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规格书变更记录 (Change history of specification)

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1. 适用范围 Scope

适用于固体导电高分子叠层铝电解电容器。

This specification is applicable to Solid conductive polymer multi-layers aluminum electrolytic capacitor.

2. 产品介绍 Product Introduction

■ 可靠性：105℃，2000H ■ 低ESR，耐高纹波电流，低ESL ■ 符合ROHS要求；适合无铅焊表面贴装 ■ 应用：笔记本、直流/直流转换器、开关电源、后备电源等等	■ Reliability: 105℃, 2000H ■ Low ESR, High ripple current capability, Low ESL ■ RoHS Compliant and lead-free ■ Application: Notebook, DC/DC Converter, Switching Power Supply, Backup Power Supplies for CPU etc.

3.规格值 Specifications

项目 Item	特性 Characteristics
工作温度范围(°C) Operating Temperature Range(°C)	-55 ~ + 105
额定电压(V) Voltage (V)	10
额定容量(μF) Rated Capacitance (μF) (20°C,120Hz)	100
静电容量容差(20°C,120Hz) Capacitance Tolerance (20°C,120Hz)	-35~+10%
浪涌电压 Surge Voltage	U_R×1.25
漏电流(μA)※1 Leakage Current (μA)※1	300 (μA) 2min
损耗角正切Tanδ (20°C, 120Hz) Dissipation Factor Tanδ(20°C, 120Hz)	≤6%
等效串联电(20°C,100kHz) Equivalent Series Resistance(20°C, 100 kHz)	15 mΩ
温度特性Temperature Characteristics (Max Impedance Ratio at 100kHz)	$Z_{+105℃}/Z_{+20℃}$≤1.25 ； $Z_{-55℃}/Z_{+20℃}$≤1.25
耐久性 Endurance	2000h, 105℃下施加额定电压 容量变化: 初期测量值的±20%以内 损耗角正切 (Tanδ): 初期规格值的200%以内 LC: ≤初期规格值的300%[<8Vdc] ≤初期规格值 [≥8Vdc] 2000h, applied rated voltage at 105℃ Capacitance change:within±20%of the initial measured value Dissipation Factor (Tanδ): ≤200%of the initial specified value LC: ≤300%of the initial specified value[<8Vdc] ≤the initial specified value[≥8Vdc]
高温高湿 Humidity Test	500h, 60℃,90~95%RH下施加额定电压 △C/C: 初始测量值的-20%~+70%(2-2.5 Vdc) 初始测量值的-20%~+60%(4 Vdc) 初始测量值的-20%~+50%(6.3 Vdc) 初始测量值的-20%~+60%(8 to 16 Vdc) 损耗角正切 (Tanδ): ≤初始规格值的200% LC: ≤初始规格值 [<8Vdc] ≤初始规格值的300%[≥8Vdc] 500h, applied rated voltage at 60℃,90~95%RH △C/C: -20%~+70% of the initial value (2-2.5 Vdc) -20%~+60% of the initial value (4 Vdc) -20%~+50% of the initial value (6.3 Vdc) -20%~+60% of the initial value (8 to 16 Vdc) Dissipation Factor (Tanδ): ≤200%of initial specified value LC: ≤the initial specified value[<8Vdc] ≤300%of the initial specified value[≥8Vdc]

※ 1如果测量结果有异常，请在105℃下施加额定电压120分钟后再测量。

In case of some problems for measured values, measure after applying rated voltage for 120 minutes at 105℃.

该型号产品参数表：

Parameters list：

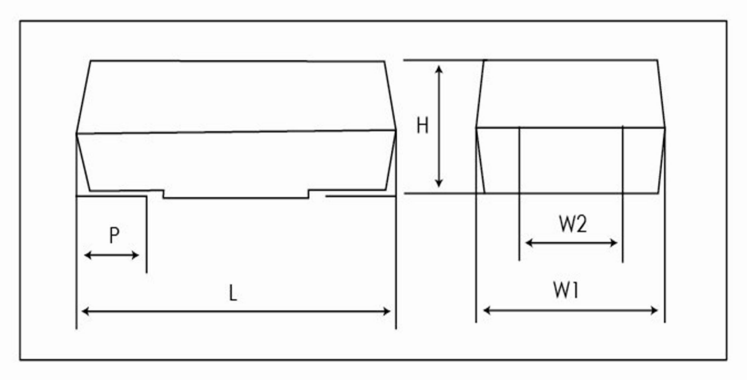
UR Code	Rated Capacitance 20℃,120Hz	Max ESR 20℃ 100kHz	Rated Ripple Current※2	Dissipation Factor 20℃,120Hz	Leakage Current 20℃,2min	Size Code	P/N
(V)	(μF)	(mΩ)	(mA)	(%)	(μA)	-	-
10	100	15	5100	6	300	V	PCP1APA101W15V

