



Features

- D3 - ~ 18 -, 85 ¥, 2,000 hours assured
- DChip type large capacitance capacitors
- DDesigned for surface mounting on high density PC board
- DRoHS Compliance



Marking color: Black

Specifications

Items	Performance																																																															
Category Temperature Range	-40 ¥ ~ +85 ¥																																																															
Capacitance Tolerance	±20% (at 120Hz, 20 ¥)																																																															
Leakage Current (at 20 ¥)	<table border="1"> <tr> <td>Rated Voltage</td> <td>6.3 ~ 100V</td> <td>160 ~ 450V</td> </tr> <tr> <td>Time</td> <td>after 2 minutes</td> <td>after 5 minutes</td> </tr> <tr> <td>Case size</td> <td>3 ~ 10 -</td> <td>12.5 ~ 18 -</td> <td>12.5 ~ 18 -</td> </tr> <tr> <td>Leakage Current</td> <td>I = 0.01CV or 3µA, whichever is greater</td> <td>I = 0.03CV or 4µA, whichever is greater</td> <td>I = 0.04CV +100µA</td> </tr> </table> <p>Where, C = rated capacitance in µF V = rated DC working voltage in V</p>	Rated Voltage	6.3 ~ 100V	160 ~ 450V	Time	after 2 minutes	after 5 minutes	Case size	3 ~ 10 -	12.5 ~ 18 -	12.5 ~ 18 -	Leakage Current	I = 0.01CV or 3µA, whichever is greater	I = 0.03CV or 4µA, whichever is greater	I = 0.04CV +100µA																																																	
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Dissipation Factor (Tan at 120Hz, 20 ¥)	<table border="1"> <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> <td>63</td> <td>100</td> <td>160 ~ 250</td> <td>400 ~ 450</td> </tr> <tr> <td>3 ~ 10 -</td> <td>0.42</td> <td>0.28</td> <td>0.24</td> <td>0.20</td> <td>0.14</td> <td>0.12</td> <td>0.10</td> <td>0.10</td> <td>0.10</td> <td>-</td> <td>-</td> </tr> <tr> <td>12.5 ~ 18 -</td> <td>-</td> <td>0.38</td> <td>0.34</td> <td>0.30</td> <td>0.26</td> <td>0.22</td> <td>0.18</td> <td>0.14</td> <td>0.10</td> <td>0.20</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	4	6.3	10	16	25	35	50	63	100	160 ~ 250	400 ~ 450	3 ~ 10 -	0.42	0.28	0.24	0.20	0.14	0.12	0.10	0.10	0.10	-	-	12.5 ~ 18 -	-	0.38	0.34	0.30	0.26	0.22	0.18	0.14	0.10	0.20	0.25																											
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Low Temperature Characteristics (at 120Hz)	<p>Impedance ratio shall not exceed the values given in the table below.</p> <table border="1"> <tr> <td colspan="2">Rated Voltage</td> <td>4.0</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 ~ 250</td> <td>400 ~ 450</td> </tr> <tr> <td rowspan="4">Impedance Ratio</td> <td>Z(-25 ¥)</td> <td>- DpE12.5</td> <td>7</td> <td>4</td> <td>4</td> <td>3</td> <td>2</td> <td>2</td> <td>2</td> <td>2</td> <td>-</td> <td>-</td> </tr> <tr> <td>/Z(+20 ¥)</td> <td>- D • 12.5</td> <td>-</td> <td>5</td> <td>5</td> <td>4</td> <td>2</td> <td>2</td> <td>2</td> <td>2</td> <td>3</td> <td>6</td> </tr> <tr> <td>Z(-40 ¥)</td> <td>- DpE12.5</td> <td>15</td> <td>8</td> <td>5</td> <td>4</td> <td>3</td> <td>3</td> <td>3</td> <td>3</td> <td>-</td> <td>-</td> </tr> <tr> <td>/Z(+20 ¥)</td> <td>- D • 12.5</td> <td>-</td> <td>14</td> <td>12</td> <td>10</td> <td>5</td> <td>4</td> <td>3</td> <td>3</td> <td>3</td> <td>6</td> <td>10</td> </tr> </table>	Rated Voltage		4.0	6.3	10	16	25	35	50	63	100	160 ~ 250	400 ~ 450	Impedance Ratio	Z(-25 ¥)	- DpE12.5	7	4	4	3	2	2	2	2	-	-	/Z(+20 ¥)	- D • 12.5	-	5	5	4	2	2	2	2	3	6	Z(-40 ¥)	- DpE12.5	15	8	5	4	3	3	3	3	-	-	/Z(+20 ¥)	- D • 12.5	-	14	12	10	5	4	3	3	3	6	10
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Shelf Life Test	Test time: 1,000 hours; other items are the same as those for the Endurance. The rated voltage shall be applied to the capacitors before the measurements for 160 ~ 450V (Refer to JIS C 5101-4 4.1).																																																															
Ripple Current & Frequency Multipliers	<table border="1"> <tr> <td rowspan="3">Cap. (µF)</td> <td>Freq. (Hz)</td> <td>50</td> <td>120</td> <td>1k</td> <td>10k up</td> </tr> <tr> <td>Under 1,000</td> <td>0.80</td> <td>1.00</td> <td>1.25</td> <td>1.40</td> </tr> <tr> <td>1,000 pE C € 6,800</td> <td>0.85</td> <td>1.00</td> <td>1.15</td> <td>1.25</td> </tr> </table>	Cap. (µF)	Freq. (Hz)	50	120	1k	10k up	Under 1,000	0.80	1.00	1.25	1.40	1,000 pE C € 6,800	0.85	1.00	1.15	1.25																																															
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Diagram of Dimensions

