

## Excellent Integrated System Limited

Stocking Distributor

Click to view price, real time Inventory, Delivery & Lifecycle Information:

[Recom Power](#)  
[RAC03-3.3SER/277](#)

For any questions, you can email us directly:

[sales@integrated-circuit.com](mailto:sales@integrated-circuit.com)

# Features

- 40mW max. No Load Power Consumption
- High Efficiency up to 76%
- Isolated Output 3kVAC / 1 min
- SCP, OVP Protection
- Wide Operating Temperature Range: -40°C to +85°C
- Universal Input 85-305VAC

# Regulated Converters



## RAC03-SER/277

**3 Watt  
Single  
Output**



### Description

The modules of the RAC03-SER/277 series are regulated AC/DC converters with 3kVAC isolation and a round, flat shape. This series has been designed to offer low stand-by consumption and an ultra-wide input voltage range. Uses include a variety of applications in building automation, security systems and communication systems.

### Selection Guide

Part Number	nom. Input Voltage Range [VAC]	Output Voltage [VDC]	Output Current [mA]	Efficiency typ. [%]	Max. Capacitive Load [μF]
RAC03-3.3SER/277	100-277	3.3	900	68	22000
RAC03-05SER/277	100-277	5	600	70	7500
RAC03-12SER/277	100-277	12	250	74	1000
RAC03-24SER/277	100-277	24	125	76	200

### Model Numbering



**Ordering Examples:**

RAC03-05SER/277-TRAY, Single Output, 5Vout and Tray Packaging

**Notes:**

Note1: add suffix "-TRAY" for Tray packaging, without suffix standard cardboard box packaging.

### Specifications (measured @ ta= 25°C, nominal input voltage (115/230VAC), full load and after warm-up)

BASIC CHARACTERISTICS				
Parameter	Condition	Min.	Typ.	Max.
Input Voltage Range		85VAC 120VDC		305VAC 430VDC
Input Current	115VAC 230VAC		70mA 45mA	
Inrush Current	cold start at 25°C, 115VAC cold start at 25°C, 230VAC			15A 30A
No load Power Consumption	85-305VAC, 47-440Hz			40mW
Input Frequency Range	AC Input	47Hz		440Hz
Hold-up time	115VAC	18ms		
Internal Operating Frequency	100% load at nominal Vin		55kHz	
Minimum Load			10%	
Ripple & Noise <sup>(2)</sup>	3.3 Vout all others		250mVp-p 200mVp-p	

**Notes:**

Note2: Ripple and Noise is the maximum peak-to-peak voltage value measured at the output with a 20MHz bandwidth, at rated line voltage at full load. And with a 47μF low-ESR electrolytic capacitor in parallel with a 0.1μF ceramic capacitor across output.

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EN55024 Certified  
 EN60950-1 Certified  
 UL60950-1 Certified  
 EN60335-1 Certified

