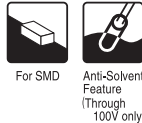


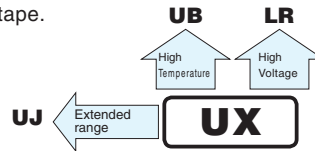
# ALUMINUM ELECTROLYTIC CAPACITORS

nichicon

**UX** series Chip Type, Wide Temperature Range



- Chip type, operating over wide temperature range of to -55 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).

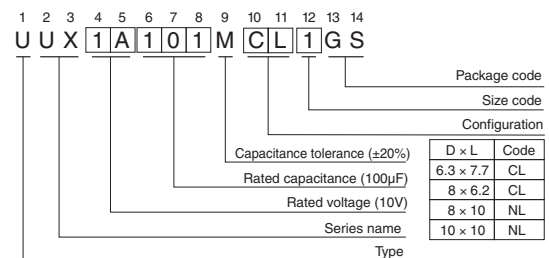
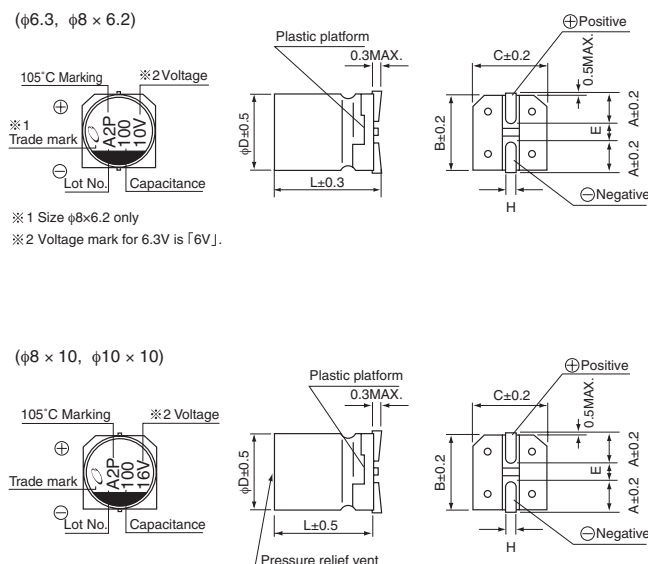


## Specifications

|                               |                                                                                                                                                                                                                                         |                 |      |                                                                                                                                   |      |      |      |                    |      |                                                   |            |      |      |     |
|-------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|------|-----------------------------------------------------------------------------------------------------------------------------------|------|------|------|--------------------|------|---------------------------------------------------|------------|------|------|-----|
| Item                          | Performance Characteristics                                                                                                                                                                                                             |                 |      |                                                                                                                                   |      |      |      |                    |      |                                                   |            |      |      |     |
| Category Temperature Range    | -55 to +105°C (6.3 to 100V), -40 to +105°C (160 to 400V)                                                                                                                                                                                |                 |      |                                                                                                                                   |      |      |      |                    |      |                                                   |            |      |      |     |
| Rated Voltage Range           | 6.3 to 400V                                                                                                                                                                                                                             |                 |      |                                                                                                                                   |      |      |      |                    |      |                                                   |            |      |      |     |
| Rated Capacitance Range       | 1 to 1000μF                                                                                                                                                                                                                             |                 |      |                                                                                                                                   |      |      |      |                    |      |                                                   |            |      |      |     |
| Capacitance Tolerance         | ±20% at 120Hz, 20°C                                                                                                                                                                                                                     |                 |      |                                                                                                                                   |      |      |      |                    |      |                                                   |            |      |      |     |
| Leakage Current               | Rated voltage (V)                                                                                                                                                                                                                       |                 |      | 6.3 to 100                                                                                                                        |      |      |      |                    |      |                                                   | 160 to 400 |      |      |     |
|                               | Leakage Current                                                                                                                                                                                                                         |                 |      | After 1 minute's application of rated voltage, leakage current is not more than 0.03CV (μA), I = 0.04CV+100 (μA) max.(1 minute's) |      |      |      |                    |      |                                                   |            |      |      |     |
| Tangent of loss angle (tan δ) | Measurement frequency : 120Hz at 20°C                                                                                                                                                                                                   |                 |      |                                                                                                                                   |      |      |      |                    |      |                                                   |            |      |      |     |
|                               | Rated voltage (V)                                                                                                                                                                                                                       | 6.3             | 10   | 16                                                                                                                                | 25   | 35   | 50   | 63                 | 100  | 160                                               | 200        | 250  | 400  |     |
|                               | tan δ (MAX.)                                                                                                                                                                                                                            | 0.22            | 0.19 | 0.16                                                                                                                              | 0.14 | 0.12 | 0.10 | 0.10               | 0.08 | 0.20                                              | 0.20       | 0.20 | 0.25 |     |
| Stability at Low Temperature  | Measurement frequency: 120Hz                                                                                                                                                                                                            |                 |      |                                                                                                                                   |      |      |      |                    |      |                                                   |            |      |      |     |
|                               | Rated voltage (V)                                                                                                                                                                                                                       |                 | 6.3  | 10                                                                                                                                | 16   | 25   | 35   | 50                 | 63   | 100                                               | 160        | 200  | 250  | 400 |
|                               | Impedance ratio ZT / Z20 (MAX.)                                                                                                                                                                                                         | Z-55°C / Z+20°C | 4    | 4                                                                                                                                 | 3    | 3    | 3    | 2                  | 3    | 4                                                 | —          | —    | —    | —   |
|                               |                                                                                                                                                                                                                                         | Z-40°C / Z+20°C | —    | —                                                                                                                                 | —    | —    | —    | —                  | —    | —                                                 | 6          | 6    | 6    | 10  |
| Endurance                     | The specifications listed at right shall be met when the capacitors are restored to 20°C after the rated voltage is applied for 2000 hours (160 to 400V : 3000hours) 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

