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 %

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		3.3V output type	20% max.
(10% to 100% full load)		5V output type	15% max.
		9V, 12V, 15V, 24V output types	10% max.
Output Ripple and Noise (20MHz limited)		Single output types	100mVp-p max.
		Dual output types	±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)	1000VDC
		(rated for 1 minute**)	500VAC / 60Hz
Isolation Voltage	H-Suffix	(tested for 1 second)	2000VDC
	H-Suffix	(rated for 1 minute**)	1000VAC / 60Hz
Isolation Capacitance			20pF min. / 75pF max.
Isolation Resistance			10 GΩ min.
Short Circuit Protection			1 Second
P-Suffix			Continuous
Operating Temperature Range (free air convection)			-40°C to +85°C (see Graph)
Storage Temperature Range			-55°C to +125°C
Relative Humidity			95% RH

continued to next page

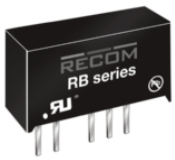
ECONOLINE

DC/DC-Converter

with 3 year Warranty

RECOM

1 Watt SIP7 Single & Dual Output



RoHS 2011/65/EU 6/6

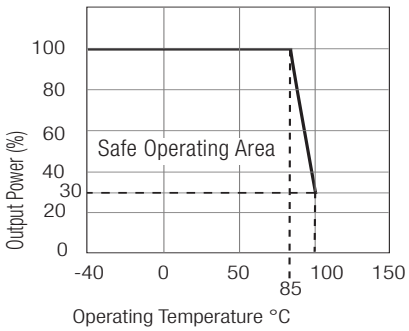
E358085

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

RB

Derating-Graph

(Ambient Temperature)



**Any data referred to in this datasheet are of indicative nature and based on our practical experience only. For further details, please refer to our Application Notes.

Refer to Application Notes

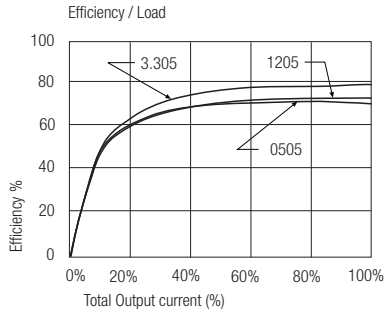
Specifications (measured at T_A = 25°C, nominal input voltage, full load and after warm-up)

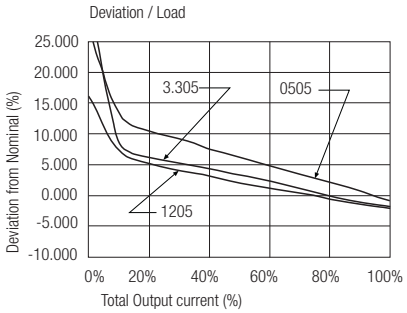
Package Weight			2.2g
Packing Quantity			25 pcs per Tube
MTBF (+25°C)	*Detailed Information see Application Notes chapter "MTBF"*	using MIL-HDBK 217F	1012 x 10^3 hours
(+85°C)		using MIL-HDBK 217F	151 x 10^3 hours

Certifications		
CB Test Report	Report: E22406	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	

