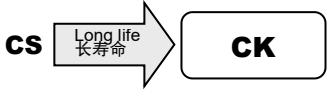


WIDE TEMPERATURE

宽温品

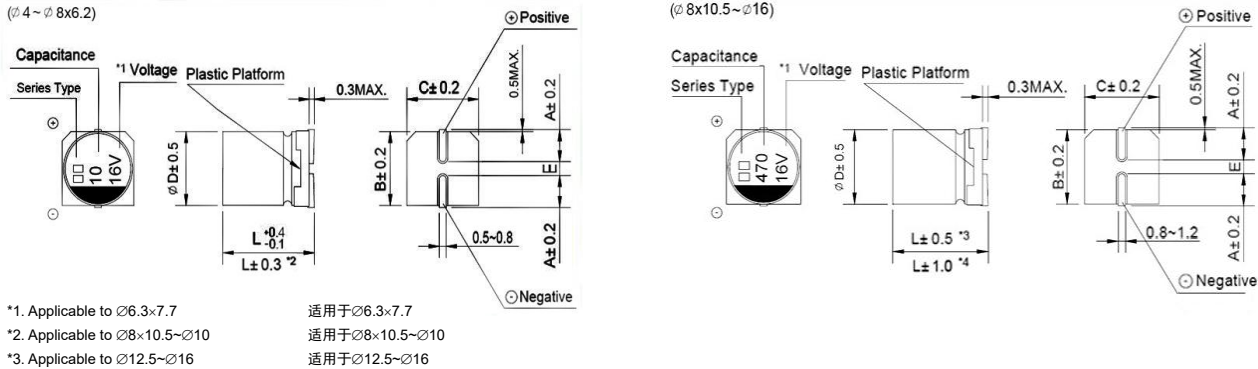
- Operating with wide temperature range -40 ~ +105°C
适用于 -40 ~ +105°C 的宽温范围
- Load life of 2000 hours
负荷寿命 2000 小时
- Comply with the RoHS directive
符合 RoHS 指令



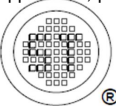
SPECIFICATIONS 特性表

Items 项目	Characteristics 主要特性												
Operation Temperature Range 使用温度范围	-40 ~ +105°C												
Voltage Range 额定工作电压范围	4 ~ 450V												
Capacitance Range 静电容量范围	0.1 ~ 6800μF												
Capacitance Tolerance 静电容量允许偏差	±20% at 120Hz, 20°C												
Leakage Current 漏电流	Leakage current (∅4~∅10) ≦0.01CV or 3μA, whichever is greater (after 2 minutes application of rated voltage) 漏电流 (∅4~∅10) ≦0.01CV 或 3μA, 取较大值 (施加额定工作电压 2 分钟后) Leakage current (∅12.5~∅16) ≦0.03CV or 4μA, whichever is greater (after 1 minute application of rated voltage) 漏电流 (∅12.5~∅16) ≦0.03CV 或 4μA, 取较大值 (施加额定工作电压 1 分钟后)						Leakage current (∅6.3~∅16) ≦0.04CV or 100μA, whichever is greater (after 5 minutes application of rated voltage) 漏电流 (∅6.3~∅16) ≦0.04CV 或 100μA, 取较大值 (施加额定工作电压 5 分钟后)						
Dissipation Factor (tan δ) 损耗角正切	Measurement frequency 测试频率: 120Hz, Temperature 温度: 20°C												
	Rated Voltage (V) 额定工作电压	4	6.3	10	16	25	35	50	63	100	160~250	350~450	
	tan δ (max.)	∅4~∅10	0.35	0.30	0.24	0.20	0.16	0.14	0.14	0.12	0.12	0.20	0.25
	最大损耗角正切	∅12.5~∅16	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 测试频率: 120Hz												
	Rated Voltage (V) 额定工作电压			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(-40°C) / Z(20°C)			15	8	6	4	4	3	3	4	3	6	
		∅12.5~∅16	Z(-25°C) / Z(20°C)	7	5	4	3	2	2	2	2	2	2
	Z(-40°C) / Z(20°C)		17	12	10	8	5	4	3	3	6	10	
Load Life 高温负荷特性	After 2000 hrs. (1000 hrs. for ∅4~∅6.3×5.4) application of the rated voltage at 105°C, they meet the characteristics listed below. 在 105°C 环境中施加额定工作电压 2000 小时 (∅4~∅6.3×5.4 为 1000 小时) 后, 电容器的特性符合下表的要求。												
	Capacitance Change 静电容量变化率			Within ±20% of initial value for capacitors of 10V or more (Within ±30% of initial value for capacitors of 4V or less) ≥10V 为初始值的±20%以内 (≤4V 为初始值的±30%以内)									
	Dissipation Factor 损耗角正切			200% or less of initial specified value 不大于规范值的 200%									
	Leakage Current 漏电流			initial specified value or less 不大于规范值									
Shelf Life 高温贮存特性	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 环境中无负荷放置 1000 小时后, 电容器的特性符合高温负荷特性中所列的规定值。												
Resistance to Soldering Heat 耐焊接热特性	After reflow soldering and restored at room temperature, they meet the characteristics listed below. 经过回流焊并冷却至室温后, 电容器的特性符合下表的要求。												
	Capacitance Change 静电容量变化率			Within ±10% of initial value 初始值的±10%以内									
	Dissipation Factor 损耗角正切			initial specified value or less 不大于规范值									
	Leakage Current 漏电流			initial specified value or less 不大于规范值									
Marking 标示	Black print on the case top. 铝壳顶部黑字印刷。												

