

客户Customer: 深圳国昂电子

日期Date: 2022年11月14日

承 认 书

SPECIFICATION

种 类: 导电性高分子混合型铝电解电容器
Description: Conductive Polymer Hybrid Aluminum Electrolytic Capacitor
艾华料号 AISHI P/N: HSE1VM680E7CE00RAXXV
系 列 SERIES: SE
规 格 尺 寸 ITEM: 35V68uF(Φ6.3*7.7)
客户料号 Customer P/N: /
编 号No.: CRS-FX-2211013
应用场景: 车灯

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
 张淑媛 技术部	 张超 技术部	 刘强 技术部		

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制订/修订履历表Make/revised curriculum vitae

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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和添加剂的SE系列导电性高分子混合型铝电解电容器

These specifications specify SE series of the Conductive Polymer Hybrid Aluminum Electrolytic Capacitor.

AEC-Q200 applicable product. (符合车规认证标准)

2.使用温度范围Operating Temperature Range (-55~125℃)

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)	电压种类 Category voltage(V)
16	125	18.4	16
25	125	28.75	25
35	125	40.25	35
50	125	57.5	50
63	125	72.45	63

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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	纹波寿命试验 Ripple Life Test	电容在125±3℃, 额定电压下, 施加额定纹波电流4000小时后, 需在室温下放置2小时才可进行测试。 After 4000 hours continuous application of the rated voltage with the rated ripple current at 125 ±3℃, the measurements shall be measured after 2 hours exposed at room temperature.	容量变化: 在初始值的±30%内 Capacitance change within ±30% of the initial value 损失角: 小于规格值的200% $\tan \delta \leq 200\%$ of the initial specified value. 等效串联电阻≤规格值的200% $ESR \leq 200\%$ of the initial specified value. 漏电流≤规格值 Leakage current $\leq$ initial specified value. 外观: 没有明显的损伤 Appearance: No significant damage
6.2.2	振动试验 Resistance to Vibration	频率: 10到2000Hz(20分钟间隔/10→2000→10Hz) Frequency: 10 to 2000Hz (20 minute interval/10→2000→ 10Hz) 加速度: 5g Acceleration: 5g 方向: X, Y, Z (3 轴) Direction: X, Y, Z (3 axes) 持续时间: 4小时/轴 (共12小时) Duration: 4 hours / axial (Total 12 hours)	容量变化在初始值的±5%内 Capacitance change within ±5% of the initial value 损失角≤规格值 $\tan \delta \leq$ initial specified value. 等效串联电阻≤规格值 $ESR \leq$ initial specified value. 漏电流≤规格值 Leakage current $\leq$ initial specified value. 外观: 没有明显的损伤 Appearance: No significant damage
6.2.3	可焊性 Solder ability	浸渍温度: 235℃ ± 5℃ Temperature of solder bath: 235℃ ± 5℃ 浸渍时间: 2秒±0.5秒 Immersion time: 2 s ± 0.5 s.	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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(V): DC voltmeter
 R1: Protective resistor 1kΩ
 R2: Discharging resistor 1kΩ
 Cx: Capacitor under test (10pcs)

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序号 No.	项目 Item	测试方法 Test method	性能 Performance
6.2.10	端子强度 Terminal Strength	SMD先回流焊接 1.将元件焊接在PCB板上(100mm×40mm FR4 PCB板, 板厚为1.6mm±0.2mm) 2.对元件侧面施加一个17.7N的水平推力, 持续时间60+1s The element is reflow soldered first 1.The element is welded to the PCB board (100mm×40mm FR4 PCB with thickness of 1.6mm±0.2mm) 2.A horizontal thrust of 17.7N is applied to the side of the element for a duration of 60+1sec.	电容变化在初始值的±5%内 Capacitance change within ±5% of initial value 损失角≤ 规格值 Tanδ≤ initial specified value. 等效串联电阻≤ 规格值 ESR ≤ initial specified value. 漏电流≤规格值 Leakage current ≤initial specified value. 外观: 没有明显的损伤 Appearance:No significant damage

备注 REMARKS

如果有任何疑问，在电压处理后测量漏电流。

电压：直流额定电压适用于电容器在125℃下120分钟。

需在室温下放置2小时才可进行测试

If any doubt arises, measure the leakage current after following voltage treatment.

