

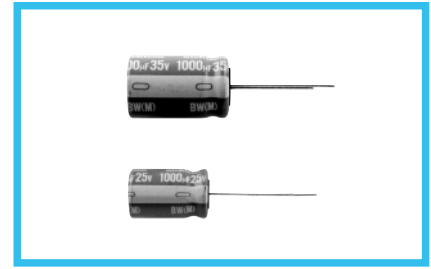
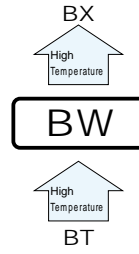
ALUMINUM ELECTROLYTIC CAPACITORS



BW High Temperature Range, For +135°C Use
series



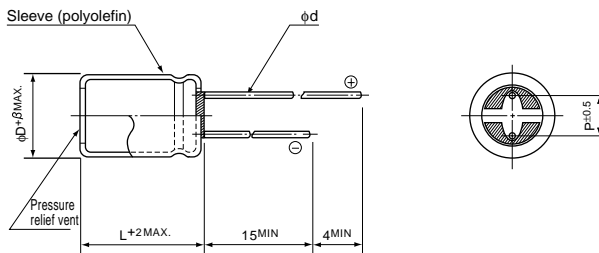
- Highly dependable reliability withstanding load life of 1000 to 3000 hours at +135°C.
- Suited for automobile electronics where heavy duty services are indispensable.
- Compliant to the RoHS directive (2011/65/EU).



Specifications

Item	Performance Characteristics																																	
Category Temperature Range	-55 to +135°C																																	
Rated Voltage Range	10 to 100V																																	
Rated Capacitance Range	1 to 4700µF																																	
Capacitance Tolerance	±20% at 120Hz, 20°C																																	
Leakage Current	After 1 minute's application of rated voltage, leakage current is not more than 0.03CV or 4 (µA), whichever is greater.																																	
Tangent of loss angle (tan δ)	<table border="1"> <tr> <td>Rated voltage (V)</td> <td>10</td> <td>16</td> <td>25</td> <td>35</td> <td>50</td> <td>63</td> <td>80</td> <td>100</td> <td rowspan="2">120Hz, 20°C</td> </tr> <tr> <td>tan δ (MAX.)</td> <td>0.20</td> <td>0.16</td> <td>0.14</td> <td>0.12</td> <td>0.10</td> <td>0.10</td> <td>0.08</td> <td>0.08</td> </tr> </table> <p>For capacitance of more than 1000µF, add 0.02 for every increase of 1000µF.</p>	Rated voltage (V)	10	16	25	35	50	63	80	100	120Hz, 20°C	tan δ (MAX.)	0.20	0.16	0.14	0.12	0.10	0.10	0.08	0.08														
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Stability at Low Temperature	<table border="1"> <tr> <td colspan="2">Rated voltage (V)</td> <td>10</td> <td>16</td> <td>25</td> <td>35</td> <td>50</td> <td>63</td> <td>80</td> <td>100</td> <td>120Hz</td> </tr> <tr> <td>Impedance ratio</td> <td>Z-25°C / Z+20°C</td> <td>3</td> <td>2</td> <td>2</td> <td>2</td> <td>2</td> <td>2</td> <td>2</td> <td>2</td> <td>2</td> </tr> <tr> <td>ZT / Z20 (MAX.)</td> <td>Z-40°C / Z+20°C</td> <td>4</td> <td>4</td> <td>4</td> <td>4</td> <td>4</td> <td>4</td> <td>4</td> <td>4</td> <td>4</td> </tr> </table>	Rated voltage (V)		10	16	25	35	50	63	80	100	120Hz	Impedance ratio	Z-25°C / Z+20°C	3	2	2	2	2	2	2	2	2	ZT / Z20 (MAX.)	Z-40°C / Z+20°C	4	4	4	4	4	4	4	4	4
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Endurance	<p>The specifications listed at right shall be met when the capacitors are restored to 20°C after D.C. bias plus rated ripple current is applied for 3000 hours (1000 hours for φD=8, 2000 hours for φD=10) at 135°C, the peak voltage shall not exceed the rated voltage.</p> <table border="1"> <tr> <td>Capacitance change</td> <td>Within ±30% of the initial capacitance value</td> </tr> <tr> <td>Dissipation Factor</td> <td>300% or less than the initial specified value</td> </tr> <tr> <td>Leakage current</td> <td>Less than or equal to the initial specified value</td> </tr> </table>	Capacitance change	Within ±30% of the initial capacitance value	Dissipation Factor	300% or less than the initial specified value	Leakage current	Less than or equal to the initial specified value																											
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Shelf Life	After storing the capacitors under no load at 135°C for 1000 hours and then performing voltage treatment based on JIS C 5101-4 clause 4.1 at 20°C, they shall meet the specified values for the endurance characteristics listed above.																																	
Marking	Printed with white color letter on blue sleeve.																																	

