



# Aluminum Electrolytic Capacitors

REA

## Features

- 85°C, 2,000 ~ 3,000 hours assured
- Standard series for general purpose
- RoHS Compliance

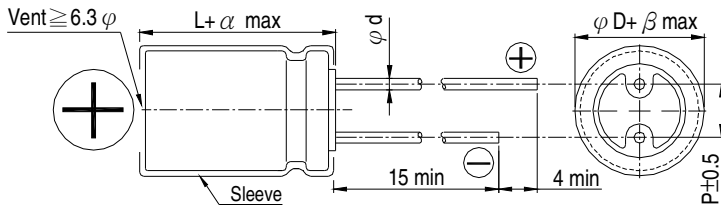


Sleeve & Marking Color: Blue & Black

## SPECIFICATIONS

| Items                                      | Performance  |                                 |                                      |                    |                               |                    |                                   |                 |                        |                 |   |                                 |                                 |      |                 |      |             |                 |          |          |                |      |      |      |      |      |      |      |      |      |      |    |    |    |           |          |   |   |   |   |   |   |   |   |   |   |    |    |    |    |          |          |    |   |   |   |   |   |   |   |   |   |    |    |    |    |           |          |    |    |    |    |   |   |   |   |   |    |    |    |    |  |
|--|--|---------------------------------|--------------------------------------|--------------------|-------------------------------|--------------------|-----------------------------------|-----------------|------------------------|-----------------|---|---------------------------------|---------------------------------|------|-----------------|------|-------------|-----------------|----------|----------|----------------|------|------|------|------|------|------|------|------|------|------|----|----|----|-----------|----------|---|---|---|---|---|---|---|---|---|---|----|----|----|----|----------|----------|----|---|---|---|---|---|---|---|---|---|----|----|----|----|-----------|----------|----|----|----|----|---|---|---|---|---|----|----|----|----|--|
| Category Temperature Range                 | -40°C ~ +85°C  |                                 |                                      |                    |                               |                    |                                   |                 |                        |                 |   |                                 |                                 |      |                 |      |             |                 |          |          |                |      |      |      |      |      |      |      |      |      |      |    |    |    |           |          |   |   |   |   |   |   |   |   |   |   |    |    |    |    |          |          |    |   |   |   |   |   |   |   |   |   |    |    |    |    |           |          |    |    |    |    |   |   |   |   |   |    |    |    |    |  |
| Capacitance Tolerance                      | ±20% (at 120Hz, 20°C)  |                                 |                                      |                    |                               |                    |                                   |                 |                        |                 |   |                                 |                                 |      |                 |      |             |                 |          |          |                |      |      |      |      |      |      |      |      |      |      |    |    |    |           |          |   |   |   |   |   |   |   |   |   |   |    |    |    |    |          |          |    |   |   |   |   |   |   |   |   |   |    |    |    |    |           |          |    |    |    |    |   |   |   |   |   |    |    |    |    |  |
| Leakage Current (at 20°C)                  | <table border="1"> <tr> <td>Rated voltage</td> <td>≤ 100V</td> <td colspan="2">&gt; 100V</td> </tr> <tr> <td>Time</td> <td>after 2 minutes</td> <td colspan="2">after 5 minutes</td> </tr> <tr> <td>Leakage Current</td> <td>I = 0.01CV or 3 (μA) whichever is greater</td> <td>CV ≤ 1,000<br/>I = 0.03CV+15(μA)</td> <td>CV &gt; 1,000<br/>I = 0.02CV+25(μA)</td> </tr> </table> <p>Where, C = rated capacitance in μF V = rated DC working voltage in V</p>  | 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<br>I = 0.03CV+15(μA) | CV > 1,000<br>I = 0.02CV+25(μA) |      |                 |      |             |                 |          |          |                |      |      |      |      |      |      |      |      |      |      |    |    |    |           |          |   |   |   |   |   |   |   |   |   |   |    |    |    |    |          |          |    |   |   |   |   |   |   |   |   |   |    |    |    |    |           |          |    |    |    |    |   |   |   |   |   |    |    |    |    |  |
| 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<br>I = 0.03CV+15(μA) | CV > 1,000<br>I = 0.02CV+25(μA)      |                    |                               |                    |                                   |                 |                        |                 |   |                                 |                                 |      |                 |      |             |                 |          |          |                |      |      |      |      |      |      |      |      |      |      |    |    |    |           |          |   |   |   |   |   |   |   |   |   |   |    |    |    |    |          |          |    |   |   |   |   |   |   |   |   |   |    |    |    |    |           |          |    |    |    |    |   |   |   |   |   |    |    |    |    |  |
| Dissipation Factor (Tan δ at 120 Hz, 20°C) | <table border="1"> <tr> <td>Rated Voltage</td> <td>6.3</td> <td>10</td> <td>16</td> <td>25</td> <td>35</td> <td>50</td> <td>63</td> <td>100</td> <td>160</td> <td>200</td> <td>250</td> <td>350</td> <td>400</td> <td>450</td> </tr> <tr> <td>Tan δ (max)</td> <td>0.23</td> <td>0.20</td> <td>0.16</td> <td>0.14</td> <td>0.12</td> <td>0.10</td> <td>0.09</td> <td>0.08</td> <td>0.12</td> <td>0.14</td> <td>0.17</td> <td>0.20</td> <td>0.25</td> <td>0.25</td> </tr> </table> <p>When the capacitance exceeds 1,000 μF, 0.02 shall be added every 1,000 μF increase.</p>   | Rated Voltage                   | 6.3                                  | 10                 | 16                            | 25                 | 35                                | 50              | 63                     | 100             | 160                                       | 200                             | 250                             | 350  | 400             | 450  | Tan δ (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 |    |    |    |           |          |   |   |   |   |   |   |   |   |   |   |    |    |    |    |          |          |    |   |   |   |   |   |   |   |   |   |    |    |    |    |           |          |    |    |    |    |   |   |   |   |   |    |    |    |    |  |
