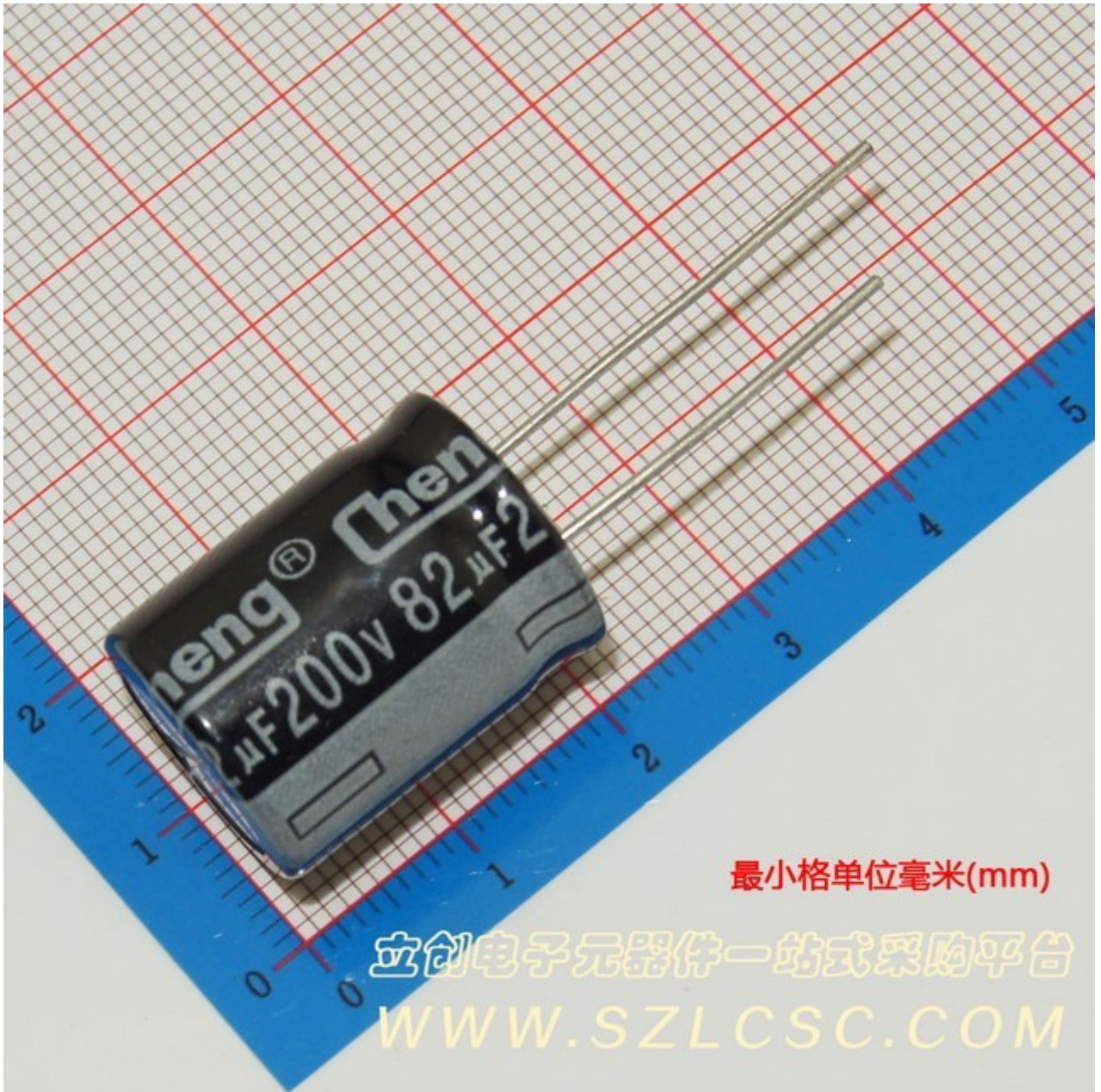


此商品编号对应的规格参数是: 82uF 200V 16\*20

此商品的实物图片为:



## KM Series

+105°C, General (普通品)

### FEATURES

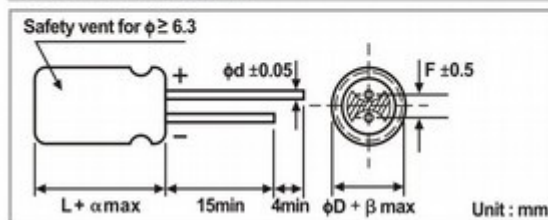
1. Rated working voltage range 6.3 to 100V DC/160 to 450V DC at operation temperature range -40 to +105°C/-25 to +105°C.
2. This series is for communication equipments, switching power supply, industrial measuring instruments, automotive electric products, etc.



