## **Features**

# Unregulated Converters

- High 6.4kVDC/1s isolation
- Wide operating temperature range from
  - -40°C to +90°C without derating
- High capacitive load capability
- Continuous short circuit protection
- Efficiency up to 80%

### Description

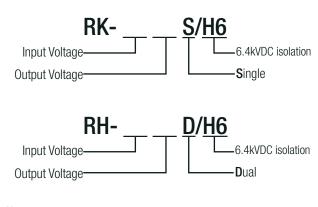
The RK/H6 and RH/H6 series 1W DC/DC converters feature high 6.4kVDC isolation and an extended operating temperature range up to +90°C without derating, yet are lower cost than standard high isolation converters. They are suitable for demanding industrial and high isolation test and measurement applications.

<b>Selection Guide</b>					
Part Number	nom. 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

### **Model Numbering**



#### Notes

Note2: add suffix "K" for Single output or suffix "H" for Dual output

#### **Ordering Examples:**

RK-123.3S/H6 = 12VDC Input Voltage, 3.3VDC Output Voltage, Single Output, 6.4kVDC/1s isolation RH-0505D/H6 = 5VDC Input Voltage, 5VDC Output Voltage, Dual Output, 6.4kVDC/1s isolation



### **RK/H6 & RH/H6**

# 1 Watt SIP7 Single and Dual Output













UL60950-1 certified CAN/CSA C22.2 No. 60950-1-07 certified UL62368-1 certified CAN/CSA C22.2 No. 62368-1-14 certified IEC/EN60950-1 certified IEC/EN62368-1 certified CB report

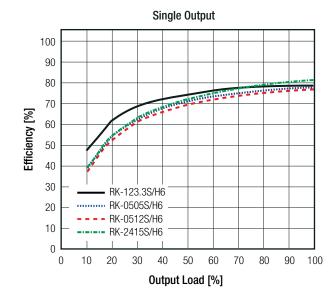


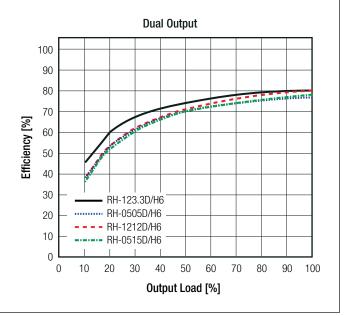
### **Series**

### **Specifications** (measured @ Ta= 25°C, nom. Vin, full load and after warm-up unless otherwise stated)

BASIC CHARACTERISTICS				
Parameter	Condition	Min.	Тур.	Max.
Internal Input Filter				capacitor
Input Voltage Range			±10%	
Start-up Time			20ms	
Internal Operating Frequency			80kHz	
Minimum Load			0%	
Output Ripple and Noise	20MHz BW		60mVp-p	120mVp-p

### Efficiency vs. Load

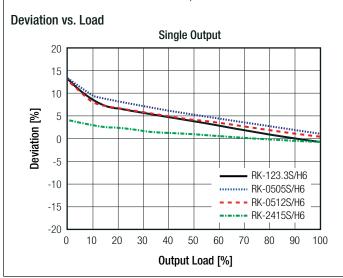


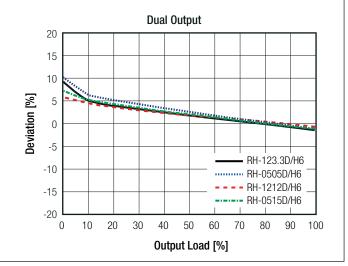


REGULATIONS		
Parameter	Condition	Values
Output Accuracy		±5.0% max.
Line Regulation	low line to high line, max. load	±1.2% of 1.0% Vin typ.
Load Regulation (3)	10% to 100% load	10% max.

