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
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

ECONOLINE

DC/DC-Converter

with 3 year Warranty

RECOM

1 Watt SIP7 Single & Dual Output

RoHS 2011/65/EU 6/6

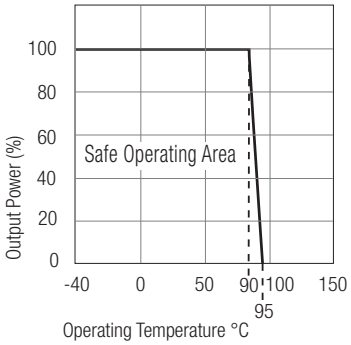
E-358085

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

RK_RH

Derating-Graph

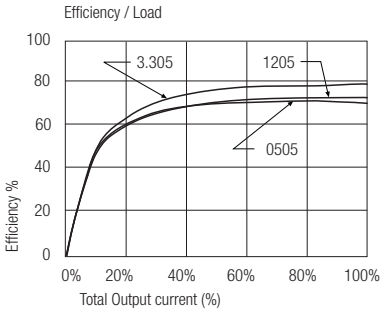
(Ambient Temperature)

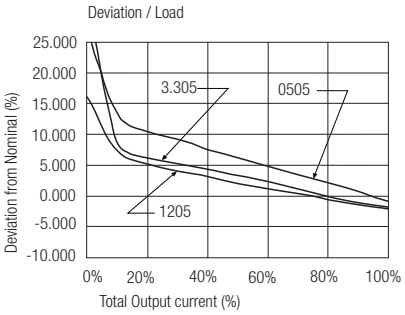


Refer to Application Notes

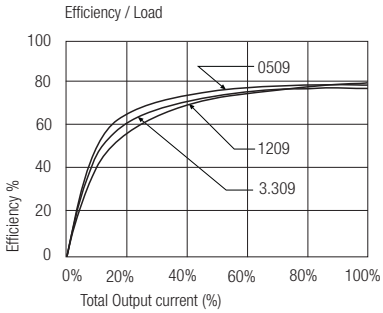
Typical Characteristics

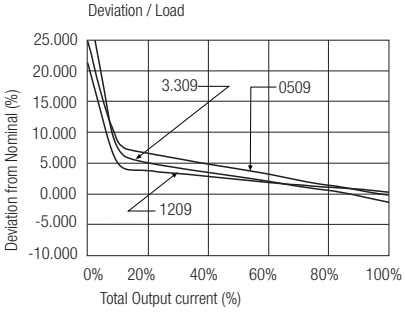
RK-xx05S



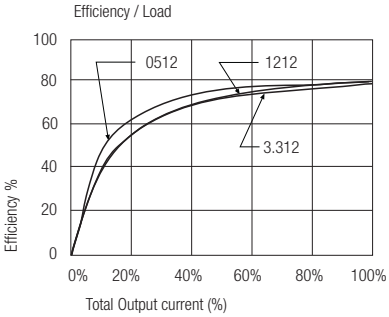


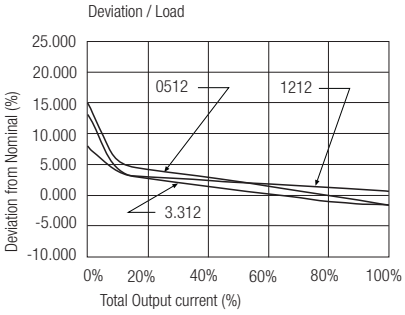
RK-xx09S



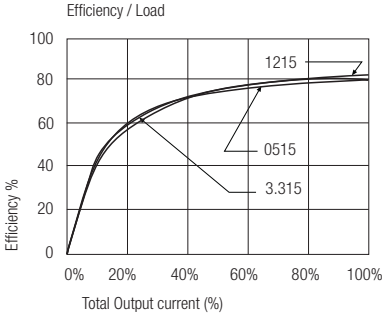


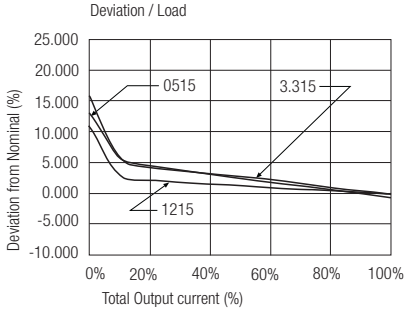
RK-xx12S



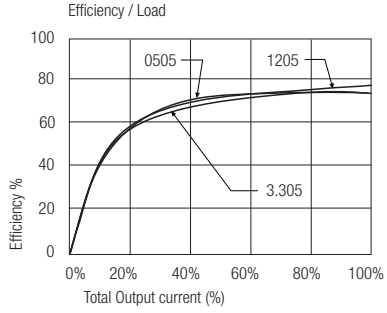


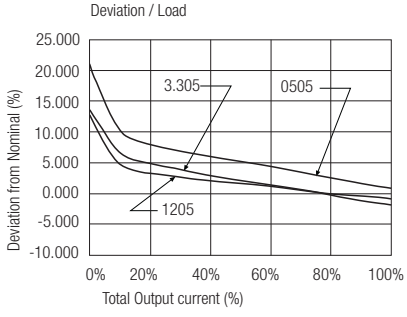
RK-xx15S



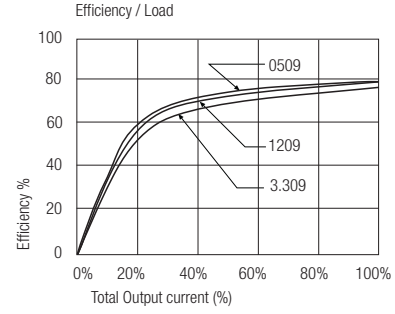


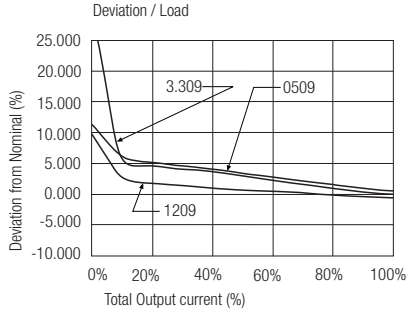
RH-xx05D





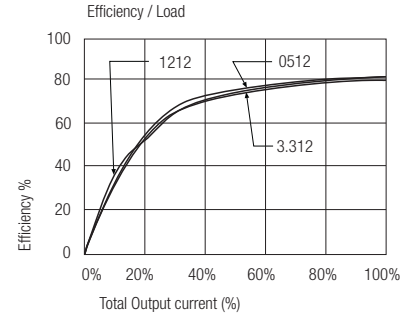
RH-xx09D

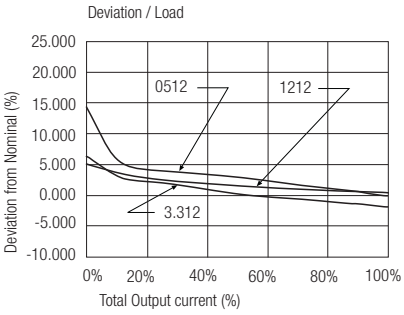




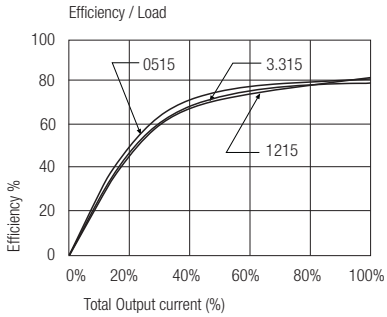
Typical Characteristics

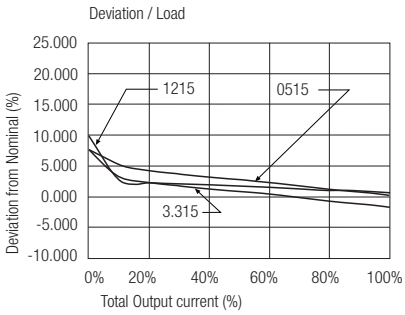
