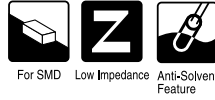
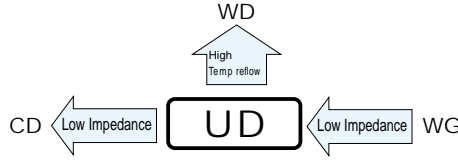


# ALUMINUM ELECTROLYTIC CAPACITORS

**UD** series Chip Type, Low Impedance



- Chip type, low impedance temperature range up to +105°C.
- Designed for surface mounting on high density PC board.
- Applicable to automatic mounting machine using carrier tape.
- Adapted to the RoHS directive (2002/95/EC).

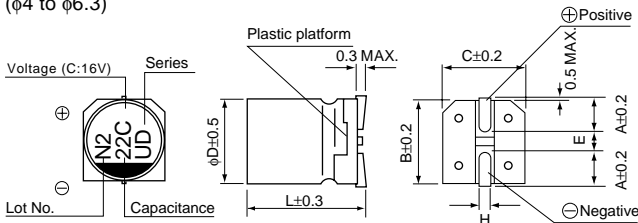


## Specifications

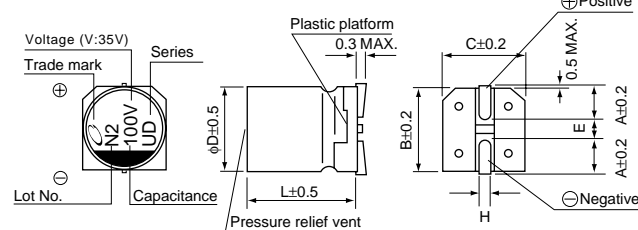
Item	Performance Characteristics																				
Category Temperature Range	-55 to +105°C																				
Rated Voltage Range	6.3 to 50V																				
Rated Capacitance Range	1 to 1500μF																				
Capacitance Tolerance	±20% at 120Hz, 20°C																				
Leakage Current	After 2 minutes' application of rated voltage, leakage current is not more than 0.01 CV or 3 (μA), whichever is greater.																				
Tangent of loss angle (tan δ)	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> </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> ( ) is φ8 over	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)						
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	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> </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> </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> </tr> </table>	Rated voltage (V)	6.3	10	16	25	35	50	Impedance ratio	Z-25°C / Z+20°C	3	2	2	2	2	ZT / Z20 (MAX.)	Z-55°C / Z+20°C	5	4	4	3
Rated voltage (V)	6.3	10	16	25	35	50															
Impedance ratio	Z-25°C / Z+20°C	3	2	2	2	2															
ZT / Z20 (MAX.)	Z-55°C / Z+20°C	5	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 5000 hours (2000 hours for φD = 4, 5 and 6.3) at 105°C. <table border="1"> <tr> <td>Capacitance change</td> <td>Within ±30% of initial value</td> </tr> <tr> <td>tan δ</td> <td>200% or less of 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 initial value	tan δ	200% or less of initial specified value	Leakage current	Less than or equal to the initial specified value														
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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 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.																				
Resistance to soldering heat	The capacitors shall be kept on the hot plate maintained at 250°C for 30 seconds. After removing from the hot plate, the capacitors meet the characteristic requirements listed at right when they are restored to 20°C. <table border="1"> <tr> <td>Capacitance change</td> <td>Within ±10% of initial 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 ±10% of initial 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 ±10% of initial 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

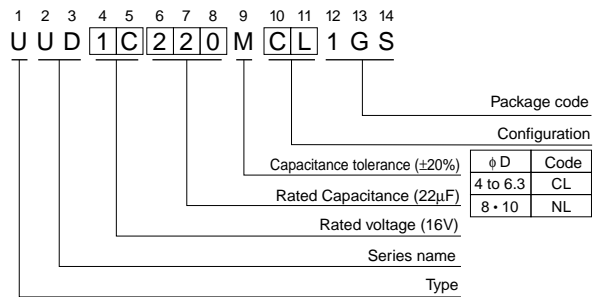
(φ4 to φ6.3)



(φ8 to φ10)



## Type numbering system (Example : 16V 22μF)



φD × L	(mm)					
	4 × 5.8	5 × 5.8	6.3 × 5.8	6.3 × 7.7	8 × 10	10 × 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. ( $\mu$ 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	5.00	30
10	100																5×5.8	1.52	85
15	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	8×10	0.17	450	10×10	0.18	670
330	331	6.3×7.7	0.34	280	8×10	0.17	450	8×10	0.17	450	8×10	0.17	450	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	8×10	0.17	450	10×10	0.09	670												
1500	152	10×10	0.09	670															

Max. Impedance ( $\Omega$ ) at 20°C 100kHz,  
Rated Ripple (mArms) 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.