Technical Data Sheet

# DS-RVP003-RMR-013-1215-1

## 1W ◊ Regulated Isolated Output ◊ 1:1 Input

RECOM
DC/DC Converter

## FEATURES

- Isolation voltage 3kVDC/min
- Operating temperature: -40°C to +85°C
- Short circuit protection
- Castellated connections




Dimensions (LxWxH): 25.4 x 15.24 x 4.8mm (1.0 x 0.6 x 0.19 inch)
1.40g (0.003lbs)

## DESCRIPTION

This solution is composed of RVP003 and the matching transformer RMR-013, combined with necessary rectifier diodes and resistive-capacitive components to achieve an isolated non-regulated power supply with an input of 12V ± 10% and an output of 15V/67mA. The primary and secondary isolation withstand voltage is not less than 3000VDC, providing long-term short-circuit protection and self-recovery. It is mainly applied in distributed power supply systems on circuit boards where a set of power sources that are isolated from the input is required to achieve safety and/or anti-interference.

## SELECTION GUIDE

| Part Number | Input Voltage [VDC] | Output Voltage [VDC] | Output Current max. [mA] | Efficiency typ. [%] | max. Capacitive[1] [µF] |
|---|---|---|---|---|---|
| DS-RVP003-RMR-013-1215-1 | 12 | 15 | 67 | 88 | 3300 |

Note 1: Max. capacitive load is tested at nominal input voltage and full load

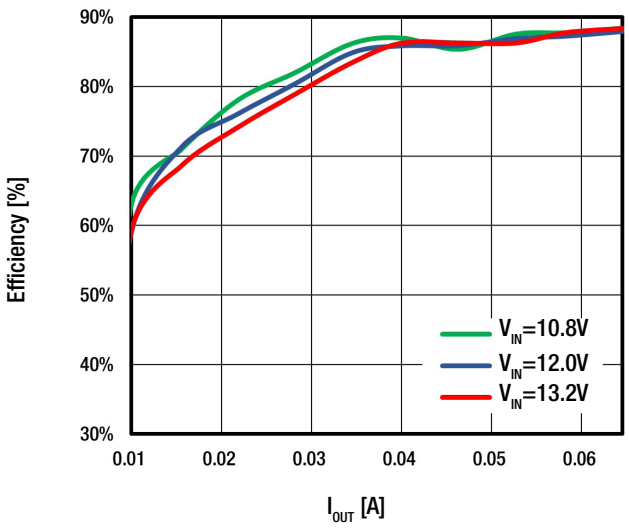
## BASIC CHARACTERISTIC (measured @ $T_{AMB}$= 25°C, nominal Input and full load after warm-up time unless otherwise noted)

| Parameter | Condition | Min. | Typ. | Max. |
|---|---|---|---|---|
| Input Voltage Range | nom.$V_{IN}$=12V±10% | 10.8VDC | 12VDC | 13.2VDC |
| Minimum Load | | 0% | | |
| Internal Operating Frequency | | | 250kHz | |
| Output Ripple and Noise | 20MHz BW | | | 100mVp-p |

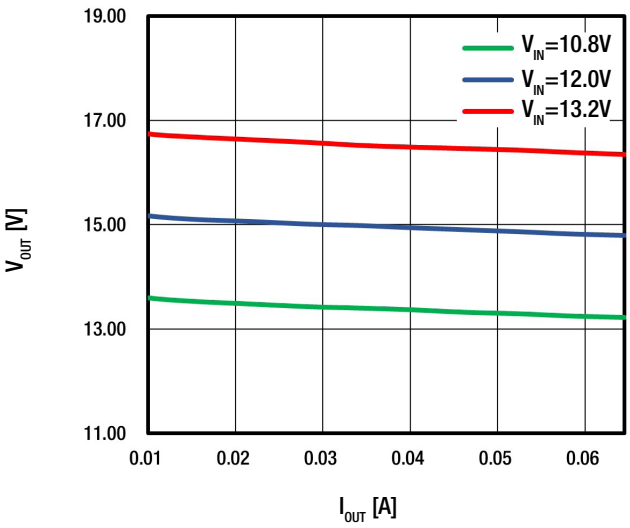
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## SPECIFICATIONS (measured @ $T_{AMB}$= 25°C, nominal Input and full load after warm-up time unless otherwise noted)

