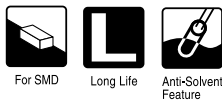
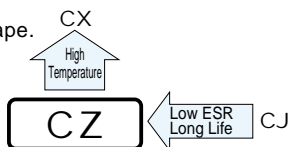


ALUMINUM ELECTROLYTIC CAPACITORS

CZ series Chip Type, High Reliability.
Low temperature ESR specification.



- Chip type, high temperature range, for +125°C use.
- Added ESR specification after the test at -40°C.
- Applicable to automatic mounting machine fed with carrier tape.
- Compliant to the RoHS directive (2011/65/EU).

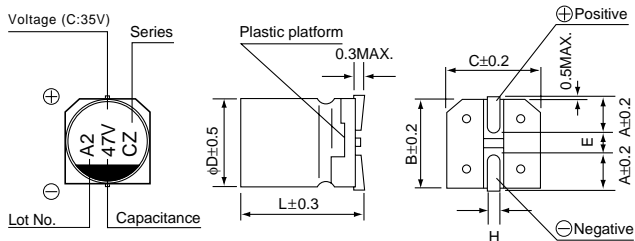


Specifications

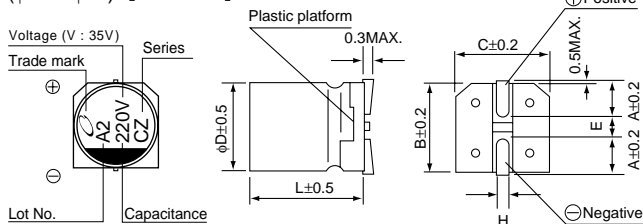
Item	Performance Characteristics																			
Category Temperature Range	-40 to +125°C																			
Rated Voltage Range	10 to 100V																			
Rated Capacitance Range	10 to 470μF																			
Capacitance Tolerance	±20% at 120Hz, 20°C																			
Leakage Current	After 2 minutes' application of rated voltage, leakage current is not more than 0.01CV 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> <td>50</td> <td>63</td> <td>80</td> <td>100</td> </tr> <tr> <td>tan δ (MAX.)</td> <td>0.30</td> <td>0.23</td> <td>0.18</td> <td>0.16</td> <td>0.16</td> <td>0.12</td> <td>0.12</td> <td>0.10</td> </tr> </table>	Rated voltage (V)	10	16	25	35	50	63	80	100	tan δ (MAX.)	0.30	0.23	0.18	0.16	0.16	0.12	0.12	0.10	
Rated voltage (V)	10	16	25	35	50	63	80	100												
tan δ (MAX.)	0.30	0.23	0.18	0.16	0.16	0.12	0.12	0.10												
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> <td>50</td> <td>63</td> <td>80</td> <td>100</td> </tr> <tr> <td>Impedance ratio ZT / Z20 (MAX.)</td> <td>Z-40°C / Z+20°C</td> <td>12</td> <td>8</td> <td>6</td> <td>4</td> <td>4</td> <td>3</td> <td>3</td> <td>3</td> </tr> </table>	Rated voltage (V)		10	16	25	35	50	63	80	100	Impedance ratio ZT / Z20 (MAX.)	Z-40°C / Z+20°C	12	8	6	4	4	3	3
Rated voltage (V)		10	16	25	35	50	63	80	100											
Impedance ratio ZT / Z20 (MAX.)	Z-40°C / Z+20°C	12	8	6	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 3000 hours(1000hours for φ6.3 × 5.8L, 2000hours for φ6.3 × 7.7L) at 125°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>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																			
Shelf Life	After storing the capacitors under no load at 125°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													
	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

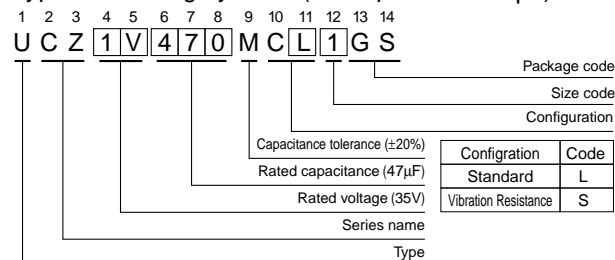
(φ 6.3) **【Standard】** ※ φ6.3 × 5.8L : The vibration structure-resistant product can't support.
φ6.3 × 7.7L : The vibration structure-resistant product is available.



