

# UHW

Miniature Sized, High Ripple Current,  
High Reliability



Smaller



Low Impedance

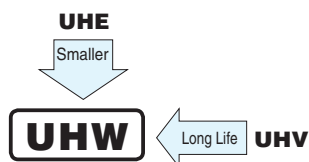


Long Life



Anti-Solvent  
Feature

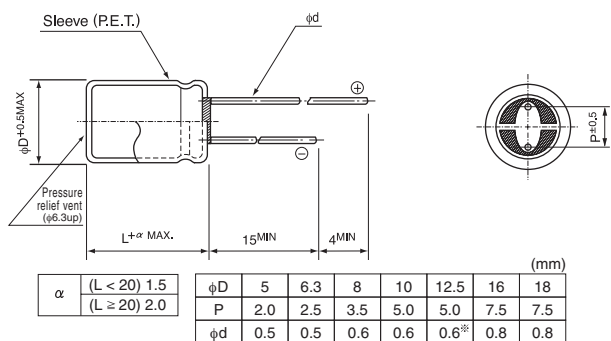
- Lower impedance at high frequency range.
- Smaller case size and high ripple current.
- Compliant to the RoHS directive (2011/65/EU,(EU)2015/863).



## Specifications

| Item                          | Performance Characteristics                                                                                                                                                                             |                 |                                                                |      |             |      |             |      |             |      |      |       |   |
|-------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|----------------------------------------------------------------|------|-------------|------|-------------|------|-------------|------|------|-------|---|
| Category Temperature Range    | -40 to +105°C                                                                                                                                                                                           |                 |                                                                |      |             |      |             |      |             |      |      |       |   |
| Rated Voltage Range           | 6.3 to 100V                                                                                                                                                                                             |                 |                                                                |      |             |      |             |      |             |      |      |       |   |
| Rated Capacitance Range       | 8.2 to 15000μF                                                                                                                                                                                          |                 |                                                                |      |             |      |             |      |             |      |      |       |   |
| Capacitance Tolerance         | ±20% at 120Hz, 20°C                                                                                                                                                                                     |                 |                                                                |      |             |      |             |      |             |      |      |       |   |
| Leakage Current               | After 2 minutes' application of rated voltage at 20°C, leakage current is not more than 0.01CV (μA)                                                                                                     |                 |                                                                |      |             |      |             |      |             |      |      |       |   |
| Tangent of loss angle (tan δ) | Rated voltage (V)                                                                                                                                                                                       |                 | 6.3                                                            | 10   | 16          | 25   | 35          | 50   | 63          | 80   | 100  | 120Hz |   |
|                               | tan δ (MAX.)                                                                                                                                                                                            |                 | 0.21                                                           | 0.18 | 0.15        | 0.13 | 0.11        | 0.10 | 0.09        | 0.09 | 0.08 | 20°C  |   |
|                               | For capacitance of more than 1000μF, add 0.02 for every increase of 1000μF.                                                                                                                             |                 |                                                                |      |             |      |             |      |             |      |      |       |   |
| Stability at Low Temperature  | Rated voltage (V)                                                                                                                                                                                       |                 | 6.3                                                            | 10   | 16          | 25   | 35          | 50   | 63          | 80   | 100  | 120Hz |   |
|                               | Impedance ratio (MAX.)                                                                                                                                                                                  | Z-25°C / Z+20°C | 2                                                              | 2    | 2           | 2    | 2           | 2    | 2           | 2    | 2    |       |   |
|                               |                                                                                                                                                                                                         | Z-40°C / Z+20°C | φD ≤ 6.3                                                       | 5    | 5           | 4    | 4           | 4    | 4           | 3    | 3    |       | 3 |
|                               |                                                                                                                                                                                                         | φ ≥ 8           | 3                                                              | 3    | 3           | 3    | 3           | 3    |             |      |      |       |   |
| Endurance                     | The following specifications shall be met when the capacitors are restored to 20°C after D.C. bias plus rated ripple current is applied at 105°C , the peak voltage shall not exceed the rated voltage. |                 |                                                                |      |             |      |             |      |             |      |      |       |   |
|                               | Case size                                                                                                                                                                                               |                 | φD ≤ 6.3                                                       |      | 8×11.5      |      | 8×15 , 8×20 |      | φD ≥ 10     |      |      |       |   |
|                               | Rated voltage (V)                                                                                                                                                                                       | 6.3V            | 6000 hours                                                     |      | 8000 hours  |      | 9000 hours  |      | 10000 hours |      |      |       |   |
|                               |                                                                                                                                                                                                         | 10 to 50V       | 7000 hours                                                     |      | 9000 hours  |      | 10000 hours |      | 10000 hours |      |      |       |   |
|                               |                                                                                                                                                                                                         | 63 to 100V      | 8000 hours                                                     |      | 10000 hours |      | 11000 hours |      | 12000 hours |      |      |       |   |
|                               | Capacitance change                                                                                                                                                                                      |                 | Within ±25% of the initial capacitance value (6.3V 10V : ±30%) |      |             |      |             |      |             |      |      |       |   |
|                               | tan δ                                                                                                                                                                                                   |                 | 200% 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 black sleeve.                                                                                                                                                        |                 |                                                                |      |             |      |             |      |             |      |      |       |   |

