

规格承认书

SPECIFICATION FOR APPROVAL

产品名称 Product Name	铝电解电容器
产品系列 Product Series	CD298K
产品规格 Product Specification	500V330 μ F 30 \times 50
客户名称 Customer Name	百硅

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	史忠峰	黄定胜	邓鸿媚	2024. 08. 12

珠海格力新元电子有限公司¹
Zhuhai GreeXinyuan Electronic

¹地址：广东省珠海市斗门区龙山工业区龙山二路东八号
ADD: NO.8,EastLongshan 2 Road,Longshan Industrial Park, Doumen District, Zhuhai City, Guangdong Province,China
电话 (Tel): (86) 0756-5789888
传真 (Fax): (86) 0756-5789800
网址 (Web): <http://www.greecap.com>

履历表

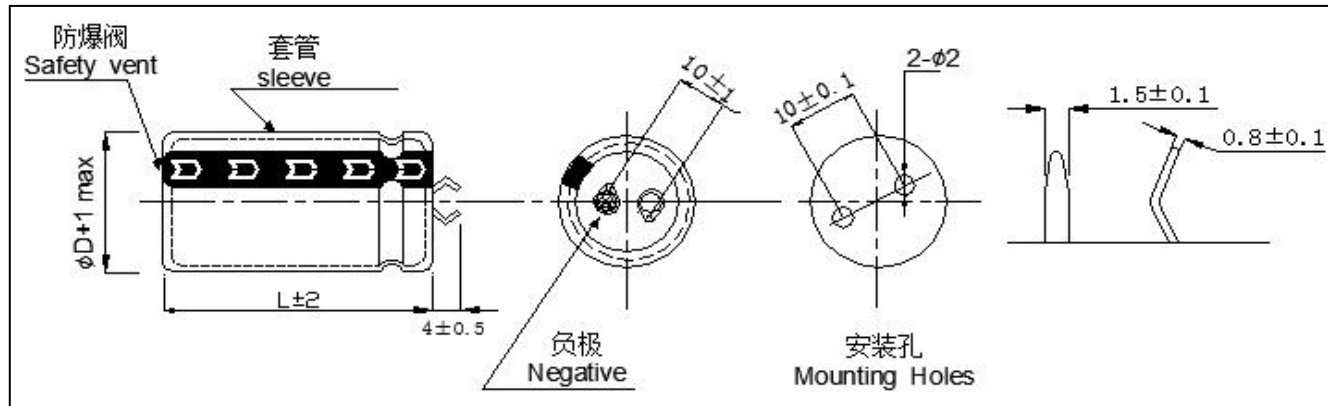
当前版本	日期	编制	说明
A01	2024. 08. 12	邓鸿媚	首次提供

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CD298K 系列 SERIES

一、电性能要求 Electrical Requirements

1、外形图 Dimensions



2、供样规格电性能参数一览表 Electrical performance parameters for sample specifications list:

No 序号	Rate W.V 工作电压 (VDC)	Cap. 容量 (μ F)	Case Size D Φ × L (mm)	Cap Tol. 容差 20°C/120Hz(%)	D.F (Max) 损耗角正切 20°C/120Hz (%)	LC (Max) 漏电流 20°C (μ A)	Ripple Current (Max) 纹波电流 105°C/120Hz (A)	Oper.Temp. 工作温度 (°C)	Load Life 负荷寿命 105°C (Hrs)	备注
1	500	330	30×50	±20	20	1218	1.66	-40 to 105	5000	

备注 Remark:

1、测量仪表 Test Instrument

(1) TH2828S 型电容测试仪 TH2828S LCR Meter

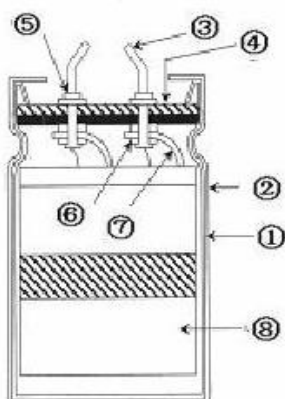
(2) TH2686C 漏电流测试仪 TH2686C Leakage Current Meter

2、漏电流测试要求:电容器接 1K Ω 的保护电阻施加电压 5 分钟后的测试电流。

Leakage Current Test: The rated voltage shall be applied across the capacitor and its protective resistor which shall be 1K Ω . The leakage Current shall then be measured after an electrication period of 5min.

