



产品规格书

PRODUCT SPECIFICATION

产品名称 PRODUCT NAME : 片式钽电解电容器(RoHS)

SOLID ELECTROLYTE TANTALUM CHIP CAPACITOR (RoHS)

OUR PART NO.: CA45-A-16V-0.47 μ F-K

中国振华（集团）新云电子元件有限责任公司

China Zhenhua (Group) Xinyun Electronic Comp. & Dev. Co.Ltd

1.适应范围 Scope

本规格书适用于片式钽电容器（RoHS）—标准型和低端面型。

This specification applies to solid electrolyte tantalum chip capacitor (RoHS) —standard series and low profile series.

2. 打印标志 Marking

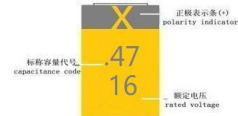
2.1 CA45-A Case

(1) 额定电压代号 Rated Voltage Code

额定电压 Rated Voltage (V)	2.5	4	6.3	10	16	20	25	35	50
额定电压代号 Rated Voltage Code	e	G	J	A	C	D	E	V	H

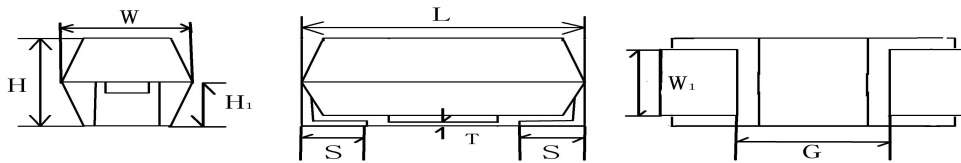
(2) 标称容量代号 Capacitance Code

标称容量 Capacitance(μF)	1	1.5	2.2	3.3	4.7	6.8
容量代号 Capacitance Code	A	E	J	N	S	W



乘数值 Multiplier	104	105	106	107
数 字 Second Digit	4	5	6	7

3. 外形及尺寸 Outline & Dimensions



单位 Unit : mm

壳号 Case Size	L	W	H	W ₁	S	H ₁ min	G min.	T max. (ref.)
A	3.2±0.2	1.6±0.2	1.6±0.2	1.2±0.2	0.8±0.3	0.7	0.8	0.1

4. 编带 Taping

4.1 编带尺寸 Tape Dimension

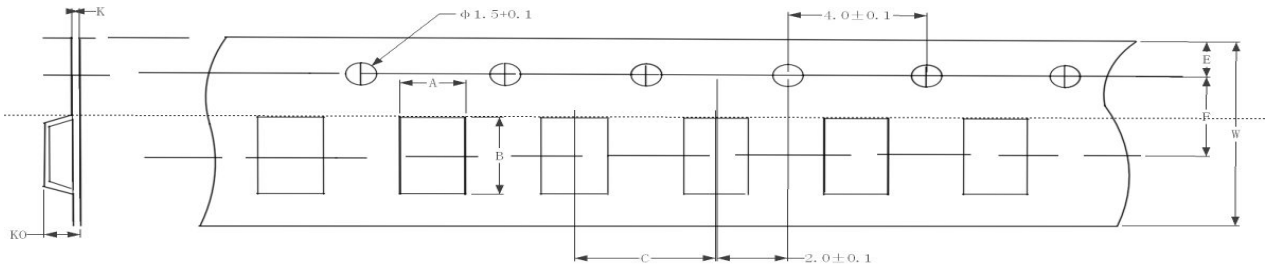


图 1 A 壳载带图纸 Fig. 1 The drawing of the carrier tape for A case

单位 Unit : mm

壳号 Case Size	A ± 0.2	B ± 0.2	C ± 0.1	E ± 0.1	F ± 0.1	W ± 0.3	Ko ± 0.1	K ± 0.05
A	1.9	3.5	4.0	1.75	3.5	8.0	1.85	0.23