※ 2 额定纹波电流:100kHz/+45℃；额定纹波电流的温度系数如下：

Rated Ripple current:100kHz/+45℃, Temp coefficient as below:

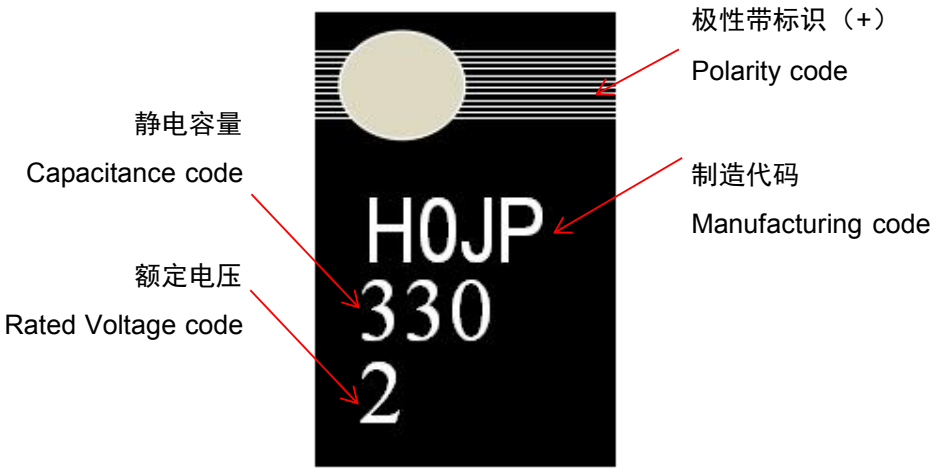
温度 Temp	T≤45℃	45℃<T≤85℃	85℃<T≤105℃
系数 Coef	1.0	0.7	0.25

4. 尺寸 Dimension



Size Code		L -0.1/+0.3	W1 -0.1/+0.3	H -0.1/+0.3	P ±0.3	W2 ±0.1
Jianghai	Size					
V	7343-19	7.3	4.3	1.9	1.3	2.4

5. 标志　Marking



制造代码 Manufacturing code

H	0	J	P
公司代码 Company code	年代码 Year code	周代码 Week code	系列代码 Series code

1). 公司代码 Company code

代码 Code	H
公司 Company	Haicheng

2). 年代码 Year code

代码Code	8	9	0	1	2	3	4	5	6	7
年Year	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027

