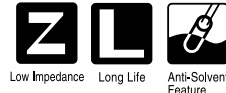
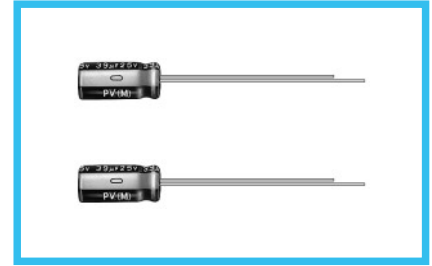
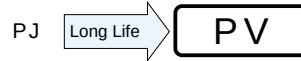


**PV** series Miniature Sized, Low Impedance, High Reliability



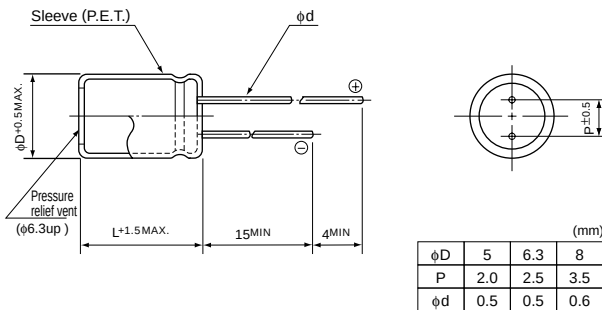
- Miniature sized low impedance series withstanding 5000 hours load life at +105°C.
- Compliant to the RoHS directive (2002/95/EC).



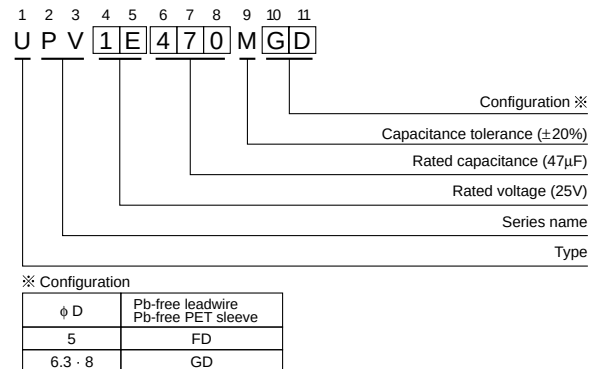
## Specifications

| Item                          | Performance Characteristics                                                                                                                                                                                                                |                 |      |      |                    |      |                                                   |
|-------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|------|------|--------------------|------|---------------------------------------------------|
| Category Temperature Range    | -55 to +105°C                                                                                                                                                                                                                              |                 |      |      |                    |      |                                                   |
| Rated Voltage Range           | 6.3 to 50V                                                                                                                                                                                                                                 |                 |      |      |                    |      |                                                   |
| Rated Capacitance Range       | 0.47 to 390μF                                                                                                                                                                                                                              |                 |      |      |                    |      |                                                   |
| Capacitance Tolerance         | ±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 (μA), whichever is greater.                                                                                                                    |                 |      |      |                    |      |                                                   |
| Tangent of loss angle (tan δ) | Measurement frequency : 120Hz, Temperature : 20°C                                                                                                                                                                                          |                 |      |      |                    |      |                                                   |
|                               | Rated voltage (V)                                                                                                                                                                                                                          | 6.3             | 10   | 16   | 25                 | 35   | 50                                                |
|                               | tan δ (MAX.)                                                                                                                                                                                                                               | 0.22            | 0.19 | 0.16 | 0.14               | 0.12 | 0.10                                              |
| Stability at Low Temperature  | Measurement frequency : 120Hz                                                                                                                                                                                                              |                 |      |      |                    |      |                                                   |
|                               | Rated voltage (V)                                                                                                                                                                                                                          | 6.3             | 10   | 16   | 25                 | 35   | 50                                                |
|                               | Impedance ratio ZT / Z20 (MAX.)                                                                                                                                                                                                            | Z-55°C / Z+20°C | 5    | 5    | 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 105°C.                                                                                       |                 |      |      | 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 at right. |                 |      |      | Capacitance change |      | Within ±20% of the initial capacitance value      |
|                               |                                                                                                                                                                                                                                            |                 |      |      | tan δ              |      | 150% or less than the initial specified value     |
|                               |                                                                                                                                                                                                                                            |                 |      |      | Leakage current    |      | Less than or equal to the initial specified value |
| Marking                       | Printed with white color letter on dark brown sleeve.                                                                                                                                                                                      |                 |      |      |                    |      |                                                   |

