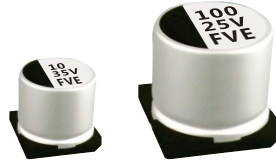


标准品

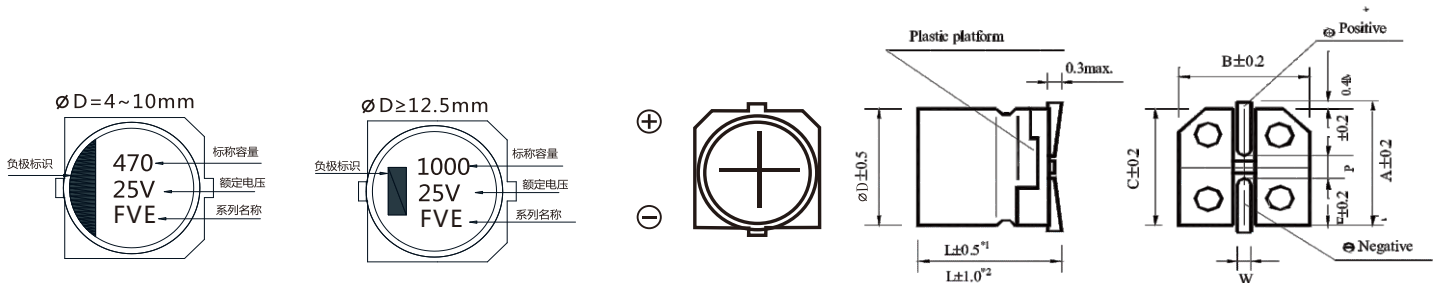
- Operating with general temperature range $-40\sim+105^{\circ}\text{C}$
适用于 $-40\sim+105^{\circ}\text{C}$ 的常规温度范围
- Load life of 2000 hours
负荷寿命2000 小时
- Comply with the RoHS directive
符合 RoHS 指令



□ SPECIFICATIONS 特性表

Items 项目	Characteristics 主要特性											
Operation Temperature Range 使用温度范围	$-40\sim+105^{\circ}\text{C}$											
Voltage Range 额定工作电压范围	4 ~ 450V											
Capacitance Range 静电容量范围	0.1 ~ 6800 μF											
Capacitance Tolerance 静电容量允许偏差	$\pm 20\%$ at 120Hz, 20°C											
Leakage Current 漏电流	Rated Voltage 额定工作电压	6.3 ~ 100V	160 ~ 450V									
	Case size 尺寸	$\varnothing 4\sim\varnothing 10$	$\varnothing 12.5\sim\varnothing 16$	$\varnothing 6.3\sim\varnothing 16$								
	Time 时间	after 2min. (application of rated voltage) 2 分钟后 (施加额定工作电压)	after 1min. (application of rated voltage) 1 分钟后 (施加额定工作电压)	after 2min. (application of rated voltage) 2 分钟后 (施加额定工作电压)								
	Leakage current 漏电流	$\leq 0.01\text{CV}$ or $3\mu\text{A}$, whichever is greater $\leq 0.01\text{CV}$ 或 $3\mu\text{A}$, 取较大值	$\leq 0.03\text{CV}$ or $4\mu\text{A}$, whichever is greater $\leq 0.03\text{CV}$ 或 $4\mu\text{A}$, 取较大值	$\leq 0.04\text{CV}+100\mu\text{A}$, whichever is greater $\leq 0.04\text{CV}+100\mu\text{A}$, 取较大值								
Dissipation Factor ($\tan \delta$) 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
Stability at Low Temperature 低温特性	Impedance Ratio 阻抗比	$\varnothing 4\sim\varnothing 10$	Z(-25°C)/Z(20°C)	7	4	3	2	2	2	2	2	3
	ZT/Z20 (max.)	$\varnothing 12.5\sim\varnothing 16$	Z(-40°C)/Z(20°C)	15	8	6	4	4	3	3	3	6
Load Life 高温负荷特性	Measurement frequency 测试频率: 120Hz											
	Rated Voltage (V) 额定工作电压	4	6.3	10	16	25	35	50~100	160~250	350~450		
Shelf Life 高温贮存特性	Capacitance Change 静电容量变化率	Within $\pm 20\%$ of initial value (Within $\pm 30\%$ of initial value for 10V) 初始值的 $\pm 20\%$ 以内 ($\leq 10\text{V}$ 为 $\pm 30\%$ 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										
Resistance to Soldering Heat 耐焊接热特性	Capacitance Change 静电容量变化率	Within $\pm 10\%$ of initial value 初始值的 $\pm 10\%$ 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 标识	Black print on the case top. 铝壳顶部黑字印刷											

