

**UBC**Chip Type, High Temperature Range,  
Vibration Resistance

For SMD



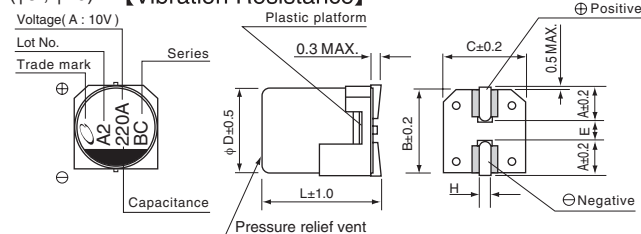
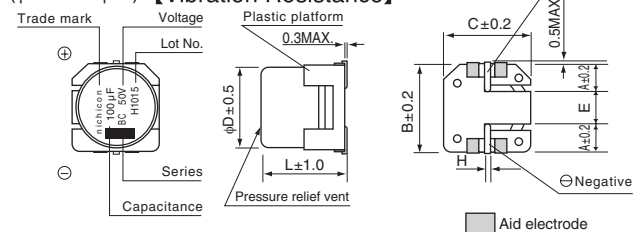
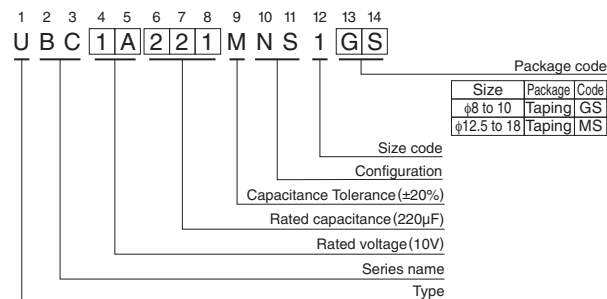
Long Life

Anti-Solvent  
Feature

- Highly dependable reliability withstanding load life of 1000 hours at +150°C.
- Suited for automobile electronics where heavy duty services are indispensable.
- Compliant to the RoHS directive (2011/65/EU, (EU)2015/863).
- AEC-Q200 compliant. Please contact us for details.

**UBC****Specifications**

| Item                          | Performance Characteristics                                                                                                                                                                                                             |              |      |      |                                                   |      |                                              |            |
|-------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|------|------|---------------------------------------------------|------|----------------------------------------------|------------|
| Category Temperature Range    | -40 to +150°C (φ8 to 10), -55 to +150°C (φ12.5 to 18)                                                                                                                                                                                   |              |      |      |                                                   |      |                                              |            |
| Rated Voltage Range           | 10 to 50V                                                                                                                                                                                                                               |              |      |      |                                                   |      |                                              |            |
| Rated Capacitance Range       | 33 to 3300μF                                                                                                                                                                                                                            |              |      |      |                                                   |      |                                              |            |
| Capacitance Tolerance         | ±20% at 120Hz, 20°C                                                                                                                                                                                                                     |              |      |      |                                                   |      |                                              |            |
| Leakage Current               | After 1 minute's application of rated voltage at 20°C, leakage current is not more than 0.03CV or 4 (μA), whichever is greater.                                                                                                         |              |      |      |                                                   |      |                                              |            |
| Tangent of loss angle (tan δ) | Rated voltage (V)                                                                                                                                                                                                                       |              | 10   | 16   | 25                                                | 35   | 50                                           | 120Hz 20°C |
|                               | tan δ<br>(MAX.)                                                                                                                                                                                                                         | φ8, φ10      | 0.26 | 0.20 | 0.16                                              | 0.14 | 0.14                                         |            |
|                               |                                                                                                                                                                                                                                         | φ12.5 to φ18 | 0.22 | 0.18 | 0.16                                              | 0.14 | 0.12                                         |            |
|                               | For capacitance of more than 1000μF, add 0.02 for every increase of 1000μF. (φ12.5 to φ18)                                                                                                                                              |              |      |      |                                                   |      |                                              |            |
| Stability at Low Temperature  | Rated voltage (V)                                                                                                                                                                                                                       |              | 10   | 16   | 25                                                | 35   | 50                                           | 120Hz      |
|                               | Impedance ratio<br>Z-40°C / Z+20°C<br>(MAX.)                                                                                                                                                                                            | φ8, φ10      | 10   | 8    | 6                                                 | 4    | 4                                            |            |
|                               |                                                                                                                                                                                                                                         | φ12.5 to φ18 | 8    | 6    | 4                                                 | 4    | 4                                            |            |
| 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 150°C.                                                                                    |              |      |      | 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 150°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. |              |      |      |                                                   |      |                                              |            |
| Marking                       | Black print on the case top.                                                                                                                                                                                                            |              |      |      |                                                   |      |                                              |            |

