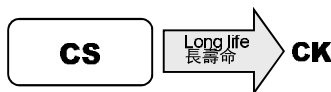




標準品

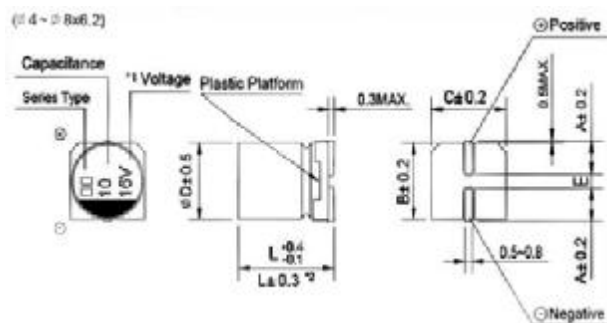
- Operating with general temperature range $-40 \sim +105^{\circ}\text{C}$
適用於 $-40 \sim +105^{\circ}\text{C}$ 的常規溫度範圍
- Load life of 1000 hours
負荷壽命 1000 小時
- Comply with the RoHS directive
符合 RoHS 指令



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 ~ 100V																																													
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	Leakage current (Ø4~Ø10) ≦0.01CV or 3μA, whichever is greater (after 2 minutes application of rated voltage) Leakage current (Ø12.5~Ø16) ≦0.03CV or 4μA, whichever is greater (after 1 minute application of rated voltage) 漏電流 (Ø4~Ø10) ≦0.01CV 或 3μA, 取較大值 (施加額定工作電壓 2 分鐘後) 漏電流 (Ø12.5~Ø16) ≦0.03CV 或 4μA, 取較大值 (施加額定工作電壓 1 分鐘後)																																													
Dissipation Factor (tan δ) 損耗角正切	Measurement frequency 測試頻率: 120Hz, Temperature 溫度: 20°C <table><tr><td>Rated Voltage (V) 額定工作電壓</td><td>4</td><td>6.3</td><td>10</td><td>16</td><td>25</td><td>35</td><td>50</td><td>63</td><td>100</td></tr><tr><td>tan δ (max.)</td><td>Ø4~Ø10</td><td>0.35</td><td>0.30</td><td>0.24</td><td>0.20</td><td>0.16</td><td>0.14</td><td>0.14</td><td>0.12</td></tr><tr><td>最大損耗角正切</td><td>Ø12.5~Ø16</td><td>0.42</td><td>0.38</td><td>0.34</td><td>0.30</td><td>0.26</td><td>0.22</td><td>0.18</td><td>0.10</td></tr></table>	Rated Voltage (V) 額定工作電壓	4	6.3	10	16	25	35	50	63	100	tan δ (max.)	Ø4~Ø10	0.35	0.30	0.24	0.20	0.16	0.14	0.14	0.12	最大損耗角正切	Ø12.5~Ø16	0.42	0.38	0.34	0.30	0.26	0.22	0.18	0.10															
Rated Voltage (V) 額定工作電壓	4	6.3	10	16	25	35	50	63	100																																					
tan δ (max.)	Ø4~Ø10	0.35	0.30	0.24	0.20	0.16	0.14	0.14	0.12																																					
最大損耗角正切	Ø12.5~Ø16	0.42	0.38	0.34	0.30	0.26	0.22	0.18	0.10																																					
Stability at Low Temperature 低溫特性	Measurement frequency 測試頻率: 120Hz <table><tr><td colspan="2">Rated Voltage (V) 額定工作電壓</td><td>4</td><td>6.3</td><td>10</td><td>16</td><td>25</td><td>35</td><td>50</td><td>100</td></tr><tr><td rowspan="4">Impedance Ratio 阻抗比 ZT/Z20 (max.)</td><td rowspan="2">Ø4~Ø10</td><td>Z(-25°C) / Z(20°C)</td><td>7</td><td>4</td><td>3</td><td>2</td><td>2</td><td>2</td><td>2</td></tr><tr><td>Z(-40°C) / Z(20°C)</td><td>15</td><td>8</td><td>6</td><td>4</td><td>4</td><td>3</td><td>3</td></tr><tr><td rowspan="2">Ø12.5~Ø16</td><td>Z(-25°C) / Z(20°C)</td><td>7</td><td>5</td><td>4</td><td>3</td><td>2</td><td>2</td><td>2</td></tr><tr><td>Z(-40°C) / Z(20°C)</td><td>17</td><td>12</td><td>10</td><td>8</td><td>5</td><td>4</td><td>3</td></tr></table>	Rated Voltage (V) 額定工作電壓		4	6.3	10	16	25	35	50	100	Impedance Ratio 阻抗比 ZT/Z20 (max.)	