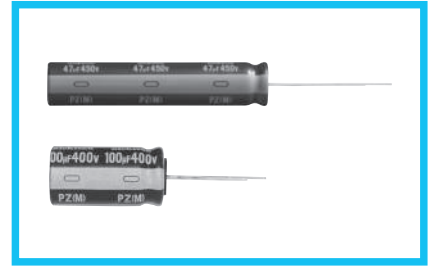
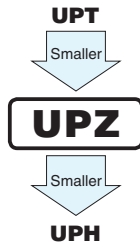


# UPZ

High Voltage, Miniature-sized



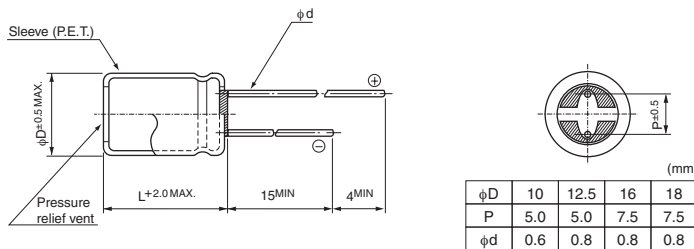
- High ripple current.
- Load life of 2000 hours at 105°C.
- Suited for ballast applications.
- Compliant to the RoHS directive (2011/65/EU,(EU)2015/863).



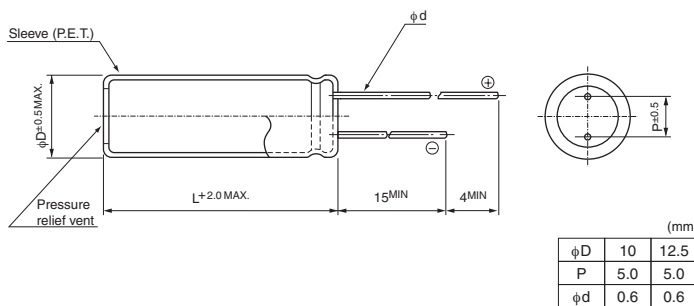
## Specifications

| Item                          | Performance Characteristics                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                    |                                              |       |                                               |                 |                                                   |                        |                 |      |      |      |      |
|-------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|----------------------------------------------|-------|-----------------------------------------------|-----------------|---------------------------------------------------|------------------------|-----------------|------|------|------|------|
| Category Temperature Range    | -40 to +105°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                    |                                              |       |                                               |                 |                                                   |                        |                 |      |      |      |      |
| Rated Voltage Range           | 200 to 450V                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                    |                                              |       |                                               |                 |                                                   |                        |                 |      |      |      |      |
| Rated Capacitance Range       | 18 to 470μF                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                    |                                              |       |                                               |                 |                                                   |                        |                 |      |      |      |      |
| 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 0.04CV+100 (μA).                                                                                                                                                                                                                                                                                                                                                                                                                                    |                    |                                              |       |                                               |                 |                                                   |                        |                 |      |      |      |      |
| Tangent of loss angle (tan δ) | Measurement frequency : 120Hz at 20°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                    |                                              |       |                                               |                 |                                                   |                        |                 |      |      |      |      |
|                               | <table border="1"> <tr> <td>Rated voltage (V)</td> <td>200</td> <td>250</td> <td>400</td> <td>420</td> <td>450</td> </tr> <tr> <td>tan δ (MAX.)</td> <td>0.12</td> <td>0.15</td> <td>0.15</td> <td>0.20</td> <td>0.20</td> </tr> </table>                                                                                                                                                                                                                                                                                                   | Rated voltage (V)  | 200                                          | 250   | 400                                           | 420             | 450                                               | tan δ (MAX.)           | 0.12            | 0.15 | 0.15 | 0.20 | 0.20 |
| Rated voltage (V)             | 200                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 250                | 400                                          | 420   | 450                                           |                 |                                                   |                        |                 |      |      |      |      |
| tan δ (MAX.)                  | 0.12                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 0.15               | 0.15                                         | 0.20  | 0.20                                          |                 |                                                   |                        |                 |      |      |      |      |
| Stability at Low Temperature  | Measurement frequency : 120Hz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                    |                                              |       |                                               |                 |                                                   |                        |                 |      |      |      |      |
|                               | <table border="1"> <tr> <td>Rated voltage (V)</td> <td>200</td> <td>250</td> <td>400</td> <td>420</td> <td>450</td> </tr> <tr> <td>Impedance ratio (MAX.)</td> <td>Z-25°C / Z+20°C</td> <td>3</td> <td>3</td> <td>8</td> <td>8</td> <td>8</td> </tr> </table>                                                                                                                                                                                                                                                                               | Rated voltage (V)  | 200                                          | 250   | 400                                           | 420             | 450                                               | Impedance ratio (MAX.) | Z-25°C / Z+20°C | 3    | 3    | 8    | 8    |
| Rated voltage (V)             | 200                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 250                | 400                                          | 420   | 450                                           |                 |                                                   |                        |                 |      |      |      |      |
| Impedance ratio (MAX.)        | Z-25°C / Z+20°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 3                  | 3                                            | 8     | 8                                             | 8               |                                                   |                        |                 |      |      |      |      |
| Endurance                     | <p>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 2000 hours at 105°C, the peak voltage shall not exceed the rated voltage.</p> <table border="1"> <tr> <td>Capacitance change</td> <td>Within ±20% of the initial capacitance value</td> </tr> <tr> <td>tan δ</td> <td>200% or less than the initial specified value</td> </tr> <tr> <td>Leakage current</td> <td>Less than or equal to the initial specified value</td> </tr> </table> | Capacitance change | Within ±20% of the initial capacitance value | tan δ | 200% or less than the initial specified value | Leakage current | Less than or equal to the initial specified value |                        |                 |      |      |      |      |
| Capacitance change            | Within ±20% of the initial capacitance value                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                    |                                              |       |                                               |                 |                                                   |                        |                 |      |      |      |      |
| tan δ                         | 200% 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.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                    |                                              |       |                                               |                 |                                                   |                        |                 |      |      |      |      |

