

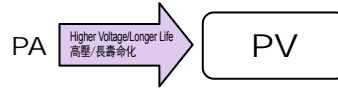
PV Series

RADIAL LEAD TYPE, HIGH VOLTAGE/LONG LIFE

插件式，高壓長壽命品



- Operating with wide temperature range -55~+105°C
適用於 -55~+105°C 的寬溫範圍
- High voltage, low ESR, high ripple current
高電壓，低阻抗，高紋波電流
- Load life of 3000 hours
負荷壽命 3000 小時
- RoHS & REACH compliant, Halogen-free
符合 RoHS 與 REACH，無鹵

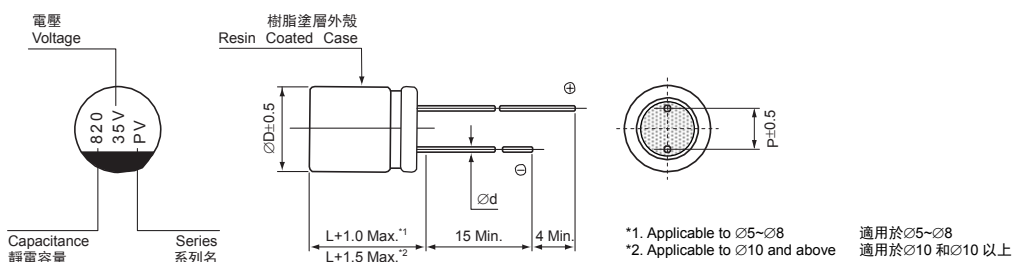


□ SPECIFICATIONS 特性表

| Items 項目 | Characteristics 主要特性 | | | | | | | | |
|--|---|--------------------------------------|---|--------------------------|--|--------------|--|---------------------|--|
| Operation Temperature Range 使用溫度範圍 | -55 ~ +105°C | | | | | | | | |
| Voltage Range 額定工作電壓範圍 | 16 ~ 100V | | | | | | | | |
| Capacitance Range 靜電容量範圍 | 6.8 ~ 2200µF | | | | | | | | |
| Capacitance Tolerance 靜電容量允許偏差 | ±20% at 120Hz, 20°C | | | | | | | | |
| Leakage Current 漏電流 (*1) | ≤Specified value (after 2 minutes application of rated voltage at 20°C). ≤規範值(在 20°C 環境中施加額定工作電壓 2 分鐘後)。 | | | | | | | | |
| Dissipation Factor (tan δ) 損耗角正切 | ≤Specified value at 120Hz, 20°C. ≤規範值(在 20°C 120Hz 環境下)。 | | | | | | | | |
| ESR 阻抗值 (*2) | ≤Specified value at 100KHz, 20°C. ≤規範值(在 20°C 100KHz 環境下)。 | | | | | | | | |
| Stability at Low Temperature 低溫特性 | Measurement frequency 測試頻率: 100KHz <table border="1"> <tr> <td>Impedance Ratio 阻抗比 ZT/Z20 (max.)</td> <td>Z(+105°C)/Z(20°C) Z(-55°C)/Z(20°C)</td> <td>≤1.25 ≤1.25</td> </tr> </table> | Impedance Ratio 阻抗比 ZT/Z20 (max.) | Z(+105°C)/Z(20°C) Z(-55°C)/Z(20°C) | ≤1.25 ≤1.25 | | | | | |
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| Damp Heat (Steady State) 穩態濕熱 | When the capacitors are restored to 20°C after the rated voltage is applied for 1000 hours at 60°C, 90% RH, they meet the characteristics listed below. 在 60°C 和相對濕度 90%環境下施加額定工作電壓 1000 小時並冷卻至 20°C 後，電容器的特性符合下表的要求。 <table border="1"> <tr> <td>Capacitance Change 靜電容量變化率</td> <td>Within ±20% of initial value 為初始值的±20%以內 (*3)</td> </tr> <tr> <td>Dissipation Factor 損耗角正切</td> <td>150% or less of initial specified value 不大於規範值的 150%</td> </tr> <tr> <td>ESR 阻抗值 (*2)</td> <td>150% or less of initial specified value 不大於規範值的 150%</td> </tr> <tr> <td>Leakage Current 漏電流</td> <td>Initial specified value or less 不大於規範值</td> </tr> </table> | Capacitance Change 靜電容量變化率 | Within ±20% of initial value 為初始值的±20%以內 (*3) | Dissipation Factor 損耗角正切 | 150% or less of initial specified value 不大於規範值的 150% | ESR 阻抗值 (*2) | 150% or less of initial specified value 不大於規範值的 150% | Leakage Current 漏電流 | Initial specified value or less 不大於規範值 |
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| ESR 阻抗值 (*2) | 150% or less of initial specified value 不大於規範值的 150% | | | | | | | | |
| Leakage Current 漏電流 | Initial specified value or less 不大於規範值 | | | | | | | | |
