

# Features

## Unregulated Converters

- 2W Single and Dual Outputs in DIP 14
- 3kVDC or 4kVDC Isolation
- Optional Continuous Short Circuit Protected
- Custom Solutions Available
- UL94V-0 Package Material
- Efficiency up to 85 %
- Suitable for IGBT Applications

### Description

The RJZ and RGZ series converters are available in DIP14 packages, so can be used for applications where component height is restricted. The wide selection of input voltage and output voltage options plus an I/O-Isolation of 3kVDC or 4kVDC as standard makes these converters suitable for many industrial, medical and IGBT applications.

### Selection Guide

Part Number	Input Voltage (VDC)	Output Voltage (VDC)	Output Current (mA)	Efficiency (%)	Max Capacitive Load <sup>(1)</sup>
RJZ-xx3.3S*	(H) 3.3,5,9,12,15,24	3.3	606	70-75	3300µF
RJZ-xx05S*	(H) 3.3,5,9,12,15,24	5	400	78-85	1200µF
RJZ-xx09S*	(H) 3.3,5,9,12,15,24	9	222	78-84	1200µF
RJZ-xx12S*	(H) 3.3,5,9,12,15,24	12	166	80-85	680µF
RJZ-xx15S*	(H) 3.3,5,9,12,15,24	15	133	82-85	680µF
RJZ-xx24S*	(H) 3.3,5,9,12,15,24	24	83	80-85	220µF
RGZ-xx3.3D*	(H) 3.3,5,9,12,15,24	±3.3	±303	75	±1500µF
RGZ-xx05D*	(H) 3.3,5,9,12,15,24	±5	±200	75-82	±470µF
RGZ-xx09D*	(H) 3.3,5,9,12,15,24	±9	±111	75-80	±470µF
RGZ-xx12D*	(H) 3.3,5,9,12,15,24	±12	±84	78-82	±220µF
RGZ-xx15D*	(H) 3.3,5,9,12,15,24	±15	±66	80-84	±220µF
RGZ-xx24D*	(H) 3.3,5,9,12,15,24	±24	±42	82-84	±100µF
RGZ-xx1509D*	(H) 5, 12, 24	+15/-9	+67/-111	70-81	±330µF

xx = Input Voltage. Other input and output voltage combinations available on request.

\* add Suffix "P" for Continuous Short Circuit Protection, e.g. RGZ-0524D/P, RJZ-0505S/HP

### Specifications (measured at T<sub>A</sub> = 25°C, nominal input voltage, full load and after warm-up)

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)	3.3V Types	±20% max.
	5V Types	±15% max.
	All other Types, RGZ-xx1509D	±10% max.
Output Ripple and Noise (20MHz limited)		±150mVp-p max.
Temperature Coefficient		0.02%/°C max.
Operating Frequency		20kHz min. / 50kHz typ. / 90kHz max.
	RGZ-xx1509D	20kHz min. / 45kHz typ.
Efficiency at Full Load		70% min. / 80% typ.
Minimum Load = 0%		Specifications valid for 10% minimum load only.
Isolation Voltage	(tested for 1 second)	3000VDC
	(rated for 1 minute)	1500VAC / 60Hz
Isolation Voltage	H-Suffix (tested for 1 second)	4000VDC min.
	H-Suffix (rated for 1 minute)	2000VAC / 60Hz
Isolation Capacitance		120pF max.
Isolation Resistance		15GΩ min.
Short Circuit Protection		1 Second
P-Suffix		Continuous
Operating Temperature Range (free air convection, without derating)		-40°C to +90°C (see Graph)
Case Temperature		110°C max.

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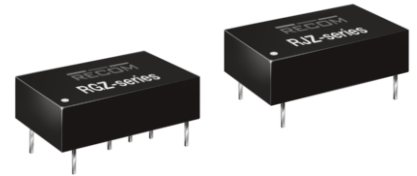
# ECONOLINE

## DC/DC-Converter

with 3 year Warranty

# RECOM

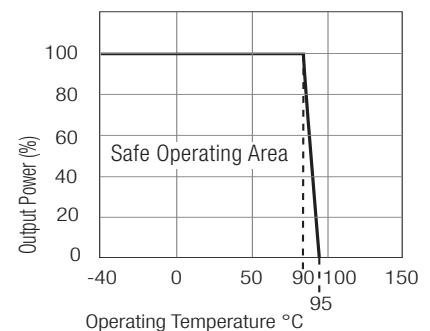
## 2 Watt DIP14 Single & Dual Output



**EN-60950-1 Certified**  
**IEC/EN-60601-1 Certified\***  
**\* +15/-9 Version excluded**

# RJZ\_RGZ

## Derating-Graph (Ambient Temperature)



\*\*Any data referred to in this datasheet are of indicative nature and based on our practical experience only. For further details, please refer to our Application Notes.