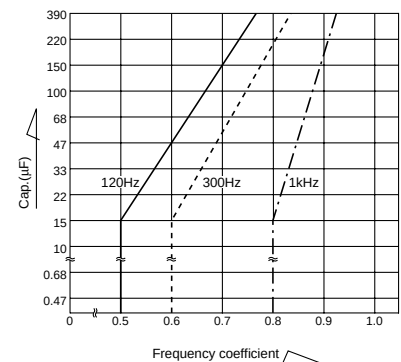
## Radial Lead Type



Type numbering system (Example : 25V 47μF)



- Frequency coefficient of rated ripple current (10kHz to 200kHz=1)



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

| V(Code)<br>Cap.(μF)<br>Code |     | 6.3 (0J)                    |                                      |                                         | 10 (1A)                     |                                      |                                         | 16 (1C)                     |                                      |                                         | 25 (1E)                     |                                      |                                         |
|-----------------------------|-----|-----------------------------|--------------------------------------|-----------------------------------------|-----------------------------|--------------------------------------|-----------------------------------------|-----------------------------|--------------------------------------|-----------------------------------------|-----------------------------|--------------------------------------|-----------------------------------------|
|                             |     | Case size<br>φD × L<br>(mm) | Impedance<br>(Ω) MAX.<br>20°C/100kHz | Rated ripple<br>(mAmps)<br>105°C/100kHz | Case size<br>φD × L<br>(mm) | Impedance<br>(Ω) MAX.<br>20°C/100kHz | Rated ripple<br>(mAmps)<br>105°C/100kHz | Case size<br>φD × L<br>(mm) | Impedance<br>(Ω) MAX.<br>20°C/100kHz | Rated ripple<br>(mAmps)<br>105°C/100kHz | Case size<br>φD × L<br>(mm) | Impedance<br>(Ω) MAX.<br>20°C/100kHz | Rated ripple<br>(mAmps)<br>105°C/100kHz |
| 33                          | 330 |                             |                                      |                                         |                             |                                      |                                         |                             |                                      |                                         | 5 × 11                      | 1.40                                 | 155                                     |
| 39                          | 390 |                             |                                      |                                         |                             |                                      |                                         |                             |                                      |                                         | 5 × 11                      | 1.10                                 | 175                                     |
| 47                          | 470 |                             |                                      |                                         |                             |                                      |                                         | 5 × 11                      | 1.40                                 | 155                                     | 6.3 × 11                    | 0.94                                 | 210                                     |
| 56                          | 560 |                             |                                      |                                         |                             |                                      |                                         | 5 × 11                      | 1.10                                 | 175                                     | 6.3 × 11                    | 0.75                                 | 235                                     |
| 68                          | 680 |                             |                                      |                                         | 5 × 11                      | 1.40                                 | 155                                     | 6.3 × 11                    | 0.85                                 | 220                                     | 6.3 × 11                    | 0.61                                 | 260                                     |
| 82                          | 820 |                             |                                      |                                         | 5 × 11                      | 1.10                                 | 175                                     | 6.3 × 11                    | 0.71                                 | 240                                     | 6.3 × 11                    | 0.51                                 | 285                                     |
| 100                         | 101 | 5 × 11                      | 1.50                                 | 150                                     | 6.3 × 11                    | 0.94                                 | 210                                     | 6.3 × 11                    | 0.60                                 | 265                                     | 8 × 11.5                    | 0.41                                 | 370                                     |
| 120                         | 121 | 5 × 11                      | 1.10                                 | 175                                     | 6.3 × 11                    | 0.75                                 | 235                                     | 6.3 × 11                    | 0.49                                 | 290                                     | 8 × 11.5                    | 0.34                                 | 405                                     |
| 150                         | 151 | 6.3 × 11                    | 0.83                                 | 225                                     | 6.3 × 11                    | 0.60                                 | 265                                     | 8 × 11.5                    | 0.39                                 | 375                                     | 8 × 11.5                    | 0.27                                 | 460                                     |
| 180                         | 181 | 6.3 × 11                    | 0.66                                 | 250                                     | 6.3 × 11                    | 0.49                                 | 290                                     | 8 × 11.5                    | 0.34                                 | 405                                     |                             |                                      |                                         |
| 220                         | 221 | 6.3 × 11                    | 0.51                                 | 285                                     | 8 × 11.5                    | 0.41                                 | 370                                     | 8 × 11.5                    | 0.27                                 | 460                                     |                             |                                      |                                         |
| 270                         | 271 | 8 × 11.5                    | 0.41                                 | 370                                     | 8 × 11.5                    | 0.34                                 | 405                                     |                             |                                      |                                         |                             |                                      |                                         |
| 330                         | 331 | 8 × 11.5                    | 0.34                                 | 405                                     | 8 × 11.5                    | 0.27                                 | 460                                     |                             |                                      |                                         |                             |                                      |                                         |
| 390                         | 391 | 8 × 11.5                    | 0.29                                 | 445                                     |                             |                                      |                                         |                             |                                      |                                         |                             |                                      |                                         |

