深圳市拓达通电子有限公司
SHENZHEN TUODATONG ELECTRONICS CO.,LTD.

样品承认书

SPECIFICATION FOR APPROVAL

客户名称/**customer name**	
产品型号/ **Model**	TDT-9025-8S 30A LFP
产品规格/ **Specification**	L75*W52*T9mm MAX
主要器件 **Main configuration**	IC：CW1104AFAS/TSSOP-24 MOS:PAN4080E/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**	何永生			
日期/**DATE**	2023-3-30			

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博林泰科技园7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	
2023-3-30	1. 新开发		

2. 产品规格/ Produce Specification

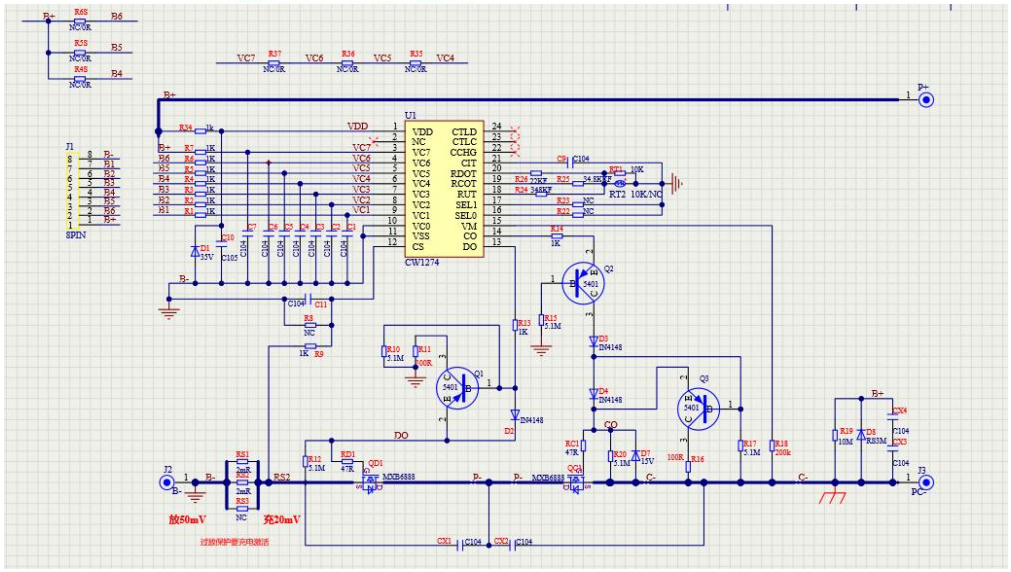
	技术规范 TECHNICAL SPECIFICATION FOR APPROVAL	Rev	0.1
		Date	
		Page	1

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	3.625	3.65	3.675	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	800	1000	1200	来源IC规范 Source of IC spec
3	过充电解除电压 Over charge release voltage	V	3.525	3.55	3.575	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	2.27	2.3	2.33	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	800	1000	1200	来源IC规范 Source of IC spec
6	过放电解除电压 Over discharge release voltage	V	2.67	2.7	2.73	来源IC规范 Source of IC spec
	过放电解除方法 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	110	150	190	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	/	30	/	
	充电温度保护 Charge temperature protection	℃	充电时的温度保护阀值/ Charge temperature protection			50℃±5℃
	放电温度保护 Discharge temperature protection	℃	放电时的温度保护阀值/ Discharge temperature protection			70℃±5℃

