

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

Unregulated Converters



RKK

1 Watt
SIP7
Single Output



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

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

Notes:

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

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



Model Numbering



UL62368-1 certified
CAN/CSA-C22.2 No. 62368-1 certified
IEC/EN62368-1 certified
EN55032 compliant
CB Report

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

BASIC CHARACTERISTICS				
Parameter	Condition	Min.	Typ.	Max.
Internal Input Filter				internal capacitors
Input Voltage Range			±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	

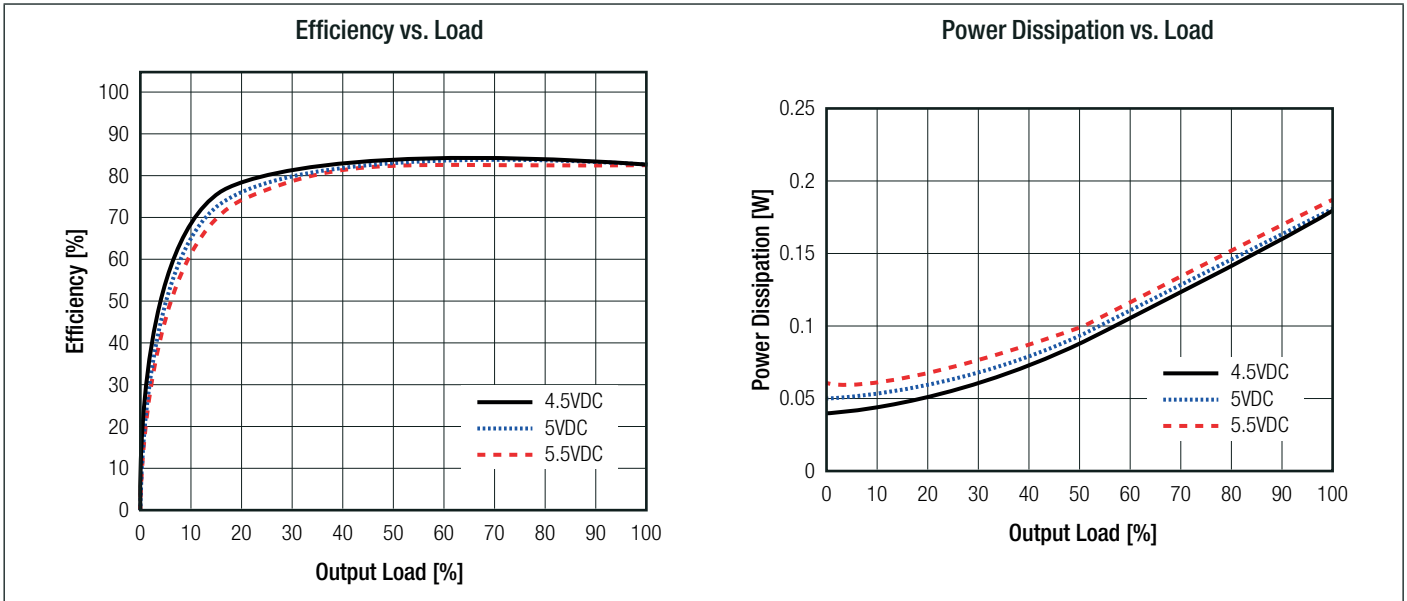
Notes:

Note3: An 4.7µF/10V MLCC at input terminal is recommended if transient input voltage above 6VDC.