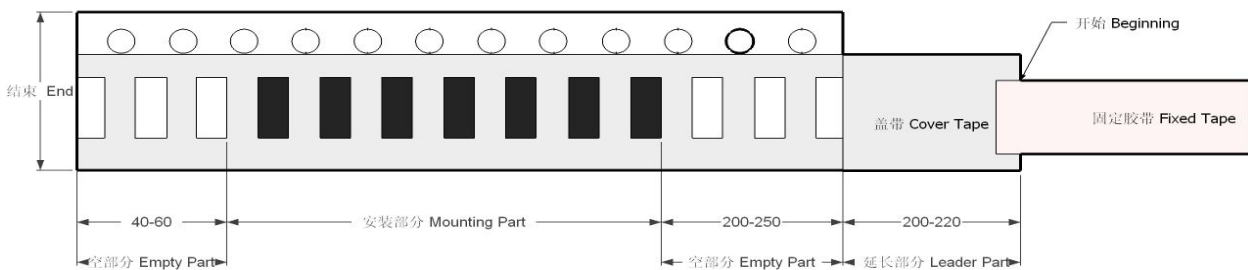
[单位/盘 Unit/Reel]

壳号 Case Size	每盘数量 Qty.per Reel
A	2000 pcs

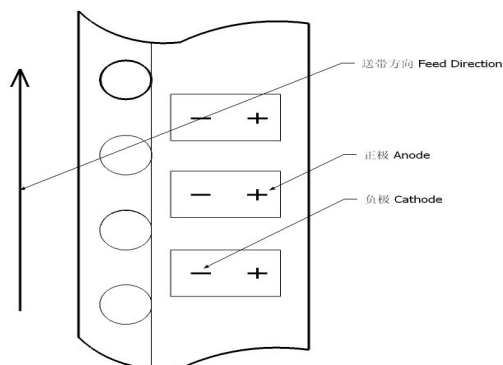
4.2 编带规范 Taping Specification

1) 编带规范 Taping Specification

单位 Unit: mm



2) 极性 Polarity

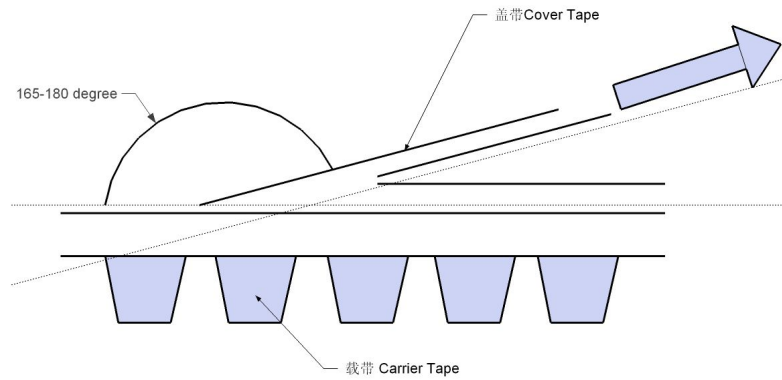


3) 盖带的撕开方法和力量 Peel Method and Force of the Cover Tape

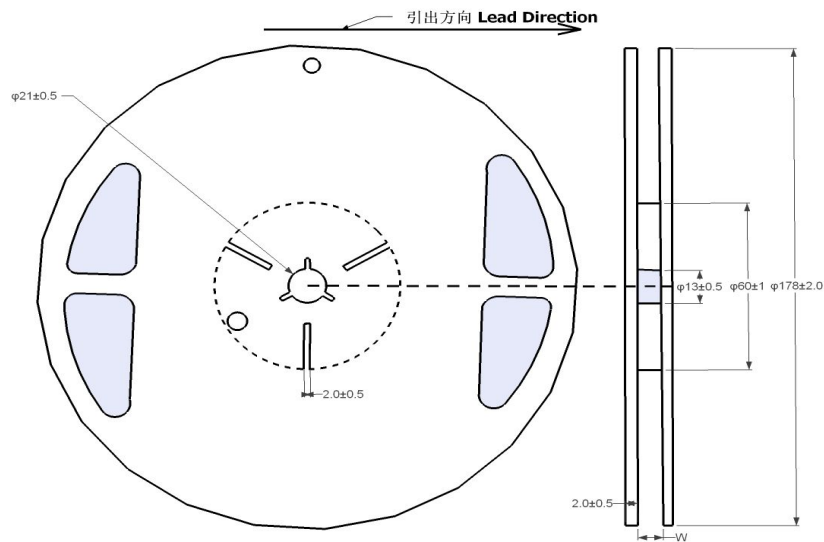
撕开角度 Peel Angle: 165-180 °

撕开速度 Peel Speed: 300mm±10mm/min

撕开力量 Peel Force: 0.1N - 1N(10-100g) for 8mm carrier tape



5. 卷盘及尺寸 Reel and Dimension



单位 Unit : mm

壳号 Case Size	W(mm)
A	8.4 ^{+1.50} _{-0.00}

6. 电气特性 Electrical Performance

No.	项目 Items	性能参数 Performance Characteristics	试验条件 Conditions of Test
1	使用温度范围 Operating Temperature Range	-55~+125℃	
2	额定温度 Rated Temperature	+85℃	
3	额定电压 Rated Voltage(v)	16	
4	降额电压 Derated Voltage(v)	10	+125℃
5	浪涌电压 Surge Voltage(v)	20	
6	漏电流 Leakage Current(DCL)	MAX.0.5 μ A	串联保护电阻 Series Protective Resistor:1000Ω 测量电压:额定电压 Measuring Voltage: Rated Voltage 测量时间 Measuring Time: 1~5minutes
7	容量 Capacitance	0.47 μ F	测量电路: 等效串联电路 Measurement Circuit: Equivalent Series Circuit 测量频率 Measuring Frequency: 120Hz±10% 最大测量电压 Measuring Voltage Max.: 0.5Vrms,+1.5Vdc.
8	容量偏差 Capacitance Tolerance	±10%	
9	损耗因子 Dissipation Factor (DF)	MAX. 0.04	
10	等效串联电阻 Equivalent Series Resistance (ESR)	MAX. 10 Ω	测量电路: 等效串联电路 Measurement Circuit: Equivalent Series Circuit 测量频率 Measuring Frequency: 100kHz±1%

7. 使用注意事项 Note in Use

7.1 使用低阻抗电路时, 请将使用电压设定在额定电压的 1 / 3 以下。使用其它电路时, 请将使用电压设定在额定电压 1/2 以下。For circuits with low resistance circuit, make the use voltage be 1/3 or under of the rated voltage. In general circuit, make the use voltage be 1/2 or under of the rated voltage.

