



珠海市古鑫电子科技有限公司  
Zhuhai Gushine Electronic Technology Co., Ltd.

# 规格书 SPECIFICATION

客户CUSTOMER	:	Therabody
客户型号CUSTOMER MODEL	:	TB-Mini3-01
客户料号CUSTOMER CODE	:	
古鑫型号GUSHINE MODEL	:	QR013B-SBA
规格描述DESCRIPTION	:	1200mAh 锂电池组

客户承认 Customer Approval		珠海市古鑫电子科技有限公司 ZhuHai Gushine Electronic Technology Co.,Ltd.	
确认 Confirm		编制 Prepared by	
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工厂地址: 广东省珠海市金湾区三灶镇机场西路703号

电话: 0756-6299126 传真: 0756-6299123

网址: [Http://www.gushine.com](http://www.gushine.com)


Factory Address : No.703 Airport West Road,Sanzao Town,Jinwan District,Zhuhai City,Guangdong Province.

TEL : 0756-6299126 FAX : 0756-6299123

Website : <http://www.gushine.com>






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## 1. 范围/Scope

此规格描述了珠海市古鑫电子科技有限公司供应的可充电锂离子电池组技术规格要求。

The specification describes the requirements for the Li-ion rechargeable battery pack supplied by ZhuHai Gushine Electronic Technology Co.,Ltd.

## 2. 名称及物料构成/Name and Material Construction

**2.1 电池型号/Battery Model:** TB-Mini3-01

**2.2 电芯型号/容量Cell type and capacity:** 博富能INR17500/1200mAh

**2.3 电池组成/Pack Composition:** 成品电池由3颗电芯（3S1P）以及保护控制电路组成。

The battery pack consist of 3 cells (3S1P) and a PCM.

## 3. 基本性能/Basic performance

序号 No.	项目 Item	参数 Performance	备注 Remark
1	典型容量 Typical Capacity	Typ.1220mAh	0.2C放电 0.2C Discharge
	额定容量 Rated Capacity	Min.1200mAh	
2	标称电压 Nominal Voltage	11.1V	
3	充电限制电压 Limited Charging Voltage	12.6V	
4	充电上限电压 Upper Limit Charging voltage	12.65V	
5	放电终止电压 End of discharge Voltage	9V	
6	放电截止电压 Discharge Cut-off Voltage	7.8V	
7	充电方式 Charge Method	CC-CV	恒流/恒压 Constant current / constant voltage
8	充电电流 Charge Current	标准充电 Standard Current	240mA (0.2C)
		最大充电 Maximum current	1200mA (1.0C)
9	标准放电电流 Standard Discharge Current	240mA (0.2C)	



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10	最大持续放电电流 Maximum continuous Discharge Current	6A (5.0C)	
11	最大瞬间放电电流 Maximum instantaneous Discharge Current	12A(10C)	500ms
12	工作环境温度 Operating Temperature	充电 Charge	0°C~+50°C
		放电 Discharge	-20°C~+60°C
13	存储温度 Storage Temperature	-5°C~+35°C	
14	储存湿度 Humidity of Storage	65±20%	
15	电池内阻 Internal Resistance	≤120mΩ	标准充电后, 在1KHz条件下测试电池交流内阻 After standard charging, test the internal resistance of the battery under 1KHz AC condition.
16	电池重量 Pack Weight	98g	约 about
17	电池尺寸 Pack Dimension	厚度 Thickness	36.4 +0.6/-2.0mm
		宽度 Width	35.9 +0.6/-2.0mm
		长度 Length	51.5 +0.3/-0.6mm



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## 4. 测试要求/Test requirements

### 4.1 标准测试条件/ Standard test conditions

温度/Temperature:  $23\pm 2^{\circ}\text{C}$ ;

相对湿度/Relative humidity:  $65\pm 20\%$ .

大气压力/Atmospheric Pressure:  $86\text{kPa}\sim 106\text{kPa}$ .

测试电池为用户收到后不超过1个月的产品。Test time should be no more than one month after receive the battery.

### 4.2 测试仪表与设备要求/ Measurement instruments and equipment requirements

测量电压的仪表准确度应不低于0.5级，内阻应不低于 $10\text{K}\Omega/\text{V}$ ;

The accuracy of the instrument for measuring voltage should be more than class 0.5 and the internal resistance should be more than  $10\text{K}\Omega/\text{V}$ ;

测量电流的仪表准确度应不低于0.5级;

The accuracy of the instrument for measuring current should be more than class 0.5;

测量时间的仪表其相对误差为 $\pm 0.1\%$ ;

The relative error of the instrument for measuring time is  $\pm 0.1\%$ ;

恒流负载在被测电源电压范围内恒定电流调其电流相对误差为 $\pm 0.1\%$ ;

Within the range of measured power supply voltage, the relative error of current controlled by constant current load is  $\pm 0.1\%$ ;

充电电源（或充电器）在电池电压达到充电电压恒压后应改为恒压充电。


Charging power supply (or charger) should be changed to charge at constant voltage charging after the voltage reaches constant voltage.

