

# REC5K-RW series

5W / Isolated Single Output / 4:1 Input

## FEATURES

- 4kVDC/1sec isolation
- Industry standard 5W DIP24 package
- Low ripple and noise
- Derates to 110°C ambient temperature
- Wide 4:1 input
- ON/OFF control pin, UVLO, SCP
- 0% minimum load



Dimensions (LxWxH): 32.1 x 20.6 x 10.2mm (1.26 x 0.81 x 0.40inch)  
 12.0g (0.03 lbs)

## APPLICATIONS



## SAFETY & EMC



## DESCRIPTION

This series offers 4kVDC/1sec isolation and internal filtering to reduce noise, making it ideal for both industrial and other sophisticated high end applications. The compact DIP24 non-conductive plastic package ensures high power density without compromising performance, operating with derating up to 110°C. Short circuit protection, undervoltage lockout, and remote on/off control is standard, and the converter is certified according to UL/IEC/EN62368-1.

## SELECTION GUIDE

| Part Number        | Input Voltage Range [VDC] | Output Voltage [VDC] | Output Current [mA] | Efficiency typ. [%] | max. Capacitive Load [µF] |
|--------------------|---------------------------|----------------------|---------------------|---------------------|---------------------------|
| REC5K-2405SRW/H4/A | 9 - 36                    | 5                    | 1000                | 78                  | 3000                      |

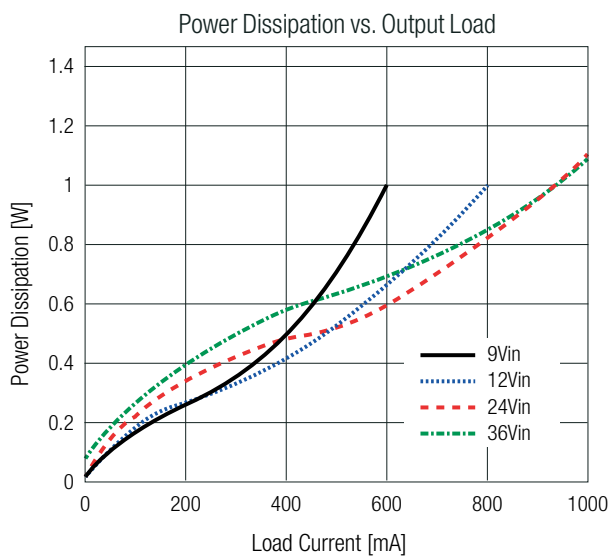
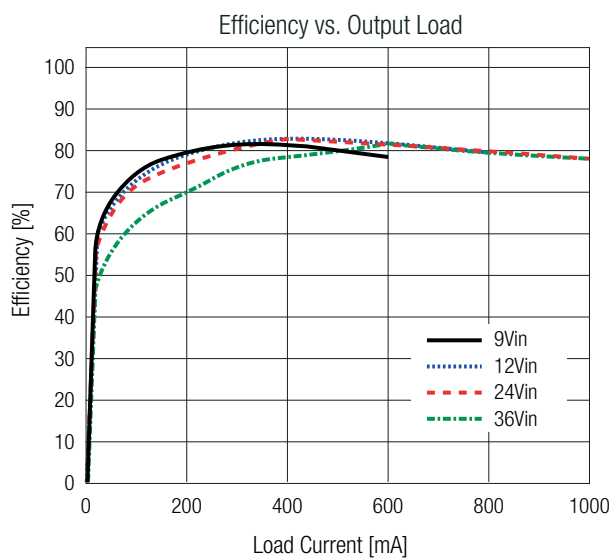
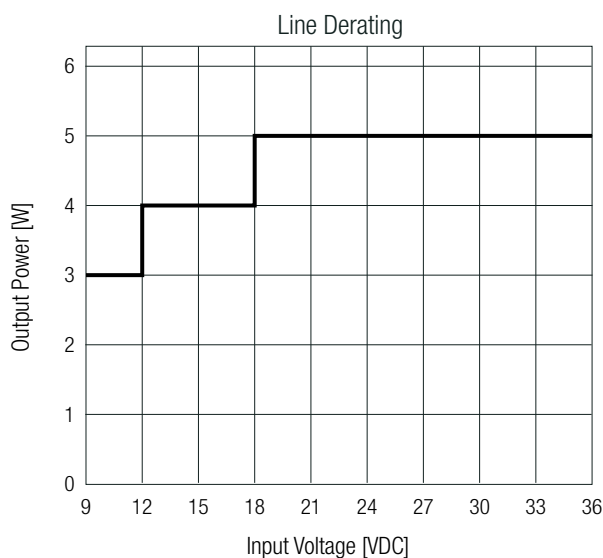
Note1: Efficiency is tested at nominal input and full load at +25°C ambient