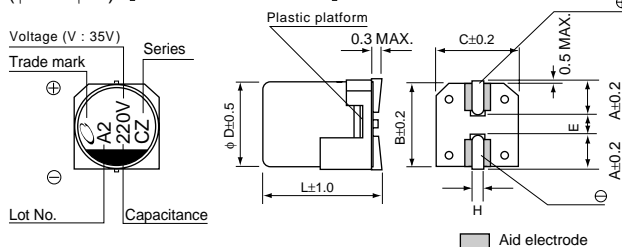
(φ 8 to φ10) 【Standard】



Type numbering system (Example : 35V 47μF)



(φ 8 to φ10) 【Vibration Resistance】



Standard

φD×L	6.3 × 5.8	6.3 × 7.7	8 × 10	10 × 10
A	2.4	2.4	2.9	3.2
B	6.6	6.6	8.3	10.3
C	6.6	6.6	8.3	10.3
E	2.2	2.2	3.1	4.5
L	5.8	7.7	10	10
H	0.5 to 0.8	0.5 to 0.8	0.8 to 1.1	0.8 to 1.1

Vibration Resistance (mm)

φD×L	8 × 10	10 × 10
A	2.9	3.2
B	8.3	10.3
C	8.3	10.3
E	3.1	4.5
L	10	10
H	1.1 to 1.5	1.1 to 1.5

Rated Voltage

V	10	16	25	35	50	63	80	100
Code	A	C	E	V	H	J	K	2A

■Dimensions

V		10	16	25	35	50
Cap. (μF)	Code	1A	1C	1E	1V	1H
10	100				6.3 × 5.8 1.60 24 — 69	6.3 × 5.8 2.80 42 — 51
22	220				6.3 × 5.8 1.60 24 — 69	6.3 × 7.7 0.50 5 40 197
33	330			6.3 × 5.8 1.60 24 — 69	6.3 × 7.7 0.45 5 40 197	● 6.3 × 7.7 0.50 5 40 197 8 × 10 0.25 3.5 6 270
47	470		6.3 × 5.8 1.60 24 — 69	Recommend 35V →	● 6.3 × 7.7 0.45 5 40 197 8 × 10 0.20 3 4.5 270	● 6.3 × 7.7 0.50 5 40 197 8 × 10 0.25 3.5 6 270
68	680				8 × 10 0.20 3 4.5 270	
100	101	Recommend 16V →	● 6.3 × 7.7 0.45 5 40 197 8 × 10 0.20 3 4.5 270	● 6.3 × 7.7 0.45 5 40 197 8 × 10 0.20 3 4.5 270	8 × 10 0.20 3 4.5 270	10 × 10 0.20 2.5 4.5 500
220	221	8 × 10 0.20 3 4.5 270	8 × 10 0.20 3 4.5 270	● 8 × 10 0.20 3 4.5 270 10 × 10 0.15 2 3.5 500	10 × 10 0.15 2 3.5 500	
330	331	● 8 × 10 0.20 3 4.5 270 10 × 10 0.15 2 3.5 500	10 × 10 0.15 2 3.5 500	10 × 10 0.15 2 3.5 500		Case size φD × L (mm) Initial 20°C Initial -40°C after endurance test 2000 hours -40°C Rated ripple ESR
470	471	10 × 10 0.15 2 3.5 500	10 × 10 0.15 2 3.5 500			

V		63	80	100
Cap. (μF)	Code	1J	1K	2A
10	100	6.3 × 7.7 2.00 100 — 60	8 × 10 0.75 50 — 70	8 × 10 0.75 50 — 70
22	220	8 × 10 0.70 35 — 100	● 8 × 10 0.75 50 — 70 10 × 10 0.55 35 — 115	● 8 × 10 0.75 50 — 70 10 × 10 0.55 35 — 115
33	330	● 8 × 10 0.70 35 — 100 10 × 10 0.50 25 — 170	● 8 × 10 0.75 50 — 70 10 × 10 0.55 35 — 115	10 × 10 0.55 35 — 115
47	470	● 8 × 10 0.70 35 — 160 10 × 10 0.50 25 — 170	10 × 10 0.55 35 — 115	Case size φD × L (mm) Initial 20°C Initial -40°C after endurance test 2000 hours -40°C Rated ripple ESR

Max. ESR (Ω) at 20°C / -40°C 100kHz, Rated ripple Current (mArms) at 125°C 100kHz
 ● : In this case, ● 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.