

LOW IMPEDANCE

低阻抗品

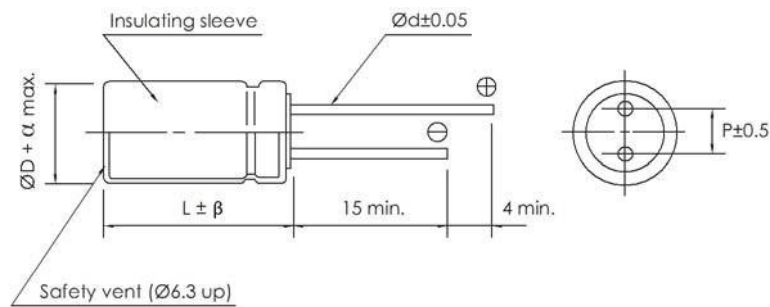
- Low impedance at high frequency  
高頻低阻抗
- Ideally suited for use of switching power supplies  
適用於開關電源
- Load life of 2000~3000 hours at 105°C  
在 105°C 環境中負荷壽命 2000~3000 小時
- Comply with the RoHS directive  
符合 RoHS 指令



SPECIFICATIONS 特性表

| Items 項目                           | Characteristics 主要特性                                                                                                                                                                                                                   |                                                                                                                        |
|------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|
| Operation Temperature Range 使用溫度範圍 | -40 ~ +105°C                                                                                                                                                                                                                           | -25 ~ +105°C                                                                                                           |
| Voltage Range 額定工作電壓範圍             | 6.3 ~ 100V                                                                                                                                                                                                                             | 160 ~ 450V                                                                                                             |
| Capacitance Range 靜電容量範圍           | 1 ~ 15000µF                                                                                                                                                                                                                            | 22 ~ 330µF                                                                                                             |
| Capacitance Tolerance 靜電容量允許偏差     | ±20% at 120Hz, 20°C                                                                                                                                                                                                                    |                                                                                                                        |
| Leakage Current 漏電流                | Leakage current = 0.01CV or 3µA, whichever is greater (after 2 minutes application of rated voltage)<br>漏電流 = 0.01CV 或 3µA, 取較大值 (施加額定工作電壓 2 分鐘後)                                                                                      | Leakage current = 0.02CV + 15µA (after 5 minutes application of rated voltage)<br>漏電流 = 0.02CV + 15µA (施加額定工作電壓 5 分鐘後) |
| Dissipation Factor (tan δ) 損耗角正切   | When nominal capacitance is over 1000µF, tan δ shall be added 0.02 to the listed value with increase of every 1000µF.<br>當標稱靜電容量大於 1000µF, 其標稱靜電容量每增加 1000µF, 損耗角正切增加 0.02.<br>Measurement frequency 測試頻率: 120Hz, Temperature 溫度: 20°C |                                                                                                                        |
| Stability at Low Temperature 低溫特性  | Rated Voltage (V) 額定工作電壓                                                                                                                                                                                                               | 6.3    10    16~35    50, 63    100    160~250    350~450                                                              |
|                                    | tan δ (max.) 最大損耗角正切                                                                                                                                                                                                                   | 0.18    0.14    0.12    0.10    0.08    0.15    0.20                                                                   |
|                                    | Measurement frequency 測試頻率: 120Hz                                                                                                                                                                                                      |                                                                                                                        |
| Load Life 高溫負荷特性                   | Rated Voltage (V) 額定工作電壓                                                                                                                                                                                                               | 6.3 ~ 16    25 ~ 100    160 ~ 250    350 ~ 450                                                                         |
|                                    | Impedance Ratio 阻抗比                                                                                                                                                                                                                    | Z(-25°C) / Z(20°C)    2    2    3    8                                                                                 |
|                                    | Z(-40°C) / Z(20°C)                                                                                                                                                                                                                     | 4    3    —    —                                                                                                       |
| Shelf Life 高溫貯存特性                  | After 3000 hours (Ø5~Ø8 products are for 2000 hours) application of the rated voltage at 105°C, they meet the characteristics listed below.<br>在 105°C 環境中施加額定工作電壓 3000 小時 (Ø5~Ø8 產品為 2000 小時) 後, 電容器的特性符合下表的要求。                       |                                                                                                                        |
|                                    | Capacitance Change 靜電容量變化率                                                                                                                                                                                                             | Within ±20% of initial measured value 初始值的±20%以內                                                                       |
|                                    | Dissipation Factor 損耗角正切                                                                                                                                                                                                               | ≤200% of initial specified value 不大於規範值的 200%                                                                          |
| Marking 標識                         | Leakage Current 漏電流                                                                                                                                                                                                                    | ≤initial specified value 不大於規範值                                                                                        |
|                                    | After leaving capacitors under no load at 105°C for 1000 hours, they meet the specified value for load life characteristics listed above. 在 105°C 環境中無負荷放置 1000 小時後, 電容器的特性符合高溫負荷特性中所列的規定值。                                            |                                                                                                                        |
|                                    | Printed with white colour on black sleeve (PVC) or printed with black colour on golden yellow sleeve (PET).<br>黑色膠管白字印刷 (PVC) 或金黃色膠管黑字印刷 (PET)。                                                                                        |                                                                                                                        |

