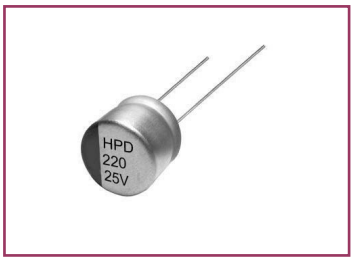
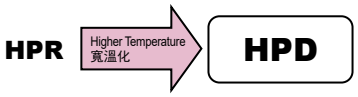
HPD Series

RADIAL LEAD TYPE, 135°C HIGH TEMPERATURE
引線式，135°C 高溫品





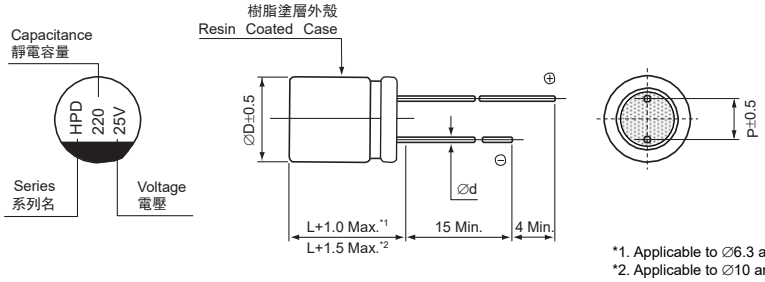
- Operating with wide temperature range -55~+135°C
  適用於-55~+135°C 的寬溫範圍
- High reliability & high voltage are realized by hybrid electrolyte
  通過混合型電解質，提升高可靠性和高電壓化
- Endurance 4000 hours
  耐久性 4000 小時
- RoHS & REACH compliant, Halogen-free
  符合 RoHS 與 REACH，無鹵



☐ SPECIFICATIONS 特性表

Items 項目	Characteristics 主要特性
Category Temperature Range 工作溫度範圍	-55 ~ +135°C
Voltage Range 額定工作電壓範圍	25 ~ 63V
Capacitance Range 靜電容量範圍	33 ~ 560μF
Capacitance Tolerance 靜電容量允許偏差	±20% at 120Hz, 20°C
Leakage Current 漏電流	Leakage current ≤0.01CV (after 2 minutes application of rated voltage at 20°C) 漏電流 ≤0.01CV（在 20°C 環境中施加額定工作電壓 2 分鐘後） C: Nominal capacitance (μF) 標稱靜電容量, V: Rated voltage (V) 額定電壓
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 等效串聯電阻	≤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 Impedance Ratio 阻抗比 ZT/Z20 (max.): Z(-25°C)/Z(+20°C) ≤2.0; Z(-55°C)/Z(+20°C) ≤2.2
Bias Humidity Test 耐濕負荷特性	When the capacitors are restored to 20°C after the rated voltage is applied for 2000 hours at 85°C, 85% RH, they meet the characteristics listed below. 在 85°C 和相對濕度 85%環境下施加額定工作電壓 2000 小時並恢復至 20°C 後，電容器的特性符合下表要求。 Capacitance Change 靜電容量變化率: Within ±30% of initial value 為初始值的±30%以內 Dissipation Factor 損耗角正切: 200% or less of initial specified value 不大於規範值的 200% ESR 等效串聯電阻: 200% or less of initial specified value 不大於規範值的 200% Leakage Current 漏電流: Initial specified value or less 不大於規範值 Appearance 外觀: No significant damage 無明顯異常
Endurance 耐久性	When the capacitors are restored to 20°C after 4000 hours application of the rated voltage at 135°C, they meet the characteristics listed below. 在 135°C 環境中施加額定工作電壓 4000 小時後，待電容器恢復至 20°C 時進行測量，電容器的特性符合下表要求。 Capacitance Change 靜電容量變化率: Within ±30% of initial value 為初始值的±30%以內 Dissipation Factor 損耗角正切: 200% or less of initial specified value 不大於規範值的 200% ESR 等效串聯電阻: 200% or less of initial specified value 不大於規範值的 200% Leakage Current 漏電流: Initial specified value or less 不大於規範值
Shelf Life 高溫貯存特性	When the capacitors are restored to 20°C after leaving under no load at 135°C for 1000 hours, they meet the specified value for endurance characteristics listed above. 在 135°C 環境中無負荷放置 1000 小時後，待電容器恢復至 20°C 時進行測量，電容器的特性符合耐久性特性中所列的規定值。
Resistance to Soldering Heat 耐焊接熱特性 (Please refer page 25 for soldering conditions) (焊接條件請查閱第 25 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要求。 Capacitance Change 靜電容量變化率: Within ±10% of initial value 初始值的±10%以內 Dissipation Factor 損耗角正切: Initial specified value or less 不大於規範值 Leakage Current 漏電流: Initial specified value or less 不大於規範值
Marking 標識	Black print on the case top. 鋁殼頂部黑色字體印刷。

