

电池组规格书

Specification for Battery Pack With BMS

电池组型号/ Battery Pack Type:

12V 12AH

三元锂储能箱/NCM Battery Pack

承认签章 Approval Signature		
核准 Approved	审核 Checked	拟定 Registered

客户确认栏 Customer Approval	
确认意见 Conformation:	
签章 Signature:	日期 Date:

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1. 前言/ Preface

本标准规定了由广州捷力公司生产的电池技术要求,测试方法及注意事项。

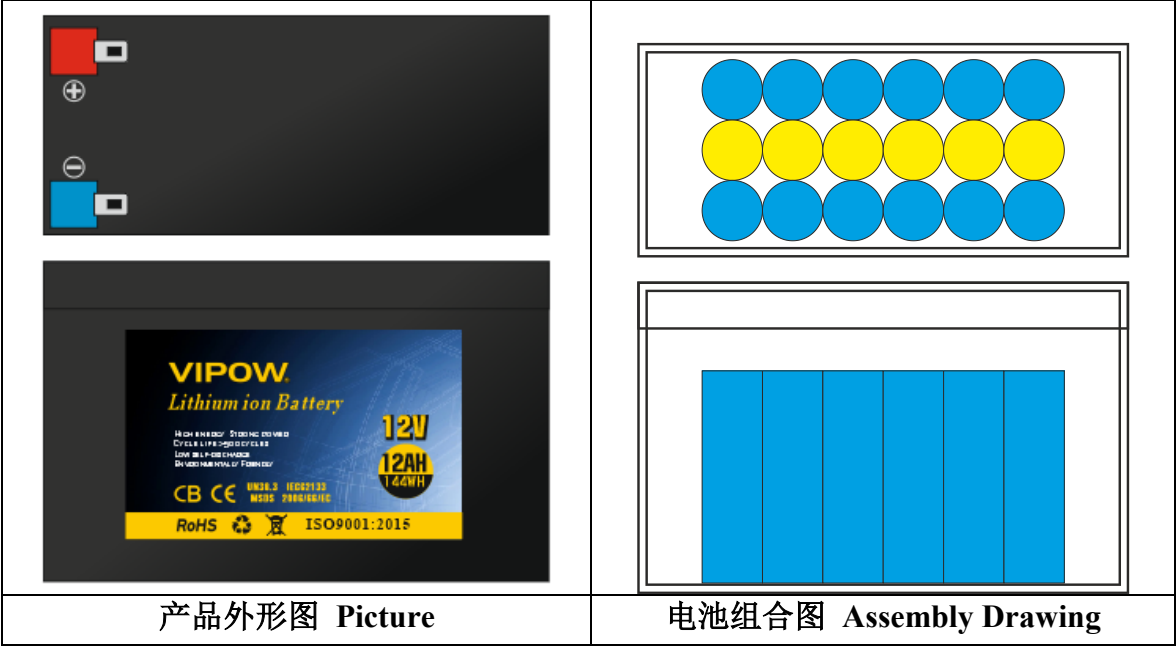
This product specification describes the technique requirements, test procedure and precaution notes of battery to be supplied to customer by Guangzhou VIPOW Co., Ltd..

2. 说明/ Description

2.1 产品/ Product:可充电电池组/ Rechargeable battery pack

2.2 电池型号/ Model (Type): 11.1V 12AH

2.3. 电池组外形尺寸和装配结构尺寸/Assembly Drawing



2.4. 电池组规格参数:

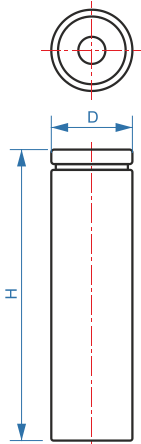
产品名称 Product Name:	11.1V 12AH
电池容量 Capacity:	11.1V 12AH 133.2WH
产品外形尺寸 Size:	151x65x95 MM
重量 Weight:	1200 g
内置电池类型 Battery Type:	三元锂电池 NCM Battery