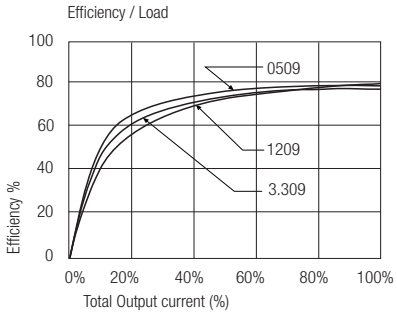
Typical Characteristics - Single Output

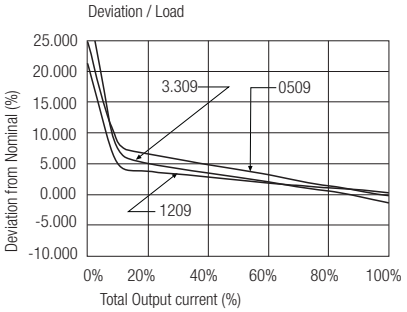
RB-xx05S



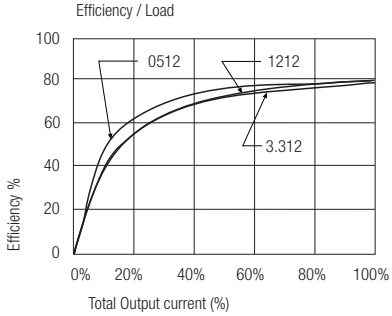


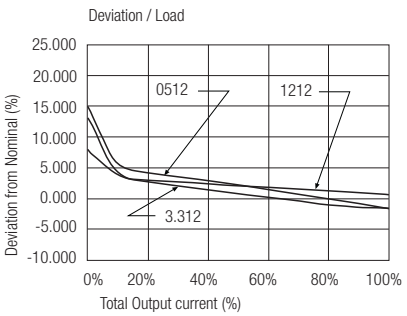
RB-xx09S





RB-xx12S





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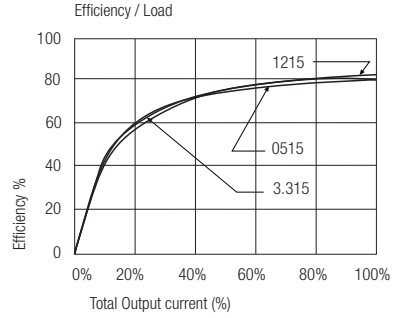
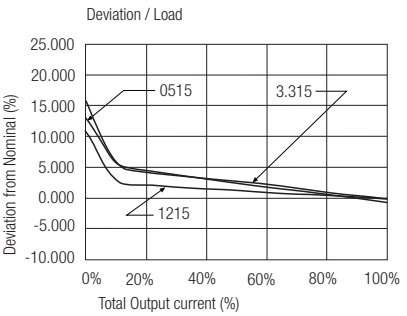
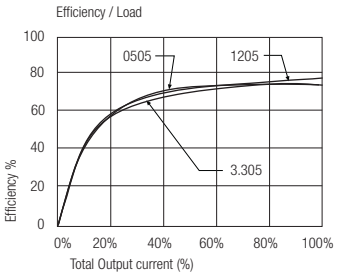
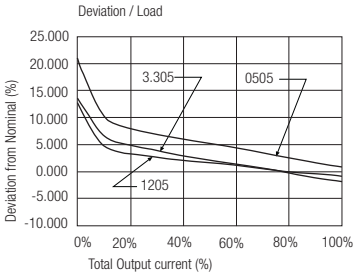




Typical Characteristics - Dual Outputs

RB-xx05D





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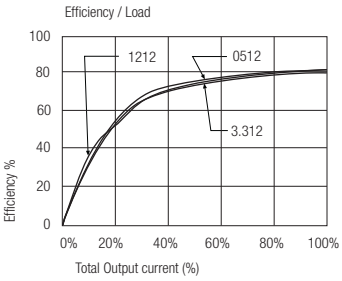
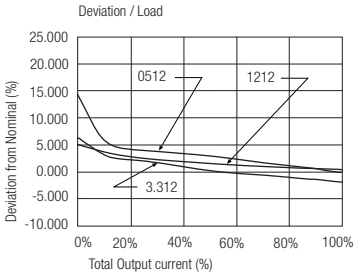
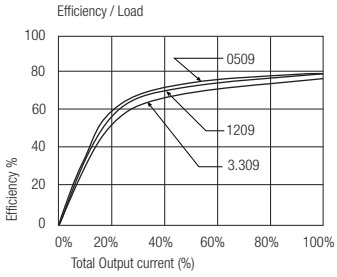
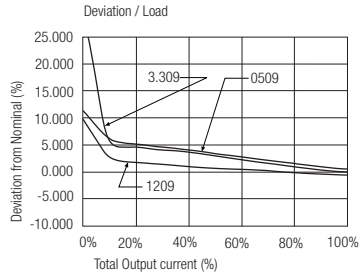