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

**BASIC CHARACTERISTICS** (measured @  $T_{AMB} = 25^{\circ}C$ , nom.  $V_{IN}$ , full load and after warm-up unless otherwise stated)

| Parameter                              | Condition             | Min.                             | Typ. | Max.    |
|--|-----------------------|----------------------------------|------|---------|
| Input Voltage Range                    | nom. $V_{IN} = 24VDC$ | 9VDC                             |      | 36VDC   |
| Input Under Voltage Lockout (UVLO)     | DC-DC ON              | 8.2VDC                           |      | 8.8VDC  |
|  | DC-DC OFF             | 5.4VDC                           |      | 6.0VDC  |
| Input Current                          |                       | 240mA                            |      | 270mA   |
| Quiescent Current                      |                       |                                  |      | 20mA    |
| Minimum Load                           |                       | 0%                               |      |         |
| Startup time                           |                       |                                  |      | 50ms    |
| ON/OFF CTRL                            | DC-DC ON              | Open or $V_{CTRL} > 1.5VDC$      |      |         |
|  | DC-DC OFF             | Short to $-V_{IN}$ or $< 1.5VDC$ |      |         |
| Input Current on CTRL Pin              | DC-DC ON              |                                  |      | 1mA     |
| Standby Current                        |                       |                                  | 3mA  | 6mA     |
| Internal Operating Frequency           |                       |                                  |      | 400kHz  |
| Output Ripple and Noise <sup>(3)</sup> | 20MHz BW              |                                  |      | 80mVp-p |

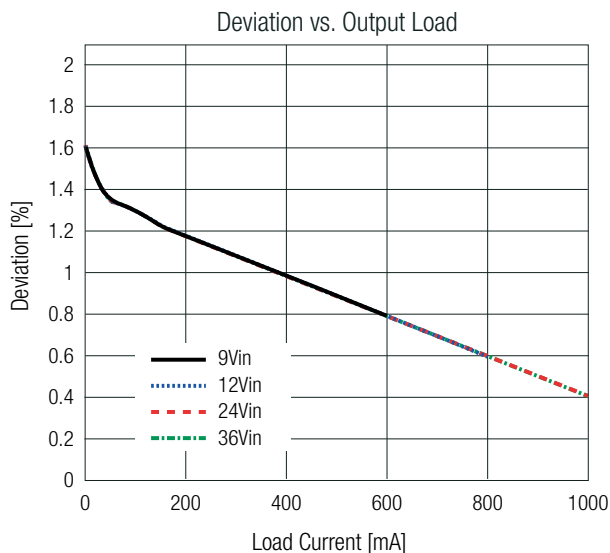
Note3: Measurements are made with a 10µF MLCC across output. (low ESR)



### REGULATIONS

| Parameter                        | Condition                         | Value      |
|----------------------------------|-----------------------------------|------------|
| Output Accuracy                  |                                   | ±2.5% typ. |
| Line Regulation                  | low line to high line, full load  | ±2.0% max. |
| Load Regulation <sup>(4)</sup>   | 10% to 100% load                  | 2.0% max.  |
| Transient Response Recovery Time | 25% load step change (75% - 100%) | 500µs      |