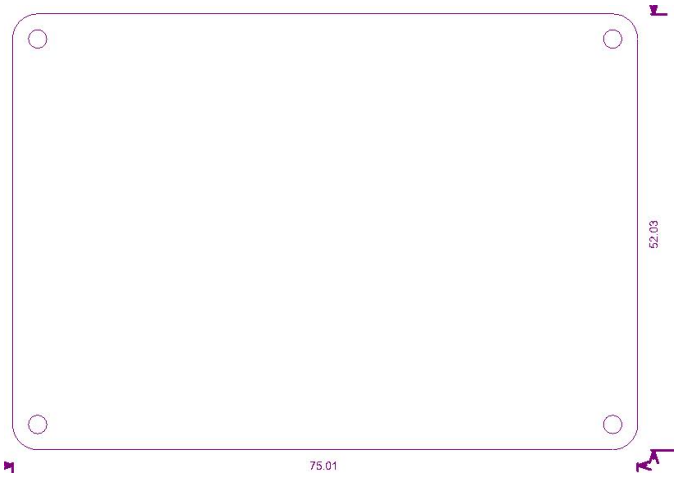
8	放电过电流保护延迟时间 Delay time for discharge Over-current protection	mS	700	1000	1300	来源IC规范 Source of IC spec
9	充电过流保护测试值 Charge Over current protection testing values	A	40	60	80	I=VM/Rss（MOS内阻） I=Cs/Rss（电阻）
10	充电过流保护延迟时间 Delay time for charge over-current protection	mS	800	1000	1200	来源IC规范 Source of IC spec
	均衡开启电压 Balance open voltage	V	3.45	3.475	3.50	来源IC规范 Source of IC spec
	均衡电流 Balance current	mA	28	40	60	
11	短路保护延迟时间 Delay time for short circuit protection	uS	160	200	240	来源IC规范 Source of IC spec
12	保护电路的功耗 Power consumption of protection circuit	uA	-	-	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

