

# ALUMINUM ELECTROLYTIC CAPACITORS

nichicon

WF

Chip Type, Low Impedance

series



For SMD

Low Impedance

Anti-Solvent Feature

- Chip type, low impedance temperature range up 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 (2002/95/EC).



## Specifications

| Item                          | Performance Characteristics                                                                                                                                                                                                             |                 |      |      |                    |      |                                                   |
|-------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|------|------|--------------------|------|---------------------------------------------------|
| Category Temperature Range    | -55 to +105°C                                                                                                                                                                                                                           |                 |      |      |                    |      |                                                   |
| Rated Voltage Range           | 6.3 to 35V                                                                                                                                                                                                                              |                 |      |      |                    |      |                                                   |
| Rated Capacitance Range       | 1 to 220μF                                                                                                                                                                                                                              |                 |      |      |                    |      |                                                   |
| 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                                                                                                                                                                                                   |                 |      |      |                    |      |                                                   |
|                               | Rated voltage (V)                                                                                                                                                                                                                       | 6.3             | 10   | 16   | 25                 | 35   |                                                   |
|                               | tan δ (MAX.)                                                                                                                                                                                                                            | 0.22            | 0.19 | 0.16 | 0.14               | 0.12 |                                                   |
| Stability at Low Temperature  | Measurement frequency : 120Hz                                                                                                                                                                                                           |                 |      |      |                    |      |                                                   |
|                               | Rated voltage (V)                                                                                                                                                                                                                       |                 | 6.3  | 10   | 16                 | 25   | 35                                                |
|                               | Impedance ratio                                                                                                                                                                                                                         | Z-25°C / Z+20°C | 2    | 2    | 2                  | 2    | 2                                                 |
|                               | ZT / Z20 (MAX.)                                                                                                                                                                                                                         | Z-55°C / Z+20°C | 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 1000 hours at 105°C.                                                                                    |                 |      |      | Capacitance change |      | Within ±20% 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 |
| 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.               |                 |      |      | 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.                                                                                                                                                                                                            |                 |      |      |                    |      |                                                   |

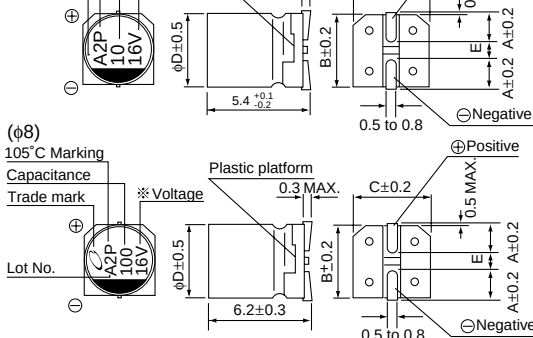
## Chip Type

(φ4 to φ6.3)

105°C Marking

Capacitance

Lot No.



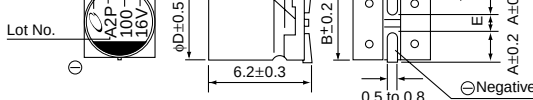
(φ8)

105°C Marking

Capacitance

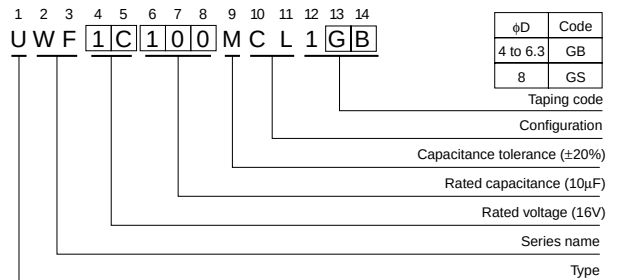
Trade mark

Lot No.



※ Voltage mark for 6.3V is 6V.

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



## Dimensions

| V         |      | 6.3 |     |     | 10  |     |     | 16  |     |     | 25  |     |     | 35                    |           |                 |
|-----------|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----------------------|-----------|-----------------|
| Cap. (μF) | Code | 0J  |     |     | 1A  |     |     | 1C  |     |     | 1E  |     |     | 1V                    |           |                 |
| 1         | 010  |     |     |     |     |     |     |     |     |     |     |     | 4   | 5.0                   | 50        |                 |
| 1.5       | 1R5  |     |     |     |     |     |     |     |     |     |     |     | 4   | 5.0                   | 50        |                 |
| 2.2       | 2R2  |     |     |     |     |     |     |     |     |     |     |     | 4   | 5.0                   | 50        |                 |
| 3.3       | 3R3  |     |     |     |     |     |     |     |     |     |     |     | 4   | 5.0                   | 50        |                 |
| 4.7       | 4R7  |     |     |     |     |     |     |     |     |     | 4   | 5.0 | 50  | 4                     | 5.0       | 50              |
| 6.8       | 6R8  |     |     |     |     |     |     |     |     |     | 4   | 5.0 | 50  | 5                     | 2.6       | 80              |
| 10        | 100  |     |     |     |     |     |     | 4   | 5.0 | 50  | 5   | 2.6 | 80  | 5                     | 2.6       | 80              |
| 15        | 150  |     |     |     |     |     |     | 5   | 2.6 | 80  | 6.3 | 1.3 | 115 | 6.3                   | 1.3       | 115             |
| 22        | 220  | 4   | 5.0 | 50  | 5   | 2.6 | 80  | 5   | 2.6 | 80  | 6.3 | 1.3 | 115 | 6.3                   | 1.3       | 115             |
| 33        | 330  | 5   | 2.6 | 80  | 5   | 2.6 | 80  | 6.3 | 1.3 | 115 | 6.3 | 1.3 | 115 | 8                     | 0.8       | 150             |
| 47        | 470  | 5   | 2.6 | 80  | 6.3 | 1.3 | 115 | 6.3 | 1.3 | 115 | 8   | 0.8 | 150 | 8                     | 0.8       | 150             |
| 68        | 680  | 6.3 | 1.3 | 115 | 6.3 | 1.3 | 115 | 8   | 0.8 | 150 | 8   | 0.8 | 150 |                       |           |                 |
| 100       | 101  | 6.3 | 1.3 | 115 | 8   | 0.8 | 150 | 8   | 0.8 | 150 |     |     |     |                       |           |                 |
| 150       | 151  | 8   | 0.8 | 150 | 8   | 0.8 | 150 |     |     |     |     |     |     | Case size<br>φ D (mm) | Impedance | Rated<br>ripple |
| 220       | 221  | 8   | 0.8 | 150 |     |     |     |     |     |     |     |     |     |                       |           |                 |

## 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 select UJ(p.116) series if high C/V products are required.
- Please refer to page 3 for the minimum order quantity.

CAT.8100B

## Данный компонент на территории Российской Федерации

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Сотрудничество с глобальными дистрибьюторами электронных компонентов, предоставляет возможность заказывать и получать с международных складов практически любой перечень компонентов в оптимальные для Вас сроки.

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Система менеджмента качества компании отвечает требованиям в соответствии с ГОСТ Р ИСО 9001, ГОСТ РВ 0015-002 и ЭС РД 009

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