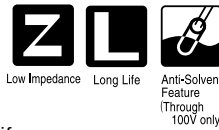
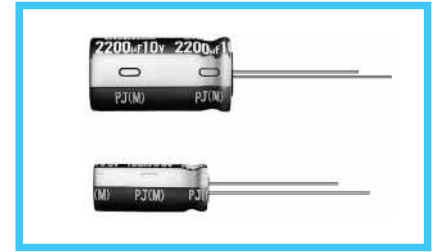
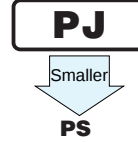




Low Impedance, For Switching Power Supplies



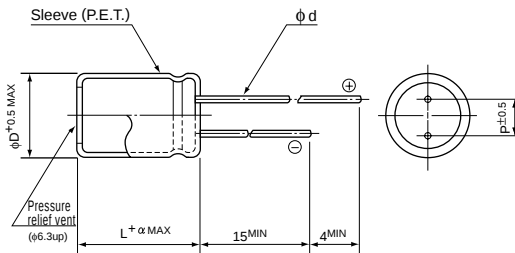
- Low impedance and high reliability withstanding 5000 hours load life at +105°C (3000 / 2000 hours for smaller case sizes as specified below).
- Capacitance ranges available based on the numerical values in E12 series under JIS.
- Ideally suited for use of switching power supplies.
- Adapted to the RoHS directive (2002/95/EC).



## Specifications

| Item                         | Performance Characteristics                                                                                                                                                                                                                                                          |                                                                                                                         |          |      |         |                    |           |                                                                                                      |           |           |     |       |
|------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|----------|------|---------|--------------------|-----------|------------------------------------------------------------------------------------------------------|-----------|-----------|-----|-------|
| Category Temperature Range   | -55 ~ +105°C (6.3 ~ 100V), -40 ~ +105°C (160 ~ 400V), -25 ~ +105°C (450V)                                                                                                                                                                                                            |                                                                                                                         |          |      |         |                    |           |                                                                                                      |           |           |     |       |
| Rated Voltage Range          | 6.3 ~ 450V                                                                                                                                                                                                                                                                           |                                                                                                                         |          |      |         |                    |           |                                                                                                      |           |           |     |       |
| Rated Capacitance Range      | 0.47 ~ 15000μF                                                                                                                                                                                                                                                                       |                                                                                                                         |          |      |         |                    |           |                                                                                                      |           |           |     |       |
| Capacitance Tolerance        | ±20% at 120Hz, 20°C                                                                                                                                                                                                                                                                  |                                                                                                                         |          |      |         |                    |           |                                                                                                      |           |           |     |       |
| Leakage Current              | Rated Voltage (V)                                                                                                                                                                                                                                                                    | 6.3 ~ 100                                                                                                               |          |      |         |                    |           | 160 ~ 450                                                                                            |           |           |     |       |
|                              | Leakage current                                                                                                                                                                                                                                                                      | After 1 minute's application of rated voltage, leakage current is not more than 0.03CV or 4 (μA), whichever is greater. |          |      |         |                    |           | CV ≤ 1000 : I = 0.1CV+40 (μA) max. (1 minute's)<br>CV > 1000 : I = 0.04CV+100 (μA) max. (1 minute's) |           |           |     |       |
| tan δ                        | For capacitance of more than 1000μF, add 0.02 for every increase of 1000μF. Measurement frequency : 120Hz, Temperature : 20°C                                                                                                                                                        |                                                                                                                         |          |      |         |                    |           |                                                                                                      |           |           |     |       |
|                              | Rated Voltage (V)                                                                                                                                                                                                                                                                    | 6.3                                                                                                                     | 10       | 16   | 25      | 35                 | 50        | 63 ~ 100                                                                                             | 160 ~ 350 | 400 ~ 450 |     |       |
|                              | tan δ (MAX.)                                                                                                                                                                                                                                                                         | 0.22                                                                                                                    | 0.19     | 0.16 | 0.14    | 0.12               | 0.10      | 0.08                                                                                                 | 0.20      | 0.25      |     |       |
| Stability at Low Temperature | Rated voltage (V)                                                                                                                                                                                                                                                                    |                                                                                                                         | 6.3 · 10 | 16   | 25 · 35 | 50 ~ 100           | 160 ~ 200 | 250                                                                                                  | 315 ~ 350 | 400       | 450 | 120Hz |
|                              | Impedance ratio                                                                                                                                                                                                                                                                      | Z-25°C / Z+20°C                                                                                                         | —        | —    | —       | —                  | —         | —                                                                                                    | —         | —         | 15  |       |
|                              |                                                                                                                                                                                                                                                                                      | Z-40°C / Z+20°C                                                                                                         | —        | —    | —       | —                  | 4         | 6                                                                                                    | 8         | 10        | —   |       |
|                              |                                                                                                                                                                                                                                                                                      | Z-55°C / Z+20°C                                                                                                         | 4        | 3    | 3       | 2                  | —         | —                                                                                                    | —         | —         | —   |       |
| Endurance                    | After an application of D.C. bias voltage plus the rated ripple current for 5000 hours (2000 hours for φD = 5 and 6.3, 3000 hours for φD = 8 )at 105°C the peak voltage shall not exceed the rated D.C. voltage, capacitors meet the characteristic requirements shown on the right. |                                                                                                                         |          |      |         | Capacitance change |           | Within ±20% of initial value                                                                         |           |           |     |       |
|                              |                                                                                                                                                                                                                                                                                      |                                                                                                                         |          |      |         | tan δ              |           | 200% or less of initial specified value                                                              |           |           |     |       |
|                              |                                                                                                                                                                                                                                                                                      |                                                                                                                         |          |      |         | Leakage current    |           | Initial specified value or less                                                                      |           |           |     |       |
| Shelf Life                   | After leaving capacitors under no load at 105°C for 1000 hours, they meet the characteristic requirements listed at right.                                                                                                                                                           |                                                                                                                         |          |      |         | Capacitance change |           | Within ±20% of initial value                                                                         |           |           |     |       |
|                              |                                                                                                                                                                                                                                                                                      |                                                                                                                         |          |      |         | tan δ              |           | 150% or less of initial specified value                                                              |           |           |     |       |
|                              |                                                                                                                                                                                                                                                                                      |                                                                                                                         |          |      |         | Leakage current    |           | Initial specified value or less                                                                      |           |           |     |       |
| Marking                      | Printed with white color letter on dark brown sleeve.                                                                                                                                                                                                                                |                                                                                                                         |          |      |         |                    |           |                                                                                                      |           |           |     |       |

## Radial Lead Type



## Type numbering system (Example : 25V 470µF)

|      |   |   |                |   |   |                              |   |   |    |    |    |
|------|---|---|----------------|---|---|------------------------------|---|---|----|----|----|
| 1    | 2 | 3 | 4              | 5 | 6 | 7                            | 8 | 9 | 10 | 11 | 12 |
| U    | P | J | 1              | E | 4 | 7                            | 1 | M | P  | D  |    |
| Type |   |   | Configuration※ |   |   | Capacitance tolerance (±20%) |   |   |    |    |    |
|      |   |   |                |   |   | Rated Capacitance (470µF)    |   |   |    |    |    |
|      |   |   |                |   |   | Rated voltage (25V)          |   |   |    |    |    |
|      |   |   |                |   |   | Series name                  |   |   |    |    |    |
|      |   |   |                |   |   | Type                         |   |   |    |    |    |

| Type        | Code |
|-------------|------|
| Small Dia   | —    |
| Low Profile | 6    |

Size code

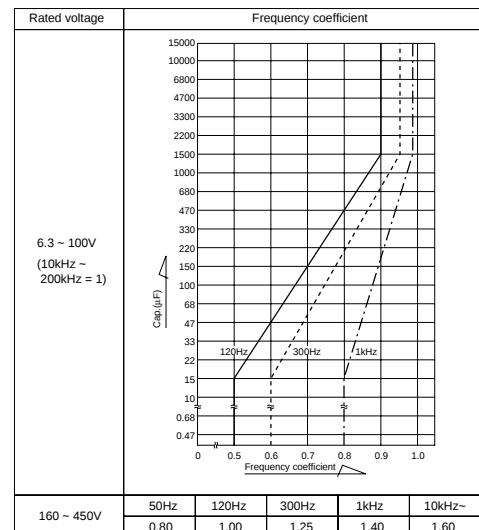
| ※ Configuration |                                        |
|-----------------|----------------------------------------|
| φ D             | Pb-free leadwire<br>Pb-free PET sleeve |
| 5               | DD                                     |
| 6.3             | ED                                  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

|   |               |
|---|---------------|
| α | (φD < 10) 1.0 |
|   | (φD ≥ 10) 1.5 |

|         | 5   | 6.3 | 8   | 10  | 12.5               | 16  | 18  |
|---------|-----|-----|-----|-----|--------------------|-----|-----|
| φD (mm) | 5   | 6.3 | 8   | 10  | 12.5               | 16  | 18  |
| P       | 2.0 | 2.5 | 3.5 | 5.0 | 5.0                | 7.5 | 7.5 |
| φd      | 0.5 | 0.5 | 0.6 | 0.6 | 0.6 <sup>(1)</sup> | 0.8 | 0.8 |

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

- Frequency coefficient of rated ripple current



Please refer to page 21, 22, 23 about the formed or taped product spec.  
Please refer to page 3 for the minimum order quantity.