DRAWING (Unit: mm) 外形圖



| ØD | 5   | 6.3 | 8 (L≤11.5) | 8 (L≥16) | 10  | 13   | 16 | 18 | 22 |
|----|-----|-----|------------|----------|-----|------|----|----|----|
| P  | 2.0 | 2.5 | 3.5        | 5.0      | 7.5 | 10.0 |    |    |    |
| Ød | 0.5 | 0.5 | 0.5        | 0.6      | 0.8 |      |    |    |    |
| β  | 1.5 | 1.5 | 1.5        | 2.0      |     |      |    |    |    |
| α  | 0.5 | 0.5 | 0.5        | 1.0      |     |      |    |    |    |

FREQUENCY COEFFICIENT OF ALLOWABLE RIPPLE CURRENT 紋波電流頻率補償系數

| Frequency 頻 率     |                | 50Hz | 120Hz | 300Hz | 1KHz | 10KHz~ |
|-------------------|----------------|------|-------|-------|------|--------|
| Coefficient<br>系数 | 1 ~ 47μF       | 0.75 | 1.00  | 1.35  | 1.55 | 2.0    |
|                   | 68 ~ 680μF     | 0.80 | 1.00  | 1.25  | 1.34 | 1.5    |
|                   | 1000 ~ 15000μF | 0.85 | 1.00  | 1.10  | 1.13 | 1.15   |

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DIMENSIONS&MAXIMUMPERMISSIBLERIPPLECURRENT&IMPEDANCE
 規格尺寸及最大允許紋波電流及阻抗值

