

Features

Unregulated Converters

- Dual Output from a Single Input Rail
- Power Sharing on Output
- Industry Standard Pinout
- 1kVDC & 2kVDC Isolation
- Optional Continuous Short Circuit Protected
- UL94V-0 Package Material
- Efficiency to 85%

ECONOLINE

DC/DC-Converter

RB & RA Series

Selection Guide

Part Number	Input Voltage (VDC)	Output Voltage (VDC)	Output Current (mA)	Efficiency (%)
SIP 7 DIP 14 (2kV)	(VDC)	(VDC)	(mA)	(%)
RB-xx1.8S RA-xx1.8S (H)	1.8, 3.3, 5, 9, 12, 15, 24	1.8	555	70
RB-xx3.3S RA-xx3.3S (H)	1.8, 3.3, 5, 9, 12, 15, 24	3.3	303	75
RB-xx05S RA-xx05S (H)	1.8, 3.3, 5, 9, 12, 15, 24	5	200	70-78
RB-xx09S RA-xx09S (H)	1.8, 3.3, 5, 9, 12, 15, 24	9	111	70-78
RB-xx12S RA-xx12S (H)	1.8, 3.3, 5, 9, 12, 15, 24	12	84	78-80
RB-xx15S RA-xx15S (H)	1.8, 3.3, 5, 9, 12, 15, 24	15	66	80-84
RB-xx24S RA-xx24S (H)	1.8, 3.3, 5, 9, 12, 15, 24	24	42	74-85
RB-xx1.8D RA-xx1.8D (H)	1.8, 3.3, 5, 9, 12, 15, 24	±1.8	±278	70
RB-xx3.3D RA-xx3.3D (H)	1.8, 3.3, 5, 9, 12, 15, 24	±3.3	±152	70
RB-xx05D RA-xx05D (H)	1.8, 3.3, 5, 9, 12, 15, 24	±5	±100	70-78
RB-xx09D RA-xx09D (H)	1.8, 3.3, 5, 9, 12, 15, 24	±9	±56	76-79
RB-xx12D RA-xx12D (H)	1.8, 3.3, 5, 9, 12, 15, 24	±12	±42	78-82
RB-xx15D RA-xx15D (H)	1.8, 3.3, 5, 9, 12, 15, 24	±15	±33	80-84
RB-xx24D RA-xx24D (H)	1.8, 3.3, 5, 9, 12, 15, 24	±24	±21	80-84

xx = Input Voltage

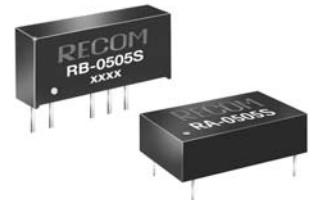
* add Suffix "P" for Continuous Short Circuit Protection, e.g. RB-0505S/P, RB-0505S/HP

Specifications (Core Operating Area)

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)	1.8V, 3.3V output types		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		±75mVp-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.	
Isolation Voltage (tested for 1 second)			1000VDC min.
Rated Working Voltage (long term isolation)			see Application Notes
Isolation Voltage (tested for 1 second)	H-Suffix		2000VDC min.
Rated Working Voltage (long term isolation)	H-Suffix		see Application Notes
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)

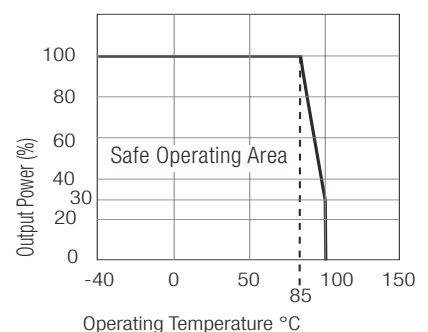
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1 Watt SIP7 & DIP14 Single & Dual Output



RECOM

Derating-Graph (Ambient Temperature)

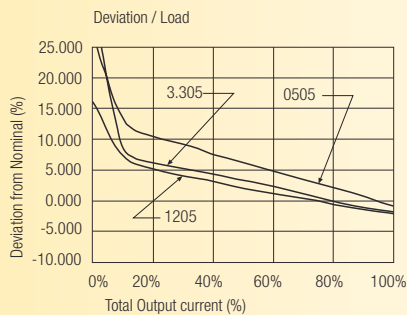
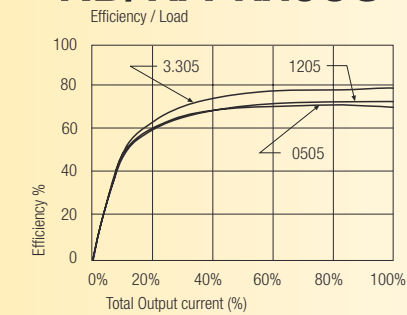


