

Features

Unregulated Converters

- high 6.4kVDC Isolation
- wide Operating Temperature Range from -40°C to +90°C without derating
- high capacitive load capability
- Continuous Short Circuit Protection
- Built-in EN55022 Class A Filter
- Efficiency up to 80%

Description

The RK/H6 and RH/H6 series 1W DC/DC converters feature high 6.4kVDC isolation and an extended operating temperature range up to +90°C without derating, yet are lower cost than standard high isolation converters. They are suitable for demanding industrial and high isolation test and measurement applications.

Selection Guide

Part Number	Input Voltage Range (VDC)	Output Voltage (VDC)	Output Current (mA)	Efficiency typ. (%)	max. Capacitive Load ⁽¹⁾ (μF)
RK-xx3.3S/H6	5, 12, 15, 24	3.3	303	71-74	1000
RK-xx05S/H6	5, 12, 15, 24	5	200	74-77	1000
RK-xx12S/H6	5, 12, 15, 24	12	84	77-79	220
RK-xx15S/H6	5, 12, 15, 24	15	66	77-80	220
RH-xx3.3D/H6	5, 12, 15, 24	±3.3	±152	73-74	±330
RH-xx05D/H6	5, 12, 15, 24	±5	±100	74-77	±330
RH-xx12D/H6	5, 12, 15, 24	±12	±42	77-80	±100
RH-xx15D/H6	5, 12, 15, 24	±15	±33	78-80	±100

Notes:

Note1: Max. capacitive load is tested at nominal input voltage and full load.

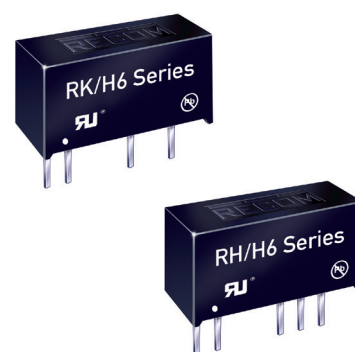
Specifications (measured at T_A= 25°C, nominal input voltage, full load and after warm up unless otherwise specified)

BASIC CHARACTERISTICS				
Parameter	Condition	Min.	Typ.	Max.
Input Voltage Range			±10%	
Start-up Time	V _{in} nominal, full load		20ms	
Operating Frequency	V _{in} nominal, full load		80kHz	
Minimum Load			0%	
Output Ripple and Noise	V _{in} nominal, 20MHz BW limited		60mVp-p	120mVp-p
continued on next page				

RECOM
DC/DC Converter

RK/H6 & RH/H6

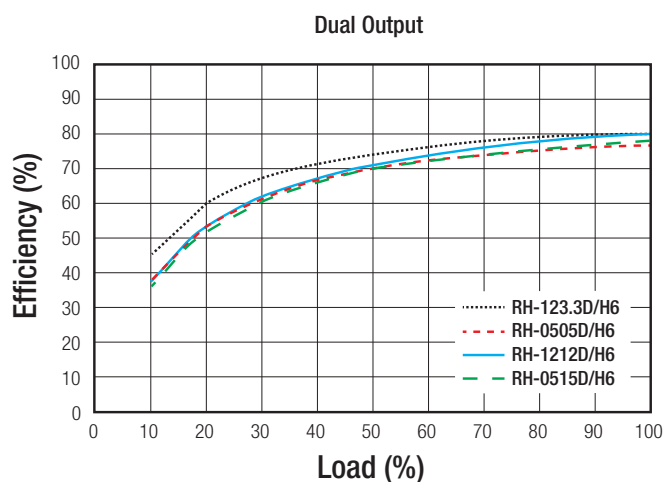
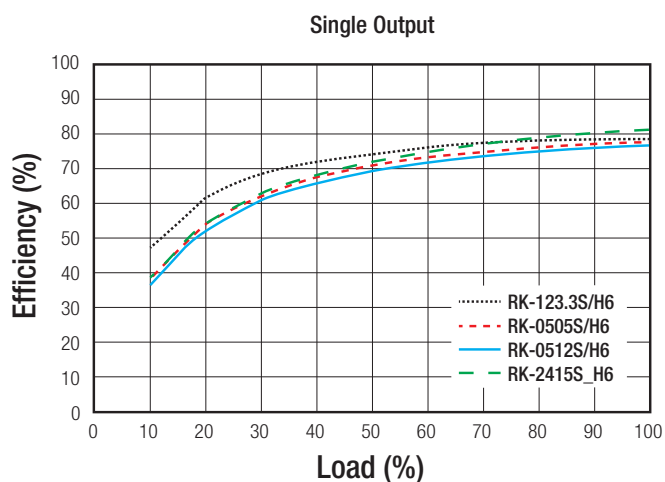
1 Watt
SIP7
Single and Dual
Output