DRAWING (Unit: mm) 外形图



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: 以上所提供的设计及特性参数仅供参考, 任何修改不作预先通知。如果在使用上有疑问, 请在采购前与我们联系, 以便提供技术上的协助。



□ DIMENSIONS (Unit: mm) 尺寸表

∅D × L	4 × 5.4	5 × 5.4	6.3 × 5.4	6.3 × 7.7	8 × 6.2	8 × 10.5	10 × 10.5	10 × 12.5	12.5 × 13.5	12.5 × 16	16 × 16.5
A	2.0	2.2	2.6	2.6	3.3	3.0	3.2	3.2	4.6	4.6	5.8
B	4.3	5.3	6.6	6.6	8.3	8.3	10.3	10.3	12.8	12.8	17.0
C	4.3	5.3	6.6	6.6	8.3	8.3	10.3	10.3	12.8	12.8	17.0
E ± 0.2	1.0	1.5	2.1	2.1	2.2	3.1	4.6	4.6	4.6	4.6	6.4
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 规格尺寸及最大允许纹波电流

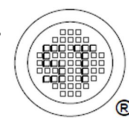
μF	WV Code 代码	4		6.3		10		16		25	
		0G		0J		1A		1C		1E	
4.7	4R7									4 × 5.4	13
10	100			4 × 5.4	18			4 × 5.4	18	5 × 5.4 (4 × 5.4)	20 (14)
22	220			4 × 5.4	22	5 × 5.4 (4 × 5.4)	25 (20)	5 × 5.4 (4 × 5.4)	27 (20)	6.3 × 5.4 (5 × 5.4)	36 (25)
33	330	5 × 5.4 (4 × 5.4)	30 (18)	5 × 5.4 (4 × 5.4)	27 (22)	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)	8 × 10.5	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 × 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
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		
4700	472	12.5 × 13.5	600	16 × 16.5	1000					Case size 尺寸	Ripple current 纹波电流
6800	682	16 × 16.5 (12.5 × 16)	950 (650)								

μF	WV Code 代码	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 × 7.7 8 × 6.2 8 × 10.5	35 77
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 (84)	6.3 × 7.7 8 × 6.2	60 84	8 × 10.5	112	10 × 10.5	133
								Case size 尺寸	Ripple current 纹波电流

•Case size ∅D×L(mm), ripple current (mA rms) at 105°C 120Hz •尺寸∅D×L(mm), 纹波电流(mA rms)于 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：以上所提供的设计及特性参数仅供参考，任何修改不作预先通知。如果在使用上有疑问，请在采购前与我们联系，以便提供技术上的协助。



□ DIMENSIONS & MAXIMUM PERMISSIBLE RIPPLE CURRENT 规格尺寸及最大允许纹波电流

μF	Code 代码	35		50		63		100	
		1V		1H		1J		2A	
47	470	6.3 × 7.7 (6.3 × 5.4)	70 (50)	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)
68	680	6.3 × 5.4	75			10 × 10.5	175	12.5 × 13.5 (10 × 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)	170 (140)	12.5 × 13.5 (10 × 12.5) (10 × 10.5)	270 (210) (196)	16 × 16.5 (12.5 × 13.5)	450 (380)
150	151	8 × 10.5	155	10 × 10.5	170	10 × 12.5	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		
470	471	12.5 × 13.5 10 × 10.5 (10 × 12.5)	520 305 (375)	12.5 × 13.5 16 × 16.5 (12.5 × 16)	240 700 (520)	16 × 16.5	750		
680	681	12.5 × 13.5 (10 × 12.5)	530 (395)	16 × 16.5	750			Case size 尺寸	Ripple current 纹波电流
1000	102	16 × 16.5 (12.5 × 16)	750 (600)	16 × 16.5	800				

μF	Code 代码	160		200					
		2C		2D					
1	010	6.3 × 7.7	45						
47	470			16 × 16.5	320			Case size 尺寸	Ripple current 纹波电流

•Case size ØD×L(mm), ripple current (mA rms) at 105°C 120Hz •尺寸ØD×L(mm), 纹波电流(mA rms)于 105°C 120Hz

□ FREQUENCY COEFFICIENT OF ALLOWABLE RIPPLE CURRENT 纹波电流频率补偿系数

Frequency 频率			50Hz	120Hz	300Hz	1KHz	10KHz~
Coefficient 系数	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 ~ 6800μF	0.85	1.00	1.10	1.13	1.15

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：以上所提供的设计及特性参数仅供参考，任何修改不作预先通知。如果在使用上有疑问，请在采购前与我们联系，以便提供技术上的协助。

