

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.

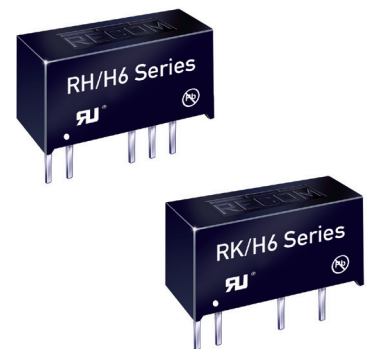
Specifications (measured at T_A= 25°C, nominal input voltage, full load and after warm up unless otherwise specified)

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

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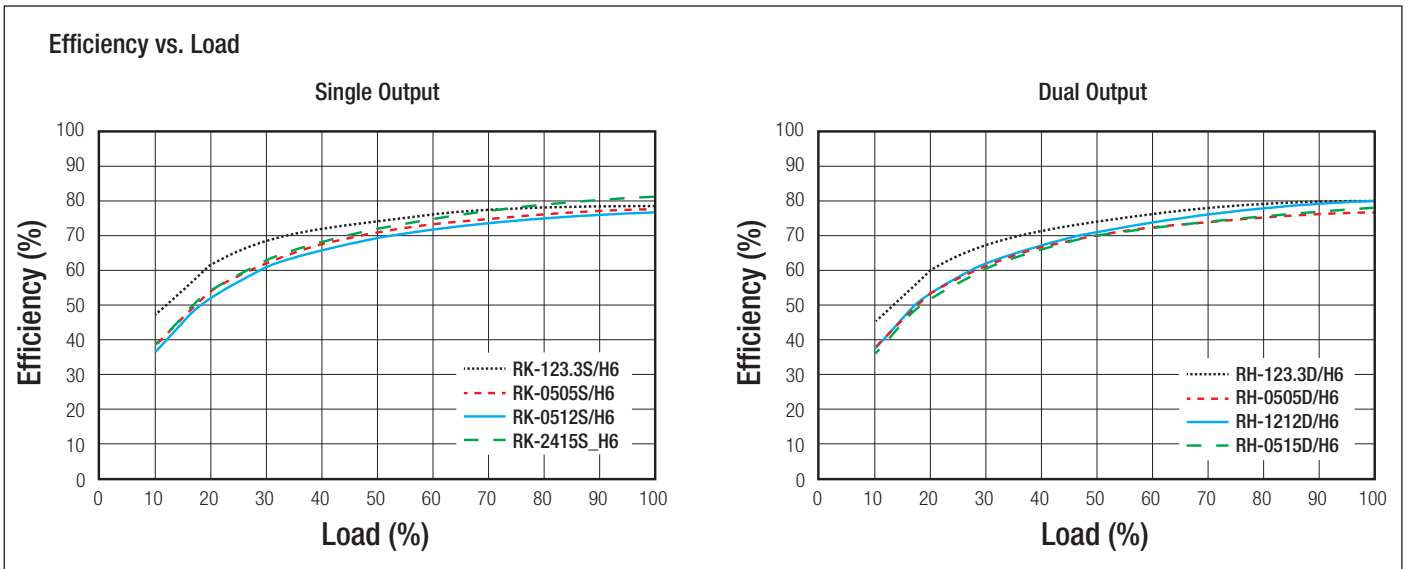
RK/H6 & RH/H6

