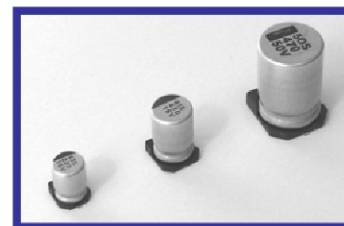


V-CHIP ALUMINUM ELECTROLYTIC CAPACITORS

SS Standard 标准品

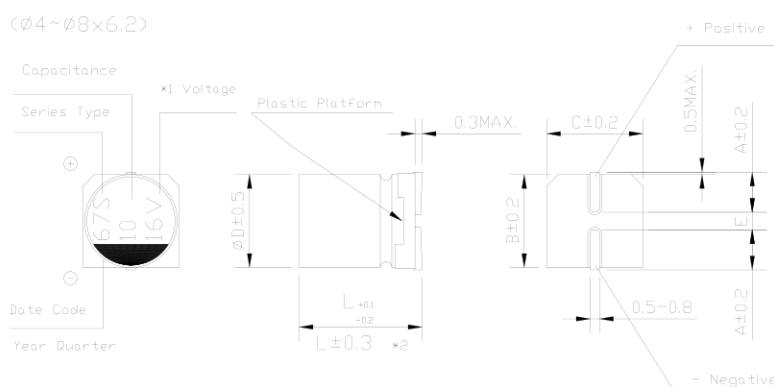
- Designed for surface mounting on density circuit board.
- Emboss carrier tape packing system is available for automatic insertion.
- Lead-free reflow soldering is available subject to customers' request.



