing (mm)




### Pinning information

| Pin # | Dual |
|---|---|
| 1 | +Vin |
| 2 | -Vin |
| 4 | -Vout |
| 5 | Com |
| 6 | +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 | 25pcs |
| Storage Temperature Range | | -55°C to +125°C |
| Storage Humidity | | 95% RH max. |

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