

## Features

## Unregulated Converter

- Industry Standard Pinout
- 1kVDC or 2kVDC Isolation
- UL94V-0 Package Material
- Optional Continuous Short Circuit Protected
- Fully Encapsulated
- Custom Solutions Available
- Efficiency to 85 %

### Description

The RE DC/DC converters are typically used in general purpose power isolation and voltage matching applications, and feature a full industrial operating temperature range of -40°C to +85°C without derating.

### Selection Guide

| Part Number<br>SIP 7 | (2kV) | Input Voltage<br>(VDC) | Output Voltage<br>(VDC) | Output Current<br>(mA) | Efficiency<br>(%) | Max Capacitive Load <sup>(1)</sup> |
|----------------------|-------|------------------------|-------------------------|------------------------|-------------------|------------------------------------|
| RE-xx3.3S            | (H)   | 3.3, 5, 12, 15, 24     | 3.3                     | 303                    | 75                | 2200µF                             |
| RE-xx05S             | (H)   | 3.3, 5, 12, 15, 24     | 5                       | 200                    | 78-80             | 1000µF                             |
| RE-xx09S             | (H)   | 3.3, 5, 12, 15, 24     | 9                       | 111                    | 78-80             | 1000µF                             |
| RE-xx12S             | (H)   | 3.3, 5, 12, 15, 24     | 12                      | 83                     | 80-84             | 470µF                              |
| RE-xx15S             | (H)   | 3.3, 5, 12, 15, 24     | 15                      | 66                     | 80-84             | 470µF                              |
| RE-xx24S             | (H)   | 3.3, 5, 12, 15, 24     | 24                      | 42                     | 78-85             | 220µF                              |

xx = Input Voltage (other input and output voltage combinations available on request)

\* add Suffix "P" for Continuous Short Circuit Protection, e.g. RE-0505S/P, RE-0505S/HP

### Specifications (measured at $T_A = 25^\circ\text{C}$ , nominal input voltage, full load and after warm-up)

|                                                    |                                                           |                                                 |
|----------------------------------------------------|-----------------------------------------------------------|-------------------------------------------------|
| Input Voltage Range                                | $\pm 10\%$                                                |                                                 |
| Output Voltage Accuracy                            | $\pm 5\%$                                                 |                                                 |
| Line Voltage Regulation                            | 1.2%/1% of $V_{in}$ typ.                                  |                                                 |
| Load Voltage Regulation<br>(10% to 100% full load) | 3.3V output type                                          | 20% max.                                        |
|                                                    | 5V output type                                            | 15% max.                                        |
|                                                    | 9V, 12V, 15V, 24V output types                            | 10% max.                                        |
| Output Ripple and Noise (20MHz limited)            | 100mVp-p max.                                             |                                                 |
| Operating Frequency                                | 50kHz min. / 100kHz typ. / 105kHz max.                    |                                                 |
| Efficiency at Full Load                            | 70% min. / 80% typ.                                       |                                                 |
| Minimum Load = 0%                                  | Specifications valid for 10% minimum load only.           |                                                 |
| Isolation Voltage                                  | (tested for 1 second)                                     | 1000VDC                                         |
|                                                    | (rated for 1 minute**)                                    | 500VAC / 60Hz                                   |
| Isolation Voltage                                  | H-Suffix (tested for 1 second)                            | 2000VDC                                         |
|                                                    | H-Suffix (rated for 1 minute**)                           | 1000VAC / 60Hz                                  |
| Isolation Capacitance                              | 20pF min. / 75pF max.                                     |                                                 |
| Isolation Resistance                               | 10 GΩ min.                                                |                                                 |
| Short Circuit Protection                           | 1 Second                                                  |                                                 |
| P-Suffix                                           | Continuous                                                |                                                 |
| Operating Temperature Range (free air convection)  | -40°C to +85°C (see Graph)                                |                                                 |
| Storage Temperature Range                          | -55°C to +125°C                                           |                                                 |
| Relative Humidity                                  | 95% RH                                                    |                                                 |
| Package Weight                                     | 2.2g                                                      |                                                 |
| Packing Quantity                                   | 25 pcs per Tube                                           |                                                 |
| MTBF (+25°C)                                       | Detailed Information see Application Notes chapter "MTBF" | using MIL-HDBK 217F 992 x 10 <sup>3</sup> hours |
| (+85°C)                                            |                                                           | using MIL-HDBK 217F 145 x 10 <sup>3</sup> hours |

continued on next page

\*\*Any data referred to in this datasheet are of indicative nature and based on our practical experience only. For further details, please refer to our Application Notes.

