Features

Unregulated Converter

- 3kVDC or 4kVDC Isolation
- Optional Continuous Short Circuit Protected
- Custom Solutions Available
- UL94V-0 Package Material
- Efficiency to 84 %
- Suitable for IGBT Applications

Description

The RK and RH Series DC/DC-Converter complements Recom's industrial range of converters with very high isolations of 3KV and 4kVDC. The extended operating temperature range covering –40°C to +90°C is a standard feature. The converters are EN-60601-1 certified, making them suitable for medical as well as IGBT driver applications.

Selection Guide

Part Number SIP 7	(4kV)	Input Voltage (VDC)	Output Voltage (VDC)	Output Current (mA)	Efficiency (%)	Max Capacitive Load[1]
RK-xx05S*	(H)	5, 12, 15, 24	5	200	70-78	1000µF
RK-xx09S*	(H)	5, 12, 15, 24	9	111	70-80	1000µF
RK-xx12S*	(H)	5, 12, 15, 24	12	84	78-82	470µF
RK-xx15S*	(H)	5, 12, 15, 24	15	66	80-82	470µF
RH-xx05D*	(H)	5, 12, 15, 24	±5	±100	74-78	±470µF
RH-xx09D*	(H)	5, 12, 15, 24	±9	±56	76-79	±470µF
RH-xx12D*	(H)	5, 12, 15, 24	±12	±42	78-84	±220µF
RH-xx15D*	(H)	5, 12, 15, 24	±15	±33	80-84	±220µF
RH-xx1509D*	(H)	5, 12, 24	+15/-9	+33/-56	70-81	+220/-470µF

xx = Input Voltage. Other input and output voltage combinations available on request.
* add Suffix "P" for Continuous Short Circuit Protection, e.g. RK-0505S/P, RK-0505S/HP

Specifications (measured at T_A = 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		5V output type	15% max.
(10% to 100% full load)		9V, 12V, 15V, 24V output types	10% max.
		RH-xx1509D	10% max.
Output Ripple and Noise (20MHz limited)		Single output types	100mVp-p max.
		Dual output types	±75mVp-p max.
Operating Frequency		RK types	50kHz min. / 100kHz typ. / 105kHz max.
		RH types	57kHz min. / 100kHz typ. / 105kHz max.
		RK-xx1509D	50kHz min. / 88kHz 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		RK types	20pF min. / 75pF max.
		RH types	20pF min. / 65pF max.
Isolation Resistance			15 GΩ min.
Short Circuit Protection			1 Second
P-Suffix			Continuous
Operating Temperature Range (free air convection, without derating)			-40°C to +90°C (see Graph)
Storage Temperature Range			-55°C to +125°C
Relative Humidity			95% RH

continued on next page

ECONOLINE

DC/DC-Converter

with 3 year Warranty

RECOM

1 Watt SIP7 Single & Dual Output

RoHS 2011/65/EU 6/6

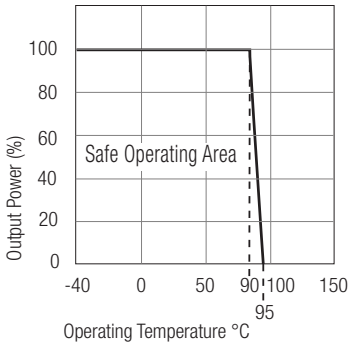
E-358085

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

RK_RH

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°C, nominal input voltage, full load and after warm-up)

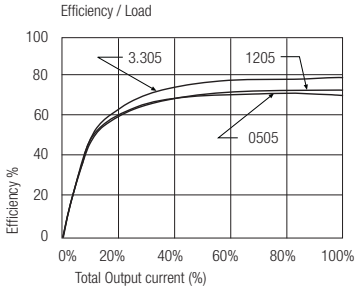
Package Weight		2.6g
H-Suffix		2.8g
Packing Quantity		25 pcs per Tube
MTBF (+25°C) *Detailed Information see Application Notes chapter "MTBF"*	RK types	992 x 10^3 hours
	RH types	1012 x 10^3 hours
(+85°C)	RK types	145 x 10^3 hours
using MIL-HDBK 217F	RH types	151 x 10^3 hours