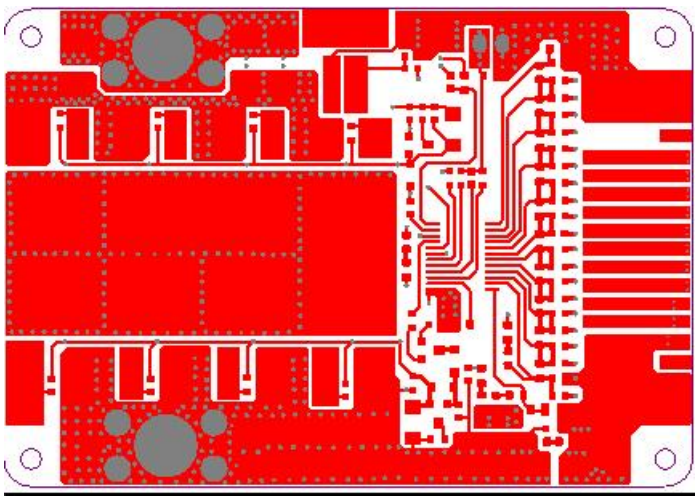
3.1 电气原理图/Circuit Drawing



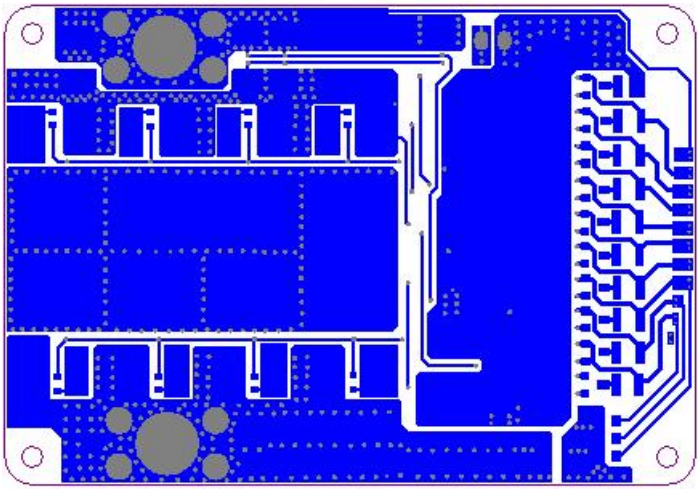
3.2 尺寸图/PCB size



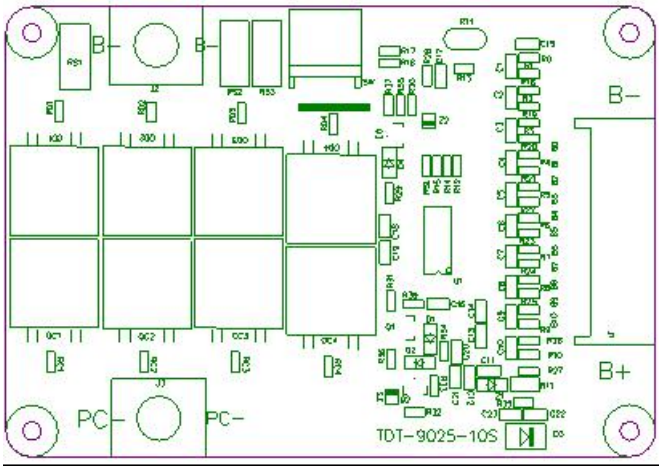
3.3 顶层线路图/Top Layer



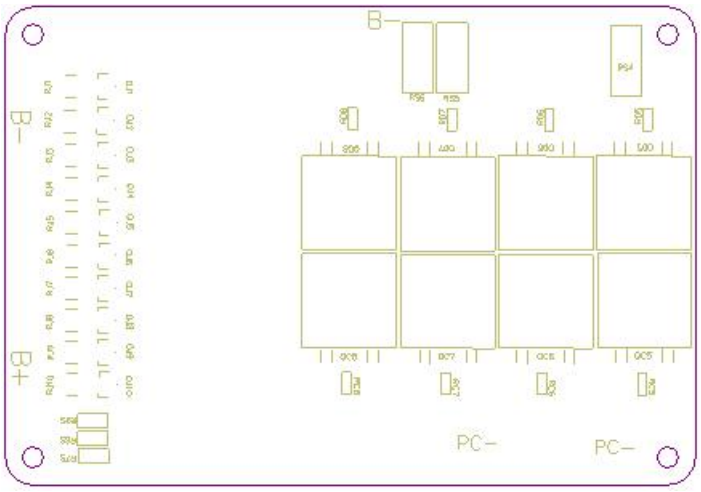
3.4 底层线路图/Bottom Layer



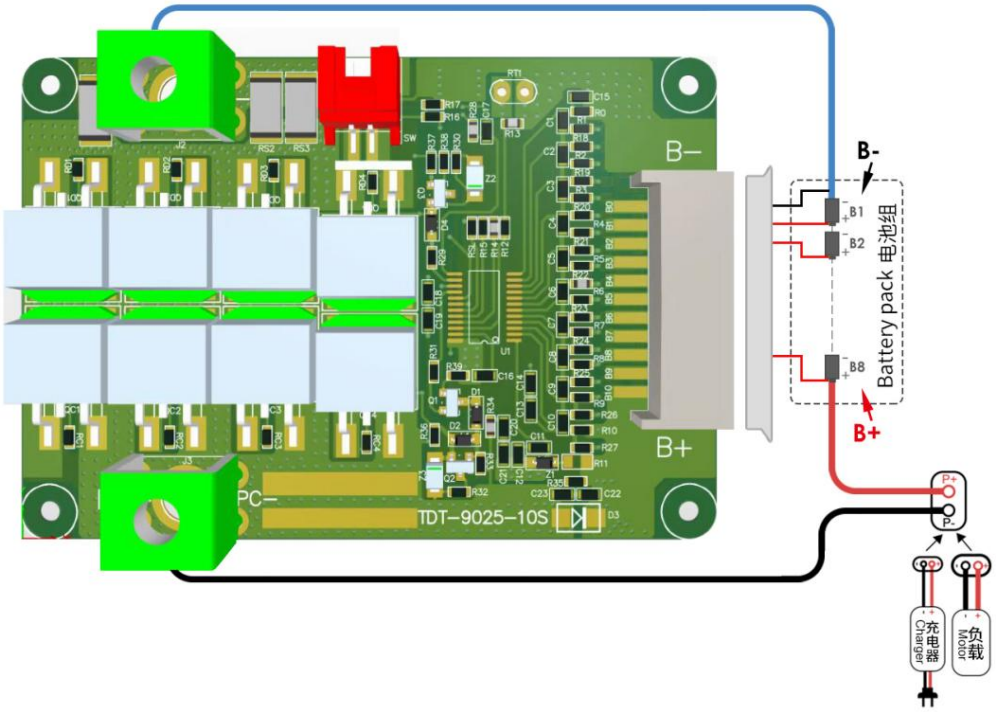
3.5 顶层丝印图/Top Overlayer



3.6 底层丝印图/Bottom Overlayer



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
.....
B8 接电芯的 25.6V
功率线：
B- 接电芯的B-，电线通过电流>30A 1条
PC- 接充电器/负载- 电线通过电流>30A 1条
P+直接接电芯的最高电压端B8+，电线通过电流>30A 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
.....
B8 connect battery's B8+ 25.6V

