



RXC Series

Features

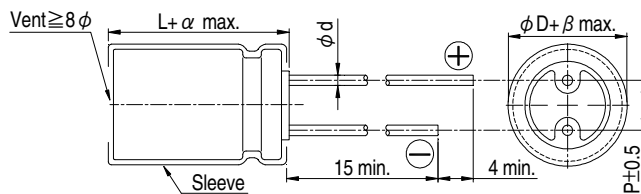
- 105°C, 2,000 ~ 3,000 hours assured
- Suitable for switching power supplies, UPS
- Smaller size with large permissible ripple current
- RoHS compliance



Specifications

| Items                                       | Performance   |                              |                        |   |                    |                              |                              |                                   |                 |                        |                 |                   |      |      |      |      |       |      |                   |      |      |   |   |   |   |
|---|---|------------------------------|------------------------|---|--------------------|------------------------------|------------------------------|-----------------------------------|-----------------|------------------------|-----------------|-------------------|------|------|------|------|-------|------|-------------------|------|------|---|---|---|---|
|   | Category Temperature Range  | 160 ~ 400V<br>-40°C ~ +105°C | 450V<br>-25°C ~ +105°C |   |                    |                              |                              |                                   |                 |                        |                 |                   |      |      |      |      |       |      |                   |      |      |   |   |   |   |
| Capacitance Tolerance                       | ±20% (at 120 Hz, 20°C)  |                              |                        |   |                    |                              |                              |                                   |                 |                        |                 |                   |      |      |      |      |       |      |                   |      |      |   |   |   |   |
| Leakage Current (at 20°C)                   | <table border="1"> <thead> <tr> <th>Time</th> <th colspan="2">After 5 minutes</th> </tr> </thead> <tbody> <tr> <td>Leakage Current</td> <td>CV ≤ 1,000<br/>I = 0.03CV(μA)</td> <td>CV &gt; 1,000<br/>I = 0.02CV(μA)</td> </tr> </tbody> </table> <p>Where, C = rated capacitance in μF, V = rated DC working voltage in V</p>   |                              | Time                   | After 5 minutes   |                    | Leakage Current              | CV ≤ 1,000<br>I = 0.03CV(μA) | CV > 1,000<br>I = 0.02CV(μA)      |                 |                        |                 |                   |      |      |      |      |       |      |                   |      |      |   |   |   |   |
| Time  | After 5 minutes   |                              |                        |   |                    |                              |                              |                                   |                 |                        |                 |                   |      |      |      |      |       |      |                   |      |      |   |   |   |   |
| Leakage Current                             | CV ≤ 1,000<br>I = 0.03CV(μA)  | CV > 1,000<br>I = 0.02CV(μA) |                        |   |                    |                              |                              |                                   |                 |                        |                 |                   |      |      |      |      |       |      |                   |      |      |   |   |   |   |
| Tanδ (at 120 Hz, 20°C)                      | <table border="1"> <thead> <tr> <th>Rated Voltage</th> <th>160</th> <th>200</th> <th>250</th> <th>350</th> <th>400</th> <th>450</th> </tr> </thead> <tbody> <tr> <td>Tanδ (max)</td> <td>0.20</td> <td>0.20</td> <td>0.20</td> <td>0.24</td> <td>0.24</td> <td>0.24</td> </tr> </tbody> </table>  |                              | Rated Voltage          | 160   | 200                | 250                          | 350                          | 400                               | 450             | Tanδ (max)             | 0.20            | 0.20              | 0.20 | 0.24 | 0.24 | 0.24 |       |      |                   |      |      |   |   |   |   |
| Rated Voltage                               | 160   | 200                          | 250                    | 350   | 400                | 450                          |                              |                                   |                 |                        |                 |                   |      |      |      |      |       |      |                   |      |      |   |   |   |   |
| Tanδ (max)                                  | 0.20  | 0.20                         | 0.20                   | 0.24  | 0.24               | 0.24                         |                              |                                   |                 |                        |                 |                   |      |      |      |      |       |      |                   |      |      |   |   |   |   |