| Endurance 耐久性 | After 3000 hours application of the rated voltage at 105°C, they meet the characteristics listed below. 在 105°C 環境中施加額定工作電壓 3000 小時後，電容器的特性符合下表的要求。 <table border="1"> <tr> <td>Capacitance Change 靜電容量變化率</td> <td>Within ±20% of initial value 為初始值的±20%以內 (*3)</td> </tr> <tr> <td>Dissipation Factor 損耗角正切</td> <td>150% or less of initial specified value 不大於規範值的 150%</td> </tr> <tr> <td>ESR 阻抗值 (*2)</td> <td>150% or less of initial specified value 不大於規範值的 150%</td> </tr> <tr> <td>Leakage Current 漏電流</td> <td>Initial specified value or less 不大於規範值</td> </tr> </table> | Capacitance Change 靜電容量變化率 | Within ±20% of initial value 為初始值的±20%以內 (*3) | Dissipation Factor 損耗角正切 | 150% or less of initial specified value 不大於規範值的 150% | ESR 阻抗值 (*2) | 150% or less of initial specified value 不大於規範值的 150% | Leakage Current 漏電流 | Initial specified value or less 不大於規範值 |
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| Leakage Current 漏電流 | Initial specified value or less 不大於規範值 | | | | | | | | |
| Resistance to Soldering Heat 耐焊接熱特性 (Please refer page 9 for soldering conditions) (焊接條件請查閱第 12 頁) | After reflow soldering and restored at room temperature, they meet the characteristics listed below. 經過回流焊並冷卻至室溫後，電容器的特性符合下表的要求。 <table border="1"> <tr> <td>Capacitance Change 靜電容量變化率</td> <td>Within ±10% of initial value 初始值的±10%以內 (*3)</td> </tr> <tr> <td>Dissipation Factor 損耗角正切</td> <td>130% or less of initial specified value 不大於規範值的 130%</td> </tr> <tr> <td>ESR 阻抗值 (*2)</td> <td>130% or less of initial specified value 不大於規範值的 130%</td> </tr> <tr> <td>Leakage Current 漏電流</td> <td>Initial specified value or less 不大於規範值</td> </tr> </table> | Capacitance Change 靜電容量變化率 | Within ±10% of initial value 初始值的±10%以內 (*3) | Dissipation Factor 損耗角正切 | 130% or less of initial specified value 不大於規範值的 130% | ESR 阻抗值 (*2) | 130% or less of initial specified value 不大於規範值的 130% | Leakage Current 漏電流 | Initial specified value or less 不大於規範值 |
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| ESR 阻抗值 (*2) | 130% or less of initial specified value 不大於規範值的 130% | | | | | | | | |
| Leakage Current 漏電流 | Initial specified value or less 不大於規範值 | | | | | | | | |
| Marking 標識 | Red print on the case top. 鋁殼頂部紅色字體印刷。 | | | | | | | | |

- (*1) If any doubt arises, measure the leakage current after the voltage treatment of applying DC rated voltage continuously to the capacitor for 120 minutes at 105°C.
如未能確定，在 105°C 環境下連續施加額定工作電壓 120 分鐘後測量漏電流。
- (*2) Should be measured at both of the terminal ends closest to the capacitor body.
測試應為靠近兩個端子的末端。
- (*3) The value before test of examination of resistance to soldering.
焊接測試前的值。

□ DRAWING 外形圖 (Unit: mm)



Dimension table in next page.
尺寸表見下一頁。

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PV Series

□ DIMENSIONS 尺寸表 (Unit: mm)

| ∅D × L | 5 × 8 | 6.3 × 6/8/9 | 6.3 × 12 | 8 × 8/9 | 8 × 11/12 | 10 × 10/12/13 | 10 × 16/21 |
|--------|-------|-------------|----------|---------|-----------|----------------|------------|
| P | 2.0 | 2.5 | 2.5 | 3.5 | 3.5 | 5.0 | 5.0 |
| ∅d | 0.5 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 |
| L | 8.0 | 6.0/8.0/9.0 | 12.0 | 8.0/9.0 | 11.0/12.0 | 10.0/12.0/13.0 | 16.0/21.0 |

