

样品承认书

SPECIFICATION FOR APPROVAL

客户名称/ customer name	
产品型号/ Model	TDT-9069-15S 50A LFP
产品规格/ Specification	L105*W70*T9mm MAX
主要器件 Main configuration	IC: SH3676016B/LQFP32L MOS: PAS01N055E/TO-263
PCB工艺/PCB	Double layer, Green oil, Solder coating, ROHS
Document NO.	
版本/ Rev	

部门 Department	编写(R&D) Registered	审核 (R&D) Checked	复核 (Quality) Deliberation	批准(R&D) Approved
签名/ Sign				
日期/ DATE				

客户确认 Customer Approve			
部门 Department	R&D	Quality	Approved
签名/ Sign			
日期/ DATE			
文件有效期限 Approved date	有限期限为 1 年 Period of validity 1 year		

在文件到期前一个月如果双方都对此文件都没有异议，此文件将自动延续有效期1年

If both sides have no dissidence in one month before the maturity of the Approved. It will be considered valid automatically for a one year period.

公司名称 Company Name	深圳市拓达通电子有限公司 SHENZHEN TUODATONG ELECTRONICS CO., LTD	电话 TEL	15013560873
公司地址 Address	深圳市光明区白花社区白花洞兴华雄科技园A9栋4楼 7/F, Bo Lin Tai Technology Park, Baihuadong, Guangming District, Shenzhen, Guangdong Province, China.		

1. 产品变更履历/Product Modified Record List

产品变更履历/ Product Modified Record List			
日期/ Date	变更点描述/ Problem and Solution	责任人/ Principal	
2024-5-28	1. 新开发		

2. 产品规格 / Produce Specification

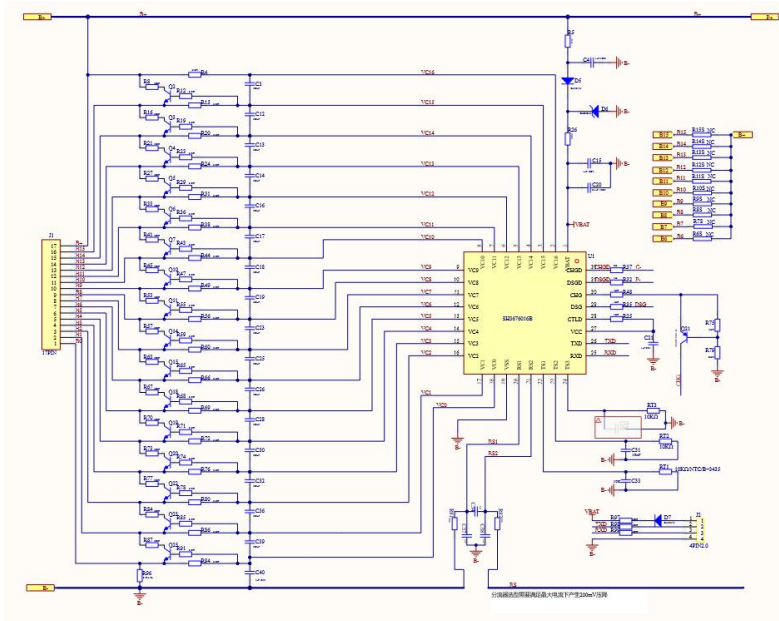
		技术规范 TECHNICAL SPECIFICATION FOR APPROVAL			Rev	0.1
					Date	
					Page	1

No	项目 Item	单位 Unit	最小值 Min.	中间值 Typ.	最大值 Max.	备注（Remark）
1	过充保护电压 Over charge protection voltage	V	3.62	3.65	3.68	来源IC规范 Source of IC spec
2	过充保护延时时间 Delay time for over charge protection	mS	600	1000	1400	来源IC规范 Source of IC spec
3	过充电解除电压 Over charge release voltage	V	3.45	3.5	3.55	来源IC规范 Source of IC spec
	过充解除恢复方法 Over charge release method	移开充电，并且电芯电压<过充保护解除电压 Disconnect with charger, and the battery cell's voltage> over charge release voltage				
4	过放电保护电压 Over discharge protection voltage	V	2.22	2.3	2.38	来源IC规范 Source of IC spec
5	过放保护延时时间 Delay time for over discharge protection	mS	500	1000	1500	来源IC规范 Source of IC spec
6	过放电解解除电压 Over discharge release voltage	V	2.6	2.7	2.8	来源IC规范 Source of IC spec
	过放电解解除方法 Over discharge release method	连接上充电器，并电芯电压>过放解除电压 Connect with charger, and the battery cell's voltage> over discharge release voltage				
7	放电过流保护测试值 Discharge Over current protection testing values	A	130	160	200	来源IC\MOS规范 Source of IC \ MOS spec
	建议最大持续充/放电电流 max continuous charge/discharge current	A	/	50	/	
	充电温度保护 Charge temperature protection	℃	75℃±10℃			
	放电温度保护 Discharge temperature protection	℃	75℃±10℃			

