

**SPECIFICATION**  
**OF**  
**PCM Type: KP-1S-YH10A-V3**

Approved by	Checked by	Prepared by

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## 1. Scope

The specification is applied to the protection of one-cell lithium-ion battery pack from overcharge, over-discharge and excess current.

## 2. Specification

2.1 Name:KP-1S-YH10A-V3

2.2 Circuit Schematic Diagram: Refer to Figure 1.

2.3 PCB Form Diagram: Refer to Figure 2.

2.4 PCB Material: FR4

2.5PCB Size Form Diagram Refer to Figure 3

2.6PCB Connect Form Diagram Refer to Figure 4

## 3. Electric Characteristics (Ta=25°C)

3.1 Overcharge detection voltage(V <sub>CU</sub> ):	4.25±0.025V
3.2 Overcharge detection delay time:	1.±0.3 S
3.3 Overcharge release voltage:	4.05±0.05V
3.4 Under-discharge detection voltage(V <sub>DD</sub> ):	2.5±0.025V
3.5 Under-discharge detection delay time:	20±6 MS
3.6 Under-discharge release voltage:	3.0±0.075V
3.7 Excess current threshold (IEC):	≥18A
3.8 Maximum Continuous Current	4A
3.9 Short detection delay time:	MAX.500uS
3.10 Supply current (V cell=3.5V) :	MAX.7μA
3.11 Standby current (V cell=1.5v) :	MAX. 2uA
3.12 PCB total resister:	MAX.30mΩ

## 4. Function Description

4.1 The PCB is applied to protection of ONE cells lithium-ion battery pack, which is set according to requirement of customer.

4.2 Overcharge protection :

The overcharge protection operates when voltage of cell more than V<sub>CU</sub> with charger at P+ and P-, then charge will be stopped and discharge will be allowed.

4.3 Over-discharge protection :

The over-discharge protection operates when voltage of cell more than V<sub>DD</sub> with load at

P+ and P-, then discharge will be stopped and charge will be allowed.

4.4 Excess current protection:

The Excess current protection operates when current more than  $I_{EC}$  with load at P+ and P-, then discharge will be stopped and charge will be allowed.

**5. Parts List**

Name	Quantity	Reference	Part	Brand
Capacitance	1	C1	100NF/0603/50V_X7R	YAGEO
Resistance	1	R1	330R/0603/5%	YAGEO
Resistance	1	R2	1K/0603/5%	YAGEO
IC	1	U1	R5478N101CD/SOT23-6	RICOH
MOSFET	2	Q1,Q4	AO8814/TSSOP8	AOS
PCB	1		KP1-1S-YH10A-V3	JWT
NTC	1	R3	10K-NTC-3435-1%-0603	MYD

**Figure 1 Schematic Diagram**

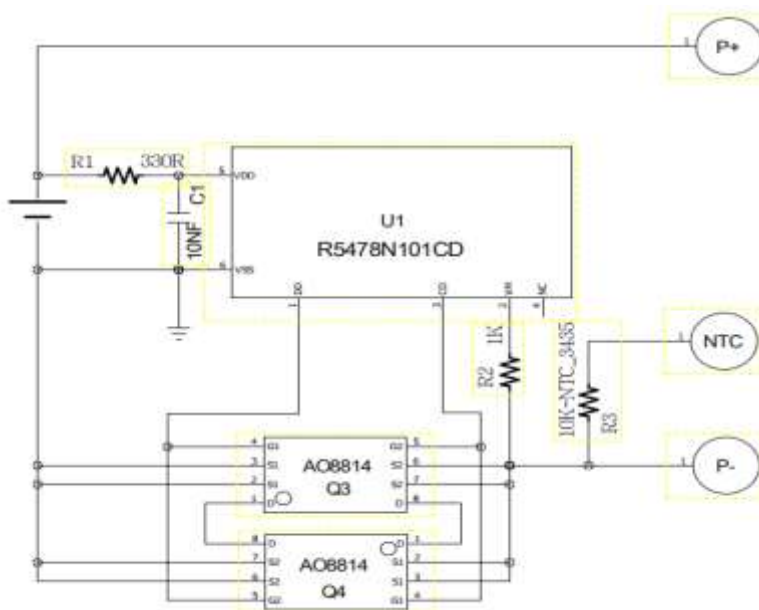
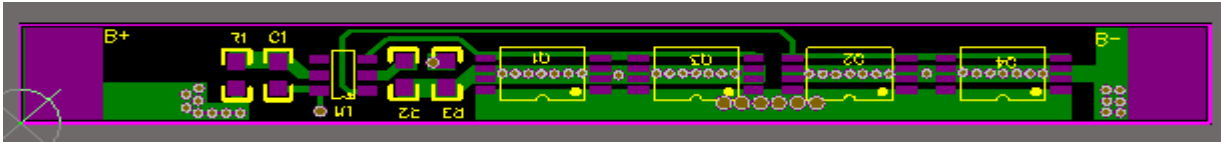


