

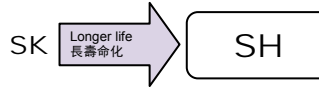
SH Series

SNAP-IN TERMINAL TYPE, LONG LIFE

導箔型, 長壽命品



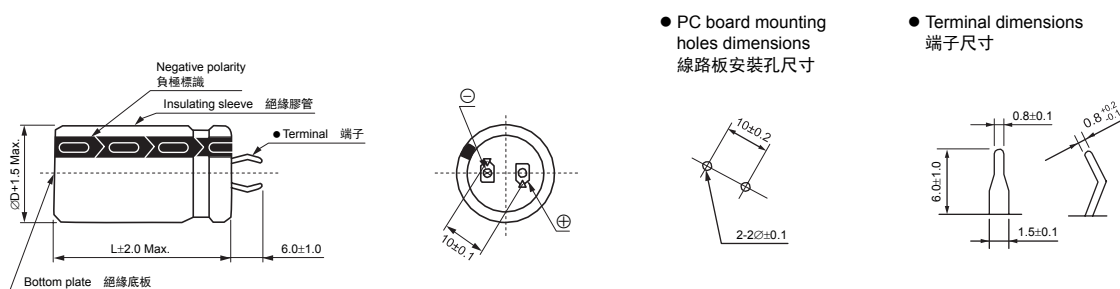
- 3000 hours load life at 105°C
在 105°C 環境中負荷壽命 3000 小時
- Long life snap-in terminal series
導箔型長壽命系列
- Comply with the RoHS & REACH
符合 RoHS 與 REACH



□ 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	16 ~ 350V	400 ~ 450V
Capacitance Range 靜電容量範圍	100 ~ 22000μF	100 ~ 680μF
Capacitance Tolerance 靜電容量允許偏差	±20% at 120Hz, 20°C	
Leakage Current 漏電流	$I \leq 3\sqrt{CV}$ (after 5 minutes application of rated voltage at 20°C) (在 20°C 環境中施加額定工作電壓 5 分鐘後) I: Leakage current (μA) 漏電流, 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	When nominal capacitance is over 1000μF, tan δ shall be added 0.01 to the listed value with increase of every 1000μF. 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 0.01. 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	16 25 35 50 63 80 100 160~250 350~450
	Impedance Ratio 阻抗比	Z(-25°C) / Z(20°C) 4 3 2 2 4 8 Z(-40°C) / Z(20°C) 15 10 8 5 — —
Load Life 高溫負荷特性	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。	
	Capacitance Change 靜電容量變化率	Within ±20% of initial value 初始值的±20%以內
	Dissipation Factor 損耗角正切	Less than 200% of specified value 不大於規範值的 200%
	Leakage Current 漏電流	Less than specified value 不大於規範值
Shelf Life 高溫貯存特性	After leaving capacitors under no load at 105°C for 1000 hours, they meet the specified listed below. 在 105°C 環境中無負荷放置 1000 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 value 初始值的±20%以內
	Dissipation Factor 損耗角正切	Less than 200% of specified value 不大於規範值的 200%
	Leakage Current 漏電流	Less than specified value 不大於規範值
Marking 標識	Printed with white colour on black sleeve (PVC) or printed with white colour on green sleeve (PET). 黑色膠管白字印刷 (PVC) 或綠色膠管白字印刷 (PET)。	

□ DRAWING 外形圖 (Unit: mm)



□ 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 系數	~ 100μF	0.88	1.0	1.06	1.15	1.20
	160 ~ 250μF	0.85	1.0	1.20	1.25	1.45
	315μF ~	0.88	1.0	1.15	1.20	1.40

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5~10°C rise. When long life performance is required in actual use, the rms ripple current has to be reduced. 鋁電解電容器在疊加紋波電流後會引起發熱, 溫度每上升 5~10°C 壽命會減半。若要保持長壽命性能, 請在使用過程中適當降低紋波電流。

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□ DIMENSIONS & MAXIMUM PERMISSIBLE RIPPLE CURRENT 規格尺寸及最大允許紋波電流