Typical Effiency vs. Output Current Curve

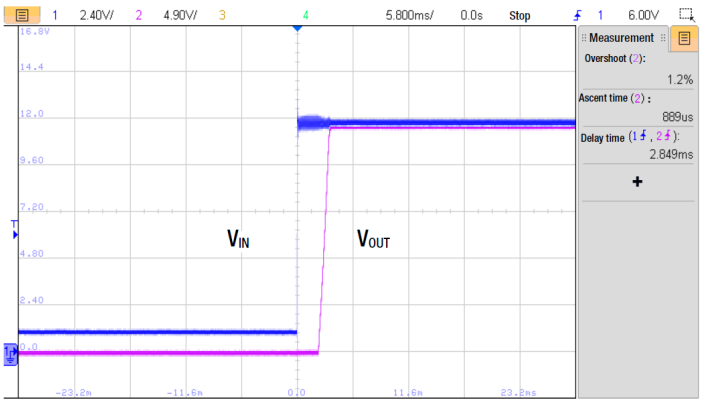



Output Voltage vs. Output Current

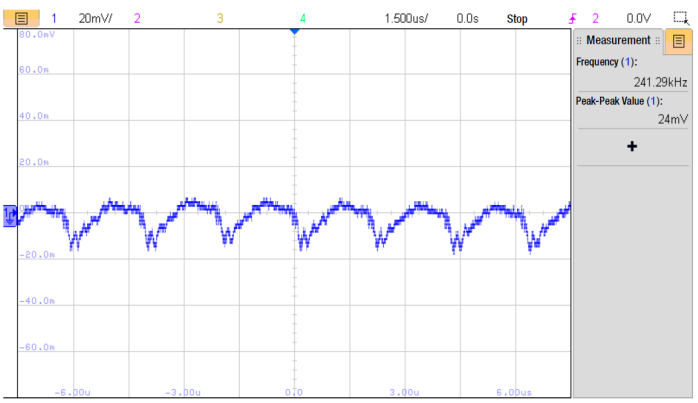



### Typical Waveform

$V_{IN}$ =12V, Full load startup waveform




$V_{IN}$ =12V, Full-load output voltage ripple waveform




## REGULATIONS

| Parameter | Condition | Values |
|---|---|---|
| Output Accuracy | | ±2.0% Typ. |
| Line Regulation | low line to high line, full load | 1.1% of 1.2%Vin typ. |
| Load Regulation | 10% to 100% load, $V_{OUT}$ | ±3.0% Typ. |

## PROTECTION AND ISOLATION CAPABILITIES

| | | |
|---|---|---|
| Short Circuit Protection | | continuous, automatic recovery |
| Isolation Voltage | tested for 1 minute | 3kVDC min. |
| Insulation Grade | | functional |

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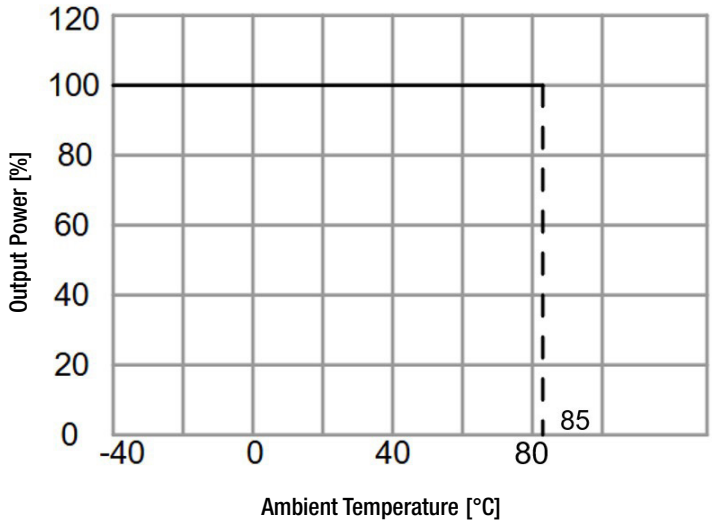
RECOM DC/DC Converter

## ENVIRONMENT

| Parameter | Condition | Values |
|---|---|---|
| Operating Temperature Range | full load | -40°C to +85°C |

### Derating Graph

(@ Chamber and natural convection 0.1m/s)