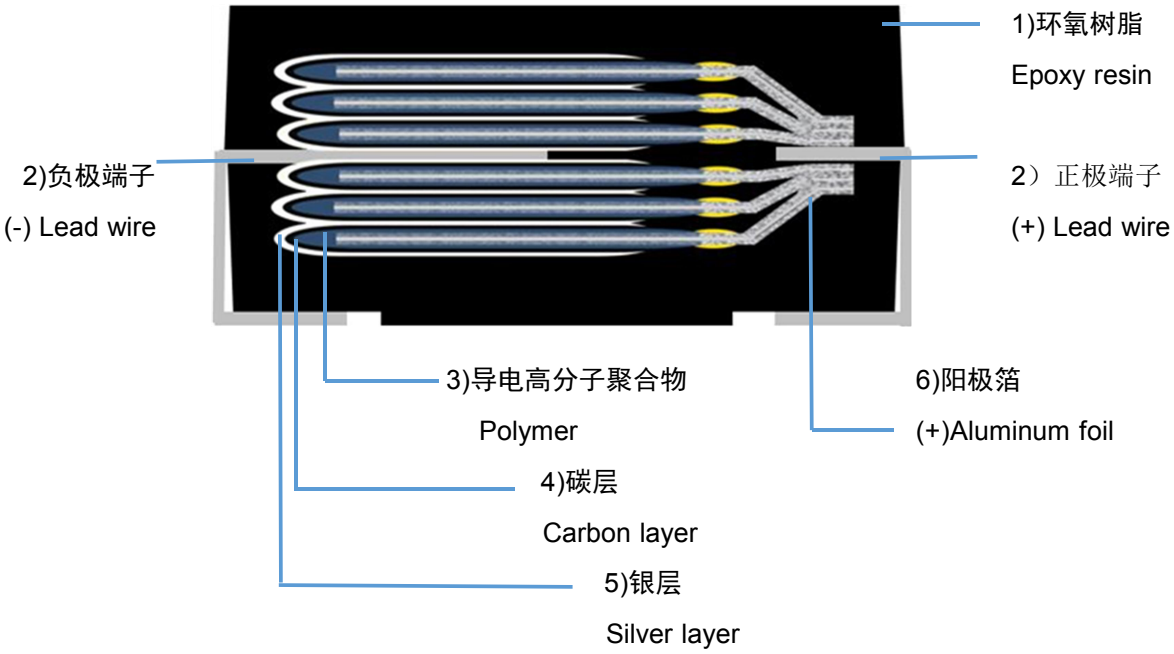
3). 周代码 Week code

代码 Code	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
周 Week	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
代码 Code	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J
周 Week	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
代码 Code	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z		
周 Week	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52		

4). 系列代码 Series code

代码Code	P
系列Series	HPA

6.内部构造 Internal Structure



内部结构描述：

1). 环氧树脂: 环氧树脂用于密封

2). 端子: 表面镀有锡层的固体铜端子

3). 导电高分子聚合物膜

4). 碳涂层: 填充在聚合物表面的空隙内，可降低等效串联电阻ESR.

5). 银涂层: 层与层或层与引脚框(端子材料)之间的连接；可降低等效串联电阻ESR

6). 铝箔 (阳极): 高纯度铝箔

The internal structure description:

1). Epoxy Resin: Epoxy resin is used for sealing.

2). Leads: Solid copper leads plated with tin.

3). Conductive polymer film.

4). Carbon paste layer: fill in the interspace on polymer surface and reducing ESR.

5). Silver paste layer: connecting between element and element / lead frame, reducing ESR.

6). Aluminum foil (Anode): Highly purified aluminum.

7.编码规则 Part Number

PC	P		1A		PA		101		W		15		V		□	□
电容类型 Capacitor type	端子形状 Terminal type		电压代码 Rated voltage code		系列代码 Series code		容量代码 Capacitance code		容量偏差 Capacitance tolerance		ESR(mΩ) ESR code		尺寸代码 Dimension code		客户特殊要求代码 Customer special requirement code	
PC = 导电高分子聚合物电容 Polymer Capacitor	P	扁平 Flat	0D	2	PA	HPA	0R1	0.1	K	+10%	04	4.5	B	7.3*4.3*1.4		
			0E	2.5			010	1		-10%	06	6	V	7.3*4.3*1.9		
			0G	4			5R6	5.6	M	+20%	09	9	D	7.3*4.3*2.8		
			0J	6.3			100	10		-20%	15	15				
			0K	8			101	100	V	+20%	25	25				
			1A	10			102	1000		-10%	60	60				
			1B	12.5					W	+10%						
			1C	16						-35%						
			1D	20					X	+10%						
			1E	25						-30%						
			1V	35					Q	+30%						
										-10%						

8. 电性能测试 Electrical performance tests

No.	项目 Item	条件 Conditions	规格 Specifications
1	直流漏电流 DC leakage current	串联电阻: 1000欧姆; 测试电压: 额定电压; 施加额定电压2分钟后读数 如果有疑问，请使用下述条件测试: ・温度：室温 ・电压：额定电压 ・串联电阻：1000欧姆 ・充电时间：30分钟 Series resistor: 1000 ohm; Applied voltage: Rated Voltage; Measuring after 2 minutes of application; If there are any questions, the following contents are pretested. ・Temperature: Room Temp ・Voltage: Rated Voltage ・Series resistor: 1000 ohm ・Charging time: 30 min	用LC测试仪测量,规格请参考Page5参数表 Measured by LC meter and comply with parameters list on Page5.
2	电容量 Capacitance	测试频率: 120Hz 测试电压: 1Vrms或低于1Vrms Measuring frequency: 120 Hz Measuring voltage: 1Vrms or less	用LCR测试仪测量,规格请参考Page5参数表 Measured by LCR meter and comply with parameters list on Page5.
3	损耗角正切 Tangent of loss angle (tanδ)		用LCR测试仪测量,规格请参考Page5参数表 Measured by LCR meter and comply with parameters list on Page5.
4	等效串联电阻 Equivalent Series Resistance (ESR)	测试频率: 100kHz 测试温度: 20℃ 测试电压: +1 Vrms Test frequency: 100kHz Test temperature: 20℃ Test voltage: +1 Vrms	用LCR测试仪测量,规格请参考Page5参数表 Measured by LCR meter and comply with parameters list on Page5.
5	可焊性 Solderability	温度: 235 ± 5 ℃ 持续时间: 2 ± 0.5s Temperature: 235 ± 5 ℃ Duration: 2 ± 0.5s	显微镜: 端子表面积的95%以上被新锡覆盖 Microscope: at least 95% of surface area covered with new solder.
6	振动测试 Vibration test	频率: 10 to 55Hz(1分钟，10→55→10Hz) 给定振幅 0.75mm； 持续时间：2 hours/轴向(3个轴向,共6hours) Frequency: 10 to 55Hz (1 minute interval/10→55→10Hz)； Specified amplitude 0.75mm Duration: 2 hours / axial (Total 6 hours).	与初始值相比较，振动试验结束后30分钟内容量变化在±5%以内 Compared with the initial value, capacity tested within 30 minutes should not have greater differences, range is within ±5%.

