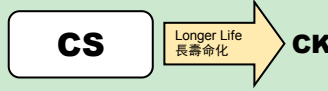


## STANDARD

Upgrade  
升級

### 標準品

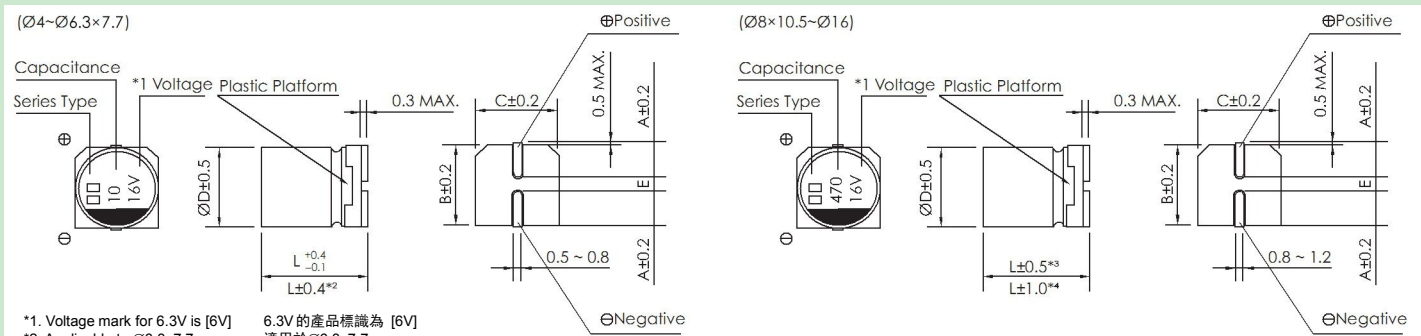
- Operating with general temperature range -40~+105°C  
適用於 -40~+105°C 的常規溫度範圍
- Load life of 2000 hours  
負荷壽命 2000 小時
- Comply with the RoHS directive  
符合 RoHS 指令



### SPECIFICATIONS 特性表

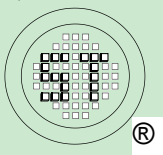
Items 項目	Characteristics 主要特性												
Operation Temperature Range 使用溫度範圍	-40 ~ +105°C												
Voltage Range 額定工作電壓範圍	4 ~ 450V												
Capacitance Range 靜電容量範圍	0.1 ~ 6800µF												
Capacitance Tolerance 靜電容量允許偏差	±20% at 120Hz, 20°C												
Leakage Current 漏電流	Rated Voltage 額定工作電壓	6.3 ~ 100V	160 ~ 450V										
	Case size 尺寸	Ø4~Ø10	Ø12.5~Ø16	Ø6.3~Ø16									
	Time 時間	after 2 min. (application of rated voltage) 2 分鐘後 (施加額定工作電壓)	after 1 min. (application of rated voltage) 1 分鐘後 (施加額定工作電壓)	after 5 min. (application of rated voltage) 5 分鐘後 (施加額定工作電壓)									
	Leakage current 漏電流	≤0.01CV or 3µA, whichever is greater ≤0.01CV 或 3µA, 取較大值	≤0.03CV or 4µA, whichever is greater ≤0.03CV 或 4µA, 取較大值	≤0.04CV+100µA, whichever is greater ≤0.04CV+100µA, 取較大值									
Dissipation Factor (tan δ) 損耗角正切	Measurement frequency 測試頻率: 120Hz, Temperature 溫度: 20°C												
	Rated Voltage (V) 額定工作電壓	4	6.3	10	16	25	35	50	63	100	160~250	350~450	
Stability at Low Temperature 低溫特性	Measurement frequency 測試頻率: 120Hz												
	Rated Voltage (V) 額定工作電壓	4	6.3	10	16	25	35	50~100	160~250	350~450			
	Impedance Ratio 阻抗比 ZT/Z20 (max.)	Ø4~Ø10	Z(-25°C)/Z(20°C)	7	4	3	2	2	2	2	2	3	3
		Ø12.5~Ø16	Z(-25°C)/Z(20°C)	7	5	4	3	2	2	2	2	4	4
Load Life 高溫負荷特性	After 2000 hours application of the rated voltage at 105°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 (Within ±30% of initial value for 4V) 初始值的±20%以內 (4V 為±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%											
Shelf Life 高溫貯存特性	After leaving capacitors under no load at 105°C for 1000 hours, they meet the specified value for load life characteristics listed above. 在 105°C 環境中無負荷放置 1000 小時後，電容器的特性符合高溫負荷特性中所列的規定值。												
	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的要求。												
Resistance to Soldering Heat 耐焊接熱特性	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. 鋁殼頂部黑字印刷。												