二、产品结构 Product Frame

1、结构图和材料表 Frame drawing and Material table



序号 No	零部件 Component	材料 Material
①	铝壳 Case	铝 Aluminum
②	套管 Sleeve	PET (黑色 black)
③	引出端子 Terminal	铁镀铜镀锡 Solder coated copper clad steel
④	盖板 Seal	层压树脂板+橡胶 Rubber laminated bakelite
⑤	铆钉 Rivet	铝 Aluminum
⑥	华司 Washer	铝 Aluminum
⑦	引条 Tab	铝 Aluminum
⑧	芯子 Element	铝箔及电解纸 Aluminum foil & Electrolyte paper

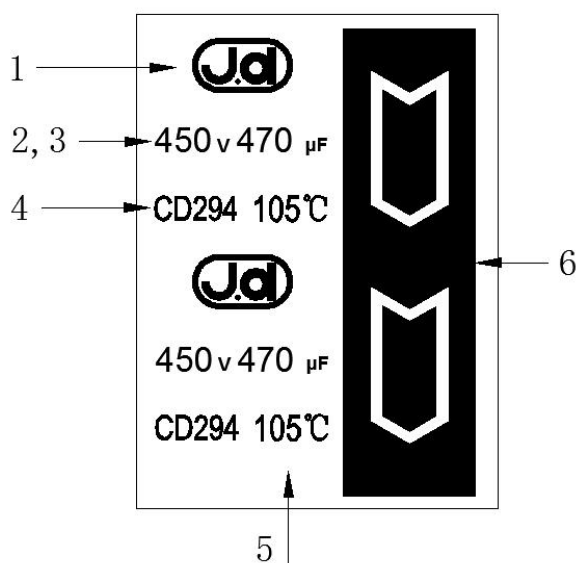
单只产品是由阳极箔、阴极箔用电解纸隔离卷绕形成芯子，再含浸电解液，装入铝壳中，用盖板封口，最后套上一层绝缘套管。

Single ended type to be produced to fix the terminals to anode and cathode foil, and wind together with paper, and then wound element to be impregnated with electrolyte will be enclosed in an aluminum case. Finally sealed up tightly with end seal, then finished by putting on the vinyl sleeve.

注：套管普通 PET 套管不适合双 85 试验，若有双 85 试验要求，套管需定制。

Common PET casing is not suitable for double 85 test. If double 85 test is required, the casing should be customized.

2、产品标志 Product Marking(举例 Example: CD294 450V470 μF)



NO	项目 Item	NO	项目 Item
1	商标 Trademark	4	系列型号 Series symbol
2	额定电压 Rated voltage	5	最高工作温度 Maximum operating temperature
3	标称电容量 Nominal capacitance	6	负极标志 Polarity