| WV<br><br>Parameter<br>參數<br><br>μF |     | 6.3 (0J)                     |                                              |                                 |                  | 10 (1A)                      |                                             |                                 |                  |
|-------------------------------------|-----|------------------------------|----------------------------------------------|---------------------------------|------------------|------------------------------|---------------------------------------------|---------------------------------|------------------|
|                                     |     | Case size<br>ØD×L (mm)<br>尺寸 | Impedance (Ω)<br>max. 20°C,<br>100KHz<br>阻抗值 | Ripple current (mA rms)<br>紋波電流 |                  | Case size<br>ØD×L (mm)<br>尺寸 | Impedance(Ω)<br>max. 20°C,<br>100KHz<br>阻抗值 | Ripple current (mA rms)<br>紋波電流 |                  |
|                                     |     |                              |                                              | 105°C,<br>120Hz                 | 105°C,<br>100KHz |                              |                                             | 105°C,<br>120Hz                 | 105°C,<br>100KHz |
| 33                                  | 330 |                              |                                              |                                 |                  | 5 × 11                       | 2.10                                        | 74                              | 111              |
| 47                                  | 470 | 5 × 11                       | 2.10                                         | 56                              | 117              | 5 × 11                       | 1.90                                        | 88                              | 132              |
| 68                                  | 680 | 5 × 11                       | 1.90                                         | 74                              | 140              | 5 × 11                       | 1.74                                        | 106                             | 156              |
| 100                                 | 101 | 5 × 11                       | 1.70                                         | 113                             | 170              | 5 × 11                       | 1.30                                        | 147                             | 221              |
| 220                                 | 221 | 6.3 × 11.5                   | 0.92                                         | 158                             | 260              | 6.3 × 11.5                   | 0.59                                        | 185                             | 280              |
| 330                                 | 331 | 6.3 × 11.5                   | 0.83                                         | 195                             | 300              | 6.3 × 11.5                   | 0.33                                        | 215                             | 410              |
| 470                                 | 471 | 8 × 11.5                     | 0.62                                         | 385                             | 578              | 8 × 11.5<br>(10 × 12)        | 0.29<br>(0.25)                              | 443<br>(465)                    | 563<br>(630)     |
| 680                                 | 681 | 8 × 11.5                     | 0.44                                         | 483                             | 627              | 8 × 11.5                     | 0.13                                        | 482                             | 697              |
| 1000                                | 102 | 8 × 11.5                     | 0.36                                         | 505                             | 645              | 8 × 16<br>(10 × 12)          | 0.10<br>(0.098)                             | 816<br>(820)                    | 928<br>(935)     |
| 1200                                | 122 | 8 × 16                       | 0.18                                         | 525                             | 685              | 10 × 16                      | 0.095                                       | 835                             | 969              |
| 1500                                | 152 | 10 × 12<br>(10 × 16)         | 0.16<br>(0.16)                               | 787<br>(787)                    | 964<br>(964)     | 10 × 20                      | 0.092                                       | 1029                            | 1208             |
| 2200                                | 222 | 10 × 20                      | 0.095                                        | 1002                            | 1195             | 10 × 20<br>(13 × 21)         | 0.08<br>(0.08)                              | 1006<br>(1103)                  | 1200<br>(1315)   |
| 3300                                | 332 | 10 × 20<br>(13 × 21)         | 0.093<br>(0.087)                             | 1100<br>(1189)                  | 1225<br>(1391)   | 13 × 25<br>(16 × 20)         | 0.065<br>(0.063)                            | 1573<br>(1425)                  | 1812<br>(1645)   |
| 4700                                | 472 | 13 × 25                      | 0.068                                        | 1608                            | 1875             | 16 × 25                      | 0.060                                       | 1971                            | 2262             |
| 6800                                | 682 | 13 × 25<br>(16 × 25)         | 0.067<br>(0.065)                             | 1680<br>(1776)                  | 1905<br>(2076)   | 16 × 31                      | 0.048                                       | 2390                            | 2650             |
| 10000                               | 103 | 16 × 31                      | 0.050                                        | 2169                            | 2404             | 18 × 31                      | 0.035                                       | 2590                            | 2730             |
| 15000                               | 153 | 18 × 31                      | 0.040                                        | 2380                            | 2850             |                              |                                             |                                 |                  |

