



EVE Power Co., Ltd

Product Specification

File No : LF160-54174

Version : AM2

Effective Date : 2020-04-01

Product name : LFP Power Battery

Model name : LF160

Specification : 3.2V 160Ah

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Customer Approved :

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1 Scope

This specification is applied to Rechargeable LFP Power Battery with aluminum shell (3.2V 280Ah)manufactured by EVE Energy Co., Ltd., in which the description and model, main performance, test conditions and precautions of the product are included.

The product can be applied for Vehicle power supply, Storage system, etc.

2 Description and Model

2.1 **Description:** LFP Li-ion Power Battery with aluminum shell

2.2 **Model:** LF160

3 General Technical Parameter

#	Item	Parameter	Remark	
1	Nominal Capacity	160Ah	(25±2) °C , Standard charge and discharge.	
2	Typical Voltage	3.22V		
3	AC Impedance Resistance (1KHz)	≤0.50mΩ		
4	Standard charge and discharge	Charge/discharge current	0.5C/0.5C	(25±2) °C
		Cut off voltage of charge/discharge	3.65V/2.5V	
5	Maximum charge/discharge currentt	Continuous charge / discharge	1C/1C	According to continuous / pulse charge and discharge A/M1
		Pulse charge / discharge (30s)	2C/2C	
6	Recommended scope of SOC	10%~90%	N.A.	
7	Charging Temperature	0°C ~ 60°C	According to continuous / pulse charge and	
8	Discharging Temperature	-30°C ~ 60°C		

			discharge	
9	Storage temperature	短期(1个月内)	-20℃~45℃	N.A.
		Long term (within 1 year)	0℃~35℃	
10	Storage humidity range		<95%	
11	Self-discharge rate per month		≤3%/month	(25±2)℃, 30%~50%SOC
12	尺寸	Width	173.9±0.5mm	Refer to Appendix I
13		Thickness (30%-40%SOC)	54.0±1.0mm	
14		High(total)	153.3±0.5mm	
15		High(subject)	150.6±0.5mm	
16		Tabs Distance	123.0±0.3mm	
17	Battery Weight		3.00±0.10kg	

4 Test conditions

4.1 Test environment conditions

Temperature: (25±2)℃

Relative humidity (RH): 45%~85%

Atmospheric condition: 86KPa~106KPa

4.2 Standard Charge

The standard charge means charging the cell with charge current 0.5C(A) and constant voltage 3.65V at (25±2)℃, 0.05C cutoff.

4.3 Standard Discharge

The standard discharge means discharging the cell with discharge current 0.5C(A) and cutoff voltage 2.5V at (25±2) °C.

5 Main Performance

5.1 Electrical performance

#	Item	Requirements	Measuring Procedure
1	Rate discharge performance at 25°C	Discharge capacity/nominal capacity×100% A) 0.5C (A) ≥100% B) 1.0C (A) ≥98%	After standard charge and 1h rest, discharge to 2.5V cutoff with the current of 0.5 C (A), 1.0C (A), respectively. If the discharge capacity fails to meet the technical requirements, this test is allowed to be repeated three times
2	Discharge performance at different temperatur	Discharge capacity/nominal capacity×100% A)55°C≥95%(Cutoff 2.5V) B)-20°C≥70%(Cutoff 2.0V)	Measure the initial capacity and state of the battery: A) after standard charge and 5h rest at 55°C, discharge to 2.5V cutoff with the current of 0.5C(A); B) after standard charge at 25±2°C and 24h rest at -20°C±2°C, discharge to 2.0V cutoff with the current of 0.5C(A)
3	The capacity retention and recovery at 25°C	Capacity Retention ≥ nominal capacity×95% Capacity Recovery ≥ nominal capacity×97%	Measure the initial capacity and state of the battery, after standard charge and stored for 28 days, discharge to 2.5V cutoff with the current of 0.5C (A), calculate the remaining capacity, the retention can be expressed as a percentage of nominal capacity. After standard charged and 30mins rest, calculate the discharging capacity (Ah), the recovery can be expressed as a percentage of nominal capacity. The recovery is measured with discharge current 0.5C (A) with 2.5V cut-off at (25±2) °C.