Note4: Measurements are made with a 0.1µF MLCC across output. (low ESR)

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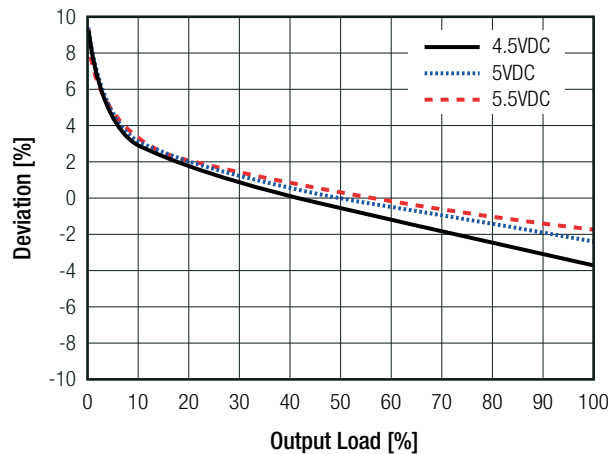
Specifications (measured @ Ta= 25°C, nom. Vin, full load and after warm-up unless otherwise stated)



REGULATIONS

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

Deviation vs. Load



Notes:

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

PROTECTIONS

Parameter	Type	Value	
Short Circuit Protection (SCP)	below 100mΩ	auto recovery	
Isolation Voltage ⁽⁶⁾	I/P to O/P	tested for 1 second	4kVDC
		tested for 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.	

Notes:

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

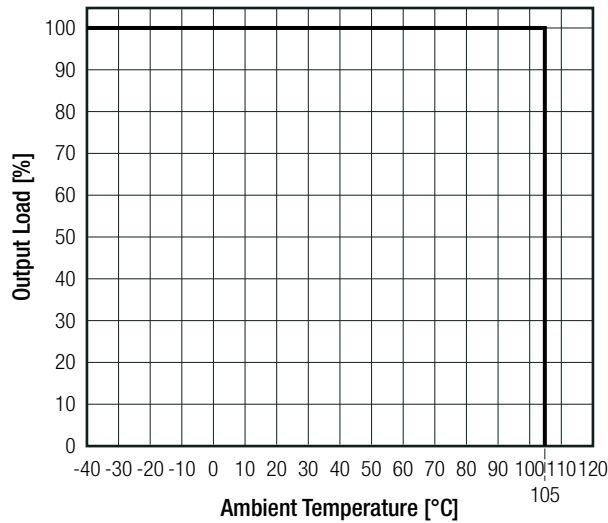
Specifications (measured @ Ta= 25°C, nom. Vin, full load and after warm-up unless otherwise stated)

ENVIRONMENTAL

Parameter	Condition		Value
Operating Temperature Range	@ natural convection 0.1m/s	full load	-40°C to +105°C
Maximum Case Temperature			120°C
Operating Altitude			2000m
Operating Humidity	non-condensing		95% RH max.
Pollution Degree			PD2
MTBF	according to MIL-HDBK-217F, G.B.	+85°C	2500 x 10 ³ hours

Derating Graph

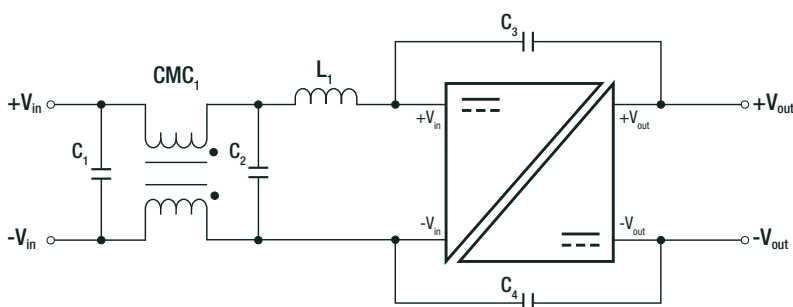
(@ Chamber and natural convection 0.1 m/s)



SAFETY AND CERTIFICATIONS

Certificate Type (Safety)	File Number	Standard
Audio/video, information and communication technology equipment. Safety requirements	E518942-A6001-JL	UL62368-1:2014 CAN/CSA-C22.2 No. 62368-1:2014
Audio/Video, information and communication technology equipment - Part1: Safety requirements (CB Scheme)	E518942-A6001-CB-1	IEC62368-1:2014 2nd Edition
Audio/Video, information and communication technology equipment - Part1: Safety requirements		EN62368-1:2014 + A11:2017
RoHS2		RoHS-2011/65/EU + AM-2015/863
EMC Compliance	Condition	Standard / Criterion
Electromagnetic compatibility of multimedia equipment – Emission Requirements	with external filter refer to “EMC Filtering”	EN55032

