



## SS Series

## Features

- 85°C, 1,000 hours assured
- Standard micro miniature size with 5mm height
- RoHS Compliance



Sleeve &amp; Marking Color: Black &amp; White

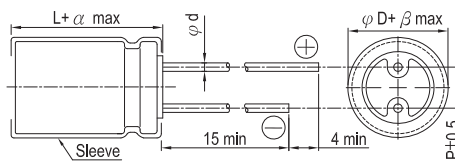
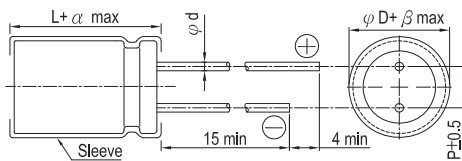
## Specifications

|                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |      |      |      |        |      |      |    |                                   |           |     |     |    |        |          |      |                    |                                                                                         |                 |      |            |      |      |      |      |                                   |                 |    |    |   |   |   |                 |                        |  |  |  |  |  |  |
|--------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|------|------|--------|------|------|----|-----------------------------------|-----------|-----|-----|----|--------|----------|------|--------------------|-----------------------------------------------------------------------------------------|-----------------|------|------------|------|------|------|------|-----------------------------------|-----------------|----|----|---|---|---|-----------------|------------------------|--|--|--|--|--|--|
| Items                                      | Performance                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |      |      |      |        |      |      |    |                                   |           |     |     |    |        |          |      |                    |                                                                                         |                 |      |            |      |      |      |      |                                   |                 |    |    |   |   |   |                 |                        |  |  |  |  |  |  |
| Category Temperature Range                 | -40℃ ~ +85℃                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |      |      |      |        |      |      |    |                                   |           |     |     |    |        |          |      |                    |                                                                                         |                 |      |            |      |      |      |      |                                   |                 |    |    |   |   |   |                 |                        |  |  |  |  |  |  |
| Capacitance Tolerance                      | ±20% (at 120Hz, 20℃)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |      |      |      |        |      |      |    |                                   |           |     |     |    |        |          |      |                    |                                                                                         |                 |      |            |      |      |      |      |                                   |                 |    |    |   |   |   |                 |                        |  |  |  |  |  |  |
| Leakage Current (at 20℃)                   | I = 0.01CV or 3 (μA) whichever is greater (after 2 minutes)<br>Where, C = rated capacitance in μF    V = rated DC working voltage in V                                                                                                                                                                                                                                                                                                                                                                                                                           |      |      |      |        |      |      |    |                                   |           |     |     |    |        |          |      |                    |                                                                                         |                 |      |            |      |      |      |      |                                   |                 |    |    |   |   |   |                 |                        |  |  |  |  |  |  |
| Tanδ (at 120Hz, 20℃)                       | <table><tr><td>Rated Voltage</td><td>4</td><td>6.3</td><td>10</td><td>16</td><td>25</td><td>35</td><td>50</td></tr><tr><td>Tanδ (max)</td><td>0.35</td><td>0.25</td><td>0.20</td><td>0.17</td><td>0.15</td><td>0.13</td><td>0.10</td></tr></table>                                                                                                                                                                                                                                                                                                               |      |      |      |        |      |      |    | Rated Voltage                     | 4         | 6.3 | 10  | 16 | 25     | 35       | 50   | Tanδ (max)         | 0.35                                                                                    | 0.25            | 0.20 | 0.17       | 0.15 | 0.13 | 0.10 |      |                                   |                 |    |    |   |   |   |                 |                        |  |  |  |  |  |  |
| Rated Voltage                              | 4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 6.3  | 10   | 16   | 25     | 35   | 50   |    |                                   |           |     |     |    |        |          |      |                    |                                                                                         |                 |      |            |      |      |      |      |                                   |                 |    |    |   |   |   |                 |                        |  |  |  |  |  |  |
| Tanδ (max)                                 | 0.35                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 0.25 | 0.20 | 0.17 | 0.15   | 0.13 | 0.10 |    |                                   |           |     |     |    |        |          |      |                    |                                                                                         |                 |      |            |      |      |      |      |                                   |                 |    |    |   |   |   |                 |                        |  |  |  |  |  |  |
| Low Temperature Characteristics (at 120Hz) | <p>Impedance ratio shall not exceed the values given in the table below.</p> <table><tr><td colspan="2">Rated Voltage</td><td>4</td><td>6.3</td><td>10</td><td>16</td><td>25</td><td>35</td><td>50</td></tr><tr><td rowspan="2">Impedance Ratio</td><td>Z(-25℃)/Z(+20℃)</td><td>7</td><td>6</td><td>4</td><td>3</td><td>2</td><td>2</td><td>2</td></tr><tr><td>Z(-40℃)/Z(+20℃)</td><td>15</td><td>12</td><td>8</td><td>6</td><td>4</td><td>4</td><td>4</td></tr></table>                                                                                         |      |      |      |        |      |      |    | Rated Voltage                     |           | 4   | 6.3 | 10 | 16     | 25       | 35   | 50                 | Impedance Ratio                                                                         | Z(-25℃)/Z(+20℃) | 7    | 6          | 4    | 3    | 2    | 2    | 2                                 | Z(-40℃)/Z(+20℃) | 15 | 12 | 8 | 6 | 4 | 4               | 4                      |  |  |  |  |  |  |
| Rated Voltage                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 4    | 6.3  | 10   | 16     | 25   | 35   | 50 |                                   |           |     |     |    |        |          |      |                    |                                                                                         |                 |      |            |      |      |      |      |                                   |                 |    |    |   |   |   |                 |                        |  |  |  |  |  |  |
