

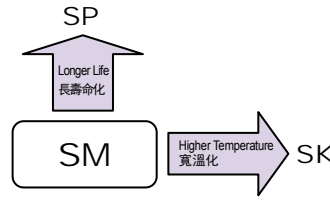
# SM Series

## SNAP-IN TERMINAL TYPE, STANDARD

### 導箔型，標準品



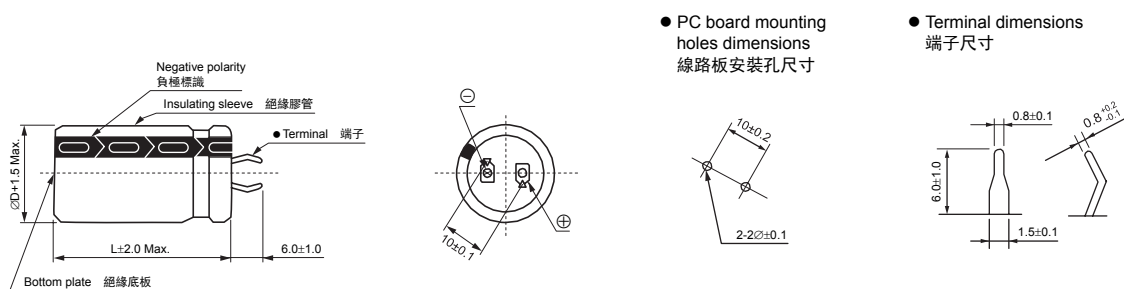
- Standard snap-in terminal series  
導箔型標準品系列
- Voltage range of 6.3~450V  
額定工作電壓範圍 6.3~450V
- Comply with the RoHS & REACH  
符合 RoHS 與 REACH



### □ SPECIFICATIONS 特性表

Items 項目	Characteristics 主要特性	
Operation Temperature Range 使用溫度範圍	-40 ~ +85°C	-25 ~ +85°C
Voltage Range 額定工作電壓範圍	6.3 ~ 350V	400 ~ 450V
Capacitance Range 靜電容量範圍	82 ~ 100000μF	68 ~ 560μF
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	Measurement frequency 測試頻率: 120Hz	
	Rated Voltage (V) 額定工作電壓	6.3, 10, 16, 25, 35, 50, 63, 80, 100, 160~400, 450
Load Life 高溫負荷特性	After 2000 hours application of the rated voltage at 85°C, they meet the characteristics listed below. 在 85°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。	
	Capacitance Change 靜電容量變化率	Within ±20% of initial value 初始值的±20%以內
Shelf Life 高溫貯存特性	After leaving capacitors under no load at 85°C for 1000 hours, they meet the specified listed below. 在 85°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
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	0.88	1.0	1.06	1.15	1.20
~ 100μF	0.85	1.0	1.20	1.25	1.45
160 ~ 250μF	0.88	1.0	1.15	1.20	1.40
315μF ~					

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		6.3 (0J)				10 (1A)				16 (1C)			
		22	25	30	35	22	25	30	35	22	25	30	35
10000	103									22 x 25 3.32			
12000	123					22 x 25 3.31				22 x 30 3.56	25 x 25 3.89		
15000	153	22 x 25 3.39				22 x 30 3.82	25 x 25 3.39			22 x 35 4.29	25 x 30 4.45	30 x 25 4.56	
18000	183	22 x 30 3.85	25 x 25 3.96			22 x 35 4.28	25 x 25 4.17			22 x 40 4.77	25 x 35 4.96	30 x 30 5.10	
22000	223	22 x 35 4.34	25 x 25 4.22			22 x 40 4.79	25 x 30 4.71	30 x 25 4.83		22 x 50 5.51	25 x 40 5.51	30 x 30 5.39	
27000	273	22 x 40 4.85	25 x 30 4.77	30 x 25 4.89		22 x 45 5.30	25 x 35 5.26	30 x 30 5.41			25 x 45 6.06	30 x 35 5.98	35 x 25 5.80
33000	333	22 x 50 5.83	25 x 35 5.32	30 x 30 5.47		22 x 50 5.82	25 x 40 5.81	30 x 30 5.69	35 x 25 5.81			30 x 40 6.56	35 x 30 6.41
39000	393		25 x 40 5.82	30 x 30 5.70	35 x 25 5.82		25 x 45 6.31	30 x 35 6.22	35 x 30 6.8			30 x 45 7.08	35 x 35 6.96
47000	473		25 x 45 6.35	30 x 35 6.26	35 x 30 6.41		25 x 50 6.83	30 x 40 6.78	35 x 30 6.62			30 x 50 7.62	35 x 40 7.54
56000	563		25 x 50 6.85	30 x 40 6.80	35 x 30 6.64			30 x 45 7.31	35 x 35 7.18				35 x 45 8.08
68000	683			30 x 45 7.35	35 x 35 7.23				35 x 40 7.76				35 x 50 8.63
100000	104				35 x 45 8.34	→ Case size 尺寸 → Ripple current 紋波電流							