| Rated Voltage                              | 6.3  | 10                              | 16                                   | 25                 | 35                            | 50                 | 63                                | 100             | 160                    | 200             | 250                                       | 350                             | 400                             | 450  |                 |      |             |                 |          |          |                |      |      |      |      |      |      |      |      |      |      |    |    |    |           |          |   |   |   |   |   |   |   |   |   |   |    |    |    |    |          |          |    |   |   |   |   |   |   |   |   |   |    |    |    |    |           |          |    |    |    |    |   |   |   |   |   |    |    |    |    |  |
| Tan δ (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 |                 |      |             |                 |          |          |                |      |      |      |      |      |      |      |      |      |      |    |    |    |           |          |   |   |   |   |   |   |   |   |   |   |    |    |    |    |          |          |    |   |   |   |   |   |   |   |   |   |    |    |    |    |           |          |    |    |    |    |   |   |   |   |   |    |    |    |    |  |
| Low Temperature Characteristics (at 120Hz) | <p>Impedance ratio shall not exceed the values given in the table below.</p> <table border="1"> <tr> <td colspan="2">Rated Voltage</td> <td>6.3</td> <td>10</td> <td>16</td> <td>25</td> <td>35</td> <td>50</td> <td>63</td> <td>100</td> <td>160</td> <td>200</td> <td>250</td> <td>350</td> <td>400</td> <td>450</td> </tr> <tr> <td rowspan="4">Impedance Ratio</td> <td>Z(-25°C)</td> <td>φ D &lt; 16</td> <td>6</td> <td>4</td> <td>3</td> <td>3</td> <td>2</td> <td>2</td> <td>2</td> <td>2</td> <td>3</td> <td>6</td> <td>8</td> <td>12</td> <td>14</td> <td>16</td> </tr> <tr> <td>/Z(+20°C)</td> <td>φ D ≥ 16</td> <td>8</td> <td>6</td> <td>4</td> <td>4</td> <td>3</td> <td>3</td> <td>3</td> <td>3</td> <td>4</td> <td>8</td> <td>10</td> <td>16</td> <td>18</td> <td>20</td> </tr> <tr> <td>Z(-40°C)</td> <td>φ D &lt; 16</td> <td>10</td> <td>8</td> <td>6</td> <td>6</td> <td>4</td> <td>3</td> <td>3</td> <td>3</td> <td>4</td> <td>8</td> <td>10</td> <td>16</td> <td>18</td> <td>20</td> </tr> <tr> <td>/Z(+20°C)</td> <td>φ D ≥ 16</td> <td>18</td> <td>16</td> <td>12</td> <td>10</td> <td>8</td> <td>8</td> <td>6</td> <td>6</td> <td>8</td> <td>10</td> <td>16</td> <td>18</td> <td>20</td> <td></td> </tr> </table> | Rated Voltage                   |                                      | 6.3                | 10                            | 16                 | 25                                | 35              | 50                     | 63              | 100                                       | 160                             | 200                             | 250  | 350             | 400  | 450         | Impedance Ratio | Z(-25°C) | φ D < 16 | 6              | 4    | 3    | 3    | 2    | 2    | 2    | 2    | 3    | 6    | 8    | 12 | 14 | 16 | /Z(+20°C) | φ D ≥ 16 | 8 | 6 | 4 | 4 | 3 | 3 | 3 | 3 | 4 | 8 | 10 | 16 | 18 | 20 | Z(-40°C) | φ D < 16 | 10 | 8 | 6 | 6 | 4 | 3 | 3 | 3 | 4 | 8 | 10 | 16 | 18 | 20 | /Z(+20°C) | φ D ≥ 16 | 18 | 16 | 12 | 10 | 8 | 8 | 6 | 6 | 8 | 10 | 16 | 18 | 20 |  |
| Rated Voltage                              |  | 6.3                             | 10                                   | 16                 | 25                            | 35                 | 50                                | 63              | 100                    | 160             | 200                                       | 250                             | 350                             | 400  | 450             |      |             |                 |          |          |                |      |      |      |      |      |      |      |      |      |      |    |    |    |           |          |   |   |   |   |   |   |   |   |   |   |    |    |    |    |          |          |    |   |   |   |   |   |   |   |   |   |    |    |    |    |           |          |    |    |    |    |   |   |   |   |   |    |    |    |    |  |
| Impedance Ratio                            | Z(-25°C)   | φ D < 16                        | 6                                    | 4                  | 3                             | 3                  | 2                                 | 2               | 2                      | 2               | 3   | 6                               | 8                               | 12   | 14              | 16   |             |                 |          |          |                |      |      |      |      |      |      |      |      |      |      |    |    |    |           |          |   |   |   |   |   |   |   |   |   |   |    |    |    |    |          |          |    |   |   |   |   |   |   |   |   |   |    |    |    |    |           |          |    |    |    |    |   |   |   |   |   |    |    |    |    |  |