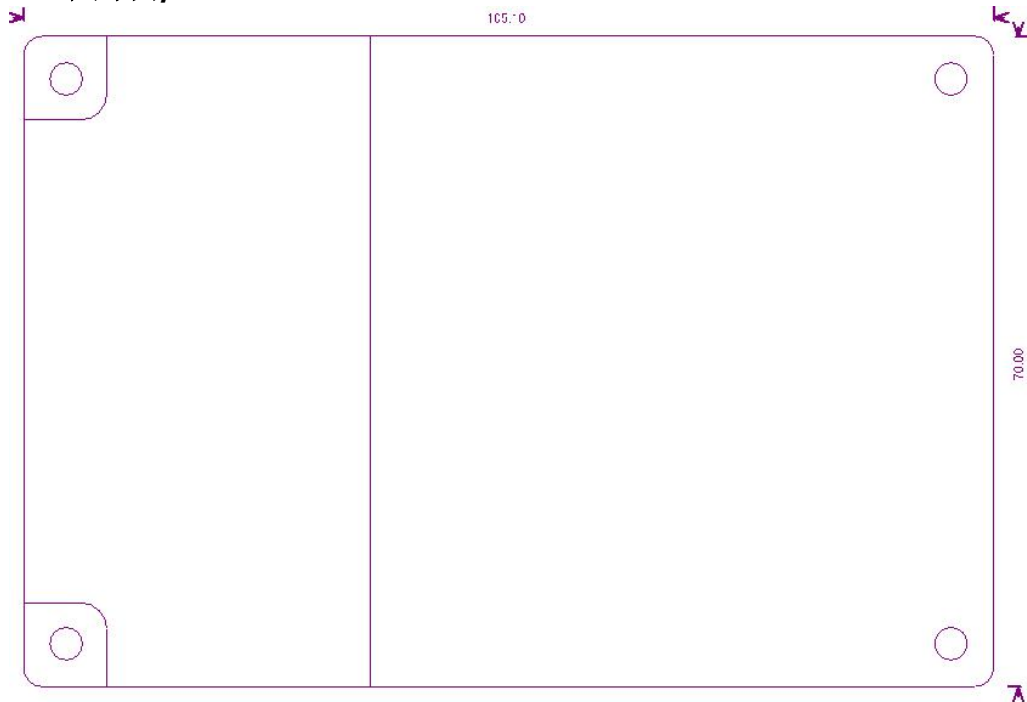
	Mos 过温保护温莞	℃	90℃±10℃			
8	放电过电流保护延迟时间 Delay time for discharge Over-current protection	mS	400	500	700	来源IC规范 Source of IC spec
9	充电过流保护测试值 Charge Over current protection testing values	A	110	140	170	$I = V_M / R_{ss}$ (MO S内阻) $I = C_S / R_{ss}$ (电 阻)
10	充电过流保护延迟时间 Delay time for charge over-current protection	mS	500	1000	1500	来源IC规范 Source of IC spec
	均衡开启电压 Balance open voltage	V	3.49	3.520	3.545	来源IC规范 Source of IC spec
	均衡电流 Balance current	mA	30	40	60	
12	保护电路的功耗 Power consumption of protection circuit	uA	-	40	65	来源IC规范 Source of IC spec
13	PCM负极内阻 PCM Internal Resistance	mΩ	/	/	25	元件+PCB内阻
14	NTC电阻器 NTC resistor	kΩ	/	/	/	来源NTC规范 25℃
15	ID电阻器 ID resistor	kΩ	/	/	/	来源电阻规范 25℃
16	静电测试 ESD test	KV	直接接触±8KV各10次 空气接触±15KV各10次			打静电测试后,保 护板不能瞬间保 护,元器件也不能 出现性能不良的 情况。