No.	项目 Item	条件 Conditions	规格 Specifications
7	浪涌电压 Surge voltage	在额定浪涌电压下充电30±5秒，然后在室温下放电5分30秒，此为一个循环(每个循环6分钟)；共重复1000个循环。 测试温度：15 -35℃ 充放电回路均需要串联一个1KΩ的电阻 After charge 30±5 seconds at the rated surge voltage, 5 minutes 30 seconds discharge at room temperature, which is repeated1000 times; The time of each cycle is 6 min,and the test temperature was 15 -35℃. 1KΩ resistance in series during charge and discharge.	漏电流 ≤ 规格值; 容量变化率：±20%; 损耗角正切 Tanδ ≤ 规格值; 等效串联电阻ESR≤规格值的150% Leakage current ≤ specified value; Change rate of Capacity was±20%; Tanδ ≤ specified value; ESR≤150% of the initial specified value.
8	纹波电流 Ripple Current	测试频率: 100kHz 测试温度: 20 - 105℃ Test frequency: 100kHz Test temperature: 20 - 105℃	用RC测试仪测量，规格请参考Page5参数表 Measured by RC meter and comply with parameters list on Page5.
9	高温高湿 Load humidity test	温度: 60±2℃ 相对湿度: 90% ~ 95%; 持续时间: 500 (-0/+24) hrs; 施加电压: 额定电压 Temperature: 60±2℃ Relative humidity: 90% ~ 95%; Duration: 500 (-0/+24) hrs; Applied voltage: Rated voltage	损耗角正切 Tanδ:≤初始规格值的200% △C/C:(与初始测量值比较) -20%~+70%[2-2.5 Vdc] -20%~+60%[4 Vdc] -20%~+50%[6.3 Vdc] -20%~+60%[8 to 16 Vdc] LC:≤初始规格值[<8 Vdc] ≤初始规格值的300%[≥8 Vdc] Tanδ: ≤200% of initial specified value △C/C: (compare with initial value) -20%~+70%[2-2.5 Vdc] -20%~+60%[4 Vdc] -20%~+50%[6.3 Vdc] -20%~+60%[8 to 16 Vdc] LC:≤initial specified value [<8 Vdc] ≤300% of the specified value[≥8 Vdc]
10	高温存储测试 Storage Life Test	105±2℃,500 hours后,在室温下放置2小时再测试 At 105±2℃, 500 hours later, put it in the room temperature for 2 hours before measurement.	容量变化率:±20% 损耗角正切 Tanδ≤初始规格值的200% LC≤初始规格值的300%[<8Vdc] LC≤初始规格值[≥8Vdc] Capacity change rate was ±20%; Tanδ≤ 200% of the initial specified value; LC≤300% of initial specified value[<8Vdc] LC≤ initial specified value[≥8Vdc]
11	耐久性测试 Load Life Test	105±2℃下施加直流额定工作电压2000 hours,然后在室温下放置2小时再测量 At 105 ± 2℃, applying DC rated working voltage for 2000 hours, put it in the room temperature for 2 hours before measurement.	容量变化率:±20%; 损耗角正切 Tanδ≤ 初始规格值的200% LC≤初始规格值的300%[<8Vdc] LC≤初始规格值[≥8Vdc] Capacity change rate was ±20%; Tanδ≤ 200% of the initial specified value; LC≤300% of initial specified value[<8Vdc] LC≤ initial specified value[≥8Vdc]