|  | /Z(+20°C)  | φ D ≥ 16                        | 8                                    | 6                  | 4                             | 4                  | 3                                 | 3               | 3                      | 3               | 4   | 8                               | 10                              | 16   | 18              | 20   |             |                 |          |          |                |      |      |      |      |      |      |      |      |      |      |    |    |    |           |          |   |   |   |   |   |   |   |   |   |   |    |    |    |    |          |          |    |   |   |   |   |   |   |   |   |   |    |    |    |    |           |          |    |    |    |    |   |   |   |   |   |    |    |    |    |  |
|  | Z(-40°C)   | φ D < 16                        | 10                                   | 8                  | 6                             | 6                  | 4                                 | 3               | 3                      | 3               | 4   | 8                               | 10                              | 16   | 18              | 20   |             |                 |          |          |                |      |      |      |      |      |      |      |      |      |      |    |    |    |           |          |   |   |   |   |   |   |   |   |   |   |    |    |    |    |          |          |    |   |   |   |   |   |   |   |   |   |    |    |    |    |           |          |    |    |    |    |   |   |   |   |   |    |    |    |    |  |
|  | /Z(+20°C)  | φ D ≥ 16                        | 18                                   | 16                 | 12                            | 10                 | 8                                 | 8               | 6                      | 6               | 8   | 10                              | 16                              | 18   | 20              |      |             |                 |          |          |                |      |      |      |      |      |      |      |      |      |      |    |    |    |           |          |   |   |   |   |   |   |   |   |   |   |    |    |    |    |          |          |    |   |   |   |   |   |   |   |   |   |    |    |    |    |           |          |    |    |    |    |   |   |   |   |   |    |    |    |    |  |
| Endurance                                  | <table border="1"> <tr> <td>Test Time</td> <td>2,000 Hrs (3,000 Hrs for φ D ≥ 10mm)</td> </tr> <tr> <td>Capacitance Change</td> <td>With in ±20% of initial value</td> </tr> <tr> <td>Dissipation Factor</td> <td>Less than 200% of specified value</td> </tr> <tr> <td>Leakage Current</td> <td>Within specified value</td> </tr> </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 85°C.</p>   | Test Time                       | 2,000 Hrs (3,000 Hrs for φ D ≥ 10mm) | Capacitance Change | With in ±20% of initial value | Dissipation Factor | Less than 200% of specified value | Leakage Current | Within specified value |                 |   |                                 |                                 |      |                 |      |             |                 |          |          |                |      |      |      |      |      |      |      |      |      |      |    |    |    |           |          |   |   |   |   |   |   |   |   |   |   |    |    |    |    |          |          |    |   |   |   |   |   |   |   |   |   |    |    |    |    |           |          |    |    |    |    |   |   |   |   |   |    |    |    |    |  |
| Test Time                                  | 2,000 Hrs (3,000 Hrs for φ D ≥ 10mm)   |                                 |                                      |                    |                               |                    |                                   |                 |                        |                 |   |                                 |                                 |      |                 |      |             |                 |          |          |                |      |      |      |      |      |      |      |      |      |      |    |    |    |           |          |   |   |   |   |   |   |   |   |   |   |    |    |    |    |          |          |    |   |   |   |   |   |   |   |   |   |    |    |    |    |           |          |    |    |    |    |   |   |   |   |   |    |    |    |    |  |
| Capacitance Change                         | With in ±20% of initial value  |                                 |                                      |                    |                               |                    |                                   |                 |                        |                 |   |                                 |                                 |      |                 |      |             |                 |          |          |                |      |      |      |      |      |      |      |      |      |      |    |    |    |           |          |   |   |   |   |   |   |   |   |   |   |    |    |    |    |          |          |    |   |   |   |   |   |   |   |   |   |    |    |    |    |           |          |    |    |    |    |   |   |   |   |   |    |    |    |    |  |
| Dissipation Factor                         | Less than 200% of specified value  |                                 |                                      |                    |                               |                    |                                   |                 |                        |                 |   |                                 |                                 |      |                 |      |             |                 |          |          |                |      |      |      |      |      |      |      |      |      |      |    |    |    |           |          |   |   |   |   |   |   |   |   |   |   |    |    |    |    |          |          |    |   |   |   |   |   |   |   |   |   |    |    |    |    |           |          |    |    |    |    |   |   |   |   |   |    |    |    |    |  |