3.图纸/Drawing

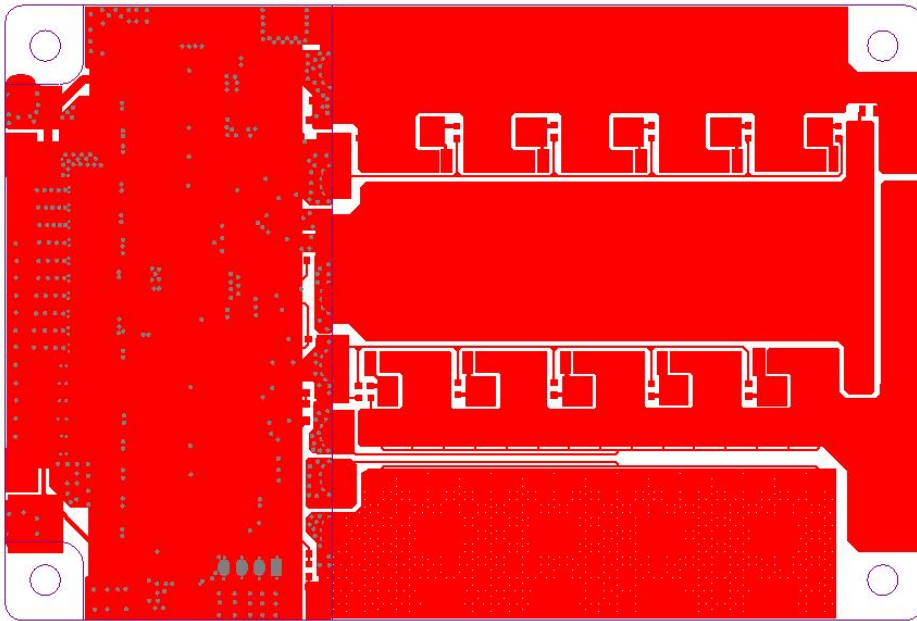
3.1 电气原理图/Circuit Drawing



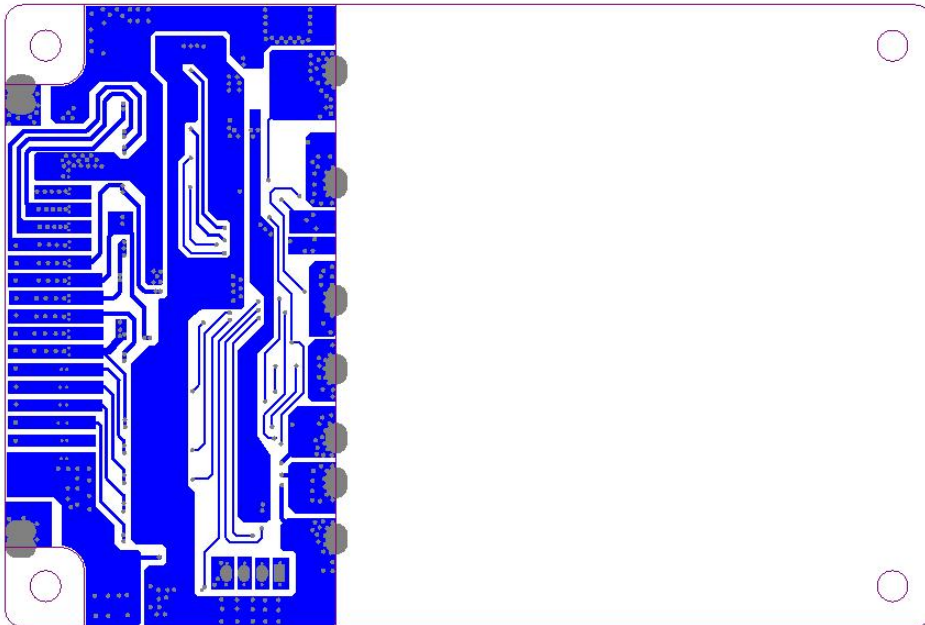
3.2 尺寸图/PCB size



3.3 顶层线路图/Top Layer



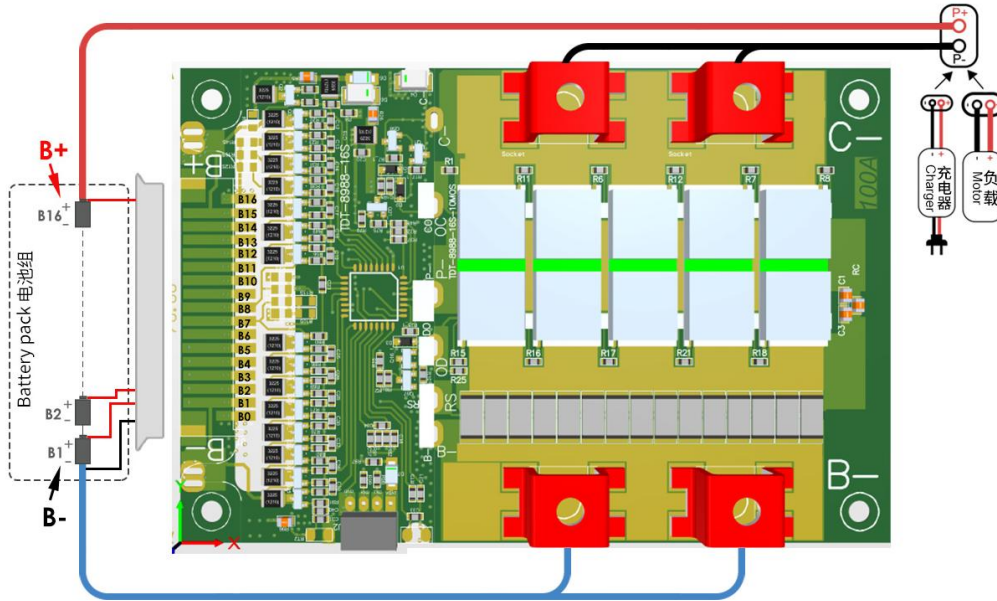
3.4 底层线路图/Bottom Layer



3.5 顶层丝印图/Top Overlay



4. 接线说明/Wiring instructions:



信号线:

B- 接电芯的B- 0V
B1 接电芯的 3.2V
B2 接电芯的 6.4V
B3 接电芯的 9.6V
B4 接电芯的 12.8V

.....
B15 接电芯的 48V

功率线:

B- 接电芯的B-, 电线通过电流>50A 1条
P- 接充电器/负载- 电线通过电流>50A 1条
P+ 直接接电芯的最高电压端B15+, 电线通过电流>50A 1条

Cables:

B0 connect battery's B0 0V
B1 connect battery's B1+ 3.2V
B2 connect battery's B2+ 6.4V
B3 connect battery's B3+ 9.6V
B4 connect battery's B4+ 12.8V

.....

B15 connect battery's B15+ 48V

Power lines:

B- connect battery's B-, wire current>50A 1 lines
P- connect charger-/load-, wire current>50A 1 lines
P+ connect battery's B15+, wire current>50A 1 lines

6. 注意事项/Attention:

1. 插头方向与PCBA上母座极性一致，采集线顺序不能有错。
2. 本保护板是通过集成保护芯片联级构成的多节保护电路, 在各节电芯连接顺序混乱情况下, 施加到保护芯片上的电压有可能超过芯片所承受的电压而造成芯片损坏, 在采集线插入保护板前, 需确认电压是否正确。作业过程中注意静电防护。
3. 接触到PCBA, 要做好防静电措施，否则可能会出现电路损坏和不工作的情况出现，电路板安装时与不相干的导体之间应做好绝缘处理，绝缘电阻大于10M Ω 。
4. 禁止在强静电和强磁场的环境中使用。

1. The direction of the plug should be consistent with the polarity of the base on the PCBA, and the sequence of the collection line can not be wrong.

2. This BMS is a multi-section protection circuit composed of integrated protection chips. In the case of disordered connection sequence of each cell, the voltage for the protection chip may exceed the voltage that the chip endure and cause damage to the chip.

Pay attention to ESD protection during operation.

3. If you contact PCBA, pls take anti-static measures. Otherwise, the circuit may be damaged and not work. Ensure that the insulation resistance between the PCB and irrelevant conductors is bigger than 10M Ω .

4. Do not use it in the environment with strong static electricity and magnetic field.