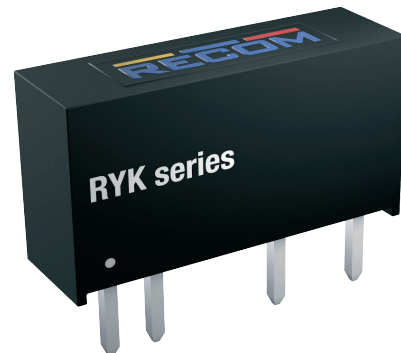


RYK Series ◇ Regulated SIP7

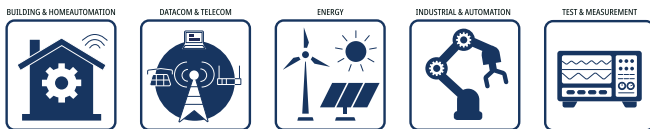
1W ◇ Isolated Single Output ◇ 1:1 Input

FEATURES

- Low cost
- 1:1 input voltage range
- Efficiency up to 81%
- 4kVDC/1 second isolation
- IEC/EN/UL 62368-1 certified
- -40°C to +105°C operating temperature range
- Post regulated
- 3 year warranty



Dimensions (LxWxH): 19.6 x 6.0 x 10.2mm (0.77 x 0.24 x 0.4inch)
1.7g (0.004lbs)

APPLICATIONS**SAFETY & EMC****DESCRIPTION**

The RYK DC/DC converters are typically used in cost sensitive general purpose power isolation and voltage matching applications. Despite their low cost, they are fully specified converters with a built-in linear regulator to give a regulated, load-independent output. The converters are equipped with 4kVDC isolation, industrial operating temperature range of -40°C to +105°C without derating, and UL/EN certifications.

SELECTION GUIDE 2:1 INPUT

Part Number	Input Voltage [VDC]	Output Voltage [VDC]	Output Current [mA]	Efficiency typ. ⁽¹⁾ [%]	max. Capacitive Load ⁽²⁾ [μF]
RYK-0505S/H	5	5	200	81	3000
RYK-053.3S/H	5	3.3	303	75	3000

Note1: Efficiency is tested at minimum input and full load at +25°C ambient

Note2: Max Cap Load is tested at nominal input an full resistive load

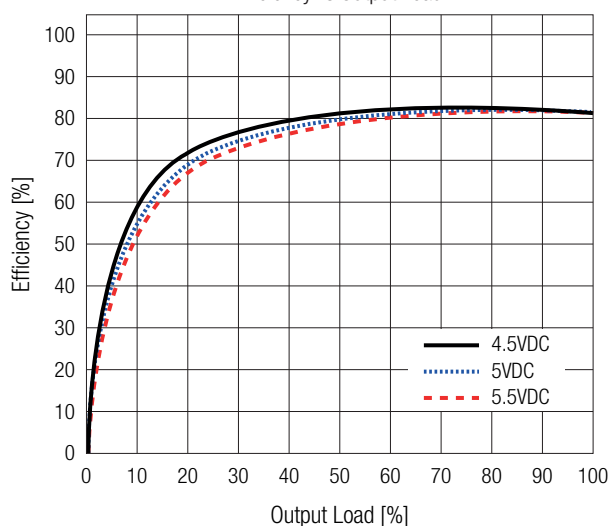
MODEL NUMBERING

RYK Series ◇ Regulated SIP7**1W ◇ Isolated Single Output ◇ 1:1 Input****BASIC CHARACTERISTICS** (measured @ $T_{AMB} = 25^{\circ}\text{C}$, nom. V_{IN} , full load and after warm-up unless otherwise stated)

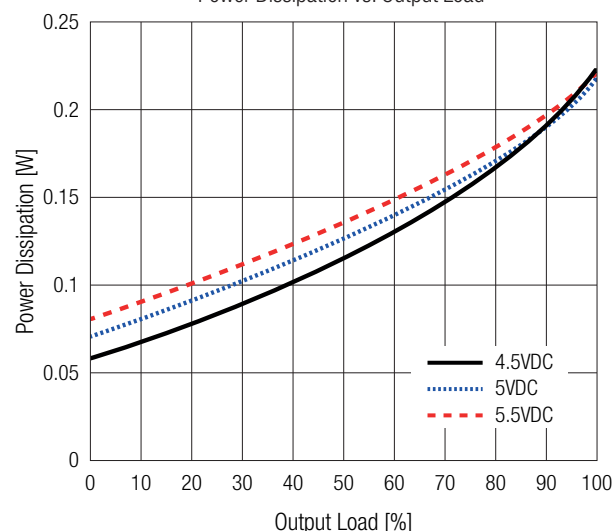
Parameter	Conditions	Min.	Typ.	Max.
Internal Input Filter			internal capacitors	
Input Voltage Range			$\pm 10\%$	
Absolute Maximum Input Voltage ⁽³⁾				6VDC
Input Current	RYK-0505S/H			250mA
	RYK-053.3S/H			230mA
Minimum Load		0%		
Start-up Time				50ms
Internal Operating Frequency				1MHz
Output Ripple and Noise ⁽⁴⁾	20MHz BW		60mVp-p	