## Radial Lead Type



※In case L > 25 for the φ12.5 dia. unit, lead dia. φd = 0.8mm

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

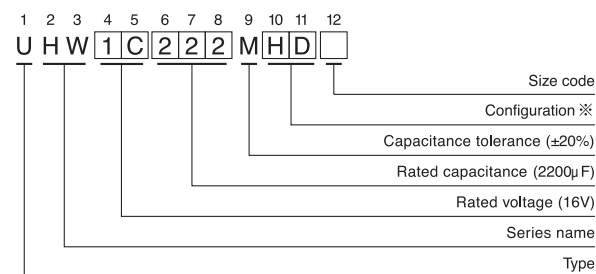
## Frequency coefficient of rated ripple current

| Cap. (µF)     | Frequency | 120Hz | 1kHz | 10kHz | 10kHz or more |
|---------------|-----------|-------|------|-------|---------------|
| 8.2 to 33     |           | 0.40  | 0.70 | 0.90  | 1.00          |
| 39 to 180     |           | 0.40  | 0.75 | 0.90  | 1.00          |
| 220 to 560    |           | 0.50  | 0.85 | 0.94  | 1.00          |
| 680 to 1800   |           | 0.60  | 0.87 | 0.95  | 1.00          |
| 2200 to 3900  |           | 0.75  | 0.90 | 0.95  | 1.00          |
| 4700 to 15000 |           | 0.85  | 0.95 | 0.98  | 1.00          |

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.

## Type numbering system (Example : 16V 2200µF)



### ※ Configuration

| φ D        | Pb-free leadwire<br>Pb-free PET sleeve |
|------------|----------------------------------------|
| 5          | DD                                     |
| 6.3        | ED                                     |
| 8 · 10     | PD                                     |
| 12.5 to 18 | HD                                     |