| WV<br><br>Parameter<br>參數<br><br>μF |     | 16 (1C)                             |                                              |                                 |                       | 25 (1E)                      |                                              |                                 |                  |
|-------------------------------------|-----|-------------------------------------|----------------------------------------------|---------------------------------|-----------------------|------------------------------|----------------------------------------------|---------------------------------|------------------|
|                                     |     | Case size<br>ØD×L (mm)<br>尺寸        | Impedance (Ω)<br>max. 20°C,<br>100KHz<br>阻抗值 | Ripple current (mA rms)<br>紋波電流 |                       | Case size<br>ØD×L (mm)<br>尺寸 | Impedance (Ω)<br>max. 20°C,<br>100KHz<br>阻抗值 | Ripple current (mA rms)<br>紋波電流 |                  |
|                                     |     |                                     |                                              | 105°C,<br>120Hz                 | 105°C,<br>100KHz      |                              |                                              | 105°C,<br>120Hz                 | 105°C,<br>100KHz |
| 22                                  | 220 | 5 × 11                              | 2                                            | 66                              | 132                   | 5 × 11                       | 1.90                                         | 65                              | 130              |
| 33                                  | 330 | 5 × 11                              | 1.8                                          | 81                              | 163                   | 5 × 11                       | 1.60                                         | 78                              | 156              |
| 47                                  | 470 | 5 × 11                              | 1.4                                          | 97                              | 194                   | 5 × 11                       | 1.30                                         | 106                             | 198              |
| 68                                  | 580 | 5 × 11                              | 0.93                                         | 134                             | 201                   | 6.3 × 11.5                   | 0.82                                         | 152                             | 228              |
| 100                                 | 101 | 6.3 × 11.5                          | 0.85                                         | 163                             | 244                   | 6.3 × 11.5                   | 0.71                                         | 198                             | 265              |
| 220                                 | 221 | 6.3 × 11.5<br>(8 × 11.5)            | 0.50<br>(0.45)                               | 320<br>(358)                    | 400<br>(430)          | 6.3 × 11.5<br>(8 × 11.5)     | 0.46<br>(0.38)                               | 305<br>(356)                    | 440<br>(480)     |
| 330                                 | 331 | 8 × 11.5                            | 0.41                                         | 425                             | 565                   | 8 × 11.5<br>(10 × 12)        | 0.36<br>(0.25)                               | 434<br>(645)                    | 656<br>(840)     |
| 470                                 | 471 | 6.3 × 15<br>(8 × 11.5)<br>(10 × 12) | 0.38<br>(0.35)<br>(0.30)                     | 465<br>(503)<br>(600)           | 660<br>(707)<br>(845) | 8 × 16<br>(10 × 12)          | 0.23<br>(0.20)                               | 600<br>(700)                    | 949<br>(970)     |
| 680                                 | 681 | 8 × 16<br>(10 × 12)                 | 0.26<br>(0.24)                               | 768<br>(815)                    | 1024<br>(1038)        | 10 × 16                      | 0.10                                         | 924                             | 1387             |
| 1000                                | 102 | 10 × 16<br>(10 × 20)                | 0.12<br>(0.14)                               | 982<br>(1000)                   | 1126<br>(1207)        | 10 × 16<br>(10 × 20)         | 0.09<br>(0.068)                              | 1179<br>(1179)                  | 1386<br>(1386)   |
| 1200                                | 122 | 10 × 20                             | 0.15                                         | 1035                            | 1268                  | 13 × 21                      | 0.065                                        | 1280                            | 1515             |
| 1500                                | 152 | 10 × 20<br>(13 × 21)                | 0.096<br>(0.072)                             | 1100<br>(1182)                  | 1270<br>(1355)        | 13 × 25                      | 0.062                                        | 1403                            | 1621             |
| 2200                                | 222 | 13 × 25                             | 0.063                                        | 1453                            | 1674                  | 13 × 25<br>(16 × 25)         | 0.063<br>(0.055)                             | 1500<br>(1567)                  | 1774<br>(1839)   |
| 3300                                | 332 | 13 × 30                             | 0.056                                        | 1619                            | 1816                  | 16 × 31<br>(18 × 25)         | 0.050<br>(0.052)                             | 2003<br>(1745)                  | 2391<br>(1992)   |
| 4700                                | 472 | 16 × 25                             | 0.050                                        | 2173                            | 2403                  | 16 × 35                      | 0.040                                        | 2420                            | 2840             |
| 6800                                | 682 | 16 × 35                             | 0.040                                        | 2440                            | 2797                  | 18 × 35                      | 0.035                                        | 2840                            | 3250             |
| 10000                               | 103 | 18 × 35                             | 0.038                                        | 2850                            | 3230                  |                              |                                              |                                 |                  |

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DIMENSIONS&MAXIMUMPERMISSIBLERIPPLECURRENT&IMPEDANCE
 規格尺寸及最大允許紋波電流及阻抗值