3. 电芯尺寸/ Cell Size

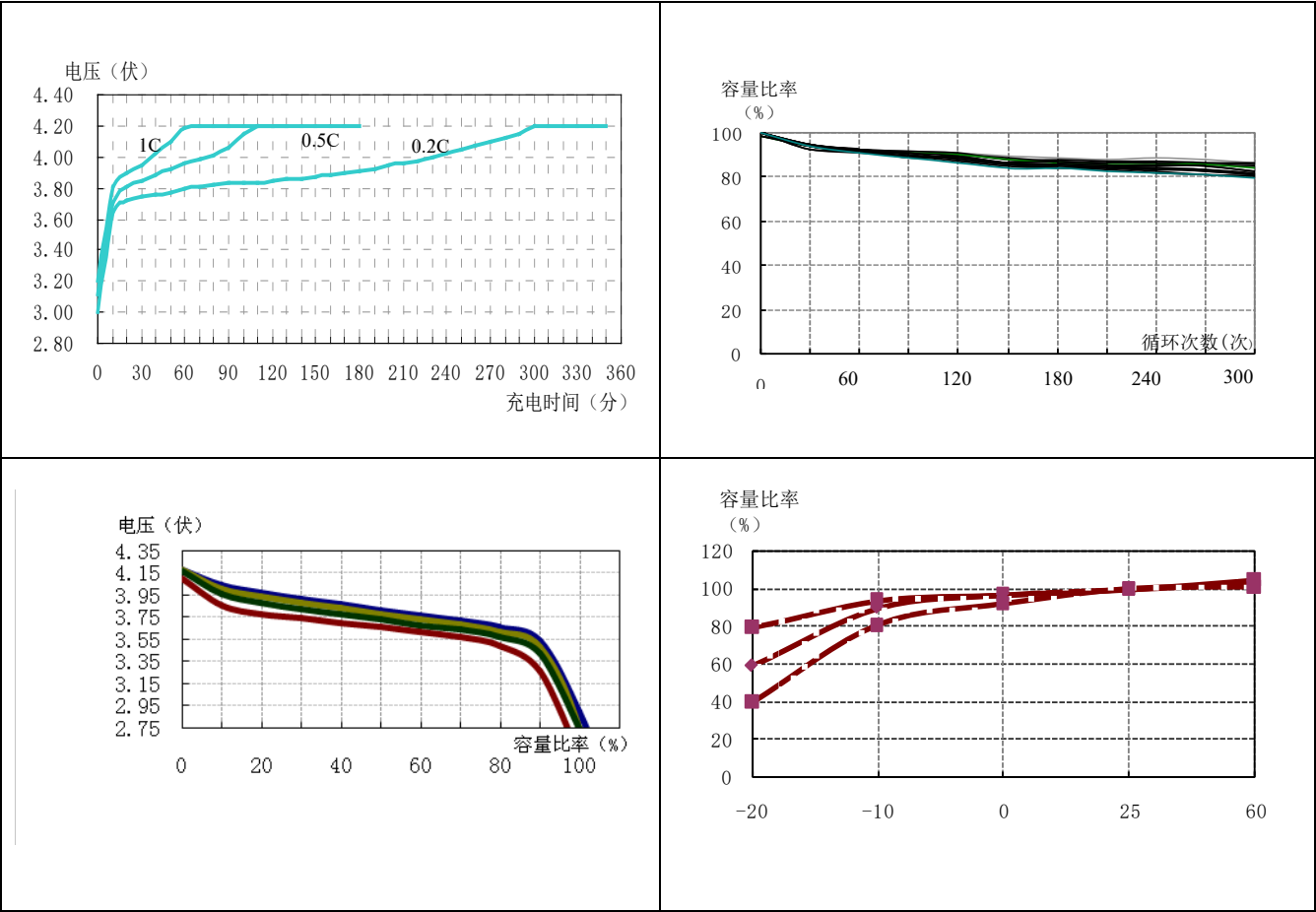
对于图形结构的详细资讯, 请参阅图A.

For details, please refer to Figure A.

Item	Description	Dimensions
H	Height (Bare Cell)	65.3 mm max
D	Diameter (Bare Cell)	18.3 mm max



4. 电芯特性图/Cell Characteristics diagram



5. 电芯标准/ Cell Specification

项目/ Item		标准/ Specification	备注/ Remark
5.1 典型容量/ Typical capacity		2000mAh	0.2C rate discharge capacity
5.2 最小容量/ Minimum capacity		1950mAh	
5.3 交流内阻/ Internal impedance		≤70mΩ	By 1kHz AC
5.4 标称电压/ Nominal voltage		3.7V	
5.5 电芯重量/ Cell weight		42g±2g	
5.6 标准充电方式 Standard charge method	恒流/ Constant current	400mA	
	充电电压 Charge voltage	4.2V±0.05V	
	截止电流 Cut-off current	40 mA	
5.7 快速充电方式 Fast charge method	恒流/ Constant current	1000mA	
	充电电压 Charge voltage	4.2V±0.05V	
	截止电流 Cut-off current	40mA	
5.8 标准放电方法 Standard discharge conditions	恒流/ Constant current	400 mA	
	截止电压 End-of-charge voltage	2.75V	
5.9 最大持续放电电流		2000mA	1C

