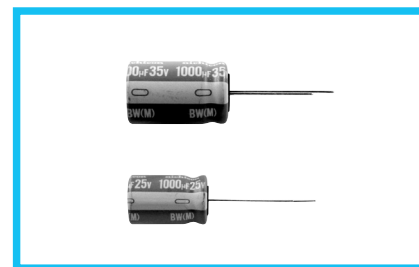
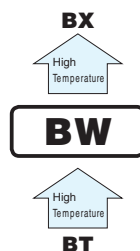


BW series

High Temperature Range, For +135°C Use



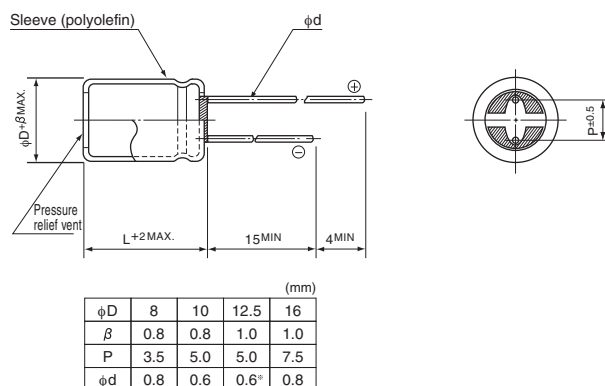
- Highly dependable reliability withstanding load life of 1000 to 3000 hours at +135°C.
- Suited for automobile electronics where heavy duty services are indispensable.
- Compliant to the RoHS directive (2011/65/EU).



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 at 20°C, 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																																							
	<table><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></tr><tr><td rowspan="2">Impedance ratio ZT / Z20 (MAX.)</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></tr><tr><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></tr></table>									Rated voltage (V)		10	16	25	35	50	63	80	100	Impedance ratio ZT / Z20 (MAX.)	Z-25°C / Z+20°C	3	2	2	2	2	2	2	2	Z-40°C / Z+20°C	4	4	4	4	4	4	4	4	120Hz
	Rated voltage (V)		10	16	25	35	50	63	80	100																													
Impedance ratio ZT / Z20 (MAX.)	Z-25°C / Z+20°C	3	2	2	2	2	2	2	2																														
	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.																																						
	<table><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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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.																																						

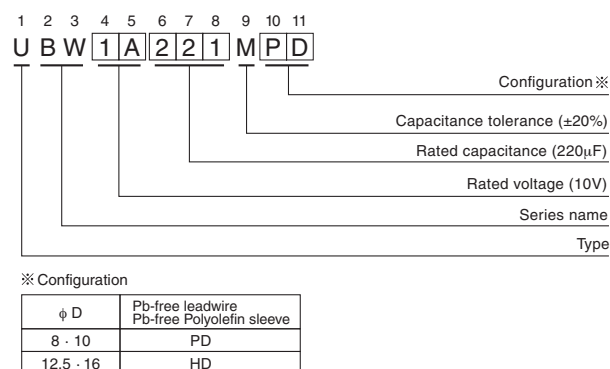
Radial Lead Type



※ 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)



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