UHW

## ■ Dimensions

| Cap.(μF)<br>Code |     | V (Code)    |                             | 6.3 (0J)           |               |                                          | 10 (1A)                     |                    |               |                                          |
|------------------|-----|-------------|-----------------------------|--------------------|---------------|------------------------------------------|-----------------------------|--------------------|---------------|------------------------------------------|
|                  |     | Item        | Case size<br>φD × L<br>(mm) | Impedance (Ω) MAX. |               | Rated ripple<br>(mArms)<br>105°C /100kHz | Case size<br>φD × L<br>(mm) | Impedance (Ω) MAX. |               | Rated ripple<br>(mArms)<br>105°C /100kHz |
|                  |     |             |                             | 20°C /100kHz       | −10°C /100kHz |                                          |                             | 20°C /100kHz       | −10°C /100kHz |                                          |
| 150              | 151 |             |                             |                    |               |                                          | 5 × 11                      | 0.47               | 1.50          | 450                                      |
| 220              | 221 | 5 × 11      | 0.47                        | 1.50               | 450           |                                          |                             |                    |               |                                          |
| 330              | 331 |             |                             |                    |               |                                          | 6.3 × 11                    | 0.20               | 0.66          | 700                                      |
| 470              | 471 | 6.3 × 11    | 0.20                        | 0.66               | 700           |                                          |                             |                    |               |                                          |
| 560              | 561 |             |                             |                    |               |                                          | 8 × 11.5                    | 0.10               | 0.36          | 1200                                     |
| 680              | 681 |             |                             |                    |               |                                          |                             |                    |               |                                          |
| 820              | 821 | 8 × 11.5    | 0.10                        | 0.36               | 1200          |                                          | 8 × 15                      | 0.054              | 0.17          | 1600                                     |
| 1000             | 102 | 8 × 15      | 0.054                       | 0.17               | 1600          |                                          | 10 × 12.5                   | 0.048              | 0.15          | 1700                                     |
| 1200             | 122 | 10 × 12.5   | 0.048                       | 0.15               | 1700          | ▲8 × 20                                  | 0.038                       | 0.12               | 1960          |                                          |
|                  |     |             |                             |                    |               | 10 × 16                                  | 0.030                       | 0.090              | 2000          |                                          |
| 1500             | 152 | 8 × 20      | 0.038                       | 0.12               | 1960          | 10 × 16                                  | 0.030                       | 0.090              | 2000          |                                          |
| 1800             | 182 | 10 × 16     | 0.030                       | 0.090              | 2000          | 10 × 20                                  | 0.020                       | 0.060              | 2500          |                                          |
| 2200             | 222 | 10 × 20     | 0.020                       | 0.060              | 2500          | 10 × 25                                  | 0.017                       | 0.051              | 2900          |                                          |
| 2700             | 272 | 10 × 20     | 0.020                       | 0.060              | 2500          | 12.5 × 20                                | 0.017                       | 0.051              | 2600          |                                          |
| 3300             | 332 | 10 × 25     | 0.017                       | 0.051              | 2900          | 12.5 × 20                                | 0.017                       | 0.051              | 2600          |                                          |
| 3900             | 392 | 12.5 × 20   | 0.017                       | 0.051              | 2600          | 12.5 × 25                                | 0.015                       | 0.045              | 3200          |                                          |
| 4700             | 472 | 12.5 × 25   | 0.015                       | 0.045              | 3200          | 12.5 × 31.5                              | 0.012                       | 0.036              | 3795          |                                          |
|                  |     |             |                             |                    |               | ▲16 × 20                                 | 0.015                       | 0.045              | 3575          |                                          |
| 5600             | 562 | 12.5 × 31.5 | 0.012                       | 0.036              | 3795          | 12.5 × 35.5                              | 0.011                       | 0.033              | 4120          |                                          |
|                  |     | ▲12.5 × 25  | 0.015                       | 0.045              | 3200          | ▲16 × 25                                 | 0.013                       | 0.039              | 3810          |                                          |
| 6800             | 682 | 12.5 × 31.5 | 0.012                       | 0.033              | 3795          | 16 × 25                                  | 0.013                       | 0.039              | 3810          |                                          |
|                  |     | ▲16 × 20    | 0.015                       | 0.045              | 3575          |                                          |                             |                    |               |                                          |
| 8200             | 822 | 16 × 25     | 0.013                       | 0.039              | 3810          | 16 × 31.5                                | 0.011                       | 0.033              | 4000          |                                          |
| 10000            | 103 | 16 × 25     | 0.013                       | 0.039              | 3810          | 16 × 31.5                                | 0.011                       | 0.033              | 4000          |                                          |
| 12000            | 123 | 16 × 31.5   | 0.011                       | 0.033              | 4000          | 16 × 35.5                                | 0.010                       | 0.030              | 4200          |                                          |
| 15000            | 153 | 16 × 35.5   | 0.010                       | 0.030              | 4200          |                                          |                             |                    |               |                                          |