WV μF / ∅D		16 (1C)				25 (1E)				35 (1V)			
		22	25	30	35	22	25	30	35	22	25	30	35
2200	222									22 x 25 1.14	25 x 25 1.51		
3300	332					22 x 25 1.25				22 x 30 1.51	25 x 30 1.92		
4700	472	22 x 25 1.30				22 x 30 1.61	25 x 25 1.61			22 x 35 1.92	25 x 40 2.31	30 x 25 1.92	
6800	682	22 x 35 1.80	25 x 30 1.80			22 x 35 1.91	25 x 30 1.91	30 x 25 1.91		22 x 45 2.31	25 x 45 2.87	30 x 30 2.33	
10000	103	22 x 45 2.34	25 x 35 2.25	30 x 25 2.19		22 x 45 2.51	25 x 40 2.42	30 x 30 2.42	35 x 25 2.42			30 x 35 2.87	35 x 30 2.87
15000	153		25 x 45 2.83	30 x 35 2.82	35 x 30 2.82		25 x 45 3.12	30 x 35 3.11	35 x 30 3.11			30 x 45 3.66	35 x 40 3.66
22000	223			30 x 45 3.13	35 x 35 3.09			30 x 45 3.85	35 x 40 3.85	→ Case size 尺寸 → Ripple current 紋波電流			35 x 45 4.53

WV μF / ∅D		50 (1H)				63 (1J)				80 (1K)			
		22	25	30	35	22	25	30	35	22	25	30	35
1000	102					22 x 20 0.90				22 x 25 1.05	25 x 20 1.04		
1200	122					22 x 20 1.05				22 x 30 1.24	25 x 25 1.24		
1500	152	22 x 25 1.22				22 x 25 1.28	25 x 20 1.27			22 x 35 1.54	25 x 30 1.54	30 x 25 1.61	
2200	222	22 x 30 1.59	25 x 25 1.59			22 x 35 1.78	25 x 25 1.60	30 x 25 1.78		22 x 45 1.95	25 x 35 1.94	30 x 30 2.05	35 x 25 2.10
2700	272					22 x 35 1.81	25 x 30 1.83	30 x 25 1.89					
3300	332	22 x 35 1.93	25 x 30 1.88	30 x 25 1.88		22 x 40 2.00	25 x 35 2.03	30 x 30 1.81	35 x 25 2.03		25 x 50 2.25	30 x 35 2.24	35 x 30 2.30
3900	392					22 x 50 2.37	25 x 40 2.22	30 x 30 2.19	35 x 25 2.24				
4700	472	22 x 45 2.43	25 x 35 2.34	30 x 30 2.42	35 x 25 2.42		25 x 45 2.56	30 x 35 2.66	35 x 30 2.46			30 x 45 2.84	35 x 35 2.80
5600	562						25 x 50 2.93	30 x 35 2.79	35 x 30 2.88				
6800	682		25 x 45 3.10	30 x 35 3.10	35 x 30 3.10			30 x 40 3.25	35 x 35/40 3.26/3.49				
8200	822								35 x 40 3.52	→ Case size 尺寸 → Ripple current 紋波電流			
10000	103			30 x 45 4.18	35 x 40 4.20								

WV μF / ∅D		100 (2A)				160 (2C)				200 (2D)			
		22	25	30	35	22	25	30	35	22	25	30	35
180	181									22 x 20 0.70			
220	221					22 x 20 0.71					25 x 20 0.84		
270	271						25 x 20 0.85			22 x 25 1.03			
330	331					22 x 25 0.98	25 x 20 0.94			22 x 30 1.21			
390	391					22 x 25 1.03	25 x 25 1.09			22 x 35 1.39	25 x 25 1.31		
470	471					22 x 30 1.21	25 x 25 1.19			22 x 35 1.52	25 x 30 1.52		
560	561					22 x 35 1.40	25 x 30 1.40	30 x 25 1.40		22 x 40 1.66	25 x 35 1.75	30 x 25 1.64	
680	681					22 x 40 1.62	25 x 35 1.61	30 x 25 1.54		22 x 45 2.04	25 x 40 2.04	30 x 30 1.96	
820	82					22 x 45 1.86	25 x 40 1.86	30 x 30 1.79	35 x 25 1.79		25 x 45 2.34	30 x 35 2.27	
1000	102	22 x 30 1.36	25 x 25 1.36			22 x 50 1.91	25 x 45 2.15	30 x 35 2.09	35 x 30 1.98				
1200	122	22 x 35 1.48	25 x 30 1.49				25 x 50 2.35	30 x 40 2.35	35 x 35 2.29				
1500	152	22 x 40 1.82	25 x 35 1.85	30 x 25 1.80				30 x 45 2.56	35 x 40 2.72				
1800	182								35 x 45 3.09				
2200	222		25 x 45 2.50	30 x 35 2.50	35 x 30 2.50				35 x 55 3.51				
2700	272		25 x 50 2.70	30 x 40 2.72	35 x 35 2.82				35 x 60 4.05	→ Case size 尺寸 → Ripple current 紋波電流			
3300	102			30 x 45 3.11	35 x 35 3.07								
3900	122			30 x 50 3.40	35 x 40 3.38								
4700	152				35 x 45 3.90								

