



EVE Energy Co., Ltd

Product Specification

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Product: LFP Power Battery

Model: LF50F

Specification: 3.2V/50Ah

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*This English version is translated by [Energie Panda](#) based on the Chinese version of EVE LF50F product specification

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1. Scope

This specification is applied to Rechargeable LFP Power Battery with aluminum shell (3.2V 50Ah) 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: LF50F.

3. General Technical Parameter

#	Item		Parameter	Remark
1	Typical Capacity		50Ah	(25±2)°C, Standard charge and discharge. Thermostats (25±2)°C/0.5C discharge capacity ≥50Ah。
2	Typical Voltage		3.2V	
3	Internal Resistance(1KHz)		≤2.0mΩ	
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 current	Continuous charge/discharge	1C/1C	N.A.
		Pulse charge/discharge(30s)	1.2C/1.2C	
6	Recommended scope of SOC		10% ~ 90%	
7	Charging Temperature		0°C ~ 55°C	
8	Discharging Temperature		-20°C ~ 55°C	

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9	Storage temperature	Short term(within 1 month)	-20°C ~45°C	
		Long term(within 1 year)	0°C ~35°C	
10	Storage humidity range		<95%	
11	Self-discharge rate per month		≤3%/month	(25±2)°C , 30% ~50%SOC storage
12	Dimension	Width	148.3±0.3mm	Refer to Appendix I
13		Thickness (30%-40%SOC)	26.7±1.0mm	
14		Height(subject)	125.4±0.5mm	
15		Height(total)	128.2±0.5mm	
16		Tabs Distance	114.6±0.3mm	
17	Battery Weight		1050±100g	

4. Test condition

4.1 Test environment conditions

Temperature: (25±2) °C

Relative humidity (RH): 15% ~90%

Atmospheric condition: 86KPa~106KPa

4.2 Standard Charge

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

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5. Main Performance

5.1 Electrical performance

NO	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) ≥100%	After standard charge and 1h rest, discharge to 2.5V cutoff with the current of 0.5C (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 temperature	Discharge capacity/nominal capacity×100% A) 55°C时≥95% B) -20°C时≥70%	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 1C(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 1C(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 1C(A), calculate the remaining capacity, the retention can be expressed as a percentage of nominal capacity. After standard charged and 30 mins rest, calculate the discharging capacity(Ah), the recovery can be expressed as a percentage of nominal capacity. The recovery is measured with discharge current 1C (A) with 2.5V cut-off at (25±2) °C.
4	cycle life at 25°C	≥1500 cycle @0.5C/0.5C	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 initial capacity. The number of cycles is defined as the cycle life of the battery.
5	End of life management	capacity/nominal capacity < 70%	During the use of the battery, the battery shall be stopped when the end of life regulations are exceeded.



5.2 Safety performance

No	Item	Requirements	Measuring Procedure
1	Over Charging	No fire, No explosion	Reference: GB/T 36276-2018 《Lithium ion battery for electrical energy storage》
2	Over Discharge	No fire, No explosion	
3	Short-Circuit Test	No fire, No explosion	
4	Extrusion Test	No fire, No explosion	
5	Drop Test	No fire, No explosion	
6	Low pressure test	No fire, No explosion, No leakage	
7	Heating	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

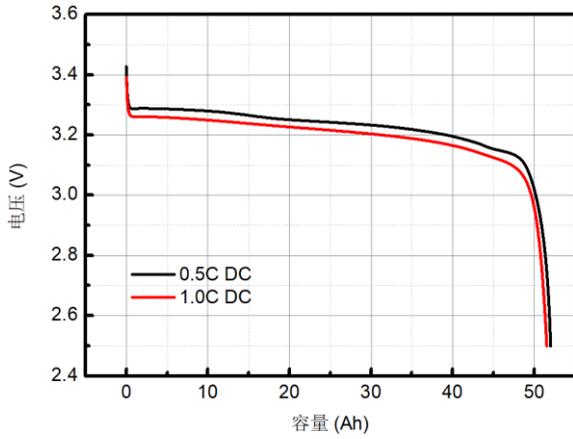
Batteries should be stored (more than 1 month) indoor with a dry and clean environment at 0 °C~ 35 °C. Avoiding contact with corrosive substances and staying away from fire and heat source. The battery should be charged and discharged every 6 months. The SOC for storage is between30%~ 50%.

8. Points for attention

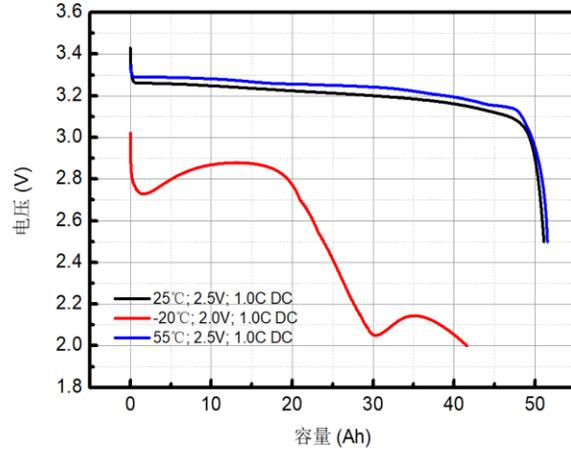
1. When the battery is charged and discharged, the conditions for monitoring and protecting the battery voltage, current and temperature shall be ensured.
2. Please keep the battery away from the heat source, fire source and other corrosive environments such as heating, strong acid and strong alkali.
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.
6. When the battery is not used for a long time, please keep the battery in the state of 30%-50% SOC, and avoid the environment of strong direct sunlight or high temperature and humidity.
7. When operating the battery, it is necessary to wear rubber gloves and other protective devices.
8. In case of leakage, smoke or damage of battery, please stop using immediately and contact our company

Appendix I: electric performance curve:

1、Rate discharge curve at 25°C



2、Discharge curve at different temperatures



3、Cycle curve (charge/discharge:0.5C/0.5C, 3.65V-2.5V)

