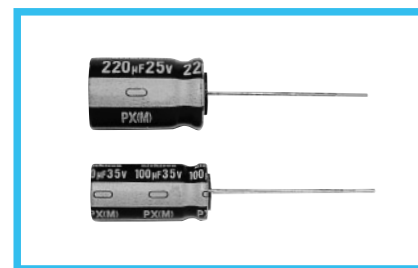
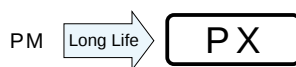


**PX** Long Life Assurance  
series



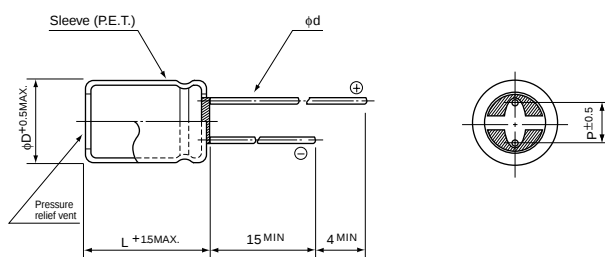
- Load life of 20000 hours at 105°C.
- Compliant to the RoHS directive (2002/95/EC).



## Specifications

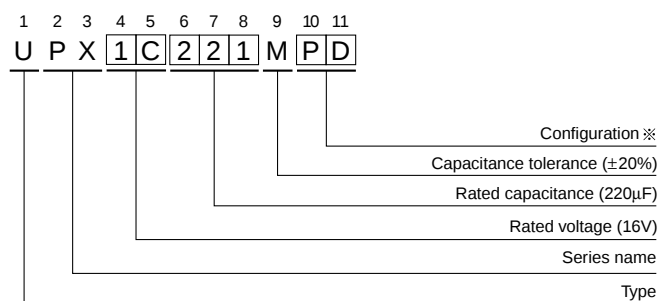
| Item                          | Performance Characteristics                                                                                                                                                                                                             |                 |      |      |                    |                               |                                                   |
|-------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|------|------|--------------------|-------------------------------|---------------------------------------------------|
| Category Temperature Range    | -55 to +105°C                                                                                                                                                                                                                           |                 |      |      |                    |                               |                                                   |
| Rated Voltage Range           | 10 to 35V                                                                                                                                                                                                                               |                 |      |      |                    |                               |                                                   |
| Rated Capacitance Range       | 1 to 4700μF                                                                                                                                                                                                                             |                 |      |      |                    |                               |                                                   |
| Capacitance Tolerance         | ±20% (120Hz, 20°C)                                                                                                                                                                                                                      |                 |      |      |                    |                               |                                                   |
| Leakage Current               | After 1 minute's application of rated voltage, leakage current is not more than 0.03CV or 4 (mA), whichever is greater.                                                                                                                 |                 |      |      |                    |                               |                                                   |
| Tangent of loss angle (tan δ) | Rated voltage (V)                                                                                                                                                                                                                       | 10              | 16   | 25   | 35                 | Measurement frequency : 120Hz |                                                   |
|                               | tan δ (MAX)                                                                                                                                                                                                                             | 0.20            | 0.16 | 0.14 | 0.12               | Temperature : 20°C            |                                                   |
|                               | 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                            | Measurement frequency : 120Hz                     |
|                               | Impedance ratio<br>(MAX.)                                                                                                                                                                                                               | Z-25°C / Z+20°C | 3    | 2    | 2                  | 2                             |                                                   |
|                               |                                                                                                                                                                                                                                         | Z-40°C / Z+20°C | 4    | 4    | 4                  | 4                             |                                                   |
| Endurance                     | The specifications listed at right shall be met when the capacitors are restored to 20°C after D.C. bias plus rated ripple current is applied for 20000 hours at 105°C, the peak voltage shall not exceed the rated voltage.            |                 |      |      | 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 105°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                       | Printed with white color letter on dark brown sleeve.                                                                                                                                                                                   |                 |      |      |                    |                               |                                                   |

## Radial Lead Type



|    | (mm) |      |     |     |
|----|------|------|-----|-----|
| φD | 10   | 12.5 | 16  | 18  |
| P  | 5.0  | 5.0  | 7.5 | 7.5 |
| φd | 0.6  | 0.6  | 0.8 | 0.8 |

## Type numbering system (Example : 16V 220µF)



※ Configuration

|            |                                        |
|------------|----------------------------------------|
| φ D        | Pb-free leadwire<br>Pb-free PET sleeve |
| 10         | PD                                     |
| 12.5 to 18 | HD                                     |

- Please refer to page 20 about the end seal configuration.

