

Specification Approval Sheet

产品规格确认书

产品名称(Product Name)	锂电主动均衡板		
型号规格(Model)	JH20B-FL005		
客户名称(Customer)			
变更记录(History of revisions)			
Edition	变更内容(Description)	Prepared By	Date
A0	First Edition		

批准(Approved By)	审核(Checkup)	制定(Make)

如果样品确认, 请回签此规格书.
Please sign on the underneath and send it back to us if the sample is approved!

客户确认 Client Confirmation	



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一、基本性能参数和原理 (Ta=25℃)

1、用途:

本均衡模块适用于20节串铁锂离子电池组的电压均衡。

This circuit board is suitable for voltage balancing of 20S LFP lithium, iron battery packs

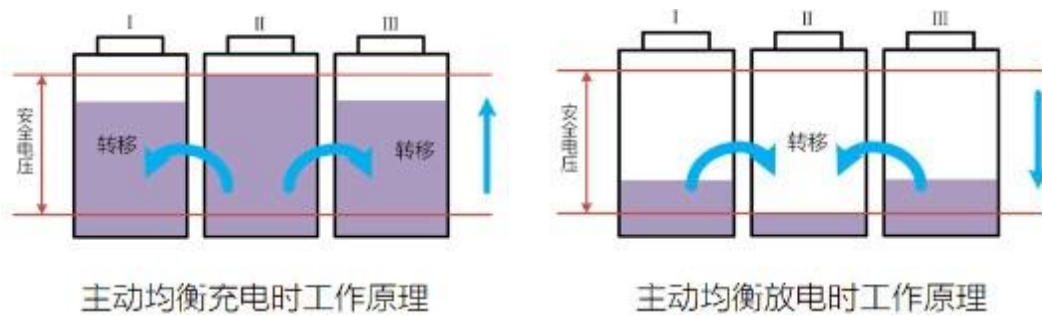
2、电气特性: (Ta=25℃)

项目	详细内容	最小值	典型值	最大值	单位	备注
输入电压范围 Input voltage range	单节电池电压 Single battery voltage	2.0		4.5	V	
	20 串总电压 20series total voltage	40		90	V	
均衡起动条件 Blance start condition	单节电池间电压差大于 Voltage difference MAX		45	55	mV	同时要满足均衡停止条件 Simultaneously failing to meet the equilibrium stop condition
均衡停止条件 Blance stop condition	平均电池电压小于 Average Voltage Less than	2.4	2.45	2.5	V	
	单节电池电压小于 Each cell Voltage Less than	2.3	2.35	2.4	V	
	压差小于 45mV 后均衡延时计时完成 Balance delay finish	/	/	/	/	延时可以设定, 0.5, 1, 2, 4 小时 Option 0.5/1/2/4H
均衡电流 Balace current	单节电流 Balance current	/	/	5	A	均衡电流和电池间电压差成正比 The balance current varies directly with the voltage difference for each cell
均衡精度 Tolerant	电池间电压差 Tolerant for each cell	/	/	10	mV	
均衡功耗 Balanced power consumption	均衡开起时自身功耗 Self power consumption at balanced start			250	mW	
休眠功耗 Sleep power consumption	休眠时自身功耗 Self power consumption during sleep			0.5	mW	

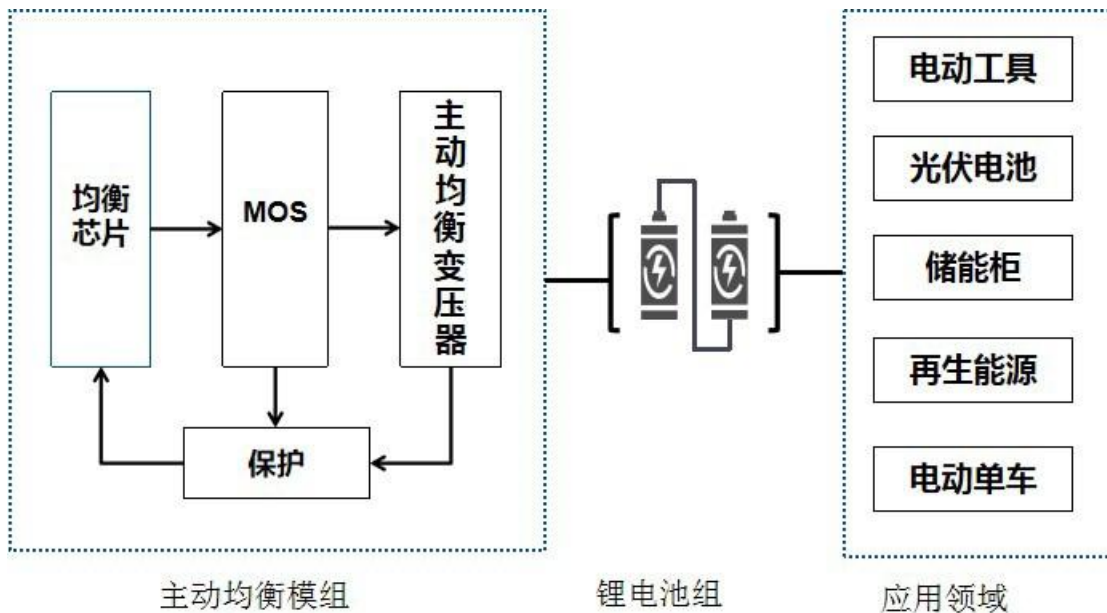
3、均衡原理

如下示意图：

均衡模组采用专利结构的均衡变压器实现每串电池的“等效并联连接”，在基于“等效并联连接”状态下，各串电压高低不一的电池实现能量传输分配，最终实现电池组的高效率精密均衡。

