

# Features

- 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%

# Unregulated Converters



# ROL

**0.5 Watt**  
**SIP4**  
**Single Output**



## Description

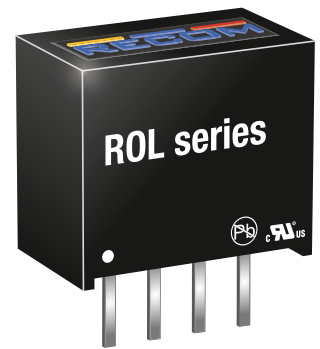
The ROL DC/DC converters are typically used in general purpose low power isolation and voltage matching applications, and feature a full industrial operating temperature range of -40°C to +85°C without derating.

## Selection Guide

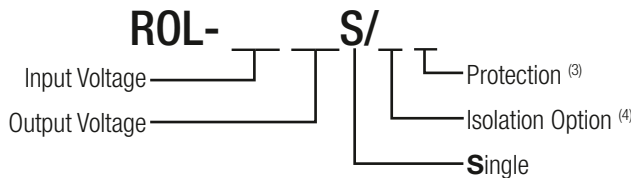
Part Number	nom. Input Voltage [VDC]	Output Voltage [VDC]	Output Current [mA]	Efficiency typ. <sup>(1)</sup> [%]	max. Capacitive Load <sup>(2)</sup> [µF]
ROL-xx05S <sup>(3,4)</sup>	5, 12	5	100	78-82	470
ROL-xx12S <sup>(3,4)</sup>	5, 12	12	42	80-86	150
ROL-xx15S <sup>(3,4)</sup>	5, 12	15	33	80-87	150

### 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



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

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

**BASIC CHARACTERISTICS**

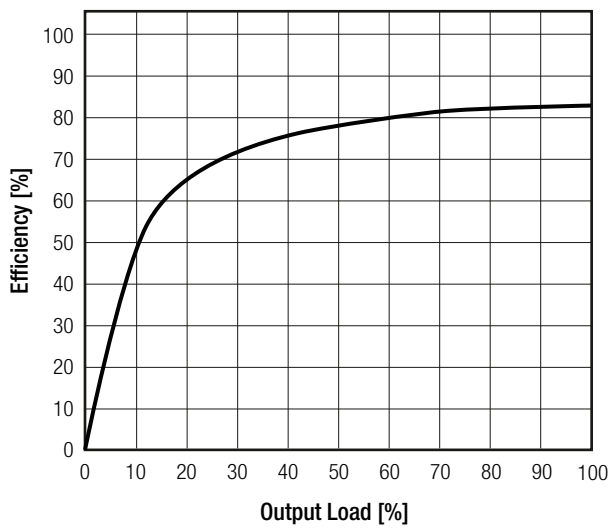
Parameter	Condition	Min.	Typ.	Max.
Input Voltage Range			±10%	
Minimum Load <sup>(5)</sup>		0%		
Internal Operating Frequency		20kHz	54kHz	
Output Ripple and Noise	20MHz BW			100mVp-p

**Notes:**

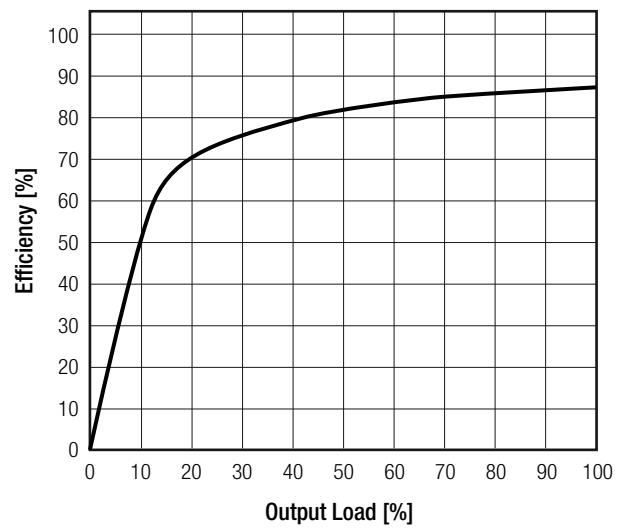
Note5: Operation below 10% load will not harm the converter, but specifications may not be met

