SH Series

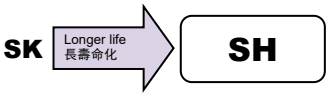
SNAP-IN TERMINAL TYPE, LONG LIFE

導箔型, 長壽命品



- Endurance 3000 hours
  耐久性 3000 小時
- Long life
  長壽命
- Comply with the RoHS & REACH
  符合 RoHS 與 REACH





☐ SPECIFICATIONS 特性表

Items 項目	Characteristics 主要特性	
Category Temperature Range 工作温度範圍	-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 ≤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 温度: 20°C

Rated Voltage (V) 額定工作電壓	16	25	35	50	63	80	100	160~250	350~450
tan δ (max.) 最大損耗角正切	0.50	0.45	0.40	0.35	0.30	0.25	0.20	0.10	0.15

Stability at Low Temperature 低溫特性

Measurement frequency 測試頻率: 120Hz

Rated Voltage (V) 額定工作電壓		16	25~35	50~63	80~100	160~350	400, 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	—	—

Endurance 耐久性

When the capacitors are restored to 20°C 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，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 ±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 高温貯存特性

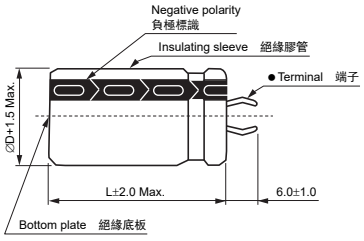
When the capacitors are restored to 20°C after leaving under no load at 105°C for 1000 hours, they meet the specified listed below.
在 105°C 環境中無負荷放置 1000 小時後，待電容器恢復至 20°C 時進行測量，電容器的特性符合下表要求。

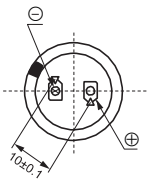
Capacitance Change 靜電容量變化率	Within ±20% of initial value 初始值的±20%以內
Dissipation Factor 損耗角正切	Less than 200% of specified value 不大於規範值的 200%
Leakage Current 漏電流	Less than specified value 不大於規範值

Marking 標識

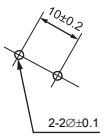
Printed with white colour on black sleeve (PVC) or printed with white colour on green sleeve (PET).
黑色膠管白字印刷（PVC）或綠色膠管白字印刷（PET）。

☐ DRAWING & DIMENSIONS 外形圖及尺寸 (Unit: mm)

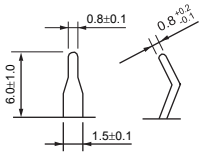




● PC board mounting holes dimensions
線路板安裝孔尺寸



● Terminal dimensions
端子尺寸



☐ 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，温度每上升 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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SH Series

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

WV / ØD		16 (1C)				25 (1E)				35 (1V)			
µF		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 x25 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 / ØD		50 (1H)				63 (1J)				80 (1K)			
µF		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 2.03	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 2.66			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				35 x 35 3.50
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								35 x 70 4.45

WV / ØD		100 (2A)				160 (2C)				200 (2D)			
µF		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		25 x 50 2.46		
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				35 x 50 2.85
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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SH Series

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

WV / ØD		250 (2E)				350 (2V)				400 (2G)			
μF		22	25	30	35	22	25	30	35	22	25	30	35
56	560									22 x 20 0.41			
68	680									22 x 25 0.52	25 x 20 0.49		
100	101					22 x 25 0.52	25 x 20 0.52			22 x 30 0.67			
120	121					22 x 30 0.62	25 x 25 0.65			22 x 35 0.78	25 x 25 0.69		
150	151					22 x 35 0.74				22 x 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		22 x 40 1.04	25 x 35 1.04		
220	221	22 x 30 0.80	25 x 25 0.82			22 x 45 0.94	25 x 35 0.91			22 x 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	30 x 25 1.34			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 1.50	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 / ØD		450 (2W)			
μF		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 ØD×L(mm)
→ Ripple current (A rms) at 105°C, 120Hz

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

● Please refer to page 23 “Packaging Specifications” for the minimum package quantity. 最小包裝數量請查閱第 23 頁“包裝標準”。
● Please refer to page 18 for the Part Number System. 產品編碼規則請查閱第 18 頁。

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