# REA Series

Features
- 85℃, 2,000 ~ 3,000 hours assured
- Standard series for general purposes
- RoHS Compliance

Sleeve & Marking Color: Blue & Black

## Specifications

| Items | Performance |
|---|---|
| Category Temperature Range | -40℃ ~ +85℃ |
| Capacitance Tolerance | ±20% (at 120Hz, 20℃) |

**Leakage Current (at 20℃)**

| Rated voltage | ≦100V | >100V | |
|---|---|---|---|
| Time | after 2 minutes | after 5 minutes | |
| Leakage Current | I = 0.01CV or 3 (μA) whichever is greater | CV ≦ 1,000 I = 0.03CV + 15(μA) | CV > 1,000 I = 0.02CV + 25(μA) |

Where, C = rated capacitance in μF V = rated DC working voltage in V

**Tanδ (at 120 Hz, 20℃)**

| Rated Voltage | 6.3 | 10 | 16 | 25 | 35 | 50 | 63 | 100 | 160 | 200 | 250 | 350 | 400 | 450 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Tanδ (max) | 0.23 | 0.20 | 0.16 | 0.14 | 0.12 | 0.10 | 0.09 | 0.08 | 0.12 | 0.14 | 0.17 | 0.20 | 0.25 | 0.25 |

When the capacitance exceeds 1,000μF, 0.02 shall be added every 1,000μF increase.

**Low Temperature Characteristics (at 120Hz)**

Impedance ratio shall not exceed the values given in the table below.

| Rated Voltage | | | 6.3 | 10 | 16 | 25 | 35 | 50 | 63 | 100 | 160 | 200 | 250 | 350 | 400 | 450 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Impedance Ratio | Z(-25℃) /Z(+20℃) | φD<16 | 6 | 4 | 3 | 3 | 2 | 2 | 2 | 2 | 3 | 6 | 8 | 12 | 14 | 16 |
| | | φD≧16 | 8 | 6 | 4 | 4 | 3 | 3 | 3 | 3 | | | | | | |
| | Z(-40℃) /Z(+20℃) | φD<16 | 10 | 8 | 6 | 6 | 4 | 3 | 3 | 3 | 4 | 8 | 10 | 16 | 18 | 20 |
| | | φD≧16 | 18 | 16 | 12 | 10 | 8 | 8 | 6 | 6 | | | | | | |

**Endurance**

| Test Time | 2,000 Hrs for φD ≦ 8mm<br>3,000 Hrs for φD ≧ 10mm |
|---|---|
| Capacitance Change | With in ±20% of initial value |
| Tanδ | Less than 200% of specified value |
| Leakage Current | Within specified value |

* The above Specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage applied with rated ripple current for 2,000 / 3,000 hours at 85℃.

**Shelf Life Test**

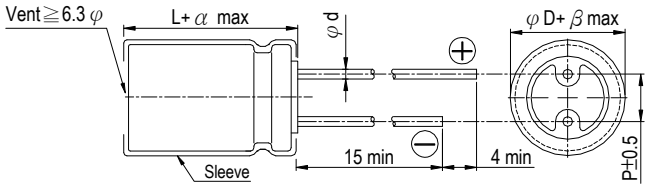
| Test Time | 1,000 Hrs |
|---|---|
| Capacitance Change | With in ±20% of initial value |
| Tanδ | Less than 200% of specified value |
| Leakage Current | Within specified value |

* The above Specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 85℃ without voltage applied. The rated voltage shall be applied to the capacitors before the measurements for 160 ~ 450V (Refer to JIS C 5101-4 4.1).

**Ripple Current & Frequency Multipliers**

| Cap. (μF) \ Freq. (Hz) | 60 (50) | 120 | 500 | 1k | 10k up |
|---|---|---|---|---|---|
| Under 100 | 0.70 | 1.00 | 1.30 | 1.40 | 1.50 |
| 100<C≦1,000 | 0.75 | 1.00 | 1.20 | 1.30 | 1.35 |
| 1,000 up above | 0.80 | 1.00 | 1.10 | 1.12 | 1.15 |

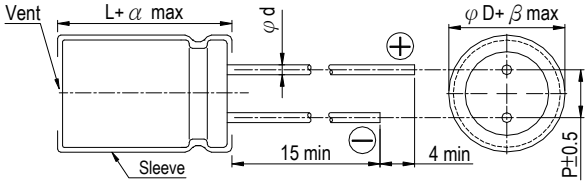
## Diagram of Dimensions




Lead Spacing and Diameter Unit: mm

| φD | 5 | 6.3 | 8 | 10 | 12.5 | 16 | 18 | 22 | 25 |
|---|---|---|---|---|---|---|---|---|---|
| P | 2.0 | 2.5 | 3.5 | 5.0 | 5.0 | 7.5 | 7.5 | 10 | 12.5 |
| φd | 0.5 | | 0.6 | | | 0.8 | | 1.0 | |
| α | L<20: 1.5, L≧20: 2.0 | | | | | | | 2.0 | |
| β | 0.5 | | | | | | | | |

