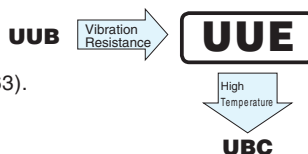


# UUE

Chip Type, Vibration Resistance



- Chip type with load life of 5000 hours at 125°C.
- Suited for automobile electronics where heavy duty services are indispensable.
- Compliant to the RoHS directive (2011/65/EU,(EU)2015/863).
- AEC-Q200 Qualified. Please contact us for details.

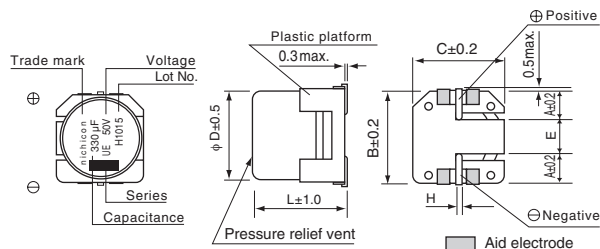


## Specifications

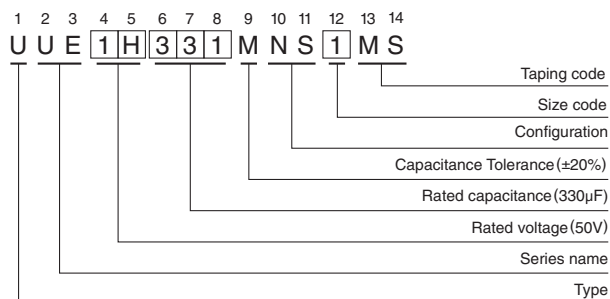
| Item                          | Performance Characteristics                                                                                                                                                                                                             |                                                                                                                                                      |      |      |                                                   |               |
|-------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|------|------|---------------------------------------------------|---------------|
| Category Temperature Range    | -55 to +125°C                                                                                                                                                                                                                           |                                                                                                                                                      |      |      |                                                   |               |
| Rated Voltage Range           | 16 to 50V                                                                                                                                                                                                                               |                                                                                                                                                      |      |      |                                                   |               |
| Rated Capacitance Range       | 33 to 2200μF                                                                                                                                                                                                                            |                                                                                                                                                      |      |      |                                                   |               |
| 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 (μA).                                                                                                                                    |                                                                                                                                                      |      |      |                                                   |               |
| Tangent of loss angle (tan δ) | For capacitance of more than 1000μF, add 0.02 for every increase of 1000μF.                                                                                                                                                             |                                                                                                                                                      |      |      |                                                   |               |
|                               | Rated voltage (V)                                                                                                                                                                                                                       | 16                                                                                                                                                   | 25   | 35   | 50                                                | 120Hz<br>20°C |
|                               | tan δ (max.)                                                                                                                                                                                                                            | 0.18                                                                                                                                                 | 0.16 | 0.14 | 0.12                                              |               |
| Stability at Low Temperature  | Rated voltage (V)                                                                                                                                                                                                                       | 16                                                                                                                                                   | 25   | 35   | 50                                                | 120Hz         |
|                               | Impedance ratio<br>Z(-40°C) / Z(+20°C) (max.)                                                                                                                                                                                           | 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                                |               |
| 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.                                                                                                                                                                                                            |                                                                                                                                                      |      |      |                                                   |               |

※ I : Leakage Current (μA), C : Rated Capacitance (μF), V : Rated Voltage (V)

## Chip Type



Type numbering system (Example : 50V 330μF)



## Frequency coefficient of rated ripple current

| φ D            | Cap. (μF)    | Frequency | 50 Hz | 120 Hz | 300 Hz | 1 kHz | 10 kHz or more |
|----------------|--------------|-----------|-------|--------|--------|-------|----------------|
| φ 12.5 to φ 18 | 100 to 680   |           | 0.53  | 0.67   | 0.82   | 0.89  | 1.00           |
|                | 1000 to 2200 |           | 0.74  | 0.87   | 0.96   | 0.98  | 1.00           |

| φ D | 12.5       | 16         | 18         |
|-----|------------|------------|------------|
| A   | 4.8        | 5.4        | 6.4        |
| B   | 13.6       | 17.1       | 19.1       |
| C   | 13.6       | 17.1       | 19.1       |
| E   | (4.0)      | (6.3)      | (6.3)      |
| L   | 13.5, 16   | 16.5, 21.5 | 16.5, 21.5 |
| H   | 1.0 to 1.4 | 1.0 to 1.4 | 1.0 to 1.4 |

● Dimension table in next page.

