

VUP Series

Features

- 6.3φ ~ 18φ, 125°C, 2,000 ~ 4,000 hours assured
- Low impedance capacitors
- Chip type high temperature range, for +125°C use
- For automobile modules and other high temperature applications
- RoHS compliant,
- AEC-Q200 compliant parts available (replace "S" Suffix with "KS")



Marking color: Black

Specifications

Items	Performance																																												
Category Temperature Range	-40°C ~ +125°C																																												
Capacitance Tolerance	± 20% (at 120 Hz, 20°C)																																												
Leakage Current (at 20°C)	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°C)	<table><tr><td>Rated Voltage</td><td>10</td><td>16</td><td>25</td><td>35</td><td>50</td><td>63</td><td>80</td><td>100</td></tr><tr><td>Tanδ (max.)</td><td>0.30</td><td>0.23</td><td>0.18</td><td>0.16</td><td>0.16</td><td>0.12</td><td>0.12</td><td>0.10</td></tr></table>									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																		
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Tanδ (max.)	0.30	0.23	0.18	0.16	0.16	0.12	0.12	0.10																																					
	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.																																												
	<table><tr><td>Rated Voltage</td><td>10</td><td>16</td><td>25</td><td>35</td><td>50</td><td>63</td><td>80</td><td>100</td></tr><tr><td>Impedance Ratio Z(-40°C) / Z(+20°C)</td><td>12</td><td>8</td><td>6</td><td>4</td><td>4</td><td>3</td><td>3</td><td>3</td></tr></table>									Rated Voltage	10	16	25	35	50	63	80	100	Impedance Ratio Z(-40°C) / Z(+20°C)	12	8	6	4	4	3	3	3																		
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Endurance	<table><tr><td>Test Time</td><td colspan="8">2,000 Hrs for ϕ D = 6.3 mm 3,000 Hrs for ϕ D = 8 ~ 12.5 mm 3,500 Hrs for 16 ~ 18 ϕ × 16.5L 4,000 Hrs for 16 ~ 18 ϕ × 21.5L</td></tr><tr><td>Capacitance Change</td><td colspan="8">Within ± 30% of initial value</td></tr><tr><td>Tanδ</td><td colspan="8">Less than 300% of specified value</td></tr><tr><td>Leakage Current</td><td colspan="8">Within specified value</td></tr></table>									Test Time	2,000 Hrs for ϕ D = 6.3 mm 3,000 Hrs for ϕ D = 8 ~ 12.5 mm 3,500 Hrs for 16 ~ 18 ϕ × 16.5L 4,000 Hrs for 16 ~ 18 ϕ × 21.5L								Capacitance Change	Within ± 30% of initial value								Tanδ	Less than 300% of specified value								Leakage Current	Within specified value							
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* The above specifications shall be satisfied when the capacitors are restored to 20°C after the rated voltage applied for 2,000 ~ 4,000 hours at 125°C.																																													
Shelf Life Test	<table><tr><td>Test Time</td><td colspan="8">1,000 Hrs</td></tr><tr><td>Capacitance Change</td><td colspan="8">Within ± 30% of initial value</td></tr><tr><td>Tanδ</td><td colspan="8">Less than 300% of specified value</td></tr><tr><td>Leakage Current</td><td colspan="8">Within specified value</td></tr></table>									Test Time	1,000 Hrs								Capacitance Change	Within ± 30% of initial value								Tanδ	Less than 300% of specified value								Leakage Current	Within specified value							
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Leakage Current	Within specified value																																												
* The above specifications shall be satisfied when the capacitors are restored to 20°C after exposing them for 1,000 hours at 125°C without voltage applied.																																													
Ripple Current and Frequency Multipliers	<table><tr><td>Frequency (Hz)</td><td>50</td><td>120</td><td>300</td><td>1k</td><td>10k up</td></tr><tr><td>Multiplier</td><td>0.35</td><td>0.50</td><td>0.64</td><td>0.83</td><td>1.0</td></tr></table>									Frequency (Hz)	50	120	300	1k	10k up	Multiplier	0.35	0.50	0.64	0.83	1.0																								
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Diagram of Dimensions

Fig. 1

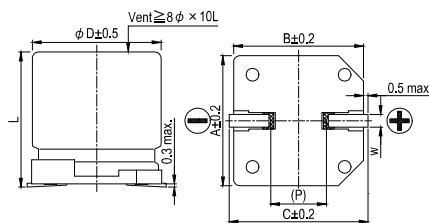
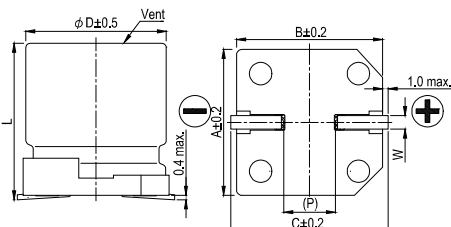


