

Features

Unregulated Converter

- 3kVDC & 4kVDC Isolation
- Optional Continuous Short Circuit Protected
- 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 5V output type 9V, 12V, 15V, 24V output types	20% max. 15% max. 10% max.
Output Ripple and Noise (20MHz limited)	Single output types Dual output types	100mVp-p max. $\pm 75\text{mVp-p}$ max.
Operating Frequency	RK types RH types	50kHz min. / 100kHz typ. / 105kHz max. 57kHz min. / 100kHz typ. / 105kHz max.
Efficiency at Full Load		70% min. / 80% typ.
No Load Power Consumption	RK types RH types	101mW min. / 126mW typ. / 238mW max. 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 RH types	20pF min. / 75pF max. 20pF min. / 65pF max.
Isolation Resistance		15 G Ω 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 ($+25^{\circ}\text{C}$)	RK types	992×10^3 hours
Detailed Information see Application Notes chapter "MTBF" using MIL-HDBK 217F	RH types	1012×10^3 hours
	RK types	145×10^3 hours
	RH types	151×10^3 hours

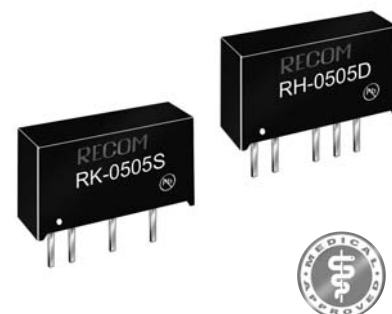
ECONOLINE
DC/DC-Converter

RECOM

1 Watt

SIP7

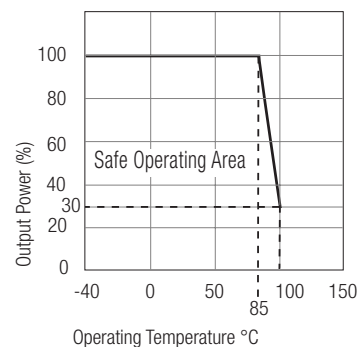
Single & Dual Output



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

RK & RH

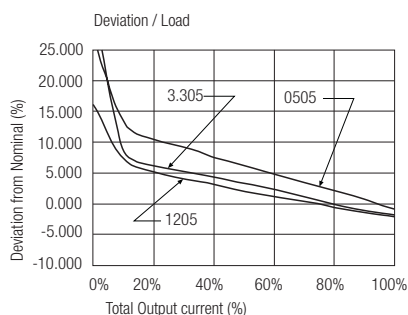
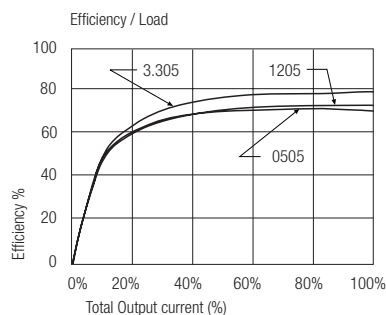
Derating-Graph (Ambient Temperature)



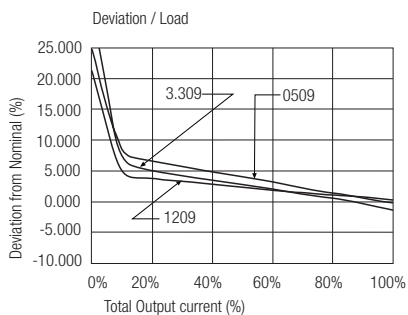
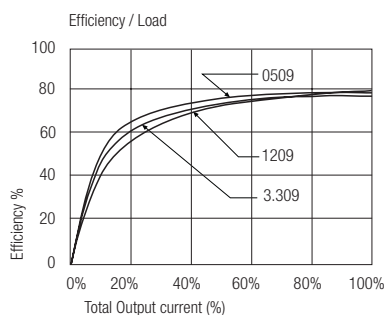
Refer to Application Notes

Typical Characteristics

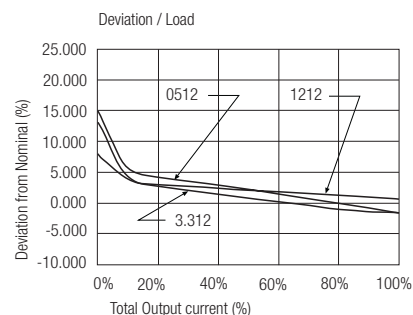
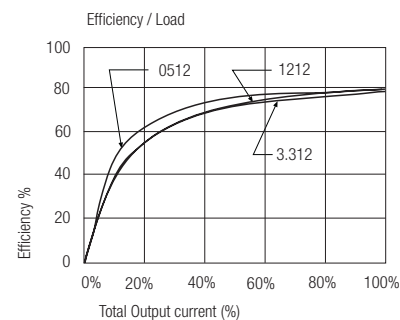
RK-xx05S



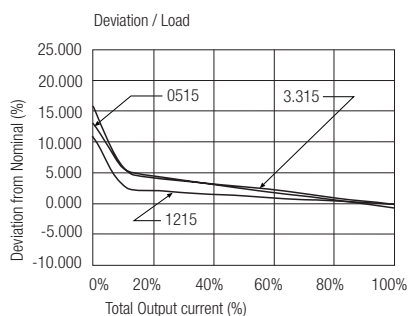
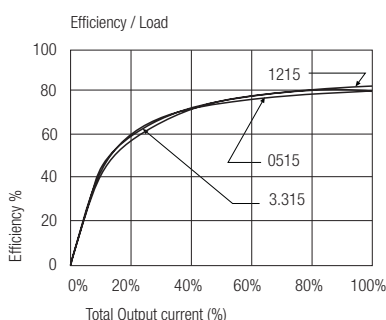
RK-xx09S