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



### PROTECTIONS

| Parameter                        | Condition                      | Value                      |
|----------------------------------|--------------------------------|----------------------------|
| Short Circuit Protection (SCP)   |                                | hiccup mode, auto recovery |
| Short Circuit Input Current      | nom. $V_{in}$ = 24VDC          | 120mA max.                 |
| Isolation Voltage <sup>(5)</sup> | 1 second                       | 4kVDC                      |
|                                  | 1 minute                       | 2kVAC/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                 |

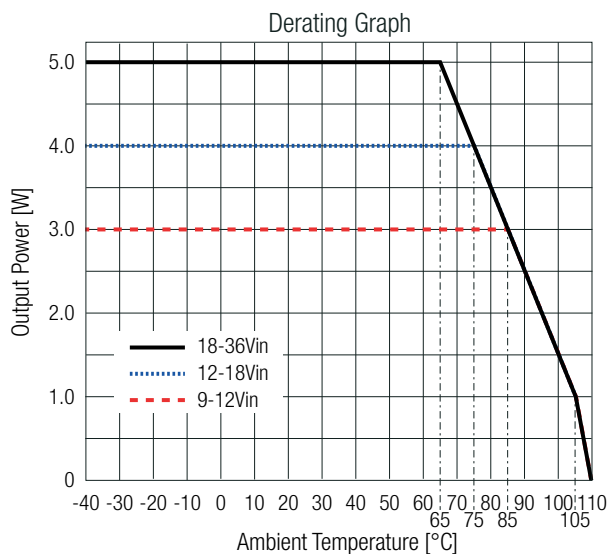
Note5: For repeat Hi-Pot testing, reduce the time and/or the test voltage

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

### ENVIRONMENTAL

| Parameter                   | Condition                               | Value             |                              |
|-----------------------------|---|-------------------|------------------------------|
| Operating Temperature Range | with derating refer to „Derating Graph“ | -40°C to +100°C   |                              |
| Maximum Case Temperature    |   | +110°C            |                              |
| Operating Altitude          |   | 5000m             |                              |
| Operating Humidity          | non-condensing                          | 95% RH max.       |                              |
| Polution Degree             |   | PD2               |                              |
| MTBF                        | according to MIL-HDBK-217F, G.B., +25°C | $T_{AMB}$ = +25°C | 1741 x 10 <sup>3</sup> hours |
|                             |   | $T_{AMB}$ = +65°C | 661 x 10 <sup>3</sup> hours  |

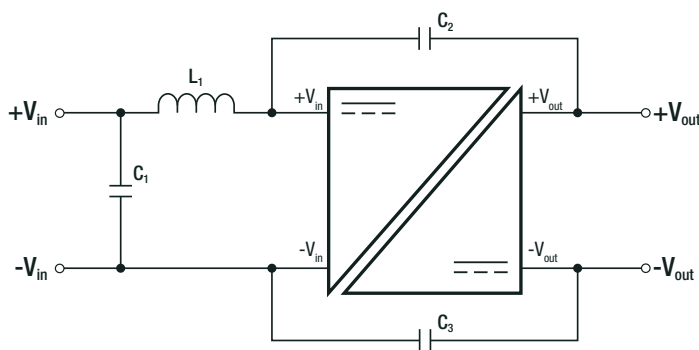
### ENVIRONMENTAL



### SAFETY AND CERTIFICATIONS

| Certificate Type (Safety)  | Report Number        | Standard                                 |
|--|----------------------|--|
| Audio/Video, information and communication technology equipment - Part1: Safety requirements 3rd Edition             | E491408-A6026-UL     | UL62368-1:2019 3rd Edition               |
|  |                      | CAN/CSA-C22.2 No. 62368-1-19 3rd Edition |
| Audio/Video, information and communication technology equipment - Part1: Safety requirements 3rd Edition (CB Scheme) | 085-220181101-000    | 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

| L1                      | C1         | C2/C3     |
|-------------------------|------------|-----------|
| <a href="#">RLS-226</a> | 22 $\mu$ F | 1nF/4kVDC |