| Impedance Ratio                            | Z(-25℃)/Z(+20℃)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 7    | 6    | 4    | 3      | 2    | 2    | 2  |                                   |           |     |     |    |        |          |      |                    |                                                                                         |                 |      |            |      |      |      |      |                                   |                 |    |    |   |   |   |                 |                        |  |  |  |  |  |  |
|                                            | Z(-40℃)/Z(+20℃)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 15   | 12   | 8    | 6      | 4    | 4    | 4  |                                   |           |     |     |    |        |          |      |                    |                                                                                         |                 |      |            |      |      |      |      |                                   |                 |    |    |   |   |   |                 |                        |  |  |  |  |  |  |
| Endurance                                  | <table><tr><td>Test Time</td><td colspan="7">1,000 Hrs</td></tr><tr><td>Capacitance Change</td><td colspan="7">Within ±30% of initial value for 4 ~ 6.3V;<br/>Within ±25% of initial value for 10 ~ 50V</td></tr><tr><td>Tanδ</td><td colspan="7">Less than 200% of specified value</td></tr><tr><td>Leakage Current</td><td colspan="7">Within specified value</td></tr></table> <p>* The above specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage applied with rated ripple current for 1,000 hours at 85℃.</p> |      |      |      |        |      |      |    | Test Time                         | 1,000 Hrs |     |     |    |        |          |      | Capacitance Change | Within ±30% of initial value for 4 ~ 6.3V;<br>Within ±25% of initial value for 10 ~ 50V |                 |      |            |      |      |      | Tanδ | Less than 200% of specified value |                 |    |    |   |   |   | Leakage Current | Within specified value |  |  |  |  |  |  |
| Test Time                                  | 1,000 Hrs                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |      |      |      |        |      |      |    |                                   |           |     |     |    |        |          |      |                    |                                                                                         |                 |      |            |      |      |      |      |                                   |                 |    |    |   |   |   |                 |                        |  |  |  |  |  |  |
| Capacitance Change                         | Within ±30% of initial value for 4 ~ 6.3V;<br>Within ±25% of initial value for 10 ~ 50V                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |      |      |      |        |      |      |    |                                   |           |     |     |    |        |          |      |                    |                                                                                         |                 |      |            |      |      |      |      |                                   |                 |    |    |   |   |   |                 |                        |  |  |  |  |  |  |
| Tanδ                                       | Less than 200% of specified value                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |      |      |      |        |      |      |    |                                   |           |     |     |    |        |          |      |                    |                                                                                         |                 |      |            |      |      |      |      |                                   |                 |    |    |   |   |   |                 |                        |  |  |  |  |  |  |
| Leakage Current                            | Within specified value                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |      |      |      |        |      |      |    |                                   |           |     |     |    |        |          |      |                    |                                                                                         |                 |      |            |      |      |      |      |                                   |                 |    |    |   |   |   |                 |                        |  |  |  |  |  |  |
| Shelf Life Test                            | Test time: 500 hours; other items are the same as those for the Endurance.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |      |      |      |        |      |      |    |                                   |           |     |     |    |        |          |      |                    |                                                                                         |                 |      |            |      |      |      |      |                                   |                 |    |    |   |   |   |                 |                        |  |  |  |  |  |  |
| Ripple Current & Frequency Multipliers     | <table><tr><td><div>Freq.(Hz)<br/>Cap.(μF)</div></td><td>60 (50)</td><td>120</td><td>500</td><td>1k</td><td>10k up</td></tr><tr><td>Under 47</td><td>0.75</td><td>1.00</td><td>1.15</td><td>1.34</td><td>1.50</td></tr><tr><td>100 to 330</td><td>0.80</td><td>1.00</td><td>1.08</td><td>1.20</td><td>1.30</td></tr></table>                                                                                                                                                                                                                                     |      |      |      |        |      |      |    | <div>Freq.(Hz)<br/>Cap.(μF)</div> | 60 (50)   | 120 | 500 | 1k | 10k up | Under 47 | 0.75 | 1.00               | 1.15                                                                                    | 1.34            | 1.50 | 100 to 330 | 0.80 | 1.00 | 1.08 | 1.20 | 1.30                              |                 |    |    |   |   |   |                 |                        |  |  |  |  |  |  |
| <div>Freq.(Hz)<br/>Cap.(μF)</div>          | 60 (50)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 120  | 500  | 1k   | 10k up |      |      |    |                                   |           |     |     |    |        |          |      |                    |                                                                                         |                 |      |            |      |      |      |      |                                   |                 |    |    |   |   |   |                 |                        |  |  |  |  |  |  |
| Under 47                                   | 0.75                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 1.00 | 1.15 | 1.34 | 1.50   |      |      |    |                                   |           |     |     |    |        |          |      |                    |                                                                                         |                 |      |            |      |      |      |      |                                   |                 |    |    |   |   |   |                 |                        |  |  |  |  |  |  |
| 100 to 330                                 | 0.80                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 1.00 | 1.08 | 1.20 | 1.30   |      |      |    |                                   |           |     |     |    |        |          |      |                    |                                                                                         |                 |      |            |      |      |      |      |                                   |                 |    |    |   |   |   |                 |                        |  |  |  |  |  |  |