□ DIMENSIONS & STANDARD RATINGS 規格尺寸及標準參數

| WV (V) | | 16 (1C) | | | | | 20 (1D) | | | | |
|--------------|--------------|------------------------|----------------------------------|--------------------------|--------------------------------|--|------------------------|----------------------------------|--------------------------|--------------------------------|--|
| Cap. 容量 (μF) | Parameter 參數 | Case size ∅D×L (mm) 尺寸 | Dissipation factor (tan δ) 損耗角正切 | Leakage current (μA) 漏電流 | ESR (mΩ) max. 20°C, 100KHz 阻抗值 | Ripple current (mA rms) 105°C, 100KHz 紋波電流 | Case size ∅D×L (mm) 尺寸 | Dissipation factor (tan δ) 損耗角正切 | Leakage current (μA) 漏電流 | ESR (mΩ) max. 20°C, 100KHz 阻抗值 | Ripple current (mA rms) 105°C, 100KHz 紋波電流 |
| | | 150 | 151 | | | | | | 8 × 9 | 0.12 | 600 |
| 220 | 221 | 8 × 9 | 0.12 | 704 | 26 | 2100 | 8 × 12 | 0.12 | 880 | 25 | 2400 |
| 270 | 271 | 8 × 12 | 0.12 | 864 | 24 | 2500 | | | | | |
| 330 | 331 | | | | | | 10 × 13 | 0.12 | 1320 | 24 | 2800 |
| 470 | 471 | 10 × 13 | 0.12 | 1504 | 23 | 2900 | | | | | |
| 680 | 681 | 10 × 13 | 0.12 | 2176 | 23 | 2900 | | | | | |
| 2200 | 222 | 10 × 21 | 0.12 | 7040 | 14 | 4800 | | | | | |

| WV (V) | | 25 (1E) | | | | | 35 (1V) | | | | |
|--------------|--------------|------------------------------|----------------------------------|--------------------------|--------------------------------|--|------------------------|----------------------------------|--------------------------|--------------------------------|--|
| Cap. 容量 (μF) | Parameter 參數 | Case size ∅D×L (mm) 尺寸 | Dissipation factor (tan δ) 損耗角正切 | Leakage current (μA) 漏電流 | ESR (mΩ) max. 20°C, 100KHz 阻抗值 | Ripple current (mA rms) 105°C, 100KHz 紋波電流 | Case size ∅D×L (mm) 尺寸 | Dissipation factor (tan δ) 損耗角正切 | Leakage current (μA) 漏電流 | ESR (mΩ) max. 20°C, 100KHz 阻抗值 | Ripple current (mA rms) 105°C, 100KHz 紋波電流 |
| | | 10 | | | | | | | 5 × 8 | 0.12 | 70 |
| 47 | | | | | | | 5 × 8 (6.3 × 6) | 0.12 (0.12) | 329 (329) | 55 (35) | 1700 (1800) |
| 56 | 560 | | | | | | 8 × 9 | 0.12 | 392 | 29 | 1900 |
| 82 | 820 | | | | | | 8 × 12 | 0.12 | 574 | 27 | 2300 |
| 100 | 101 | | | | | | 6.3 × 8 (8 × 8) | 0.12 (0.12) | 700 (700) | 28 (28) | 2500 (2500) |
| 120 | 121 | 8 × 9 | 0.12 | 600 | 28 | 2000 | | | | | |
| 150 | 151 | 6.3 × 9 (8 × 12) | 0.12 (0.12) | 750 (750) | 23 (26) | 3300 (2400) | 10 × 13 | 0.12 | 1050 | 26 | 2700 |
| 220 | 221 | 8 × 8 (8 × 11) | 0.12 (0.12) | 1100 (1100) | 22 (22) | 2400 (2600) | 8 × 11 (8 × 12) | 0.12 (0.12) | 1540 (1540) | 16 (16) | 2800 (2800) |
| 270 | 271 | 6.3 × 12 (10 × 13) | 0.12 (0.12) | 1350 (1350) | 27 (25) | 2300 (2800) | | | | | |
| 330 | 331 | 6.3 × 12 (10 × 10) (10 × 12) | 0.12 (0.12) (0.12) | 1650 (1650) (1650) | 27 (22) (22) | 2300 (3100) (3300) | 10 × 12 | 0.12 | 2310 | 20 | 3600 |
| 470 | 471 | 8 × 12 | 0.12 | 2350 | 20 | 3300 | 10 × 10 | 0.12 | 3290 | 20 | 3600 |
| 560 | 561 | 8 × 12 | 0.12 | 2800 | 15 | 3400 | | | | | |
| 680 | 681 | 8 × 12 (10 × 13) | 0.12 (0.12) | 3400 (3400) | 15 (15) | 3700 (3900) | 10 × 13 | 0.12 | 4760 | 20 | 3600 |
| 1000 | 102 | 10 × 16 | 0.12 | 5000 | 25 | 4500 | 10 × 21 | 0.12 | 7000 | 16 | 4700 |