## 5. 外观检查/Appearance Inspection

电池表面不能有任何明显的刮痕，螺纹，变形，膨胀和漏液。

The battery surface shall be free of any obvious scratch, thread, deformation, expansion and leakage.




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## 6. 规格/Specification

### 6.1 成品电池电性能/Pack Electrical characteristics

项目 project	测试方法和条件 Test Method and Condition	标准 Standard
6.1.1 标准充电 Standard charging	在25℃环境下, 电池以0.2C进行恒流充电至电池端电压为12.6V; 然后以12.6V进行恒压充电至截止电流为0.024A, 充电时间为340min。 In the 25℃, The battery at 0.2C constant current charge, straight until the battery voltage is 12.6V, then 12.6V constant voltage until the charge cut-off current 0.024A. The charging time is 340min.	/
6.1.2 放电容量 Discharge capacity	在25℃环境下, 标准充电后静置一小时, 电池以0.2C放电至电压为9.0V。 After 1 hour on the standard charging, the battery is discharged at 0.2C continuously to 9.0V at 25℃.	≥1200mAh
6.1.3 内阻Internal Impedance	标准充电后, 在1KHz条件下测试电池交流内阻。 After standard charging, test the internal resistance of the battery under 1KHz AC condition.	≤120mΩ
6.1.4 荷电保持 Charge maintenance	标准充电后, 将电池静置在温度为20±5℃环境下贮存28天; 然后取出电池, 在23±2℃环境下电池以0.2C进行放电至电压为9.0V时所需放电时间; 再标准充电后, 以0.2C进行放电至电压为9.0V所需放电时间。 After standard charging, the battery is allowed to stand at a temperature of 20±5℃ for 28 days; then the battery is taken out. In 23±2℃, and the battery is discharged at 0.2C until the discharge time is required at voltage of 9.0V; after standard charging, it is performed at 0.2C. Discharge time required to discharge to voltage of 9.0V.	放电时间应不低于4.25h, 充电后再次放电的放电时间应不低于4.5h。 The discharge time should be no less than 4.25h, and the discharge time after recharging after charging should be no less than 4.5h.
6.1.5 温度环境测试 Temperature environment test	高温放电 High-temperature discharge 标准充电后, 将电池放入60±2℃的高温箱中恒温4h后, 以1C电流放电至电压为9.0V。 After standard charging, put the battery into a high-temperature box at 60±2℃ and keep it constant for 4h, then discharge it to voltage of 9.0V with 1C current.	放电时间不低于54min。 Discharge time not less than 54min.



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	低温放电 Low temperature discharge	标准充电后, 将电池放入-20±2℃的低温箱中恒温4h后, 以0.2C电流放电至电压为9.0V。 After standard charging, put the battery into a low-temperature box at -20±2℃ and keep it constant for 4h, then discharge it to voltage of 9.0V with 0.2C current.	放电时间不低于195min。 Discharge time not less than 195min.
<b>6.1.6</b> 循环寿命 Cycle life	在23±2℃温度下; 电池以1C恒流充电至12.6V, 然后以12.6V进行恒压充电至截止电流为0.02C, 充电时间为80min; 搁置30min; 以5C进行恒流放电至电压为9.0V; 搁置30min; 电池执行上述步骤进行下一循环; 剩余容量≥初始容量×80%。 At 23 ±2℃; the battery is charged at 1C constant current to 12.6V, then constant voltage charging to 12.6V to cutoff current is 0.02C, the charging time is 80min.; shelved for 30min; Constant at 5C current discharge to voltage of 9.0V; shelved for 30mins; The pool performs the above steps for the next cycle; the remaining capacity ≥Initial capacity × 80%.		循环次数≥500 Number of cycles ≥500
<b>6.1.7</b> 性能储存 Storage performance	按照标准充电方式给电池充入40%~45% 的容量, 常温20±5℃, 相对湿度45%~75% 环境中储存12个月。然后按标准充电充满电后, 在23±2℃的环境下以0.2C放电至9.0V.充放电试验循环5次。 Charge the battery to 40%~45% capacity under standard charge method, storage for 12 months at 20±5℃ and 45%~75% relative humidity. After full charging, it performs 5 cycle times of charging and discharging, as 0.2C discharge to 9.0V at the 23±2℃.		放电时间应不低于4h。 Discharge time not less than 4h.
<b>6.1.8</b> 电压 Voltage	出货电压 Shipment voltage	11.4V~11.55V	



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## 6.2 成品电池环境适应性/ PACK Environmental Adaptability