| V(Code)<br>Cap.(μF)<br>Code |     | 35 (1V)                     |                                      |                                         | 50 (1H)                     |                                      |                                         |
|-----------------------------|-----|-----------------------------|--------------------------------------|-----------------------------------------|-----------------------------|--------------------------------------|-----------------------------------------|
|                             |     | Case size<br>φD × L<br>(mm) | Impedance<br>(Ω) MAX.<br>20°C/100kHz | Rated ripple<br>(mAmps)<br>105°C/100kHz | Case size<br>φD × L<br>(mm) | Impedance<br>(Ω) MAX.<br>20°C/100kHz | Rated ripple<br>(mAmps)<br>105°C/100kHz |
| 0.47                        | R47 |                             |                                      |                                         | 5 × 11                      | 32.0                                 | 22                                      |
| 0.68                        | R68 |                             |                                      |                                         | 5 × 11                      | 22.0                                 | 28                                      |
| 1                           | 010 |                             |                                      |                                         | 5 × 11                      | 15.0                                 | 36                                      |
| 1.5                         | 1R5 |                             |                                      |                                         | 5 × 11                      | 11.0                                 | 45                                      |
| 2.2                         | 2R2 |                             |                                      |                                         | 5 × 11                      | 7.00                                 | 54                                      |
| 3.3                         | 3R3 |                             |                                      |                                         | 5 × 11                      | 4.60                                 | 66                                      |
| 4.7                         | 4R7 |                             |                                      |                                         | 5 × 11                      | 3.10                                 | 81                                      |
| 6.8                         | 6R8 |                             |                                      |                                         | 5 × 11                      | 2.50                                 | 91                                      |
| 10                          | 100 |                             |                                      |                                         | 5 × 11                      | 2.00                                 | 115                                     |
| 12                          | 120 |                             |                                      |                                         | 5 × 11                      | 1.70                                 | 125                                     |
| 15                          | 150 |                             |                                      |                                         | 5 × 11                      | 1.30                                 | 145                                     |
| 18                          | 180 |                             |                                      |                                         | 5 × 11                      | 1.10                                 | 155                                     |
| 22                          | 220 | 5 × 11                      | 1.30                                 | 160                                     | 6.3 × 11                    | 0.91                                 | 195                                     |
| 27                          | 270 | 5 × 11                      | 1.00                                 | 180                                     | 6.3 × 11                    | 0.74                                 | 215                                     |
| 33                          | 330 | 6.3 × 11                    | 0.83                                 | 225                                     | 6.3 × 11                    | 0.60                                 | 240                                     |
| 39                          | 390 | 6.3 × 11                    | 0.70                                 | 245                                     | 6.3 × 11                    | 0.50                                 | 260                                     |
| 47                          | 470 | 6.3 × 11                    | 0.58                                 | 270                                     | 8 × 11.5                    | 0.42                                 | 330                                     |
| 56                          | 560 | 6.3 × 11                    | 0.48                                 | 295                                     | 8 × 11.5                    | 0.35                                 | 360                                     |
| 68                          | 680 | 8 × 11.5                    | 0.41                                 | 370                                     | 8 × 11.5                    | 0.28                                 | 410                                     |
| 82                          | 820 | 8 × 11.5                    | 0.32                                 | 415                                     |                             |                                      |                                         |
| 100                         | 101 | 8 × 11.5                    | 0.27                                 | 460                                     |                             |                                      |                                         |