VEJ Series

Features
- 4φ ~ 18φ, 105℃, 2,000 hours assured
- Designed for surface mounting on high density PC board
- RoHS compliance
- AEC-Q200 qualified

Marking color: Black

Specifications

Items	Performance		
Category Temperature Range	6.3 ~ 100V	160 ~ 400V	450V
	-55℃ ~ +105℃	-40℃ ~ +105℃	-25℃ ~ +105℃
Capacitance Tolerance	±20% (at 120 Hz, 20℃)		

Leakage Current (at 20℃)

Rated voltage	6.3 ~ 100V		160 ~ 450V
Time	after 2 minutes		after 5 minutes
Case size	4 ~ 10φ	12.5 ~ 18φ	12.5 ~ 18φ
Leakage Current	I = 0.01CV or 3μA, whichever is greater	I = 0.03CV or 4μA, whichever is greater	I = 0.04CV + 100μA

Where, C = rated capacitance in μF, V = rated DC working voltage in V

Tanδ (at 120 Hz, 20℃)

Rated Voltage	6.3	10	16	25	35	50	63	100	160 ~ 250	400 ~ 450
4 ~ 10φ	0.45	0.35	0.28	0.18	0.16	0.14	0.12	0.12	-	-
12.5 ~ 18φ	0.40	0.38	0.34	0.26	0.22	0.18	0.14	0.10	0.20	0.25

When the capacitance exceeds 1,000μF, 0.02 shall be added every 1,000μF increase.

Low Temperature Characteristics (at 120 Hz)

Impedance ratio shall not exceed the values given in the table below.

Rated Voltage			6.3	10	16	25	35	50	63	100	160	200	250	400	450
Impedance Ratio	Z(-25℃) /Z(+20℃)	φD<12.5	4	4	3	2	2	2	2	3	-	-	-	-	-
		φD≧12.5	5	4	3	2	2	2	2	2	3	3	3	6	6
	Z(-55/-40℃) /Z(+20℃)	φD<12.5	12	8	6	4	3	3	3	4	-	-	-	-	-
		φD≧12.5	10	8	6	4	3	3	3	3	6	6	6	10	-

Note: The ratio value with " * " is only available for 400V.

Endurance

Test Time	2,000 Hrs
Capacitance Change	Within ±25% of initial value for φD ≦ 6.3 mm; Within ±20% of initial value for φD ≧ 8 mm
Tanδ	Less than 300% of specified value for φD ≦ 6.3 mm; Less than 200% of specified value for φD ≧ 8 mm
Leakage Current	Within specified value

* The above specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage applied for 2,000 hours at 105℃.

Shelf Life Test

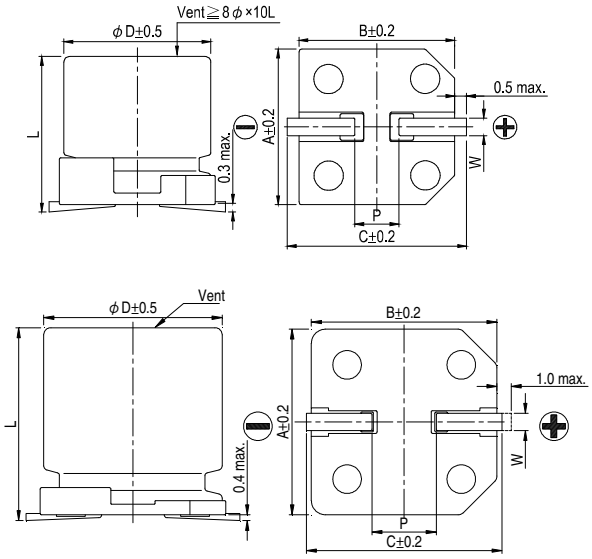
Test time: 1,000 hours; other items are the same as those for the Endurance.
The rated voltage shall be applied to the capacitors before the measurements for 160 ~ 450V (Refer to JIS C 5101-4 4.1).

Ripple Current and Frequency Multipliers

Cap. (μF) \ Freq. (Hz)	50	120	1k	10k up
≦ 1,000	0.80	1.00	1.25	1.40
1,000 < C ≦ 8,200	0.85	1.00	1.15	1.25

Diagram of Dimensions

Fig. 1

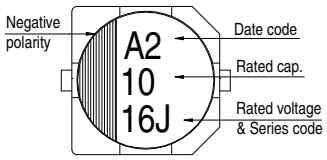


Lead Spacing and Diameter Unit: mm

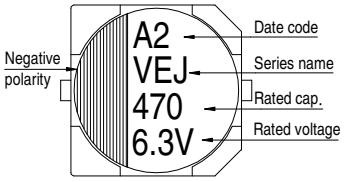
φD	L	A	B	C	W	P ± 0.2	Fig. No.
4	5.7 ± 0.3	4.3	4.3	5.1	0.5 ~ 0.8	1.0	1
5	5.7 ± 0.3	5.3	5.3	5.9	0.5 ~ 0.8	1.5	1
6.3	5.7 ± 0.3	6.6	6.6	7.2	0.5 ~ 0.8	2.0	1
6.3	7.7 ± 0.3	6.6	6.6	7.2	0.5 ~ 0.8	2.0	1
8	6.5 ± 0.3	8.3	8.3	9.0	0.5 ~ 0.8	2.3	1
8	10 ± 0.5	8.3	8.3	9.0	0.7 ~ 1.1	3.1	1
10	7.7 ± 0.3	10.3	10.3	11.0	0.7 ~ 1.3	4.7	1
10	10 ± 0.5	10.3	10.3	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

