

Features

Unregulated Converters

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

ECONOLINE

DC/DC-Converter

RO & RE Series

Selection Guide

| Part Number | | Input Voltage | Output Voltage | Output Current | Efficiency (%) | |
|-------------|-----------|---------------|----------------------------|----------------|----------------|-------|
| SIP 4 | SIP 7 | (2kV) | (VDC) | (VDC) | (mA) | (%) |
| RO-xx1.8S | RE-xx1.8S | (H) | 1.8, 3.3, 5, 9, 12, 15, 24 | 1.8 | 555 | 70 |
| RO-xx3.3S | RE-xx3.3S | (H) | 1.8, 3.3, 5, 9, 12, 15, 24 | 3.3 | 303 | 75 |
| RO-xx05S | RE-xx05S | (H) | 1.8, 3.3, 5, 9, 12, 15, 24 | 5 | 200 | 70-78 |
| RO-xx09S | RE-xx09S | (H) | 1.8, 3.3, 5, 9, 12, 15, 24 | 9 | 111 | 76-78 |
| RO-xx12S | RE-xx12S | (H) | 1.8, 3.3, 5, 9, 12, 15, 24 | 12 | 83 | 78-80 |
| RO-xx15S | RE-xx15S | (H) | 1.8, 3.3, 5, 9, 12, 15, 24 | 15 | 66 | 80-84 |
| RO-xx24S | RE-xx24S | (H) | 1.8, 3.3, 5, 9, 12, 15, 24 | 24 | 42 | 74-85 |

xx = Input Voltage

* add Suffix "P" for Continuous Short Circuit Protection, e.g. RO-051.8S/P, RO-051.8S/HP

Specifications (Core Operating Area)

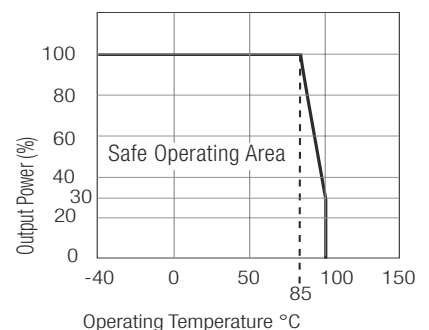
| | | | |
|---|---|--|-----------------------------|
| Input Voltage Range | | ±10% | |
| Output Voltage Accuracy | | ±5% | |
| Line Voltage Regulation | | 1.2%/1% of Vin typ. | |
| Load Voltage Regulation (10% to 100% full load) | 1.8V, 3.3V output types 5V output type 9V, 12V, 15V, 24V output types | 20% max. 15% max. 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. | |
| No Load Power Consumption | | 101mW min. / 126mW typ. / 220mW max. | |
| Isolation Voltage | (tested for 1 second) | 1000VDC min. | |
| Rated Working Voltage | (long term isolation) | see Application Notes | |
| Isolation Voltage | H-Suffix (tested for 1 second) | 2000VDC min. | |
| Rated Working Voltage | H-Suffix (long term isolation) | see Application Notes | |
| 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 | RO types | 1.4g | |
| | RE types | 2.2g | |
| MTBF (+25°C) | } Detailed Information see Application Notes chapter "MTBF" using MIL-HDBK 217F | RO types | 985 x 10 ³ hours |
| | | RE types | 992 x 10 ³ hours |
| (+85°C) | } | RO types | 200 x 10 ³ hours |
| | | RE types | 145 x 10 ³ hours |

1 Watt SIP4 & SIP7 Single Output



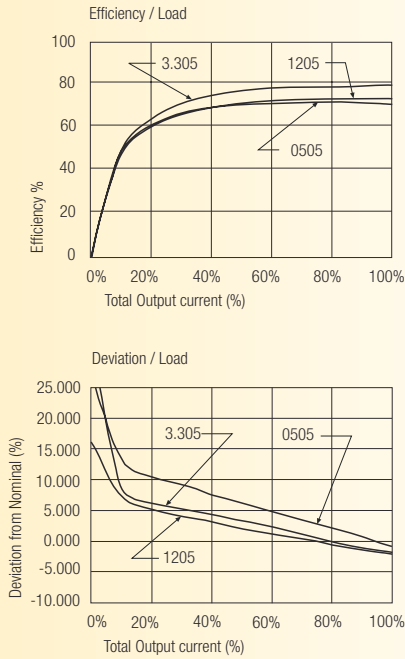
RECOM

Derating-Graph (Ambient Temperature)

