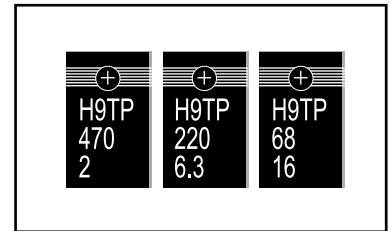


- Multi-layers conductive polymeraluminum solidcapacitor(plastic mold)
- Reliability:105°C, 2000H
- LowESR, High ripplecurrentcapability, LowESL
RoHSCompliant and lead-free
- Application: Notebook, DC/DC Converter, Switching PowerSupply, BackupPowerSuppliesforCPUetc.



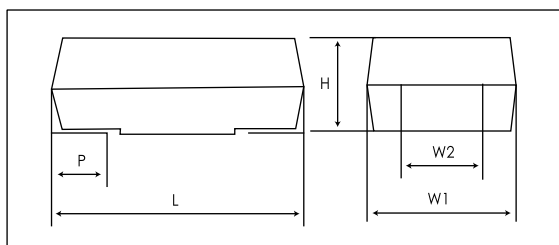
Specifications

Items	Characteristics
Operating Temperature Range (°C)	-55 ~ +105
Voltage Range (V)	2 ~ 16
Capacitance Range (μF) (20°C, 120Hz)	6.8 ~ 470
Capacitance Tolerance (20°C, 120Hz)	± 20%
Surge Voltage	$U_R \times 1.25$
Leakage Current (μA) ※1	$I \leq 0.1 CV [< 8Vdc], I \leq 0.3 CV [\geq 8Vdc]$
Dissipation Factor Tanδ (20°C, 120Hz)	≤ 6%
Equivalent Series Resistance (20°C, 100kHz)	Please see the attached ratings list
Temperature Characteristics (Max Impedance Ratio at 100kHz)	$Z_{+105^\circ C} / Z_{+20^\circ C} \leq 1.25$ $Z_{-55^\circ C} / Z_{+20^\circ C} \leq 1.25$
Endurance	2000h, applied rated voltage at 105°C 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]
Humidity Test	500h, applied rated voltage at 60°C, 90~95% RH ΔC/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 In case of some problems for measured values, measure after applying rated voltage for 120 minutes at 105°C.

POLYMER

Dimensions mm



(unit:mm)

Size Code		L	W1	H	P	W2
Jianghai	EIA	+0.3 -0.1	+0.3 -0.1	+0.3 -0.1	±0.3	±0.1
V	7343-21	7.3	4.3	1.9	1.3	2.4
D	7343-31	7.3	4.3	2.8	1.3	2.4

