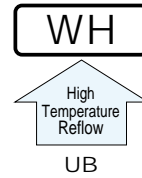


**WH** Chip Type, High Reliability  
High Temperature (260°C) Reflow  
series



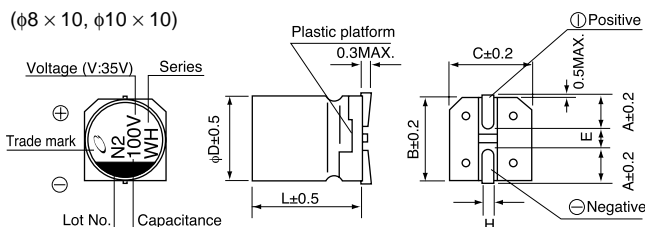
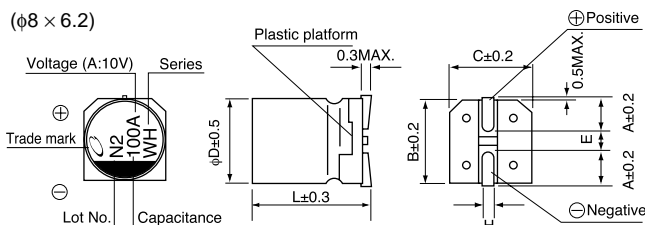
- Corresponding with 260°C peak reflow soldering  
Recommended reflow condition : 260°C peak 5 sec. 230°C over 60 sec. 2 times  
( $\phi 8 \times 6.2$ ,  $\phi 10 \times 10$  : 1 time)
- Chip type high temperature range, for +125°C use.
- Applicable to automatic mounting machine using carrier tape.
- Adapted to the RoHS directive (2002/95/EC).



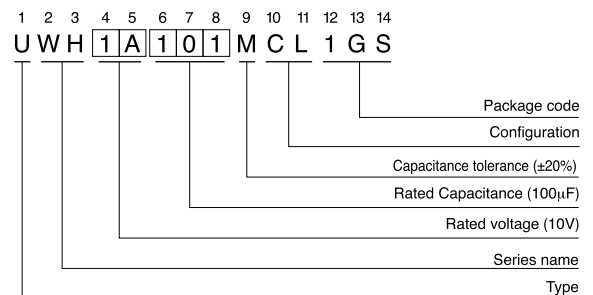
## Specifications

| Item                         | Performance Characteristics   |                 |    |    |                    |   |
|------------------------------|---|-----------------|----|----|--------------------|---|
| Category Temperature Range   | -40 ~ +125°C  |                 |    |    |                    |   |
| Rated Voltage Range          | 10 ~ 50V  |                 |    |    |                    |   |
| Rated Capacitance Range      | 10 ~ 330 $\mu$ F  |                 |    |    |                    |   |
| Capacitance Tolerance        | $\pm 20\%$ at 120Hz, 20°C   |                 |    |    |                    |   |
| Leakage Current              | After 1 minute's application of rated voltage, leakage current is not more than 0.03CV or 4( $\mu$ A) , whichever is greater.   |                 |    |    |                    |   |
| tan $\delta$                 | Measurement frequency : 120Hz, Temperature : 20°C   |                 |    |    |                    |   |
|                              | Rated voltage (V)   | 10              | 16 | 25 | 35                 | 50                                      |
| Stability at Low Temperature | Measurement frequency : 120Hz   |                 |    |    |                    |   |
|                              | Impedance ratio ZT / Z20 (MAX.)   | Z-40°C / Z+20°C | 12 | 8  | 6                  | 4                                       |
| Endurance                    | After 1000 hours' application of rated voltage at 125°C, capacitors meet the characteristic requirements listed at right.   |                 |    |    | Capacitance change | Within $\pm 30\%$ of initial value      |
|                              |   |                 |    |    | tan $\delta$       | 300% or less of initial specified value |
| Shelf Life                   | After 1000 hours' application of rated voltage at 125°C, capacitors meet the characteristic requirements listed at right.   |                 |    |    | Leakage current    | Initial specified value or less         |
|                              | After storing the capacitors under no load at 125°C for 1000 hours, and after performing voltage treatment based on JIS C 5101-4 clause 4.1 at 20°C, they will meet the specified value for endurance characteristics listed above. |                 |    |    |                    |   |
| Resistance to soldering heat | The capacitors shall be kept on the hot plate maintained at 250°C for 30 seconds. After removing from the hot plate and restored at room temperature, they meet the characteristic requirements listed at right.                    |                 |    |    | Capacitance change | Within $\pm 10\%$ of initial value      |
|                              |   |                 |    |    | tan $\delta$       | Initial specified value or less         |
| Marking                      |   |                 |    |    | Leakage current    | Initial specified value or less         |
|                              | Black print on the case top.  |                 |    |    |                    |   |

## Chip Type



## Type numbering system (Example : 10V 100 $\mu$ F)



| $\phi D \times L$ | 8 $\times$ 6.2 | 8 $\times$ 10 | 10 $\times$ 10 |
|-------------------|----------------|---------------|----------------|
| A                 | 3.3            | 2.9           | 3.2            |
| B                 | 8.3            | 8.3           | 10.3           |
| C                 | 8.3            | 8.3           | 10.3           |
| E                 | 2.3            | 3.1           | 4.5            |
| L                 | 6.2            | 10            | 10             |
| H                 | 0.5 ~ 0.8      | 0.8 ~ 1.1     | 0.8 ~ 1.1      |

## Voltage

|      |    |    |    |    |    |
|------|----|----|----|----|----|
| V    | 10 | 16 | 25 | 35 | 50 |
| Code | A  | C  | E  | V  | H  |

● Dimension table in next page.

### ■ Dimensions

| Cap.( $\mu$ F) | V<br>Code | 10    |     | 16    |     | 25    |     | 35    |    | 50                           |                 |
|----------------|-----------|-------|-----|-------|-----|-------|-----|-------|----|------------------------------|-----------------|
|                |           | 1A    |     | 1C    |     | 1E    |     | 1V    |    | 1H                           |                 |
| 10             | 100       |       |     |       |     |       |     |       |    | 8×6.2                        | 24              |
| 22             | 220       |       |     |       |     |       |     |       |    | 8×6.2                        | 38              |
| 33             | 330       |       |     |       |     |       |     | 8×6.2 | 44 | 8×10                         | 46              |
| 47             | 470       |       |     |       |     | 8×6.2 | 48  | 8×10  | 52 | 10×10                        | 58              |
| 100            | 101       | 8×6.2 | 58  | 8×10  | 66  | 8×10  | 74  | 10×10 | 80 |                              |                 |
| 220            | 221       | 8×10  | 90  | 10×10 | 102 | 10×10 | 116 |       |    |                              |                 |
| 330            | 331       | 10×10 | 112 |       |     |       |     |       |    | Case size<br>$\phi$ D×L (mm) | Rated<br>ripple |

Rated Ripple (mArms) at 125°C 120Hz

### ● Frequency coefficient of rated ripple current

| Frequency   | 50 Hz | 120 Hz | 300 Hz | 1 kHz | 10 kHz~ |
|-------------|-------|--------|--------|-------|---------|
| Coefficient | 0.70  | 1.00   | 1.17   | 1.36  | 1.50    |

- Taping specifications are given in page 24.
- Recommended land size, soldering by reflow are given in page 25, 26.
- Please refer to page 3 for the minimum order quantity.