



## REA Series

### Features

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

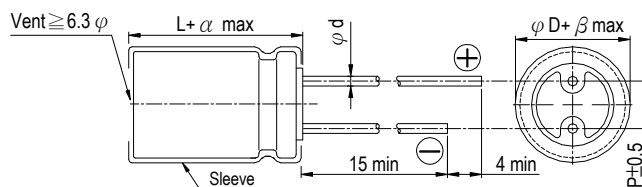


Sleeve & Marking Color: Blue & Black

### Specifications

|                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |          |      |      |        |      |      |                                                                        |      |      |      |      |      |      |                         |                                                   |     |     |    |        |           |      |        |      |      |      |                 |      |      |                    |                               |                 |                |          |      |      |      |                 |      |      |      |      |      |      |                 |                                              |    |    |           |          |   |   |                                                                        |   |   |   |   |   |   |                 |                        |    |    |          |          |    |   |   |   |   |   |   |   |   |   |    |    |    |    |           |          |    |    |    |    |   |   |   |   |   |    |    |    |    |
|--------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|------|------|--------|------|------|------------------------------------------------------------------------|------|------|------|------|------|------|-------------------------|---------------------------------------------------|-----|-----|----|--------|-----------|------|--------|------|------|------|-----------------|------|------|--------------------|-------------------------------|-----------------|----------------|----------|------|------|------|-----------------|------|------|------|------|------|------|-----------------|----------------------------------------------|----|----|-----------|----------|---|---|------------------------------------------------------------------------|---|---|---|---|---|---|-----------------|------------------------|----|----|----------|----------|----|---|---|---|---|---|---|---|---|---|----|----|----|----|-----------|----------|----|----|----|----|---|---|---|---|---|----|----|----|----|
| Items                                      | Performance                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |          |      |      |        |      |      |                                                                        |      |      |      |      |      |      |                         |                                                   |     |     |    |        |           |      |        |      |      |      |                 |      |      |                    |                               |                 |                |          |      |      |      |                 |      |      |      |      |      |      |                 |                                              |    |    |           |          |   |   |                                                                        |   |   |   |   |   |   |                 |                        |    |    |          |          |    |   |   |   |   |   |   |   |   |   |    |    |    |    |           |          |    |    |    |    |   |   |   |   |   |    |    |    |    |
| Category Temperature Range                 | -40°C ~ +85°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |          |      |      |        |      |      |                                                                        |      |      |      |      |      |      |                         |                                                   |     |     |    |        |           |      |        |      |      |      |                 |      |      |                    |                               |                 |                |          |      |      |      |                 |      |      |      |      |      |      |                 |                                              |    |    |           |          |   |   |                                                                        |   |   |   |   |   |   |                 |                        |    |    |          |          |    |   |   |   |   |   |   |   |   |   |    |    |    |    |           |          |    |    |    |    |   |   |   |   |   |    |    |    |    |
| Capacitance Tolerance                      | ±20% (at 120Hz, 20°C)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |          |      |      |        |      |      |                                                                        |      |      |      |      |      |      |                         |                                                   |     |     |    |        |           |      |        |      |      |      |                 |      |      |                    |                               |                 |                |          |      |      |      |                 |      |      |      |      |      |      |                 |                                              |    |    |           |          |   |   |                                                                        |   |   |   |   |   |   |                 |                        |    |    |          |          |    |   |   |   |   |   |   |   |   |   |    |    |    |    |           |          |    |    |    |    |   |   |   |   |   |    |    |    |    |
| Leakage Current (at 20°C)                  | <table><tr><td>Rated voltage</td><td colspan="7">≤ 100V</td><td colspan="7">&gt; 100V</td></tr><tr><td>Time</td><td colspan="7">after 2 minutes</td><td colspan="7">after 5 minutes</td></tr><tr><td>Leakage Current</td><td colspan="7">I = 0.01CV or 3 (μA)<br/>whichever is greater</td><td colspan="7">CV ≤ 1,000<br/>I = 0.03CV + 15(μA)<br/>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)<br>whichever is greater |    |    |           |          |   |   | CV ≤ 1,000<br>I = 0.03CV + 15(μA)<br>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)<br>whichever is greater                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |          |      |      |        |      |      | CV ≤ 1,000<br>I = 0.03CV + 15(μA)<br>CV > 1,000<br>I = 0.02CV + 25(μA) |      |      |      |      |      |      |                         |                                                   |     |     |    |        |           |      |        |      |      |      |                 |      |      |                    |                               |                 |                |          |      |      |      |                 |      |      |      |      |      |      |                 |                                              |    |    |           |          |   |   |                                                                        |   |   |   |   |   |   |                 |                        |    |    |          |          |    |   |   |   |   |   |   |   |   |   |    |    |    |    |           |          |    |    |    |    |   |   |   |   |   |    |    |    |    |
