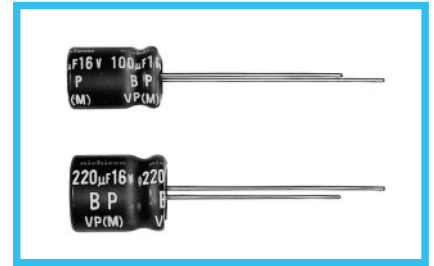
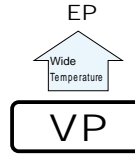


**VP** Bi-Polarized series



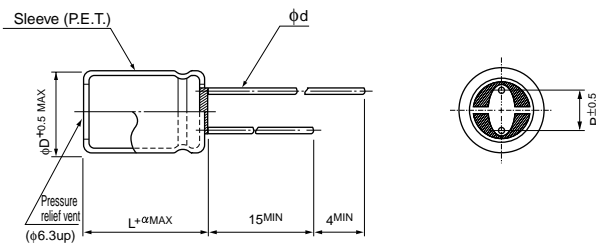
- Standard bi-polarized series for entertainment electronics.
- Compliant to the RoHS directive (2002/95/EC).



## Specifications

Item	Performance Characteristics																											
Category Temperature Range	-40 to +85°C																											
Rated Voltage Range	6.3 to 100V																											
Rated Capacitance Range	0.47 to 6800µF																											
Capacitance Tolerance	±20% at 120Hz, 20°C																											
Leakage Current	After 5 minutes' application of rated voltage, leakage current is not more than 0.03CV or 3 (µA), whichever is greater.																											
Tangent of loss angle (tan δ)	For capacitance of more than 1000µF, add 0.02 for every increase of 1000µF. Measurement frequency : 120Hz, Temperature : 20°C <table border="1"> <tr> <td>Rated voltage (V)</td> <td>6.3</td> <td>10</td> <td>16</td> <td>25</td> <td>35</td> <td>50</td> <td>63</td> <td>100</td> </tr> <tr> <td>tan δ (MAX.)</td> <td>0.26</td> <td>0.24</td> <td>0.22</td> <td>0.20</td> <td>0.16</td> <td>0.14</td> <td>0.12</td> <td>0.10</td> </tr> </table>	Rated voltage (V)	6.3	10	16	25	35	50	63	100	tan δ (MAX.)	0.26	0.24	0.22	0.20	0.16	0.14	0.12	0.10									
Rated voltage (V)	6.3	10	16	25	35	50	63	100																				
tan δ (MAX.)	0.26	0.24	0.22	0.20	0.16	0.14	0.12	0.10																				
Stability at Low Temperature	Measurement frequency : 120Hz <table border="1"> <tr> <td>Rated voltage (V)</td> <td>6.3</td> <td>10</td> <td>16</td> <td>25</td> <td>35</td> <td>50</td> <td>63</td> <td>100</td> </tr> <tr> <td>Impedance ratio</td> <td>Z-25°C / Z+20°C</td> <td>4</td> <td>3</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>10</td> <td>8</td> <td>6</td> <td>5</td> <td>4</td> <td>4</td> <td>3</td> </tr> </table>	Rated voltage (V)	6.3	10	16	25	35	50	63	100	Impedance ratio	Z-25°C / Z+20°C	4	3	2	2	2	2	2	ZT / Z20 (MAX.)	Z-40°C / Z+20°C	10	8	6	5	4	4	3
Rated voltage (V)	6.3	10	16	25	35	50	63	100																				
Impedance ratio	Z-25°C / Z+20°C	4	3	2	2	2	2	2																				
ZT / Z20 (MAX.)	Z-40°C / Z+20°C	10	8	6	5	4	4	3																				
Endurance	The specifications listed at right shall be met when the capacitors are restored to 20°C after the rated voltage is applied for 2000 hours at 85°C with the polarity inverted every 250 hours. <table border="1"> <tr> <td>Capacitance change</td> <td>Within ±20% of the initial capacitance value</td> </tr> <tr> <td>tan δ</td> <td>200% 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 ±20% of the initial capacitance value	tan δ	200% or less than the initial specified value	Leakage current	Less than or equal to the initial specified value																					
Capacitance change	Within ±20% of the initial capacitance value																											
tan δ	200% 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 85°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 black sleeve.																											