7.2 钽电容器在电路中, 应控制瞬间大电流对电容器的冲击, 建议串联电阻以缓解这种冲击, 请将 3Ω / V 以上的保护电阻器串联在电容器上, 以限制电流在 300mA 以下。无法插入保护电阻器时, 请使用额定电压的 1 / 3 以下的电压。In case of circuits with large instantaneous rush current or rapid charging/discharging circuits, connect the protection resistor of 3Ω/V or more in series to the capacitor to limit the current to 300mA or less. When the protection resistor can not be inserted, lower the use voltage to 1/3 or under of the rated voltage.

7.3 请在电容器规定的容许纹波电压内使用。使用时, 直流偏压与交流分压峰值之和不得超过电容器的额定电压值。设计电路中钽电容器上叠加直流电压的波动不能超过额定电压值或施加反向电压。Use the capacitors within the permissible ripple voltage specified independently. Use in the range that the sum of the DC voltage value and the peak value of ripple voltage does not exceed the rated voltage. Design not to apply over voltage made by fluctuation of superimposed DC voltage or reverse voltage to the capacitors.

7.4 请在电容器的规定使用温度范围内使用。使用温度超过+85℃, 请以降额电压作为使用电压。Use

the capacitors within the specified use temperature range. In case use temperature exceeds $+85^{\circ}\text{C}$, apply the reduced voltage as the rated voltage.

7.5 使用环境 Environmental Conditions

请勿在以下环境中使用 Do not use the equipment fit with the capacitor in the below environment:

- 电容器直接接触水、盐水、油等的环境。Environment where capacitors are directly splashed with water, salt water and oil.
- 处于高温，高湿状态、电容器表面发生结露的环境。Environment in high temperature and humidity causing dewing on capacitor surface.
- 电容器接触各种活性气体环境。Environment where capacitors touch various active gases.
- 有酸或碱的环境。Acid and alkaline atmosphere.
- 有高频波诱导的环境。Environment with high frequency induction.
- 有过度振动或冲击的环境。Environment with excessive vibration or shock.

