

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



FEATURES

- Low cost
- 1:1 input voltage range
- Efficiency up to 82%
- 4kVDC/1 second isolation
- IEC/EN/UL 62368-1 certified
- -40°C to +105°C operating temperature range
- 3 years warranty



APPLICATIONS



SAFETY & EMC



DESCRIPTION

The RKK 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 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]
RKK-0505S/H	5	5	200	82	3000

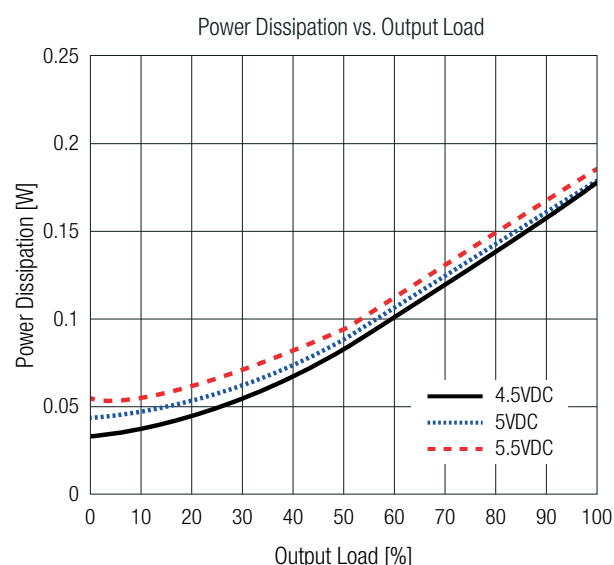
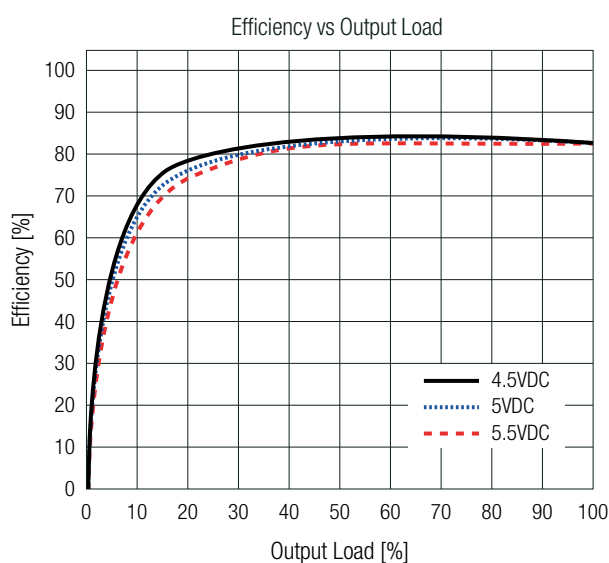
Note1: Efficiency is tested at minimum input and full load at +25°C ambient
Note2: Max Cap Load is tested at nominal input an full resistive load

MODEL NUMBERING



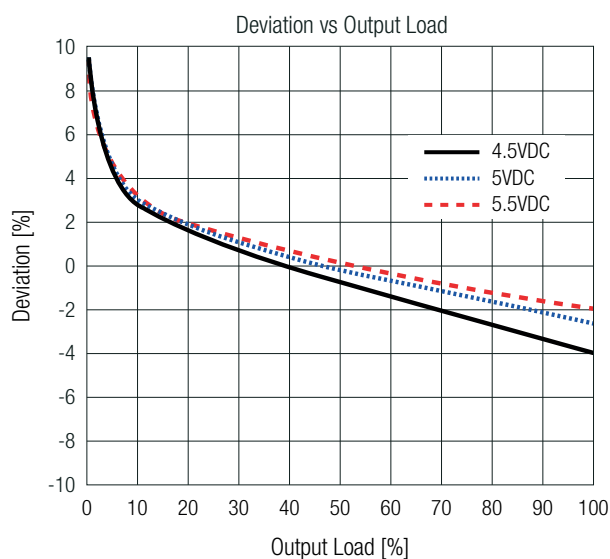
RKK Series ◇ Regulated SIP7**1W ◇ Isolated Single Output ◇ 1:1 Input****BASIC CHARACTERISTICS** (measured @ $T_{AMB} = 25^{\circ}\text{C}$, nom. V_{IN} , full load and after warm-up unless otherwise stated)

Parameter	Conditions	Min.	Typ.	Max.
Internal Input Filter		internal capacitors		
Input Voltage Range			$\pm 10\%$	
Absolute Maximum Input Voltage ⁽³⁾				6VDC
Input Current				240mA
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)**REGULATIONS**

Parameter	Conditions	Value
Output Accuracy		$\pm 5.0\%$ max.
Line Regulation	low line to high line, full load	$\pm 2.0\%$ max.
Load Regulation ⁽⁵⁾	0%-100% full load	10% typ., 13% max.
	10%-100% full load	7.0% max.