## Diagram of Dimensions

1.  $\phi D = 3\text{mm}$ 2.  $\phi D \geq 4\text{mm}$ 

Unit: mm



## Lead Spacing and Diameter

|          |     |      |     |     |     |
|----------|-----|------|-----|-----|-----|
| $\phi D$ | 3   | 4    | 5   | 6.3 | 8   |
| P        | 1.0 | 1.5  | 2.0 | 2.5 | 2.5 |
| $\phi d$ | 0.4 | 0.45 |     |     |     |
| $\alpha$ | 1.0 |      |     |     |     |
| $\beta$  | 0.5 |      |     |     |     |

## Dimension &amp; Permissible Ripple Current

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

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

| V. DC | 4V (0G)  | 6.3V (0J)         | 10V (1A) | 16V (1C)          | 25V (1E) | 35V (1V)          | 50V (1H) |
|-------|----------|-------------------|----------|-------------------|----------|-------------------|----------|
| μF    | Contents | $\phi D \times L$ | mA       | $\phi D \times L$ | mA       | $\phi D \times L$ | mA       |
| 0.33  | R33      |                   |          |                   |          |                   |          |
| 0.47  | R47      |                   |          |                   |          |                   |          |
| 1     | 010      |                   |          |                   |          |                   |          |
| 2.2   | 2R2      |                   |          |                   |          |                   |          |
| 3.3   | 3R3      |                   |          |                   |          |                   |          |
| 4.7   | 4R7      |                   |          |                   |          |                   |          |
| 10    | 100      |                   |          |                   |          |                   |          |
| 22    | 220      |                   |          |                   |          |                   |          |
| 33    | 330      |                   |          |                   |          |                   |          |
| 47    | 470      |                   |          |                   |          |                   |          |
| 100   | 101      |                   |          |                   |          |                   |          |
| 220   | 221      |                   |          |                   |          |                   |          |
| 330   | 331      |                   |          |                   |          |                   |          |

