

Features

- 3 ~ 16 ϕ , 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	3 ~ 10 ϕ			12.5 ~ 16 ϕ			12.5 ~ 16 ϕ					
	Leakage Current	I = 0.01CV or 3 μ A, whichever is greater			I = 0.03CV or 4 μ A, whichever is greater			I = 0.04CV + 100 μ A					
Where, C = rated capacitance in μ F V = rated DC working voltage in V													
Dissipation Factor (Tan δ at 120Hz, 20°C)	Rated Voltage	4	6.3	10	16	25	35	50	63	100	160 ~ 250	400 ~ 450	
	3 ~ 10 ϕ	0.42	0.28	0.24	0.20	0.14	0.12	0.10	0.10	0.10	-	-	
	12.5 ~ 16 ϕ	-	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)	ϕ D < 12.5	7	4	4	3	2	2	2	2	-	-
		/Z(+20°C)	ϕ D \geq 12.5	-	5	5	4	2	2	2	2	3	6
	Z(-40°C)	ϕ D < 12.5	15	8	5	4	3	3	3	3	-	-	
	/Z(+20°C)	ϕ D \geq 12.5	-	14	12	10	5	4	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 hours at 85°C.													
Shelf Life Test	Test time: 1,000 hours; 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 4.1).												
Ripple Current & Frequency Multipliers	Freq.(Hz)		50	120	1K	10K up							
	Cap. (μ F)	Under 1,000	0.80	1.00	1.25	1.40							
		1,000 < C \leq 4,700	0.85	1.00	1.15	1.25							

DIAGRAM OF DIMENSIONS

Fig. 1

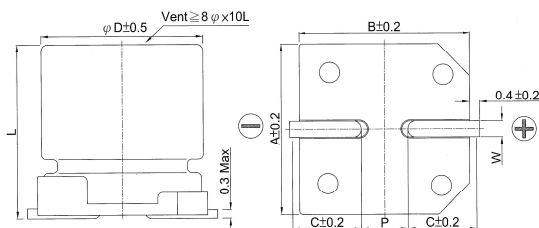
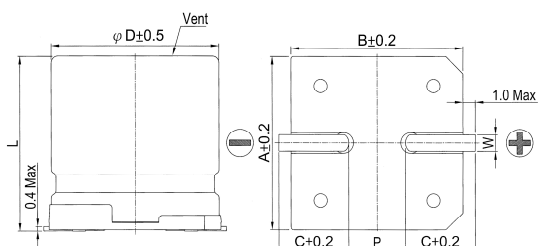


Fig. 2



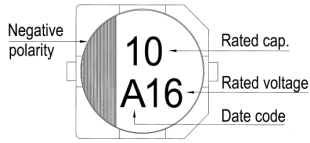
LEAD SPACING AND DIAMETER

Unit: mm

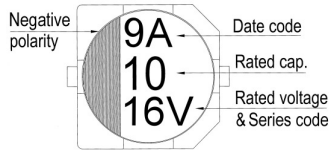
ϕ D	L	A	B	C	W	P ± 0.2	Fig. No.
3	5.3 ± 0.2	3.3	3.3	1.5	0.45 ~ 0.75	0.8	1
4	5.3 ± 0.2	4.3	4.3	2.0	0.5 ~ 0.8	1.0	1
5	5.3 ± 0.2	5.3	5.3	2.3	0.5 ~ 0.8	1.5	1
6.3	5.3 ± 0.2	6.6	6.6	2.7	0.5 ~ 0.8	2.0	1
6.3	7.7 ± 0.3	6.6	6.6	2.7	0.5 ~ 0.8	2.0	1
8	10 ± 0.5	8.4	8.4	3.0	0.7 ~ 1.1	3.1	1
8	10.3 ± 0.5	8.4	8.4	3.0	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

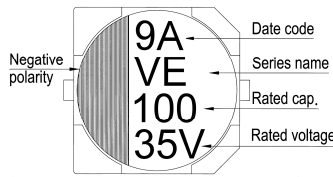
$\phi D = 3 \text{ mm}$



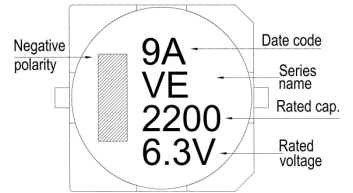
$\phi D = 4 \sim 6.3 \text{ mm}$



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



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



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

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

DIMENSION & PERMISSIBLE RIPPLE CURRENT

μF	V. DC 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													4x5.3	3	4x5.3	2
0.22	R22													4x5.3	5	4x5.3	3
0.33	R33													4x5.3	6	4x5.3	4
0.47	R47													4x5.3	7	4x5.3	5
1	010													4x5.3	10	4x5.3	8
2.2	2R2													4x5.3	14	4x5.3	12
3.3	3R3									3x5.3	14	3x5.3	14	4x5.3	17	5x5.3	22
4.7	4R7					3x5.3	14	3x5.3	14	4x5.3	26	4x5.3	26	4x5.3	20	5x5.3	25
10	100			3x5.3	16	4x5.3	26	4x5.3	26	5x5.3	44	5x5.3	44	5x5.3	35	6.3x5.3	40
22	220	3x5.3	16	4x5.3	26	5x5.3	44	4x5.3	30	5x5.3	47	5x5.3	47	6.3x5.3	50	8x10	139
33	330	4x5.3	31	4x5.3	31	4x5.3	31	5x5.3	55	5x5.3	55	6.3x5.3	67	6.3x7.7	75	8x10	139
47	470	4x5.3	34	4x5.3	34	6.3x5.3	75	5x5.3	55	6.3x5.3	75	6.3x7.7	98	6.3x7.7	75	10x10	200
68	680	5x5.3	58	5x5.3	58	6.3x5.3	89	6.3x5.3	89	6.3x7.7	109	6.3x7.7	109	8x10	190	10x10	226
100	101	5x5.3	58	6.3x5.3	89	6.3x5.3	89	6.3x5.3	89	6.3x7.7	109	6.3x7.7	109	8x10	190	10x10	226
220	221	6.3x5.3	89	6.3x5.3	89	6.3x7.7	124	6.3x7.7	124	8x10	270	8x10	270	10x10	320	12.5x13.5	500
330	331	6.3x7.7	124	6.3x7.7	124	8x10	290	8x10	290	10x10	400	10x10.3	400	12.5x13.5	600	12.5x16	600
470	471	8x10	290	8x10	290	10x10	400	10x10	400	10x10	400	12.5x13.5	750	12.5x16	740	16x16.5	850
1,000	102			10x10	430	10x10	430	12.5x13.5	750	12.5x13.5	750	16x16.5	1,100				
2,200	222			12.5x13.5	890	12.5x13.5	890	16x16.5	1,100	16x16.5	1,100						
3,300	332			12.5x16	1,000	16x16.5	1,300	16x16.5	1,300								
4,700	472			16x16.5	1,400	16x16.5	1,400										

μF	V. DC 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									12.5x13.5	120	12.5x13.5	120
10	100	8x10	90					12.5x13.5	150	12.5x13.5	120	12.5x16	130
22	220	8x10	90			12.5x13.5	240	12.5x13.5	150	16x16.5	140	16x16.5	140
33	330	10x10	120	12.5x13.5	290	12.5x16	310	12.5x16	240	16x16.5	140		
47	470	10x10	120	12.5x16	370	16x16.5	420	16x16.5	340				
68	680	12.5x13.5	380	16x16.5	500	16x16.5	420						
100	101	12.5x13.5	440										
220	221	16x16.5	600										