

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)				
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

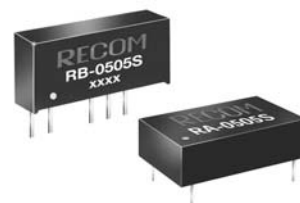
* add Suffix "P" for Continuous Short Circuit Protection, e.g. RB-0505S/P, RB-0505S/HP

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 P-Suffix	1 Second Continuous	
Operating Temperature Range (free air convection)	-40°C to +85°C (see Graph)	

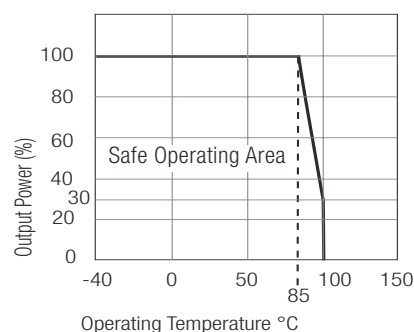
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1 Watt SIP7 & DIP14 Single & Dual Output



RECOM

Derating-Graph (Ambient Temperature)

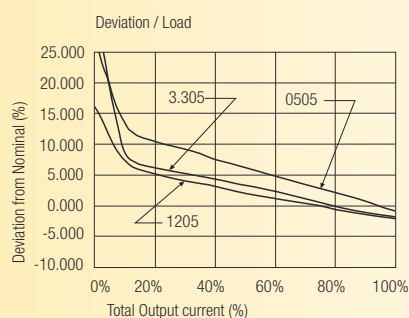
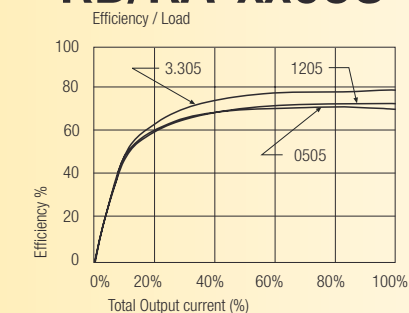


Specifications (Core Operating Area)

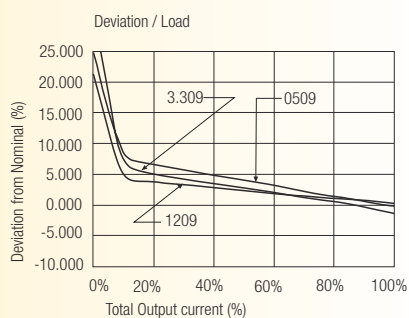
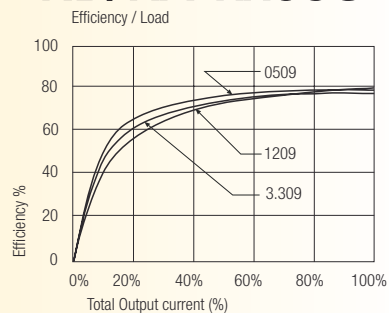
Storage Temperature Range	-55°C to +125°C		
Relative Humidity	95% RH		
Package Weight	RB types	2.2g	
	RA types	2.6g	
MTBF (+25°C)	Detailed Information see Application Notes chapter "MTBF"	using MIL-HDBK 217F	1012 x 10 ³ hours
(+85°C)		using MIL-HDBK 217F	151 x 10 ³ hours

Typical Characteristics

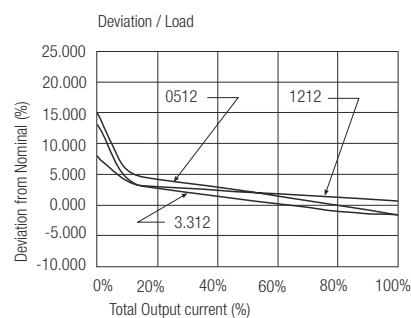
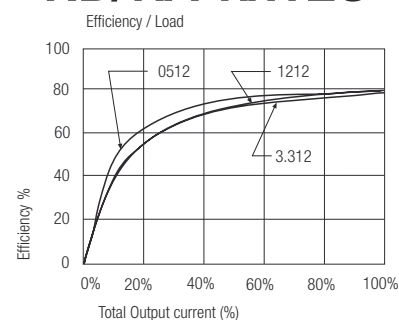
RB/RA-xx05S



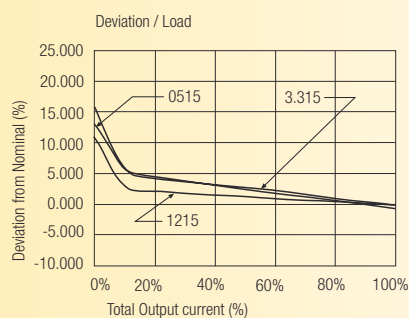
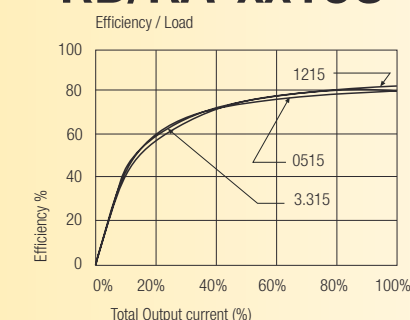
RB/RA-xx09S