◆ Specifications 特性

Items 项目	Performance Characteristics 主要特性																																																													
Operating Temperature Range 使用温度范围	-40~+85℃																																																													
Voltage Range 额定工作电压范围	4~100V																																																													
Capacitance Range 静电容量范围	0.1~6800 μ F																																																													
Capacitance Tolerance 静电容量允许偏差	±20% at 120 Hz, 20℃																																																													
Leakage Current 漏电流	For Φ4~Φ10, after 2 minutes' application of rated voltage, leakage current is not more than 0.01CV or 3(μ A), whichever is greater. For Φ12.5~Φ16, after 1 minute's application of rated voltage, leakage current is not more than 0.03CV or 4(μ A), whichever is greater. Φ4~Φ10: 施加额定工作电压 2 分钟, LC≤0.01CV 或 3(μ A), 取较大值; Φ12.5~Φ16: 施加额定工作电压 1 分钟, LC≤0.03CV 或 4(μ A), 取较大值。																																																													
Tan δ 损耗角正切	Measurement frequency 测试频率: 120Hz, Temperature 温度: 20℃ <table><tr><td colspan="2">Rated voltage (V.DC) 额定工作电压</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 rowspan="2">Tan δ 损耗角正切(max)</td><td>Φ4~Φ10</td><td>0.35</td><td>0.26</td><td>0.20</td><td>0.16</td><td>0.14</td><td>0.12</td><td>0.12</td><td>0.10</td><td>0.10</td></tr><tr><td>Φ12.5~Φ16</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>0.14</td><td>0.10</td></tr></table>											Rated voltage (V.DC) 额定工作电压		4	6.3	10	16	25	35	50	63	100	Tan δ 损耗角正切(max)	Φ4~Φ10	0.35	0.26	0.20	0.16	0.14	0.12	0.12	0.10	0.10	Φ12.5~Φ16	0.42	0.38	0.34	0.30	0.26	0.22	0.18	0.14	0.10																			
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Stability at Low Temperature 低温特性	Measurement frequency 测试频率: 120Hz <table><tr><td colspan="2">Rated voltage (V.DC) 额定工作电压</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 rowspan="2">Impedance ratio 阻抗比</td><td rowspan="2">Φ4~Φ10</td><td>Z(-25℃)/Z(20℃)</td><td>7</td><td>4</td><td>3</td><td>2</td><td>2</td><td>2</td><td>2</td><td>2</td></tr><tr><td>Z(-40℃)/Z(20℃)</td><td>15</td><td>8</td><td>6</td><td>4</td><td>4</td><td>3</td><td>3</td><td>3</td></tr><tr><td rowspan="2">ZT/Z20 (max)</td><td rowspan="2">Φ12.5~Φ16</td><td>Z(-25℃)/Z(20℃)</td><td>7</td><td>5</td><td>4</td><td>3</td><td>2</td><td>2</td><td>2</td><td>2</td></tr><tr><td>Z(-40℃)/Z(20℃)</td><td>17</td><td>12</td><td>10</td><td>8</td><td>5</td><td>4</td><td>3</td><td>3</td></tr></table>											Rated voltage (V.DC) 额定工作电压		4	6.3	10	16	25	35	50	63	100	Impedance ratio 阻抗比	Φ4~Φ10	Z(-25℃)/Z(20℃)	7	4	3	2	2	2	2	2	Z(-40℃)/Z(20℃)	15	8	6	4	4	3	3	3	ZT/Z20 (max)	Φ12.5~Φ16	Z(-25℃)/Z(20℃)	7	5	4	3	2	2	2	2	Z(-40℃)/Z(20℃)	17	12	10	8	5	4	3	3
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		Z(-40℃)/Z(20℃)	17	12	10	8	5	4	3	3																																																				
Load Life 高温负荷特性	After 2000 hours' application of rated voltage at 85℃, capacitors meet the characteristics requirements listed at right. 在 85℃ 环境中施加额定工作电压 2000 小时后, 电容器的特性符合右表的要求。 <table><tr><td>Capacitance Change 静电容量变化率</td><td>Within ±20% of the initial value 初始值的±20%以内 (Within ±30% of the initial value for 4V) 4V 产品为±30%以内</td></tr><tr><td>Tan δ 损耗角正切</td><td>200% or less of the initial specified value 不大于规范值的 200%</td></tr><tr><td>Leakage Current 漏电流</td><td>Initial specified value or less 不大于规范值</td></tr></table>											Capacitance Change 静电容量变化率	Within ±20% of the initial value 初始值的±20%以内 (Within ±30% of the initial value for 4V) 4V 产品为±30%以内	Tan δ 损耗角正切	200% or less of the 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																																													
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Leakage Current 漏电流	Initial specified value or less 不大于规范值																																																													
Shelf Life 高温储存特性	After leaving capacitors under no load at 85℃ for 1000 hours, they meet the specified value for load life characteristics listed above. 在 85℃ 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 requirements listed at right. 经过回流焊并冷却至室温后, 电容器的特性符合右表的要求。 <table><tr><td>Capacitance Change 静电容量变化率</td><td>Within ±10% of the initial value 初始值的±10%以内</td></tr><tr><td>Tan δ 损耗角正切</td><td>Initial specified value or less 不大于规范值</td></tr><tr><td>Leakage Current 漏电流</td><td>Initial specified value or less 不大于规范值</td></tr></table>											Capacitance Change 静电容量变化率	Within ±10% of the initial value 初始值的±10%以内	Tan δ 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																																													
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Applicable Standards 适用标准	JIS C-5141 and JIS C-5102																																																													

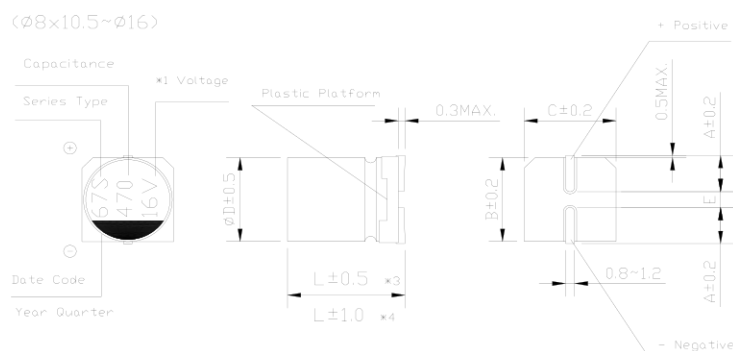
◆ Dimensions & Marking 尺寸及印字





V-CHIP ALUMINUM ELECTROLYTIC CAPACITORS

SS Series



*1 Voltage mark [6V] represents 6.3V for $\Phi 4 \sim \Phi 10$;

