

规格承认书

Specification for Approval

产品名称 Product Name	高压金属化聚丙烯膜电容器 High-voltage metallized polypropylene film capacitor
型号规格 Type & Spec.	CBB81-3KV-472-P10
万盛料号 Walson's P/N	C144Q472A9P40001
文件编号 Document No.	WSCRs-2025122715
客 户 Customer	立创商城
客户料号 Customer's P/N	C53223831

供方确认 Supplier confirmation	客户承认 Customer Approval
	

请于承认后签章回执一份
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1. 结构 Construction



本产品由金属化高温聚丙烯薄膜、铝箔、高温聚丙烯薄膜卷绕而成，端面喷涂无铅金属并焊接引线，外部采用阻燃环氧树脂包封。

The product is winding by metallized high-temperature polypropylene film, aluminum foil, and high-temperature polypropylene film.Both end faces of the core sprayed with lead-free metal and welded with leads, and the exterior is wrapped with flame-retardant epoxy resin.

① 环氧包封料

Encapsulating Material

② 芯子

Core

③ 喷金层

Sprayed Metal Layer

④ 引出线

Lead Wire

2. 外形尺寸 Dimensions

引线成型图示 Forming Lead Shapes	
	Fig. 1 Fig. 2 Fig. 3 Fig. 4

客户料号 Customer's P/N	规格型号 & 料号 Spec. & Walson's P/N	容量 偏差 Tol.±%	外形尺寸 Outline Dimensions (mm)							图示 Fig.
			W Max	H Max	T Max	P ±0.5	F ±0.5	d ±0.1	L Min	
C53223831	CBB81-3KV-472-P10 C144Q472A9P40001	5	13	12	7	10	-	0.6	20	1

3. 特点及主要用途 Feature and Application

☆ 主要用途

- 大屏幕显示器行逆程电路
- 适用于高脉冲,大电流电路
- 适用于电子镇流器

☆ Application

- Horizontal resonance circuits of large screen monitor
- Suitable for high pulse and high current loading circuit
- Suitable for electronic ballast

☆ 特点

- 金属化聚丙烯膜箔式, 卷绕结构
- 损耗小, 内部温升小
- 负电容量温度系数
- 阻燃环氧粉末包封 (UL94/V-0)

☆ Characteristics

- Metallized polypropylene film/foil, wound construction
- Low loss and small inherent temperature rise
- Negative temperature coefficient of capacitance
- Flame retardant epoxy resin powder coating(UL94/V-0)

☆ 技术要求 Specifications

引用标准 Reference Standard	GB/T 10190-2012 (IEC60384-16)	
工作温度范围 Operating Temperature Range	-40 °C ~ +105 °C	
额定温度 Rated Temperature	85 °C (+85 °C to +105 °C decreasing factor 1.25 % per °C for U_R)	
额定电压 Rated Voltage	630/1000/1250/1600/2000/2500 VDC	
电容量范围 Capacitance Range	0.0010 μ F ~ 0.036 μ F	
电容量偏差 Capacitance Tolerance	$\pm 5\%$ (J)、 $\pm 10\%$ (K)	(20 , 1 kHz, 1 V)
耐电压 Voltage Proof	$1.6 U_R$	(20 °C, 5 s)
损耗角正切值 Dissipation Factor	≤ 0.0010	(20°C, 1 kHz, 1 V)
绝缘电阻 Insulation Resistance	$\geq 25000 M\Omega$ $\geq 7500 s$	$C_R \leq 0.33 \mu F$ $C_R > 0.33 \mu F$ (20 °C, 100 V, 1 min)

4. 可靠性测试 Reliability Test

序号 No.	测试项目 Test Item	测试方法 Test method	要求 Requirement
1	外部检查 Outline check	目视检查, 卡尺测量 Visual inspection and capliper measurement	外形规整, 无可见损伤; 标志端正、清晰、无误 The appearance is regular without visible damage; The mark is regular, clear and correct.
	初始测量 Initial measurement	电容量 C: 20 °C, 1 kHz, 1 V 损耗角正切 Tan δ: 20 °C, 1 kHz, 1V	
	引出端 强度 Terminal Strength	拉力: 5 N 方向: 180 ° 时间: 10±1 s Pull: 5 N Direction: 180 ° Time: 10±1 s	无可见损伤 No visible damage
		拉力: 2.5 N 方向: 90 ° 次数: 2 次 The pull of bend: 2.5 N Direction: 90 ° Times: 2	无可见损伤 No visible damage
	耐焊接热 Soldering Heat Resistance	焊槽温度: +260 °C±5 °C 浸入时间: 10 s±1 s 浸入深度离安装面 2+0/-0.5 mm, 采用厚度为 1.5 mm±0.5 mm 的绝热屏蔽板 Solder temperature: 260 °C±5 °C Immersion time: 10 s±1 s Immersion depth is 2+0/-0.5 mm away from the installation surface, and insulation shielding plate with a thickness of 1.5mm ± 0.5 mm is used	无可见损伤 No visible damage
	最后测量 Final measurement		容量变化: $ \Delta C/C \leq 3\%$ 损耗变化: $\Delta \tan \delta \leq 0.004$ (1 kHz) $ \Delta C/C \leq 3\%$ $\Delta \tan \delta \leq 0.004$ (1 kHz)
2	初始测量 Initial measurement	电容量 C: 20 °C, 1 kHz, 1 V 损耗角正切 Tan δ: 20 °C, 1 kHz, 1V	
	可焊性 Solderability	焊槽温度: 235 °C±5 °C 浸入时间: 2.0 s±0.5 s Solder temperature: 235 °C ±5 °C Immersion time: 2.0 s±0.5 s	引线表面浸锡良好, 焊层面积达 95 %以上 The surface of the lead wire is well tinned, and the welding layer area reaches over 95 %

