

## VH Chip Type Aluminum Electrolytic Capacitors

### Features

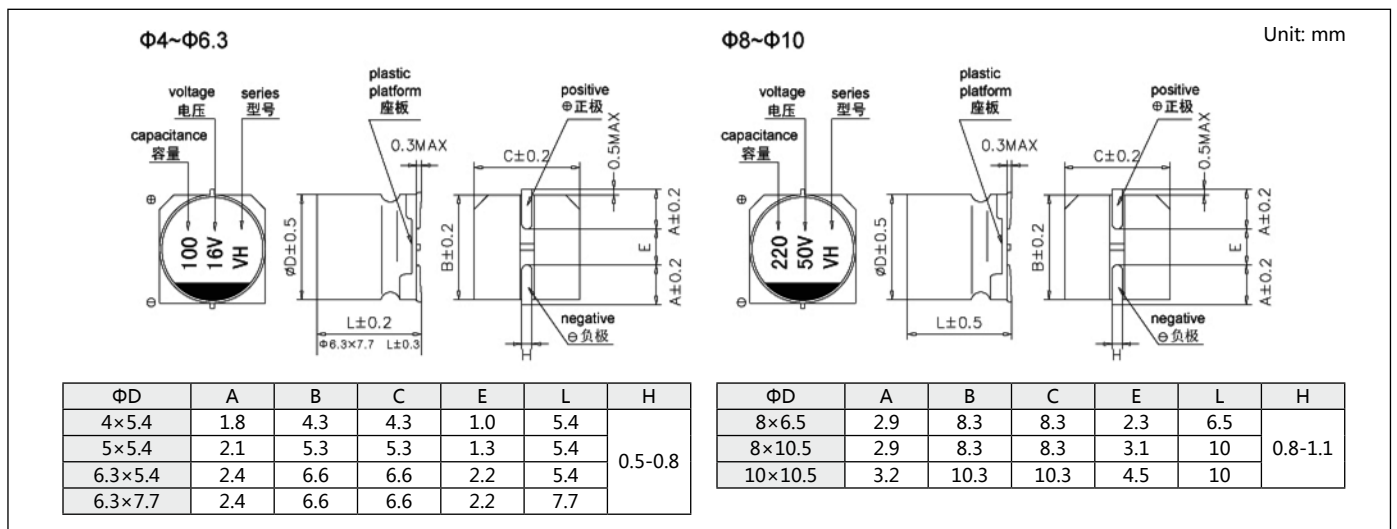
- Case diameter: Φ4mm-Φ10mm.
- Reflow soldering is available.
- Available for high density surface mounting.
- Adapted to the RoHS directive.