The case size of 12.5×16, 16×16, 16×20, 18×16, 18×20 and 18×25 are suitable for below diagram:






All product specifications in the catalog are subject to change without notice. (CAT. 2014E2)

Dimension: ϕD × L(mm)

## Dimension & Permissible Ripple Current

Ripple Current: mA/rms at 120 Hz, 85℃

| μF | Contents | 6.3V (0J) | | 10V (1A) | | 16V (1C) | | 25V (1E) | | 35V (1V) | | 50V (1H) | | 63V (1J) | | 100V (2A) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ϕD×L | mA | ϕD×L | mA | ϕD×L | mA | ϕD×L | mA | ϕD×L | mA | ϕD×L | mA | ϕD×L | mA | ϕD×L | mA |
| 2.2 | 2R2 | | | | | | | | | | | 5×11 | 29 | | | 5×11 | 33 |
| 3.3 | 3R3 | | | | | | | | | | | 5×11 | 35 | | | 5×11 | 40 |
| 4.7 | 4R7 | | | | | | | | | | | 5×11 | 42 | | | 5×11 | 48 |
| 10 | 100 | | | | | | | | | | | 5×11 | 65 | 5×11 | 70 | 5×11 | 59 |
| 22 | 220 | | | | | | | | | | | 5×11 | 95 | 6.3×11 | 115 | 6.3×11<br>8×11.5 | 115<br>135 |
| 33 | 330 | | | | | | | | | 5×11 | 108 | 6.3×11<br>5×11 | 136<br>125 | 6.3×11 | 140 | 8×11.5 | 145 |
| 47 | 470 | | | | | | | 5×11 | 115 | 5×11 | 130 | 6.3×11 | 165 | 6.3×11 | 170 | 10×12.5 | 235 |
| 100 | 101 | | | | | 5×11 | 160 | 6.3×11 | 190 | 6.3×11 | 210 | 8×11.5 | 260 | 8×11.5<br>10×12.5 | 245<br>320 | 10×16 | 325 |
| 220 | 221 | | | 5×11 | 220 | 6.3×11 | 260 | 8×11.5 | 320 | 8×11.5 | 385 | 10×12.5 | 455 | 10×16 | 490 | 12.5×20<br>16×16 | 640<br>625 |
| 330 | 331 | | | 6.3×11 | 290 | 6.3×11 | 290 | 8×11.5 | 440 | 10×12.5 | 490 | 10×16 | 585 | 10×20<br>12.5×16 | 710<br>675 | 16×20<br>18×16 | 695<br>685 |
| 470 | 471 | | | 6.3×11 | 350 | 8×11.5 | 440 | 10×12.5 | 545 | 10×16 | 740 | 10×20<br>12.5×16 | 755<br>610 | 16×16<br>12.5×20 | 910<br>900 | 16×25 | 910 |
| 1,000 | 102 | 8×11.5 | 540 | 10×12.5<br>8×11.5 | 650<br>550 | 10×12.5 | 635 | 10×20<br>12.5×16 | 955<br>830 | 12.5×20<br>16×16 | 1,145<br>1,010 | 12.5×25<br>16×20 | 1,340<br>1,160 | 16×20 | 1,260 | 18×40 | 1,820 |
| 2,200 | 222 | 10×16 | 845 | 10×20<br>12.5×16 | 1,070<br>970 | 12.5×16<br>16×16 | 930<br>1,160 | 12.5×25<br>16×16 | 1,540<br>1,150 | 16×20 | 1,390 | 16×35.5 | 1,960 | 18×31.5 | 2,040 | | |
| 3,300 | 332 | 10×20<br>12.5×16 | 1,185<br>960 | 12.5×20 | 1,420 | 12.5×20<br>16×16 | 1,450<br>1,240 | 16×20 | 1,490 | 16×31.5<br>18×25 | 2,070<br>1,970 | 18×35.5 | 2,500 | 18×40 | 2,575 | | |
| 4,700 | 472 | 12.5×20 | 1,545 | 12.5×25<br>16×16 | 1,780<br>1,420 | 16×20<br>18×16 | 1,600<br>1,820 | 16×25<br>18×25 | 2,100<br>2,170 | 18×35.5 | 2,700 | 22×40 | 3,040 | | | | |
| 6,800 | 682 | 12.5×25 | 1,880 | 16×20<br>18×20 | 1,700<br>1,870 | 16×25<br>18×20 | 2,280<br>1,890 | 16×35.5<br>18×31.5 | 2,475<br>2,550 | 22×40 | 2,900 | 22×45 | 3,185 | | | | |
| 10,000 | 103 | 16×20<br>18×20 | 2,000<br>2,020 | 16×25<br>18×25 | 2,150<br>2,370 | 18×31.5<br>16×35.5 | 2,590<br>2,450 | 18×40 | 3,080 | 22×45 | 3,400 | | | | | | |
| 15,000 | 153 | 16×31.5<br>18×25 | 2,460<br>2,375 | 16×40<br>18×31.5 | 2,730<br>2,620 | 18×40 | 3,100 | 22×45<br>25×40 | 3,780<br>3,850 | | | | | | | | |
| 22,000 | 223 | 18×31.5 | 2,780 | 18×40 | 3,370 | 22×40 | 3,900 | 25×45 | 4,290 | | | | | | | | |
| 33,000 | 333 | 22×40 | 3,700 | | | | | | | | | | | | | | |

