Features

Unregulated Converters

- Low Cost 1W Converter
- Power Sharing on Dual Output Version
- Industry Standard Pinout
- 1kVDC or 2kVDC Isolation Options
- Optional Continuous Short Circuit Protected
- UL94V-0 Package Material
- Efficiency to 85 %

ECONOLINE
DC/DC-Converter
with 3 year Warranty

RECOM

1 Watt SIP7 Single & Dual Output

RoHS 2011/65/EU 6/6

E358085

EN-60950-1 Certified
UL-60950-1 Certified
EN-60601-1 Certified*
(*/H suffix)

RB

Description

The RB series DC/DC converter has been designed for isolating or converting DC power rails in general purpose applications. Although low cost, it does not compromise on features and offers 1KVDC or 2kVDC isolation , a –40°C to +85°C operating temperature range and optional continuous short circuit protection.

Selection Guide

Part Number SIP 7	(2kV)	Input Voltage (VDC)	Output Voltage (VDC)	Output Current (mA)	Efficiency (%)	Max Capacitive Load[1]
RB-xx3.3S	(H)	3.3, 5,12, 15, 24	3.3	303	75	2200µF
RB-xx05S	(H)	3.3, 5,12, 15, 24	5	200	70-78	1000µF
RB-xx09S	(H)	3.3, 5,12, 15, 24	9	111	70-78	1000µF
RB-xx12S	(H)	3.3, 5, 12, 15, 24	12	84	78-80	470µF
RB-xx15S	(H)	3.3, 5,12, 15, 24	15	66	80-84	470µF
RB-xx24S	(H)	3.3, 5,12, 15, 24	24	42	74-85	220µF
RB-xx3.3D	(H)	3.3, 5, 12, 15, 24	±3.3	±152	70	±1000µF
RB-xx05D	(H)	3.3, 5,12, 15, 24	±5	±100	70-78	±470µF
RB-xx09D	(H)	3.3, 5,12, 15, 24	±9	±56	76-79	±470µF
RB-xx12D	(H)	3.3, 5,12, 15, 24	±12	±42	78-82	±220µF
RB-xx15D	(H)	3.3, 5, 12, 15, 24	±15	±33	80-84	±220µF
RB-xx24D	(H)	3.3, 5,12, 15, 24	±24	±21	80-84	±100µF

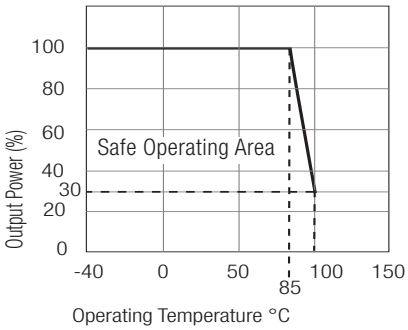
xx = Input Voltage. Other input and output voltage combinations available on request.

* add Suffix "P" for Continuous Short Circuit Protection, e.g. RB-0505S/P, RB-0505S/HP

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

Input Voltage Range			±10%
Output Voltage Accuracy			±5%
Line Voltage Regulation			1.2%/1% of Vin typ.
Load Voltage Regulation (10% to 100% full load)		3.3V output type 5V output type 9V, 12V, 15V, 24V output types	20% max. 15% max. 10% max.
Output Ripple and Noise (20MHz limited)		Single output types Dual output types	100mVp-p max. ±75mVp-p max.
Operating Frequency			50kHz min. / 100kHz typ. / 105kHz max.
Efficiency at Full Load			70% min. / 80% typ.
Minimum Load = 0%			Specifications valid for 10% minimum load only.
Isolation Voltage		(tested for 1 second) (rated for 1 minute)	1000VDC 500VAC / 60Hz
Isolation Voltage	H-Suffix H-Suffix	(tested for 1 second) (rated for 1 minute)	2000VDC 1000VAC / 60Hz
Isolation Capacitance			20pF min. / 75pF max.
Isolation Resistance			10 GΩ min.
Short Circuit Protection P-Suffix			1 Second Continuous
Operating Temperature Range (free air convection)			-40°C to +85°C (see Graph)
Storage Temperature Range			-55°C to +125°C

Derating-Graph
(Ambient Temperature)



