Features

Unregulated Converters

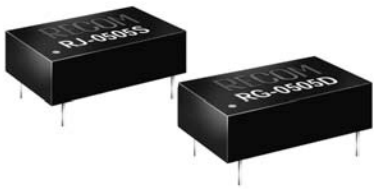
- Dual Output from a Single Input Rail
- 3kVDC & 4kVDC Isolation
- Optional Continuous Short Circuit Protected
- Custom Solutions Available
- UL94V-0 Package Material
- Efficiency to 84%

ECONOLINE

DC/DC-Converter

RJ & RG Series

1 Watt DIP14 Single & Dual Output



EN-60950-1 Certified
EN-60601-1 Certified

RECOM

Selection Guide

Part Number		Input Voltage	Output Voltage	Output Current	Efficiency
DIP 14	4kV	(VDC)	(VDC)	(mA)	(%)
RJ-xx1.8S	(H)	1.8, 3.3, 5, 9, 12, 15, 24	1.8	303	70
RJ-xx3.3S	(H)	1.8, 3.3, 5, 9, 12, 15, 24	3.3	303	75
RJ-xx05S	(H)	1.8, 3.3, 5, 9, 12, 15, 24	5	200	70-78
RJ-xx09S	(H)	1.8, 3.3, 5, 9, 12, 15, 24	9	111	78-82
RJ-xx12S	(H)	1.8, 3.3, 5, 9, 12, 15, 24	12	84	78-82
RJ-xx15S	(H)	1.8, 3.3, 5, 9, 12, 15, 24	15	66	78-82
RJ-xx24S	(H)	1.8, 3.3, 5, 9, 12, 15, 24	24	42	74-83
RG-xx1.8D	(H)	1.8, 3.3, 5, 9, 12, 15, 24	±1.8	±152	70
RG-xx3.3D	(H)	1.8, 3.3, 5, 9, 12, 15, 24	±3.3	±152	70
RG-xx05D	(H)	1.8, 3.3, 5, 9, 12, 15, 24	±5	±100	70-78
RG-xx09D	(H)	1.8, 3.3, 5, 9, 12, 15, 24	±9	±56	75-80
RG-xx12D	(H)	1.8, 3.3, 5, 9, 12, 15, 24	±12	±42	78-84
RG-xx15D	(H)	1.8, 3.3, 5, 9, 12, 15, 24	±15	±33	80-84
RG-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. RJ-0505S/P, RG-0505D/HP

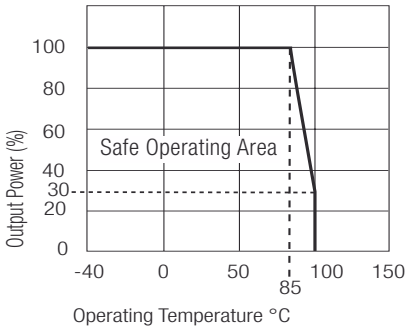
Specifications (Core Operating Area)

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)			100mVp-p max.
Operating Frequency			57kHz min. / 90kHz typ. / 105kHz max.
Efficiency at Full Load			70% min. / 80% typ.
No Load Power Consumption			102mW min./180mW typ./260mW max.
Isolation Voltage		(tested for 1 second)	3000VDC min.
Rated Working Voltage		(long term isolation)	see Application Notes.
Isolation Voltage	H-Suffix	(tested for 1 second)	4000VDC min.
Rated Working Voltage	H-Suffix	(long term isolation)	see Application Notes
Isolation Capacitance			20pF min. / 65pF max.
Isolation Resistance			15 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
Package Weight			2.5g

continued on next page

Derating-Graph

(Ambient Temperature)

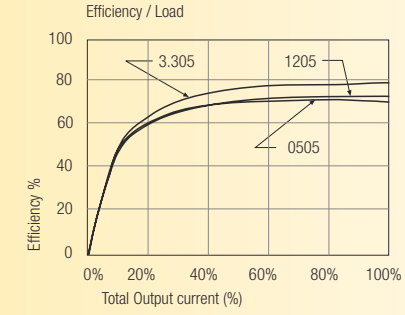


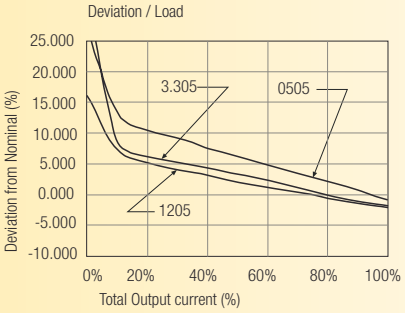
Specifications (Core Operating Area)