- Dimension table in next pages.

## ■Dimensions

φD×L (mm)

| Cap. (μF) | V (Code)<br>Size code<br>Code | 6.3 (0J)    |           | 10 (1A)     |           | 16 (1C)     |           | 25 (1E)     |           | 35 (1V)     |           |
|-----------|-------------------------------|-------------|-----------|-------------|-----------|-------------|-----------|-------------|-----------|-------------|-----------|
|           |                               | —           | 6         | —           | 6         | —           | 6         | —           | 6         | —           | 6         |
| 22        | 220                           |             |           |             |           |             |           |             |           | 5 × 11      |           |
| 27        | 270                           |             |           |             |           |             |           |             |           | 5 × 11      |           |
| 33        | 330                           |             |           |             |           |             |           | 5 × 11      |           | 6.3 × 11    |           |
| 39        | 390                           |             |           |             |           |             |           | 5 × 11      |           | 6.3 × 11    |           |
| 47        | 470                           |             |           |             |           | 5 × 11      |           | 6.3 × 11    |           | 6.3 × 11    |           |
| 56        | 560                           |             |           |             |           | 5 × 11      |           | 6.3 × 11    |           | 6.3 × 11    |           |
| 68        | 680                           |             |           | 5 × 11      |           | 6.3 × 11    |           | 6.3 × 11    |           | 6.3 × 15    |           |
| 82        | 820                           |             |           | 5 × 11      |           | 6.3 × 11    |           | 6.3 × 11    |           | 6.3 × 15    |           |
| 100       | 101                           | 5 × 11      |           | 6.3 × 11    |           | 6.3 × 11    |           | 6.3 × 15    |           | 8 × 11.5    |           |
| 120       | 121                           | 5 × 11      |           | 6.3 × 11    |           | 6.3 × 11    |           | 6.3 × 15    |           | 8 × 15      | 10 × 12.5 |
| 150       | 151                           | 6.3 × 11    |           | 6.3 × 11    |           | 6.3 × 15    |           | 8 × 11.5    |           | 8 × 15      | 10 × 12.5 |
| 180       | 181                           | 6.3 × 11    |           | 6.3 × 11    |           | 6.3 × 15    |           | 8 × 15      | 10 × 12.5 | 8 × 20      | 10 × 15   |
| 220       | 221                           | 6.3 × 11    |           | 6.3 × 15    |           | 8 × 11.5    |           | 8 × 15      | 10 × 12.5 | 8 × 20      | 10 × 15   |
| 270       | 271                           | 6.3 × 15    |           | 6.3 × 15    |           | 8 × 15      | 10 × 12.5 | 8 × 20      | 10 × 15   | 10 × 20     | 12.5 × 15 |
| 330       | 331                           | 6.3 × 15    |           | 8 × 11.5    |           | 8 × 15      | 10 × 12.5 | 8 × 20      | 10 × 15   | 10 × 20     | 12.5 × 15 |
| 390       | 391                           | 8 × 11.5    |           | 8 × 15      | 10 × 12.5 | 8 × 20      | 10 × 15   | 10 × 20     | 12.5 × 15 | 10 × 25     | 12.5 × 15 |
| 470       | 471                           | 8 × 15      | 10 × 12.5 | 8 × 15      | 10 × 12.5 | 8 × 20      | 10 × 15   | 10 × 20     | 12.5 × 15 | 10 × 31.5   | 16 × 15   |
| 560       | 561                           | 8 × 15      | 10 × 12.5 | 8 × 20      | 10 × 15   | 10 × 20     | 12.5 × 15 | 10 × 25     | 12.5 × 15 | 12.5 × 20   | 16 × 15   |
| 680       | 681                           | 8 × 20      | 10 × 15   | 8 × 20      | 10 × 15   | 10 × 20     | 12.5 × 15 | 10 × 31.5   | 16 × 15   | 12.5 × 25   | 18 × 15   |
| 820       | 821                           | 8 × 20      | 10 × 15   | 10 × 20     | 12.5 × 15 | 10 × 25     | 12.5 × 15 | 12.5 × 20   | 16 × 15   | 12.5 × 25   | 18 × 15   |
| 1000      | 102                           | 10 × 20     | 12.5 × 15 | 10 × 20     | 12.5 × 15 | 10 × 31.5   | 16 × 15   | 12.5 × 25   | 18 × 15   | 12.5 × 31.5 | 16 × 20   |
| 1200      | 122                           | 10 × 20     | 12.5 × 15 | 10 × 25     | 12.5 × 15 | 12.5 × 20   | 16 × 15   | 12.5 × 25   | 18 × 15   | 12.5 × 35.5 | 16 × 25   |
| 1500      | 152                           | 10 × 25     | 12.5 × 15 | 10 × 31.5   | 16 × 15   | 12.5 × 25   | 18 × 15   | 12.5 × 31.5 | 16 × 20   | 12.5 × 40   | 18 × 20   |
| 1800      | 182                           | 10 × 31.5   | 16 × 15   | 12.5 × 20   | 16 × 15   | 12.5 × 31.5 | 16 × 20   | 12.5 × 35.5 | 16 × 25   | 16 × 31.5   | 18 × 25   |
| 2200      | 222                           | 10 × 31.5   | 16 × 15   | 12.5 × 25   | 18 × 15   | 12.5 × 31.5 | 16 × 20   | 12.5 × 40   | 18 × 20   | 16 × 35.5   | 18 × 31.5 |
| 2700      | 272                           | 12.5 × 25   | 18 × 15   | 12.5 × 31.5 | 16 × 20   | 12.5 × 35.5 | 16 × 25   | 16 × 31.5   | 18 × 25   | 16 × 40     | 18 × 35.5 |
| 3300      | 332                           | 12.5 × 25   | 18 × 15   | 12.5 × 35.5 | 16 × 20   | 12.5 × 40   | 18 × 20   | 16 × 35.5   | 18 × 31.5 | 18 × 40     |           |
| 3900      | 392                           | 12.5 × 31.5 | 16 × 20   | 12.5 × 40   | 18 × 20   | 16 × 31.5   | 18 × 25   | 16 × 40     | 18 × 35.5 |             |           |
| 4700      | 472                           | 12.5 × 35.5 | 18 × 20   | 16 × 31.5   | 18 × 25   | 16 × 35.5   | 18 × 31.5 | 18 × 40     |           |             |           |
| 5600      | 562                           | 12.5 × 40   | 18 × 20   | 16 × 35.5   | 18 × 25   | 16 × 40     | 18 × 35.5 |             |           |             |           |
| 6800      | 682                           | 16 × 31.5   | 18 × 25   | 16 × 35.5   | 18 × 31.5 | 18 × 35.5   |           |             |           |             |           |
| 8200      | 822                           | 16 × 35.5   | 18 × 31.5 | 16 × 40     | 18 × 35.5 | 18 × 40     |           |             |           |             |           |
| 10000     | 103                           | 16 × 40     | 18 × 31.5 | 18 × 40     |           |             |           |             |           |             |           |
| 12000     | 123                           | 18 × 35.5   |           |             |           |             |           |             |           |             |           |
| 15000     | 153                           | 18 × 40     |           |             |           |             |           |             |           |             |           |

