# ALUMINUM ELECTROLYTIC CAPACITORS

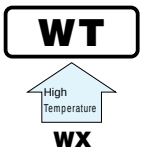
nichicon

**WT** Chip Type, Wide Temperature Range

series

For SMD | Smaller | Anti-Solvent Feature

- Chip type operating over wide temperature range of to –55 ~ +105°C.
- Designed for surface mounting on high density PC board.
- Applicable to automatic mounting machine using carrier tape.




## ■Specifications

| Item | Performance Characteristics |
|---|---|
| Category Temperature Range | –55 ~ +105°C |
| Rated Voltage Range | 4 ~ 50V |
| Rated Capacitance Range | 0.1 ~ 1500µF |
| 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. |
| tan δ | Measurement frequency : 120Hz, Temperature : 20°C |

| Rated voltage (V) | 4 | 6.3 | 10 | 16 | 25 | 35 | 50 |
|---|---|---|---|---|---|---|---|
| tan δ (MAX.) | 0.40 | 0.30 | 0.24 | 0.20 | 0.16 | 0.14 | 0.14 |

Stability at Low Temperature — Measurement frequency : 120Hz

| Rated voltage (V) | | 4 | 6.3 | 10 | 16 | 25 | 35 | 50 |
|---|---|---|---|---|---|---|---|---|
| Impedance ratio ZT / Z20 (MAX.) | Z–25°C / Z+20°C | 7 | 4 | 3 | 2 | 2 | 2 | 2 |
| | Z–40°C / Z+20°C | 15 | 8 | 8 | 4 | 4 | 3 | 3 |

Endurance — After 1000 hours' application of rated voltage at 105°C, capacitors meet the characteristic requirements listed at right.

| | |
|---|---|
| Capacitance change | Within ±25% of initial value for capacitors of φ3mm unit, and 16V or less.<br>Within ±20% of initial value for capacitors of 25V or more. |
| tan δ | 200% or less of initial specified value |
| Leakage current | Initial specified value or less |

Shelf Life — After leaving capacitors under no load at 105°C for 1000 hours, they meet the specified value for endurance characteristics listed above.

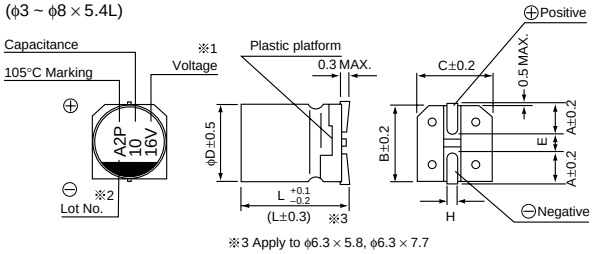
Resistance to soldering heat — The capacitors shall be kept on the hot plate maintained at 250°C for 30 seconds. After removing from the hot plate and restored at room temperature, they meet the characteristic requirements listed at right.

| | |
|---|---|
| Capacitance change | Within ±10% of initial value |
| tan δ | Initial specified value or less |
| Leakage current | Initial specified value or less |

Marking — Black print on the case top.

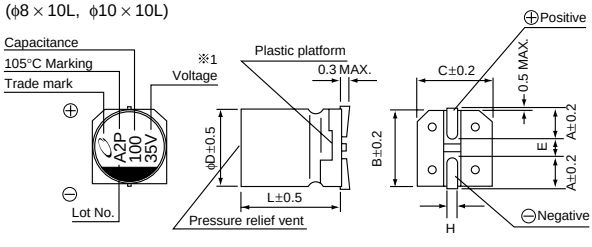
## ■Chip Type

(φ3 ~ φ8 × 5.4L)



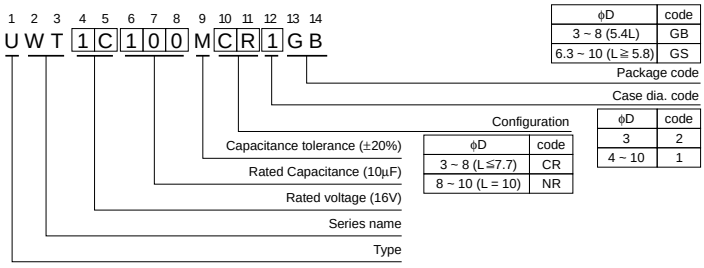

※3 Apply to φ6.3 × 5.8, φ6.3 × 7.7

(φ8 × 10L, φ10 × 10L)




※1. Voltage mark for 6.3V is 「6V」. In case of marking for φ3 units, "V" for rated voltage is omitted.
※2. In case of marking for φ3 units. Lot No is expressed by a digit (month code).

