

# Features

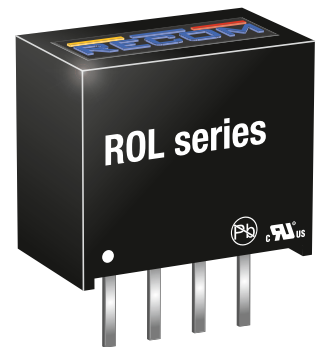
## Unregulated Converters

- Industry standard pinout
- 1kVDC/1s or 2kVDC/1s basic isolation
- UL94V-0 package material
- Optional continuous short circuit protection
- Fully encapsulated
- Efficiency up to 87%

**RECOM**  
DC/DC Converter

## ROL

**0.5 Watt  
SIP4  
Single Output**



**UL**  
E358085



UL60950-1 certified  
CAN/CSA-C22.2 No. 60950-1-03 certified  
IEC60950-1 certified  
EN60950-1 certified

## Description

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

## Selection Guide

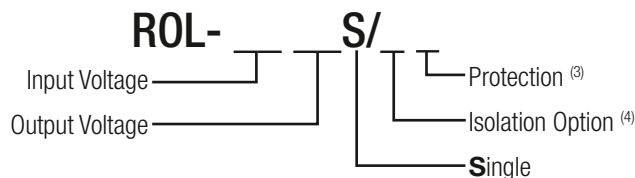
| Part Number                | nom. Input Voltage [VDC] | Output Voltage [VDC] | Output Current [mA] | Efficiency typ. <sup>(1)</sup> [%] | max. Capacitive Load <sup>(2)</sup> [μF] |
|----------------------------|--------------------------|----------------------|---------------------|------------------------------------|------------------------------------------|
| ROL-xx05S <sup>(3,4)</sup> | 5, 12                    | 5                    | 100                 | 78-82                              | 470                                      |
| ROL-xx12S <sup>(3,4)</sup> | 5, 12                    | 12                   | 42                  | 80-86                              | 150                                      |
| ROL-xx15S <sup>(3,4)</sup> | 5, 12                    | 15                   | 33                  | 80-87                              | 150                                      |

### Notes:

Note1: Efficiency is tested at nominal input and full load at +25°C ambient

Note2: Max Cap Load is tested at nominal input and full resistive load and is defined as the capacitive load that will allow start up in under 1 s without damage to the converter

## Model Numbering



### Notes:

Note3: standard part is without continuous short circuit protection  
add suffix „P“ for continuous short circuit protection

Note4: add suffix „H“ for 2kVDC isolation  
or add suffix „HP“ for continuous short circuit protection and 2kVDC isolation

### Ordering Examples:

ROL-1205S/P: 12V Input Voltage, 5V Output Voltage, Single Output with continuous short circuit protection

ROL-0505S/HP: 5V Input Voltage, 5V Output Voltage, Single Output with 2kVDC Isolation and continuous short circuit protection

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

### BASIC CHARACTERISTICS

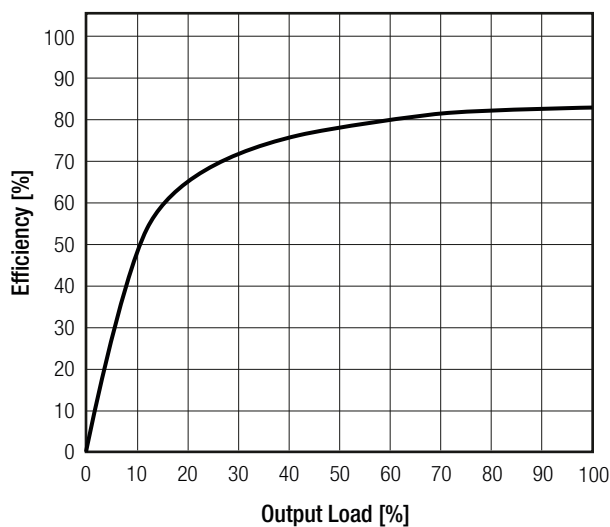
| Parameter                    | Condition | Min.  | Typ.  | Max.     |
|------------------------------|-----------|-------|-------|----------|
| Input Voltage Range          |           |       | ±10%  |          |
| Minimum Load <sup>(5)</sup>  |           | 0%    |       |          |
| Internal Operating Frequency |           | 20kHz | 54kHz |          |
| Output Ripple and Noise      | 20MHz BW  |       |       | 100mVp-p |

