

客户Customer:

日期Date: 2025年9月6日

承 认 书

SPECIFICATION

种 类: 固态铝电解电容器
Description: Aluminum Solid Electrolytic Capacitors
艾华料号 AISHI P/N: SVF1CM181E06E00RAXXX
系 列 SERIES: VF
规 格 尺 寸 ITEM: 16V180uF(Φ6.3*6)
客户料号 Customer P/N: /
编 号No. : CRS-FX-2509212

批准 Approved by			客户确认Client Confirmed	
制作 Prepared by	审核 Checked by	批准 Approved by	审核 Checked by	批准 Approved by
 刘文娜 技术部	 黄玉明 技术部	 张 超 技术部		

Please return one copy with your authorized signature when you accept these specifications.
Please note that no return within 6 months is considered to be approvable.

制订/修订履历表Change Records

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1.概述Scope

此承认书使用于含有导电高分子电解质的VF系列固态电解电容

This specification specify VF series of the Aluminum Solid Capacitors with Conductive Polymer Electrolyte.

2.使用温度范围Operating Temperature Range (-55~105℃)

使用温度范围是指电容在额定电压下可以稳定运行的环境温度范围

Operating temperature range is the range of ambient temperature at which the capacitor can be operated continuously at rated voltage.

3.特性Characteristics

除非另有说明，标准的测量和测试环境条件如下：

Unless otherwise specified, the standard range of atmospheric conditions for making measurements and tests are as follows.

环境温度Ambient temperature : 15 to 35℃

大气压力Air pressure: 86kpa to 106kpa

若对结果有疑问，测试则按如下标准进行

If there may be doubt on the results, measurements shall be made within the following limits.

环境温度Ambient temperature : 20±2℃

大气压力Air pressure: 86kpa to 106kpa

4. 额定电压、浪涌电压和额定温度 Rated voltage, Surge voltage and Rated temperature

额定电压 Rated voltage(V)	额定温度 Rated temperature(°C)	浪涌电压 Surge voltage (V)
2.5	105	2.88
6.3	105	7.25
6.8	105	7.82
7	105	8.05
7.5	105	8.63
10	105	11.5
12	105	13.8
16	105	18.4
20	105	23
25	105	28.75
35	105	40.25
50	105	57.5
63	105	72.45
80	105	92
100	105	115

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6.2 耐受能力 Endurance Performance

序号 No.	项目 Item	测试方法 Test method	性能 Performance
6.2.1	负荷寿命试验 Load Life Test	电容在105±2℃, 额定电压下, 加载直流电5000小时后, 需在室温下放置2小时才可进行测试。 After 5000 hours continuous application of DC rated working voltage at 105 ± 2℃, the measurements shall be measured after 2 hours exposed at room temperature.	容量变化: 在初始值的±20%内 Capacitance change within ±20% of the initial value 损失角: 小于规格值的150% tan δ ≤ 150% of the initial specified value. 等效串联电阻≤规格值的150% ESR ≤ 150% of the initial specified value. 漏电流≤0.2CV值或500μA中的任一个较大值 Leakage current ≤ the larger values between 0.2CV and 500uA. 外观: 没有明显的损伤 Appearance: No significant damage
6.2.2	振动试验 Resistance to Vibration	依照JIS C 5102 8.2和 JIS C 5025 To comply with JIS C 5102 8.2 and JIS C 5025 频率: 10到55Hz(1分钟间隔/10→55→10Hz) Frequency: 10 to 55Hz (1 minute interval/10→55→ 10Hz) 振幅: 0.75mm(整体偏移1.5mm) Amplitude : 0.75mm (Total excursion 1.5mm) 方向: X, Y, Z (3 轴) Direction : X , Y , Z (3 axes) 持续时间: 2小时/轴 (共6小时) Duration : 2 hours / axial (Total 6 hours)	容量在30分钟内测量, 与初始值相比不应有较大的差异, 其改变在±5%以内 Capacitance value should not show drastic change compared to the initial capacitance when the value is measured within 30 minutes. Prior to the completion of exam, capacitance change should be within ±5% compared to the initial value after the exam 外观: 导针不得断裂 Appearance: Don't lead wire broken
6.2.3	可焊性 Solder ability	温度: 235℃ ± 5℃ (锡铅焊料) 245℃ ± 5℃ (锡银铜焊料) Temperature : 235℃ ± 5℃ (for Sn-Pb solder) 245℃ ± 5℃ (for Sn-Ag-Cu solder) 持续时间: 5 ± 0.5秒 Duration : 5 ± 0.5 seconds	至少95%的浸渍表面覆盖有新的焊料 At least 95% of surface area of the dipped portion of the terminal shall be covered with new solder.

