

## ALUMINUM ELECTROLYTIC CAPACITORS

- Load life 5000 hours at 85°C
- High ripple current, Long life

### SPECIFICATIONS

Item	Characteristics																								
Operating Temperature Range(°C)	-40~+85(450WV:-25~+85)																								
Rated Voltage Range (V)	10~450																								
Nominal capacitance range (μF)	68~22000																								
Capacitance Tolerance(20°C,120Hz)	±20%																								
Leakage current (μA)	I≤0.01 CV or 1.5mA whichever is smaller (at 20°C , after 5 minutes) C: Nominal Capacitance (μF) V: Rated Voltage (V)																								
Dissipation Factor(25°C,120Hz)	<table border="1"> <thead> <tr> <th>Rated voltage (v)</th> <th>10</th> <th>16</th> <th>25</th> <th>35</th> <th>50</th> <th>63~100</th> <th>160~250</th> <th>315~450</th> </tr> </thead> <tbody> <tr> <td>tanδ</td> <td>0.80</td> <td>0.60</td> <td>0.50</td> <td>0.40</td> <td>0.30</td> <td>0.20</td> <td>0.15</td> <td>0.15</td> </tr> </tbody> </table>	Rated voltage (v)	10	16	25	35	50	63~100	160~250	315~450	tanδ	0.80	0.60	0.50	0.40	0.30	0.20	0.15	0.15						
Rated voltage (v)	10	16	25	35	50	63~100	160~250	315~450																	
tanδ	0.80	0.60	0.50	0.40	0.30	0.20	0.15	0.15																	
Temperature Stability(120Hz)	<table border="1"> <thead> <tr> <th colspan="2">Rated voltage (v)</th> <th>10</th> <th>16~35</th> <th>50~100</th> <th>160~200</th> <th>250~400</th> <th>450</th> </tr> </thead> <tbody> <tr> <td rowspan="2">Impedance</td> <td>Z-25°C/+20°C</td> <td>5</td> <td>4</td> <td>3</td> <td>3</td> <td>4</td> <td>4</td> </tr> <tr> <td>Ratio</td> <td>Z-40°C/+20°C</td> <td>18</td> <td>15</td> <td>10</td> <td>6</td> <td>8</td> <td>-</td> </tr> </tbody> </table>	Rated voltage (v)		10	16~35	50~100	160~200	250~400	450	Impedance	Z-25°C/+20°C	5	4	3	3	4	4	Ratio	Z-40°C/+20°C	18	15	10	6	8	-
Rated voltage (v)		10	16~35	50~100	160~200	250~400	450																		
Impedance	Z-25°C/+20°C	5	4	3	3	4	4																		
	Ratio	Z-40°C/+20°C	18	15	10	6	8	-																	
Load Life(+85°C)	<table border="1"> <thead> <tr> <th>Time</th> <th>5000hours</th> </tr> </thead> <tbody> <tr> <td>Leakage Current</td> <td>Not more than the specified value</td> </tr> <tr> <td>Capacitance Change</td> <td>Within ±20% of the initial value</td> </tr> <tr> <td>Dissipation Factor</td> <td>Not more than 200% of the specified value</td> </tr> </tbody> </table>	Time	5000hours	Leakage Current	Not more than the specified value	Capacitance Change	Within ±20% of the initial value	Dissipation Factor	Not more than 200% of the specified value																
Time	5000hours																								
Leakage Current	Not more than the specified value																								
Capacitance Change	Within ±20% of the initial value																								
Dissipation Factor	Not more than 200% of the specified value																								
Shelf Life(+85°C)	<table border="1"> <thead> <tr> <th>Time</th> <th>500hours</th> </tr> </thead> <tbody> <tr> <td>Leakage Current</td> <td>Not more than the specified value</td> </tr> <tr> <td>Capacitance Change</td> <td>Within ±20% of the initial value</td> </tr> <tr> <td>Dissipation Factor</td> <td>Not more than 200% of the specified value</td> </tr> </tbody> </table> <p>After test: Rated voltage to be applied for 60 minutes, 24 to 48 hours before measurement</p>	Time	500hours	Leakage Current	Not more than the specified value	Capacitance Change	Within ±20% of the initial value	Dissipation Factor	Not more than 200% of the specified value																
Time	500hours																								
Leakage Current	Not more than the specified value																								
Capacitance Change	Within ±20% of the initial value																								
Dissipation Factor	Not more than 200% of the specified value																								