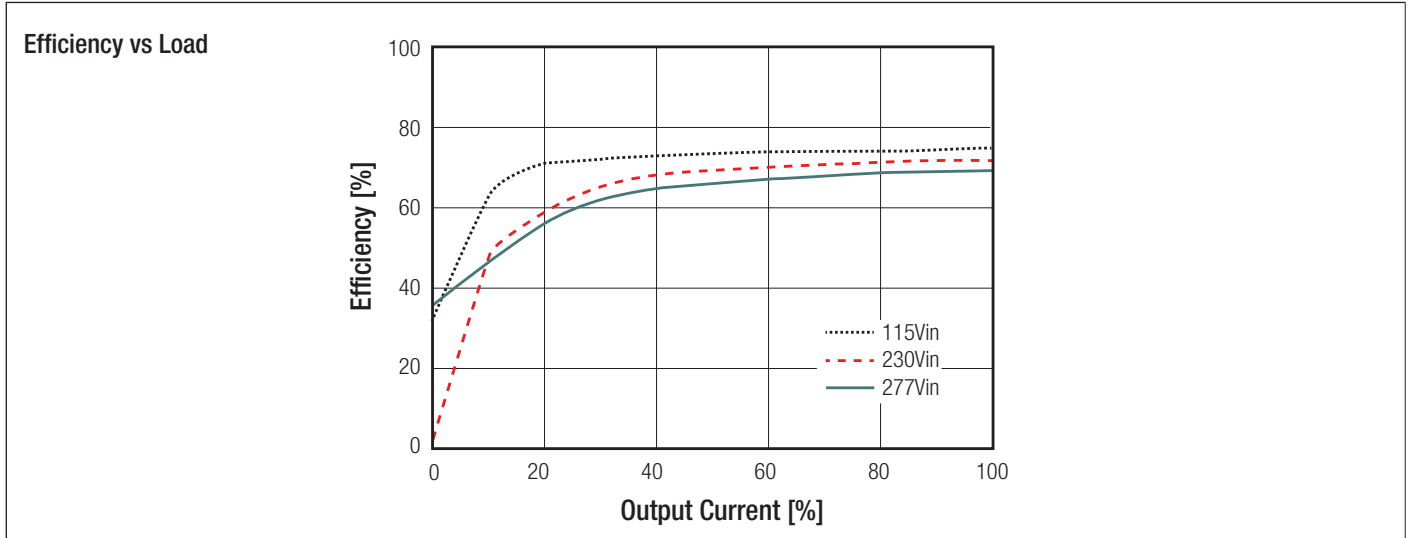
# RECOM

## AC/DC Converter

# RAC03-SER/277

## Series

**Specifications** (measured @  $t_a = 25^\circ\text{C}$ , nominal input voltage (115/230VAC), full load and after warm-up)



### REGULATIONS

Parameter	Condition	Value
Output Voltage Tolerance <sup>(3)</sup>	3.3Vout	$\pm 4\%$ typ. / $\pm 8\%$ max.
	5Vout	$\pm 3.5\%$ typ. / $\pm 5\%$ max.
	12, 24Vout	$\pm 3\%$ typ. / $\pm 4\%$ max.
Line Voltage Regulation	low line to high line, full load	$\pm 0.7\%$ typ. / $\pm 1\%$ max.
Load Voltage Regulation	3.3Vout 10% to 100% load	$\pm 5.5\%$ typ. / $\pm 9\%$ max.
	5Vout 10% to 100% load	$\pm 5\%$ typ. / $\pm 7.5\%$ max.
	12, 24Vout 10% to 100% load	$\pm 4\%$ typ. / $\pm 5.5\%$ max.

**Notes:**

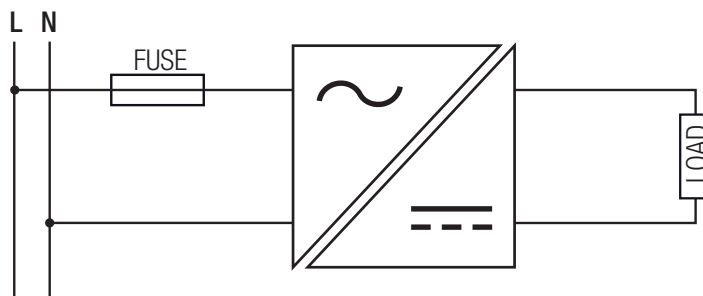
Note3: Includes initial voltage accuracy, thermal drift, line regulation and load regulation at rated input voltage and load conditions.

### PROTECTIONS

Parameter	Type	Value
Short Circuit Protection (SCP)		continuous, automatic recovery
Over Voltage Protection (OVP)	Zener Diode clamp	105% - 150%
Over Current Limit		120% - 190%
Over Voltage Category		OVC II
Isolation Voltage		3kVAC / 1 Minute
Isolation Resistance		1G $\Omega$ min.
Leakage Current	85-305VAC, 47-440Hz	10 $\mu$ A max.