| Low Temperature Characteristics (at 120 Hz) | <p>Impedance ratio shall not exceed the values given in the table below.</p> <table border="1"> <thead> <tr> <th colspan="2">Rated Voltage</th> <th>160</th> <th>200</th> <th>250</th> <th>350</th> <th>400</th> <th>450</th> </tr> </thead> <tbody> <tr> <td rowspan="2">Impedance Ratio</td> <td>Z(-25°C)/Z(+20°C)</td> <td>3</td> <td>3</td> <td>3</td> <td>3</td> <td>5</td> <td>6</td> </tr> <tr> <td>Z(-40°C)/Z(+20°C)</td> <td>4</td> <td>4</td> <td>4</td> <td>4</td> <td>6</td> <td>-</td> </tr> </tbody> </table>   |                              | Rated Voltage          |   | 160                | 200                          | 250                          | 350                               | 400             | 450                    | Impedance Ratio | Z(-25°C)/Z(+20°C) | 3    | 3    | 3    | 3    | 5     | 6    | Z(-40°C)/Z(+20°C) | 4    | 4    | 4 | 4 | 6 | - |
| Rated Voltage                               |   | 160                          | 200                    | 250   | 350                | 400                          | 450                          |                                   |                 |                        |                 |                   |      |      |      |      |       |      |                   |      |      |   |   |   |   |
| Impedance Ratio                             | Z(-25°C)/Z(+20°C)   | 3                            | 3                      | 3   | 3                  | 5                            | 6                            |                                   |                 |                        |                 |                   |      |      |      |      |       |      |                   |      |      |   |   |   |   |
|   | Z(-40°C)/Z(+20°C)   | 4                            | 4                      | 4   | 4                  | 6                            | -                            |                                   |                 |                        |                 |                   |      |      |      |      |       |      |                   |      |      |   |   |   |   |
| Endurance                                   | <table border="1"> <thead> <tr> <th>Test Time</th> <th>2,000 Hrs for φD ≤ 10 mm;<br/>3,000 Hrs for φD ≥ 12.5 mm</th> </tr> </thead> <tbody> <tr> <td>Capacitance Change</td> <td>Within ±20% of initial value</td> </tr> <tr> <td>Tanδ</td> <td>Less than 200% of specified value</td> </tr> <tr> <td>Leakage Current</td> <td>Within specified value</td> </tr> </tbody> </table> <p>* The above specifications shall be satisfied when the capacitors are restored to 20°C after the rated voltage applied with rated ripple current for 2,000 ~ 3,000 hours at 105°C.</p>                                      |                              | Test Time              | 2,000 Hrs for φD ≤ 10 mm;<br>3,000 Hrs for φD ≥ 12.5 mm | Capacitance Change | Within ±20% of initial value | Tanδ                         | Less than 200% of specified value | Leakage Current | Within specified value |                 |                   |      |      |      |      |       |      |                   |      |      |   |   |   |   |
| Test Time                                   | 2,000 Hrs for φD ≤ 10 mm;<br>3,000 Hrs for φD ≥ 12.5 mm   |                              |                        |   |                    |                              |                              |                                   |                 |                        |                 |                   |      |      |      |      |       |      |                   |      |      |   |   |   |   |
| Capacitance Change                          | Within ±20% of initial value  |                              |                        |   |                    |                              |                              |                                   |                 |                        |                 |                   |      |      |      |      |       |      |                   |      |      |   |   |   |   |
| Tanδ  | Less than 200% of specified value   |                              |                        |   |                    |                              |                              |                                   |                 |                        |                 |                   |      |      |      |      |       |      |                   |      |      |   |   |   |   |
| Leakage Current                             | Within specified value  |                              |                        |   |                    |                              |                              |                                   |                 |                        |                 |                   |      |      |      |      |       |      |                   |      |      |   |   |   |   |