| Cap.(μF)<br>Code |     | V (Code)    |                             | 16 (1C)            |               |                                          | 25 (1E)                     |                    |               |                                          |
|------------------|-----|-------------|-----------------------------|--------------------|---------------|------------------------------------------|-----------------------------|--------------------|---------------|------------------------------------------|
|                  |     | Item        | Case size<br>φD × L<br>(mm) | Impedance (Ω) MAX. |               | Rated ripple<br>(mArms)<br>105°C /100kHz | Case size<br>φD × L<br>(mm) | Impedance (Ω) MAX. |               | Rated ripple<br>(mArms)<br>105°C /100kHz |
|                  |     |             |                             | 20°C /100kHz       | −10°C /100kHz |                                          |                             | 20°C /100kHz       | −10°C /100kHz |                                          |
| 68               | 680 |             |                             |                    |               |                                          | 5 × 11                      | 0.47               | 1.50          | 450                                      |
| 120              | 121 | 5 × 11      | 0.47                        | 1.50               | 450           |                                          |                             |                    |               |                                          |
| 150              | 151 |             |                             |                    |               | 6.3 × 11                                 | 0.20                        | 0.66               | 700           |                                          |
| 180              | 181 |             |                             |                    |               | 6.3 × 11                                 | 0.20                        | 0.66               | 700           |                                          |
| 270              | 271 | 6.3 × 11    | 0.20                        | 0.66               | 700           |                                          |                             |                    |               |                                          |
| 330              | 331 |             |                             |                    |               | 8 × 11.5                                 | 0.10                        | 0.36               | 1200          |                                          |
| 390              | 391 |             |                             |                    |               | 8 × 15                                   | 0.054                       | 0.17               | 1600          |                                          |
| 470              | 471 | 8 × 11.5    | 0.10                        | 0.36               | 1200          | 10 × 12.5                                | 0.048                       | 0.15               | 1700          |                                          |
| 560              | 561 | 8 × 15      | 0.054                       | 0.17               | 1600          | 8 × 20                                   | 0.038                       | 0.12               | 1960          |                                          |
| 680              | 681 | 10 × 12.5   | 0.048                       | 0.15               | 1700          | 10 × 16                                  | 0.030                       | 0.090              | 2000          |                                          |
| 820              | 821 | ▲8 × 20     | 0.038                       | 0.12               | 1960          | 10 × 20                                  | 0.020                       | 0.060              | 2500          |                                          |
|                  |     | 10 × 16     | 0.030                       | 0.090              | 2000          | ▲10 × 16                                 | 0.030                       | 0.090              | 2000          |                                          |
| 1000             | 102 | ▲8 × 20     | 0.038                       | 0.12               | 1960          | 10 × 20                                  | 0.020                       | 0.060              | 2500          |                                          |
|                  |     | 10 × 16     | 0.030                       | 0.090              | 2000          |                                          |                             |                    |               |                                          |
| 1200             | 122 | 10 × 20     | 0.020                       | 0.060              | 2500          | 10 × 25                                  | 0.017                       | 0.051              | 2900          |                                          |
|                  |     | ▲10 × 16    | 0.030                       | 0.090              | 2000          |                                          |                             |                    |               |                                          |
| 1500             | 152 | 10 × 20     | 0.020                       | 0.060              | 2500          | 12.5 × 20                                | 0.017                       | 0.051              | 2600          |                                          |
| 1800             | 182 | 10 × 25     | 0.017                       | 0.051              | 2900          | 12.5 × 25                                | 0.015                       | 0.045              | 3200          |                                          |
| 2200             | 222 | 12.5 × 20   | 0.017                       | 0.051              | 2600          | 12.5 × 25                                | 0.015                       | 0.045              | 3200          |                                          |
|                  |     |             |                             |                    |               | ▲16 × 20                                 | 0.015                       | 0.045              | 3575          |                                          |
| 2700             | 272 | 12.5 × 25   | 0.015                       | 0.045              | 3200          | 12.5 × 31.5                              | 0.012                       | 0.036              | 3795          |                                          |
|                  |     |             |                             |                    |               | ▲16 × 20                                 | 0.015                       | 0.045              | 3575          |                                          |
| 3300             | 332 | 12.5× 25    | 0.015                       | 0.045              | 3200          | 12.5 × 35.5                              | 0.011                       | 0.033              | 4120          |                                          |
|                  |     | ▲16× 20     | 0.015                       | 0.045              | 3575          | ▲16 × 25                                 | 0.013                       | 0.039              | 3810          |                                          |
| 3900             | 392 | 12.5 × 31.5 | 0.012                       | 0.036              | 3795          | 16 × 25                                  | 0.013                       | 0.039              | 3810          |                                          |
|                  |     | ▲16 × 20    | 0.015                       | 0.045              | 3575          |                                          |                             |                    |               |                                          |
| 4700             | 472 | 12.5 × 35.5 | 0.011                       | 0.033              | 4120          | 16 × 31.5                                | 0.011                       | 0.033              | 4000          |                                          |
|                  |     | ▲16 × 25    | 0.013                       | 0.039              | 3810          |                                          |                             |                    |               |                                          |
| 5600             | 562 | 16 × 25     | 0.013                       | 0.039              | 3810          | 16 × 35.5                                | 0.010                       | 0.030              | 4200          |                                          |
| 6800             | 682 | 16 × 31.5   | 0.011                       | 0.033              | 4000          |                                          |                             |                    |               |                                          |
| 8200             | 822 | 16 × 35.5   | 0.010                       | 0.030              | 4200          |                                          |                             |                    |               |                                          |

