

## Features

### Regulated Converters

- Ultracompact Low Profile AC-DC Power Supply
- 3 Watt PCB Mount Package
- Universal Input Voltage Range
- Class II Power Supply with 3kVAC Isolation
- Only 80mW Consumption in Standby
- -25°C to +85°C Operating Temperature
- Low Output Ripple/Noise
- Short Circuit Protected Outputs
- EN, UL and CE Certified

### Description

The RAC03-SC series is an ultra-compact universal input AC/DC power module for PCB mounting. It features high efficiency, low standby power, high operating temperature, soft start, low output ripple/noise, overload and short-circuit protection as well as a built-in EMC Class B filter. Output voltages range from 3.3VDC to 24VDC, including a 3.8VDC version designed for battery chargers and GSM modems.

### Selection Guide

| Part Number | Input Range (VAC) | Output Voltage (VDC) | Output Current (mA) | Efficiency (%) | Max Capacitive Load <sup>(1+2)</sup> |
|-------------|-------------------|----------------------|---------------------|----------------|--------------------------------------|
| RAC03-3.3SC | 80-264            | 3.3                  | 900                 | 67             | 6800µF                               |
| RAC03-3.8SC | 80-264            | 3.8                  | 900                 | 67             | 6800µF                               |
| RAC03-05SC  | 80-264            | 5                    | 600                 | 72             | 4000µF                               |
| RAC03-09SC  | 80-264            | 9                    | 333                 | 76             | 3000µF                               |
| RAC03-12SC  | 80-264            | 12                   | 250                 | 76             | 680µF                                |
| RAC03-15SC  | 80-264            | 15                   | 200                 | 76             | 470µF                                |
| RAC03-24SC  | 80-264            | 24                   | 125                 | 78             | 200µF                                |

### Specifications (measured at TA 25°C, full load after warm-up)

|   |  |                  |
|---|--|------------------|
| Input Voltage Range (with derating)   | 80-264VAC or 115-370VDC                        |                  |
| Rated Power   | 3 Watts max.                                   |                  |
| Input Frequency Range (for AC Input)  | 47-63Hz  |                  |
| Input Current (full load)   | 115/230VAC                                     | 85mA/40mA max.   |
| No Load Power Consumption   | 80mW typ.                                      |                  |
| Inrush Current (<0.5ms)   | 115/230VAC                                     | 30/60A max.      |
| Leakage Current   | 0.85mA 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               | ±3% max.         |
| Load Voltage Regulation   | 10% to 100% full load                          | ±6% max.         |
| Output Ripple and Noise (20MHz BW limited)  | 3.3V, 3.8V, 5V Output                          | 120mVp-p max.    |
|   | All others                                     | 150mVp-p max.    |
| Operating Frequency @ full load   | 35kHz typ                                      |                  |
| Hold-up Time  | 115 VAC  | 15ms typ.        |
|   | 230VAC   | 80ms typ.        |
| Minimum Load = 0%   | specifications valid for 10% minimum load only |                  |
| RMS Isolation Voltage   | input to output                                | 3kVAC / 1 minute |
| Isolation Resistance  | input to output                                | 1 GΩ min.        |
| Isolation Capacitance   | input to output                                | 1000pF typ.      |
| Short Circuit Protection  | Hiccup, Automatic Restart                      |                  |
| Operating Temperature Range   | (natural convection, without 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, Silicon filled (UL94V-0)         |                  |
| Package Weight  | 30g  |                  |
| Packing Quantity  | 12 pcs   |                  |
| EMC   | Conducted and Radiated                         | EN 55022 Class B |
|   | Noise Immunity                                 | EN 55024         |

continued on next page

## POWERLINE

### AC/DC-Converter

with 3 year Warranty

# RECOM

## 3 Watt Single Output

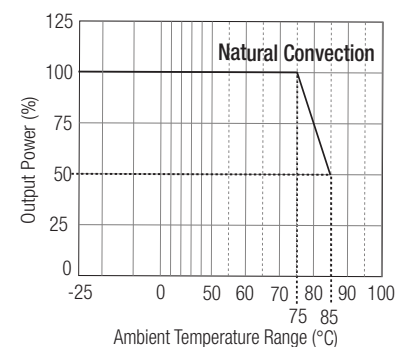
  
E224736



**EN-60950-1 Certified**  
**UL-60950-1 Certified**

## RAC03-SC

### Derating Graph (Ambient Temperature)



Please Read Application Notes

[www.recom-power.com](http://www.recom-power.com)