### Notes:

Note3: Operation below 10% load will not harm the converter, but specifications may not be met







### **Series**

### Specifications (measured @ Ta= 25°C, nom. Vin, full load and after warm-up unless otherwise stated)

PROTECTIONS							
Co	ondition	Value					
		continuous					
I/P to O/P	tested for 1 second	6.4kVDC					
	rated for 1 minute	5.2kVDC 10GΩ min.					
		75pF max.					
		functional					
		Condition  I/P to O/P tested for 1 second rated for 1 minute					

#### Notes:

Note4: For repeat Hi-Pot testing, reduce the time and/or the test voltage

Note5: Refer to local safety regulations if input over-current protection is also required. Recommended fuse: slow blow type

ENVIRONMENTAL																
Parameter		Condition									Value					
Operating Temperature Range		W	ithou	ıt de	ratino	g @ fı	ee ai	ir co	nve	tion	(see	e gr	aph)	)		-40°C to +90°C
Operating Altitude																5000m
Operating Humidity						non	-cond	dens	ing							5% - 95% RH max.
MTBF		ć	acco	rding	to M	1IL-H[	DBK-2	217F	=; G	В.		+2 +8				14919 x 10³ hours 9468 x 10³ hours
Derating Graph	100															- -
Output Load [%]	80 70 60															- - -
Output	50 40 30 20 10															- - - -
	0 -4	0 -3	0 -20	0 -10		10 2 mbiei						) 80	) 9	0 ¦1 95	00 1	<u> </u> 

SAFETY AND CERTIFICATIONS						
Certificate Type	Report / File Number	Standard				
Information Technology Equipment - General Requirements for Safety	E224736-A25-UL	UL60950-1, 2nd Edition, 2014 CAN/CSA-C22.2 No. 60950-1-07, 2nd Edition, 2014				
Audio/Video, information and communication technology equipment - Part1: Safety requirements	E224730-A23-UL	UL62368-1, 2nd Edition, 2014 CAN/CSA-C22.2 No. 62368-1-14, 2nd Edition, 2014				
Information Technology Equipment, General Requirements for Safety (CB)	E224736-A26-CB-1	IEC60950-1:2005, 2nd Edition + A2:2013				
Information Technology Equipment, General Requirements for Safety	EZZ4/30-AZ0-UD-1	EN60950-1:2006 + A2:2013				
Audio/video, information and communication technology equipment Part 1: safety requirements (CB)	0FF-4787079973-A-2	IEC62368-1:2014, 2nd Edition				
Audio/video, information and communication technology equipment Part 1: safety requirements	UFF-4787U79973-A-2	EN62368-1:2014				
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### **Series**

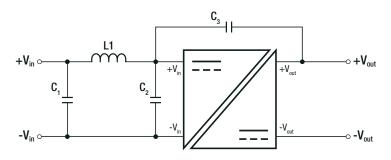
### Specifications (measured @ Ta= 25°C, nom. Vin, full load and after warm-up unless otherwise stated)

Certificate Type	Report / File Number	Standard
EAC	RU-AT.49.09571	TP TC 004/2011
RoHS 2		RoHS-2011/65/EU + AM-2015/863

EMI Compliance	Condition	Standard / Criterion
Electromagnetic compatibility of multimedia equipment -	with external filter	EN55032, Class B
Emission requirements	(see filter suggestion below)	EN55032, Class A

### **EMC Filter Suggestion according to EN55032**

### Single Output



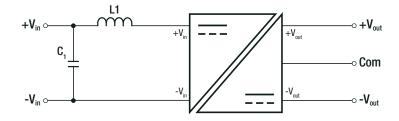
### **Component List Class A**

MODEL	C1	L1	C2	C3
RK-0505S/H6	10	10		
RK-0515S/H6	10µF 100V MLCC	12µH choke RLS-126	N/A	N/A
RK-2405S/H6	100V WILCO	<u>nlo-120</u>		

### Component List Class B

MODEL	C1	L1	C2	C3
RK-0505S/H6	10	10	4.7	N/A
RK-0515S/H6	10µF 100V MLCC	12µH choke RLS-126	4.7µF 50V MLCC	2.2nF
RK-2405S/H6	100V WILCO	11LO-12U	JOV WILCO	Z.ZIIF

