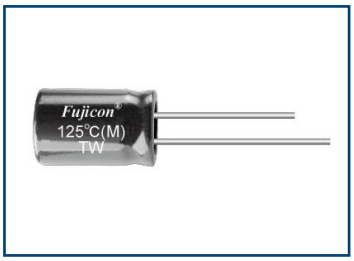
TW Series

HIGH TEMPERATURE, FOR 125°C USE
125°C 高温品





- High frequency, low ESR
  高頻、低等效串聯電阻
- For electronic control units and other high temperature applications
  適用於電子控制器與其他高溫應用
- Endurance 2000 hours at 125°C
  在 125°C 環境中耐久性 2000 小時
- 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 ~ +125°C	
Voltage Range 額定工作電壓範圍	6.3 ~ 50V	63 ~ 250V
Capacitance Range 靜電容量範圍	1 ~ 15000μF	0.47 ~ 100μF
Capacitance Tolerance 靜電容量允許偏差	±20% at 120Hz, 20°C	
Leakage Current 漏電流	Leakage current ≤0.01CV or 3μA, whichever is greater (after 2 minutes application of rated voltage at 20°C) 漏電流 ≤0.01CV 或 3μA，取較大值（在 20°C 環境中施加額定工作電壓 2 分鐘後）	Leakage current ≤0.02CV + 15μA (after 5 minutes application of rated voltage at 20°C) 漏電流 ≤0.02CV + 15μA（在 20°C 環境中施加額定工作電壓 5 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	When nominal capacitance is over 1000μF, tan δ shall be added 0.02 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 0.02。 Measurement frequency 測試頻率: 120Hz, Temperature 温度: 20°C	

Rated Voltage (V) 額定工作電壓	6.3	10	16	25	35	50	63~100	160~250
tan δ (max.) 最大損耗角正切	0.22	0.19	0.16	0.14	0.12	0.10	0.08	0.15

Stability at Low Temperature 低温特性

Measurement frequency 測試頻率: 120Hz

Rated Voltage (V) 額定工作電壓		6.3 ~ 10	16 ~ 250
Impedance Ratio 阻抗比	Z(-25°C) / Z(+20°C)	3	2
	Z(-40°C) / Z(+20°C)	5	4

Endurance 耐久性

When the capacitors are restored to 20°C after 2000 hours application of the rated voltage at 125°C, they meet the characteristics listed below (∅5, ∅6.3 and WV≥100 products are for 1000 hours).
在 125°C 環境中施加額定工作電壓 2000 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（∅5, ∅6.3 和 WV≥100 產品為 1000 小時）。

Capacitance Change 靜電容量變化率	Within ±20% of initial measured value 初始值的±20%以內
Dissipation Factor 損耗角正切	≤300% of initial specified value 不大於規範值的 300%
Leakage Current 漏電流	≤initial specified value 不大於規範值

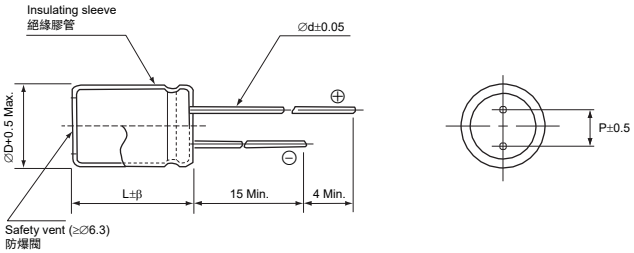
Shelf Life 高温貯存特性

When the capacitors are restored to 20°C after leaving under no load at 125°C for 1000 hours, they meet the specified value for endurance characteristics listed above.
在 125°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。

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)



∅D	5	6.3	8 (L≤11.5)	8 (L≥16)	10	13	16	18
P	2.0	2.5	3.5		5.0		7.5	
∅d	0.5			0.6			0.8	
β	1.5					2.0		

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

Frequency 頻率 / Cap.(μF) 容量	120Hz	300Hz	1KHz	10KHz	100KHz
1000 > CV	0.50	0.64	0.83	0.90	1.0
1000 ≤ CV	0.67	0.79	0.91	0.95	1.0

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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CAT.2026/V2.1

TW Series

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

WV / Parameter 參數 / μF		6.3 (0J)			10 (1A)			16 (1C)		
		Case size ØD×L (mm) 尺寸	ESR (Ω) max. 20°C, 100KHz 等效串聯電阻	Ripple current (mA rms) 125°C, 100KHz 紋波電流	Case size ØD×L (mm) 尺寸	ESR (Ω) max. 20°C, 100KHz 等效串聯電阻	Ripple current (mA rms) 125°C, 100KHz 紋波電流	Case size ØD×L (mm) 尺寸	ESR (Ω) max. 20°C, 100KHz 等效串聯電阻	Ripple current (mA rms) 125°C, 100KHz 紋波電流
47	470							5 × 11	1.00	24
68	680				5 × 11	1.00	124	6.3 × 11.5	0.65	176
100	101	5 × 11	1.10	120	6.3 × 11.5	0.71	168	6.3 × 11.5	0.45	212
150	151	6.3 × 11.5	0.64	180	6.3 × 11.5	0.45	212	8 × 11.5	0.30	310
220	221	6.3 × 11.5	0.39	228	8 × 11.5	0.31	310	8 × 11.5	0.21	368
330	331	8 × 11.5	0.26	234	8 × 11.5	0.21	368	10 × 12.5	0.16	500
470	471	10 × 12.5	0.18	460	10 × 12.5	0.17	480	10 × 16	0.12	616
680	681	10 × 16	0.14	560	10 × 16	0.12	616	10 × 20	0.085	816
1000	102	10 × 20	0.097	760	10 × 20	0.078	848	13 × 21	0.061	1129
1500	152	10 × 25	0.071	976	13 × 21	0.059	1134	13 × 25	0.047	1328
2200	222	13 × 21	0.056	1150	13 × 25	0.044	1368	16 × 20	0.043	1440
3300	332	13 × 25	0.044	1368	16 × 20	0.040	1480	16 × 25	0.035	1676
4700	472	16 × 25	0.042	1548	16 × 31.5	0.030	1936	16 × 35.5	0.026	2144
6800	682	16 × 31.5	0.031	1896	16 × 35.5	0.026	2144	18 × 35.5	0.023	2320
10000	103	16 × 40	0.026	2200	18 × 40	0.022	2432			
15000	153	18 × 40	0.023	2368						

