

V-CHIP ALUMINUM ELECTROLYTIC CAPACITORS



LZ Low Impedance 低阻抗品

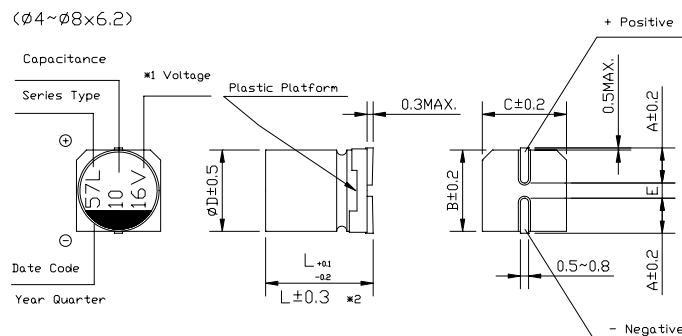
- Low impedance with temperature range -55°C to +105°C and load life of 1000~2000 hours.
- Lead-free reflow soldering is available subject to customers' request.



◆ Specifications 特性

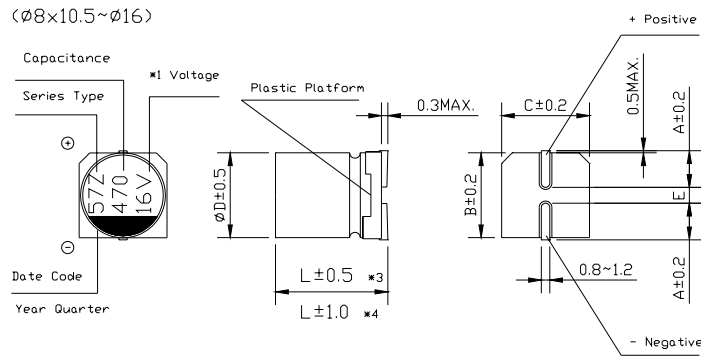
Items 项目	Performance Characteristics 主要特性																																				
Operating Temperature Range 使用温度范围	-55~+105°C																																				
Voltage Range 额定工作电压范围	6.3~50V																																				
Capacitance Range 静电容量范围	1~6800 μF																																				
Capacitance Tolerance 静电容量允许范围	±20% at 120 Hz, 20°C																																				
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(μA), 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(μA), whichever is greater. φ4~φ10: 施加额定工作电压 2 分钟, LC≤0.01CV 或 3(μA), 取较大值; φ12.5~φ16: 施加额定工作电压 1 分钟, LC≤0.03CV 或 4(μA), 取较大值。																																				
Tan δ 损耗角正切	Measurement frequency 测试频率: 120Hz, Temperature 温度: 20°C <table border="1"> <thead> <tr> <th>Rated voltage(V.DC) 额定工作电压</th> <th>6.3</th> <th>10</th> <th>16</th> <th>25</th> <th>35</th> <th>50</th> </tr> </thead> <tbody> <tr> <td>φ4~φ10</td> <td>0.22</td> <td>0.19</td> <td>0.16</td> <td>0.14</td> <td>0.12</td> <td>0.12</td> </tr> <tr> <td>φ12.5~φ16</td> <td>0.26</td> <td>0.22</td> <td>0.18</td> <td>0.16</td> <td>0.14</td> <td>0.12</td> </tr> </tbody> </table>	Rated voltage(V.DC) 额定工作电压	6.3	10	16	25	35	50	φ4~φ10	0.22	0.19	0.16	0.14	0.12	0.12	φ12.5~φ16	0.26	0.22	0.18	0.16	0.14	0.12															
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Stability at Low Temperature 低温特性	Measurement frequency 测试频率: 120Hz <table border="1"> <thead> <tr> <th colspan="2">Rated voltage(V.DC) 额定工作电压</th> <th>6.3</th> <th>10</th> <th>16</th> <th>25</th> <th>35</th> <th>50</th> </tr> </thead> <tbody> <tr> <td rowspan="2">Impedance ratio 阻抗比</td> <td rowspan="2">φ4~φ10</td> <td>Z(-25°C)/Z(20°C)</td> <td>2</td> <td>2</td> <td>2</td> <td>2</td> <td>2</td> </tr> <tr> <td>Z(-55°C)/Z(20°C)</td> <td>5</td> <td>4</td> <td>4</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°C)/Z(20°C)</td> <td>3</td> <td>2</td> <td>2</td> <td>2</td> <td>2</td> </tr> <tr> <td>Z(-55°C)/Z(20°C)</td> <td>10</td> <td>8</td> <td>6</td> <td>4</td> <td>3</td> </tr> </tbody> </table>	Rated voltage(V.DC) 额定工作电压		6.3	10	16	25	35	50	Impedance ratio 阻抗比	φ4~φ10	Z(-25°C)/Z(20°C)	2	2	2	2	2	Z(-55°C)/Z(20°C)	5	4	4	3	3	ZT/Z20 (max)	φ12.5~φ16	Z(-25°C)/Z(20°C)	3	2	2	2	2	Z(-55°C)/Z(20°C)	10	8	6	4	3
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Load Life 高温负荷特性	After 2000 hours' (1000 hours' for φ4~φ6.3x5.4) application of rated voltage at 105°C, capacitors meet the characteristics requirements listed at right. 在 105°C 环境中施加额定工作电压 2000 小时 (φ4~φ6.3x5.4 为 1000 小时) 后, 电容器的特性符合右表的要求 <table border="1"> <tbody> <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</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> </tbody> </table>	Capacitance Change 静电容量变化率	Within ±20% of the initial value 初始值的 ±20% 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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Shelf Life 高温储存特性	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。																																				
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 border="1"> <tbody> <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> </tbody> </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



