$LiFePO_4$ battery

Specification

Model Number: 12.8V 100Ah

1 Scope

This specification is applied to the reference battery in this Specification

2 Product Specification

Table 1（表 1）
No. Item General Parameter Remark

1	Rated Capacity	Typical	100Ah	Standard discharge（0.2C）after standard charge
		Minimum	100Ah	
2	Nominal Voltage	12.8V		Mean Operation Voltage
3	Cut-off Voltage Discharge	8.8 ±0. 2V		Cut-off Voltage
4	Cut-off Voltage charge	15.0±0. 2V		
5	Standard charge	Constant Current 0.2C Constant Voltage15.0V 0.02C cut-off		Charge time：Approx 6.0h
	Standard discharge	Constant Current 0.2C end Voltsge 8.8V		
7	Fast charge	Constant Current 0.5C Constant Voltage 15.0V 0.02C cut-off		Charge time：Approx 2.5h

8	Fast discharge	Constant Current 1C end Voltage 15.0V	
9	Maximum Continuous Charge Current	50A	
10	Maximum Continuous Discharge Current	50A	
11	Operation Temperature Range	Charge：0~45° C	60±25%R.H. Bare Cell
		Discharge：-20~60° C	
12	Storage Temperature Range	Less than 1 year：-20~25° C	60±25%R.H. at the shipment state
		Less then 3 months：-20~40° C	
14	Weight	Approx：11±0.5kg	

3 Performance And Test Conditions

Standard Test Conditions
Test should be conducted with new batteries within one week after shipment from our factory and the cell

shall not be cyded more than five times before the test. Unless otherwise specified test and measurement shall be done under temperature of 20±5° C and relative humidity of 45~48%.if it is judged that the test results are not affected by such conditions the tests may be conducted at temperature 15~30° C and humidity 25-85%R.H.

Measuring Instrument or Apparatus
Dimension Measuring Instrument
The dimension measurement shall be implemented by instruments with equal or more precision scale of 0.01mm.

3.2.2 Voltage
Standard class specified in the national standard or more sensitive class having

inner impedance more than

10kΩ/V.
Ammeter
Standard class specified in the national standard or more sensitive class Total, external resistance including ammeter and wire is less than 0.01Ω.
Impedance
Meter Impedance shall be measured by a sinusidal alternating current method(1kHz LCR meter) Standard Charge/Discharge
Standard charge:Test procedure and its criteria are referred as follows:
0.2C=
Charging shall consist of charging at a 0.2 C constant current rate until the cell reaches 3.65V. The cell shall then be charged at constant voltage 0f 3.65 volts while tapering the charge current Charging shall be terminated when the charging current has tapering to 0.02C Charge time:Approx 6.0h,The cell shall demonstrate no permanent degradation when charged between 0° C and 45° C.
0.2C=
Cells shall be discharged at a constant current of 0.2C to 2.0 volts @20° C±5° C.
If no otherwise specified the rest time between Charge and Discharge amount to 30min. Appearance

There shall be no such defect as flaw crack ,rust, leakage, which may adversely affect commercial value of battery.
Initial Performance Test

Table 2(表 2) Item

(1) Open-circuit Voltage

(2) Internal impedance

Test Method Condition
The open-circuit voltage shall be measured within 24 hours

after standard charge. InternalresistancemeasuredatAC1KHzafter50%charge.

Requirements

(3) Minimal Rated Capacity	The capacity on 0.2C discharge till the voltage tapered to 2.0V shall be measured after rested for 30min then finish standard charge.	Discharge Capacity

Temperature Dependence of discharge capacity
Cells shall be charged per 3.3.1 and discharged @0.5C to 2.0 volts. Except to be discharged at temperatures per

Table 3. Cells shall be stored for 3 hours at the test temperature prior to discharging and then shall be discharged at the test temperature The capacity of a cell at each temperature shall be compared to the capacity achieved at 23°C and the percentage shall be calculated .Each cell shall meet or exceed the requirements of Table 3.

Table 3
Discharge Temperature Discharge Capacity(0.5C)

Cycle Life and Leakage-Proof Table 4

No. Item

2 Leakage-Proof

-10°C 0°C 50% 80%

Criteria

No leakage (visual inspection)

23°C 60°C 100% 95%

Test Conditions

After full charge with standard charge store at 60 ±3°C,60±10%RH for 1 month.

1	Cycle Life (0.2 C)	Higher than 70% of the Initial Capacities of the Cells	Carry out 2500 cycle Charging/Discharging in the below condition. ◆ Charge: Standard Charge, per 3.3.1 ◆ Discharge:0.2 C to 10.0V ◆ Rest Time between charge discharge:30min. ◆ Temperayure:20±5° C

4.Protection circuit 4.1 PCM Specification

Details 详细项目 Min. Typ.

Battery Gas 电池类型

Battery Link 电池组组合方式

Input Charging Voltage 充电电压 15.0 Input Charging Current 充电电流 50 Continuous Output Discharging Current(可持续工作电流) 50

Max

60 90% 85 90%

Error Unit

3.2V 4S

Ambient Condition 工作环境

Storage Condition 存储环境

Operating Temperature 工作温度 -20 25 Humidity (No Water-Drop)工作湿度 0% Temperature 存储温度 -40 Humidity (No Water-Drop)存储湿度 0%

±0.2

±0.05 ±0.01V ±0.01

±0.01 ±10

±5 断开负载 断开负载

V

A A

° C RH ° C RH

V

V V

A mS

uS

° C ° C ° C ° C

V mA uA

mΩ

Protection Parameters (for Individual Cell).保护参数(对于每节电芯)

Over-Charge Voltage Protection (OVP) 过充保护电压 3.65

Over-Charge Voltage Protection Release (OVPR)过充恢复电压 3.4

Over-Discharge Voltage Protection (UVP)过放保护电压 2.2 Over-Discharge Voltage Protection Release (UVPR)过放恢复电压 2.4 Over-Current Discharge Protection (OCDP)放电过流保护 100 Over-Current Protection Delay Time (OCPDT)过流保护延时

Over-Discharge Protection Release 过放保护恢复方式 Over-Current Discharge Protection Release 放电过流保护恢复方式

Release load
Release load

Short circuit current protection 短路保护
Short circuit current protection delay time 短路保护延时
Short circuit protection Release 短路保护恢复方式
Discharging Temperature 放电保护温度 /

Discharging Temperature Protection Release 放电保护恢复温度 / charging Temperature 充电保护温度 65 charging Temperature Protection Release 充电保护恢复温度 55 Cell balance 均衡

Equalizing open voltage 均衡开启电压 3.65 Bleed Current 均衡电流 58 Idle mode 静态模式
Main loop electrify resistance 主回路通态电阻 MOS-R_{DS}

Enable 有短路保护 200 600 ±100

Release load 断开负载 /

/ ±5 ±5

±0.05 ±10

≤100 ≤25

5. 电池图纸(单位 MM)Battery drawings (Unit MM)