

Features

- Continuous short circuit protection
- Efficiency up to 79%
- Universal input 80-264VAC
- 100mW no load power consumption
- Isolated output 3.75kVAC / 1 min
- EN, UL and CE/EAC certified

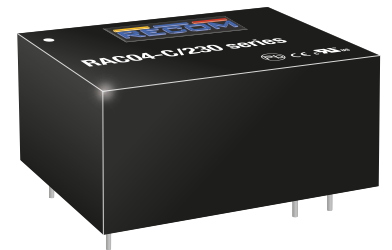
Regulated Converters

RECOM

AC/DC Converter

RAC04-C/230

4 Watt Single & Dual Output



IEC/EN60950-1 certified
 IEC/EN62368-1 certified
 UL60950-1 certified
 CSA/CAN 22.2 60950-1-07 certified
 CB Report
 EN55032 compliance
 EN55024 compliance

Description

The RAC04-C/230 series are fully certified single and dual regulated AC/DC converters in an encapsulated PCB-mount package style with 3.75kVAC isolation and very low standby power consumption. The converters have SC protected single as well as dual outputs and meet EN55032 class B without any external components. Uses include board-level power supplies, home automation, instrumentation systems and standby applications.

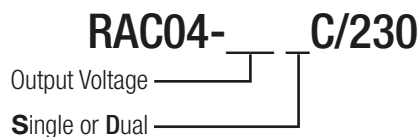
Selection Guide

| Part Number | Input Voltage Range [VAC] | Output Voltage [VDC] | Output Current [mA] | Efficiency typ [%] | Max. Capacitive Load ⁽¹⁾ [µF] |
|------------------|---------------------------|----------------------|---------------------|--------------------|--|
| RAC04-3.3SC/230 | 80-264 | 3.3 | 1200 | 72 | 10000 |
| RAC04-05SC/230 | 80-264 | 5 | 800 | 75 | 7200 |
| RAC04-12SC/230 | 80-264 | 12 | 333 | 77 | 1000 |
| RAC04-15SC/230 | 80-264 | 15 | 267 | 78 | 820 |
| RAC04-24SC/230 | 80-264 | 24 | 167 | 79 | 220 |
| RAC04-0512DC/230 | 80-264 | 5/12 | 720/33 | 75 | 4700/100 |
| RAC04-05DC/230 | 80-264 | ±5 | ±400 | 76 | ±3300 |
| RAC04-12DC/230 | 80-264 | ±12 | ±166 | 78 | ±680 |

Notes:

Note1: measured at 115VAC

Model Numbering



Ordering Examples:

- e.g. RAC04-3.3SC/230, 3.3VDC single output
- e.g. RAC04-05DC/230, 5VDC dual output

Specifications (measured at Ta= 25°C, nominal input voltage, full load otherwise noted)

| BASIC CHARACTERISTICS | | | | | |
|--|------------------------------|------------------|-----------------|----------|------------------|
| Parameter | Condition | | Min. | Typ. | Max. |
| Input Voltage Range ⁽²⁾ | | | 80VAC 113VDC | | 264VAC 373VDC |
| Input Current | 115VAC 230VAC | | | | 98mA 64mA |
| Inrush Current | <0.5ms cold start at 25°C | 115VAC 230VAC | | | 15A 30A |
| No load Power Consumption | 115VAC/230VAC | | | | 100mW |
| Input Frequency Range | AC Input | | 47Hz | | 440Hz |
| Hold-up time | 115VAC | | | 15ms | |
| Internal Operating Frequency | 100% load at nominal Vin | | | 67kHz | |
| Minimum Load | | | 0% | | |
| Output Ripple and Noise ⁽³⁾ | | | | 200mVp-p | |