Marking

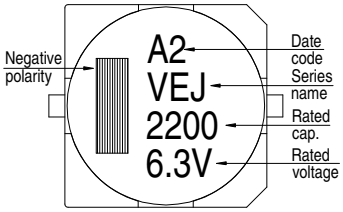
ϕD ≦ 6.3 mm



ϕD = 8 ~ 10 mm



ϕD ≧ 12.5 mm



Dimension: ϕD × L(mm)

Dimension and Permissible Ripple Current

Ripple Current: mA/rms at 120 Hz, 105℃

Rated Volt. (VDC) / Cap. (μF)	Contents	6.3V (0J)		10V (1A)		16V (1C)		25V (1E)		35V (1V)		50V (1H)		63V (1J)		100V (2A)	
		ϕD×L	mA	ϕD×L	mA	ϕD×L	mA	ϕD×L	mA	ϕD×L	mA	ϕD×L	mA	ϕD×L	mA	ϕD×L	mA
1	010											4×5.7	8	4×5.7	8		
2.2	2R2											4×5.7	12	4×5.7	12		
3.3	3R3											4×5.7	14	5×5.7	17		
4.7	4R7							4×5.7	17	4×5.7	17	5×5.7	20	6.3×5.7	22		
10	100					4×5.7	20	4×5.7	20	5×5.7	27	6.3×5.7	32	6.3×5.7 8×6.5	32 51		
22	220	4×5.7	22	4×5.7	22	5×5.7	30	5×5.7	30	6.3×5.7	44	6.3×5.7 8×6.5	38 67	6.3×7.7	58	8×10	100
33	330	5×5.7	34	5×5.7	34	5×5.7	34	6.3×5.7	46	6.3×5.7 8×6.5	46 76	6.3×7.7	65	8×10	140	10×10	150
47	470	5×5.7	38	5×5.7	38	6.3×5.7	48	6.3×5.7 8×6.5	48 79	6.3×7.7	80	6.3×7.7	70	8×10	170	12.5×13.5	250
100	101	6.3×5.7	69	6.3×5.7 8×6.5	69 90	6.3×5.7	69	6.3×7.7	100	8×10	240	8×10	210	10×10	310	12.5×13.5	380
220	221	6.3×7.7 8×6.5	120 120	6.3×7.7	120	6.3×7.7	120	8×10 10×7.7	270 270	8×10	270	10×10	330	12.5×13.5	470	16×16.5	450
330	331	8×10	290	8×10	290	8×10 10×7.7	290 290	8×10	290	10×10	370	12.5×13.5	490	16×16.5	650	18×16.5 16×21.5	590 750
470	471	8×10	320	8×10 10×7.7	320 320	10×10	380	10×10	380	12.5×13.5	520	12.5×16	550	16×16.5	700	18×21.5	980
1,000	102	10×10	410	10×10	410	12.5×13.5	500	12.5×16	550	16×16.5	800	18×16.5	990				
2,200	222	12.5×13.5	680	12.5×13.5	680	16×16.5	900	16×16.5	900	18×16.5	1,050						
3,300	332	12.5×16	850	16×16.5	950	16×16.5	950	18×16.5 16×21.5	1,150 1,200								
4,700	472	16×16.5	1,000	16×16.5	1,000	18×16.5 16×21.5	1,225 1,275	18×21.5	1,300								
6,800	682	18×16.5 16×21.5	1,290 1,350	18×16.5 16×21.5	1,290 1,350												
8,200	822	18×21.5	1,450	18×21.5	1,450												

Rated Volt. (VDC) / Cap. (μF)	Contents	160V (2C)		200V (2D)		250V (2E)		400V (2G)		450V (2W)	
		ϕD×L	mA	ϕD×L	mA	ϕD×L	mA	ϕD×L	mA	ϕD×L	mA
4.7	4R7					12.5×13.5	65	12.5×13.5	45	12.5×13.5	45
10	100			12.5×13.5	80	12.5×13.5	70	12.5×13.5	50	12.5×16	75
22	220			12.5×16	110	12.5×13.5	105	16×16.5	85	16×16.5	85
33	330	12.5×13.5	95	12.5×16	120	16×16.5	180	18×16.5	100	18×16.5	100
47	470	12.5×16	205	16×16.5	220	16×16.5	220	18×21.5	130		
100	101	16×16.5	250	18×16.5	280	18×21.5	290				

Part Numbering System

VEJ Series	470μF	±20%	6.3V	Carrier Tape		8ϕ×10L	Pb-free and Coated Case
VEJ	**471**	**M**	**0J**	**TR**	**-**	**0810**	
Series Name	Capacitance	Capacitance Tolerance	Rated Voltage	Package Type	Terminal Type	Case Size	Lead Wire and Case Type

Note: For more details, please refer to “Part Numbering System - SMD Type” on page 106.