项目 Item	测试方法和条件 Test Method and Condition	标准 Standard
<b>6.2.1</b> ESD测试 ESD test	<p>按GB/17626.2的规定对电池组每个端子或者电路板的输出端子进行±4KV接触放电测试各10次和±8KV空气放电测试各10次，每两次放电测试之间间隔1S。</p> <p>According to GB / 17626.2 standard request, each terminal of the pack or the output terminal of the circuit board is subjected to 10 times ±4KV contact discharge test and 10 times ±8KV air discharge test, with an interval of 1S between each two discharge tests.</p>	<p>无电性能缺陷。</p> <p>No electrical defects.</p>
<b>6.2.2</b> 恒定湿热 Constant damp heat	<p>标准充电后,将电池组放入温度为40±2℃.相对湿度为90%-95% 的恒温恒湿箱中搁置48 h. 将电池组取出在23±2℃的环境温度下搁置2h. 目测电池组外观，并以0.2C电流放电至电压为9.0V。</p> <p>After standard charging, the battery pack in a temperature of 40±2℃. A relative humidity of 90% -95% of the constant temperature and humidity tank rests 48h. The removed battery pack 23±2℃ at ambient temperature resting 2h. visual appearance of the battery pack, and to 0.2C current discharged to voltage of 9.0V.</p>	<p>外观应无变形、无锈蚀、不泄漏、不泄气、不破裂、不起火和不爆炸，放电时间应不低于3h。</p> <p>Appearance should be no deformation, no rust, no leakage, no deflation, no rupture, no fire and no explosion, the discharge time should be no less than 3h.</p>
<b>6.2.3</b> 震动测试 Vibration test	<p>标准充电后,将电池固定在振动台上，不可使电池变形.采用正弦波进行振动，并以对数扫频方式在15 min内从7Hz扫频到200Hz并返回到7Hz. 振动沿样品互相垂直的3个方向(其中一个方向必须与样品正负极所在平面垂直)进行，每个方向按上述对数扫频方式重复12次，振动3h。</p> <p>对数扫频方式如下:7 Hz-18 Hz保持9.8 m/s<sup>2</sup>的峰值加速度.将振幅保持在0.8 mm(位移为1.6mm) 直至峰值加速度达到78.4 m/s<sup>2</sup> (频率约为50Hz)。保持78.4 m/s<sup>2</sup>的峰值加速度直到频率增长到200Hz。</p> <p>After standard charging, the battery is fixed to the vibrating table, the battery is not deformed. Sine wave vibrates, and logarithmic sweep mode at 15 min from 7Hz swept to 200Hz and back to 7Hz. Vibration along the sample perpendicular to each other 3 directions (one of which must be the direction perpendicular to the plane of positive and negative sample) for each direction logarithmic sweep mode as described above is repeated 12 times, the vibration 3h.</p> <p>The logarithmic sweep is as follows:7Hz-18Hz maintains a peak acceleration of 9.8 m/s<sup>2</sup>. Maintain the amplitude at 0.8 mm (displacement of 1.6 mm) until the peak acceleration reaches 78.4 m/s<sup>2</sup> (frequency is approximately 50Hz). Maintain peak acceleration of 78.4 m/s<sup>2</sup> until the frequency increases to 200Hz.</p>	<p>开路电压应不低于90% 的初始电压，应不泄漏、不泄气、不破裂、不起火和不爆炸。</p> <p>The open circuit voltage should not be lower than 90% of the initial voltage, and should not leak, deflate, rupture, ignite and not explode.</p> <div style="text-align: center; border: 2px solid red; border-radius: 50%; padding: 10px; margin-top: 20px;"> <p>文控中心</p> <p>受控文件</p> </div>

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### 6.3 成品电池安全性能/Pack Safety Performance

项目 Item	测试条件 (方法) Test Method and Condition	标准 Standard
<b>6.3.1</b> 过充保护测试 Overcharge protection test	标准充电后, 电源电压设定为18V, 电流设定为1.2A, 用电源持续给电池组加载7h。 After standard charging, the power supply voltage is set to 18V, the current is set to 1.2A, and the power supply is continuously applied to the battery pack for 7h.	电池不破裂, 不冒烟, 不着火。 The battery does not break, does not smoke, does not catch fire.
<b>6.3.2</b> 过放保护测试 Over-discharge protection test	标准充电后, 以0.2C放电至电压9.0V后, 外接30Ω, 负载放电7h。 After standard charging, the battery is discharged at 0.2 C to voltage of 9.0V, and then externally connected to a 30Ω load for 7h.	
<b>6.3.3</b> 短路测试 Short circuit	标准充电后, 用一根80 mΩ ± 20 mΩ的导线短接其正、负极, 短接1h。 After standard charging, use a 80 mΩ ± 20 mΩ wire to short its positive and negative electrodes for 1h.	