### DRAWING (Unit: mm) 外形圖



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## □ DIMENSIONS (Unit: mm) 尺寸表

∅D x L	4 x 5.4	5 x 5.4	6.3 x 5.4	6.3 x 7.7	8 x 6.2	8 x 10.5	8 x 13.5	10 x 10.5	10 x 13.5	12.5 x 13.5	12.5 x 16	16 x 16.5
A	2.0	2.2	2.6	2.6	3.0	3.0	3.0	3.3	3.3	4.9	4.9	5.8
B	4.3	5.3	6.6	6.6	8.4	8.4	8.4	10.4	10.4	13.0	13.0	17.0
C	4.3	5.3	6.6	6.6	8.4	8.4	8.4	10.4	10.4	13.0	13.0	17.0
E ± 0.2	1.0	1.4	1.9	1.9	2.2	3.1	3.1	4.7	4.7	4.7	4.7	6.4
L	5.4	5.4	5.4	7.7	6.2	10.5	13.5	10.5	13.5	13.5	16.0	16.5

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

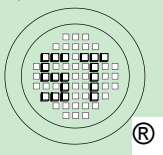
WV Code 代碼	4		6.3		10		16		25		
	0G		0J		1A		1C		1E		
4.7	4R7									4 x 5.4	13
10	100							4 x 5.4	18	5 x 5.4 (4 x 5.4)	20 (14)
22	220			4 x 5.4	22	5 x 5.4 (4 x 5.4)	25 (20)	5 x 5.4 (4 x 5.4)	27 (20)	6.3 x 5.4 (5 x 5.4)	36 (25)
33	330	5 x 5.4 (4 x 5.4)	30 (18)	5 x 5.4 (4 x 5.4)	27 (22)	5 x 5.4 (4 x 5.4)	30 (22)	6.3 x 5.4 (5 x 5.4)	40 (28)	6.3 x 5.4 (5 x 5.4)	44 (29)
47	470	5 x 5.4 (4 x 5.4)	36 (24)	5 x 5.4 (4 x 5.4)	33 (25)	5 x 5.4 (4 x 5.4)	30 (25)	6.3 x 5.4 (5 x 5.4)	48 (31)	6.3 x 5.4	48
100	101	6.3 x 5.4 (5 x 5.4)	60 (43)	6.3 x 5.4 (5 x 5.4)	50 (39)	6.3 x 5.4 (5 x 5.4)	53 (45)	6.3 x 5.4	60	6.3 x 7.7 (8 x 6.2)	91 (115)
150	151	6.3 x 5.4	52	6.3 x 5.4	55	6.3 x 5.4	62	6.3 x 7.7	95	8 x 10.5 (6.3 x 7.7)	140 (100)
220	221	6.3 x 5.4	57	6.3 x 7.7 (6.3 x 5.4)	105 (67)	6.3 x 7.7 (6.3 x 5.4)	105 (67)	8 x 10.5 (6.3 x 7.7) (8 x 6.2)	150 (105) (85)	8 x 10.5	175
330	331	6.3 x 7.7	100	6.3 x 7.7	105	8 x 10.5	196	8 x 10.5	195	10 x 10.5 (8 x 10.5)	240 (220)
470	471	6.3 x 7.7	105	8 x 10.5 (6.3 x 7.7)	210 (120)	8 x 10.5 (6.3 x 7.7)	210 (120)	10 x 10.5 (8 x 10.5)	295 (230)	10 x 10.5	280
680	681	8 x 10.5	210	8 x 10.5	210	10 x 10.5	270	10 x 10.5	315	10 x 13.5	400
1000	102	8 x 10.5	230	10 x 10.5 (8 x 10.5)	300 (230)	10 x 10.5 (8 x 10.5)	315 (230)	12.5 x 13.5 (10 x 13.5) (10 x 10.5)	500 (390) (340)	12.5 x 13.5	580
1500	152	10 x 10.5	315	10 x 13.5 (10 x 10.5)	450 (315)	10 x 13.5	460	12.5 x 13.5	550	12.5 x 16	850
2200	222	10 x 13.5 (10 x 10.5)	440 (340)	12.5 x 13.5 (10 x 13.5)	620 (500)	12.5 x 13.5	680	16 x 16.5 (12.5 x 16)	950 (750)	16 x 16.5	1050
3300	332	10 x 13.5	490	12.5 x 16 (12.5 x 13.5)	700 (660)	16 x 16.5	1000	16 x 16.5	1000		
4700	472	12.5 x 13.5	600	16 x 16.5	1000					Case size 尺寸	Ripple current 紋波電流
6800	682	16 x 16.5 (12.5 x 16)	950 (650)								