| WV<br>Parameter<br>參數<br><br>μF |     | 35 (1V)                      |                                              |                                 |                  | 50 (1H)                      |                                              |                                 |                  |
|---------------------------------|-----|------------------------------|----------------------------------------------|---------------------------------|------------------|------------------------------|----------------------------------------------|---------------------------------|------------------|
|                                 |     | Case size<br>ØD×L (mm)<br>尺寸 | Impedance (Ω)<br>max. 20°C,<br>100KHz<br>阻抗值 | Ripple current (mA rms)<br>紋波電流 |                  | Case size<br>ØD×L (mm)<br>尺寸 | Impedance (Ω)<br>max. 20°C,<br>100KHz<br>阻抗值 | Ripple current (mA rms)<br>紋波電流 |                  |
|                                 |     |                              |                                              | 105°C,<br>120Hz                 | 105°C,<br>100KHz |                              |                                              | 105°C,<br>120Hz                 | 105°C,<br>100KHz |
| 1                               | 010 |                              |                                              |                                 |                  | 5 × 11                       | 4.2                                          | 16                              | 32               |
| 2.2                             | 2R2 |                              |                                              |                                 |                  | 5 × 11                       | 4.0                                          | 18                              | 36               |
| 3.3                             | 3R3 |                              |                                              |                                 |                  | 5 × 11                       | 3.8                                          | 20                              | 40               |
| 4.7                             | 4R7 |                              |                                              |                                 |                  | 5 × 11                       | 2.5                                          | 29                              | 58               |
| 6.8                             | 6R8 |                              |                                              |                                 |                  | 5 × 11                       | 2.2                                          | 38                              | 76               |
| 10                              | 100 | 5 × 11                       | 1.80                                         | 55                              | 100              | 5 × 11                       | 2.0                                          | 52                              | 104              |
| 22                              | 220 | 5 × 11<br>(6.3 × 11.5)       | 1.50<br>(1.40)                               | 67<br>(75)                      | 134<br>(145)     | 5 × 11<br>(6.3 × 11.5)       | 1.6<br>(1.0)                                 | 68<br>(76)                      | 136<br>(150)     |
| 33                              | 330 | 5 × 11                       | 1.20                                         | 81                              | 163              | 6.3 × 11.5                   | 0.8                                          | 85                              | 175              |
| 47                              | 470 | 6.3 × 11.5                   | 1.10                                         | 114                             | 229              | 6.3 × 11.5                   | 0.71                                         | 125                             | 225              |
| 68                              | 680 | 6.3 × 11.5                   | 0.85                                         | 137                             | 273              | 8 × 11.5                     | 0.65                                         | 215                             | 385              |
| 100                             | 101 | 6.3 × 11.5<br>(8 × 11.5)     | 0.68<br>(0.50)                               | 205<br>(273)                    | 340<br>(409)     | 8 × 11.5                     | 0.4                                          | 380                             | 480              |
| 220                             | 221 | 8 × 11.5<br>(8 × 16)         | 0.27<br>(0.25)                               | 484<br>(510)                    | 725<br>(750)     | 8 × 16<br>(10 × 12)          | 0.25<br>(0.20)                               | 580<br>(600)                    | 760<br>(805)     |
| 330                             | 331 | 8 × 16                       | 0.16                                         | 540                             | 795              | 10 × 20                      | 0.10                                         | 900                             | 1045             |
| 470                             | 470 | 10 × 16                      | 0.12                                         | 810                             | 1020             | 10 × 20<br>(10 × 25)         | 0.09<br>(0.09)                               | 1000<br>(1050)                  | 1020<br>(1120)   |
| 680                             | 681 | 10 × 25<br>(13 × 21)         | 0.072<br>(0.068)                             | 1089<br>(1300)                  | 1433<br>(1460)   | 13 × 25                      | 0.078                                        | 1275                            | 1464             |
| 1000                            | 102 | 13 × 21                      | 0.065                                        | 1350                            | 1490             | 16 × 25                      | 0.065                                        | 1460                            | 1700             |
| 1500                            | 152 | 13 × 25                      | 0.060                                        | 1580                            | 1715             | 16 × 31                      | 0.050                                        | 1710                            | 1990             |
| 2200                            | 222 | 16 × 25<br>(18 × 35)         | 0.055<br>(0.053)                             | 1759<br>(1985)                  | 2069<br>(2338)   | 16 × 35                      | 0.045                                        | 2076                            | 2326             |
| 3300                            | 332 | 16 × 35<br>(18 × 25)         | 0.045<br>(0.050)                             | 2300<br>(2165)                  | 2520<br>(2420)   | 18 × 35                      | 0.04                                         | 2500                            | 2700             |
| 4700                            | 472 | 18 × 35                      | 0.038                                        | 2450                            | 2875             |                              |                                              |                                 |                  |