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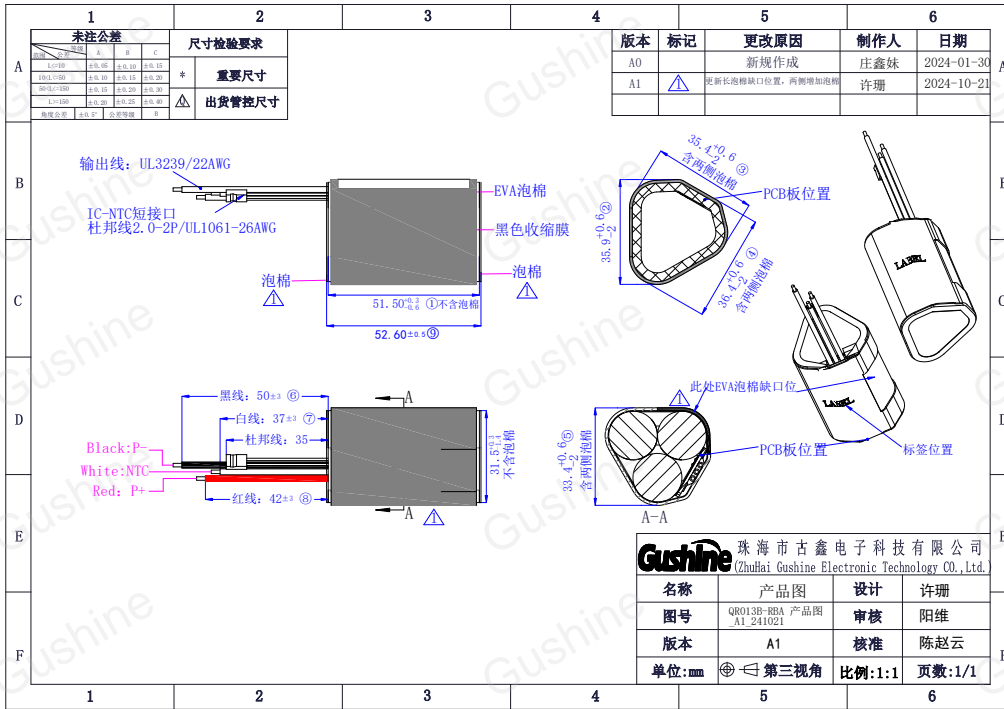
## 7. 产品组立图/Pack assembly drawing

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A	未注公差		尺寸检验要求		版本	标记	更改原因	制作者	日期																																																																																	
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		版本/ Edition: A1
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		页数/ Page: 12 / 24

## 8. 产品尺寸图/Pack dimension drawing



## 电池接线端定义/ Battery Terminals Definition

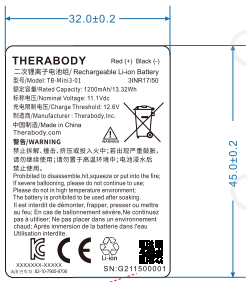
Pin No.	Symbol	Description
1	Black/P-	电池负极 Battery Negative Terminal
2	White/TS	100K±1%热敏电阻/B=3950K 100K±1% Thermistor/B=3950K
3	Red/P+	电池正极 Battery Positive Terminal
4.5	J1	IC-NTC短路接口 Short-circuit interface of IC-NTC



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		页数/ Page: 13 / 24

## 9. 贴纸/ Label

1	2		3	4	5		6																																																				
<table border="1"> <tr> <th colspan="4">未注公差</th> <th colspan="2">尺寸检验要求</th> </tr> <tr> <th>公差</th> <th>A</th> <th>B</th> <th>C</th> <th rowspan="4">* 重要尺寸</th> <th rowspan="4">△ 出货管控尺寸</th> </tr> <tr> <td>L&lt;=10</td> <td>±0.05</td> <td>±0.10</td> <td>±0.15</td> </tr> <tr> <td>10&lt;L&lt;=50</td> <td>±0.10</td> <td>±0.15</td> <td>±0.20</td> </tr> <tr> <td>50&lt;L&lt;=150</td> <td>±0.15</td> <td>±0.20</td> <td>±0.30</td> </tr> <tr> <td>L&gt;=150</td> <td>±0.20</td> <td>±0.25</td> <td>±0.40</td> <td></td> <td></td> </tr> <tr> <td>角度公差</td> <td>±0.5°</td> <td>公差等级</td> <td>B</td> <td></td> <td></td> </tr> </table>	未注公差				尺寸检验要求		公差	A	B	C	* 重要尺寸	△ 出货管控尺寸	L<=10	±0.05	±0.10	±0.15	10<L<=50	±0.10	±0.15	±0.20	50<L<=150	±0.15	±0.20	±0.30	L>=150	±0.20	±0.25	±0.40			角度公差	±0.5°	公差等级	B							<table border="1"> <tr> <th>版本</th> <th>标记</th> <th>更改原因</th> <th>制作人</th> <th>日期</th> </tr> <tr> <td>A0</td> <td></td> <td>新规作成</td> <td>张美玲</td> <td>24.03.02</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table>		版本	标记	更改原因	制作人	日期	A0		新规作成	张美玲	24.03.02							
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区域留白古鑫打码  
扫描内容不显示前缀SN

