

Features

- 4 ~ 18 ϕ , 105°C, 2,000 ~ 5,000 hours assured
- Large capacitance with ultra low impedance capacitors
- Designed for surface mounting on high density PC board
- RoHS Compliance



Marking color: Black

SPECIFICATIONS

Items	Performance																																	
Category Temperature Range	-55 ~ +105℃																																	
Capacitance Tolerance	±20% (at 120Hz, 20℃)																																	
Leakage Current (at 20℃)	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																																	
Dissipation Factor (Tan δ at 120Hz, 20℃)	<table><tr><td>Rated Voltage</td><td>6.3</td><td>10</td><td>16</td><td>25</td><td>35</td><td>50</td><td>63</td><td>80</td><td>100</td></tr><tr><td>Tan δ (max)</td><td>0.30</td><td>0.26</td><td>0.22</td><td>0.16</td><td>0.13</td><td>0.10</td><td>0.08</td><td>0.08</td><td>0.07</td></tr></table> When the capacitance exceeds 1,000 μ F, 0.002 shall be added every 1,000 μ F increase.	Rated Voltage	6.3	10	16	25	35	50	63	80	100	Tan δ (max)	0.30	0.26	0.22	0.16	0.13	0.10	0.08	0.08	0.07													
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Low Temperature Characteristics (at 120Hz)	Impedance ratio shall not exceed the values given in the table below. <table><tr><td colspan="2">Rated Voltage</td><td>6.3</td><td>10</td><td>16</td><td>25</td><td>35</td><td>50</td><td>63</td><td>80</td><td>100</td></tr><tr><td>Impedance</td><td>Z(-25℃)/Z(+20℃)</td><td>4</td><td>3</td><td>2</td><td>2</td><td>2</td><td>2</td><td>2</td><td>2</td><td>2</td></tr><tr><td>Ratio</td><td>Z(-55℃)/Z(+20℃)</td><td>8</td><td>5</td><td>4</td><td>3</td><td>3</td><td>3</td><td>3</td><td>3</td><td>3</td></tr></table>	Rated Voltage		6.3	10	16	25	35	50	63	80	100	Impedance	Z(-25℃)/Z(+20℃)	4	3	2	2	2	2	2	2	2	Ratio	Z(-55℃)/Z(+20℃)	8	5	4	3	3	3	3	3	3
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Endurance	<table><tr><td>Test Time</td><td>2,000 Hrs for ϕ D ≤ 6.3mm & 10 ϕ ×7.7L; 5,000 Hrs for ϕ D ≥ 8mm</td></tr><tr><td>Capacitance Change</td><td>Within ±30% of initial value</td></tr><tr><td>Dissipation Factor</td><td>Less than 300% of specified value</td></tr><tr><td>Leakage Current</td><td>Within specified value</td></tr></table> * The above specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage applied for 2,000 ~ 5,000 hours at 105℃.	Test Time	2,000 Hrs for ϕ D ≤ 6.3mm & 10 ϕ ×7.7L; 5,000 Hrs for ϕ D ≥ 8mm	Capacitance Change	Within ±30% of initial value	Dissipation Factor	Less than 300% of specified value	Leakage Current	Within specified value																									
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Shelf Life Test	<table><tr><td>Test Time</td><td>1,000 Hrs</td></tr><tr><td>Capacitance Change</td><td>Within ±30% of initial value</td></tr><tr><td>Dissipation Factor</td><td>Less than 300% of specified value</td></tr><tr><td>Leakage Current</td><td>Within specified value</td></tr></table> * The above specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 105℃ without voltage applied.	Test Time	1,000 Hrs	Capacitance Change	Within ±30% of initial value	Dissipation Factor	Less than 300% of specified value	Leakage Current	Within specified value																									
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Ripple Current & Frequency Multipliers	<table><tr><td>Frequency(Hz)</td><td>50, 60</td><td>120</td><td>1k</td><td>10k up</td></tr><tr><td>Multiplier</td><td>0.60</td><td>0.70</td><td>0.85</td><td>1.0</td></tr></table>	Frequency(Hz)	50, 60	120	1k	10k up	Multiplier	0.60	0.70	0.85	1.0																							
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DIAGRAM OF DIMENSIONS