UHW

## ■ Dimensions

| Cap.(μF)<br><br>Code |     | V (Code)<br><br>Item | 35 (1V)                     |                    |              |                                         | 50 (1H)                     |                    |              |                                         |
|----------------------|-----|----------------------|-----------------------------|--------------------|--------------|-----------------------------------------|-----------------------------|--------------------|--------------|-----------------------------------------|
|                      |     |                      | Case size<br>φD × L<br>(mm) | Impedance (Ω) MAX. |              | Rated ripple<br>(mArms)<br>105℃ /100kHz | Case size<br>φD × L<br>(mm) | Impedance (Ω) MAX. |              | Rated ripple<br>(mArms)<br>105℃ /100kHz |
|                      |     |                      |                             | 20℃ /100kHz        | −10℃ /100kHz |                                         |                             | 20℃ /100kHz        | −10℃ /100kHz |                                         |
| 27                   | 270 |                      |                             |                    |              |                                         |                             |                    |              |                                         |
| 47                   | 470 | 5 × 11               | 0.47                        | 1.50               | 450          | 5 × 11                                  | 0.47                        | 1.50               | 450          |                                         |
| 56                   | 560 |                      |                             |                    |              | 6.3 × 11                                | 0.20                        | 0.66               | 700          |                                         |
| 100                  | 101 | 6.3× 11              | 0.20                        | 0.66               | 700          | 8 × 11.5                                | 0.10                        | 0.36               | 1200         |                                         |
| 120                  | 121 |                      |                             |                    |              | 8 × 11.5                                | 0.10                        | 0.36               | 1200         |                                         |
| 150                  | 151 |                      |                             |                    |              | 8 × 15                                  | 0.054                       | 0.17               | 1600         |                                         |
| 180                  | 181 | 8 × 11.5             | 0.10                        | 0.36               | 1200         | 10 × 12.5                               | 0.048                       | 0.15               | 1700         |                                         |
| 220                  | 221 | 8 × 15               | 0.054                       | 0.17               | 1600         | ▲10 × 12.5                              | 0.048                       | 0.15               | 1700         |                                         |
|                      |     |                      |                             |                    |              | 10 × 16                                 | 0.042                       | 0.126              | 1650         |                                         |
| 270                  | 271 | 8 × 15               | 0.054                       | 0.17               | 1600         | ▲8 × 20                                 | 0.038                       | 0.12               | 1960         |                                         |
|                      |     | ▲10 × 12.5           | 0.048                       | 0.15               | 1700         | 10 × 20                                 | 0.030                       | 0.090              | 2060         |                                         |
| 330                  | 331 | 10 × 12.5            | 0.048                       | 0.15               | 1700         | 10 × 20                                 | 0.030                       | 0.090              | 2060         |                                         |
| 390                  | 391 | ▲8 × 20              | 0.038                       | 0.12               | 1960         | 10 × 25                                 | 0.028                       | 0.084              | 2420         |                                         |
|                      |     | 10 × 16              | 0.030                       | 0.090              | 2000         | ▲10 × 20                                | 0.030                       | 0.090              | 2060         |                                         |
| 470                  | 471 | 10 × 16              | 0.030                       | 0.090              | 2000         | 10 × 25                                 | 0.028                       | 0.084              | 2420         |                                         |