技术要求:

- 规格: 厚度: 0.1±0.02mm (厚度为背胶后厚度)
- 材质: 合成纸过哑膜, 电池贴纸面为泡棉, 背胶选用适合泡棉的胶水
- 产品不可有油污, 破损等缺陷;
- 所有材料以及相关加工工艺必须符合RoHS2.0标准、REACH法规;
- 二维码: 5-7mm

SN : G211500001

G: 固定不变 Fixed  
21: 年份 Year  
15: 周 Weeks  
00001: 序列号 Serial Number

<b>Gushine</b> 珠海市古鑫电子科技有限公司 (Zhuhai Gushine Electronic Technology Co., Ltd.)			
名称	贴纸	设计	张美玲
图号	Mini 3.0-QR013B-SBA-贴纸_A0_240302	审核	庄鑫妹
版本	A0	核准	陈赵云
单位: mm	第三视角	比例: 1:1	页数: 1/1



文件名: 产品规格书适用于 QR013B-SBA  
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## 10. 包装图/ Packaging figure

版本	标记	更改原因	制作者	日期
A0		新线作成	张美玲	2024/03/15
A1	△	增加物料标识卡	张美玲	2024/08/20

电池尺寸: 36\*36\*56  
重量:

气泡袋尺寸 (140+30)\*80mm

围条 刀卡 围条 刀卡 围条 刀卡 隔板 40\*286\*9mm

7 箱贴  
Box Mark Sticking

9 物料标识卡

10、锂电池标签: 100\*100mm


8、绿色圆标 φ60mm

外箱尺寸/Master Carton: 425\*301\*190mm

序号	名称	料号	数量	净重	毛重
1	电池	QR013B-SBA	54		
2	气泡袋	3080700002201	54		
3	刀卡	3080000008101	3		
4	围条	30805000083501	3		
5	外箱	30802000085001	1		
6	隔板	30804000081001	2		
7	箱贴	30801000029901	1		
8	绿色圆标	30801000061601	1		
9	物料标识卡	100*100mm	1		
10	锂电池标签	308010037201	1		
11	RoHS标签	10*20mm	1		
12	Reach标签	10*20mm	1		

**包装清单**



 <b>珠海市古鑫电子科技有限公司</b> Zhuhai Gushine Electronic Technology Co., Ltd.	<h1>产品规格书</h1> Product specifications	文件编号/ Document Number: W-PS-1940 版本/ Edition: A1 日期/ Date: 2024-11-01 页数/ Page: 15 / 24
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## 11. 电路规格/ Circuit specification

### 11.1 PCB保护参数/PCB Protection parameter:

功能描述 Denotation	项目 Item	参数 Parameter
V <sub>DET1</sub>	过充保护电压 Over charge protective voltage	4.250V±0.020V
V <sub>REL1</sub>	过充保护恢复电压 Over charge recovery voltage	4.150V±0.050V
T <sub>DET1</sub>	过充保护延迟时间 Over charge protective delay time	0.7s(min.) 1.0s(typ.) 1.3s(max)
V <sub>DET2</sub>	过放保护电压 Over discharge protection voltage	2.700V±0.050V
V <sub>REL2</sub>	过放保护恢复电压 Over discharge recovery voltage	3.000V±0.080V
T <sub>DET2</sub>	过放保护延迟时间 Over discharge protective delay time	0.7s(min.) 1.0s(typ.) 1.3s(max.)
I <sub>DP1</sub>	过充电流 Over charge current	6A~10A
I <sub>DP2</sub>	过放电流 Over discharge current	14A~18A
T <sub>DP</sub>	过放电流延迟时间 Over discharge current delay time	330ms(min.) 470ms(typ.) 610ms(max.)
T <sub>short</sub>	短路保护延迟时间 Short circuit protection delay time	250us(typ.) 350us(max.)
I <sub>standby1</sub>	工作耗电电流 Supply current	10uA(typ.) 15uA(max.)
I <sub>standby2</sub>	静态电流 Standby current	3.5uA(typ.) 5.5uA(max.)
R <sub>DS</sub>	P.C.B.内阻 P.C.B. resistance	V <sub>C</sub> =4.2V, R<60mΩ
T <sub>HCP</sub>	充电温度保护 Charge protection temperature	≤12℃ and ≥54℃
T <sub>HDP</sub>	放电温度保护 Discharge protection temperature	≤-21℃ and ≥75℃
V <sub>OCHA</sub>	0V 充电 0V battery enable charger voltage	1.6V 以下禁止充电

 <b>珠海市古鑫电子科技有限公司</b> Zhuhai Gushine Electronic Technology Co., Ltd.	<h1>产品规格书</h1> Product specifications	文件编号/ Document Number: W-PS-1940 版本/ Edition: A1 日期/ Date: 2024-11-01 页数/ Page: 16 / 24
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Voc	均衡启动电压 Balanced starting voltage	4.175V(min.) 4.200V(typ.) 4.225V(max.)
Toc	均衡启动延时 Balanced starting delay time	125ms(min.) 250ms(typ.) 375ms(max.)
Vocr	均衡关断电压 Balanced off voltage	4.140V(min.) 4.190V(typ.) 4.240V(max.)
Ioc	均衡电流 Balanced current	70mA (min.) 82.3mA(typ.) 90mA(max.)

