

# Features

- 4:1 wide input voltage range
- SIP8 package
- Continuous short circuit protection
- No minimum load required
- 3kVDC/1min isolation

# Regulated Converters

## RSOK-Z

**1 Watt**  
**SIP8**  
**Single Output**



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

### Description

The RSOK-Z series is a cutting-edge DC/DC converter series with a wide 4:1 input voltage range of 9-36 VDC. This converter features ON/OFF control for added convenience and precision. The RSOK-Z boasts high accuracy and tight line and load regulation, ensuring reliable performance even under challenging conditions. The device also includes continuous short circuit protection and undervoltage lockout (UVLO) for added safety and security. This product is certified to meet the rigorous safety requirements of IEC/EN/UL 62368-1, making it suitable for use in a variety of industrial applications. With a maximum output power of 1W and the ability to operate at 0% minimum load, the RSOK-Z is both versatile and efficient. Finally, the RSOK-Z offers a 3kVDC/1min isolation and an operating range of -40°C to 90°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. <sup>(1)</sup> [%]	max. Capacitive Load <sup>(2)</sup> [µF]
RSOK-2405SZ/H3	9-36	5	200	75	1500

#### Notes:

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

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

### Model Numbering

**RSOK-24 05 SZ/H3**

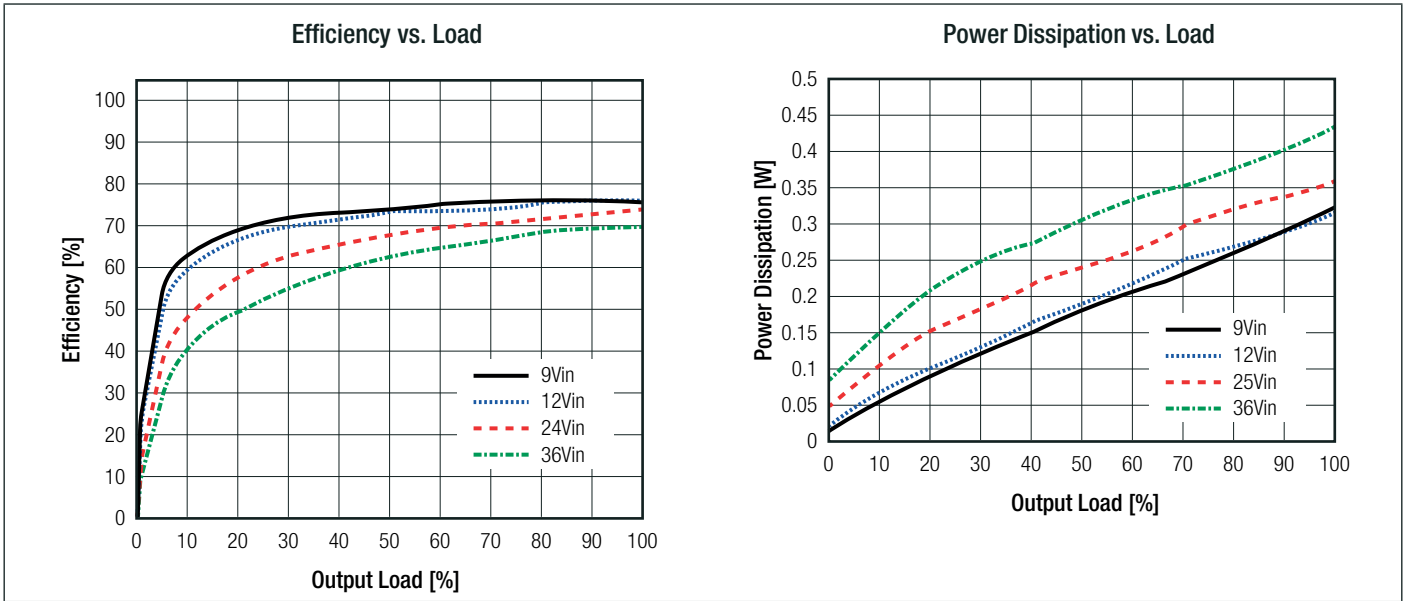
Output Voltage 24 05 3kVDC Isolation

