

# Features

## Unregulated Converters

- Low Cost 1W Converter
- Industry Standard Pinout
- SIP4 Package
- 1kVDC Isolation
- Efficiency up to 80%
- Wide Operating Temperature Range -40°C to +85°C
- UL-60950-1 Certified

## ROE

**1 Watt**  
**SIP4**  
**Single Output**



### Description

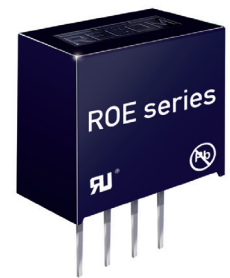
The ROE DC/DC converters are typically used in general purpose power isolation and voltage matching applications, and feature a full industrial operating temperature range of -40°C to +85°C without derating.

### Selection Guide

Part Number	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:**

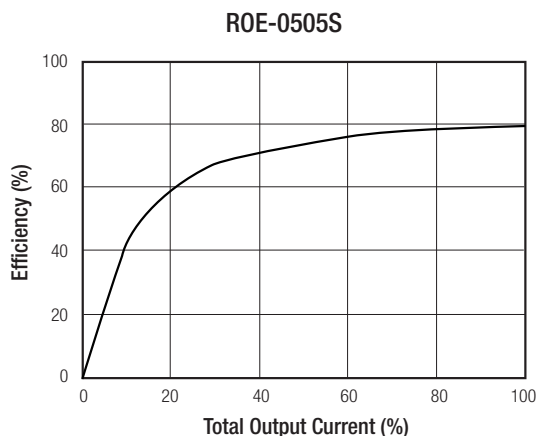
Note1: Max. capacitive load is tested at nominal input voltage and full load.



### Specifications (measured at TA= 25°C, nominal input voltage, full load and after warm up)

BASIC CHARACTERISTICS				
Parameter	Condition	Min.	Typ.	Max.
Input Voltage Range				±10%
Operating Frequency Range	Vin nominal	50kHz	80kHz	105kHz
Output Ripple and Noise	20MHz bandwidth		50mVp-p	100mVp-p

#### Efficiency vs. Load



UL-60950-1 Certified

Refer to Applications Notes

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

REGULATIONS		
Parameter	Condition	Values
Output Voltage Accuracy	100% load, $V_{in}$ nominal	$\pm 5\%$ max.
Line Voltage Regulation	low line to high line, full load	$\pm 1.2\%$ typ. / $1\%$ $V_{in}$
Load Voltage Regulation	20% to 100% load, $5V_{out}$	15% max.
	20% to 100% load, $12V_{out}$ and $15V_{out}$	10% max.

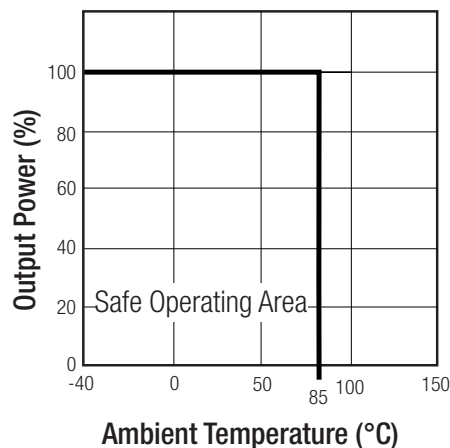
  

Tolerance Envelope		
<b><math>V_{in} = 3.3V, 5V</math></b>	<b><math>V_{in} = 12V, 15V, 24V</math></b>	

PROTECTIONS		
Parameter	Condition	Value
Isolation Voltage	I/P to O/P	1kVDC / 1 second
Isolation Capacitance		75pF max.
Isolation Resistance		1G $\Omega$ min.

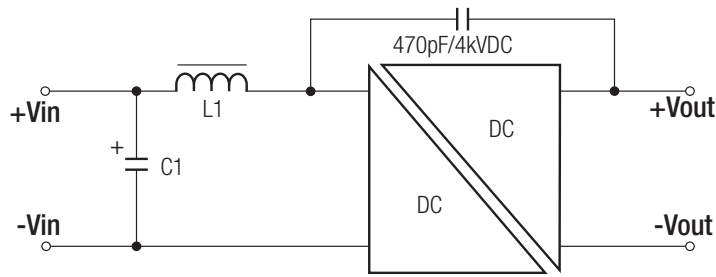
ENVIRONMENTAL		
Parameter	Condition	Value
Operating Temperature Range	free air convection (see graph)	$-40^\circ\text{C}$ to $+85^\circ\text{C}$
Operating Humidity	non-condensing	95% RH max.
Vibration		MIL-STD-202G
MTBF ( $+25^\circ\text{C}$ ) ( $+85^\circ\text{C}$ )	according to MIL-HDBK-217F, full load	22380 x $10^3$ hours 9300 x $10^3$ hours

### Derating Graph



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

SAFETY AND CERTIFICATIONS		
Certificate Type	Report / File Number	Standard
UL General Safety	E358085-A4	UL-60950-1, 2nd Edition
CAN/CSA General Safety	E358085-A4	C22.2 No. 60601-1:08
EMC Filtering - Suggestions for Class B		
Certificate Type (Environmental)	Condition	Standard / Criterion
EMC	Conducted and Radiated	EN55022, Class A (no external filter necessary) EN55022 Class B only with external filter (see suggestions)



**ROE Series**

C1	L1	Vin
22 $\mu\text{F}$	3.3 $\mu\text{H}$	3.3V
10 $\mu\text{F}$	4.7 $\mu\text{H}$	5V
4.7 $\mu\text{F}$	22 $\mu\text{H}$	12V
4.7 $\mu\text{F}$	22 $\mu\text{H}$	15V
22 $\mu\text{F}$	47 $\mu\text{H}$	24V

C1 = MLCC  
L1 = SMD Inductor

DIMENSION and PHYSICAL CHARACTERISTICS		
Parameter	Type	Value
Case Material		non-conductive black plastic (UL94V-0)
Potting Material		Epoxy (UL94V-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 =  $\pm 0.50\text{mm}$   
xx.xx =  $\pm 0.25\text{mm}$

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

**PACKAGING INFORMATION**

Parameter	Type	Value
Packaging Dimension (LxWxH)	Tube	520 x 16 x 9mm
Packaging Quantity		42 pcs
Storage Temperature Range		-55°C to +125°C

**Tube Dimension Drawing (mm)**