Fig. 1

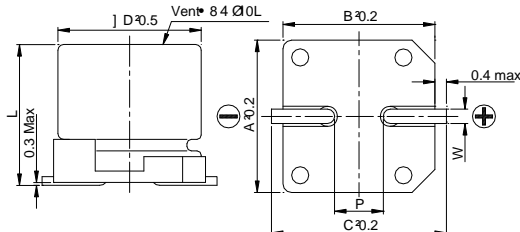
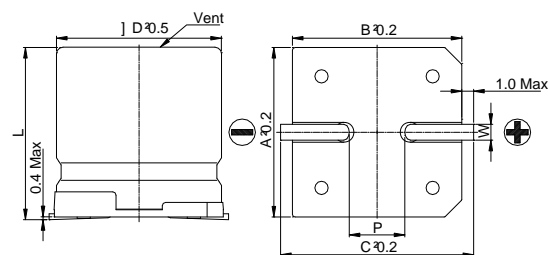


Fig. 2



Lead Spacing and Diameter

Unit: mm

- D	L	A	B	C	W	P ± 0.2	Fig. No.
3	5.3 ± 0.2	3.3	3.3	4.1	0.45 ~ 0.75	0.8	1
4	5.3 ± 0.2	4.3	4.3	5.1	0.5 ~ 0.8	1.0	1
5	5.3 ± 0.2	5.3	5.3	5.9	0.5 ~ 0.8	1.5	1
6.3	5.3 ± 0.2	6.6	6.6	7.2	0.5 ~ 0.8	2.0	1
6.3	7.7 ± 0.3	6.6	6.6	7.2	0.5 ~ 0.8	2.0	1
8	10 ± 0.5	8.4	8.4	9.0	0.7 ~ 1.1	3.1	1
8	10.3 ± 0.5	8.4	8.4	9.0	0.7 ~ 1.1	3.1	1
10	7.7 ± 0.3	10.4	10.4	11.0	0.7 ~ 1.3	4.7	1
10	10 ± 0.5	10.4	10.4	11.0	0.7 ~ 1.3	4.7	1
10	10.3 ± 0.5	10.4	10.4	11.0	0.7 ~ 1.3	4.7	1
12.5	13.5 ± 0.5	13.0	13.0	13.7	1.1 ~ 1.4	4.4	2
12.5	16 ± 0.5	13.0	13.0	13.7	1.1 ~ 1.4	4.4	2
16	16.5 ± 0.5	17.0	17.0	18.0	1.1 ~ 1.4	6.4	2
16	21.5 ± 0.5	17.0	17.0	18.0	1.1 ~ 1.4	6.4	2
18	16.5 ± 0.5	19.0	19.0	20.0	1.1 ~ 1.4	6.4	2
18	21.5 ± 0.5	19.0	19.0	20.0	1.1 ~ 1.4	6.4	2