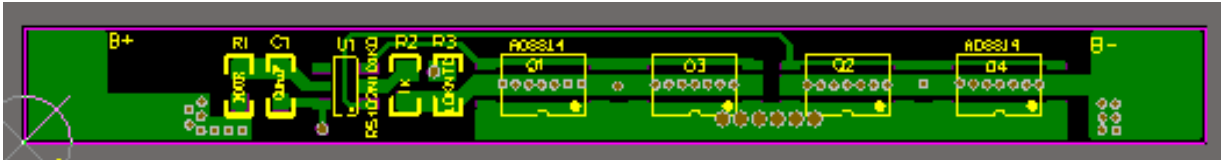
Figure 2 PCB Connect Form Diagram



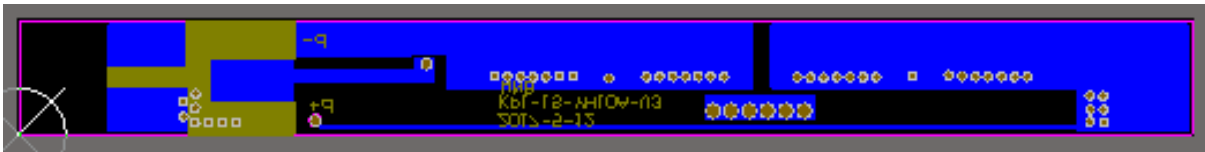
KP-1S-YH10A-V3 TOP LAYER



KP-1S-YH10A-V3 BOTTOM LAYER



KP-1S-YH10A-V3 TOP SOLDER



KP-1S-YH10A-V3 BOTTOM SOLDE

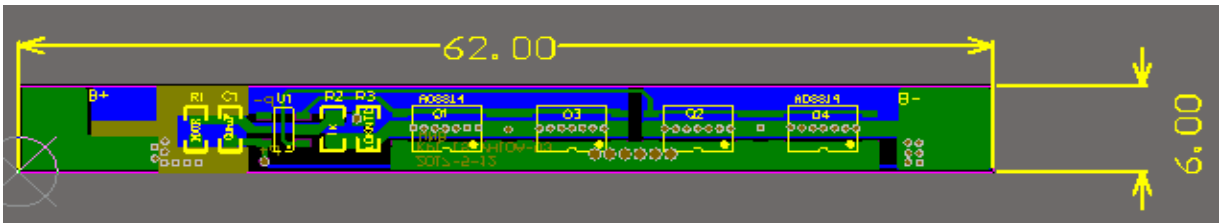


Figure 3 PCB Size Form Diagram

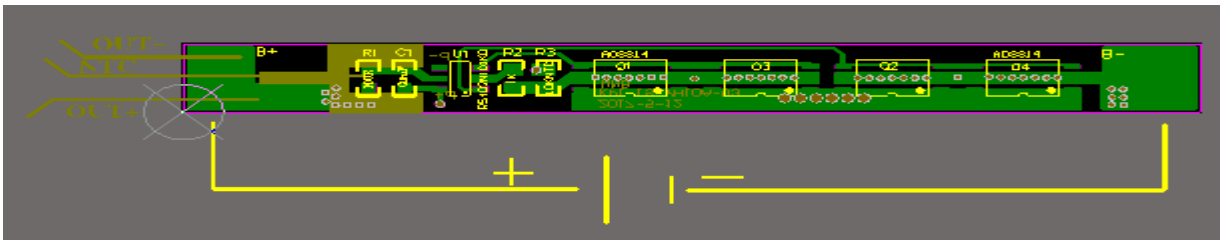


Figure 4 PCB Connect Form Diagram