|                      |     |                      |                             |                    |              | ▲12.5 × 20                              | 0.027                       | 0.081              | 2300         |                                         |
| 560                  | 561 | 10 × 20              | 0.020                       | 0.060              | 2500         | 12.5 × 20                               | 0.027                       | 0.081              | 2300         |                                         |
| 680                  | 681 | 10 × 25              | 0.017                       | 0.051              | 2900         | 12.5 × 25                               | 0.023                       | 0.069              | 2800         |                                         |
|                      |     | ▲10 × 20             | 0.020                       | 0.060              | 2500         |                                         |                             |                    |              |                                         |
| 820                  | 821 | 10 × 25              | 0.017                       | 0.051              | 2900         | 12.5 × 25                               | 0.023                       | 0.069              | 2800         |                                         |
|                      |     | ▲12.5 × 20           | 0.017                       | 0.051              | 2600         | ▲16 × 20                                | 0.023                       | 0.069              | 3070         |                                         |
| 1000                 | 102 | 12.5 × 20            | 0.017                       | 0.051              | 2600         | 12.5 × 31.5                             | 0.020                       | 0.060              | 3500         |                                         |
|                      |     |                      |                             |                    |              | ▲16 × 25                                | 0.021                       | 0.063              | 3270         |                                         |
| 1200                 | 122 | 12.5 × 25            | 0.015                       | 0.045              | 3200         | 16 × 25                                 | 0.021                       | 0.063              | 3270         |                                         |
| 1500                 | 152 | 16 × 20              | 0.015                       | 0.045              | 3575         | 12.5 × 35.5                             | 0.019                       | 0.057              | 3810         |                                         |
|                      |     |                      |                             |                    |              | ▲16 × 25                                | 0.021                       | 0.063              | 3270         |                                         |
| 1800                 | 182 | 12.5 × 31.5          | 0.012                       | 0.036              | 3795         | 16 × 31.5                               | 0.019                       | 0.057              | 3430         |                                         |
|                      |     | ▲16 × 25             | 0.013                       | 0.039              | 3810         |                                         |                             |                    |              |                                         |
| 2200                 | 222 | 12.5 × 35.5          | 0.011                       | 0.033              | 4120         | 16 × 31.5                               | 0.019                       | 0.057              | 3430         |                                         |
|                      |     | ▲16 × 25             | 0.013                       | 0.039              | 3810         |                                         |                             |                    |              |                                         |
| 2700                 | 272 |                      |                             |                    |              | 16 × 35.5                               | 0.018                       | 0.054              | 3600         |                                         |
| 3300                 | 332 | 16 × 31.5            | 0.011                       | 0.033              | 4000         |                                         |                             |                    |              |                                         |
| 3900                 | 392 | 16 × 35.5            | 0.010                       | 0.030              | 4200         |                                         |                             |                    |              |                                         |

▲ : In this case, [6] will be put at 12th digit of type numbering system.