### 11.2 元器件材料清单/ PCB-BOM

序号 No.	位置号 Position	零件名称 Part Name	描述 Description	封装 Package	数量 Q'ty	品牌 Maker
1	U1	保护IC Protect IC	CM1048-DT	TSSOP-16	1	ICM
2	UT1,UTT2,UT3	保护IC Protect IC	CM1010-A	SOT23-6	3	ICM
3	Q1.Q2	场效应管 MOS	VS3698AP	PDFN5*6	2	威兆
			CMT30H11M	PDFN5*6	2	ICM
4	QS1,QS2,QS3	场效应管 MOS	AD20N05S3L	SOT-23	3	砹德曼
			CJ8810	SOT-23	3	长江电子
5	F1	保险丝 FUSE	S1206-FA-15.0A	1206	1	SART
6	NTC1	热敏电阻 Thermistor	10KΩ±1%/B=3435K	L=35mm	1	仙侨
7	NTC2	热敏电阻 Thermistor	100KΩ±1%/B=3950K	L=30mm	1	美鑫昌
8	C1	电容 Capacitor	1uF/50V	0603	1	风华/ Murata
9	C2.C3.C4.C9. C10.CT1.CT2. CT3	电容 Capacitor	0.1uF/25V	0402	8	风华/ Murata
10	C5	电容 Capacitor	47nF/25V	0402	1	风华/ Murata
11	C6	电容 Capacitor	0.01uF/25V	0402	1	风华/ Murata



珠海市古鑫电子科技有限公司  
Zhuhai Gushine Electronic Technology Co., Ltd.