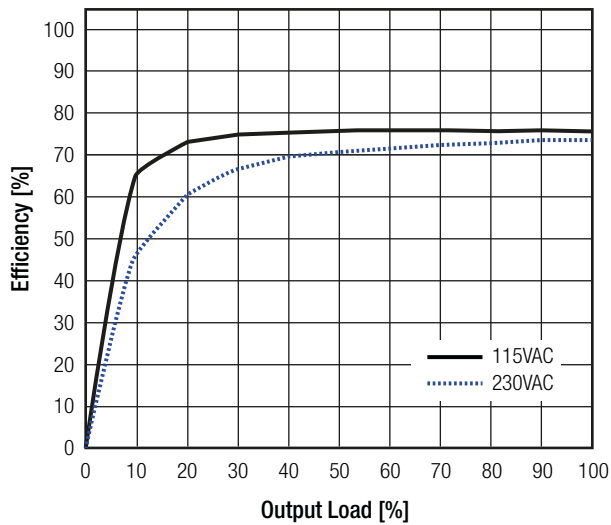
Notes:

Note2: Refer to line derating graph on page PA-4

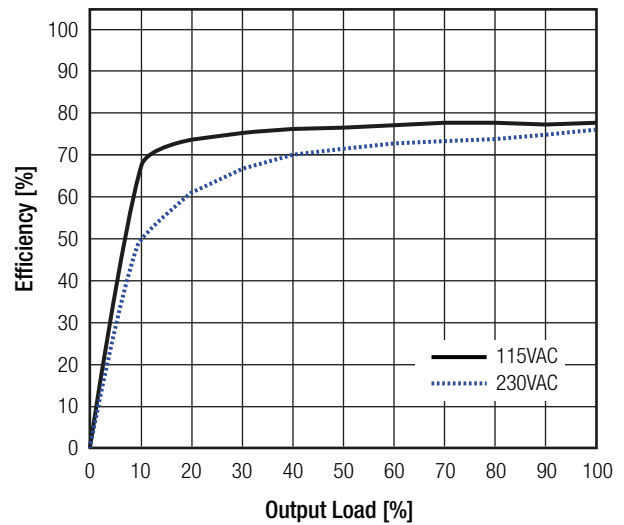
Note3: Ripple and Noise is measured at 20MHz bandwidth and with a 47µF low-ESR electrolytic capacitor in parallel with a 0.1µF ceramic capacitor across output

Efficiency vs. Load

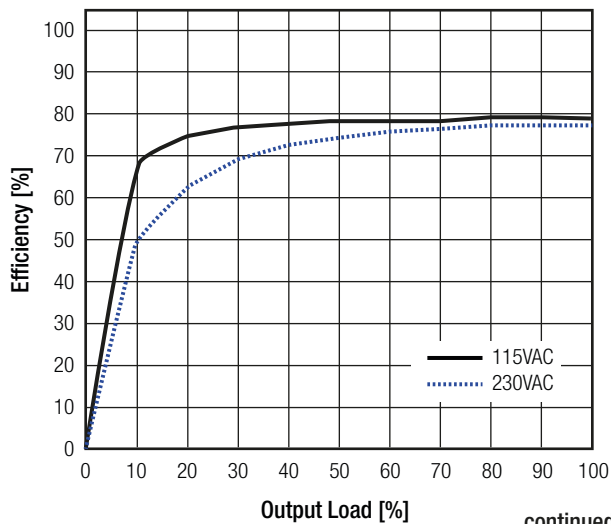
RAC04-3.3SC/230



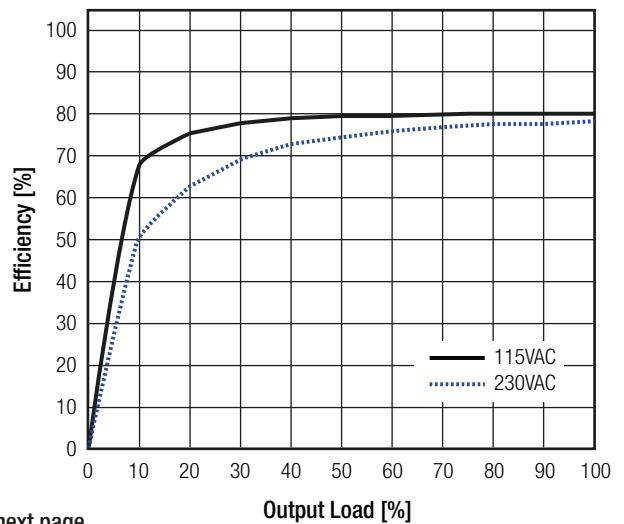
RAC04-05SC/230



RAC04-12SC/230



RAC04-15SC/230



continued on next page

Specifications (measured at Ta= 25°C, nominal input voltage, full load otherwise noted)