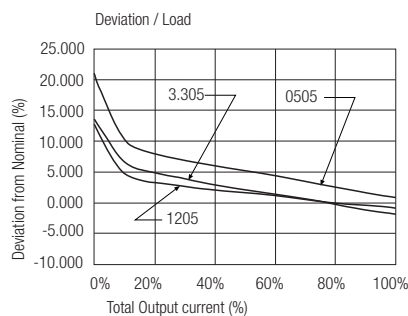
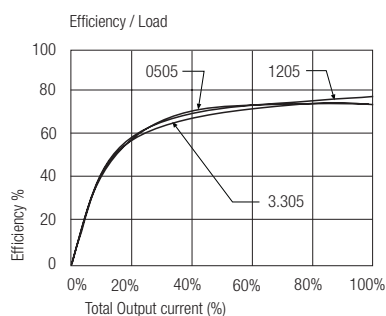
RK-xx12S



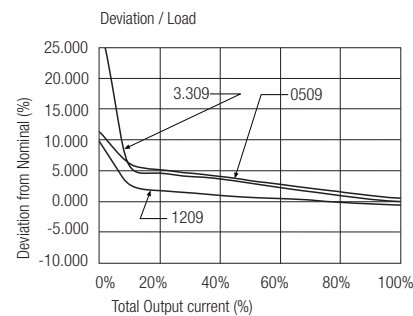
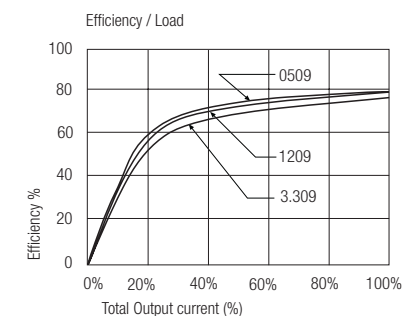
RK-xx15S



RH-xx05D

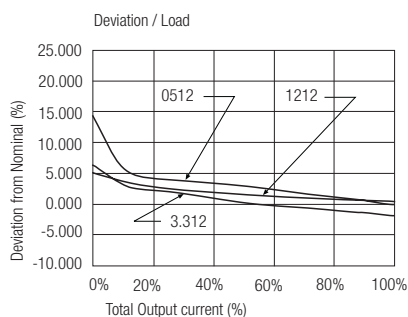
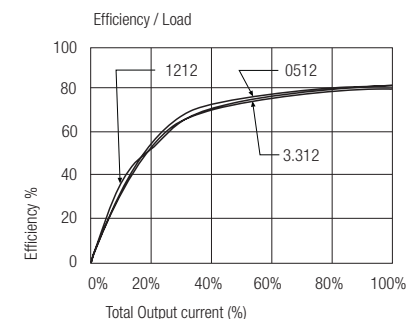


RH-xx09D

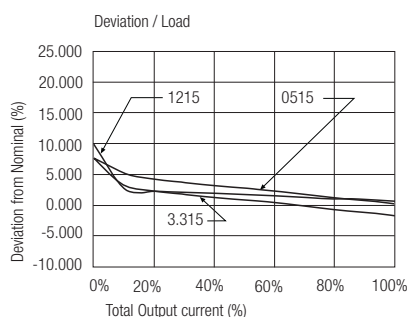
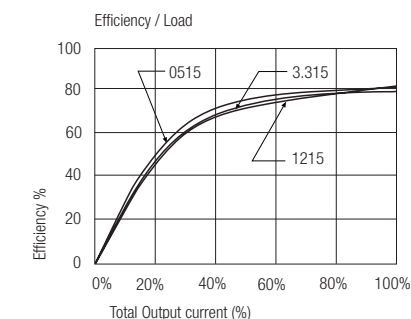


Typical Characteristics

RH-xx12D

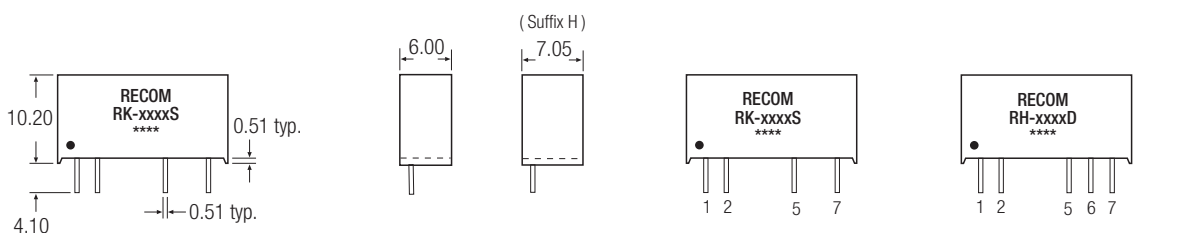


RH-xx15D

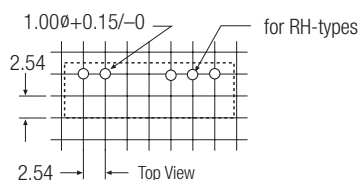
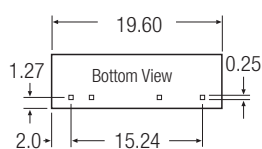


Package Style and Pinning (mm)

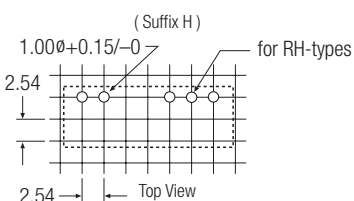
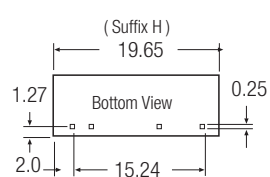
7 PIN SIP Package



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