Features

Unregulated Converters

- Dual Output from a Single Input Rail
- Power Sharing on Output
- Industry Standard Pinout
- 1kVDC & 2kVDC Isolation
- Custom Solutions Available
- UL94V-0 Package Material
- Efficiency to 85%

ECONOLINE
DC/DC-Converter

RB & RA Series

1 Watt SIP7 & DIP14 Single & Dual Output

RECOM

Selection Guide

Part Number			Input Voltage	Output Voltage	Output Current	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	76-78
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	74-78
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	80-82
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

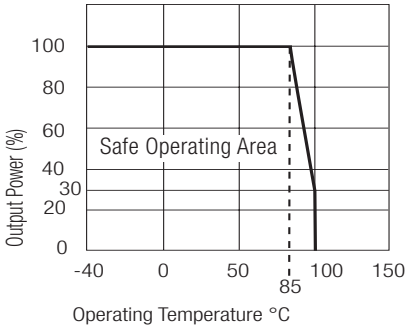
xx = Input Voltage

Specifications (Core Operating Area)

Input Voltage Range		±10%
Output Voltage Accuracy		±5%
Line Voltage Regulation		1.2%/1% of Vin max.
Load Voltage Regulation (10% to 100% full load)	1.8V, 3.3V output types 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.
No Load Power Consumption	Single Dual	101mW min. / 126mW typ. / 171mW max. 87mW min. / 130mW typ. / 190mW max.
Isolation Voltage Rated Working Voltage	(tested for 1 second) (long term isolation)	1.000VDC min. see Application Notes
Isolation Voltage H-Suffix Rated Working Voltage H-Suffix	(tested for 1 second) (long term isolation)	2.000VDC min. see Application Notes
Isolation Capacitance		20pF min. / 75pF max.
Isolation Resistance		10 GΩ min.
Short Circuit Protection		1 Second
Operating Temperature Range (free air convection)		-40°C to +85°C (see Graph)
Storage Temperature Range		-55°C to +125°C

continued on next page

Derating-Graph
(Ambient Temperature)

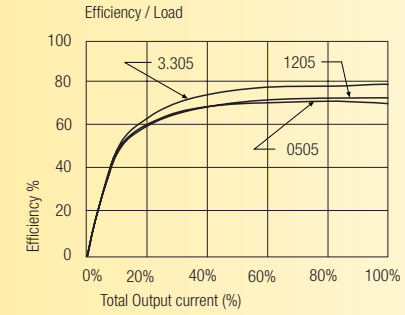


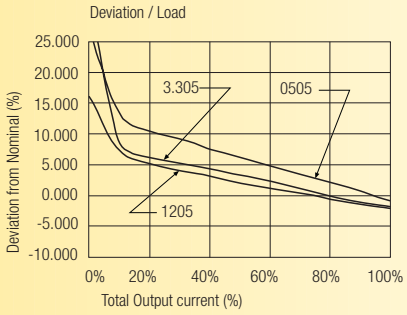
Specifications (Core Operating Area)

Relative Humidity	MSL Level 1		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

