

Features

Unregulated Converters

- High Isolation 2W Converter
- Approved for Medical Applications
- Custom Solutions Available
- 3kVDC and 4kVDC Isolation Options
- UL94V-0 Package Material
- Optional Continuous Short Circuit Protected
- Efficiency to 84 %
- Suitable for IGBT Applications

Description

The RKZ Series of 2W DC/DC Converters are certified to EN 60950-1 and to the medical standard EN-60601-1. This makes them suitable for high end industrial applications such as IGBT driver circuitry as well as standard medical applications.
The RKZ converters are pin-compatible with the RK and RH converter series, offering a simple way to upgrade a 1W high isolation supply to 2W.

Selection Guide

Part Number	4kV	Input Voltage (VDC)	Output Voltage (VDC)	Output Current (mA)	Efficiency (%)	Max Capacitive Load ⁽¹⁾
RKZ-xx05S*	(H)	5, 12, 24	5	400	82-84	1500µF
RKZ-xx12S*	(H)	5, 12, 24	12	168	82-87	330µF
RKZ-xx15S*	(H)	5, 12, 24	15	132	82-84	330µF
RKZ-xx05D*	(H)	5, 12, 24	±5	±200	70-83	±680µF
RKZ-xx12D*	(H)	5, 12, 24	±12	±84	82-84	±220µF
RKZ-xx15D*	(H)	5, 12, 24	±15	±66	82-88	±220µF
RKZ-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. RKZ-0515D/P,

* add Suffix „H" for 4kV Isolation, e.g. RKZ-0515D/HP has 4kV Isolation and is Short Circuit Protected.

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	low line to high line @ 100% load	1.2%/1% of V_{in} typ.
Load Voltage Regulation	5V type	15% max.
(10% to 100% load)	Other types, RKZ-xx1509D	10% max.
Output Ripple and Noise	20MHz limited	150mVp-p max.
Operating Frequency	20kHz min. / 50kHz typ. / 85kHz max.	
	RKZ-xx1509D	20kHz min. / 51kHz 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
	H-Suffix (rated for 1 minute**)	2000VAC / 60Hz
Isolation Capacitance	120pF max.	
Isolation Resistance	10 GΩ min.	
Short Circuit Protection	only with „P"-Suffix	continuous
Operating Temperature Range (free air convection, without derating)	-40°C to +85°C (see Graph)	
Storage Temperature Range	-55°C to +125°C	
Relative Humidity	5% - 95% RH	
Package Weight	2.8g	
Material	Case	UL94V-0, black plastic
	Potting	UL94V-0, Epoxy
Packing Quantity	25 pcs per Tube	
MTBF (+25°C)	Detailed Information see Application Notes chapter "MTBF"	using MIL-HDBK 217F 18300 x 10 ³ hours
(+85°C)		using MIL-HDBK 217F 8070 x 10 ³ hours

continued on next page

ECONOLINE

DC/DC-Converter

with 3 year Warranty

RECOM

2 Watt

SIP7

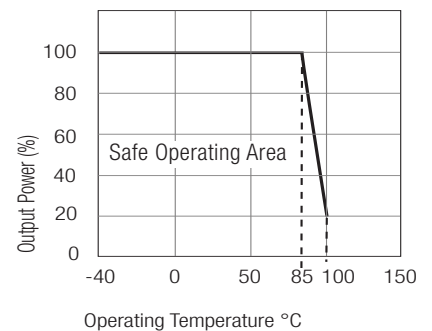
Single & Dual Output



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

RKZ

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)

Certifications

EN General Safety

Report: SPCLVD1109103

EN60950-1:2006 + A12:2011

EN Medical safety

Report: SPCMDD1205098-4

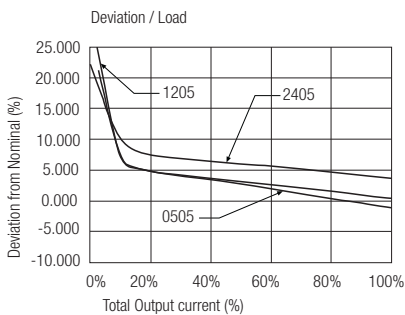
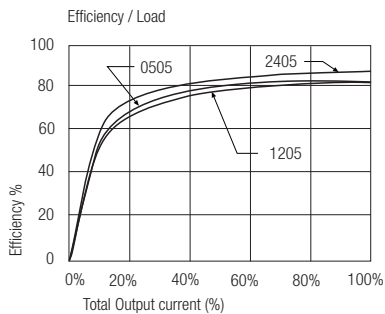
IEC/EN 60601-1:2006, 3rd Edition