### DIMENSIONS

### MM

### MULTIPLIER FOR RIPPLE CURRENT

	<b>Frequency coefficient</b>																																			
	<table border="1"> <thead> <tr> <th>Freq(Hz)</th> <th>50</th> <th>120</th> <th>1K</th> <th>10K</th> <th>20K</th> </tr> </thead> <tbody> <tr> <td>Rated Voltage(V)</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>≤50</td> <td>0.95</td> <td>1.00</td> <td>1.10</td> <td>1.15</td> <td>1.15</td> </tr> <tr> <td>63~100</td> <td>0.95</td> <td>1.00</td> <td>1.16</td> <td>1.30</td> <td>1.33</td> </tr> <tr> <td>≥160</td> <td>0.90</td> <td>1.00</td> <td>0.20</td> <td>1.50</td> <td>1.55</td> </tr> </tbody> </table>	Freq(Hz)	50	120	1K	10K	20K	Rated Voltage(V)						≤50	0.95	1.00	1.10	1.15	1.15	63~100	0.95	1.00	1.16	1.30	1.33	≥160	0.90	1.00	0.20	1.50	1.55					
	Freq(Hz)	50	120	1K	10K	20K																														
Rated Voltage(V)																																				
≤50	0.95	1.00	1.10	1.15	1.15																															
63~100	0.95	1.00	1.16	1.30	1.33																															
≥160	0.90	1.00	0.20	1.50	1.55																															
<b>Temperature coefficient</b>																																				
<table border="1"> <thead> <tr> <th>Temperature(°C)</th> <th>+40</th> <th>+55</th> <th>+70</th> <th>+85</th> </tr> </thead> <tbody> <tr> <td>Rated voltage(V)</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>&lt;160</td> <td>2.1</td> <td>1.8</td> <td>1.5</td> <td>1.0</td> </tr> <tr> <td>≥160</td> <td>1.7</td> <td>1.5</td> <td>1.3</td> <td>1.0</td> </tr> </tbody> </table>	Temperature(°C)	+40	+55	+70	+85	Rated voltage(V)					<160	2.1	1.8	1.5	1.0	≥160	1.7	1.5	1.3	1.0																
Temperature(°C)	+40	+55	+70	+85																																
Rated voltage(V)																																				
<160	2.1	1.8	1.5	1.0																																
≥160	1.7	1.5	1.3	1.0																																

## ■ STANDARD RATINGS

WV(V)	10		16		25		35		50		63		80		100	
	Cap	Ripple	Cap	Ripple	Cap	Ripple	Cap	Ripple	Cap	Ripple	Cap	Ripple	Cap	Ripple	Cap	Ripple
	μF	(A)	μF	(A)	μF	(A)	μF	(A)	μF	(A)	μF	(A)	μF	(A)	μF	(A)
22x25	10000	2.5	8200	2.2	5600	2.0	3300	1.8	2200	1.7	1500	1.6	1000	1.3	680	1.1
22x30	15000	3.2	10000	2.6	6800	2.3	3900	2.1	2700	1.9	2200	2.0	1200	1.5	820	1.2
22x35	18000	3.6	12000	2.9	8200	2.6	5600	2.3	3900	2.1	2700	2.2	1800	1.9	1200	1.6
22x40	22000	4.0	15000	3.3	10000	2.9	6800	2.9	4700	2.4	3300	2.3	2200	2.1	1500	1.8
22x45	-	-	18000	3.8	12000	3.3	-	-	-	-	3900	2.5	-	-	-	-
22x50	-	-	22000	4.2	-	-	8200	2.8	5600	2.5	-	-	2700	2.5	1800	2.1
25x25	15000	3.1	10000	2.6	6800	2.3	4700	2.2	2700	1.9	2200	2.0	1500	1.7	1000	1.4
25x30	18000	3.6	15000	3.3	10000	2.8	5600	2.3	3900	2.1	2700	2.3	1800	1.9	1200	1.6
25x35	22000	4.1	18000	3.7	12000	3.2	6800	2.6	4700	2.4	3300	2.3	2200	2.2	1500	1.7
25x40	-	-	22000	4.2	15000	3.7	8200	2.8	5600	2.5	3900	2.6	2700	2.5	1800	2.0
25x45	-	-	-	-	-	-	1000	3.1	6800	2.8	5600	3.1	3300	2.8	2200	2.2
25x50	-	-	-	-	18000	4.3	12000	3.5	8200	3.2	-	-	3900	3.1	2700	2.6
30x25	22000	4.1	15000	3.4	10000	3.0	6800	2.7	3900	2.4	3300	2.3	2200	2.2	1500	1.8
30x30	-	-	22000	4.2	12000	3.4	8200	2.8	5600	2.5	3900	2.6	2700	2.5	1800	2.1
30x35	-	-	-	-	18000	4.2	10000	3.2	6800	2.8	5600	3.2	3300	2.8	2200	2.3
30x40	-	-	-	-	22000	4.8	12000	3.5	8200	3.0	6800	3.6	3900	3.2	2700	2.7
30x45	-	-	-	-	-	-	15000	4.1	10000	3.4	-	-	4700	3.6	3300	3.0
30x50	-	-	-	-	-	-	18000	4.6	12000	3.8	8200	3.7	5600	3.5	3900	3.4
35x25	-	-	22000	4.4	15000	3.9	8200	2.9	5600	2.6	3900	2.7	2700	2.5	1800	2.2
35x30	-	-	-	-	18000	4.4	12000	3.6	8200	3.0	5600	3.3	3900	3.2	2200	2.5
35x35	-	-	-	-	22000	5.0	15000	4.1	10000	3.4	6800	3.7	4700	3.6	3300	3.1
35x40	-	-	-	-	-	-	18000	4.7	12000	3.8	8200	3.8	5600	3.5	3900	3.4
35x45	-	-	-	-	-	-	22000	5.3	-	-	10000	4.3	-	-	-	-
35x50	-	-	-	-	-	-	-	-	15000	4.5	12000	4.8	6800	4.1	4700	4.0

