

## 1. BATTERY PACK OVERVIEW

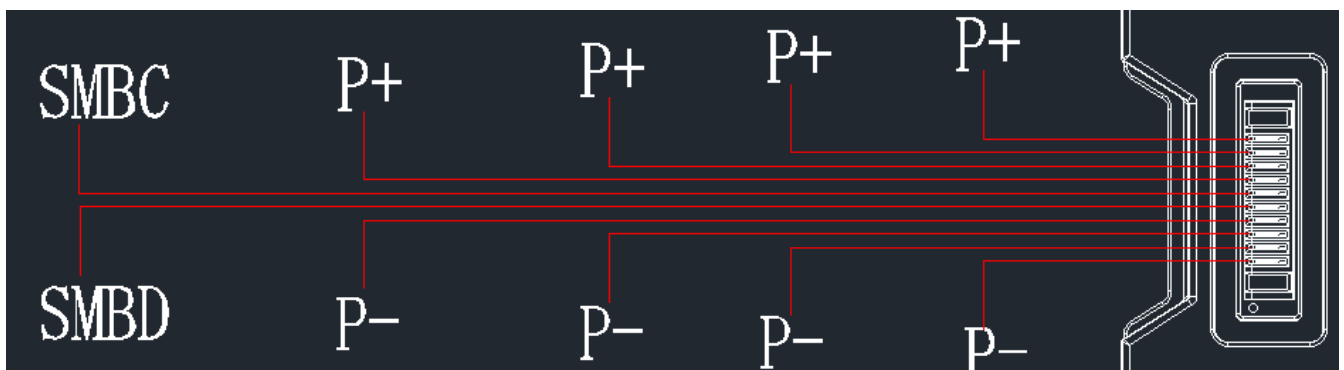
### 1.1 Pack Main Characteristics

Cell Model	Pack Configuration	Nominal Voltage	Nominal Capacity (Typical)
NCR18650GA	6S5P	21.6V	17.25Ah

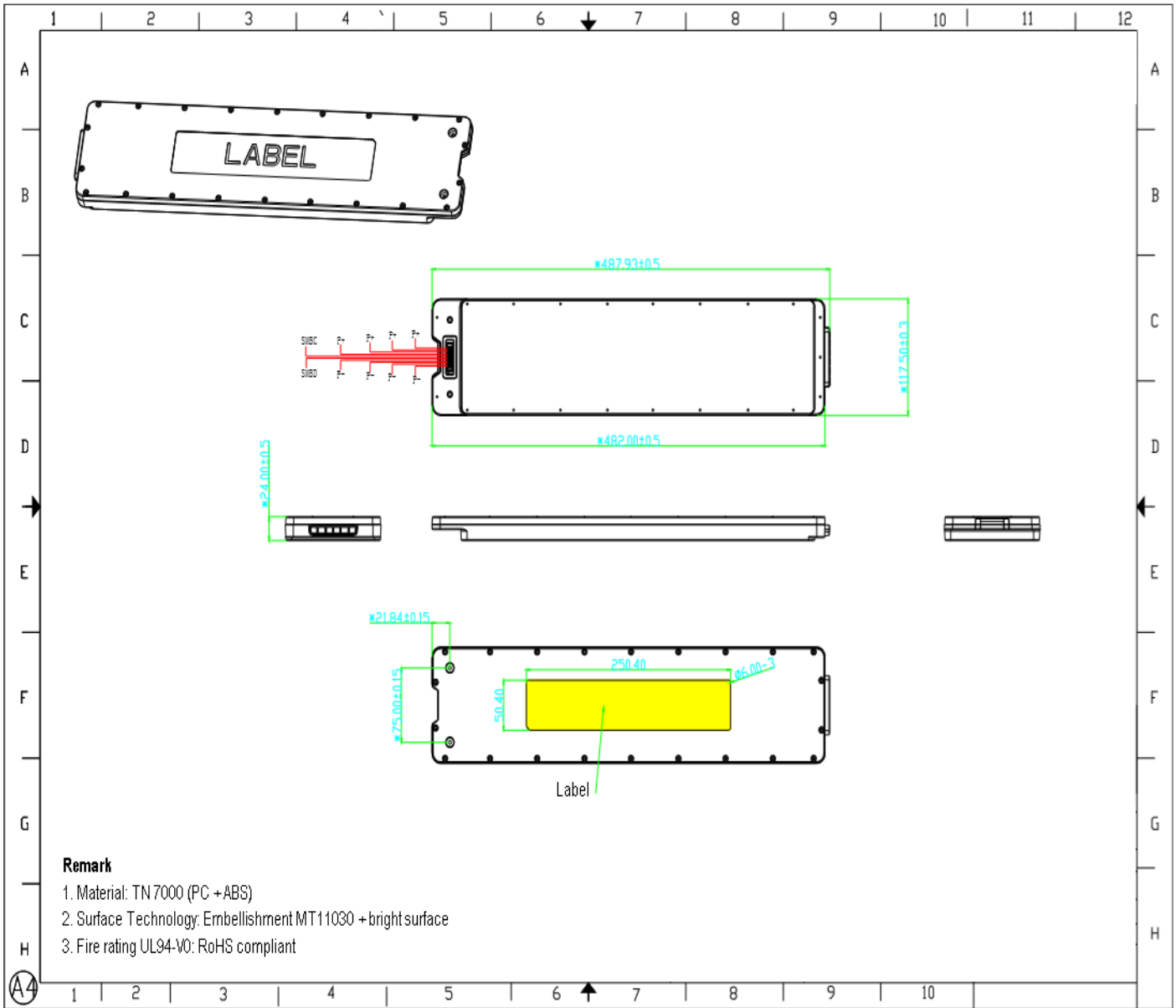
### 1.2 Connector Terminal Specifications

