

## VS型片式铝电解电容

## VS Series Chip Type Aluminum Electrolytic Capacitors

### 特点 Features

- 产品直径 Case diameter:  $\Phi$  4mm –  $\Phi$  18mm.
- 适用于再流焊 Reflow soldering is available.
- 适用于高密度表面组装 Available for high density surface mounting.
- ROHS 指令已对应完毕 Adapted to the ROHS directive.

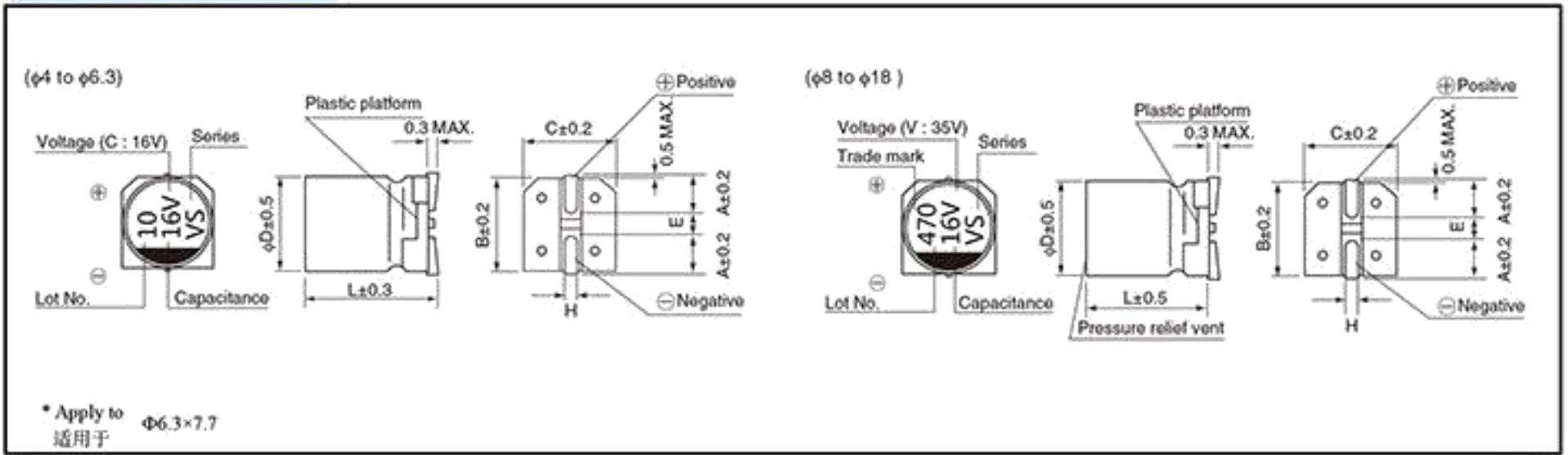


### 主要技术性能 Specifications

项目 Items	特性 Characteristics								
工作温度范围 Operating Temperature Range	-40℃ ~ 85℃								
额定电压范围 Rated Voltage Range	4V ~ 50V								
标称容量范围 Nominal Capacitance Range	0.1 ~ 10000 $\mu$ F								
标称容量允许偏差 Nominal Capacitance Tolerance	$\pm$ 20% (20℃, 120Hz)								
漏电流 Leakage Current	$I \leq 0.01C_R V_R$ or 3( $\mu$ A), 取较大者 (2分钟) $C_R$ : 标称容量 ( $\mu$ F) $U_R$ : 额定电压 (V) $I \leq 0.01C_R V_R$ or 3( $\mu$ A) Whichever is greater(at 20℃, After 2 minutes) $C_R$ : Nominal Capacitance ( $\mu$ F) $U_R$ : Rated voltages (V)								
损耗角正切 (tg $\delta$ ) Dissipation Factor (Max) 20℃, 120Hz	$U_R$ (V)	4	6.3	10	16	25	35	50	
	tg $\delta$	0.35	0.28	0.24	0.20	0.16	0.14	0.12	
容量大于 1000 $\mu$ F 者, 每增加 1000 $\mu$ F, 其损耗角正切值增加 0.02 When nominal capacitance exceeds 1000 $\mu$ F, add 0.02 to the value above for each 1000 $\mu$ F increase									
耐久性 Load Life	+85℃施加额定电压 2000 小时后, 电容器应满足以下要求: After 2000 hours' application of rated voltage at 85℃, the capacitor shall meet the following requirement:								
	容量变化率 Capacitance Change	$\pm$ 20%初始值以内 Within $\pm$ 20% of the initial value							
	损耗角正切 Dissipation Factor	$\leq$ 200%初始规定值 Not more than 200% of the initial specified value							