| Shelf Life Test                             | <table border="1"> <thead> <tr> <th>Test Time</th> <th>1,000 Hrs</th> </tr> </thead> <tbody> <tr> <td>Capacitance Change</td> <td>Within ±20% of initial value</td> </tr> <tr> <td>Tanδ</td> <td>Less than 200% of specified value</td> </tr> <tr> <td>Leakage Current</td> <td>Within specified value</td> </tr> </tbody> </table> <p>* The above specifications shall be satisfied when the capacitors are restored to 20°C after exposing them for 1,000 hours at 105°C without voltage applied. The rated voltage shall be applied to the capacitors before the measurements (Refer to JIS C 5101-4 4.1).</p> |                              | Test Time              | 1,000 Hrs   | Capacitance Change | Within ±20% of initial value | Tanδ                         | Less than 200% of specified value | Leakage Current | Within specified value |                 |                   |      |      |      |      |       |      |                   |      |      |   |   |   |   |
| Test Time                                   | 1,000 Hrs   |                              |                        |   |                    |                              |                              |                                   |                 |                        |                 |                   |      |      |      |      |       |      |                   |      |      |   |   |   |   |
| Capacitance Change                          | Within ±20% of initial value  |                              |                        |   |                    |                              |                              |                                   |                 |                        |                 |                   |      |      |      |      |       |      |                   |      |      |   |   |   |   |
| Tanδ  | Less than 200% of specified value   |                              |                        |   |                    |                              |                              |                                   |                 |                        |                 |                   |      |      |      |      |       |      |                   |      |      |   |   |   |   |
| Leakage Current                             | Within specified value  |                              |                        |   |                    |                              |                              |                                   |                 |                        |                 |                   |      |      |      |      |       |      |                   |      |      |   |   |   |   |
| Ripple Current and Frequency Multipliers    | <table border="1"> <thead> <tr> <th rowspan="2">Cap. (μF)</th> <th colspan="4">Freq.(Hz)</th> </tr> <tr> <th>120</th> <th>1k</th> <th>10k</th> <th>100k</th> </tr> </thead> <tbody> <tr> <td>≤ 82</td> <td>1.00</td> <td>1.20</td> <td>1.40</td> <td>1.50</td> </tr> <tr> <td>100 ≤</td> <td>1.00</td> <td>1.18</td> <td>1.35</td> <td>1.45</td> </tr> </tbody> </table>  |                              | Cap. (μF)              | Freq.(Hz)   |                    |                              |                              | 120                               | 1k              | 10k                    | 100k            | ≤ 82              | 1.00 | 1.20 | 1.40 | 1.50 | 100 ≤ | 1.00 | 1.18              | 1.35 | 1.45 |   |   |   |   |
| Cap. (μF)                                   | Freq.(Hz)   |                              |                        |   |                    |                              |                              |                                   |                 |                        |                 |                   |      |      |      |      |       |      |                   |      |      |   |   |   |   |
|   | 120   | 1k                           | 10k                    | 100k  |                    |                              |                              |                                   |                 |                        |                 |                   |      |      |      |      |       |      |                   |      |      |   |   |   |   |
| ≤ 82  | 1.00  | 1.20                         | 1.40                   | 1.50  |                    |                              |                              |                                   |                 |                        |                 |                   |      |      |      |      |       |      |                   |      |      |   |   |   |   |
| 100 ≤                                       | 1.00  | 1.18                         | 1.35                   | 1.45  |                    |                              |                              |                                   |                 |                        |                 |                   |      |      |      |      |       |      |                   |      |      |   |   |   |   |