| Leakage Current                            | Within specified value   |                                 |                                      |                    |                               |                    |                                   |                 |                        |                 |   |                                 |                                 |      |                 |      |             |                 |          |          |                |      |      |      |      |      |      |      |      |      |      |    |    |    |           |          |   |   |   |   |   |   |   |   |   |   |    |    |    |    |          |          |    |   |   |   |   |   |   |   |   |   |    |    |    |    |           |          |    |    |    |    |   |   |   |   |   |    |    |    |    |  |
| Shelf Life Test                            | <table border="1"> <tr> <td>Test Time</td> <td>1,000 Hrs</td> </tr> <tr> <td>Capacitance Change</td> <td>With in ±20% of initial value</td> </tr> <tr> <td>Dissipation Factor</td> <td>Less than 200% of specified value</td> </tr> <tr> <td>Leakage Current</td> <td>Within specified value</td> </tr> </table> <p>* The above specifications shall be satisfied when the capacitors are restored to 20°C after exposing them for 1,000 hours at 85°C 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).</p>   | Test Time                       | 1,000 Hrs                            | Capacitance Change | With in ±20% of initial value | Dissipation Factor | Less than 200% of specified value | Leakage Current | Within specified value |                 |   |                                 |                                 |      |                 |      |             |                 |          |          |                |      |      |      |      |      |      |      |      |      |      |    |    |    |           |          |   |   |   |   |   |   |   |   |   |   |    |    |    |    |          |          |    |   |   |   |   |   |   |   |   |   |    |    |    |    |           |          |    |    |    |    |   |   |   |   |   |    |    |    |    |  |
| Test Time                                  | 1,000 Hrs  |                                 |                                      |                    |                               |                    |                                   |                 |                        |                 |   |                                 |                                 |      |                 |      |             |                 |          |          |                |      |      |      |      |      |      |      |      |      |      |    |    |    |           |          |   |   |   |   |   |   |   |   |   |   |    |    |    |    |          |          |    |   |   |   |   |   |   |   |   |   |    |    |    |    |           |          |    |    |    |    |   |   |   |   |   |    |    |    |    |  |
| Capacitance Change                         | With in ±20% of initial value  |                                 |                                      |                    |                               |                    |                                   |                 |                        |                 |   |                                 |                                 |      |                 |      |             |                 |          |          |                |      |      |      |      |      |      |      |      |      |      |    |    |    |           |          |   |   |   |   |   |   |   |   |   |   |    |    |    |    |          |          |    |   |   |   |   |   |   |   |   |   |    |    |    |    |           |          |    |    |    |    |   |   |   |   |   |    |    |    |    |  |
| Dissipation Factor                         | Less than 200% of specified value  |                                 |                                      |                    |                               |                    |                                   |                 |                        |                 |   |                                 |                                 |      |                 |      |             |                 |          |          |                |      |      |      |      |      |      |      |      |      |      |    |    |    |           |          |   |   |   |   |   |   |   |   |   |   |    |    |    |    |          |          |    |   |   |   |   |   |   |   |   |   |    |    |    |    |           |          |    |    |    |    |   |   |   |   |   |    |    |    |    |  |
| Leakage Current                            | Within specified value   |                                 |                                      |                    |                               |                    |                                   |                 |                        |                 |   |                                 |                                 |      |                 |      |             |                 |          |          |                |      |      |      |      |      |      |      |      |      |      |    |    |    |           |          |   |   |   |   |   |   |   |   |   |   |    |    |    |    |          |          |    |   |   |   |   |   |   |   |   |   |    |    |    |    |           |          |    |    |    |    |   |   |   |   |   |    |    |    |    |  |
| Ripple Current & Frequency Multipliers     | <table border="1"> <tr> <td rowspan="4">Cap. (μF)</td> <td>Freq. (Hz)</td> <td>60 (50)</td> <td>120</td> <td>500</td> <td>1k</td> <td>10k up</td> </tr> <tr> <td>Under 100</td> <td>0.70</td> <td>1.00</td> <td>1.30</td> <td>1.40</td> <td>1.50</td> </tr> <tr> <td>100 &lt; C ≤ 1,000</td> <td>0.75</td> <td>1.00</td> <td>1.20</td> <td>1.30</td> <td>1.35</td> </tr> <tr> <td>1,000 up above</td> <td>0.80</td> <td>1.00</td> <td>1.10</td> <td>1.12</td> <td>1.15</td> </tr> </table>   | 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 |      |      |      |      |      |    |    |    |           |          |   |   |   |   |   |   |   |   |   |   |    |    |    |    |          |          |    |   |   |   |   |   |   |   |   |   |    |    |    |    |           |          |    |    |    |    |   |   |   |   |   |    |    |    |    |  |
| 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