### SPECIFICATIONS

| Item                            | Performance Characteristics                                                                                                                                                                                                                                         |                                                                                                                                                                                    |
|---------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Operating Temperature Range     | -40 to +105°C                                                                                                                                                                                                                                                       | -25 to +105°C                                                                                                                                                                      |
| Rated Working Voltage Range     | 6.3 to 100V                                                                                                                                                                                                                                                         | 160 to 450V                                                                                                                                                                        |
| Nominal Capacitance Range       | 0.1 to 33000µF                                                                                                                                                                                                                                                      |                                                                                                                                                                                    |
| Capacitance Tolerance           | ±20% (120Hz, +20°C)                                                                                                                                                                                                                                                 |                                                                                                                                                                                    |
| Leakage Current                 | $I \leq 0.01CV$ or $3(\mu A)$ whichever is greater                                                                                                                                                                                                                  | $I \leq 0.03CV + 40(\mu A)$                                                                                                                                                        |
|                                 | after 2 minutes application of rated working voltage at +20°C                                                                                                                                                                                                       |                                                                                                                                                                                    |
| tan δ (120Hz, +20°C)            | Working Voltage (V)                                                                                                                                                                                                                                                 | 6.3    10    16    25    35    50    63    100                                                                                                                                     |
|                                 | tan δ (max.)                                                                                                                                                                                                                                                        | 0.26   0.22   0.18   0.16   0.14   0.12   0.10   0.08                                                                                                                              |
|                                 | Working Voltage (V)                                                                                                                                                                                                                                                 | 160    200    250    250    350    400    420    450                                                                                                                               |
|                                 | tan δ (max.)                                                                                                                                                                                                                                                        | 0.20   0.20   0.20   0.20   0.24   0.24   0.24   0.24                                                                                                                              |
|                                 | For capacitance value > 1000µF, add 0.02 per another 1000µF                                                                                                                                                                                                         |                                                                                                                                                                                    |
| Low Temperature Characteristics | Impedance ratio max. at 120Hz                                                                                                                                                                                                                                       |                                                                                                                                                                                    |
|                                 | Working Voltage (V)                                                                                                                                                                                                                                                 | 6.3    10    16    25    35    50    63    100                                                                                                                                     |
|                                 | Z-25°C / Z+20°C                                                                                                                                                                                                                                                     | 5    4    3    2    2    2    2    2                                                                                                                                               |
|                                 | Z-40°C / Z+20°C                                                                                                                                                                                                                                                     | 10   8    6    4    3    3    3    3                                                                                                                                               |
|                                 | Working Voltage (V)                                                                                                                                                                                                                                                 | 160    200    220    250    350    400    420    450                                                                                                                               |
|                                 | Z-25°C / Z+20°C                                                                                                                                                                                                                                                     | 3    3    3    4    4    6    6    15                                                                                                                                              |
|                                 | For capacitance value > 1000µF, Add 0.5 per another 1000µF for Z-25°C / Z+20°C<br>Add 1.0 per another 1000µF for Z-40°C / Z+20°C                                                                                                                                    |                                                                                                                                                                                    |
| High Temperature Loading        | Test conditions                                                                                                                                                                                                                                                     |                                                                                                                                                                                    |
|                                 | Duration : $\phi D \leq 6.3 \geq 8$<br>Load life 1000h 2000h                                                                                                                                                                                                        | Post test requirements at +20°C<br>Leakage current : ≤ Initial specified value<br>Cap. change : within ±20% of initial measured value<br>tan δ : ≤ 200% of initial specified value |
|                                 | Ambient temp. : +105°C<br>Applied voltage : DC voltage with maximum permissible ripple current specified at +105°C<br>(Sum of the DC voltage and super-imposed peak AC voltage for maximum permissible ripple current should be equal to rated DC working voltage). |                                                                                                                                                                                    |
| Shelf Life                      | Test conditions                                                                                                                                                                                                                                                     |                                                                                                                                                                                    |
|                                 | Duration : 1000 hours<br>Ambient temp. : +105°C<br>Applied voltage : (None)                                                                                                                                                                                         | Post test requirements at +20°C<br>Same limits for high temperature loading.                                                                                                       |
| Others                          | JIS C - 5101 ( IES 60384 )                                                                                                                                                                                                                                          |                                                                                                                                                                                    |