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Figure 1 is a schematic diagram of the temperature profile for the isothermal crystallization of polypropylene. The profile shows a sequence of temperature steps: 30±3 min at 105±2°C, 5 min at Room temperature, 30±3 min at 105±2°C, and 5 min at -55±3°C. The total duration is 30±3 min or less.

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Item	Preheating	T _p	T ₁	T ₂	t ₁	t ₂	Reflow cycle
Condition 1	150°C~180°C ≤90s	260°C	230°C	217°C	≤40s	≤60s	1
Condition 2	150°C~180°C ≤90s	250°C	230°C	217°C	≤40s	≤60s	2

The measurements should be measured after 2 hours exposed at room temperature.

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S	VF	1C	M	181	E06	E00	R	AXXX
								特殊编码 Special code(7.9)
								奈印编码 Marking code(7.8)
								成型方式编码 Terminal code(7.7)
								尺寸编码 Size code(7.6)
								电容量编码 Capacitance Code(7.5)
								电容公差 Capacitance tolerance Code(7.4)
								电压编码 Voltage Code(7.3)
								系列编码 Series Code(7.2)
								类别编码 Category Code(7.1)

编码Code	S
类别编码Category Code	固态电容Solid Capacitor

编码Code	VF
系列编码Series Code	VF

编码Code	0E	0J	0C	1A	1C	1D	1E	1S	1V	1H	1J	1B	1K
电压编码VoltageCode(W.V)	2.5	6.3	6.8	10	16	20	25	30	35	50	63	80	100

“M”代表 -20 % ~ +20 % “M”stands for -20 % ~ +20 %

编码Code	100	220	270	330	470	560	680	820	101	121	151	181	221
电容量Capacitance (uF)	10	22	27	33	47	56	68	82	100	120	150	180	220
编码Code	271	331	391	471	561	681	821	102	122	152	182	222	272
电容量Capacitance (uF)	270	330	390	470	560	680	820	1000	1200	1500	1800	2200	2700

编码Code	E06	E7C	E08	E09	F6R	F9R	FAR	FBR	GAR	GCR	GGR
直径D (Φ)	6.3	6.3	6.3	6.3	8	8	8	8	10	10	10
高度L (mm)	6	7.7	8	9	6.5	9.5	10.5	11.5	10.5	12.5	16.5

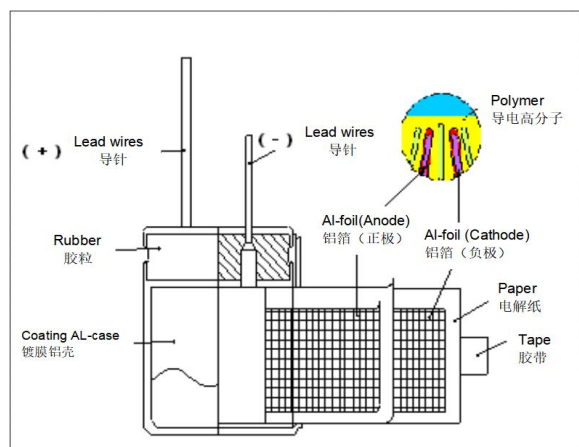
编码Code	D00	E00
其他 Other	贴片、散装SMD&Bulk	贴片、编带SMD&Taping

编码Code	S	R
捺印Marking	天蓝Sky blue	红色Red

"Axxx" 代表正常品, "Axxx" stands for normal products.