| Tanδ (at 120 Hz, 20°C)                     | <table><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>Tanδ (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 1,000μF, 0.02 shall be added every 1,000μF increase.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |          |      |      |        |      |      |                                                                        |      |      |      |      |      |      | 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 |                 |                                              |    |    |           |          |   |   |                                                                        |   |   |   |   |   |   |                 |                        |    |    |          |          |    |   |   |   |   |   |   |   |   |   |    |    |    |    |           |          |    |    |    |    |   |   |   |   |   |    |    |    |    |
| 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 |                         |                                                   |     |     |    |        |           |      |        |      |      |      |                 |      |      |                    |                               |                 |                |          |      |      |      |                 |      |      |      |      |      |      |                 |                                              |    |    |           |          |   |   |                                                                        |   |   |   |   |   |   |                 |                        |    |    |          |          |    |   |   |   |   |   |   |   |   |   |    |    |    |    |           |          |    |    |    |    |   |   |   |   |   |    |    |    |    |
| Low Temperature Characteristics (at 120Hz) | <p>Impedance ratio shall not exceed the values given in the table below.</p> <table><tr><td colspan="3">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 rowspan="2">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>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 rowspan="2">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></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 | 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    |      | 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><tr><td>Test Time</td><td colspan="14">2,000 Hrs for φD ≤ 8mm<br/>3,000 Hrs for φD ≥ 10mm</td></tr><tr><td>Capacitance Change</td><td colspan="14">With in ±20% of initial value</td></tr><tr><td>Tanδ</td><td colspan="14">Less than 200% of specified value</td></tr><tr><td>Leakage Current</td><td colspan="14">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 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 |    |    |          |          |    |   |   |   |   |   |   |   |   |   |    |    |    |    |           |          |    |    |    |    |   |   |   |   |   |    |    |    |    |
| 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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |          |      |      |        |      |      |                                                                        |      |      |      |      |      |      |                         |                                                   |     |     |    |        |           |      |        |      |      |      |                 |      |      |                    |                               |                 |                |          |      |      |      |                 |      |      |      |      |      |      |                 |                                              |    |    |           |          |   |   |                                                                        |   |   |   |   |   |   |                 |                        |    |    |          |          |    |   |   |   |   |   |   |   |   |   |    |    |    |    |           |          |    |    |    |    |   |   |   |   |   |    |    |    |    |
| Shelf Life Test                            | <table><tr><td>Test Time</td><td colspan="14">1,000 Hrs</td></tr><tr><td>Capacitance Change</td><td colspan="14">With in ±20% of initial value</td></tr><tr><td>Tanδ</td><td colspan="14">Less than 200% of specified value</td></tr><tr><td>Leakage Current</td><td colspan="14">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 |                 |                |          |      |      |      |                 |      |      |      |      |      |      | Tanδ            | Less than 200% of specified value            |    |    |           |          |   |   |                                                                        |   |   |   |   |   |   | Leakage Current | Within specified value |    |    |          |          |    |   |   |   |   |   |   |   |   |   |    |    |    |    |           |          |    |    |    |    |   |   |   |   |   |    |    |    |    |
| 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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |          |      |      |        |      |      |                                                                        |      |      |      |      |      |      |                         |                                                   |     |     |    |        |           |      |        |      |      |      |                 |      |      |                    |                               |                 |                |          |      |      |      |                 |      |      |      |      |      |      |                 |                                              |    |    |           |          |   |   |                                                                        |   |   |   |   |   |   |                 |                        |    |    |          |          |    |   |   |   |   |   |   |   |   |   |    |    |    |    |           |          |    |    |    |    |   |   |   |   |   |    |    |    |    |
| Ripple Current & Frequency Multipliers     | <table><tr><td>Freq. (Hz)<br/>Cap. (μF)</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>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |          |      |      |        |      |      |                                                                        |      |      |      |      |      |      | Freq. (Hz)<br>Cap. (μF) | 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            |      |      |      |      |      |      |                 |                                              |    |    |           |          |   |   |                                                                        |   |   |   |   |   |   |                 |                        |    |    |          |          |    |   |   |   |   |   |   |   |   |   |    |    |    |    |           |          |    |    |    |    |   |   |   |   |   |    |    |    |    |
| Freq. (Hz)<br>Cap. (μF)                    | 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