### CASE SIZE TABLE



| φD | 5            | 6.3 | 8   | 10  | 12.5 | 16           | 18  | 22   | 25   |
|----|--------------|-----|-----|-----|------|--------------|-----|------|------|
| F  | 2.0          | 2.5 | 3.5 | 5.0 | 5.0  | 7.5          | 7.5 | 10.0 | 10.0 |
| φd | 0.5          |     |     | 0.6 |      | 0.8          |     |      |      |
| α  | (L < 20) 1.5 |     |     |     |      | (L ≥ 20) 2.0 |     |      |      |
| β  | (D < 20) 0.5 |     |     |     |      | (D ≥ 20) 1.0 |     |      |      |

**KM Series**

**+105°C, General (普通品)**

| STANDARD RATINGS |      |           |                |           |                |           |                |           |                |
|------------------|------|-----------|----------------|-----------|----------------|-----------|----------------|-----------|----------------|
| Voltage (Code)   |      | 6.3V (0J) |                | 10V (1A)  |                | 16V (1C)  |                | 25V (1E)  |                |
| Cap.( $\mu$ F)   | Code | Case Size | Ripple Current | Case Size | Ripple Current | Case Size | Ripple Current | Case Size | Ripple Current |
| 0.1              | 104  |           |                |           |                |           |                |           |                |
| 0.15             | 154  |           |                |           |                |           |                |           |                |
| 0.22             | 224  |           |                |           |                |           |                |           |                |
| 0.33             | 334  |           |                |           |                |           |                |           |                |
| 0.47             | 474  |           |                |           |                |           |                |           |                |
| 1                | 105  |           |                |           |                |           |                |           |                |
| 2.2              | 225  |           |                |           |                |           |                |           |                |
| 3.3              | 335  |           |                |           |                |           |                |           |                |
| 4.7              | 475  |           |                |           |                |           |                | 5 x 11    | 26             |
| 10               | 106  |           |                |           |                | 5 x 11    | 35             | 5 x 11    | 38             |
| 22               | 226  |           |                | 5 x 11    | 49             | 5 x 11    | 54             | 5 x 11    | 57             |
| 33               | 336  | 5 x 11    | 54             | 5 x 11    | 60             | 5 x 11    | 65             | 5 x 11    | 75             |
| 47               | 476  | 5 x 11    | 65             | 5 x 11    | 70             | 5 x 11    | 80             | 5 x 11    | 84             |
| 68               | 686  | 5 x 11    | 70             | 5 x 11    | 75             | 5 x 11    | 90             | 5 x 11    | 92             |
| 100              | 107  | 5 x 11    | 95             | 5 x 11    | 105            | 5 x 11    | 125            | 6.3 x 11  | 159            |
| 220              | 227  | 5 x 11    | 153            | 5 x 11    | 170            | 6.3 x 11  | 213            | 8 x 12    | 285            |
| 330              | 337  | 6.3 x 11  | 216            | 6.3 x 11  | 239            | 8 x 12    | 315            | 8 x 12    | 340            |
| 470              | 477  | 6.3 x 11  | 258            | 6.3 x 11  | 285            | 8 x 12    | 366            | 10 x 12.5 | 471            |
| 680              | 687  | 8 x 12    | 365            | 8 x 12    | 408            | 10 x 12.5 | 480            | 10 x 16   | 620            |
| 1000             | 108  | 8 x 12    | 443            | 10 x 12.5 | 571            | 10 x 16   | 680            | 10 x 20   | 821            |
| 2200             | 228  | 10 x 16   | 740            | 10 x 20   | 886            | 12.5 x 20 | 1108           | 12.5 x 20 | 1176           |
| 3300             | 338  | 10 x 20   | 1032           | 12.5 x 20 | 1205           | 12.5 x 25 | 1389           | 16 x 25   | 1646           |
| 4700             | 478  | 12.5 x 20 | 1280           | 12.5 x 25 | 1492           | 16 x 25   | 1740           | 16 x 30   | 2012           |
| 6800             | 688  | 12.5 x 25 | 1554           | 16 x 25   | 1824           | 16 x 30   | 2081           | 16 x 35   | 2308           |
| 10000            | 109  | 16 x 25   | 1897           | 16 x 30   | 1980           | 16 x 35   | 2379           | 18 x 35   | 2500           |
| 15000            | 159  | 16 x 30   | 2188           | 16 x 40   | 2180           | 18 x 35   | 2600           |           |                |
| 22000            | 229  | 18 x 35   | 2400           | 18 x 40   | 2407           |           |                |           |                |
| 33000            | 339  | 18 x 40   | 2555           |           |                |           |                |           |                |

