

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

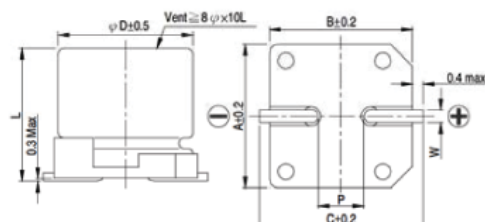
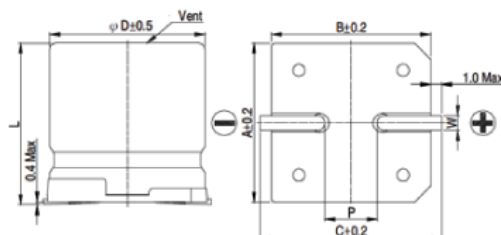


Fig. 2



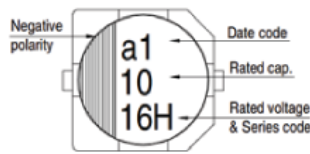
LEAD SPACING AND DIAMETER

Unit: mm

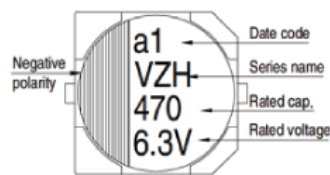
ϕD	L	A	B	C	W	P ± 0.2	Fig. No.
4	5.7 ± 0.3	4.3	4.3	5.1	0.5 ~ 0.8	1.0	1
5	5.7 ± 0.3	5.3	5.3	6.1	0.5 ~ 0.8	1.5	1
6.3	5.7 ± 0.3	6.6	6.6	7.4	0.5 ~ 0.8	2.0	1
6.3	7.7 ± 0.3	6.6	6.6	7.4	0.5 ~ 0.8	2.0	1
8	10 ± 0.5	8.4	8.4	9.2	0.7 ~ 1.1	3.1	1
8	10.3 ± 0.5	8.4	8.4	9.2	0.7 ~ 1.1	3.1	1
10	7.7 ± 0.3	10.4	10.4	11.2	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

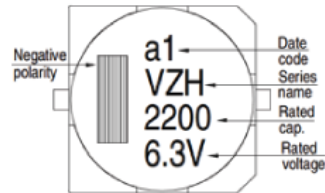
$\phi D \leq 6.3\text{mm}$



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



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



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

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

Impedance: Ω / at 100k Hz, 20°C

DIMENSION & PERMISSIBLE RIPPLE CURRENT

V. DC		6.3V (0J)			10V (1A)			16V (1C)			25V (1E)			35V (1V)			50V (1H)		
μF	Contents	$\phi D \times L$	Imp.	mA	$\phi D \times L$	Imp.	mA	$\phi D \times L$	Imp.	mA	$\phi D \times L$	Imp.	mA	$\phi D \times L$	Imp.	mA	$\phi D \times L$	Imp.	mA
1	010																4x5.7	2.9	60
2.2	2R2																4x5.7	2.9	60
3.3	3R3																4x5.7	2.9	60
4.7	4R7													4x5.7	1.35	80	5x5.7	1.52	85
10	100							4x5.7	1.35	80	4x5.7	1.35	80	5x5.7	0.80	150	6.3x5.7	0.88	165
22	220	4x5.7	1.35	80	4x5.7	1.35	80	5x5.7	0.80	150	5x5.7	0.80	150	6.3x5.7	0.44	230	6.3x5.7	0.88	165
33	330	4x5.7	1.35	80	5x5.7	0.80	150	6.3x5.7	0.44	230	6.3x5.7	0.44	230	6.3x5.7	0.44	230	6.3x7.7	0.68	185
47	470	5x5.7	0.80	150	6.3x5.7	0.44	230	6.3x5.7	0.44	230	6.3x5.7	0.44	230	6.3x5.7	0.44	230	6.3x7.7	0.68	185
68	680																8x10	0.34	369
100	101	6.3x5.7	0.44	230	6.3x5.7	0.44	230	6.3x5.7	0.44	230	6.3x7.7	0.36	280	8x10	0.17	450	8x10	0.34	369
150	151	6.3x5.7	0.44	230	6.3x5.7	0.44	230	6.3x7.7	0.36	280	8x10	0.17	450	8x10	0.17	450	10x10.3	0.18	553
220	221	6.3x7.7	0.36	280	6.3x7.7	0.36	280	6.3x7.7	0.36	280	8x10	0.17	450	10x10	0.09	670	10x10.3	0.18	553
330	331	8x10	0.17	450	8x10	0.17	450	8x10	0.17	450	8x10.3	0.17	450	12.5x13.5	0.070	820	12.5x13.5	0.12	650
470	471	8x10	0.17	450	8x10	0.17	450	8x10	0.17	450	10x10	0.09	670	12.5x16	0.060	950	16x16.5	0.073	1,000
680	681	8x10.3	0.17	450	10x10	0.09	670	10x10.3	0.09	670	12.5x13.5	0.070	820	12.5x16	0.060	950	16x16.5	0.073	1,000
1,000	102	8x10.3	0.17	450	10x10	0.09	670	12.5x13.5	0.070	820	12.5x16	0.060	950	16x16.5	0.054	1,260	18x16.5	0.066	1,500
1,500	152	10x10.3	0.09	670	12.5x13.5	0.070	820	12.5x16	0.060	950	16x16.5	0.054	1,260	18x16.5	0.048	1,500			
2,200	222	12.5x13.5	0.070	820	12.5x16	0.060	950	16x16.5	0.054	1,260	16x16.5	0.054	1,260						
3,300	332	12.5x16	0.060	950	16x16.5	0.054	1,260	16x16.5	0.054	1,260	18x16.5	0.048	1,500						
4,700	472	16x16.5	0.054	1,260	16x16.5	0.054	1,260	18x16.5	0.048	1,500									
6,800	682	18x16.5	0.048	1,500	18x16.5	0.048	1,500												
8,200	822	18x16.5	0.048	1,500															

V. DC		63V (1J)			80V (1K)			100V (2A)		
μF	Contents	$\phi D \times L$	Imp.	mA	$\phi D \times L$	Imp.	mA	$\phi D \times L$	Imp.	mA
4.7	4R7	5x5.7	1.90	70						
10	100	6.3x5.7	1.20	130						
22	220	6.3x7.7	0.90	150	8x10	1.3	130	8x10	1.3	130
33	330	8x10	0.50	280	8x10	1.3	130	10x10	0.7	200
47	470	8x10	0.50	280	10x10	0.7	200	10x10	0.7	200
100	101	10x10	0.25	450	10x10.3	0.7	200	12.5x13.5	0.32	450
150	151	12.5x13.5	0.15	700	12.5x13.5	0.32	450	12.5x16	0.26	550
220	221	12.5x13.5	0.15	700	12.5x16	0.26	550	16x16.5	0.17	650
330	331	16x16.5	0.082	900	16x16.5	0.17	650	18x16.5	0.15	850
470	471	16x16.5	0.082	900	18x16.5	0.15	850			
680	681	18x16.5	0.080	1,150						