

Features

Regulated Converters

- Ultracompact AC-DC Power Supply
- 4 Watt PCB Mount Package
- Universal Input Voltage Range including 277VAC
- 3kVAC Isolation (Class II)
- Very Low No Load Input Current
- Dual output version for standby relay circuits
- Short Circuit Protected
- EN/UL Certified, CE Marked.

Description

The RAC04 series is an ultra-compact universal input AC/DC power module for PCB mounting. It features ultralow no-load power consumption, short circuit, overload and output overvoltage protection as well as a built-in EMC Class B filter. A high input voltage version (suffix /277) is also available for input voltages of up to 305VAC or 430VDC.

Selection Guide

| Part Number | Input Range (VAC)* (Std) | Input Range (VAC)* (/277) | Output Voltage (VDC) | Output Current (mA) | Efficiency (%) | Max Capacitive Load |
|--------------|--------------------------|---------------------------|----------------------|---------------------|----------------|---------------------|
| RAC04-3.3SA | 90-264 | 90-305 | 3.3 | 1200 | 68 | 14000µF |
| RAC04-05SA | 90-264 | 90-305 | 5 | 800 | 72 | 8000µF |
| RAC04-09SA | 90-264 | 90-305 | 9 | 444 | 75 | 2400µF |
| RAC04-12SA | 90-264 | 90-305 | 12 | 333 | 76 | 1000µF |
| RAC04-15SA | 90-264 | 90-305 | 15 | 267 | 76 | 700µF |
| RAC04-24SA | 90-264 | 90-305 | 24 | 167 | 77 | 220µF |
| RAC04-0512DA | 90-264 | 90-305 | 5/12 | 120/250 | 75 | 4700/330µF |

* add suffix /277 for 90-305VAC input. High input voltage converters are identified by omitting pin 1.

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

| | | |
|------------------------------------------------------------|---------------------|---------------------------|
| Input Voltage Range | standard | 90-264VAC or 120-370VDC |
| | /277 versions | 90-305VAC or 120-430VDC |
| Rated Power | | 4 Watts max |
| Input Frequency Range (for AC Input) | | 47-440Hz |
| Input Current (full load) | 115/230VAC | 95/65mA max. |
| | /277 | 75/55mA max. |
| No Load Power Consumption | 115/230/277VAC | 150/210/220mW typ. |
| Inrush Current (<0.5ms) | 115/230VAC | 15/25A max. |
| Leakage Current | | 0.25mA max |
| Output Voltage Accuracy (full load) | single outputs | ±2% |
| | 3.3V (/277 Version) | ±0.5% |
| Dual output version | 5V/12V | ±5%/±2% |
| Line Voltage Regulation (low line, high line at full load) | | ±0.2% typ |
| Dual output version | 5V/12V | ±3%/±0.2% typ |
| Load Voltage Regulation | 3.3V output | ±1% typ (|
| 0% to 100% full load) | All others | ±0.5% typ |
| Dual output version | 5V/12V | ±5%/±0.5% typ |
| Output Ripple and Noise | 3.3V output | <250mVp-p max |
| (measured @ 20MHz of bandwidth with | 5V output | <200mVp-p max. |
| 0.1µF & 47µF parallel capacitor) | All others | 100mVp-p max |
| Operating Frequency | | 132kHz typ |
| Hold-up time | | 15ms min. |
| Minimum Load | single outputs | 0% |
| | 5V/12V | 25% |
| RMS Isolation Voltage (input to output) | | 3kVAC / 1minute |
| Temperature Coefficient | | ±0.02%/°C typ |
| Isolation Resistance | | 100 MΩ max |
| Short Circuit Protection | | Hiccup, Automatic Restart |
| Output Overvoltage Protection | | Zener Clamping Diode |
| Operating Temperature Range | All others | -40°C to +70°C |
| (natural convection, with derating) | Dual output version | -40°C to +70°C |
| Storage Temperature Range | | -40°C to +85°C |
| Humidity | | 95% RH max |

continued on next page

POWERLINE

AC/DC-Converter

with 3 year Warranty

RECOM

4 Watt Single/Dual Output



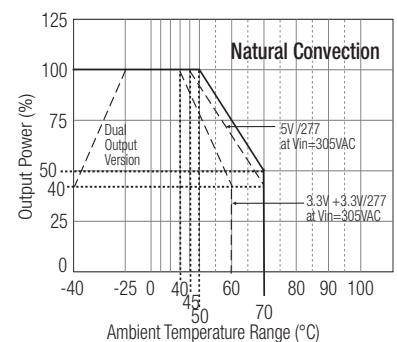
E196683

EN 55022/55024 Certified

UL-60950-1 Certified

RAC04-A

Derating Graph (Ambient Temperature)