UHW

## ■ Dimensions

| Cap.(μF) | Code | Item | 63 (1J)                     |                    |               | 80 (1K)                     |                    |               |
|----------|------|------|-----------------------------|--------------------|---------------|-----------------------------|--------------------|---------------|
|          |      |      | Case size<br>φD × L<br>(mm) | Impedance (Ω) MAX. |               | Case size<br>φD × L<br>(mm) | Impedance (Ω) MAX. |               |
|          |      |      |                             | 20°C /100kHz       | -10°C /100kHz |                             | 20°C /100kHz       | -10°C /100kHz |
| 12       | 120  |      |                             |                    |               |                             |                    |               |
| 18       | 180  |      | 5 × 11                      | 1.20               | 5.40          | 5 × 11                      | 1.20               | 5.40          |
| 27       | 270  |      |                             |                    |               |                             |                    |               |
| 39       | 390  |      | 6.3 × 11                    | 0.46               | 2.10          | 6.3 × 11                    | 0.46               | 2.10          |
| 47       | 470  |      | 6.3 × 11                    | 0.46               | 2.10          | 8 × 11.5                    | 0.29               | 1.30          |
| 68       | 680  |      | 8 × 11.5                    | 0.29               | 1.30          | 8 × 15                      | 0.20               | 0.90          |
| 82       | 820  |      | 8 × 11.5                    | 0.29               | 1.30          | 10 × 12.5                   | 0.17               | 0.66          |
| 100      | 101  |      | 8 × 15                      | 0.20               | 0.90          | 8 × 20                      | 0.16               | 0.66          |
| 120      | 121  |      | 8 × 15                      | 0.20               | 0.90          | 10 × 16                     | 0.115              | 0.47          |
|          |      |      | ▲10 × 12.5                  | 0.17               | 0.66          |                             |                    |               |
| 150      | 151  |      | 8 × 20                      | 0.16               | 0.66          |                             |                    |               |
|          |      |      | ▲10 × 12.5                  | 0.17               | 0.66          |                             |                    |               |
| 180      | 181  |      | ▲8 × 20                     | 0.16               | 0.66          | 10 × 20                     | 0.088              | 0.34          |
|          |      |      | 10 × 16                     | 0.115              | 0.47          | ▲12.5 × 15                  | 0.115              | 0.47          |
| 220      | 221  |      |                             |                    |               | 10 × 25                     | 0.072              | 0.28          |
| 270      | 271  |      | 10 × 20                     | 0.088              | 0.34          | 10 × 31.5                   | 0.063              | 0.18          |
|          |      |      |                             |                    |               | ▲12.5 × 20                  | 0.065              | 0.18          |
| 330      | 331  |      | 10 × 25                     | 0.072              | 0.28          |                             |                    |               |
| 390      | 391  |      | 10 × 31.5                   | 0.063              | 0.18          | 12.5 × 25                   | 0.049              | 0.14          |
|          |      |      | ▲12.5 × 20                  | 0.065              | 0.18          |                             |                    |               |
| 470      | 471  |      |                             |                    |               | 12.5 × 31.5                 | 0.044              | 0.13          |
|          |      |      |                             |                    |               | ▲16 × 20                    | 0.050              | 0.15          |
| 560      | 561  |      | 12.5 × 25                   | 0.049              | 0.14          | 12.5 × 35.5                 | 0.038              | 0.11          |
|          |      |      |                             |                    |               | ▲18 × 20                    | 0.047              | 0.14          |
| 680      | 681  |      | 12.5 × 31.5                 | 0.044              | 0.13          | 12.5 × 40                   | 0.033              | 0.095         |
|          |      |      | ▲16 × 20                    | 0.050              | 0.15          | ▲16 × 25                    | 0.040              | 0.12          |
| 820      | 821  |      | 12.5 × 35.5                 | 0.038              | 0.11          | 16 × 31.5                   | 0.033              | 0.095         |
|          |      |      | ▲18 × 20                    | 0.047              | 0.14          | ▲18 × 25                    | 0.038              | 0.11          |
| 1000     | 102  |      | 12.5 × 40                   | 0.033              | 0.095         |                             |                    |               |
|          |      |      | ▲16 × 25                    | 0.040              | 0.12          | 16 × 35.5                   | 0.030              | 0.086         |
| 1200     | 122  |      | 16 × 31.5                   | 0.025              | 0.072         | 16 × 40                     | 0.028              | 0.081         |
|          |      |      | ▲18 × 25                    | 0.038              | 0.11          | ▲18 × 31.5                  | 0.031              | 0.090         |
| 1500     | 152  |      | 16 × 35.5                   | 0.023              | 0.066         |                             |                    |               |
|          |      |      | ▲18 × 31.5                  | 0.024              | 0.069         | 18 × 35.5                   | 0.028              | 0.081         |
| 1800     | 182  |      | 16 × 40                     | 0.021              | 0.060         |                             |                    |               |
|          |      |      | ▲18 × 35.5                  | 0.022              | 0.063         | 18 × 40                     | 0.027              | 0.076         |
| 2200     | 222  |      | 18 × 40                     | 0.020              | 0.057         |                             |                    |               |