Refer to Application Notes

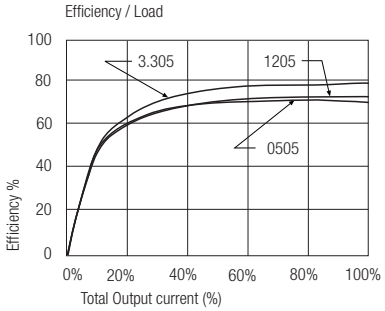
www.recom-electronic.com

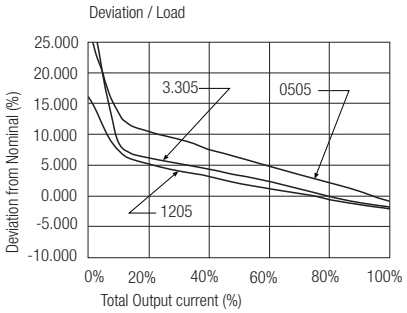
Specifications - continued

Relative Humidity			95% RH
Package Weight			2.2g
Packing Quantity			25 pcs per Tube
MTBF (+25°C)	*Detailed Information see Application Notes chapter "MTBF"*	using MIL-HDBK 217F	1012 x 10^3 hours
(+85°C)		using MIL-HDBK 217F	151 x 10^3 hours