Maximum Allowable Ripple Current (mA rms) at 105°C 120Hz

Case Size  $\phi$ D x L(mm)

| STANDARD RATINGS |      |           |                |           |                |           |                |           |                |
|------------------|------|-----------|----------------|-----------|----------------|-----------|----------------|-----------|----------------|
| Voltage (Code)   |      | 35V (1V)  |                | 50V (1H)  |                | 63V (1J)  |                | 100V (2A) |                |
| Cap.( $\mu$ F)   | Code | Case Size | Ripple Current | Case Size | Ripple Current | Case Size | Ripple Current | Case Size | Ripple Current |
| 0.1              | 104  |           |                | 5 x 11    | 1              |           |                |           |                |
| 0.15             | 154  |           |                | 5 x 11    | 1.5            |           |                |           |                |
| 0.22             | 224  |           |                | 5 x 11    | 3              |           |                |           |                |
| 0.33             | 334  |           |                | 5 x 11    | 4              |           |                |           |                |
| 0.47             | 474  |           |                | 5 x 11    | 7              |           |                | 5 x 11    | 10             |
| 1                | 105  |           |                | 5 x 11    | 13             |           |                | 5 x 11    | 16             |
| 2.2              | 225  |           |                | 5 x 11    | 20             |           |                | 5 x 11    | 23             |
| 3.3              | 335  |           |                | 5 x 11    | 30             |           |                | 5 x 11    | 34             |
| 4.7              | 475  | 5 x 11    | 28             | 5 x 11    | 37             | 5 x 11    | 40             | 5 x 11    | 40             |
| 10               | 106  | 5 x 11    | 41             | 5 x 11    | 54             | 5 x 11    | 59             | 6.3 x 11  | 61             |
| 22               | 226  | 5 x 11    | 67             | 5 x 11    | 79             | 5 x 11    | 79             | 6.3 x 11  | 92             |
| 33               | 336  | 5 x 11    | 80             | 5 x 11    | 101            | 6.3 x 11  | 122            | 8 x 12    | 144            |
| 47               | 476  | 5 x 11    | 101            | 6.3 x 11  | 133            | 6.3 x 11  | 146            | 10 x 12.5 | 199            |
| 68               | 686  |           |                |           |                | 8 x 12    | 155            | 10 x 16   | 240            |
| 100              | 107  | 6.3 x 11  | 168            | 8 x 12    | 229            | 10 x 12.5 | 251            | 10 x 20   | 349            |
| 220              | 227  | 8 x 12    | 294            | 10 x 16   | 509            | 10 x 20   | 504            | 12.5 x 25 | 622            |
| 330              | 337  | 10 x 12.5 | 419            | 10 x 16   | 589            | 12.5 x 20 | 688            | 12.5 x 25 | 800            |
| 470              | 477  | 10 x 16   | 547            | 10 x 20   | 707            | 12.5 x 20 | 810            | 16 x 25   | 990            |
| 680              | 687  | 10 x 20   | 682            | 12.5 x 20 | 923            | 12.5 x 25 | 1160           | 16 x 30   | 1289           |
| 1000             | 108  | 12.5 x 20 | 1023           | 12.5 x 25 | 1287           | 16 x 25   | 1448           | 18 x 35   | 2020           |
| 2200             | 228  | 16 x 25   | 1497           | 16 x 35   | 1884           | 18 x 35   | 1781           |           |                |
| 3300             | 338  | 16 x 30   | 1808           | 18 x 35   | 2167           |           |                |           |                |
| 4700             | 478  | 18 x 35   | 2335           |           |                |           |                |           |                |
| 6800             | 688  | 18 x 40   | 2400           |           |                |           |                |           |                |

