Features

Regulated Converters

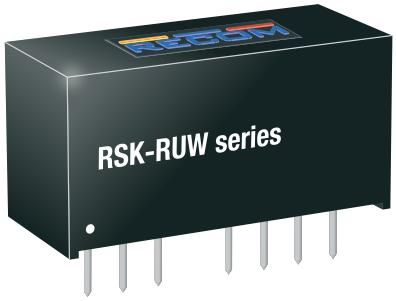
- 8:1 wide input voltage range
- SIP8 package
- Continuous short circuit protection
- No minimum load required
- 3kVDC/1min basic isolation
- 88.5% typical efficiency

RECOM
DC/DC Converter

RSK-RUW

2 Watt SIP8 Single Output

3 YEAR warranty



Description

The RSK-RUW series is a state-of-the-art isolated DC/DC converter that boasts an ultra-wide 8:1 input voltage range of 4.5-36 VDC. The RSK-RUW also includes ON/OFF control for added convenience and precision. The device delivers high accuracy and tight line and load regulation, ensuring stable performance even in challenging conditions. The RSK-RUW also includes continuous short circuit protection and undervoltage lockout (UVLO) for added safety and security. This product is certified according to IEC/EN/UL 62368-1, making it suitable for use in a variety of industrial applications. With a maximum output power of 2W and the ability to operate at 0% minimum load, the RSK-RUW is very versitile. The device also offers high efficiency, with a typical value of 88.5%. Finally, the RSK-RUW offers basic grade isolation of 3kVDC/1min and an industrial operating temperature range of -40°C to 85°C without derating, making it ideal for use in demanding industrial environments.

Selection Guide

Part Number	Input Voltage Range [VDC]	Output Voltage [VDC]	Output Current [mA]	Efficiency typ. (1) [%]	max. Capacitive Load (2) [µF]
RSK-2405SRUW/H3	4.5-36	5	400	88.5	2000

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

RSK-24 05 SRUW/H3

- 05: Output Voltage
- H3: 3kVDC Isolation

Specifications (measured @ t_{amb}= 25°C, nom. V_{IN}, full load and after warm-up unless otherwise stated)

BASIC CHARACTERISTICS					
Parameter	**Condition**		**Min.**	**Typ.**	**Max.**
Internal Input Filter					capacitors
Input Voltage Range	nom. V_{IN}= 24VDC		4.5VDC		36VDC
Under Voltage Lockout (UVLO)	DC-DC ON		4VDC		4.3VDC
	DC-DC OFF		3.3VDC		3.6VDC
Quiescent Current					20mA
Minimum Load			0%		
ON/OFF CTRL	DC-DC ON		Open or V_{CTRL}>1.5VDC		
	DC-DC OFF		Short to -V_{IN} or <1.5VDC		
Input Current of CTRL Pin	DC-DC ON				1mA
Standby Current	DC-DC OFF			3mA	6mA
Internal Operating Frequency			100kHz		400kHz
Output Ripple and Noise (3)	20MHz BW	V_{IN}= 5VDC			50mVp-p
		V_{IN}= 24VDC			100mVp-p

Notes:

Note3: Measurements are made with a 0.1µF MLCC across output (low ESR)

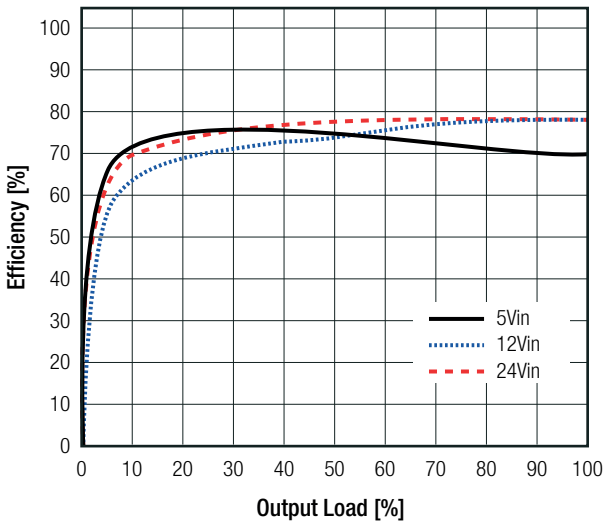
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c UL us
E224736

UL62368-1 certified
C22.2 No. 62368-1-19 certified
IEC/EN62368-1 certified
CB Report