| WV<br>Parameter<br>參數<br><br>μF |     | 63 (1J)                      |                                              |                                 |                  | 100 (2A)                     |                                              |                                 |                  |
|---------------------------------|-----|------------------------------|----------------------------------------------|---------------------------------|------------------|------------------------------|----------------------------------------------|---------------------------------|------------------|
|                                 |     | Case size<br>ØD×L (mm)<br>尺寸 | Impedance (Ω)<br>max. 20°C,<br>100KHz<br>阻抗值 | Ripple current (mA rms)<br>紋波電流 |                  | Case size<br>ØD×L (mm)<br>尺寸 | Impedance (Ω)<br>max. 20°C,<br>100KHz<br>阻抗值 | Ripple current (mA rms)<br>紋波電流 |                  |
|                                 |     |                              |                                              | 105°C,<br>120Hz                 | 105°C,<br>100KHz |                              |                                              | 105°C,<br>120Hz                 | 105°C,<br>100KHz |
| 1                               | 010 |                              |                                              |                                 |                  | 5 × 11                       | 7                                            | 47                              | 66               |
| 2.2                             | 2R2 |                              |                                              |                                 |                  | 5 × 11                       | 6                                            | 66                              | 72               |
| 3.3                             | 3R3 |                              |                                              |                                 |                  | 5 × 11                       | 5                                            | 68                              | 78               |
| 4.7                             | 4R7 | 5 × 11                       | 2.5                                          | 45                              | 71               | 5 × 11                       | 4                                            | 72                              | 88               |
| 10                              | 100 | 5 × 11                       | 1.5                                          | 50                              | 81               | 6.3 × 11.5                   | 1.2                                          | 100                             | 180              |
| 22                              | 220 | 5 × 11                       | 1.2                                          | 110                             | 165              | 8 × 11.5                     | 0.66                                         | 196                             | 282              |
| 33                              | 330 | 6.3 × 11.5                   | 0.85                                         | 135                             | 210              | 8 × 11.5                     | 0.5                                          | 310                             | 380              |
| 47                              | 470 | 8 × 11.5                     | 0.56                                         | 210                             | 330              | 8 × 16<br>(10 × 12)          | 0.32<br>(0.25)                               | 405<br>(460)                    | 500<br>(630)     |
| 68                              | 680 | 8 × 11.5                     | 0.56                                         | 210                             | 330              | 10 × 16                      | 0.25                                         | 515                             | 780              |
| 100                             | 101 | 8 × 16<br>(10 × 16)          | 0.50<br>(0.40)                               | 370<br>(405)                    | 581<br>(625)     | 10 × 20                      | 0.16                                         | 650                             | 890              |
| 220                             | 221 | 10 × 20<br>(13 × 21)         | 0.27<br>(0.23)                               | 710<br>(800)                    | 1000<br>(1085)   | 13 × 25                      | 0.13                                         | 920                             | 1280             |
| 330                             | 331 | 13 × 21                      | 0.16                                         | 950                             | 1200             | 16 × 25                      | 0.09                                         | 1200                            | 1440             |
| 470                             | 471 | 13 × 25                      | 0.14                                         | 1100                            | 1300             | 16 × 31                      | 0.06                                         | 1560                            | 1790             |
| 680                             | 681 | 16 × 25                      | 0.08                                         | 1215                            | 1450             | 18 × 35                      | 0.055                                        | 1650                            | 1850             |
| 1000                            | 102 | 16 × 25<br>(16 × 31)         | 0.06<br>(0.06)                               | 1295<br>(1350)                  | 1525<br>(1600)   | 18 × 40                      | 0.051                                        | 1700                            | 2040             |
| 2200                            | 222 | 18 × 40                      | 0.045                                        | 1500                            | 1800             |                              |                                              |                                 |                  |