序号 No.	测试项目 Test Item		测试方法 Test method	要求 Requirement
2	温度快速变化 Rapid Change of Temperature		$\theta A = -40\text{ }^{\circ}\text{C}$ $\theta B = +105\text{ }^{\circ}\text{C}$ 循环次数: 5 次, 持续时间 $t = 30\text{ min}$ $\theta A = -40\text{ }^{\circ}\text{C}$ $\theta B = +105\text{ }^{\circ}\text{C}$ 5 cycles Duration: $t = 30\text{ min}$	无可见损伤 No visible damage
	振动 Vibration		频率范围: 10--500 Hz 振幅: 0.75 mm 试验安装方向: X, Y, Z. 试验每个方向持续时间: 2 h Frequency range: 10Hz to 500 Hz Amplitude: 0.75 mm Test installation direction: X,Y,Z, Test duration in each direction: 2 h	无可见损伤 No visible damage
	碰撞 Bump		碰撞次数: 4000 次 加速度: 390 m/s ² 脉冲持续时间: 6 ms Times of collisions: 4000 times Acceleration: 390 m/s ² Pulse duration: 6 ms	无可见损伤 No visible damage
	最后测量 Final measurement			无可见损伤 容量变化: $ \Delta C/C \leq 3\%$ 损耗变化: $\Delta \tan \delta \leq 0.004$ (1 kHz) 绝缘电阻: $\geq$ 初始测量值的 50 % No visible damage $ \Delta C/C \leq 3\%$ $\Delta \tan \delta \leq 0.004$ (1 kHz) I.R. $\geq 50\%$ of the rated value
3	气候顺序 Climate Sequence	干热 Dry Heat	+105 $^{\circ}\text{C}$, 16 h	
		循环湿热 Damp Heat Cyclic	湿热试验 Db, 严酷度 b 第一次循环 Test Db, Severity: b, the first cycle	
		寒冷 Cold	-40 $^{\circ}\text{C}$, 2 h	
		循环湿热 Damp Heat Cyclic	试验 Db, 严酷度 b 其余循环 Test Db, Severity b, the other cycles,	
		最后测量 Final Measurement		外观无可见损伤, 标志清晰 电容量变化: $ \Delta C/C \leq 5\%$, 损耗角正切的增加: $\Delta \tan \delta \leq 0.005$ (1 kHz) 绝缘电阻: $\geq$ 额定值的 50 % There shall be no evidence of deterioration and the marking shall be legible. $ \Delta C/C \leq 5\%$ Increase of $\tan \delta \leq 0.005$ (1 kHz) I.R. $\geq 50\%$ of the rated value

序号 No.	测试项目 Test Item	测试方法 Test method	要求 Requirement
4	初始测量 Initial measurement	电容量 C: 20 °C, 1 kHz, 1V 损耗角正切 Tan δ: 20 °C, 1 kHz, 1V	
	稳态湿热 Damp Heat Steady State	温度: +40 °C±2 °C 相对湿度: 93 %±2 %RH 试验周期: 21 天 Temperature: +40 °C±2 °C Humidity: 93 %±2 %RH Duration: 21 Days	无可见损伤 No visible damage
	最后测量 Final measurement		容量变化 $\Delta C/C$ ≤ 5 % 损耗变化 $\Delta \tan \delta$: ≤ 0.002 (1 kHz) 绝缘电阻 I.R. ≥ 初始测量值的 50 % $\Delta C/C$ ≤ 5 % $\Delta \tan \delta$ ≤ 0.002 (1 kHz) I.R. ≥ 50 % of the rated value
5	初始测量 Initial measurement	电容量 C: 20 °C, 1 kHz, 1V 损耗角正切 Tan δ: 20 °C, 1 kHz, 1V	
	耐久性 Endurance	温度: +85 °C±2 °C 试验周期: 1000 小时 施加电压: 1.25 U _R Temperature: +85 °C±2 °C Duration: 1000 (h) Test voltage: 1.25 U _R	无可见损伤, 标志清晰 No visible damage
	最后测量 Final measurement		容量变化: $\Delta C/C$ ≤ 5 % 损耗变化: $\Delta \tan \delta$ ≤ 0.004 (1 kHz) 绝缘电阻: ≥ 初始测量值的 50 % $\Delta C/C$ ≤ 5 % $\Delta \tan \delta$ ≤ 0.004 (1 kHz) I.R. ≥ 50 % of the rated value
6	随温度而定的特性 Temperature Characteristic	静态法, 电容器依次保持在下述每个温度: Static method, the capacitor is maintained at each of the following temperatures in sequence: b.(20±2) °C, d.(-40±2) °C, f.(105±2) °C	在 b,d,f 点上电容量测量 在下限类温度(-40 °C)时的特性: Measurement of capacitance at points b, d, and f, characteristics at lower limit temperature (-40 °C): 0 ≤ $\Delta C/C$ ≤ +3 % 在上限类别温度(105 °C)时的特性: Characteristics at upper limit category temperature (105 °C): -4.25 % ≤ $\Delta C/C$ ≤ 0

