

# 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 <sup>(1)</sup> (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<sub>A</sub>= 25°C, nominal input voltage, full load and after warm up unless otherwise specified)

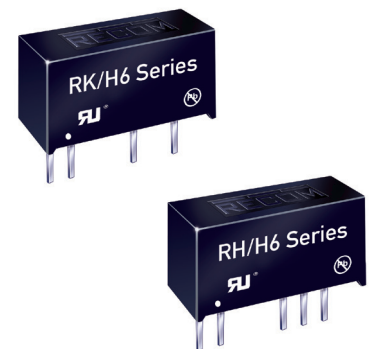
BASIC CHARACTERISTICS				
Parameter	Condition	Min.	Typ.	Max.
Input Voltage Range			±10%	
Start-up Time	V <sub>in</sub> nominal, full load		20ms	
Operating Frequency	V <sub>in</sub> nominal, full load		80kHz	
Minimum Load			0%	
Output Ripple and Noise	V <sub>in</sub> nominal, 20MHz BW limited		60mVp-p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

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**RECOM**  
DC/DC Converter

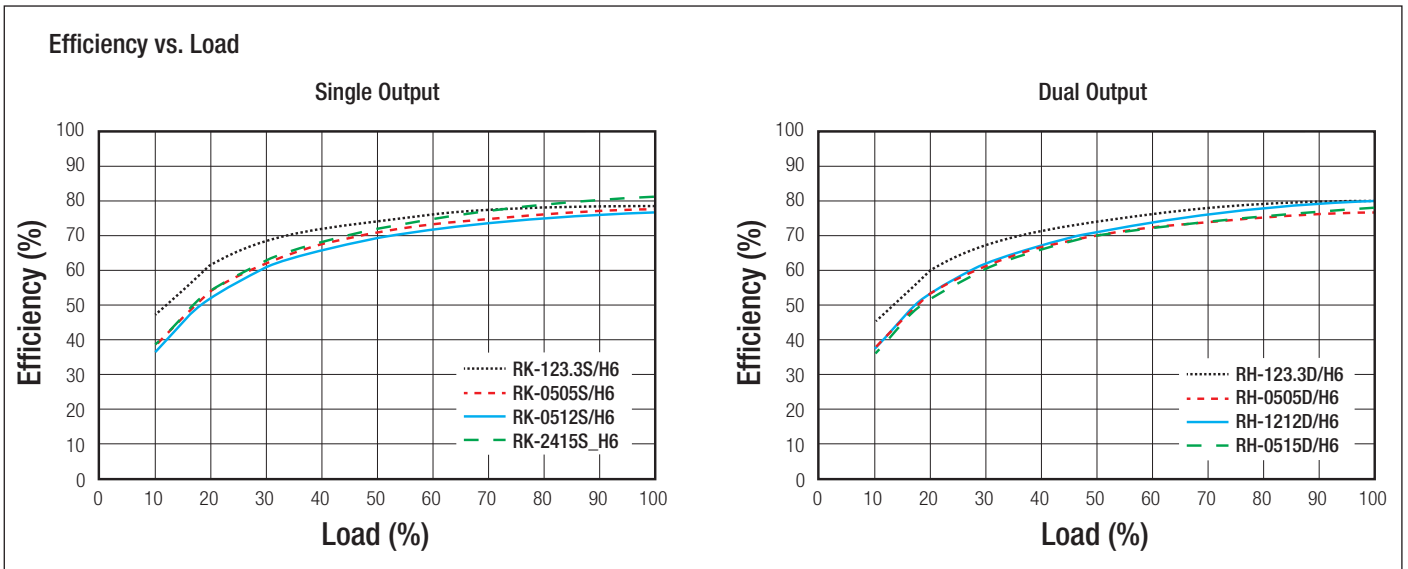
## RK/H6 & RH/H6

1 Watt  
SIP7  
Single and Dual  
Output



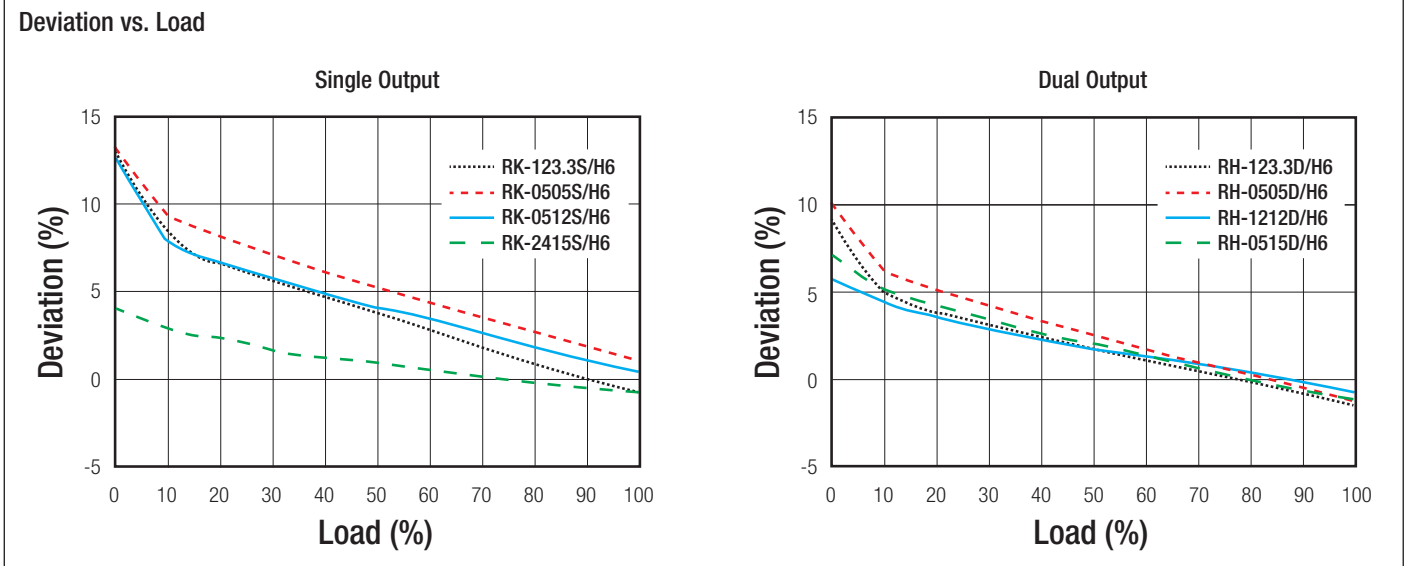
UL60950-1 Certified  
CSA C22.2 No. 60950-1-07 Certified  
IEC60950-1 Certified  
IEC62368-1 Certified

