

Tianneng Sodium Battery: Introduction & PPC Example Data

Guang He

About TIANNENG

Tianneng Group was founded in 1986 in Huzhou, Zhejiang, China. Starting with the manufacture of **electric bicycle batteries**, the company has followed the global initiative of replacing fossil fuels with electricity as well as energy conservation and emission reduction, and built a comprehensive technical system covering lead, lithium, hydrogen and sodium batteries. The group's overall annual sales volume reaches 30 billion US dollars.

At present, Tianneng's **lead-acid start-stop batteries** are supplied to major domestic automakers including **Geely, BYD and Yutong**, as well as international OEMs such as **Ford**. The supporting vehicle models include the Lincoln Nautilus and Lincoln Aviator. The group has recently launched **sodium-ion start-stop batteries**, which are currently under joint testing and validation with domestic vehicle manufacturers.



Listed Companies

Tianneng power 00819HK

Tianneng power 688819SH



Major Customer



FOTON
福田汽车



HELI



ZOOMLION
中联重科



江铃福特

BYD



CHERY



开沃汽车



吉利汽车

02/ SODIUM BATTERY PRODUCTS



Starter Battery

12V 30-50Ah

3000cycles@100%DOD



Start-Stop Battery

12V 40-60Ah

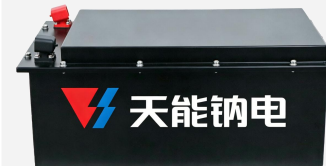
3000cycles@100%DOD



Forklift Battery

80V320Ah

6000 cycles



sleeper-cabin truck
battery

24V160Ah

6000 cycles



NaCR33140

2.86 V

7 Ah



NaPC150140

2.86 V

21 Ah

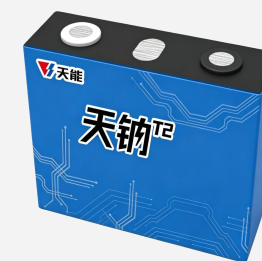
PASSENGER VEHICLE, COMMERCIAL VEHICLE, SPECIAL VEHICLE



NaCP50160

2.86 Ah

50 Ah

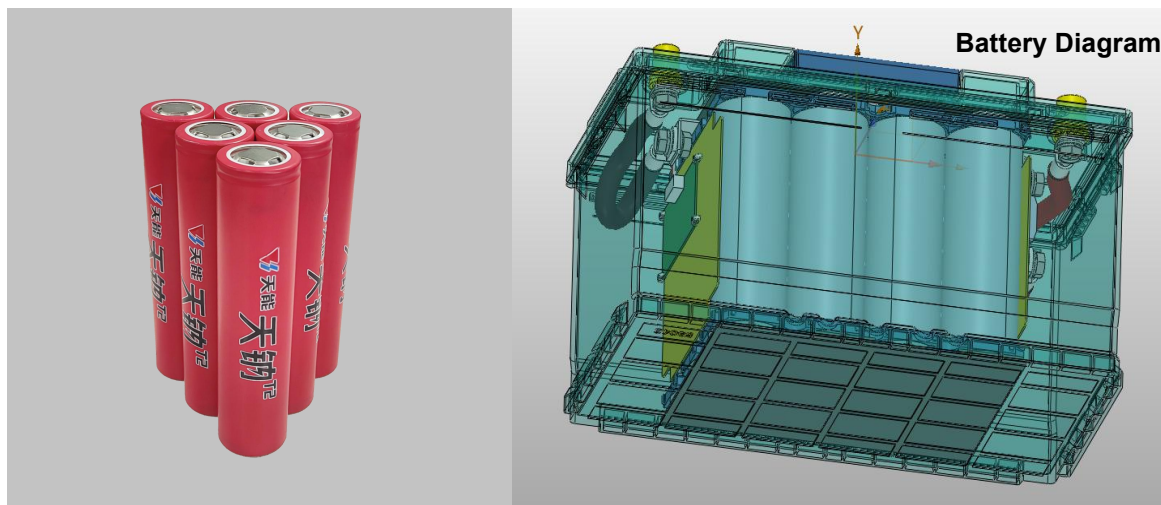


NaCP71173

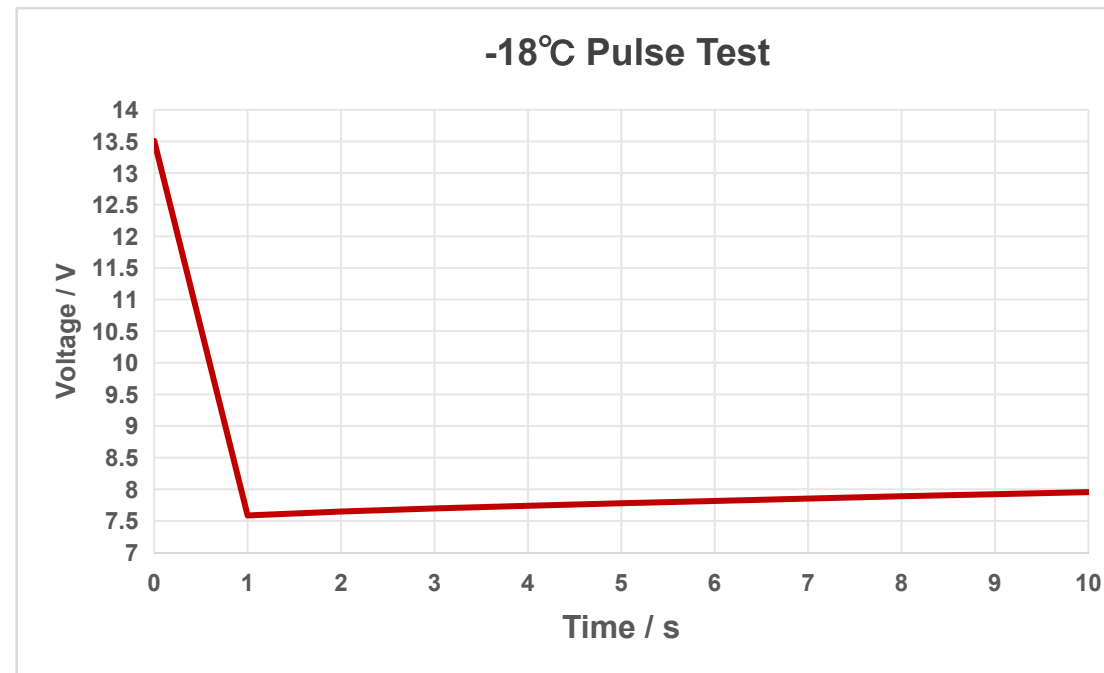
2.86 V

160 Ah

03/ Test Sample Specification