Ratings for HPA Series

Size: V

U _r Code	Rated Capacitance 20°C,120Hz	Max ESR 20°C,100kHz	Rated Ripple Current 105°C,100kHz	Dissipation Factor 20°C,120Hz	Leakage Current 20°C,2min	Size Code	P/N
(V)	(μF)	(mΩ)	(mA)	(%)	(μA)	-	-
2	100	16	4900	6	20.0	V	PCP0DPA101M16V □□
2	150	9	6300	6	30.0	V	PCP0DPA151M09V □□
2	220	9	6300	6	44.0	V	PCP0DPA221M09V □□
2	270	9	6300	6	54.0	V	PCP0DPA271M09V □□
2	330	7	7000	6	66.0	V	PCP0DPA331M07V □□
2	330	9	6300	6	66.0	V	PCP0DPA331M09V □□
2	470	4.5	8500	6	94.0	V	PCP0DPA471M04V □□
2	470	6	7500	6	94.0	V	PCP0DPA471M06V □□
2	470	9	6300	6	94.0	V	PCP0DPA471M09V □□
2.5	100	16	4900	6	25.0	V	PCP0EPA101M16V □□
2.5	150	9	6300	6	37.5	V	PCP0EPA151M09V □□
2.5	220	9	6300	6	55.0	V	PCP0EPA221M09V □□
2.5	270	9	6300	6	67.5	V	PCP0EPA271M09V □□
2.5	330	9	6300	6	82.5	V	PCP0EPA331M09V □□
4	68	20	4400	6	27.2	V	PCP0GPA680M20V □□
4	82	16	4900	6	32.8	V	PCP0GPA820M16V □□
4	150	16	4900	6	60.0	V	PCP0GPA151M16V □□
6.3	10	55	2700	6	6.3	V	PCP0JPA100M55V □□
6.3	22	45	3000	6	13.9	V	PCP0JPA220M45V □□
6.3	33	25	3900	6	20.8	V	PCP0JPA330M25V □□
6.3	47	25	3900	6	29.6	V	PCP0JPA470M25V □□
6.3	68	15	5100	6	42.8	V	PCP0JPA680M15V □□
6.3	100	15	5100	6	63.0	V	PCP0JPA101M15V □□
6.3	150	9	6300	6	94.5	V	PCP0JPA151M09V □□
6.3	150	15	5100	6	94.5	V	PCP0JPA151M15V □□
6.3	220	9	6300	6	138.6	V	PCP0JPA221M09V □□
6.3	220	15	5100	6	138.6	V	PCP0JPA221M15V □□
8	150	10	6000	6	360.0	V	PCP0KPA151M10V □□
8	200	12	5600	6	480.0	V	PCP0KPA201M12V □□
10	10	55	2700	6	30.0	V	PCP1APA100M55V □□
10	22	28	3700	6	66.0	V	PCP1APA220M28V □□
10	33	25	3900	6	99.0	V	PCP1APA330M25V □□
10	100	15	5100	6	300.0	V	PCP1APA101M15V □□
12.5	10	55	2700	6	37.5	V	PCP1BPA100M55V □□
12.5	15	45	3000	6	56.3	V	PCP1BPA150M45V □□
12.5	22	30	3600	6	82.5	V	PCP1BPA220M30V □□
12.5	33	25	3900	6	123.8	V	PCP1BPA330M25V □□
12.5	47	20	4400	6	176.3	V	PCP1BPA470M20V □□
12.5	56	15	5100	6	210.0	V	PCP1BPA560M15V □□
12.5	100	12	5600	6	375.0	V	PCP1BPA101M12V □□
16	6.8	70	2400	6	32.6	V	PCP1CPA68M70V □□
16	10	60	2600	6	48.0	V	PCP1CPA100M60V □□
16	15	40	3200	6	72.0	V	PCP1CPA150M40V □□
16	22	30	3600	6	105.6	V	PCP1CPA220M30V □□
16	33	30	3600	6	158.4	V	PCP1CPA330M30V □□
16	47	55	2700	6	225.6	V	PCP1CPA470M55V □□
16	68	30	3600	6	326.4	V	PCP1CPA680M30V □□

※ 2 Rated Ripple current: 100KHz / +45°C, Temp coefficient as below:

Temp	T < 45°C	45°C < T < 85°C	85°C < T < 105°C
coef	1.0	0.7	0.25

Ratings for HPA Series

Size: D

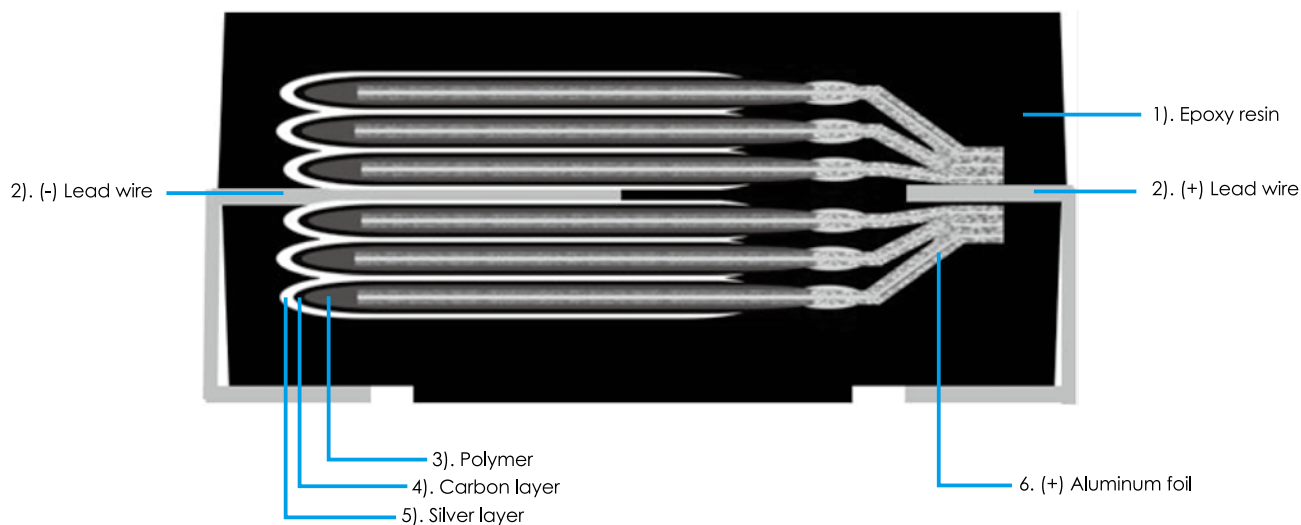
U _r Code	Rated Capacitance 20°C,120Hz	Max ESR 20°C,100kHz	Rated Ripple Current 105°C,100kHz	Dissipation Factor 20°C,120Hz	Leakage Current 20°C,2min	Size Code	P/N
(V)	(μF)	(mΩ)	(mA)	(%)	(μA)	-	-
2	100	16	4900	6	20.0	D	PCP0DPA101M16D □□
2	150	9	6300	6	30.0	D	PCP0DPA151M09D □□
2	220	9	6300	6	44.0	D	PCP0DPA221M09D □□
2	270	9	6300	6	54.0	D	PCP0DPA271M09D □□
2	330	7	7000	6	66.0	D	PCP0DPA331M07D □□
2	330	9	6300	6	66.0	D	PCP0DPA331M09D □□
2	470	4.5	8500	6	94.0	D	PCP0DPA471M04D □□
2	470	6	7500	6	94.0	D	PCP0DPA471M06D □□
2	470	9	6300	6	94.0	D	PCP0DPA471M09D □□
2.5	100	16	4900	6	25.0	D	PCP0EPA101M16D □□
2.5	150	9	6300	6	37.5	D	PCP0EPA151M09D □□
2.5	180	12	5600	6	45.0	D	PCP0EPA181M12D □□
2.5	220	9	6300	6	55.0	D	PCP0EPA221M09D □□
2.5	270	9	6300	6	67.5	D	PCP0EPA271M09D □□
2.5	330	7	7000	6	82.5	D	PCP0EPA331M07D □□
2.5	330	9	6300	6	82.5	D	PCP0EPA331M09D □□
2.5	470	4.5	8500	6	117.5	D	PCP0EPA471M04D □□
2.5	470	6	7500	6	117.5	D	PCP0EPA471M06D □□
2.5	470	9	6300	6	117.5	D	PCP0EPA471M09D □□
4	68	20	4400	6	27.2	D	PCP0GPA680M20D □□
4	82	16	4900	6	32.8	D	PCP0GPA820M16D □□
4	150	18	4600	6	60.0	D	PCP0GPA151M18D □□
6.3	10	55	2700	6	6.3	D	PCP0JPA100M55D □□
6.3	22	45	3000	6	13.9	D	PCP0JPA220M45D □□
6.3	33	25	3900	6	20.8	D	PCP0JPA330M25D □□
6.3	47	25	3900	6	29.6	D	PCP0JPA470M25D □□
6.3	68	15	5100	6	42.8	D	PCP0JPA680M15D □□
6.3	100	15	5100	6	63.0	D	PCP0JPA101M15D □□
6.3	150	10	6000	6	94.5	D	PCP0JPA151M10D □□
6.3	150	15	5100	6	94.5	D	PCP0JPA151M15D □□
6.3	220	10	6000	6	138.6	D	PCP0JPA221M10D □□
6.3	220	15	5100	6	138.6	D	PCP0JPA221M15D □□
8	150	10	6000	6	360.0	D	PCP0KPA151M10D □□
8	200	12	5600	6	480.0	D	PCP0KPA201M12D □□
10	10	55	2700	6	30.0	D	PCP1APA100M55D □□
10	22	28	3700	6	66.0	D	PCP1APA220M28D □□
10	33	25	3900	6	99.0	D	PCP1APA330M25D □□
10	68	15	5100	6	204.0	D	PCP1APA680M15D □□
10	100	15	5100	6	300.0	D	PCP1APA101M15D □□
12.5	10	55	2700	6	37.5	D	PCP1BPA100M55D □□
12.5	15	45	3000	6	56.3	D	PCP1BPA150M45D □□
12.5	22	30	3600	6	82.5	D	PCP1BPA220M30D □□
12.5	33	25	3900	6	123.8	D	PCP1BPA330M25D □□
12.5	47	20	4400	6	176.3	D	PCP1BPA470M20D □□
12.5	56	15	5100	6	210.0	D	PCP1BPA560M15D □□
12.5	100	12	5600	6	375.0	D	PCP1BPA101M12D □□
16	6.8	70	2400	6	32.6	D	PCP1CPA68M70D □□
16	10	60	2600	6	48.0	D	PCP1CPA100M60D □□
16	15	40	3200	6	72.0	D	PCP1CPA150M40D □□
16	22	30	3600	6	105.6	D	PCP1CPA220M30D □□
16	33	30	3600	6	158.4	D	PCP1CPA330M30D □□
16	47	30	3600	6	225.6	D	PCP1CPA470M30D □□
16	68	30	3600	6	326.4	D	PCP1CPA680M30D □□
16	100	25	3900	6	480.0	D	PCP1CPA101M25D □□