RB-xx09D





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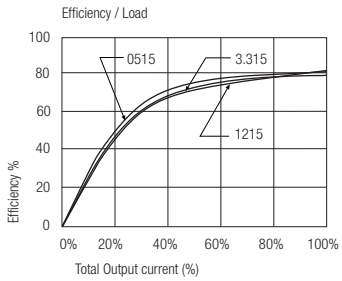
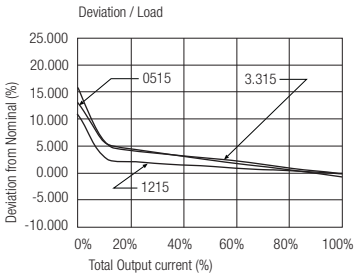


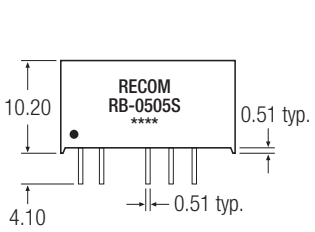


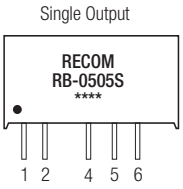
Notes

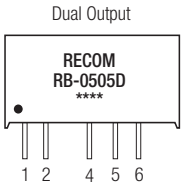
Note 1 Maximum capacitive load is defined as the capacitive load that will allow start up in under 1 second without damage to the converter.

Package Style and Pinning (mm)

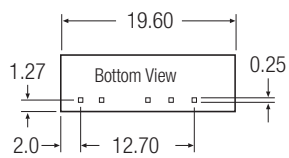
SIP7 Package

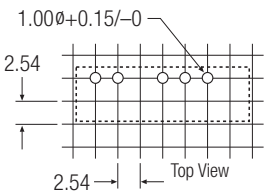






Recommended Footprint Details





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

Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

RECOM:

RB-0505D/H RB-0505D/HP RB-0505D/P RB-0505S/H RB-0505S/HP RB-0505S/P RB-0509D RB-0509D/H RB-0509D/HP RB-0509D/P RB-0509S RB-0509S/H RB-0509S/HP RB-0509S/P RB-0512D/H RB-0512D/HP RB-0512D/P RB-0512S/H RB-0512S/HP RB-0512S/P RB-0515D/H RB-0515D/HP RB-0515D/P RB-0515S RB-0515S/H RB-0515S/HP RB-0515S/P RB-0524D RB-0524D/H RB-0524D/HP RB-0524D/P RB-0524S RB-0524S/H RB-0524S/HP RB-0524S/P RB-053.3D RB-053.3D/H RB-053.3D/HP RB-053.3D/P RB-053.3S RB-053.3S/H RB-053.3S/HP RB-053.3S/P RB-1205D RB-1205D/H RB-1205D/HP RB-1205D/P RB-1205S/H RB-1205S/HP RB-1205S/P RB-1209D RB-1209D/H RB-1209D/HP RB-1209D/P RB-1209S RB-1209S/H RB-1209S/HP RB-1209S/P RB-1212D RB-1212D/H RB-1212D/HP RB-1212D/P RB-1212S/H RB-1212S/HP RB-1212S/P RB-1215D RB-1215D/H RB-1215D/HP RB-1215D/P RB-1215S RB-1215S/H RB-1215S/HP RB-1215S/P RB-1224D RB-1224D/H RB-1224D/HP RB-1224D/P RB-1224S RB-1224S/H RB-1224S/HP RB-1224S/P RB-123.3D RB-123.3D/H RB-123.3D/HP RB-123.3D/P RB-123.3S RB-123.3S/H RB-123.3S/HP RB-123.3S/P RB-1505D RB-1505D/H RB-1505D/HP RB-1505D/P RB-1505S RB-1505S/H RB-1505S/HP RB-1505S/P RB-1509D RB-1509D/H RB-1509D/HP