

# Features

## Regulated Converters

- Compact AC-DC Power Supply
- 20 Watt PCB Mount Package
- Universal Input Voltage Range
- 3000VAC Isolation
- Low Output Ripple and Noise
- Short Circuit Protected
- Low Temperature Operation
- Anti Vibration Mechanical Fixing
- CE Marked

### Description

Compact switching AC/DC power module for PCB, screw-terminal connection or DIN-rail mounting. The converter is pin compatible with the RAC05-SB and RAC10-SB models. A threaded insert is provided for additional mechanical fixing.

### Selection Guide

| Part Number | Input Range (VAC) | Output Voltage (VDC) | Output Current (mA) | Typical Efficiency (%) | Maximum Power (W) | Max. Capacitive Load |
|-------------|-------------------|----------------------|---------------------|------------------------|-------------------|----------------------|
| RAC20-3.3SB | 90-264            | 3.3                  | 3600                | 74                     | 11.9W             | 4500µF               |
| RAC20-05SB  | 90-264            | 5                    | 3600                | 78                     | 18W               | 3500µF               |
| RAC20-12SB  | 90-264            | 12                   | 1660                | 82                     | 20W               | 1800µF               |
| RAC20-15SB  | 90-264            | 15                   | 1330                | 83                     | 20W               | 1500µF               |
| RAC20-24SB  | 90-264            | 24                   | 833                 | 83                     | 20W               | 1200µF               |

\*add suffix "-ST" for screw terminal module e.g. RAC20-05SB-ST

### Specifications (typical at 25°C and after warm up time unless otherwise specified)

|  |  |                              |
|--|--|------------------------------|
| Input Voltage Range  | 90-264VAC or 120-370VDC                      |                              |
| Rated Power  | 20 Watts max.                                |                              |
| Input Frequency Range (for AC Input)                       | 47-440Hz                                     |                              |
| Input Current (full load)                                  | 115VAC/230VAC                                | 385mA / 250mA max.           |
| No Load Power Consumption                                  | 115VAC/230VAC                                | 470mW max.                   |
| Inrush Current (<2ms)                                      | 115VAC                                       | 20A max.                     |
|  | 230VAC                                       | 40A max.                     |
| Leakage Current  | 0.75mA max.                                  |                              |
| Output Voltage Accuracy (Full load)                        | ±2%  |                              |
| Line Voltage Regulation (low line, high line at full load) | ±0.5% typ.                                   |                              |
| Load Voltage Regulation (5% to 100% full load)             | ±1% typ.                                     |                              |
| Output Ripple and Noise (note 1)                           | Ripple (3.3V, 5V)                            | 75mVp-p max.                 |
|  | Noise (3.3V, 5V)                             | 120mVp-p max.                |
|  | Others (Ripple and Noise)                    | 1% Vout                      |
| Operating Frequency  | 100 - 130kHz typ.                            |                              |
| Minimum Load   | 0%   |                              |
| Isolation Voltage (input to output)                        | 3000VAC min.                                 |                              |
| Temperature Coefficient                                    | ±0.02%/°C typ.                               |                              |
| Isolation Resistance                                       | 100 MΩ min.                                  |                              |
| Short Circuit Protection                                   | Continuous, Automatic Restart                |                              |
| Operating Temp. Range                                      | (Natural Convection, with derating)          | -40°C to +70°C               |
|  | 3.3V, 5V (no derating)                       | -40°C to +40°C               |
|  | Others (no derating)                         | -40°C to +45°C               |
| Storage Temperature Range                                  | -40°C to +85°C                               |                              |
| Humidity   | 95% RH max.                                  |                              |
| Case Material  | Epoxy with Fibreglass (UL94V-0)              |                              |
| Package Weight   | 59g  |                              |
| Packing Quantity   | 5 pcs (-ST Version: 1 pc)                    |                              |
| EMC  | designed to meet EN 55022 Class B / EN 55024 |                              |
| MTBF (+25°C)   | using MIL-HDBK-217F                          | >250 x 10 <sup>3</sup> hours |