WV Code 代碼	35		50		63		100	
	1V		1H		1J		2A	
0.1	0R1			4 x 5.4	0.7	4 x 5.4	0.7	
0.22	R22			4 x 5.4	1.6	4 x 5.4	1.6	
0.33	R33			4 x 5.4	2.5	4 x 5.4	2.5	
0.47	R47			4 x 5.4	3.5	4 x 5.4	3.5	
1	010			4 x 5.4	7	4 x 5.4	7	4 x 5.4
2.2	2R2			4 x 5.4	11	4 x 5.4	11	6.3 x 5.4
3.3	3R3	4 x 5.4	13	4 x 5.4	13	5 x 5.4	13	6.3 x 7.7 (6.3 x 5.4)
4.7	4R7	4 x 5.4	14	5 x 5.4 (4 x 5.4)	16 (13)	5 x 5.4	16	6.3 x 7.7 (6.3 x 5.4)
10	100	5 x 5.4 (4 x 5.4)	21 (14)	6.3 x 5.4 (5 x 5.4)	24 (21)	6.3 x 7.7 (6.3 x 5.4)	39 (24)	8 x 10.5 (6.3 x 7.7)
22	220	6.3 x 5.4 (5 x 5.4)	38 (30)	6.3 x 7.7 (6.3 x 5.4)	51 (42)	8 x 10.5 (6.3 x 7.7)	98 (49)	10 x 10.5 (8 x 10.5)
33	330	6.3 x 5.4	42	6.3 x 7.7	60	8 x 10.5	112	10 x 10.5
47	470	6.3 x 7.7 (6.3 x 5.4)	70 (50)	8 x 10.5 (6.3 x 7.7)	120 (63)	10 x 10.5 (8 x 10.5)	160 (119)	12.5 x 13.5 (10 x 13.5) (10 x 10.5)
68	680					Case size 尺寸	Ripple current 紋波電流	12.5 x 13.5 (10 x 13.5)
								300 (180)

•Case size ∅DxL(mm), ripple current (mA rms) at 85°C, 120Hz •尺寸∅DxL(mm), 紋波電流(mA rms)於 85°C, 120Hz

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 ISO 14001:2004 Certificate No. 7116  
 ISO 9001:2008 Certificate No. 5073408  
 BS-OHSAS 18001:2007 Certificate No. 7116  
 IECQ QC 080000 Certificate No. PIC-029-054