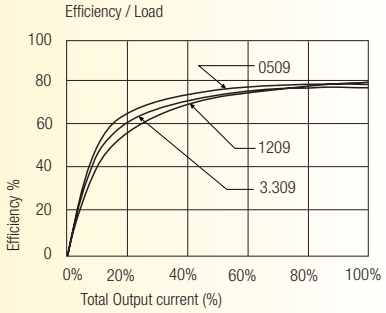
Typical Characteristics

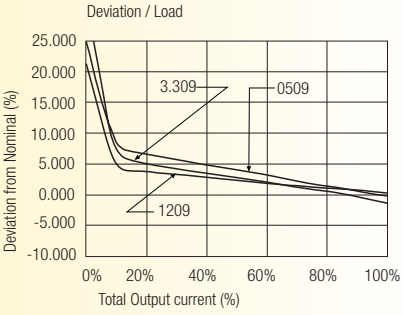
RB/RA-xx05S



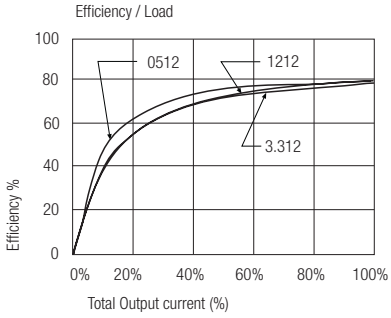


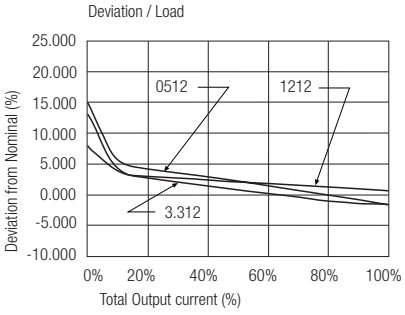
RB/RA-xx09S



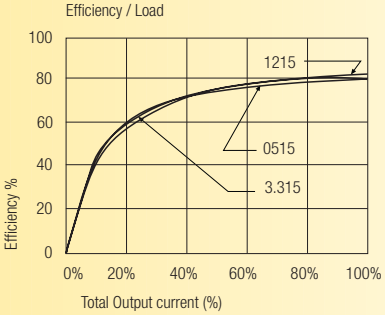


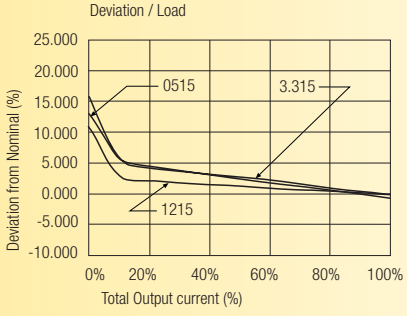
RB/RA-xx12S



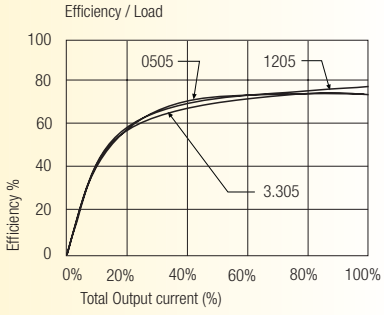


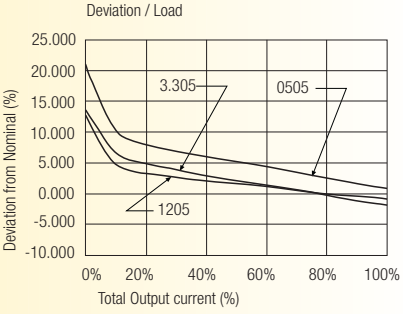
RB/RA-xx15S



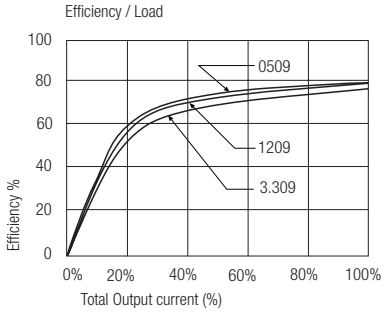


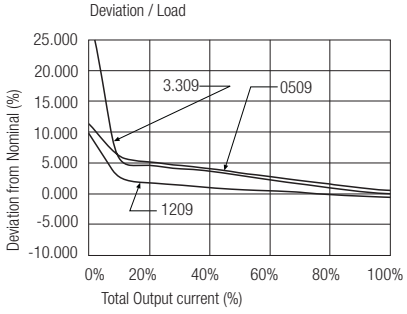
RB/RA-xx05D





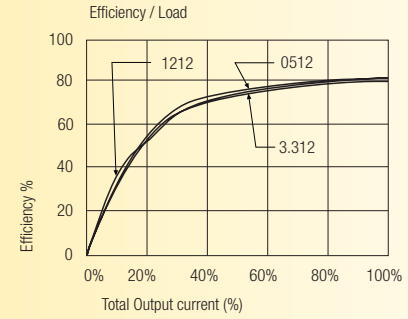
RB/RA-xx09D

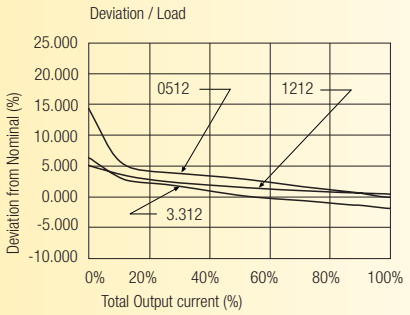




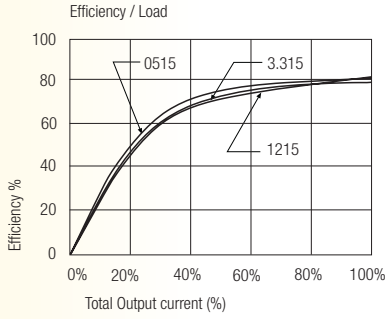
Typical Characteristics

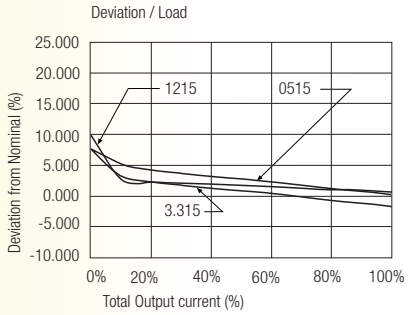
RB/RA-xx12D





RB/RA-xx15D

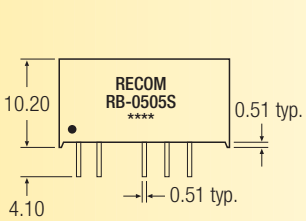


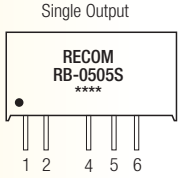


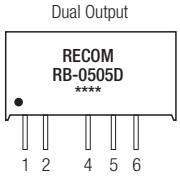
Package Style and Pinning (mm)

3rd angle projection

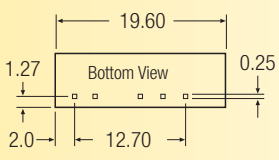
7 PIN SIP Package

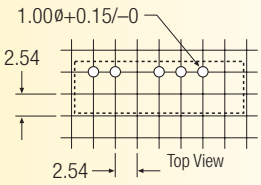






Recommended Footprint Details





Pin Connections

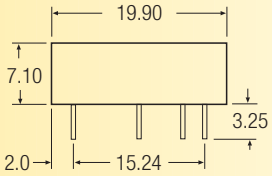
Pin #	Single	Dual
1	+Vin	+Vin
2	–Vin	–Vin
4	NC	–Vout
5	–Vout	Com
6	+Vout	+Vout

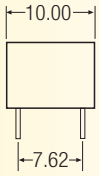
NC = No Connection
XX.X ± 0.5 mm
XX.XX ± 0.25 mm

Package Style and Pinning (mm)

3rd angle projection

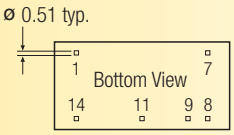
14 PIN DIP Package



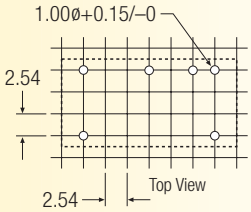


Single Output

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