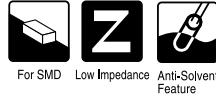
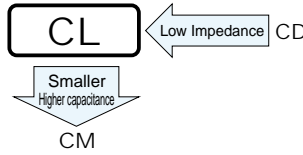


ALUMINUM ELECTROLYTIC CAPACITORS

CL series
Chip Type, Low Impedance



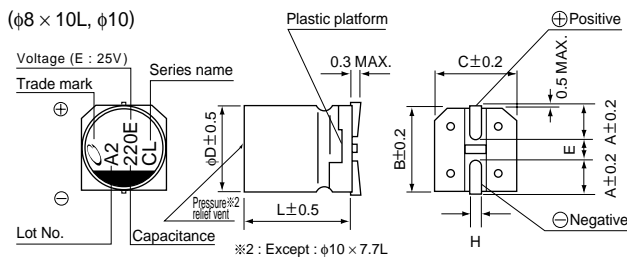
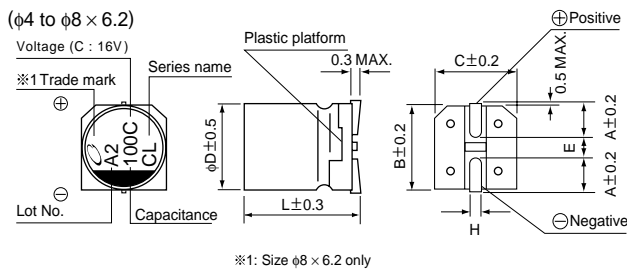
- Chip type, low impedance, temperature range up to +105°C.
- Applicable to automatic mounting machine fed with carrier tape.
- Compliant to the RoHS directive (2011/65/EU).



Specifications

Item	Performance Characteristics							
Category Temperature Range	- 55 to +105°C							
Rated Voltage Range	6.3 to 50V							
Rated Capacitance Range	10 to 2200μF							
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 at 20°C							
	Rated voltage (V) tan δ (MAX.)	6.3 0.26	10 0.19	16 0.16	25 0.14	35 0.12	50 0.10	
Stability at Low Temperature	Measurement frequency : 120Hz							
	Rated voltage (V)	6.3	10	16	25	35	50	
	Impedance ratio ZT / Z20 (MAX.)	Z—25°C / Z+20°C	2	2	2	2	2	2
		Z—40°C / Z+20°C	3	3	3	3	3	3
Z—55°C / Z+20°C	4	4	4	3	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 105°C.		Capacitance Change		Within ± 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	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 .		Capacitance Change		Within ± 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.							

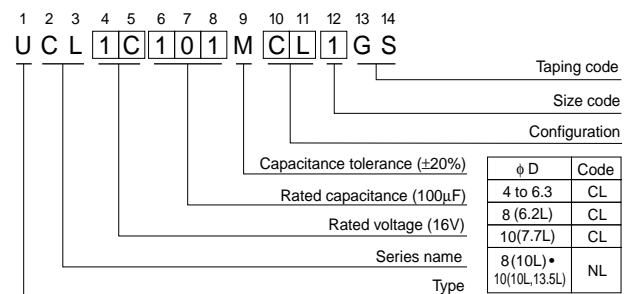
Chip Type



Voltage

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

Type numbering system (Example : 16V 100μF)



φD × L	(mm)								
	4 × 5.8	5 × 5.8	6.3 × 5.8	6.3 × 7.7	8 × 6.2	8 × 10	10 × 7.7	10 × 10	10 × 13.5
A	1.8	2.1	2.4	2.4	3.3	2.9	3.2	3.2	3.2
B	4.3	5.3	6.6	6.6	8.3	8.3	10.3	10.3	10.3
C	4.3	5.3	6.6	6.6	8.3	8.3	10.3	10.3	10.3
E	1.0	1.3	2.2	2.2	2.3	3.1	4.5	4.5	4.5
L	5.8	5.8	5.8	7.7	6.2	10	7.7	10	13.5
H	0.5 to 0.8	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	0.8 to 1.1	0.8 to 1.1

• Dimension table in next page.

Specifications

Cap. (μF)	Code	V		6.3		10		16		25		35		50		
		Code	0J	1A	1C	1E	1V	1H								
10	100					4 × 5.8	0.85	160	4 × 5.8	0.85	160	● 4 × 5.8	0.85	160		
												5 × 5.8	0.36	240		
22	220	4 × 5.8	0.85	160	4 × 5.8	0.85	160	● 4 × 5.8	0.85	160	5 × 5.8	0.36	240	5 × 5.8	0.36	240
33	330				● 4 × 5.8	0.85	160				● 5 × 5.8	0.36	240	6.3 × 5.8	0.26	300
					5 × 5.8	0.36	240				6.3 × 5.8	0.26	300			
47	470	● 4 × 5.8	0.85	160	6.3 × 5.8	0.26	300	● 5 × 5.8	0.36	240	6.3 × 5.8	0.26	300	6.3 × 5.8	0.26	300
		5 × 5.8	0.36	240				6.3 × 5.8	0.26	300						
68	680							6.3 × 5.8	0.26	300	6.3 × 5.8	0.26	300	6.3 × 7.7	0.16	600
100	101	● 5 × 5.8	0.36	240	6.3 × 5.8	0.26	300	6.3 × 5.8	0.26	300	6.3 × 7.7	0.16	600	● 6.3 × 7.7	0.16	600
		6.3 × 5.8	0.26	300				● 6.3 × 7.7	0.16	600	● 8 × 6.2	0.18	500	8 × 10	0.08	850
150	151				6.3 × 5.8	0.26	300	6.3 × 7.7	0.16	600	8 × 10	0.08	850	8 × 10	0.08	850
											● 10 × 7.7	0.10	850	● 10 × 7.7	0.10	850
220	221	6.3 × 5.8	0.26	300	6.3 × 7.7	0.16	600	6.3 × 7.7	0.16	600	8 × 10	0.08	850	8 × 10	0.08	850
					● 8 × 6.2	0.18	500	● 8 × 6.2	0.18	500	● 10 × 7.7	0.10	850	● 10 × 7.7	0.10	850
330	331	6.3 × 7.7	0.16	600	8 × 10	0.08	850	8 × 10	0.08	850	8 × 10	0.08	850	10 × 10	0.06	1190
		● 8 × 6.2	0.18	500	● 10 × 7.7	0.10	850	● 10 × 7.7	0.10	850						
390	391													10 × 10	0.08	850
470	471	8 × 10	0.08	850	8 × 10	0.08	850	8 × 10	0.08	850	10 × 10	0.06	1190	10 × 13.5	0.06	1190
		● 10 × 7.7	0.10	850	● 10 × 7.7	0.10	850	● 10 × 7.7	0.10	850						
560	561										10 × 10	0.08	850			
680	681				8 × 10	0.08	850	10 × 10	0.06	1190	10 × 13.5	0.06	1190			
820	821							10 × 10	0.08	850						
1000	102	8 × 10	0.08	850	10 × 10	0.06	1190	10 × 13.5	0.06	1190						
1200	122				10 × 10	0.08	850									
1500	152	10 × 10	0.06	1190	10 × 13.5	0.06	1190									
1800	182	10 × 10	0.08	850												
2200	222	10 × 13.5	0.06	1190												
														Case size φD × L (mm)	Impedance	Rated ripple

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

●: In this case, [6] will be put at 12th digit of type numbering system.

• Frequency coefficient of rated ripple current

Frequency	50Hz	120Hz	300Hz	1kHz	10kHz 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.