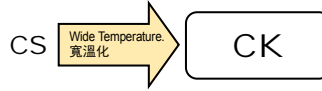


WIDE TEMPERATURE
寬溫品

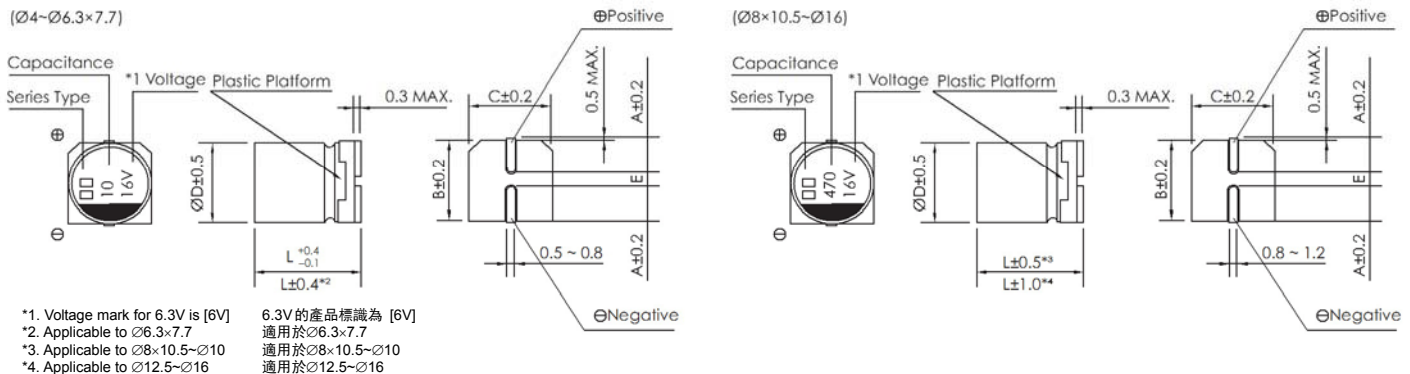
- Operating with wide temperature range -40~+105°C
適用於 -40~+105°C 的寬溫範圍
- Load life of 1000~2000 hours
負荷壽命 1000~2000 小時
- Comply with the RoHS directive
符合 RoHS 指令