| Cap. (μF) | V (Code)<br>Size code<br>Code | 50 (1H)     |           | 63 (1J)     |           | 80 (1K)     |           | 100 (2A)    |           |
|-----------|-------------------------------|-------------|-----------|-------------|-----------|-------------|-----------|-------------|-----------|
|           |                               | —           | 6         | —           | 6         | —           | 6         | —           | 6         |
| 0.47      | R47                           | 5 × 11      |           |             |           |             |           | 5 × 11      |           |
| 0.68      | R68                           | 5 × 11      |           |             |           |             |           | 5 × 11      |           |
| 1         | 010                           | 5 × 11      |           |             |           |             |           | 5 × 11      |           |
| 1.5       | 1R5                           | 5 × 11      |           |             |           |             |           | 5 × 11      |           |
| 2.2       | 2R2                           | 5 × 11      |           |             |           |             |           | 5 × 11      |           |
| 3.3       | 3R3                           | 5 × 11      |           |             |           |             |           | 5 × 11      |           |
| 4.7       | 4R7                           | 5 × 11      |           |             |           | 5 × 11      |           | 6.3 × 11    |           |
| 6.8       | 6R8                           | 5 × 11      |           |             |           | 5 × 11      |           | 6.3 × 11    |           |
| 10        | 100                           | 5 × 11      |           | 5 × 11      |           | 6.3 × 11    |           | 6.3 × 11    |           |
| 12        | 120                           | 5 × 11      |           | 5 × 11      |           | 6.3 × 11    |           | 6.3 × 11    |           |
| 15        | 150                           | 5 × 11      |           | 6.3 × 11    |           | 6.3 × 11    |           | 6.3 × 15    |           |
| 18        | 180                           | 5 × 11      |           | 6.3 × 11    |           | 6.3 × 11    |           | 6.3 × 15    |           |
| 22        | 220                           | 6.3 × 11    |           | 6.3 × 11    |           | 6.3 × 15    |           | 8 × 11.5    |           |
| 27        | 270                           | 6.3 × 11    |           | 6.3 × 11    |           | 6.3 × 15    |           | 8 × 15      | 10 × 12.5 |
| 33        | 330                           | 6.3 × 11    |           | 6.3 × 15    |           | 8 × 11.5    |           | 8 × 15      | 10 × 12.5 |
| 39        | 390                           | 6.3 × 11    |           | 6.3 × 15    |           | 8 × 15      | 10 × 12.5 | 8 × 20      | 10 × 15   |
| 47        | 470                           | 6.3 × 15    |           | 8 × 11.5    |           | 8 × 15      | 10 × 12.5 | 10 × 20     | 12.5 × 15 |
| 56        | 560                           | 6.3 × 15    |           | 8 × 15      | 10 × 12.5 | 8 × 20      | 10 × 15   | 10 × 20     | 12.5 × 15 |
| 68        | 680                           | 8 × 11.5    |           | 8 × 15      | 10 × 12.5 | 10 × 20     | 12.5 × 15 | 10 × 25     | 12.5 × 15 |
| 82        | 820                           | 8 × 15      | 10 × 12.5 | 8 × 20      | 10 × 15   | 10 × 20     | 12.5 × 15 | 10 × 31.5   | 16 × 15   |
| 100       | 101                           | 8 × 20      | 10 × 15   | 10 × 20     | 12.5 × 15 | 10 × 25     | 12.5 × 15 | 10 × 31.5   | 16 × 15   |
| 120       | 121                           | 8 × 20      | 10 × 15   | 10 × 20     | 12.5 × 15 | 10 × 31.5   | 16 × 15   | 12.5 × 25   | 16 × 15   |
| 150       | 151                           | 10 × 20     | 12.5 × 15 | 10 × 25     | 12.5 × 15 | 10 × 31.5   | 16 × 15   | 12.5 × 25   | 18 × 15   |
| 180       | 181                           | 10 × 20     | 12.5 × 15 | 10 × 31.5   | 16 × 15   | 12.5 × 25   | 16 × 15   | 12.5 × 31.5 | 16 × 20   |
| 220       | 221                           | 10 × 25     | 12.5 × 15 | 12.5 × 20   | 16 × 15   | 12.5 × 31.5 | 18 × 15   | 12.5 × 35.5 | 16 × 25   |
| 270       | 271                           | 10 × 31.5   | 16 × 15   | 12.5 × 25   | 18 × 15   | 12.5 × 31.5 | 16 × 20   | 12.5 × 40   | 18 × 20   |
| 330       | 331                           | 10 × 31.5   | 16 × 15   | 12.5 × 25   | 18 × 15   | 12.5 × 35.5 | 16 × 25   | 16 × 31.5   | 18 × 25   |
| 390       | 391                           | 12.5 × 25   | 16 × 15   | 12.5 × 31.5 | 16 × 20   | 12.5 × 40   | 18 × 20   | 16 × 35.5   | 18 × 31.5 |
| 470       | 471                           | 12.5 × 25   | 18 × 15   | 12.5 × 35.5 | 16 × 25   | 16 × 31.5   | 18 × 25   | 16 × 40     | 18 × 35.5 |
| 560       | 561                           | 12.5 × 31.5 | 16 × 20   | 12.5 × 40   | 18 × 20   | 16 × 35.5   | 18 × 31.5 | 18 × 35.5   |           |
| 680       | 681                           | 12.5 × 35.5 | 16 × 20   | 16 × 31.5   | 18 × 25   | 16 × 40     | 18 × 31.5 | 18 × 40     |           |
| 820       | 821                           | 12.5 × 40   | 18 × 20   | 16 × 35.5   | 18 × 31.5 | 18 × 35.5   |           |             |           |
| 1000      | 102                           | 16 × 31.5   | 18 × 25   | 16 × 40     | 18 × 35.5 | 18 × 40     |           |             |           |
| 1200      | 122                           | 16 × 35.5   | 18 × 31.5 | 18 × 40     |           |             |           |             |           |
| 1500      | 152                           | 16 × 40     | 18 × 31.5 |             |           |             |           |             |           |
| 1800      | 182                           | 18 × 35.5   |           |             |           |             |           |             |           |
| 2200      | 222                           | 18 × 40     |           |             |           |             |           |             |           |

※ In case of low profile type, [6] will be put at 12th digit of type numbering system.

Dimension table for 160 ~ 450V products  
are shown in 154 page.

CAT.8100U

## ■ Standard ratings

| Cap. (μF) | Code | Item        | 6.3 (0J)                    |                    |                |                        |               |                             |                    |                |                        |               |
|-----------|------|-------------|-----------------------------|--------------------|----------------|------------------------|---------------|-----------------------------|--------------------|----------------|------------------------|---------------|
|           |      |             | —                           |                    |                |                        | 6             |                             |                    |                |                        |               |
|           |      |             | Case size<br>φD × L<br>(mm) | Impedance (Ω MAX.) |                | Rated ripple (mA rms)  |               | Case size<br>φD × L<br>(mm) | Impedance (Ω MAX.) |                | Rated ripple (mA rms)  |               |
|           |      |             |                             | 20°C / 100kHz      | −10°C / 100kHz | 105°C / 10kHz ~ 200kHz | 105°C / 120Hz |                             | 20°C / 100kHz      | −10°C / 100kHz | 105°C / 10kHz ~ 200kHz | 105°C / 120Hz |
| 100       | 101  | 5 × 11      |                             | 1.40               | 3.50           | 150                    | 99            |                             |                    |                |                        |               |
| 120       | 121  | 5 × 11      |                             | 1.10               | 2.80           | 175                    | 115           |                             |                    |                |                        |               |
| 150       | 151  | 6.3 × 11    |                             | 0.78               | 2.10           | 225                    | 155           |                             |                    |                |                        |               |
| 180       | 181  | 6.3 × 11    |                             | 0.60               | 1.50           | 250                    | 175           |                             |                    |                |                        |               |
| 220       | 221  | 6.3 × 11    |                             | 0.48               | 1.20           | 285                    | 205           |                             |                    |                |                        |               |
| 270       | 271  | 6.3 × 15    |                             | 0.39               | 1.00           | 370                    | 275           |                             |                    |                |                        |               |
| 330       | 331  | 6.3 × 15    |                             | 0.32               | 0.80           | 405                    | 310           |                             |                    |                |                        |               |
| 390       | 391  | 8 × 11.5    |                             | 0.27               | 0.68           | 445                    | 345           |                             |                    |                |                        |               |
| 470       | 471  | 8 × 15      |                             | 0.22               | 0.55           | 550                    | 435           | 10 × 12.5                   | 0.23               | 0.58           | 575                    | 455           |
| 560       | 561  | 8 × 15      |                             | 0.19               | 0.48           | 595                    | 480           | 10 × 12.5                   | 0.21               | 0.53           | 600                    | 485           |
| 680       | 681  | 8 × 20      |                             | 0.16               | 0.40           | 730                    | 605           | 10 × 15                     | 0.18               | 0.45           | 700                    | 580           |
| 820       | 821  | 8 × 20      |                             | 0.13               | 0.33           | 795                    | 670           | 10 × 15                     | 0.15               | 0.38           | 750                    | 635           |
| 1000      | 102  | 10 × 20     |                             | 0.12               | 0.30           | 950                    | 820           | 12.5 × 15                   | 0.13               | 0.33           | 890                    | 765           |
| 1200      | 122  | 10 × 20     |                             | 0.10               | 0.25           | 1020                   | 895           | 12.5 × 15                   | 0.12               | 0.30           | 950                    | 835           |
| 1500      | 152  | 10 × 25     |                             | 0.084              | 0.21           | 1220                   | 1090          | 12.5 × 15                   | 0.10               | 0.25           | 1020                   | 915           |
| 1800      | 182  | 10 × 31.5   |                             | 0.078              | 0.20           | 1370                   | 1230          | 16 × 15                     | 0.084              | 0.21           | 1270                   | 1140          |
| 2200      | 222  | 10 × 31.5   |                             | 0.066              | 0.17           | 1470                   | 1320          | 16 × 15                     | 0.078              | 0.20           | 1340                   | 1200          |
| 2700      | 272  | 12.5 × 25   |                             | 0.051              | 0.14           | 1590                   | 1430          | 18 × 15                     | 0.072              | 0.18           | 1500                   | 1350          |
| 3300      | 332  | 12.5 × 25   |                             | 0.045              | 0.11           | 1710                   | 1530          | 18 × 15                     | 0.065              | 0.16           | 1600                   | 1440          |
| 3900      | 392  | 12.5 × 31.5 |                             | 0.037              | 0.093          | 1910                   | 1710          | 16 × 20                     | 0.056              | 0.14           | 1720                   | 1540          |
| 4700      | 472  | 12.5 × 35.5 |                             | 0.034              | 0.085          | 2100                   | 1890          | 18 × 20                     | 0.050              | 0.13           | 1920                   | 1720          |
| 5600      | 562  | 12.5 × 40   |                             | 0.031              | 0.078          | 2270                   | 2040          | 18 × 20                     | 0.047              | 0.12           | 1980                   | 1780          |
| 6800      | 682  | 16 × 31.5   |                             | 0.029              | 0.073          | 2370                   | 2130          | 18 × 25                     | 0.039              | 0.098          | 2210                   | 1980          |
| 8200      | 822  | 16 × 35.5   |                             | 0.027              | 0.068          | 2550                   | 2290          | 18 × 31.5                   | 0.031              | 0.078          | 2390                   | 2150          |
| 10000     | 103  | 16 × 40     |                             | 0.025              | 0.063          | 2750                   | 2470          | 18 × 31.5                   | 0.028              | 0.070          | 2490                   | 2240          |
| 12000     | 123  | 18 × 35.5   |                             | 0.023              | 0.058          | 2820                   | 2530          |                             |                    |                |                        |               |
| 15000     | 153  | 18 × 40     |                             | 0.022              | 0.055          | 2960                   | 2660          |                             |                    |                |                        |               |

