Features

Unregulated Converters

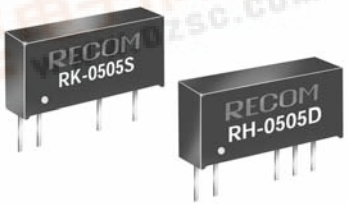
- Safety standards and approval: EN 60950 certified, rated for 250VAC (LVD test report)
- Optional Continuous Short Circuit Protected
- 3kVDC & 4kVDC Isolation
- Custom Solutions Available
- UL94V-0 Package Material
- Efficiency to 84%

ECONOLINE

DC/DC-Converter

RK & RH Series

1 Watt SIP7 Single & Dual Output



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

RECOM

Selection Guide

Part Number		Input Voltage	Output Voltage	Output Current	Efficiency
SIP 7	(4kV)	(VDC)	(VDC)	(mA)	(%)
RK-xx1.8S	(H)	1.8, 3.3, 5, 9, 12, 15, 24	1.8	555	70
RK-xx3.3S	(H)	1.8, 3.3, 5, 9, 12, 15, 24	3.3	303	75
RK-xx05S	(H)	1.8, 3.3, 5, 9, 12, 15, 24	5	200	70-78
RK-xx09S	(H)	1.8, 3.3, 5, 9, 12, 15, 24	9	111	70-80
RK-xx12S	(H)	1.8, 3.3, 5, 9, 12, 15, 24	12	84	78-82
RK-xx15S	(H)	1.8, 3.3, 5, 9, 12, 15, 24	15	66	80-82
RK-xx24S	(H)	1.8, 3.3, 5, 9, 12, 15, 24	24	42	74-83
RH-xx1.8D	(H)	1.8, 3.3, 5, 9, 12, 15, 24	±1.8	±278	70
RH-xx3.3D	(H)	1.8, 3.3, 5, 9, 12, 15, 24	±3.3	±152	70
RH-xx05D	(H)	1.8, 3.3, 5, 9, 12, 15, 24	±5	±100	74-78
RH-xx09D	(H)	1.8, 3.3, 5, 9, 12, 15, 24	±9	±56	76-79
RH-xx12D	(H)	1.8, 3.3, 5, 9, 12, 15, 24	±12	±42	78-84
RH-xx15D	(H)	1.8, 3.3, 5, 9, 12, 15, 24	±15	±33	80-84
RH-xx24D	(H)	1.8, 3.3, 5, 9, 12, 15, 24	±24	±21	80-84

xx = Input Voltage

* add Suffix "P" for Continuous Short Circuit Protection, e.g. RK-0505S/P, RK-0505S/HP

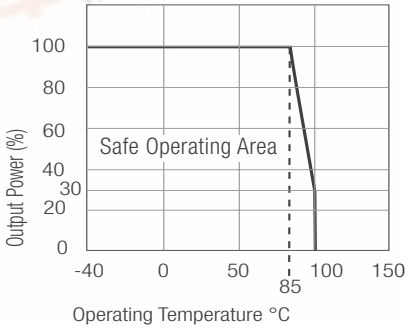
Specifications (Core Operating Area)

Input Voltage Range			±10%
Output Voltage Accuracy			±5%
Line Voltage Regulation			1.2%/1% of Vin 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	±75mVp-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.
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 GΩ min.
Short Circuit Protection			1 Second
P-Suffix			Continuous
Operating Temperature Range (free air convection)			-40°C to +85°C (see Graph)
Storage Temperature Range			-55°C to +125°C

continued on next page

Derating-Graph

(Ambient Temperature)



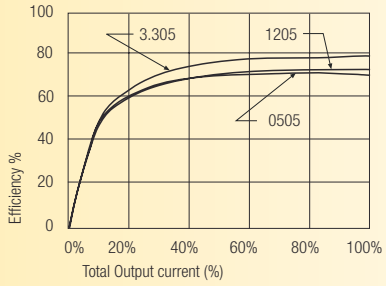
Specifications (Core Operating Area)

Relative Humidity			95% RH
Package Weight			2.6g
H-Suffix			2.8g
MTBF (+25°C)	using MIL-HDBK 217F	RK types	992 x 10^3 hours
	Detailed Information see Application Notes chapter "MTBF"	RH types	1012 x 10^3 hours
(+85°C)	using MIL-HDBK 217F	RK types	145 x 10^3 hours
		RH types	151 x 10^3 hours