※ 2 Rated Ripple current: 100KHz / +45°C, Temp coefficient as below:

代码编制规则 Part Number

1		2		3		4		5			6		7		8		9		
P	C	P		0	D	P	A	4	7	1	M		0	6	V		*	*	
Capacitor type		Terminal type		Rated Voltage(V)		Series code		Capacitance Code(μ F)			Capacitance Tolerance(%)		ESR code(mOhm)		Dimension code		Customer special requirement		
PC=Polymer Capacitor		Flat	P	2	0D	HPA	PA	$\square\square \times 10^0 \mu$ f	$\pm 10\%$	K	4.5	04	7.3*4.3*1.9	V					
				2.5	0E			6.8	6R8	$\pm 20\%$	M	6	06	7.3*4.3*2.8	D				
				4	0G			68	680	-30~+10%	X	16	16						
				6.3	0J			470	471	-35~+10%	W	60	60						
				8	0K					-35~+20%	Y								
				10	1A														
				12.5	1B														
				16	1C														
				18-20	1D														
				25	1E														
				32	1V														

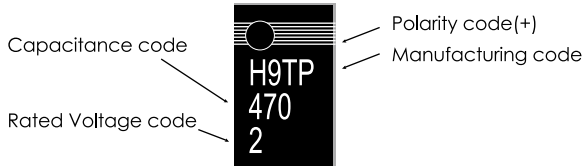
Internal Structure



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.

Marking



Manufacturing Code:

H	9	T	P
Company code	Year code	Week code	Series code

1) Company code

Code	H
Company	Haicheng

2) Year code

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

3) Week code

Code	A	B	C	...	E	...	J	...	O	...	T	...
Week	1	2	3	...	5	...	10	...	15	...	20	...
Code	Y	Z	<u>A</u>	...	<u>D</u>	...	<u>J</u>	...	<u>N</u>	...	<u>S</u>	...
Week	25	26	27	...	30	...	35	...	40	...	45	...
Code	<u>X</u>	<u>Y</u>	<u>Z</u>									
Week	50	51	52									

4) Series code

Code	P
Series	HPA

Reflow

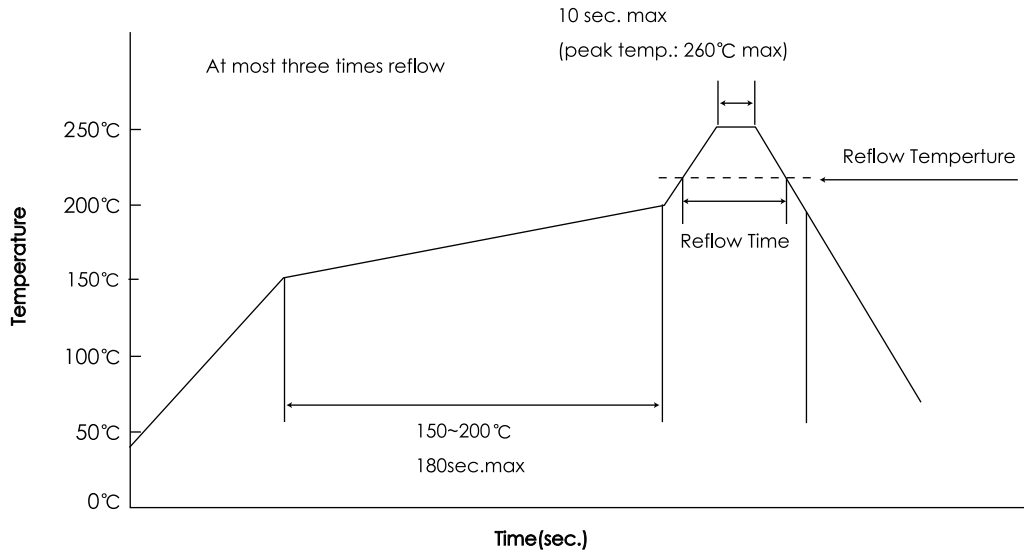
根据下面的条件进行回流焊，回流焊的次数：至多三次。当进行回流焊测试时，不可以对电容器施加极端的热应力，否则会损坏电容器，导致电性能变化。