4	cycle life at 25°C	≥3500 cycle @1C/1C	Under the 300kgf clamp, after standard charged and 30mins rest, discharge to 2.5V cutoff with the current of 0.5C(A) at (25±2) °C, and then start the next cycle, end with the capacity decreasing to 80% of the
5	cycle life at 45°C	≥1800cycle @1C/1C	(Under the 300kgf clamp, after standard charged and 30mins rest, discharge to 2.5V cutoff with the current of 0.5C(A) at (45±2) °C, and then start the next cycle, end with the capacity decreasing to 80% of the initial capacity. The number of cy
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5.2 Safety performance

No.	Item	Requirements	Measuring Procedure
1	Over Discharge	No fire、 No explosion	Reference: GB/T 31485-2015 《Lithium ion battery for electrical energy storage》
2	Over Charging	No fire、 No explosion	
3	Short-Circuit Test	No fire、 No explosion	
4	Drop Test	No fire、 No explosion	
5	Heating	No fire、 No explosion	
6	Extrusion Test	No fire、 No explosion	
7	Low pressure tes	No fire、 No explosion	
8	Thermal runaway	No fire、 No explosion	

6 Transportation

Battery for shipping should be packed in boxes with the State of charge (30%~50%SOC). The Violent vibration, impact extrusion, sun and rain should be prevented during shipping.

7 Storage

Batteries should be stored (more than 1 month) indoor with a dry and clean environment at 0 °C~35 °C.

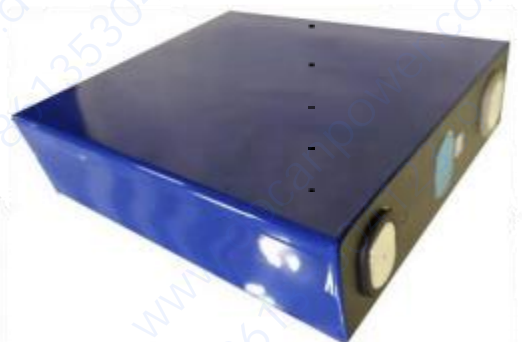
Avoiding contact with corrosive substances and staying away from fire and heat source. The battery should be charged and discharged every 6 months. The SOC for storage is between 30% ~ 50%.

8 Points for attention

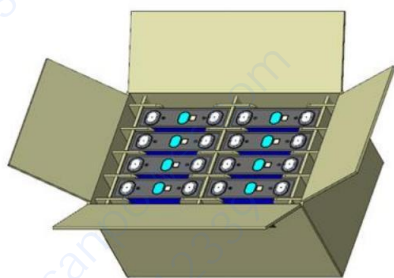
1. When the battery is charged and discharged, the conditions for monitoring and protecting the battery voltage, current and temperature shall be ensured.
2. Please keep the battery away from the heat source, fire source and other corrosive environments such as heating, strong acid and strong alkali.
3. Do not short circuit the battery or install it with incorrect polarity at any time, otherwise it can cause serious damage to the battery and cause danger.
4. Do not mix batteries of different models or manufacturers.
5. Do not use external force to make the battery fall, impact or puncture. Do not disassemble the battery or change the external structure.

Appendix II : Battery coding rules:

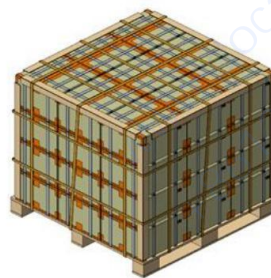


Appendix III: photos of battery appearance:

附录四: 电池包装图



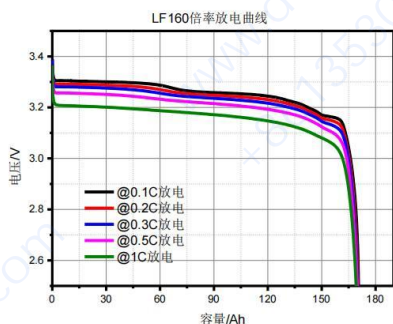
长*宽*高: 714*114*110



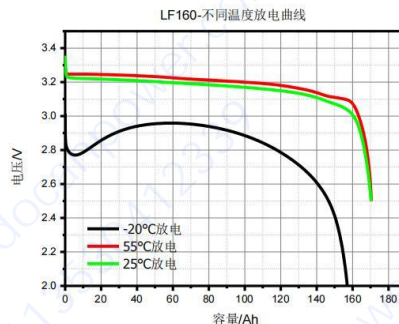
长*宽*高: 1100*1100*1100

附录五: 电性能曲线图

I、 \times C 倍率放电曲线



II、不同温度放电曲线



III、循环曲线 (1.0C 充电 0.1C 放电)

