CK Series

WIDE TEMPERATURE

寬溫品



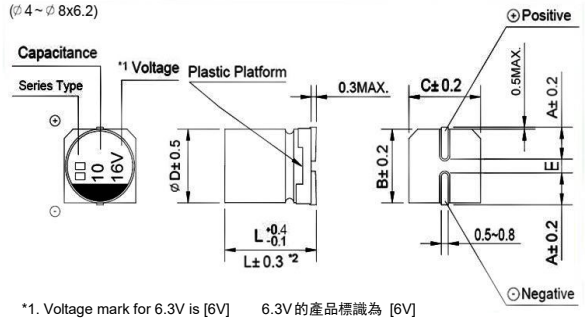
- Operating with wide temperature range -55 ~ +105°C
  適用於 -55 ~ +105°C 的寬溫範圍
- Load life of 2000 hours
  負荷壽命 2000 小時
- Comply with the RoHS directive
  符合 RoHS 指令

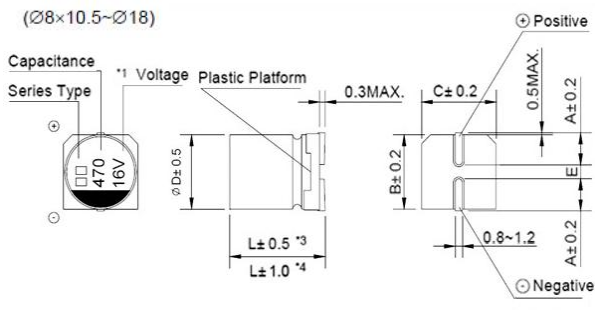
CS → Long life 長壽命 → CK

☐ SPECIFICATIONS 特性表

Items 項目	Characteristics 主要特性												
Operation Temperature Range 使用温度範圍	-55 ~ +105°C												
Voltage Range 額定工作電壓範圍	4 ~ 450V												
Capacitance Range 靜電容量範圍	0.1 ~ 8200μF												
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	∅4~∅10			∅12.5~∅18							∅6.3~∅18	
	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 or 100μA, whichever is greater ≦0.04CV 或 100μA，取較大值	
Dissipation Factor (tan δ) 損耗角正切	Measurement frequency 測試頻率: 120Hz, Temperature 温度: 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	∅4~∅10	0.35	0.30	0.24	0.20	0.16	0.14	0.14	0.12	0.12	0.20	0.25
		∅12.5~∅18	0.42	0.38	0.34	0.30	0.26	0.22	0.18	0.14	0.12	0.20	0.25
Stability at Low Temperature 低温特性	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.)	∅4~∅10	Z(-25°C) / Z(20°C)	7	4	3	2	2	2	2	3	2	3
			Z(-55°C) / Z(20°C)	15	8	6	4	4	3	3	4	3	6
		∅12.5~∅18	Z(-25°C) / Z(20°C)	7	5	4	3	2	2	2	2	2	4
			Z(-55°C) / Z(20°C)	17	12	10	8	5	4	3	3	6	10
Load Life 高溫負荷特性	After 3000 hrs.application of the rated voltage at 105°C, they meet th e characteristics listedbelow. 在 105°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 ±30% of initial value for capacitors 為初始值的±30%以內											
	Dissipation Factor 損耗角正切	300% or less of initial specified value 不大於規範值的 300%											
	Leakage Current 漏電流	initial specified value or less 不大於規範值											
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。												
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 標示	Black print on the case top. 鋁殼頂部黑字印刷。												

☐ DRAWING (Unit: mm) 外形圖





*1. Voltage mark for 6.3V is [6V] 6.3V的產品標識為 [6V]
*2. Applicable to ∅6.3×7.7 適用於∅6.3×7.7
*3. Applicable to ∅8×10.5~∅10 適用於∅8×10.5~∅10
*4. Applicable to ∅12.5~∅16 適用於∅12.5~∅18

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Rev:37

☐ DIMENSIONS (Unit: mm) 尺寸表

ØD x L	4 x 5.4	5 x 5.4	6.3 x 5.4/7.7	8 x 6.2	8 x 10.5	10 x 10.5	10 x 12.5	12.5 x 13.5	12.5 x 16	16 x 16.5	18 x 16.5/18.5
A	2.0	2.2	2.6	3.3	3.0	3.2	3.2	4.7	4.7	5.8	6.2
B	4.3	5.3	6.6	8.3	8.3	10.3	10.3	12.8	12.8	17.0	19.0
C	4.3	5.3	6.6	8.3	8.3	10.3	10.3	12.8	12.8	17.0	19.0
E ± 0.2	1.0	1.5	2.1	2.2	3.1	4.6	4.6	4.6	4.6	6.4	6.4
L	5.4	5.4	5.4/7.7	6.2	10.5	10.5	12.5	13.5	16.0	16.5	16.5/18.5

