

# Features

- 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

# Unregulated Converters



## RBL/E

**0.25 Watt  
SIP7  
Single Output**



### 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

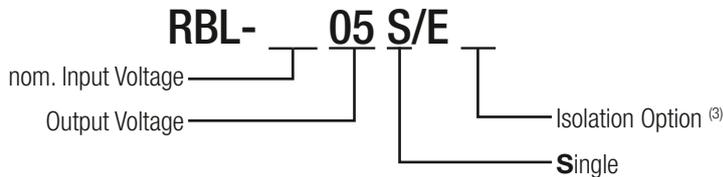
Part Number	nom. Input Voltage [VDC]	Output Voltage [VDC]	Output Current [mA]	Efficiency typ. <sup>(1)</sup> [%]	max. Capacitive Load <sup>(2)</sup> [µF]
RBL-3.305S/E <sup>(3)</sup>	3.3	5	50	80	1000
RBL-0505S/E <sup>(3)</sup>	5	5	50	82	1000
RBL-1205S/E <sup>(3)</sup>	12	5	50	78	1000



#### 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



#### 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)

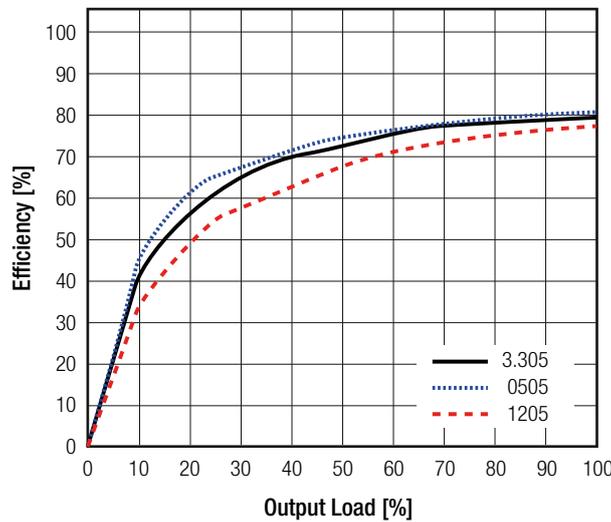
**BASIC CHARACTERISTICS**

Parameter	Condition	Min.	Typ.	Max.
Input Voltage Range			±10%	
Quiescent Current	nom. Vin= 3.3VDC nom. Vin= 5VDC nom. Vin= 12VDC		11mA 6mA 4mA	
Minimum Load <sup>(4)</sup>		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

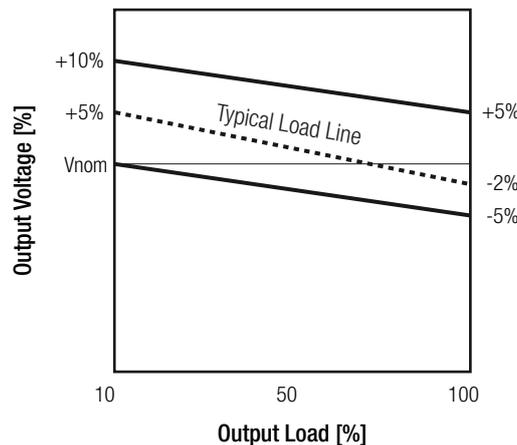
**Efficiency vs. Load**



**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.

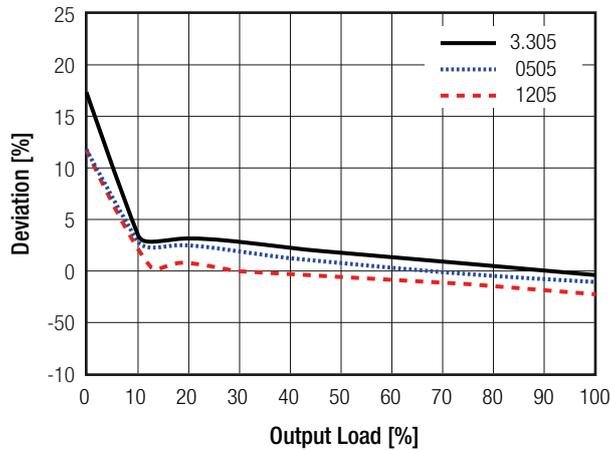
**Tolerance Envelope**



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

Deviation vs. Load

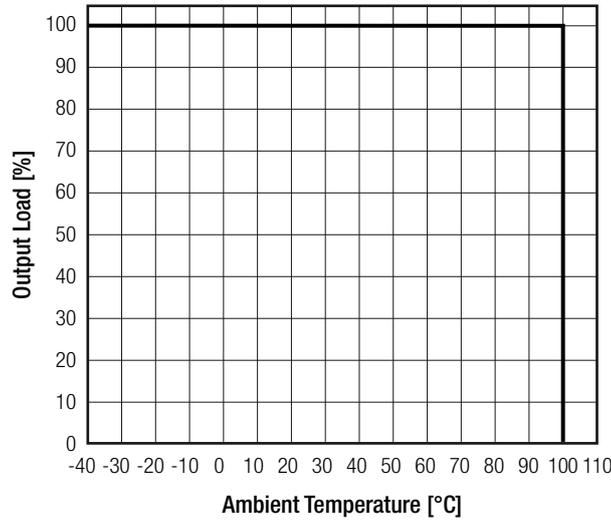


PROTECTIONS				
Parameter	Type			Value
Short Circuit Protection (SCP)				1 second
Isolation Voltage <sup>(5)</sup>	I/P to O/P	without suffix	tested for 1 second rated for 1 minute	1kVDC 500VAC
		with suffix "/H"	tested for 1 second rated for 1 minute	2kVDC 1kVAC
Isolation Resistance				10GΩ min.
Isolation Capacitance				75pF max.
Insulation Grade				basic
<b>Notes:</b>				
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	4494 x 10 <sup>3</sup> hours
		+100°C	1352 x 10 <sup>3</sup> hours
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**Specifications** (measured @ Ta= 25°C, nom. Vin, full load and after warm-up otherwise stated)

