

SS Series

Features

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



AEC-Q200 Qualified Parts Available: Use "LS" or "KS" Suffix

Specifications

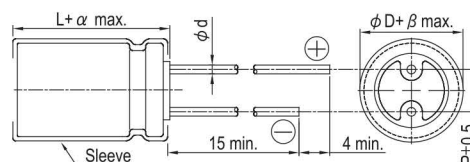
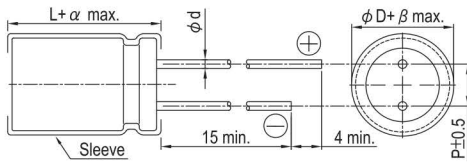
Items	Performance																										
Category Temperature Range	-40°C ~ +85°C																										
Capacitance Tolerance	±20% (at 120 Hz, 20°C)																										
Leakage Current (at 20°C)	I = 0.01CV or 3 (µA) whichever is greater (after 2 minutes) Where, C = rated capacitance in µF,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

1. φ D = 3mm

2. φ D ≥ 4mm

Unit: mm



Lead Spacing and Diameter

φ D	3	4	5	6.3	8
P	1.0	1.5	2.0	2.5	2.5
φ d	0.4				
α	1.0				
β	0.5				

Dimension: φ D × L (mm)

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

Dimension and Permissible Ripple Current

Rated Volt. (V _{DC})	Contents	4V (0G)		6.3V (0J)		10V (1A)		16V (1C)		25V (1E)		35V (1V)		50V (1H)	
		φ D×L	mA	φ D×L	mA	φ D×L	mA	φ D×L	mA	φ D×L	mA	φ D×L	mA	φ D×L	mA
0.33	R33													3×5	2.8
0.47	R47													3×5	4
1	010													4×5(3×5)	8.7(7)
2.2	2R2											4×5(3×5)	8.7(7)	4×5(3×5)	10(9)
3.3	3R3									4×5(3×5)	11(10)	4×5	12	4×5	13
4.7	4R7							4×5(3×5)	14(11)	4×5	14	4×5	17	5×5	20
10	100					4×5(3×5)	17(13)	4×5	23	5×5	27	5×5	27	6.3×5	31
22	220			4×5(3×5)	22(18)	5×5	30	5×5	35	6.3×5	42	6.3×5	46	6.3×5	46
33	330	4×5	27	4×5	34	5×5	41	5×5	49	6.3×5	52	6.3×5	52	8×5	66
47	470	4×5	34	5×5	37	6.3×5	50	6.3×5	58	6.3×5	58	8×5	72	8×5	80
100	101	5×5	55	6.3×5	62	6.3×5	70	8×5	99	8×5	99				
220	221	6.3×5	74	8×5	104	8×5	120								
330	331	8×5	105	8×5	120										

Part Numbering System

SS Series	330µF	±20%	6.3V	Bulk Package	Gas Type	8 φ × 5L	Pb-free and PET sleeve
SS-	331	M	0J	BK	-	0805	S
Series Name	Capacitance	Capacitance Tolerance	Rated Voltage	Lead Configuration and Package	Rubber Type	Case Size	Lead Wire and Sleeve type

For automotive application, please replace "S" suffix with an "LS" or "KS" suffix, for non-safety critical and safety critical applications respectively

Note: For more details, please refer to "Part Numbering System (Radial Type)" on page 13.