金 美 储 能 产 品 规 格 承 认 书

JINMCN SPECIFICATION FOR APPROVAL

客　　户:_____

CUSTOMER ：_____

品　　名：锂离子超级电容器

DESCRIPTION：550F 4.2V 13X40

承制方

制定	审查	批准
袁泉	张广发	

使用方

审核人员	确认

请核实本规格书内容，若无异议请签名盖章回传以表示知晓该规格书承诺的全部内容

深圳前海金裕美程储能技术有限公司
Shenzhen QH JinYMC Energy Storage Co.,Ltd.

金美储能官网：http://www.jinmcn.com

地址：广东省深圳市南山区前海深港合作区前海华润金融中心A栋

金美储能提示您：

1.金裕美程的电芯应在额定电压和规定工作温度区间使用， 并远离超过工作温度区间的热源

2.金美系列电芯在使用前需确认正/负极，禁止反向充电

3.金美系列电芯在使用前用干布对正/负极端子进行清洁

4.金美系列电芯禁止投入火中或进行高压加热

5.金美系列电芯禁止直接与水、油、酸或碱接触

6.金美系列电芯禁止挤压、钉刺和拆解

7.金美系列电芯禁止将带有 0.5V 以上电压进行正/负极短接

8.金美系列电芯在使用或储存期间如发现有散发气味、变色、变形或其它反常停止使用

9.金美系列电芯所使用的电解液极易挥发，请不要随意分解

10.金美系列电芯不能随意丢弃，需请根据国家环保标准进行处理

11.系统应配备保护板，避免电压低于金美系列电芯规格书中规定的充放电截止电压

12.金美系列电芯应在规定的温度范围内储存。会导致电芯性能的损失，漏液或生锈

13.金美系列电芯、不支持与其他品牌电芯焊接、使用前请先联系金裕美程确认

14.本规格书未提及到的事项、应同金裕美程确认是否可以进行、私自进行情况下、
深圳金裕美程储能技术有限公司不承担责任

Cautions from JinYMC Energy Storage Co.,Ltd

1.The cells of JinYMC should be used within the rated voltage and the specified operating temperature range, and kept away from heat sources exceeding the operating temperature range.

2.Before using JinYMC series cells, confirm the positive/negative poles and prohibit reversecharging.

3.Before using JinYMC series cells, clean the positive/negative terminals with a dry cloth.

4.JinYMC series cells are prohibited from being put into fire or subjected to high - pressureheating.

5.JinYMC series cells are prohibited from direct contact with water, oil, acid or alkali.

6.JinYMC series cells are prohibited from being squeezed, punctured and disassembled.

7.For JinYMC series cells, it is prohibited to short - circuit the positive/negative poles with a voltage above 0.5V.

8.During the use or storage of JinYMC series cells, if there are abnormal phenomena such as odoremission, discoloration, deformation or others, stop using them immediately.

9.The electrolyte used in JinYMC series cells is highly volatile. Please do not disassemble them at will.

10.JinYMC series cells cannot be discarded casually and should be disposed of according to national environmental protection standards.

11.The system should be equipped with a protection board to avoid the voltage being lower than the charge - discharge cut - off voltage specified in the specification sheet of JinYMC series cells.

12.JinYMC series cells should be stored within the temperature range specified in the specification sheet. Otherwise, it may lead to the loss of cell performance, leakage or rust.

13.JinYMC series cells do not support welding with cells of other brands. Please contact JinYMC for confirmation before use.

14.For matters not mentioned in this specification sheet, please confirm with JinYMC whether they can be carried out. In case of unauthorized actions, Shenzhen QH JinYMC Energy Storage Co., Ltd. will not bear any responsibility.

1. 适用范围 Scope

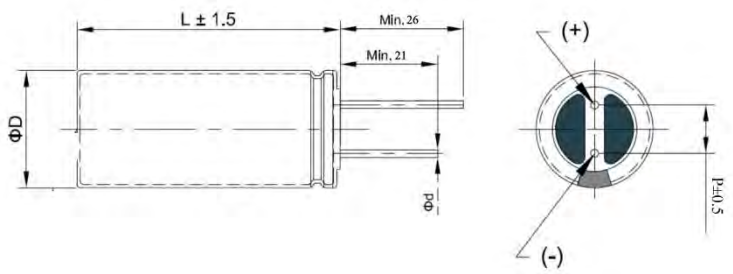
此金美储能规格书对产品的性能，测试方法进行了规范，作为技术确认的依据。

As a JinYMC basis for technical confirmation, this sheet specifies the performance and test methods of the product .