#### Notes:

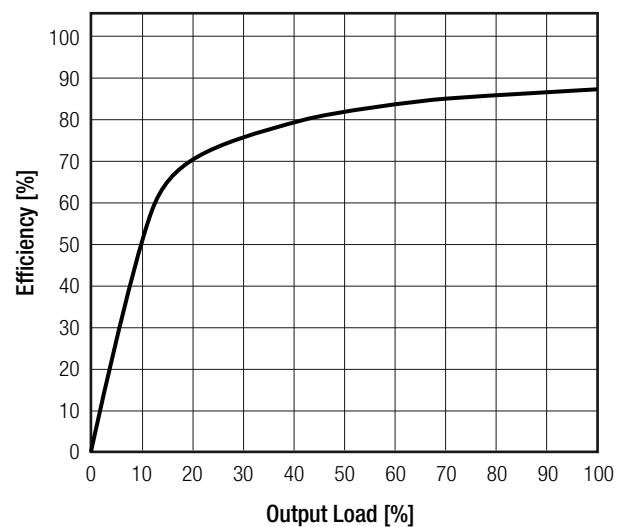
Note5: Operation below 10% load will not harm the converter, but specifications may not be met

#### Efficiency vs. Load

ROL-0505S



ROL-0515S

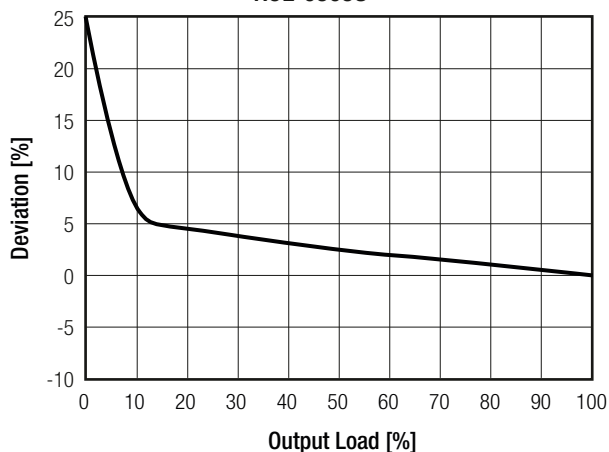


### REGULATIONS

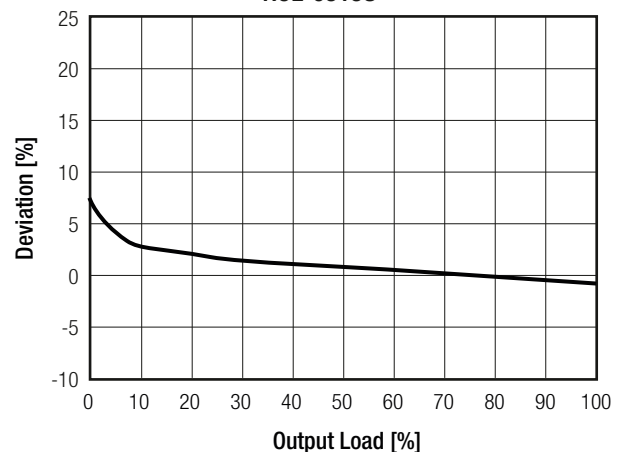
| Parameter       | Condition             | Value                  |
|-----------------|-----------------------|------------------------|
| Output Accuracy |                       | ±5.0% max.             |
| Line Regulation | low line to high line | ±1.2% of 1.0% Vin typ. |
| Load Regulation | 10% to 100% load      | 4.0% typ. / 10.0% max. |

#### Deviation vs. Load

ROL-0505S



ROL-0515S



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

**PROTECTIONS**

| Parameter                        | Type                               |                     |                                           | Value                  |
|----------------------------------|------------------------------------|---------------------|-------------------------------------------|------------------------|
| Short Circuit Protection (SCP)   | without suffix<br>with suffix "/P" |                     |                                           | 1 second<br>continuous |
| Isolation Voltage <sup>(6)</sup> | I/P to O/P                         | without suffix      | tested for 1 second<br>rated for 1 minute | 1kVDC<br>500VAC/60Hz   |
|                                  |                                    | with suffix<br>"/H" | tested for 1 second<br>rated for 1 minute | 2kVDC<br>1kVAC/60Hz    |
| Isolation Resistance             |                                    |                     |                                           | 10GΩ min.              |
| Isolation Capacitance            |                                    |                     |                                           | 20pF min. / 75pF max.  |
| Insulation Grade                 |                                    |                     |                                           | basic                  |

**Notes:**

Note6: For repeat Hi-Pot testing, reduce the time and/or the test voltage

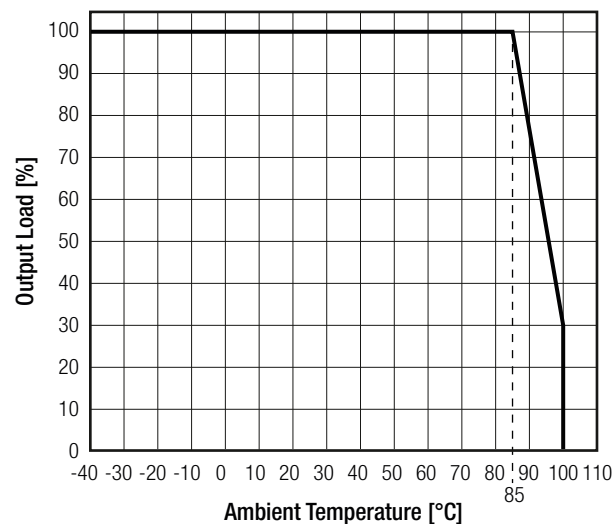
Note7: Refer to local wiring regulations if input over-current protection is also required. Recommended fuse: T0.5A slow blow type