| φ D | 5   | 6.3 | 8   | 10  | 12.5 | 16  | 18  | 22  |
|-----|-----|-----|-----|-----|------|-----|-----|-----|
| P   | 2.0 | 2.5 | 3.5 | 5.0 | 5.0  | 7.5 | 7.5 | 10  |
| φ d | 0.5 |     | 0.6 |     |      | 0.8 |     | 1.0 |
| α   | 1.0 |     |     | 1.5 |      |     |     | 2.0 |
| β   | 0.5 |     |     |     |      |     |     |     |

Dimension: φ D × L(mm)

Ripple Current: mA/rms at 120 Hz, 85°C

## DIMENSION & PERMISSIBLE RIPPLE CURRENT

| μF     | V. DC<br>Contents | 6.3V (0J)        |                |                |                | 10V (1A)           |                |                |                | 16V (1C)           |                |                  |                | 25V (1E)         |                |                |                |
|--------|-------------------|------------------|----------------|----------------|----------------|--------------------|----------------|----------------|----------------|--------------------|----------------|------------------|----------------|------------------|----------------|----------------|----------------|
|        |                   | φ D×L            | mA             | * φ D×L        | mA             | φ D×L              | mA             | * φ D×L        | mA             | φ D×L              | mA             | * φ D×L          | mA             | φ D×L            | mA             | * φ D×L        | mA             |
| 4.7    | 4R7               |                  |                |                |                |                    |                |                |                |                    |                |                  |                | 5×11             | 31             |                |                |
| 10     | 100               |                  |                |                |                |                    |                |                |                | 5×11               | 49             |                  |                | 5×11             | 54             |                |                |
| 22     | 220               |                  |                |                |                | 5×11               | 70             |                |                | 5×11               | 75             |                  |                | 5×11             | 80             |                |                |
| 33     | 330               | 5×11             | 72             |                |                | 5×11               | 84             |                |                | 5×11               | 90             |                  |                | 5×11             | 97             |                |                |
| 47     | 470               | 5×11             | 90             |                |                | 5×11               | 100            |                |                | 5×11               | 110            |                  |                | 5×11             | 115            |                |                |
| 100    | 101               | 5×11             | 130            |                |                | 5×11               | 145            |                |                | 6.3×11             | 180            | 5×11             | 160            | 6.3×11           | 190            |                |                |
| 220    | 221               | 6.3×11           | 230            | 5×11           | 200            | 6.3×11             | 250            | 5×11           | 220            | 8×11.5             | 300            | 6.3×11           | 260            | 8×11.5           | 320            |                |                |
| 330    | 331               | 8×11.5           | 290            | 6.3×11         | 270            | 8×11.5             | 350            | 6.3×11         | 290            | 8×11.5             | 370            | 6.3×11           | 290            | 10×12.5          | 470            | 8×11.5         | 440            |
| 470    | 471               | 8×11.5           | 380            | 6.3×11         | 320            | 8×11.5             | 415            | 6.3×11         | 350            | 10×12.5            | 520            | 8×11.5           | 440            | 10×16            | 620            | 10×12.5        | 545            |
| 1,000  | 102               | 8×11.5           | 540            |                |                | 10×12.5            | 650            | 8×11.5         | 550            | 10×16              | 785            | 10×12.5          | 635            | 10×20<br>12.5×20 | 955<br>1,090   | 12.5×16        | 830            |
| 2,200  | 222               | 10×20            | 1,000          | 10×16          | 845            | 10×20<br>12.5×20   | 1,070<br>1,240 | 12.5×16        | 970            | 12.5×20            | 1,295          | 12.5×16<br>16×16 | 930<br>1,160   | 12.5×25<br>16×25 | 1,540<br>1,660 | 16×16<br>16×20 | 1,150<br>1,360 |
| 3,300  | 332               | 10×20<br>12.5×20 | 1,185<br>1,380 | 12.5×16        | 960            | 12.5×20            | 1,420          | 16×16          | 1,310          | 12.5×20<br>12.5×25 | 1,450<br>1,655 | 16×16<br>16×20   | 1,240<br>1,460 | 16×25<br>16×31.5 | 1,800<br>2,070 | 16×20<br>18×20 | 1,490<br>1,720 |
| 4,700  | 472               | 12.5×20<br>16×25 | 1,545<br>1,880 | 16×16          | 1,410          | 12.5×25<br>16×25   | 1,780<br>1,980 | 16×16<br>16×20 | 1,420<br>1,560 | 16×25<br>16×31.5   | 2,090<br>2,260 | 16×20<br>18×20   | 1,600<br>1,700 | 16×25<br>16×31.5 | 2,100<br>2,420 | 18×25          | 2,170          |
| 6,800  | 682               | 12.5×25<br>16×25 | 1,880<br>2,120 | 16×20          | 1,660          | 16×25              | 2,220          | 16×20<br>18×20 | 1,700<br>1,870 | 16×25<br>16×31.5   | 2,280<br>2,520 | 18×20<br>18×25   | 1,890<br>2,170 | 18×35.5          | 2,880          | 18×31.5        | 2,550          |
| 10,000 | 103               | 16×25            | 2,330          | 16×20<br>18×20 | 2,000<br>2,020 | 16×31.5<br>16×35.5 | 2,370<br>2,430 | 16×20<br>18×25 | 2,050<br>2,370 | 18×31.5            | 2,590          | 16×35.5          | 2,450          | 22×40            | 3,440          | 18×40          | 3,080          |
| 22,000 | 223               | 18×40            | 3,320          | 18×31.5        | 2,780          | 22×40              | 3,790          | 18×40          | 3,370          | 22×40              | 3,900          |                  |                |                  |                |                |                |