REGULATIONS

| Parameter | Condition | | Value |
|-----------------|---|---|--|
| Output Accuracy | single and dual 5V/12V dual assymetrical | | ±2.0% typ. ±2.0% / ±10.0% typ. |
| Line Regulation | 90-264VAC | single and dual 5V/12V dual assymetrical | ±0.2% typ. ±0.2% / ±1.0% typ. |
| Load Regulation | 10% to 100% load | 3.3V, 5V output all others 5V/12V dual assymetrical | 1.0% typ. 0.5% typ. 1.0% / 5.0% typ. |

PROTECTIONS

| Parameter | Type | | Value |
|--------------------------------|---------------|---------------------|--------------------|
| Short Circuit Protection (SCP) | | | automatic recovery |
| Over Voltage Category | | | OVC II |
| Isolation Voltage | I/P to O/P | tested for 1 minute | 3.75kVAC |
| Isolation Resistance | | | 100MΩ min. |
| Insulation Grade | | | reinforced |
| Leakage Current | 230VAC / 50Hz | | 0.25mA max. |

continued on next page

Specifications (measured at Ta= 25°C, nominal input voltage, full load otherwise noted)

Notes:

Note4: Refer to local safety regulations if input over-current protection is also required

Protection Circuit

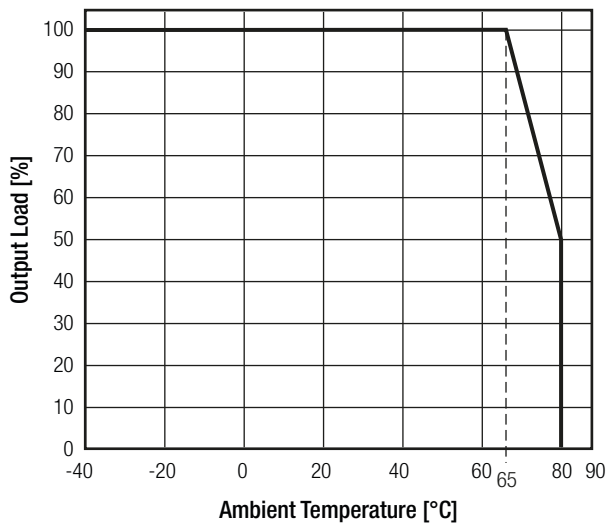


ENVIRONMENTAL

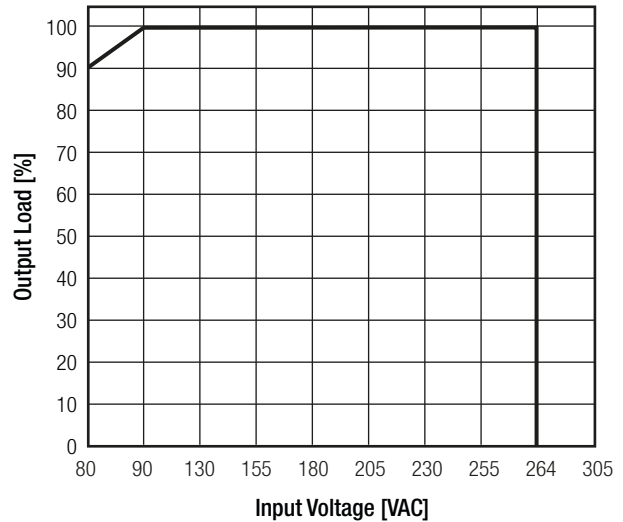
| Parameter | Condition | | Value |
|-----------------------------|----------------------------------|-------------------------|------------------------------------|
| Operating Temperature Range | @ natural convection 0.1m/s | full load | -40°C to +65°C |
| | | refer to derating graph | -40°C to +80°C |
| Operating Altitude | | | 2000m |
| Operating Humidity | non-condensing | | 95% RH max. |
| Pollution Degree | | | PD2 |
| Vibration | | | according to MIL-STD-810F standard |
| MTBF | according to MIL-HDBK-217F, G.B. | +25°C | 500 x 10 ³ hours |

