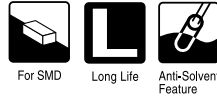
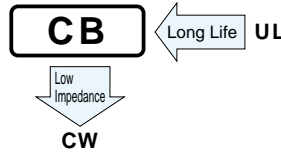


ALUMINUM ELECTROLYTIC CAPACITORS

CB series Chip Type, Long Life Assurance



- Chip type with load life of 7000 hours at +105°C.
- Applicable to automatic mounting machine fed with carrier tape.
- Compliant to the RoHS directive (2002/95/EC).

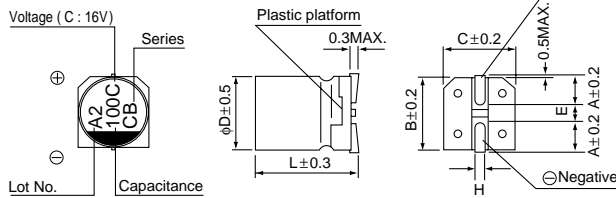


Specifications

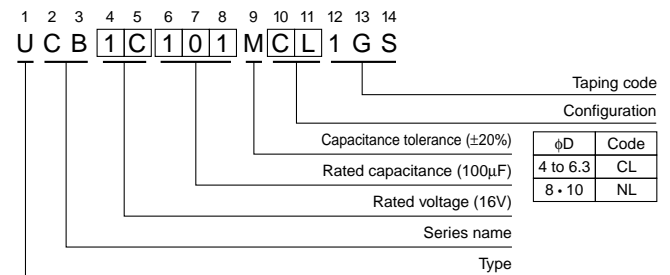
| Item | Performance Characteristics | | | | | | | | | | | | | |
|---------------------------------|--|--------------------|--|-------|---|-----------------|---|----|---------------------------------|-----------------|------|------|------|------|
| Category Temperature Range | -25 to +105°C | | | | | | | | | | | | | |
| Rated Voltage Range | 6.3 to 50V | | | | | | | | | | | | | |
| Rated Capacitance Range | 0.1 to 1000μF | | | | | | | | | | | | | |
| Capacitance Tolerance | ±20% at 120Hz, 20°C | | | | | | | | | | | | | |
| Leakage Current | After 2 minutes' application of rated voltage, leakage current is not more than 0.03 CV or 4 (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>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>0.32</td> <td>0.28</td> <td>0.26</td> <td>0.16</td> <td>0.14</td> <td>0.14</td> </tr> </table> | Rated voltage (V) | 6.3 | 10 | 16 | 25 | 35 | 50 | tan δ (MAX.) | 0.32 | 0.28 | 0.26 | 0.16 | 0.14 |
| Rated voltage (V) | 6.3 | 10 | 16 | 25 | 35 | 50 | | | | | | | | |
| tan δ (MAX.) | 0.32 | 0.28 | 0.26 | 0.16 | 0.14 | 0.14 | | | | | | | | |
| Stability at Low Temperature | Measurement frequency : 120Hz | | | | | | | | | | | | | |
| | <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>Impedance ratio ZT / Z20 (MAX.)</td> <td>Z-25°C / Z+20°C</td> <td>4</td> <td>3</td> <td>2</td> <td>2</td> <td>2</td> </tr> </table> | Rated voltage (V) | 6.3 | 10 | 16 | 25 | 35 | 50 | Impedance ratio ZT / Z20 (MAX.) | Z-25°C / Z+20°C | 4 | 3 | 2 | 2 |
| Rated voltage (V) | 6.3 | 10 | 16 | 25 | 35 | 50 | | | | | | | | |
| Impedance ratio ZT / Z20 (MAX.) | Z-25°C / Z+20°C | 4 | 3 | 2 | 2 | 2 | | | | | | | | |
| Endurance | <p>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.</p> <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 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 | <p>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.</p> <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

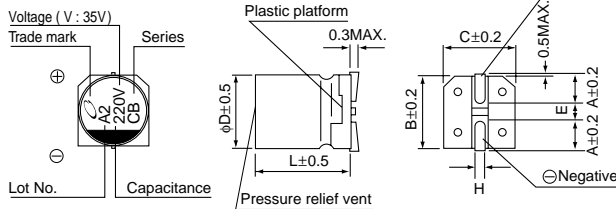
(φ4 to φ6.3)



Type numbering system (Example : 16V 100μF)



(φ8 to φ10)



| φD × L | 4 × 7 | 5 × 7 | 6.3 × 7 | 6.3 × 8.7 | 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 | 7.0 | 7.0 | 7.0 | 8.7 | 10 | 10 |
| H | 0.5 to 0.8 | 0.5 to 0.8 | 0.5 to 0.8 | 0.5 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.(μ F) | Code | 6.3 | | 10 | | 16 | | 25 | | 35 | | 50 | |
|----------------|------|---------|-----|------|-----|---------|-----|---------|-----|---------|-----|------------------------------|-----------------|
| | | 0J | | 1A | | 1C | | 1E | | 1V | | 1H | |
| 0.1 | 0R1 | | | | | | | | | 4×7 | 1.0 | | |
| 0.22 | R22 | | | | | | | | | 4×7 | 2.6 | | |
| 0.33 | R33 | | | | | | | | | 4×7 | 3.2 | | |
| 0.47 | R47 | | | | | | | | | 4×7 | 3.8 | | |
| 1 | 010 | | | | | | | | | 4×7 | 6.2 | | |
| 2.2 | 2R2 | | | | | | | | | 4×7 | 11 | | |
| 3.3 | 3R3 | | | | | | | | | 4×7 | 14 | | |
| 4.7 | 4R7 | | | | | | | | | 4×7 | 15 | | |
| 10 | 100 | | | | | 4×7 | 18 | | | 5×7 | 25 | | |
| 22 | 220 | 4×7 | 22 | | | 5×7 | 30 | | | 6.3×7 | 42 | | |
| 33 | 330 | | | 5×7 | 35 | | | 6.3×7 | 48 | 6.3×8.7 | 57 | 8×10 | 77 |
| 47 | 470 | 5×7 | 36 | | | 6.3×7 | 50 | 6.3×8.7 | 63 | | | 8×10 | 92 |
| 100 | 101 | 6.3×7 | 60 | | | 6.3×8.7 | 81 | 8×10 | 116 | | | 10×10 | 151 |
| 220 | 221 | 6.3×8.7 | 101 | 8×10 | 141 | | | | | 10×10 | 216 | | |
| 330 | 331 | 8×10 | 160 | | | | | | | | | | |
| 470 | 471 | | | | | 10×10 | 254 | | | | | | |
| 1000 | 102 | 10×10 | 313 | | | | | | | | | Case size ϕ D×L (mm) | Rated ripple |

Rated ripple current (mA_{rms}) 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.