| WV (V) | | 50 (1H) | | | | | 63 (1J) | | | | |
|--------------|--------------|------------------------|----------------------------------|--------------------------|--------------------------------|--|------------------------|----------------------------------|--------------------------|--------------------------------|--|
| Cap. 容量 (μF) | Parameter 參數 | Case size ∅D×L (mm) 尺寸 | Dissipation factor (tan δ) 損耗角正切 | Leakage current (μA) 漏電流 | ESR (mΩ) max. 20°C, 100KHz 阻抗值 | Ripple current (mA rms) 105°C, 100KHz 紋波電流 | Case size ∅D×L (mm) 尺寸 | Dissipation factor (tan δ) 損耗角正切 | Leakage current (μA) 漏電流 | ESR (mΩ) max. 20°C, 100KHz 阻抗值 | Ripple current (mA rms) 105°C, 100KHz 紋波電流 |
| | | 22 | 220 | | | | | | 8 × 9 | 0.12 | 277 |
| 27 | 270 | | | | | | 8 × 12 | 0.12 | 340 | 33 | 2100 |
| 33 | 330 | 8 × 9 | 0.12 | 330 | 32 | 1900 | | | | | |
| 39 | 390 | 8 × 12 | 0.12 | 390 | 29 | 2200 | | | | | |
| 47 | 470 | | | | | | 10 × 13 | 0.12 | 592 | 29 | 2600 |
| 56 | 560 | | | | | | 10 × 12 | 0.12 | 705 | 29 | 2600 |
| 68 | 680 | 10 × 13 | 0.12 | 680 | 28 | 2600 | | | | | |
| 180 | 181 | | | | | | 10 × 12 | 0.12 | 2268 | 27 | 3400 |
| 220 | 221 | 10 × 12 | 0.12 | 2200 | 22 | 3500 | | | | | |
| 330 | 331 | | | | | | 10 × 12 | 0.12 | 4158 | 20 | 4600 |

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PV Series

□ DIMENSIONS & STANDARD RATINGS 規格尺寸及標準參數

| WV (V) | | 80 (1K) | | | | | 100 (2A) | | | | |
|--------------|--------------|------------------------|----------------------------------|--------------------------|--------------------------------|--|------------------------|----------------------------------|--------------------------|--------------------------------|--|
| Cap. 容量 (μF) | Parameter 參數 | Case size ØD×L (mm) 尺寸 | Dissipation factor (tan δ) 損耗角正切 | Leakage current (μA) 漏電流 | ESR (mΩ) max. 20°C, 100KHz 阻抗值 | Ripple current (mA rms) 105°C, 100KHz 紋波電流 | Case size ØD×L (mm) 尺寸 | Dissipation factor (tan δ) 損耗角正切 | Leakage current (μA) 漏電流 | ESR (mΩ) max. 20°C, 100KHz 阻抗值 | Ripple current (mA rms) 105°C, 100KHz 紋波電流 |
| 6.8 | 6R8 | | | | | | 8 × 9 | 0.12 | 136 | 45 | 1600 |
| 10 | 100 | 8 × 9 | 0.12 | 160 | 40 | 1700 | 8 × 12 | 0.12 | 200 | 42 | 1800 |
| 12 | 120 | 8 × 12 | 0.12 | 192 | 38 | 1900 | | | | | |
| 15 | 150 | | | | | | | | | | |
| 18 | 180 | | | | | | 10 × 13 | 0.12 | 360 | 38 | 2200 |
| 22 | 220 | 10 × 13 | 0.12 | 352 | 35 | 2300 | | | | | |

- Please refer to page 21 about the taped or cutting product spec. 編帶與剪腳標準請查閱第 21 頁。
- Please refer to page 18 for the minimum package quantity. 最小包裝數量請查閱第 18 頁。
- Please refer to page 14 for the Part Number System. 產品編碼規則請查閱第 14 頁。

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