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8. 结构Construction



导针:固体镀锡铜包钢线

Lead wires : Solid tinned copper weld steel wire

导针端子：高纯铝

Al-boss : High pure aluminum

电解纸：马尼拉麻

Paper : Manila hemp

铝箔（正极）：高纯铝

Al-foil (Anode) : High pure aluminum

铝箔 (负极): 碳箔、高纯铝

Al-foil (Cathode) : Carbon foil, High purity aluminum

镀膜铝壳：铝+镀膜（耐压400V以上）

Coating AL-case:Aluminum+coating(Can withstand voltage above 400V)

胶带：聚酯

Tape : Polyester

胶粒：(树脂)压缩成型

Rubber:Resin (Compression molding)

导针和圆柱端子通过焊接连接在一起

The lead wire and the Al-boss are welded together.

导针扁平端子与铝箔通过按压连接在一起

The AI-tab and the AI-foil are stitched to join together.

卷绕的素子外部以阴极箔包裹

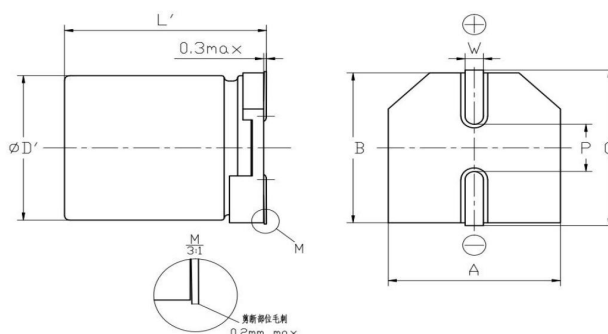
The outer most Al-foil spiral of the element is cathode.

导电高分子用作电解质

Conductive polymer is used as the electrolyte.

9.尺寸图Outer dimensions (单位Unit:mm)

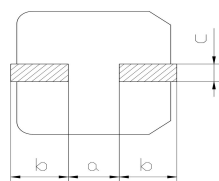
尺寸Outer dimensions (单位Unit:mm)



尺寸编码 Size Code	ΦD' (mm)	ΦD'(mm) Tolerance	L' (mm)	L'(mm) Tolerance	A±0.2 (mm)	B±0.2 (mm)	C±0.2 (mm)	P* (mm)	W (mm)
E06	6.3	-0.1~+0.5	6	-0.5~+0.5	6.6	6.6	7.2	1.9	0.65±0.15

*为参考值

推荐焊盘尺寸 Soldering pad dimensions (单位Unit:mm)



尺寸 Size	a	b	c
Φ6.3	2.1	3.5	1.6
Φ8	2.8	4.2	1.9
Φ10	4.3	4.4	1.9

10. 特性表格Characteristics Table

序号 N o.	艾华料号 AISHI P/N	额定 工作电压 Rated Work Voltage (V.DC)	电容量 Nominal Capacitanc e 120Hz,20 °C(μF)	电容量 公差 Capacitanc e Tolerance (%)	上限温度 Upper Temp (°C)	尺寸 Nominal Case Size D*L (mm)	等效 串联电阻 E.S.R 100kHz 20°C (mΩmax)	最大漏电流 Leakage current 20°C(μA max) 2Minutes/W.V	损失 D.F 120Hz, 20°C (%max)	纹波电流 Ripple Current 100kHz,105 °C (mA.rms)	寿命 Load Life (Hours)
1	SVF1CM181E06E00RAXXX	16	180	-20~+20	105	6.3*6	66	576	12	2200	5000