MTBF (+25°C)	using MIL-HDBK 217F	RJ types	992 x 10^3 hours
	Detailed Information see Application Notes chapter "MTBF"	RG types	1012 x 10^3 hours
(+85°C)	using MIL-HDBK 217F	RJ types	145 x 10^3 hours
		RG types	151 x 10^3 hours

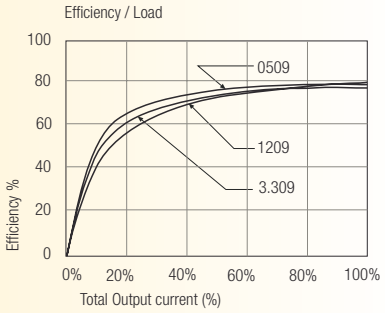
Typical Characteristics

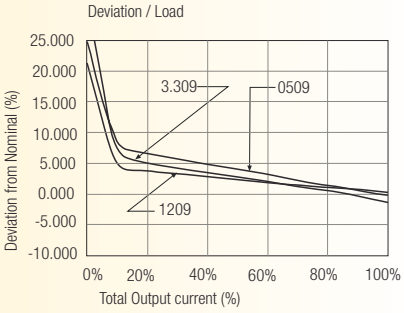
RJ-xx05S



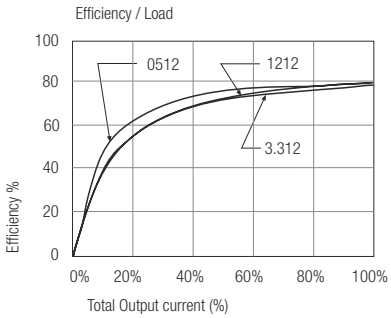


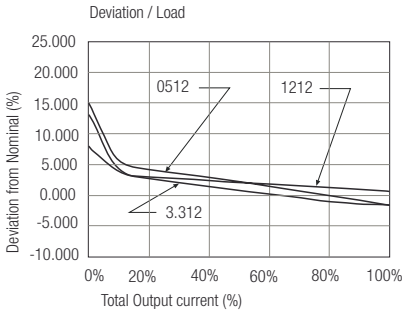
RJ-xx09S



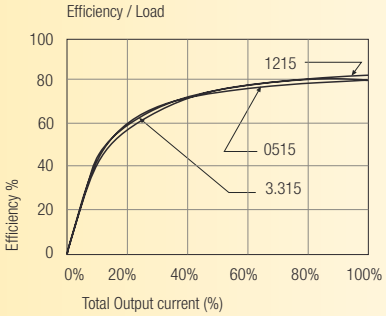


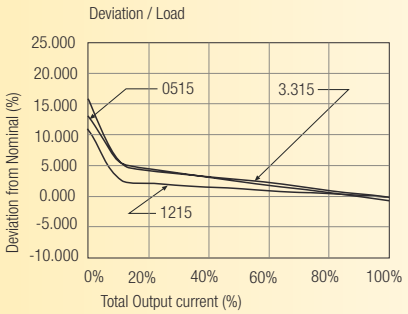
RJ-xx12S



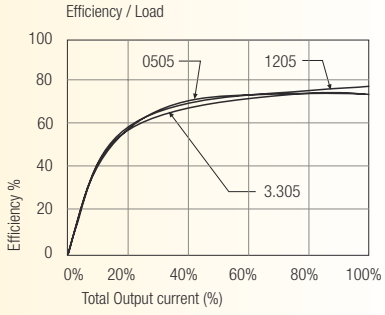


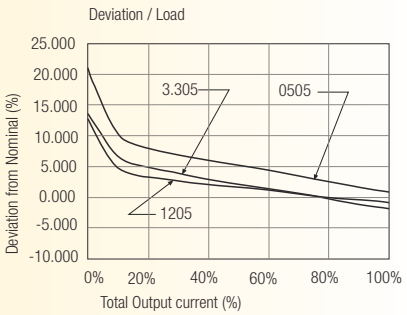
RJ-xx15S



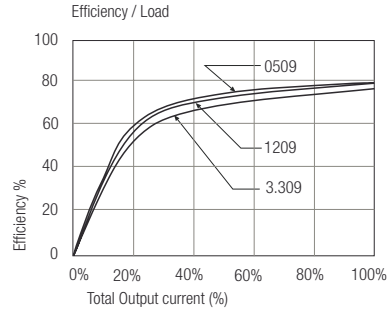


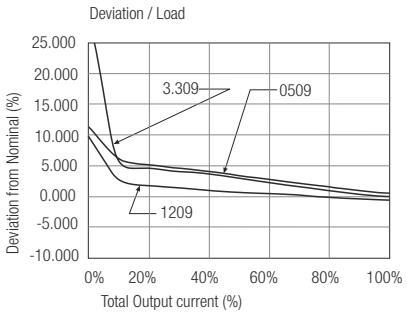
RG-xx05D





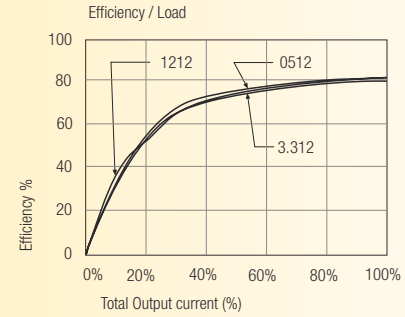
RG-xx09D

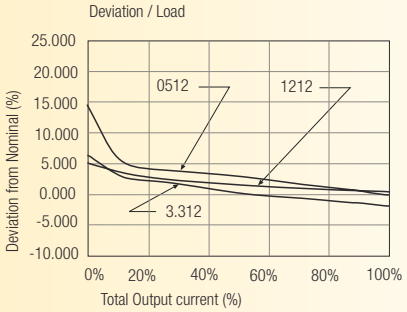