	漏电流 Leakage Current	$\leq$ 初始规定值 Not more than the initial specified value							
高温贮存 Shelf Life	+85℃贮存 1000 小时后, 电容器应满足以上耐久性要求 After storage for 1000 hours at +85℃, the capacitors shall meet the requirement of load life above								
低温特性 Low Temperature Stability 阻抗比 Impedance Ratio (120Hz)	$U_R$ (V)		4	6.3	10	16	25	35	50
	$Z(-25^\circ\text{C})/Z(+20^\circ\text{C})$	$< \Phi 8$	7	4	3	2	2	2	2
		$\geq \Phi 8$	7	5	4	3	2	2	2
	$Z(-40^\circ\text{C})/Z(+20^\circ\text{C})$	$< \Phi 8$	15	8	8	4	4	3	3
$\geq \Phi 8$		15	10	8	6	4	3	3	
耐焊接热 Resistance to Soldering Heat	在 250℃的条件下, 电容器在热板上保持 30 秒, 然后从热板上取出电容器, 让其在室温下恢复, 电容器应满足以下要求: The capacitors shall be kept on the hot plate maintained at 250℃ for 30 seconds. After removing from the hot plate and restored at room temperature, they meet the following requirement.								
	容量变化率 Capacitance Change	$\pm$ 10%初始值以内 Within $\pm$ 10% of the initial value							
	损耗角正切 Dissipation Factor	$\leq$ 初始规定值 Not more than the initial specified value							
	漏电流 Leakage Current	$\leq$ 初始规定值 Not more than the initial specified value							

# KAWING

## 尺寸图 Dimensions



	4 × 5.4	5 × 5.4	6.3 × 5.4	6.3 × 7.7	6.3 × 10.5	8 × 10.5	8 × 12.5	10 × 10.5	10 × 12.5	12.5 × 13.5	12.5 × 16.5	16 × 16.5	18 × 16.5	18 × 21.5	
A	1.8	2.1	2.4	2.4	2.4	2.9	2.9	3.2	3.2	4.8	4.8	5.8	6.8	6.8	
B	4.3	5.3	6.6	6.6	6.6	8.3	8.3	10.3	10.3	13	13	17	19	19	
C	4.3	5.3	6.6	6.6	6.6	8.3	8.3	10.3	10.3	13	13	17	19	19	
E	1.0	1.3	2.2	2.2	2.2	3.1	3.1	4.5	4.5	4.4	4.4	6.4	6.4	6.4	
L	5.4	5.4	5.4	7.7	10.5	10.5	12.5	10.5	12.5	13.5	16.5	16.5	16.5	21.5	
H	0.5~0.8					0.8~1.1					1.1~1.4				

(mm)

