

SC

Low Impedance and high frequency
Series

- Features: 105°C 1000~3000 hours, Low impedance, high permissible ripple current at high frequency and high operation temperature (-40 ~ +105°C)
- Recommended Applications: Applicable for switching regulator of computer, especially for high frequency
- Corresponding product to RoHS

SY

↑ Long Life

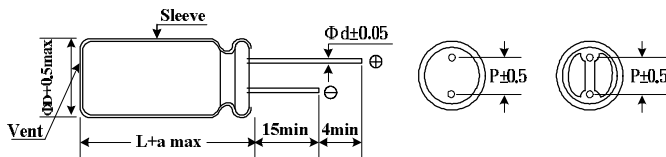
SC



Specifications

| Item | Characteristics | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|---|---------------------------------------|------------------------------------|----------------|--------------------|---------------------------------------|------|-----------------|-----------------------------------|-----|---------------|------|------|------|------|------|------|------|------|-----------------|---|---|---|---|---|---|---|---|-----------------|---|---|---|---|---|---|---|---|
| Operating Temperature Range | -40 ~ +105°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Rated Voltage Range | 6.3 ~ 100VDC | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Rated Capacitance Range | 4.7 ~ 15000 μ F | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Capacitance Tolerance | $\pm 20\%$ at 120Hz, 20°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Leakage Current (MAX)(20°C) | $I=0.01CV$ or 3μ A, whichever is greater. (After rated voltage applied for 2 minutes) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Dissipation Factor (MAX) ($\tan \delta$) (120Hz, 20°C) | <table border="1"> <thead> <tr> <th>WV</th> <th>6.3</th> <th>10</th> <th>16</th> <th>25</th> <th>35</th> <th>50</th> <th>63</th> <th>100</th> </tr> </thead> <tbody> <tr> <td>$\tan \delta$</td> <td>0.22</td> <td>0.19</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> </tr> </tbody> </table> | WV | 6.3 | 10 | 16 | 25 | 35 | 50 | 63 | 100 | $\tan \delta$ | 0.22 | 0.19 | 0.16 | 0.14 | 0.12 | 0.10 | 0.09 | 0.08 | | | | | | | | | | | | | | | | | | |
| | WV | 6.3 | 10 | 16 | 25 | 35 | 50 | 63 | 100 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| $\tan \delta$ | 0.22 | 0.19 | 0.16 | 0.14 | 0.12 | 0.10 | 0.09 | 0.08 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| When nominal capacitance is over 1000 μ F, $\tan \delta$ shall be added 0.02 to the listed value with increase of every 1000 μ F. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Low Temperature Stability Impedance Ratio (MAX) | <table border="1"> <thead> <tr> <th>WV</th> <th>6.3</th> <th>10</th> <th>16</th> <th>25</th> <th>35</th> <th>50</th> <th>63</th> <th>100</th> </tr> </thead> <tbody> <tr> <td>Z(120Hz)</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Z-25°C / Z+20°C</td> <td>4</td> <td>3</td> <td>3</td> <td>3</td> <td>3</td> <td>2</td> <td>2</td> <td>2</td> </tr> <tr> <td>Z-40°C / Z+20°C</td> <td>8</td> <td>6</td> <td>4</td> <td>4</td> <td>4</td> <td>4</td> <td>4</td> <td>4</td> </tr> </tbody> </table> | WV | 6.3 | 10 | 16 | 25 | 35 | 50 | 63 | 100 | Z(120Hz) | | | | | | | | | Z-25°C / Z+20°C | 4 | 3 | 3 | 3 | 3 | 2 | 2 | 2 | Z-40°C / Z+20°C | 8 | 6 | 4 | 4 | 4 | 4 | 4 | 4 |
| | WV | 6.3 | 10 | 16 | 25 | 35 | 50 | 63 | 100 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Z(120Hz) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Z-25°C / Z+20°C | 4 | 3 | 3 | 3 | 3 | 2 | 2 | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Z-40°C / Z+20°C | 8 | 6 | 4 | 4 | 4 | 4 | 4 | 4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| After applying rated voltage with ripple current for 3000 hours at 105°C, the capacitors shall meet the following requirements. If dimension is down size, Endurance will be less 1000 hours than standard | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Endurance | <table border="1"> <tbody> <tr> <td>Capacitance Change</td> <td colspan="2">Within $\pm 20\%$ of initial value</td> </tr> <tr> <td>Dissipation Factor</td> <td colspan="2">Not more than 200% of specified value</td> </tr> <tr> <td>Leakage Current</td> <td colspan="2">Not more than the specified value</td> </tr> </tbody> </table> | Capacitance Change | Within $\pm 20\%$ of initial value | | Dissipation Factor | Not more than 200% of specified value | | Leakage Current | Not more than the specified value | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Capacitance Change | Within $\pm 20\%$ of initial value | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Dissipation Factor | Not more than 200% of specified value | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Leakage Current | Not more than the specified value | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | <table border="1"> <tbody> <tr> <td>Case Dia</td> <td>5 x 11 ~ 10 x 12.5</td> <td>10 x 15 higher</td> </tr> <tr> <td>Life</td> <td>2000</td> <td>3000</td> </tr> </tbody> </table> | Case Dia | 5 x 11 ~ 10 x 12.5 | 10 x 15 higher | Life | 2000 | 3000 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Case Dia | 5 x 11 ~ 10 x 12.5 | 10 x 15 higher | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Life | 2000 | 3000 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| * If dimension is down size, Endurance will be less 1000hrs than standard. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Shelf Life | After placed at 105°C without voltage applied for 1000 hours, the capacitors shall meet the same requirement as Endurance. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Diagram of Dimensions



