

## Features

### Regulated Converters

- Ultracompact Low Profile AC-DC Power Supply
- Ultra-low 30mW Standby Power Consumption
- 1 Watt or 2 Watt PCB Mount Package
- Extra Wide Input Voltage Range (80~264VAC)
- Class II Power Supply with 3kVAC Isolation
- -25°C to +85°C Operating Temp
- Low Output Ripple
- Short Circuit Protected Outputs
- EN, UL and CE Certified

### Description

The RAC01-SC and RAC02-SC series are ultra-compact universal input AC/DC power modules for PCB mounting. They feature high efficiency, low standby power, high operating temperature, soft start and short-circuit protection as well as a built-in EMC Class B filter. Output voltages range from 3.3VDC to 24VDC.

### Selection Guide

| Part Number | Input Range (VAC) | Output Voltage (VDC) | Output Current (mA) | Efficiency typ. (%) | Max Capacitive Load <sup>(1+2)</sup> |
|-------------|-------------------|----------------------|---------------------|---------------------|--------------------------------------|
| RAC01-3.3SC | 80-264            | 3.3                  | 300                 | 65                  | 2200µF                               |
| RAC02-3.3SC |                   |                      | 600                 | 66                  | 2700µF                               |
| RAC01-05SC  | 80-264            | 5                    | 200                 | 68                  | 1600µF                               |
| RAC02-05SC  |                   |                      | 400                 | 70                  | 2000µF                               |
| RAC01-09SC  | 80-264            | 9                    | 111                 | 70                  | 470µF                                |
| RAC02-09SC  |                   |                      | 222                 | 72                  | 560µF                                |
| RAC01-12SC  | 80-264            | 12                   | 83                  | 72                  | 180µF                                |
| RAC02-12SC  |                   |                      | 167                 | 74                  | 200µF                                |
| RAC01-15SC  | 80-264            | 15                   | 67                  | 72                  | 180µF                                |
| RAC02-15SC  |                   |                      | 133                 | 74                  | 200µF                                |
| RAC01-24SC  | 80-264            | 24                   | 42                  | 73                  | 68µF                                 |
| RAC02-24SC  |                   |                      | 83                  | 77                  | 68µF                                 |

### Specifications (Ta=25°C and after warm up time, measured at 115VAC/60Hz and 230VAC/50Hz )

|                                                                                   |                                                   |                |
|-----------------------------------------------------------------------------------|---------------------------------------------------|----------------|
| Input Voltage Range (with derating)                                               | 80-264VAC or 115-370VDC                           |                |
| Rated Power                                                                       | 1 or 2 Watts max.                                 |                |
| Input Frequency Range (for AC Input)                                              | 47-63Hz                                           |                |
| Input Current (full load)                                                         | RAC01 (115/230VAC)                                | 34mA/23mA max. |
|                                                                                   | RAC02 (115/230VAC)                                | 55mA/36mA max. |
| No Load Power Consumption                                                         | @115VAC                                           | 30mW typ.      |
|                                                                                   | @230VAC                                           | 80mW typ.      |
| Inrush Current (<0.5ms)                                                           | 30/60A max.                                       |                |
| Leakage Current                                                                   | 0.25mA max.                                       |                |
| Output Voltage Tolerance (combined Tolerance, Line Reg and Load Reg at full load) | ±5% max.                                          |                |
| Line Voltage Regulation                                                           | low line, high line at full load                  | ±2% max.       |
| Load Voltage Regulation                                                           | 10% to 100% full load                             | ±6% max.       |
| Output Ripple (20MHz BW limited)                                                  | 3.3V Output                                       | <150mVrms      |
|                                                                                   | All others                                        | <100mVrms      |
| Operating Frequency (full load)                                                   | 30kHz typ.                                        |                |
| Minimum Load = 0%                                                                 | specifications valid for 10% minimum load only    |                |
| RMS Isolation Voltage (input to output)                                           | 3kVAC / 1 minute                                  |                |
| Isolation Resistance                                                              | 1 GΩ min.                                         |                |
| Short Circuit Protection                                                          | Hiccup, Automatic Restart                         |                |
| Operating Temperature Range                                                       | (1W, natural convection, no derating)             | -25°C to +80°C |
|                                                                                   | (2W natural convection, no derating)              | -25°C to +75°C |
|                                                                                   | (natural convection, with derating)               | -25°C to +85°C |
| Storage Temperature Range                                                         | -40°C to +100°C                                   |                |
| Humidity                                                                          | non-condensing                                    | 95% RH max     |
| Case Material                                                                     | Plastic Case, Silicone potting material (UL94V-0) |                |

