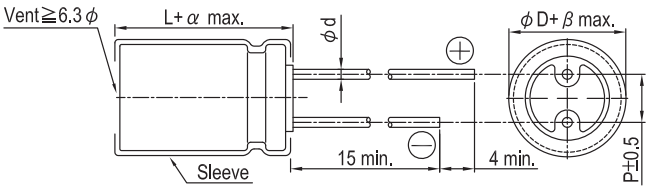
# RJA Series

Features
- 105℃, wide temperature range
- Suitable for high reliability products
- RoHS compliance


Specifications

| Items | Performance | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Category Temperature Range | 6.3 ~ 63V | | | | | | 100V | | |
| | -55℃ ~ +105℃ | | | | | | -40℃ ~ +105℃ | | |
| Capacitance Tolerance | ±20% (at 120 Hz, 20℃) | | | | | | | | |
| Leakage Current (at 20℃) | I = 0.01CV or 3 (μA) whichever is greater (after 2 minutes)<br>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<br>Tanδ (max): 0.23 / 0.20 / 0.16 / 0.14 / 0.12 / 0.10 / 0.09 / 0.08<br>When the capacitance exceeds 1,000μF, 0.02 shall be added every 1,000μF increase. | | | | | | | | |
| Low Temperature Characteristics (at 120 Hz) | Impedance ratio shall not exceed the values given in the table below. | | | | | | | | |
| | Rated Voltage | | | 6.3 | 10 | 16 | 25 | 35 | 50 | 63 | 100 |
| | Impedance Ratio | Z(-25℃)/Z(+20℃) | φD＜16 | 4 | 3 | 3 | 2 | 2 | 2 | 2 | 2 |
| | | | φD≧16 | 5 | 4 | 3 | 2 | 2 | 2 | 2 | 3 |
| | | Z(-40/-55℃)/Z(+20℃) | φD＜16 | 8 | 6 | 4 | 4 | 4 | 3 | 3 | 3 |
| | | | φD≧16 | 12 | 8 | 6 | 4 | 3 | 3 | 3 | 6 |
| Endurance | Test Time: 2,000 Hrs<br>Capacitance Change: Within ±20% of initial value<br>Tanδ: Less than 200% of specified value<br>Leakage Current: Within specified value<br>* 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 hours at 105℃. | | | | | | | | |
| Shelf Life Test | Test Time: 1,000 Hrs<br>Capacitance Change: Within ±20% of initial value<br>Tanδ: Less than 200% of specified value<br>Leakage Current: Within specified value<br>* The above specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 105℃ without voltage applied. | | | | | | | | |
| Ripple Current and Frequency Multipliers | Freq.(Hz) / Cap.(μF) | 60 (50) | 120 | 500 | 1k | 10k up | | | |
| | ≦ 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 ＜ | 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 |
|---|---|---|---|---|---|---|---|
| P | 2.0 | 2.5 | 3.5 | 5.0 | 5.0 | 7.5 | 7.5 |
| φd | 0.5 | | 0.6 | | | 0.8 | |
| α | L<20: 1.5, L≧20: 2.0 | | | | | | |
| β | 0.5 | | | | | | |

Dimension: ϕD × L(mm)

Dimension and Permissible Ripple Current

Ripple Current: mA/rms at 120 Hz, 105℃

| Cap.(μF) \ Rated Volt. (VDC) / 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 | 20 | | | 5×11 | 26 |
| 3.3 | 3R3 | | | | | | | | | | | 5×11 | 30 | | | 5×11 | 31 |
| 4.7 | 4R7 | | | | | | | | | | | 5×11 | 33 | 5×11 | 36 | 5×11<br>6.3×11 | 36<br>40 |
| 10 | 100 | | | | | | | | | | | 5×11 | 50 | 5×11 | 54 | 6.3×11 | 54 |
| 22 | 220 | | | | | | | | | | | 5×11 | 78 | 5×11<br>6.3×11 | 64<br>86 | 6.3×11<br>8×11.5 | 93<br>111 |
| 33 | 330 | | | | | | | | | 5×11 | 85 | 5×11 | 90 | 6.3×11 | 100 | 8×11.5<br>10×12.5 | 144<br>183 |
| 47 | 470 | | | | | | | 5×11 | 97 | 5×11 | 90 | 6.3×11 | 117 | 6.3×11 | 129 | 10×12.5 | 204 |
| 100 | 101 | | | | | 5×11 | 110 | 5×11<br>6.3×11 | 120<br>142 | 6.3×11 | 150 | 8×11.5 | 188 | 10×12.5 | 235 | 10×20 | 285 |
| 220 | 221 | | | 5×11 | 150 | 6.3×11 | 180 | 8×11.5 | 236 | 8×11.5 | 270 | 10×16 | 335 | 10×20 | 400 | 12.5×25 | 440 |
| 330 | 331 | | | 6.3×11 | 200 | 8×11.5 | 260 | 8×11.5 | 330 | 10×12.5 | 350 | 10×16<br>10×20 | 410<br>460 | 10×20<br>12.5×20 | 490<br>520 | 16×25 | 478 |
| 470 | 471 | 6.3×11 | 230 | 6.3×11<br>8×11.5 | 250<br>290 | 8×11.5 | 310 | 10×12.5 | 380 | 10×16 | 460 | 12.5×20 | 590 | 12.5×20<br>12.5×25 | 665<br>720 | 16×31.5 | 688 |
| 1,000 | 102 | 8×11.5 | 380 | 10×12.5 | 460 | 10×16 | 560 | 10×20 | 680 | 12.5×20 | 830 | 16×25 | 1,080 | 16×25 | 1,190 | | |
| 2,200 | 222 | 10×16 | 690 | 10×20 | 760 | 12.5×20 | 920 | 12.5×25 | 1,090 | 16×25 | 1,260 | 16×35.5 | 1,470 | | | | |
| 3,300 | 332 | 10×20 | 840 | 12.5×20 | 1,100 | 12.5×25 | 1,170 | 16×25 | 1,400 | 16×35.5 | 1,610 | 18×35.5 | 1,650 | | | | |
| 4,700 | 472 | 12.5×20 | 1,090 | 12.5×25 | 1,260 | 16×25 | 1,480 | 16×31.5 | 1,710 | 18×35.5 | 1,900 | | | | | | |
| 6,800 | 682 | 12.5×25 | 1,460 | 16×25 | 1,690 | 16×31.5 | 1,930 | 18×35.5 | 2,160 | | | | | | | | |
| 10,000 | 103 | 16×25 | 1,990 | 16×31.5 | 2,220 | 18×31.5 | 2,330 | | | | | | | | | | |
| 22,000 | 223 | 18×35.5 | 2,930 | 18×40 | 3,230 | | | | | | | | | | | | |

Part Numbering System

| RJA Series | 470μF | ±20% | 6.3V | Bulk Package | Gas Type | 6.3ϕ×11L | Pb-free and PET sleeve |
|---|---|---|---|---|---|---|---|
| **RJA** | **471** | **M** | **0J** | **BK** | **-** | **0611** | |
| Series Name | Capacitance | Capacitance Tolerance | Rated Voltage | Lead Configuration and Package | Rubber Type | Case Size | Lead Wire and Sleeve type |

Note: For more details, please refer to “Part Numbering System (Radial Type)” on page 13.

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