

# ALUMINUM ELECTROLYTIC CAPACITORS



## VW Series

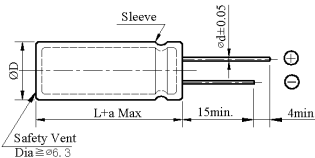
- Capacitor For Over Voltage Application
- Load life 2,000 hours at 105°C



### ◆ SPECIFICATIONS

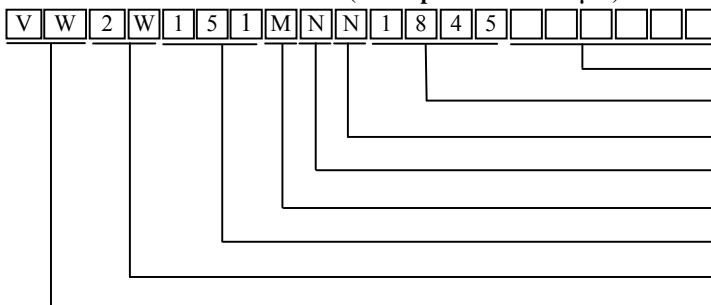
Item	Performance Characteristics												
Category Temperature Range	-25 ~ +105°C												
Working Voltage Range	160 ~ 450Vdc												
Capacitance Range	22 ~ 680 µF												
Capacitance Tolerance	±20% (at 25°C and 120Hz)												
Dissipation Factor (tanδ) (at 25°C, 120Hz)	<table border="1"> <tr> <td>Rated Voltage (V)</td> <td>160 ~ 250</td> <td>400 ~ 450</td> </tr> <tr> <td>tanδ(Max)</td> <td>0.12</td> <td>0.15</td> </tr> </table>	Rated Voltage (V)	160 ~ 250	400 ~ 450	tanδ(Max)	0.12	0.15						
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Leakage Current	<p><math>I=0.02CV</math> or 3000 µA whichever is smaller                      I : Leakage current (µA) C : Rated capacitance (µF) V : Rated voltage (V)                      Impress the rated voltage for 2 minutes</p>												
Low Temperature Characteristics Impedance Ratio(MAX)	<table border="1"> <tr> <td>Rated voltage (V)</td> <td>160~250</td> <td>400</td> <td>420 ~ 450</td> </tr> <tr> <td>Z(-25°C)/Z(+20°C)</td> <td>3</td> <td>5</td> <td>6</td> </tr> </table> <p style="text-align: right;">(at 120Hz)</p>	Rated voltage (V)	160~250	400	420 ~ 450	Z(-25°C)/Z(+20°C)	3	5	6				
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Charge and Discharge	<p>The following specifications shall be satisfied when the capacitors are restored to 25°C after subjected to charge and discharge test with the voltage waveform shown below at room temperature(15 to 35°C)</p> <table border="1"> <tr> <th>Frequency</th> <th>Number of cycles</th> <th>Voltage waveform</th> </tr> <tr> <td>5Hz</td> <td>200million times</td> <td> </td> </tr> </table> <table border="1"> <tr> <td>Capacitance change</td> <td>≒ ±20% of the initial value</td> </tr> <tr> <td>Dissipation factor(tanδ)</td> <td>≒ 200% of the specified value</td> </tr> <tr> <td>Leakage current</td> <td>≒ specified value</td> </tr> </table>	Frequency	Number of cycles	Voltage waveform	5Hz	200million times		Capacitance change	≒ ±20% of the initial value	Dissipation factor(tanδ)	≒ 200% of the specified value	Leakage current	≒ specified value
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Leakage current	≒ specified value												
Endurance	<p>The following specifications shall be satisfied when the capacitors are restored to 25°C after subjected to DC voltage with the rated ripple current is applied for 2,000 hours at 105°C.</p> <table border="1"> <tr> <td>Capacitance change</td> <td>≒ ±20% of the initial value</td> </tr> <tr> <td>Dissipation factor(tanδ)</td> <td>≒ 200% of the specified value</td> </tr> <tr> <td>Leakage current</td> <td>≒ specified value</td> </tr> </table>	Capacitance change	≒ ±20% of the initial value	Dissipation factor(tanδ)	≒ 200% of the specified value	Leakage current	≒ specified value						
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Shelf Life	<p>The following requirements shall be satisfied when the capacitor are restored to 25°C after the rated voltage applied for 1,000 hours at 105°C without voltage applied.</p> <table border="1"> <tr> <td>Capacitance change</td> <td>≒ ±20% of the initial value</td> </tr> <tr> <td>Dissipation factor(tanδ)</td> <td>≒ 200% of the specified value</td> </tr> <tr> <td>Leakage current</td> <td>≒ 200% of the specified value</td> </tr> </table>	Capacitance change	≒ ±20% of the initial value	Dissipation factor(tanδ)	≒ 200% of the specified value	Leakage current	≒ 200% of the specified value						
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Leakage current	≒ 200% of the specified value												
Others	Conforms to JIS-C-5101-4 (1998), characteristic W												