Note5: Operation below 10% load will not harm the converter, but specifications may not be met



Technical Data Sheet

RKK Series ♦ Regulated SIP7

1W ♦ Isolated Single Output ♦ 1:1 Input

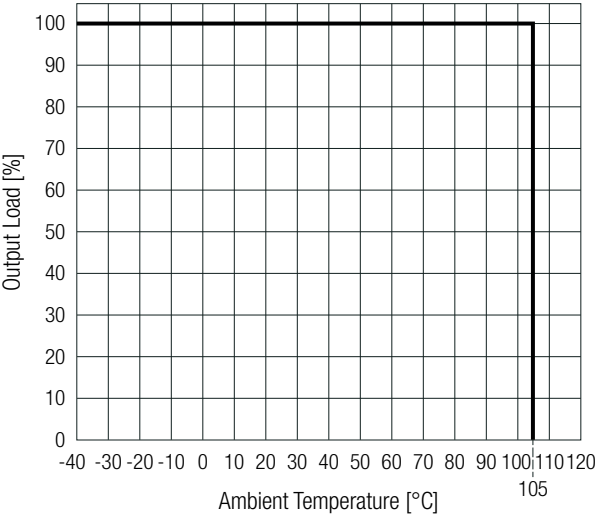


PROTECTIONS			
Parameter	Conditions		Value
Short Circuit Protection (SCP)	bellow 100mΩ		auto recovery
Isolation Voltage ⁽⁶⁾	I/P to O/P	1 second	4kVDC
		1 minute	3kVDC
Isolation Resistance	I/P to O/P, V _{ISO} = 500VDC		1GΩ min.
Isolation Capacitance	I/P to O/P, 100kHz/0.1V		10pF typ.
Insulation Grade	according to 62368-1		functional

Note6: For repeat Hi-Pot testing, reduce the time and/or the test voltage

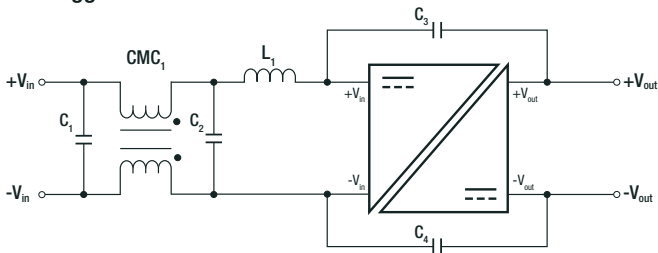
ENVIRONMENTAL			
Parameter	Conditions		Value
Operating Temperature Range	@ natural convection 0.1m/s, refer to „Derating Graph“		-40°C to +105°C
Maximum Case Temperature			+120°C
Operating Altitude			2000m
Operating Humidity	non-condensing		95% RH max.
MTBF	according to MIL-HDBK-217F, G.B.	T _{AMB} = +85°C	2500 x 10 ³ hours

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		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

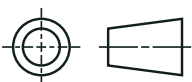
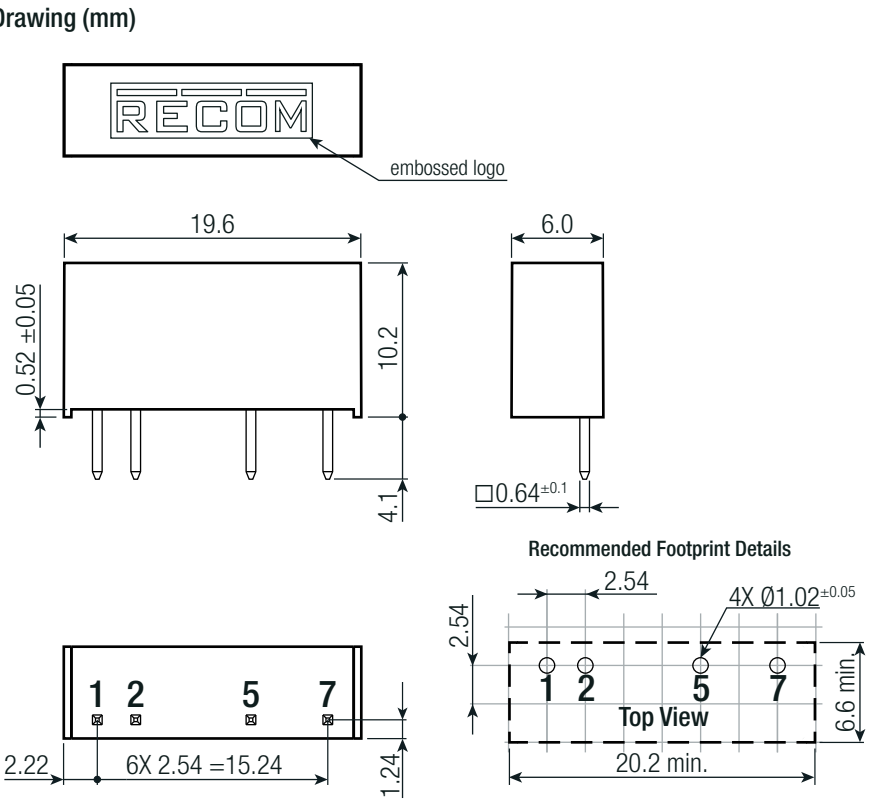
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DIMENSION & PHYSICAL CHARACTERISTICS

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.
		0.04 lbs

Dimension Drawing (mm)



Pinning Information

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

Recommended Footprint Details

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.

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