□ DRAWING (Unit: mm) 外形图



*1. Applicable to $\varnothing 4\sim\varnothing 10\times 13.5$ 适用于 $\varnothing 4\sim\varnothing 10\times 13.5$
*2. Applicable to $\varnothing 12.5\sim\varnothing 16$ 适用于 $\varnothing 12.5\sim\varnothing 16$

* A pressure relief vent is attached to products over $\varnothing D=8\times 10.5$
* $\varnothing D=8\times 10.5$ 以上产品有缓压防爆阀

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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	5.1	6.1	7.3	7.3	9.2	11.2	11.2	13.8	13.8	18.0
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
P ± 0.2	1.0	1.3	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	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

WV Code μF 代码	4		6.3		10		16		25	
	0G		0J		1A		1C		1E	
4.7 4R7									4 x 5.4	19
10 100							4 x 5.4	25	5 x 5.4 (4 x 5.4)	28 (20)
15 150							4 x 5.4	28	5 x 5.4	34
22 220			4 x 5.4	31	5 x 5.4 (4 x 5.4)	35 (28)	5 x 5.4 (4 x 5.4)	39 (28)	6.3 x 5.4 (5 x 5.4)	52 (35)
33 330	4 x 5.4	26	5 x 5.4 (4 x 5.4)	39 (31)	5 x 5.4 (4 x 5.4)	43 (32)	6.3 x 5.4 (5 x 5.4)	57 (40)	6.3 x 5.4 (5 x 5.4)	63 (42)
47 470	4 x 5.4	34	5 x 5.4 (4 x 5.4)	47 (36)	5 x 5.4	43	6.3 x 5.4 (5 x 5.4)	68 (44)	6.3 x 5.4	68
56 560	4 x 5.4	39	5 x 5.4	46	6.3 x 5.4	57	6.3 x 5.4	74	6.3 x 5.4	82
68 680	5 x 5.4	45	6.3 x 5.4 (5 x 5.4)	62 (52)	6.3 x 5.4	72	6.3 x 5.4	80	6.3 x 5.4	94
100 101	5 x 5.4	61	6.3 x 5.4 (5 x 5.4)	71 (55)	6.3 x 5.4 (5 x 5.4)	76 (70)	6.3 x 5.4	86	6.3 x 7.7	130
150 151	6.3 x 5.4	74	6.3 x 5.4	78	6.3 x 5.4	88	6.3 x 7.7	135	8 x 10.5 (6.3 x 7.7)	200 (130)
220 221	6.3 x 5.4	82	6.3 x 5.4	95	6.3 x 7.7	150	8 x 10.5 (6.3 x 7.7)	215 (150)	8 x 10.5	250
330 331	6.3 x 7.7	150	6.3 x 7.7	150	8 x 10.5	280	8 x 10.5	280	10 x 10.5 (8 x 10.5)	340 (310)
470 471	6.3 x 7.7	150	8 x 10.5 (6.3 x 7.7)	300 (150)	10 x 10.5 (8 x 10.5)	320 (300)	10 x 10.5 (8 x 10.5)	420 (330)	10 x 10.5	400
680 681	8 x 10.5	300	8 x 10.5	300	10 x 10.5	380	10 x 10.5	450	10 x 13.5	550
1000 102	8 x 10.5	330	10 x 10.5 (8 x 10.5)	430 (330)	10 x 10.5	450	12.5 x 13.5 (10 x 13.5) (10 x 10.5)	710 (550) (490)	12.5 x 13.5	820
1500 152	10 x 10.5	450	10 x 13.5 (10 x 10.5)	650 (450)	10 x 13.5	650	12.5 x 13.5	750	12.5 x 16	1000
2200 222	10 x 13.5 (10 x 10.5)	620 (480)	12.5 x 13.5 (10 x 13.5)	890 (720)	12.5 x 13.5	960	16 x 16.5 (12.5 x 16)	1150 (1000)	16 x 16.5	1250
3300 332	10 x 13.5	700	12.5 x 16 (12.5 x 13.5)	1000 (900)	16 x 16.5 (12.5 x 16)	1300 (1050)	16 x 16.5	1350		
4700 472	12.5 x 13.5	850	16 x 16.5	1400	16 x 16.5	1450			Case size 尺寸	Ripple current 纹波电流
6800 682	16 x 16.5 (12.5 x 16)	1350 (900)								