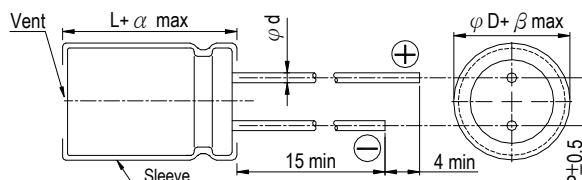


#### Lead Spacing and Diameter

Unit: mm

| $\phi D$ | 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 |
| $\phi d$ | 0.5                         |     | 0.6 |     |      | 0.8 |     | 1.0 |      |
| $\alpha$ | L<20: 1.5, L $\geq$ 20: 2.0 |     |     |     |      |     |     | 2.0 |      |
| $\beta$  | 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:



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

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

## Dimension &amp; Permissible Ripple Current

| V. DC         |          | 6.3V (0J)         |                | 10V (1A)          |                | 16V (1C)           |                | 25V (1E)           |                | 35V (1V)          |                | 50V (1H)          |                | 63V (1J)          |            | 100V (2A)         |            |
|---------------|----------|-------------------|----------------|-------------------|----------------|--------------------|----------------|--------------------|----------------|-------------------|----------------|-------------------|----------------|-------------------|------------|-------------------|------------|
| $\mu\text{F}$ | Contents | $\phi D \times L$ | 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         |
| 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          |                   |                |                    |                |                    |                |                   |                |                   |                |                   |            |                   |            |

| V. DC         |          | 160V (2C)         |            | 200V (2D)         |            | 250V (2E)         |            | 350V (2V)         |            | 400V (2G)         |            | 450V (2W)         |          |
|---------------|----------|-------------------|------------|-------------------|------------|-------------------|------------|-------------------|------------|-------------------|------------|-------------------|----------|
| $\mu\text{F}$ | Contents | $\phi D \times L$ | 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       |
| 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 | 470 $\mu\text{F}$ | ±20%                  | 16V           | Bulk Package                 | Gas Type    | 8 $\phi$ × 11.5L | Pb-free and PET sleeve    |
| <b>REA</b> | <b>471</b>        | <b>M</b>              | <b>1C</b>     | <b>BK</b>                    | -           | <b>0811</b>      |                           |
| 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.);

Помимо этого, одним из направлений компании «ЭлектроПласт» является направление «Источники питания». Мы предлагаем Вам помощь Конструкторского отдела:

- Подбор оптимального решения, техническое обоснование при выборе компонента;
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



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