

WIDE TEMPERATURE

宽温品

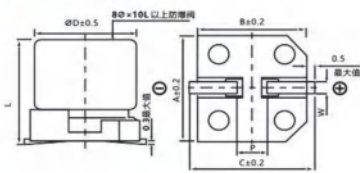
- Operating with wide temperature range -55~+105°C
适用于 -55~+105°C 的宽温范围
- Load life of 2000 hours
负荷寿命2000 小时
- Comply with the RoHS directive
符合 RoHS 指令



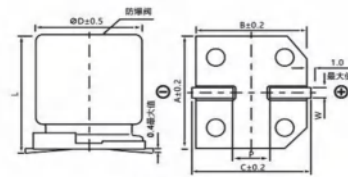
SPECIFICATIONS 特性表

Items 项目	Characteristics 主要特性											
Operation Temperature Range 使用温度范围	6.3~100V:-55~+105°C 160-400V:-40~+105°C 450V:-25~+105°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	±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	Ø4-Ø10	Ø12.5-Ø16	Ø6.3-Ø16								
	Time 时间	after 2min. (application of rated voltage) 2 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)	after 5min. (application of rated voltage) 5 分钟后 (施加额定工作电压)								
	Leakage current 漏电流	≤ 0.01CV or 3 μA, whichever is greater ≤ 0.01CV 或 3 μA, 取较大值	≤ 0.03CV or 4 μA, whichever is greater ≤ 0.03CV 或 4 μA, 取较大值	≤ 0.04CV+100 μA								
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
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	
Load Life 高温负荷特性	Capacitance Change 静电容量变化率	Within ±20% of initial value (Within ±30% of initial value for capacitors of 10V or less) 初始值的 ±20% 以内 (≤ 10V 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	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 标识	Black print on the case top. 铝壳顶部黑字印刷。										

FVH | Chip Type 贴片式



ΦD=4~10 适用



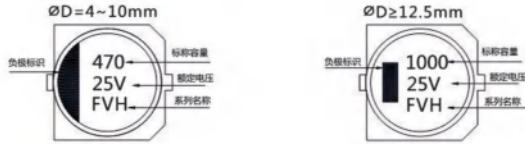
Φ12.5 以上适用

DIMENSIONS (Unit: mm) 尺寸表

DXL	4X5.4	5X5.4	6.3X5.4	6.3X7.7	8X10.5	10X10.5	10X13.5	12.5X13.5	12.5X16	16X16.5
A	4.3	5.3	6.6	6.6	8.3	10.3	10.3	13.0	13.0	17.0
B	4.3	5.3	6.6	6.6	8.3	10.3	10.3	13.0	13.0	17.0
C	5.1	5.9	7.2	7.2	9.2	11.2	11.2	13.7	13.7	18.0
P±0.2	1.0	1.5	2.0	2.0	3.1	4.4	4.4	4.4	4.4	6.4
L	5.4±0.3	5.4±0.3	5.4±0.3	7.7±0.3	10.5±0.5	10.5±0.5	13.5±0.5	13.5±0.5	16±0.5	16.5±0.5