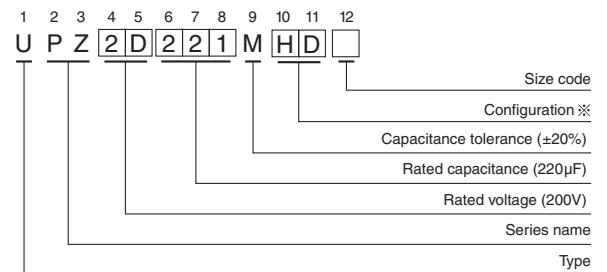
## Radial Lead Type



## Pencil - shaped Type



## Type numbering system (Example : 200V 220μF)



### ※Configuration

|            |                  |                    |
|------------|------------------|--------------------|
| Size code  | Blank, 6         | 9                  |
| φ D        | Pb-free leadwire | Pb-free PET sleeve |
| 10         | PD               | ND                 |
| 12.5 to 18 | HD               | NY                 |

## ● Frequency coefficient of rated ripple current

|            |      |       |       |      |               |
|------------|------|-------|-------|------|---------------|
| V          | 60Hz | 120Hz | 500Hz | 1kHz | 10kHz or more |
| 200・250    | 0.80 | 1.00  | 1.20  | 1.30 | 1.40          |
| 400 to 450 | 0.80 | 1.00  | 1.25  | 1.40 | 1.50          |

● Please refer to the Guidelines for Aluminum Electrolytic Capacitors for end seal configuration information.

● Dimension table in next page.

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## ■ Dimensions

| Rated Voltage (V) (code) | Rated Capacitance (μF) | Case Size φD×L (mm) | tan δ | Leakage Current (μA) (at 20°C after 1 minute) | Rated Ripple (mArms) (105°C/120Hz) | Part Number  |
|--------------------------|------------------------|---------------------|-------|-----------------------------------------------|------------------------------------|--------------|
| 200 (2D)                 | 82                     | 10×31.5             | 0.12  | 756                                           | 400                                | UPZ2D820MPD  |
|                          | 120                    | 10×40               | 0.12  | 1060                                          | 680                                | UPZ2D121MND9 |
|                          | 150                    | 12.5×31.5           | 0.12  | 1300                                          | 620                                | UPZ2D151MHD  |
|                          | 150                    | 10×50               | 0.12  | 1300                                          | 830                                | UPZ2D151MND9 |
|                          | 180                    | 12.5×35.5           | 0.12  | 1540                                          | 700                                | UPZ2D181MHD  |
|                          | 220                    | 12.5×40             | 0.12  | 1860                                          | 800                                | UPZ2D221MHD  |
|                          | 270                    | 16×31.5             | 0.12  | 2260                                          | 870                                | UPZ2D271MHD  |
|                          | 270                    | 12.5×50             | 0.12  | 2260                                          | 1265                               | UPZ2D271MNY9 |
|                          | 330                    | 16×35.5             | 0.12  | 2740                                          | 1010                               | UPZ2D331MHD  |
|                          | 330                    | 18×31.5             | 0.12  | 2740                                          | 1010                               | UPZ2D331MHD6 |
|                          | 390                    | 16×40               | 0.12  | 3220                                          | 1130                               | UPZ2D391MHD  |
|                          | 390                    | 18×35.5             | 0.12  | 3220                                          | 1120                               | UPZ2D391MHD6 |
|                          | 470                    | 18×40               | 0.12  | 3860                                          | 1270                               | UPZ2D471MHD  |
| 250 (2E)                 | 82                     | 10×40               | 0.15  | 920                                           | 610                                | UPZ2E820MND9 |
|                          | 120                    | 10×50               | 0.15  | 1300                                          | 740                                | UPZ2E121MND9 |
|                          | 220                    | 12.5×50             | 0.15  | 2300                                          | 1140                               | UPZ2E221MNY9 |
| 400 (2G)                 | 27                     | 10×31.5             | 0.15  | 532                                           | 240                                | UPZ2G270MPD  |
|                          | 47                     | 12.5×31.5           | 0.15  | 852                                           | 370                                | UPZ2G470MHD  |
|                          | 47                     | 10×40               | 0.15  | 852                                           | 435                                | UPZ2G470MND9 |
|                          | 56                     | 12.5×35.5           | 0.15  | 996                                           | 420                                | UPZ2G560MHD  |
|                          | 56                     | 10×50               | 0.15  | 996                                           | 520                                | UPZ2G560MND9 |
|                          | 68                     | 12.5×40             | 0.15  | 1188                                          | 480                                | UPZ2G680MHD  |
|                          | 100                    | 16×31.5             | 0.15  | 1700                                          | 580                                | UPZ2G101MHD  |
|                          | 100                    | 12.5×50             | 0.15  | 1700                                          | 770                                | UPZ2G101MNY9 |
|                          | 120                    | 16×35.5             | 0.15  | 2020                                          | 670                                | UPZ2G121MHD  |
|                          | 120                    | 18×31.5             | 0.15  | 2020                                          | 670                                | UPZ2G121MHD6 |
|                          | 150                    | 16×40               | 0.15  | 2500                                          | 770                                | UPZ2G151MHD  |
|                          | 150                    | 18×35.5             | 0.15  | 2500                                          | 770                                | UPZ2G151MHD6 |
| 180                      | 18×40                  | 0.15                | 2980  | 880                                           | UPZ2G181MHD                        |              |
| 420 (W6)                 | 22                     | 10×31.5             | 0.20  | 469.6                                         | 200                                | UPZW6220MPD  |
|                          | 39                     | 12.5×31.5           | 0.20  | 755.2                                         | 310                                | UPZW6390MHD  |
|                          | 47                     | 12.5×35.5           | 0.20  | 889.6                                         | 360                                | UPZW6470MHD  |
|                          | 56                     | 12.5×40             | 0.20  | 1040.8                                        | 430                                | UPZW6560MHD  |
|                          | 68                     | 16×31.5             | 0.20  | 1242.4                                        | 510                                | UPZW6680MHD  |
|                          | 82                     | 16×35.5             | 0.20  | 1477.6                                        | 570                                | UPZW6820MHD  |
|                          | 100                    | 16×40               | 0.20  | 1780                                          | 610                                | UPZW6101MHD  |
|                          | 100                    | 18×31.5             | 0.20  | 1780                                          | 610                                | UPZW6101MHD6 |
|                          | 120                    | 18×35.5             | 0.20  | 2116                                          | 660                                | UPZW6121MHD  |
| 150                      | 18×40                  | 0.20                | 2620  | 710                                           | UPZW6151MHD                        |              |