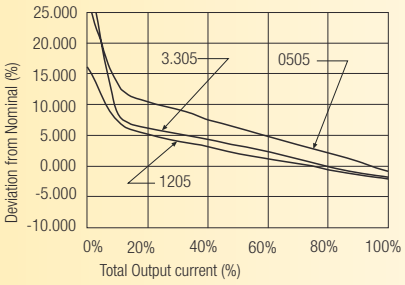
Typical Characteristics

RK-xx05S

Efficiency / Load

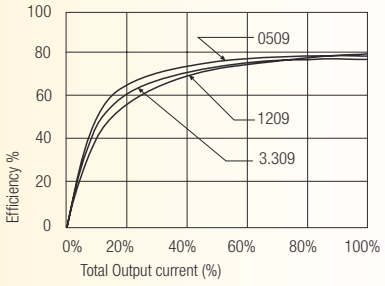


Deviation / Load

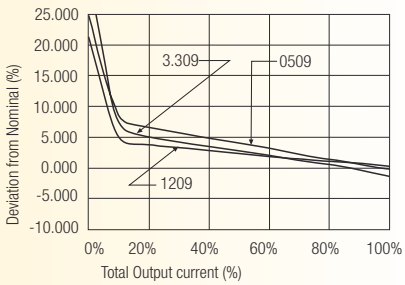


RK-xx09S

Efficiency / Load

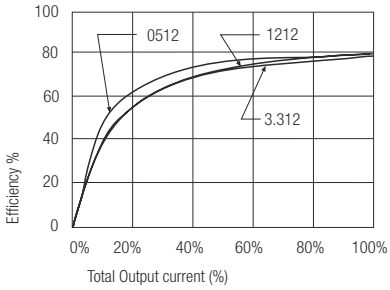


Deviation / Load

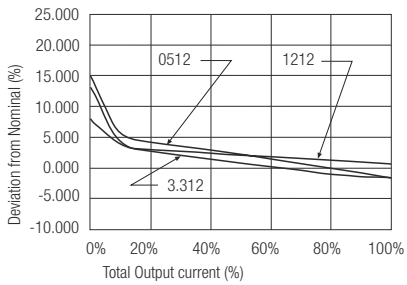


RK-xx12S

Efficiency / Load

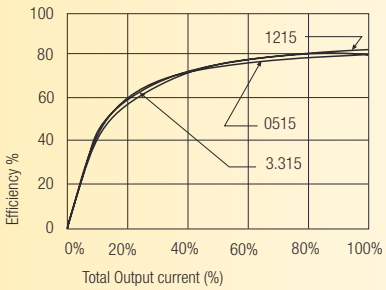


Deviation / Load

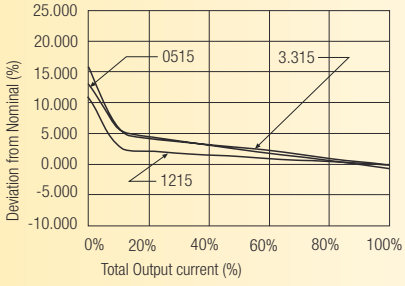


RK-xx15S

Efficiency / Load

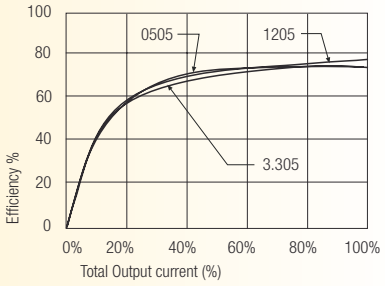


Deviation / Load

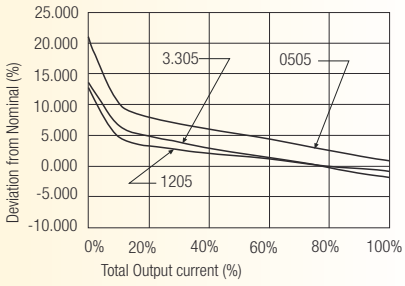


RH-xx05D

Efficiency / Load

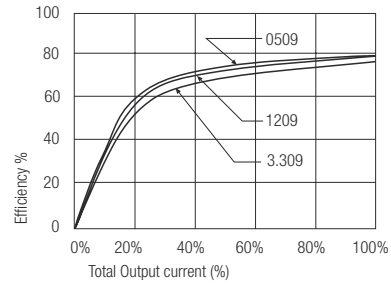


Deviation / Load

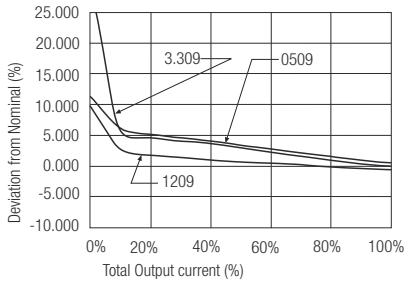


RH-xx09D

Efficiency / Load

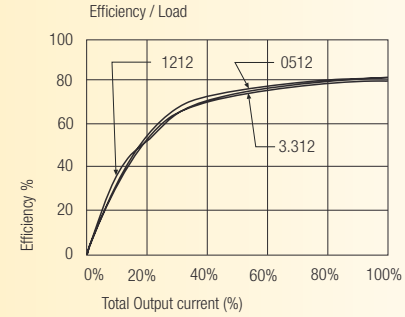