WV(V)	160		180		200		250		315		350		400		450	
	Cap	Ripple	Cap	Ripple	Cap	Ripple	Cap	Ripple	Cap	Ripple	Cap	Ripple	Cap	Ripple	Cap	Ripple
	μF	(A)	μF	(A)	μF	(A)	μF	(A)	μF	(A)	μF	(A)	μF	(A)	μF	(A)
22x25	330	1.3	270	1.2	220	1.1	180	0.94	100	0.67	82	0.64	68	0.55	-	-
22x30	390	1.5	330	1.4	330	1.4	220	1.1	150	0.85	120	0.82	100	0.70	68	0.57
22x35	560	1.9	470	1.7	390	1.6	270	1.2	180	0.96	150	0.94	120	0.79	100	0.72
22x40	680	2.1	560	1.9	470	1.8	330	1.4	220	1.1	180	1.1	150	0.90	120	0.80
22x45	-	-	-	-	560	2.0	390	1.6	270	1.2	220	1.2	180	1.0	-	-
22x50	820	2.5	680	2.3	-	-	470	1.8	-	-	-	-	220	1.1	150	0.95
25x25	390	1.5	390	1.5	330	1.4	220	1.1	150	0.85	120	0.81	100	0.70	-	-
25x30	560	1.9	470	1.7	390	1.6	330	1.4	180	0.96	150	0.94	150	0.89	100	0.73
25x35	680	2.2	560	2.0	560	2.0	390	1.6	220	1.1	220	1.2	180	1.0	120	0.83
25x40	820	2.4	680	2.2	680	2.3	470	1.8	270	1.3	-	-	220	1.2	150	0.95
25x45	1000	2.7	820	2.5	-	-	560	2.0	330	1.4	270	1.4	270	1.3	180	1.1
25x50	1200	3.1	1000	2.9	820	2.6	-	-	390	1.6	330	1.6	-	-	220	1.2
30x25	560	2.0	470	1.8	470	1.9	330	1.5	220	1.1	180	1.1	150	0.95	-	-
30x30	680	2.5	680	2.3	560	2.1	470	1.8	270	1.6	220	1.2	180	1.1	150	0.98
30x35	1000	2.8	820	2.6	680	2.4	560	2.0	330	1.4	270	1.4	220	1.2	180	1.1
30x40	1200	3.2	1000	2.9	820	2.7	680	2.3	390	1.6	390	1.7	270	1.4	220	1.3
30x45	1500	3.7	1200	3.3	1000	3.1	820	2.6	170	1.8	470	2.0	330	1.6	270	1.4
30x50	-	-	-	-	1200	3.4	-	-	560	2.0	-	-	390	1.8	-	-
35x25	820	2.4	680	2.2	560	2.0	470	1.9	270	1.3	220	1.3	180	1.2	180	1.2
35x30	1000	2.7	820	2.5	820	2.5	680	2.4	390	1.6	330	1.6	270	1.6	220	1.3
35x35	1200	3.0	1200	3.1	1000	2.8	820	2.6	470	1.8	390	1.8	330	1.7	270	1.5
35x40	1500	3.5	-	-	1200	3.2	1000	3.0	560	2.0	470	2.0	390	1.8	-	-
35x45	1800	3.9	1500	3.6	-	-	1200	3.4	680	2.3	560	2.3	470	2.1	390	1.9
35x50	2200	4.5	1800	4.1	1500	3.8	-	-	-	-	680	2.6	560	2.3	470	2.2

■ Ripple current: 85°C, 100Hz or 120Hz

The specific capacitance and case size are available on request.

## ■ TYPICAL CURVES

