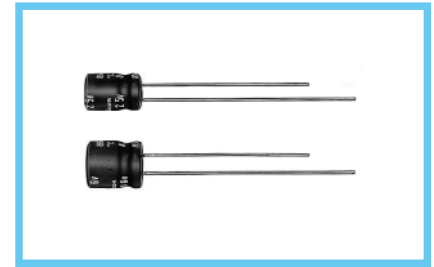


**SP** 7mmL, Bi-Polarized  
series



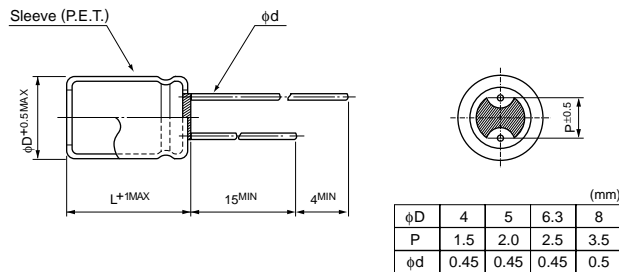
- Bi-polarized series with 7mm height.
- Extended capacitance range by an addition of  $\phi 8$  product.
- Adapted to the RoHS directive (2002/95/EC).



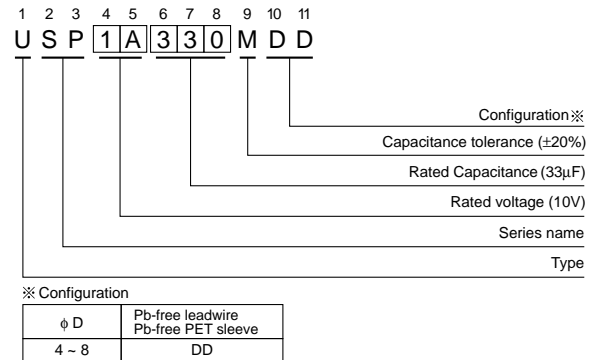
## Specifications

Item	Performance Characteristics																								
Category Temperature Range	-40 ~ +85°C																								
Rated Voltage Range	6.3 ~ 50V																								
Rated Capacitance Range	0.1 ~ 220 $\mu$ F																								
Capacitance Tolerance	$\pm 20\%$ at 120Hz, 20°C																								
Leakage Current	After 2 minutes' application of rated voltage, leakage current is not more than 0.05CV or 10 ( $\mu$ A), whichever is greater.																								
tan $\delta$	Measurement frequency : 120Hz, Temperature : 20°C																								
	Rated voltage (V)	6.3	10	16	25	35	50																		
Stability at Low Temperature	Measurement frequency : 120 Hz																								
	Impedance ratio	Z-25°C / Z+20°C	4	3	2	2	2																		
	ZT / Z20 (MAX.)	Z-40°C / Z+20°C	8	6	4	4	3																		
Endurance	After 2000 hours' application of rated voltage at 85°C with the polarity inverted every 250 hours, capacitors meet the characteristic requirements listed at right.		<table border="1"> <tr> <td>Capacitance change</td> <td colspan="5">Within <math>\pm 20\%</math> of initial value</td> </tr> <tr> <td>tan <math>\delta</math></td> <td colspan="5">200% or less of initial specified value</td> </tr> <tr> <td>Leakage current</td> <td colspan="5">Initial specified value or less</td> </tr> </table>					Capacitance change	Within $\pm 20\%$ of initial value					tan $\delta$	200% or less of initial specified value					Leakage current	Initial specified value or less				
	Capacitance change	Within $\pm 20\%$ of initial value																							
tan $\delta$	200% or less of initial specified value																								
Leakage current	Initial specified value or less																								
Shelf Life	After storing the capacitors under no load at 85°C for 1000 hours, and after performing voltage treatment based on JIS C 5101-4 clause 4.1 at 20°C, they will meet the specified value for endurance characteristics listed above.																								
Marking	Printed with white color letter on black sleeve.																								

## Radial Lead Type



## Type numbering system (Example : 10V 33 $\mu$ F)



## Dimensions

Cap. ( $\mu$ F)	Code	V		6.3		10		16		25		35		50	
		Code	0J	1A	1C	1E	1V	1H							
0.1	0R1													4 × 7	1.0
0.22	R22													4 × 7	2.3
0.33	R33													4 × 7	3.5
0.47	R47													4 × 7	5.0
1	010													4 × 7	10
2.2	2R2													4 × 7	14
3.3	3R3												4 × 7	16	20
4.7	4R7							4 × 7	18	5 × 7	21	5 × 7	22	6.3 × 7	27
10	100			4 × 7	24	5 × 7	30	6.3 × 7	35	6.3 × 7	37	8 × 7	44		
22	220			5 × 7	40	6.3 × 7	51	6.3 × 7	53	8 × 7	62	8 × 7	65		
33	330	5 × 7	42	6.3 × 7	56	6.3 × 7	63	8 × 7	73	8 × 7	76				
47	470	6.3 × 7	58	6.3 × 7	67	6.3 × 7	75	8 × 7	87						
100	101	8 × 7	95	8 × 7	110	8 × 7	125								
220	221	8 × 7	140												
														Case size	Rated ripple
														$\phi D \times L$ (mm)	(mArms) at 85°C 120Hz

## Frequency coefficient of rated ripple current

Frequency	50 Hz	120 Hz	300 Hz	1 kHz	10 kHz ~
Coefficient	0.70	1.00	1.17	1.36	1.50

Please refer to page 21, 22, 23 about the formed or taped product spec. Please refer to page 3 for the minimum order quantity.