Features

- 6.3φ ~ 18φ, 125℃, 2,000 ~ 4,000 hours assured
- Low impedance capacitors
- Chip type high temperature range, for +125℃ use
- For automobile modules and other high temperature applications
- RoHS compliance and AEC-Q200 qualified

Marking color: Black

Specifications

Items	Performance
Category Temperature Range	-40℃ ~ +125℃
Capacitance Tolerance	±20% (at 120 Hz, 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
Tanδ (at 120 Hz, 20℃)	When the capacitance exceeds 1,000 μF, 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.
Endurance	* The above specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage applied for 2,000 ~ 4,000 hours at 125℃.
Shelf Life Test	* The above specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 125℃ without voltage applied.
Ripple Current and Frequency Multipliers	

Tanδ (at 120 Hz, 20℃)

Rated Voltage	10	16	25	35	50	63	80	100
Tanδ (max)	0.30	0.23	0.18	0.16	0.16	0.12	0.12	0.10

Low Temperature Characteristics (at 120 Hz)

Rated Voltage		10	16	25	35	50	63	80	100
Impedance Ratio	Z(-40℃) / Z(+20℃)	12	8	6	4	4	3	3	3

Endurance

Test Time	2,000 Hrs for φD = 6.3 mm 3,000 Hrs for φD = 8 ~ 12.5 mm 3,500 Hrs for 16 ~ 18φ × 16.5L 4,000 Hrs for 16 ~ 18φ × 21.5L
Capacitance Change	Within ±30% of initial value
Tanδ	Less than 300% of specified value
Leakage Current	Within specified value

Shelf Life Test

Test Time	1,000 Hrs
Capacitance Change	Within ±30% of initial value
Tanδ	Less than 300% of specified value
Leakage Current	Within specified value

Ripple Current and Frequency Multipliers

Frequency (Hz)	50	120	300	1k	10k up
Multiplier	0.35	0.50	0.64	0.83	1.0

Diagram of Dimensions

Fig. 1

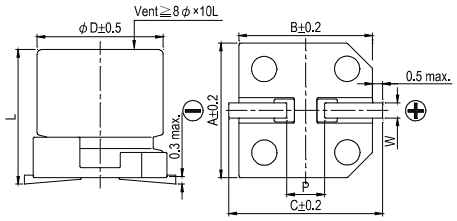
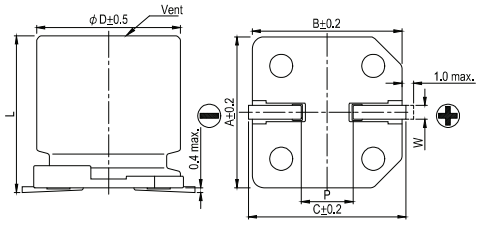


Fig. 2



Lead Spacing and Diameter Unit: mm

φD	L	A	B	C	W	P ± 0.2	Fig. No.
6.3	7.7 ± 0.3	6.6	6.6	7.2	0.5 ~ 0.8	2.0	1
8	10 ± 0.5	8.3	8.3	9.0	0.7 ~ 1.1	3.1	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
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

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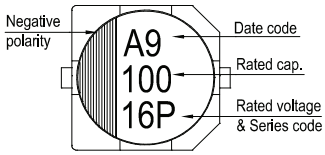
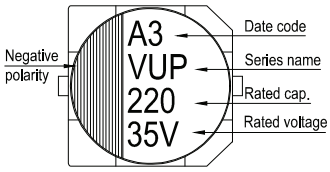
Marking

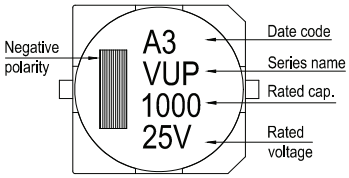
ϕD = 6.3 mm



ϕD = 8 ~ 10 mm



ϕD ≧ 12.5 mm



Dimension: ϕD × L(mm)
Ripple Current: mA/rms at 100k Hz, 125℃
Impedance: Ω/ at 100k Hz, 20℃

