

## VE Series

### Features

- 3  $\phi$  ~ 18  $\phi$ , 85°C, 2,000 hours assured
- Chip type large capacitance capacitors
- Designed for surface mounting on high density PC board
- RoHS Compliance



Marking color: Black

### Specifications

Items	Performance													
Category Temperature Range	-40°C ~ +85°C													
Capacitance Tolerance	±20% (at 120Hz, 20°C)													
Leakage Current (at 20°C)	Rated Voltage	6.3 ~ 100V												
	Time	after 2 minutes												
	Case size	3 ~ 10 $\phi$ 12.5 ~ 18 $\phi$ 12.5 ~ 18 $\phi$												
	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														
Tan $\delta$ (at 120Hz, 20°C)	Rated Voltage	4    6.3    10    16    25    35    50    63    100    160 ~ 250    400 ~ 450												
	3 ~ 10 $\phi$ 12.5 ~ 18 $\phi$	0.42    0.28    0.24    0.20    0.14    0.12    0.10    0.10    0.10    0.10    -    -												
When the capacitance exceeds 1,000 $\mu$ F, 0.02 shall be added every 1,000 $\mu$ F increase.														
Low Temperature Characteristics (at 120Hz)	Impedance ratio shall not exceed the values given in the table below.													
	Impedance Ratio	Rated Voltage		4.0	6.3	10	16	25	35	50	63	100	160 ~ 250	400 ~ 450
		Z(-25°C)	$\phi$ D < 12.5	7	4	4	3	2	2	2	2	2	-	-
		/Z(+20°C)	$\phi$ D $\geq$ 12.5	-	5	5	4	2	2	2	2	2	3	6
Z(-40°C)		$\phi$ D < 12.5	15	8	5	4	3	3	3	3	3	-	-	
/Z(+20°C)	$\phi$ D $\geq$ 12.5	-	14	12	10	5	4	3	3	3	6	10		
Endurance	Test Time	2,000 Hrs												
	Capacitance Change	Within ±20% of initial value (4V: ±30%)												
	Tan $\delta$	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 hours at 85°C.														
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	Freq. (Hz)		50	120	1k	10k up								
	Cap. ( $\mu$ F)	Under 1,000	0.80	1.00	1.25	1.40								
	1,000 < C $\leq$ 10,000	0.85	1.00	1.15	1.25									

### Diagram of Dimensions

Fig. 1

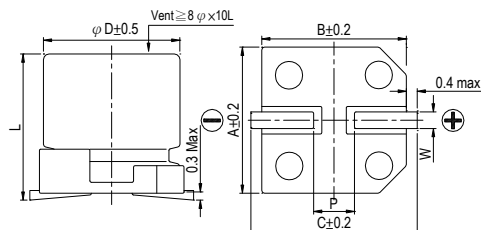
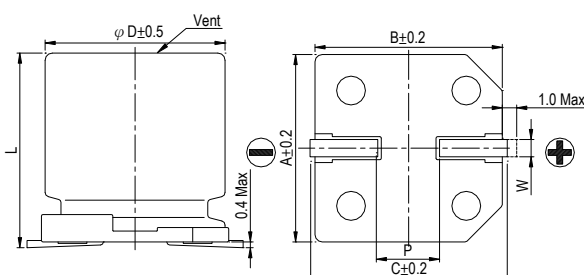


Fig. 2



### 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	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	6.5 ± 0.3	8.4	8.4	9.0	0.5 ~ 0.8	2.3	1
8	10 ± 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
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

