

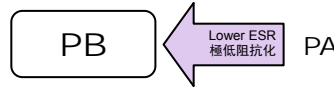
PB Series

RADIAL LEAD TYPE, HIGHER CAPACITANCE

插件式，大容量品



- Operating with wide temperature range -55~+105°C
適用於 -55~+105°C 的寬溫範圍
- Higher capacitance, ultra-low ESR, high ripple current
更大容量，極低阻抗，高紋波電流
- Load life of 2000 hours
負荷壽命 2000 小時
- RoHS & REACH compliant, Halogen-free
符合 RoHS 與 REACH，無鹵



□ SPECIFICATIONS 特性表

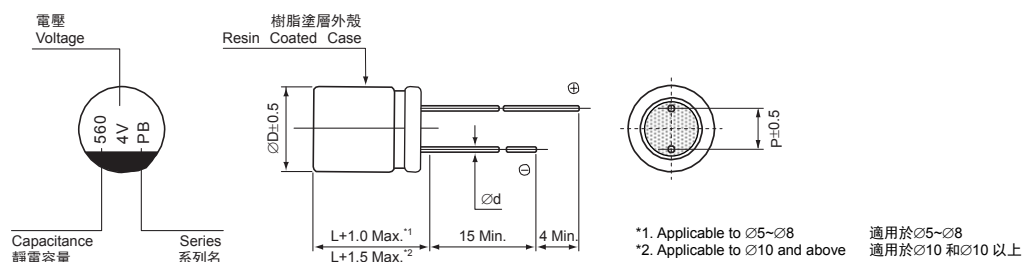
Items 項目	Characteristics 主要特性								
Operation Temperature Range 使用溫度範圍	-55 ~ +105°C								
Voltage Range 額定工作電壓範圍	2.5 ~ 16V								
Capacitance Range 靜電容量範圍	100 ~ 2200µF								
Capacitance Tolerance 靜電容量允許偏差	±20% at 120Hz, 20°C								
Leakage Current 漏電流 (*1)	≤Specified value (after 2 minutes application 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)</td> <td>≤1.25</td> </tr> <tr> <td></td> <td>Z(-55°C)/Z(20°C)</td> <td>≤1.25</td> </tr> </table>	Impedance Ratio 阻抗比 ZT/Z20 (max.)	Z(+105°C)/Z(20°C)	≤1.25		Z(-55°C)/Z(20°C)	≤1.25		
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	Z(-55°C)/Z(20°C)	≤1.25							
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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Leakage Current 漏電流	Initial specified value or less 不大於規範值								
Endurance 耐久性	After 2000 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 2000 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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□ DIMENSIONS 尺寸表 (Unit: mm)

ØD × L	5 × 8/9	5 × 12	5.5 × 9	6.3 × 8/9	6.3 × 11/12	8 × 8/9	8 × 11/12	10 × 12/16
P	2.0	2.0	2.0	2.5	2.5	3.5	3.5	5.0
Ød	0.5	0.5	0.5	0.6	0.6	0.6	0.6	0.6
L	8.0/9.0	12.0	9.0	8.0/9.0	11.0/12.0	8.0/9.0	11.0/12.0	12.0/16.0

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

WV (V)		2.5 (0E)					4 (0G)				
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
680	681						6.3 × 8	0.08	544	9	5900
820	821	6.3 × 8 (8 × 8)	0.08 (0.08)	410 (410)	7 (7)	5900 (5900)	6.3 × 11	0.08	656	7	6150
1000	102	6.3 × 8	0.08	500	7	5900					
1200	122						6.3 × 11	0.08	960	7	6150
1500	152	8 × 8	0.08	750	7	6100					