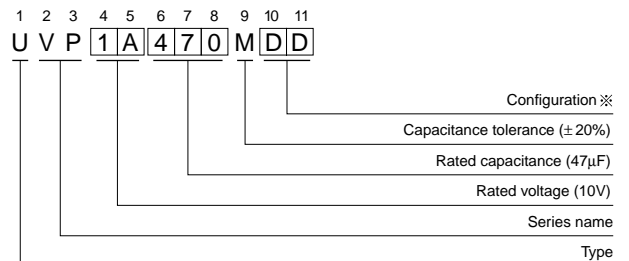
## Radial Lead Type



α	(mm)						
	(L < 20)	1.5	2.0	2.5	3.5	5.0	7.5
φD	5	6.3	8	10	12.5	16	18
P	2.0	2.5	3.5	5.0	5.0	7.5	7.5
φd	0.5	0.5	0.6	0.6	0.6	0.8	0.8

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

## Type numbering system (Example : 10V 47µF)



### ※ Configuration

φ D	Pb-free leadwire Pb-free PET sleeve
5	DD
6.3	ED
8 · 10	PD
12.5 to 18	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. (μF)	V Code	6.3		10		16		25		35		50		63		100	
		0J		1A		1C		1E		1V		1H		1J		2A	
0.47	R47											5×11	11			5×11	14
1	010											5×11	17			5×11	21
2.2	2R2											5×11	25			6.3×11	34
3.3	3R3											5×11	27	5×11	28	6.3×11	39
4.7	4R7									5×11	34	5×11	34	6.3×11	34	6.3×11	47
10	100					5×11	42	5×11	42	5×11	43	6.3×11	52	6.3×11	57	8×11.5	71
22	220			5×11	57	5×11	57	6.3×11	65	6.3×11	73	8×11.5	89	8×11.5	95	10×16	135
33	330	5×11	64	5×11	64	5×11	70	6.3×11	80	8×11.5	100	8×11.5	105	10×12.5	135	12.5×20	220
47	470	5×11	76	5×11	76	6.3×11	95	6.3×11	95	8×11.5	120	10×12.5	150	10×16	180	12.5×20	240
100	101	6.3×11	125	6.3×11	125	8×11.5	160	8×11.5	160	10×16	230	10×20	265	12.5×20	320	16×25	425
220	221	8×11.5	215	8×11.5	215	10×12.5	275	10×16	305	12.5×20	410	12.5×25	480	16×25	575	18×35.5	720
330	331	8×11.5	265	10×16	345	10×16	375	12.5×20	450	12.5×20	505	16×25	650	16×31.5	655		
470	471	10×12.5	370	10×16	410	10×20	485	12.5×20	540	12.5×25	655	16×31.5	835	18×35.5	965		
1000	102	10×20	650	12.5×20	720	12.5×25	855	16×25	950	16×31.5	1140						
2200	222	12.5×25	1160	16×25	1280	16×31.5	1510	18×35.5	1620								
3300	332	16×25	1570	16×31.5	1690	18×35.5	1980										
4700	472	16×31.5	2020	18×35.5	2160												
6800	682	18×35.5	2600														Case size φD×L (mm)

Rated ripple current (mA<sub>rms</sub>) at 85°C 120Hz

## ● Frequency coefficient of rated ripple current

Cap. (μF)	Frequency	50 Hz	120 Hz	300 Hz	1 kHz	10 kHz or more
0.47 to 47		0.75	1.00	1.35	1.57	2.00
100 to 470		0.80	1.00	1.23	1.34	1.50
1000 to 6800		0.85	1.00	1.10	1.13	1.15