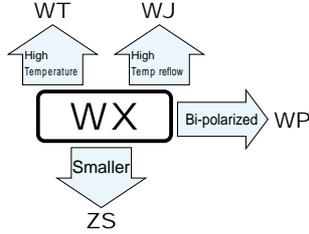


## WX series 5.5mmL Chip Type



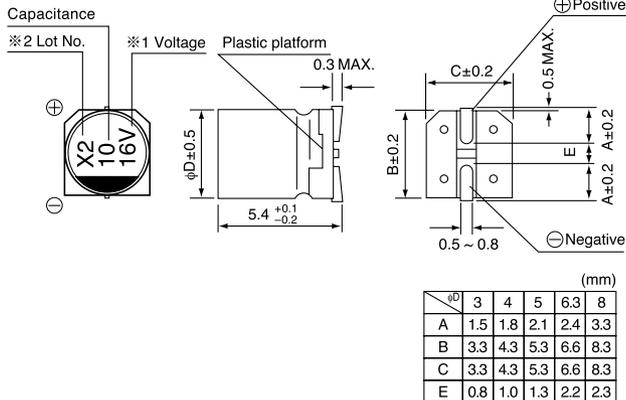
- Chip type with 5.5mm height.
- Designed for surface mounting on high density PC board.
- Applicable to automatic mounting machine using carrier tape.
- Load life of 2000 hours at 85°C.
- Adapted to the RoHS directive (2002/95/EC).



### Specifications

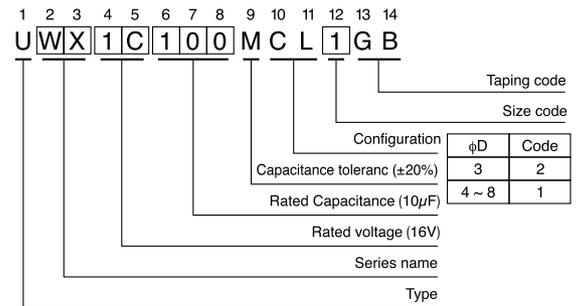
| Item                               | Performance Characteristics  |                    |   |             |             |             |             |    |   |
|------------------------------------|--|--------------------|---|-------------|-------------|-------------|-------------|----|---|
| Category Temperature Range         | -40 ~ +85°C  |                    |   |             |             |             |             |    |   |
| Rated Voltage Range                | 4 ~ 50V  |                    |   |             |             |             |             |    |   |
| Rated Capacitance Range            | 0.1 ~ 330μF  |                    |   |             |             |             |             |    |   |
| Capacitance Tolerance              | ±20% at 120Hz, 20°C  |                    |   |             |             |             |             |    |   |
| Leakage Current                    | After 2 minutes' application of rated voltage, leakage current is not more than 0.01CV or 3 (μA), whichever is greater.  |                    |   |             |             |             |             |    |   |
| tan δ                              | Measurement frequency : 120Hz, Temperature : 20°C  |                    |   |             |             |             |             |    |   |
|                                    | Rated voltage (V)  | 4                  | 6.3   | 10          | 16          | 25          | 35          | 50 | Values in ( ) applicable to WR, φ3 case size. |
| tan δ (MAX.)                       | 0.35 (0.40)  | 0.26 (0.30)        | 0.20 (0.24)   | 0.16 (0.19) | 0.14 (0.16) | 0.12 (0.14) | 0.12 (0.14) |    |   |
| Stability at Low Temperature       | Measurement frequency : 120Hz  |                    |   |             |             |             |             |    |   |
|                                    | Rated voltage (V)  | 4                  | 6.3   | 10          | 16          | 25          | 35          | 50 |   |
| Impedance ratio<br>ZT / Z20 (MAX.) | Z-25°C / Z+20°C  | 7                  | 4   | 3           | 2           | 2           | 2           | 2  |   |
|                                    | Z-40°C / Z+20°C  | 15                 | 8   | 8           | 4           | 4           | 3           | 3  |   |
| Endurance                          | After 2000 hours' application of rated voltage at 85°C, capacitors meet the characteristic requirements listed at right.   | Capacitance change | Within ±20% of initial value (Within ±25% for 4 V and φ3,WR series units) |             |             |             |             |    |   |
|                                    |  | tan δ              | 200% or less of initial specified value                                   |             |             |             |             |    |   |
|                                    |  | Leakage Current    | Initial specified value or less   |             |             |             |             |    |   |
| Shelf Life                         | After storing the capacitors under no load at 85°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 ±10% of initial value  |             |             |             |             |    |   |
|                                    |  | tan δ              | Initial specified value or less   |             |             |             |             |    |   |
|                                    |  | Leakage current    | Initial specified value or less   |             |             |             |             |    |   |
| Marking                            | Black print on the case top.   |                    |   |             |             |             |             |    |   |

### Chip Type



- ※1. Voltage mark for 6.3V is 「6V」.  
In case of marking for φ3 units, "V" for rated voltage is omitted.
- ※2. In case of marking for φ3 units, Lot No. is expressed by a digit (month code).