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

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

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; LZ Series = L.

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

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

(mm)

DxL	$\Phi 4 \times 5.4$	$\Phi 5 \times 5.4$	$\Phi 6.3 \times 5.4$	$\Phi 6.3 \times 7.7$	$\Phi 8 \times 6.2$	$\Phi 8 \times 10.5$	$\Phi 10 \times 10.5$	$\Phi 10 \times 13.5$	$\Phi 12.5 \times 13.5$	$\Phi 12.5 \times 16$	$\Phi 16 \times 16.5$	$\Phi 16 \times 21.5$
A	1.8	2.1	2.4	2.4	3.3	2.9	3.2	3.2	4.7	4.7	5.5	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	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	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	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	21.5

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

WV 电压 容量 Cap. (μF)		6.3			10			16		
		0J			1A			1C		
10	100							4x5.4	3.0	60
15	150							5x5.4 (4x5.4)	1.8 (3.0)	95 (60)
22	220	4x5.4	3.0	60	5x5.4 (4x5.4)	1.8 (3.0)	95 (60)	5x5.4 (4x5.4)	1.8 (3.0)	95 (60)
33	330	5x5.4 (4x5.4)	1.8 (3.0)	95 (60)	5x5.4 (4x5.4)	1.8 (3.0)	95 (60)	6.3x5.4 (5x5.4)	1.0 (1.8)	140 (95)
47	470	5x5.4 (4x5.4)	1.8 (3.0)	95 (60)	6.3x5.4 (5x5.4)	1.0 (1.8)	140 (95)	6.3x5.4 (5x5.4)	1.0 (1.8)	140 (95)
68	680	6.3x5.4 (5x5.4)	1.0 (1.8)	140 (95)	6.3x5.4	1.0	140	6.3x7.7 (6.3x5.4) (8x6.2)	0.6 (1.0) (0.6)	230 (140) (230)
100	101	6.3x5.4 (5x5.4)	1.0 (1.8)	140 (95)	6.3x7.7 (6.3x5.4) (8x6.2)	0.6 (1.0) (0.6)	230 (140) (230)	6.3x7.7 (6.3x5.4) (8x6.2)	0.6 (1.0) (0.6)	230 (140) (230)
150	151	6.3x7.7 (6.3x5.4)	0.6 (1.0)	230 (140)	6.3x7.7 (6.3x5.4) (8x6.2)	0.6 (1.0) (0.6)	230 (140) (230)	6.3x7.7	0.6	230
220	221	6.3x7.7 (6.3x5.4) (8x6.2)	0.6 (1.0) (0.6)	230 (140) (230)	6.3x7.7	0.6	230	8x10.5 (6.3x7.7) (8x6.2)	0.3 (0.6) (0.6)	450 (230) (230)
330	331	6.3x7.7 (8x6.2)	0.6	230	10x10.5 (8x10.5)	0.15 (0.30)	670 (450)	10x10.5 (8x10.5)	0.15 (0.30)	670 (450)
470	471	8x10.5	0.30	450	10x10.5 (8x10.5)	0.15 (0.30)	670 (450)	10x10.5 (8x10.5)	0.15 (0.30)	670 (450)
680	681	8x10.5	0.30	450	10x10.5	0.15	670	10x10.5	0.15	670
1000	102	10x10.5 (8x10.5)	0.15 (0.30)	670 (450)	10x10.5	0.15	670	10x13.5 (10x10.5)	0.13 (0.15)	750 (670)
1500	152	10x13.5 (10x10.5)	0.13 (0.15)	750 (670)	12.5x13.5 (10x13.5)	0.11 (0.13)	820 (750)	12.5x13.5	0.11	820
2200	222	12.5x13.5 (10x13.5)	0.11 (0.13)	820 (750)	12.5x16	0.09	950	16x16.5 (12.5x16)	0.08 (0.09)	1260 (950)
3300	332	12.5x16 (12.5x13.5)	0.09 (0.11)	950 (820)	16x16.5	0.08	1260	16x21.5 (16x16.5)	0.06 (0.08)	1630 (1260)
4700	472	16x21.5 (16x16.5)	0.06 (0.08)	1630 (1260)	16x21.5 (16x16.5)	0.06 (0.08)	1630 (1260)	16x21.5	0.06	1630
6800	682	16x21.5	0.06	1630	16x21.5	0.06	1630	Case Size	Impedance	Ripple Current

