

BW

High Temperature Range, For +135°C Use

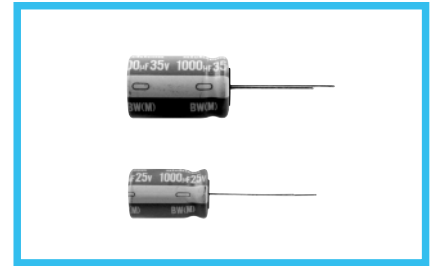
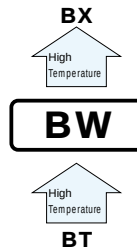
series



Long Life

Anti-Solvent
Feature

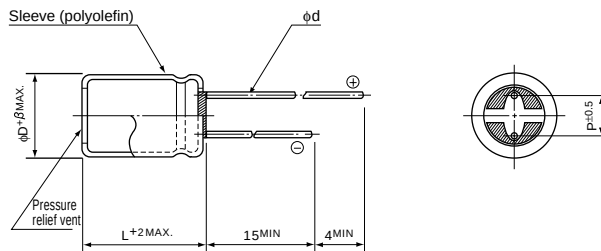
- Highly dependable reliability withstanding load life of 1000 to 3000 hours at +135°C.
- Suited for automobile electronics where heavy duty services are indispensable.
- Compliant to the RoHS directive (2011/65/EU).



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><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></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>									Rated voltage (V)	10	16	25	35	50	63	80	100	tan δ (MAX.)	0.20	0.16	0.14	0.12	0.10	0.10	0.08	0.08	120Hz, 20°C
	Rated voltage (V)	10	16	25	35	50	63	80	100																			
	tan δ (MAX.)	0.20	0.16	0.14	0.12	0.10	0.10	0.08	0.08																			
For capacitance of more than 1000μF, add 0.02 for every increase of 1000μF.																												
Stability at Low Temperature	120Hz																											
	Rated voltage (V)		10	16	25	35	50	63	80	100																		
	Impedance ratio	Z-25°C / Z+20°C	3	2	2	2	2	2	2	2																		
	ZT / Z20 (MAX.)	Z-40°C / Z+20°C	4	4	4	4	4	4	4	4																		
Endurance	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.																											
											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																									
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

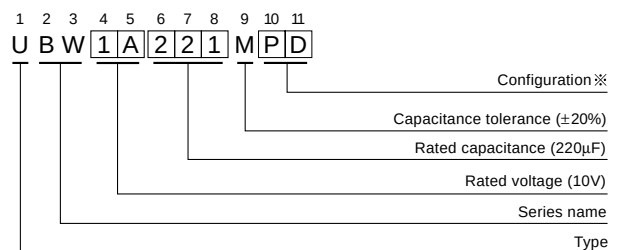


	(mm)			
φD	8	10	12.5	16
β	0.8	0.8	1.0	1.0
P	3.5	5.0	5.0	7.5
φd	0.8	0.6	0.6	0.8

※ 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

V (Code)		10 (1A)			16 (1C)			25 (1E)			35 (1V)		
Cap. (μ F)	Item Code	Case size ϕ D $\times$ L (mm)	Impedance (Ω) MAX.	Rated ripple (mAmps)	Case size ϕ D $\times$ L (mm)	Impedance (Ω) MAX.	Rated ripple (mAmps)	Case size ϕ D $\times$ L (mm)	Impedance (Ω) MAX.	Rated ripple (mAmps)	Case size ϕ D $\times$ L (mm)	Impedance (Ω) MAX.	Rated ripple (mAmps)
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									

V (Code)		50 (1H)			63 (1J)			80 (1K)			100 (2A)		
Cap. (μ F)	Item Code	Case size ϕ D $\times$ L (mm)	Impedance (Ω) MAX.	Rated ripple (mAmps)	Case size ϕ D $\times$ L (mm)	Impedance (Ω) MAX.	Rated ripple (mAmps)	Case size ϕ D $\times$ L (mm)	Impedance (Ω) MAX.	Rated ripple (mAmps)	Case size ϕ D $\times$ L (mm)	Impedance (Ω) MAX.	Rated ripple (mAmps)
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 (mAmps) 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