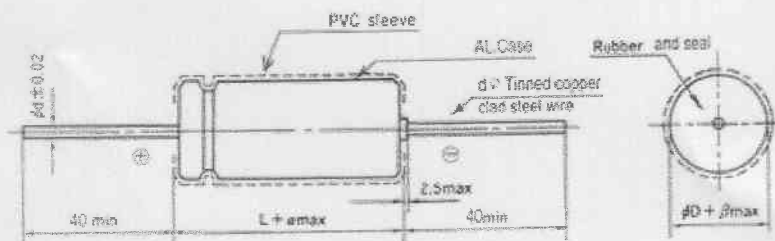


# SA series FOR GENERAL PURPOSE

| Item  | Characteristics  |   |      |      |      |      |      |      |      |      |      |      |      |     |     |               |      |      |      |      |      |      |      |      |      |      |      |      |      |               |   |   |   |   |   |   |   |   |   |    |   |   |   |
|---|--|---|------|------|------|------|------|------|------|------|------|------|------|-----|-----|---------------|------|------|------|------|------|------|------|------|------|------|------|------|------|---------------|---|---|---|---|---|---|---|---|---|----|---|---|---|
| Operating Temperature Range                           | -40~85° C  | -40~85° c                               |      |      |      |      |      |      |      |      |      |      |      |     |     |               |      |      |      |      |      |      |      |      |      |      |      |      |      |               |   |   |   |   |   |   |   |   |   |    |   |   |   |
| Rated Working Voltage Range                           | 10V~100V DC  | 160V~450V DC                            |      |      |      |      |      |      |      |      |      |      |      |     |     |               |      |      |      |      |      |      |      |      |      |      |      |      |      |               |   |   |   |   |   |   |   |   |   |    |   |   |   |
| Capacitance Tolerance (120Hz, 25°C)                   | ±20%(M)  |   |      |      |      |      |      |      |      |      |      |      |      |     |     |               |      |      |      |      |      |      |      |      |      |      |      |      |      |               |   |   |   |   |   |   |   |   |   |    |   |   |   |
| Leakage Current (25° C)                               | 10V~100V DC  | 160V~450V DC                            |      |      |      |      |      |      |      |      |      |      |      |     |     |               |      |      |      |      |      |      |      |      |      |      |      |      |      |               |   |   |   |   |   |   |   |   |   |    |   |   |   |
|   | $I \leq 0.02CV$ or 3(uA)   | $I \leq 0.03CV$ or 40(uA)               |      |      |      |      |      |      |      |      |      |      |      |     |     |               |      |      |      |      |      |      |      |      |      |      |      |      |      |               |   |   |   |   |   |   |   |   |   |    |   |   |   |
|   | I : Leakage Current (uA)<br>C : Rated Capacitance (uF)<br>V : Working Voltage (V)<br>After 5 minutes applying the DC working voltage   |   |      |      |      |      |      |      |      |      |      |      |      |     |     |               |      |      |      |      |      |      |      |      |      |      |      |      |      |               |   |   |   |   |   |   |   |   |   |    |   |   |   |
| Surge Voltage (25° C)                                 | <table border="1"> <tr> <td>W. V.</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>S. V.</td> <td>13</td> <td>20</td> <td>32</td> <td>44</td> <td>63</td> <td>79</td> <td>125</td> <td>200</td> <td>250</td> <td>300</td> <td>400</td> <td>450</td> <td>500</td> </tr> </table>  | W. V.                                   | 10   | 16   | 25   | 35   | 50   | 63   | 100  | 160  | 200  | 250  | 350  | 400 | 450 | S. V.         | 13   | 20   | 32   | 44   | 63   | 79   | 125  | 200  | 250  | 300  | 400  | 450  | 500  |               |   |   |   |   |   |   |   |   |   |    |   |   |   |
| W. V.   | 10   | 16                                      | 25   | 35   | 50   | 63   | 100  | 160  | 200  | 250  | 350  | 400  | 450  |     |     |               |      |      |      |      |      |      |      |      |      |      |      |      |      |               |   |   |   |   |   |   |   |   |   |    |   |   |   |
| S. V.   | 13   | 20                                      | 32   | 44   | 63   | 79   | 125  | 200  | 250  | 300  | 400  | 450  | 500  |     |     |               |      |      |      |      |      |      |      |      |      |      |      |      |      |               |   |   |   |   |   |   |   |   |   |    |   |   |   |
| Dissipation Factor (120Hz, 25° C)<br>(Tan. $\theta$ ) | <table border="1"> <tr> <td>W. V.</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. <math>\theta</math></td> <td>0.20</td> <td>0.17</td> <td>0.15</td> <td>0.12</td> <td>0.10</td> <td>0.10</td> <td>0.20</td> <td>0.20</td> <td>0.20</td> <td>0.20</td> <td>0.20</td> <td>0.24</td> <td>0.24</td> </tr> </table>  | W. V.                                   | 10   | 16   | 25   | 35   | 50   | 63   | 100  | 160  | 200  | 250  | 350  | 400 | 450 | Tan. $\theta$ | 0.20 | 0.17 | 0.15 | 0.12 | 0.10 | 0.10 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.24 | 0.24 |               |   |   |   |   |   |   |   |   |   |    |   |   |   |
| W. V.   | 10   | 16                                      | 25   | 35   | 50   | 63   | 100  | 160  | 200  | 250  | 350  | 400  | 450  |     |     |               |      |      |      |      |      |      |      |      |      |      |      |      |      |               |   |   |   |   |   |   |   |   |   |    |   |   |   |