Type numbering system (Example : 10V 100μF)



|   | 6.3 × 7.7  |  | 8 × 6.2    |  | 8 × 10     |  | 10 × 10    |  |
|---|------------|--|------------|--|------------|--|------------|--|
| A | 2.4        |  | 3.3        |  | 2.9        |  | 3.2        |  |
| B | 6.6        |  | 8.3        |  | 8.3        |  | 10.3       |  |
| C | 6.6        |  | 8.3        |  | 8.3        |  | 10.3       |  |
| E | 2.2        |  | 2.3        |  | 3.1        |  | 4.5        |  |
| L | 7.7        |  | 6.2        |  | 10         |  | 10         |  |
| H | 0.5 to 0.8 |  | 0.5 to 0.8 |  | 0.8 to 1.1 |  | 0.8 to 1.1 |  |

● Dimension table in next page.

CAT.8100D

## ■ Dimensions

| Cap.<br>( $\mu$ F) | V   | 6.3              | 10               | 16               | 25               | 35               | 50               | 63               | 100                                            |
|--------------------|-----|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------------------------------------|
| Code               | 0J  | 1A               | 1C               | 1E               | 1V               | 1H               | 1J               | 2A               |                                                |
| 4.7                | 4R7 |                  |                  |                  |                  |                  |                  |                  | 8×6.2 42                                       |
| 10                 | 100 |                  |                  |                  |                  |                  |                  | 8×6.2 51         | 8×10 75                                        |
| 22                 | 220 |                  |                  |                  |                  |                  | ○ 8×6.2 67(64)   | 8×10 108         | ■ 10×10 150(121)                               |
| 33                 | 330 |                  |                  |                  |                  | ○ 8×6.2 76(75)   | 8×10 133         | ■ 10×10 185(179) | 10×10 180                                      |
| 47                 | 470 |                  |                  |                  | ○ 8×6.2 79(78)   | 8×10 124         | ■ 10×10 180(167) | 10×10 220        | 10×10 230                                      |
| 100                | 101 |                  | 8×6.2 90         | ○ 8×10 148(111)  | 8×10 181         | ■ 10×10 304(283) | 10×10 310        | 10×10 320        |                                                |
| 220                | 221 | ○ 8×10 161(121)  | 8×10 173         | ■ 10×10 330(307) | ■ 10×10 351(283) | 10×10 450        |                  |                  |                                                |
| 330                | 331 | 8×10 288         | ■ 10×10 318(296) | ■ 10×10 441(410) | 10×10 372        |                  |                  |                  |                                                |
| 470                | 471 | ■ 10×10 340(316) | ■ 10×10 351(326) | 10×10 489        |                  |                  |                  |                  |                                                |
| 680                | 681 | 10×10 408        | 10×10 392        |                  |                  |                  |                  |                  |                                                |
| 1000               | 102 | 10×10 495        |                  |                  |                  |                  |                  |                  | Case size<br>$\phi$ D × L (mm) Rated<br>ripple |

| Cap.<br>( $\mu$ F) | V   | 160      | 200      | 250      | 400      |
|--------------------|-----|----------|----------|----------|----------|
| Code               | 2C  | 2D       | 2E       | 2G       |          |
| 1                  | 010 |          |          |          | 8×10 25  |
| 1.8                | 1R8 |          |          |          | 8×10 26  |
| 2.2                | 2R2 |          |          |          | 8×10 27  |
| 3.3                | 3R3 |          | 8×10 31  | 8×10 31  | 10×10 38 |
| 3.9                | 3R9 |          | 8×10 34  | 8×10 34  | 10×10 39 |
| 4.7                | 4R7 |          | 8×10 37  | 8×10 37  | 10×10 40 |
| 6.8                | 6R8 |          | 8×10 44  | 8×10 44  |          |
| 10                 | 100 | 8×10 57  | 10×10 64 | 10×10 64 |          |
| 18                 | 180 | 10×10 64 |          |          |          |

Rated ripple current (mA rms) at 105°C 120Hz

Size  $\phi 6.3 \times 7.7$  is available for capacitors marked. "○" / Size  $\phi 8 \times 10$  is available for capacitors marked. "■"  
 ※ In this case, 6 will be put at 12th digit of type numbering system.

## ● Frequency coefficient of rated ripple current

| Cap.( $\mu$ F) | Frequency | 50 Hz | 120 Hz | 300 Hz | 1 kHz | 10 kHz or more |
|----------------|-----------|-------|--------|--------|-------|----------------|
| 1 to 47        |           | 0.80  | 1.00   | 1.15   | 1.40  | 1.67           |
| 100 to 1000    |           | 0.85  | 1.00   | 1.08   | 1.20  | 1.30           |

- Taping specifications are given in page 23.
- Recommended land size, soldering by reflow are given in page 18, 19.
- Please select UJ(p.160) series if high C/V products are required.
- Please refer to page 3 for the minimum order quantity.

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