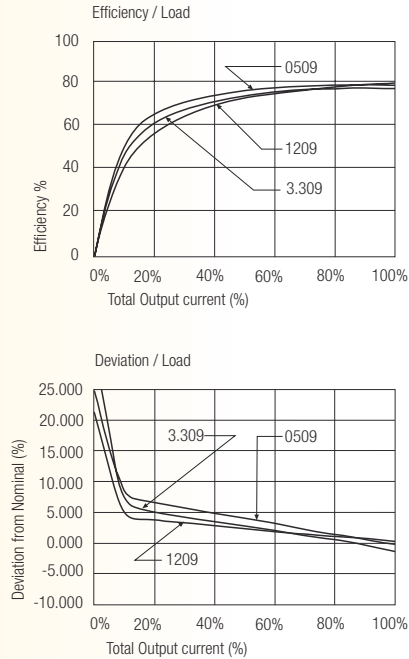


Typical Characteristics

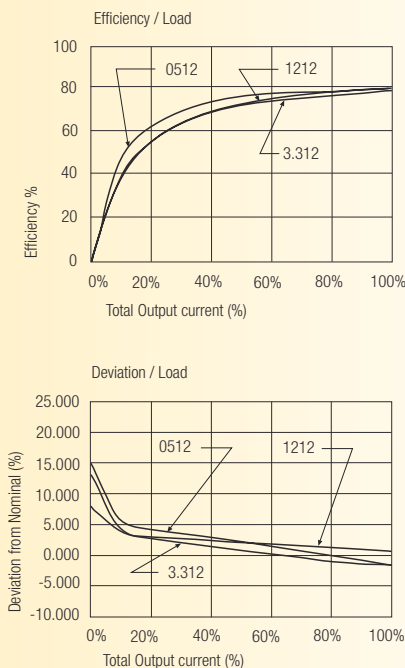
RO/RE-xx05S



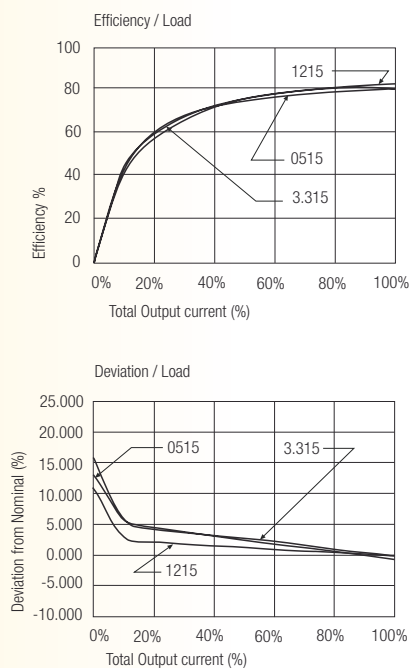
RO/RE-xx09S



RO/RE-xx12S

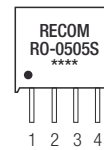
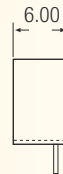
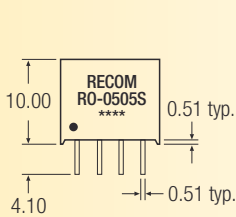


RO/RE-xx15S

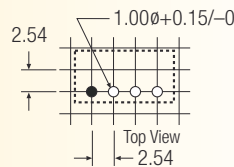
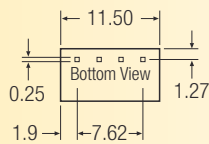


Package Style and Pinning (mm)

4 PIN SIP Package



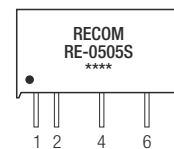
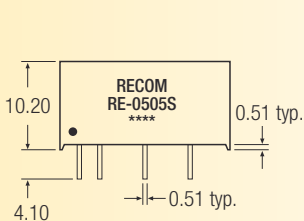
Recommended Footprint Details



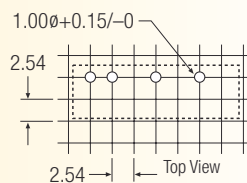
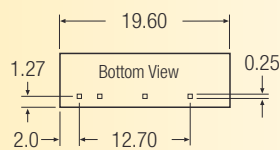
RO Pin Connections

| Pin # | Single |
|-----------------|--------|
| 1 | -Vin |
| 2 | +Vin |
| 3 | -Vout |
| 4 | +Vout |
| XX.X ± 0.5 mm | |
| XX.XX ± 0.25 mm | |

7 PIN SIP Package



Recommended Footprint Details



RE Pin Connections

| Pin # | Single |
|-----------------|--------|
| 1 | +Vin |
| 2 | -Vin |
| 4 | -Vout |
| 6 | +Vout |
| XX.X ± 0.5 mm | |
| XX.XX ± 0.25 mm | |