

Features

- Low cost 1W converter
- Industry standard pinout
- SIP4 package
- 1kVDC isolation
- Efficiency up to 80%
- Wide operating temperature range -40°C to +85°C
- UL60950-1 and CAN/CSA C22.2 No. 60950-1-07 certified

Unregulated Converters



ROE

1 Watt
SIP4
Single Output



Description

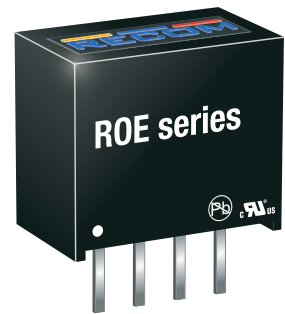
The ROE DC/DC converters are typically used in general purpose power isolation and voltage matching applications, and feature a full industrial operating temperature range of -40°C to +85°C without derating.

Selection Guide

| Part Number | nom. Input Voltage [VDC] | Output Voltage [VDC] | Output Current [mA] | Efficiency typ. [%] | max. Capacitive Load ⁽¹⁾ [µF] |
|-------------|--------------------------|----------------------|---------------------|---------------------|--|
| ROE-3.305S | 3.3 | 5 | 200 | 79 | 470 |
| ROE-0505S | 5 | 5 | 200 | 79 | 470 |
| ROE-0512S | 5 | 12 | 84 | 80 | 220 |
| ROE-0515S | 5 | 15 | 66 | 80 | 220 |
| ROE-1205S | 12 | 5 | 200 | 80 | 470 |
| ROE-1505S | 15 | 5 | 200 | 79 | 470 |
| ROE-2405S | 24 | 5 | 200 | 80 | 470 |

Notes:

Note1: Max. capacitive load is tested at nominal input voltage and full load



Model Numbering



Ordering Examples:

ROE-0512S = 5VDC Input Voltage, 12VDC Output Voltage, Single Output
ROE-2405S = 24VDC Input Voltage, 5VDC Output Voltage, Single Output

UL60950-1 certified
CAN/CSA C22.2 No. 60950-1-07 certified
EN60950-1 certified
IEC60950-1 certified
EN55032 compliant

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

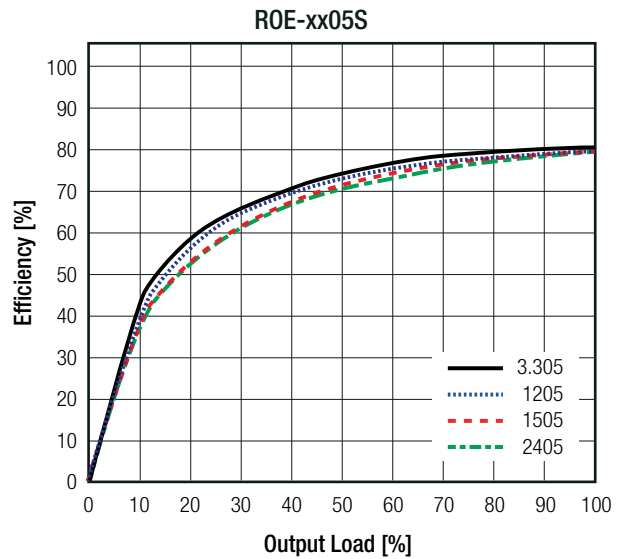
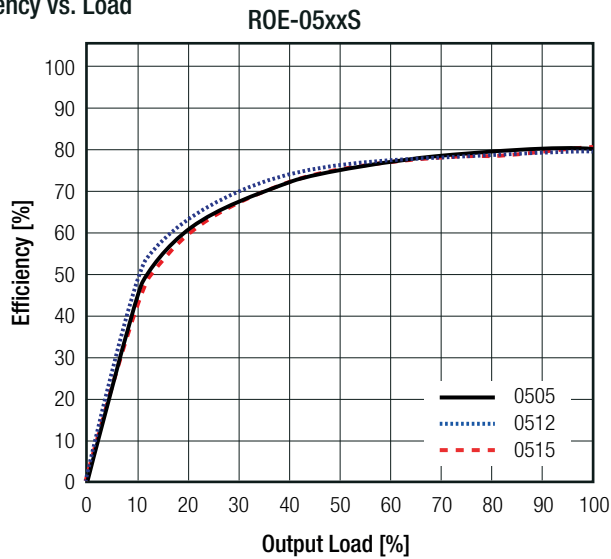
BASIC CHARACTERISTICS

| Parameter | Condition | Min. | Typ. | Max. |
|--|-----------|-------|---------|----------|
| Input Voltage Range | | | ±10% | |
| Operating Frequency Range | | 50kHz | 80kHz | 105kHz |
| Output Ripple and Noise ⁽²⁾ | 20MHz BW | | 50mVp-p | 100mVp-p |