| μF    | V. DC<br>Contents | 35V (1V)           |                |                |                | 50V (1H)         |                |                  |            | 63V (1J) |       |         |       | 100V (2A) |       |         |       |
|-------|-------------------|--------------------|----------------|----------------|----------------|------------------|----------------|------------------|------------|----------|-------|---------|-------|-----------|-------|---------|-------|
|       |                   | φ D×L              | mA             | * φ D×L        | mA             | φ D×L            | mA             | * φ D×L          | mA         | φ D×L    | mA    | * φ D×L | mA    | φ D×L     | mA    | * φ D×L | mA    |
| 0.1   | 0R1               |                    |                |                |                | 5×11             | 1.5            |                  |            | 5×11     | 3     |         |       | 5×11      | 3     |         |       |
| 0.22  | R22               |                    |                |                |                | 5×11             | 3.5            |                  |            | 5×11     | 4.5   |         |       | 5×11      | 5.8   |         |       |
| 0.33  | R33               |                    |                |                |                | 5×11             | 5              |                  |            | 5×11     | 7.5   |         |       | 5×11      | 8.8   |         |       |
| 0.47  | R47               |                    |                |                |                | 5×11             | 7              |                  |            | 5×11     | 9.5   |         |       | 5×11      | 12    |         |       |
| 1     | 010               |                    |                |                |                | 5×11             | 15             |                  |            | 5×11     | 17    |         |       | 5×11      | 22    |         |       |
| 2.2   | 2R2               |                    |                |                |                | 5×11             | 29             |                  |            | 5×11     | 30    |         |       | 5×11      | 33    |         |       |
| 3.3   | 3R3               |                    |                |                |                | 5×11             | 35             |                  |            | 5×11     | 37    |         |       | 5×11      | 40    |         |       |
| 4.7   | 4R7               | 5×11               | 40             |                |                | 5×11             | 42             |                  |            | 5×11     | 45    |         |       | 5×11      | 48    |         |       |
| 10    | 100               | 5×11               | 58             |                |                | 5×11             | 65             |                  |            | 5×11     | 70    |         |       | 6.3×11    | 80    | 5×11    | 59    |
| 22    | 220               | 5×11               | 87             |                |                | 5×11             | 95             |                  |            | 6.3×11   | 115   |         |       | 8×11.5    | 135   | 6.3×11  | 115   |
| 33    | 330               | 6.3×11             | 115            | 5×11           | 108            | 6.3×11           | 136            | 5×11             | 125        | 8×11.5   | 150   | 6.3×11  | 140   | 10×16     | 195   | 8×11.5  | 145   |
| 47    | 470               | 6.3×11             | 145            | 5×11           | 130            | 6.3×11           | 165            |                  |            | 8×11.5   | 190   | 6.3×11  | 170   | 10×16     | 255   | 10×12.5 | 235   |
| 100   | 101               | 8×11.5             | 240            | 6.3×11         | 210            | 8×11.5           | 260            |                  |            | 10×12.5  | 320   | 8×11.5  | 245   | 10×20     | 370   | 10×16   | 325   |
| 220   | 221               | 10×12.5            | 420            | 8×11.5         | 385            | 10×16            | 490            | 10×12.5          | 455        | 10×20    | 565   | 10×16   | 490   | 12.5×25   | 675   | 12.5×20 | 640   |
| 330   | 331               | 10×16              | 570            | 10×12.5        | 490            | 12.5×20          | 635            | 10×16            | 585        | 12.5×20  | 765   | 10×20   | 710   | 16×25     | 825   | 16×20   | 695   |
| 470   | 471               | 10×16              | 740            |                |                | 10×20<br>12.5×20 | 755<br>860     | 12.5×16<br>16×16 | 610<br>745 | 16×25    | 1,050 | 12.5×20 | 900   | 16×31.5   | 1,070 | 16×25   | 910   |
| 1,000 | 102               | 12.5×20            | 1,145          | 16×16          | 1,010          | 12.5×25<br>16×25 | 1,340<br>1,530 | 16×20            | 1,160      | 16×25    | 1,560 | 16×20   | 1,260 | 22×40     | 2,600 | 18×40   | 2,410 |
| 2,200 | 222               | 16×25<br>16×31.5   | 1,785<br>1,890 | 16×20<br>18×20 | 1,390<br>1,560 | 18×40            | 2,231          | 16×35.5          | 2,075      | 18×40    | 2,385 | 18×31.5 | 1,955 |           |       |         |       |
| 3,300 | 332               | 16×31.5<br>16×35.5 | 2,070<br>2,275 | 18×25          | 1,970          | 22×40            | 2,785          | 18×35.5          | 2,500      | 22×40    | 3,000 | 18×40   | 2,660 |           |       |         |       |
| 4,700 | 472               | 18×35.5            | 2,700          |                |                |                  |                |                  |            |          |       |         |       |           |       |         |       |