9. 包装 Packaging

9.1包装标签标识 Packaging Label Mark

标签中必须包括以下项目(内部盒子或袋子)

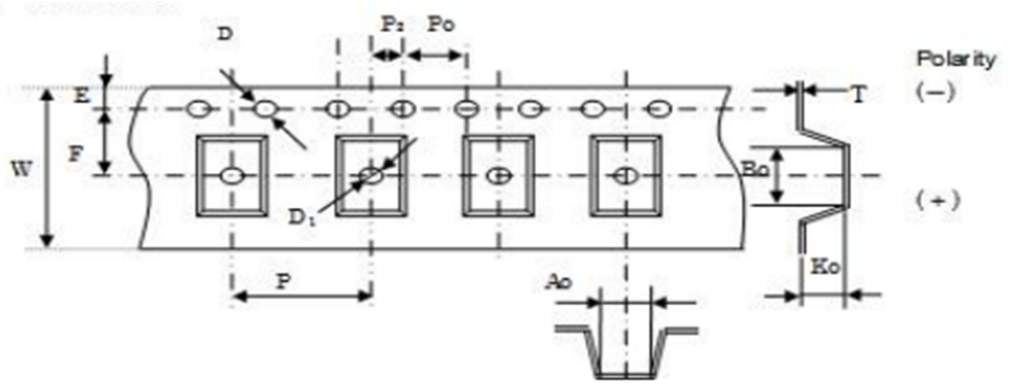
Below items should be marked on the label (inside box or bag)

①.系列 ②.产品型号 ③.额定静电容量 ④.额定电压 ⑤.数量 ⑥.尺寸 ⑦.批次号

①.Series ②.Part number ③.Rated Capacitance ④.Rated Voltage ⑤.Quantity ⑥.Size ⑦.Lot Number

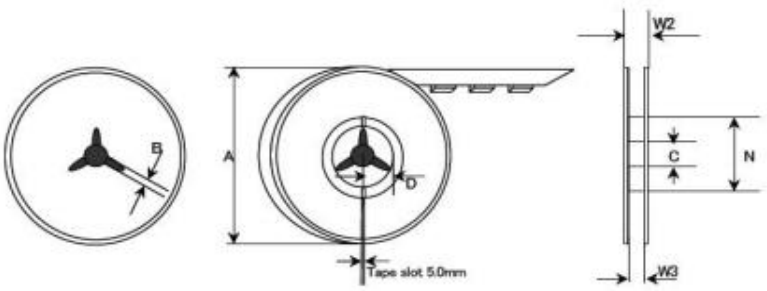
9.2载带外形尺寸(单位: mm)

Outer dimension (Unit: mm)



系列代码 Series code	W±0.2	P±0.2	A0±0.1	B0±0.1	K0±0.1	D±0.1	E±0.05	P0±0.1	T±0.005	P2±0.1
HPA (V)	12	8	4.6	7.6	2.16	1.5	1.75	4	0.229	2

9.3卷盘结构和尺寸(单位: mm) Disc structure and dimensions (Unit: mm)



系列代码 Series code	A±MAX	B±0.18	C±0.2	D±0.1	N±1.0	W2±1.0	W3±1.5
HPA	330	2	13	10.75	99.5	16.4	13.5

9.4 包装数量 Number of packages

尺寸Size	数量(颗)Pcs
V	3500

10. 使用注意事项 Cautions for use

10.1. 使用注意事项 Cautions for use

10.1.1. 极性: 导电高分子聚合物铝固态电容器有极性；使用时，不可以反向充电，因为反向充电会损坏电容器的氧化膜导致电容器损坏。

Polarity: Conductive polymer aluminum solid capacitors have polarity. When used, it cannot be reverse charged, because it will damage the capacitor oxide film and capacitors.

10.1.2. 使用时，纹波电流不可以超出系列列表中允许的数值；如果纹波电流超出允许值，电容器会发热而损坏。施加在电容器上的总电压及交流电压的峰值不能超过额定电压 。

The use of the ripple current cannot exceed the allowable values shown in the Specification sheet. If the R.C is exceeded, the capacitor will heat and be damaged. The total voltage and AC voltage peak values cannot exceed the rated voltage.