### Specifications (measured at TA 25°C, full load after warm-up)

|                     |                      |                              |
|---------------------|----------------------|------------------------------|
| MTBF                | +25°C                | >550 x 10 <sup>3</sup> hours |
| 230VAC              | +55°C                | >285 x 10 <sup>3</sup> hours |
| using MIL-HDBK-217F | +80°C                | >76 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: T110809202-E | EN55022 Class B              |

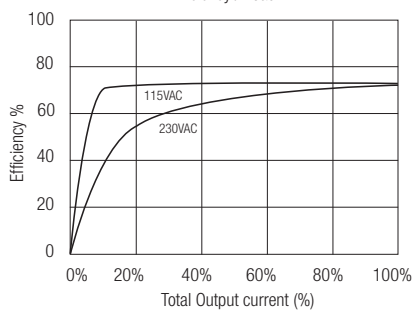
#### Notes:

Note1: Measured @ 230VAC / 50Hz / Ta=25°C with constant resistive load at full load.

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

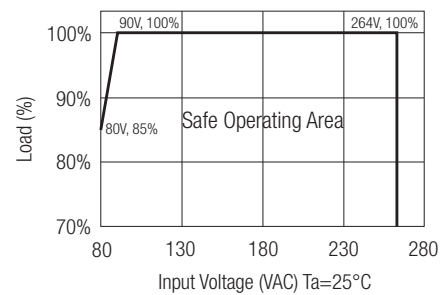
#### RAC03-05SC

Efficiency / Load

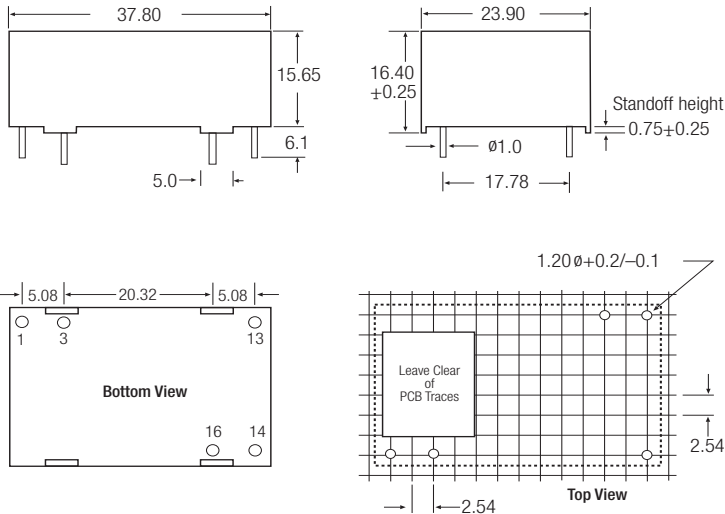


#### Input Voltage Derating Graph

Input Voltage Derating Graph



### Standard Package Style and Pinning



#### Pin Connections

| Pin # | Single Output |
|-------|---------------|
| 1     | VAC in (L)    |
| 3     | VAC in (N)    |
| 13    | NC            |
| 14    | -VDC out      |
| 16    | +VDC out      |

NC = No Connection

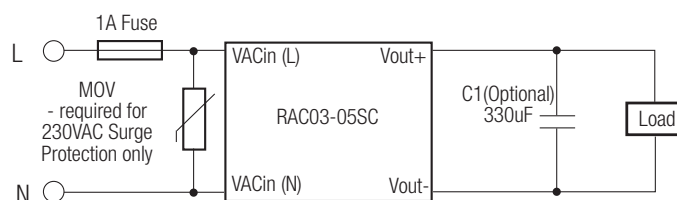
Tolerance ± 0.5 mm unless otherwise specified

### 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.