| Cap. (μF) | Code | Item        | 10 (1A)                     |                    |                |                        |               |                             |                    |                |                        |               |
|-----------|------|-------------|-----------------------------|--------------------|----------------|------------------------|---------------|-----------------------------|--------------------|----------------|------------------------|---------------|
|           |      |             | —                           |                    |                |                        | 6             |                             |                    |                |                        |               |
|           |      |             | Case size<br>φD × L<br>(mm) | Impedance (Ω MAX.) |                | Rated ripple (mA rms)  |               | Case size<br>φD × L<br>(mm) | Impedance (Ω MAX.) |                | Rated ripple (mA rms)  |               |
|           |      |             |                             | 20°C / 100kHz      | −10°C / 100kHz | 105°C / 10kHz ~ 200kHz | 105°C / 120Hz |                             | 20°C / 100kHz      | −10°C / 100kHz | 105°C / 10kHz ~ 200kHz | 105°C / 120Hz |
| 68        | 680  | 5 × 11      |                             | 1.30               | 3.30           | 155                    | 97            |                             |                    |                |                        |               |
| 82        | 820  | 5 × 11      |                             | 1.10               | 2.80           | 175                    | 110           |                             |                    |                |                        |               |
| 100       | 101  | 6.3 × 11    |                             | 0.84               | 2.10           | 210                    | 135           |                             |                    |                |                        |               |
| 120       | 121  | 6.3 × 11    |                             | 0.72               | 1.80           | 235                    | 160           |                             |                    |                |                        |               |
| 150       | 151  | 6.3 × 11    |                             | 0.55               | 1.40           | 265                    | 185           |                             |                    |                |                        |               |
| 180       | 181  | 6.3 × 11    |                             | 0.46               | 1.20           | 290                    | 205           |                             |                    |                |                        |               |
| 220       | 221  | 6.3 × 15    |                             | 0.38               | 0.95           | 370                    | 270           |                             |                    |                |                        |               |
| 270       | 271  | 6.3 × 15    |                             | 0.31               | 0.78           | 405                    | 300           |                             |                    |                |                        |               |
| 330       | 331  | 8 × 11.5    |                             | 0.26               | 0.65           | 460                    | 350           |                             |                    |                |                        |               |
| 390       | 391  | 8 × 15      |                             | 0.22               | 0.55           | 550                    | 430           | 10 × 12.5                   | 0.24               | 0.60           | 555                    | 430           |
| 470       | 471  | 8 × 15      |                             | 0.19               | 0.48           | 595                    | 475           | 10 × 12.5                   | 0.21               | 0.53           | 600                    | 475           |
| 560       | 561  | 8 × 20      |                             | 0.16               | 0.40           | 730                    | 590           | 10 × 15                     | 0.18               | 0.45           | 700                    | 565           |
| 680       | 681  | 8 × 20      |                             | 0.13               | 0.33           | 795                    | 660           | 10 × 15                     | 0.14               | 0.35           | 770                    | 635           |
| 820       | 821  | 10 × 20     |                             | 0.11               | 0.28           | 985                    | 835           | 12.5 × 15                   | 0.13               | 0.33           | 920                    | 780           |
| 1000      | 102  | 10 × 20     |                             | 0.096              | 0.24           | 1060                   | 915           | 12.5 × 15                   | 0.10               | 0.25           | 1040                   | 895           |
| 1200      | 122  | 10 × 25     |                             | 0.078              | 0.20           | 1280                   | 1120          | 12.5 × 15                   | 0.096              | 0.24           | 1060                   | 930           |
| 1500      | 152  | 10 × 31.5   |                             | 0.072              | 0.18           | 1440                   | 1290          | 16 × 15                     | 0.078              | 0.20           | 1330                   | 1190          |
| 1800      | 182  | 12.5 × 20   |                             | 0.057              | 0.14           | 1470                   | 1320          | 16 × 15                     | 0.072              | 0.18           | 1420                   | 1270          |
| 2200      | 222  | 12.5 × 25   |                             | 0.045              | 0.11           | 1710                   | 1530          | 18 × 15                     | 0.060              | 0.15           | 1600                   | 1440          |
| 2700      | 272  | 12.5 × 31.5 |                             | 0.036              | 0.090          | 1940                   | 1740          | 16 × 20                     | 0.051              | 0.13           | 1740                   | 1560          |
| 3300      | 332  | 12.5 × 35.5 |                             | 0.032              | 0.080          | 2180                   | 1960          | 16 × 20                     | 0.045              | 0.11           | 1850                   | 1660          |
| 3900      | 392  | 12.5 × 40   |                             | 0.030              | 0.075          | 2360                   | 2120          | 18 × 20                     | 0.041              | 0.10           | 2050                   | 1840          |
| 4700      | 472  | 16 × 31.5   |                             | 0.028              | 0.070          | 2420                   | 2170          | 18 × 25                     | 0.035              | 0.088          | 2250                   | 2020          |
| 5600      | 562  | 16 × 35.5   |                             | 0.026              | 0.065          | 2610                   | 2340          | 18 × 25                     | 0.033              | 0.083          | 2340                   | 2100          |
| 6800      | 682  | 16 × 35.5   |                             | 0.024              | 0.060          | 2680                   | 2410          | 18 × 31.5                   | 0.027              | 0.068          | 2540                   | 2280          |
| 8200      | 822  | 16 × 40     |                             | 0.023              | 0.058          | 2820                   | 2530          | 18 × 35.5                   | 0.025              | 0.063          | 2690                   | 2420          |
| 10000     | 103  | 18 × 40     |                             | 0.021              | 0.053          | 3040                   | 2730          |                             |                    |                |                        |               |

※ In case of low profile type, [6] will be put at 12th digit of type numbering system.