| Tan. $\theta$   | 0.20   | 0.17                                    | 0.15 | 0.12 | 0.10 | 0.10 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.24 | 0.24 |     |     |               |      |      |      |      |      |      |      |      |      |      |      |      |      |               |   |   |   |   |   |   |   |   |   |    |   |   |   |
| Temperature Characteristics                           | For capacitance exceeding 1000 uF, add 0.02 per increment of 1000 uF   |   |      |      |      |      |      |      |      |      |      |      |      |     |     |               |      |      |      |      |      |      |      |      |      |      |      |      |      |               |   |   |   |   |   |   |   |   |   |    |   |   |   |
|   | <table border="1"> <tr> <td>W. V.</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>-25° C/+25° C</td> <td>4</td> <td>3</td> <td>3</td> <td>2</td> <td>2</td> <td>2</td> <td>2</td> <td>8</td> <td>8</td> <td>8</td> <td>12</td> <td>15</td> <td>16</td> </tr> <tr> <td>-40° C/+25° C</td> <td>8</td> <td>6</td> <td>4</td> <td>3</td> <td>3</td> <td>3</td> <td>3</td> <td>6</td> <td>8</td> <td>10</td> <td>-</td> <td>-</td> <td>-</td> </tr> </table> | W. V.                                   | 10   | 16   | 25   | 35   | 50   | 63   | 100  | 160  | 200  | 250  | 350  | 400 | 450 | -25° C/+25° C | 4    | 3    | 3    | 2    | 2    | 2    | 2    | 8    | 8    | 8    | 12   | 15   | 16   | -40° C/+25° C | 8 | 6 | 4 | 3 | 3 | 3 | 3 | 6 | 8 | 10 | - | - | - |
| W. V.   | 10   | 16                                      | 25   | 35   | 50   | 63   | 100  | 160  | 200  | 250  | 350  | 400  | 450  |     |     |               |      |      |      |      |      |      |      |      |      |      |      |      |      |               |   |   |   |   |   |   |   |   |   |    |   |   |   |
| -25° C/+25° C   | 4  | 3                                       | 3    | 2    | 2    | 2    | 2    | 8    | 8    | 8    | 12   | 15   | 16   |     |     |               |      |      |      |      |      |      |      |      |      |      |      |      |      |               |   |   |   |   |   |   |   |   |   |    |   |   |   |
| -40° C/+25° C   | 8  | 6                                       | 4    | 3    | 3    | 3    | 3    | 6    | 8    | 10   | -    | -    | -    |     |     |               |      |      |      |      |      |      |      |      |      |      |      |      |      |               |   |   |   |   |   |   |   |   |   |    |   |   |   |
| Load Test   | After 1000 hours application of W.V. at +85° C<br>the capacitor shall meet the following limits  |   |      |      |      |      |      |      |      |      |      |      |      |     |     |               |      |      |      |      |      |      |      |      |      |      |      |      |      |               |   |   |   |   |   |   |   |   |   |    |   |   |   |
|   | Capacitance change   | $\leq \pm 20\%$ of initial value        |      |      |      |      |      |      |      |      |      |      |      |     |     |               |      |      |      |      |      |      |      |      |      |      |      |      |      |               |   |   |   |   |   |   |   |   |   |    |   |   |   |
|   | Tan. $\theta$  | $\leq 150\%$ of initial specified value |      |      |      |      |      |      |      |      |      |      |      |     |     |               |      |      |      |      |      |      |      |      |      |      |      |      |      |               |   |   |   |   |   |   |   |   |   |    |   |   |   |
| Shelf Test  | After 500 hours application of W.V. at +85° C<br>the capacitor shall meet the following limits   |   |      |      |      |      |      |      |      |      |      |      |      |     |     |               |      |      |      |      |      |      |      |      |      |      |      |      |      |               |   |   |   |   |   |   |   |   |   |    |   |   |   |
|   | Capacitance change   | $\leq \pm 20\%$ of initial value        |      |      |      |      |      |      |      |      |      |      |      |     |     |               |      |      |      |      |      |      |      |      |      |      |      |      |      |               |   |   |   |   |   |   |   |   |   |    |   |   |   |
|   | Tan. $\theta$  | $\leq 150\%$ of initial specified value |      |      |      |      |      |      |      |      |      |      |      |     |     |               |      |      |      |      |      |      |      |      |      |      |      |      |      |               |   |   |   |   |   |   |   |   |   |    |   |   |   |
|   | Leakage current  | $\leq 200\%$ of initial specified value |      |      |      |      |      |      |      |      |      |      |      |     |     |               |      |      |      |      |      |      |      |      |      |      |      |      |      |               |   |   |   |   |   |   |   |   |   |    |   |   |   |

## SA series Dimensions



$$L \leq 16 \rightarrow \square = 1 \quad \phi D \leq 10 \rightarrow \beta = 0.5$$

$$L > 16 \rightarrow \square = 2 \quad \phi D \leq 10 \rightarrow \beta = 1.0$$