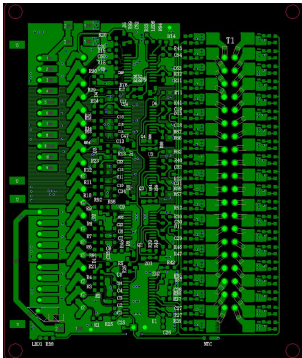


4、系统应用框图

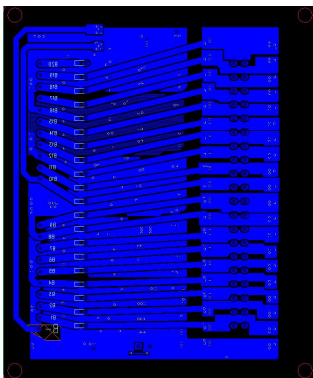


四、PCB LAYOUT

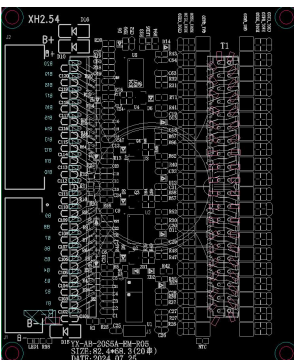
1. TOP LAYOUT(顶层线路)



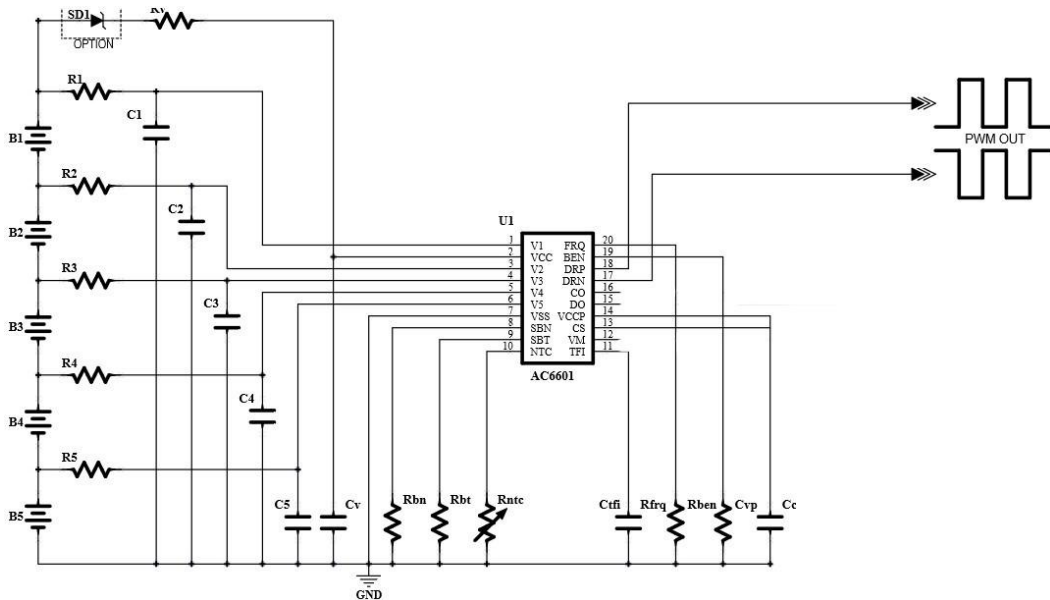
2. BOTTOM LAYOUT(底层线路)



3. 顶层元器件位置Top level components location



五、原理图



六、关键物料

NO.	P/N 物料编号	Part name 元件名称	Specification 元件规格	Pack type 封装式	Q' ty 数量	Maker/Remark 厂商/备注
1		Battery protection IC	AC6611	TSSOP-28	4	猿芯半导体
2		Silicon MOSFET	60N03	PDFN3.3*3.3-8L	40	APM
5		PCB	PCB/83mm*68mm*1.2mm±0.15mm/绿油白字		1	JLC

七、包装 packaging

1. 运输过程中, 应注意防潮、防湿, 避免挤压、碰撞等, 以免保护板变形。

用快递或派专人送货到客户仓库。

During transportation, attention should be paid to moisture-proof, anti-moisture, squeezing, collision, etc. to avoid deformation of the protective plate.

Delivery to the customer's warehouse by courier or a special person.

八、安装方法 Installation method

1. 电芯连接顺序为:先接 B0, 再按顺序从 B1 到 B+连接电芯电压检测线, 拆下时顺序相反。

The sequence of cell connection is: first connect B -, then connect the cell voltage detection line, and the sequence is reverse when removing

2. 电芯电压检测线使用标准的排线, 推荐使用 $\leq 22\text{AWG}$ 的导线。

Standard flat wires are used for cell voltage detection, and it is recommended to use wires $\leq 22\text{AWG}$.

3. 电池的正负极及每节电池的引线不能与外部安装盒短路

The positive and negative poles of the battery and the lead wires of each battery shall not be short circuited to the external mounting box.

九、警告及注意事项 Warning and Cautions

1. 请避免机械损伤保护板, 在规范内使用产品!

Please avoid mechanical damage Protection PCM! 2.

使用中的铅. 锡渣. 铁屑等请勿落入保护板, 否则可能损坏保护板!

Note that the use of lead. iron. tin slag. etc. Do not touch the circuit board. may damage the Circuit PCM!

3. 使用中有问题, 请联系我们!

If something goes wrong. please contact us!