Features

Regulated Converters

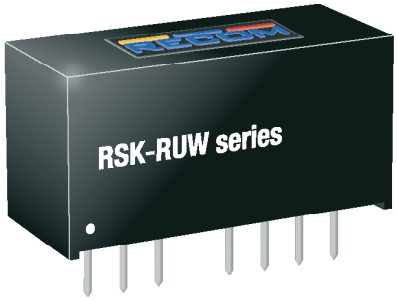
- 8:1 wide input voltage range
- SIP8 package
- Continuous short circuit protection
- No minimum load required
- 3kVDC/1min isolation
- 88.5% typical efficiency

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 4.5-36VDC. 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 a 3kVDC/1min isolation 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	75	2000

Notes:

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

Note2: Max Cap Load is tested at V_{IN}= 36VDC and full resistive load

Model Numbering

RSK-24 05 SRUW/H3

05: Output Voltage

H3: 3kVDC Isolation

C 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)

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

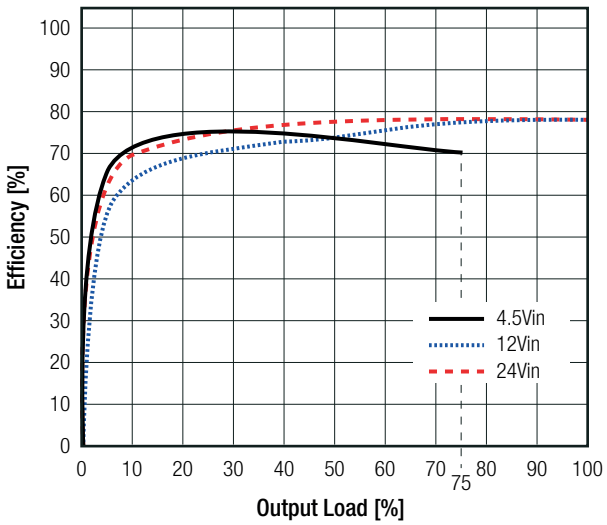
Notes:

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

continued on next page

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

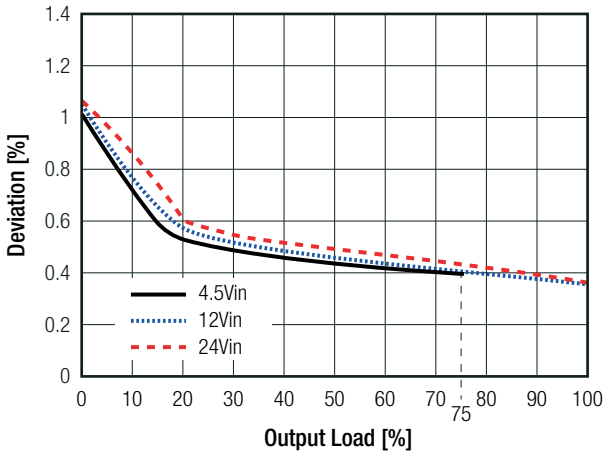
Efficiency vs. Load



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		functional

Notes:

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

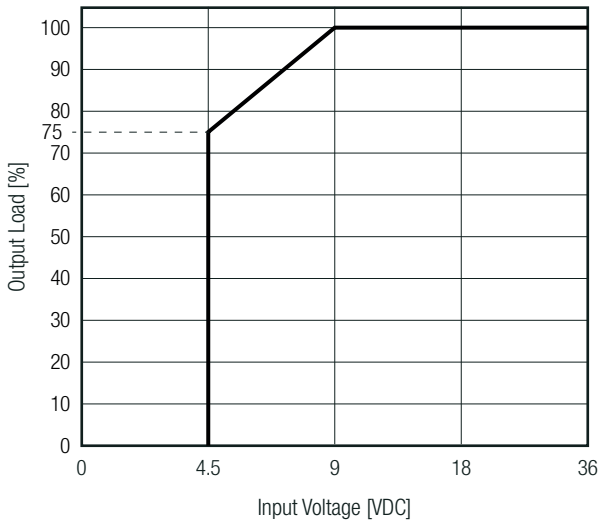
Note6: Refer to local safety regulations if input over-current protection is also required. Recommended fuse: slow blow type

