

Features

Unregulated Converters

Rev.0

- Safety standards and approval: EN 60950 certified, rated for 250VAC
- Optional Continuous Short Circuit Protected
- 3kVDC & 4kVDC Isolation
- Custom Solutions Available
- UL94V-0 Package Material
- Efficiency to 84 %

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 $+85^{\circ}\text{C}$ is a standard feature. The converters are EN-60601-1 certified, making them suitable for medical applications.

Selection Guide

Part Number	Input Voltage (VDC)	Output Voltage (VDC)	Output Current (mA)	Efficiency (%)
SIP 7 (4kV)				
RK-xx05S (H)	5, 12, 15, 24	5	200	70-78
RK-xx09S (H)	5, 12, 15, 24	9	111	70-80
RK-xx12S (H)	5, 12, 15, 24	12	84	78-82
RK-xx15S (H)	5, 12, 15, 24	15	66	80-82
RH-xx05D (H)	5, 12, 15, 24	± 5	± 100	74-78
RH-xx09D (H)	5, 12, 15, 24	± 9	± 56	76-79
RH-xx12D (H)	5, 12, 15, 24	± 12	± 42	78-84
RH-xx15D (H)	5, 12, 15, 24	± 15	± 33	80-84

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

Input Voltage Range			$\pm 10\%$
Output Voltage Accuracy			$\pm 5\%$
Line Voltage Regulation			1.2%/1% of V_{in} typ.
Load Voltage Regulation (10% to 100% full load)	1.8V, 3.3V output types	20% max.	
	5V output type	15% max.	
	9V, 12V, 15V, 24V output types	10% max.	
Output Ripple and Noise (20MHz limited)	Single output types	100mVp-p max.	
	Dual output types	$\pm 75\text{mVp-p}$ max.	
Operating Frequency	RK types	50kHz min. / 100kHz typ. / 105kHz max.	
	RH types	57kHz min. / 100kHz typ. / 105kHz max.	
Efficiency at Full Load			70% min. / 80% typ.
No Load Power Consumption	RK types	101mW min. / 126mW typ. / 238mW max.	
	RH types	87mW min. / 130mW typ. / 228mW max.	
Maximum Capacitive Load			33 μF / $\pm 10\mu\text{F}$
Isolation Voltage	(tested for 1 second)	3000VDC min.	
Rated Working Voltage	(long term isolation)	see Application Notes	
Isolation Voltage	H-Suffix (tested for 1 second)	4000VDC min.	
Rated Working Voltage	H-Suffix (long term isolation)	see Application Notes	
Isolation Capacitance	RK types	20pF min. / 75pF max.	
	RH types	20pF min. / 65pF max.	
Isolation Resistance			15 $\text{G}\Omega$ min.
Short Circuit Protection			1 Second
P-Suffix			Continuous
Operating Temperature Range (free air convection)			-40°C to $+85^{\circ}\text{C}$ (see Graph)
Storage Temperature Range			-55°C to $+125^{\circ}\text{C}$
Relative Humidity			95% RH
Package Weight			2.6g
H-Suffix			2.8g
MTBF (+25 $^{\circ}\text{C}$)	} Detailed Information see Application Notes chapter "MTBF"	RK types	992 x 10 ³ hours
		RH types	1012 x 10 ³ hours
		RK types	145 x 10 ³ hours
		RH types	151 x 10 ³ hours
(+85 $^{\circ}\text{C}$)		using MIL-HDBK 217F	