2. 产品特性&应用领域 Features & Applications

产品特性 Features	应用领域 Applications
工作电压高 High working voltage	消费电子 Consumer electronics
高能量 High energydensity	物联网 Internet of Things
长寿命-金久耐用 Long cycle life	智能仪器 intelligent instrument
安全可靠 Safe and reliable	玩具 Electric toys
低碳环保 Environment-friendly	自动化设备 Automation equipment
免维护 为您省钱 Maintenance-free	UPS
充放电速度可达秒级（部分毫秒级） Charge-discharge speed at the scale of second Some can reach millisecond level	程控交换机 SPC exchange
从结构到整件遵循金美jinmcn的抗震设计 From the structure to the whole piece, follow the seismic design of Jinmcn	汽车记录仪 Car recorder

3. 外形尺寸(单位：mm) Dimensions (Units : mm)

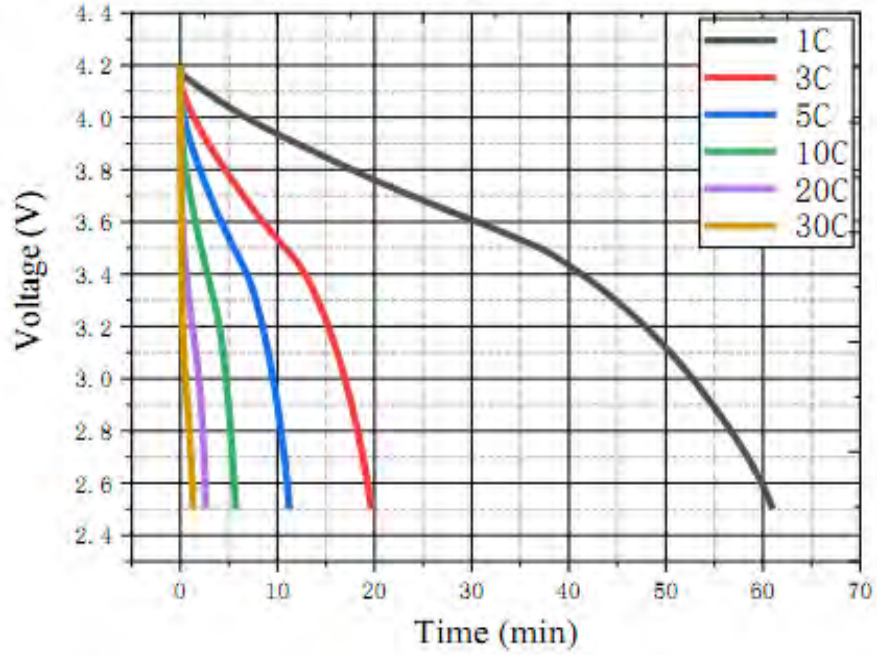


ΦD (mm)	L (mm)	Φd (mm)	P (mm)	重量 (g)
12.5＋1.5 Max	40±1.5	Φ0.6±0.1	5.0±0.5	≤8.0

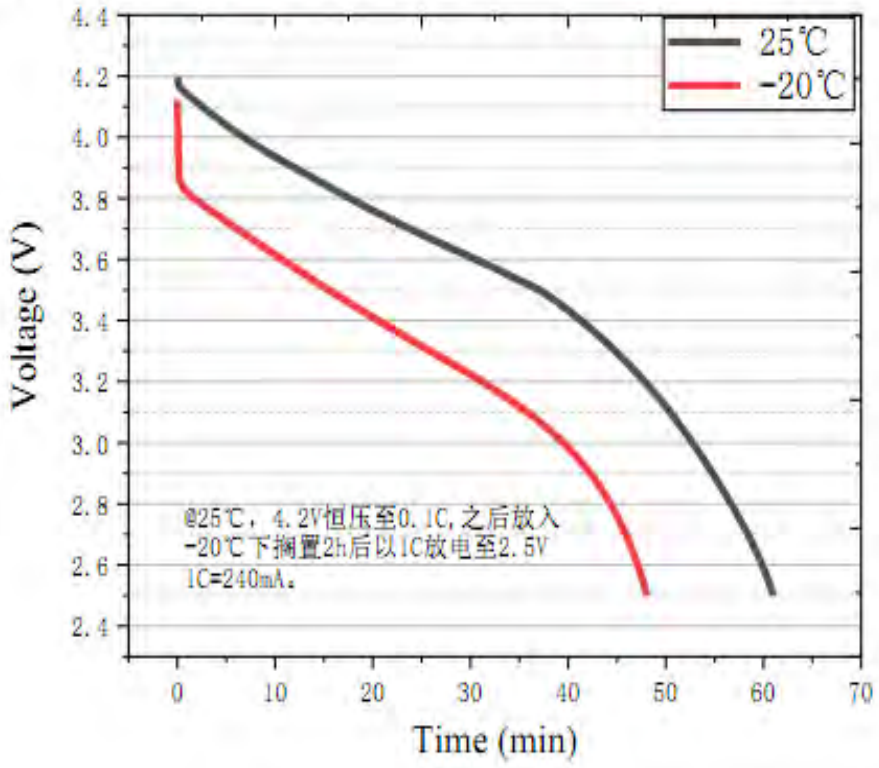
4. 性能参数 Parameters

电气性能 Electrical Performance		
容量 Capacitance	额定容量，Rated Capacitance, F	550（250mah）
	容量偏差，Capacitance Tolerance, %	-20%~+20%
电压 Voltage	额定电压，Rated Voltage, V.DC	3.8
	浪涌电压，Surge Voltage, V.DC	4.2
内阻 Internal Resistance	DC/ mΩ@25℃	80
	AC 1kHz/mΩ@25℃	50
电流 Current	72 小时泄漏电流，72-hour Leakage Current, u A	/
	最大持续电流 Continuous Current A	3
	1 s最大峰值电流，1 s Maximum peak Current, A	28
质量 Mass	典型质量，Typical mass, g	8
最大充电电压/电流 Max charge voltage/current	最大充电电压 Max charge voltage	4.2V
	最大充电电流 Max charge current	3A
功率密度 Power Density	功率密度，Power Density, kW/kg	
温度 Temperature		
温度区间 Temperature Range	工作温度范围，Temperature for Operation, ℃	-40 ~ +65
	存储温度范围，Temperature for Storage,℃	+10 ~ +55
寿命 Life		
使用期限 Life Time	额定电压下工作1万次（2.5V~4.2V）	
	容量变化（初始值衰减） Capacitance change (decrease from initial value)	≤ 30%
	内阻变化（初始值增大） Internal Resistance (increase from initial value)	≤ 4 倍 (times)

倍率放电容量变化 Capacitance changes at different discharge rate



低温放电容量变化 Capacitance changes at low temp. discharge condition



5. 标准测试条件 Test Conditions

本产品规格书标准测试条件为：标准大气压下，温度25±2℃，相对湿度小于65%。