Fig. 1

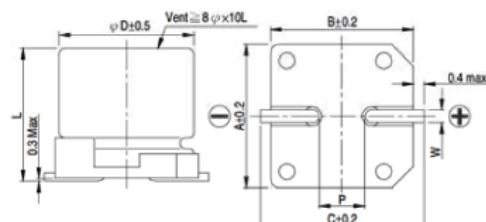
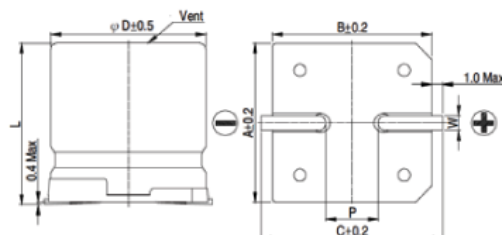


Fig. 2



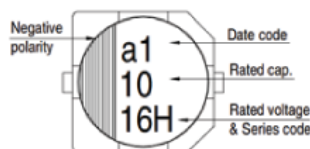
LEAD SPACING AND DIAMETER

Unit: mm

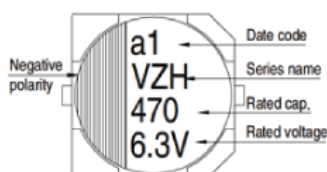
ϕD	L	A	B	C	W	P ± 0.2	Fig. No.
4	5.7 ± 0.3	4.3	4.3	5.1	0.5 ~ 0.8	1.0	1
5	5.7 ± 0.3	5.3	5.3	6.1	0.5 ~ 0.8	1.5	1
6.3	5.7 ± 0.3	6.6	6.6	7.4	0.5 ~ 0.8	2.0	1
6.3	7.7 ± 0.3	6.6	6.6	7.4	0.5 ~ 0.8	2.0	1
8	10 ± 0.5	8.4	8.4	9.2	0.7 ~ 1.1	3.1	1
8	10.3 ± 0.5	8.4	8.4	9.2	0.7 ~ 1.1	3.1	1
10	7.7 ± 0.3	10.4	10.4	11.2	0.7 ~ 1.1	4.7	1
10	10 ± 0.5	10.4	10.4	11.2	0.7 ~ 1.1	4.7	1
10	10.3 ± 0.5	10.4	10.4	11.2	0.7 ~ 1.1	4.7	1
12.5	13.5 ± 0.5	13.0	13.0	15.0	1.1 ~ 1.4	4.4	2
12.5	16 ± 0.5	13.0	13.0	15.0	1.1 ~ 1.4	4.4	2
16	16.5 ± 0.5	17.0	17.0	19.0	1.1 ~ 1.4	6.4	2
18	16.5 ± 0.5	19.0	19.0	21.0	1.1 ~ 1.4	6.4	2