1 Watt
SIP7
Single and Dual Output



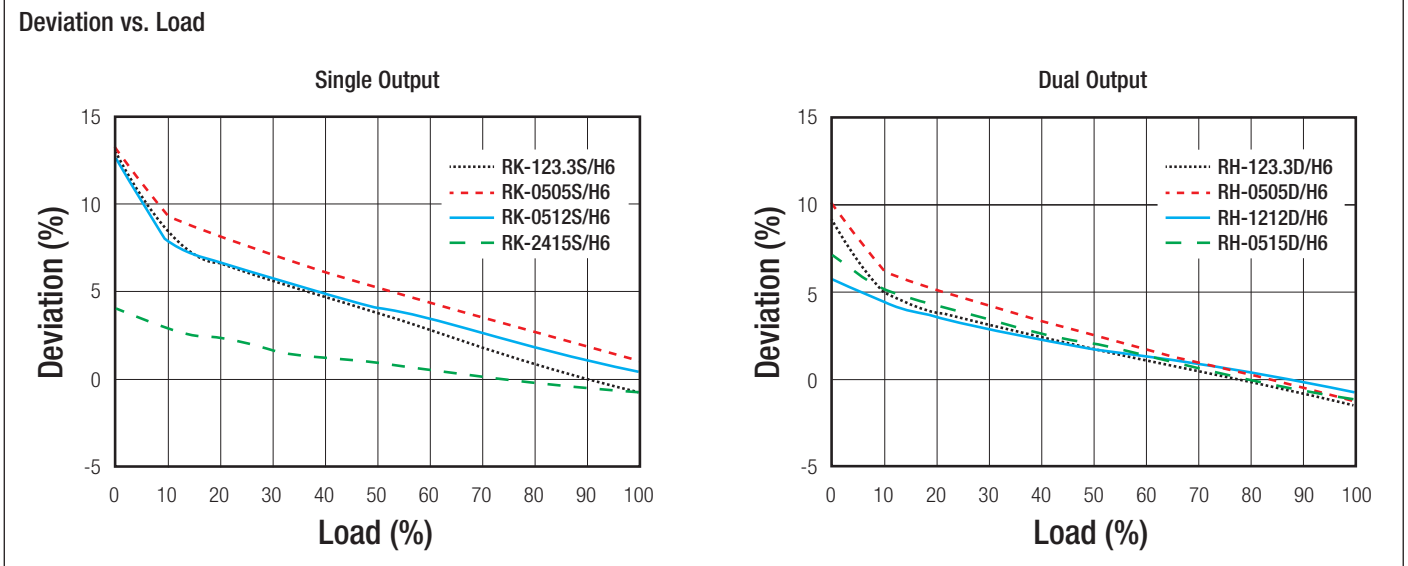
IEC60950-1 (Pending)
UL60950-1 (Pending)

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.



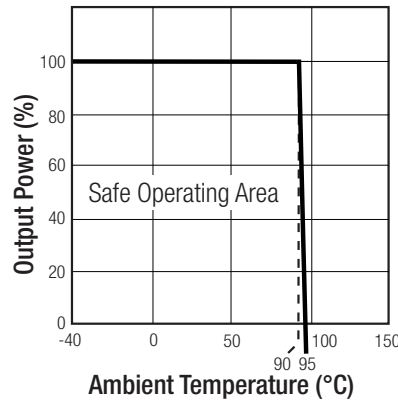
PROTECTIONS

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

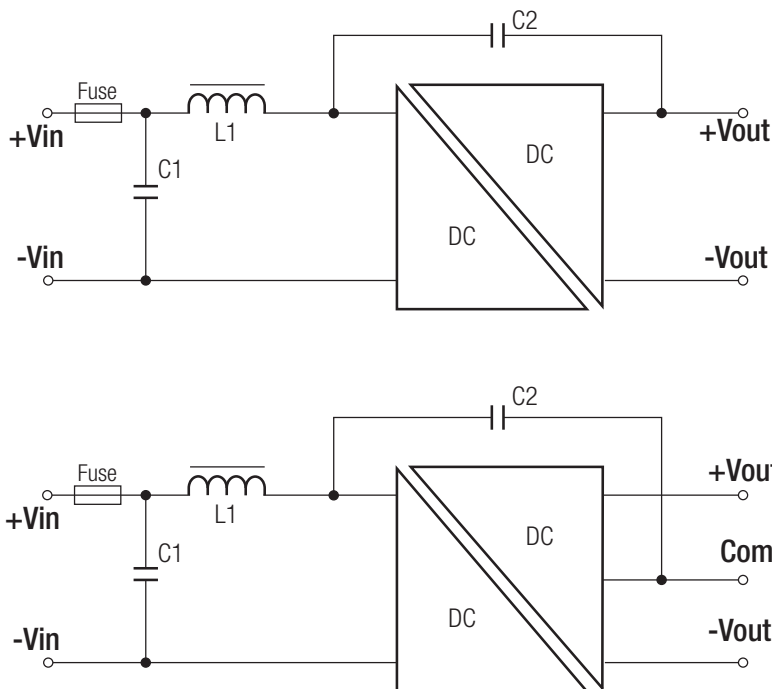
Derating Graph



SAFETY AND CERTIFICATIONS		
Certificate Type	Report / File Number	Standard
UI General Safety	(pending)	UL60950-1, 2nd Edition
IEC General Safety	(pending)	IEC60950-1, 2nd Edition