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| WV<br>Parameter<br>參數<br><br>μF |     | 160 (2C)                     |                                              |                                 |                  | 200 (2D)                     |                                              |                                 |                  |
|---------------------------------|-----|------------------------------|----------------------------------------------|---------------------------------|------------------|------------------------------|----------------------------------------------|---------------------------------|------------------|
|                                 |     | Case size<br>ØD×L (mm)<br>尺寸 | Impedance (Ω)<br>max. 20°C,<br>100KHz<br>阻抗值 | Ripple current (mA rms)<br>紋波電流 |                  | Case size<br>ØD×L (mm)<br>尺寸 | Impedance (Ω)<br>max. 20°C,<br>100KHz<br>阻抗值 | Ripple current (mA rms)<br>紋波電流 |                  |
|                                 |     |                              |                                              | 105°C,<br>120Hz                 | 105°C,<br>100KHz |                              |                                              | 105°C,<br>120Hz                 | 105°C,<br>100KHz |
| 10                              | 100 |                              |                                              |                                 |                  | 8 × 11.5<br>(10 × 12)        | 7.80<br>(6.20)                               | 225<br>(240)                    | 295<br>(320)     |
| 22                              | 220 | 10 × 20                      | 1.30                                         | 315                             | 440              | 10 × 16<br>(10 × 20)         | 4.30<br>(4.20)                               | 285<br>(300)                    | 365<br>(380)     |
| 33                              | 330 | 10 × 20                      | 1.30                                         | 405                             | 565              | 13 × 21                      | 3.0                                          | 425                             | 560              |
| 47                              | 470 | 13 × 21                      | 0.91                                         | 525                             | 725              | 13 × 21                      | 2.6                                          | 510                             | 785              |
| 68                              | 680 | 13 × 25                      | 0.63                                         | 680                             | 950              | 13 × 25                      | 1.4                                          | 645                             | 875              |
| 100                             | 101 | 16 × 25<br>(16 × 31)         | 0.27<br>(0.25)                               | 920<br>(925)                    | 1280<br>(1290)   | 13 × 25                      | 0.95                                         | 715                             | 980              |
| 150                             | 151 | 16 × 31                      | 0.22                                         | 930                             | 1300             | 16 × 31<br>(18 × 25)         | 0.80<br>(0.72)                               | 745<br>(730)                    | 995<br>(985)     |
| 220                             | 221 | 16 × 31                      | 0.22                                         | 930                             | 1300             | 18 × 31                      | 0.45                                         | 750                             | 1000             |
| 330                             | 331 | 16 × 35<br>(18 × 31)         | 0.22                                         | 1580                            | 1700             | 18 × 35<br>(22 × 35)         | 0.38<br>(0.28)                               | 760<br>(795)                    | 1050<br>(1135)   |

| WV<br>Parameter<br>參數<br><br>μF |     | 250 (2E)                     |                                              |                                 |                  | 350 (2V)                     |                                              |                                 |                  |
|---------------------------------|-----|------------------------------|----------------------------------------------|---------------------------------|------------------|------------------------------|----------------------------------------------|---------------------------------|------------------|
|                                 |     | Case size<br>ØD×L (mm)<br>尺寸 | Impedance (Ω)<br>max. 20°C,<br>100KHz<br>阻抗值 | Ripple current (mA rms)<br>紋波電流 |                  | Case size<br>ØD×L (mm)<br>尺寸 | Impedance (Ω)<br>max. 20°C,<br>100KHz<br>阻抗值 | Ripple current (mA rms)<br>紋波電流 |                  |
|                                 |     |                              |                                              | 105°C,<br>120Hz                 | 105°C,<br>100KHz |                              |                                              | 105°C,<br>120Hz                 | 105°C,<br>100KHz |
| 4.7                             | 4R7 | 8 × 11.5                     | 7.00                                         | 90                              | 145              | 8 × 11.5<br>(10 × 12)        | 6.5<br>(6.2)                                 | 115<br>(140)                    | 460<br>(195)     |
| 6.8                             | 6R8 | 10 × 12                      | 5.80                                         | 115                             | 180              | 10 × 12<br>(10 × 16)         | 5.4<br>(5.0)                                 | 145<br>(150)                    | 210<br>(220)     |
| 10                              | 100 | 10 × 16                      | 4.50                                         | 150                             | 245              | 10 × 16<br>(10 × 20)         | 4.5<br>(4.2)                                 | 160<br>(175)                    | 230<br>(275)     |
| 22                              | 220 | 10 × 20                      | 3.20                                         | 265                             | 360              | 13 × 21<br>(13 × 25)         | 3.9<br>(2.5)                                 | 295<br>(300)                    | 400<br>(455)     |
| 33                              | 330 | 13 × 21                      | 2.50                                         | 310                             | 495              | 13 × 25<br>(16 × 20)         | 3.4<br>(3.0)                                 | 405<br>(465)                    | 525<br>(645)     |
| 47                              | 470 | 13 × 25                      | 1.90                                         | 425                             | 570              | 16 × 25                      | 2.8                                          | 550                             | 705              |
| 68                              | 680 | 16 × 25                      | 1.20                                         | 480                             | 655              | 16 × 31                      | 2.0                                          | 625                             | 825              |
| 100                             | 101 | 16 × 31<br>(18 × 31)         | 0.65<br>(0.40)                               | 505<br>(550)                    | 690<br>(750)     | 16 × 35<br>(18 × 31)         | 1.2<br>(0.7)                                 | 700<br>(705)                    | 905<br>(960)     |
| 150                             | 151 | 18 × 35<br>(22 × 35)         | 0.30<br>(0.24)                               | 600<br>(630)                    | 845<br>(900)     | 18 × 35                      | 0.6                                          | 1020                            | 1050             |
| 220                             | 221 | 22 × 35                      | 0.25                                         | 750                             | 1000             |                              |                                              |                                 |                  |