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## ■ Dimensions

| Rated Voltage<br>(V)<br>(code) | Rated Capacitance<br>( $\mu$ F) | Case Size<br>$\phi$ D $\times$ L (mm) | $\tan \delta$ | Leakage Current<br>( $\mu$ A)<br>(at 20°C after<br>1 minute) | Rated Ripple<br>(mA <sub>rms</sub> )<br>(125°C/100kHz) | Part Number    |
|--------------------------------|---------------------------------|---------------------------------------|---------------|--------------------------------------------------------------|--------------------------------------------------------|----------------|
| 16<br>(1C)                     | 330                             | 12.5 $\times$ 13.5                    | 0.18          | 158.4                                                        | 750                                                    | UUE1C331MNS1MS |
|                                | 470                             | 12.5 $\times$ 13.5                    | 0.18          | 225.6                                                        | 750                                                    | UUE1C471MNS1MS |
|                                | 680                             | 16 $\times$ 16.5                      | 0.18          | 326.4                                                        | 1000                                                   | UUE1C681MNS1MS |
|                                | 1000                            | 18 $\times$ 16.5                      | 0.18          | 480                                                          | 1200                                                   | UUE1C102MNS1MS |
|                                | 2200                            | 18 $\times$ 16.5                      | 0.20          | 1056                                                         | 1200                                                   | UUE1C222MNS1MS |
| 25<br>(1E)                     | 330                             | 12.5 $\times$ 13.5                    | 0.16          | 247.5                                                        | 750                                                    | UUE1E331MNS1MS |
|                                | 470                             | 16 $\times$ 16.5                      | 0.16          | 352.5                                                        | 1000                                                   | UUE1E471MNS1MS |
|                                | 680                             | 18 $\times$ 16.5                      | 0.16          | 510                                                          | 1200                                                   | UUE1E681MNS1MS |
|                                | 680                             | 16 $\times$ 21.5                      | 0.16          | 510                                                          | 1200                                                   | UUE1E681MNS6MS |
|                                | 1000                            | 18 $\times$ 21.5                      | 0.16          | 750                                                          | 1550                                                   | UUE1E102MNS1MS |
| 35<br>(1V)                     | 220                             | 12.5 $\times$ 13.5                    | 0.14          | 231                                                          | 550                                                    | UUE1V221MNS1MS |
|                                | 330                             | 16 $\times$ 16.5                      | 0.14          | 346.5                                                        | 1000                                                   | UUE1V331MNS1MS |
|                                | 470                             | 16 $\times$ 16.5                      | 0.14          | 493.5                                                        | 1000                                                   | UUE1V471MNS1MS |
|                                | 680                             | 18 $\times$ 16.5                      | 0.14          | 714                                                          | 1200                                                   | UUE1V681MNS1MS |
|                                | 1000                            | 18 $\times$ 21.5                      | 0.14          | 1050                                                         | 1400                                                   | UUE1V102MNS6MS |
| 50<br>(1H)                     | 100                             | 12.5 $\times$ 13.5                    | 0.12          | 150                                                          | 500                                                    | UUE1H101MNS1MS |
|                                | 220                             | 16 $\times$ 16.5                      | 0.12          | 330                                                          | 850                                                    | UUE1H221MNS1MS |
|                                | 330                             | 16 $\times$ 16.5                      | 0.12          | 495                                                          | 850                                                    | UUE1H331MNS1MS |
|                                | 470                             | 18 $\times$ 16.5                      | 0.12          | 705                                                          | 950                                                    | UUE1H471MNS1MS |

- For taping specifications, recommended land size/soldering by reflow and minimum order quantity, please refer to the Guidelines for Aluminum Electrolytic Capacitors.