ECONOLINE

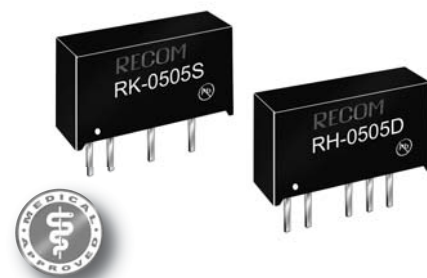
DC/DC-Converter

RK & RH Series

1 Watt

SIP7

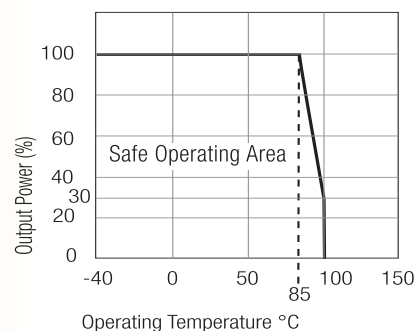
Single & Dual Output



EN-60950-1 Certified
EN-60601-1 Certified

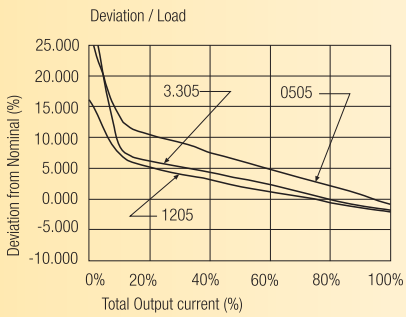
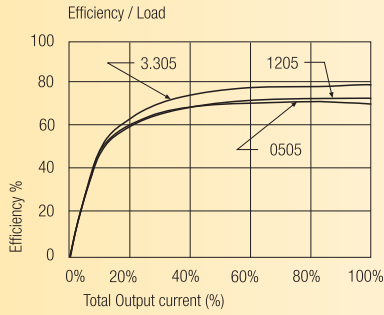
RECOM

Derating-Graph (Ambient Temperature)

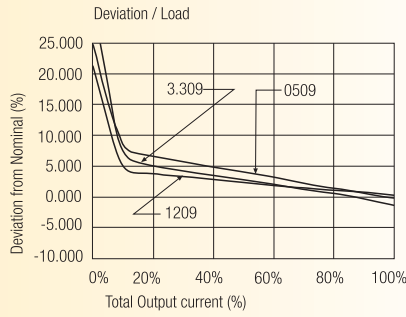
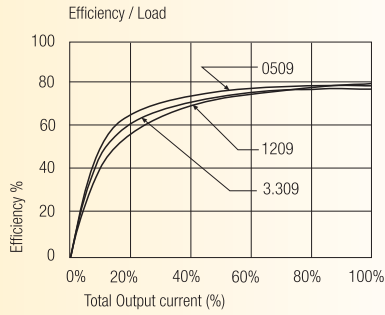


Typical Characteristics

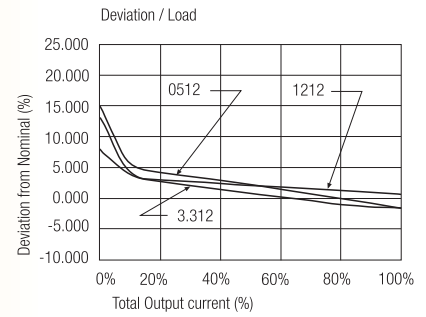
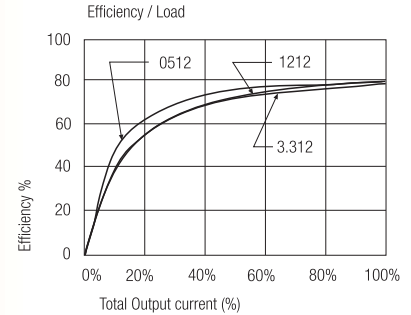
RK-xx05S



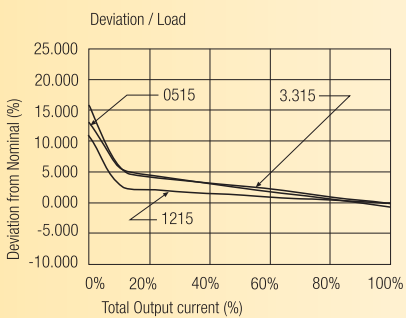
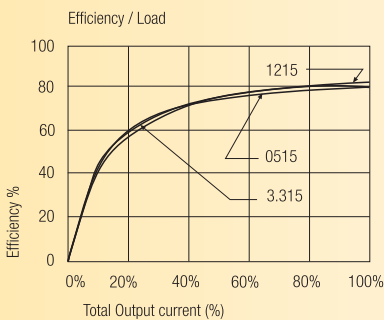
RK-xx09S



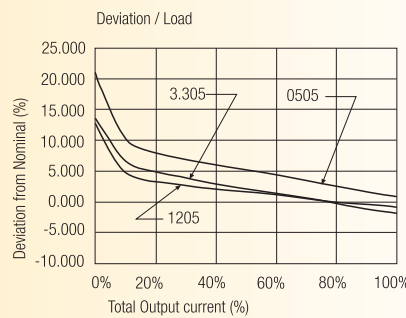
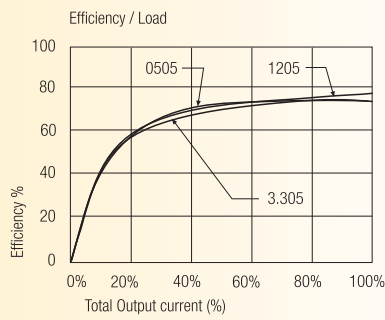
RK-xx12S