☐ DRAWING 外形圖 (Unit: mm)



*1. Applicable to ∅6.3 and ∅8 | 適用於∅6.3 和∅8
*2. Applicable to ∅10 and above | 適用於∅10 和∅10 以上

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

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.
注：以上所提供的設計及特性參數僅供參考，任何修改不作預先通知。如果在使用上有疑問，請在採購前與我們聯繫，以便提供技術上的協助。

HPD Series

☐ DIMENSIONS 尺寸表 (Unit: mm)

ØD × L	8 × 9	10 × 10	10 × 12	10 × 16
P	3.5	5.0	5.0	5.0
Ød	0.6	0.6	0.6	0.6
L	9.0	10.0	12.0	16.0

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

WV (V) / Parameter 參數 / Cap. 容量 (μF)		25 (1E)						35 (1V)					
		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 等效串聯電阻	Ripple current (mA rms) 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 等效串聯電阻	Ripple current (mA rms) 100KHz 紋波電流	
						≤125°C	≤135°C					≤125°C	≤135°C
100	101							8 × 9	0.12	35	27	2900	1600
150	151							8 × 9	0.12	52.5	27	2900	1600
220	221	8 × 9	0.14	55	23	3300	2000						
270	271	8 × 9	0.14	67.5	23	3300	2000	10 × 10	0.12	94.5	20	3300	2000
330	331	10 × 10	0.14	82.5	20	3400	2100	10 × 12	0.12	115.5	16	3500	2300
470	471	10 × 12	0.14	117.5	16	3500	2300	10 × 16	0.12	164.5	11	4000	2900
560	561	10 × 16	0.14	140	11	4000	2900						

WV (V) / Parameter 參數 / Cap. 容量 (μF)		50 (1H)						63 (1J)					
		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 等效串聯電阻	Ripple current (mA rms) 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 等效串聯電阻	Ripple current (mA rms) 100KHz 紋波電流	
						≤125°C	≤135°C					≤125°C	≤135°C
33	330							8 × 9	0.08	20.79	40	1900	1200
47	470	8 × 9	0.10	23.5	30	2200	1250	8 × 9	0.08	29.61	40	1900	1200
68	680	8 × 9	0.10	34	30	2200	1250						
82	820							10 × 10	0.08	51.66	30	2300	1500
100	101							10 × 12	0.08	63	20	3000	1650
120	121	10 × 10	0.10	60	28	2600	1600						
150	151	10 × 12	0.10	75	18	3200	2000	10 × 16	0.08	94.5	15	3500	2400
220	221	10 × 16	0.10	110	13	3700	2600						

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

Frequency 頻率	120Hz ≤ f ≤ 1KHz	1KHz ≤ f ≤ 10KHz	10KHz ≤ f ≤ 100KHz	100KHz ≤ f ≤ 300KHz
Coefficient 系數	0.10	0.40	0.70	1.00

- Please refer to page 21 and page 24 about the taped or cutting product spec. 編帶與剪腳標準請查閱第 21 頁和 24 頁。
- Please refer to page 23 for the minimum package quantity. 最小包裝數量請查閱第 23 頁。
- Please refer to page 17 for the Part Number System. 產品編碼規則請查閱第 17 頁。

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