| μF | Contents | 160V (2C) | | 200V (2D) | | 250V (2E) | | 350V (2V) | | 400V (2G) | | 450V (2W) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ϕD×L | mA | ϕD×L | mA | ϕD×L | mA | ϕD×L | mA | ϕD×L | mA | ϕD×L | mA |
| 1 | 010 | | | | | 5×11 | 18 | 5×11 | 18 | 5×11 | 22 | 6.3×11 | 25 |
| 2.2 | 2R2 | | | 5×11 | 29 | 6.3×11 | 33 | 6.3×11 | 33 | 6.3×11 | 33 | 8×11.5 | 45 |
| 3.3 | 3R3 | | | 6.3×11 | 46 | 6.3×11 | 46 | 8×11.5 | 50 | 8×11.5 | 50 | 10×12.5 | 65 |
| 4.7 | 4R7 | | | 6.3×11 | 50 | 8×11.5 | 55 | 8×11.5 | 60 | 8×11.5<br>10×12.5 | 55<br>80 | 8×11.5<br>10×12.5 | 55<br>80 |
| 10 | 100 | 8×11.5 | 75 | 8×11.5 | 81 | 10×12.5 | 100 | 10×16 | 110 | 10×16 | 110 | 10×20 | 140 |
| 22 | 220 | 10×12.5 | 130 | 10×12.5 | 135 | 10×16 | 150 | 12.5×16 | 185 | 12.5×20 | 200 | 12.5×25 | 300 |
| 33 | 330 | 10×16 | 175 | 10×16 | 180 | 10×20<br>12.5×16 | 215<br>220 | 12.5×20<br>16×16 | 245<br>260 | 16×16 | 260 | 16×20 | 270 |
| 47 | 470 | 10×20<br>12.5×16 | 230<br>250 | 10×20<br>12.5×16 | 240<br>250 | 12.5×20 | 290 | 16×20<br>18×16 | 340<br>310 | 16×20 | 340 | 16×31.5 | 390 |
| 68 | 680 | 12.5×20 | 330 | 12.5×20<br>16×16 | 330<br>370 | 12.5×25 | 370 | 16×25<br>18×20 | 420<br>410 | 16×31.5 | 435 | 16×35.5 | 460 |
| 100 | 101 | 12.5×25 | 440 | 16×20<br>18×16 | 460<br>450 | 16×25 | 510 | 16×31.5<br>18×25 | 540<br>520 | 16×40<br>18×35.5 | 560<br>570 | 18×35.5 | 570 |
| 150 | 151 | 16×25 | 620 | 16×25<br>18×20 | 620<br>605 | 16×31.5<br>18×25 | 625<br>630 | 18×35.5 | 640 | 18×40 | 670 | 22×45 | 800 |
| 220 | 221 | 16×31.5<br>18×25 | 790<br>760 | 16×35.5 | 830 | 16×40<br>18×35.5 | 840<br>890 | 22×40 | 920 | 22×45<br>25×40 | 960<br>980 | 25×45 | 1,030 |
| 330 | 331 | 18×35.5 | 985 | 18×40 | 1,150 | 22×40 | 1,200 | 25×45 | 1,270 | | | | |
| 470 | 471 | 18×40 | 1,150 | 22×40 | 1,400 | 22×45 | 1,470 | | | | | | |

## Part Numbering System

| REA series | 470μF | ±20% | 16V | Bulk Package | Gas Type | 8ϕ×11.5L | Pb-free and PET sleeve |
|---|---|---|---|---|---|---|---|
| **REA** | **471** | **M** | **1C** | **BK** | **-** | **0811** | |
| Series | Capacitance | Capacitance Tolerance | Rated Voltage | Lead Configuration & Package | Rubber Type | Case Size | Lead Wire and Sleeve Type |

Note: For more details, please refer to “Part Numbering System (Radial Type)” on page 10.

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

Наши преимущества:

- Оперативные поставки широкого спектра электронных компонентов отечественного и импортного производства напрямую от производителей и с крупнейших мировых складов;
- Поставка более 17-ти миллионов наименований электронных компонентов;
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- Лицензия ФСБ на осуществление работ с использованием сведений, составляющих государственную тайну;
- Поставка специализированных компонентов (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Aeroflex, Peregrine, Syfer, Eurofarad, Texas Instrument, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits,General Dynamics и др.);

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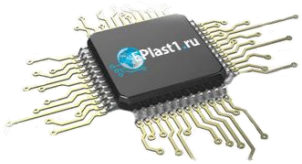
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.




**Как с нами связаться**

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