三、 试验方法和特性要求 Test Method and Characteristics

序号 No	项目 Item	条件 Conditions	特性 Characteristics	
1	温度变化试验 Rotational Temperature Test	电容器按下列程序进行温度变化控制 +25℃(3 分钟)→下限温度(30 分钟)→+25℃(3 分钟)→ 上限温度(30 分钟), 此为一个变化周期, 重复 10 次。然后 在初始常温条件下恢复 16 小时, 再测量符合要求。 Capacitor is place in an oven whose temperatures follow specific regulation to change.The specific regulation is“+25℃(3min)→lower temperature(30min)→+25℃(3min) →upper limit temperature(30 min)”, and it is called a cycle. The test totals 10 cycles. And then the capacitor shall be subjected to standard atmospheric Conditions for 16 h, after which measurement shall be made.	容量变化率 Capacitance Change	初始值的±5%以内 Within ±5% of the initial value
			损耗角正切 Tanδ	在初始规定值以内 Within specified value
			漏电流 Leakage Current	在初始规定值以内 Within specified value
			外观 Appearance	无爆裂及无异常变形 No broken and undamaged
2	高温负荷试验 High Temperature Load Life Test	在 105℃温度下施加额定纹波电流及额定电压 5000 小时 (纹波电压峰值与直流电压之和等于额定电压), 恢复 时间至少 16h, 再测量符合要求。 Capacitors shall be placed in oven with application of ripple current and rated voltage for 5000h at 105℃, And then the capacitor shall be subjected to standard atmospheric conditions at least 16h, after which measurements shall be made.	容量变化率 Capacitance Change	初始值的±20%以内 Within ±20% of the initial value
			损耗角正切 Tanδ	不大于 2 倍初始规定值 Less than 200% of specified value
			漏电流 Leakage Current	在初始规定值以内 Within specified value
			外观 Appearance	无爆裂及无异常变形(允许有轻 微的鼓底) No broken and undamaged(Bottom allowed slightly plumped)
3	高温贮存试验 High Temperature Unload Life Test	105℃温度下存放 1000 小时, 然后在初始常温条件下 恢复至少 16 小时, 再测量符合要求。 After 1000h test at 105℃ without rated working voltage. And then the capacitor shall be subjected to standard atmospheric conditions at least 16h, after which measurements shall be made.	容量变化率 Capacitance Change	初始值的±20%以内 Within ±20% of the initial value
			损耗角正切 Tanδ	不大于 2 倍初始规定值 Less than 200% of specified value
			漏电流 Leakage Current	不大于 2 倍初始规定值 Less than 200% of specified value
			外观 Appearance	无爆裂及无异常变形 No broken and undamaged
4	湿热试验 Humidity Test	在 40℃温度及相对湿度 90~95%环境条件下存放 500 小时, 然后在初始常温条件下恢复 1~2 小时, 再测量符合 要求。 Capacitors shall be exposed for 500h in an atmosphere of 90~95% R.H. at 40℃. And then the capacitor shall be subjected to standard atmospheric conditions for 1 to 2 h, after which measurements shall be made.	容量变化率 Capacitance Change	初始值的±10%以内 Within 10% of the initial value
			损耗角正切 Tanδ	不大于 1.2 倍初始规定值 Less than 120% of specified value
			漏电流 Leakage Current	在初始规定值以内 Within specified value
			外观 Appearance	无爆裂及无异常变形 No broken and undamaged
5	振动试验 Vibration Test	(1) 固定电容样品本体间隔小于 4mm; Fix it at the point 4mm or less form body. (2) 在垂直的 3 个方向上各振动 2 小时, 共 6 小时; Direction and during of vibration: 3 orthogonal directions mutually each for 2hrs total 6hrs. (3) 频率 10 ~ 55Hz 间变化;	容量变化率 Capacitance Change	初始值的±5%以内 Within ±5% of the initial value
			损耗角正切 Tanδ	在初始规定值以内 Within specified value
			漏电流 Leakage Current	在初始规定值以内 Within specified value