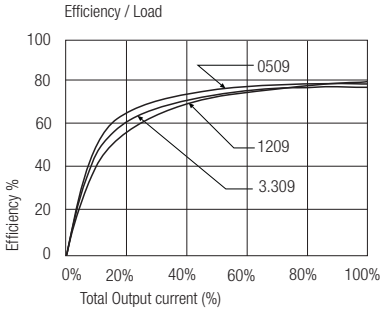
Typical Characteristics - Single Output

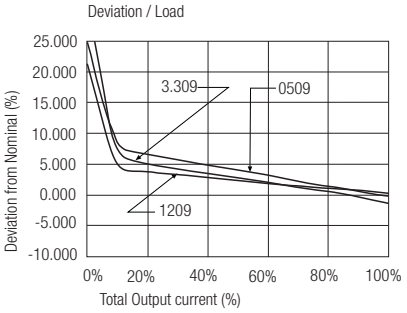
RB-xx05S



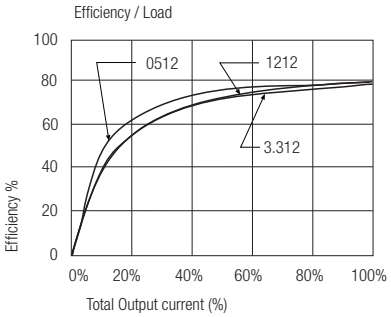


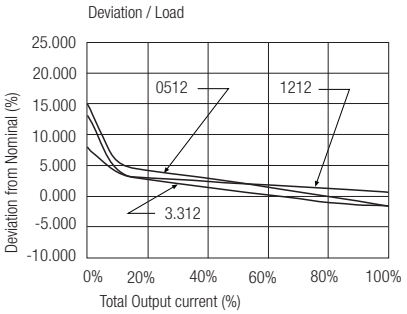
RB-xx09S



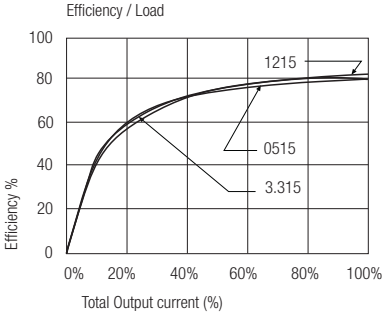


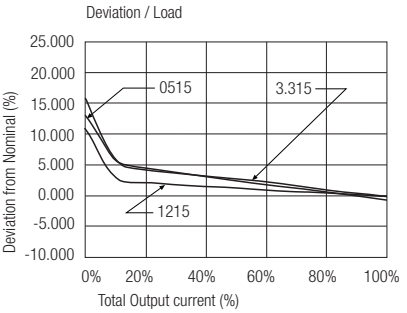
RB-xx12S





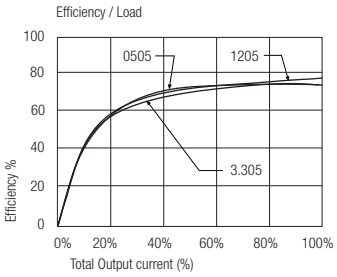
RB-xx15S

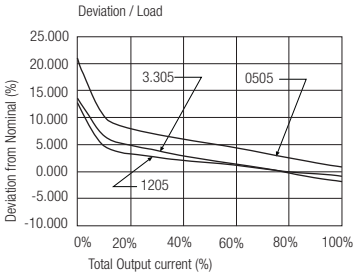




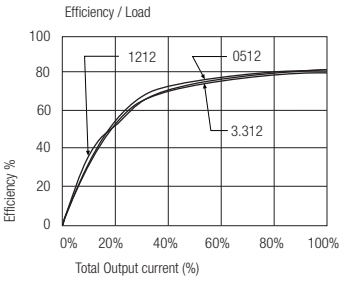
Typical Characteristics - Dual Outputs

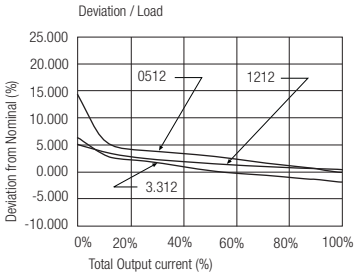
RB-xx05D



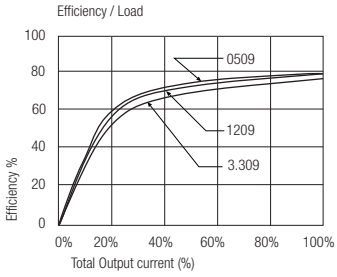


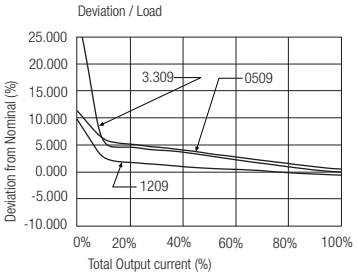
RB-xx12D



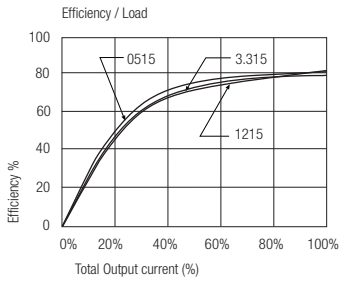


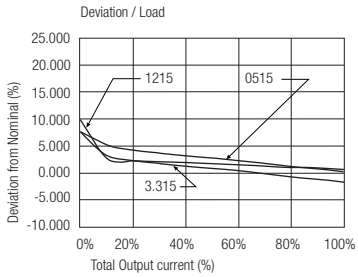
RB-xx09D





RB-xx15D





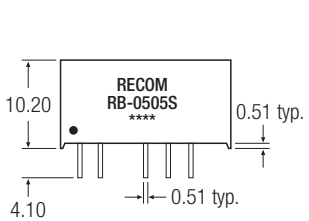
Notes

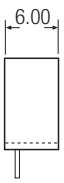
Note 1	Maximum capacitive load is defined as the capacitive load that will allow start up in under 1 second without damage to the converter.	
Certifications		
CB Test Report	Report: SPCLVD1109103	IEC 60950-1:2005 2nd Ed.
UL General Safety	Report: E358085	UL 60950-1 2nd Ed.
EN General Safety	Report: SPCLVD1109103	EN60950-1:2006 + A12:2011
EN Medical Safety	Report: MDD1112018 + RM1112018	IEC/EN 60601-1 3rd EditionMedical Report + ISO14971 Risk Assessment

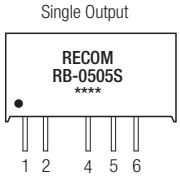
Package Style and Pinning (mm)

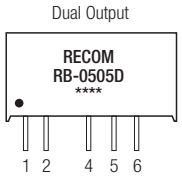
SIP7 Package

3rd angle projection

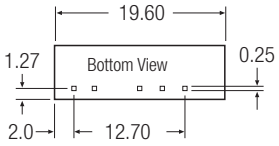


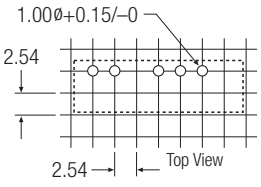






Recommended Footprint Details





Pin Connections

Pin #	Single	Dual
1	+Vin	+Vin
2	–Vin	–Vin
4	NC	–Vout
5	–Vout	Com
6	+Vout	+Vout

NC = No Connection
XX.X ± 0.5 mm
XX.XX ± 0.25 mm