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

WV / Code 代碼 / μF		4		6.3		10		16		25	
		0G		0J		1A		1C		1E	
4.7	4R7									4 × 5.4	13
10	100			4 × 5.4	18			4 × 5.4	18	5 × 5.4 (4 × 5.4)	20 (14)
22	220			4 × 5.4	22	5 × 5.4 (4 × 5.4)	25 (20)	5 × 5.4 (4 × 5.4)	27 (20)	6.3 × 5.4 (5 × 5.4)	36 (25)
33	330	5 × 5.4 (4 × 5.4)	30 (18)	5 × 5.4 (4 × 5.4)	27 (22)	5 × 5.4 (4 × 5.4)	30 (22)	6.3 × 5.4 (5 × 5.4)	40 (28)	6.3 × 5.4 (5 × 5.4)	44 (29)
47	470	5 × 5.4 (4 × 5.4)	36 (24)	5 × 5.4 (4 × 5.4)	33 (25)	6.3 × 5.4 (5 × 5.4) (4 × 5.4)	41 (30) (25)	6.3 × 5.4 (5 × 5.4)	48 (31)	5 × 5.4 6.3 × 5.4	35 48
100	101	6.3 × 5.4 (5 × 5.4)	60 (43)	6.3 × 5.4 (5 × 5.4)	50 (39)	5 × 5.4 6.3 × 5.4	39 (53)	6.3 × 5.4 (8 × 6.2)	60 (120)	6.3 × 7.7 (8 × 6.2)	85 91
150	151	6.3 × 5.4	52	6.3 × 5.4	55	6.3 × 5.4	62	6.3 × 7.7	95	8 × 10.5 (6.3 × 7.7)	140 (100)
220	221	6.3 × 5.4	57	6.3 × 7.7 (6.3 × 5.4)	105 (67)	6.3 × 5.4 6.3 × 7.7 (8 × 6.2)	67 105 (105)	8 × 10.5 (6.3 × 7.7) (8 × 6.2)	150 (105) (85)	6.3 × 7.7 8 × 10.5	120 175
330	331	6.3 × 7.7	100	6.3 × 7.7 8 × 6.2	105 105	6.3 × 7.7 8×10.5	105 196	8 × 10.5	195	10 × 10.5 (8 × 10.5)	240 (220)
470	471	6.3 × 7.7	105	8 × 10.5 (6.3 x 7.7)	210 (120)	6.3 × 7.7 10 × 10.5 (8 × 10.5)	120 260 (210)	10 × 10.5 (8 × 10.5)	295 (230)	10 × 10.5 8 × 10.5	310 240
560	561							8 × 10.5	250		
680	681	8 × 10.5	210	8 × 10.5	210	10 × 10.5	270	10 × 10.5	315	10 × 10.5 10 × 12.5	350 400
1000	102	8 × 10.5	230	10 × 10.5 (8 × 10.5)	300 (230)	10 × 10.5 (8 × 10.5)	315 (230)	12.5 × 13.5 (10 × 12.5) (10 × 10.5)	500 (390) (340)	12.5 × 13.5	580
1500	152	10 × 10.5	315	10 × 12.5 (10 × 10.5)	450 (315)	10 × 12.5	460	12.5 × 13.5	550	12.5 × 16	850
2200	222	10 × 12.5 (10 × 10.5)	440 （340）	12.5 × 13.5 (10 × 12.5)	620 (500)	12.5 × 13.5	680	16 × 16.5 (12.5 × 16)	950 (750)	16 × 16.5	1050
3300	332	10 × 12.5	490	12.5 × 16 (12.5 × 13.5)	700 (660)	16 × 16.5	1000	16 × 16.5	1000	18 × 16.5	1150
4700	472	12.5 × 13.5	600	16 × 16.5	1000	16 × 16.5	1000	18 × 16.5	1226	18× 18.5	1300
6800	682	16 × 16.5 (12.5 × 16)	950 （650）	18 × 16.5	1290	18 × 16.5	1290			Case size 尺寸	Ripple current 紋波電流
8200	822			18× 18.5	1450	18× 18.5	1450				

WV / Code 代碼 / μF		35		50		63		100	
		1V		1H		1J		2A	
0.1	0R1			4 × 5.4	0.7	4 × 5.4	0.7		
0.22	R22			4 × 5.4	1.6	4 × 5.4	1.6		
0.33	R33			4 × 5.4	2.5	4 × 5.4	2.5		
0.47	R47			4 × 5.4	3.5	4 × 5.4	3.5		
1	010			4 × 5.4	7	4 × 5.4	7	4 × 5.4	7
2.2	2R2			4 × 5.4	11	4 × 5.4	11	6.3 × 5.4	14
3.3	3R3	4 × 5.4	13	4 × 5.4	13	5 × 5.4	13	6.3 × 7.7 (6.3 × 5.4) (8 × 6.2)	32 (20) (30)
4.7	4R7	4 × 5.4	14	5 × 5.4 (4 × 5.4)	16 (13)	5 × 5.4	16	5 × 5.4 6.3 × 7.7 (6.3 × 5.4)	18 35 (21)
10	100	5 × 4.5 5 × 5.4 (4 × 5.4)	18 21 (14)	5 × 5.4 6.3 × 5.4	21 24	6.3 × 7.7 (6.3 × 5.4) (8 × 6.2)	39 (24) (25)	6.3 × 5.4 (6.3 × 7.7) 8 × 6.2 8 × 10.5	30 (35) 35 77
								Case size 尺寸	Ripple current 紋波電流