Derating Graph



**SAFETY AND CERTIFICATIONS**

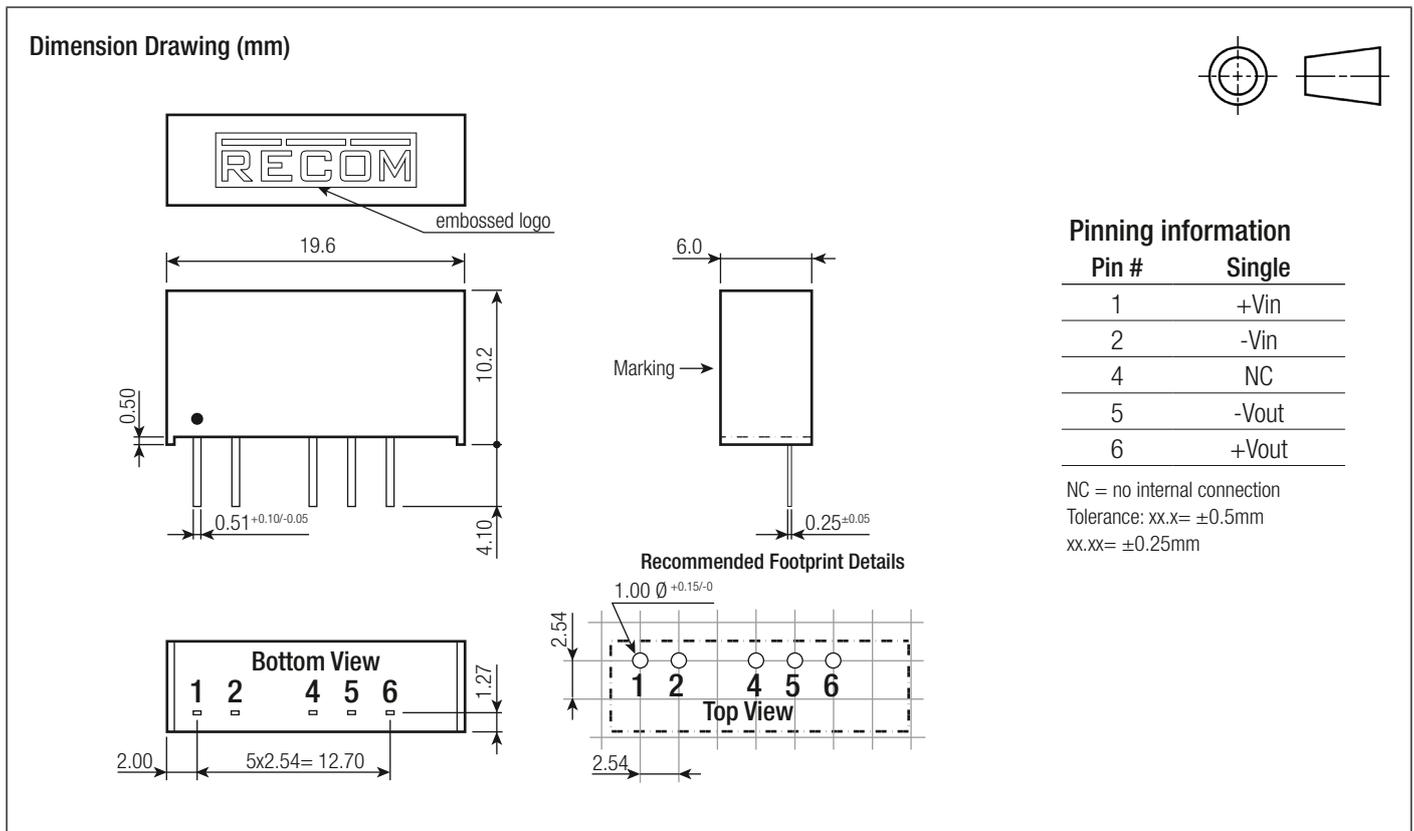
Certificate Type (Safety)	Report / File Number	Standard
Information Technology Equipment, General Requirements for Safety	1602031	IEC60950-1:2005, 2nd Edition + A2:2013 EN60950-1:2006 + A2:2013
EAC	RU-AT.49.09571	TP TC 004/2011
RoHs 2+		RoHS-2011/65/EU + AM-2015/863

**DIMENSION AND PHYSICAL CHARACTERISTICS**

Parameter	Type	Value
Material	case potting PCB	non-conductive black plastic (UL94 V-0) epoxy, (UL94 V-0) FR4, (UL94 V-0)
Dimension (LxWxH)		19.6 x 6.0 x 10.2mm
Weight		2.2g typ.

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



**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.

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