

User Manual for 3.7V Li-ion 18650 battery

1. Application & Characteristic

1.1 Be used for 3.7V Li-ion 18650 single cell.

1.2 High test capability for the voltage.

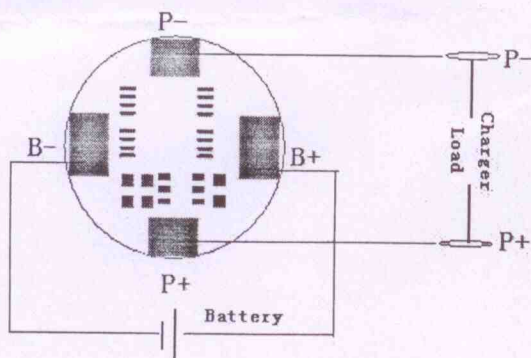
1.3 Good protection for over-charge, over-discharge, over-current and short-circuit, low power consumption, light and handy.

2. Electric speciality

Topt=25°C

Item	Content	Criterion
Over-charge Protection	Over-charge protection voltage	4.325±0.05V
	Over-charge protection relieve Voltage	4.125±0.10V
	Delay time for over-charge protection	960-1400ms
Charge protection	Rated charge current	≤3.5A
Over-discharge protection	Over-discharge protection voltage	2.5±0.10V
	Over-discharge protection relieve Voltage	2.9±0.10V
	Rated discharge current	≤4A
	Discharge current protection	5~7A
	Delay time for over-discharge protection	115-173ms
Over-current protection	Condition to release over-current protection	Cut off Load
	Peak current protection in split second	6.9A
	Delay time for split second protection	7.2-11ms
Short protection	short circuit protection	PASS
	Condition to release short circuit protection	Cut off load
Interior resistance	Working impedance between P+ & P-	$V_C=4.2V$; $R_{DS} \leq 60m\Omega$
Current consumption	Self consumption	6.0μA Max
Dimension(L*W*H)	R8.65*0.5mm	

3. Configuration & Wiring diagram



Connection Port illumination

1. B+: connect to cell's anode
2. B-: connect to cell's cathode
3. P+: connect to the cell's output or charger's anode
4. P-: connect to the cell's output or charger's cathode.

4. Status Description

4.1 Normal Status

It is a normal status where battery with PCB can be charged and discharge normally when the voltage is between over-charge voltage (OCV) and over-discharge voltage (ODV) (except release from over-charge and over-discharge), no over current and no short-circuit.

Test way: the voltage between "P-" & "P+" is equal to the voltage between "B-" & "B+".

4.2 Over-discharge protection

On the process of discharging, when the cell's voltage decrease to protection voltage (ODV), and the lasting time exceeds the delay time, PCB will cut off the circuit to prevent over-discharge.

4.3 Release from over-discharge protection

4.3.1 When battery voltage is higher than the Over-discharge protection relieve Voltage

4.3.2 When charging battery

4.4 Over-charge protection

On the process of charging, when the cell's voltage increase to protection voltage (OCV), and the lasting time exceeds delay time of OCV, PCB will cut off the circuit to prevent over-charge.

5 Release from over-charge protection

5.1 When battery voltage is lower than the Over-charge protection relieve Voltage

5.2 When battery with PCB discharge.

6. Over current & short circuit protection

On the process of discharge, if the discharge current is larger than the over-discharge protection current (OCP), and the lasting time exceeds the delay time of OCV, PCB will cut off the circuit to prevent the discharge of cell.

7. Use for the first time

After the process of PCB load to batteries, there maybe occurs a status that battery can not be discharged. In this case, it is necessary to charge the battery (with PCB) so as to activate PCB.

Caution!

- 1) Prevent from static
- 2) Prevent from wrong polarity connection. Wrong connection may lead to permanent damage of PCB.