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

WV / Code 代碼 / μF		35		50		63		100	
		1V		1H		1J		2A	
22	220	5 × 5.4 6.3 × 5.4	30 38	6.3 × 7.7 (6.3 × 5.4) (8 × 6.2)	51 (42) (70)	8 × 10.5 (6.3 × 7.7)	98 (49)	10 × 10.5 (8 × 10.5)	126 (84)
33	330	6.3 × 5.4 (8 × 6.2)	42 (70)	6.3 × 7.7 8 × 6.2	60 84	8 × 10.5	112	10 × 10.5	133
47	470	6.3 × 7.7 (6.3 × 5.4) 8 × 6.2	70 (50) 70	8 × 6.2 8 × 10.5 (6.3 × 7.7)	95 120 (63)	10 × 10.5 (8 × 10.5)	160 (119)	12.5 × 13.5 (10 × 12.5) (10 × 10.5)	250 (160) (140)
56	560							10 × 10.5	150
68	680	6.3 × 5.4 6.3 × 7.7	75 75			10 × 10.5	175	12.5 x 13.5 (10 x 12.5)	300 (180)
100	101	8 × 6.2 8 × 10.5 6.3 × 5.4 (6.3 × 7.7)	110 120 75 (84)	10 × 10.5 (8 × 10.5) 6.3 × 7.7	170 (140) 105	12.5 × 13.5 (10 × 12.5) (10 × 10.5)	270 (210) (196)	16 × 16.5 (12.5 x 13.5)	450 (380)
150	151	8 × 10.5	155	10 × 10.5	170	10 × 10.5 10 × 12.5	196 225		
220	221	10 × 10.5 (8 × 10.5)	220 (190)	10 × 12.5 (10 × 10.5)	280 (220)	16 × 16.5 (12.5 × 13.5)	560 (470) (235)	16 × 16.5	550
330	331	10 × 10.5	245	16 × 16.5 (12.5 × 13.5) (10 × 12.5) 10 × 10.5	600 (420) (295) 285	16 × 16.5 (12.5 × 16) 12.5 × 13.5	700 (510) 460	18 × 16.5	590
470	471	12.5 × 13.5 (10 × 12.5) (10 × 10.5)	520 (375) (305)	16 × 16.5 (12.5 × 16) 12.5 × 13.5	700 (520) 520	16 × 16.5	750	18 × 18.5 18 × 19.5	980 980
680	681	12.5 × 13.5 (10 × 12.5)	530 (395)	16 × 16.5	750	18 × 16.5	790		
1000	102	16 × 16.5 (12.5 × 16)	750 (600)	18 × 16.5	990				
1500	152	16 × 16.5	**750**					Case size 尺寸	Ripple current 紋波電流
2200	222	18 × 16.5	1050						

WV / Code 代碼 / μF		160		200		250		350	
		2C		2D		2E		2V	
4.7	4R7					10 × 13.5	65	10 × 13.5	45
10	100			10 × 13.5	75	10 × 13.5	70	12.5 × 13.5	50
22	220	10 × 13.5	50	12.5 × 13.5	105	12.5 × 13.5	105	16× 16.5	85
33	330	12.5 × 13.5	95	12.5 × 13.5	120	16× 16.5	180	18× 16.5	100
47	470	12.5 × 13.5 (16 × 16.5)	205 (240)	16× 16.5	220	16× 16.5	220	Case size 尺寸	Ripple current 紋波電流
100	101	16× 16.5	250	18× 16.5	280	18× 16.5	260		

WV / Code 代碼 / μF		400		450					
		2G		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 (12.5× 13.5)	45 (48)	10 × 13.5 (12.5× 13.5)	42 45				
10	100	12.5 × 13.5	50	12.5 × 13.5	70				
22	220	16 × 16.5	85	16 × 16.5	85			Case size 尺寸	Ripple current 紋波電流
33	330	18× 16.5	100	18× 16.5	100				

•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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☐ 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	Ø4 ~ Ø10	0.1 ~ 68μF	0.70	1.00	1.17	1.36	1.50
		100 ~ 3300μF	0.85	1.00	1.08	1.20	1.30
	Ø12.5 ~ Ø16	~ 68μF	0.75	1.00	1.35	1.57	2.00
		100 ~ 680μF	0.80	1.00	1.23	1.34	1.50
		1000 ~ 8200μF	0.85	1.00	1.10	1.13	1.15

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