Terminal	Name	Description
1	P+	Battery Positive Terminal PIN1-PIN4
2	SMBC	SMBC Output PIN5
3	SMBD	SMBD Output PIN6
4	P-	Battery Negative Terminal PIN7-PIN10

Battery pack output port diagram



## 2. BATTERY DIMENSIONS



The battery pack includes: Battery pack case, battery cell, battery protection board, screw and metal wires.

### 3. BATTERY PACK SPECIFICATIONS

No	Item		Specifications	Remark		
3.1	Capacity	Nominal Capacity (Typical)	17.25Ah	From FC voltage to FD voltage by discharge current 0.2C at 25°C		
		Rated Capacity (Minimum)	16.25Ah	From FC voltage to FD voltage by discharge current 0.2C at 25°C		
3.2	Nominal voltage		21.6V			
3.3	Charge	Charging Method	CC-CV			
		Full Charging (FC) Voltage	25.2V	Upper limited charge voltage		
		Standard Charging Current	3350mA			
		Max Charging Current	15000mA			
		Charging Temperature	Temperature		Charge Voltage	Charge Current
			10 to 45°C		4.2V/Cell	3350mA
3.4	Discharge	End of Discharging Voltage (FD)	16.8V	Stop discharge when one cell voltage reach 2.8V @25± 3°C.		
		Standard Discharging Current	3350mA			
		Max Discharging Current	20000mA			
		Peak Discharging Current	30000mA	10S		
		Discharge Temperature	Temperature		Discharge Current	
			-20 to 0°C		3350mA	
0 to 60°C			20000mA			



# China Starwin Terminal's Battery Pack Datasheet

3.5	Battery Pack Approx. Weight (g)	About: 1900 g		
3.6	Storage Temperature	1 year	-20~20°C	Recoverable Capacity.80%*4
		3 months	-20~40°C	
		1 month	-20~50°C	
3.7	AC Impedance	≤120mΩ		1KHz AC Method
3.8	As of shipment (status of the delivery) (Pack Voltage)	21.0V-22.8V		
3.9	Operation mode consumption current	<1500uA		CHG on, DSG on, no Flash write.
3.10	Sleep mode consumption current	<650uA		CHG off, DSG on, no SBS communication.
3.11	SHUTDOWN Mode	<100uA		ALL Function Off.
3.12	Cycle Life	≥80% after 300 cycles		
3.13	ESD static test	Air discharge		±12KV
		Contact discharge		±8KV