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
	tan δ (max.) 最大損耗角正切	Ø4~Ø10	0.42	0.30	0.26	0.22	0.16	0.14	0.12	0.10	0.10	0.20
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	50~63	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	3	2	3
			Z(-40°C)/Z(20°C)	15	8	6	4	4	3	4	3	6
Ø12.5~Ø16	Z(-25°C)/Z(20°C)	7	5	4	3	2	2	2	2	2	4	
	Z(-40°C)/Z(20°C)	17	12	10	8	5	4	3	3	6	10	
Load Life 高溫負荷特性	After 2000 hrs. (1000 hrs. for Ø4~Ø6.3×5.4) 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 2000 小時 (Ø4~Ø6.3×5.4 為 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 for capacitors of 10V or more (Within ±30% of initial value for capacitors of 4V or less) ≥10V 為初始值的±20%以內 (≤4V 為初始值的±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。											
	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										
Resistance to Soldering Heat 耐焊接熱特性	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。											
	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 10.5	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	3.3	3.3	4.9	4.9	5.8
B	4.3	5.3	6.6	6.6	8.4	10.4	10.4	13.0	13.0	17.0
C	4.3	5.3	6.6	6.6	8.4	10.4	10.4	13.0	13.0	17.0
E ± 0.2	1.0	1.4	1.9	1.9	3.1	4.7	4.7	4.7	4.7	6.4
L	5.4	5.4	5.4	7.7	10.5	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	4 x 5.4	14	
10	100						4 x 5.4	19	5 x 5.4 (4 x 5.4)	23 (16)	
22	220	4 x 5.4	20	4 x 5.4	23	5 x 5.4 (4 x 5.4)	29 (20)	5 x 5.4 (4 x 5.4)	32 (25)	6.3 x 5.4 (5 x 5.4)	39 (32)
33	330	5 x 5.4 (4 x 5.4)	30 (25)	5 x 5.4 (4 x 5.4)	32 (30)	5 x 5.4 (4 x 5.4)	35 (22)	6.3 x 5.4 (5 x 5.4)	45 (35)	6.3 x 5.4 (5 x 5.4)	48 (35)
47	470	5 x 5.4 (4 x 5.4)	36 (30)	5 x 5.4 (4 x 5.4)	38 (35)	5 x 5.4	38	6.3 x 5.4 (5 x 5.4)	55 (40)	6.3 x 5.4	60
100	101	6.3 x 5.4 (5 x 5.4)	60 (49)	6.3 x 5.4 (5 x 5.4)	65 (54)	6.3 x 5.4 (5 x 5.4)	70 (60)	6.3 x 5.4	80	6.3 x 7.7 (6.3 x 5.4)	100 (80)
150	151	6.3 x 5.4	70	6.3 x 5.4	55	6.3 x 5.4	62	6.3 x 7.7	105	8 x 10.5 (6.3 x 7.7)	140 (120)
220	221	6.3 x 5.4	85	6.3 x 7.7 (6.3 x 5.4)	120 (95)	6.3 x 7.7 (6.3 x 5.4)	120 (95)	8 x 10.5 (6.3 x 7.7)	180 (120)	8 x 10.5	200
330	331	6.3 x 7.7	100	6.3 x 7.7	120	8 x 10.5 (6.3 x 7.7)	200 (135)	8 x 10.5	220	10 x 10.5 (8 x 10.5)	240 (250)
470	471	6.3 x 7.7	105	8 x 10.5 (6.3 x 7.7)	230 (120)	10 x 10.5 (8 x 10.5)	270 (230)	10 x 10.5 (8 x 10.5)	300 (270)	10 x 10.5	280
680	681	8 x 10.5	210	8 x 10.5	230	10 x 10.5 (8 x 10.5)	270 (220)	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)	340 (290)	10 x 10.5	315	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 (410)	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	2	4 x 5.4	2	
0.22	R22			4 x 5.4	4	4 x 5.4	4	
0.33	R33			4 x 5.4	4	4 x 5.4	4	
0.47	R47			4 x 5.4	5	4 x 5.4	5	
1	010			4 x 5.4	8	4 x 5.4	8	4 x 5.4
2.2	2R2			4 x 5.4	11	4 x 5.4	11	6.3 x 5.4 (5 x 5.4)
3.3	3R3	4 x 5.4	13	4 x 5.4	14	5 x 5.4	14	6.3 x 7.7 (6.3 x 5.4)
4.7	4R7	4 x 5.4	15	5 x 5.4 (4 x 5.4)	19 (14)	5 x 5.4	19	6.3 x 7.7 (6.3 x 5.4)
10	100	5 x 5.4 (4 x 5.4)	25 (18)	6.3 x 5.4 (5 x 5.4)	31 (20)	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)	42 (34)	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	50	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)	78 (58)	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 ∅D×L(mm), ripple current (mA rms) at 105°C, 120Hz •尺寸∅D×L(mm), 紋波電流(mA rms)於 105°C, 120Hz

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CAT.2018/V1a

□ 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	1H	1J	1J	2A	2A	2C	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)	150 (92)	10 × 10.5 (8 × 10.5)	180 (160)	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	185	10 × 10.5	200	10 × 13.5	225				
220 221	10 × 10.5 (8 × 10.5)	250 (220)	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	300	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) (310)	16 × 16.5 (12.5 × 16) (12.5 × 13.5)	700 (520) (470)	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
1500 152	16 × 16.5	750								

WV Code 代碼	200		250		350		400		450	
	2D	2E	2E	2V	2V	2G	2G	2W	2W	
3.3 3R3							10 × 13.5 (8 × 10.5)	40 (35)	10 × 13.5 (8 × 12.5)	40 (38)
4.7 4R7			10 × 13.5	75	10 × 13.5	85	10 × 13.5 (12.5 × 13.5)	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							Case size 尺寸	Ripple current 紋波電流

•Case size $\varnothing D \times L$ (mm), ripple current (mA rms) at 105°C, 120Hz •尺寸 $\varnothing D \times L$ (mm), 紋波電流(mA rms)於 105°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 μ F	0.70	1.00	1.17	1.36
		100 ~ 3300 μ F	0.85	1.00	1.08	1.20
	$\varnothing 12.5 \sim \varnothing 16$	~ 68 μ F	0.75	1.00	1.35	1.57
		100 ~ 680 μ F	0.80	1.00	1.23	1.34
		1000 ~ 6800 μ 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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