WV μF / ∅D		25 (1E)				35 (1V)				50 (1H)			
		22	25	30	35	22	25	30	35	22	25	30	35
3300	332									22 x 30 2.97	25 x 25 3.06		
4700	472					22 x 30 3.06	25 x 25 2.98			22 x 40 3.83	25 x 35 3.98	30 x 25 3.86	35 x 25 4.19
5600	562	22 x 25 2.65				22 x 35 3.28	25 x 30 3.39			22 x 45 4.26	25 x 40 4.44	30 x 30 4.35	35 x 25 4.44
6800	682	22 x 30 3.06	25 x 25 3.15			22 x 40 3.73	25 x 30 3.67	30 x 25 3.76		22 x 50 4.77	25 x 40 4.76	30 x 35 4.92	35 x 30 5.04
8200	822	22 x 35 3.45	25 x 30 3.57			22 x 45 4.13	25 x 35 4.10	30 x 30 4.22			25 x 50 5.43	30 x 40 5.38	35 x 30 5.26
10000	103	22 x 40 3.95	25 x 30 3.89	30 x 25 3.99		22 x 50 4.68	35 x 40 4.68	30 x 30 4.58				30 x 45 6.07	35 x 35 5.97
12000	123	22 x 45 4.41	25 x 35 4.37	30 x 30 4.50			25 x 45 5.18	30 x 35 5.11	35 x 30 5.24			30 x 50 6.62	35 x 40 6.55
15000	153	22 x 50 4.94	25 x 40 4.94	30 x 35 5.10				30 x 40 5.72	35 x 35 5.88				35 x 45 7.20
18000	183		25 x 45 5.45	30 x 35 5.38	35 x 30 5.51			30 x 45 6.28	35 x 40 6.46				35 x 50 7.74
22000	223			30 x 45 6.22	35 x 35 6.12				35 x 45 7.07				35 x 55 8.28
27000	273			30 x 50 6.82	35 x 40 6.74	→ Case size 尺寸 → Ripple current 紋波電流							
33000	333				35 x 45 7.35								

