

Lithium Ion Rechargeable Battery

Model No.: CVEV48V26AH

Datasheet Revision No.: Rev_00

This document outline the product characteristics, performances, relevant conditions & recommendations and safety protocols under standard conditions for above model.

1. Battery Pack Specification

| Parameter | Technical Description | Specification |
|-----------------------------------|--|-----------------------|
| General | Chemistry | NMC |
| | Nominal Voltage(V) | 51.8 |
| | Capacity(Ah) | 26 |
| | Configuration | 14S10P |
| | Specific Energy(Wh) | 1346.8 |
| | Volumetric Energy(Wh/Kg) | 219 |
| | Cycle Life | >1200 |
| Electrical Characteristics | Cell Balancing | Yes |
| | Charging Mode | CC-CV |
| | Charge Current(A) | 13 |
| | Max Charge Current(A) | 26 |
| | Discharge Current(A) | 13 |
| | Max Discharge Current(A) | 26 |
| | Peak Discharge Current(A) | 52 |
| | Voltage Range(V) | 39~58.8 |
| | Over temperature protection in discharging mode(°C) | 60° |
| | Over temperature protection recovery in discharging mode(°C) | 50° |
| | Over temperature protection in Charging mode(°C) | 50° |
| | Over temperature protection recovery in Charging mode(°C) | 40° |
| | Efficiency | >=98% |
| Connector Type | Customized | |
| Mechanical Characteristics | Operating Temperature(°C) | -5 to 60°C |
| | Storage temperature | 0°-35°C |
| | IP Class | IP65 |
| | Humidity (RH) | <90% (Non Condensing) |
| | Dimensions (W x D x H) | As per Requirement |
| Protections | Under Voltage Protection level(V) | 2.5 |
| | Under Voltage protection recovery level(V) | 3 |
| | Over Voltage protection level(V) | 4.25 |
| | Over Voltage protection recovery level(V) | 4.1 |

| | | |
|--------------------------------|---|------------------------------------|
| | Charging Over Current Protection(A) | 52 |
| | Discharging over current Protection(A) | 78 |
| | Output short circuit Protection | Yes |
| | Cell temperature protection in discharging mode | Yes |
| Communication Interface | MODBUS,CANBUS | As per Requirement |
| Applicable Standards | Transportation | UN/DOT 38.3 |
| | Safety | IEC 62133 - 2 : 2017/IS 16046-2018 |

2. Cell Electrical Characteristics

Standard Test Conditions - Test should be conducted with new batteries within three months after shipment from our factory and cells shall not be charged more than five times before test at 20±5°C

Standard Charge - The standard charge means charging with constant current @0.2C and constant voltage up-to a specified voltage as mentioned in the manufacturer datasheet, charging cut-off at 0.05C.

Standard Discharge - The standard discharge means discharging the cell with constant current @0.2C down to a specified voltage as mentioned in the manufacturer datasheet.

3. Cell Safety Characteristics

| Parameter | Test conditions | Remarks |
|---------------------|--|-------------------------------|
| Over Charge | Charge the cell at 3C current up-to max V | No Fire/Explosion |
| Over discharge | After standard charge. Discharge the cell at 0.2C at constant Voltage 2.0V | No Fire/Explosion |
| Short Circuit Test | After standard charge the cell is to be short-circuited with Copper wire of a maximum resistance load of 80±20mΩ | No Fire/Explosion |
| Heating Test | After standard charge the cell placed in a circulating air oven. The temperature of the oven is raised at a rate of 5°C±2°C/min to a temperature of 130°C±2°C,insulation time 30 min | No Fire/Explosion |
| Temperature Cycling | After Standard charge – Cells are placed in a test chamber with 75±2°C for 6h Then put the cell in -40°C for 6h,repeat both with 10 Cycle and then rest the batteries for 24h | No Fire/Explosion No smoke |
| Impact Test | A test sample cell is to be placed on a flat surface a 15.8±0.1 mm diameter bar is to be placed across the center of sample. A 9.1kg±0.46kg mass is to be dropped from the height of 610±25 mm to the sample | No Fire/Explosion |

4. Cell Environment Characteristics

| Parameter | Test conditions | Remarks |
|-----------------------------|--|---------------------------------|
| Drop Test Free Fall Test | After standard charge the cell is dropped from a height of 1 meter with three different orientation on to a concrete floor | No Fire/Explosion |
| Crush Test | After standard charge the cell is crushed between two flat surfaces, the force with $13\pm 1\text{KN}$ for the crushing apply a hydraulic ram. Once the maximum force is applied or abrupt voltage drop of one-third or 10% of deformation has occurred compared to the initial dimension, Release the force | No Fire/Explosion |
| Altitude simulation test | The full charged cell to be stored for 6 hours at an absolute pressure of 11.6 KPa with the temperature of $20\pm 3^{\circ}\text{C}$ | No Fire/Explosion No leakage |

5. Safety Precaution & Prohibitions:

In order to prevent battery leakage, heating, fire, reduced performance or life drops, explosion and other accidents, we recommend the following provisions of the normal use of battery, and compliance with preventive matters.

Handling

- Do not wet
- Do not expose to heat
- Do not deform
- Do not connect batteries in Series or Parallel

Charge: Battery to be charged with recommended/approved charger. Do not leave the battery pack connected to the charger, it may cause degradation of battery performance

Storage: Batteries should be stored in a well-ventilated, dry area kept in between 20°C to 35°C . It should be stored away from direct sunlight, heat sources, and water. Batteries should be stacked so that they're protecting battery terminals from contacting each other and are stable



Do not disassemble or alter the battery, the battery may be shorted and result in heat generation or fire. Do not connect the battery in reverse polarity (-+) terminals in equipment/charger. If battery leaks and its electrolyte comes into contact with skin or clothes, wash the contact area well with tap water or other clean water right away. Take medical help if required.

Note: Datasheet is subject to amendments/change without any prior notice at company discretion, before designing system please connect to sales representative