

UH

Chip Type, High Reliability, Higher Capacitance Range

series



For SMD



Long Life



Anti-Solvent Feature

- Chip Type, higher capacitance in larger case sizes (φ12.5, φ16, φ18, φ20)
- Designed for surface mounting on high density PC board.
- Applicable to automatic mounting machine fed with carrier tape and tray.
- Compliant to the RoHS directive (2002/95/EC).

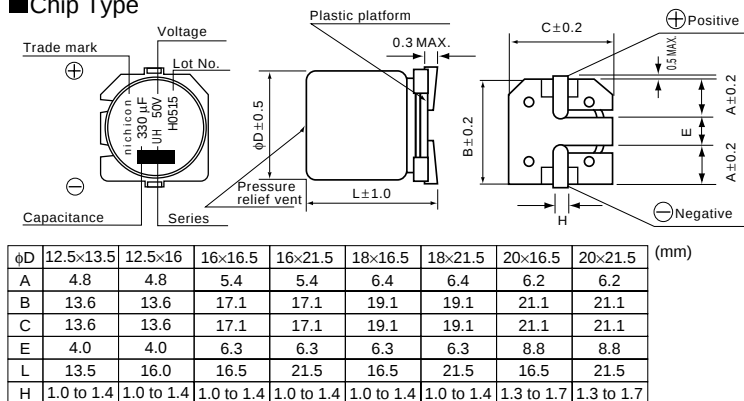
UH



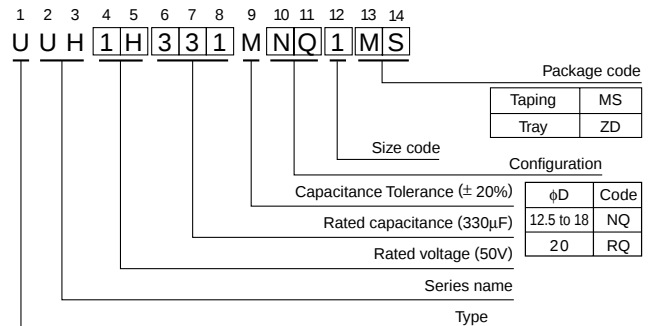
## ■ Specifications

| Item                          | Performance Characteristics                                                                                                                                                                                                             |                 |      |      |                    |      |                                                   |   |
|-------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|------|------|--------------------|------|---------------------------------------------------|---|
| Category Temperature Range    | -55 to +125°C                                                                                                                                                                                                                           |                 |      |      |                    |      |                                                   |   |
| Rated Voltage Range           | 10 to 50V                                                                                                                                                                                                                               |                 |      |      |                    |      |                                                   |   |
| Rated Capacitance Range       | 100 to 3300μF                                                                                                                                                                                                                           |                 |      |      |                    |      |                                                   |   |
| Capacitance Tolerance         | ±20% at 120Hz, 20°C                                                                                                                                                                                                                     |                 |      |      |                    |      |                                                   |   |
| Leakage Current               | After 1 minute's application of rated voltage, 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 (MAX)                                                                                                                                                                                                                             | 0.22            | 0.18 | 0.16 | 0.14               | 0.12 |                                                   |   |
|                               | For capacitance of more than 1000μF, add 0.02 for every increase of 1000μF.                                                                                                                                                             |                 |      |      |                    |      |                                                   |   |
| Stability at Low Temperature  | Rated voltage (V)                                                                                                                                                                                                                       | 10              | 16   | 25   | 35                 | 50   | 120Hz                                             |   |
|                               | Impedance ratio                                                                                                                                                                                                                         | Z-25°C / Z+20°C | 4    | 3    | 2                  | 2    |                                                   | 2 |
|                               | ZT / Z20 (MAX.)                                                                                                                                                                                                                         | Z-40°C / Z+20°C | 8    | 6    | 4                  | 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 5000 hours at 125°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 125°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



## Type numbering system (Example : 50V 330μF)



## ■ Dimensions

| Cap. (μF)             | Code | 10          |     | 16          |     | 25          |     | 35          |     | 50          |              |
|-----------------------|------|-------------|-----|-------------|-----|-------------|-----|-------------|-----|-------------|--------------|
|                       |      | 1A          | 1C  | 1E          | 1V  | 1H          | 1I  | 1J          | 1K  | 1L          | 1M           |
| 100                   | 101  |             |     |             |     |             |     |             |     | 12.5 × 13.5 | 170          |
| 220                   | 221  |             |     |             |     |             |     | 12.5 × 13.5 | 200 | 16 × 16.5   | 250          |
| 330                   | 331  |             |     | 12.5 × 13.5 | 210 | 12.5 × 13.5 | 230 | 16 × 16.5   | 280 | 16 × 21.5   | 340          |
| 470                   | 471  | 12.5 × 13.5 | 230 | 12.5 × 13.5 | 250 | 16 × 16.5   | 310 | 18 × 16.5   | 380 | 18 × 21.5   | 430          |
| 1000                  | 102  | 12.5 × 16   | 350 | 16 × 16.5   | 440 | 18 × 21.5   | 540 | 20 × 21.5   | 610 |             |              |
| 2200                  | 222  | 18 × 16.5   | 620 | 18 × 21.5   | 710 |             |     |             |     |             |              |
| 3300                  | 332  | 18 × 21.5   | 770 |             |     |             |     |             |     |             |              |
| Case size φD × L (mm) |      |             |     |             |     |             |     |             |     |             | Rated ripple |

\* In this case, [6] will be put at 12th digit of type numbering system, "▲"

Rated ripple current (mA rms) at 125°C 120Hz

## ● Frequency coefficient of rated ripple current

| Cap. (μF)    | Frequency | 50 Hz | 120 Hz | 300 Hz | 1 kHz | 10 kHz or more |
|--------------|-----------|-------|--------|--------|-------|----------------|
| 100 to 470   |           | 0.80  | 1.00   | 1.23   | 1.34  | 1.50           |
| 1000 to 3300 |           | 0.85  | 1.00   | 1.10   | 1.13  | 1.15           |

- 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.