# Features

# Unregulated Converters

- 1:1 input range
- 0.25W SIP7 package
- Efficiency up to 82%
- 1kVDC and 2kVDC isolation option
- -40°C to +100°C operating temperature range

RECOM
DC/DC Converter

# RBL/E

## 0.25 Watt SIP7 Single Output

3 YEAR Warranty

## Description

The RBL/E series DC/DC converter has been designed to offer exceptionally high efficiency, low quiescent current and an extended operating temperature range. Uses include battery powered supplies, high efficiency designs or high temperature applications.

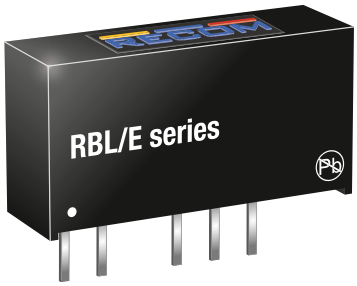
## Selection Guide

| Part Number | nom. Input Voltage [VDC] | Output Voltage [VDC] | Output Current [mA] | Efficiency typ. (1) [%] | max. Capacitive Load (2) [µF] |
|---|---|---|---|---|---|
| RBL-3.305S/E (3) | 3.3 | 5 | 50 | 80 | 1000 |
| RBL-0505S/E (3) | 5 | 5 | 50 | 82 | 1000 |
| RBL-1205S/E (3) | 12 | 5 | 50 | 78 | 1000 |

**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 1s without damage to the converter




## Model Numbering

RBL- __ 05 S/E __

- nom. Input Voltage
- Output Voltage
- Isolation Option (3)
- **S**ingle

**Notes:**

Note3: add suffix „/H“ for 2kVDC isolation

**Ordering Examples:**

RBL-1205S/E: 12VDC Input Voltage, 5VDC Output Voltage, Single Output

RBL-0505S/EH: 5VDC Input Voltage, 5VDC Output Voltage, Single Output and 2kVDC isolation

EN60950-1 certified
IEC60950-1 certified

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

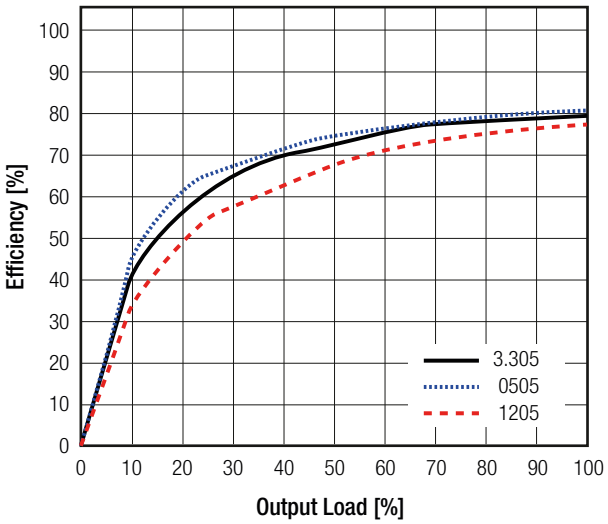
### BASIC CHARACTERISTICS

| Parameter | Condition | Min. | Typ. | Max. |
|---|---|---|---|---|
| Input Voltage Range | | | ±10% | |
| Quiescent Current | nom. Vin= 3.3VDC<br>nom. Vin= 5VDC<br>nom. Vin= 12VDC | | 11mA<br>6mA<br>4mA | |
| Minimum Load [4] | | 0% | | |
| Internal Operating Frequency | | 20kHz | | 70kHz |
| Output Ripple and Noise | 20MHz BW | | 35mVp-p | 50mVp-p |

**Notes:**

Note4: Operation below 10% load will not harm the converter, but specifications may not be met

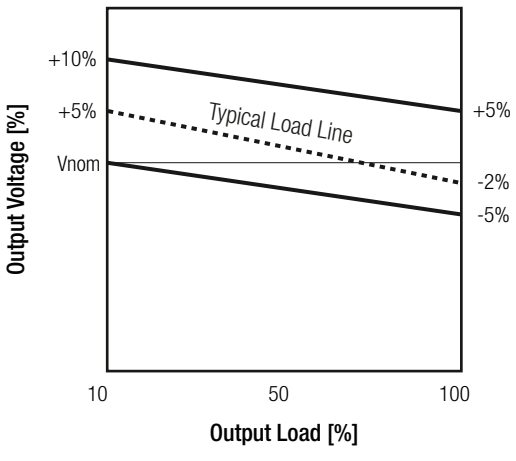
**Efficiency vs. Load**




### REGULATIONS

| Parameter | Condition | Value |
|---|---|---|
| Output Accuracy | | -2% typ. / ±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. |

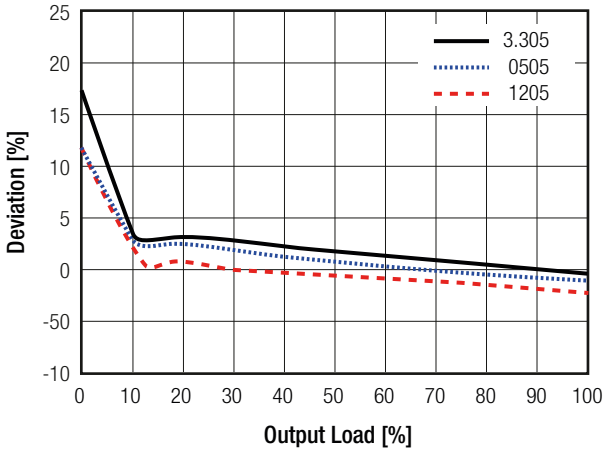
**Tolerance Envelope**




continued on next page

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

### Deviation vs. Load




### PROTECTIONS

| Parameter | Type | | | Value |
|---|---|---|---|---|
| Short Circuit Protection (SCP) | | | | 1 second |
| Isolation Voltage (5) | I/P to O/P | without suffix | tested for 1 second<br>rated for 1 minute | 1kVDC<br>500VAC |
| | | with suffix "/H" | tested for 1 second<br>rated for 1 minute | 2kVDC<br>1kVAC |
| Isolation Resistance | | | | 10GΩ min. |
| Isolation Capacitance | | | | 75pF max. |
| Insulation Grade | | | | basic |