Specifications (Core Operating Area)

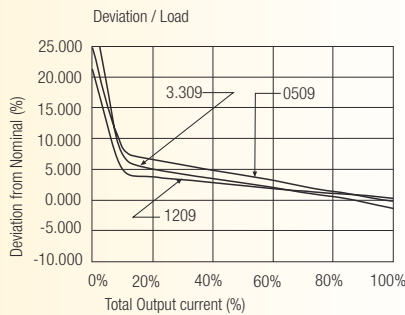
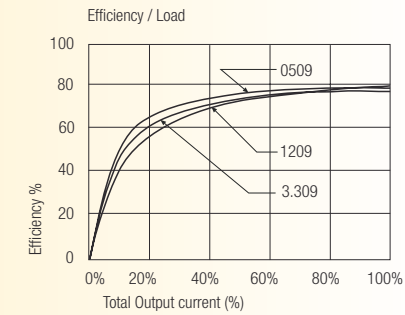
Storage Temperature Range	-55°C to +125°C		
Relative Humidity	95% RH		
Package Weight	RB types	2.2g	
	RA types	2.6g	
MTBF (+25°C)	Detailed Information see Application Notes chapter "MTBF"	using MIL-HDBK 217F	1012 x 10 ³ hours
(+85°C)		using MIL-HDBK 217F	151 x 10 ³ hours

Typical Characteristics

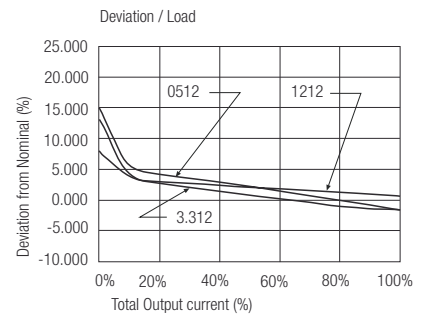
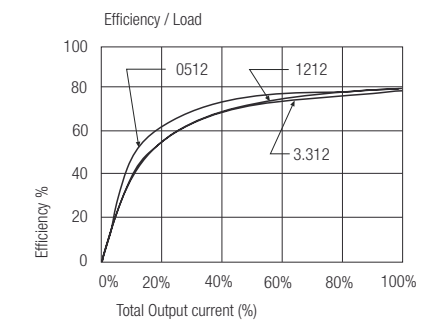
RB/RA-xx05S



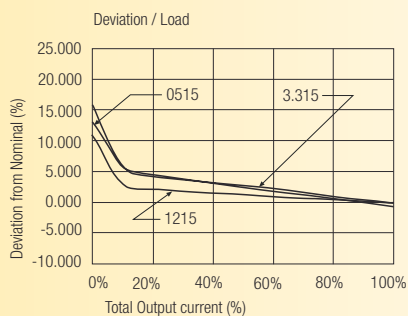
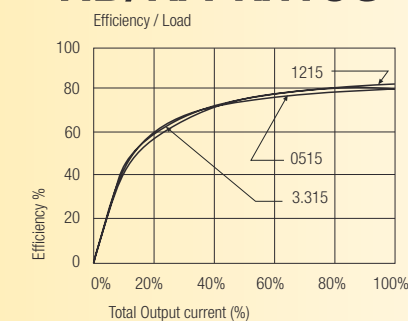
RB/RA-xx09S



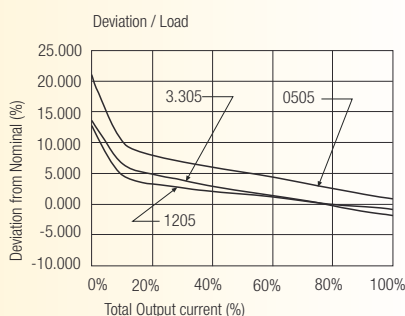
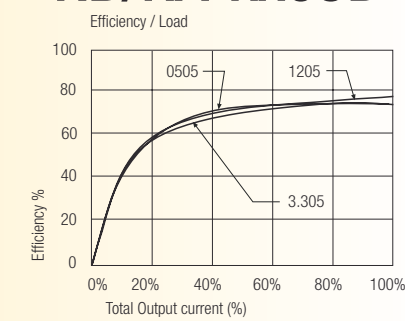
RB/RA-xx12S