Maximum Allowable Ripple Current (mA rms) at 105°C 120Hz

Case Size  $\phi$ D x L(mm)

**KM Series**

+105°C, General (普通品)

**STANDARD RATINGS**

| Voltage (Code) |      | 160V (2C) |                | 200V (2D) |                | 220V (2N) |                | 250V (2E) |                |
|----------------|------|-----------|----------------|-----------|----------------|-----------|----------------|-----------|----------------|
| Cap.(μF)       | Code | Case Size | Ripple Current | Case Size | Ripple Current | Case Size | Ripple Current | Case Size | Ripple Current |
| 0.47           | 474  |           |                |           |                |           |                | 6.3 x 11  | 8              |
| 1              | 105  |           |                |           |                |           |                | 6.3 x 11  | 17             |
| 2.2            | 225  |           |                |           |                |           |                | 6.3 x 11  | 27             |
| 3.3            | 335  |           |                | 6.3 x 11  | 30             | 6.3 x 11  | 30             | 6.3 x 11  | 35             |
| 4.7            | 475  | 6.3 x 11  | 41             | 6.3 x 11  | 40             | 8 x 12    | 40             | 8 x 12    | 45             |
| 10             | 106  | 8 x 12    | 60             | 10 x 12.5 | 72             | 10 x 12.5 | 70             | 10 x 12.5 | 75             |
| 22             | 226  | 10 x 16   | 110            | 10 x 16   | 113            | 10 x 20   | 125            | 10 x 20   | 130            |
| 33             | 336  | 10 x 20   | 156            | 10 x 20   | 165            | 12.5 x 20 | 165            | 12.5 x 20 | 184            |
| 47             | 476  | 10 x 20   | 195            | 10 x 20   | 194            | 12.5 x 20 | 220            | 12.5 x 25 | 238            |
| 68             | 686  | 12.5 x 20 | 250            | 12.5 x 25 | 250            | 12.5 x 25 | 245            | 16 x 20   | 246            |
| 82             | 826  | 12.5 x 25 | 310            | 10 x 30   | 320            | 12.5 x 30 | 280            | 16 x 25   | 351            |
| 100            | 107  | 12.5 x 25 | 360            | 16 x 25   | 386            | 16 x 25   | 335            | 16 x 25   | 390            |
| 150            | 157  | 12.5 x 30 | 380            | 16 x 25   | 525            | 16 x 30   | 365            | 16 x 30   | 440            |
| 180            | 187  | 12.5 x 35 | 420            | 12.5 x 35 | 560            | 16 x 35   | 500            | 16 x 35   | 469            |
| 220            | 227  | 16 x 30   | 680            | 16 x 30   | 643            | 16 x 40   | 615            | 16 x 35   | 485            |
| 270            | 277  | 16 x 30   | 728            | 18 x 30   | 740            |           |                |           |                |
| 330            | 337  | 18 x 35   | 830            | 18x 30    | 808            |           |                |           |                |
| 390            | 397  | 18 x 35   | 850            | 18 x 35   | 904            |           |                |           |                |
| 470            | 477  | 18 x 40   | 880            | 18 x 40   | 1016           |           |                |           |                |
| 560            | 567  | 18 x 45   | 925            | 18 x 45   | 1112           |           |                |           |                |