*2 $[L \pm 0.3]$ is applicable to $\Phi 6.3 \times 7.7$ and $\Phi 8 \times 6.2$;

*3 $[L \pm 0.5]$ is applicable to $\Phi 8 \times 10.5 \sim \Phi 10$;

*4 $[L \pm 1.0]$ is applicable to $\Phi 12.5 \sim \Phi 16$.

Re: Date code and series type — 1st digit for Year; 2nd digit for Quarter, 4 quarter codes in one year are 1, 4, 7, 0; 3rd character for Series; SS Series = S.

(mm)

D×L	Φ4×5.4	Φ5×5.4	Φ6.3×5.4	Φ6.3×7.7	Φ8×6.2	Φ8×10.5	Φ10×10.5	Φ10×13.5	Φ12.5×13.5	Φ12.5×16	Φ16×16.5
A	1.8	2.1	2.4	2.4	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

◆ Standard size & Maximum permissible ripple current 规格壳号及最大允许纹波电流

容量 Cap.(μF)	WV 电压	4		6.3		10		16		25	
		0G		0J		1A		1C		1E	
4.7	4R7									4×5.4	19
10	100							4×5.4	25	5×5.4 (4×5.4)	28 (20)
15	150							4×5.4	28	5×5.4	34
22	220			4×5.4	31	5×5.4 (4×5.4)	35 (28)	5×5.4 (4×5.4)	39 (28)	6.3×5.4 (5×5.4)	52 (35)
33	330	4×5.4	26	5×5.4 (4×5.4)	39 (31)	5×5.4 (4×5.4)	43 (32)	6.3×5.4 (5×5.4)	57 (40)	6.3×5.4 (5×5.4)	63 (42)
47	470	4×5.4	34	5×5.4 (4×5.4)	47 (36)	6.3×5.4 (5×5.4)	59 (43)	6.3×5.4 (5×5.4)	68 (44)	6.3×5.4	68
56	560	4×5.4	39	5×5.4	46	6.3×5.4	57	6.3×5.4	74	6.3×5.4	82
68	680	5×5.4	45	6.3×5.4 (5×5.4)	62 (52)	6.3×5.4	72	6.3×5.4	80	6.3×5.4	94
100	101	5×5.4	61	6.3×5.4 (5×5.4)	71 (55)	6.3×5.4	76	6.3×5.4 (8×6.2)	86 (200)	6.3×7.7 (8×6.2)	130 (91)
150	151	6.3×5.4	74	6.3×5.4	78	6.3×5.4	88	6.3×7.7	135	8×10.5 (6.3×7.7)	200 (130)
220	221	6.3×5.4	82	6.3×5.4	95	6.3×7.7 (8×6.2)	150 (250)	8×10.5 (6.3×7.7) (8×6.2)	215 (150) (135)	8×10.5	250
330	331	6.3×7.7	150	6.3×7.7 (8×6.2)	150 (300)	8×10.5	280	8×10.5	280	10×10.5 (8×10.5)	340 (310)
470	471	6.3×7.7	150	8×10.5 (6.3×7.7)	300 (150)	10×10.5 (8×10.5)	320 (300)	10×10.5 (8×10.5)	420 (330)	10×10.5	400
680	681	8×10.5	300	8×10.5	300	10×10.5	380	10×10.5	450	10×13.5	550
1000	102	8×10.5	330	10×10.5 (8×10.5)	430 (330)	10×10.5	450	12.5×13.5 (10×13.5) (10×10.5)	710 (550) (490)	12.5×13.5	820
1500	152	10×10.5	450	10×13.5 (10×10.5)	650 (450)	10×13.5	650	12.5×13.5	750	12.5×16	1000
2200	222	10×13.5 (10×10.5)	620 (480)	12.5×13.5 (10×13.5)	890 (720)	12.5×13.5	960	16×16.5 (12.5×16)	1150 (1000)	16×16.5	1250
3300	332	10×13.5	700	12.5×16 (12.5×13.5)	1000 (900)	16×16.5 (12.5×16)	1300 (1050)	16×16.5	1350		
4700	472	12.5×13.5	850	16×16.5	1400	16×16.5	1450				
6800	682	16×16.5 (12.5×16)	1350 (900)							Case Size	Ripple Current