Dimension and Permissible Ripple Current

Rated Volt. (Vdc) / Cap. (μF)	Contents	10V (1A)			16V (1C)			25V (1E)			35V (1V)			50V (1H)			63V (1J)		
		ϕD×L	Imp.	mA	ϕD×L	Imp.	mA	ϕD×L	Imp.	mA	ϕD×L	Imp.	mA	ϕD×L	Imp.	mA	ϕD×L	Imp.	mA
10	100																6.3×7.7	2.0	60
22	22													6.3×7.7	0.5	197	8×10	0.7	100
33	330										6.3×7.7	0.5	197	6.3×7.7 8×10	0.5 0.2	197 270	8×10 10×10	0.7 0.5	100 170
47	470										6.3×7.7 8×10	0.5 0.2	197 270	8×10	0.2	270	8×10 10×10	0.7 0.5	100 170
82	820													8×10	0.2	270			
100	101				6.3×7.7 8×10	0.5 0.2	197 270	6.3×7.7 8×10	0.5 0.2	197 270	8×10	0.2	270						
150	151																12.5x13.5	0.2	1,000
180	181																12.5x13.5	0.2	1,000
220	221	8×10	0.2	270	8×10	0.2	270	8×10 10×10	0.2 0.15	270 500	10×10	0.15	500				12.5x13.5	0.2	1,000
330	331	8×10 10×10	0.2 0.15	270 500	10×10	0.15	500	10×10	0.15	500									
390	391																16x16.5	0.13	1,900
470	471	10×10	0.15	500	10×10	0.15	500				12.5x13.5	0.08	1700	16x16.5	0.08	2,000	18x16.5	0.11	2,000
560	561										12.5x13.5	0.08	1,700	16x16.5	0.08	2,000	16x21.5	0.07	2,500
680	681										12.5x13.5	0.08	1,700	18x16.5	0.078	2,100			
750	751																18x21.5	0.068	2,600
820	821							12.5x13.5	0.08	1,700	16x16.5	0.05	2,400	18x16.5	0.078	2,100			
1,000	102							12.5x13.5	0.08	1,700	16x16.5	0.05	2,400	16x21.5	0.04	2,800			
1,200	122							16x16.5	0.05	2,400	18x16.5	0.045	2,600	18x21.5	0.038	2,900			
1,400	142										18x16.5	0.045	2,600						
1,600	162							16x16.5	0.05	2,400	16x21.5	0.038	3,000						
2,200	222							18x16.5	0.045	2,600	18x21.5	0.032	3,250						
2,700	272							16x21.5	0.038	3,000									
3,300	332							18x21.5	0.032	3,250									

Rated Volt. (Vdc) / Cap. (μF)	Contents	80V (1K)			100V (2A)		
		ϕD×L	Imp.	mA	ϕD×L	Imp.	mA
10	100	8×10	0.75	70	8×10	0.75	70
22	22	8×10 10×10	0.75 0.55	70 115	8×10 10×10	0.75 0.55	70 115
33	330	8×10 10×10	0.75 0.55	70 115	10×10	0.55	115
47	470	10×10	0.55	115			
82	820				12.5x13.5	0.28	700
150	151	12.5x13.5	0.28	700	16x16.5	0.19	1,000
180	181				18x16.5	0.17	1,100
220	221				16x21.5	0.12	1,600
270	271	16x16.5	0.19	1,000			
300	301				18x21.5	0.11	1,700
330	331	18x16.5	0.17	1,100			
390	391	16x21.5	0.12	1,600			
520	521	18x21.5	0.11	1,700			

Part Numbering System

VUP series	100μF	±20%	16V	Carrier Tape		6.3ϕ×7.7L	
VUP	**101**	**M**	**1C**	**TR**	**-**	**0607**	**xx**
Series name	Capacitance	Capacitance Tolerance	Rated Voltage	Package Type	Terminal Type	Case Size	

S = Standard
KS = AEC-Q200 Qualified, Safety Critical Application
LS = AEC-Q200 Qualified, Non-Safety Critical Application

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