UL60950-1 Certified
CSA C22.2 No. 60950-1-07 Certified
IEC60950-1 Certified
IEC62368-1 Certified

Specifications (measured at $T_A = 25^\circ\text{C}$, nominal input voltage, full load and after warm up unless otherwise specified)

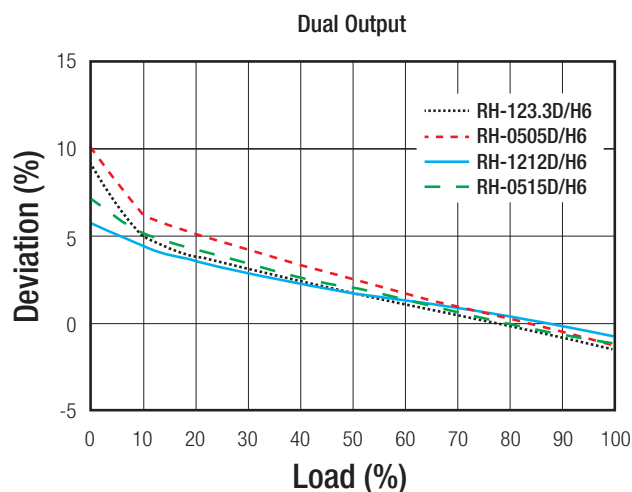
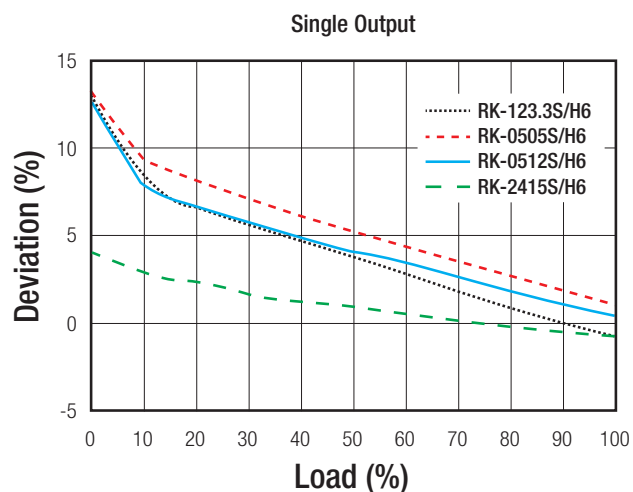
Efficiency vs. Load



REGULATIONS

Parameter	Condition	Values
Output Voltage Accuracy	full load, nom. V_{in}	$\pm 5\%$ max.
Line Voltage Regulation	low line to high line, max. load	$\pm 1.2\%$ / $1\%V_{in}$ typ.
Load Voltage Regulation	10% to 100% load	10% max.

Deviation vs. Load



PROTECTIONS

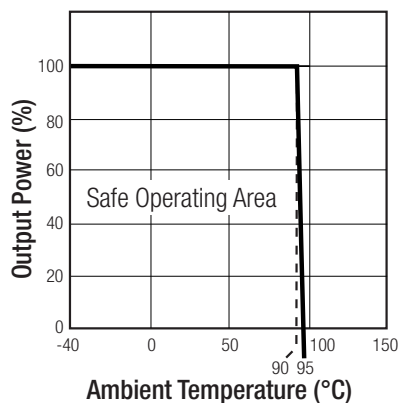
Parameter	Condition	Value
Input Filter		Internal Capacitor
Short Circuit Protection (SCP)		continuous
Isolation Voltage	I/P to O/P, tested I/P to O/P, rated	6.4kVDC / 1 Second 5.2kVDC / 1 Minute
Isolation Capacitance		75pF max.
Isolation Resistance		10G Ω min.