Refer to Application Notes

**Specifications** (measured at  $T_A = 25^\circ\text{C}$ , nominal input voltage, full load and after warm-up)

Storage Temperature Range				-55°C to +125°C
Relative Humidity				95% RH
Thermal Impedance				56.66°C / W
Package Weight				2.8g
Packing Quantity				24 pcs per Tube
MTBF (+25°C) (+85°C)	} Detailed Information see Application Notes chapter "MTBF"	using MIL-HDBK 217F	RJZ types	893 x 10 <sup>3</sup> hours
			RGZ types	810 x 10 <sup>3</sup> hours
		using MIL-HDBK 217F	RJZ types	208 x 10 <sup>3</sup> hours
			RGZ types	151 x 10 <sup>3</sup> hours

**Certifications**

EN General Safety  
EN Medical Safety

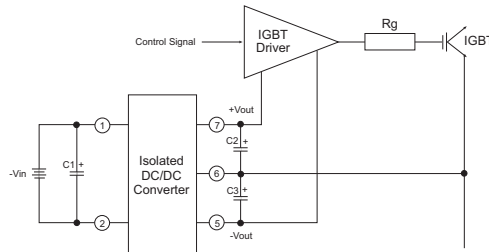
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EN60950-1:2006 + A12:2011  
IEC/EN 60601-1:2006, 3rd Edition

**Notes**

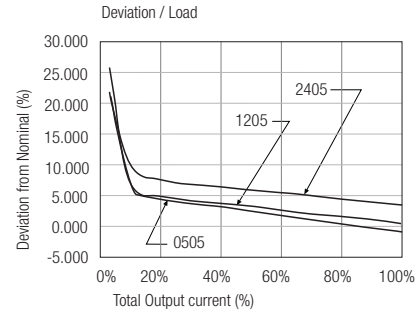
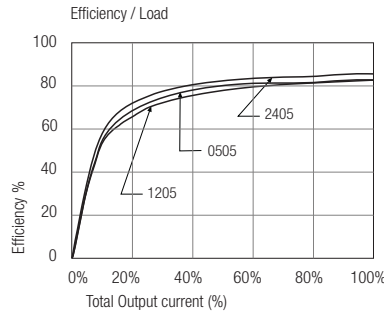
Note 1 Maximum capacitive load is defined as the capacitive load that will allow start up in under 1 second without damage to the converter.

## IGBT Application Circuit

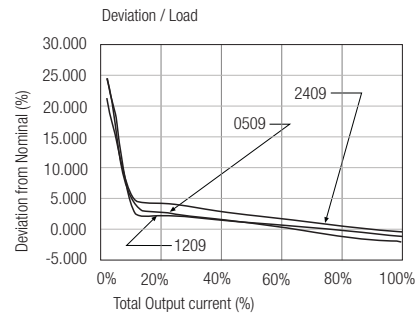
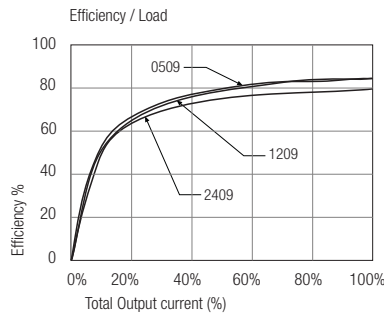


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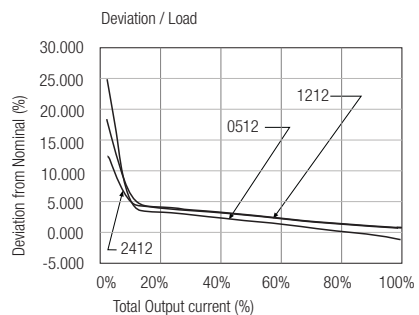
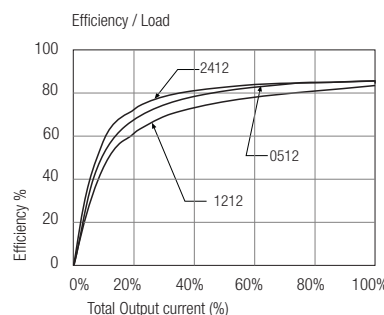
### RJZ-xx05S