**Notes:**

Note5: For repeat Hi-Pot testing, reduce the time and/or the test voltage

Note6: Refer to local wiring regulations if input over-current protection is also required. Recommended fuse: T0.25A slow blow type

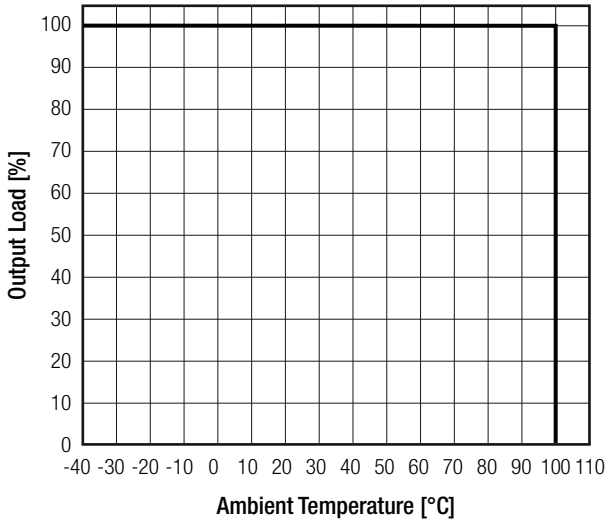
### ENVIRONMENTAL

| Parameter | Condition | | Value |
|---|---|---|---|
| Operating Temperature Range | full load (see graph) | | -40°C to + 100°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>+100°C | 4494 x $10^3$ hours<br>1352 x $10^3$ hours |

continued on next page

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

### Derating Graph




### 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 |
| EAC | RU-AT.49.09571 | TP TC 004/2011 |
| RoHs 2+ | | RoHS-2011/65/EU + AM-2015/863 |

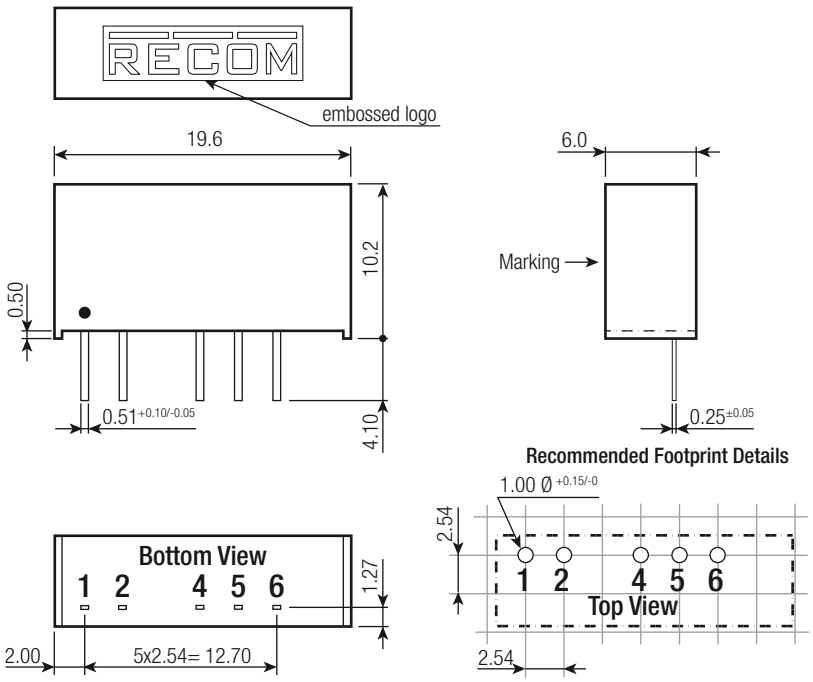
### DIMENSION AND PHYSICAL CHARACTERISTICS

| 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) | | 19.6 x 6.0 x 10.2mm |
| Weight | | 2.2g typ. |

continued on next page

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

### Dimension Drawing (mm)




### Pinning information

| Pin # | Single |
|---|---|
| 1 | +Vin |
| 2 | -Vin |
| 4 | NC |
| 5 | -Vout |
| 6 | +Vout |

NC = no internal connection
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 | 25pcs |
| Storage Temperature Range | | -55°C to +125°C |
| Storage Humidity | | 95% RH max. |

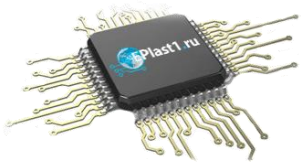
Компания «ЭлектроПласт» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Оперативные поставки широкого спектра электронных компонентов отечественного и импортного производства напрямую от производителей и с крупнейших мировых складов;
- 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.);

Помимо этого, одним из направлений компании «ЭлектроПласт» является направление «Источники питания». Мы предлагаем Вам помощь Конструкторского отдела:

- Подбор оптимального решения, техническое обоснование при выборе компонента;
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.




**Как с нами связаться**

**Телефон:** 8 (812) 309 58 32 (многоканальный)
**Факс:** 8 (812) 320-02-42
**Электронная почта:** org@eplast1.ru
**Адрес:** 198099, г. Санкт-Петербург, ул. Калинина, дом 2, корпус 4, литера А.