### Specifications

Item	Performance Characteristics																								
Operating Temperature Range	-55°C ~ +105°C																								
Rated Voltage Range	4~50V																								
Nominal Capacitance Range	0.1~1000μF																								
Nominal Capacitance Tolerance	±20%(+20°C, 120Hz)																								
Leakage Current	$I \leq 0.01C_R U_R$ or 3(μA), Whichever is greater (at 20°C, after 2 minutes) C <sub>R</sub> : Nominal capacitance(μF), U <sub>R</sub> : Rated voltage(V)																								
Dissipation Factor(Max) (tgδ, +20°C, 120Hz)	<table border="1"> <thead> <tr> <th>U<sub>R</sub>(V)</th> <th>4</th> <th>6.3</th> <th>10</th> <th>16</th> <th>25</th> <th>35</th> <th>50</th> </tr> </thead> <tbody> <tr> <td>tgδ</td> <td>0.40</td> <td>0.30</td> <td>0.24</td> <td>0.20</td> <td>0.16</td> <td>0.14</td> <td>0.14</td> </tr> </tbody> </table>	U <sub>R</sub> (V)	4	6.3	10	16	25	35	50	tgδ	0.40	0.30	0.24	0.20	0.16	0.14	0.14								
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Load Life	After 2000 hours' application of rated voltage at 105°C, the capacitor shall meet the following requirement: <table border="1"> <tbody> <tr> <td>Capacitance change</td> <td>Within ±20% of the initial value( ≤ 16V: within ±25% of the initial value)</td> </tr> <tr> <td>Dissipation factor</td> <td>Not more than 200% of the initial specified value</td> </tr> <tr> <td>Leakage current</td> <td>Not more than the initial specified value</td> </tr> </tbody> </table>	Capacitance change	Within ±20% of the initial value( ≤ 16V: within ±25% of the initial value)	Dissipation factor	Not more than 200% of the initial specified value	Leakage current	Not more than the initial specified value																		
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Shelf Life	After storage for 1000 hours at 105°C, the capacitors shall meet the requirement of load life above.																								
Low Temperature Stability Impedance Ratio(120Hz)	<table border="1"> <thead> <tr> <th>U<sub>R</sub>(V)</th> <th>4</th> <th>6.3</th> <th>10</th> <th>16</th> <th>25</th> <th>35</th> <th>50</th> </tr> </thead> <tbody> <tr> <td>Z-25°C / +20°C</td> <td>7</td> <td>4</td> <td>3</td> <td>2</td> <td>2</td> <td>2</td> <td>2</td> </tr> <tr> <td>Z-40°C / +20°C</td> <td>15</td> <td>8</td> <td>8</td> <td>4</td> <td>4</td> <td>3</td> <td>3</td> </tr> </tbody> </table>	U <sub>R</sub> (V)	4	6.3	10	16	25	35	50	Z-25°C / +20°C	7	4	3	2	2	2	2	Z-40°C / +20°C	15	8	8	4	4	3	3
U <sub>R</sub> (V)	4	6.3	10	16	25	35	50																		
Z-25°C / +20°C	7	4	3	2	2	2	2																		
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Resistance to Soldering Heat	The capacitors shall be kept on the hot plate maintained at 250°C for 30 seconds. After removing from the hot plate and restored at room temperature, they meet the following requirement: <table border="1"> <tbody> <tr> <td>Capacitance change</td> <td>Within ±10% of the initial value</td> </tr> <tr> <td>Dissipation factor</td> <td>Not more than the initial specified value</td> </tr> <tr> <td>Leakage current</td> <td>Not more than the initial specified value</td> </tr> </tbody> </table>	Capacitance change	Within ±10% of the initial value	Dissipation factor	Not more than the initial specified value	Leakage current	Not more than the initial specified value																		
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### Diagram of Dimensions



**Nominal capacitance, rated voltage, rated ripple current and case size table**

V Item Cap.(μF)	4		6.3		10		16		25		35		50	
	ΦD×L (mm)	I~ (mA)	ΦD×L (mm)	I~ (mA)	ΦD×L (mm)	I~ (mA)	ΦD×L (mm)	I~ (mA)	ΦD×L (mm)	I~ (mA)	ΦD×L (mm)	I~ (mA)	ΦD×L (mm)	I~ (mA)
0.1														
0.22														
0.33														
0.47														
1.0													4×5.4	6.3
2.2													4×5.4	11
3.3													4×5.4	14
4.7									4×5.4	13	4×5.4	16	5×5.4	19
10							4×5.4	18	5×5.4	23	5×5.4	27	6.3×5.4	30
22	4×5.4	22	4×5.4	22	5×5.4	27	5×5.4	30	6.3×5.4	38	6.3×5.4	44	6.3×7.7	51
33	5×5.4	30	5×5.4	30	5×5.4	35	6.3×5.4	40	6.3×5.4	48	6.3×7.7	59	6.3×7.7	60
47	5×5.4	36	5×5.4	36	6.3×5.4	46	6.3×5.4	50	6.3×7.7	66	6.3×7.7	80	6.3×7.7 8×6.5	63
100	6.3×5.4	60	6.3×5.4	60	6.3×5.4	60	6.3×5.4	95	6.3×7.7 8×6.5	91	6.3×7.7	100	8×10.5	230
150	6.3×5.4	86	6.3×5.4	86	6.3×7.7	86	6.3×7.7		8×10.5	240	8×10.5	260	10×10.5	250
220	6.3×7.7	102	6.3×7.7	102	6.3×7.7 8×6.5	105	6.3×7.7	105	8×10.5	320	10×10.5	450	10×10.5	375
330	6.3×7.7	105	8×10.5	290	8×10.5	290	8×10.5	290	10×10.5	450				
470	6.3×7.7	105	8×10.5	340	8×10.5	320	8×10.5	320	10×10.5	490				
680	8×10.5	340	8×10.5	340	10×10.5	392	10×10.5	470						
1000	8×10.5	340	10×10.5	495	10×10.5	550								

I~ =Rated ripple current (mA)(+105° C ,120Hz)

**Frequency coefficient of ripple current**

Frequency(Hz)	50Hz	120Hz	300Hz	1kHz	10K~100KHz
Coefficient	0.70	1.00	1.17	1.36	1.50