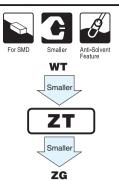
# **ALUMINUM ELECTROLYTIC CAPACITORS**

4.5mmL Chip Type, Wide Temperature Range series

- ◆ Chip type with 4.5mm height, operating over wide temperature range of -40 to +105°C.
- Designed for surface mounting on high density PC board.
- Applicable to automatic mounting machine fed with carrier tape.
- Compliant to the RoHS directive (2011/65/EU).

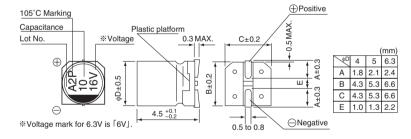




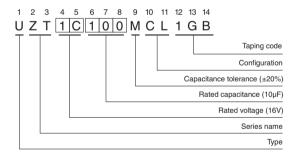
### ■Specifications

| Item                                  | Performance Characteristics   |  |   |       |   |    |    |           |   |  |   |
|---------------------------------------|---|--|---|-------|---|----|----|-----------|---|--|---|
| Category Temperature Range            | -40 to +105°C   |  |   |       |   |    |    |           |   |  |   |
| Rated Voltage Range                   | 6.3 to 50V  | 6.3 to 50V   |   |       |   |    |    |           |   |  |   |
| Rated Capacitance Range               | 0.1 to 100μF  | ).1 to 100µF   |   |       |   |    |    |           |   |  |   |
| Capacitance Tolerance                 | ±20% at 120Hz, 2  | ±20% at 120Hz, 20°C  |   |       |   |    |    |           |   |  |   |
| Leakage Current                       | After 2 minutes' ap   | After 2 minutes' application of rated voltage, leakage current is not more than 0.01CV or 3 (μA) , whichever is greater. |   |       |   |    |    |           |   |  |   |
|                                       | Measurement frequency : 120Hz at 20°C   |  |   |       |   |    |    |           |   |  |   |
| Tangent of loss angle (tan $\delta$ ) | Rated voltage (V) 6.3 10  |  |   | 16 25 |   |    | 35 | 50        |   |  |   |
|                                       | tan δ (MAX.)  | tan δ (MAX.) 0.38 0.32 0.20 0.16 0.14  |   | 0.14  |   |    |    |           |   |  |   |
|                                       | Measurement frequency : 120Hz   |  |   |       |   |    |    |           |   |  |   |
| Stability at Low Temperature          |   | voltage (V)  |   | 6.3   | 10  | 16 |    | 3         |   |  |   |
| Stability at Low Temperature          | Impedance ratio   | Z-25°C / 2   |   | 6     | 5   | 3  | 3  | 3         |   |  |   |
|                                       | ZT / Z20 (MAX.)   | Z-40°C / 2   | Z+20°C  | 10    | 10  | 6  | 6  | 4         | 4 |  |   |
| Endurance                             | The specifications met when the capa  |  | Capacitance Within ±25% of the initial capacitance value (16V or less) within ±20% of the initial capacitance value (25V or more) tan δ 300% or less than initial specified value   |       |   |    |    |           |   |  |   |
|                                       | 20°C after the rated voltage is applied for 1000 hours at 105°C.  |  |   |       | 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          | is maintained at 25   | 50°Ċ. The ca<br>irements list  | hot plate for 30 seconds, which apacitors shall meet the sted at right when they are estored to $20^{\circ}\text{C}$ .  Capacitance change Within $\pm 10\%$ of the initial capacitance value $\tan \delta$ Less than or equal to the initial specified value Leakage current Less than or equal to the initial specified value |       |   |    |    | ied value |   |  |   |
| Marking                               | Black print on the  | case top.  |   |       |   |    |    |           |   |  |   |

#### ■Chip Type



# Type numbering system (Example: 16V 10µF)



# ■ Dimensions

|           | V    | 6.  | .3     | 1   | 0  | 1   | 16 | 2   | 25       | 3   | 35     | 5                      | 0            |
|-----------|------|-----|--------|-----|----|-----|----|-----|----------|-----|--------|------------------------|--------------|
| Cap. (µF) | Code | 0   | J      | 1   | A  | 1   | С  | 1   | E        | 1   | V      | 1                      | Н            |
| 0.1       | 0R1  |     | l<br>I |     |    |     | ļ  |     | !        |     |        | 4                      | 0.9          |
| 0.22      | R22  |     | i<br>I |     |    |     |    |     | İ        |     | i      | 4                      | 2.2          |
| 0.33      | R33  |     | I<br>I |     | l  |     | İ  |     | l<br>I   |     | I<br>I | 4                      | 2.8          |
| 0.47      | R47  |     | <br>   |     |    |     |    |     | 1        |     |        | 4                      | 3.3          |
| 1         | 010  |     | i<br>I |     |    |     | İ  |     | l<br>I   |     | i      | 4                      | 5.4          |
| 2.2       | 2R2  |     | <br>   |     | 1  |     | ļ  |     | <u> </u> |     |        | 4                      | 9.6          |
| 3.3       | 3R3  |     | I      |     |    |     |    |     |          |     |        | 4                      | 12           |
| 4.7       | 4R7  |     | i<br>i |     | i  |     | i  | 4   | 11       | 4   | 13     | 5                      | 16           |
| 10        | 100  |     | l<br>I |     |    | 4   | 16 | 5   | 20       | 5   | 22     | 6.3                    | 26           |
| 22        | 220  | 4   | 19     | 5   | 24 | 5   | 26 | 6.3 | 33       | 6.3 | 36     |                        |              |
| 33        | 330  | 5   | 26     | 5   | 30 | 6.3 | 35 | 6.3 | 42       |     | i      |                        |              |
| 47        | 470  | 5   | 32     | 6.3 | 40 | 6.3 | 44 |     | 1        |     | !      |                        |              |
| 100       | 101  | 6.3 | 52     |     |    |     |    |     |          |     |        | Case size  <br>φD (mm) | Rated ripple |

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

#### Frequency coefficient of rated ripple current

|            |         |        | 1.1.   |       |                |
|------------|---------|--------|--------|-------|----------------|
| Frequency  | / 50 Hz | 120 Hz | 300 Hz | 1 kHz | 10 kHz or more |
| Coefficien | t 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 select UX(p.154), UJ(p.160) series if high C/V products are regired.
- Please refer to page 3 for the minimum order quantity.

CAT.8100D