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




| φD | code |
|---|---|
| 3 ~ 8 (5.4L) | GB |
| 6.3 ~ 10 (L ≧ 5.8) | GS |

| φD | code |
|---|---|
| 3 | 2 |
| 4 ~ 10 | 1 |

| φD | code |
|---|---|
| 3 ~ 8 (L ≦7.7) | CR |
| 8 ~ 10 (L = 10) | NR |

- The lead-free product is also available upon request. In this case, L will be put at 11th digit of type numbering system.

| | 3 × 5.4 | 4 × 5.4 | 5 × 5.4 | 6.3 × 5.4 | 6.3 × 5.8 | 6.3 × 7.7 | 8 × 5.4 | 8 × 10 | 10 × 10 |
|---|---|---|---|---|---|---|---|---|---|
| A | 1.5 | 1.8 | 2.1 | 2.4 | 2.4 | 2.4 | 3.3 | 2.9 | 3.2 |
| B | 3.3 | 4.3 | 5.3 | 6.6 | 6.6 | 6.6 | 8.3 | 8.3 | 10.3 |
| C | 3.3 | 4.3 | 5.3 | 6.6 | 6.6 | 6.6 | 8.3 | 8.3 | 10.3 |
| E | 0.8 | 1.0 | 1.3 | 2.2 | 2.2 | 2.2 | 2.3 | 3.1 | 4.5 |
| L | 5.4 | 5.4 | 5.4 | 5.4 | 5.8 | 7.7 | 5.4 | 10 | 10 |
| H | 0.5 ~ 0.8 | 0.5 ~ 0.8 | 0.5 ~ 0.8 | 0.5 ~ 0.8 | 0.5 ~ 0.8 | 0.5 ~ 0.8 | 0.5 ~ 0.8 | 0.8 ~ 1.1 | 0.8 ~ 1.1 |

● Dimension table in next page.

# WT series

## ■Dimensions

| Cap. (μF) \ V | Code | 4 | | 6.3 | | 10 | | 16 | | 25 | | 35 | | 50 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 0G | | 0J | | 1A | | 1C | | 1E | | 1V | | 1H | |
| **0.1** | 0R1 | | | | | | | | | | | | | 4×5.4 (3) | 1.0 |
| **0.22** | R22 | | | | | | | | | | | | | 4×5.4 (3) | 2.6 |
| **0.33** | R33 | | | | | | | | | | | | | 4×5.4 (3) | 3.2 |
| **0.47** | R47 | | | | | | | | | | | | | 4×5.4 (3) | 3.8 |
| **1** | 010 | | | | | | | | | | | | | 4×5.4 (3) | 6.3 (5.9) |
| **2.2** | 2R2 | | | | | | | | | | | 3×5.4 | 7.5 | 4×5.4 (3) | 11 (9) |
| **3.3** | 3R3 | | | | | | | | | | | 3×5.4 | 9 | 4×5.4 | 14 |
| **4.7** | 4R7 | | | | | | | | | 4×5.4 (3) | 13 (10) | 4×5.4 | 15 | 5×5.4 | 19 |
| **10** | 100 | | | | | | | 4×5.4 (3) | 18 (14) | 5×5.4 | 23 | 5×5.4 | 25 | 6.3×5.4 | 30 |
| **22** | 220 | 4×5.4 | 22 | 4×5.4 | 22 | 5×5.4 | 27 | 5×5.4 | 30 | 6.3×5.4 | 38 | 6.3×5.4 | 42 | ●8×5.4 | 51 (45) |
| **33** | 330 | 5×5.4 | 30 | 5×5.4 | 30 | 5×5.4 | 35 | 6.3×5.4 | 40 | 6.3×5.4 | 48 | ●8×5.4 | 59 (52) | 6.3×7.7 | 60 |
| **47** | 470 | 5×5.4 | 36 | 5×5.4 | 36 | 6.3×5.4 | 46 | 6.3×5.4 | 50 | ●8×5.4 | 66 (59) | 6.3×5.8 | 63 | 6.3×7.7 | 63 |
| **100** | 101 | 6.3×5.4 | 60 | 6.3×5.4 | 60 | 6.3×5.4 | 60 | 6.3×5.4 | 60 | 6.3×7.7 | 91 | 6.3×7.7 | 84 | 8×10 | 140 |
| **150** | 151 | 6.3×5.8 | 86 | 6.3×5.8 | 86 | 6.3×5.8 | 86 | 6.3×7.7 | 95 | 8×10 | 140 | 8×10 | 155 | 10×10 | 180 |
| **220** | 221 | ●8×5.4 | 102 (91) | ●8×5.4 | 102 (91) | 6.3×7.7 | 105 | 6.3×7.7 | 105 | 8×10 | 155 | 8×10 | 190 | 10×10 | 220 |
| **330** | 331 | 6.3×7.7 | 105 | 6.3×7.7 | 105 | 8×10 | 195 | 8×10 | 195 | 8×10 | 190 | 10×10 | 300 | | |
| **470** | 471 | 8×10 | 210 | 8×10 | 210 | 8×10 | 210 | 8×10 | 230 | 10×10 | 300 | | | | |
| **680** | 681 | 8×10 | 210 | 8×10 | 210 | 10×10 | 310 | 10×10 | 310 | | | | | | |
| **1000** | 102 | 8×10 | 230 | 8×10 | 230 | 10×10 | 310 | | | | | | | Case size | Rated ripple |
| **1500** | 152 | 10×10 | 310 | 10×10 | 310 | | | | | | | | | | |

Rated Ripple (mA rms) at 105°C 120Hz

( ) is also available with ϕ3mm upon request. In such a case, 2 will be put at 12th digit of type numbering system.
Size ϕ6.3×5.8 is available for capacitors marked. "●" In such a 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~ |
|---|---|---|---|---|---|
| Coefficient | 0.70 | 1.00 | 1.17 | 1.36 | 1.50 |

●Taping Specifications are given in page 22.

Please refer to page 3 for the minimum order quantity.