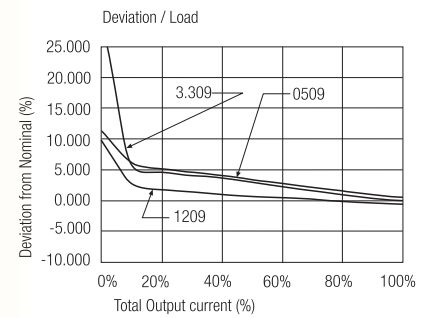
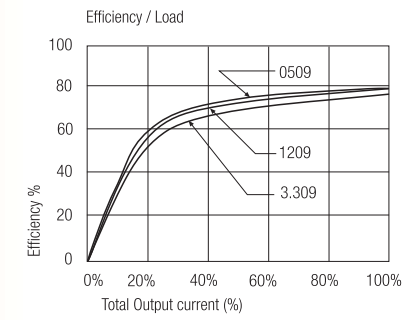
RK-xx15S



RH-xx05D

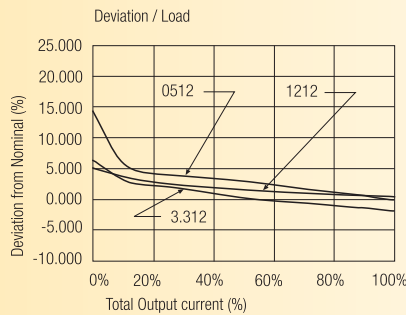
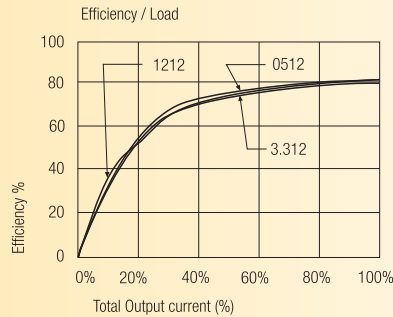


RH-xx09D

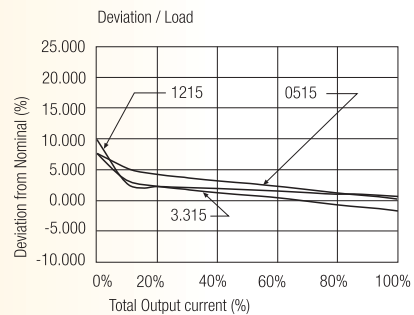
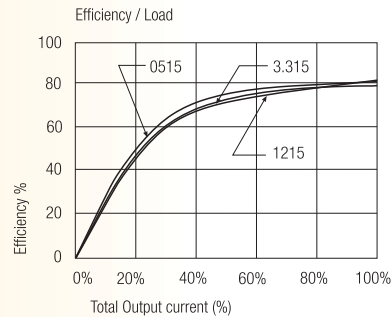


Typical Characteristics

RH-xx12D

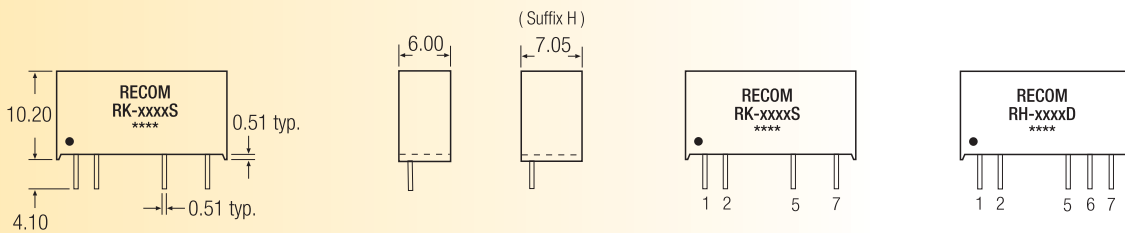


RH-xx15D

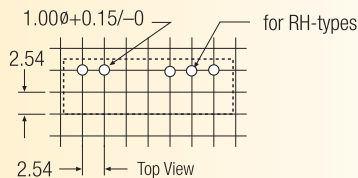
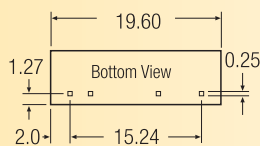


Package Style and Pinning (mm)

7 PIN SIP Package



Recommended Footprint Details



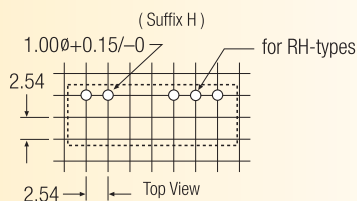
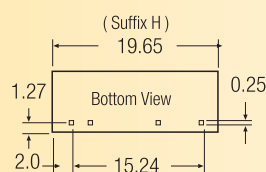
**Pin Connections
RK-xxxxS**

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

Recommended Footprint Details



XX.X ± 0.5 mm
XX.XX ± 0.25 mm