Please Read Application Notes

POWERLINE

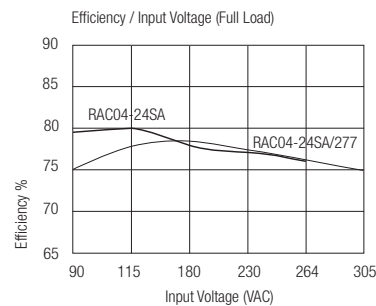
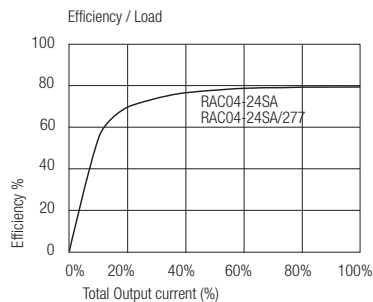
AC/DC-Converter

RAC04-5A Series

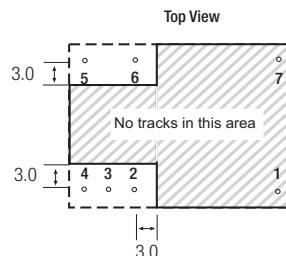
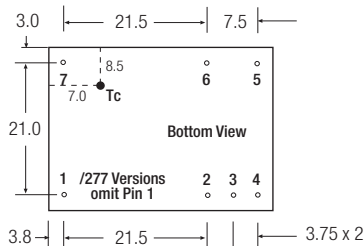
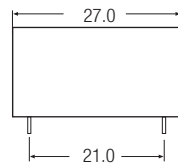
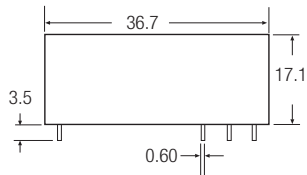
Specifications (typical at 25°C and after warm up time unless otherwise specified)

| | | | |
|------------------|---------------------------------------|------------------------------|--|
| Case Material | Epoxy with Fibreglass (UL94V-0) | | |
| Package Weight | 26g | | |
| Packing Quantity | 12 pcs | | |
| EMC | Conducted and Radiated Noise Immunity | EN 55022 Class B EN 55024 | |
| MTBF (+25°C) | using MIL-HDBK-217F | >350 x 10 ³ hours | |

Typical Characteristics



Standard Package Style and Pinning



Pin Connections

| Pin # | Single Output | Dual Output | /277 Versions |
|-------|---------------|-------------|---------------|
| 1 | NC | NC | No Pin |
| 2 | +VDC out | +12V | same |
| 3 | -VDC out | Com | same |
| 4 | NC | +5V | same |
| 5 | VAC in (L) | VAC in (L) | VAC in (L) |
| 6 | VAC in (N) | VAC in (N) | VAC in (N) |
| 7 | NC | NC | NC |

NC = No Connection

XX.X ± 0.5 mm
XX.XX ± 0.25 mm

It is recommended to additionally bond the /277 version of the converter to the PCB if the application is subject to vibration or mechanical shock.

Standard Application Circuit

Standby Relay Application

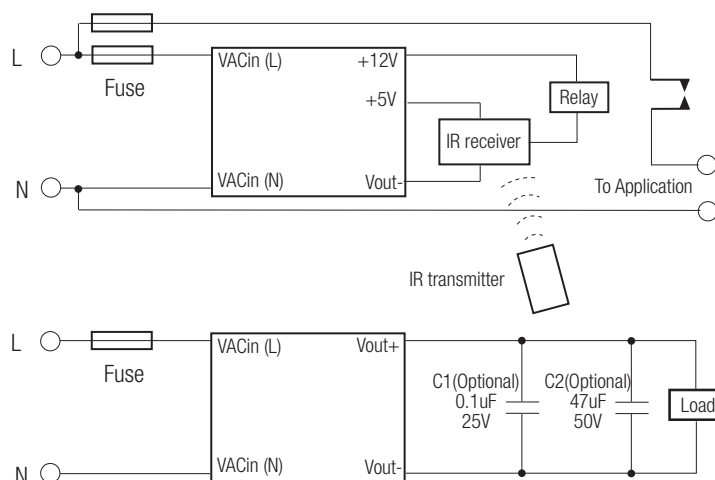
With 110VAC supply and 10mA standby load, the circuit consumes typically only 150mW.

Once activated by the remote handset, the standard 12V relay can switch a 16A load.

Compact single output regulated power supply

Suggested fuse rating:

1A Slow Blow



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.