Please refer to page 20, 21, 22 about the formed or taped product spec.  
Please refer to page 4 for the minimum order quantity.

● Dimension table in next page.

## ■ Dimensions

| Cap.<br>( $\mu$ F) | V (Code)<br>Item<br>Code | 10 (1A)                                  |                                                        | 16 (1C)                                  |                                                        | 25 (1E)                                  |                                                        | 35 (1V)                                  |                                                        |
|--------------------|--------------------------|------------------------------------------|--------------------------------------------------------|------------------------------------------|--------------------------------------------------------|------------------------------------------|--------------------------------------------------------|------------------------------------------|--------------------------------------------------------|
|                    |                          | Case size<br>$\phi$ D $\times$ L<br>(mm) | Rated ripple<br>(mA <sub>rms</sub> )<br>105°C / 100kHz | Case size<br>$\phi$ D $\times$ L<br>(mm) | Rated ripple<br>(mA <sub>rms</sub> )<br>105°C / 100kHz | Case size<br>$\phi$ D $\times$ L<br>(mm) | Rated ripple<br>(mA <sub>rms</sub> )<br>105°C / 100kHz | Case size<br>$\phi$ D $\times$ L<br>(mm) | Rated ripple<br>(mA <sub>rms</sub> )<br>105°C / 100kHz |
| 1                  | 010                      |                                          |                                                        |                                          |                                                        |                                          |                                                        | 10 $\times$ 12.5                         | 59                                                     |
| 2.2                | 2R2                      |                                          |                                                        |                                          |                                                        |                                          |                                                        | 10 $\times$ 12.5                         | 84                                                     |
| 3.3                | 3R3                      |                                          |                                                        |                                          |                                                        |                                          |                                                        | 10 $\times$ 12.5                         | 101                                                    |
| 4.7                | 4R7                      |                                          |                                                        |                                          |                                                        |                                          |                                                        | 10 $\times$ 12.5                         | 143                                                    |
| 10                 | 100                      |                                          |                                                        |                                          |                                                        |                                          |                                                        | 10 $\times$ 12.5                         | 294                                                    |
| 22                 | 220                      |                                          |                                                        |                                          |                                                        |                                          |                                                        | 10 $\times$ 12.5                         | 336                                                    |
| 33                 | 330                      |                                          |                                                        |                                          |                                                        |                                          |                                                        | 10 $\times$ 12.5                         | 378                                                    |
| 47                 | 470                      |                                          |                                                        |                                          |                                                        |                                          |                                                        | 10 $\times$ 12.5                         | 420                                                    |
| 100                | 101                      |                                          |                                                        |                                          |                                                        | 10 $\times$ 12.5                         | 420                                                    | 10 $\times$ 20                           | 672                                                    |
| 220                | 221                      |                                          |                                                        | 10 $\times$ 16                           | 504                                                    | 12.5 $\times$ 20                         | 840                                                    | 12.5 $\times$ 25                         | 1008                                                   |
| 330                | 331                      | 10 $\times$ 16                           | 504                                                    | 10 $\times$ 20                           | 672                                                    | 12.5 $\times$ 25                         | 1008                                                   | 16 $\times$ 25                           | 1344                                                   |
| 470                | 471                      | 10 $\times$ 20                           | 672                                                    | 12.5 $\times$ 20                         | 1008                                                   | 16 $\times$ 25                           | 1344                                                   | 16 $\times$ 31.5                         | 1680                                                   |
| 1000               | 102                      | 12.5 $\times$ 25                         | 1008                                                   | 16 $\times$ 25                           | 1344                                                   | 16 $\times$ 31.5                         | 1680                                                   | 18 $\times$ 40                           | 2184                                                   |
| 2200               | 222                      | 16 $\times$ 31.5                         | 1680                                                   | 18 $\times$ 35.5                         | 2016                                                   |                                          |                                                        |                                          |                                                        |
| 3300               | 332                      | 18 $\times$ 35.5                         | 2016                                                   | 18 $\times$ 40                           | 2184                                                   |                                          |                                                        |                                          |                                                        |
| 4700               | 472                      | 18 $\times$ 40                           | 2184                                                   |                                          |                                                        |                                          |                                                        |                                          |                                                        |

## • Frequency coefficient of rated ripple current

| Frequency   | 120Hz | 1kHz | 10kHz | 100kHz or more |
|-------------|-------|------|-------|----------------|
| Coefficient | 0.75  | 0.80 | 0.90  | 1.00           |