### Specifications (measured @ t<sub>amb</sub>= 25°C, nom. V<sub>IN</sub>, 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 <sub>IN</sub> = 24VDC	9VDC		36VDC
Under Voltage Lockout (UVLO)	DC-DC ON	8.1VDC		8.7VDC
	DC-DC OFF	6VDC		6.6VDC
Input Current			160mA	
Quiescent Current			3mA	10mA
Minimum Load		0%		
ON/OFF CTRL	DC-DC ON		Open or V <sub>CTRL</sub> >1.5VDC	
	DC-DC OFF		Short to -V <sub>IN</sub> or <1.5VDC	
Input Current of CTRL Pin	DC-DC ON			1mA
Standby Current	DC-DC OFF		3mA	6mA
Internal Operating Frequency		100kHz		800kHz
Output Ripple and Noise <sup>(3)</sup>	20MHz BW			80mVp-p
<b>Notes:</b> Note3: Measurements are made with a 0.1µF MLCC across output (low ESR)				

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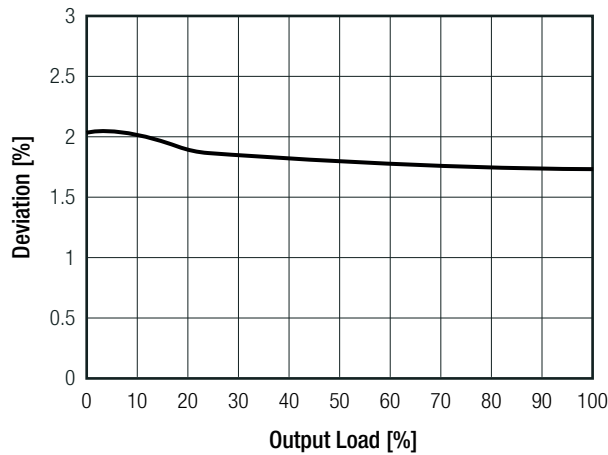
**Specifications** (measured @  $t_{amb}=25^{\circ}\text{C}$ , nom.  $V_{in}$ , full load and after warm-up unless otherwise stated)



**REGULATIONS**

Parameter	Condition	Value
Output Accuracy		$\pm 2.0\%$ typ.
Line Regulation	low line to high line, full load	$\pm 0.5\%$ max.
Load Regulation <sup>(4)</sup>	10% to 100% load	1.0% max.

**Deviation vs Load**  
(@nom  $V_{in}$ )



**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	nom. $V_{in}=24\text{VDC}$	120mA max.
Isolation Voltage <sup>(5)</sup>	1 minute	I/P to O/P
		3kVDC
		1.5kVAC/50Hz
Isolation Resistance	I/P to O/P, $V_{iso}=500\text{VDC}$	1G $\Omega$ 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

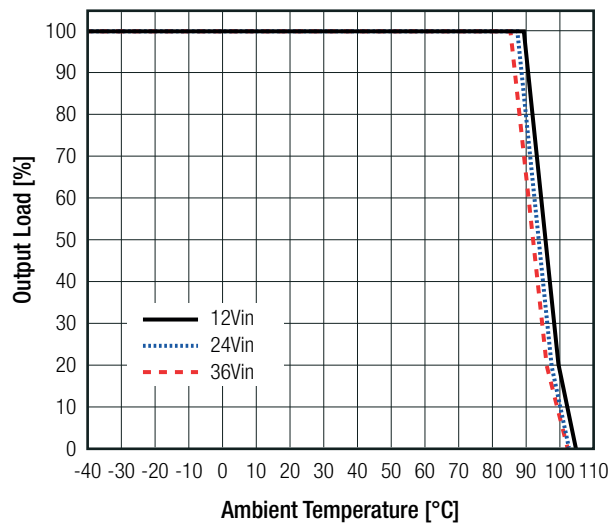
**Specifications** (measured @  $t_{amb}= 25^{\circ}\text{C}$ , nom.  $V_{in}$ , full load and after warm-up unless otherwise stated)

