

# 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

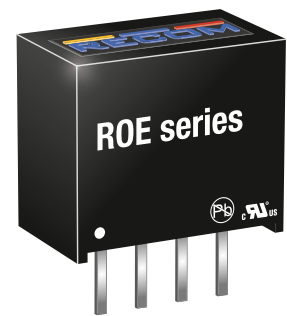
The ROE DC/DC converters are typically used in general purpose power isolation and voltage matching applications, and feature a full industrial operating temperature range of -40°C to +85°C without derating.

### Selection Guide

Part Number	nom. Input Voltage [VDC]	Output Voltage [VDC]	Output Current [mA]	Efficiency typ. [%]	max. Capacitive Load <sup>(1)</sup> [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

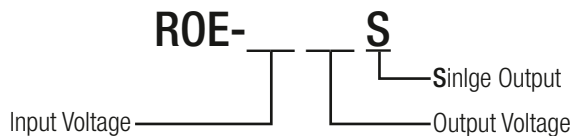
#### Notes:

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



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

### Model Numbering



#### Ordering Examples:

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

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

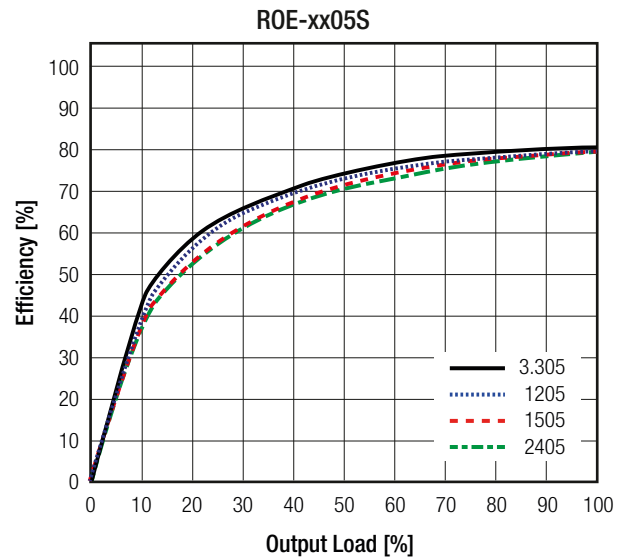
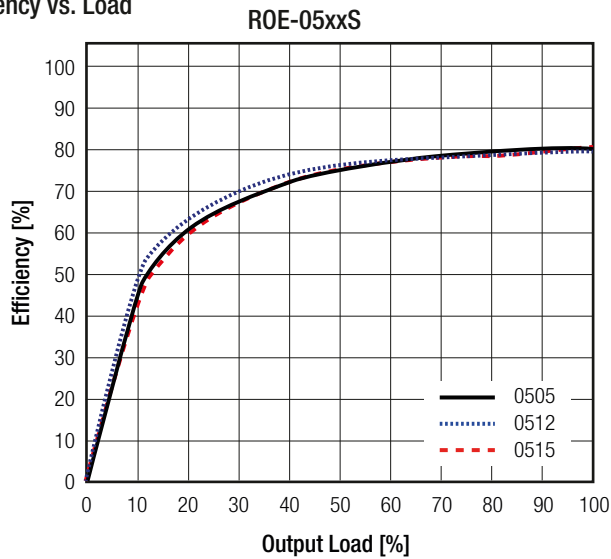
### BASIC CHARACTERISTICS

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

**Notes:**

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

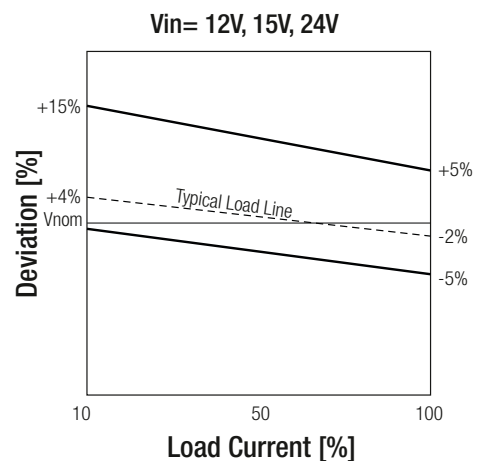
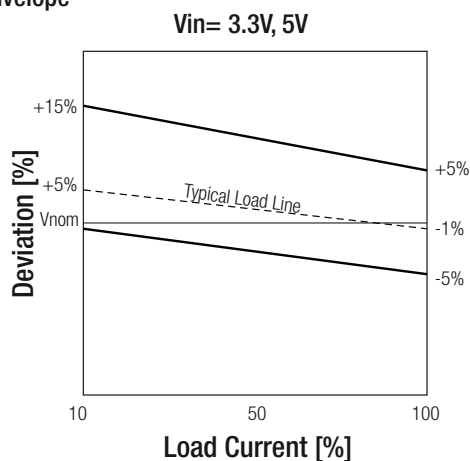
#### Efficiency vs. Load