Notes

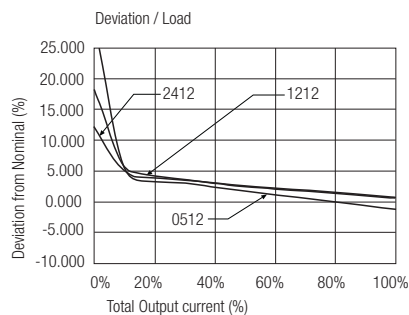
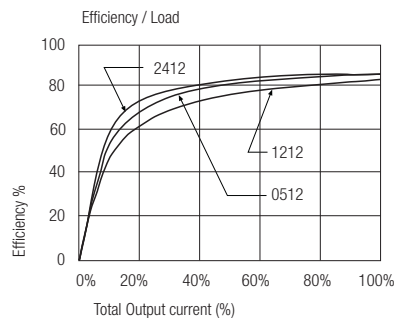
Note 1 Maximum capacitive load is defined as the capacitive load that will allow start up in under 1 second without damage to the converter.

Typical Characteristics

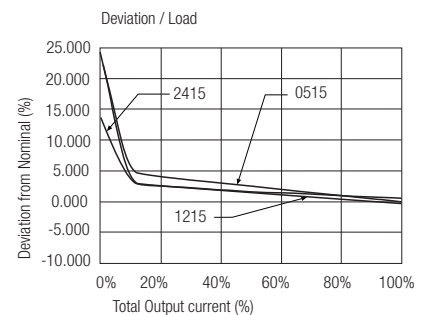
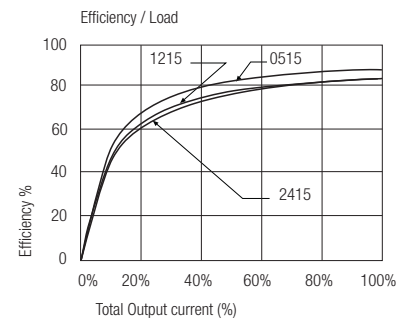
RKZ-xx05S



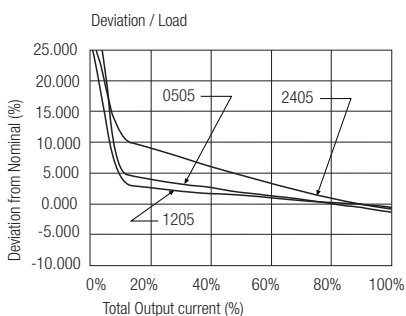
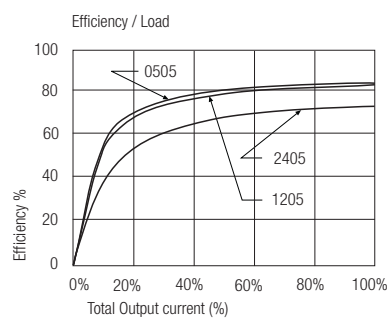
RKZ-xx12S



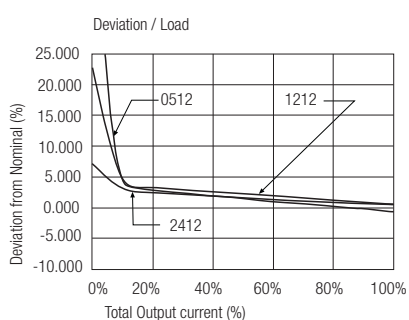
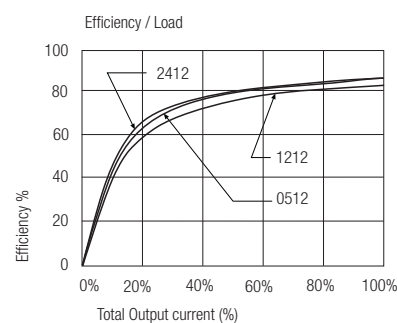
RKZ-xx15S



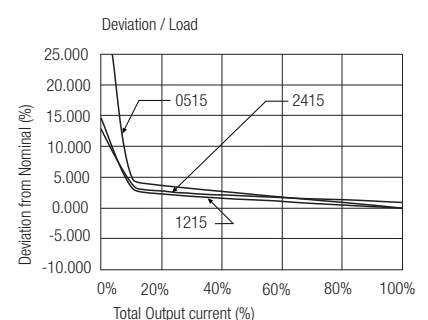
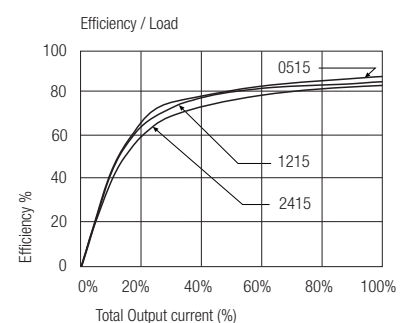
RKZ-xx05D