Power lines：

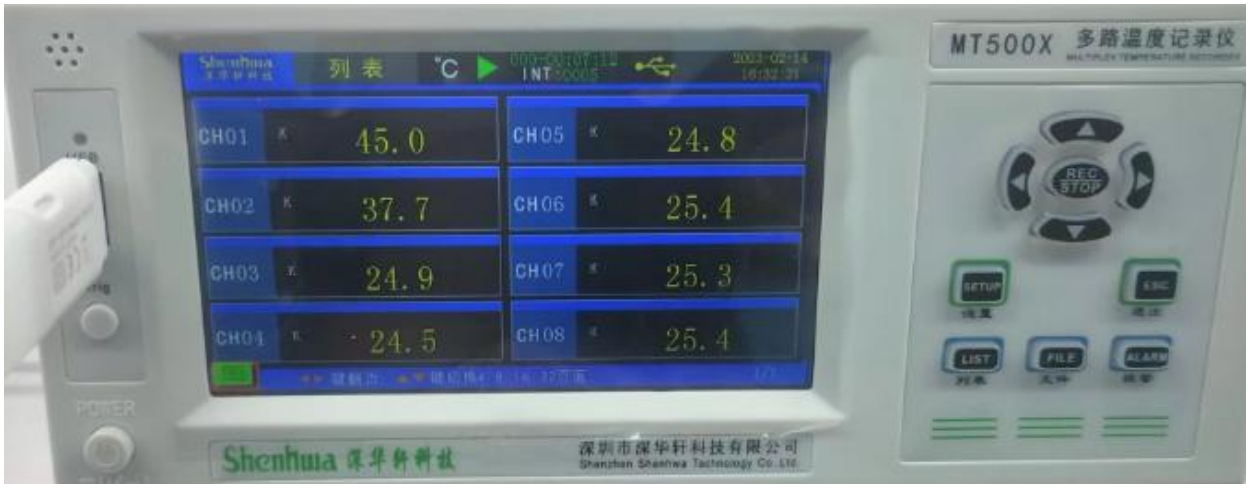
B- connect battery's B-，wire current>30A 1 lines
PC- connect charger-/load-，wire current>30A 1 lines
P+ connect battery's B8+，wire current>30A 1 lines

5.测试/Testing：

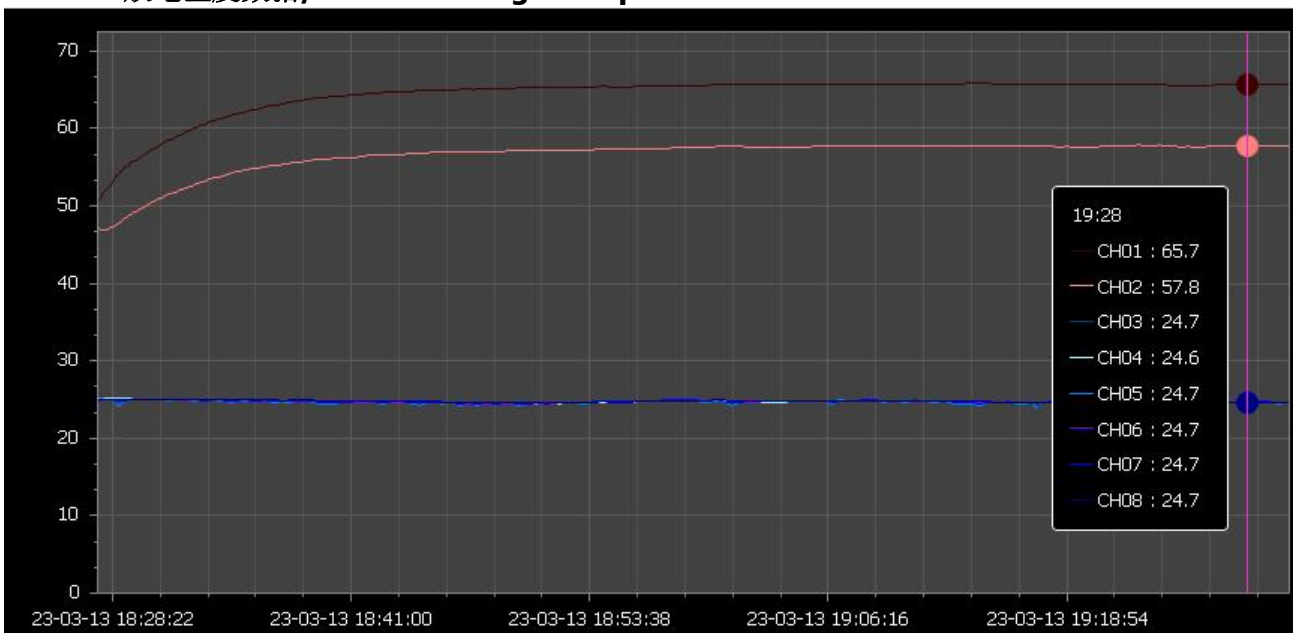
5.2 30A实测放电图/30A Actual test discharge values