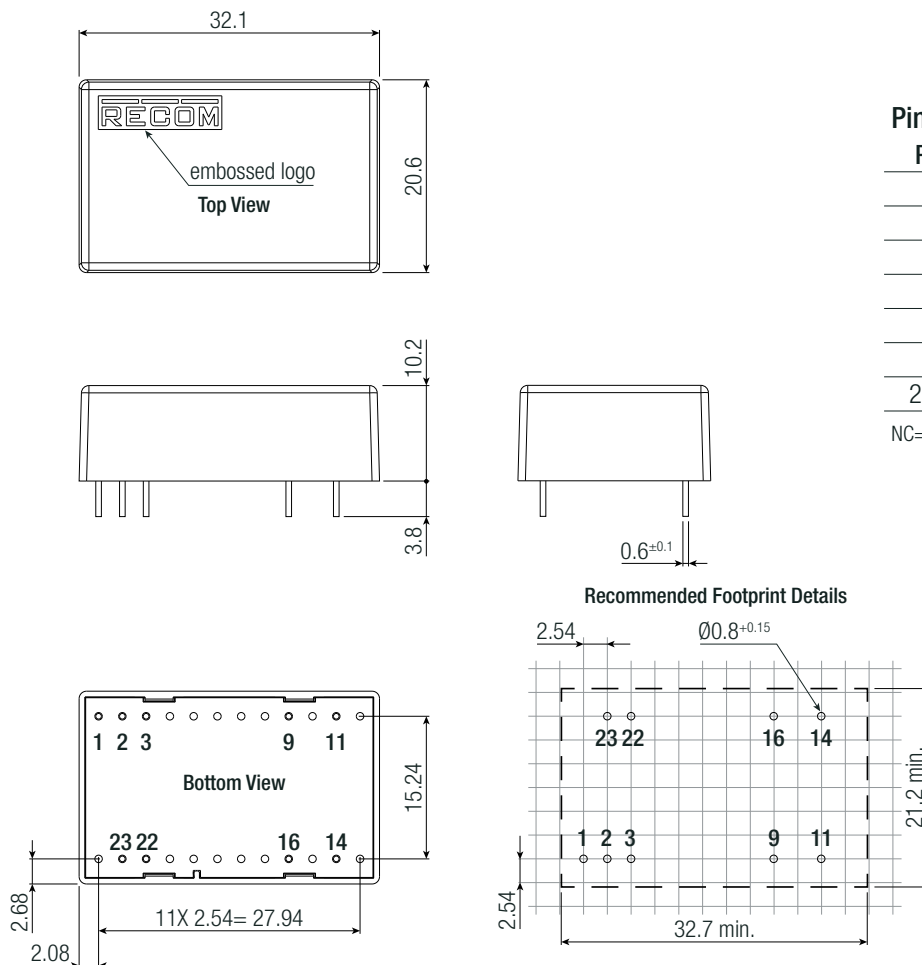
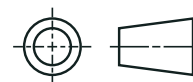
### DIMENSION & PHYSICAL CHARACTERISTICS

| Parameter         | Type    | Value                     |
|-------------------|---------|---------------------------|
| Material          | case    | black plastic, (UL94 V-0) |
|                   | potting | PU, (UL94 V-0)            |
|                   | PCB     | FR4, (UL94 V-0)           |
| Dimension (LxWxH) |         | 32.1 x 20.6 x 10.2mm      |
|                   |         | 1.26 x 0.81 x 0.40inch    |
| Weight            |         | 12g typ.                  |
|                   |         | 0.03 lbs                  |

# REC5K-RW series

5W / Isolated Single Output / 4:1 Input

## Dimension Drawing (mm)



## Pinning Information

| Pin #  | Function |
|--------|----------|
| 1      | CTRL     |
| 2, 3   | -Vin     |
| 9      | NC       |
| 11     | NC       |
| 14     | +Vout    |
| 16     | -Vout    |
| 22, 23 | +Vin     |

NC= No Connection

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

## PACKAGING INFORMATION

| Parameter                   | Type           | Value                 |
|-----------------------------|----------------|-----------------------|
| Packaging Dimension (LxWxH) | tube           | 512.9 x 22.2 x 20.9mm |
| Packaging Quantity          |                | 14pcs                 |
| 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.