

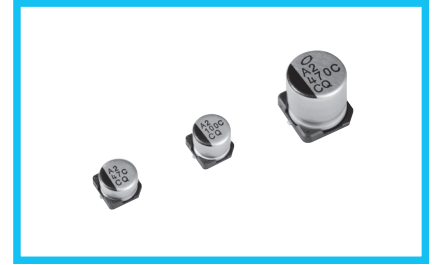
# ALUMINUM ELECTROLYTIC CAPACITORS



Chip Type, For Audio Equipment  
Wide Temperature Range



- Chip type acoustic series within the wide temperature range.
- Applicable to automatic mounting machine fed with carrier tape.
- Compliant to the RoHS directive (2011/65/EU, (EU)2015/863).
- AEC-Q200 compliant. Please contact us for details.

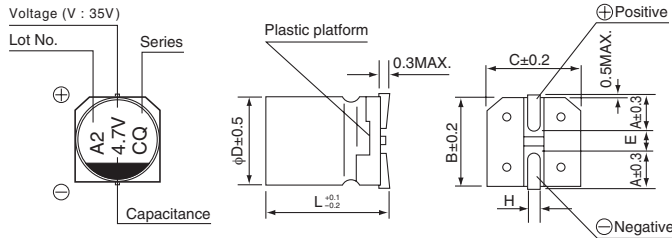


## Specifications

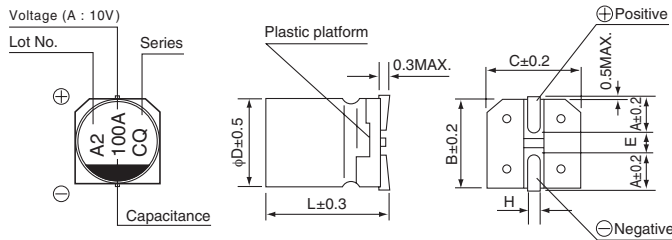
Item	Performance Characteristics																
Category Temperature Range	-55 to +105°C																
Rated Voltage Range	10 to 35V																
Rated Capacitance Range	4.7 to 680μF																
Capacitance Tolerance	±20% (120Hz, 20°C)																
Leakage Current	After 2 minutes' application 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																
	<table border="1"> <tr> <td>Rated voltage (V)</td> <td>10</td> <td>16</td> <td>25</td> <td>35</td> </tr> <tr> <td>tan δ (MAX.)</td> <td>0.26</td> <td>0.22</td> <td>0.16</td> <td>0.13</td> </tr> </table>	Rated voltage (V)	10	16	25	35	tan δ (MAX.)	0.26	0.22	0.16	0.13						
Rated voltage (V)	10	16	25	35													
tan δ (MAX.)	0.26	0.22	0.16	0.13													
Stability at Low Temperature	Measurement frequency : 120Hz																
	<table border="1"> <tr> <td colspan="2">Rated voltage (V)</td> <td>10</td> <td>16</td> <td>25</td> <td>35</td> </tr> <tr> <td rowspan="2">Impedance ratio (MAX.)</td> <td>Z-25°C / Z+20°C</td> <td>3</td> <td>2</td> <td>2</td> <td>2</td> </tr> <tr> <td>Z-40°C / Z+20°C</td> <td>5</td> <td>4</td> <td>3</td> <td>3</td> </tr> </table>	Rated voltage (V)		10	16	25	35	Impedance ratio (MAX.)	Z-25°C / Z+20°C	3	2	2	2	Z-40°C / Z+20°C	5	4	3
Rated voltage (V)		10	16	25	35												
Impedance ratio (MAX.)	Z-25°C / Z+20°C	3	2	2	2												
	Z-40°C / Z+20°C	5	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 (1000 hours for 4.5L) at 105°C.																
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.																
	<table border="1"> <tr> <td>Capacitance change</td> <td>Within ±30% of the initial capacitance value</td> </tr> <tr> <td>tan δ</td> <td>300% 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 ±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										
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																
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.																
	<table border="1"> <tr> <td>Capacitance change</td> <td>Within ±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 ±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 ±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

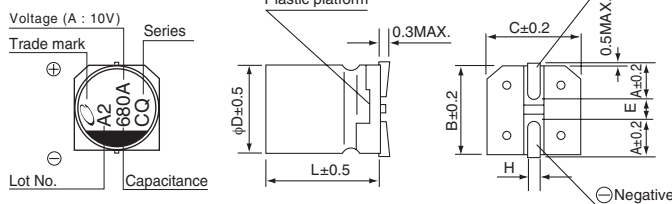
(φ4 × 4.5L, φ5 × 4.5L, φ6.3 × 4.5L)



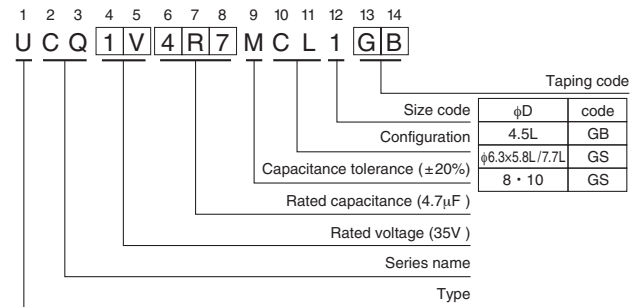
(φ6.3 × 5.8L, φ6.3 × 7.7L)



(φ8 × 10L, φ10 × 10L)



## Type numbering system (Example : 35V 4.7μF)



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

## Rated voltage

V	10	16	25	35
Code	A	C	E	V



## ■ Dimensions

Cap.( $\mu$ F)	V Code	10		16		25		35	
		1A		1C		1E		1V	
4.7	4R7					4 × 4.5	15	4 × 4.5	15
10	100			4 × 4.5	15	5 × 4.5	30	5 × 4.5	30
22	220	5 × 4.5	30	5 × 4.5	30	6.3 × 4.5	40	6.3 × 4.5	40
33	330	5 × 4.5	30	6.3 × 4.5	40	6.3 × 4.5	40	6.3 × 5.8	100
47	470	6.3 × 4.5	40	6.3 × 4.5	40	6.3 × 5.8	100	6.3 × 7.7	120
100	101	6.3 × 5.8	100	6.3 × 5.8	100	6.3 × 7.7	120	8 × 10	250
220	221	6.3 × 7.7	120	8 × 10	250	8 × 10	250	10 × 10	400
330	331	8 × 10	250	8 × 10	250	10 × 10	400	10 × 10	400
470	471	8 × 10	250	10 × 10	400	10 × 10	400	Case size $\phi$ D × L (mm)	Rated ripple
680	681	10 × 10	400						

Rated ripple current (mArms) at 105°C 120Hz

## ● 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

- 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.