continued on next page

## POWERLINE

### AC/DC-Converter

with 3 year Warranty

RECOM

## 1 - 2 Watt Single Output

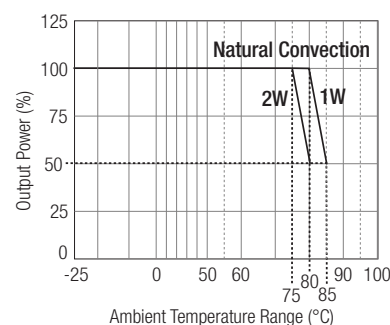


EN-60950-1 Certified

UL-60950-1 Certified

## RAC01-C RAC02-C

## Derating Graph (Ambient Temperature)



Please Read Application Notes

www.recom-power.com

**Specifications** ( $T_a=25^{\circ}\text{C}$  and after warm up time, measured at 115VAC/60Hz and 230VAC/50Hz )

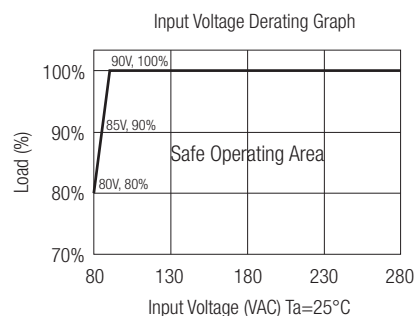
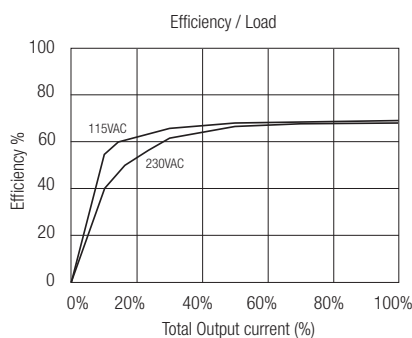
|                     |                                         |                             |
|---------------------|-----------------------------------------|-----------------------------|
| Package Weight      |                                         | 25g                         |
| Packing Quantity    |                                         | 22 pcs                      |
| EMC                 | Conducted and Radiate<br>Noise Immunity | EN55022 Class B<br>EN55024  |
| MTBF                | +25°C                                   | 666 x 10 <sup>3</sup> hours |
| 230VAC              | +55°C                                   | 395 x 10 <sup>3</sup> hours |
| using MIL-HDBK-217F | +80°C                                   | 125 x 10 <sup>3</sup> hours |
| Certifications:     |                                         |                             |
| UL General Safety   | File Nr. E224736                        | UL-60950-1, 2nd Edition     |
| EN General Safety   | SPCLVD 1202026                          | EN-60950-1, 2nd Edition     |
| CE                  | Report: 2011-04-19                      | EN55022 Class B             |

**Notes:**

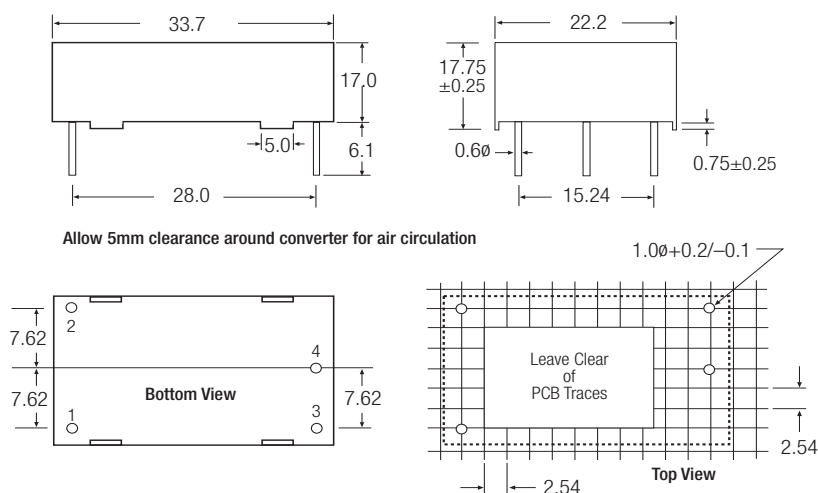
Note1: Measured @ 230VAC / 50Hz /  $T_a=25^{\circ}\text{C}$  with constant resistant mode at full load.

Note2: If used @ 115VAC / 60Hz with full load, max. capacitive load is less, please contact RECOM for detailed information.

**RAC01-05SC**



**Standard Package Style and Pinning**



**Pin Connections**

| Pin # | Single Output |
|-------|---------------|
| 1     | VAC in (N)    |
| 2     | VAC in (L)    |
| 3     | -VDC out      |
| 4     | +VDC out      |

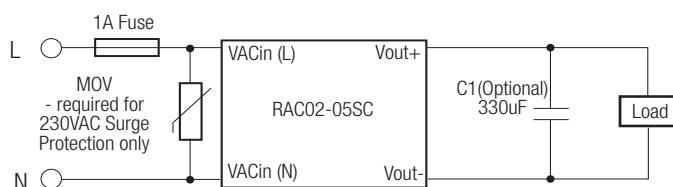
Tolerance  $\pm 0.5$  mm unless otherwise specified

**Recommended Application Circuit**

Compact single output regulated power supply

Suggested fuse rating: 1A Slow Blow.

An external MOV is required for 230VAC operation. The varistor should comply with IEC-61051-2 e.g. Epcos S14 series



Add C1 to reduce output ripple (use low ESR type)

The product information and specifications are subject to change without prior notice. All products are designed for non-safety critical commercial and industrial applications. The Buyer agrees to implement safeguards that anticipate the consequences of any failures that might cause harm, loss of life and/or damage property.