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



## REGULATIONS

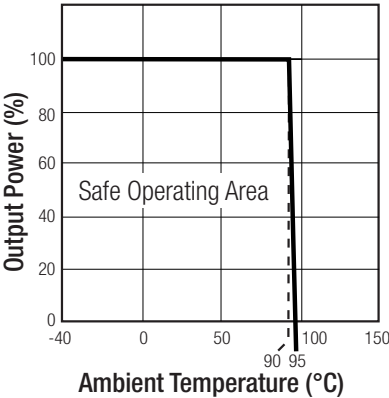
Parameter	Condition	Values
Output Voltage Accuracy	full load, nom. $V_{in}$	$\pm 5\%$ max.
Line Voltage Regulation	low line to high line, max. load	$\pm 1.2\%$ / $1\%V_{in}$ typ.
Load Voltage Regulation	10% to 100% load	10% max.



## PROTECTIONS

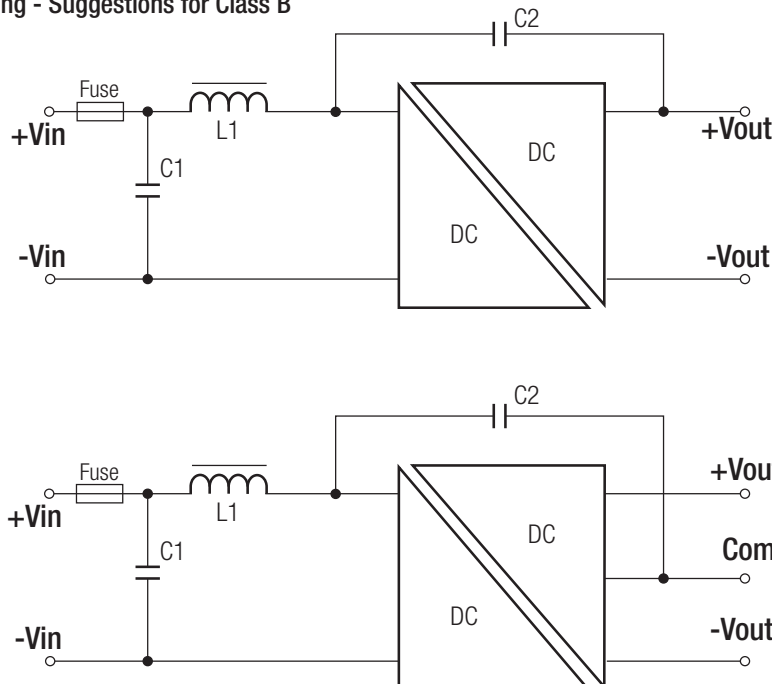
Parameter	Condition	Value
Input Filter		Internal Capacitor
Short Circuit Protection (SCP)		continuous
Isolation Voltage	I/P to O/P, tested I/P to O/P, rated	6.4kVDC / 1 Second 5.2kVDC / 1 Minute
Isolation Capacitance		75pF max.
Isolation Resistance		10G $\Omega$ min.

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°C
Operating Humidity	non-condensing	5% - 95% RH max.%
MTBF (+25°C) (+85°C)	according to MIL-HDBK-217F, full load	14919 x 10 <sup>3</sup> hours 9468 x 10 <sup>3</sup> hours
<b>Derating Graph</b> 		

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	no external filter necessary only with external filter (see suggestions)	EN55022, Class A EN55022, Class B

**EMC Filtering - Suggestions for Class B**



**RK-xyyyS/H6 + RH-xyyyS/H6**

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

C1 = MLCC  
L1 = SMD Inductor

Specifications (measured at  $T_A = 25^\circ\text{C}$ , 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=  $\pm 0.50\text{mm}$   
xx.xx=  $\pm 0.25\text{mm}$

PACKAGING INFORMATION		
Parameter	Type	Value
Packaging Dimension (LxWxH)	Tube	520 x 9.3 x 16.5mm
Packaging Quantity		25pcs
Storage Temperature Range		$-55^\circ\text{C}$ to $+125^\circ\text{C}$