Specifications (measured @ t_{amb}= 25°C, nom. V_{IN}, full load and after warm-up unless otherwise stated)

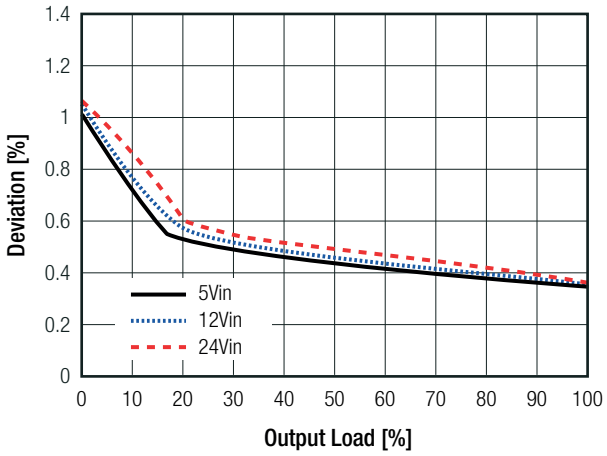
Efficiency vs. Load



REGULATIONS

Parameter	Condition		Value
Output Accuracy			±3.0% typ.
Line Regulation	low line to high line	V_{IN}= 5VDC	±1.0% max.
		V_{IN}= 24VDC	±0.5% max.
Load Regulation [4]	10% to 100% load		2.0% max.

Deviation vs Load



Notes:

Note4: Operation below 10% load will not harm the converter, but specifications may not be met

PROTECTIONS

Parameter	Type		Value
Short Circuit Protection (SCP)			continuous, auto recovery
Short Circuit Input Current	V_{IN}= 5VDC		500mA max.
	V_{IN}= 24VDC		120mA max.
Isolation Voltage [5]	1 minute	I/P to O/P	3kVDC
			1.5kVAC/50Hz
Isolation Resistance	I/P to O/P, V_{ISO}= 500VDC		1GΩ min.
Isolation Capacitance	I/P to O/P, 100kHz/0.1V		50pF max.
Insulation Grade	according to 62368-1		basic

Notes:

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

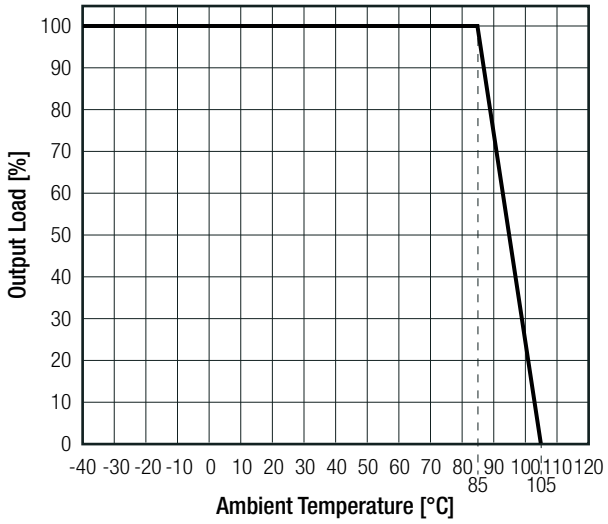
Note6: Refer to local safety regulations if input over-current protection is also required. Recommended fuse: slow blow type

Specifications (measured @ t_{amb}= 25°C, nom. V_{IN}, full load and after warm-up unless otherwise stated)

ENVIRONMENTAL

Parameter	Condition			Value
Operating Temperature Range	with derating	refer to **„Derating Graph“**		-40°C to +105°C
Maximum Case Temperature				+115°C
Temperature Coefficient				±0.02%/K
Thermal Impedance	natural convection 0.1m/s			36.0K/W
Operating Altitude				5000m
Operating Humidity	non-condensing			95% RH max.
Pollution Degree				PD2
MTBF	according to MIL-HDBK-217F, G.B.	V_{IN}= 5VDC	t_{AMB}= +25°C	3463 x 10^3 hours
			t_{AMB}= +85°C	749 x 10^3 hours
		V_{IN}= 24VDC	t_{AMB}= +25°C	3404 x 10^3 hours
			t_{AMB}= +85°C	1034 x 10^3 hours

Derating Graph
(@ Chamber and natural convection 0.1m/s)

