

USA

7mmL, For General Purposes

- Standard miniature series with 7mm height.

- Compliant to the RoHS directive (2011/65/EU).

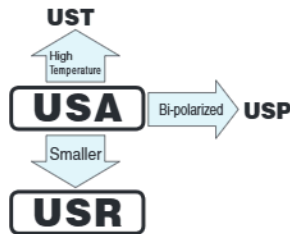
USR

7mmL, High CV

- Higher CV series with 7mm height.



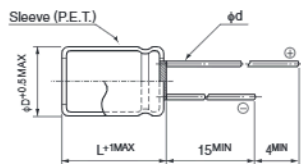
Smaller (USR) Anti-Solvent Feature



Specifications

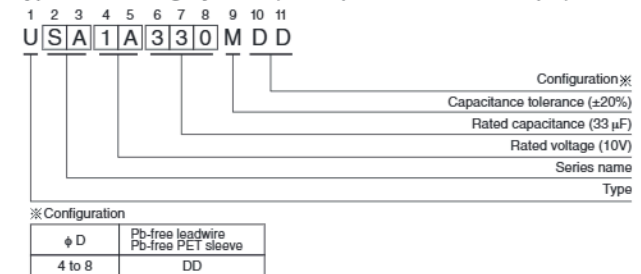
Item	USA					USR			
Category Temperature Range	- 40 to +85°C					-40 to +85°C			
Rated Voltage Range	6.3 to 50V					4 to 50V			
Rated Capacitance Range	0.1 to 220μF					0.1 to 470μF			
Capacitance Tolerance	±20% at 120Hz, 20°C								
Leakage Current	After 2 minutes' application of rated voltage at 20°C, leakage current is not more than 0.01CV or 3 (μA), whichever is greater.								
Tangent of loss angle (tan δ)	Measurement frequency : 120Hz at 20°C								
	Rated voltage (V)	4	6.3	10	16	25	35	50	
	tan δ (MAX.)	0.35	0.24	0.20	0.16	0.14	0.12	0.10	
Stability at Low Temperature	Measurement frequency : 120Hz								
	Rated voltage (V)		4	6.3	10	16	25	35	50
	Impedance ratio	Z-25°C / Z+20°C	6	4	3	2	2	2	2
	ZT / Z20 (MAX.)	Z-40°C / Z+20°C	12	8	6	4	4	3	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.					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



	4	5	6.3	8
φD (mm)	4	5	6.3	8
P (mm)	1.5	2.0	2.5	3.5
φd (mm)	0.45	0.45	0.45	0.5

Type numbering system (Example : USA : 10V 33μF)



Dimensions

Cap.(μF)	V(Code) Type-Series Code	4 (0G)		6.3 (0J)		10 (1A)		16 (1C)		25 (1E)		35 (1V)		50 (1H)	
		USR	USA	USR	USA	USR	USA	USR	USA	USR	USA	USR	USA	USR	
0.1	0R1													4 × 7 1.0	4 × 7 1.0
0.22	R22													4 × 7 2.3	4 × 7 2.3
0.33	R33													4 × 7 3.5	4 × 7 3.5
0.47	R47													4 × 7 5.0	4 × 7 5.0
1	010													4 × 7 10	4 × 7 10
2.2	2R2													4 × 7 19	4 × 7 19
3.3	3R3													4 × 7 24	4 × 7 24
4.7	4R7											4 × 7 24	4 × 7 24	5 × 7 29	4 × 7 28
10	100						4 × 7 28	4 × 7 28	5 × 7 33	4 × 7 28	5 × 7 36	4 × 7 31	6.3 × 7 44	5 × 7 38	
22	220		4 × 7 34	4 × 7 34	5 × 7 38	4 × 7 35	5 × 7 44	4 × 7 39	6.3 × 7 51	5 × 7 48	6.3 × 7 57	5 × 7 52	8 × 7 65	6.3 × 7 65	5 × 7 58
33	330	4 × 7 33	5 × 7 42	4 × 7 40	5 × 7 47	4 × 7 43	6.3 × 7 57	5 × 7 55	6.3 × 7 63	5 × 7 58	8 × 7 72	6.3 × 7 65		8 × 7 75	
47	470	4 × 7 39	5 × 7 50	4 × 7 48	6.3 × 7 59	5 × 7 59	6.3 × 7 68	5 × 7 65	8 × 7 78	6.3 × 7 71		8 × 7 85			
100	101	5 × 7 65	6.3 × 7 77	5 × 7 78	8 × 7 96	6.3 × 7 87	8 × 7 107	6.3 × 7 98		8 × 7 115					
220	221	6.3 × 7 110	8 × 7 130	6.3 × 7 120		8 × 7 145		8 × 7 150							
330	331	8 × 7 165		8 × 7 180											
470	471	8 × 7 240													Case size ϕ D × L (mm) Rated ripple

Frequency coefficient of rated ripple current

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

Rated ripple current (mA rms) at 85°C 120Hz

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