Features

- 8φ ~ 18φ, 135℃, 2,000 hours assured
- Chip type, high temperature range, for +135°C use
- For automobile modules and high temperature applications
- RoHS Compliance
- AEC-Q200 qualified

Marking color: Black

Specifications

Items	Performance
Category Temperature Range	-40℃ ~ +135℃
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℃)	Rated Voltage: 10 / 16 / 25 / 35 / 50 Tanδ (max): 0.30 / 0.23 / 0.18 / 0.16 / 0.16 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: 10 / 16 / 25 / 35 / 50 Impedance Ratio Z(-40℃)/Z(+20℃): 12 / 8 / 6 / 4 / 4
Endurance	Test Time: 2,000 Hrs Capacitance Change: Within ±30% of initial value Tanδ: Less than 300% of specified value 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 135℃.
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 * The above specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 135℃ without voltage applied.
Ripple Current and Frequency Multipliers	Frequency(Hz): 50 / 120 / 1k / 10k up Multiplier: 0.35 / 0.50 / 0.83 / 1.0

Diagram of Dimensions

Fig. 1

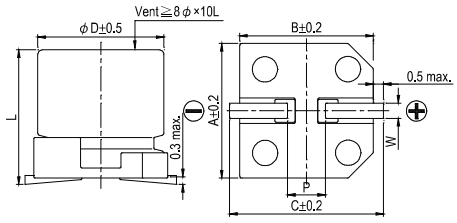
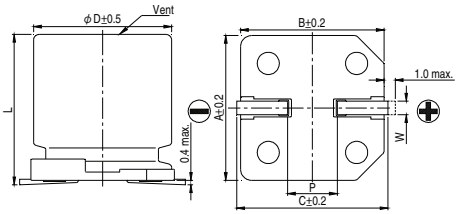


Fig. 2



Lead Spacing and Diameter Unit: mm

φD	L	A	B	C	W	P ± 0.2	Fig. No.
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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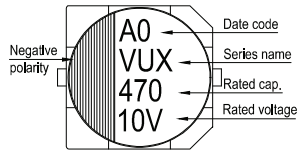
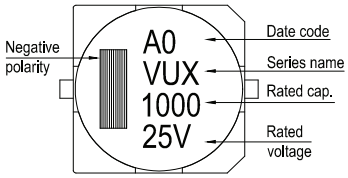
Marking

ϕD = 8 ~ 10 mm



ϕD ≧ 12.5 mm



Dimension: ϕD × L(mm)
Ripple Current: mA/rms at 100k Hz, 135℃
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)		
		ϕD×L	Imp.	mA	ϕD×L	Imp.	mA	ϕD×L	Imp.	mA	ϕD×L	Imp.	mA	ϕD×L	Imp.	mA
47	470										8×10	0.20	270	8×10	0.30	270
68	680										8×10	0.20	270			
100	101				8×10	0.20	270	8×10	0.20	270	8×10	0.20	270	10×10	0.25	500
220	221	8×10	0.20	270	8×10	0.20	270	10×10	0.15	500	10×10	0.15	500			
330	331	8×10 10×10	0.20 0.15	270 500	10×10	0.15	500	10×10	0.15	500						
470	471	10×10	0.15	500	10×10	0.15	500				12.5×13.5	0.08	750	16×16.5	0.075	1,000
560	561										12.5×13.5	0.08	750	16×16.5	0.075	1,000
680	681										16×16.5	0.06	1,200	18×16.5	0.075	1,200
820	821							12.5×13.5	0.08	750	16×16.5	0.06	1,200	18×16.5	0.075	1,200
1,000	102							12.5×13.5	0.08	750	16×16.5	0.06	1,200	16×21.5	0.06	1,600
1,200	122							16×16.5	0.06	1,200	18×16.5	0.05	1,400	18×21.5	0.04	1,900
1,500	152							16×16.5	0.06	1,200	16×21.5 18×16.5	0.04 0.05	1,900 1,400			
1,800	182							16×16.5	0.06	1,200	18×21.5	0.035	2,200			
2,200	222							18×16.5	0.05	1,400	18×21.5	0.035	2,200			
2,700	272							16×21.5	0.04	1,900						
3,300	332							18×21.5	0.035	2,200						

Part Numbering System

VUX Series	470μF	±20%	10V	Carrier Tape		10ϕ×10L	
VUX	**471**	**M**	**1A**	**TR**	**-**	**1010**	**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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