Note3: An $4.7\mu\text{F}/10\text{V}$ MLCC at input terminal is recommended if transient input voltage above 6VDCNote4: Measurements are made with a $0.1\mu\text{F}$ MLCC across output. (low ESR)**RYK-0505S/H**

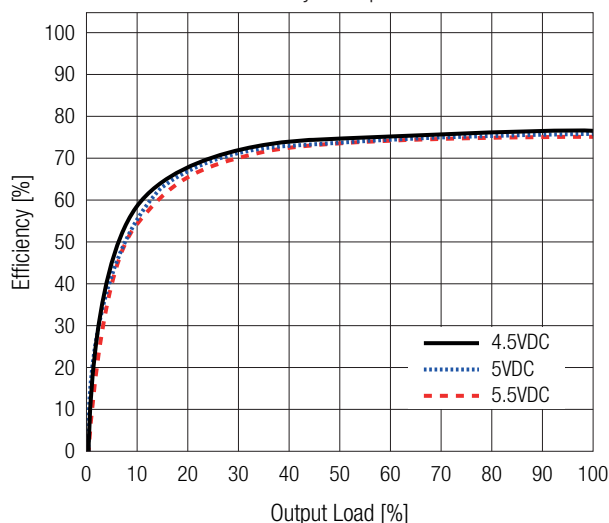
Efficiency vs Output Load



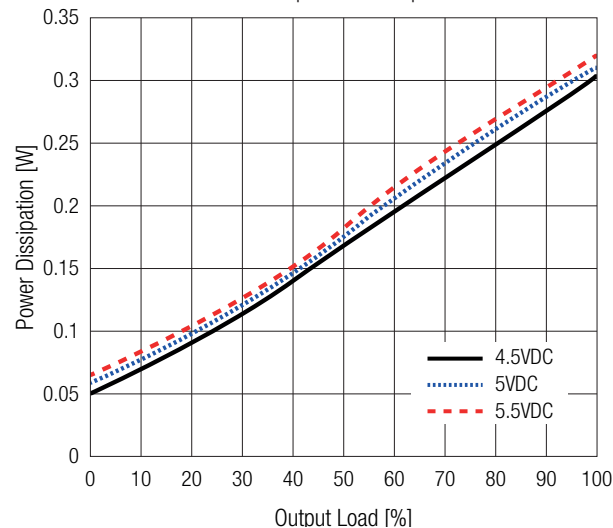
Power Dissipation vs. Output Load

**RYK-053.3S/H**

Efficiency vs Output Load

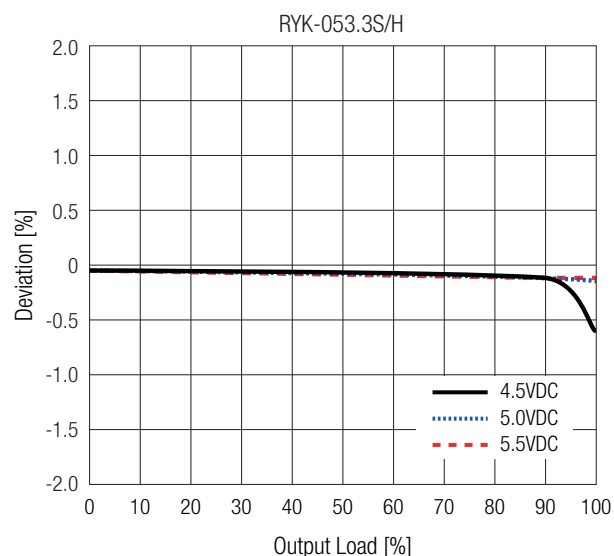
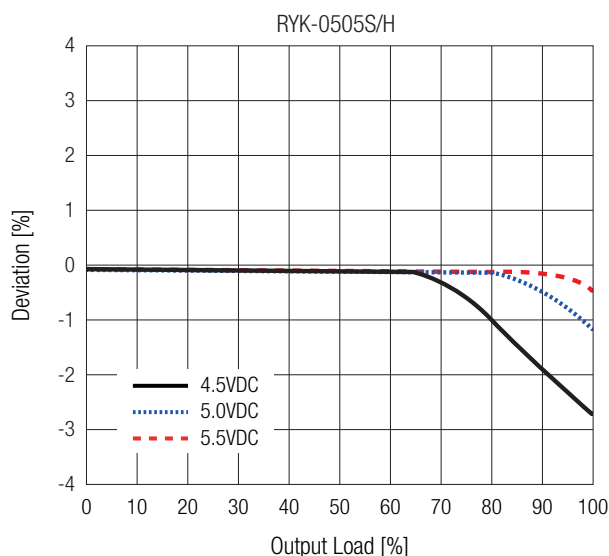