EMC Filtering Suggestions according to EN55032



Component List Class A

C2	L1	C3,C4
10µF	RLS-226 , 22µH	470pF

Component List Class B

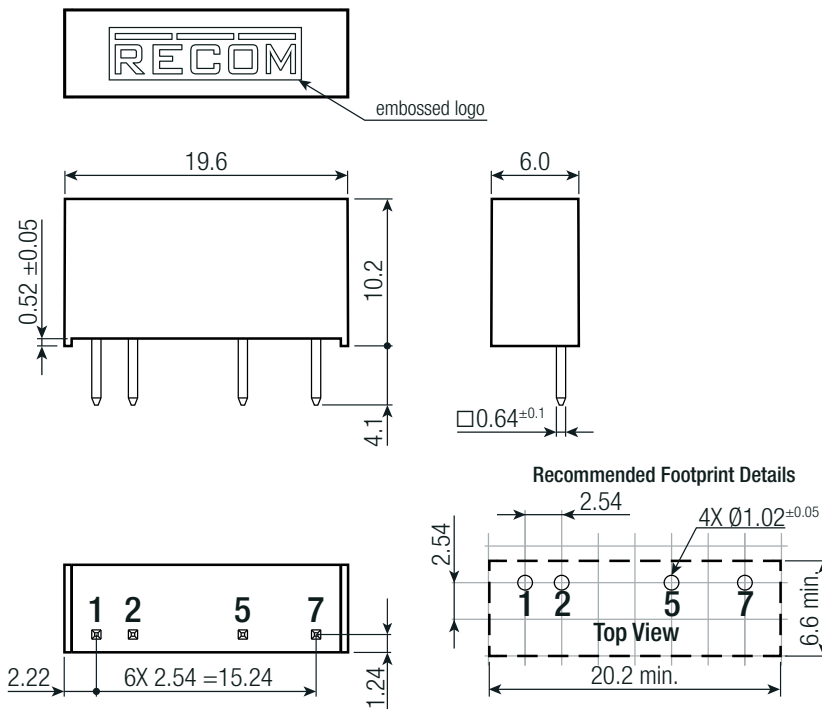
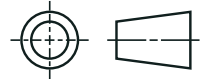
C1,C2	CMC1	L1	C3,C4
10µF	9µH	RLS-226 , 22µH	470pF

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

DIMENSION AND PHYSICAL CHARACTERISTICS

Parameter	Type	Value
Material	case	black plastic, (UL94V-0)
	PCB	FR4, (UL94V-0)
Dimension (LxWxH)		19.6 x 6.0 x 10.2mm
Weight		1.7g typ.

Dimension Drawing (mm)

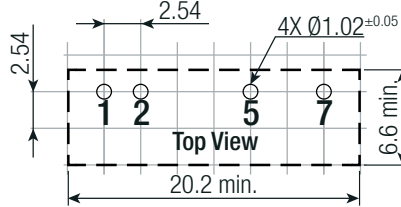


Pinning Information

Pin #	Single
1	+Vin
2	-Vin
3,4,6	NC
5	-Vout
7	+Vout

NC= no connection
xx.x= ±0.5mm
xx.xx= ±0.25mm

Recommended Footprint Details



PACKAGING INFORMATION

Parameter	Type	Value
Packaging Dimension (LxWxH)	tube	520.0 x 9.2 x 19.0mm
Packaging Quantity		25pcs
Storage Temperature Range	non-condensing	-50°C to +125°C
Storage Humidity		95% RH max.

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