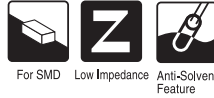


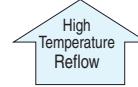
UWD

Chip Type, Low Impedance
High Temperature (260°C) Reflow



- Corresponding with 260°C peak reflow soldering
Recommended reflow condition : 260°C peak 5 sec. 230°C over 60 sec. 2 times ($\phi 10 \times 10$: 1 time)
- Chip type, low impedance temperature range up to +105°C.
- Designed for surface mounting on high density PC board.
- Applicable to automatic mounting machine fed with carrier tape.
- Compliant to the RoHS directive (2011/65/EU).

UWD



UUD

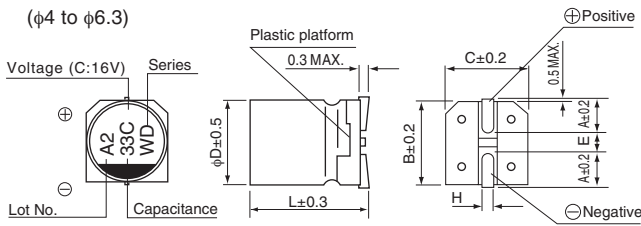


Specifications

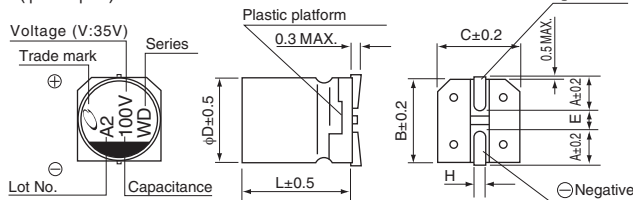
Item	Performance Characteristics																															
Category Temperature Range	-55 to +105°C																															
Rated Voltage Range	6.3 to 50V																															
Rated Capacitance Range	1 to 1500 μ F																															
Capacitance Tolerance	$\pm 20\%$ at 120Hz, 20°C																															
Leakage Current	After 2 minutes' application of rated voltage, leakage current is not more than 0.01 CV or 3 (μ A), whichever is greater.																															
Tangent of loss angle (tan δ)	<table border="1"> <tr> <td colspan="7">Measurement frequency : 120Hz at 20°C</td> </tr> <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> </tr> <tr> <td>tan δ (MAX.)</td> <td>0.26 (0.28)</td> <td>0.20 (0.24)</td> <td>0.16 (0.20)</td> <td>0.14 (0.16)</td> <td>0.12 (0.14)</td> <td>0.12 (0.14)</td> </tr> </table> <p>() is $\phi 8$ over</p>	Measurement frequency : 120Hz at 20°C							Rated voltage (V)	6.3	10	16	25	35	50	tan δ (MAX.)	0.26 (0.28)	0.20 (0.24)	0.16 (0.20)	0.14 (0.16)	0.12 (0.14)	0.12 (0.14)										
Measurement frequency : 120Hz at 20°C																																
Rated voltage (V)	6.3	10	16	25	35	50																										
tan δ (MAX.)	0.26 (0.28)	0.20 (0.24)	0.16 (0.20)	0.14 (0.16)	0.12 (0.14)	0.12 (0.14)																										
Stability at Low Temperature	<table border="1"> <tr> <td colspan="7">Measurement frequency : 120Hz</td> </tr> <tr> <td colspan="2">Rated voltage (V)</td> <td>6.3</td> <td>10</td> <td>16</td> <td>25</td> <td>35</td> <td>50</td> </tr> <tr> <td>Impedance ratio</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> </tr> <tr> <td>ZT / Z20 (MAX.)</td> <td>Z-55°C / Z+20°C</td> <td>5</td> <td>4</td> <td>4</td> <td>3</td> <td>3</td> <td>3</td> </tr> </table>	Measurement frequency : 120Hz							Rated voltage (V)		6.3	10	16	25	35	50	Impedance ratio	Z-25°C / Z+20°C	3	2	2	2	2	2	ZT / Z20 (MAX.)	Z-55°C / Z+20°C	5	4	4	3	3	3
Measurement frequency : 120Hz																																
Rated voltage (V)		6.3	10	16	25	35	50																									
Impedance ratio	Z-25°C / Z+20°C	3	2	2	2	2	2																									
ZT / Z20 (MAX.)	Z-55°C / Z+20°C	5	4	4	3	3	3																									
Endurance	<p>The specifications listed at right shall be met when the capacitors are restored to 20°C after the rated voltage is applied for 5000 hours (2000 hours for $\phi D = 4, 5$ and 6.3) at 105°C.</p> <table border="1"> <tr> <td>Capacitance change</td> <td>Within $\pm 30\%$ 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 $\pm 30\%$ 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 $\pm 30\%$ 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 105°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.																															
Resistance to soldering heat	<p>The capacitors are kept on a hot plate for 30 seconds, which is maintained at 250°C. The capacitors shall meet the characteristic requirements listed at right when they are removed from the plate and restored to 20°C.</p> <table border="1"> <tr> <td>Capacitance change</td> <td>Within $\pm 10\%$ of the initial capacitance value</td> </tr> <tr> <td>tan δ</td> <td>Less than or equal to 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 $\pm 10\%$ of the initial capacitance value	tan δ	Less than or equal to the initial specified value	Leakage current	Less than or equal to the initial specified value																									
Capacitance change	Within $\pm 10\%$ of the initial capacitance value																															
tan δ	Less than or equal to the initial specified value																															
Leakage current	Less than or equal to the initial specified value																															
Marking	Black print on the case top.																															

