

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 $+85^{\circ}\text{C}$ operating temperature range and optional continuous short circuit protection.

Selection Guide

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

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 $T_A = 25^{\circ}\text{C}$, nominal input voltage, full load and after warm-up)

Input Voltage Range	$\pm 10\%$	
Output Voltage Accuracy	$\pm 5\%$	
Line Voltage Regulation	1.2%/1% of V_{in} typ.	
Load Voltage Regulation (10% to 100% full load)	3.3V output type	20% max.
	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	$\pm 75\text{mVp-p}$ max.
Operating Frequency	50kHz min. / 100kHz typ. / 105kHz max.	
Efficiency at Full Load	70% min. / 80% typ.	
No Load Power Consumption	Single	101mW min. / 126mW typ. / 238mW max.
	Dual	87mW min. / 130mW typ. / 228mW max.
Maximum Capacitive Load	33 μF / $\pm 10\mu\text{F}$	
Isolation Voltage	(tested for 1 second)	1000VDC min.
Rated Working Voltage	(long term isolation)	see Application Notes
Isolation Voltage	H-Suffix (tested for 1 second)	2000VDC min.
Rated Working Voltage	H-Suffix (long term isolation)	see Application Notes
Isolation Capacitance	20pF min. / 75pF max.	
Isolation Resistance	10 G Ω min.	
Short Circuit Protection	1 Second	
P-Suffix	Continuous	
Operating Temperature Range (free air convection)	-40°C to $+85^{\circ}\text{C}$ (see Graph)	

ECONOLINE

DC/DC-Converter

RECOM

1 Watt

SIP7

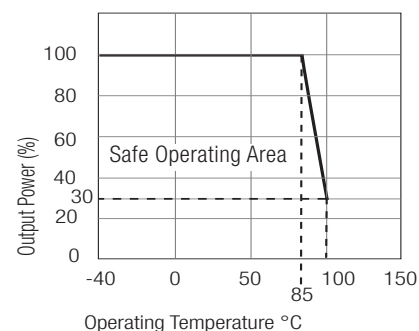
Single & Dual Output



EN-60950-1 Certified

RB

Derating-Graph (Ambient Temperature)



Refer to Application Notes

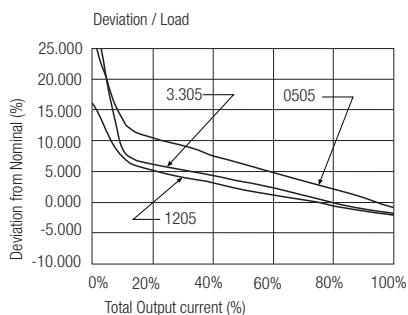
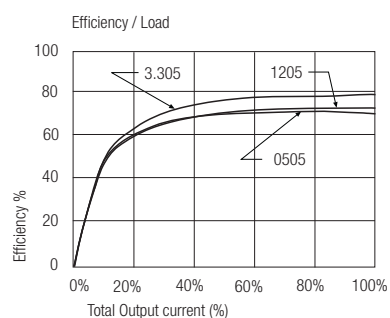
www.recom-electronic.com

Specifications - continued

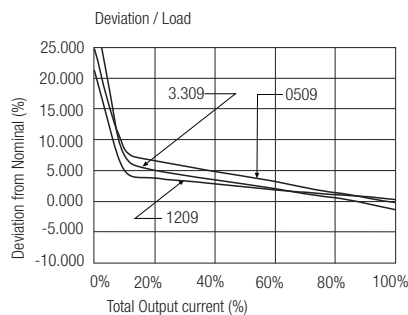
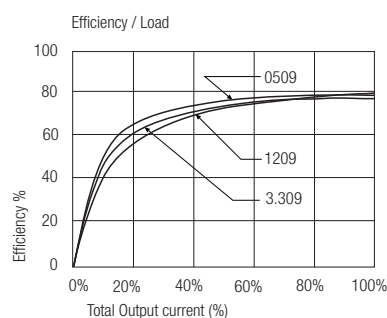
Storage Temperature Range	-55°C to +125°C		
Relative Humidity	95% RH		
Package Weight	2.2g		
Packing Quantity	25 pcs per Tube		
MTBF (+25°C)	Detailed Information see Application Notes chapter "MTBF"	using MIL-HDBK 217F	1012 x 10 ³ hours
(+85°C)		using MIL-HDBK 217F	151 x 10 ³ hours