### Type numbering system (Example : 16V 10μF)



- In the case of size φ3 in ( ), parentheses, use WX in the 2nd and 3rd digit and put a 2 in the 12th digit of type numbering system.



## ■Dimensions

| V<br>Cap. (μF) Code |     | 4   |     | 6.3   |          | 10    |          | 16    |         | 25    |         | 35    |         | 50    |           |
|---------------------|-----|-----|-----|-------|----------|-------|----------|-------|---------|-------|---------|-------|---------|-------|-----------|
|                     |     | 0G  | 0J  | 1A    | 1C       | 1E    | 1V       | 1H    |         |       |         |       |         |       |           |
| 0.1                 | 0R1 |     |     |       |          |       |          |       |         |       |         |       |         | 4 (3) | 1.0       |
| 0.22                | R22 |     |     |       |          |       |          |       |         |       |         |       |         | 4 (3) | 2.0       |
| 0.33                | R33 |     |     |       |          |       |          |       |         |       |         |       |         | 4 (3) | 2.8       |
| 0.47                | R47 |     |     |       |          |       |          |       |         |       |         |       |         | 4 (3) | 4.0       |
| 1                   | 010 |     |     |       |          |       |          |       |         |       |         |       |         | 4 (3) | 8.4 (8.0) |
| 2.2                 | 2R2 |     |     |       |          |       |          |       |         |       |         | 3     | 8.4     | 4 (3) | 13 (10)   |
| 3.3                 | 3R3 |     |     |       |          |       |          |       |         |       |         | 3     | 10      | 4     | 17        |
| 4.7                 | 4R7 |     |     |       |          |       |          |       |         | 4 (3) | 16 (12) | 4     | 18      | ● 5   | 20 (18)   |
| 10                  | 100 |     |     |       |          |       |          | 4 (3) | 23 (18) | ● 5   | 27 (24) | ● 5   | 29 (24) | ○ 6.3 | 33 (30)   |
| 22                  | 220 | 3   | 19  | 4 (3) | 28 (21)  | ● 5   | 33 (30)  | ● 5   | 37 (30) | ○ 6.3 | 42 (38) | ○ 6.3 | 46 (39) | □ 8   | 52 (43)   |
| 33                  | 330 | 4   | 28  | ● 5   | 37 (34)  | ● 5   | 41 (34)  | ○ 6.3 | 49 (44) | ○ 6.3 | 52 (46) | □ 8   | 62 (53) | 8     | 71        |
| 47                  | 470 | 4   | 33  | ● 5   | 45 (40)  | ○ 6.3 | 52 (47)  | ○ 6.3 | 58 (52) | □ 8   | 70 (60) | 8     | 80      |       |           |
| 56                  | 560 | 5   | 42  | ○ 6.3 | 52 (46)  | ○ 6.3 | 57 (50)  | ○ 6.3 | 63 (57) | □ 8   | 76 (65) |       |         |       |           |
| 100                 | 101 | 5   | 56  | ○ 6.3 | 70 (47)  | ○ 6.3 | 76 (54)  | 6.3   | 86      | 8     | 110     |       |         |       |           |
| 150                 | 151 | 6.3 | 79  | 6.3   | 71       | □ 8   | 111 (76) |       |         |       |         |       |         |       |           |
| 220                 | 221 | 6.3 | 96  | □ 8   | 110 (74) | 8     | 135      |       |         |       |         |       |         |       |           |
| 330                 | 331 | 8   | 145 | 8     | 170      |       |          |       |         |       |         |       |         |       |           |

( ) is also available with φ3mm upon request.

Rated Ripple (mArms) at 85°C 120Hz

• In the case of size φ3 in ( ), parentheses, use WX at 2nd and 3rd digit and put [2] at the 12th digit of type numbering system.

( ) = φ3 units and WR Series

Size φ4 is available for capacitors marked. " ● "

Size φ5 is available for capacitors marked. " ○ "

Size φ6.3 is available for capacitors marked. " □ "

In such a case, [WR] will be put at 2nd and 3rd digit of type numbering system.

## ●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 select UR(p.70), UG(p.75) series if high C/V products are required.
- Please refer to page 3 for the minimum order quantity.