# 产品规格书

Product specifications

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Number:W-PS-1940

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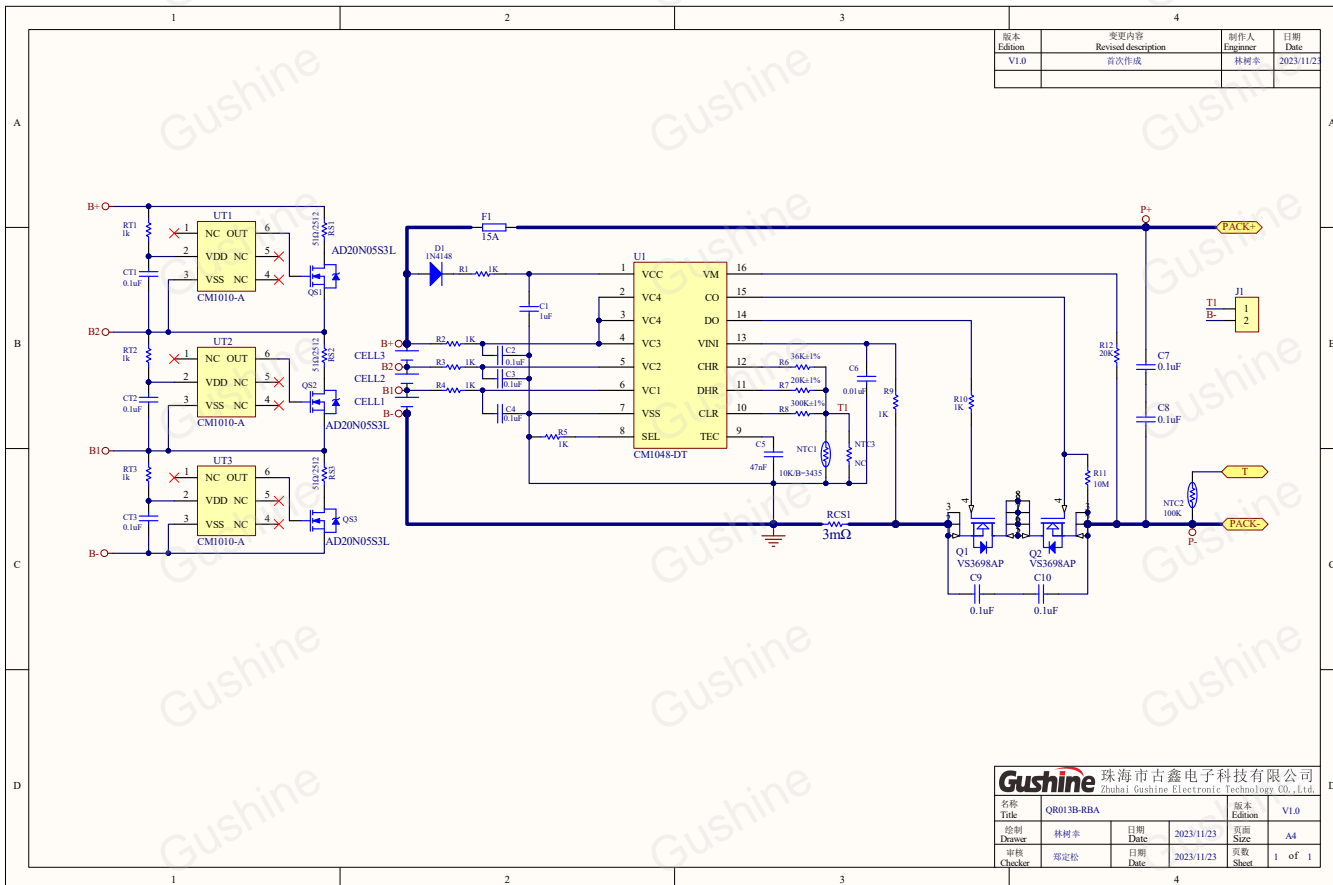
12	C7.C8	电容 Capacitor	0.1uF/50V	0603	1	风华/ Murata
13	R1	电阻 Resistor	1kΩ±5%/1/10W	0603	1	风华/ YAGEO
14	R2.R3.R4.R5. R9.R10.RT1, RT2,RT3	电阻 Resistor	1kΩ±5%/1/16W	0402	9	风华/ YAGEO
15	R6	电阻 Resistor	36KΩ±1%/1/16W	0402	1	风华/ YAGEO
16	R7. R12	电阻 Resistor	20kΩ±1%/1/16W	0402	2	风华/ YAGEO
17	R8	电阻 Resistor	300KΩ±5%/1/16W	0402	1	风华/ YAGEO
18	R11	电阻 Resistor	10MΩ±1%/1/16W	0402	1	风华/ YAGEO
19	RS1,RS2,RS3	电阻 Resistor	51Ω±1%/1W	2512	3	风华/ YAGEO
20	RCS1	电阻 Resistor	3mΩ±1%/2W	1206	1	风华/ YAGEO
21	D1	二极管 Diodes	1N4148WS	SOD-323	1	Diodes Inc/ JSCJ
22	B+, B-,B1, B2	磁片 Nickel	4*3.3*0.3/钢带镀镍	-	4	-
23	-	PCB	QR013B-RBA-A PCB	-	1	-