### ◆ DIMENSIONS (mm)



ΦD	10	12.5 L<35	12.5 L≥35	16	18
ΦD	ΦD + 0.5 Max				
Φd	0.6	0.6	0.8	0.8	0.8
F	5.0	5.0		7.5	7.5
a	L + 1.5 Max	≒ 35 L+1.5Max ≒ 40 L+2.0 Max		L + 1.5 Max	

### ◆ PART NUMBER SYSTEM( Example : 450V 150µF )





**VW Series**

◆ **Case size & Permissible rated ripple current: (mA rms) at 105°C / 120Hz**

uF \ Vdc	160		200		220		250	
	ΦD × L	RC	ΦD × L	RC	ΦD × L	RC	ΦD × L	RC
68					10×35	365	10×40	380
82			10×35	420	10×40	435	10×45	460
100	10×30	395	10×40	450	10×45	480	10×50	530
							12.5×35	510
120	10×35	480	10×45	515	10×50	555	12.5×40	545
150	10×40	555	12.5×35	585	12.5×40	595	12.5×45	610
180	10×50	615	12.5×40	670	12.5×45	685	12.5×50	710
	12.5×30	595					16×31.5	700
220	12.5×35	710	12.5×50	830	16×35.5	840	16×40	915
	16×25	695	16×31.5	795			18×30	880
270	12.5×45	825	16×35.5	825	16×40	900	16×45	1060
	16×30	800	18×30	820	18×30	875	18×35.5	990
330	12.5×50	890	16×40	1105	16×45	1150	18×40	1250
	16×31.5	875	18×35.5	1150	18×35.5	1195		
	18×25	860						
470	18×31.5	1160	18×45	1325	18×45	1350	18×50	1400
560	18×35.5	1295	18×50	1440				
680	18×40	1400						

uF \ Vdc	400		420		450	
	ΦD × L	RC	ΦD × L	RC	ΦD × L	RC
22			10×30	202	10×30	215
27	10×30	240	10×35	250	10×35	270
33	10×35	265	10×40	280	10×40	295
39	10×40	290	10×45	305	10×50	320
47	10×45	320	10×50	335	12.5×40	375
	12.5×30	310	12.5×35	325		
56	12.5×35	360	12.5×40	380	12.5×45	430
68	12.5×40	435	12.5×45	460	12.5×50	545
			16×31.5	450	16×35.5	535
82	12.5×50	515	16×35.5	540	16×40	605
	16×31.5	510			18×31.5	580
100	16×35.5	590	16×40	645	16×45	710
			18×31.5	630	18×35.5	690
120	16×40	700	18×35.5	720	18×40	775
	18×31.5	675				
150	18×40	810	18×45	865	18×45	920
180	18×45	915	18×50	1000		
220	18×50	1055				

◆ **RIPPLE CURRENT MULTIPLIERS**

**Frequency Multipliers**

Vdc	Frequency (Hz)				
	50/60	120	1K	10K	100K
160 ~ 450	0.80	1.00	1.30	1.40	1.50