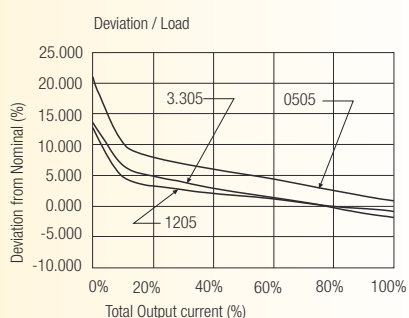
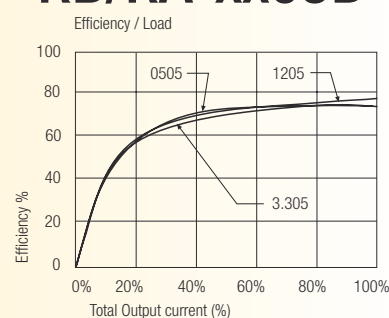
RB/RA-xx12S



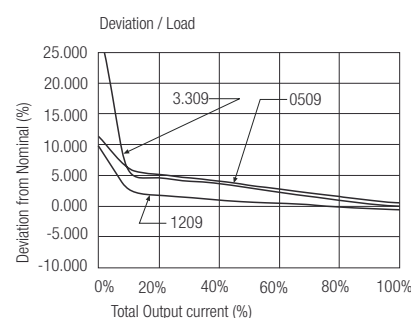
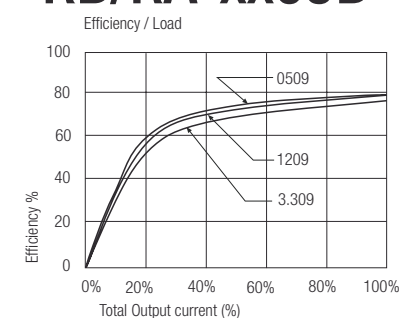
RB/RA-xx15S



RB/RA-xx05D

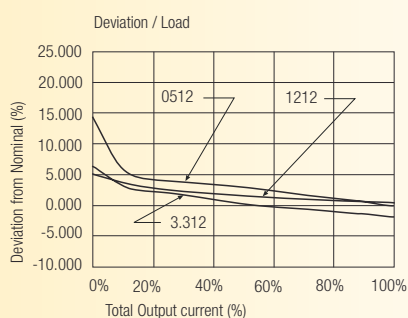
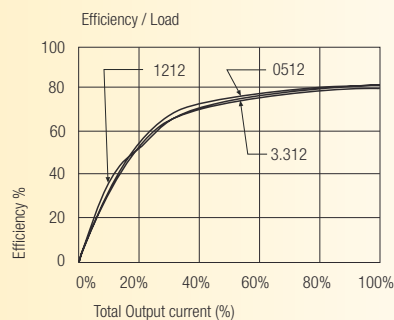


RB/RA-xx09D

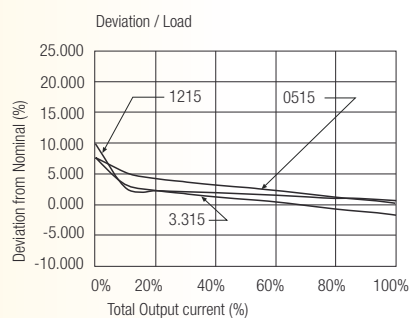
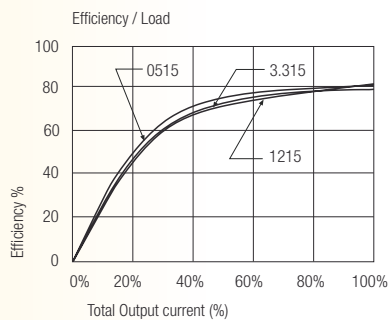


Typical Characteristics

RB/RA-xx12D

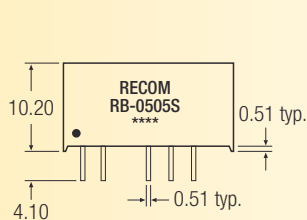


RB/RA-xx15D

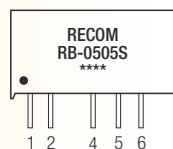


Package Style and Pinning (mm)

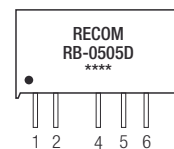
7 PIN SIP Package



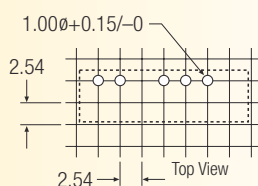
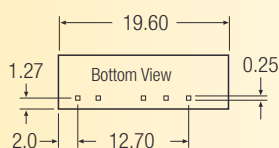
Single Output



Dual Output



Recommended Footprint Details



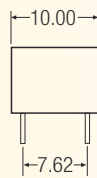
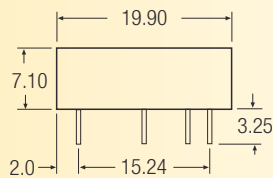
Pin Connections

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)

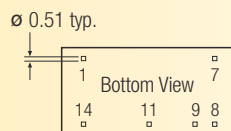
14 PIN DIP Package



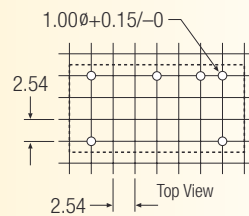
Single Output



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