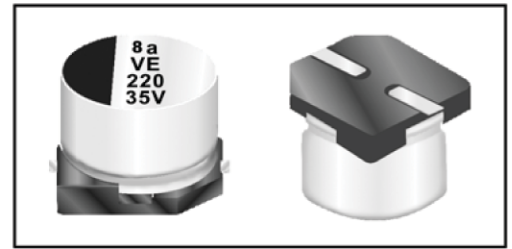


## Features

- 3 ~ 16  $\phi$ , 85°C, 2,000 hours assured
- Chip type large capacitance capacitors
- Designed for surface mounting on high density PC board.
- RoHS Compliance



## SPECIFICATIONS

Items	Performance													
Operating Temperature Range	-40°C ~ +85°C													
Capacitance Tolerance	±20% (at 120Hz, 20°C)													
Leakage Current (at 20°C)	Rated Voltage	6.3 ~ 100V						160 ~ 450V						
	Time	after 2 minutes						after 5 minutes						
	Case size	4 ~ 10 $\phi$			12.5 ~ 16 $\phi$			12.5 ~ 16 $\phi$						
	Leakage Current	I = 0.01CV or 3 $\mu$ A, whichever is greater			I = 0.03CV or 4 $\mu$ A, whichever is greater			I = 0.04CV + 100 $\mu$ A						
Where, C = rated capacitance in $\mu$ F V = rated DC working voltage in V														
Dissipation Factor (Tan $\delta$ at 120Hz, 20°C)	Rated Voltage	4	6.3	10	16	25	35	50	63	100	160 ~ 250	400 ~ 450		
	4 ~ 10 $\phi$	0.42	0.28	0.24	0.20	0.14	0.12	0.10	0.10	0.10	-	-		
	12.5 ~ 16 $\phi$	-	0.38	0.34	0.30	0.26	0.22	0.18	0.14	0.10	0.20	0.25		
Low Temperature Characteristics (at 120Hz)	Impedance ratio shall not exceed the values given in the table below.													
	Rated Voltage		4.0	6.3	10	16	25	35	50	63	100	160 ~ 250	400 ~ 450	
	Impedance Ratio	Z(-25°C) / Z(+20°C)	$\phi$ D < 12.5	7	4	4	3	2	2	2	2	2	-	-
			$\phi$ D $\geq$ 12.5	-	5	5	4	2	2	2	2	2	3	6
		Z(-40°C) / Z(+20°C)	$\phi$ D < 12.5	15	8	5	4	3	3	3	3	3	-	-
		$\phi$ D $\geq$ 12.5	-	14	12	10	5	4	3	3	3	6	10	
Load Life Test	Test Time	2,000 Hrs												
	Capacitance Change	Within ±20% of initial value (4V: ±30%)												
	Dissipation Factor	Less than 200% of specified value (4V: ±300%)												
	Leakage Current	Within specified value												
* The above specifications shall be satisfied when the capacitors are restored to 20°C after the rated voltage applied for 2,000 hrs at 85°C.														
Shelf Life Test	Test time: 1,000 hrs; other items are the same as those for the load life test. The rated voltage shall be applied to the capacitors before the measurements for 160 ~ 450V(Refer to JIS C 5101-4.1).													
Ripple Current & Frequency Multipliers	Freq.(Hz)		50	120	1K	10K up								
	Multiplier		0.8	1.0	1.25	1.40								

## DIAGRAM OF DIMENSIONS

Fig. 1

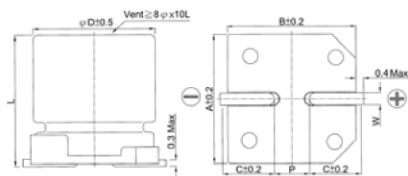
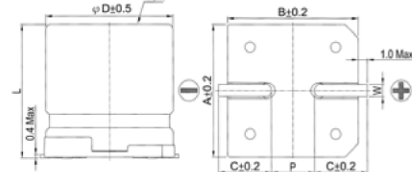


Fig. 2



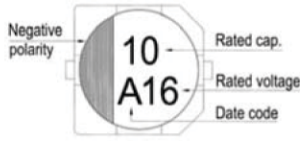
## LEAD SPACING AND DIAMETER

Unit: mm

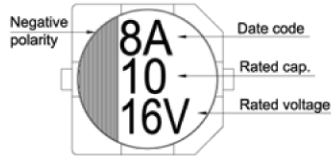
$\phi$ D	L	A	B	C	W	P ± 0.2	Fig. No.
3	5.3 ± 0.2	3.3	3.3	1.5	0.45 ~ 0.75	0.8	3
4	5.3 ± 0.2	4.3	4.3	2.0	0.5 ~ 0.8	1.0	1
5	5.3 ± 0.2	5.3	5.3	2.3	0.5 ~ 0.8	1.5	1
6.3	5.3 ± 0.2	6.6	6.6	2.7	0.5 ~ 0.8	2.0	1
6.3	7.7 ± 0.3	6.6	6.6	2.7	0.5 ~ 0.8	2.0	1
8	10 ± 0.5	8.4	8.4	3.0	0.7 ~ 1.1	3.1	1
8	10.3 ± 0.5	8.4	8.4	3.0	0.7 ~ 1.1	3.1	1
10	10 ± 0.5	10.4	10.4	3.3	0.7 ~ 1.1	4.7	1
10	10.3 ± 0.5	10.4	10.4	3.3	0.7 ~ 1.1	4.7	1
12.5	13.5 ± 0.5	13.0	13.0	4.8	1.1 ~ 1.4	4.4	2
12.5	16 ± 0.5	13.0	13.0	4.8	1.1 ~ 1.4	4.4	2
16	16.5 ± 0.5	17.0	17.0	5.8	1.1 ~ 1.4	6.4	2