Voltage treatment : DC rated voltage are applied to the capacitors for 120 minutes at 125°C.

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

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H	SE	1V	M	680	E7C	E00	R	AXXV
								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	H
类别编码Category Code	混合型电容Hybrid Capacitor

编码Code	SE
系列编码Series Code	SE

编码Code	0E	0J	1C	1E	1V	1H	1K
电压编码VoltageCode(W.V)	2.5	6.3	16	25	35	50	100

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

编码Code	680	101	181	471	561	681	821	122
电容量Capacitance (uF)	68	100	180	470	560	680	820	1200

编码Code	D10	B09	E06	E7C	E11	F9R	FBR	GAR	K18
直径D (Φ)	5	5.5	6.3	6.3	6.3	8	8	10	13
高度H (mm)	10	9	6	7.7	11	9.5	11.5	10.5	18

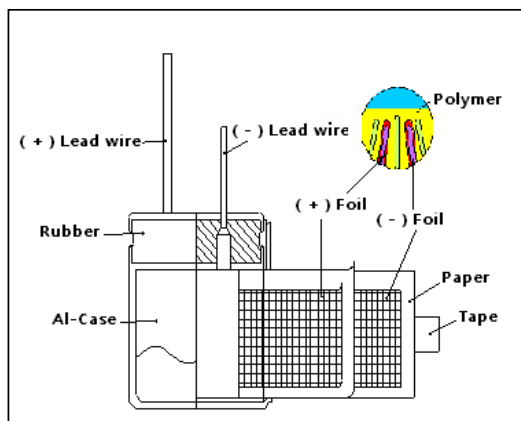
编码Code	D00	E00
其他 Other	贴片、散装SMD&Bulk	贴片、编带SMD&Taping

编码Code	S	R
捺印Marking	天蓝Sky blue	红色Red

“AXXV” 代表常规四轮车用电子, “AXXV” stands for normal four-wheelers 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600V以上) Coating AL-case: Aluminum+coating(Can withstand voltage above 600V)

膠帶：聚酯 Tape : Polyester

胶粒: (树脂)压缩成型 IIR-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 Al-tab and the Al-foil are stitched to join together.

卷绕的素子外部以阴极箔包裹

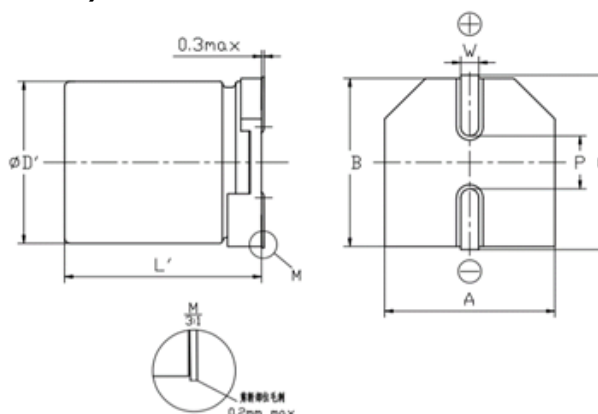
The outer most Al-foil spiral of the element is cathode.

导电高分子用作电解质

Conductive polymer is used as the electrolyte.

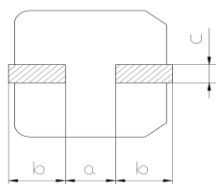
9.尺寸图Outer dimensions (单位Unit:mm)

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±0.2 (mm)	W (mm)
E7C	6.3	-0.1~+0.5	7.7	-0.3~+0.3	6.6	6.6	7.2	1.9	0.65±0.15

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 (%)	温度 Oper 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,125°C (mA.rms)	寿命 Load Life (Hours)
1	HSE1VM680E7CE00RAXXV	35	68	-20 ~ +20	125	6.3*7.7	35	23.8	10	1400	4000