MARKING

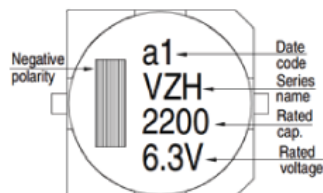
$\phi D \leq 6.3\text{mm}$



$\phi D = 8 \sim 10\text{mm}$



$\phi D \geq 12.5\text{mm}$



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

Ripple Current: mA/rms at 100k Hz, 105°C

Impedance: $\Omega / \text{at } 100\text{k Hz, } 20^\circ\text{C}$

DIMENSION & PERMISSIBLE RIPPLE CURRENT

V. DC μF	Contents	6.3V (0J)			10V (1A)			16V (1C)			25V (1E)			35V (1V)			50V (1H)		
		φ D×L	Imp.	mA	φ D×L	Imp.	mA	φ D×L	Imp.	mA	φ D×L	Imp.	mA	φ D×L	Imp.	mA	φ D×L	Imp.	mA
1	010																4×5.7	2.9	60
2.2	2R2																4×5.7	2.9	60
3.3	3R3																4×5.7	2.9	60
4.7	4R7													4×5.7	1.35	80	5×5.7	1.52	85
10	100							4×5.7	1.35	80	4×5.7	1.35	80	5×5.7	0.80	150	6.3×5.7	0.88	165
22	220	4×5.7	1.35	80	4×5.7	1.35	80	5×5.7	0.80	150	5×5.7	0.80	150	6.3×5.7	0.44	230	6.3×5.7	0.88	165
33	330	4×5.7	1.35	80	5×5.7	0.80	150	6.3×5.7	0.44	230	6.3×5.7	0.44	230	6.3×5.7	0.44	230	6.3×7.7	0.68	185
47	470	5×5.7	0.80	150	6.3×5.7	0.44	230	6.3×5.7	0.44	230	6.3×5.7	0.44	230	6.3×5.7	0.44	230	6.3×7.7	0.68	185
68	680																8×10	0.34	369
100	101	6.3×5.7	0.44	230	6.3×5.7	0.44	230	6.3×5.7	0.44	230	6.3×7.7	0.36	280	8×10	0.17	450	8×10	0.34	369
150	151	6.3×5.7	0.44	230	6.3×5.7	0.44	230	6.3×7.7	0.36	280	8×10	0.17	450	8×10	0.17	450	10×10.3	0.18	553
220	221	6.3×7.7	0.36	280	6.3×7.7	0.36	280	6.3×7.7	0.36	280	8×10	0.17	450	10×10	0.09	670	10×10.3	0.18	553
330	331	8×10	0.17	450	8×10	0.17	450	8×10	0.17	450	8×10.3	0.17	450	12.5×13.5	0.070	820	12.5×13.5	0.12	650
470	471	8×10	0.17	450	8×10	0.17	450	8×10	0.17	450	10×10	0.09	670	12.5×16	0.060	950	16×16.5	0.073	1,000
680	681	8×10.3	0.17	450	10×10	0.09	670	10×10.3	0.09	670	12.5×13.5	0.070	820	12.5×16	0.060	950	16×16.5	0.073	1,000
1,000	102	8×10.3	0.17	450	10×10	0.09	670	12.5×13.5	0.070	820	12.5×16	0.060	950	16×16.5	0.054	1,260	18×16.5	0.066	1,500
1,500	152	10×10.3	0.09	670	12.5×13.5	0.070	820	12.5×16	0.060	950	16×16.5	0.054	1,260	18×16.5	0.048	1,500			
2,200	222	12.5×13.5	0.070	820	12.5×16	0.060	950	16×16.5	0.054	1,260	16×16.5	0.054	1,260						
3,300	332	12.5×16	0.060	950	16×16.5	0.054	1,260	16×16.5	0.054	1,260	18×16.5	0.048	1,500						
4,700	472	16×16.5	0.054	1,260	16×16.5	0.054	1,260	18×16.5	0.048	1,500									
6,800	682	18×16.5	0.048	1,500	18×16.5	0.048	1,500												
8,200	822	18×16.5	0.048	1,500															

V. DC μF	Contents	63V (1J)			80V (1K)			100V (2A)		
		φ D×L	Imp.	mA	φ D×L	Imp.	mA	φ D×L	Imp.	mA
4.7	4R7	5×5.7	1.90	70						
10	100	6.3×5.7	1.20	130						
22	220	6.3×7.7	0.90	150	8×10	1.3	130	8×10	1.3	130
33	330	8×10	0.50	280	8×10	1.3	130	10×10	0.7	200
47	470	8×10	0.50	280	10×10	0.7	200	10×10	0.7	200
100	101	10×10	0.25	450	10×10.3	0.7	200	12.5×13.5	0.32	450
150	151	12.5×13.5	0.15	700	12.5×13.5	0.32	450	12.5×16	0.26	550
220	221	12.5×13.5	0.15	700	12.5×16	0.26	550	16×16.5	0.17	650
330	331	16×16.5	0.082	900	16×16.5	0.17	650	18×16.5	0.15	850
470	471	16×16.5	0.082	900	18×16.5	0.15	850			
680	681	18×16.5	0.080	1,150						