# POWERLINE

AC/DC-Converter

with 3 year Warranty



## 20 Watt Single Output

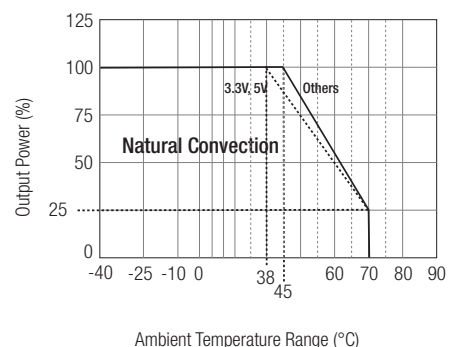


UL-60950-1 Pending

# RAC20-B

## Derating Graph

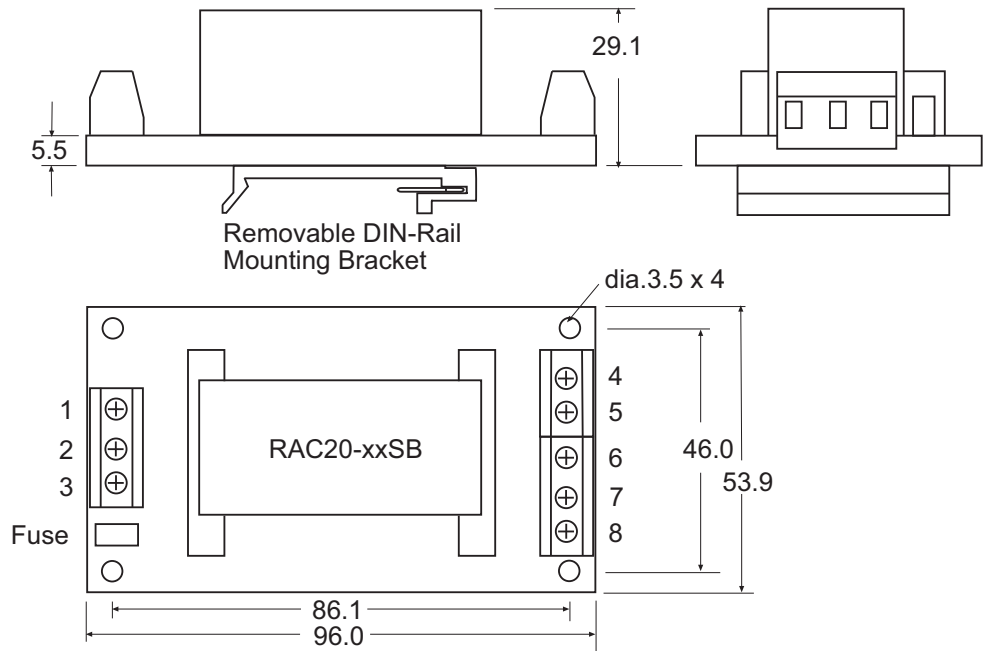
(Ambient Temperature)



Please Read Application Notes

www.recom-electronic.com

**Screw Terminal Module Option (suffix -ST)**

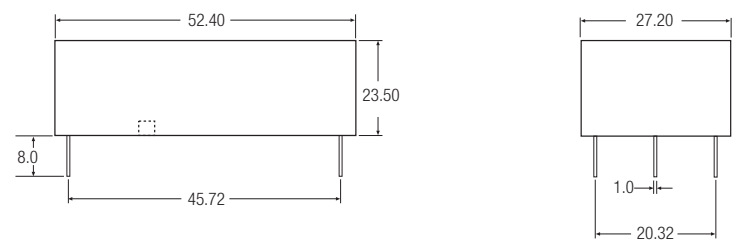


**Pin Connections**

| Pin # | Single Out |
|-------|------------|
| 1     | NC         |
| 2     | VAC in (L) |
| 3     | VAC in (N) |
| 4     | NC         |
| 5     | +VDC out   |
| 6     | -VDC out   |
| 7     | NC         |
| 8     | NC         |

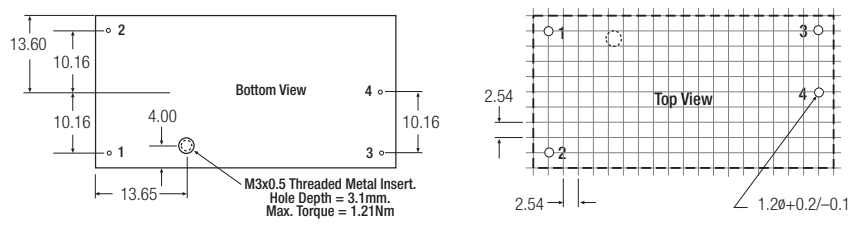
NC = No Connection

**Standard Package Style and Pinning**



**RAC20-B**

**Recommended Footprint Details**



**Pin Connections**

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

XX.X ± 0.5 mm  
XX.XX ± 0.25 mm

**Notes**

Note 1: Ripple & Noise measured with 20MHz BW probe and 0.47µF capacitor in parallel across the outputs.  
Note 2: Suggested input fuse rating 2A Slow Blow