

## 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

### Selection Guide

Part Number	Input Voltage	Output Voltage	Output Current	Efficiency
DIP 14	4kV	(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

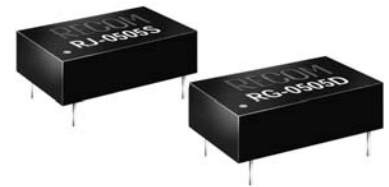
\* add Suffix "P" for Continuous Short Circuit Protection, e.g. RJ-0505S/P, RG-0505D/HP

### 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 (tested for 1 second)	H-Suffix	4000VDC min.
Rated Working Voltage (long term isolation)	H-Suffix	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	

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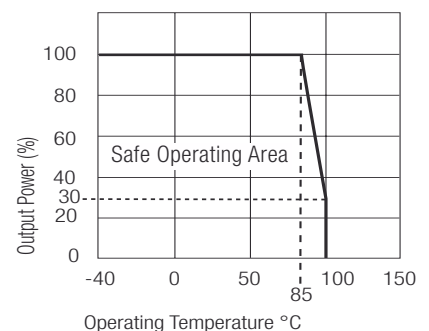
## 1 Watt DIP14 Single & Dual Output



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

# RECOM

## Derating-Graph (Ambient Temperature)

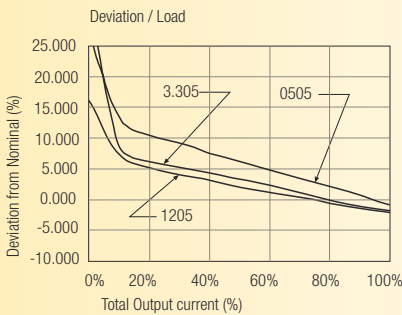
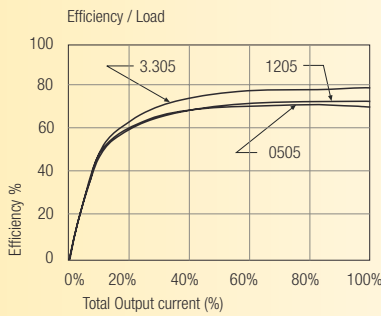


**Specifications (Core Operating Area)**

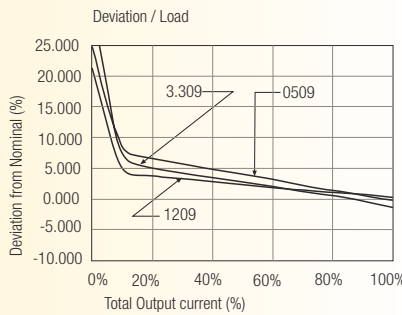
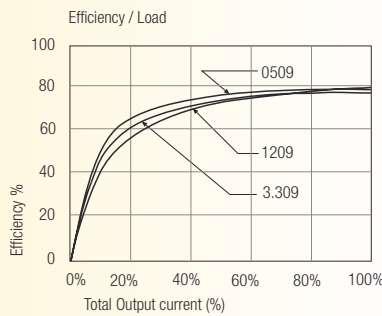
MTBF (+25°C)	using MIL-HDBK 217F	RJ types	992 x 10 <sup>3</sup> hours
	Detailed Information see Application Notes chapter "MTBF"	RG types	1012 x 10 <sup>3</sup> hours
(+85°C)		using MIL-HDBK 217F	RJ types
			RG types

**Typical Characteristics**

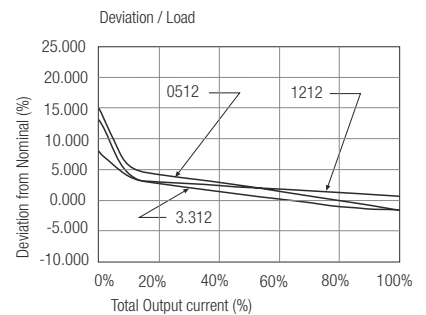
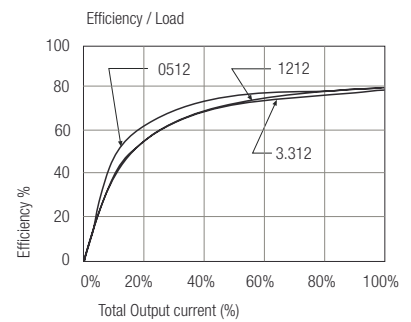
**RJ-xx05S**



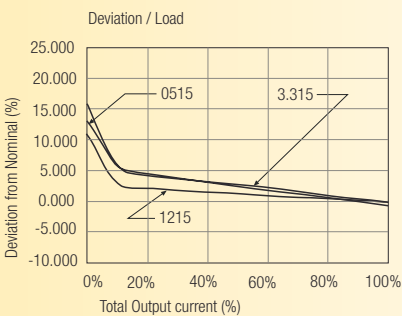
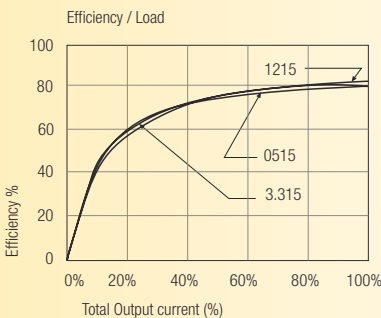
**RJ-xx09S**