Ripple Current (mA rms) at 85°C 120Hz



V-CHIP ALUMINUM ELECTROLYTIC CAPACITORS

SS Series

◆ **Standard size & Maximum permissible ripple current** 规格壳号及最大允许纹波电流

WV 电压 容量 Cap.(μ F)		35		50		63		100	
		1V		1H		1J		2A	
0.1	0R1			4×5.4	1.0	4×5.4	1.0		
0.22	R22			4×5.4	2.3	4×5.4	2.3		
0.33	R33			4×5.4	3.5	4×5.4	3.5		
0.47	R47			4×5.4	5.0	4×5.4	5.0		
1	010			4×5.4	10	4×5.4	10	4×5.4	10
1.5	1R5			4×5.4	12	4×5.4	12	6.3×5.4	15
2.2	2R2			4×5.4	15	4×5.4	15	6.3×5.4	20
3.3	3R3	4×5.4	18	4×5.4	18	5×5.4	20	6.3×7.7 (6.3×5.4) (8×6.2)	45 (28) (50)
4.7	4R7	4×5.4	20	5×5.4 (4×5.4)	23 (19)	6.3×5.4 (5×5.4)	30 (23)	6.3×7.7 (6.3×5.4) (8×6.2)	50 (30) (50)
10	100	5×5.4 (4×5.4)	30 (20)	6.3×5.4 (5×5.4)	34 (27)	6.3×7.7 (6.3×5.4)	55 (34)	8×10.5 (6.3×7.7) (8×6.2)	110 (50) (50)
22	220	6.3×5.4	54	6.3×5.4 (8×6.2)	60 (120)	8×10.5 (6.3×7.7) (8×6.2)	140 (70) (35)	10×10.5 (8×10.5)	180 (120)
33	330	6.3×5.4 (8×6.2)	60 (130)	6.3×7.7 (8×6.2)	85 (65)	8×10.5 (6.3×7.7)	160 (85)	10×10.5	190
47	470	6.3×5.4 (8×6.2)	70 (165)	10×10.5 (8×10.5) (6.3×7.7)	130 (110) (90)	10×10.5 (8×10.5)	230 (170)	12.5×13.5 (10×13.5) (10×10.5)	330 (220) (200)
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	12.5×13.5 (10×13.5)	380 (250)
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
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 (10×13.5)	580 (330)	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 (10×13.5)	750 (560)	16×16.5	950				
1000	102	16×16.5 (12.5×16)	1100 (800)					Case Size	Ripple Current

Ripple Current (mA rms) at 85°C 120Hz

◆ **Frequency Correction Factor of Rated Ripple Current** 纹波电流频率补偿系数

Frequency Capacitance (μ F)		50Hz	120Hz	300Hz	1kHz	10kHz~
$\Phi 4 \sim \Phi 10$	0.1~68	0.70	1.00	1.17	1.36	1.50
	100~3300	0.85	1.00	1.08	1.20	1.30
$\Phi 12.5 \sim \Phi 16$	~68	0.75	1.00	1.35	1.57	2.00
	100~680	0.80	1.00	1.23	1.34	1.50
	1000~6800	0.85	1.00	1.10	1.13	1.15