

# ALUMINUM ELECTROLYTIC CAPACITORS

**CW** series  
Chip Type, Low Impedance,  
Long Life Assurance



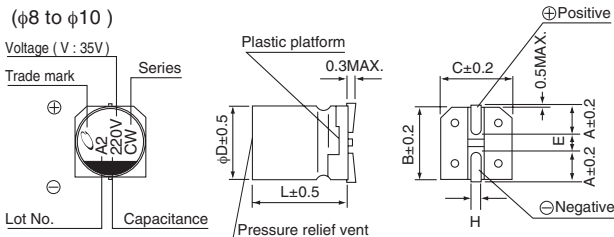
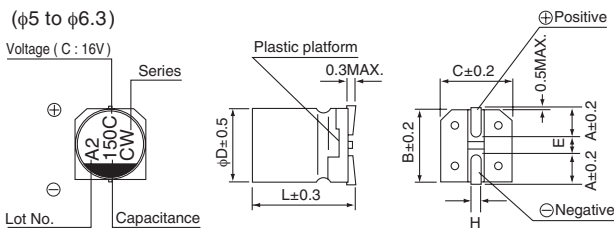
- Chip type with load life of 7000 hours at +105°C.  
Low impedance temperature range up to +105°C.
- Applicable to automatic mounting machine fed with carrier tape.
- Compliant to the RoHS directive (2011/65/EU).



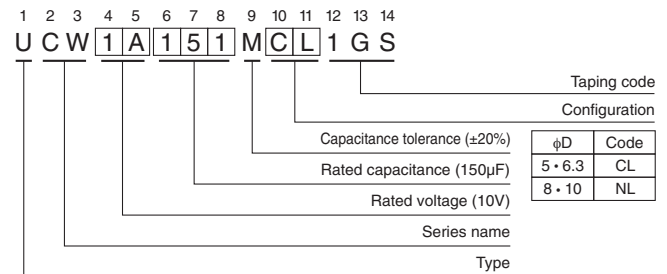
## Specifications

Item	Performance Characteristics							
Category Temperature Range	-25 to +105°C							
Rated Voltage Range	6.3 to 50V							
Rated Capacitance Range	10 to 470μF							
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)	6.3	10	16	25	35	50	
Stability at Low Temperature	Measurement frequency : 120Hz							
	Impedance ratio ZT / Z20 (MAX.)	Z-25°C / Z+20°C	4	3	2	2	2	
Endurance	The specifications listed at right shall be met when the capacitors are restored to 20°C after the rated voltage is applied for 7000 hours at 105°C.		Capacitance change					Within ±30% of the initial capacitance value
			tan δ					300% 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



## Type numbering system (Example : 10V 150μF)



Voltage

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

(mm)

φD × L	5 × 7	6.3 × 7	6.3 × 8.7	8 × 10	10 × 10
A	2.1	2.4	2.4	2.9	3.2
B	5.3	6.6	6.6	8.3	10.3
C	5.3	6.6	6.6	8.3	10.3
E	1.3	2.2	2.2	3.1	4.5
L	7.0	7.0	8.7	10	10
H	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

• Dimension table in next page.



## ■ Dimensions

Cap. ( $\mu$ F)	V Code	6.3			10			16			25			35			50		
		0J			1A			1C			1E			1V			1H		
10	100													5 × 7	2.2	95			
22	220							5 × 7	2.2	95	5 × 7	2.2	95	5 × 7	2.2	95			
33	330				5 × 7	2.2	95				6.3 × 7	1.1	140	6.3 × 8.7	1.0	230			
47	470	5 × 7	2.2	95				6.3 × 7	1.1	140	6.3 × 7	1.1	140	6.3 × 8.7	1.0	230	8 × 10	0.53	350
100	101	6.3 × 7	1.1	140				6.3 × 7	1.1	140	6.3 × 8.7	1.0	230				8 × 10	0.53	350
150	151				6.3 × 7	1.1	140	6.3 × 8.7	1.0	230									
220	221	6.3 × 8.7	1.0	230				6.3 × 8.7	1.0	230	8 × 10	0.22	600	8 × 10	0.22	600	10 × 10	0.35	670
330	331	6.3 × 8.7	1.0	230				8 × 10	0.22	600	8 × 10	0.22	600	10 × 10	0.16	850	Case size $\phi$ D × L (mm)	Impedance	Rated ripple
470	471	8 × 10	0.22	600				8 × 10	0.22	600	10 × 10	0.16	850						

Max. impedance ( $\Omega$ ) 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.

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