| | | | | | | | | |
|----------|------|-----|-----|-----|-----|-----|-----|------|
| ϕ D | 5 | 6.3 | 8 | 10 | 13 | 16 | 18 | 22 |
| P | 2.0 | 2.5 | 3.5 | 5.0 | 5.0 | 7.5 | 7.5 | 10.0 |
| ϕ d | 0.50 | 0.5 | 0.6 | 0.6 | 0.6 | 0.8 | 0.8 | 0.8 |
| a | 1.5 | 1.5 | 1.5 | 1.5 | 2.0 | 2.0 | 2.0 | 2.0 |

Multiplier for Ripple Current

Frequency coefficient

| Frequency (Hz) | 50 | 120 | 300 | 1K | 10K | 100K |
|--------------------|------|------|------|------|------|------|
| Below 4.7 μ F | 0.30 | 0.40 | 0.50 | 0.70 | 0.80 | 1.00 |
| 5.6 ~ 33 μ F | 0.40 | 0.50 | 0.60 | 0.80 | 0.90 | 1.00 |
| 34 ~ 330 μ F | 0.60 | 0.70 | 0.80 | 0.90 | 0.95 | 1.00 |
| 331 ~ 1000 μ F | 0.65 | 0.90 | 0.90 | 0.98 | 1.00 | 1.00 |
| 1200 μ F Above | 0.85 | 0.90 | 0.95 | 0.98 | 1.00 | 1.00 |