## ■ Standard ratings

| Cap. (μF) |     | V (Code)    |                             | 16 (1C)             |                |                           |               |                             |                     |                |                           |               |
|-----------|-----|-------------|-----------------------------|---------------------|----------------|---------------------------|---------------|-----------------------------|---------------------|----------------|---------------------------|---------------|
|           |     | Size code   |                             | —                   |                |                           |               | 6                           |                     |                |                           |               |
|           |     | Item        | Case size<br>φD × L<br>(mm) | Impedance ( Ω MAX.) |                | Rated ripple (mA rms)     |               | Case size<br>φD × L<br>(mm) | Impedance ( Ω MAX.) |                | Rated ripple (mA rms)     |               |
|           |     |             |                             | 20°C / 100kHz       | −10°C / 100kHz | 105°C / 10kHz ~<br>200kHz | 105°C / 120Hz |                             | 20°C / 100kHz       | −10°C / 100kHz | 105°C / 10kHz ~<br>200kHz | 105°C / 120Hz |
| 47        | 470 | 5 × 11      | 1.30                        | 3.30                | 155            | 92                        |               |                             |                     |                |                           |               |
| 56        | 560 | 5 × 11      | 1.10                        | 2.80                | 175            | 105                       |               |                             |                     |                |                           |               |
| 68        | 680 | 6.3 × 11    | 0.78                        | 2.00                | 220            | 135                       |               |                             |                     |                |                           |               |
| 82        | 820 | 6.3 × 11    | 0.66                        | 1.70                | 240            | 155                       |               |                             |                     |                |                           |               |
| 100       | 101 | 6.3 × 11    | 0.55                        | 1.40                | 265            | 175                       |               |                             |                     |                |                           |               |
| 120       | 121 | 6.3 × 11    | 0.45                        | 1.10                | 290            | 195                       |               |                             |                     |                |                           |               |
| 150       | 151 | 6.3 × 15    | 0.37                        | 0.93                | 375            | 260                       |               |                             |                     |                |                           |               |
| 180       | 181 | 6.3 × 15    | 0.31                        | 0.78                | 405            | 285                       |               |                             |                     |                |                           |               |
| 220       | 221 | 8 × 11.5    | 0.26                        | 0.65                | 460            | 335                       |               |                             |                     |                |                           |               |
| 270       | 271 | 8 × 15      | 0.22                        | 0.55                | 550            | 410                       | 10 × 12.5     | 0.22                        | 0.55                | 575            | 430                       |               |
| 330       | 331 | 8 × 15      | 0.18                        | 0.45                | 595            | 455                       | 10 × 12.5     | 0.18                        | 0.45                | 625            | 480                       |               |
| 390       | 391 | 8 × 20      | 0.16                        | 0.40                | 730            | 570                       | 10 × 15       | 0.16                        | 0.40                | 730            | 570                       |               |
| 470       | 471 | 8 × 20      | 0.14                        | 0.35                | 770            | 615                       | 10 × 15       | 0.14                        | 0.35                | 770            | 615                       |               |
| 560       | 561 | 10 × 20     | 0.12                        | 0.30                | 950            | 770                       | 12.5 × 15     | 0.13                        | 0.33                | 920            | 745                       |               |
| 680       | 681 | 10 × 20     | 0.10                        | 0.25                | 1020           | 845                       | 12.5 × 15     | 0.11                        | 0.28                | 985            | 815                       |               |
| 820       | 821 | 10 × 25     | 0.084                       | 0.21                | 1220           | 1030                      | 12.5 × 15     | 0.096                       | 0.24                | 1060           | 895                       |               |
| 1000      | 102 | 10 × 31.5   | 0.072                       | 0.18                | 1410           | 1210                      | 16 × 15       | 0.084                       | 0.21                | 1270           | 1090                      |               |
| 1200      | 122 | 12.5 × 20   | 0.060                       | 0.15                | 1430           | 1250                      | 16 × 15       | 0.072                       | 0.18                | 1390           | 1220                      |               |
| 1500      | 152 | 12.5 × 25   | 0.048                       | 0.12                | 1660           | 1490                      | 18 × 15       | 0.066                       | 0.17                | 1560           | 1400                      |               |
| 1800      | 182 | 12.5 × 31.5 | 0.039                       | 0.10                | 1880           | 1690                      | 16 × 20       | 0.054                       | 0.14                | 1700           | 1530                      |               |
| 2200      | 222 | 12.5 × 31.5 | 0.034                       | 0.085               | 2010           | 1800                      | 16 × 20       | 0.048                       | 0.12                | 1800           | 1620                      |               |
| 2700      | 272 | 12.5 × 35.5 | 0.031                       | 0.078               | 2220           | 1990                      | 16 × 25       | 0.040                       | 0.10                | 2010           | 1800                      |               |
| 3300      | 332 | 12.5 × 40   | 0.028                       | 0.070               | 2410           | 2160                      | 18 × 20       | 0.039                       | 0.10                | 2090           | 1880                      |               |
| 3900      | 392 | 16 × 31.5   | 0.027                       | 0.068               | 2470           | 2220                      | 18 × 25       | 0.034                       | 0.085               | 2290           | 2060                      |               |
| 4700      | 472 | 16 × 35.5   | 0.025                       | 0.063               | 2680           | 2410                      | 18 × 31.5     | 0.028                       | 0.070               | 2490           | 2240                      |               |
| 5600      | 562 | 16 × 40     | 0.024                       | 0.060               | 2820           | 2530                      | 18 × 35.5     | 0.027                       | 0.068               | 2620           | 2350                      |               |
| 6800      | 682 | 18 × 35.5   | 0.022                       | 0.055               | 2900           | 2610                      |               |                             |                     |                |                           |               |
| 8200      | 822 | 18 × 40     | 0.021                       | 0.053               | 3040           | 2730                      |               |                             |                     |                |                           |               |

| Cap. (μF) |     | V (Code)<br>Size code               |       | 25 (1E)             |                |                           |               |                             |       |                     |                |                           |               |
|-----------|-----|-------------------------------------|-------|---------------------|----------------|---------------------------|---------------|-----------------------------|-------|---------------------|----------------|---------------------------|---------------|
|           |     |                                     |       | —                   |                |                           |               | 6                           |       |                     |                |                           |               |
|           |     | Item<br>Case size<br>φD × L<br>(mm) |       | Impedance ( Ω MAX.) |                | Rated ripple (mA rms)     |               | Case size<br>φD × L<br>(mm) |       | Impedance ( Ω MAX.) |                | Rated ripple (mA rms)     |               |
|           |     |                                     |       | 20°C / 100kHz       | −10°C / 100kHz | 105°C / 10kHz ~<br>200kHz | 105°C / 120Hz |                             |       | 20°C / 100kHz       | −10°C / 100kHz | 105°C / 10kHz ~<br>200kHz | 105°C / 120Hz |
| 33        | 330 | 5 × 11                              | 1.30  | 3.30                | 155            | 88                        |               |                             |       |                     |                |                           |               |
| 39        | 390 | 5 × 11                              | 1.10  | 2.80                | 175            | 100                       |               |                             |       |                     |                |                           |               |
| 47        | 470 | 6.3 × 11                            | 0.84  | 2.10                | 210            | 125                       |               |                             |       |                     |                |                           |               |
| 56        | 560 | 6.3 × 11                            | 0.72  | 1.80                | 235            | 140                       |               |                             |       |                     |                |                           |               |
| 68        | 680 | 6.3 × 11                            | 0.57  | 1.40                | 260            | 160                       |               |                             |       |                     |                |                           |               |
| 82        | 820 | 6.3 × 11                            | 0.47  | 1.20                | 285            | 180                       |               |                             |       |                     |                |                           |               |
| 100       | 101 | 6.3 × 15                            | 0.39  | 0.98                | 370            | 245                       |               |                             |       |                     |                |                           |               |
| 120       | 121 | 6.3 × 15                            | 0.32  | 0.80                | 405            | 275                       |               |                             |       |                     |                |                           |               |
| 150       | 151 | 8 × 11.5                            | 0.26  | 0.65                | 460            | 320                       |               |                             |       |                     |                |                           |               |
| 180       | 181 | 8 × 15                              | 0.22  | 0.55                | 550            | 390                       | 10 × 12.5     | 0.24                        | 0.60  | 555                 | 395            |                           |               |
| 220       | 221 | 8 × 15                              | 0.18  | 0.45                | 625            | 455                       | 10 × 12.5     | 0.21                        | 0.53  | 600                 | 435            |                           |               |
| 270       | 271 | 8 × 20                              | 0.15  | 0.38                | 750            | 560                       | 10 × 15       | 0.18                        | 0.45  | 700                 | 525            |                           |               |
| 330       | 331 | 8 × 20                              | 0.13  | 0.33                | 795            | 610                       | 10 × 15       | 0.15                        | 0.38  | 750                 | 575            |                           |               |
| 390       | 391 | 10 × 20                             | 0.11  | 0.28                | 985            | 770                       | 12.5 × 15     | 0.13                        | 0.33  | 920                 | 720            |                           |               |
| 470       | 471 | 10 × 20                             | 0.10  | 0.25                | 1020           | 810                       | 12.5 × 15     | 0.11                        | 0.28  | 985                 | 785            |                           |               |
| 560       | 561 | 10 × 25                             | 0.084 | 0.21                | 1220           | 990                       | 12.5 × 15     | 0.10                        | 0.25  | 1060                | 860            |                           |               |
| 680       | 681 | 10 × 31.5                           | 0.072 | 0.18                | 1420           | 1180                      | 16 × 15       | 0.084                       | 0.21  | 1270                | 1050           |                           |               |
| 820       | 821 | 12.5 × 20                           | 0.059 | 0.15                | 1430           | 1210                      | 16 × 15       | 0.079                       | 0.20  | 1340                | 1130           |                           |               |
| 1000      | 102 | 12.5 × 25                           | 0.048 | 0.12                | 1660           | 1430                      | 18 × 15       | 0.066                       | 0.17  | 1520                | 1310           |                           |               |
| 1200      | 122 | 12.5 × 25                           | 0.043 | 0.11                | 1760           | 1550                      | 18 × 15       | 0.061                       | 0.15  | 1600                | 1400           |                           |               |
| 1500      | 152 | 12.5 × 31.5                         | 0.035 | 0.088               | 1980           | 1780                      | 16 × 20       | 0.050                       | 0.13  | 1770                | 1590           |                           |               |
| 1800      | 182 | 12.5 × 35.5                         | 0.032 | 0.080               | 2180           | 1960                      | 16 × 25       | 0.041                       | 0.10  | 1980                | 1780           |                           |               |
| 2200      | 222 | 12.5 × 40                           | 0.029 | 0.073               | 2360           | 2120                      | 18 × 20       | 0.040                       | 0.10  | 2050                | 1840           |                           |               |
| 2700      | 272 | 16 × 31.5                           | 0.027 | 0.068               | 2470           | 2220                      | 18 × 25       | 0.034                       | 0.085 | 2290                | 2060           |                           |               |
| 3300      | 332 | 16 × 35.5                           | 0.025 | 0.063               | 2680           | 2410                      | 18 × 31.5     | 0.029                       | 0.073 | 2490                | 2240           |                           |               |
| 3900      | 392 | 16 × 40                             | 0.023 | 0.058               | 2820           | 2530                      | 18 × 35.5     | 0.026                       | 0.065 | 2690                | 2420           |                           |               |
| 4700      | 472 | 18 × 40                             | 0.022 | 0.055               | 2960           | 2660                      |               |                             |       |                     |                |                           |               |