**Chip Type****(φ8, φ10) 【Vibration Resistance】****(φ12.5 to φ18) 【Vibration Resistance】****Type numbering system (Example : 10V 220μF)**

|   | φ8         | 10         | 12.5       | 16         | 18         |
|---|------------|------------|------------|------------|------------|
| A | 2.9        | 3.2        | 4.8        | 5.4        | 6.4        |
| B | 8.3        | 10.3       | 13.6       | 17.1       | 19.1       |
| C | 8.3        | 10.3       | 13.6       | 17.1       | 19.1       |
| E | 3.1        | 4.5        | 4.0        | 6.3        | 6.3        |
| L | 10         | 10         | 13.5       | 16.5, 21.5 | 21.5       |
| H | 1.1 to 1.5 | 1.1 to 1.5 | 1.0 to 1.4 | 1.0 to 1.4 | 1.0 to 1.4 |

**Dimensions**

| V         |      | 10          |      | 16          |      | 25          |      | 35          |      | 50                        |                 |
|-----------|------|-------------|------|-------------|------|-------------|------|-------------|------|---------------------------|-----------------|
| Cap. (μF) | Code | 1A          |      | 1C          |      | 1E          |      | 1V          |      | 1H                        |                 |
| 33        | 330  |             |      |             |      |             |      |             |      | 8 × 10                    | 70              |
| 47        | 470  |             |      |             |      |             |      | 8 × 10      | 80   | 10 × 10                   | 100             |
| 100       | 101  |             |      | 8 × 10      | 110  | 8 × 10      | 110  | 10 × 10     | 120  | 12.5 × 13.5               | 420             |
| 220       | 221  | 8 × 10      | 110  | 10 × 10     | 150  | 10 × 10     | 150  | 12.5 × 13.5 | 550  | 16 × 16.5                 | 550             |
| 330       | 331  | 10 × 10     | 150  |             |      | 12.5 × 13.5 | 650  | 12.5 × 13.5 | 650  | 16 × 21.5                 | 650             |
| 470       | 471  |             |      | 12.5 × 13.5 | 750  | 12.5 × 13.5 | 700  | 16 × 16.5   | 750  | 16 × 21.5                 | 850             |
| 680       | 681  | 12.5 × 13.5 | 800  | 12.5 × 13.5 | 800  | 16 × 16.5   | 800  | 16 × 21.5   | 950  | 18 × 21.5                 | 1100            |
| 1000      | 102  | 12.5 × 13.5 | 900  | 16 × 16.5   | 850  | 16 × 21.5   | 1000 | 18 × 21.5   | 1150 |                           |                 |
| 2200      | 222  | 18 × 21.5   | 1350 | 18 × 21.5   | 1350 |             |      |             |      | Case size<br>φ D × L (mm) | Rated<br>ripple |
| 3300      | 332  | 18 × 21.5   | 1400 |             |      |             |      |             |      |                           |                 |

Rated ripple current (mA rms) at 150°C 100kHz

**Frequency coefficient of rated ripple current**

| Frequency   | 120 Hz | 300 Hz | 1 kHz | 10kHz or more |
|-------------|--------|--------|-------|---------------|
| Coefficient | 0.67   | 0.79   | 0.91  | 1.00          |

- 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.