**ENVIRONMENTAL**

Parameter	Condition		Value
	with derating	refer to „Derating Graph“	
Operating Temperature Range			-40°C to +105°C
Maximum Case Temperature			+115°C
Temperature Coefficient			$\pm 0.02\%/K$
Thermal Impedance	natural convection 0.1 m/s		49.17K/W
Operating Altitude			5000m
Operating Humidity	non-condensing		95% RH max.
Pollution Degree			PD2
MTBF	according to MIL-HDBK-217F, G.B.	$t_{AMB}= +25^{\circ}\text{C}$	$2725 \times 10^3$ hours
		$t_{AMB}= +85^{\circ}\text{C}$	$867 \times 10^3$ hours

**Derating Graph**

(@ Chamber and natural convection 0.1 m/s)

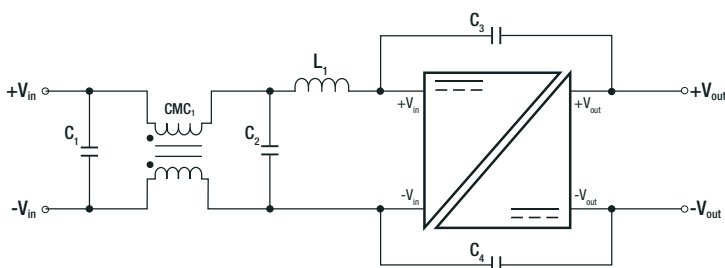


**SAFETY AND CERTIFICATIONS**

Certificate Type (Safety)	Report / File Number	Standard
Audio/Video, information and communication technology equipment - Part1: Safety requirements 3rd Edition	E491408-A6025-UL	UL62368-1, 3rd 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)	085-220180801-000	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**

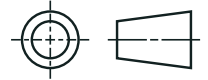
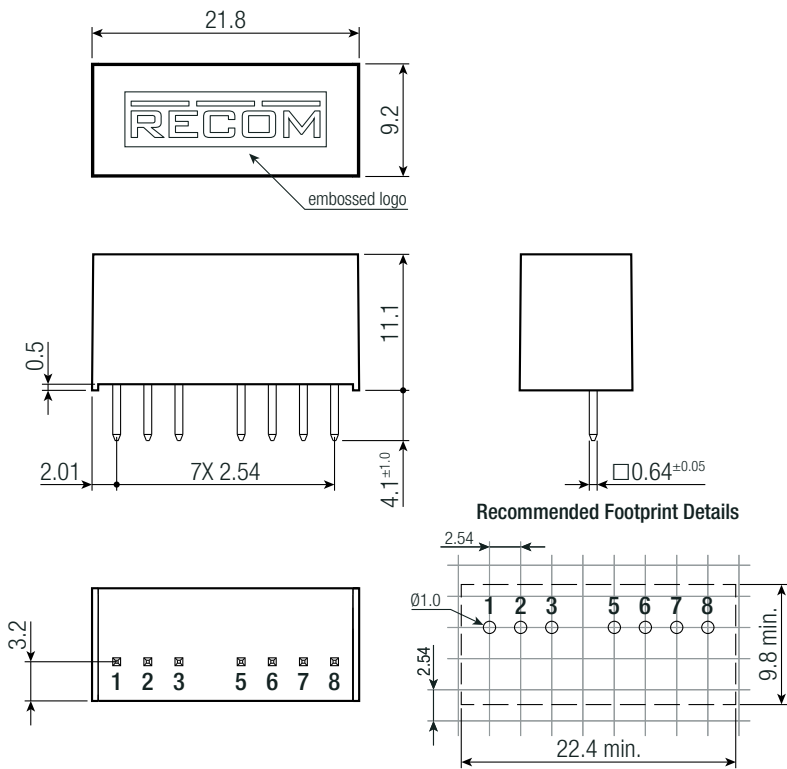
C1/C2	CMC1	C3/C4	L1
10 $\mu\text{F}$	51 $\mu\text{F}$	3kV	22 $\mu\text{H}$ , <a href="#">RLS-226</a>

**Specifications** (measured @  $t_{amb}=25^{\circ}\text{C}$ , 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)**



**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.

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