Derating Graph

(@ Chamber and natural convection 0.1m/s)



Line Derating



SAFETY AND CERTIFICATIONS

| Certificate Type | Report / File Number | Standard |
|---|----------------------|--|
| Information Technology Equipment, General Requirements for Safety (CB Scheme) | 1310055-1-CB-M1 | IEC60950-1:2005, 2nd Edition + A1:2009 |
| Information Technology Equipment, General Requirements for Safety | E224736-A21 | UL60950-1, 2nd Edition 2011 CAN/CSA C22.2 No. 60950-1-07, 2nd Edition, 2011 |
| Audio/video, information and communication technology equipment - Safety requirements | AL106051 | EN62368-1:2014 IEC62368-1:2014 2nd Edition |
| EAC | RU-AT.03.67361 | TP TC 004/020, 2011 |
| RoHS2+ | | RoHS-2011/65/EU + AM-2015/863 |

continued on next page

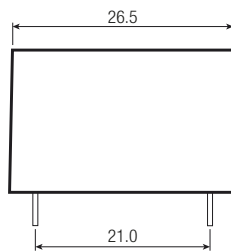
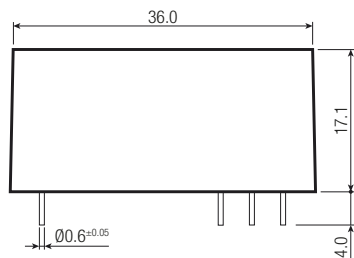
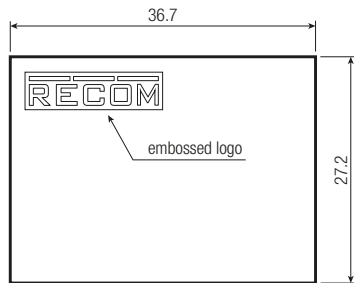
Specifications (measured at Ta= 25°C, nominal input voltage, full load otherwise noted)

| EMC Compliance | Report / File Number | Standard / Criterion |
|---|----------------------------------|---|
| Electromagnetic compatibility of multimedia equipment - Emission requirements | T160225D10-E | EN55032, Class B |
| Information technology equipment - Immunity characteristics - Limits and methods of measurement | | EN55024:2010 |
| ESD Electrostatic discharge immunity test | Air: ±2, 4, 8kV Contact: ±4kV | IEC61000-4-2:2008, Criteria A |
| Radiated, radio-frequency, electromagnetic field immunity test | 3V/m | IEC61000-4-3:2010, Criteria A |
| Fast Transient and Burst Immunity | AC Power Port: ±1kV | IEC61000-4-4:2004 + A1:2010, Criteria A |
| Surge Immunity | AC Power Port: L-N ±1kV | IEC61000-4-5:2005, Criteria A |
| Immunity to conducted disturbances, induced by radio-frequency fields | AC Power Port: 3V | IEC61000-4-6:2008, Criteria A |
| Power Magnetic Field Immunity | 50Hz, 1A/m | IEC61000-4-8:2009, Criteria A |
| Voltage Dips and Interruptions | Voltage Dips: >95% | IEC61000-4-11:2004, Criteria A |
| | Voltage Dips: 30% | IEC61000-4-11:2004, Criteria A |
| | Interruptions: >95% | IEC61000-4-11:2004, Criteria B |

DIMENSION AND PHYSICAL CHARACTERISTICS

| Parameter | Type | Value |
|-------------------|------------------------|---|
| Material | case potting PCB | black plastic (JL94 V-0) silicone (JL94 V-0) FR4 (JL94 V-0) |
| Dimension (LxWxH) | | 36.7 x 27.2 x 17.1mm |
| Weight | | 31.5g typ. |

Dimension Drawing (mm)