Remark: The Case size 12.5×16, 16×16, 16×20, 18×20 and 18×25 are used flat type rubber bung. Case size in mark of "\*" is downsize.



# Aluminum Electrolytic Capacitors

REA

Dimension:  $\phi D \times L(\text{mm})$

Ripple Current: mA/rms at 120 Hz, 85°C

## DIMENSION & PERMISSIBLE RIPPLE CURRENT

| $\mu\text{F}$ | V. DC<br>Contents | 160V (2C)          |            |                     |            | 200V (2D)          |            |                     |            | 250V (2E)          |            |                     |     | 350V (2V)         |     |                     |     |
|---------------|-------------------|--------------------|------------|---------------------|------------|--------------------|------------|---------------------|------------|--------------------|------------|---------------------|-----|-------------------|-----|---------------------|-----|
|               |                   | $\phi D \times L$  | mA         | * $\phi D \times L$ | mA         | $\phi D \times L$  | mA         | * $\phi D \times L$ | mA         | $\phi D \times L$  | mA         | * $\phi D \times L$ | mA  | $\phi D \times L$ | mA  | * $\phi D \times L$ | mA  |
| 0.47          | R47               | 6.3x11             | 15         | 5x11                | 13         | 6.3x11             | 16         | 5x11                | 14         | 8x11.5             | 21         | 5x11                | 14  | 8x11.5            | 21  | 6.3x11              | 18  |
| 1             | 010               | 6.3x11             | 24         | 5x11                | 20         | 6.3x11             | 25         | 5x11                | 21         | 8x11.5             | 32         | 5x11                | 21  | 8x11.5            | 32  | 6.3x11              | 27  |
| 2.2           | 2R2               | 6.3x11             | 34         | 5x11                | 29         | 6.3x11             | 37         | 5x11                | 29         | 8x11.5             | 49         | 6.3x11              | 42  | 8x11.5            | 49  | 6.3x11              | 42  |
| 3.3           | 3R3               | 8x11.5             | 50         | 6.3x11              | 43         | 8x11.5             | 54         | 6.3x11              | 46         | 8x11.5             | 60         | 6.3x11              | 46  | 10x12.5           | 70  | 8x11.5              | 60  |
| 4.7           | 4R7               | 8x11.5             | 60         | 6.3x11              | 51         | 8x11.5             | 64         | 6.3x11              | 50         | 10x16              | 93         | 8x11.5              | 72  | 10x16             | 93  | 10x12.5             | 80  |
| 10            | 100               | 10x12.5            | 104        | 8x11.5              | 75         | 10x12.5            | 112        | 8x11.5              | 81         | 10x16              | 138        | 10x12.5             | 112 | 10x20             | 150 | 10x16               | 138 |
| 22            | 220               | 10x20              | 189        | 10x16               | 150        | 10x20              | 204        | 10x16               | 155        | 10x20<br>12.5x20   | 220<br>255 | 12.5x16             | 280 | 12.5x25           | 282 | 12.5x20             | 255 |
| 33            | 330               | 10x20<br>12.5x20   | 228<br>270 | 12.5x16             | 305        | 10x20<br>12.5x20   | 230<br>288 | 12.5x16<br>16x16    | 280<br>350 | 12.5x20<br>12.5x25 | 310<br>348 | 16x16               | 350 | 16x25             | 390 | 12.5x25             | 348 |
| 47            | 470               | 12.5x20<br>12.5x25 | 318<br>354 | 12.5x16<br>16x16    | 360<br>420 | 12.5x20<br>12.5x25 | 330<br>378 | 16x16<br>16x20      | 390<br>420 | 12.5x25<br>16x25   | 420<br>468 | 16x20               | 420 | 16x31.5           | 474 | 16x20               | 385 |