EMI Compliance	Condition	Standard / Criterion
EMC Conducted and Radiated	no external filter necessary only with external filter (see suggestions)	EN55022, Class A EN55022, Class B

EMC Filtering - Suggestions for Class B



RK-xyyS/H6 + RH-xyyS/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

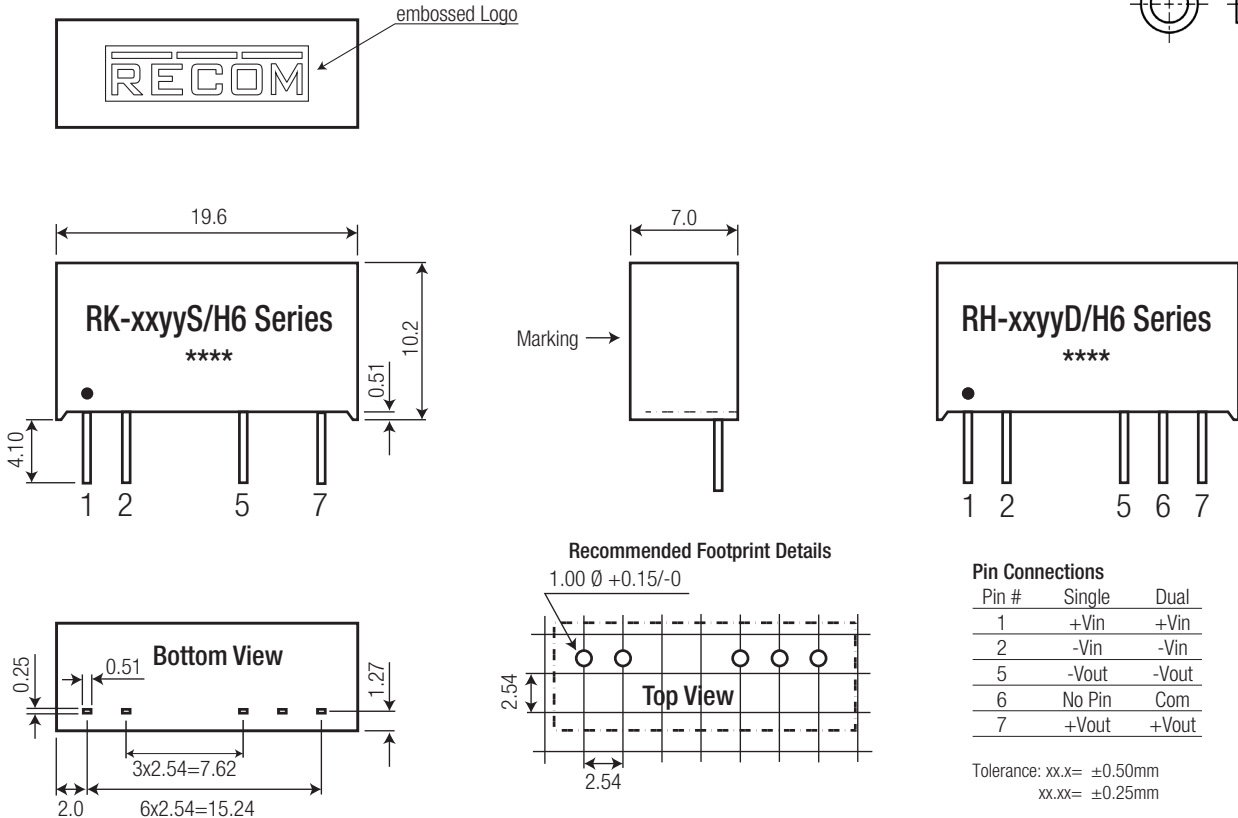
C1 = MLCC
L1 = SMD Inductor

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
Case Material		non-conductive black plastic
Potting Material		UL94V-0, Epoxy
Package Dimension (LxWxH)		19.6 x 10.2 x 7.0mm
Package Weight		2.7g typ.

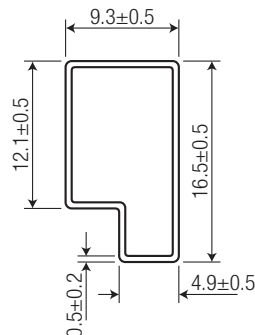
Dimension Drawing (mm)



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

Tube Dimension Drawing (mm)



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