**Notes:**

Note4: An input fuse is required if the mains supply is not over-current protected. Recommended fuse: T1A slow blow type



# RECOM

## AC/DC Converter

# RAC03-SER/277

## Series

**Specifications** (measured @  $t_a = 25^\circ\text{C}$ , nominal input voltage (115/230VAC), full load and after warm-up)

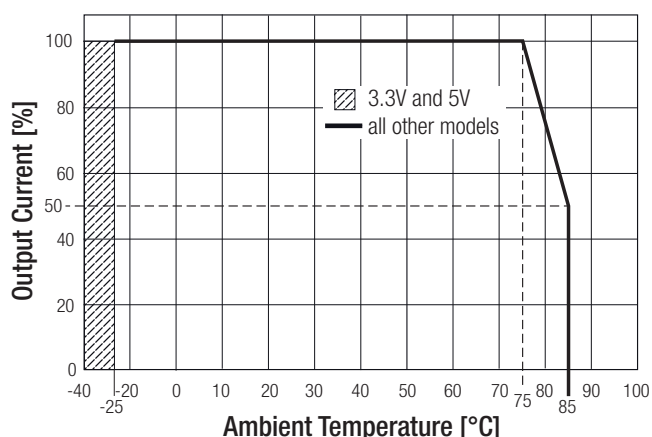
ENVIRONMENTAL		
Parameter	Condition	Value
Operating Temperature Range	230VAC, with derating (see graph)	-40°C to +85°C
Maximum Case Temperature		105°C
Thermal Impedance		9.5°C / W typ.
Humidity	non-condensing	5% - 95%, RH max.
MTBF <sup>(5)</sup>	MIL-HDBK-217F, 115VAC, +25°C	3554 x 10 <sup>3</sup> hours
	MIL-HDBK-217F, 230VAC, +25°C	3219 x 10 <sup>3</sup> hours

**Notes:**

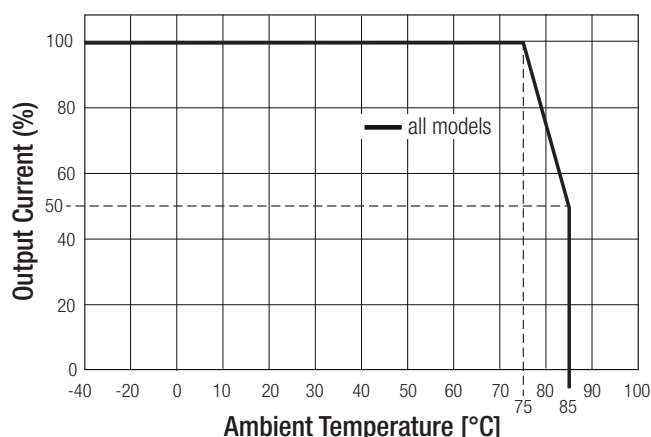
Note5: MTBF is referring RAC03-05SER/277

**Derating Graph**

**@ 85-140VAC**



**@ 140-305VAC**



**SAFETY AND CERTIFICATIONS**

Certificate Type (Safety)	Report / File Number	Standard
Information Technology Equipment, General Requirements for Safety (LVD)	LVD1208051	IEC60950-1, 2nd Edition, 2009 EN60950-1, 2nd Edition, 2011
Information Technology Equipment, General Requirements for Safety	E224736-X1-A24	UL60950-1, 2nd Edition, 2014 CAN/CSA C22.2 No. 60950-1-07, 2nd Edition 2014
Household and similar electrical appliances, General requirements	L0339L26-B2	EN60335-1, 2014

EMC Compliance	Condition	Standard / Criterion
Information technology equipment - Radio disturbance characteristics - Limits and methods of measurement	Report: 1502CE17	EN55022, Class B EN55024
ESD Electrostatic discharge immunity test	±8kV Air Discharge; ±6kV Contact	EN61000-4-2, Criteria B
Radiated, radio-frequency, electromagnetic field immunity test	3V/m	EN61000-4-3, Criteria A
Fast Transient and Burst Immunity	AC Power Port: ±1kV	EN61000-4-4, Criteria B
Surge Immunity	AC Power Port: line to line: ±1kV	EN61000-4-5, Criteria B
Immunity to conducted disturbances, induced by radio-frequency fields	AC Power Port: 3V/m	EN61000-4-6, Criteria A
Power Magnetic Field Immunity	1 A/m	EN61000-4-8, Criteria A
Voltage Dips and Interruption	Voltage Dips: >95% reduction	EN61000-4-11, Criteria B
	>30% reduction	EN61000-4-11, Criteria C
Voltage Fluctuations and Flicker in Public Low-Voltage Systems	Interruption: >95%	EN61000-4-11, Criteria C
		EN61000-3-3