□ DRAWING (Unit: mm) 外形图



□ 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	4 × 5.4	14
10	100							4 × 5.4	19	5 × 5.4 (4 × 5.4)	23 (16)
22	220	4 × 5.4	20	4 × 5.4	23	5 × 5.4 (4 × 5.4)	29 (20)	5 × 5.4 (4 × 5.4)	32 (25)	6.3 × 5.4 (5 × 5.4)	39 (32)
33	330	5 × 5.4 (4 × 5.4)	30 (25)	5 × 5.4 (4 × 5.4)	32 (30)	5 × 5.4 (4 × 5.4)	35 (22)	6.3 × 5.4 (5 × 5.4)	45 (35)	6.3 × 5.4 (5 × 5.4)	48 (35)
47	470	5 × 5.4 (4 × 5.4)	36 (30)	5 × 5.4 (4 × 5.4)	38 (35)	5 × 5.4	38	6.3 × 5.4 (5 × 5.4)	55 (40)	6.3 × 5.4	60
100	101	6.3 × 5.4 (5 × 5.4)	60 (49)	6.3 × 5.4 (5 × 5.4)	65 (54)	6.3 × 5.4 (5 × 5.4)	70 (60)	6.3 × 5.4	80	6.3 × 7.7 (6.3 × 5.4)	100 (80)
150	151	6.3 × 5.4	70	6.3 × 5.4	55	6.3 × 5.4	62	6.3 × 7.7	105	8 × 10.5 (6.3 × 7.7)	140 (120)
220	221	6.3 × 5.4	85	6.3 × 7.7 (6.3 × 5.4)	120 (95)	6.3 × 7.7 (6.3 × 5.4)	120 (95)	8 × 10.5 (6.3 × 7.7)	180 (120)	8 × 10.5	200
330	331	6.3 × 7.7	100	6.3 × 7.7	120	8 × 10.5 (6.3 × 7.7)	200 (135)	8 × 10.5	220	10 × 10.5 (8 × 10.5)	240 (250)
470	471	6.3 × 7.7	105	8 × 10.5 (6.3 × 7.7)	230 (120)	6.3 × 7.7 (8 × 10.5)	120 (230)	10 × 10.5 (8 × 10.5)	300 (270)	10 × 10.5	280
680	681	8 × 10.5	210	8 × 10.5	230	10 × 10.5 (8 × 10.5)	270 (220)	10 × 10.5	315	10 × 13.5	400
1000	102	8 × 10.5	230	10 × 10.5 (8 × 10.5)	340 (290)	10 × 10.5	315	12.5 × 13.5 (10 × 13.5) (10 × 10.5)	500 (390) (340)	12.5 × 13.5	580
1500	152	10 × 10.5	315	10 × 13.5 (10 × 10.5)	450 (410)	10 × 13.5	460	12.5 × 13.5	550	12.5 × 16	850
2200	222	10 × 13.5 (10 × 10.5)	440 (340)	12.5 × 13.5 (10 × 13.5)	620 (500)	12.5 × 13.5	680	16 × 16.5 (12.5 × 16)	950 (750)	16 × 16.5	1050
3300	332	10 × 13.5	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	2	4 × 5.4	2		
0.22	R22			4 × 5.4	4	4 × 5.4	4		
0.33	R33			4 × 5.4	4	4 × 5.4	4		
0.47	R47			4 × 5.4	5	4 × 5.4	5		
1	010			4 × 5.4	8	4 × 5.4	8	4 × 5.4	8
2.2	2R2			4 × 5.4	11	4 × 5.4	11	6.3 × 5.4 (5 × 5.4)	14 (12)
3.3	3R3	4 × 5.4	13	4 × 5.4	14	5 × 5.4	14	6.3 × 7.7 (6.3 × 5.4)	32 (20)
4.7	4R7	4 × 5.4	15	5 × 5.4 (4 × 5.4)	19 (14)	5 × 5.4	19	6.3 × 7.7 (6.3 × 5.4)	35 (21)
10	100	5 × 5.4 (4 × 5.4)	25 (18)	6.3 × 5.4 (5 × 5.4)	31 (20)	6.3 × 7.7 (6.3 × 5.4)	39 (24)	8 × 10.5 (6.3 × 7.7)	77 (35)
22	220	6.3 × 5.4 (5 × 5.4)	42 (34)	6.3 × 7.7 (6.3 × 5.4)	51 (42)	8 × 10.5 (6.3 × 7.7)	98 (49)	10 × 10.5 (8 × 10.5)	126 (84)
33	330	6.3 × 5.4	50	6.3 × 7.7	60	8 × 10.5	112	10 × 10.5	133
47	470	6.3 × 7.7 (6.3 × 5.4)	78 (58)	8 × 10.5 (6.3 × 7.7)	120 (63)	10 × 10.5 (8 × 10.5)	160 (119)	12.5 × 13.5 (10 × 13.5) (10 × 10.5)	250 (160) (140)
68	680					Case size 尺寸	Ripple current 纹波电流	12.5 × 13.5 (10 × 13.5)	300 (180)

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

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

μF	WV Code 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)
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 纹波电流
1500	152	16 × 16.5	750								

μF	WV Code 代码	200		250		350		400		450	
		2D		2E		2V		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	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					Case size 尺寸	Ripple current 纹波电流
47	470	16 × 16.5	220								

• Case size $\varnothing D \times L$ (mm), ripple current (mA rms) at 105°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 10°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10°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。