WV μF / ∅D		63 (1J)				80 (1K)				100 (2A)			
		22	25	30	35	22	25	30	35	22	25	30	35
1200	122					22 x 25 2.24				22 x 30 2.39	25 x 25 2.46		
1500	152					22 x 30 2.67				22 x 35 2.83	25 x 30 2.93	30 x 25 3.00	
1800	182	22 x 25 2.20				22 x 30 2.92	25 x 25 3.01			22 x 40 3.26	25 x 35 3.39	30 x 30 3.49	
2200	222	22 x 30 2.50	25 x 25 2.58			22 x 35 3.25	25 x 30 3.36	30 x 25 3.45		22 x 45 3.58	25 x 40 3.74	30 x 30 3.66	
2700	272	22 x 35 2.94	25 x 30 3.04			22 x 40 3.79	25 x 35 3.94	30 x 30 4.05			25 x 45 4.33	30 x 35 4.27	35 x 30 4.37
3300	332	22 x 35 3.14	25 x 30 3.26	30 x 25 3.34		22 x 45 4.18	25 x 40 4.36	30 x 30 4.27			25 x 50 4.76	30 x 40 4.72	35 x 35 4.85
3900	392	22 x 40 3.60	25 x 35 3.74	30 x 30 3.85		22 x 50 4.75	25 x 45 4.96	30 x 35 4.89				30 x 45 5.36	35 x 35 5.27
4700	472	22 x 50 4.19	25 x 40 4.19	30 x 35 4.10	35 x 30 4.19		25 x 50 5.44	30 x 40 5.39	35 x 30 5.27			30 x 50 5.86	35 x 40 5.80
5600	562		25 x 45 4.65	30 x 35 4.58	35 x 30 4.70			30 x 45 5.91	35 x 35 5.81				35 x 45 6.34
6800	682		25 x 50 5.20	30 x 40 5.16	35 x 30 5.04				35 x 40 5.46				35 x 45 6.52
8200	822			30 x 45 5.62	35 x 35 5.53			35 x 45 6.91	→ Case size 尺寸 → Ripple current 紋波電流				
10000	103			30 x 50 6.32	35 x 40 6.25			35 x 60 8.24					
12000	123				35 x 45 6.83								

•Case size ∅D×L(mm), ripple current (A rms) at 85°C, 120Hz •尺寸∅D×L(mm), 紋波電流(A rms)於 85°C, 120Hz

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

WV		160 (2C)				200 (2D)				250 (2E)			
μF	∅D	22	25	30	35	22	25	30	35	22	25	30	35
150	151									22 x 25 0.90	25 x 20 0.92		
180	181					22 x 20 0.91				22 x 25 0.90	25 x 20 1.01		
220	221	22 x 20 1.01				22 x 25 1.09	25 x 20 1.11			22 x 25 1.09	25 x 25 1.19	30 x 20 1.22	
270	271	22 x 25 1.20	25 x 20 1.32			22 x 25 1.20	25 x 25 1.32	30 x 20 1.35		22 x 30 1.28	25 x 25 1.32	30 x 20 1.35	
330	331	22 x 25 1.33	25 x 20 1.36			22 x 30 1.42	25 x 25 1.46	30 x 20 1.49		22 x 35 1.50	25 x 30 1.56	30 x 25 1.60	35 x 20 1.62
390	391	22 x 25 1.45	25 x 25 1.59	30 x 20 1.62		22 x 30 1.54	25 x 25 1.59	30 x 25 1.74	35 x 20 1.77	22 x 40 1.72	25 x 30 1.69	30 x 25 1.73	35 x 20 1.77
470	471	22 x 30 1.69	25 x 25 1.75	30 x 20 1.78		22 x 35 1.79	25 x 30 1.86	30 x 25 1.90	35 x 20 1.94	22 x 45 1.98	25 x 35 1.96	30 x 30 2.02	35 x 25 2.06
560	561	22 x 35 1.96	25 x 30 2.03	30 x 25 2.08	35 x 20 2.12	22 x 40 2.06	25 x 35 2.14	30 x 25 2.08	35 x 25 2.25	22 x 50 2.26	25 x 40 2.25	30 x 30 2.20	35 x 25 2.25
680	681	22 x 40 2.27	25 x 30 2.23	30 x 25 2.29	35 x 20 2.33	22 x 45 2.38	25 x 40 2.48	30 x 30 2.43	35 x 25 2.48		25 x 45 2.60	30 x 35 2.56	35 x 30 2.62
820	821	22 x 45 2.61	25 x 35 2.59	30 x 30 2.67	35 x 25 2.73	22 x 50 2.73	25 x 45 2.85	30 x 35 2.81	35 x 30 2.88			30 x 40 2.95	35 x 35 3.03
1000	102	22 x 50 3.01	25 x 40 3.01	30 x 30 2.95	35 x 25 3.01	22 x 50 2.82		30 x 40 3.26	35 x 30 3.18			30 x 45 3.40	35 x 40 3.50
1200	122		25 x 45 3.23	30 x 35 3.37	35 x 30 3.26			30 x 45 3.49	35 x 35 3.43				35 x 45 3.74
1500	152			30 x 40 3.73	35 x 35 3.83			30 x 50 4.06	35 x 40 4.01				35 x 50 4.35
1800	182				35 x 40 4.39				35 x 45 4.58	→ Case size 尺寸			
										→ Ripple current 紋波電流			