■ Dimensions, Rated Ripple Current, Max Impedance

| Capacitance (μ F) | Rated (Surge) Voltage | | | | | | | | | | | |
|---------------------------|------------------------|--------|-------|------------|--------|-------|------------|--------|-------|------------|--------|-------|
| | 6.3V (8) | | | 10V (13) | | | 16V (20) | | | 25V (32) | | |
| | SIZE | Ripple | Z | SIZE | Ripple | Z | SIZE | Ripple | Z | SIZE | Ripple | Z |
| 4.7 | | | | | | | | | | | | |
| 6.8 | | | | | | | | | | | | |
| 10 | | | | | | | | | | 5x11 | 50 | 0.550 |
| 22 | | | | | | | | | | | | |
| 33 | | | | | | | | | | | | |
| 47 | | | | | | | | | | 5x11 | 150 | 0.450 |
| 56 | | | | | | | 5x11 | 100 | 0.630 | 5x11 | 150 | 0.420 |
| 68 | | | | | | | 5x11 | 150 | 0.420 | 6.3x11 | 200 | 0.370 |
| 100 | | | | 5x11 | 150 | 0.420 | 5x11 | 200 | 0.370 | 6.3x11 | 250 | 0.220 |
| 120 | | | | 5x11 | 200 | 0.370 | 6.3x11 | 250 | 0.320 | 8x11 | 300 | 0.200 |
| 150 | 5x11 | 200 | 0.420 | 6.3x11 | 250 | 0.320 | 6.3x11 | 300 | 0.220 | 8x11 | 550 | 0.140 |
| 220 | 6.3x11 | 250 | 0.320 | 6.3x11 | 300 | 0.220 | 8x11 | 550 | 0.140 | *8x11 | 620 | 0.120 |
| 270 | | | | | | | | | | 8x15 | 750 | 0.100 |
| 330 | *6.3x11 | 300 | 0.220 | | | | | | | | | |
| 330 | *6.3x11 | 320 | 0.230 | 8x11 | 550 | 0.140 | *8x11 | 620 | 0.120 | *8x15 | 660 | 0.100 |
| 330 | 8x11 | 400 | 0.180 | | | | 8x15 | 750 | 0.100 | 8x20 | 800 | 0.069 |
| 330 | | | | | | | 10x12.5 | 688 | 0.080 | 10x16 | 900 | 0.086 |
| 470 | *6.3x11 | 440 | 0.180 | *8x11 | 620 | 0.120 | *8x15 | 730 | 0.093 | *8x20 | 1000 | 0.067 |
| 470 | 8x11 | 550 | 0.140 | 8x15 | 750 | 0.100 | 10x12.5 | 800 | 0.085 | *10x12.5 | 900 | 0.086 |
| 470 | | | | | | | | | | 10x16 | 1050 | 0.064 |
| 680 | *8x11 | 580 | 0.120 | *8x11 | 640 | 0.110 | 10x16 | 1050 | 0.064 | 10x20 | 1100 | 0.039 |
| 680 | 8x15 | 700 | 0.100 | 10x12.5 | 800 | 0.085 | | | | | | |
| 820 | 8x20 | 750 | 0.085 | 10x16 | 1050 | 0.064 | 10x20 | 1100 | 0.044 | 10x20 | 1250 | 0.039 |
| 1000 | *8x11 | 580 | 0.150 | 8x20 | 1080 | 0.065 | *10x16 | 1140 | 0.043 | *10x20 | 1160 | 0.047 |
| 1000 | *8x15 | 670 | 0.085 | *10x12.5 | 930 | 0.075 | 10x20 | 1250 | 0.039 | *10x25 | 1310 | 0.042 |
| 1000 | 8x20 | 800 | 0.069 | 10x16 | 990 | 0.085 | | | | 13x20 | 1450 | 0.038 |
| 1000 | 10x12.5 | 690 | 0.080 | 10x20 | 1100 | 0.050 | | | | | | |
| 1200 | 10x16 | 1000 | 0.064 | 10x20 | 1250 | 0.044 | *10x25 | 1310 | 0.042 | 13x25 | 1600 | 0.290 |
| 1200 | | | | | | | 13x20 | 1450 | 0.038 | | | |
| 1500 | *8x15 | 980 | 0.085 | 10x20 | 1450 | 0.039 | *10x20 | 1200 | 0.045 | *13x30 | 1750 | 0.032 |
| 1500 | *8x20 | 1070 | 0.051 | | | | 13x20 | 1600 | 0.034 | 16x25 | 2000 | 0.028 |
| 1500 | *10x16 | 1070 | 0.055 | | | | | | | | | |
| 1500 | 10x20 | 1250 | 0.044 | | | | | | | | | |
| 2200 | *10x20 | 1220 | 0.051 | *10x20 | 1330 | 0.047 | *10x30 | 1780 | 0.032 | *13x30 | 1810 | 0.029 |
| 2200 | *10x25 | 1310 | 0.048 | *10x25 | 1450 | 0.039 | *13x20 | 1720 | 0.033 | *16x25 | 1660 | 0.032 |
| 2200 | 13x20 | 1450 | 0.043 | 13x20 | 1600 | 0.038 | 13x25 | 2000 | 0.028 | 16x32 | 2200 | 0.024 |
| 3300 | *10x25 | 1400 | 0.043 | *10x30 | 1740 | 0.032 | *13x40 | 2200 | 0.026 | *16x36 | 2540 | 0.019 |
| 3300 | 13x25 | 1700 | 0.035 | 13x25 | 2000 | 0.028 | 16x25 | 2200 | 0.024 | 18x36 | 2550 | 0.019 |
| 3900 | 13x25 | 1750 | 0.032 | | | | | | | | | |
| 4700 | *13x30 | 1570 | 0.033 | *13x25 | 1860 | 0.028 | 16x36 | 2550 | 0.019 | 18x36 | 2800 | 0.019 |
| 4700 | *13x25 | 1520 | 0.032 | 16x25 | 2200 | 0.024 | | | | | | |
| 4700 | 16x25 | 1800 | 0.028 | | | | | | | | | |
| 6800 | 16x32 | 2000 | 0.024 | 16x36 | 2550 | 0.019 | 18x36 | 2800 | 0.019 | 18x36 | 2800 | 0.019 |
| 8200 | 16x32 | 2350 | 0.019 | 18x36 | 2800 | 0.019 | | | | | | |
| 10000 | 16x36 | 2550 | 0.019 | | | | | | | | | |
| 15000 | 18x36 | 3000 | 0.019 | | | | | | | | | |

☆ Size: D ϕ x L (mm) ☆ Ripple Current: (mA/rms), 105°C, 100KHz ☆ Impedance (Ω), 20°C, 100KHz

