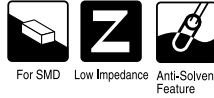


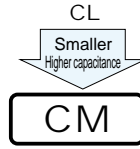
# ALUMINUM ELECTROLYTIC CAPACITORS

**CM** series Chip Type, Low Impedance



**NEW**

- 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).

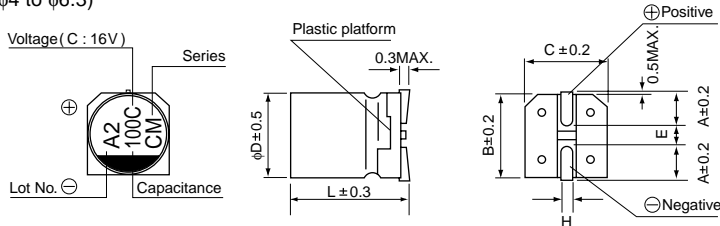


## Specifications

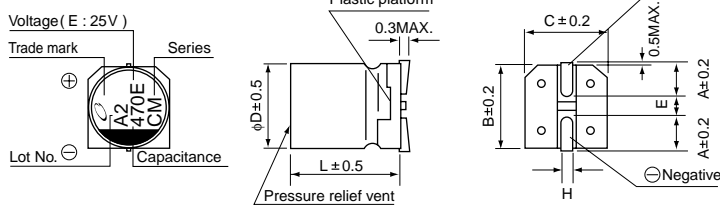
Item	Performance Characteristics																															
Category Temperature Range	-55 to +105°C																															
Rated Voltage Range	6.3 to 50V																															
Rated Capacitance Range	10 to 2200μF																															
Capacitance Tolerance	±20% at 120Hz, 20°C																															
Leakage Current	After 2 minutes' application of rated voltage, leakage current is not more than 0.01 CV																															
Tangent of loss angle (tan δ)	<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</td> <td>0.19</td> <td>0.16</td> <td>0.14</td> <td>0.12</td> <td>0.10</td> </tr> </table>	Rated voltage (V)	6.3	10	16	25	35	50	tan δ (MAX.)	0.26	0.19	0.16	0.14	0.12	0.10	Measurement frequency : 120Hz at 20°C																
Rated voltage (V)	6.3	10	16	25	35	50																										
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Stability at Low Temperature	<table border="1"> <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 rowspan="3">Impedance ratio ZT / Z20 (MAX.)</td> <td>Z-25°C / Z+20°C</td> <td>2</td> <td>2</td> <td>2</td> <td>2</td> <td>2</td> <td>2</td> </tr> <tr> <td>Z-40°C / Z+20°C</td> <td>3</td> <td>3</td> <td>3</td> <td>3</td> <td>3</td> <td>3</td> </tr> <tr> <td>Z-55°C / Z+20°C</td> <td>4</td> <td>4</td> <td>4</td> <td>3</td> <td>3</td> <td>3</td> </tr> </table>	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	Measurement frequency : 120Hz
Rated voltage (V)		6.3	10	16	25	35	50																									
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	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.	<table border="1"> <tr> <td>Capacitance change</td> <td>Within ±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 ±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																								
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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 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.	<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																								
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Marking	Black print on the case top.																															

## Chip Type

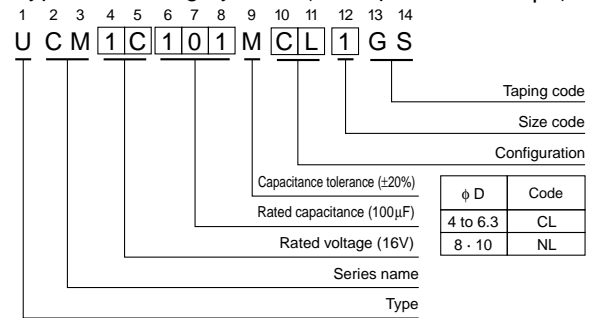
(φ4 to φ6.3)



(φ8 × 10L, φ10)



## Type numbering system (Example : 16V 100μF)



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	6.3			10			16			25			35			50			
		Code			0J			1A			1C			1E			1V			1H
10	100																4×5.8	2.30	85	
																	5×5.8	0.88	165	
22	220										4×5.8	1.00	160	4×5.8	1.00	160	5×5.8	0.88	165	
33	330										4×5.8	1.00	160	5×5.8	0.36	240				
47	470							4×5.8	1.00	160	5×5.8	0.36	240	5×5.8	0.36	240	6.3×5.8	0.68	195	
68	680				4×5.8	1.00	160	5×5.8	0.36	240	5×5.8	0.36	240	6.3×5.8	0.26	300				
100	101	4×5.8	1.00	160				5×5.8	0.36	240	6.3×5.8	0.26	300	6.3×5.8	0.26	300	6.3×7.7	0.34	350	
150	151				5×5.8	0.36	240	6.3×5.8	0.26	300	6.3×7.7	0.16	600	6.3×7.7	0.16	600				
220	221	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				8×10	0.18	670	
330	331	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	10×10	0.12	900	
470	471	6.3×7.7	0.16	600	6.3×7.7	0.16	600				8×10	0.08	850							
560	561													10×10	0.06	1190				
680	681	6.3×7.7	0.16	600				8×10	0.08	850										
820	821										10×10	0.06	1190							
1000	102				8×10	0.08	850	10×10	0.06	1190										
1500	152	8×10	0.08	850	10×10	0.06	1190													
2200	222	10×10	0.06	1190																

MAX. Impedance ( ) at 20 100kHz, Rated ripple current(mArms) at 105 100kHz  
 In this case, [6] will be put at 12th digit of type numbering system.

## ●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.