WV		315 (2F)				350 (2V)				400 (2G)			
μF	∅D	22	25	30	35	22	25	30	35	22	25	30	35
68	680									22 x 20 0.56			
82	820					22 x 20 0.62				22 x 25 0.66	25 x 20 0.68		
100	101	22 x 20 0.68				22 x 25 0.73	25 x 20 0.75			22 x 30 0.78	25 x 25 0.81	30 x 20 0.82	
120	121	22 x 25 0.80	25 x 20 0.82			22 x 30 0.86	25 x 25 0.88	30 x 20 0.90		22 x 30 0.86	25 x 25 0.88	30 x 20 0.90	
150	151	22 x 30 0.96	25 x 25 0.99	30 x 20 1.01		22 x 35 1.01	25 x 30 1.05	30 x 20 1.01		22 x 35 1.01	25 x 30 1.05	30 x 25 1.08	35 x 20 1.09
180	181	22 x 35 1.11	25 x 30 1.15	30 x 25 1.18	35 x 20 1.20	22 x 40 1.17	25 x 35 1.21	30 x 25 1.18	35 x 20 1.20	22 x 40 1.17	25 x 35 1.21	30 x 25 1.18	35 x 25 1.28
220	221	22 x 40 1.29	25 x 30 1.27	30 x 25 1.30	35 x 20 1.33	22 x 45 1.35	25 x 35 1.34	30 x 30 1.38	35 x 25 1.41	22 x 45 1.35	25 x 40 1.41	30 x 30 1.38	35 x 25 1.41
270	271	22 x 45 1.50	25 x 35 1.49	30 x 30 1.53	35 x 25 1.56		25 x 45 1.64	30 x 35 1.61	35 x 25 1.65		25 x 45 1.64	30 x 35 1.61	35 x 30 1.65
330	331	22 x 50 1.73	25 x 40 1.73	30 x 35 1.78	35 x 30 1.83		25 x 50 1.89	30 x 40 1.87	35 x 30 1.83		25 x 50 1.89	30 x 40 1.87	35 x 30 1.83
390	391		25 x 45 1.97	30 x 35 1.94	35 x 30 1.99			30 x 45 2.12	35 x 35 2.09			30 x 45 2.12	35 x 35 2.09
470	471			30 x 40 2.23	35 x 35 2.29			30 x 50 2.43	35 x 40 2.40			30 x 50 2.43	35 x 40 2.40
560	561				35 x 40 2.62				35 x 45 2.73				35 x 45 2.73
680	681				35 x 45 3.01				35 x 50 3.13	→ Case size 尺寸			35 x 50 2.98
820	821				35 x 50 3.44					→ Ripple current 紋波電流			

WV		450 (2W)			
μF	∅D	22	25	30	35
56	560	22 x 20 0.51			
68	680	22 x 25 0.60	25 x 20 0.62		
82	820	22 x 30 0.71	25 x 25 0.73	30 x 20 0.74	
100	101	22 x 35 0.83	25 x 30 0.86	30 x 25 0.88	35 x 20 0.89
120	121	22 x 40 0.95	25 x 35 0.99	30 x 25 0.96	35 x 20 0.98
150	151	22 x 50 1.17	25 x 40 1.17	30 x 30 1.14	35 x 25 1.17
180	181		25 x 45 1.34	30 x 35 1.32	35 x 25 1.28
220	221		25 x 50 1.54	30 x 40 1.53	35 x 30 1.49
270	270			30 x 45 1.77	35 x 35 1.74
330	331			30 x 50 2.03	35 x 40 2.01
390	391				35 x 45 2.28
470	471				35 x 45 2.52

→ Case size ∅D×L(mm)  
→ Ripple current (A rms) at 85°C, 120Hz

→ 尺寸∅D×L(mm)  
→ 紋波電流(A rms)於 85°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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