WV (V)		6.3 (0J)					10 (1A)				
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
330	331	5 × 8	0.08	415	10	3200	6.3 × 8 (8 × 8)	0.08 (0.08)	660 (660)	12 (12)	4500 (4620)
		(6.3 × 5)	(0.08)	(415)	(9)	(4800)					
		(6.3 × 6)	(0.08)	(415)	(9)	(4800)					
		(6.3 × 8)	(0.08)	(415)	(9)	(5000)					
390	391	6.3 × 8 (8 × 8)	0.08 (0.08)	491 (491)	12 (12)	3100 (3300)					
470	471	5 × 9 (6.3 × 8)	0.08 (0.08)	592 (592)	12 (9)	3600 (5900)	6.3 × 8 (8 × 8)	0.08 (0.08)	940 (940)	9 (10)	5400 (5600)
560	561	6.3 × 8 (8 × 8)	0.08 (0.08)	705 (705)	9 (8)	5900 (5900)	8 × 8	0.08	1120	9	5600
680	681	5 × 12 (6.3 × 8)	0.08 (0.08)	857 (857)	15 (9)	5500 (5900)	6 × 12 (8 × 8) (8 × 11)	0.08 (0.08) (0.08)	1360 (1360) (1360)	13 (9) (9)	3650 (5600) (6100)
820	821	6.3 × 9 (6.3 × 11) (8 × 8) (8 × 11)	0.08 (0.08) (0.08) (0.08)	1033 (1033) (1033) (1033)	9 (7) (9) (9)	5900 (6150) (5900) (6150)	8 × 11	0.08	1640	9	6100
1000	102	6 × 11 (8 × 8) (8 × 11)	0.08 (0.08) (0.08)	1260 (1260) (1260)	12 (10) (9)	6150 (6000) (6150)	8 × 11	0.08	2000	9	6200
1200	122	6.3 × 12 (8 × 12)	0.08 (0.08)	1512 (1512)	9 (9)	6100 (6150)					
1500	152	8 × 12 (10 × 12)	0.08 (0.08)	1890 (1890)	9 (9)	6150 (6200)	8 × 12 (10 × 12)	0.08 (0.08)	3000 (3000)	10 (9)	5700 (6100)
2200	222	10 × 12	0.08	2772	9	6200	10 × 12	0.08	4400	9	6500

WV (V)		7.5 (0T)					12 (1R)				
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
500	501	5 × 9 (6.3 × 9)	0.08 (0.08)	750 (750)	11 (9)	3800 (5900)					
560	561	5 × 9 (6.3 × 9)	0.08 (0.08)	840 (840)	11 (9)	4000 (5900)					
680	681	6.3 × 9	0.08	1020	9	5900					
820	821	6.3 × 9	0.08	1230	9	5900					

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

WV (V)		16 (1C)				
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
100	101	6.3 × 7	0.08	320	16	3250
270	271	6 × 8	0.08	864	10	4100
		(8 × 8) (8 × 11)	(0.08) (0.08)	(864) (864)	(10) (10)	(5000) (5000)
330	331	6.3 × 9	0.08	1056	12	4500
		(6.3 × 11) (8 × 8)	(0.08) (0.08)	(1056) (1056)	(12) (10)	(4300) (5000)
		(10 × 12)	(0.08)	(1056)	(9)	(6100)
390	391	8 × 8	0.08	1248	10	5000
470	471	6.3 × 11	0.08	1504	12	4100
		(6.3 × 12) (8 × 8)	(0.08) (0.08)	(1504) (1504)	(10) (13)	(5200) (5000)
		(8 × 11) (10 × 12)	(0.08) (0.08)	(1504) (1504)	(10) (9)	(5400) (5800)
560	561	8 × 9 (8 × 11)	0.08 (0.08)	1792 (1792)	12 (10)	5200 (5400)
680	681	8 × 11	0.08	2176	10	5400
820	821	8 × 12 (10 × 12)	0.08 (0.08)	2624 (2624)	10 (10)	5700 (5800)
1000	102	8 × 12 (10 × 12)	0.08 (0.08)	3200 (3200)	10 (9)	6000 (6500)
1200	122	10 × 12	0.08	3840	9	6500
1500	152	10 × 12 (10 × 16)	0.08 (0.08)	4800 (4800)	9 (9)	6500 (6500)

- 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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