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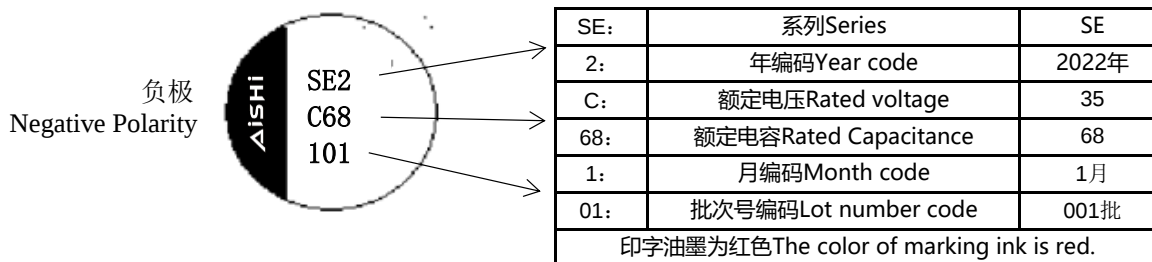
纹波电流频率系数Frequency coefficient for ripple current

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.



系列代码 Series code

系列	SD	SE	SF	SG	
代码	SD	SE	SF	SG	

年份代码 Year Code

年份	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
代码	K	M	N	1	2	3	4	5	6	7	8	9	A
年份	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	...
代码	B	C	D	E	F	G	H	K	M	N	1	2	...

电压代码 W.V code

电压	16	25	35	50	63	80	100
代码	A	B	C	D	E	F	G

容量代码 Cap. Value code

容量	6.8	68	100	180	270	470	560	1000	1500	
代码	6R8	68	100	180	270	470	560	10C	15C	

月份代码 Month code

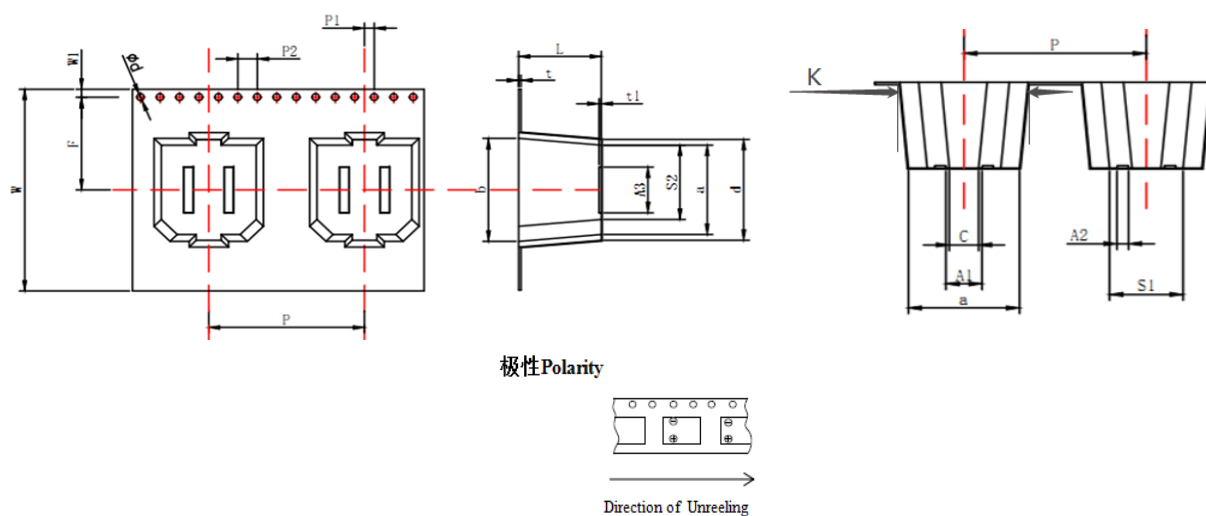
月份	1	2	3	4	5	6	7	8	9	10	11	12
代码	1	2	3	4	5	6	7	8	9	A	B	C

批次号代码Lot number code

批次号	001	002	003		010		099	100	101		126	
代码	01	02	03		10		99	AA	AB		BA	

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12. 匣盒帶Box cassette (單位Unit:mm)