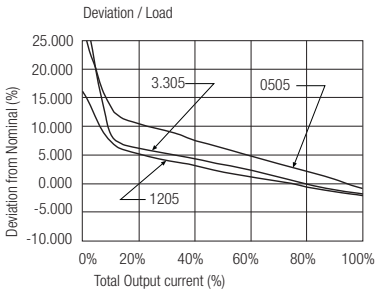
Certifications

EN General Safety	Report: SPCLVD1109103	EN60950-1: 2006 + A12:2011
EN Medical Safety	Report: SPCMDD1205098-4	IEC/EN 60601-1: 2006, 3rd Edition
UL General Safety	Report: E358085	UL60950-1, 2nd Edtition

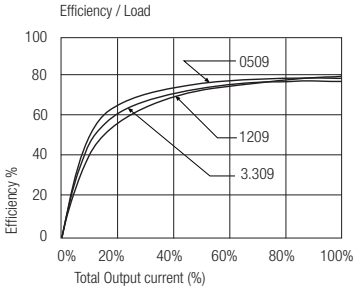
Typical Characteristics

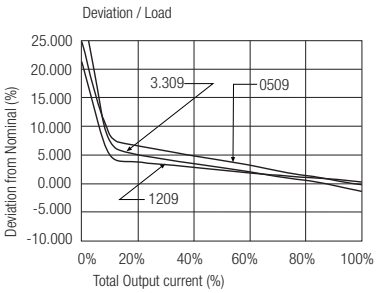
RK-xx05S



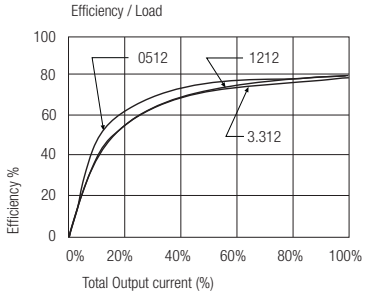


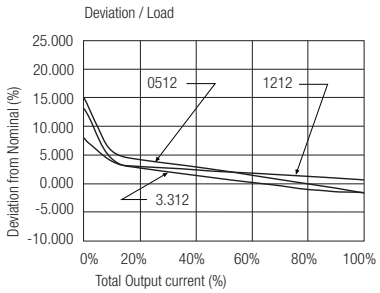
RK-xx09S



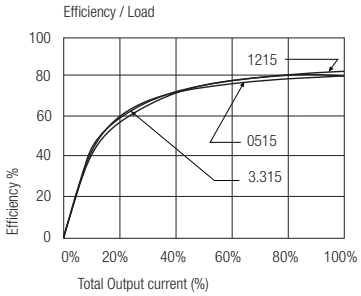


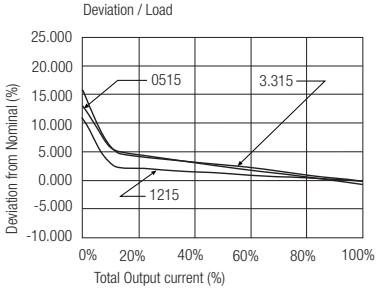
RK-xx12S



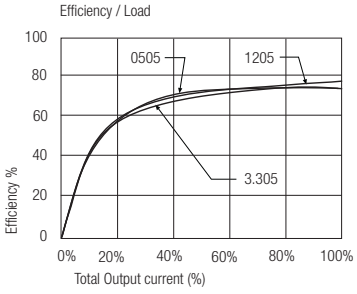


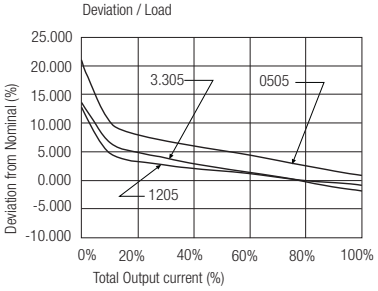
RK-xx15S



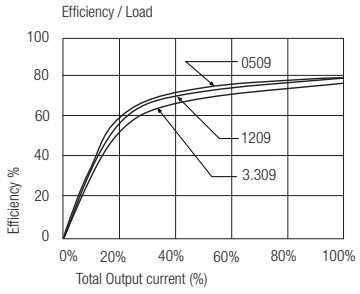


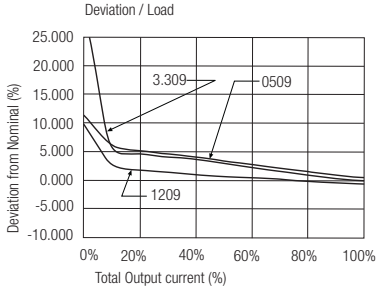
RH-xx05D





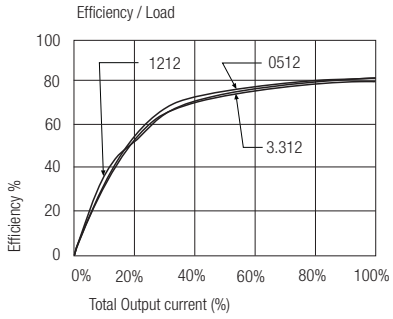
RH-xx09D

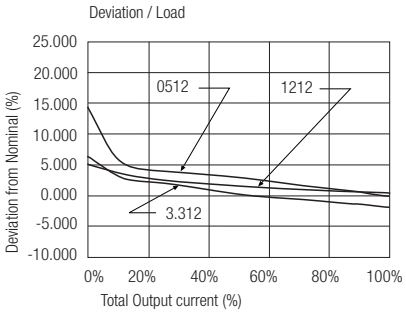




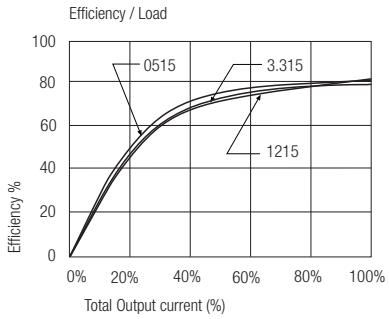
Typical Characteristics

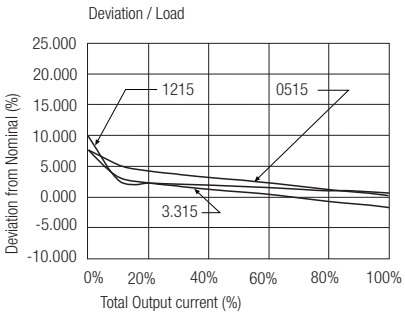