For cut leads, formed leads or taped parts, please add the appropriate code after the size code (12th digit).  
If there is no size code in the part number, please add size code "1" and then add the appropriate code.

UPZ

## ■ Dimensions

| Rated Voltage<br>(V)<br>(code) | Rated<br>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>(mArms)<br>(105°C/120Hz) | Part Number  |
|--------------------------------|------------------------------------|---------------------------------------|---------------|--------------------------------------------------------------|------------------------------------------|--------------|
| 450<br>(2W)                    | 18                                 | 10 $\times$ 31.5                      | 0.20          | 424                                                          | 180                                      | UPZ2W180MPD  |
|                                | 33                                 | 12.5 $\times$ 31.5                    | 0.20          | 694                                                          | 280                                      | UPZ2W330MHD  |
|                                | 33                                 | 10 $\times$ 40                        | 0.20          | 694                                                          | 360                                      | UPZ2W330MND9 |
|                                | 39                                 | 12.5 $\times$ 35.5                    | 0.20          | 802                                                          | 320                                      | UPZ2W390MHD  |
|                                | 47                                 | 12.5 $\times$ 40                      | 0.20          | 946                                                          | 380                                      | UPZ2W470MHD  |
|                                | 47                                 | 10 $\times$ 50                        | 0.20          | 946                                                          | 450                                      | UPZ2W470MND9 |
|                                | 56                                 | 16 $\times$ 31.5                      | 0.20          | 1108                                                         | 440                                      | UPZ2W560MHD  |
|                                | 68                                 | 16 $\times$ 35.5                      | 0.20          | 1324                                                         | 490                                      | UPZ2W680MHD  |
|                                | 82                                 | 16 $\times$ 40                        | 0.20          | 1576                                                         | 550                                      | UPZ2W820MHD  |
|                                | 82                                 | 18 $\times$ 31.5                      | 0.20          | 1576                                                         | 550                                      | UPZ2W820MHD6 |
|                                | 82                                 | 12.5 $\times$ 50                      | 0.20          | 1576                                                         | 730                                      | UPZ2W820MNY9 |
|                                | 100                                | 18 $\times$ 35.5                      | 0.20          | 1900                                                         | 650                                      | UPZ2W101MHD  |
|                                | 120                                | 18 $\times$ 40                        | 0.20          | 2260                                                         | 740                                      | UPZ2W121MHD  |

For cut leads, formed leads or taped parts, please add the appropriate code after the size code (12th digit).  
If there is no size code in the part number, please add size code "1" and then add the appropriate code.

- For formed lead or taped product specifications and minimum order quantity, please refer to the Guidelines for Aluminum Electrolytic Capacitors.

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