

样品承认书

SPECIFICATION FOR APPROVAL

客户名称/customer name	
产品型号/ Model	TDT-9025-7S 10A NMC
产品规格/ Specification	L75*W52*T9mm MAX
主要器件 Main configuration	IC: CW1104ALCS/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				
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.

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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

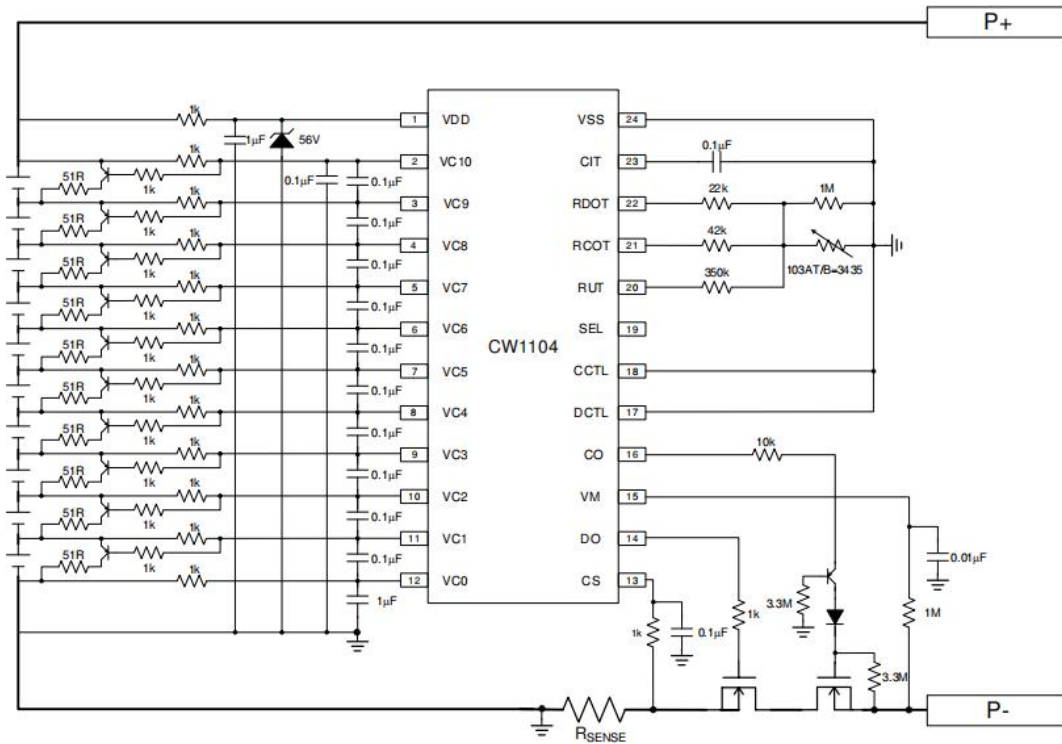
		技术规范 TECHNICAL SPECIFICATION FOR APPROVAL			Rev	0.1
					Date	
					Page	1

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	4.23	4.25	4.27	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	4.075	4.10	4.125	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	2.67	2.7	2.73	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	2.92	3.0	3.08	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	40	50	60	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	/	10	/	
	充电温度保护 Charge temperature protection	℃	充电时的温度保护阈值/ Charge temperature protection			50℃±5℃
	放电温度保护 Discharge temperature protection	℃	放电时的温度保护阈值/ 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	14	20	26	I=VM/Rss（MO S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	4.05	4.075	4.10	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。
17	休眠功能 Sleep function	有/Yes				来源IC规范 Source of IC spec