## ECONOLINE

## DC/DC-Converter

with 3 year Warranty

RECOM

1 Watt

SIP7

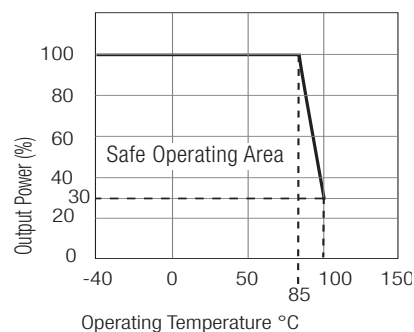
Single Output



EN-60950-1 Certified  
UL-60950-1 Certified

RE

## Derating-Graph (Ambient Temperature)



Refer to Application Notes

### Specifications (measured at $T_A = 25^\circ\text{C}$ , nominal input voltage, full load and after warm-up)

#### Certifications

CB Test Report

Report: US/15348/UL

IEC 60950-1:2005 2nd Edition

UL General Safety

Report: E358085

UL 60950-1 2nd Edition

EN General Safety

Report: SPCLVD1109103

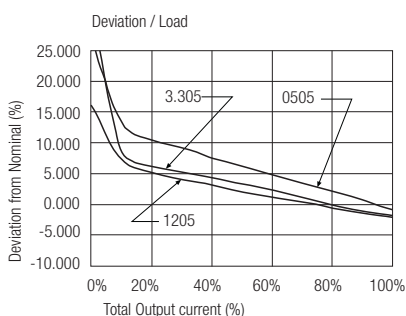
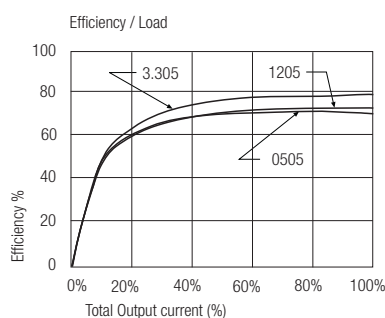
EN60950-1:2006 + A12:2011

#### Notes

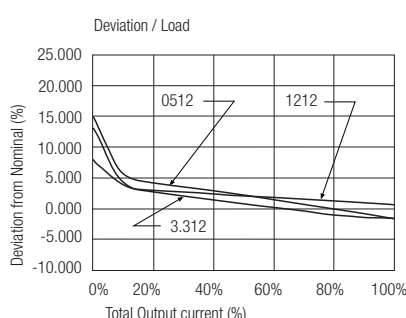
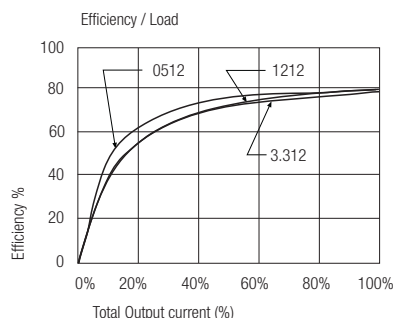
Note 1 Maximum capacitive load is defined as the capacitive load that will allow start up in under 1 second without damage to the converter.

### Typical Characteristics

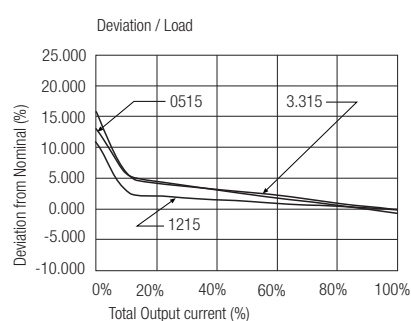
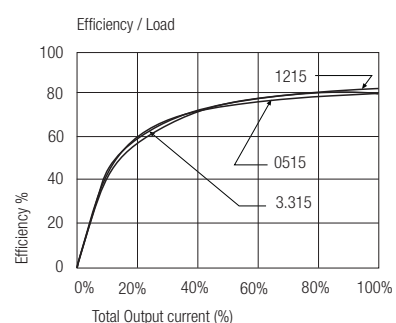
## RE-xx05S



## RE-xx12S

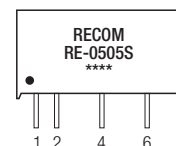
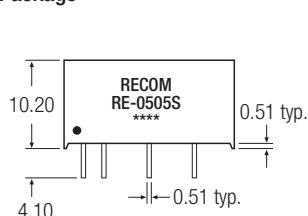


## RE-xx15S

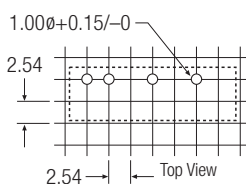
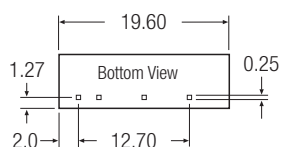


### Package Style and Pinning (mm)

#### 7 PIN SIP Package



#### Recommended Footprint Details



#### RE Pin Connections

| Pin # | Single                |
|-------|-----------------------|
| 1     | +Vin                  |
| 2     | -Vin                  |
| 4     | -Vout                 |
| 6     | +Vout                 |
| XX.X  | $\pm 0.5 \text{ mm}$  |
| XX.XX | $\pm 0.25 \text{ mm}$ |

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