## 4. BATTERY ELECTRONIC CHARACTERISTICS

<p>Standard environmental test condition. Unless otherwise specified, all tests stated in this Product Specification are conducted at below condition:</p> <p>Temperature : 25°C ± 3°C, Humidity: 60 ± 20%</p>			
No.	Item	Test Method and Condition	Criteria
4.1	Rated Capacity	Constant current 0.2C charge to FC Voltage, then constant voltage FC Voltage charge to current declines to 0.01C, rest for 10min, constant current 0.2C discharge to FD Voltage.	Id=0.2C Capacity≥16.25Ah
4.2	Cycle Life	Constant current 0.2C charge to FC Voltage, then constant voltage FC Voltage charge to current declines to 0.02C, rest for 10min, constant current 0.2C discharge to FD Voltage, rest for 10min. Repeat above steps till continuously discharge capacity higher than 80% of the initial capacity of the battery.	Cycle times: ≥300 times. Capacity≥ 80%.
4.3	Storage Characteristic	When the battery has completed standard charged, it shall be disconnected and put aside for 28 Days at 25°C ±3°C, Then measured the capacity with 0.2 C min till FD Voltage.	Retention capacity > 85%
4.4	Initial Impedance	Using a AC 1KHZ meter whose precision must be less than 0.5%, detect the resistance between the battery's positive and negative terminals. The result value can not include any external conductor's resistance. The maximum and the minimum need to be recorded.	The internal resistance≤120mΩ
4.5	ESD Test	Method: 5 times/pin, Frequency:1S/time  Non-operating:  Contact: ± 8 KV; Air: ± 12 KV	No explosion and no fire. Its protection function shall not fail. if it is equipped with protection circuit.

## 5. PACKAGING

The sketch, sizes, color of marking should match GB/T191-2016 requests. The manner of packing should match 2019 IATA **DGR** 60th Edition requests.

## 6. HANDLING PRECAUTIONS AND GUIDELINE

### 6.1 Charge

Charge current: Never out of the max charge current as mentioned in specification.

Charge voltage: Never out of the max charge voltage as mentioned in specification.

Charge temperature: Please refer to the temperature range as specification.

Charge as constant current before constant voltage, never reverse the charge mode.

### 6.2 Discharge current

The discharge current is not allowed to out of max current as specification. Otherwise, the battery will be over heat and capacity fading.

### 6.3 Discharge temperature

Please refer to the temperature range as specification.

### 6.4 Over-discharge

It's workable if over charge and discharge for a short while but not allow to do it for a long time. Over discharge may result in disappear self-energy. Please keep a certain electric quantity to prevent over discharge.

### 6.5 Storing the Batteries

Please store the battery in the adequate temperature as mentioned in specification. When battery is delivered, if the capacity is about 60%. Suggest to recharge it after more than 6 months. When battery is charged full, suggest to recharge it after more than 9 months.

## 6.6 Storage

- Store the battery in cool, dry and well-ventilated conditions.
- Regulations vary for different countries. Dispose of in accordance with local regulations.

## 6.7 Other Chemical Reaction

The battery performance will reduce if over time using or unused for a long time due to It's a reaction of chemical. In addition, the battery life will be Shorten or injury or damage itself from electrolyte leakage, heating ignition or explosion for improper handling. It's necessary to replace battery if unable to charge for a long time even with proper way.

## 7. WARNINGS

Please read the manual carefully before using it to ensure properly use.

- Do not make the battery exposure or thrown into fire.
- Never reverse charge the battery.
- Never short circuit the battery.
- Avoid excessive physical shock or vibration.
- Do not disassemble or deform the battery.
- Never allow the battery to get wet or be immersed in water.
- Do not use different types of battery together.
- Keep away from children.
- Charge at the appropriate conditions.
- Never use the faulty charger to charging.
- Never keep charging more than 24 hours.



### 8. CHARGING CONNECTION BLOCK DIAGRAM