Specifications (measured at $T_A = 25^\circ\text{C}$, nominal input voltage, full load and after warm up unless otherwise specified)

ENVIRONMENTAL

Parameter	Condition	Value
Operating Temperature Range	free air convection, without derating (see graph)	-40°C to $+90^\circ\text{C}$
Operating Humidity	non-condensing	5% - 95% RH max. %
MTBF ($+25^\circ\text{C}$) ($+85^\circ\text{C}$)	according to MIL-HDBK-217F, full load	14919×10^3 hours 9468×10^3 hours

Derating Graph



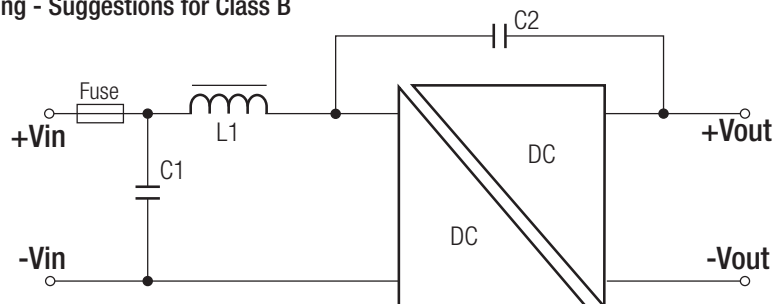
SAFETY AND CERTIFICATIONS

Certificate Type	Report / File Number	Standard
Information Technology Equipment, General Requirements for Safety	E224736-A25	UL60950-1, 2nd Edition, 2014
		CSA/CAN C22.2 No. 60950-1-07, 2nd Edition, 2014
Information Technology Equipment, General Requirements for Safety	E224736-A26-CB-1	IEC60950-1, 2nd Edition, 2013
Audio/video, information and communication technology equipment Part 1: safety requirements	OFF-4787079973-A-2	IEC62368-1, 2nd Edition, 2014

EMI Compliance

Condition	Standard / Criterion
Information technology equipment - Radio disturbance characteristics - Limits and methods of measurement	EN55022, Class A EN55022, Class B

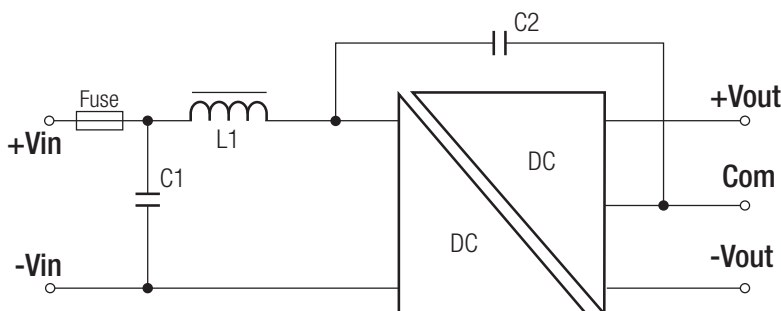
EMC Filtering - Suggestions for Class B



RK-xyyyS/H6 + RH-xyyyS/H6

C1	C2	L1	Vin
10 μF	470pF/8kVDC	10 μH	5V
4.7 μF	470pF/8kVDC	22 μH	12V
4.7 μF	470pF/8kVDC	22 μH	15V
10 μF	470pF/8kVDC	47 μH	24V

C1 = MLCC
L1 = SMD Inductor



Specifications (measured at T_A= 25°C, nominal input voltage, full load and after warm up unless otherwise specified)

DIMENSION and PHYSICAL CHARACTERISTICS		
Parameter	Type	Value
Material	Case Potting	non-conductive black plastic UL94V-0, Epoxy
Package Dimension (LxWxH)		19.6 x 10.2 x 7.0mm
Package Weight		2.7g typ.

Dimension Drawing (mm)

embossed logo

Recommended Footprint Details

Marking

Pin Connections

Pin #	Single	Dual
1	+Vin	+Vin
2	-Vin	-Vin
5	-Vout	-Vout
6	No Pin	Com
7	+Vout	+Vout

Tolerance: xx.x= ±0.50mm
xx.xx= ±0.25mm

PACKAGING INFORMATION		
Parameter	Type	Value
Packaging Dimension (LxWxH)	Tube	520 x 9.3 x 16.5mm
Packaging Quantity		25pcs
Storage Temperature Range		-55°C to +125°C