**ENVIRONMENTAL**

| Parameter                   | Condition                                   |                | Value                                                      |
|-----------------------------|---------------------------------------------|----------------|------------------------------------------------------------|
| Operating Temperature Range | full load @ free air convection (see graph) |                | -40°C to +85°C                                             |
| Operating Altitude          |                                             |                | 2000m                                                      |
| Operating Humidity          | non-condensing                              |                | 95% RH max.                                                |
| Pollution Degree            |                                             |                | PD2                                                        |
| MTBF                        | according to MIL-HDBK-217F, G.B.            | +25°C<br>+85°C | 958 x 10 <sup>3</sup> hours<br>200 x 10 <sup>3</sup> hours |

**Derating Graph**

(@ free air convection)



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

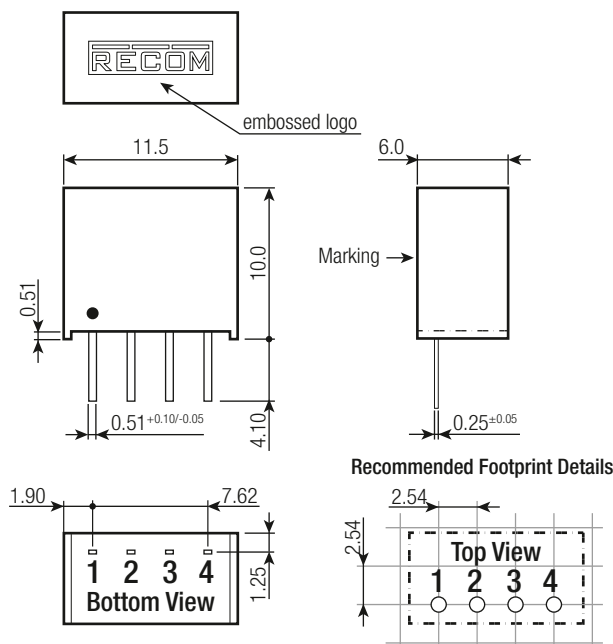
**SAFETY AND CERTIFICATIONS**

| Certificate Type (Safety)                                         | Report / File Number | Standard                                                                      |
|-------------------------------------------------------------------|----------------------|-------------------------------------------------------------------------------|
| Information Technology Equipment, General Requirements for Safety | 1602031              | IEC60950-1:2005, 2nd Edition + A2:2013<br>EN60950-1:2006 + A2:2013            |
| Information Technology Equipment, General Requirements for Safety | E358085-A4-UL        | UL60950-1, 2nd Edition:2007<br>CAN/CSA C22.2 No. 60950-1-03, 2nd Edition:2007 |
| EAC                                                               | RU-AT.49.09571       | TP TC 004/2011                                                                |
| RoHs 2+                                                           |                      | RoHS-2011/65/EU + AM-2015/863                                                 |

**DIMENSION AND PHYSICAL CHARACTERISTICS**

| Parameter         | Type                   | Value                                                                           |
|-------------------|------------------------|---------------------------------------------------------------------------------|
| Material          | case<br>potting<br>PCB | non-conductive black plastic (UL94 V-0)<br>epoxy, (UL94 V-0)<br>FR4, (UL94 V-0) |
| Dimension (LxWxH) |                        | 11.5 x 6.0 x 10.0mm                                                             |
| Weight            |                        | 1.4g typ.                                                                       |

**Dimension Drawing (mm)**



**Pinning information**

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

Tolerance:  
xx.x= ±0.5mm  
xx.xx= ±0.25mm

**PACKAGING INFORMATION**

| Parameter                   | Type | Value                |
|-----------------------------|------|----------------------|
| Packaging Dimension (LxWxH) | tube | 520.0 x 16.0 x 9.0mm |
| Packaging Quantity          | tube | 42pcs                |
| Storage Temperature Range   |      | -55°C to + 125°C     |
| Storage Humidity            |      | 95% RH max.          |



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- Поставка более 17-ти миллионов наименований электронных компонентов;
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- Лицензия ФСБ на осуществление работ с использованием сведений, составляющих государственную тайну;
- Поставка специализированных компонентов (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Aeroflex, Peregrine, Syfer, Eurofarad, Texas Instrument, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

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- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



#### Как с нами связаться

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