

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 ⁽¹⁾
DIP 14	4kV					
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 $T_A = 25^\circ\text{C}$, nominal input voltage, full load and after warm-up)

Input Voltage Range	±10%
Output Voltage Accuracy	±5%
Line Voltage Regulation	1.2%/1% of V_{in} typ.
Load Voltage Regulation	3.3V Types ±20% max.
(10% to 100% full load)	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.

continued on next page

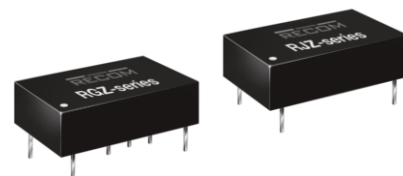
ECONOLINE

DC/DC-Converter

with 3 year Warranty

RECOM

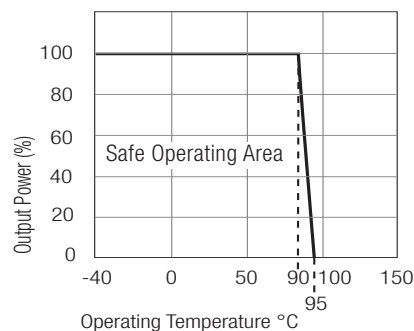
2 Watt DIP14 Single & Dual Output



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)	Detailed Information see Application Notes chapter "MTBF"	using MIL-HDBK 217F	RJZ types	893 x 10³ hours
			RGZtypes	810 x 10³ hours
(+85°C)		using MIL-HDBK 217F	RJZ types	208 x 10³ hours
			RGZ types	151 x 10³ hours

Certifications

EN General Safety

Report: SPCLVD1109103

EN60950-1:2006 + A12:2011

EN Medical Safety

Report: SPCMDD120598-4

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



Typical Characteristics

RJZ-xx05S



RJZ-xx09S

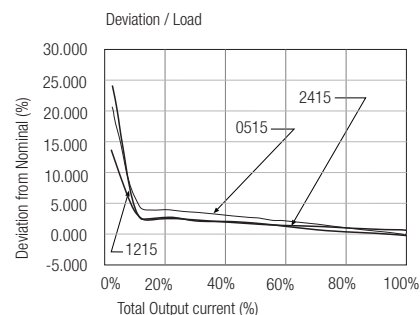
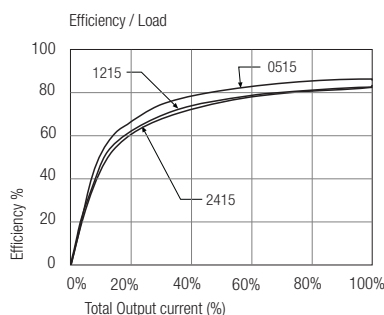


RJZ-xx12S

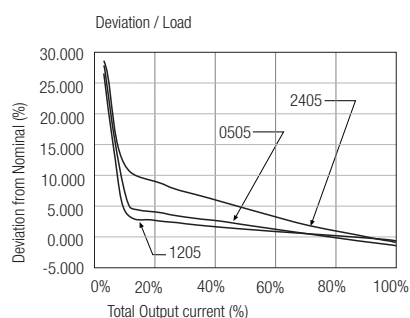
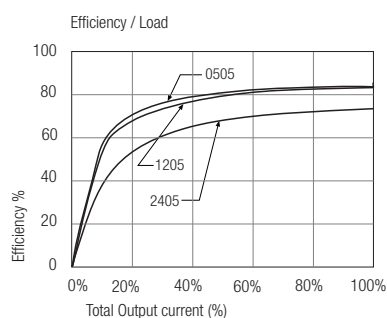


Typical Characteristics

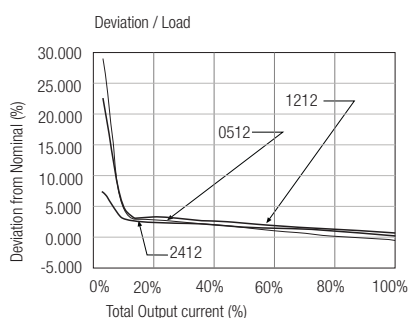
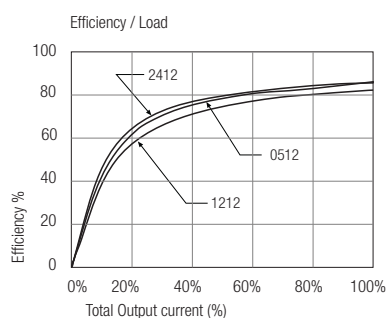
RJZ-xx15S



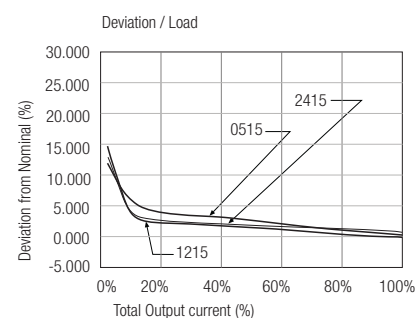
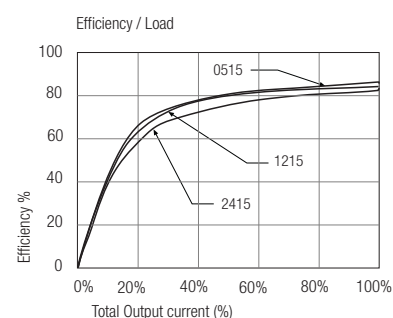
RGZ-xx05D



RGZ-xx12D



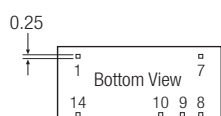
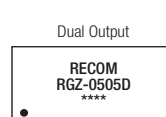
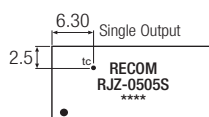
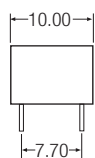
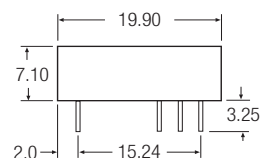
RGZ-xx15D



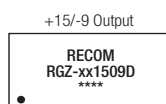
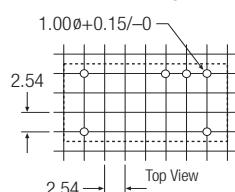
RJZ_RGZ

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
NC = No Connection		

XX.X ± 0.5 mm
XX.XX ± 0.25 mm

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