### **Dual Output**



#### **Component List Class A**

MODEL	C1	L1
RH-0505D/H6		
RH-1205D/H6	1µF	68µH choke
RH-1212D/H6	100V MLCC	RLS-686
RH-2405D/H6		

### Component List Class B

MODEL	C1	L1
RH-0505D/H6		
RH-1205D/H6	4.7µF	68µH choke
RH-1212D/H6	50V MLCC	RLS-686
RH-2405D/H6		

### Notes:

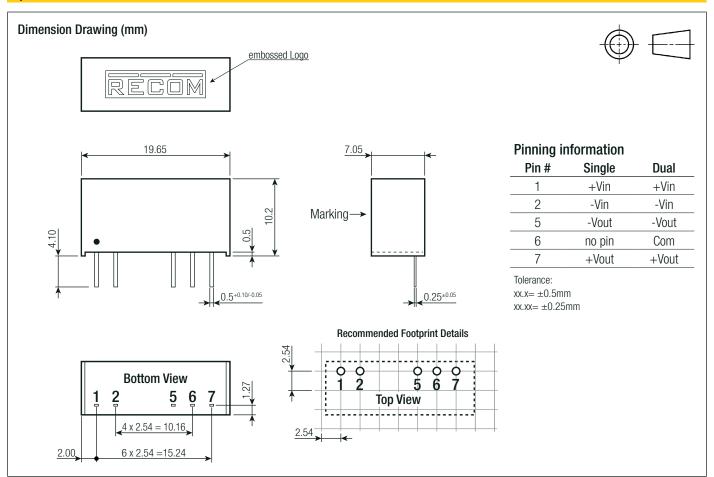
Note6: Filter suggestions are valid for indicated part numbers only. For other part numbers, please contact RECOM tech support for advice

DIMENSION and PHYSICAL CHARACTERISTICS		
Parameter	Туре	Value
Material	case potting	non-conductive black plastic, (UL94 V-0) epoxy, (UL94 V-0)
Dimension (LxWxH)		19.65 x 7.05 x 10.2mm
Weight		2.7g typ.



**Series** 

### Specifications (measured @ Ta= 25°C, nom. Vin, full load and after warm-up unless otherwise stated)



PACKAGING INFORMATION		
Parameter	Туре	Value
Packaging Dimension (LxWxH)	tube	520.0 x 16.5 x 9.0mm
Packaging Quantity	tube	25pcs
Storage Temperature Range		-55°C to +125°C
Storage Humidity	non-condensing	95% RH max.

The product information and specifications may be subject to changes even without prior written notice. The product has been designed for various applications; its suitability lies in the responsibility of each customer. The products are not authorized for use in safety-critical applications without RECOM's explicit written consent. A safety-critical application is an application where a failure may reasonably be expected to endanger or cause loss of life, inflict bodily harm or damage property. The applicant shall indemnify and hold harmless RECOM, its affiliated companies and its representatives against any damage claims in connection with the unauthorized use of RECOM products in such safety-critical applications.

### **Mouser Electronics**

**Authorized Distributor** 

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### **RECOM:**

RK-053.3S/H6 RK-123.3S/H6 RK-153.3S/H6 RK-243.3S/H6 RK-0505S/H6 RK-1205S/H6 RK-1505S/H6 RK-2405S/H6 RK-0512S/H6 RK-1212S/H6 RK-1512S/H6 RK-2412S/H6 RK-0515S/H6 RK-1215S/H6 RK-1515S/H6 RK-2415S/H6 RK-2415S/H6 RK-0515S/H6 RK-1215S/H6 RK-1515S/H6 RK-2415S/H6 RH-053.3D/H6 RH-123.3D/H6 RH-153.3D/H6 RH-243.3D/H6 RH-0505D/H6 RH-1205D/H6 RH-1505D/H6 RH-2405D/H6 RH-0512D/H6 RH-1212D/H6 RH-1515D/H6 RH-2415D/H6 RH-2415D/H6 RH-2415D/H6 RH-2415D/H6