•Case size ∅D×L(mm), ripple current (A rms) at 105°C, 120Hz •尺寸∅D×L(mm), 紋波電流(A rms)於 105°C, 120Hz

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WV μF / ∅D		250 (2E)				350 (2V)				400 (2G)			
		22	25	30	35	22	25	30	35	22	25	30	35
56	560									22x 20 0.41			
68	680									22x 25 0.52	25 x 20 0.49		
100	101					22 x 25 0.52	25 x 20 0.52			22x 30 0.67			
120	121					22 x 30 0.62	25 x 25 0.65			22x 35 0.78	25 x 25 0.69		
150	151					22 x 35 0.74				22x 40 0.91	25 x 30 0.83	30 x 25 0.86	
180	181	22 x 25 0.77				22 x 40 0.81	25 x 30 0.77	30 x 25 0.80		22x 40 1.04	25 x 35 0.97		
220	221	22 x 30 0.80	25 x 25 0.82			22 x 45 0.94	25 x 35 0.91			22x 50 1.17	25 x 40 1.14	30 x 30 1.12	35 x 25 1.15
270	271	22 x 30 1.02	25 x 25 1.08			22 x 50 1.09	25 x 40 1.06	30 x 30 1.05	35 x 25 1.08		25 x 50 1.40	30 x 35 1.39	35 x 30 1.31
330	331	22 x 35 1.20	25 x 30 1.27				25 x 45 1.24	30 x 35 1.24	35 x 30 1.23			30 x 40 1.31	35 x 30 1.27
390	391	22 x 40 1.38	25 x 35 1.46	30 x 25 1.39				30 x 40 1.42	35 x 30 1.39			30 x 45 1.49	35 x 35 1.47
470	471	22 x 45 1.46	25 x 40 1.49	30 x 30 1.50				30 x 45 1.51	35 x 35 1.51			30 x 50 1.52	35 x 40 1.53
560	561		25 x 45 1.63	30 x 40 1.66	35 x 30 1.68			30 x 50 1.78	35 x 40 1.77				35 x 50 1.80
680	681		25 x 50 2.04	30 x 35 2.06	35 x 30 2.06			30 x 60 1.94	35 x 50 1.95	→ Case size 尺寸 → Ripple current 紋波電流			
820	821			30 x 45 2.30	35 x 40 2.31								
1000	102			30 x 50 2.63	35 x 40 2.76								
1200	122				35 x 50 2.92								
1500	152				35 x 60 3.34								

WV μF / ∅D		450 (2W)			
		22	25	30	35
82	820		25 x 25 0.57		
100	101	22 x 35 0.67			
120	121	22 x 40 0.78	25 x 30 0.74	30 x 25 0.77	
150	151	22 x 45 0.92	25 x 35 0.89	30 x 30 0.93	35 x 25 0.95
180	181	22 x 50 1.06	25 x 40 1.03	30 x 30 1.01	35 x 25 1.04
220	221		25 x 45 1.18	30 x 35 1.18	35 x 30 1.22
270	271			30 x 40 1.17	
330	331			30 x 50 1.32	35 x 40 1.64
390	391				35 x 40 1.50
470	471				35 x 50 1.65

→ Case size ∅D×L(mm)
→ Ripple current (A rms) at 105°C, 120Hz

→ 尺寸∅D×L(mm)
→ 紋波電流(A rms)於 105°C, 120Hz

- Please refer to page 20 "Packaging Specifications" for the minimum package quantity. 最小包裝數量請查閱第 20 頁 "包裝標準"。
- Please refer to page 16 for the Part Number System. 產品編碼規則請查閱第 16 頁。

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