Maximum Impedance (Ω) at 20°C 100kHz, Ripple Current (mA rms) at 105°C 100kHz



V-CHIP ALUMINUM ELECTROLYTIC CAPACITORS

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

WV 电压 容量 Cap. (μF)		25			35			50		
		1E			1V			1H		
1	010				4x5.4	3.0	60	4x5.4	5.0	30
1.5	1R5				4x5.4	3.0	60	4x5.4	5.0	30
2.2	2R2				4x5.4	3.0	60	4x5.4	5.0	30
3.3	3R3				4x5.4	3.0	60	4x5.4	5.0	30
4.7	4R7	4x5.4	3.0	60	4x5.4	3.0	60	5x5.4 (4x5.4)	3.0 (5.0)	50 (30)
6.8	6R8	4x5.4	3.0	60	5x5.4	1.8	95	6.3x5.4	2.0	70
10	100	5x5.4 (4x5.4)	1.8 (3.0)	95 (60)	5x5.4 (4x5.4)	1.8 (3.0)	95 (60)	6.3x5.4	2.0	70
15	150	5x5.4	1.8	95	5x5.4	1.8	95	6.3x5.4	2.0	70
22	220	6.3x5.4 (5x5.4)	1.0 (1.8)	140 (95)	6.3x5.4 (5x5.4)	1.0 (1.8)	140 (95)	6.3x7.7 (6.3x5.4) (8x6.2)	1.0 (2.0) (1.0)	120 (70) (120)
33	330	6.3x5.4 (5x5.4)	1.0 (1.8)	140 (95)	6.3x5.4 (8x6.2)	1.0 (0.6)	140 (230)	6.3x7.7 (8x6.2)	1.0	120
47	470	6.3x7.7 (6.3x5.4) (8x6.2)	0.6 (1.0) (0.6)	230 (140) (230)	6.3x7.7 (6.3x5.4) (8x6.2)	0.6 (1.0) (0.6)	230 (140) (230)	8x10.5 (6.3x7.7) (8x6.2)	0.6 (1.0) (1.0)	300 (120) (120)
68	680	6.3x7.7	0.6	230	6.3x7.7	0.6	230	8x10.5	0.6	300
100	101	6.3x7.7 (8x6.2)	0.6	230	8x10.5	0.30	450	10x10.5 (8x10.5)	0.30 (0.6)	500 (300)
150	151	8x10.5 (6.3x7.7)	0.30 (0.6)	450 (230)	8x10.5	0.30	450	10x10.5	0.30	500
220	221	8x10.5	0.30	450	10x10.5 (8x10.5)	0.15 (0.30)	670 (450)	10x13.5 (10x10.5)	0.25 (0.30)	580 (500)
330	331	10x10.5 (8x10.5)	0.15 (0.30)	670 (450)	10x10.5	0.15	670	16x16.5 12.5x13.5 (10x13.5)	0.12 0.20 (0.25)	1060 650 (580)
470	471	10x10.5	0.15	670	12.5x13.5 10x13.5 (10x10.5)	0.11 0.13 (0.15)	820 750 (670)	16x16.5 (12.5x16)	0.12 (0.15)	1060 (700)
680	681	10x13.5	0.13	750	12.5x13.5 (10x13.5)	0.11 (0.13)	820 (750)	16x16.5	0.12	1060
1000	102	16x16.5 (12.5x13.5)	0.08 (0.11)	1260 (820)	16x16.5 (12.5x16)	0.08 (0.09)	1260 (950)	16x21.5	0.10	1250
1500	152	12.5x16	0.09	950	16x16.5	0.08	1260			
2200	222	16x21.5 (16x16.5)	0.06 (0.08)	1630 (1260)	16x21.5	0.06	1630			
3300	332	16x21.5	0.06	1630				Case Size	Impedance	Ripple Current

Maximum Impedance (Ω) at 20°C 100kHz, Ripple Current (mA rms) at 105°C 100kHz

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

Frequency		50Hz	120Hz	300Hz	1kHz	10kHz~
Capacitance (μF)						
Φ4~Φ10	1~68	0.35	0.50	0.64	0.83	1.00
	100~2200	0.40	0.55	0.70	0.85	1.00
Φ12.5~Φ16	~680	0.45	0.65	0.80	0.90	1.00
	1000~6800	0.65	0.85	0.95	1.00	1.00