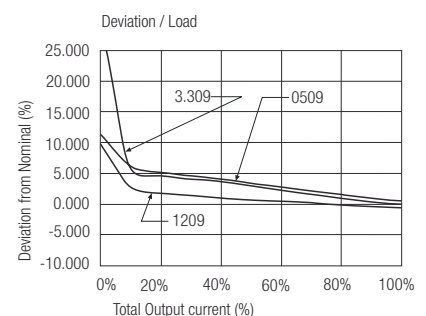
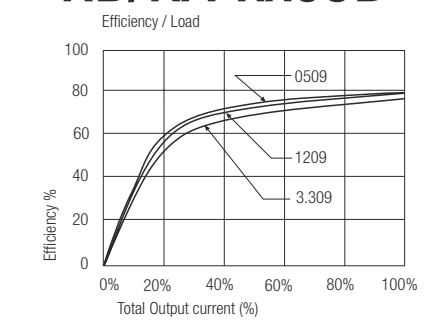
RB/RA-xx15S



RB/RA-xx05D

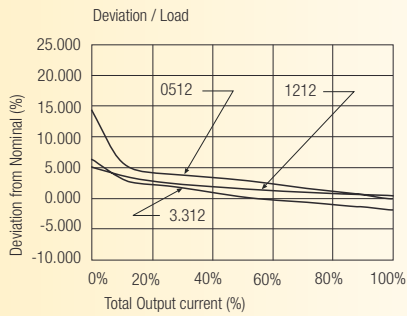
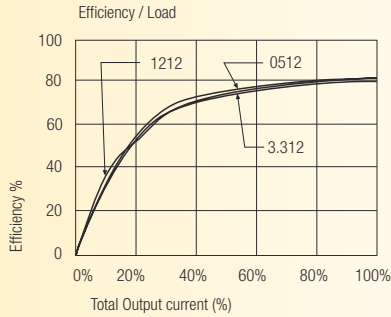


RB/RA-xx09D

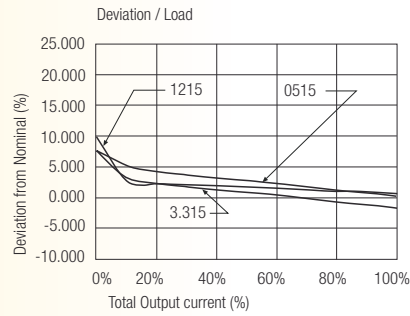
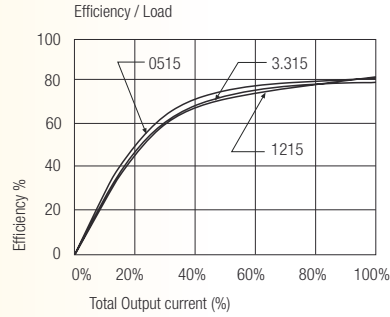


Typical Characteristics

RB/RA-xx12D

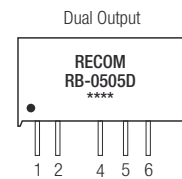
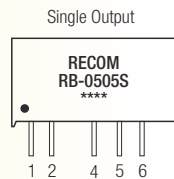
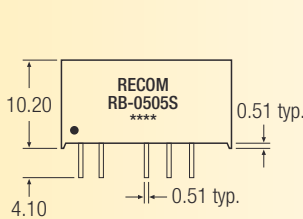


RB/RA-xx15D

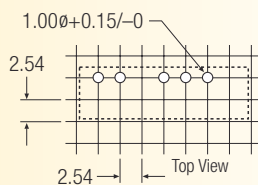
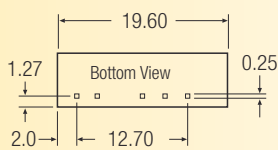


Package Style and Pinning (mm)

7 PIN SIP Package



Recommended Footprint Details



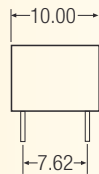
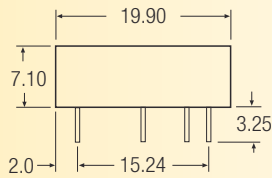
Pin Connections

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

Package Style and Pinning (mm)

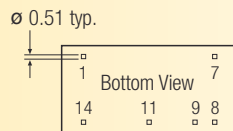
14 PIN DIP Package



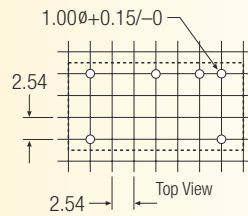
Single Output



Dual Output



Recommended Footprint Details



Pin Connections

Pin #	Single	Dual
1	-Vin	-Vin
7	NC	NC
8	-Vout	Com
9	+Vout	+Vout
11	NC	-Vout
14	+Vin	+Vin

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