| Cap.(μF) | Code | Item | 100 (2A)                    |                    |               |
|----------|------|------|-----------------------------|--------------------|---------------|
|          |      |      | Case size<br>φD × L<br>(mm) | Impedance (Ω) MAX. |               |
|          |      |      |                             | 20°C /100kHz       | -10°C /100kHz |
| 8.2      | 8R2  |      | 5 × 11                      | 1.20               | 5.40          |
| 18       | 180  |      | 6.3 × 11                    | 0.46               | 2.10          |
| 33       | 330  |      | 8 × 11.5                    | 0.29               | 1.30          |
| 47       | 470  |      | 8 × 15                      | 0.20               | 0.90          |
| 56       | 560  |      | 10 × 12.5                   | 0.17               | 0.66          |
| 68       | 680  |      | 8 × 20                      | 0.16               | 0.66          |
| 82       | 820  |      | 10 × 16                     | 0.115              | 0.47          |
| 100      | 101  |      | 10 × 20                     | 0.088              | 0.34          |
|          |      |      | ▲12.5 × 15                  | 0.115              | 0.47          |
| 120      | 121  |      | 10 × 25                     | 0.072              | 0.28          |
| 180      | 181  |      | 12.5 × 20                   | 0.065              | 0.18          |
| 220      | 221  |      | 12.5 × 25                   | 0.049              | 0.14          |
| 270      | 271  |      | 12.5 × 31.5                 | 0.044              | 0.13          |
|          |      |      | ▲16 × 20                    | 0.050              | 0.15          |
| 390      | 391  |      | 12.5 × 35.5                 | 0.038              | 0.11          |
|          |      |      | ▲16 × 25                    | 0.040              | 0.12          |
|          |      |      | ●18 × 20                    | 0.047              | 0.14          |
| 470      | 471  |      | 12.5 × 40                   | 0.033              | 0.095         |
|          |      |      | ▲18 × 25                    | 0.038              | 0.11          |
| 560      | 561  |      | 16 × 31.5                   | 0.033              | 0.095         |
| 680      | 681  |      | 16 × 35.5                   | 0.030              | 0.086         |
|          |      |      | ▲18 × 31.5                  | 0.031              | 0.090         |
| 820      | 821  |      | 16 × 40                     | 0.028              | 0.081         |
|          |      |      | ▲18 × 35.5                  | 0.028              | 0.081         |
| 1000     | 102  |      | 18 × 40                     | 0.027              | 0.076         |

▲: In this case, [6] will be put at 12th digit of type numbering system.

●: In this case, [3] will be put at 12th digit of type numbering system.