3. 图纸/Drawing

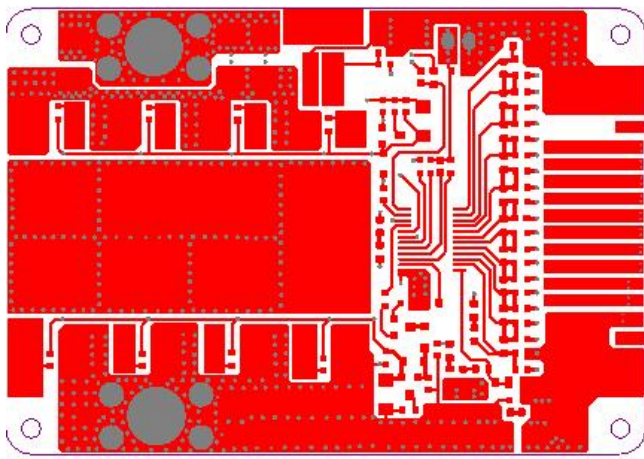
3.1 电气原理图/Circuit Drawing



3.2 尺寸图/PCB size

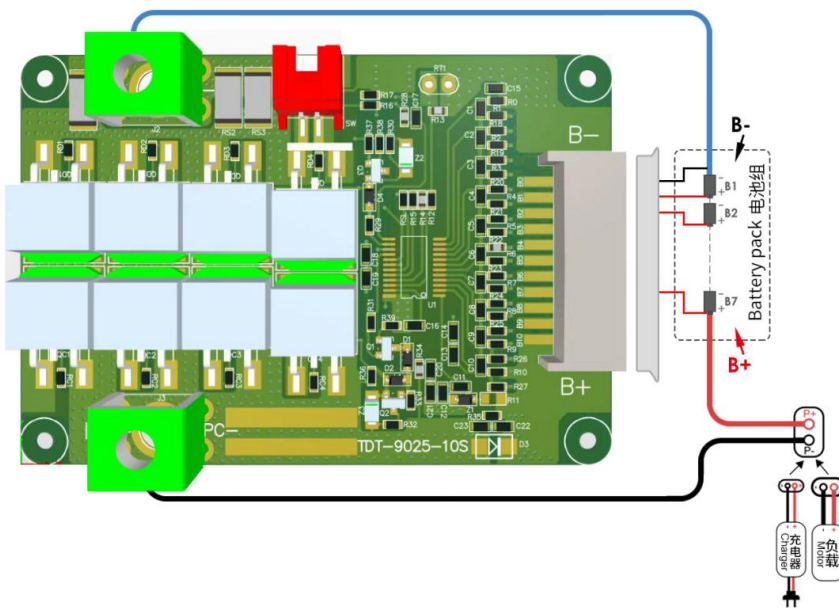


3.3 顶层线路图/Top Layer



The diagram illustrates a 16-bit parallel multiplier architecture. It consists of a 4x4 grid of 16 multipliers. Each multiplier block has two 8-bit inputs, labeled 'A' and 'B', and an 8-bit output, labeled 'P'. The inputs are connected to a 16-bit bus system. The outputs are connected to a 16-bit bus system. The diagram is labeled 'PC-' and 'PC+'.

4.接线说明/Wiring instructions:



信号线:

B- 接电芯的B- 0V

B1 接电芯的 3.7V

B2 接电芯的 7.4V

B3 接电芯的 11.1V

B4 接电芯的 14.8V

B7 接电芯的 25.9V

功率线:

B- 接电芯的B-, 电线通过电流>10A 1条

PC- 接充电器/负载- 电线通过电流>10A 1条

P+直接接电芯的最高电压端B7+, 电线通过电流>10A 1条

Cables:

B0 connect battery's B0 0V

B1 connect battery's B1+ 3.7V

B2 connect battery's B2+ 7.4V

B3 connect battery's B3+ 11.1V

B4 connect battery's B4+ 14.8V

B7 connect battery's B7+ 25.9V

Power lines:

B- connect battery's B-, wire current>10A 1 lines

PC- connect charger-/load-, wire current>10A 1 lines

P+ connect battery's B7+, wire current>10A 1 lines

5.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 $10\text{M}\Omega$ 。
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 $10\text{M}\Omega$.

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