※ In case of low profile type, [6] will be put at 12th digit of type numbering system.

## ■ Standard ratings

| Cap. (μF) |     | V (Code)    |       | 35 (1V)                     |      |                     |           |                        |       |                             |      |                     |  |                        |  |
|-----------|-----|-------------|-------|-----------------------------|------|---------------------|-----------|------------------------|-------|-----------------------------|------|---------------------|--|------------------------|--|
|           |     | Size code   |       | —                           |      |                     |           | 6                      |       |                             |      |                     |  |                        |  |
|           |     | Item        |       | Case size<br>φD × L<br>(mm) |      | Impedance ( Ω MAX.) |           | Rated ripple (mA rms)  |       | Case size<br>φD × L<br>(mm) |      | Impedance ( Ω MAX.) |  | Rated ripple (mA rms)  |  |
|           |     | Code        |       |                             |      | 20°C / 100kHz       |           | 105°C / 120Hz          |       | 20°C / 100kHz               |      | 105°C / 120Hz       |  | 105°C / 10kHz ~ 200kHz |  |
|           |     |             |       |                             |      | -10°C / 100kHz      |           | 105°C / 10kHz ~ 200kHz |       |                             |      |                     |  |                        |  |
|           |     |             |       |                             |      |                     |           |                        |       |                             |      |                     |  |                        |  |
| 22        | 220 | 5 × 11      | 1.30  | 3.30                        | 160  | 85                  |           |                        |       |                             |      |                     |  |                        |  |
| 27        | 270 | 5 × 11      | 1.00  | 2.50                        | 180  | 99                  |           |                        |       |                             |      |                     |  |                        |  |
| 33        | 330 | 6.3 × 11    | 0.78  | 2.00                        | 225  | 125                 |           |                        |       |                             |      |                     |  |                        |  |
| 39        | 390 | 6.3 × 11    | 0.66  | 1.70                        | 245  | 140                 |           |                        |       |                             |      |                     |  |                        |  |
| 47        | 470 | 6.3 × 11    | 0.54  | 1.40                        | 270  | 160                 |           |                        |       |                             |      |                     |  |                        |  |
| 56        | 560 | 6.3 × 11    | 0.45  | 1.10                        | 295  | 180                 |           |                        |       |                             |      |                     |  |                        |  |
| 68        | 680 | 6.3 × 15    | 0.37  | 0.93                        | 370  | 230                 |           |                        |       |                             |      |                     |  |                        |  |
| 82        | 820 | 6.3 × 15    | 0.31  | 0.78                        | 415  | 265                 |           |                        |       |                             |      |                     |  |                        |  |
| 100       | 101 | 8 × 11.5    | 0.26  | 0.65                        | 460  | 305                 |           |                        |       |                             |      |                     |  |                        |  |
| 120       | 121 | 8 × 15      | 0.22  | 0.55                        | 550  | 370                 | 10 × 12.5 | 0.24                   | 0.60  | 555                         | 375  |                     |  |                        |  |
| 150       | 151 | 8 × 15      | 0.18  | 0.45                        | 595  | 415                 | 10 × 12.5 | 0.20                   | 0.50  | 625                         | 435  |                     |  |                        |  |
| 180       | 181 | 8 × 20      | 0.16  | 0.40                        | 730  | 520                 | 10 × 15   | 0.18                   | 0.45  | 700                         | 500  |                     |  |                        |  |
| 220       | 221 | 8 × 20      | 0.13  | 0.33                        | 795  | 580                 | 10 × 15   | 0.14                   | 0.35  | 770                         | 560  |                     |  |                        |  |
| 270       | 271 | 10 × 20     | 0.11  | 0.28                        | 985  | 735                 | 12.5 × 15 | 0.13                   | 0.33  | 920                         | 690  |                     |  |                        |  |
| 330       | 331 | 10 × 20     | 0.096 | 0.24                        | 1060 | 810                 | 12.5 × 15 | 0.10                   | 0.25  | 1020                        | 780  |                     |  |                        |  |
| 390       | 391 | 10 × 25     | 0.084 | 0.21                        | 1220 | 955                 | 12.5 × 15 | 0.096                  | 0.24  | 1060                        | 825  |                     |  |                        |  |
| 470       | 471 | 10 × 31.5   | 0.072 | 0.18                        | 1420 | 1130                | 16 × 15   | 0.084                  | 0.21  | 1270                        | 1010 |                     |  |                        |  |
| 560       | 561 | 12.5 × 20   | 0.059 | 0.15                        | 1430 | 1160                | 16 × 15   | 0.075                  | 0.19  | 1360                        | 1100 |                     |  |                        |  |
| 680       | 681 | 12.5 × 25   | 0.048 | 0.12                        | 1660 | 1370                | 18 × 15   | 0.066                  | 0.17  | 1540                        | 1270 |                     |  |                        |  |
| 820       | 821 | 12.5 × 25   | 0.042 | 0.11                        | 1760 | 1490                | 18 × 15   | 0.060                  | 0.15  | 1620                        | 1370 |                     |  |                        |  |
| 1000      | 102 | 12.5 × 31.5 | 0.035 | 0.088                       | 1980 | 1710                | 16 × 20   | 0.050                  | 0.13  | 1770                        | 1530 |                     |  |                        |  |
| 1200      | 122 | 12.5 × 35.5 | 0.031 | 0.078                       | 2180 | 1920                | 16 × 25   | 0.041                  | 0.10  | 1980                        | 1740 |                     |  |                        |  |
| 1500      | 152 | 12.5 × 40   | 0.029 | 0.073                       | 2360 | 2120                | 18 × 20   | 0.040                  | 0.10  | 2050                        | 1840 |                     |  |                        |  |
| 1800      | 182 | 16 × 31.5   | 0.027 | 0.068                       | 2470 | 2220                | 18 × 25   | 0.034                  | 0.085 | 2290                        | 2060 |                     |  |                        |  |
| 2200      | 222 | 16 × 35.5   | 0.024 | 0.060                       | 2680 | 2410                | 18 × 31.5 | 0.028                  | 0.070 | 2490                        | 2240 |                     |  |                        |  |
| 2700      | 272 | 16 × 40     | 0.022 | 0.055                       | 2900 | 2610                | 18 × 35.5 | 0.026                  | 0.065 | 2690                        | 2420 |                     |  |                        |  |
| 3300      | 332 | 18 × 40     | 0.021 | 0.053                       | 3040 | 2730                |           |                        |       |                             |      |                     |  |                        |  |