This specification followed the standard testing criteria: 1 atm, 25±2 ℃ and arelative humidity 65%.

尺寸：必须使用 JIS B 7503 / KS B 5206(千分尺), JIS B 7507 / KS B 5203-2(游标卡尺) JIS B 7502 / KS B 5205 / KS B 5202（外部千分尺）或精度等级相同的仪表。

Size: Need to use JIS B 7503 / KS B 5206 (Micrometer), JIS B 7507 / KS B 5203-2(Vernier caliper) JIS B 7502 / KS B 5205 / KS B 5202(External micrometer) or other same precision grade devices.

直流电压表：必须使用0.2级的JIS C 1102 / KS C 1303-2（电动指示仪）度相同或更高等级的仪表，其输入电阻超过10MΩ。

DC Voltmeter: Need to use 0.2 grade type JIS C 1102 / KS C 1303-2(Electric Indicator) or much high precision devices, its internal resistance should over 10MΩ

直流电流表和交流电流表：必须使用0.2级的JIS C 1102 / KS C 1303-2（电动指示仪）度相同或更高等级的仪表，其输入电阻超过10MΩ。

DC Ammeter and AC Voltmeter: Need to use 0.2 grade type JIS C 1102 / KS C 1303-2(Electric Indicator) or much high precision devices.

6 容量测试方法 Testing Methods

依据图1所示，设定充电电压(E)后(参照表1)，将SW开关转向1处进行充电，根据表1中充电时间(T)与充电电压(V)的要求，借助保护电阻(R)进行充电。当达到规定充电时间后，将开关SW转向2，按照表2中的放电电流(I)进行恒流放电，记录产品从起始电压(V_1)至结束电压V_2过程所用时间($T_d=T_2-T_1$)，依据下述公式计算产品容量(C):

According to Fig. 1, setting the charging voltage (E, Based Table 1), put the switch SW to 1 for charging. And based on the Charging Time (T) and Charging Voltage (V)' s requirements, charge the cell by using Protection Resistance (R). Once reached the Charging Time, switch the SW to position 2, meantime, galvanostatic discharge the cell to the target voltage with the discharge current (Table 2). Record the time between the starting voltage V_1 and the ending voltage V_2 ($T_d=T_2-T_1$), finally, Calculating the Capacitance (C) by the following formula:

$$C = \frac{I \times (T_2 - T_1)}{V_1 - V_2}$$

其中，C为测试样品的容量(F)，E为直流恒压电源(V)，R为保护电阻(Ω)，V为直流电压表，I为恒流负载装置，A为直流电流表。

Specifically, C was the cell’ s capacitance(F), E named the DC constant power (V), R was the protection resistance(Ω), V was the DC Voltmeter, I was the constant current load, A was the DC ammeter.