WV / Parameter 參數 / μF		25 (1E)			35 (1V)			50 (1H)		
		Case size ØD×L (mm) 尺寸	ESR (Ω) max. 20°C, 100KHz 等效串聯電阻	Ripple current (mA rms) 125°C, 100KHz 紋波電流	Case size ØD×L (mm) 尺寸	ESR (Ω) max. 20°C, 100KHz 等效串聯電阻	Ripple current (mA rms) 125°C, 100KHz 紋波電流	Case size ØD×L (mm) 尺寸	ESR (Ω) max. 20°C, 100KHz 等效串聯電阻	Ripple current (mA rms) 125°C, 100KHz 紋波電流
1	010							5 × 11	5.20	29
1.5	1R5							5 × 11	4.90	36
2.2	2R2							5 × 11	4.50	43
3.3	3R3							5 × 11	3.90	53
4.7	4R7							5 × 11	2.90	65
6.8	6R8							5 × 11	2.30	73
10	100							5 × 11	1.80	92
15	150							5 × 11	1.20	116
22	220				5 × 11	0.97	128	6.3 × 11.5	0.84	156
33	330	5 × 11	1.00	124	6.3 × 11.5	0.64	180	6.3 × 11.5	0.56	192
47	470	6.3 × 11.5	0.72	168	6.3 × 11.5	0.44	216	8 × 11.5	0.39	275
68	680	6.3 × 11.5	0.47	208	8 × 11.5	0.31	307	8 × 11.5	0.26	328
100	101	8 × 11.5	0.31	306	8 × 11.5	0.21	368	10 × 16	0.21	465
150	151	8 × 11.5	0.21	368	10 × 12.5	0.16	500	10 × 20	0.13	656
220	221	10 × 12.5	0.17	480	10 × 16	0.12	616	10 × 25	0.098	832
330	331	10 × 16	0.12	600	10 × 20	0.078	848	13 × 21	0.072	1025
470	471	10 × 20	0.084	816	13 × 21	0.060	1121	13 × 25	0.057	1200
680	681	13 × 21	0.060	1114	13 × 25	0.047	1328	16 × 20	0.052	1304
1000	102	13 × 25	0.047	1328	16 × 20	0.044	1416	16 × 25	0.039	1696
1500	152	16 × 20	0.044	1416	16 × 31.5	0.036	1908	16 × 40	0.034	1928
2200	222	16 × 25	0.036	1641	16 × 35.5	0.026	2144	18 × 40	0.031	2048
3300	332	16 × 35.5	0.026	2144	18 × 40	0.022	2432			
4700	472	18 × 40	0.023	2368						

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TW Series

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

WV / Parameter 參數 / μF		63 (1J)		100 (2A)		160 (2C)	
		Case size ØD×L (mm) 尺寸	Ripple current (mA rms) 125°C, 100KHz 紋波電流	Case size ØD×L (mm) 尺寸	Ripple current (mA rms) 125°C, 100KHz 紋波電流	Case size ØD×L (mm) 尺寸	Ripple current (mA rms) 125°C, 100KHz 紋波電流
0.47	R47	8 × 11.5	13	8 × 11.5	13	10 × 12.5	10
1	010	8 × 11.5	19	8 × 11.5	19	10 × 12.5	15
2.2	2R2	8 × 11.5	28	10 × 12.5	33	10 × 16	24
3.3	3R3	8 × 11.5	34	10 × 16	44	10 × 16	32
4.7	4R7	8 × 11.5	41	10 × 16	52	10 × 20	38
10	100	8 × 11.5	61	10 × 20	83	13 × 21	66
22	220	10 × 16	113	13 × 25	157	16 × 25	118
33	330	10 × 20	151	16 × 25	214	16 × 31.5	158
47	470	13 × 21	211	16 × 31.5	279		
100	101	13 × 25	336				

WV / Parameter 參數 / μF		200 (2D)		250 (2E)	
		Case size ØD×L (mm) 尺寸	Ripple current (mA rms) 125°C, 100KHz 紋波電流	Case size ØD×L (mm) 尺寸	Ripple current (mA rms) 125°C, 100KHz 紋波電流
0.47	R47	10 × 12.5	10	10 × 12.5	10
1	010	10 × 12.5	15	10 × 12.5	14
2.2	2R2	10 × 16	24	10 × 16	24
3.3	3R3	10 × 20	32	10 × 20	32
4.7	4R7	10 × 20	38	13 × 21	45
10	100	13 × 21	72	16 × 25	79
22	220	16 × 31.5	129		

- Please refer to page 21 “Taping Specifications” & page 23 “Lead Forming & Cutting” about the taped or formed product spec. 編帶與引線成型標準請查閱第 21 頁“編帶標準”及第 23 頁“引線成型與剪腳”。
- Please refer to page 22 “Packaging Specifications” for the minimum package quantity. 最小包裝數量請查閱第 22 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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