RKZ-xx12D

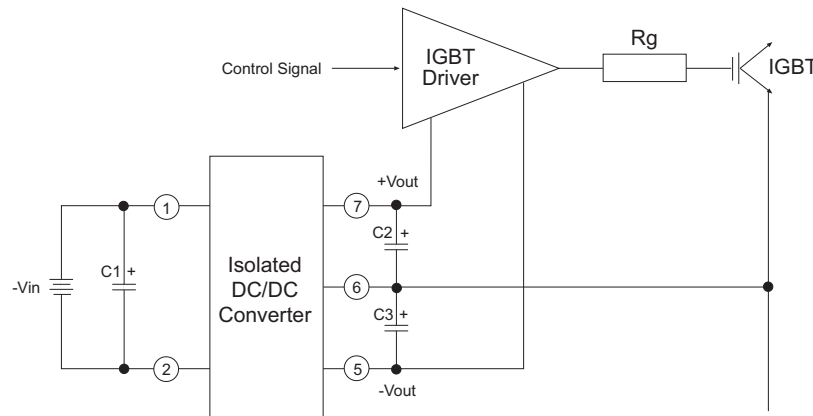


RKZ-xx15D

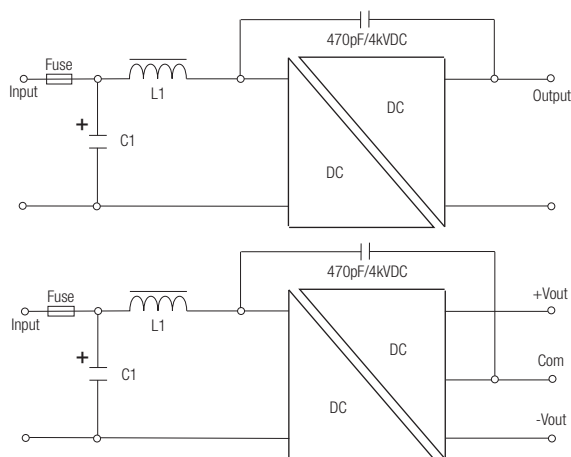


Application

IGBT Application Circuit



EMC Filter Suggestion for EN55022 Class B



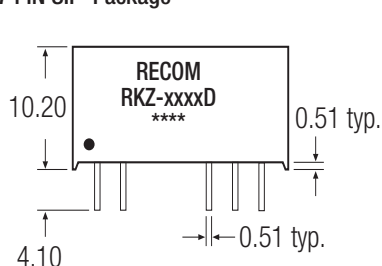
Standard and /H versions

C1	L1	Vin
10μF	4.7μH	5V
4.7μF	22μH	12V
2.2μF	47μH	24V

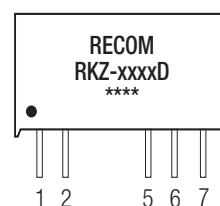
C1 = MLCC
L1 = SMD Inductor

Package Style and Pinning (mm)

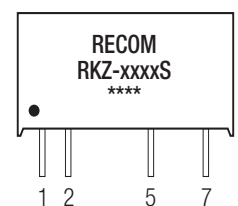
7 PIN SIP Package



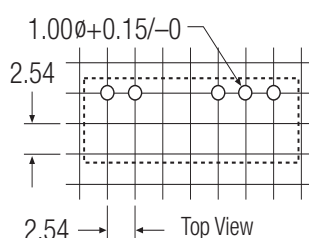
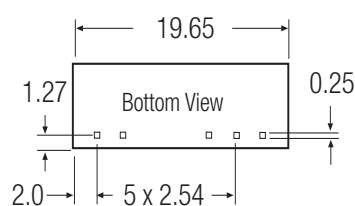
Dual Output



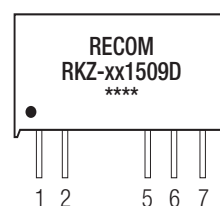
Single Output



Recommended Footprint Details



+15/-9 Output



Pin Connections

Pin #	Single	Dual
1	+Vin	+Vin
2	-Vin	-Vin
5	-Vout	-Vout
6	No Pin	Com
7	+Vout	+Vout

NC = No Connection

XX.X ± 0.5 mm

XX.XX ± 0.25 mm

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