RH-xx12D



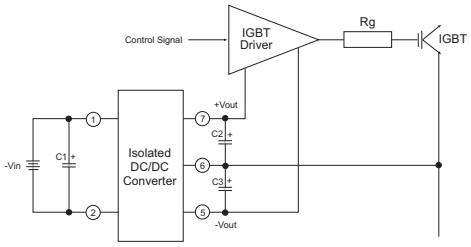


RH-xx15D





IGBT Application Circuit



Notes

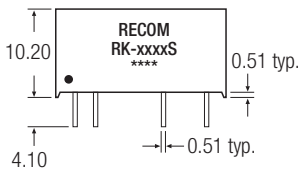
Note 1	Maximum capacitive load is defined as the capacitive load that will allow start up in under 1 second without damage to the converter.	

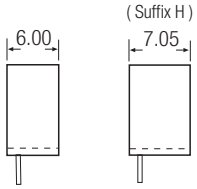
Certifications

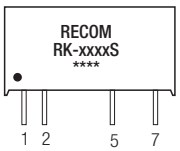
EN General Safety	Report: SPCLVD1109103	EN60950-1: 2006 + A12:2011
EN Medical Safety	Report: SPCMDD1205098-4	IEC/EN 60601-1: 2006, 3rd Edition
UL General Safety	Report: E358085	UL60950-1, 2nd Edtition

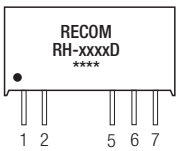
Package Style and Pinning (mm)

7 PIN SIP Package

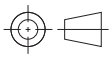


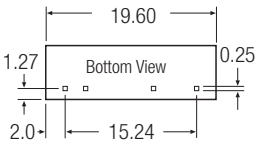




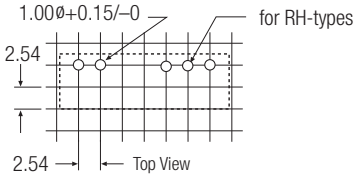


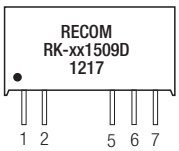
3rd angle projection





Recommended Footprint Details



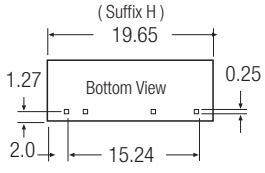


Pin Connections RK-xxxxS

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



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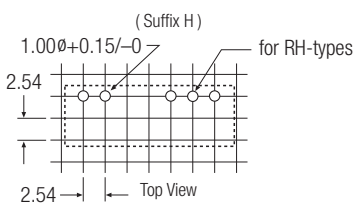

XX.X ± 0.5 mm
XX.XX ± 0.25 mm