WV Code μF 代码	35		50		63		100	
	1V		1H		1J		2A	
0.1 0R1			4 x 5.4	1.0	4 x 5.4	1.0		
0.22 R22			4 x 5.4	2.3	4 x 5.4	2.3		
0.33 R33			4 x 5.4	3.5	4 x 5.4	3.5		
0.47 R47			4 x 5.4	5.0	4 x 5.4	5.0		
1 010			4 x 5.4	10	4 x 5.4	10	4 x 5.4	10
1.5 1R5			4 x 5.4	12	4 x 5.4	12	6.3 x 5.4	15
2.2 2R2			4 x 5.4	15	4 x 5.4	15	6.3 x 5.4	20
3.3 3R3	4 x 5.4	18	4 x 5.4	18	5 x 5.4	20	6.3 x 7.7 (6.3 x 5.4)	45 (28)
4.7 4R7	4 x 5.4	20	5 x 5.4 (4 x 5.4)	23 (19)	5 x 5.4	23	6.3 x 7.7 (6.3 x 5.4)	50 (30)
10 100	5 x 5.4 (4 x 5.4)	30 (20)	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)	110 (50)
22 220	6.3 x 5.4 (5 x 5.4)	54 (42)	6.3 x 5.4	60	8 x 10.5 (6.3 x 7.7)	140 (70)	10 x 10.5 (8 x 10.5)	180 (120)
33 330	6.3 x 5.4	60	6.3 x 7.7	85	8 x 10.5 (6.3 x 7.7)	160 (85)	10 x 10.5	190
47 470	6.3 x 5.4 (6.3 x 7.7)	70 (90)	10 x 10.5 (8 x 10.5) (6.3 x 7.7)	130 (110) (90)	10 x 10.5 (8 x 10.5)	230 (170)	Case size 尺寸	Ripple current 纹波电流

● Case size $\varnothing D \times L$ (mm), ripple current (mA rms) at 85°C, 120Hz ● 尺寸 $\varnothing D \times L$ (mm), 纹波电流 (mA rms) 于 105°C, 120Hz

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

wv Code μF 代码	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)
56	560	6.3 × 7.7	80	6.3 × 7.7	110	10 × 10.5	250				
68	680	6.3 × 7.7	110	8 × 10.5	170	10 × 10.5	260				
100	101	8 × 10.5 (6.3 × 7.7)	175 (120)	10 × 10.5 (8 × 10.5)	240 (200)	12.5 × 13.5 (10 × 13.5) (10 × 10.5)	380 (290) (280)	12.5 × 13.5	440	16 × 16.5	250
150	151	8 × 10.5	220	10 × 10.5	240	10 × 13.5	310				
220	221	10 × 10.5 (8 × 10.5)	310 (270)	10 × 13.5 (10 × 10.5)	400 (320)	12.5 × 13.5	580	16 × 16.5	700		
330	331	10 × 10.5	350	12.5 × 13.5 (10 × 13.5)	600 (420)	16 × 16.5 (12.5 × 16)	820 (720)				
470	471	12.5 × 13.5 (10 × 13.5) (10 × 10.5)	600 (530) (400)	16 × 16.5 (12.5 × 16)	850 (740)	16 × 16.5	950				
680	681	12.5 × 13.5	750	16 × 16.5	950					Case size 尺寸	Ripple current 纹波电流
1000	102	16 × 16.5 (12.5 × 16)	1100 (800)								

Code μF 代码	200		250		350		400		450		
	2D		2E		2V		2G		2W		
3.3	3R3						10 × 13.5	40	10 × 13.5	40	
4.7	4R7			10 × 13.5		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						
100	101									Case size 尺寸	Ripple current 纹波电流

• Case size $\varnothing D \times L$ (mm), ripple current (mA rms) at 85°C, 120Hz • 尺寸 $\varnothing D \times L$ (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	$\varnothing 4 \sim \varnothing 10$	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

• The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5°C rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

• 铝电解电容器由于在纹波电流叠加时自我发热，温度上升而老化，每升温5°C寿命减少一半；要想保持长寿命请在使用过程中降低纹波电流。

• Taping specifications are given in page 20 "Taping Specifications". 编带标准请参阅第 20 页“编带标准”。

• Please refer to page 21 "Package Quantity" for the minimum package quantity. 最小包装数量请参阅第 21 页“包装数量”。

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