# RECOM

## AC/DC Converter

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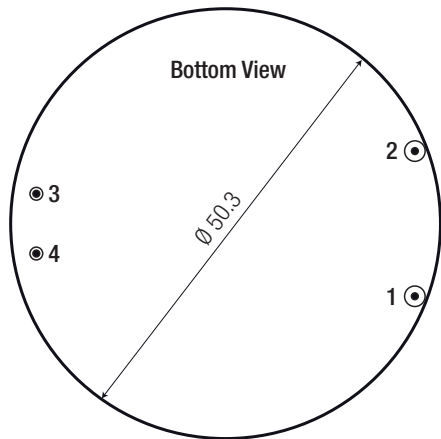
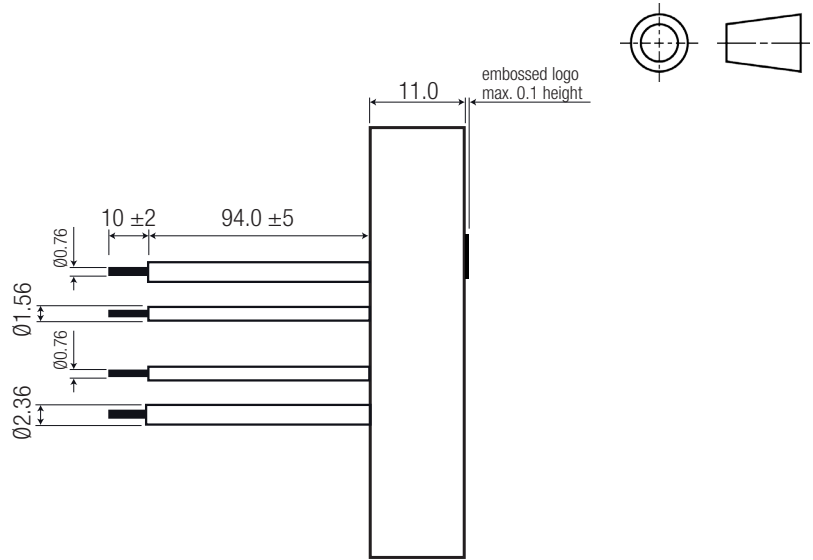
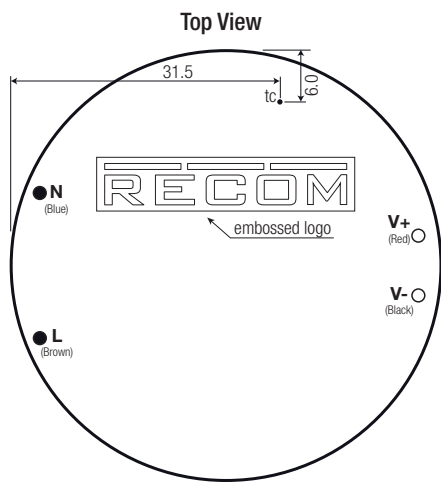
## Series

**Specifications** (measured @ ta= 25°C, nominal input voltage (115/230VAC), full load and after warm-up)

### DIMENSION and PHYSICAL CHARACTERISTICS

Parameter	Type	Value
Material	Case Potting	black plastic (UL94 V-0) epoxy (UL94 V-0)
Package Dimension (LxWxH)		50.3 x 50.3 x 11.0mm
Package Weight		41g typ.

### Dimension Drawing (mm)



### Wired Connections

Wired Color	Type	Wire Composition	Function
1, brown	UL-1015, AWG22	17/0.16	VAC in (L)
2, blue	UL-1015, AWG22	17/0.16	VAC in (N)
3, red	UL-1430, AWG22	17/0.16	+Vout
4, black	UL-1430, AWG22	17/0.16	-Vout

Tolerance: xx.x= ±0.5mm  
 xx.xx= ±0.35mm

### PACKAGING INFORMATION

Parameter	Type	Value
Packaging Dimension (LxWxH)	cardboard box	195.0 x 170.0 x 140.0mm
Packaging Quantity		12 pcs
Storage Temperature Range		-40°C to +85°C