## Part Numbering System

|            |             |                       |               |                              |             |               |                           |
|------------|-------------|-----------------------|---------------|------------------------------|-------------|---------------|---------------------------|
| SS series  | 330μF       | ±20%                  | 6.3V          | Bulk Package                 | Gas Type    | 8 $\phi$ × 5L | Pb-free and PET sleeve    |
| <b>SS-</b> | <b>331</b>  | <b>M</b>              | <b>0J</b>     | <b>BK</b>                    | -           | <b>0805</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 11.

# Mouser Electronics

Authorized Distributor

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## Lelon:

|                                         |                                         |                                         |                                          |                                          |
|-----------------------------------------|-----------------------------------------|-----------------------------------------|------------------------------------------|------------------------------------------|
| <a href="#"><u>SS010M1HBK-0405P</u></a> | <a href="#"><u>SS010M1HBK-0305P</u></a> | <a href="#"><u>SS0R1M1HBK-0305P</u></a> | <a href="#"><u>SS0R33M1HBK-0305P</u></a> | <a href="#"><u>SS0R47M1HBK-0305P</u></a> |
| <a href="#"><u>SS2R2M1VBK-0305P</u></a> | <a href="#"><u>SS3R3M1EBK-0305P</u></a> | <a href="#"><u>SS4R7M1CBK-0305P</u></a> | <a href="#"><u>SS0R1M1HBK-0405P</u></a>  | <a href="#"><u>SS100M1ABK-0405P</u></a>  |
| <a href="#"><u>SS100M1CBK-0405P</u></a> | <a href="#"><u>SS100M1EBK-0505P</u></a> | <a href="#"><u>SS100M1HBK-0605P</u></a> | <a href="#"><u>SS100M1VBK-0505P</u></a>  | <a href="#"><u>SS101M0JBK-0605P</u></a>  |
| <a href="#"><u>SS101M1ABK-0605P</u></a> | <a href="#"><u>SS101M1CBK-0805P</u></a> | <a href="#"><u>SS101M1EBK-0805P</u></a> | <a href="#"><u>SS220M1CBK-0505P</u></a>  | <a href="#"><u>SS220M1EBK-0605P</u></a>  |
| <a href="#"><u>SS220M1HBK-0605P</u></a> | <a href="#"><u>SS220M1VBK-0605P</u></a> | <a href="#"><u>SS221M0JBK-0805P</u></a> | <a href="#"><u>SS221M1ABK-0805P</u></a>  | <a href="#"><u>SS2R2M1HBK-0405P</u></a>  |
| <a href="#"><u>SS2R2M1VBK-0405P</u></a> | <a href="#"><u>SS330M1CBK-0505P</u></a> | <a href="#"><u>SS3R3M1EBK-0405P</u></a> | <a href="#"><u>SS3R3M1VBK-0405P</u></a>  | <a href="#"><u>SS470M0JBK-0505P</u></a>  |
| <a href="#"><u>SS470M1CBK-0605P</u></a> | <a href="#"><u>SS470M1EBK-0605P</u></a> | <a href="#"><u>SS470M1VBK-0805P</u></a> | <a href="#"><u>SS4R7M1CBK-0405P</u></a>  | <a href="#"><u>SS4R7M1EBK-0405P</u></a>  |
| <a href="#"><u>SS4R7M1HBK-0505P</u></a> | <a href="#"><u>SS4R7M1VBK-0405P</u></a> | <a href="#"><u>SS4R7M1VBK0405</u></a>   |                                          |                                          |