序号 No.	测试项目 Test Item	测试方法 Test method	要求 Requirement
7	初始测量 Initial measurement	电容量 C: 20 °C, 1 kHz, 1V 损耗角正切 Tan δ: 20 °C, 1 kHz, 1V	
	充电和放电 Charging and Discharging	充电次数: 10000 次 充电电压: 1.0 U _R 充电时间: 0.5 s 放电时间: 0.5 s 充电电阻: 220/C _R Ω 放电电阻: R=10/C _R 或 20 Ω取较大者 C _R : 额定电容量 (μF) Times: 10000 Charging voltage: 1.0 U _R Duration of charging: 0.5 s Duration of discharging: 0.5 s Charging resistance: 220/C _R (Ω) or current intensity ≤ 1 A (whichever is the less current intensity) Discharging resistance: R=U _R /(C _R ×dv/dt) C _R : rated capacitance (μF)	
	最后测量 Final measurement		容量变化: ΔC/C ≤ 5 % 损耗变化: ΔTan δ ≤ 0.005 (1 kHz) 绝缘电阻: ≥ 初始测量值的 50 % ΔC/C ≤ 5 % ΔTan δ ≤ 0.005 (1 kHz) I.R. ≥ 50 % of the rated value
8	阻燃试验 Flame Retardancy	施加三次火焰, 每次施加 15 秒, 施加火焰 时间间隔 15 秒 Apply flame three times, each time for 15 seconds, with a flame application interval of 15 seconds	第一次和第二次施加火焰后燃烧时间 ≤ 15 秒, 第三次施加火焰后燃烧时间 ≤ 60 秒 The combustion time after the first and second application of flame is ≤ 15 seconds, and the combustion time after the third application of flame is ≤ 60 seconds

5. 产品特性曲线图 Graphs of Product Characteristics

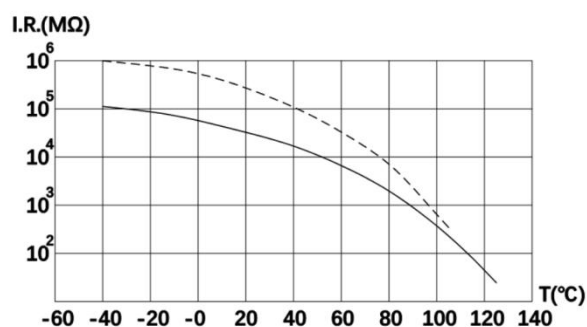
☆ 温度特性曲线 Temperature Characteristic Curve



Capacitance vs. Temperature at 1kHz



Dissipation Factor vs. Temperature at 1kHz



I.R. vs. Temperature

聚丙烯薄膜 Polypropylene Film
 聚酯薄膜 Polyester Film

☆ 频率特性曲线 Frequency Characteristic Curve



Capacitance vs. Frequency (Room Temperature)



Dissipation Factor vs. Frequency (Room Temperature)

----- 聚丙烯薄膜 Polypropylene Film
 ————— 聚酯薄膜 Polyester Film

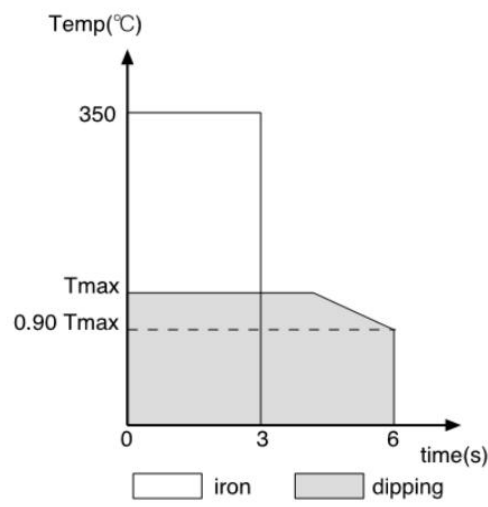
6. 焊接 Weld

焊接电容器时，热量会对电容器的引线和包封层产生影响，并且高温，以及长时间焊接都会对电容器的性能造成影响，甚至导致失效。

When welding, heat can have an impact on the leads and packaging layer of the capacitor, and high temperature and prolonged welding can affect the performance of the capacitor, even leading to failure.

焊接条件按下面的焊接图表：

The welding conditions are shown in the following welding chart



	Tmax	Time	Note
Pre-heating	110℃	1min	
	100℃	1min	OPP ≤ 7.5
Soldering	270℃	4s	
	260℃	4s	OPP ≤ 7.5