## MARKING

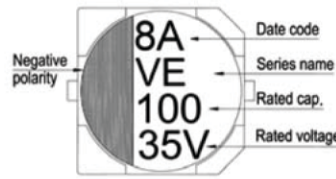
$\phi D = 3 \text{ mm}$



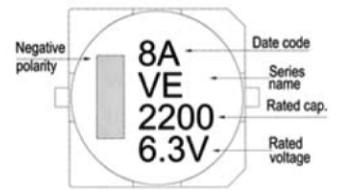
$\phi D = 4 \sim 6.3 \text{ mm}$



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



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



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

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

## DIMENSION & PERMISSIBLE RIPPLE CURRENT

V. DC $\mu\text{F}$	Contents	4V (0G)		6.3V (0J)		10V (1A)		16V (1C)		25V (1E)		35V (1V)		50V (1H)		63 (1J)	
		$\phi D \times L$	mA	$\phi D \times L$	mA	$\phi D \times L$	mA	$\phi D \times L$	mA	$\phi D \times L$	mA	$\phi D \times L$	mA	$\phi D \times L$	mA	$\phi D \times L$	mA
0.1	0R1													4×5.3	3	4×5.3	2
0.22	R22													4×5.3	5	4×5.3	3
0.33	R33													4×5.3	6	4×5.3	4
0.47	R47													4×5.3	7	4×5.3	5
1	010													4×5.3	10	4×5.3	8
2.2	2R2													4×5.3	14	4×5.3	12
3.3	3R3									3×5.3	14	3×5.3	14	4×5.3	19	5×5.3	27
4.7	4R7					3×5.3	14	3×5.3	14	4×5.3	26	4×5.3	26	4×5.3	26	5×5.3	30
10	100			3×5.3	14	4×5.3	26	4×5.3	26	5×5.3	44	5×5.3	44	5×5.3	44		
22	220	3×5.3	14	4×5.3	26	5×5.3	44	4×5.3	30	5×5.3	44	5×5.3	47	6.3×5.3	59	8×10	139
						5×5.3	50	5×5.3	44	6.3×5.3	59	6.3×5.3	59	6.3×7.7	65		
33	330	4×5.3	31	4×5.3	31	4×5.3	31	5×5.3	55	5×5.3	55	6.3×5.3	67	6.3×7.7	75	8×10	139
						5×5.3	50	5×5.3	55	6.3×5.3	67	6.3×7.7	85				
47	470	4×5.3	34	4×5.3	37	6.3×5.3	75	5×5.3	55	6.3×5.3	75	6.3×7.7	98	6.3×7.7	98	10×10	226
					5×5.3	50		6.3×5.3	75	6.3×7.7	98			8×10	190		
68	680	5×5.3	58	5×5.3	58	6.3×5.3	89	6.3×5.3	89	6.3×7.7	109	6.3×7.7	109	8×10	190	10×10	226
					6.3×5.3	89		6.3×5.3	89								
100	101	5×5.3	58	6.3×5.3	89	6.3×5.3	89	6.3×5.3	89	6.3×7.7	109	8×10	252	8×10	190	10×10	226
		6.3×5.3	89			6.3×7.7	109	6.3×7.7	109								
220	221	6.3×5.3	89	6.3×5.3	89	6.3×7.7	124	6.3×7.7	124	8×10	252	8×10	252	10×10	320	12.5×13.5	500
		6.3×7.7	124	6.3×7.7	124	8×10	252	8×10	252			10×10	400				
330	331	6.3×7.7	124	6.3×7.7	124	8×10	252	8×10	252	10×10	400	10×10.3	400	12.5×13.5	600	12.5×16	600
470	471	8×10	252	8×10	252	10×10	400	10×10	400	10×10	400	12.5×13.5	750	12.5×16	740	16×16.5	850
1,000	102			10×10	430	10×10	430	12.5×13.5	750	12.5×13.5	750	16×16.5	1,100				
2,200	222			12.5×13.5	890	12.5×13.5	890	16×16.5	1100	16×16.5	1100						
3,300	332			12.5×16	1,000	16×16.5	1,300	16×16.5	1300								
4,700	472			16×16.5	1,400	16×16.5	1,400										
6,800	682																

V. DC $\mu\text{F}$	Contents	100V (2A)		160V (2C)		200V (2D)		250V (2E)		400V (2G)		450V (2W)	
		$\phi D \times L$	mA	$\phi D \times L$	mA	$\phi D \times L$	mA	$\phi D \times L$	mA	$\phi D \times L$	mA	$\phi D \times L$	mA
4.7	4R7									12.5×13.5	120	12.5×13.5	120
10	100	8×10	90					12.5×13.5	150	12.5×13.5	120	12.5×16	130
22	220	8×10	90			12.5×13.5	240	12.5×13.5	150	16×16.5	140	16×16.5	140
33	330	10×10	120	12.5×13.5	290	12.5×16	310	12.5×16	240	16×16.5	140		
47	470	10×10	120	12.5×16	370	16×16.5	420	16×16.5	340				
68	680	12.5×13.5	380	16×16.5	500	16×16.5	420						
100	101	12.5×13.5	440										
220	221	16×16.5	600										