" * " is down size , Ripple Life is less 1000 hrs than standard

■ Dimensions, Rated Ripple Current, Max Impedance

| Capacitance (μ F) | RATED (SURAGE) VOLTAGE | | | | | | | | | | | |
|---------------------------|--------------------------|--------|-------|------------|--------|-------|------------|--------|-------|--------------|--------|-------|
| | 35V (44) | | | 50V (63) | | | 63V (79) | | | 100V (125) | | |
| | SIZE | Ripple | Z | SIZE | Ripple | Z | SIZE | Ripple | Z | SIZE | Ripple | Z |
| 4.7 | 5x11 | 115 | 1.200 | 5x11 | 115 | 2.000 | 5x11 | 115 | 2.200 | 5x11 | 120 | 2.000 |
| 6.8 | 5x11 | 120 | 1.000 | 5x11 | 120 | 1.850 | 5x11 | 120 | 2.000 | 5x11 | 140 | 1.850 |
| 10 | 5x11 | 140 | 0.900 | 5x11 | 140 | 1.700 | 5x11 | 140 | 1.850 | 6.3x11 | 200 | 1.500 |
| 15 | 5x11 | 170 | 0.690 | 5x11 | 180 | 1.200 | 5x11 | 200 | 1.700 | 6.3x11 | 250 | 1.200 |
| 22 | 5x11 | 190 | 0.420 | 5x11 | 200 | 0.700 | 6.3x11 | 250 | 1.200 | 8x11 | 300 | 0.790 |
| 33 | 5x11 | 200 | 0.420 | 6.3x11 | 250 | 0.600 | 6.3x11 | 300 | 0.900 | 8x15 | 450 | 0.590 |
| 47 | 6.3x11 | 250 | 0.370 | 6.3x11 | 300 | 0.520 | 8x11 | 450 | 0.700 | 10x16 | 550 | 0.350 |
| 68 | 6.3x11 | 300 | 0.220 | 8x11 | 450 | 0.350 | 8x11 | 550 | 0.520 | 10x20 | 650 | 0.240 |
| 100 | *6.3x11 | 360 | 0.180 | *8x11 | 480 | 0.290 | 8x20 | 650 | 0.350 | 13x20 | 800 | 0.180 |
| | 8x11 | 450 | 0.140 | 8x15 | 550 | 0.250 | | | | | | |
| 120 | 8x11 | 550 | 0.130 | 8x20 | 650 | 0.210 | 10x16 | 800 | 0.300 | 13x25 | 1050 | 0.150 |
| 150 | 8x15 | 650 | 0.100 | 10x12.5 | 800 | 0.160 | 10x16 | 1050 | 0.200 | 13x25 | 1300 | 0.110 |
| 220 | *8x15 | 730 | 0.100 | *10x16 | 1050 | 0.100 | 10x20 | 1300 | 0.150 | 16x25 | 1400 | 0.071 |
| | 10x12.5 | 800 | 0.069 | 10x25 | 1050 | 0.068 | | | | | | |
| 330 | *10x16 | 900 | 0.052 | 10x20 | 1300 | 0.072 | 13x20 | 1400 | 0.100 | 16x32 | 1550 | 0.049 |
| | 10x20 | 1050 | 0.044 | | | | | | | | | |
| 470 | 10x20 | 1300 | 0.039 | *10x20 | 1390 | 0.075 | 13x25 | 1550 | 0.064 | 18x36 | 1770 | 0.038 |
| | | | | 13x20 | 1400 | 0.060 | | | | | | |
| 680 | 13x20 | 1400 | 0.038 | 13x25 | 1550 | 0.050 | 16x25 | 1700 | 0.052 | | | |
| 820 | 13x20 | 1550 | 0.034 | 16x25 | 1700 | 0.040 | 16x32 | 1900 | 0.048 | | | |
| 1000 | 13x25 | 1700 | 0.029 | 16x25 | 1900 | 0.039 | 16x32 | 2100 | 0.042 | | | |
| 1200 | 16x25 | 1900 | 0.028 | 16x32 | 2100 | 0.025 | 16x36 | 2550 | 0.036 | | | |
| 1500 | 16x25 | 2100 | 0.024 | 16x36 | 2550 | 0.025 | 18x36 | 2800 | 0.033 | | | |
| 2200 | *16x32 | 2300 | 0.021 | 18x40 | 2800 | 0.025 | | | | | | |
| | 16x36 | 2550 | 0.019 | | | | | | | | | |
| 3300 | 18x36 | 2880 | 0.019 | | | | | | | | | |
| 3900 | | | | | | | | | | | | |
| 4700 | | | | | | | | | | | | |
| 6800 | | | | | | | | | | | | |
| 8200 | | | | | | | | | | | | |
| 10000 | | | | | | | | | | | | |
| 15000 | | | | | | | | | | | | |

☆ Size: $D \phi \times L$ (mm) ☆ Ripple Current: (mA/rms), 105°C, 100KHz ☆ Impedance (Ω), 20°C, 100KHz

" * " is down size , Ripple Life is less 1000 hrs than standard