Diagram of Dimensions



Lead Spacing and Diameter Unit: mm

| φD | 8                        | 10  | 12.5 | 16  | 18  |
|----|--------------------------|-----|------|-----|-----|
| P  | 3.5                      | 5.0 | 5.0  | 7.5 | 7.5 |
| φd | 0.6                      |     |      | 0.8 |     |
| α  | L < 20: 1.5, L ≥ 20: 2.0 |     |      |     |     |
| β  | 0.5                      |     |      |     |     |



Dimension:  $\phi D \times L$ (mm)

Ripple Current: mA/rms, 105°C

### Dimension and Permissible Ripple Current

| Rated Volt.<br>(V <sub>DC</sub> )<br>Contents<br>Cap.( $\mu$ F) | 160V (2C)         |                |            |                   | 200V (2D)      |         |                   | 250V (2E)      |         |                   | 350V (2V)      |         |                   | 400V (2G)      |         |  |
|---|-------------------|----------------|------------|-------------------|----------------|---------|-------------------|----------------|---------|-------------------|----------------|---------|-------------------|----------------|---------|--|
|   | $\phi D \times L$ | Ripple Current |            | $\phi D \times L$ | Ripple Current |         | $\phi D \times L$ | Ripple Current |         | $\phi D \times L$ | Ripple Current |         | $\phi D \times L$ | Ripple Current |         |  |
|   |                   | 120 Hz         | 100k Hz    |                   | 120 Hz         | 100k Hz |                   | 120 Hz         | 100k Hz |                   | 120 Hz         | 100k Hz |                   | 120 Hz         | 100k Hz |  |
| 2.2   |                   |                |            |                   |                |         |                   |                |         | 10×12.5           | 55             | 83      | 10×12.5           | 55             | 83      |  |
| 3.3   | 8×11.5            | 48             | 72         | 8×11.5            | 52             | 78      | 8×11.5            | 65             | 98      | 10×16             | 75             | 113     | 10×16             | 75             | 113     |  |
| 4.7   | 8×11.5            | 58             | 87         | 10×12.5           | 88             | 132     | 10×12.5           | 90             | 135     | 10×20             | 120            | 180     | 10×20             | 100            | 150     |  |
| 10  | 10×12.5<br>10×16  | 88<br>100      | 132<br>150 | 10×16             | 125            | 188     | 10×16             | 150            | 225     | 10×20             | 150            | 225     | 10×20             | 145            | 218     |  |
| 22  | 10×16             | 155            | 233        | 10×20             | 170            | 255     | 12.5×20           | 240            | 360     | 12.5×20           | 240            | 360     | 12.5×25           | 260            | 390     |  |
| 33  | 10×20             | 220            | 330        | 12.5×20           | 275            | 415     | 12.5×25           | 365            | 550     | 12.5×25           | 300            | 450     | 12.5×25           | 285            | 430     |  |
| 47  | 12.5×25           | 340            | 510        | 12.5×20           | 295            | 445     | 12.5×25           | 390            | 585     | 16×25             | 410            | 615     | 16×25             | 400            | 600     |  |
| 68  | 12.5×25           | 385            | 580        | 12.5×25           | 395            | 595     | 16×25             | 485            | 730     | 16×31.5           | 485            | 730     | 16×31.5           | 490            | 735     |  |
| 100   | 12.5×25           | 450            | 655        | 16×25             | 550            | 800     | 16×31.5           | 630            | 915     | 16×31.5           | 520            | 755     | 18×31.5           | 610            | 885     |  |
| 150   | 16×25             | 610            | 885        | 16×31.5           | 720            | 1,045   | 18×31.5           | 780            | 1,130   |                   |                |         |                   |                |         |  |
| 220   | 16×31.5           | 755            | 1,095      | 18×35.5           | 900            | 1,305   | 18×40             | 970            | 1,405   |                   |                |         |                   |                |         |  |
| 330   | 18×35.5           | 940            | 1,360      |                   |                |         |                   |                |         |                   |                |         |                   |                |         |  |

| Rated Volt.<br>(V <sub>DC</sub> )<br>Contents<br>Cap.( $\mu$ F) | 450V (2W)         |                |         |
|---|-------------------|----------------|---------|
|   | $\phi D \times L$ | Ripple Current |         |
|   |                   | 120 Hz         | 100k Hz |
| 1.5   | 10×12.5           | 50             | 75      |
| 2.2   | 10×16             | 68             | 102     |
| 3.3   | 10×20             | 88             | 132     |
| 4.7   | 12.5×20           | 140            | 210     |
| 10  | 12.5×25           | 200            | 300     |
| 22  | 16×25             | 305            | 460     |
| 33  | 16×31.5           | 410            | 615     |
| 47  | 18×31.5           | 495            | 745     |
| 68  | 18×35.5           | 540            | 810     |

### Part Numbering System

|             |             |                       |               |                                |             |                |                           |
|-------------|-------------|-----------------------|---------------|--------------------------------|-------------|----------------|---------------------------|
| RXC Series  | 22 $\mu$ F  | $\pm 20\%$            | 450V          | Bulk Package                   | Gas Type    | 16 $\phi$ x25L | Pb-free and PET sleeve    |
| <b>RXC</b>  | <b>220</b>  | <b>M</b>              | <b>2W</b>     | <b>BK</b>                      | -           | <b>1625</b>    |                           |
| 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.