Power Dissipation vs. Output Load



RYK Series ◇ Regulated SIP7**1W ◇ Isolated Single Output ◇ 1:1 Input****REGULATIONS**

Parameter	Conditions			Value
Output Accuracy	RYK-0505S/H		I _{OUT} = 0-150mA	±1.0% max.
			I _{OUT} = >150mA	refer to „Deviation vs. Output Load“
	RYK-053.3S/H		I _{OUT} = 0-250mA	±1.0% max.
			I _{OUT} = >250mA	refer to „Deviation vs. Output Load“
Line Regulation	low line to high line	RYK-0505S/H	I _{OUT} = 0-150mA	±1.0% max.
			I _{OUT} = >150mA	refer to „Deviation vs. Output Load“
		RYK-053.3S/H	I _{OUT} = 0-250mA	±0.5% max.
			I _{OUT} = >250mA	refer to „Deviation vs. Output Load“
Load Regulation	RYK-0505S/H		0% to 75% load	±1.0% max.
			75% to 100% load	refer to „Deviation vs. Output Load“
	RYK-053.3S/H		0% to 80% load	±1.0% max.
			80% to 100% load	refer to „Deviation vs. Output Load“

Deviation vs. Output Load**PROTECTIONS**

Parameter	Conditions		Value
Short Circuit Protection (SCP)	short circuit impedance		$< 0.1\Omega$
Isolation Voltage ⁽⁵⁾	I/P to O/P	1 second	4kVDC
		1 minute	3kVDC
Isolation Resistance	I/P to O/P, $V_{ISO} = 500\text{VDC}$		1GΩ min.
Isolation Capacitance	I/P to O/P, 100kHz/0.1V		10pF typ.
Insulation Grade	according to 62368-1		functional

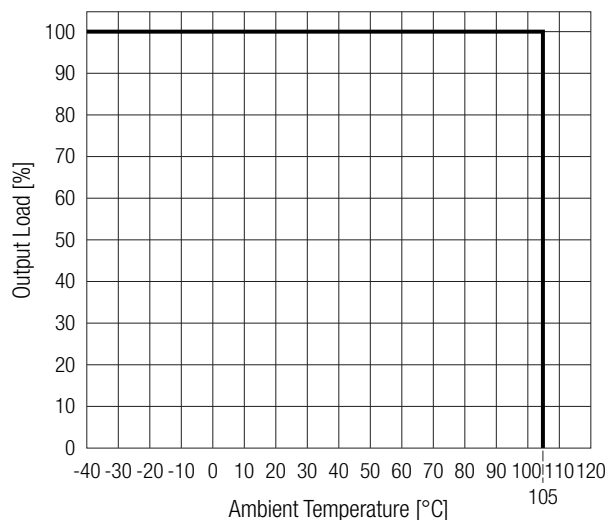
Note5: For repeat Hi-Pot testing, reduce the time and/or the test voltage

ENVIRONMENTAL

Parameter	Conditions		Value
Operating Temperature Range	@ natural convection 0.1m/s, refer to „Derating Graph“		-40°C to +105°C
Maximum Case Temperature			+120°C
Operating Altitude	according to 62368-1		5000m
Operating Humidity	non-condensing		95% RH max.
MTBF	according to MIL-HDBK-217F, G.B.	$T_{AMB} = +85^\circ\text{C}$	2500 x 10 ³ hours

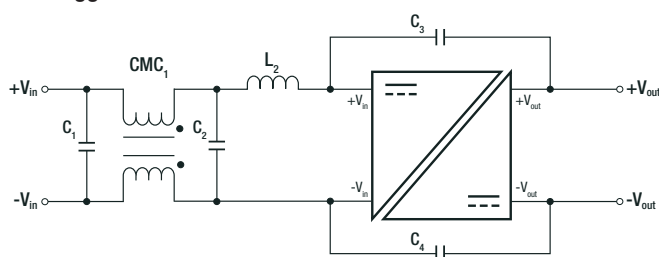
RYK Series ◇ Regulated SIP7**1W ◇ Isolated Single Output ◇ 1:1 Input****ENVIRONMENTAL****Derating Graph**