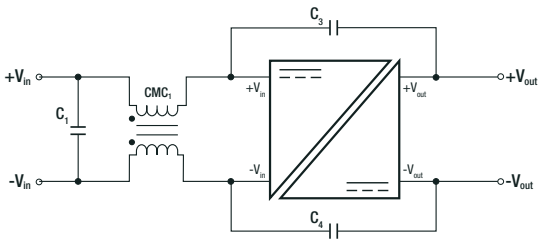


SAFETY AND CERTIFICATIONS

Certificate Type (Safety)	Report / File Number	Standard
Audio/Video, information and communication technology equipment - Part1: Safety requirements 3rd Edition	E491408-A6024-UL	UL62368-1, 3nd Edition, 2019
		CAN/CSA-C22.2 No. 62368-1-19 3rd Edition
Audio/Video, information and communication technology equipment - Part1: Safety requirements 3rd Edition (CB Scheme)	085-220180901-000	IEC62368-1:2018 3rd Edition
		EN IEC 62368-1:2020+A11:2020
RoHS2		RoHS 2011/65/EU + AM2015/863

EMC Compliance	Condition	Standard / Criterion
Electromagnetic Compatibility of Multimedia Equipment - Emission Requirements	with external filter	EN55032, Class B

EMC Filtering Suggestions according to EN55032



Component List Class B

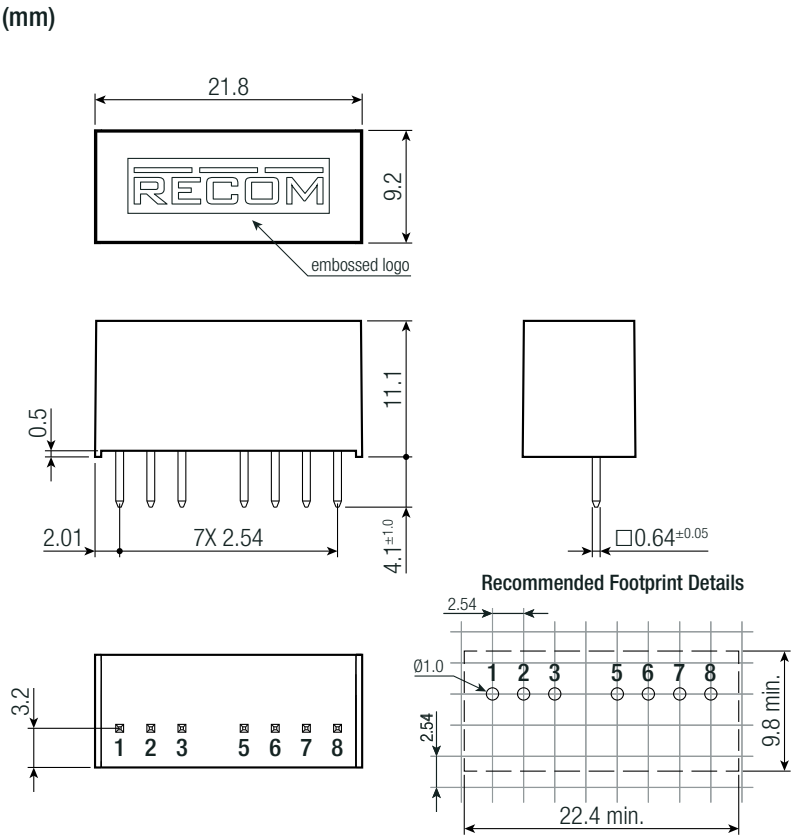
C1/C2	CMC1	C3/C4
10µF	11µH	3kV

Specifications (measured @ t_{amb}= 25°C, nom. V_{IN}, full load and after warm-up unless otherwise stated)

DIMENSION AND PHYSICAL CHARACTERISTICS

Parameter	Type	Value
Material	case	black plastic, (UL94 V-0)
	potting	PU, (UL94 V-0)
	PCB	FR4, (UL94 V-0)
Dimension (LxWxH)		21.8 x 9.2 x 11.1mm
Weight		4.7g typ.

Dimension Drawing (mm)



Recommended Footprint Details

Pinning Information

Pin #	Single
1	-Vin
2	+Vin
3	CTRL
5	NC
6	+Vout
7	-Vout
8	NC

NC= no connection

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

PACKAGING INFORMATION

Parameter	Type	Value
Packaging Dimension (LxWxH)	tube	520.0 x 11.5 x 19.0mm
Packaging Quantity	tube	22pcs
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.

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