### 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 <sup>(3)</sup>	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

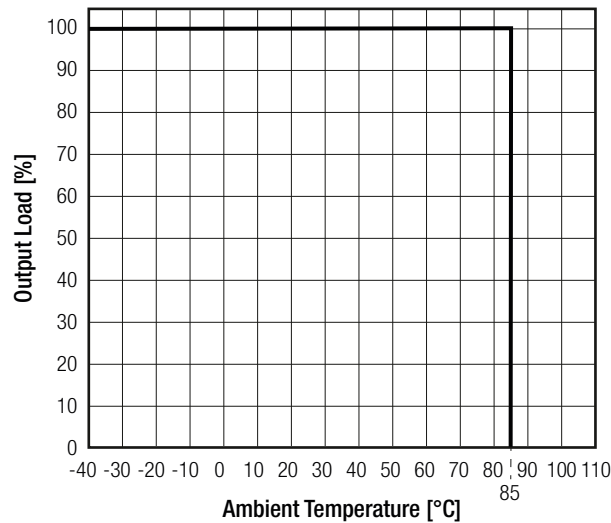
**ENVIRONMENTAL**

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 <sup>(5)</sup>	according to MIL-HDBK-217F; G.B.	+25°C +85°C	20140 x 10 <sup>3</sup> hours 8674 x 10 <sup>3</sup> hours

**Notes:**

Note5: MTBF is referring ROE-3.305S

**Derating Graph**



**SAFETY AND CERTIFICATIONS**

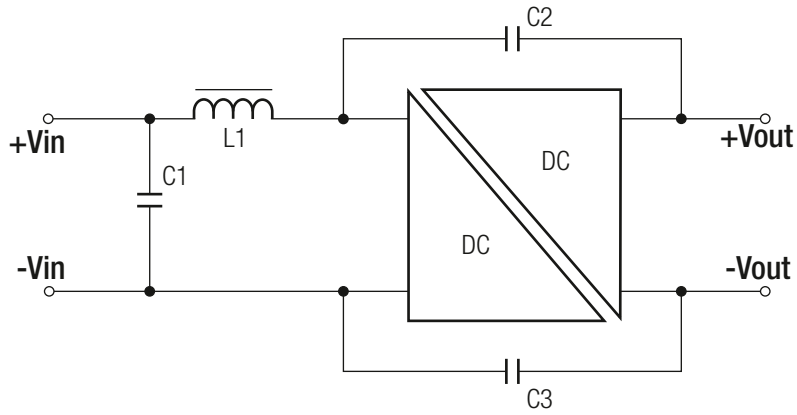
Certificate Type	Report / File Number	Standard
Information Technology Equipment, General Requirements for Safety	E358085-A4	UL-60950-1, 2nd Edition, 2007 CAN/CSA C22.2 No.60950-1-07, 2nd Edition, 2007
Information Technology Equipment, General Requirements for Safety	1602031	IEC60950-1:2005, 2nd Edition + 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	without external filter	EN55032, Class A
	with external filter (see suggestions)	EN55032, Class B

continued on next page

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

**EMC Filtering Suggestions according to EN55032 Class A and B**



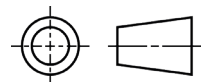
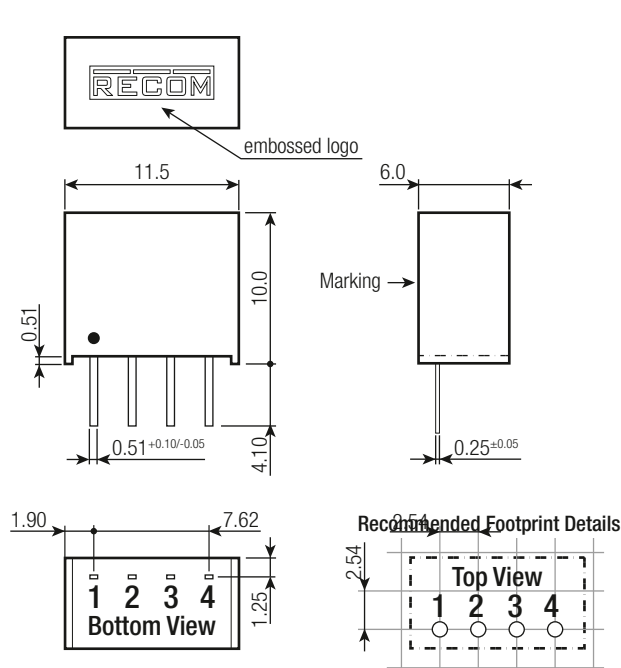
**Component List Class B**

C1	L1	C2	C2
10µF MLCC 100V	22µH PR4532Z-220K	330pF	330pF

**DIMENSION and PHYSICAL CHARACTERISTICS**

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

**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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