Ø4~Ø10	Z(-25°C) / Z(20°C)	7	4	3	2	2	2	2	Z(-40°C) / Z(20°C)	15	8	6	4	4	3	3	Ø12.5~Ø16	Z(-25°C) / Z(20°C)	7	5	4	3	2	2	2	Z(-40°C) / Z(20°C)	17	12	10	8	5	4	3
Rated Voltage (V) 額定工作電壓		4	6.3	10	16	25	35	50	100																																					
Impedance Ratio 阻抗比 ZT/Z20 (max.)	Ø4~Ø10	Z(-25°C) / Z(20°C)	7	4	3	2	2	2	2																																					
		Z(-40°C) / Z(20°C)	15	8	6	4	4	3	3																																					
	Ø12.5~Ø16	Z(-25°C) / Z(20°C)	7	5	4	3	2	2	2																																					
		Z(-40°C) / Z(20°C)	17	12	10	8	5	4	3																																					
Load Life 高溫負荷特性	After 1000 hrs. 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 1000 小時 (後), 電容器的特性符合下表的要求。 <table><tr><td>Capacitance Change 靜電容量變化率</td><td>Within ±20% of initial value (Within ±30% of initial value for 4V) 初始值的±20%以內 (4V 為±30%以內)</td></tr><tr><td>Dissipation Factor 損耗角正切</td><td>200% or less of initial specified value 不大於規範值的 200%</td></tr><tr><td>Leakage Current 漏電流</td><td>initial specified value or less 不大於規範值</td></tr></table>	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%	Leakage Current 漏電流	initial specified value or less 不大於規範值																																							
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%																																													
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。 <table><tr><td>Capacitance Change 靜電容量變化率</td><td>Within ±10% of initial value 初始值的±10%以內</td></tr><tr><td>Dissipation Factor 損耗角正切</td><td>initial specified value or less 不大於規範值</td></tr><tr><td>Leakage Current 漏電流</td><td>initial specified value or less 不大於規範值</td></tr></table>	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																																							
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



CS Series

□ 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	10 x 10.5	10 x 13.5	12.5 x 13.5	12.5 x 16	16 x 16.5
A	1.8	2.1	2.5	2.5	3.3	2.9	3.2	3.2	4.7	4.7	5.5
B	4.3	5.3	6.6	6.6	8.3	8.3	10.3	10.3	13.0	13.0	17.0
C	4.3	5.3	6.6	6.6	8.3	8.3	10.3	10.3	13.0	13.0	17.0
E ± 0.2	1.0	1.3	2.2	2.2	2.2	3.1	4.4	4.4	4.4	4.4	6.7
L	5.4	5.4	5.4	7.7	6.2	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