10.2. 存储条件 Storage Condition

10.2.1. 本产品符合MSL-3(湿度敏感性等级)。推荐的存储环境：室温(5-30°C),避免阳光直射，湿度在60%以下；在推荐的环境下密封保存于防湿包装袋中时，最长保存期限为两年。防湿包装袋开封后的保管期限为168小时，请在保管期限内用完所有产品。

This product Meets MSL-3(Moisture Sensitivity Level).Recommended storage environment: Room temperature range 5-30°C without direct sunlight, Humidity less than 60%RH. With the package in moisture-proof bag and under the recommended conditions with sealed package, the maximum storage term is 2 years.After opening of the moisture-proof packaging bag,The storage term is 168 hours , please use up all the products within the storage term.

10.2.2.导电高分子聚合物铝固态电容器应该被保存在推荐的存储环境中，避免阳光和结露；存储不当时，可能会导致下面的问题发生：

1). 在开始使用时，漏电流可能会增加而导致电路损坏

2). 树脂吸收的水汽蒸发可能会导致树脂表面损坏

Conductive polymer aluminum solid capacitors should be stored in the recommended storage environment, avoid sunlight and dew condensation, some problems may occur as follows:

1). At the beginning of the use, leakage current will increase and damage the circuit.

2). The water vapor absorbed by the resin will evaporate and damage the surface of the resin.

10.3. 使用用途限制 Limitation of the use

10.3.1 为了阻止第三方生命、身体或财产损失，下列对高可靠性有特殊要求的应用，在使用该系列电容器产品前，请先联系江海集团。

1).飞机设备

2). 航天航空设备

3). 水下设备

4). 发电厂控制设备

5). 医疗设备

6). 交通运输设备 (车辆, 火车, 轮船等等)

7). 交通信号设备

8). 灾害预防及犯罪预防设备

9). 数据处理设备

10). 和上述列举的有类似复杂性或可靠性要求的应用

Please contact Jianghai Group before the product for the following application due to special requirements for high reliability to prevent the loss of third party life, body or property directly.

1). Aircraft equipment

2). Aerospace equipment

3). Undersea equipment

4). Power plant control equipment

5). Medical equipment

6). Transportation equipment (vehicles, trains, ships, etc.)

7). Traffic signal equipment

8). Disaster prevention crime prevention equipment

9). Data-processing equipment

10). Application of similar complexity and / or reliability requirements to the applications listed in the above.

10.4. 回流焊 Reflow

10.4.1. 根据下面的条件进行回流焊，回流焊的次数：不超过两次

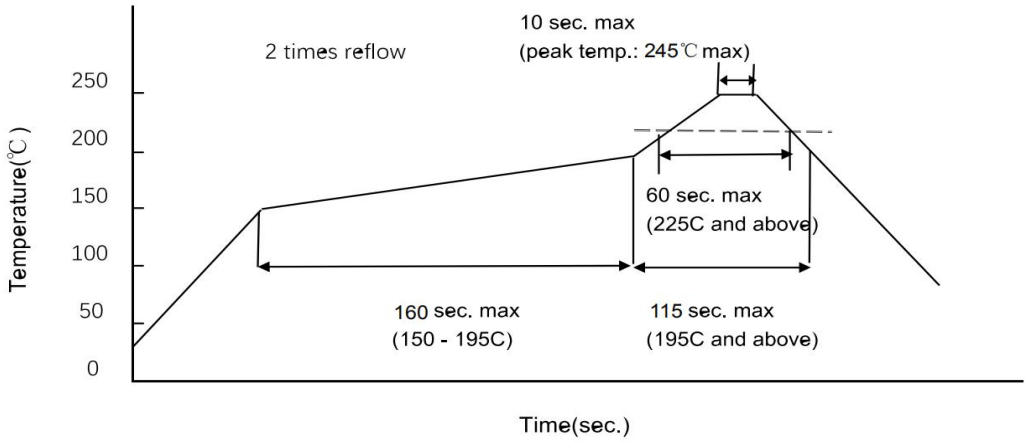
Reflow soldering is carried out according to the following conditions，The cycles of reflow soldering: Twice (max)

10.4.2. 当进行回流焊测试时，不可以对电容器施加极端的热应力，否则会损坏电容器，导致电性能变化。

When the reflow test is carried out, the capacitor cannot be under extreme thermal stress,which will damage the electrode end, causing changes of electrical performance.

推荐的回流焊温度曲线：

Recommended Reflow Profile:



※ If the reflow soldering is higher than 245℃, please contact us .

10.5.报废处理方法 Disposal Method

导电高分子聚合物铝固态电容器需要被当作工业废料根据当地的法律法规进行处理 。

Conductive polymer aluminum solid capacitors need to be dealt according to local law and treated as industrial waste.