		Frequency:10 to 55 Hz reciprocation for 1 min. (4) 总振幅 1.5mm。 Total amplitude: 1.5mm.	外观 Appearance	无爆裂及无异常变形 No broken and undamaged															
6	耐焊接热 Solder Heat Resistance Test	电容引出端子浸入 260±5℃的焊锡液中；浸入深度为离安装面 1.5mm~2.0mm，采用厚度为 1.5±0.5mm 的绝热屏蔽板；保持 10±1s 时间，取出在 20℃下恢复 24h±2h。 The connecting terminal of capacitor immerse into solder liquid with 260±5℃.The depth of immersion is 1.5mm~2.0mm from the mounting surface , The test use an adiabatic shield with a thickness of 1.5±0.5mm and keep it for 10±1s . Then take out the capacitor and save it for 24±2h at a temperature of 20℃.	电容量变化率 Capacitance Change	初始值的±5%以内 Within 5% of the initial value															
			损耗角正切 Tanδ	不大于 150%的初始规定值 Less than 150% of specified value															
			漏电流 Leakage Current	在初始规定值以内 Within specified value															
			外观 Appearance	无爆裂及无异常变形 No broken and undamaged															
7	浪涌电压 Surge Voltage Test	在 105℃施加浪涌电压充电 30 秒，放电 5 分钟 30 秒，充、放电 1000 次，恢复时间至少 16h，在测试符合要求。 At 105℃After surge voltage applied at a cycling rate of 30 seconds charge and 5 minutes 30 seconds discharge 1000 successive test cycle. And then the capacitor shall be subjected to standard atmospheric conditions at least 16 hours, after which measurements shall be made.	电容量变化率 Capacitance Change	初始值的±15%以内 Within ±15% of the initial value															
			损耗角正切 Tanδ	不大于 2 倍初始规定值 Less than 200% of specified															
			漏电流 Leakage Current	在初始规定值以内 Within specified value															
			外观 Appearance	无爆裂及无异常变形 No broken and undamaged															
			<table border="1"> <tr> <td>W.V.</td> <td>315</td> <td>385</td> <td>400</td> <td>410</td> <td>450</td> <td>500</td> <td>550</td> </tr> <tr> <td>S.V.</td> <td>365</td> <td>435</td> <td>450</td> <td>460</td> <td>500</td> <td>550</td> <td>600</td> </tr> </table>			W.V.	315	385	400	410	450	500	550	S.V.	365	435	450	460	500
W.V.	315	385	400	410	450	500	550												
S.V.	365	435	450	460	500	550	600												
8	可焊性 Solder ability Test	电容引出端子浸入 255±3℃的焊锡液中保持 2±0.5s 时间；浸入深度为离安装面 1.5mm~2.0mm，采用厚度为 1.5±0.5mm 的绝热屏蔽板；上锡面积占整体 90%以上。 The connecting terminal of capacitor immerse into solder liquid with 255±3℃ for 2±0.5s .The depth of immersion is 1.5mm~2.0mm from the mounting surface ,The test use an adiabatic shield with a thickness of 1.5±0.5mm.The solder coating must be more than 90%.																	
9	引出端强度 Mechanical Characteristics Test	(1)本试验为测试引出端强度。The test is about lead tabs strength. (2)测试方法 Tension Test 垂直固定电容对其引出端施加拉力（2.5kg），持续 10±1 秒，引出端无断裂或明显变形。 The lead tads shall not be broken or any malformed condition after fixing capacitor vertically and pressing the following weight （2.5kg） on the lead tabs of capacitor for 10±1 seconds.																	
10	低温特性 Low Temperature Characteristics	温度 Temperature: 20℃/-25℃/-40℃；时间 Time:(2±0.5)h；阻抗频率 Impedance frequency at120Hz 电容在下限温度的阻抗与 20℃阻抗的比值≤低温阻抗比规格定值 The ratio of capacitor impedance at lower limit temperature to impedance at 20℃ is less than the specified value of low temperature impedance ratio(Electrical performance requirements page6).																	
		额定电压 Rated Voltage (V)	315~550																
		Z(-25℃)/Z(+20℃)	3																
		Z(-40℃)/Z(+20℃)	8																

11	压力释放 Pressure relief	<p>仅适用于有防爆阀的电容。在相反方向上施加直流电压，其值必须产生$\leq \Phi 22$ 1A，或$> \Phi 22$ 10A 的电流。</p> <p>The following test only applies to those products with vent. When a DC voltage is applied in the opposite direction, the value must produce a current of $\leq \Phi 22$ 1A, or $> \Phi 22$ 10A.</p> <p>持续 30 分钟内，产生的气体应将防爆阀打开，无爆炸和燃烧等危险情况发生。</p> <p>No emission of gas for 30 minutes of the voltage application also meets the specification. The vent shall operate with no dangerous conditions such as flames or dispersion of pieces of the capacitor and/or case.</p>
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附录 Appendix A:

纹波电流系数 Multiplier for ripple current

频率系数 Frequency coefficient

频率/Frequency (Hz)		50	60	120	1K	10K	50K
系数 Coefficient	315~550V	0.77	0.82	1.00	1.30	1.41	1.43