μF	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)	6.3 x 5.4 (5 x 5.4) (4 x 5.4)	41 (30) (25)	6.3 x 5.4 (5 x 5.4)	48 (31)	6.3 x 5.4 (8 x 6.2)	48 (91)
56	560	4 x 5.4	32	5 x 5.4	40	6.3 x 5.4	50	6.3 x 5.4	65	6.3 x 5.4	75
68	680	5 x 5.4	40	5 x 5.4	45	6.3 x 5.4	65	6.3 x 5.4	75	6.3 x 5.4	85
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 (49)	6.3 x 5.4 (8 x 6.2)	60 (120)	6.3 x 7.7	91
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 (8 x 6.2)	105 (105)	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)	10 x 10.5 (8 x 10.5) (6.3 x 7.7)	260 (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)								

μF	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	7
2.2	2R2			4 x 5.4	11	4 x 5.4	11	6.3 x 5.4	14
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)	32 (20)
4.7	4R7	4 x 5.4	14	5 x 5.4 (4 x 5.4)	16 (13)	6.3 x 5.4 (5 x 5.4)	21 (16)	6.3 x 7.7 (6.3 x 5.4)	35 (21)
10	100	5 x 5.4 (4 x 5.4)	21 (14)	6.3 x 5.4 (5 x 5.4)	34 (27)	6.3 x 7.7 (6.3 x 5.4)	55 (34)	8 x 10.5 (6.3 x 7.7) (8 x 6.2)	110 (50) (50)
22	220	6.3 x 5.4	54	6.3 x 5.4 (8 x 6.2)	60 (120)	8 x 10.5 (6.3 x 7.7) (8 x 6.2)	140 (70) (35)	10 x 10.5 (8 x 10.5)	180 (120)
33	330	6.3 x 5.4 (8 x 6.2)	42 (84)	6.3 x 7.7 (8 x 6.2)	60 (65)	8 x 10.5 (6.3 x 7.7)	112 (60)	10 x 10.5	133
47	470	6.3 x 5.4 (8 x 6.2)	50 (165)	10 x 10.5 (8 x 10.5) (6.3 x 7.7)	130 (110) (63)	10 x 10.5 (8 x 10.5)	160 (119)	10 x 13.5 (10 x 10.5) (12.5 x 13.5)	160 (140) (250)
								Case size 尺寸	Ripple current 紋波電流

• Case size ∅D x L (mm), ripple current (mA rms) at 105°C 120Hz • 尺寸 ∅D x L (mm), 紋波電流 (mA rms) 於 105°C 120Hz

NOTE: All designs and specifications are for reference only and are subject to change without prior notice. If any doubt about safety for your application, please contact us immediately for technical assistance before purchase.

注：以上所提供的設計及特性參數僅供參考，任何修改不作預先通知。如果在使用上有疑問，請在採購前與我們聯繫，以便提供技術上的協助。

□ 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	
56	560	6.3 × 7.7	56	6.3 × 7.7	70	10 × 10.5	170		
68	680	6.3 × 7.7	50	8 × 10.5	120	10 × 10.5	190		
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)	12.5 × 13.5	380
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)	12.5 × 13.5 (10 × 13.5)	470 (235)	16 × 16.5	550
330	331	10 × 10.5	245	12.5 × 13.5 (10 × 13.5)	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 × 13.5)	700 (420)	16 × 16.5	750		
680	681	12.5 × 13.5 (10 × 13.5)	530 (395)	16 × 16.5	750			Case size 尺寸	Ripple current 紋波電流
1000	102	16 × 16.5 (12.5 × 16)	750 (600)						

• 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 ~ 68μF	0.70	1.00	1.17	1.36	1.50
		100 ~ 3300μF	0.85	1.00	1.08	1.20	1.30
	$\varnothing 12.5 \sim \varnothing 16$	~ 68μF	0.75	1.00	1.35	1.57	2.00
		100 ~ 680μF	0.80	1.00	1.23	1.34	1.50
		1000 ~ 6800μF	0.85	1.00	1.10	1.13	1.15

- Taping specifications are given in page 11. 編帶標準請參閱第 11 頁。
- Please refer to page 12 for the minimum package quantity. 最小包裝數量請參閱第 12 頁。

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