| Cap. (μF) |     | V (Code)    |                             | 50 (1H)             |                |                              |               |                             |                     |                |                              |               |
|-----------|-----|-------------|-----------------------------|---------------------|----------------|------------------------------|---------------|-----------------------------|---------------------|----------------|------------------------------|---------------|
|           |     | Size code   |                             | —                   |                |                              |               | 6                           |                     |                |                              |               |
|           |     | Item        | Case size<br>φD × L<br>(mm) | Impedance ( Ω MAX.) |                | Rated ripple (mA rms)        |               | Case size<br>φD × L<br>(mm) | Impedance ( Ω MAX.) |                | Rated ripple (mA rms)        |               |
|           |     |             |                             | 20°C / 100kHz       | −10°C / 100kHz | 105°C /<br>10kHz ~<br>200kHz | 105°C / 120Hz |                             | 20°C / 100kHz       | −10°C / 100kHz | 105°C /<br>10kHz ~<br>200kHz | 105°C / 120Hz |
| 0.47      | R47 | 5 × 11      | 31.0                        | 80.0                | 22             | 11                           |               |                             |                     |                |                              |               |
| 0.68      | R68 | 5 × 11      | 21.0                        | 55.0                | 28             | 14                           |               |                             |                     |                |                              |               |
| 1         | 010 | 5 × 11      | 14.0                        | 38.0                | 36             | 18                           |               |                             |                     |                |                              |               |
| 1.5       | 1R5 | 5 × 11      | 9.80                        | 28.0                | 45             | 22                           |               |                             |                     |                |                              |               |
| 2.2       | 2R2 | 5 × 11      | 6.50                        | 18.0                | 54             | 27                           |               |                             |                     |                |                              |               |
| 3.3       | 3R3 | 5 × 11      | 4.60                        | 12.0                | 66             | 33                           |               |                             |                     |                |                              |               |
| 4.7       | 4R7 | 5 × 11      | 3.10                        | 7.80                | 81             | 40                           |               |                             |                     |                |                              |               |
| 6.8       | 6R8 | 5 × 11      | 2.50                        | 6.30                | 91             | 45                           |               |                             |                     |                |                              |               |
| 10        | 100 | 5 × 11      | 2.00                        | 5.00                | 115            | 57                           |               |                             |                     |                |                              |               |
| 12        | 120 | 5 × 11      | 1.70                        | 4.30                | 125            | 62                           |               |                             |                     |                |                              |               |
| 15        | 150 | 5 × 11      | 1.30                        | 3.30                | 145            | 72                           |               |                             |                     |                |                              |               |
| 18        | 180 | 5 × 11      | 1.10                        | 2.80                | 155            | 79                           |               |                             |                     |                |                              |               |
| 22        | 220 | 6.3 × 11    | 0.91                        | 2.30                | 195            | 100                          |               |                             |                     |                |                              |               |
| 27        | 270 | 6.3 × 11    | 0.74                        | 1.90                | 215            | 115                          |               |                             |                     |                |                              |               |
| 33        | 330 | 6.3 × 11    | 0.60                        | 1.50                | 240            | 135                          |               |                             |                     |                |                              |               |
| 39        | 390 | 6.3 × 11    | 0.50                        | 1.30                | 260            | 150                          |               |                             |                     |                |                              |               |
| 47        | 470 | 6.3 × 15    | 0.42                        | 1.10                | 330            | 195                          |               |                             |                     |                |                              |               |
| 56        | 560 | 6.3 × 15    | 0.35                        | 0.88                | 360            | 220                          |               |                             |                     |                |                              |               |
| 68        | 680 | 8 × 11.5    | 0.28                        | 0.70                | 410            | 255                          |               |                             |                     |                |                              |               |
| 82        | 820 | 8 × 15      | 0.22                        | 0.55                | 500            | 320                          | 10 × 12.5     | 0.23                        | 0.58                | 510            | 330                          |               |
| 100       | 101 | 8 × 20      | 0.18                        | 0.45                | 620            | 410                          | 10 × 15       | 0.21                        | 0.53                | 580            | 385                          |               |
| 120       | 121 | 8 × 20      | 0.16                        | 0.40                | 670            | 455                          | 10 × 15       | 0.17                        | 0.43                | 640            | 435                          |               |
| 150       | 151 | 10 × 20     | 0.13                        | 0.33                | 820            | 570                          | 12.5 × 15     | 0.14                        | 0.35                | 785            | 545                          |               |
| 180       | 181 | 10 × 20     | 0.11                        | 0.28                | 890            | 635                          | 12.5 × 15     | 0.12                        | 0.31                | 845            | 605                          |               |
| 220       | 221 | 10 × 25     | 0.098                       | 0.25                | 1040           | 760                          | 12.5 × 15     | 0.10                        | 0.25                | 920            | 670                          |               |
| 270       | 271 | 10 × 31.5   | 0.085                       | 0.21                | 1200           | 900                          | 16 × 15       | 0.091                       | 0.23                | 1120           | 840                          |               |
| 330       | 331 | 10 × 31.5   | 0.072                       | 0.18                | 1300           | 995                          | 16 × 15       | 0.078                       | 0.20                | 1210           | 925                          |               |
| 390       | 391 | 12.5 × 25   | 0.053                       | 0.13                | 1440           | 1120                         | 16 × 15       | 0.072                       | 0.18                | 1270           | 990                          |               |
| 470       | 471 | 12.5 × 25   | 0.048                       | 0.12                | 1500           | 1190                         | 18 × 15       | 0.060                       | 0.15                | 1470           | 1170                         |               |
| 560       | 561 | 12.5 × 31.5 | 0.040                       | 0.10                | 1680           | 1360                         | 16 × 20       | 0.053                       | 0.13                | 1550           | 1260                         |               |
| 680       | 681 | 12.5 × 35.5 | 0.036                       | 0.090               | 1850           | 1530                         | 16 × 20       | 0.048                       | 0.12                | 1630           | 1350                         |               |
| 820       | 821 | 12.5 × 40   | 0.033                       | 0.083               | 2010           | 1700                         | 18 × 20       | 0.043                       | 0.11                | 1810           | 1530                         |               |
| 1000      | 102 | 16 × 31.5   | 0.030                       | 0.075               | 2120           | 1830                         | 18 × 25       | 0.036                       | 0.090               | 2000           | 1730                         |               |
| 1200      | 122 | 16 × 35.5   | 0.028                       | 0.070               | 2260           | 1990                         | 18 × 31.5     | 0.031                       | 0.078               | 2140           | 1880                         |               |
| 1500      | 152 | 16 × 40     | 0.026                       | 0.065               | 2410           | 2170                         | 18 × 31.5     | 0.029                       | 0.073               | 2220           | 1990                         |               |
| 1800      | 182 | 18 × 35.5   | 0.025                       | 0.063               | 2460           | 2210                         |               |                             |                     |                |                              |               |
| 2200      | 222 | 18 × 40     | 0.024                       | 0.060               | 2560           | 2300                         |               |                             |                     |                |                              |               |

※ In case of low profile type, [6] will be put at 12th digit of type numbering system.