8. 贮存 Storage

8.1 贮存条件 Storage Condition

环境温度 Environmental Temperature: $-10^{\circ}\text{C} \sim +40^{\circ}\text{C}$;

相对湿度 Relative Humidity: 不大于 70% no more than 70%;

8.2 贮存期 Storing Period

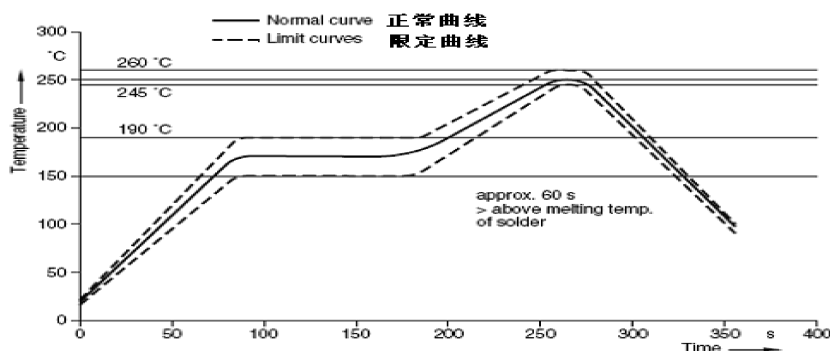
自生产入库之日起不超过一年半。No more than one and half year since date of stocking.

9. 推荐焊接条件 Recommended Soldering Condition

片式钽电容器(RoHS)、无论是手工焊还是再流焊，都应避免使用活性高、酸性强的助焊剂，以免清洗不净后渗透，腐蚀和扩散，而影响其可靠性。Flow method or reflow method whichever is applied for chip tantalum capacitors(RoHS), high-activated flux with string acid will not be used to prevent permeation, corrosion and diffusion from incomplete cleaning, thereby resulting in decreasing reliability.

片式钽电容器(RoHS)可使用回流焊焊接方式。可采取如下推荐条件。Chip tantalum capacitors(RoHS) can be applied to reflow method. Take the conditions below shown.

回流焊法（气氛加热法）Reflow method(Atmosphere heating method)



推荐焊接条件：片式钽电容器(RoHS)产品一般使用回流焊焊接。

预加热： $150^{\circ}\text{C} \pm 15^{\circ}\text{C} / 60-90$ 秒

最大升温速率： $2.5^{\circ}\text{C} / \text{秒}$

波峰温度： $250^{\circ}\text{C}-260^{\circ}\text{C}$ ，此温度下持续时间 3-10 秒。

230℃以上时间是：最大 40 秒。

Recommended Soldering condition: Chip tantalum capacitor(RoHS) generally uses reflow soldering.

Pre-heating: 150℃±15℃/60-90s

Max. peak gradient: 2.5℃/s

Peak temperature is 250℃-260℃ for 3-10s

Time at>230℃:40s Max.

- 如焊接面比端子面大得过多，焊锡熔化时可能引起错位。If the land is excessively larger than the size of the terminal surface, dislocation may occur when solder melts.

10.事前变更联络书 Product Change Notification

当本产品规格、材料、制造工艺及管理体系方面有变更时，新云公司将提前以产品可靠性试验数据为基础通知用户。XinYun will notice the customers ahead of time, when the product was changed in specification, material, process and management system.

11.RoHS 限定物质含量 RoHS Restricted Substance Content

本规范确定的片式钽电容器(RoHS)中的物质含量满足 2011/65/EU 和(EU)2015/863 附录 II 要求标准。

The substance contents of determining chip tantalum capacitor(RoHS) meet 2011/65/EU 和 (EU)2015/863 criteria in specification.

新云产品 XinYun Product	系 列 Series	RoHS 限定材料 RoHS Restricted Material					
		Cd	Pb	Hg	Cr/Cr (VI)	PBB	PBDE
		<0.01%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%
片式钽电容器 Chip Tantalum Capacitor	CA45	√	√	√	√	√	√

√=满足标准 meets criteria

12.引线端子成分(标准型)Termination Material(Standard Series)

	材料 Material	含量 Content
基体材料 Lead Frame Material	42#铁合金 42# Iron Alloy	55%
中间层 Intermediate Layer	镍 Nickel	40%
表面镀层 External Material	锡\铋 Sn\Bi	4.9995%(1.5%-3.0%—铋在锡中的含量 the content of Bi in Sn)

13.潮湿敏感等级 Moisture Sensitivity Level(MSL)

新云片式钽电容器是模塑环氧料包封，一般其潮湿敏感等级是 2 级。XinYun chip tantalum capacitor is moulded in epoxy resin, and moisture sensitivity level (MSL) is considered 2 level in general.