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

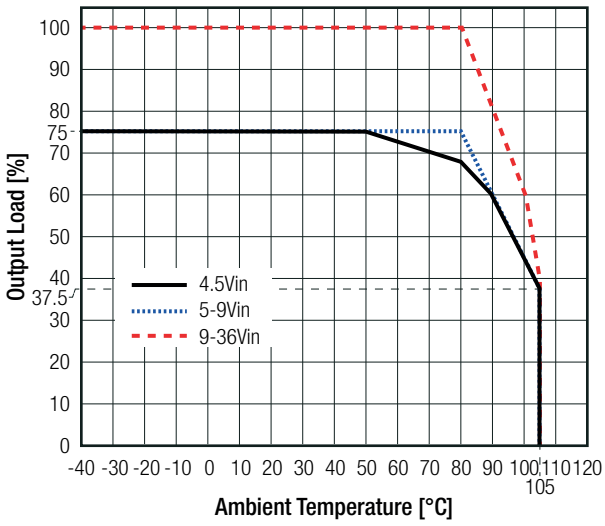
ENVIRONMENTAL

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

Line Derating
(measured @ Tamb= 25°C)



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

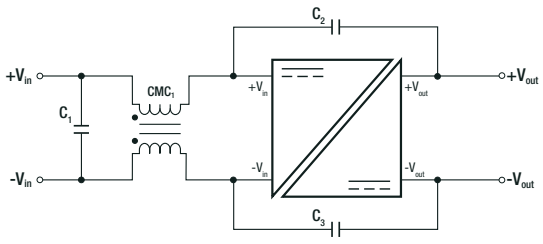


SAFETY AND CERTIFICATIONS

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

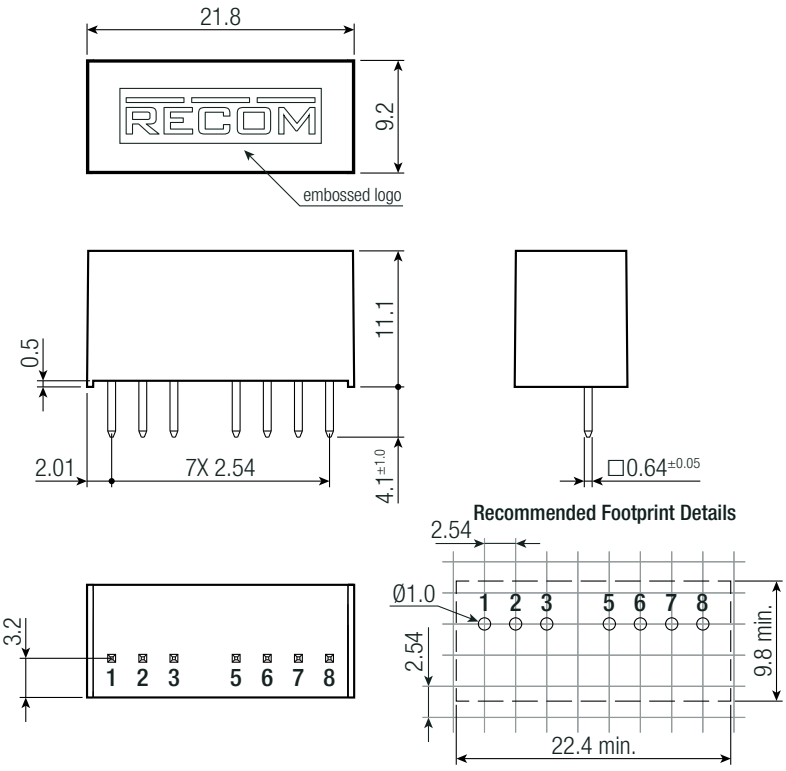
C1	CMC1	C2/C3
10µF	11µH	3kV

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.