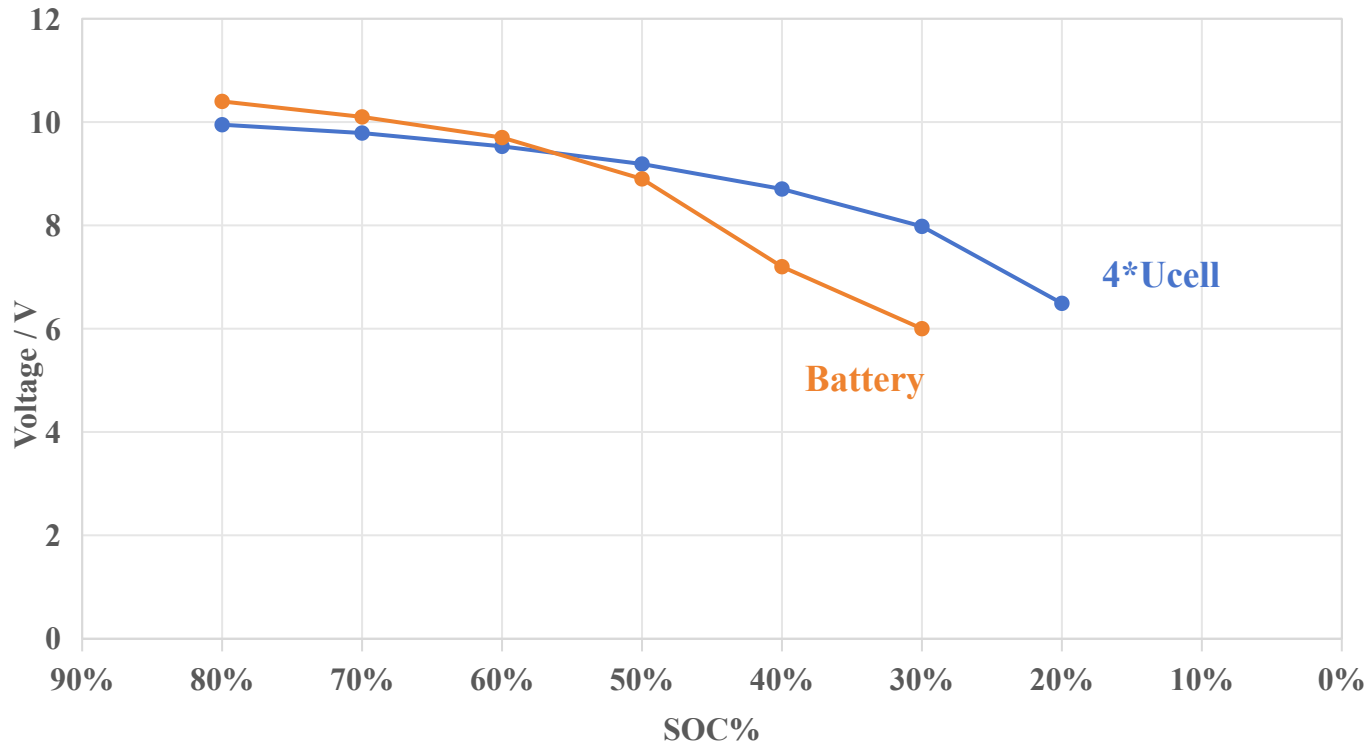


Item	Specifications
Product Model	H7-12V-700 (7P4S)
Cell Model	NaCR33140-7Ah (NFPP)
Dimensions	315*175*190 mm
Nominal Capacity	49 Ah
Nominal Voltage	12 V
Weight	7.5 kg
CCA	700A



Time / s	0	1	2	3	4	5
Voltage / V	13.508	7.586	7.648	7.697	7.739	7.779
Time / s	6	7	8	9	10	
Voltage / V	7.815	7.853	7.890	7.922	7.955	

Room-Temperature Icc Pulse Discharge



Terminal Voltage Curves at 10s After **0.5 Icc** Pulse at Different SOC Levels (Room Temperature)

Cell Icc= 340A

(The terminal current recorded after 10-second discharge at a constant voltage of 1.95 V (7.8 V/4) is defined as Icc.)

Battery Icc = 1200A

(The discharge current at room temperature is too high for the test equipment to support. This Icc value is converted to 25 °C from the Icc measured at -18 °C.)

SOC pre-conditioning requirements before pulse test:

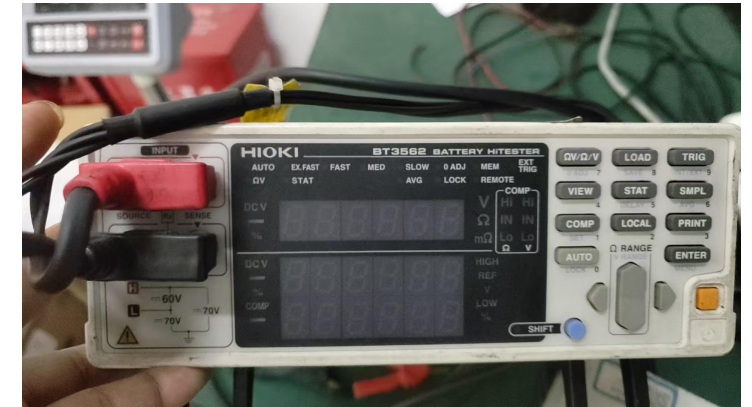
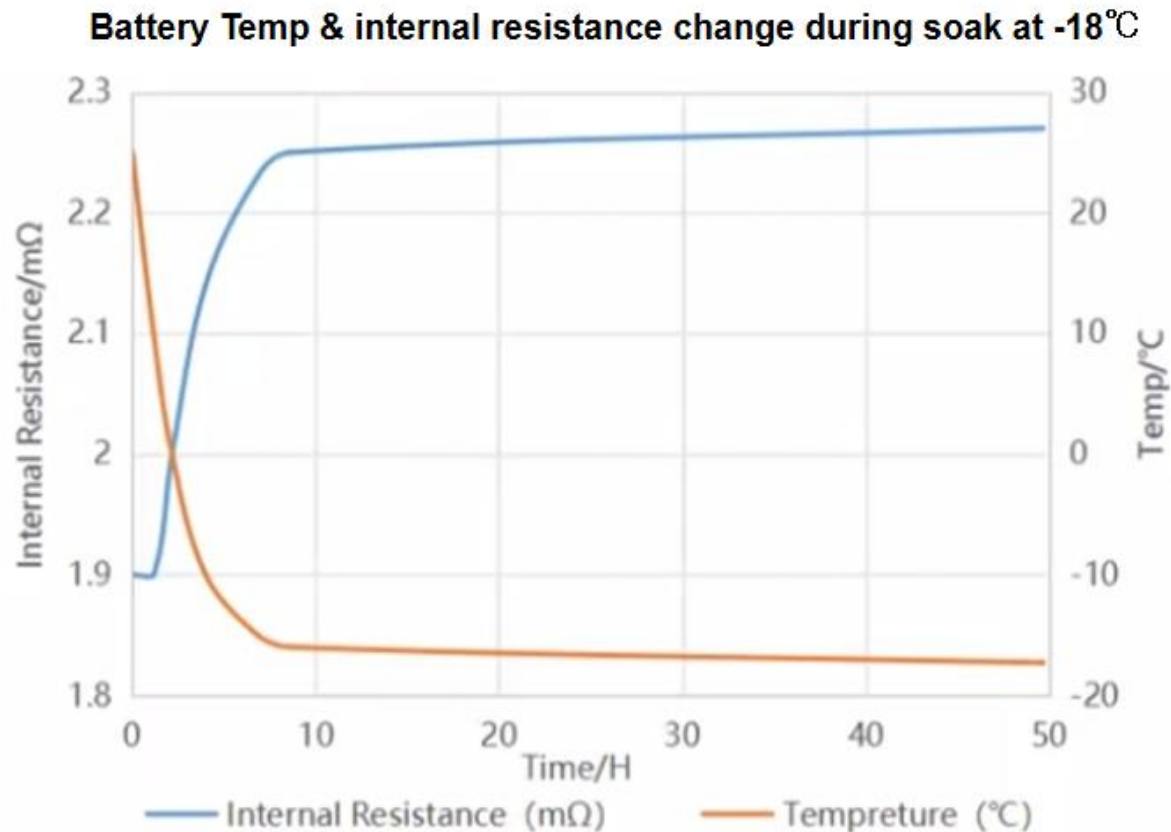
Discharge rate: 0.5C (I_2)

Resting time before pulse: 600s

Summary: The cell can pass the pulse test even when its SOC drops as low as 20%, whereas the battery pack fails the pulse test once the SOC falls below 40%. This may be attributed to the fact that the performance of the module is affected by cell consistency and electronic components, resulting in the internal resistance not following a simple multiple relationship.

Relationship Between Soaking Time, Battery Temperature and Internal Resistance (PPC)

The battery is soaked at -18°C . The changes in battery internal resistance and temperature are recorded as the soaking time increases.



Internal Resistance
Measuring Equipment
Model: HIOKI BT3562

Summary: The battery pack's internal resistance and temperature stabilize after about 10 hours of soaking at -18°C .

THANK YOU



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Tianneng Group



Website



Electronic brochure