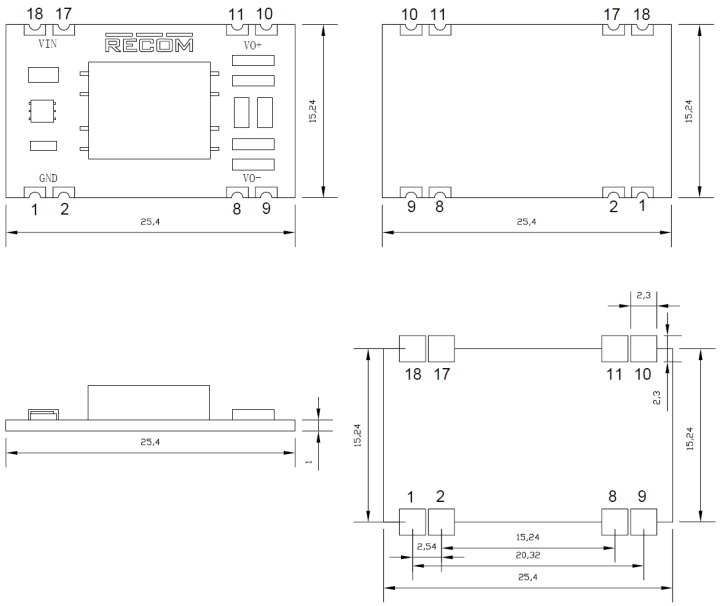



## DIMENSION & PHYSICAL CHARACTERISTICS

| Parameter | Type | Values |
|---|---|---|
| Material | PCB | FR4, (UL94 V-0) |
| Dimension (LxWxH) | | 25.4 x 15.24 x 4.8 mm |
| Weight | | 1.40g typ. (0.003 lbs) |

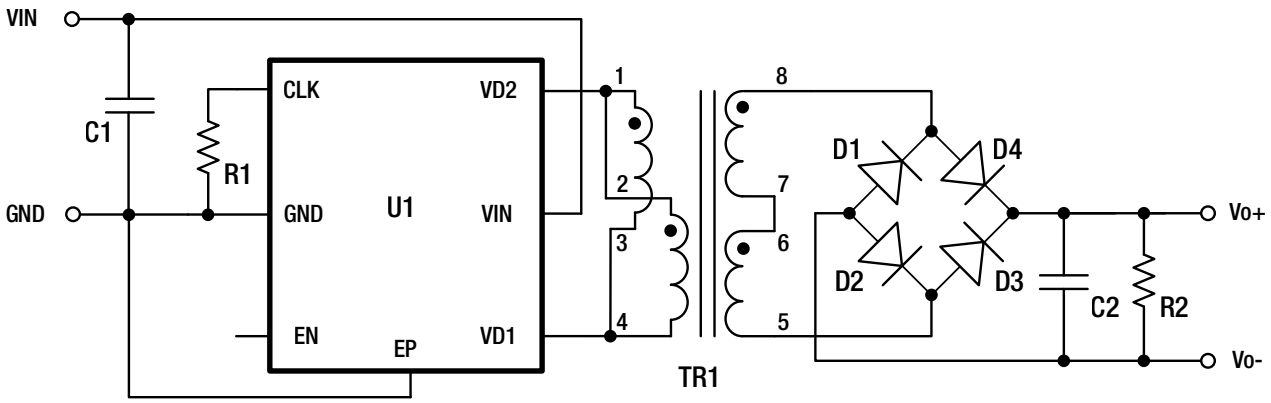
### Dimension Drawing (mm)

| Pinning Information | |
|---|---|
| Pin # | Single |
| 1,2 | GND |
| 8,9 | $V_{OUT-}$ |
| 10,11 | $V_{OUT+}$ |
| 17,18 | $V_{IN}$ |




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## SCHEMATIC




## BOM

| Component Designator | Description | Package | Manufacturer Part Number | Manufacturer |
|---|---|---|---|---|
| C1 | 1uF/50V-X7R | 0805 | CC0805KKX7R9BB105 | YAGEO |
| C2 | 4.7uF/50V-X5R | 0805 | CC0805KKX5R9BB475 | YAGEO |
| R1 | NC | - | - | - |
| R2 | 10KΩ±1% | 0805 | RC0805FR-0710KL | YAGEO |
| D1,D2,D3,D4 | 60V/1A | SOD-123 | MBRX160 | MDD |
| U1 | - | DFN2x2 | RVP003 | RECOM |
| TR1 | - | SMD | RMR-013 | RECOM |

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