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With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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# 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 0.1µF & 47µF parallel capacitor)	5V output	<200mVp-p max.
	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

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# POWERLINE

## AC/DC-Converter

with 3 year Warranty

# RECOM

## 4 Watt Single/Dual Output



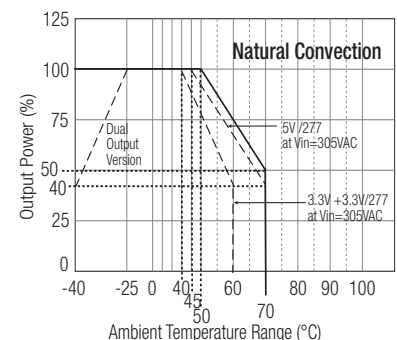
E196683

EN 55022/55024 Certified  
UL-60950-1 Certified

# RAC04-A

## Derating-Graph

(Ambient Temperature)



Refer to Application Notes



# POWERLINE

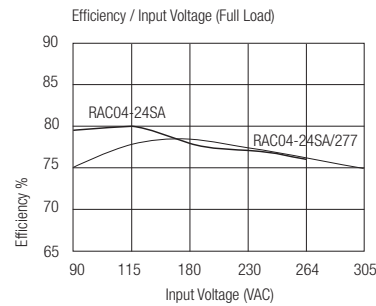
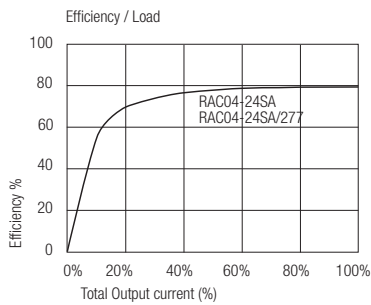
## AC/DC-Converter

# RAC04-SA Series

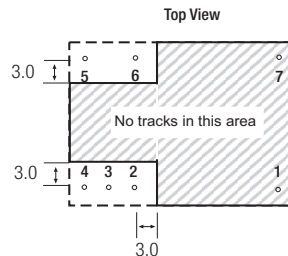
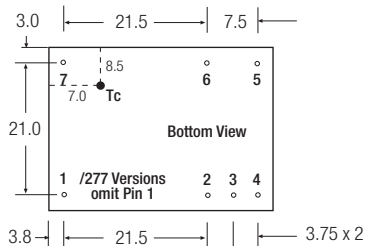
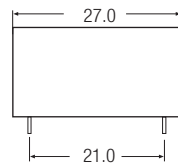
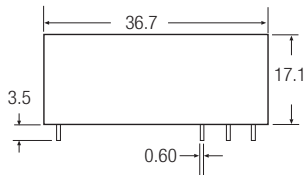
### Specifications (typical at 25°C and after warm up time unless otherwise specified )

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 <sup>3</sup> 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

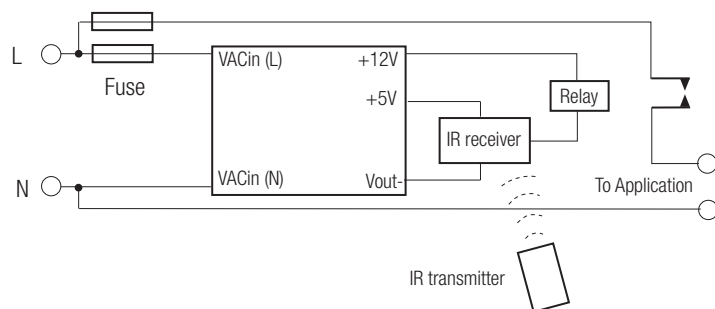
It is recommended to additionally bond the /277 version of the converter to the PCB if the application is subject to vibration or mechanical shock.

### Standard Application Circuit

#### Standby Relay Application

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

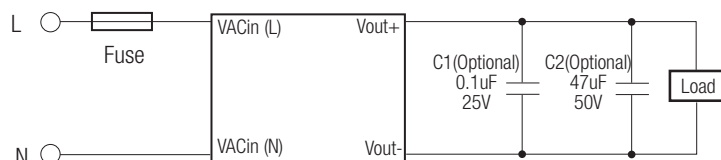
Once activated by the remote handset, the standard 12V relay can switch a 16A load.



#### Compact single output regulated power supply

Suggested fuse rating:

1A Slow Blow



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