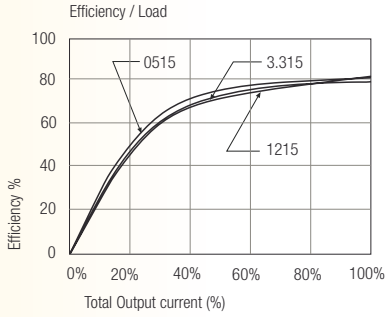
Typical Characteristics

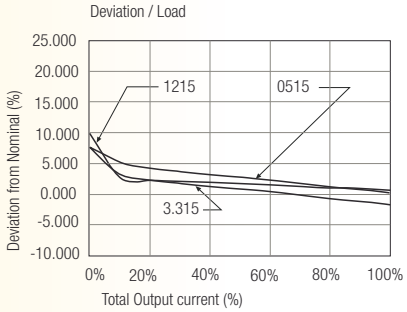
RG-xx12D





RG-xx15D

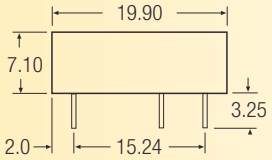


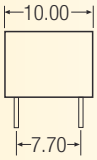


Package Style and Pinning (mm), 14 PIN DIP Package

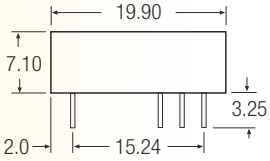
3rd angle projection

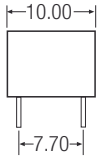
Single Output



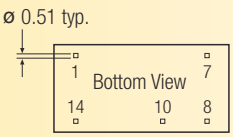


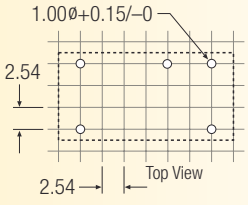
Dual Output



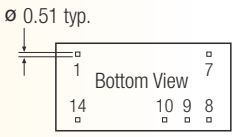


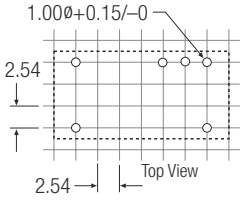
Recommended Footprint Details





Recommended Footprint Details





Single Output

Dual Output

Pin Connections

Pin #	RJ	RG
1	–Vin	–Vin
7	NC	NC
8	+Vout	+Vout
9	No Pin	Com
10	–Vout	–Vout
14	+Vin	+Vin

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