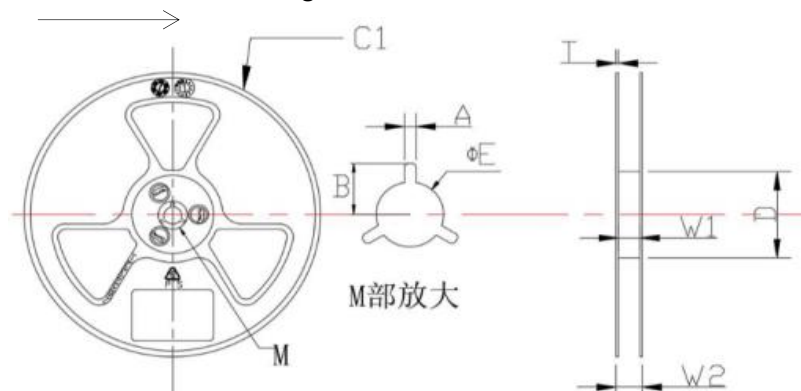
尺寸编码 Size Code	Φd	L	P	P1	P2	t	t1	W	W1	F	A1	A2	A3	S1	S2	a	b	c	d
E7C	0/0.1	±0.1	±0.1	±0.1	±0.1	±0.05	±0.1	±0.3	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1
	1.5	8.5	12.0	2.0	4.0	0.5	0.35	16.0	1.75	7.5	2.5	0.8	3.5	4.3	5.2	6.8	7.8	1.6	8.0

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13. 包装Packing

Bulk: Standard

Direction of Unreeling



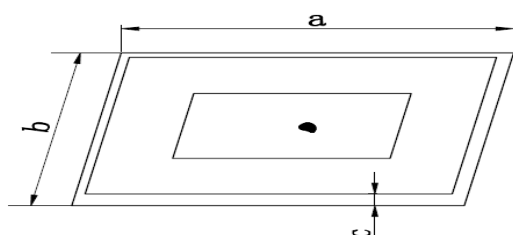
胶盘加真空包装

plastic carrier reel and vacuum packing

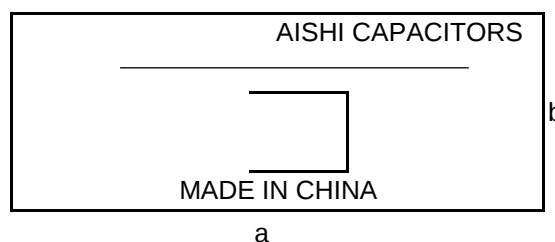
Aishi	
P/N:	
CUSTOMER P/N	
SIZE:	
Q'TY	
DATE	

胶盘尺寸 plastic carrier reel dimensions (单位Unit:mm)

尺寸	C1±2	A±0.2	B±0.2	W1±2	E±0.4	W2±1	T±0.2	D±0.5
6.3拍	380	2.6	10.8	16	13.8	21.7	2	100
8拍、10拍	380	2.6	10.8	24	13.8	29.7	2	100



Zipper bag



13.1 编带包装Tape Packing

编带Taping: 标准Standard

分类Classification	标准Standard			
产品尺寸 Product size D*L(mm)	承载卷轴 Carrier reel/ (pcs)	外包箱 Outer carton/ (plastic carrier reel) 390*225*390 (mm)	承载卷轴尺寸Carrier reel size/ (mm)	
			W1±2	W2±1
6.3*4.5	1200	10	16	21.7
6.3*6	1000	10	16	21.7
6.3*7.7	800	10	16	21.7

产品尺寸 Product size D*L(mm)	承载卷轴 Carrier reel/ (pcs)	外包箱 Outer carton/ (plastic carrier reel) 390*225*390 (mm)	承载卷轴尺寸Carrier reel size/ (mm)	
			W1±2	W2±1
8*9.5	600	6	24	29.7
8*11.5	500	6	24	29.7
10*10.5	500	6	24	29.7

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14. 操作注意事项Operating Precautions

14.1 极性Polarity

AishiCAP是具有正负极的混合型铝电解电容，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 Hybrid conductive polymer. 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

因为焊接及其它动作可造成电容的漏电流增加，AishiCAP不可使用在下列电路中：

Since problems can be expected due to leakage current increasing during soldering and other processes, 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)电路因漏电流过大而有坏的影响 5)Circuits to get bad influence by big 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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(a) 已安装过的或加过电压的AishiCAP请勿再使用。经历了周期性电性能测试的AishiCAP不可再用。

(a) Do not reuse AishiCAP that have been assembled in a set and energized. Excluding AishiCAP that have been removed for measuring electrical characteristics during a periodic inspection, AishiCAP cannot be reused.