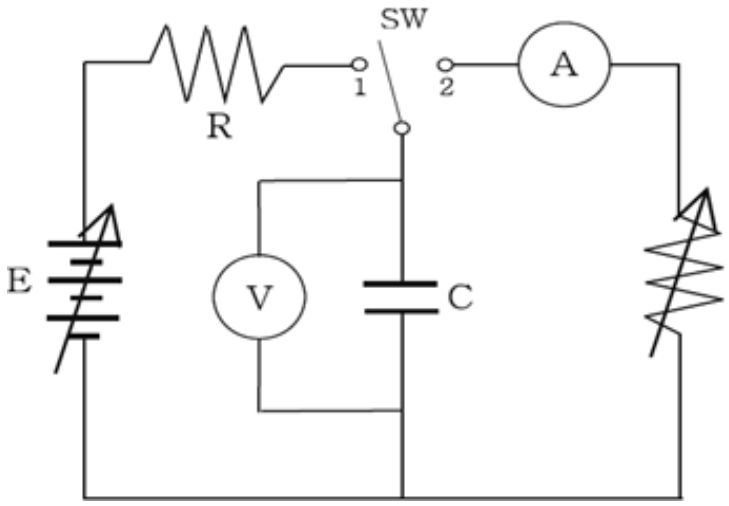


图1 容量测试电路图

Fig. 1 Circuit Diagrams for Capacitance Test

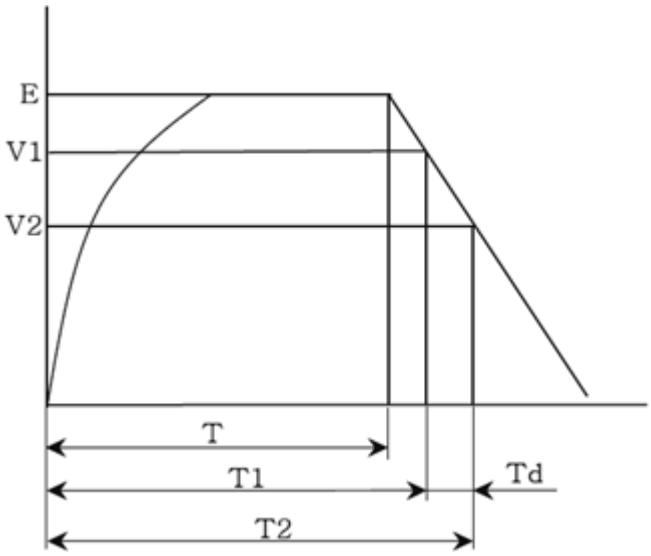
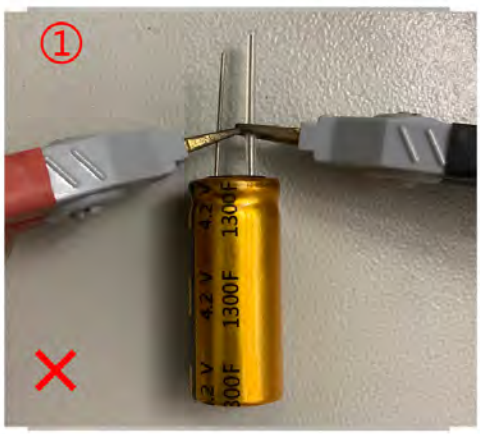
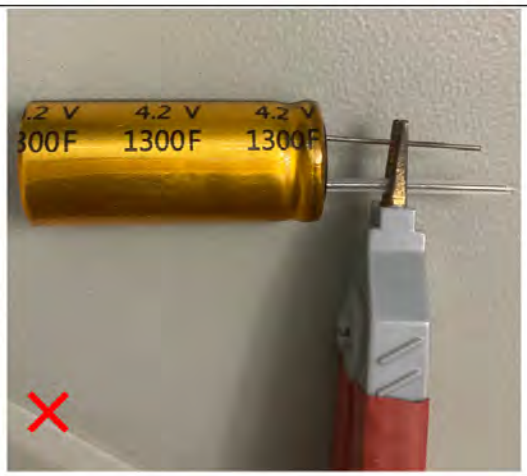


图2 样品的充放电曲线

Fig. 2. Charge/Discharge curves for Sample

7 注意事项 matters needing attention

1.测量中发生短路 Short Circuit during Testing	2. 产品处理中发生短路 Short Circuit during connecting
① 	② 
3.产品放置在一起导致引线接触 Radial connecting during the storage or moving processes	4. 发生短路 Short circuit
③ 	④