## ■ Standard ratings

| Cap. (μF) |     | V (Code)    |                             | 100 (2A)            |                |                        |               |                             |                     |                |                        |               |  |  |
|-----------|-----|-------------|-----------------------------|---------------------|----------------|------------------------|---------------|-----------------------------|---------------------|----------------|------------------------|---------------|--|--|
|           |     | Size code   |                             | —                   |                |                        |               |                             |                     | 6              |                        |               |  |  |
|           |     | Item        | Case size<br>φD × L<br>(mm) | Impedance ( Ω MAX.) |                | Rated ripple (mA rms)  |               | Case size<br>φD × L<br>(mm) | Impedance ( Ω MAX.) |                | Rated ripple (mA rms)  |               |  |  |
|           |     |             |                             | 20°C / 100kHz       | −10°C / 100kHz | 105°C / 10kHz ~ 200kHz | 105°C / 120Hz |                             | 20°C / 100kHz       | −10°C / 100kHz | 105°C / 10kHz ~ 200kHz | 105°C / 120Hz |  |  |
| 0.47      | R47 | 5 × 11      | 43.0                        | 116.0               | 17             | 8                      |               |                             |                     |                |                        |               |  |  |
| 0.68      | R68 | 5 × 11      | 23.0                        | 62.0                | 23             | 11                     |               |                             |                     |                |                        |               |  |  |
| 1         | 010 | 5 × 11      | 17.0                        | 46.0                | 27             | 13                     |               |                             |                     |                |                        |               |  |  |
| 1.5       | 1R5 | 5 × 11      | 10.0                        | 27.0                | 35             | 17                     |               |                             |                     |                |                        |               |  |  |
| 2.2       | 2R2 | 5 × 11      | 6.60                        | 18.0                | 43             | 21                     |               |                             |                     |                |                        |               |  |  |
| 3.3       | 3R3 | 5 × 11      | 4.10                        | 11.0                | 54             | 27                     |               |                             |                     |                |                        |               |  |  |
| 4.7       | 4R7 | 6.3 × 11    | 2.80                        | 7.60                | 68             | 34                     |               |                             |                     |                |                        |               |  |  |
| 6.8       | 6R8 | 6.3 × 11    | 1.90                        | 5.10                | 83             | 41                     |               |                             |                     |                |                        |               |  |  |
| 10        | 100 | 6.3 × 11    | 1.20                        | 3.20                | 104            | 52                     |               |                             |                     |                |                        |               |  |  |
| 12        | 120 | 6.3 × 11    | 1.00                        | 2.70                | 114            | 57                     |               |                             |                     |                |                        |               |  |  |
| 15        | 150 | 6.3 × 15    | 0.81                        | 2.20                | 131            | 65                     |               |                             |                     |                |                        |               |  |  |
| 18        | 180 | 6.3 × 15    | 0.67                        | 1.80                | 155            | 73                     |               |                             |                     |                |                        |               |  |  |
| 22        | 220 | 8 × 11.5    | 0.55                        | 1.50                | 230            | 122                    |               |                             |                     |                |                        |               |  |  |
| 27        | 270 | 8 × 15      | 0.47                        | 1.30                | 269            | 146                    | 10 × 12.5     | 0.50                        | 1.40                | 268            | 145                    |               |  |  |
| 33        | 330 | 8 × 15      | 0.38                        | 1.00                | 299            | 169                    | 10 × 12.5     | 0.42                        | 1.10                | 293            | 166                    |               |  |  |
| 39        | 390 | 8 × 20      | 0.33                        | 0.89                | 352            | 202                    | 10 × 15       | 0.36                        | 0.97                | 337            | 193                    |               |  |  |
| 47        | 470 | 10 × 20     | 0.28                        | 0.76                | 423            | 252                    | 12.5 × 15     | 0.31                        | 0.84                | 402            | 239                    |               |  |  |
| 56        | 560 | 10 × 20     | 0.24                        | 0.65                | 456            | 274                    | 12.5 × 15     | 0.27                        | 0.73                | 430            | 258                    |               |  |  |
| 68        | 680 | 10 × 25     | 0.21                        | 0.57                | 526            | 326                    | 12.5 × 15     | 0.23                        | 0.62                | 466            | 289                    |               |  |  |
| 82        | 820 | 10 × 31.5   | 0.18                        | 0.49                | 606            | 386                    | 16 × 15       | 0.19                        | 0.51                | 681            | 433                    |               |  |  |
| 100       | 101 | 10 × 31.5   | 0.15                        | 0.41                | 663            | 438                    | 16 × 15       | 0.17                        | 0.46                | 719            | 475                    |               |  |  |
| 120       | 121 | 12.5 × 25   | 0.13                        | 0.35                | 774            | 519                    | 16 × 15       | 0.14                        | 0.38                | 793            | 531                    |               |  |  |
| 150       | 151 | 12.5 × 25   | 0.11                        | 0.30                | 798            | 553                    | 18 × 15       | 0.12                        | 0.32                | 917            | 635                    |               |  |  |
| 180       | 181 | 12.5 × 31.5 | 0.098                       | 0.26                | 904            | 641                    | 16 × 20       | 0.11                        | 0.30                | 995            | 706                    |               |  |  |
| 220       | 221 | 12.5 × 35.5 | 0.087                       | 0.23                | 1000           | 730                    | 16 × 25       | 0.093                       | 0.25                | 1170           | 854                    |               |  |  |
| 270       | 271 | 12.5 × 40   | 0.072                       | 0.19                | 1130           | 843                    | 18 × 20       | 0.080                       | 0.22                | 1230           | 918                    |               |  |  |
| 330       | 331 | 16 × 31.5   | 0.062                       | 0.17                | 1520           | 1160                   | 18 × 25       | 0.070                       | 0.19                | 1420           | 1080                   |               |  |  |
| 390       | 391 | 16 × 35.5   | 0.053                       | 0.14                | 1730           | 1340                   | 18 × 31.5     | 0.062                       | 0.17                | 1600           | 1240                   |               |  |  |
| 470       | 471 | 16 × 40     | 0.047                       | 0.13                | 1920           | 1530                   | 18 × 35.5     | 0.056                       | 0.15                | 1770           | 1410                   |               |  |  |
| 560       | 561 | 18 × 35.5   | 0.041                       | 0.11                | 2070           | 1680                   |               |                             |                     |                |                        |               |  |  |
| 680       | 681 | 18 × 40     | 0.036                       | 0.097               | 2300           | 1910                   |               |                             |                     |                |                        |               |  |  |

※ In case of low profile type, [6] will be put at 12th digit of type numbering system.

| Cap. (μF) |     | V         |     | 160       |     | 200       |     | 250       |     | 315       |     | 350       |     | 400       |     | 450       |     |
|-----------|-----|-----------|-----|-----------|-----|-----------|-----|-----------|-----|-----------|-----|-----------|-----|-----------|-----|-----------|-----|
|           |     | Code      |     | 2C        |     | 2D        |     | 2E        |     | 2F        |     | 2V        |     | 2G        |     | 2W        |     |
| 1         | 010 | 8 × 11.5  | 19  | 8 × 11.5  | 19  | 8 × 11.5  | 19  | 8 × 11.5  | 19  | 8 × 11.5  | 19  | 10 × 12.5 | 21  | 10 × 12.5 | 17  | 10 × 15   | 17  |
| 2.2       | 2R2 | 8 × 11.5  | 30  | 8 × 11.5  | 30  | 8 × 11.5  | 30  | 10 × 12.5 | 32  | 10 × 12.5 | 32  | 10 × 15   | 34  | 10 × 15   | 28  | 10 × 20   | 28  |
| 3.3       | 3R3 | 10 × 12.5 | 50  | 10 × 12.5 | 50  | 10 × 12.5 | 50  | 10 × 15   | 52  | 10 × 15   | 52  | 10 × 20   | 54  | 10 × 20   | 47  | 12.5 × 20 | 48  |
| 4.7       | 4R7 | 10 × 12.5 | 57  | 10 × 15   | 60  | 10 × 15   | 60  | 10 × 15   | 60  | 10 × 20   | 65  | 10 × 20   | 65  | 12.5 × 20 | 55  | 12.5 × 25 | 55  |
| 10        | 100 | 10 × 15   | 90  | 10 × 20   | 95  | 12.5 × 20 | 98  | 12.5 × 20 | 98  | 12.5 × 20 | 98  | 12.5 × 25 | 100 | 12.5 × 25 | 85  | 16 × 25   | 90  |
| 22        | 220 | 12.5 × 20 | 140 | 12.5 × 25 | 145 | 16 × 25   | 150 | 16 × 25   | 150 | 16 × 25   | 150 | 16 × 25   | 150 | 16 × 31.5 | 130 | 16 × 35.5 | 135 |
| 33        | 330 | 12.5 × 25 | 175 | 16 × 25   | 180 | 16 × 25   | 180 | 16 × 31.5 | 180 | 16 × 31.5 | 185 | 16 × 35.5 | 190 | 18 × 35.5 | 170 | 18 × 40   | 170 |
| 47        | 470 | 16 × 25   | 220 | 16 × 25   | 220 | 16 × 31.5 | 225 | 18 × 35.5 | 235 | 18 × 35.5 | 235 | 18 × 40   | 240 |           |     |           |     |
| 100       | 101 | 16 × 35.5 | 330 | 18 × 40   | 345 | 18 × 40   | 345 |           |     |           |     |           |     |           |     | Case size | ※1  |

※ 1 Rated Ripple (mA rms) at 105°C 120Hz