Maximum Allowable Ripple Current (mA rms) at 105°C 120Hz

Case Size φD x L(mm)

| Voltage (Code) |      | 350V (2V) |                | 400V (2G) |                | 420V (2M) |                | 450V (2W) |                |
|----------------|------|-----------|----------------|-----------|----------------|-----------|----------------|-----------|----------------|
| Cap.(μF)       | Code | Case Size | Ripple Current | Case Size | Ripple Current | Case Size | Ripple Current | Case Size | Ripple Current |
| 0.47           | 474  | 6.3 x 11  | 8              |           |                |           |                |           |                |
| 1              | 105  | 6.3 x 11  | 18             | 6.3 x 11  | 19             | 6.3 x 11  | 15             | 6.3 x 11  | 16             |
| 2.2            | 225  | 6.3 x 11  | 25             | 8 x 12    | 30             | 8 x 12    | 29             | 8 x 12    | 24             |
| 3.3            | 335  | 8 x 12    | 40             | 8 x 12    | 35             | 8 x 12    | 35             | 8 x 12    | 29             |
| 4.7            | 475  | 8 x 12    | 43             | 8 x 12    | 40             | 10 x 16   | 52             | 10 x 16   | 42             |
| 10             | 106  | 10 x 16   | 73             | 10 x 16   | 78             | 10 x 20   | 85             | 12.5 x 25 | 84             |
| 18             | 186  | 12.5 x 20 | 100            | 12.5 x 20 | 105            | 12.5 x 25 | 124            | 10 x 30   | 108            |
| 22             | 226  | 12.5 x 20 | 150            | 12.5 x 20 | 148            | 12.5 x 25 | 140            | 12.5 x 25 | 131            |
| 27             | 276  | 12.5 x 25 | 177            | 10 x 30   | 192            | 12.5 x 25 | 170            | 12.5 x 30 | 164            |
| 33             | 386  | 12.5 x 25 | 200            | 12.5 x 25 | 193            | 16 x 25   | 200            | 16 x 25   | 237            |
| 39             | 396  | 12.5 x 25 | 258            | 16 x 25   | 251            | 12.5 x 30 | 248            | 12.5 x 35 | 256            |
| 47             | 476  | 12.5 x 25 | 265            | 12.5 x 30 | 266            | 12.5 x 35 | 288            | 16 x 30   | 305            |
| 56             | 566  | 16 x 30   | 280            | 12.5 x 35 | 336            | 12.5 x 40 | 344            | 16 x 30   | 352            |
| 68             | 686  | 16 x 30   | 288            | 16 x 30   | 396            | 16 x 30   | 408            | 18 x 30   | 366            |
| 82             | 826  | 18 x 30   | 372            | 18 x 30   | 443            | 16 x 35   | 456            | 18 x 30   | 440            |
| 100            | 107  | 18 x 35   | 460            | 18 x 30   | 489            | 18 x 35   | 488            | 18 x 35   | 490            |
| 120            | 127  |           |                | 18 x 35   | 570            | 18 x 40   | 528            | 18 x 40   | 592            |
| 150            | 157  |           |                | 18 x 40   | 616            | 18 x 45   | 568            | 18 x 45   | 640            |
| 180            | 187  |           |                | 18 x 50   | 704            |           |                |           |                |

Maximum Allowable Ripple Current (mA rms) at 105°C 120Hz

Case Size φD x L(mm)

**RIPPLE CURRENT MULTIPLIER**

| Frequency Coefficient |            |             |      |      |      |      |      |
|-----------------------|------------|-------------|------|------|------|------|------|
| Rated Voltage(V)      | Cap.(μF)   | Coefficient | 50   | 120  | 300  | 1k   | 10k~ |
| 6.3 ~ 100             | ~ 47       | 0.75        | 1.00 | 1.35 | 1.57 | 2.00 |      |
|                       | 68 ~ 470   | 0.80        | 1.00 | 1.23 | 1.34 | 1.50 |      |
|                       | ≥ 560      | 0.85        | 1.00 | 1.10 | 1.13 | 1.15 |      |
| 160 ~ 450             | 0.47 ~ 220 | 0.80        | 1.00 | 1.25 | 1.40 | 1.60 |      |
|                       | ≥ 270      | 0.90        | 1.00 | 1.10 | 1.13 | 1.15 |      |