### RJZ-xx09S



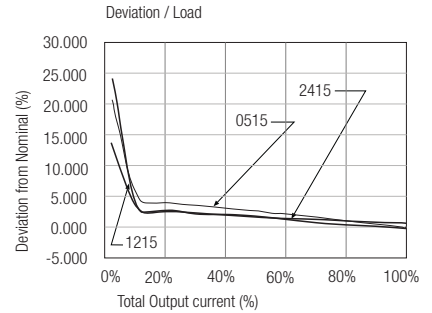
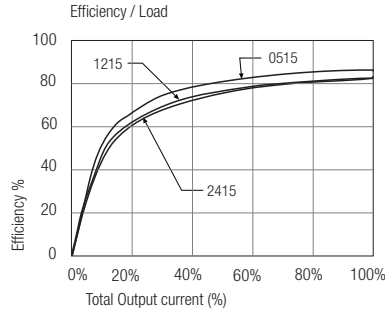
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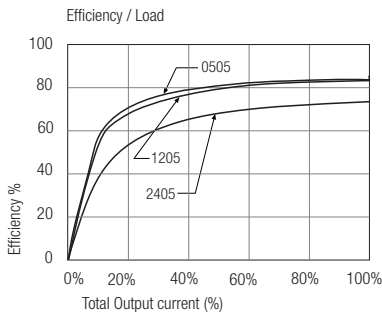
RJZ\_RGZ

**Typical Characteristics**

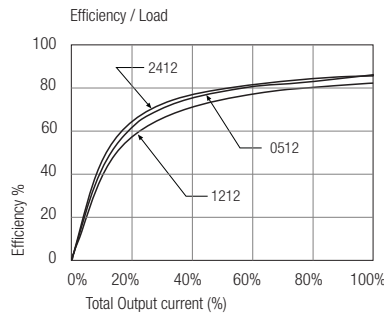
**RJZ-xx15S**



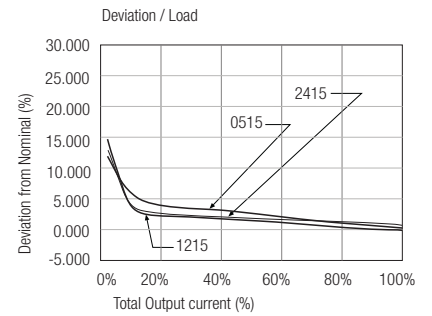
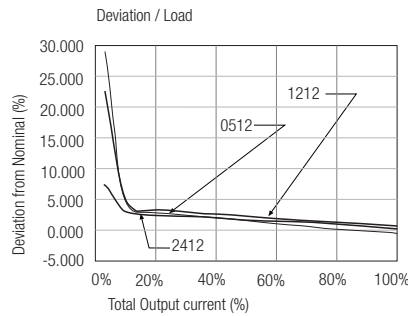
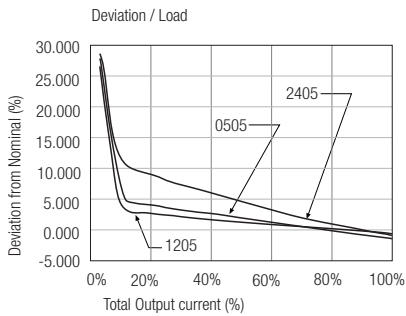
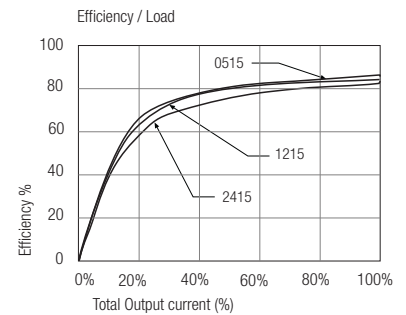
**RGZ-xx05D**



**RGZ-xx12D**



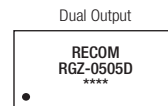
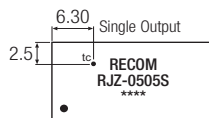
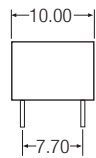
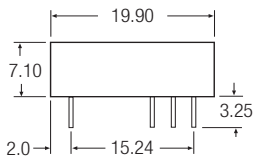
**RGZ-xx15D**



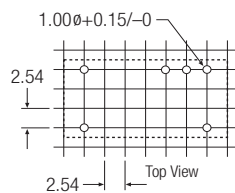
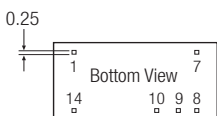
RJZ\_RGZ

**Package Style and Pinning (mm)**

**14 PIN DIP Package**



**Recommended Footprint Details**



**Pin Connections**

Pin #	RJZ	RGZ
1	-Vin	-Vin
7	NC	NC
8	+Vout	+Vout
9	No Pin	Com
10	-Vout	-Vout
14	+Vin	+Vin

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