Typical Characteristics - Single Output

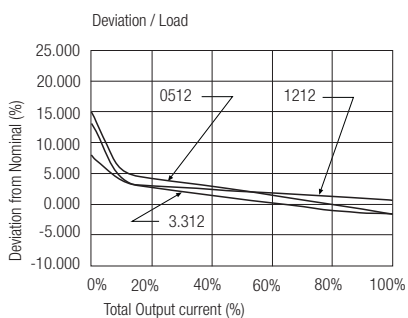
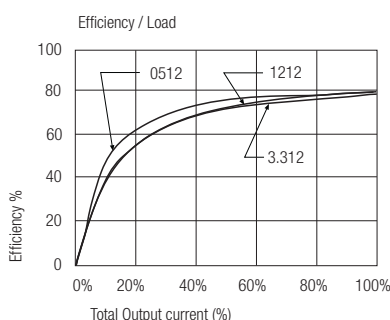
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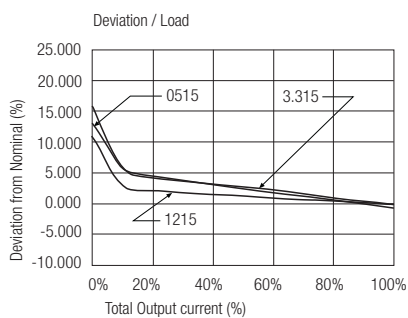
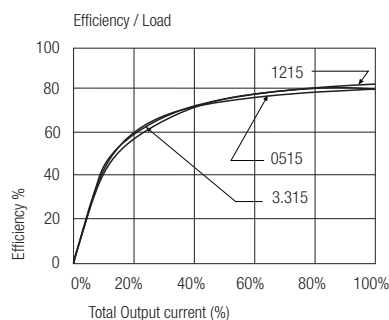
RB-xx09S



RB-xx12S

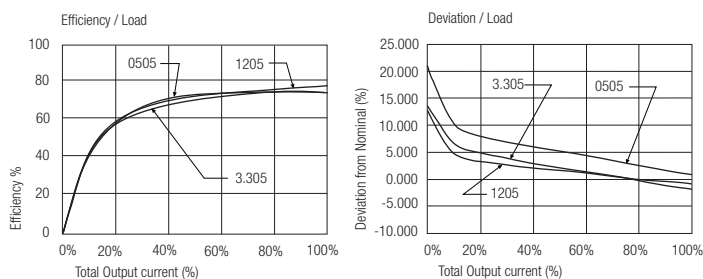


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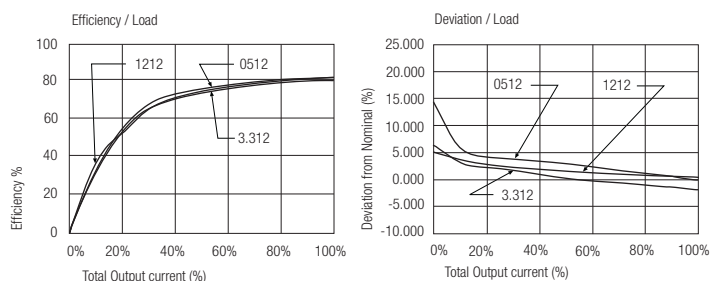


Typical Characteristics - Dual Outputs

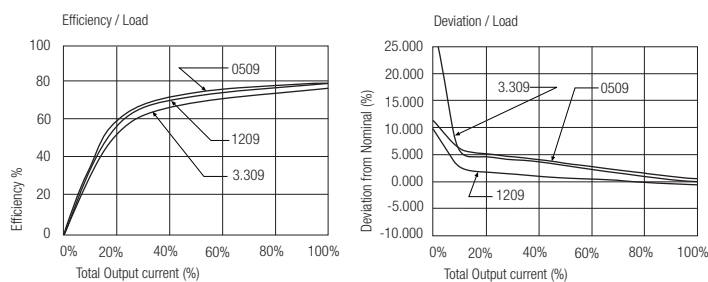
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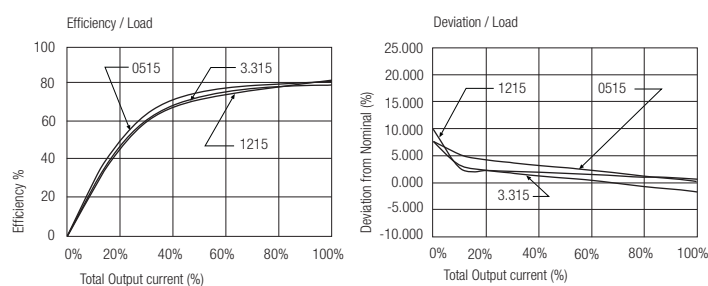
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RB-xx09D

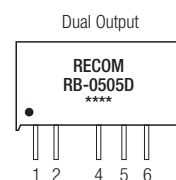
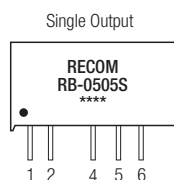
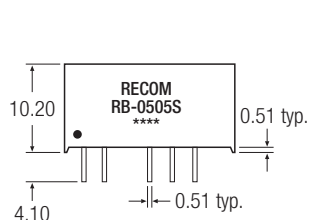


RB-xx15D

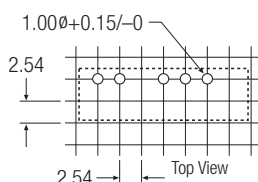
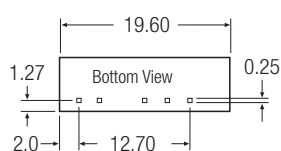


7 PIN SIP Package

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