Notes:

Note2: Measurements are made with a 100nF MLCC across output (low ESR)

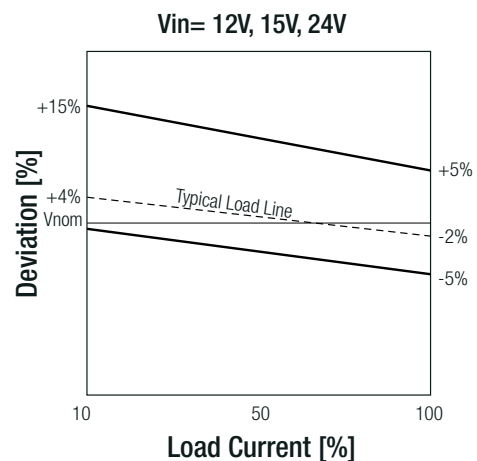
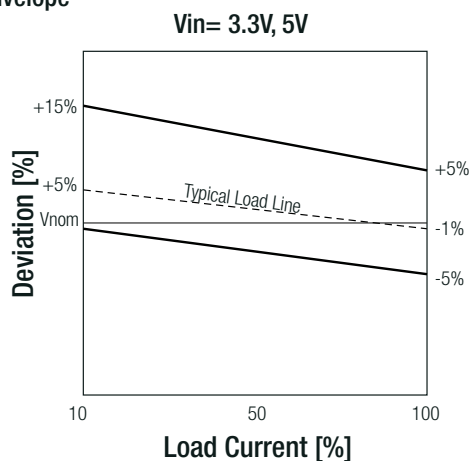
Efficiency vs. Load



REGULATIONS

| Parameter | Condition | | Values |
|-----------------|-----------------------|-------------------|-----------------------|
| Output Accuracy | | | ±5.0% max. |
| Line Regulation | low line to high line | | ±1.2% typ. / 1.0% Vin |
| Load Regulation | 20% to 100% load | 5Vout | 15% max. |
| | | 12Vout and 15Vout | 10% max. |

Tolerance Envelope



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

PROTECTIONS

| Parameter | Condition | | Value |
|----------------------------------|------------|---------------------|-----------|
| Isolation Voltage ⁽³⁾ | I/P to O/P | tested for 1 second | 1kVDC |
| Isolation Capacitance | | | 75pF max. |
| Isolation Resistance | | | 1GΩ min. |

Notes:
 Note3: For repeat Hi-Pot testing, reduce the time and/or the test voltage
 Note4: An input fuse is required if the mains supply is not over-current protected. Recommended fuse: T1A slow blow type

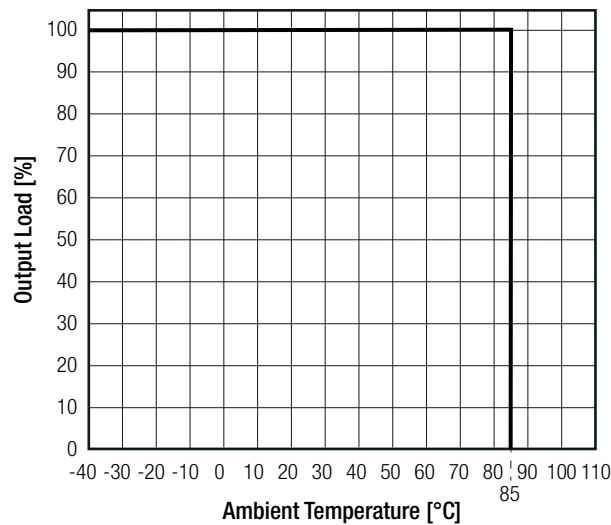
ENVIRONMENTAL

| Parameter | Condition | | Value |
|-----------------------------|---|----------------|---|
| Operating Temperature Range | without derating @free air convection (see graph) | | -40°C to +85°C |
| Operating Humidity | non-condensing | | 95% RH max. |
| Vibration | | | MIL-STD-202G |
| MTBF ⁽⁵⁾ | according to MIL-HDBK-217F; G.B. | +25°C +85°C | 20140 x 10 ³ hours 8674 x 10 ³ hours |

Notes:

Note5: MTBF is referring ROE-3.305S

Derating Graph



SAFETY AND CERTIFICATIONS

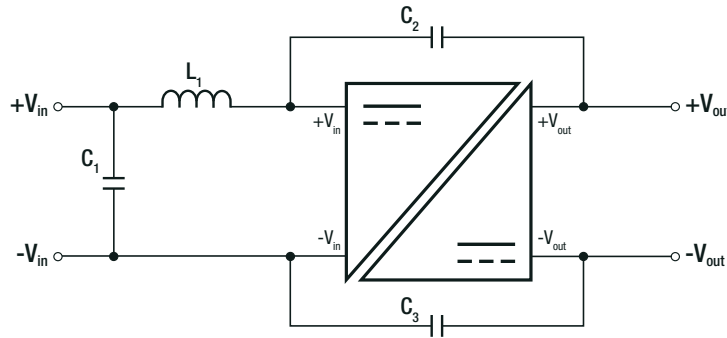
| Certificate Type | Report / File Number | Standard |
|---|----------------------|--|
| Information Technology Equipment, General Requirements for Safety | E358085-A4-UL | UL60950-1, 2nd Edition, 2007 CAN/CSA C22.2 No.60950-1-07, 2nd Edition, 2007 |
| Information Technology Equipment, General Requirements for Safety | SPCLVD1602031 | 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 |

| EMI Compliance | Condition | Standard / Criterion |
|---|---|--------------------------------------|
| Electromagnetic compatibility of multimedia equipment - Emission requirements | with external filter (see filter suggestion below) | EN55032, Class B EN55032, Class A |

continued on next page

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

EMC Filter Suggestion according to EN55032



Component List Class A

| MODEL | C1 | L1 | C2 (safety) | C3 (safety) |
|-----------|-------------|-----|-------------|-------------|
| ROE-0505S | 6.8µF, MLCC | N/A | N/A | N/A |
| ROE-0515S | 4.7µF, MLCC | | N/A | |
| ROE-1205S | 10µF | | 470pF | |
| ROE-2405S | 100V MLCC | | N/A | |

Component List Class B

| MODEL | C1 | L1 | C2 (safety) | C3 (safety) |
|-----------|-------------------|-----------------------|-------------|-------------|
| ROE-0505S | 10µF 100V MLCC | 22µH choke RLS-226 | 330pF | 330pF |
| ROE-0515S | | | | |
| ROE-1205S | | | | |
| ROE-2405S | | | | |

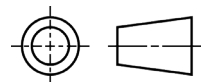
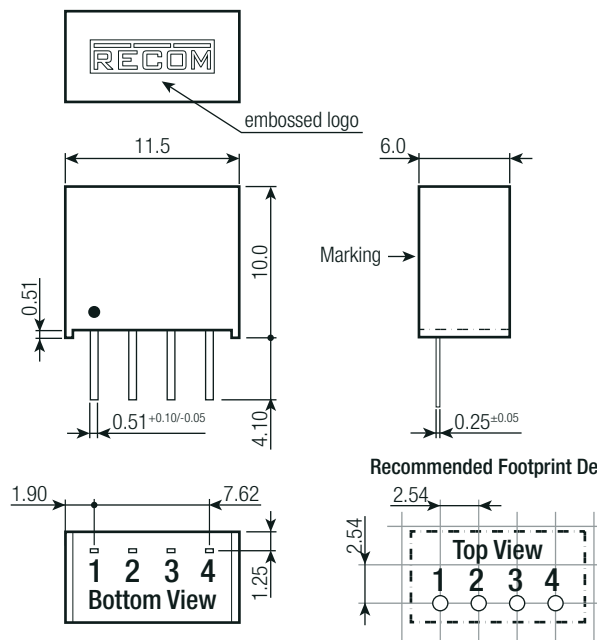
Notes:

Note6: Filter suggestions are valid for indicated part numbers only. For other part numbers, please contact RECOM tech support for advice

DIMENSION and PHYSICAL CHARACTERISTICS

| Parameter | Type | Value |
|-------------------|--------------|---|
| Material | case potting | non-conductive black plastic, (UL94 V-0) epoxy, (UL94 V-0) |
| Dimension (LxWxH) | | 11.5 x 6.0 x 10.0mm |
| Weight | | 1.4g |

Dimension Drawing (mm)

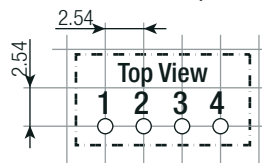


Pin Connections

| Pin # | Function |
|-------|----------|
| 1 | -Vin |
| 2 | +Vin |
| 3 | -Vout |
| 4 | +Vout |

Tolerance: xx.x= ±0.50mm
xx.xx=±0.25mm

Recommended Footprint Details



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

| PACKAGING INFORMATION | | |
|-----------------------------|------|----------------------|
| Parameter | Type | Value |
| Packaging Dimension (LxWxH) | tube | 520.0 x 16.0 x 9.0mm |
| Packaging Quantity | | 42 pcs |
| Storage Temperature Range | | -55°C to +125°C |

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RECOM:

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