Radial Lead Type

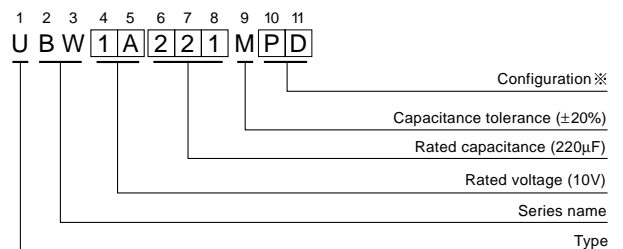


	(mm)			
φD	8	10	12.5	16
β	0.8	0.8	1.0	1.0
P	3.5	5.0	5.0	7.5
φd	0.8	0.6	0.6	0.8

※ In case L > 25 for the φ12.5 dia. unit, lead dia. φd = 0.8mm.

- Please refer to page 20 about the end seal configuration.

Type numbering system (Example : 10V 220µF)



※ Configuration

φ D	Pb-free leadwire Pb-free Polyolefin sleeve
8 · 10	PD
12.5 · 16	HD

Please refer to page 20, 21, 22 about the formed or taped product spec.
Please refer to page 4 for the minimum order quantity.

• Dimension table in next page.

■ Dimensions

Cap. (μ F)	V(Code) Item Code	10 (1A)			16 (1C)			25 (1E)			35 (1V)		
		Case size ϕ D \times L (mm)	Impedance (Ω) MAX.	Rated ripple (mArms)	Case size ϕ D \times L (mm)	Impedance (Ω) MAX.	Rated ripple (mArms)	Case size ϕ D \times L (mm)	Impedance (Ω) MAX.	Rated ripple (mArms)	Case size ϕ D \times L (mm)	Impedance (Ω) MAX.	Rated ripple (mArms)
100	101				8 \times 11.5	0.32	340	8 \times 11.5	0.13	500	10 \times 12.5	0.15	620
220	221	8 \times 11.5	0.26	340	10 \times 12.5	0.15	620	10 \times 12.5	0.10	680	10 \times 16	0.094	790
330	331	10 \times 12.5	0.15	620	10 \times 12.5	0.10	680	10 \times 16	0.075	945	10 \times 20	0.075	950
470	471	10 \times 12.5	0.10	680	10 \times 16	0.075	945	10 \times 20	0.057	1100	12.5 \times 20	0.058	1330
1000	102	10 \times 20	0.057	1100	12.5 \times 20	0.042	1490	12.5 \times 25	0.033	1750	16 \times 25	0.031	2010
2200	222	12.5 \times 25	0.033	1750	16 \times 25	0.024	2300	16 \times 31.5	0.020	2710			
3300	332	16 \times 25	0.024	2300	16 \times 31.5	0.020	2710						
4700	472	16 \times 31.5	0.020	2710									

Cap. (μ F)	V(Code) Item Code	50 (1H)			63 (1J)			80 (1K)			100 (2A)		
		Case size ϕ D \times L (mm)	Impedance (Ω) MAX.	Rated ripple (mArms)	Case size ϕ D \times L (mm)	Impedance (Ω) MAX.	Rated ripple (mArms)	Case size ϕ D \times L (mm)	Impedance (Ω) MAX.	Rated ripple (mArms)	Case size ϕ D \times L (mm)	Impedance (Ω) MAX.	Rated ripple (mArms)
1	010	8 \times 11.5	2.00	35									
2.2	2R2	8 \times 11.5	1.80	50									
3.3	3R3	8 \times 11.5	1.50	60									
4.7	4R7	8 \times 11.5	1.15	85							8 \times 11.5	2.00	130
10	100	8 \times 11.5	0.75	180							8 \times 11.5	1.50	150
22	220	8 \times 11.5	0.50	250	8 \times 11.5	2.00	130	8 \times 11.5	1.50	150	10 \times 12.5	0.80	480
33	330	8 \times 11.5	0.45	300	8 \times 11.5	1.50	150	10 \times 12.5	0.80	480	10 \times 12.5	0.80	480
47	470	8 \times 11.5	0.35	440	10 \times 12.5	0.59	530	10 \times 12.5	0.80	480	10 \times 16	0.55	630
100	101	10 \times 12.5	0.18	555	10 \times 16	0.41	690	10 \times 20	0.39	790	12.5 \times 20	0.25	990
220	221	10 \times 20	0.098	930	12.5 \times 20	0.16	1050	12.5 \times 25	0.18	1240	16 \times 25	0.11	1500
330	331	12.5 \times 20	0.070	1330	12.5 \times 25	0.12	1290	12.5 \times 31.5	0.16	1390	16 \times 31.5	0.079	1790
470	471	12.5 \times 25	0.055	1650	12.5 \times 31.5	0.097	1460	16 \times 25	0.11	1500			
1000	102	16 \times 31.5	0.031	2430	16 \times 31.5	0.055	1900						

Rated ripple current (mArms) at 135°C 100kHz
Impedance (Ω) MAX. at 20°C 100kHz

● Frequency coefficient of rated ripple current

CV	Frequency	120Hz	300Hz	1kHz	10kHz or more
1000 > CV		0.50	0.64	0.83	1.00
1000 \leq CV		0.67	0.79	0.91	1.00