

ALUMINUM ELECTROLYTIC CAPACITORS



VQ Series

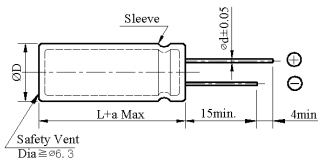
- Capacitor For Over Voltage Application
- Load life 5,000 hours at 105°C



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	I=0.02CV 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												
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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Capacitance change	≒ ±20% of the initial value												
Dissipation factor(tanδ)	≒ 200% of the specified value												
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 5,000 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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Leakage current	≒ specified value												
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 47μF)

V Q 2 W 4 7 0 M N N 1 2 4 5

Special Request
 Size code(1245 : 12.5×45)
 Lead length code
 Lead forming Type code
 Capacitance tolerance code(M:±20%)
 Capacitance code (47μF)
 Voltage code (450V)
 Series code (VQ)



VQ 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	395	10×40	410
82			10×35	430	10×40	445	10×45	465
100	10×30	410	10×40	465	10×45	500	12.5×35	530
120	10×35	490	10×45	520	10×50	565	12.5×40	555
					12.5×35	540		
150	10×40	565	12.5×35	605	12.5×40	620	12.5×50	630
	12.5×30	545						
180	10×50	630	12.5×45	700	12.5×50	710	16×35.5	740
	12.5×35	615						
220	12.5×40	740	12.5×50	845	16×35.5	865	16×40	925
	16×25	705	16×31.5	830			18×31.5	910
270	12.5×45	845	16×40	855	16×40	920	16×50	1080
	16×30	825	18×30	840	18×31.5	900	18×40	1025
330	12.5×50	910	16×45	1135	16×50	1190	18×45	1300
	16×35.5	900	18×35.5	1200	18×40	1230		
	18×30	890						
470	18×35.5	1190	18×45	1355	18×50	1385		
560	18×40	1320	18×50	1460				
680	18×45	1425						

uF \ Vdc	400		420		450	
	ΦD × L	RC	ΦD × L	RC	ΦD × L	RC
22			10×30	210	10×35	225
27	10×30	255	10×35	260	10×40	280
33	10×35	270	10×40	295	10×45	300
39	10×40	300	10×45	310	10×50	335
					12.5×40	320
47	10×45	335	10×50	355	12.5×45	390
	12.5×35	325	12.5×40	345		
56	12.5×40	370	12.5×45	390	12.5×50	450
68	12.5×45	445	12.5×50	470	16×40	565
			16×35.5	465		
82	12.5×50	535	16×40	565	16×45	630
	16×35.5	520			18×35.5	610
100	16×40	605	16×45	670	16×50	740
			18×35.5	655	18×40	720
120	16×45	730	18×40	750	18×45	805
	18×35.5	705				
150	18×40	835	18×45	900	18×50	950
180	18×45	940	18×50	1030		

◆ RIPPLE CURRENT MULTIPLIERS

Frequency Multipliers

Vdc	Frequency (Hz)				
	50/60	120	1K	10K	100K
160 ~ 250	0.80	1.00	1.20	1.30	1.40
400 ~ 450	0.80	1.00	1.15	1.25	1.35