| 68            | 680               | 16x20              | 490        | 16x16               | 440        | 18x20              | 490        | 16x16               | 470        |                    |            | 18x20               | 490 |                   |     |                     |     |
| 100           | 101               | 12.5x25<br>16x25   | 510<br>582 | 16x20<br>18x20      | 560<br>590 | 16x25<br>16x35.5   | 582<br>678 | 16x20<br>18x25      | 520<br>590 | 16x35.5            | 732        | 16x31.5             | 645 | 18x40             | 685 | 16x31.5             | 645 |
| 150           | 151               | 18x25              | 710        | 18x20               | 640        |                    |            |                     |            |                    |            |                     |     |                   |     |                     |     |
| 220           | 221               | 18x35.5            | 900        | 16x31.5             | 792        | 18x35.5            | 1,000      | 18x31.5             | 885        | 22x40              | 1,150      | 18x40               | 985 |                   |     |                     |     |
| 330           | 331               | 18x40              | 1,010      | 18x35.5             | 984        | 18x40              | 1,200      |                     |            |                    |            |                     |     |                   |     |                     |     |

| $\mu\text{F}$ | V. DC<br>Contents | 400V (2G)          |            |                     |          | 450V (2W)         |     |                     |            |
|---------------|-------------------|--------------------|------------|---------------------|----------|-------------------|-----|---------------------|------------|
|               |                   | $\phi D \times L$  | mA         | * $\phi D \times L$ | mA       | $\phi D \times L$ | mA  | * $\phi D \times L$ | mA         |
| 0.47          | R47               | 8x11.5             | 21         | 5x11                | 15       | 8x11.5            | 21  | 6.3x11              | 18         |
| 1             | 010               | 8x11.5             | 32         | 5x11                | 22       | 8x11.5            | 32  | 6.3x11              | 25         |
| 2.2           | 2R2               | 10x12.5            | 57         | 6.3x11              | 33       | 10x12.5           | 57  | 8x11.5              | 45         |
| 3.3           | 3R3               | 10x16              | 78         | 8x11.5              | 40       | 10x16             | 78  | 10x12.5             | 65         |
| 4.7           | 4R7               | 10x20              | 103        | 10x12.5<br>8x11.5   | 80<br>55 | 10x20             | 103 | 10x12.5<br>8x11.5   | 80<br>55   |
| 10            | 100               | 10x20<br>12.5x20   | 140<br>174 | 12.5x16             | 150      | 12.5x20           | 174 | 10x20               | 140        |
| 22            | 220               | 12.5x20<br>12.5x25 | 240<br>280 | 16x16               | 280      | 16x25             | 354 | 12.5x25             | 300        |
| 33            | 330               | 16x25              | 390        | 16x20               | 355      | 16x31.5           | 435 | 16x20               | 355        |
| 47            | 470               | 16x25<br>16x31.5   | 445<br>475 | 18x20               | 435      | 16x35.5           | 510 | 16x31.5             | 475        |
| 82            | 820               | 18x31.5            | 560        |                     |          | 18x31.5           | 560 |                     |            |
| 100           | 101               | 22x40              | 710        | 18x35.5             | 600      | 22x45             | 750 | 18x40<br>18x35.5    | 630<br>600 |

Remark: The case size of 12.5x16, 16x16, 16x20, 18x20 and 18x25 are used flat type rubber bung  
Case size in mark of "\*" is downsize. 500 WV specifications are available upon request.

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