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纹波电流频率系数Frequency coefficient for ripple current

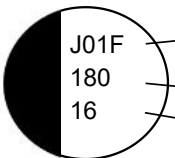
频率Frequency	$120\text{Hz} \leq f < 1\text{ kHz}$	$1\text{ kHz} \leq f < 10\text{ kHz}$	$10\text{ kHz} \leq f < 100\text{ kHz}$	$100\text{ kHz} \leq f < 300\text{ kHz}$
系数Coefficient	0.05	0.3	0.7	1

11. 捺印Marking

除非另有说明，捺印应该清晰地印在电容上

Unless otherwise specified. Capacitor shall be clearly marked on it body.

负极
Negative Polarity

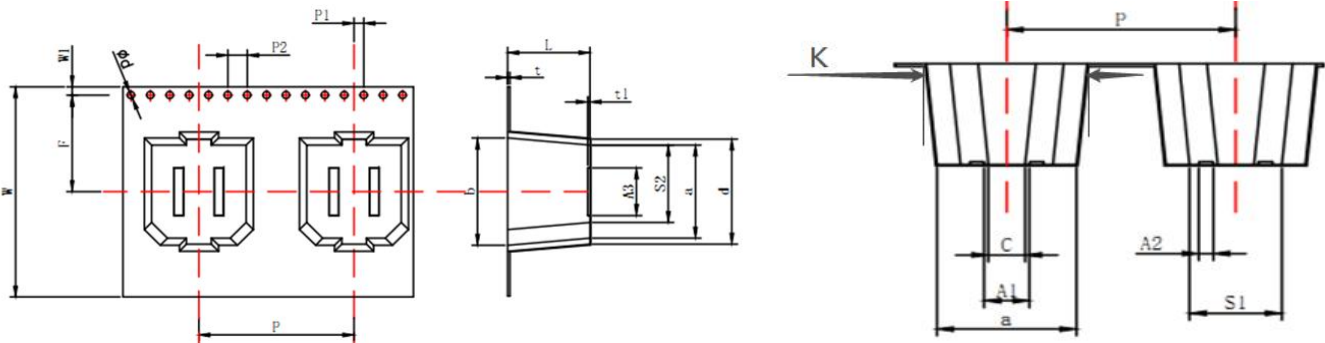


J:	年编码Year code	2025年
01:	周编码Week code	
F:	系列Series	VF系列
额定电容Rated Capacitance		180μF
额定电压Rated voltage		16V
印字油墨为红色The colour of marking ink is red.		

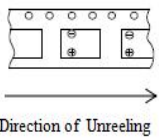
年份代码

年份	2020	2021	2022	2023	2024	2025	2026	2027
代码	C	D	E	F	H	J	K	N
年份	2028	2029	2030	2031	2032	2033	2034	2035
代码	P	Q	S	T	U	V	X	Y

12. 匣盒带Box cassette (单位Unit:mm)



极性Polarity



Direction of Unreeling

尺寸编码 Size Code	Φd	L	P	P1	P2	t	t1	W	W1	F	A1	A2	A3	S1	S2	a	b	c	d
E06	1.5	6.5	12.0	2.0	4.0	0.5	0.35	16.0	1.75	7.5	2.5	0.8	3.5	4.3	5.2	6.8	7.8	1.6	8.0

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14. 操作注意事项Operating Precautions

14.1 极性Polarity

AishiCAP是具有正负极的固态铝电解电容，使用中不可反接，若接反，则电容会因为漏电流不断增大或短路而造成寿命缩短。
AishiCAP is a solid aluminum electrolytic capacitor with positive and negative electrodes. Do not reverse the polarity when using.
If it is used with the polarities reversed, its life may shorten because of increasing leakage current or short circuit.