**Efficiency vs. Load**

**ROL-0505S**



**ROL-0515S**

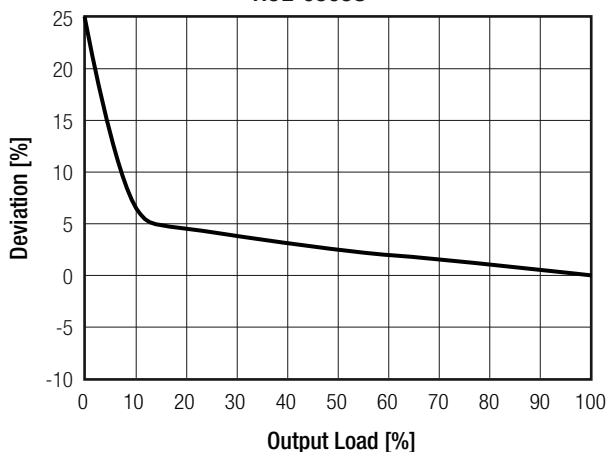


**REGULATIONS**

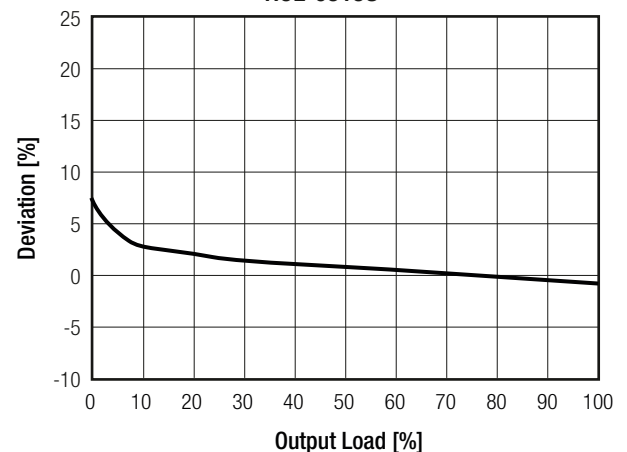
Parameter	Condition	Value
Output Accuracy		±5.0% max.
Line Regulation	low line to high line	±1.2% of 1.0% Vin typ.
Load Regulation	10% to 100% load	4.0% typ. / 10.0% max.

**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 with suffix "/P"		1 second continuous
Isolation Voltage <sup>(6)</sup>	I/P to O/P	without suffix	tested for 1 second rated for 1 minute 1kVDC 500VAC/60Hz
		with suffix "/H"	tested for 1 second rated for 1 minute 2kVDC 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

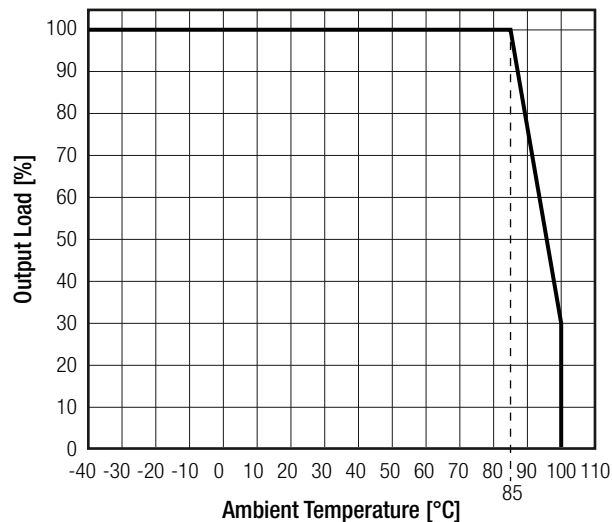
Note7: Refer to local wiring regulations if input over-current protection is also required. Recommended fuse: T0.5A slow blow type

**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	958 x 10 <sup>3</sup> hours
		+85°C	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 EN60950-1:2006 + A2:2013
Information Technology Equipment, General Requirements for Safety	E358085-A4-UL	UL60950-1, 2nd Edition:2007 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 potting PCB	non-conductive black plastic (UL94 V-0) epoxy, (UL94 V-0) 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

**Recommended Footprint Details**

**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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