Reflow soldering is carried out according to the following conditions, The cycles of reflow soldering: At most three times. 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.

Recommended Reflow Profile:

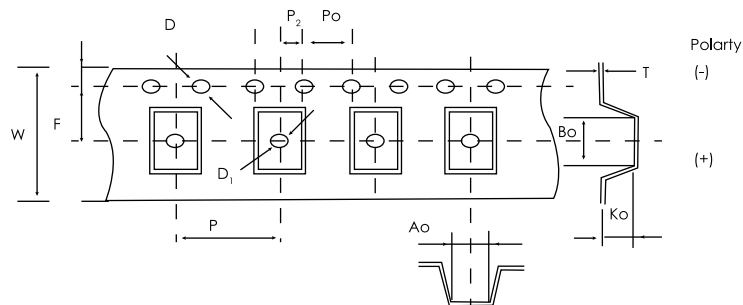
Temperature	Time
255°C and above	30sec.max
230°C and above	130sec.max
217°C and above	150sec.max

Recommended SnPb Reflow Profile



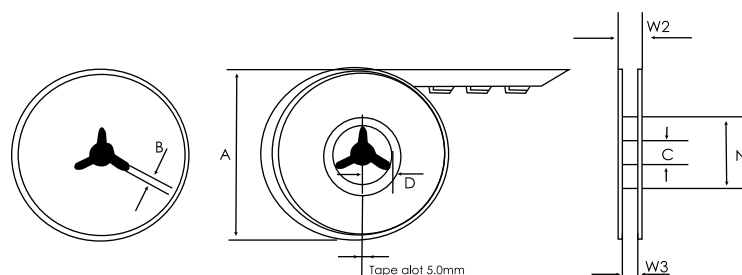
Packaging

Outer dimension (Unit: mm)



Series Code	W	P	A ₀	B ₀	K ₀	D	D ₁	E	F	P ₀	T	P ₂
HPA	±0.2	±0.2	±0.1	±0.1	±0.1	±0.1	0~0.25	±0.05	±0.05	±0.1	±0.005	±0.1

Disc structure and dimensions (Unit: mm)



Series Code	A±MAX	B±0.18	C±0.2	D±0.1	N±1.0	W ₂ ±1.0	W ₃ ±1.5
HPA	330	2.0	13.0	11.9	100	17.5	13.5

Number of packager

Size	Pcs
V	3500
D	3000

Technical note

I、 Prohibited Circuits

Solidconductive polymer multi-layers aluminum electrolytic capacitor have polarity. When used, it cannot be reverse charged, because it will damage the capacitor oxide film and capacitors. In addition, The total voltage and AC voltage peak values cannot exceed the rated voltage. 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.

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

(a)circuit design: Please do not use the capacitors in high impedance circuits、 coupling circuits、 time constant circuits. And do not use the capacitors if changes in the leakage current affects circuit operations.

(b)special requirements for high reliability :

- 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.

III、 Soldering

(a)Reflow soldering is carried out according to the following conditions, The cycles of reflow soldering: At most three times. 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.

(b)The Tip temperature of soldering iron is below 350 °C. The exposure time is less than 10 seconds. Electrical performance changes as a result of work in non-specified conditions. When soldering, do not exert excessive external force on the product. Once removed from the printed circuit board for any reason, please do not use the capacitors again.

IV、 Circuit board cleaning

(a)The cleaning temperature of the soldered circuit board is below 60 °C, and the cleaning time is within 5 minutes. Be sure to sufficiently wash and dry. The drying temperature is 100 °C, and the drying time is less than 20 minutes.