14.2禁止电路 Prohibited circuits

为避免漏电流增加而带来的影响，AishiCAP不可使用在下列电路中：

To avoid the effect of increased leakage current, AishiCAP cannot be used in the following circuits

- 1)高阻抗电路1) High impedance circuits;
- 2)耦合电路2) Coupling circuits;
- 3)时限恒量电路3) Time constant circuits;
- 4)为提高耐电压而串联两个或多个电容于电路中
4) Connection of two or more capacitors in series for higher withstand voltage;
- 5)对漏电流敏感的线路5)A line sensitive to leakage current

* 除漏电流的波动上升外，电容的使用条件如在承认书中规定的高温和低温，温热和耐受性条件都会影响电容量。若电容作为时限恒量电容使用，因其对电容量的变动的敏感性，电容量的改变会造成影响。不要将其作为时限恒量电容使用，同时若因电压原因要串联多个AishiCAP电容，请联系湖南艾华集团股份有限公司。

* In addition to the leakage current fluctuation above, the operational conditions such as characteristics at high and low temperature, damp heat and endurance stipulated in the specifications will affect the capacitance. The fluctuation of the capacitance may cause problem if it is used as a time constant capacitor, which is extremely sensitive to the fluctuation of the capacitance. Do not use it as a time constant capacitor. Additionally, please contact Hunan Aihua Group Co., Ltd. for usage of two or more AishiCAP in series for voltage proof.

6)ON-OFF电路6)ON-OFF circuits

请勿在一天内频繁开-关10000次以上的ON-OFF电路中使用本产品。用于此类电路时，请务必将电路条件等告知我们。

Do not use this product in an on-off circuit that frequently turns on-off more than 10000 times in a day. When used in such circuits, please be sure to inform us of circuit conditions, etc

14.3 电压Over voltage

电压若超过额定电压，即便只是一瞬间也可能造成短路

Over voltage exceeding the rated voltage may not be applied even for an instant as it may cause a short circuit.

14.4快速充放电Rapid charge and discharge

快速充放电是不适用的（为了维持高的可靠性）。若充放瞬间电流超过10A或10倍允许纹波电流超过10A，为防止快速的充放电造成电容短路、漏电增大及容量衰减，电路中应加上一个保护电路用以分流过大的电流。

Rapid charging and discharging is unsuitable (for maintenance of high-proof reliability). If the instantaneous current of charging and discharging is more than 10A or 10 times of the allowable ripple current is more than 10A, in order to prevent the capacitor short ,leakage increase and capacity reduction caused by rapid charging and discharging, a protection circuit shall be added to the circuit to reduce the excessive current.

14.5 焊接注意事项 Considerations when soldering

焊接条件要在承认书的规定范围内。若没有遵守承认书的条件，则电容漏电流可能急剧增加，容量衰减。

The soldering conditions are to be within the range prescribed in specifications. If the specifications are not followed, there is a possibility of the cosmetic deflection, the intensive increase of leakage current, and the capacitance reduction.

使用需知Things to be noted before mounting.

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不可将AishiCAP与其它物品堆放 Do not dump the AishiCAP with objects.

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14.6使用AishiCAP于工业设备Use of AishiCAP for industrial equipments

为确保AishiCAP在工业设备上的可靠性，设计必须与之相符。

To ensure reliability when the AishiCAP is used in industrial equipments, design must allow for its

14.7使用AishiCAP干生命保障系统Use of AishiCAP for human life equipments

若使用于与人类生命有关的设备上（如空间设备、航空设备、原子设备等），请与湖南艾华集团股份有限公司详细咨询，不要使用有湖南艾华集团股份有限公司承认文件的AishiCAP。

In case of using in equipments regarding human life(e.g. Space equipment, aeronautic equipment and atomic equipment etc.), be sure to talk over the matter with Hunan Aihua Group Co., Ltd.