### ■ 标称电容量、额定电压、额定纹波电流与外形尺寸对应表

#### Nominal capacitance, rated voltage, rated ripple current and case size table

V uF	4		6.3		10		16		25		35		50	
	D×L mm	I~ mA	D×L mm	I~ mA	D×L mm	I~ mA	D×L mm	I~ mA	D×L mm	I~ mA	D×L mm	I~ mA	D×L mm	I~ mA
0.1													4×5.4	3.2
0.22													4×5.4	4.7
0.33													4×5.4	5.7
0.47													4×5.4	6.8
1.0													4×5.4	10
2.2									4×5.4	16	4×5.4	16	4×5.4	15
3.3									4×5.4	18	4×5.4	18	4×5.4	18
4.7									4×5.4	22	4×5.4	20	4×5.4	18
													5×5.4	25
10							4×5.4	26	4×5.4	24	4×5.4	24	5×5.4	30
									5×5.4	32	5×5.4	34	6.3×5.4	40
22			4×5.4	31	4×5.4	30	4×5.4	30	5×5.4	38	5×5.4	39	6.3×5.4	43
									5×5.4	44	6.3×5.4	55	6.3×5.4	59
33	4×5.4	32	4×5.4	31	4×5.4	34	5×5.4	44	5×5.4	46			6.3×5.4	65
			5×5.4	44	5×5.4	48	6.3×5.4	63	6.3×5.4	67	6.3×5.4	65	6.3×7.7	94
47	4×5.4	32	4×5.4	40	4×5.4	35	5×5.4	52			6.3×5.4	70	6.3×5.4	70
			5×5.4	52	5×5.4	48	6.3×5.4	75	6.3×5.4	70			6.3×7.7	94
													6.3×7.7	132
100	5×5.4	60	5×5.4	55	5×5.4	54	6.3×5.4	103			6.3×7.7	143	8×10.5	175
			6.3×5.4	89	6.3×5.4	90	6.3×7.7	110	6.3×7.7	143			10×10.5	250
150	6.3×5.4	100	6.3×5.4	95	6.3×5.4	90	6.3×7.7	130	8×10.5	210	8×10.5	190	10×10.5	280
220	6.3×5.4	120	6.3×5.4	100	6.3×5.4	95	6.3×7.7	162	8×10.5	230	8×10.5	200		
			6.3×7.7	170	6.3×7.7	173	8×10.5	280	10×10.5	310	10×10.5	310	10×10.5	320
330	6.3×7.7	200	6.3×7.7	188	6.3×7.7	175	8×10.5	320	8×10.5	270			10×10.5	400
									10×10.5	340	10×10.5	360	10×10.5	400

V uF	4		6.3		10		16		25		35		50	
	D×L mm	I~ mA	D×L mm	I~ mA	D×L mm	I~ mA	D×L mm	I~ mA	D×L mm	I~ mA	D×L mm	I~ mA	D×L mm	I~ mA
470	6.3×7.7	240	6.3×7.7	210	6.3×7.7	190	8×10.5	350	10×10.5	380	10×10.5	420	12.5×13.5	600
			8×10.5	330	8×10.5	390	10×10.5	420						
680	8×10.5	400	8×10.5	350	8×10.5	400	10×10.5	450	10×10.5	450	12.5×13.5	680	16×16.5	1000
					10×10.5	500								
1000	8×10.5	450	8×10.5	370	10×10.5	580	10×10.5	500	12.5×13.5	750	16×16.5	1100	18×16.5	1350
			10×10.5	700										
1500	10×10.5	750	10×10.5	750	12.5×13.5	790	12.5×13.5	850	16×16.5	1000	16×16.5	1200		
2200			12.5×13.5	890	12.5×13.5	890	16×16.5	1100	16×16.5	1100	18×16.5	1450		
3300			12.5×16.5	1000	16×16.5	1300	16×16.5	1300	18×16.5	1450	18×21.5	1750		
4700			16×16.5	1400	16×16.5	1400	18×16.5	1600	18×21.5	1750				
6800			18×16.5	1700	18×16.5	1700	18×21.5	2000						
10000			18×21.5	2000	18×21.5	2000								

I~ = Rated ripple current (mA) (85°C, 120Hz) I~ = 额定纹波电流 (mA) (85°C, 120Hz)

#### ■ 额定纹波电流的频率系数

##### Frequency coefficient of ripple current

Frequency 频率	50Hz	120Hz	300Hz	1KHz	10K~100Hz
Coefficient 系数	0.70	1.00	1.17	1.36	1.50