使用注意事项

一、禁止电路使用方面

固体导电高分子聚合物叠层铝电解电容器有极性；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。另外，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。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。

二、为了阻止第三方生命、身体或财产损失，在电路设计方面或者高可靠性有特殊要求的市场应用方面，请先联系江海集团。

(a)电路设计方面:不推荐该电容器在高阻抗电路、耦合电路、时间常数电路、受漏电流影响较大的电路中使用。

(b)对高可靠性有特殊要求应用方面:

- 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

三、焊接

(a)根据下面的条件进行回流焊，回流焊的次数：至多三次。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。

(b)烙铁焊接的作业温度为350°C以下，作业时间为10s以内，在规定条件外作业会导致电性能变化。在焊接过程中，切勿对产品施加过大的外力。另外，安装后又取下的产品不能再次使用。

四、电路板的清洗

(a)焊接后的电路板的清洗温度为60°C以下，清洗时间为5分钟以内。必须确保充分清洗，烘干。烘干的温度为100°C。时间为20分钟以内。

(b) Recommended Cleaning Solvents:

Pine Alpha ST-100S, Clean-thru 750H/750L/710M, Aqua Clean 210SEP, Sunelec B-12, DK Beclear CW-5790, Techno Cleaner 219, Cold Cleaner P3-375, Telpene Cleaner EC-7R, Technocare FRW-17/FRW-1/FRV-1, AXREL32, IPA (Isopropyl alcohol)

- 1). Consult us when performing processes with cleaning solvents other than those listed above or deionized water.
- 2). To protect the earth's environment, please do not use detergents containing ozone depleting substances.
- 3). In the case of using ultrasonic cleaning, the terminals may be broken. Therefore, please test before using in mass production.

V、 Limitation of the use:

- 1). Please avoid in direct sunlight, outdoors, or in dust.
- 2). Please avoid in liquid, such as Water, Oil, or Organic solvent.
- 3). Please avoid in vapor, or air with high harmful gas and corrosive gas;
- 4). Please avoid in an environment where strong static electricity or electromagnetic waves exist.
- 5). Please avoid in acid or alkaline environments.
- 6). Please avoid in excessive vibration and shock environments.
- 7). Please avoid the capacitors near heat-generating components or inflammables.

VI、 Storage Condition

(a) Solid conductive polymer multi-layers aluminum electrolytic 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. However, even if the leakage current increases, the capacitors self-repairing function will reduce the leakage current in most cases when a voltage is applied.
- 2). The water vapor absorbed by the resin will evaporate and damage the surface of the resin.

(b) 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.

VII、 Disposal Method

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

VIII、 Disclaimer

Specification in the datasheet may be subject to change without notice. Please consult us first before use. Jianghai reserves the right of final interpretation of all the content.

(b) 推荐使用溶剂:

Pine Alpha ST-100S, Clean-thru 750H/750L/710M, Aqua Clean 210SEP, Sunelec B-12, DK Beclear CW-5790, Techno Cleaner 219, Cold Cleaner P3-375, Telpene Cleaner EC-7R, Technocare FRW-17/FRW-1/FRV-1, AXREL32, IPA (Isopropyl alcohol)

- 1). 使用上述洗涤剂或纯净水以外的洗涤剂, 请事先咨询。
- 2). 为保护地球环境请不要使用含臭氧层破坏物质的洗涤剂。
- 3). 使用超声波清洗可能会导致端子断裂, 请务必事先评估, 确认。

五、使用用途限制:

- 1). 请避免在阳光直射, 尘埃以及暴露于室外的环境中使用;
- 2). 请避免在水, 油, 有机溶剂等液体中使用;
- 3). 请避免在充水分或有有害气体及腐蚀性气体较多的环境中使用;
- 4). 请避免在静电及电磁波较强的环境中使用;
- 5). 请避免在酸或碱性的环境中使用;
- 6). 请避免在振动或者冲击过大的环境中使用;
- 7). 请避免在发热部件或可燃物附近处使用;

六、存储条件

(a) 固体导电高分子聚合物叠层铝电解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, 漏电流可能会增加从而导致电路损坏。但一旦漏电流增大后, 只要施加电压, 大多数情况下会通过自我修复功能减小漏电流。
- 2). 树脂吸收的水汽蒸发可能会导致树脂表面损坏

(b) 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。

七、报废处理方法

固体导电高分子聚合物叠层铝电解电容器需要被当做工业废料根据当地的法律法规进行处理。

八、免责声明

系列列表中的规格可能会在没有通知的情况下被修改, 在使用前请先联系我们。江海保留对所有内容的最终解释权。