Max continuous discharge current				
5.10 脉冲放电电流 Pulse discharge at 10 Sec		4000mA		2C
5.11 循环寿命 Cycle life		over 300 cycles		0.5C continual discharge (100% DOD)
5.12 操作温度 Operating temperature	充电温度 Charging ambient temperature	0~45°C		Cell skin temperature should not exceed 65°C.
	放电温度 Discharging ambient temperature	-20~45°C		Cell skin temperature should not exceed 80°C
	存储温度 Storage temperature	1 year	0~30°C	Note:If the cell is kept as ex-factory status (50 % of charge)
		3 months	-20~35°C	
		1 month	-20~45°C	
5.13 外观/ Appearance		无破裂、划痕、变形、污迹、电解液泄露等 Without break, scratch, distortion, contamination, leakage.		

6.电池管理系统 BMS 性能特点 BMS Main Feature:

6.1. 本储能箱使用的电池管理系统具有过充电保护功能，过放电保护功能，过电流保护功能，短路保护功能，充电电量平衡管理功能。 This storage battery is design with the below function: Over charge protection, over discharge protection, over current protection, short circuit protection, battery balance management.

6.2. 产品特点 Main feature :

- 采用 A 级保护集成电路方案。Grade A protection IC.
- IC 自带电量平衡功能，平衡电路简单可靠，平衡电流可通过外部调节。 With the balance function of the IC, the balance circuit is simple and reliable, and the balance current can be adjusted externally
- 具有典型的电压侦测方式的过充电保护，过放电保护。硬件的过流，短路保护，短路保护性能稳定可靠，长时间负载短路不会对保护板和电芯产生影响。With typical voltage detection mode, this BMS is with Over charge protection over discharge protection. Short circuit protection performance reliable, long-term short circuit will not affect the protection board and battery.

7.电气参数 BMS Specifications

项目 Item	符号	详细内容 Detail	标准 Standard
充电 Charge	IDP	充电电流 Charging current	0-12A
放电 Discharge	IDP	放电电流 Discharging current	0-12A
过充保护 Over charge Protection	V _{DET1}	过充电检测电压 Over charge protection voltage	4. 25±0. 025V

	tV_{DET1}	过充电检测延迟时间 Over charge protection delay	1000ms (MAX)
	V_{REL1}	过充电解除电压 Over charge release voltage	$4.05 \pm 0.05V$
过放保护 Over discharge Protection	V_{DET2}	过放电检测电压 Over charge detection voltage	$2.7V \pm 0.08V$
	tV_{DET2}	过放电检测延迟时间 Over discharge detection delay time	1000ms (MAX)
	V_{REL2}	过放电解除电压 Over discharge release voltage	$3.0V \pm 0.1V$
过流保护 Over Current Protection	V_{DET3}	过电流检测电压 Over current detection current	$100 \pm 15mV$
	I_{DP}	过电流保护电流 Over current protection current	24-30A
	tV_{DET3}	检测延迟时间 Over current detection delay time	1000ms (MAX)
		保护解除条件 Over current lease	断开负载 Disconnect the load
短路保护 Short circuit protection		保护条件 Short circuit protection condition	外部电路短路 External short circuit
	T_{SHORT}	检测延迟时间 Short circuit detect delay	$600 \mu s$ (MAX)
		保护解除条件 Short circuit lease condition	断开短路电路 Disconnect the load
内阻 Internal resistance	R_{DS}	主回路通态电阻 Main loop electrify resistance	$R_{DS} \leq 60m \Omega$
消耗电流 Self-consuming	I_{DD}	工作时电路内部消耗 Sleeping current (over discharge)	2.0-6.0uA

8.注意事项 Note:

- 9.1 根据产品标示的正确的极性接线，不可接反电池的正负极。According to the correct polarity to connect the positive and negative poles.
- 9.2 使用过程中一定要遵循设计参数及使用条件；Follow the correct parameters and conditions.
- 9.3 充、放电流不可超过规格书中的额定值；Charge current and discharge current must not exceed the rated value
- 9.4 请在规定的工作温度内使用，并确保周围有良好的散热环境； Operating within the specified temperature range to ensure the surrounding heat dissipation is good.
- 9.5 不可自行拆卸本产品；This product cannot be disassembled by consumer.
- 9.6 避免浸水。Do not put this battery in water.