RH-xx12D



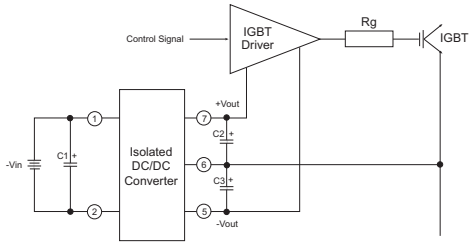


RH-xx15D





IGBT Application Circuit

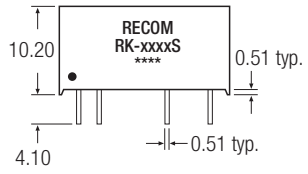


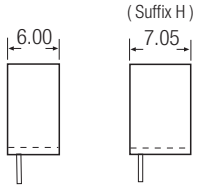
Notes

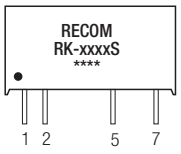
Note 1 Maximum capacitive load is defined as the capacitive load that will allow start up in under 1 second without damage to the converter.

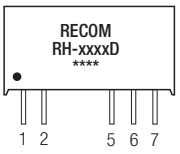
Package Style and Pinning (mm)

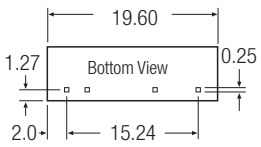
7 PIN SIP Package



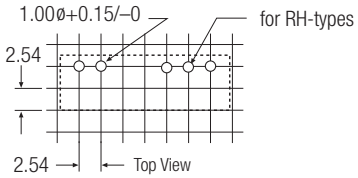


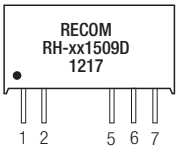


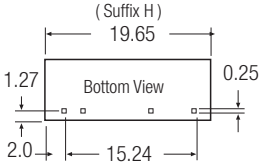




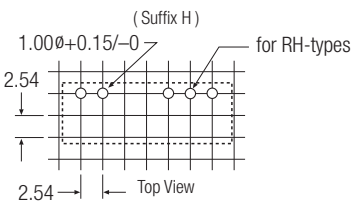
Recommended Footprint Details







Recommended Footprint Details



Pin Connections RK-xxxxS	
Pin #	**Single**
1	+Vin
2	–Vin
5	–Vout
7	+Vout

Pin Connections RH-xxxxD	
Pin #	**Dual**
1	+Vin
2	–Vin
5	–Vout
6	Com
7	+Vout

XX.X ± 0.5 mm
XX.XX ± 0.25 mm