

# Features

## Unregulated Converters

- Efficiency 84% Full Load/70% with 20% Load
- Low Deviation (10% ~ 100% Load)
- 1kVDC and 2kVDC Isolation Option
- Safety Certified
- -40°C to +100°C Operating Temperature Range
- 1W SIP4 Package

### Description

The RO/E series is an unregulated DC/DC converter in standard SIP4 package style. This series has been designed to offer exceptionally high efficiency at low loads, an extended operating temperature range and low deviation (10% ~ 100% load). Uses include applications with restricted energy budget and industrial applications where a high efficiency level is required.

### Selection Guide

Part Number SMD	Isolation Voltage (kVDC)	Input Voltage (VDC)	Output Voltage (VDC)	Output Current (mA)	Efficiency (typ.)	Capacitive Load (max.)
RO-3.305S/E*	1	3.3	5	200	83%	2200µF
RO-0505S/E*	1	5	5	200	84%	2200µF
RO-1205S/E*	1	12	5	200	84%	2200µF
RO-2405S/E*	1	24	5	200	82%	2200µF

\* add Suffix "/H" for 2kVDC Isolation Voltage - e.g. RO-3.305S/EH

\* add Suffix "/P" for Continuous Short Protection - e.g. RO-3.305S/EHP, RO-3.305S/EP

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

Input Voltage Range				±10%
Output Voltage Accuracy				±5% max.
Line Voltage Regulation	low line to high line at full load			1.2% max.
Load Voltage Regulation	Load Deviation 10% to 100%			12% typ.
Output Ripple and Noise (20MHz BW)				50mVp-p typ., 100mVp-p max.
Operating Frequency ( $V_{in}$ =nominal input)				20kHz min. / 90kHz max.
Efficiency				see Selection Guide
Minimum Load = 0%	Specifications valid for 10% minimum load only			
Isolation Voltage	RO-xx05/E	tested for 1 second		1000 VDC
	RO-xx05/EH	tested for 1 second		2000 VDC
Isolation Capacitance				75pF max.
Isolation Resistance	(Viso=500V)			10GΩ min.
Short-Circuit Protection				1 second
Operating Temperature Range				-40°C to +100°C
Storage Temperature				-55°C to +125°C
Relative Humidity				95% RH
Package Weight				1.4g
MTBF (+25°C)	using MIL-HDBK 217F			3459 x 10 <sup>3</sup> hours
MTBF (+100°C)	using MIL-HDBK 217F			756 x 10 <sup>3</sup> hours

Note: Detailed Information see Application Notes chapter "MTBF"

## ECONOLINE

DC/DC-Converter

with 3 year Warranty

# RECOM

## 1 Watt SIP4 Single Output



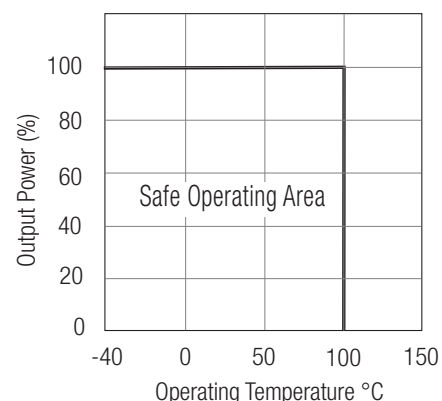
EN-60950-1 (pending)

UL-60950-1 (pending)

# RO/E

## Derating-Graph

(Ambient Temperature)

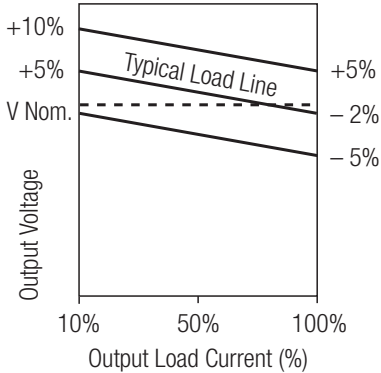


Refer to Application Notes

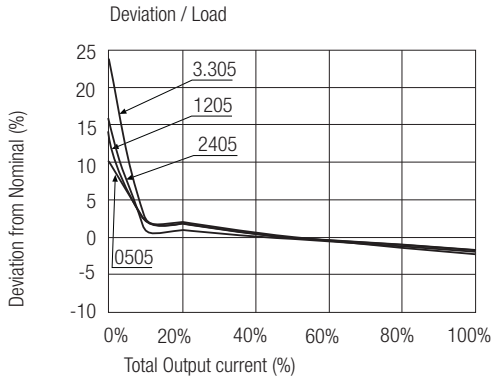
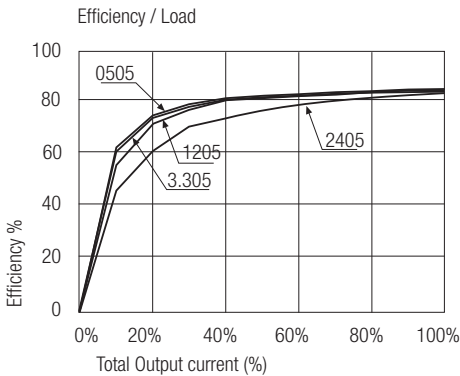
## ECONOLINE DC/DC-Converter

### Typical Characteristics

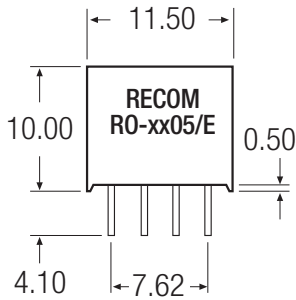
#### Tolerance Envelope



### RO-xx05/E



#### Package Style and Pinning

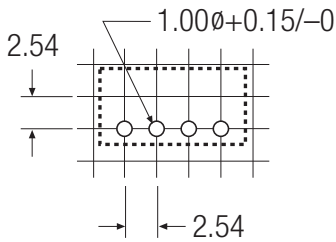
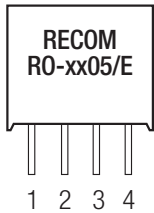


3rd angle projection

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

Unit: mm  
Tolerance: ± 0.25 mm

Footprint (top view)



RO/E