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

WV Code 代碼	35		50		63		100		160		
	1V		1H		1J		2A		2C		
22	220									10 × 13.5	50
33	330									12.5 × 13.5	95
47	470									12.5 × 13.5 (16 × 16.5)	205 (240)
100	101	8 × 10.5 (6.3 × 7.7)	120 (84)	10 × 10.5 (8 × 10.5)	170 (140)	12.5 × 13.5 (10 × 13.5) (10 × 10.5)	270 (210) (196)	16 × 16.5 (12.5 × 13.5)	450 (380)	16 × 16.5	250
150	151	8 × 10.5	155	10 × 10.5	170	10 × 13.5	225				
220	221	10 × 10.5 (8 × 10.5)	220 (190)	10 × 13.5 (10 × 10.5)	280 (220)	16 × 16.5 (12.5 × 13.5)	560 (470)	16 × 16.5	550		
330	331	10 × 10.5	245	16 × 16.5 (12.5 × 13.5) (10 × 13.5)	600 (420) (295)	16 × 16.5 (12.5 × 16)	700 (510)				
470	471	12.5 × 13.5 (10 × 13.5) (10 × 10.5)	520 (375) (280)	16 × 16.5 (12.5 × 16)	700 (520)	16 × 16.5	750				
680	681	12.5 × 13.5	530	16 × 16.5	750						
1000	102	16 × 16.5 (12.5 × 16)	750 (600)							Case size 尺寸	Ripple current 紋波電流

WV Code 代碼	200		250		350		400		450		
	2D		2E		2V		2G		2W		
2.2	2R2			8 × 13.5	24	8 × 13.5	24	8 × 13.5	26	10 × 13.5	31
3.3	3R3			8 × 13.5	34	8 × 13.5	34	8 × 13.5 10 × 13.5	34 40	10 × 13.5	40
4.7	4R7	8 × 13.5	40	8 × 13.5	40	8 × 13.5 10 × 13.5	38 85	8 × 13.5 10 × 13.5 (12.5 × 13.5)	42 45 (48)	10 × 13.5 (12.5 × 13.5)	42 45
10	100	10 × 13.5	75	10 × 13.5	75	12.5 × 13.5	105	12.5 × 13.5	50	12.5 × 13.5	55
22	220	12.5 × 13.5	105	12.5 × 13.5	105	16 × 16.5	130	16 × 16.5	85	16 × 16.5	85
33	330	12.5 × 13.5	120	16 × 16.5	135						
47	470	16 × 16.5	220								
100	101									Case size 尺寸	Ripple current 紋波電流

•Case size  $\varnothing D \times L$ (mm), ripple current (mA rms) at 85°C, 120Hz •尺寸 $\varnothing D \times L$ (mm), 紋波電流(mA rms)於 85°C, 120Hz

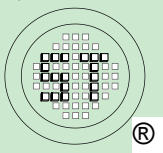
## □ FREQUENCY COEFFICIENT OF ALLOWABLE RIPPLE CURRENT 紋波電流頻率補償系數

Frequency 頻率		50Hz	120Hz	300Hz	1KHz	10KHz~
Coefficient 系數	$\varnothing 4 \sim \varnothing 10$	0.1 ~ 68 $\mu$ F	0.70	1.00	1.17	1.36
		100 ~ 3300 $\mu$ F	0.85	1.00	1.08	1.20
	$\varnothing 12.5 \sim \varnothing 16$	~ 68 $\mu$ F	0.75	1.00	1.35	1.57
		100 ~ 680 $\mu$ F	0.80	1.00	1.23	1.34
		1000 ~ 6800 $\mu$ F	0.85	1.00	1.10	1.13

- Taping specifications are given in page 14 "Taping Specifications". 編帶標準請參閱第 14 頁 "編帶標準".
- Please refer to page 15 "Package Quantity" for the minimum package quantity. 最小包裝數量請參閱第 15 頁 "包裝數量".

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 IECQ QC 080000 Certificate No. PIC-1676-1651