Fig. 2



Lead Spacing and Diameter

Unit: mm

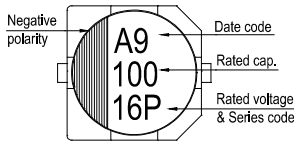
φ D	L	A	B	C	W	P	Fig. No.
6.3	7.7 ± 0.3	6.6	6.6	7.2	0.5 ~ 0.8	2.0	1
8	10 ± 0.5	8.3	8.3	9.0	0.7 ~ 1.1	3.1	1
10	10 ± 0.5	10.3	10.3	11.0	0.7 ~ 1.1	4.7	1
12.5	13.5 ± 0.5	13.0	13.0	13.7	1.1 ~ 1.4	4.4	2
16	16.5 ± 0.5	17.0	17.0	18.0	1.1 ~ 1.4	6.4	2
16	21.5 ± 0.5	17.0	17.0	18.0	1.1 ~ 1.4	6.4	2
18	16.5 ± 0.5	19.0	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

The diagram is marking " () " for reference dimension.

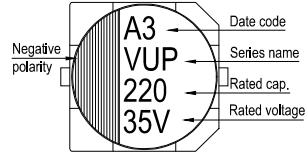
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Marking

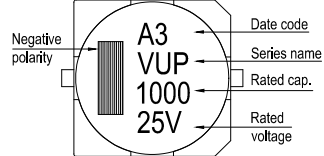
$\phi D = 6.3 \text{ mm}$



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



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



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

Ripple Current: mA/rms at 100k Hz, 125°C

Impedance: Ω / at 100k Hz, 20°C

Dimension and Permissible Ripple Current

Rated Volt. (V _{DC})	10V (1A)			16V (1C)			25V (1E)			35V (1V)			50V (1H)			63V (1J)		
Cap. (μF) Contents	φ D×L	Imp.	mA	φ D×L	Imp.	mA	φ D×L	Imp.	mA	φ D×L	Imp.	mA	φ D×L	Imp.	mA	φ D×L	Imp.	mA
10 100																6.3×7.7	2.0	60
22 220													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	0.5	197	8×10	0.7	100
													8×10	0.25	270	10×10	0.5	170
47 470										6.3×7.7	0.5	197	8×10	0.25	270	8×10	0.7	100
										8×10	0.2	270				10×10	0.5	170
82 820													10×10	0.2	500			
100 101				6.3×7.7	0.5	197	6.3×7.7	0.5	197	8×10	0.2	270						
				8×10	0.2	270	8×10	0.2	270									
150 151																12.5×13.5	0.2	1,000
180 181																12.5×13.5	0.2	1,000
220 221	8×10	0.2	270	8×10	0.2	270	8×10	0.2	270	10×10	0.15	500				12.5×13.5	0.2	1,000
330 331	8×10	0.2	270	10×10	0.15	500	10×10	0.15	500									
	10×10	0.15	500															
390 391																16×16.5	0.13	1,900
470 471	10×10	0.15	500	10×10	0.15	500				12.5×13.5	0.08	1,700	16×16.5	0.08	2,000	18×16.5	0.11	2,000
560 561										12.5×13.5	0.08	1,700	16×16.5	0.08	2,000	16×21.5	0.07	2,500
680 681										12.5×13.5	0.08	1,700	18×16.5	0.078	2,100			
																18×21.5	0.068	2,600
750 751																		
820 821							12.5×13.5	0.08	1,700	16×16.5	0.05	2,400	18×16.5	0.078	2,100			
1,000 102							12.5×13.5	0.08	1,700	16×16.5	0.05	2,400	16×21.5	0.04	2,800			
1,200 122							16×16.5	0.05	2,400	18×16.5	0.045	2,600	18×21.5	0.038	2,900			
1,400 142										18×16.5	0.045	2,600						
1,600 162							16×16.5	0.05	2,400	16×21.5	0.038	3,000						
2,200 222							18×16.5	0.045	2,600	18×21.5	0.032	3,250						
2,700 272							16×21.5	0.038	3,000									
3,300 332							18×21.5	0.032	3,250									

Rated Volt. (Vdc)		80V (1K)			100V (2A)		
Cap. (μF)	Contents	φ D×L	Imp.	mA	φ D×L	Imp.	mA
10	100	8×10	0.75	70	8×10	0.75	70
22	22	8×10	0.75	70	8×10	0.75	70
		10×10	0.55	115	10×10	0.55	115
33	330	8×10	0.75	70			
		10×10	0.55	115	10×10	0.55	115
47	470	10×10	0.55	115			
82	820						
					12.5×13.5	0.28	700
150	151	12.5×13.5	0.28	700	16×16.5	0.19	1,000
180	181				18×16.5	0.17	1,100
220	221				16×21.5	0.12	1,600
270	271	16×16.5	0.19	1,000			
300	301				18×21.5	0.11	1,700
330	331	18×16.5	0.17	1,100			
390	391	16×21.5	0.12	1,600			
520	521	18×21.5	0.11	1,700			

Part Numbering System

VUP series	100μF	± 20%	16V	Carrier Tape	6.3 ϕ × 7.7L	Regional Tracking Purpose
VUP	101	M	1C	IR	-	0607
Series Name	Capacitance	Capacitance Tolerance	Rated Voltage	Package Type	Terminal Type	Case Size
						S

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

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