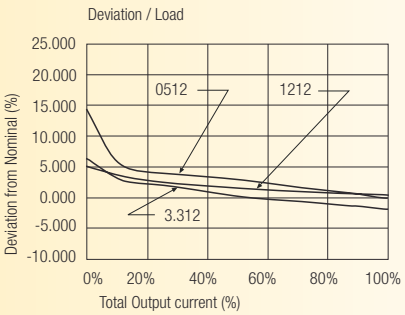
Deviation / Load



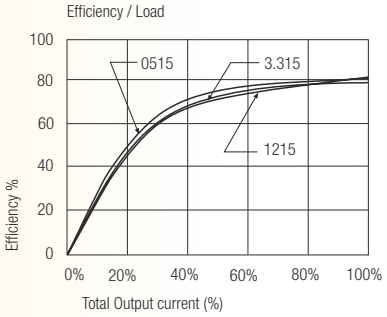
Typical Characteristics

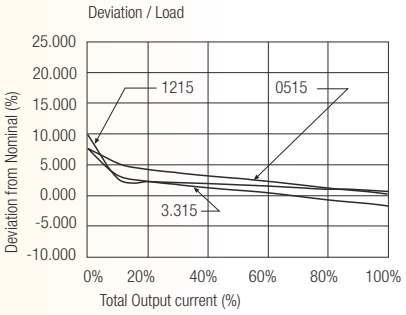
RH-xx12D





RH-xx15D

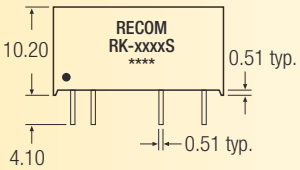


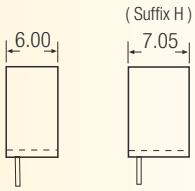


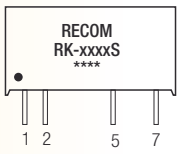
Package Style and Pinning (mm)

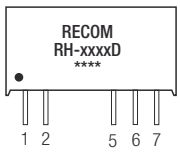
3rd angle projection

7 PIN SIP Package

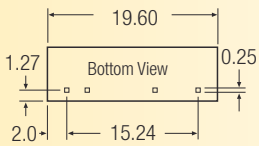


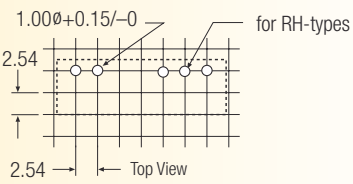






Recommended Footprint Details





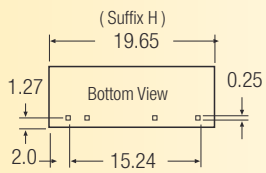
Pin Connections
RK-xxxxS

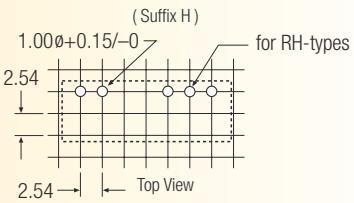
Pin #	Single
1	+Vin
2	–Vin
5	–Vout
7	+Vout

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