(b) AishiCAP贮藏一年时间后, 漏电流可能会增大, 使用前, 请在125°C, 额定电压及接有1 kΩ电阻的条件下充电2小时。

(b) Leakage current may increase when AishiCAP are stored for one year. In this case, apply rated voltage for 2 hours at 125°C with load of 1 kΩ resistor.

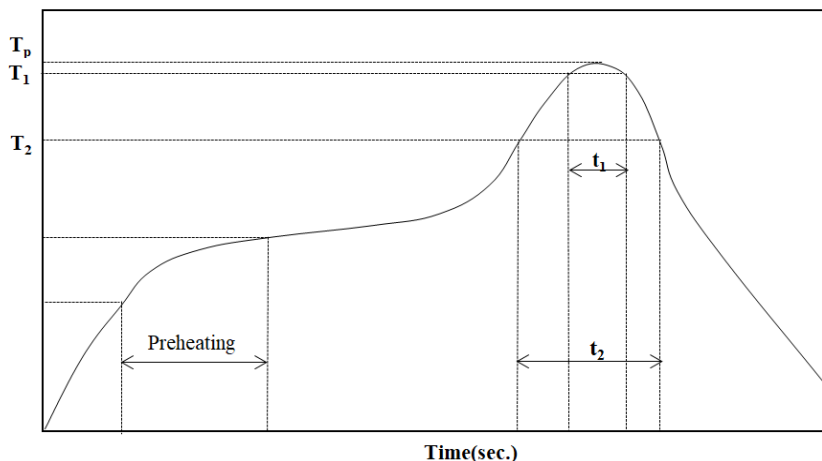
(c)Reflow soldering回流焊接

进行焊接的时候，产品上部及端子部分温度、时间的推荐范围如下表所示：

When welding, the recommended temperature and time range of the upper part and terminal part of the product are shown in the table below:

回流次数不超过2次，第1次回流之后，必须确保电容器的温度已经完全冷却到室温（5~30℃）后方可进行第2次回流。随焊接条件变化，在焊接后漏电流可能会增大，甚至超过规格值，通过加载电压使用后，漏电流会逐渐变小。

The reflux times shall not exceed twice. After the first reflux, the second reflux can be carried out only after the temperature of the capacitor has been completely cooled to room temperature (5 ~ 30 °C). With the change of welding conditions, the leakage current may increase or even exceed the specification value after welding. After being used by loading voltage, the leakage current will gradually decrease.



Preheating	T _p	T ₁	T ₂	t ₁	t ₂	Reflow cycle
150℃~180℃ ≤90s	250℃	245℃	217℃	≤30s	≤90s	1
150℃~180℃ ≤90s	245℃	240℃	217℃	≤20s	≤70s	2

贴装型产品为回流焊专用零部件。请在红外热风并用等气氛热处理方法。请勿用于浸流焊。

Mount products are special parts for reflow soldering. Please heat treat with infrared hot air and other atmosphere. Do not use for immersion welding.

请在产品规格书规定的焊接条件（预热，温度，时间，次数等）范围内焊接。温度测量方法，因用环氧系粘剂在电容器上方粘贴了电偶，量产测温时需注意。

Please weld within the welding conditions (preheating, temperature, time, times, etc.) specified in the product specification. For the temperature measurement method, due to the thermocouple pasted above the capacitor with epoxy adhesive, attention should be paid to during mass production temperature measurement.

即使是在推荐的回流焊条件下，也可能发生电容器外壳变色或膨胀现象，但并不影响产品的可靠性，敬请谅解。

Even under the recommended reflow soldering conditions, the outer box of the capacitor may change color or cargo expansion, but it will not affect the reliability of the product. Please understand.

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产品内包装开封后，有效期一个月 The product is valid for one month after the inner package is opened.

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