SMD Aluminum Electrolytic Capacitors

Marking

- D = 3 mm

- D = 4 ~ 6.3mm

- D = 8 ~ 10 mm

- D • 12.5mm

Dimension: - D x L(mm)

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

Dimension & Permissible Ripple Current

V. DC μF	Contents	4V (0G)		6.3V (0J)		10V (1A)		16V (1C)		25V (1E)		35V (1V)		50V (1H)		63 (1J)			
		- DxL	mA	- DxL	mA	- DxL	mA	- DxL	mA	- DxL	mA	- DxL	mA	- DxL	mA	- DxL	mA		
1	010																		
2.2	2R2													4x5.3	10	4x5.3	8		
3.3	3R3									3x5.3	14	3x5.3	14	4x5.3	17	5x5.3	22		
4.7	4R7					3x5.3	14	3x5.3	14	4x5.3	26	4x5.3	26	4x5.3	20	5x5.3	25		
10	100			3x5.3	16	4x5.3	26	4x5.3	26	5x5.3	44	5x5.3	44	5x5.3	35	6.3x5.3	40		
22	220	3x5.3	16	4x5.3	26	5x5.3	44	4x5.3	30	5x5.3	47	5x5.3	47	6.3x5.3	50	8x10	139		
33	330	4x5.3	31	4x5.3	31	4x5.3	31	5x5.3	55	5x5.3	55	6.3x5.3	67	6.3x7.7	75	8x10	139		
47	470	4x5.3	34	4x5.3	34	6.3x5.3	75	5x5.3	55	6.3x5.3	75	6.3x7.7	98	6.3x7.7	75	10x10	200		
68	680	5x5.3	58	5x5.3	58	5x5.3	58	6.3x5.3	89	6.3x5.3	89	6.3x7.7	109	6.3x7.7	109	8x10	190	10x10	226
100	101	5x5.3	58	6.3x5.3	89	6.3x5.3	89	6.3x5.3	89	6.3x5.3	89	6.3x7.7	109	8x10	252	8x10	190	10x10	226
150	151											10x7.7	252						
220	221	6.3x5.3	89	6.3x5.3	89	6.3x7.7	124	6.3x7.7	124	8x10	270	8x10	270	10x10	320	12.5x13.5	500		
330	331	6.3x7.7	124	6.3x7.7	124	8x10	270	8x10	270	10x7.7	270	10x10	370						
470	471	8x10	290	6.3x7.7	124	8x10	290	8x10	290	10x7.7	290	10x10	400	12.5x13.5	600	12.5x16	600		
680	681			10x7.7	290	10x10	410	10x10	410	10x10	400	12.5x13.5	680	12.5x13.5	680	16x16.5	1,000	18x16.5	1,100
1,000	102			10x10	430	10x10	430	12.5x13.5	750	12.5x13.5	750	16x16.5	1,100	18x16.5	1,350	16x21.5	1,400		
2,200	222			12.5x13.5	890	12.5x13.5	890	16x16.5	1,100	16x16.5	1,100	18x16.5	1,450	16x21.5	1,500				
3,300	332			12.5x16	1,000	16x16.5	1,300	16x16.5	1,300	18x16.5	1,450	16x21.5	1,500	18x21.5	1,750				
4,700	472			16x16.5	1,400	16x16.5	1,400	18x16.5	1,600	16x21.5	1,650	18x21.5	1,750						
6,800	682			18x16.5	1,700	16x21.5	1,750	18x16.5	1,700	16x21.5	1,750	18x21.5	2,000						
10,000	103			18x21.5	2,000	18x21.5													

V. DC	100V (2A)	160V (2C)	200V (2D)	250V (2E)	400V (2G)	450V (2W)
	- DxL	- DxL	- DxL	- DxL	- DxL	- DxL
					mA	