Chip Type

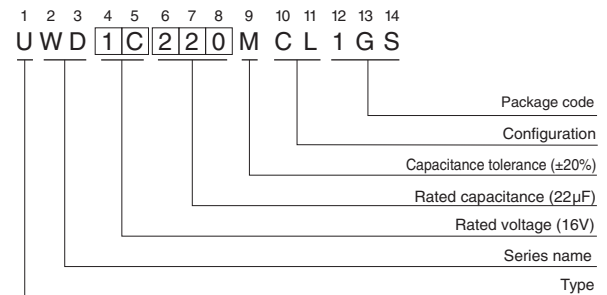
($\phi 4$ to $\phi 6.3$)



($\phi 8$ to $\phi 10$)



Type numbering system (Example : 16V 22 μ F)



$\phi D \times L$	(mm)					
	4 x 5.8	5 x 5.8	6.3 x 5.8	6.3 x 7.7	8 x 10	10 x 10
A	1.8	2.1	2.4	2.4	2.9	3.2
B	4.3	5.3	6.6	6.6	8.3	10.3
C	4.3	5.3	6.6	6.6	8.3	10.3
E	1.0	1.3	2.2	2.2	3.1	4.5
L	5.8	5.8	5.8	7.7	10	10
H	0.5 to 0.8	0.5 to 0.8	0.5 to 0.8	0.5 to 0.8	0.8 to 1.1	0.8 to 1.1

Voltage

V	6.3	10	16	25	35	50
Code	J	A	C	E	V	H

● Dimension table in next page.



■ Dimensions

Cap. (μ F)	V Code	6.3			10			16			25			35			50				
		0J			1A			1C			1E			1V			1H				
1	010																4 × 5.8	5.00	30		
2.2	2R2																4 × 5.8	5.00	30		
3.3	3R3																4 × 5.8	5.00	30		
4.7	4R7															4 × 5.8	1.80	80	5 × 5.8	1.52	85
10	100										4 × 5.8	1.80	80	5 × 5.8	0.76	150	6.3 × 5.8	0.88	165		
15	150							4 × 5.8	1.80	80	5 × 5.8	0.76	150	5 × 5.8	0.76	150	6.3 × 5.8	0.88	165		
22	220				4 × 5.8	1.80	80	5 × 5.8	0.76	150	5 × 5.8	0.76	150	5 × 5.8	0.76	150	6.3 × 5.8	0.88	165		
27	270	4 × 5.8	1.80	80	5 × 5.8	0.76	150	5 × 5.8	0.76	150	6.3 × 5.8	0.44	230	6.3 × 5.8	0.44	230	6.3 × 7.7	0.68	185		
33	330	5 × 5.8	0.76	150	5 × 5.8	0.76	150	6.3 × 5.8	0.44	230	6.3 × 5.8	0.44	230	6.3 × 5.8	0.44	230	6.3 × 7.7	0.68	185		
47	470	5 × 5.8	0.76	150	6.3 × 5.8	0.44	230	6.3 × 5.8	0.44	230	6.3 × 5.8	0.44	230	6.3 × 5.8	0.44	230	6.3 × 7.7	0.68	185		
56	560	5 × 5.8	0.76	150	6.3 × 5.8	0.44	230	6.3 × 5.8	0.44	230	6.3 × 5.8	0.44	230	6.3 × 7.7	0.34	280	8 × 10	0.34	300		
68	680	6.3 × 5.8	0.44	230	6.3 × 5.8	0.44	230	6.3 × 5.8	0.44	230	6.3 × 5.8	0.44	230	6.3 × 7.7	0.34	280	8 × 10	0.34	300		
100	101	6.3 × 5.8	0.44	230	6.3 × 5.8	0.44	230	6.3 × 5.8	0.44	230	6.3 × 7.7	0.34	280	8 × 10	0.17	450	8 × 10	0.34	300		
150	151	6.3 × 5.8	0.44	230	6.3 × 5.8	0.44	230	6.3 × 7.7	0.34	280	8 × 10	0.17	450	8 × 10	0.17	450	10 × 10	0.18	670		
220	221	6.3 × 5.8	0.44	230	6.3 × 7.7	0.34	280	6.3 × 7.7	0.34	280	8 × 10	0.17	450	10 × 10	0.09	670	10 × 10	0.18	670		
330	331	6.3 × 7.7	0.34	280	8 × 10	0.17	450	8 × 10	0.17	450	10 × 10	0.09	670	10 × 10	0.09	670					
470	471	8 × 10	0.17	450	8 × 10	0.17	450	8 × 10	0.17	450	10 × 10	0.09	670								
680	681	8 × 10	0.17	450	10 × 10	0.09	670	10 × 10	0.09	670											
1000	102	10 × 10	0.09	670	10 × 10	0.09	670														
1500	152	10 × 10	0.09	670																	

Max. Impedance (Ω) at 20°C 100kHz,
Rated ripple current (mA_{rms}) at 105°C 100kHz

● Frequency coefficient of rated ripple current

Frequency	50 Hz	120 Hz	300 Hz	1 kHz	10 kHz or more
Coefficient	0.35	0.50	0.64	0.83	1.00

- Taping specifications are given in page 23.
- Recommended land size, soldering by reflow are given in page 18, 19.
- Please refer to page 3 for the minimum order quantity.