5.3 30A实测充电图/30A Actual test charge values

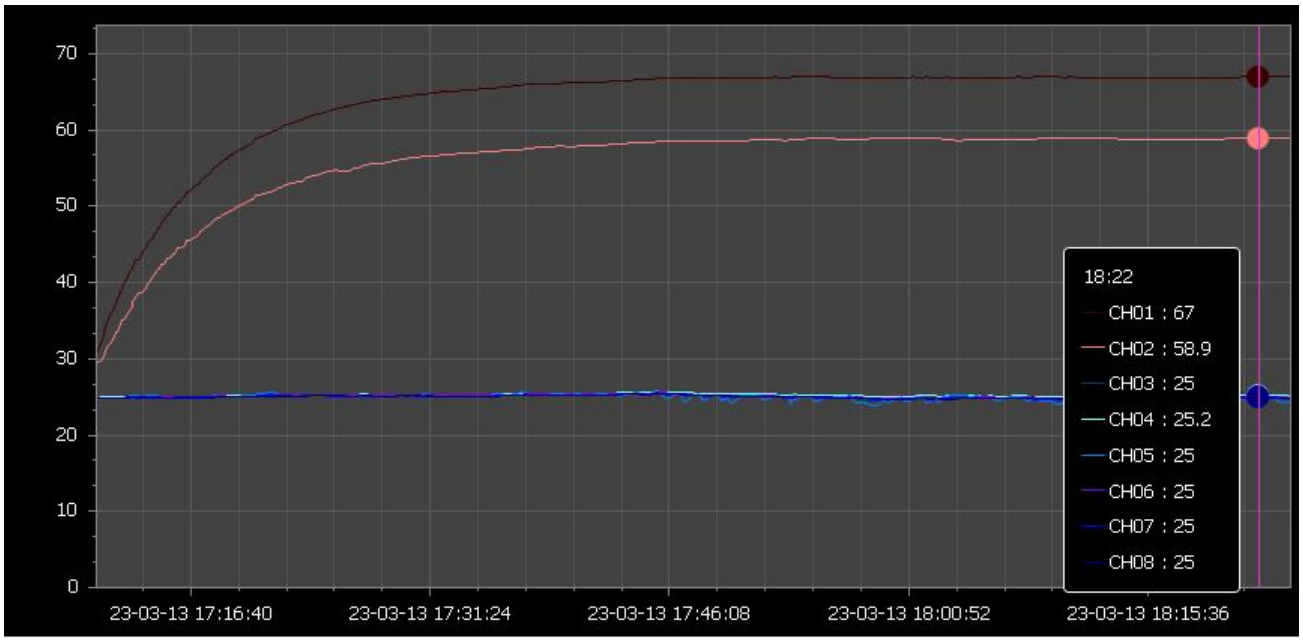
5.4 30A放电实测温度图/30A Actual test temperature values of discharge



5.5 30A放电温度数据/ 30A discharge temperature data



5.6 30A充电温度数据/30A charge temperature data



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10MΩ。

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 10MΩ.

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