Pinning information

| Pin # | Single | Dual | Dual (assymetric) |
|-------|------------|------------|-------------------|
| 1 | No Pin | No Pin | No Pin |
| 2 | +Vout | +Vout | +5Vout |
| 3 | -Vout | Com | Com |
| 4 | NC | -Vout | +12Vout |
| 5 | VAC in (L) | VAC in (L) | VAC in (L) |
| 6 | VAC in (N) | VAC in (N) | VAC in (N) |
| 7 | NC* | NC* | NC* |

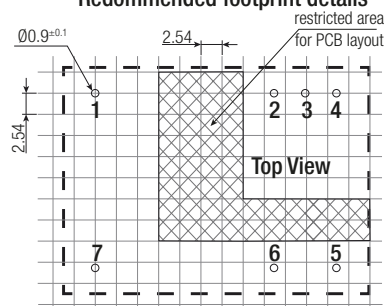
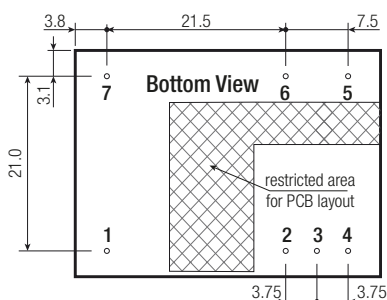
*Pin 7 is NC but need 4mm minimum clearance to ground for safety

NC= no connection

Tolerance: xx.x= ±0.5mm

xx.xx= ±0.25mm

Redommended footprint details



Specifications (measured at Ta= 25°C, nominal input voltage, full load otherwise noted)

PACKAGING INFORMATION

| Parameter | Type | Value |
|-----------------------------|------|-----------------------|
| Packaging Dimension (LxWxH) | tube | 520.0 x 32.0 x 27.0mm |
| Packaging Quantity | | 12pcs |
| Storage Temperature Range | | -40°C to +100°C |

The product information and specifications may be subject to changes even without prior written notice. The product has been designed for various applications; its suitability lies in the responsibility of each customer. The products are not authorized for use in safety-critical applications without RECOM's explicit written consent. A safety-critical application is an application where a failure may reasonably be expected to endanger or cause loss of life, inflict bodily harm or damage property. The applicant shall indemnify and hold harmless RECOM, its affiliated companies and its representatives against any damage claims in connection with the unauthorized use of RECOM products in such safety-critical applications.

Компания «Океан Электроники» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Поставка оригинальных импортных электронных компонентов напрямую с производств Америки, Европы и Азии, а так же с крупнейших складов мира;
- Широкая линейка поставок активных и пассивных импортных электронных компонентов (более 30 млн. наименований);
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Помощь Конструкторского Отдела и консультации квалифицированных инженеров;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Поставка электронных компонентов под контролем ВП;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- При необходимости вся продукция военного и аэрокосмического назначения проходит испытания и сертификацию в лаборатории (по согласованию с заказчиком);
- Поставка специализированных компонентов военного и аэрокосмического уровня качества (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Actel, Aeroflex, Peregrine, VPT, Syfer, Eurofarad, Texas Instruments, MS Kennedy, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Компания «Океан Электроники» является официальным дистрибьютором и эксклюзивным представителем в России одного из крупнейших производителей разъемов военного и аэрокосмического назначения «JONHON», а так же официальным дистрибьютором и эксклюзивным представителем в России производителя высокотехнологичных и надежных решений для передачи СВЧ сигналов «FORSTAR».



JONHON

«JONHON» (основан в 1970 г.)

Разъемы специального, военного и аэрокосмического назначения:

(Применяются в военной, авиационной, аэрокосмической, морской, железнодорожной, горно- и нефтедобывающей отраслях промышленности)

«FORSTAR» (основан в 1998 г.)

ВЧ соединители, коаксиальные кабели, кабельные сборки и микроволновые компоненты:

(Применяются в телекоммуникациях гражданского и специального назначения, в средствах связи, РЛС, а так же военной, авиационной и аэрокосмической отраслях промышленности).



Телефон: 8 (812) 309-75-97 (многоканальный)

Факс: 8 (812) 320-03-32

Электронная почта: ocean@oceanchips.ru

Web: <http://oceanchips.ru/>

Адрес: 198099, г. Санкт-Петербург, ул. Калинина, д. 2, корп. 4, лит. А