| WV<br>Parameter<br>參數<br><br>μF |     | 400 (2G)                     |                                              |                                 |                  | 450 (2W)                     |                                              |                                 |                  |
|---------------------------------|-----|------------------------------|----------------------------------------------|---------------------------------|------------------|------------------------------|----------------------------------------------|---------------------------------|------------------|
|                                 |     | Case size<br>ØD×L (mm)<br>尺寸 | Impedance (Ω)<br>max. 20°C,<br>100KHz<br>阻抗值 | Ripple current (mA rms)<br>紋波電流 |                  | Case size<br>ØD×L (mm)<br>尺寸 | Impedance (Ω)<br>max. 20°C,<br>100KHz<br>阻抗值 | Ripple current (mA rms)<br>紋波電流 |                  |
|                                 |     |                              |                                              | 105°C,<br>120Hz                 | 105°C,<br>100KHz |                              |                                              | 105°C,<br>120Hz                 | 105°C,<br>100KHz |
| 2.2                             | 2R2 | 6.3 × 11.5<br>(8 × 11.5)     | 8.8<br>(8.0)                                 | 80<br>(95)                      | 110<br>(130)     | 8 × 11.5                     | 7.0                                          | 95                              | 138              |
| 3.3                             | 3R3 | 8 × 11.5                     | 8.0                                          | 105                             | 140              | 8 × 11.5                     | 6.0                                          | 105                             | 140              |
| 4.7                             | 4R7 | 8 × 11.5<br>(10 × 12)        | 8.0<br>(6.0)                                 | 130<br>(135)                    | 175<br>(210)     | 10 × 12                      | 5.6                                          | 150                             | 200              |
| 6.8                             | 6R8 | 10 × 12<br>(10 × 16)         | 5.0<br>(4.5)                                 | 150<br>(160)                    | 220<br>(230)     | 10 × 16                      | 6.5                                          | 205                             | 265              |
| 10                              | 100 | 10 × 16<br>(10 × 20)         | 3.6<br>(3.6)                                 | 195<br>(205)                    | 265<br>(285)     | 10 × 20                      | 9.0                                          | 235                             | 320              |
| 22                              | 220 | 13 × 21                      | 3.8                                          | 310                             | 420              | 13 × 35                      | 6.0                                          | 415                             | 570              |
| 33                              | 330 | 16 × 20<br>(16 × 25)         | 3.4<br>(3.0)                                 | 405<br>(465)                    | 525<br>(645)     | 16 × 31                      | 2.4                                          | 385                             | 710              |
| 47                              | 470 | 16 × 25<br>(16 × 31)         | 2.8<br>(2.6)                                 | 550<br>(585)                    | 705<br>(775)     | 16 × 35<br>(18 × 26)         | 1.8<br>(1.2)                                 | 515<br>(585)                    | 755<br>(800)     |
| 68                              | 680 | 16 × 31                      | 2.0                                          | 625                             | 825              | 18 × 31                      | 1.0                                          | 620                             | 845              |
| 100                             | 101 | 18 × 31<br>(18 × 35)         | 1.2<br>(0.7)                                 | 700<br>(705)                    | 905<br>(960)     | 18 × 35                      | 0.64                                         | 380                             | 520              |
| 150                             | 151 | 18 × 40                      | 0.6                                          | 1020                            | 1050             |                              |                                              |                                 |                  |

● Please refer to page 16 "Taping Specifications" & page 18 "Lead Forming & Cutting" about the taped or formed product spec. 編帶與引線成型標準請參閱第 16 頁 “編帶標準” 及 “第 18 頁引線成型與剪腳” 。  
 ● Please refer to page 17 "Packaging Specifications" for the minimum package quantity. 最小包裝數量請參閱第 17 頁 “包裝標準” 。

Note: All design and specifications are for reference only and is subject to change without prior notice. If any doubt about safety for your application, please contact us immediately for technical assistance before purchase.  
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