14.8 贮存Storage

1) 请将AishiCAP贮存于温度在5to 35°C之间，相对湿度在75%以下的没有阳光直射的环境中，如果可能可贮存于包裹中。(如果在35到85°C，他应该少于三个月)

1)Store AishiCAP with the temperature range between 5to 35°C (If between 35 to 85°C, it should be less than three months) , and the relative humidity of 75% or less without direct sunshine and store AishiCAP in the package states if possible.

2)AishiCAP请在使用前再打开包装袋并且快速用完。

AishiCAP are recommended that you shall open the bag just before use and AishiCAP shall be used up.

3)不要在有水、盐水、油及凝结状况的地方贮存AishiCAP

Never store AishiCAP in which it is directly exposed to water, brine, oil or in condensation status.

4) 禁止在含有毒气体的区域放置AishiCAP (如: 硫化氢、亚硫酸、亚硝酸、氯气、氨水等)

Never store AishiCAP in any area filled with poisonous gases(including hydrogen sulfide, sulfurous acid, nitrous acid, chlorine and ammonia).

5)禁止在有紫外线或放射性辐射的区域放置AishiCAP。

Never store AishiCAP in any area to which ultraviolet and/or radial rays are radiated.

6) 存储时间storage time

开封前: 制造后24个月内 Before unpacking: Within 24 months after the manufacturing date.

开封后：打开后1月内 After seal : within 1 mouth from opening.

存放时间超过3年的电解电容器应报废处理 If storage time more than three years,the products need to be discarded

14.9 清洗Cleaning

关于HCFC，可用高浓酒精，石油，匝烯，水和表面活性剂以及别的溶剂（单独或混合使用）浸泡，用超声波，煮沸，蒸发等方法按制作者的建议清洗。更多详情请联系。

Concerning about HCFC, higher alcohol system, petroleum system, terpene system, water system with surface active agent and other solvents the washing way (separateness or combinations) by soak, ultrasonic wave, boil, vapor etc. is confirmed under the maker's recommendation. Please contact us if you require further details.

14.10为AishiCAP设计电路的说明Notes on circuit designs for AishiCAP

14.10.1 执行Performance

在承认书中指定的额定性能范围内使用AishiCAP。

Use AishiCAP within the rating and performance ranges defined in this specifications.

14.10.2使用温度和纹波电流Operating temperature and ripple current

如果AishiCAP的使用温度超过了上限温度（105℃）或是有过载纹波电流通过，则有较大可能使寿命缩短，或漏电流增大，造成AishiCAP失效。

If AishiCAP is used at a temperature higher than the upper category temperature(105℃), or excess ripple current flows through AishiCAP, there are high possibilities of life cycle reduction or leakage current increasing to cause AishiCAP defective.

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14.10.3漏电流Leakage current

漏电流会因焊接条件而有上升现象，加载直流电压可使电容自我修复，漏电流逐渐减小。

The leakage current of AishiCAP may rising phenomenon by soldering conditions. The application of DC voltage enables the capacitors to be repaired by itself and this leads the leakage current to be smaller gradually.

14.10.4 使用电压Applied voltage

为了保证AishiCAP的可靠性，加载到AishiCAP上的电压最好小于其额定电压。直流加交流电压的峰值应小于额定电压。

For the reliability of AishiCAP, it is recommended that the voltage applied to AishiCAP should be less than the rated voltage.

Peak value of the the dc and ac voltage should not exceed its rated voltage.

14.10.5 失效模式Failure mode

AishiCAP含有导电聚合物，其寿命的终止大部分是由于偶然失效模式，主要是短路。如果短路，AishiCAP将会因持续电流流过而过热，然后铝壳会因内部压力的增加而脱离电容。

AishiCAP contains a conductive polymer. The life ends mostly due to random failure mode, mainly short circuit. In case of short circuit, AishiCAP can be overheated by continuous current flow, then case of AishiCAP would be removed by internal pressure increasing.

14.10.6变更提前通知Advance consultation for changing

如果承认书改变，我们会提前通知

It is conducted under an advance consultation with you if this specification is changed.

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