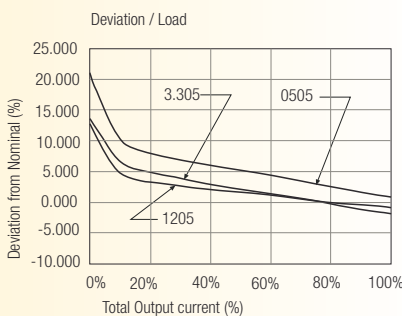
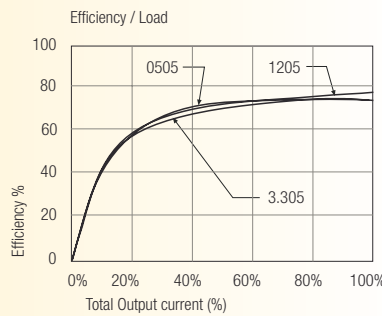
**RJ-xx12S**



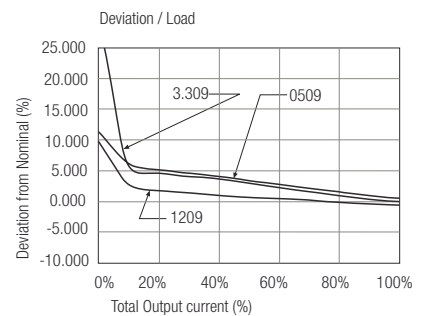
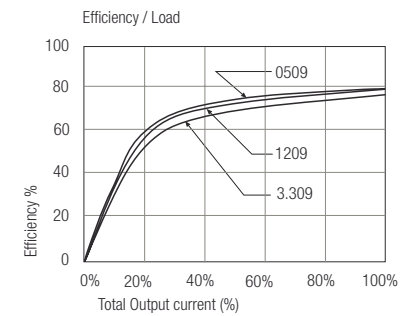
**RJ-xx15S**



**RG-xx05D**

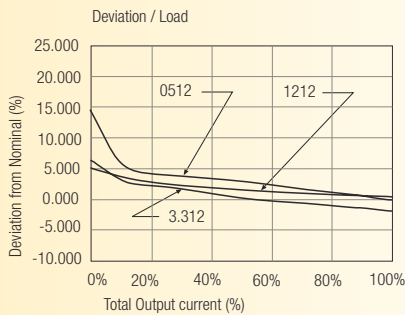
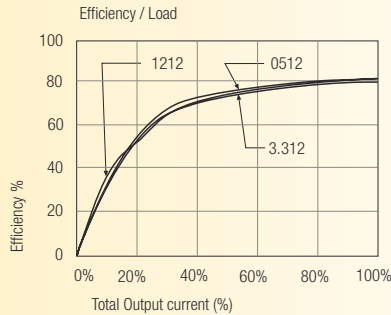


**RG-xx09D**

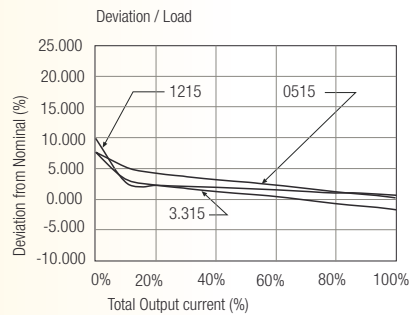
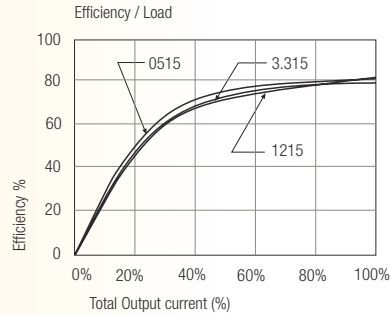


**Typical Characteristics**

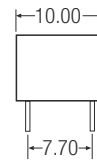
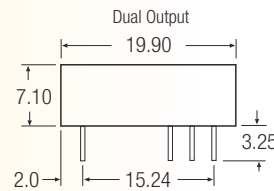
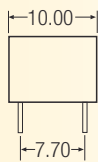
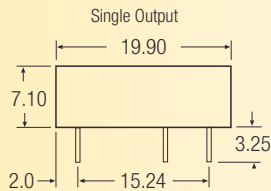
**RG-xx12D**



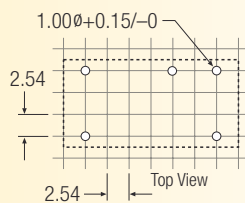
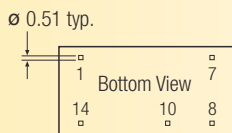
**RG-xx15D**



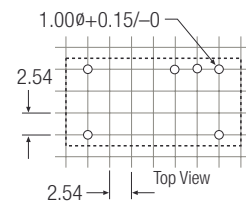
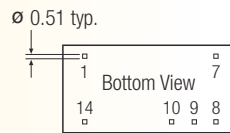
**Package Style and Pinning (mm), 14 PIN DIP Package**



**Recommended Footprint Details**



Single Output



Dual Output



**Recommended Footprint Details**

**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