(@ Chamber and natural convection 0.1m/s)

**SAFETY & CERTIFICATIONS**

Certificate Type (Safety)	Report Number	Standard
Audio/video, information and communication technology equipment - Safety requirements	E518942-A6001-UL	UL62368-1:2014 2nd Ed. CAN/CSA-C22.2 No. 62368-1-14 2nd Ed.
Audio/Video, information and communication technology equipment - Part1: Safety requirements (CB)	E518942-A6001-CB-1	IEC62368-1:2014 2nd Ed.
Audio/Video, information and communication technology equipment - Part1: Safety requirements		EN62368-1:2014 + A11:2017
RoHS2		RoHS 2011/65/EU + AM2015/863

EMC Compliance	Conditions	Standard / Criterion
Electromagnetic compatibility of multimedia equipment – Emission Requirements	with external filter, refer to below filter suggestion	EN55032, Class A EN55032, Class B

EMC filter suggestion**Component List Class A**

C2	L1	C3, C4
10μF	22μH, RLS-226	470pf

Component List Class B

C1, C2	CMC1	L1	C3, C4
10μF	9μH	22μH, RLS-226	470pf

DIMENSION & PHYSICAL CHARACTERISTICS

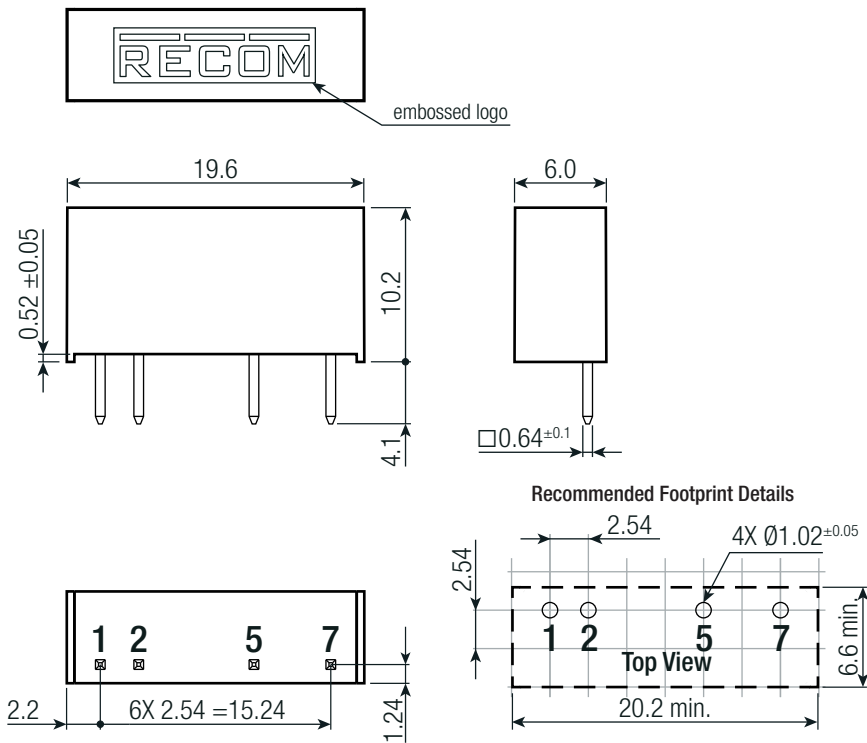
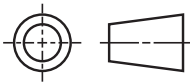
Parameter	Type	Value
Material	case	black plastic, (UL94 V-0)
	PCB	FR4, (UL94 V-0)
Dimension (LxWxH)		19.6 x 6.0 x 10.2mm 0.77 x 0.24 x 0.4 inch
Weight		1.7g typ. 0.004 lbs

RYK Series ♦ Regulated SIP7
1W ♦ Isolated Single Output ♦ 1:1 Input



DIMENSION & PHYSICAL CHARACTERISTICS

Dimension Drawing (mm)



Pinning Information

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

Tolerance:
xx.x = ±0.5mm
xx.xx = ±0.25mm

PACKAGING INFORMATION

Parameter	Type	Value
Packaging Dimension (LxWxH)	tube	520.0 x 9.2 x 19.0mm
Packaging Quantity		25pcs
Storage Temperature Range		-50°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.