文件名:产品规格书适用于 QR013B-SBA

File name: product specification is applicable to QR013B-SBA

## 11.3 原理图/ Schematic diagram

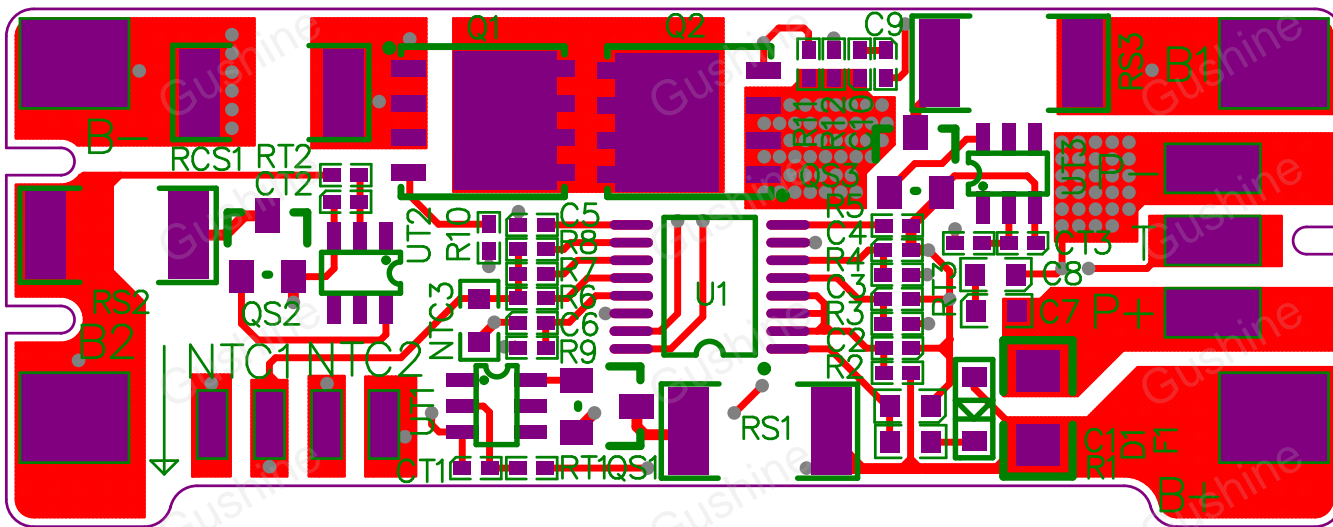


文件名:产品规格书适用于 QR013B-SBA

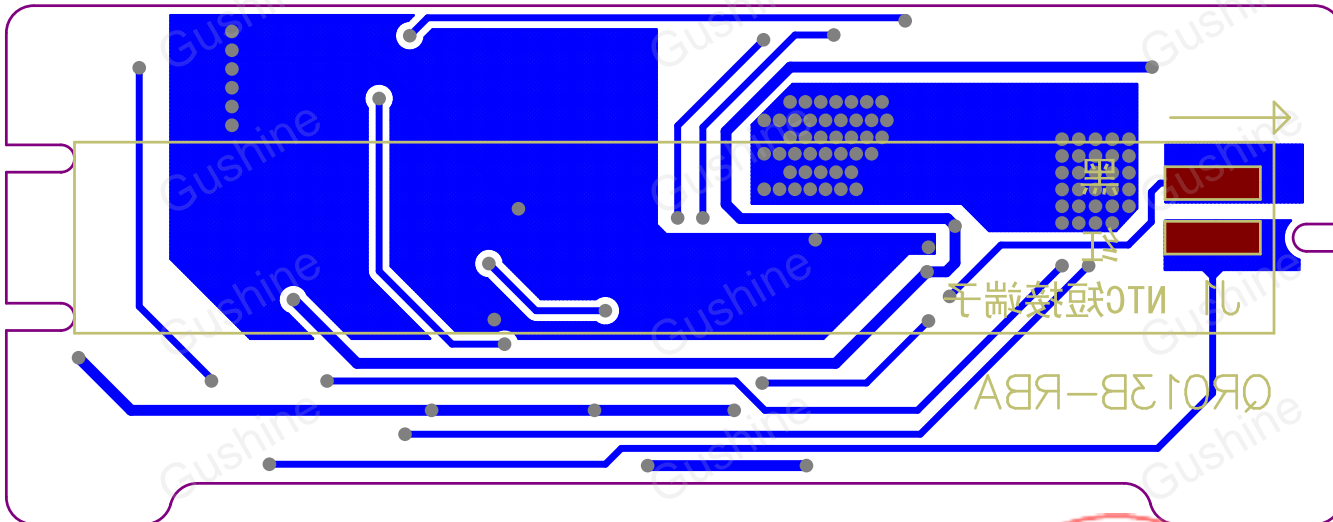
File name: product specification is applicable to QR013B-SBA

## 11.4 PCB分层图/ PCB-Layout

顶层/ Top Layer:



底层/Bottom Layer:



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## 12. 保质期/Quality guarantee period

电池正常使用一年内,经确认出现任何由于制造而非滥用原因造成的质量问题,均有生产厂方予以解决。此期限外,非制造原因而是客户误用造成的电池质量问题,古鑫不承诺免费更换。

Within one year of normal use of the battery, any quality problems caused by manufacturing rather than abuse shall be solved by the manufacturer. Outside this period, Gushine won't replace a new cell for free if the defects are not due to the failure of manufacturing process but is due to customer's abuse or misuse.

## 13. 长期储存/Long time storage:

### 13.1 储存条件:须置于温度为 $20\pm 3^{\circ}\text{C}$ 、湿度为 $60\pm 20\%RH$ 的环境中

The environmental condition should be: Temperature:  $20\pm 3^{\circ}\text{C}$ , Humidity:  $60\pm 20\%RH$

### 13.2 电池在储存过程中需每四个月充电一次,对电池进行定期活化或修复,使其能发挥最佳效能及提升可靠度,并延长使用寿命。电池以 $0.2C$ 电流放电至截止电压,然后以 $0.2C$ 恒流补充到 $30\%\sim 50\%$ 电量

Battery should be charged one time every four months during storage. Activation or repaired regularly to maximize their performance and reliability, and extend their service life. The battery was discharged to the cut-off voltage with  $0.2C$  current and then replenished to  $30\%\sim 50\%$  charge with  $0.2C$  constant current.

## 14. 安全警告/Safety Warning

### 14.1 禁止拆装电池/Disassembly of batteries is prohibited

电池内部具有保护机构和保护电路可以避免发生危险。不合适的拆装将会损坏保护机构,将会造成电池发热、冒烟、变形或燃烧。

There are protective mechanism and circuit inside the battery to avoid danger. The improper disassembly and assembly will damage the protection mechanism and cause the battery to heat, smoke, deform or burn.

### 14.2 禁止电池短路/Prohibit short circuit of batteries

不要将电池的正负极用金属连接,也不要将电池与金属放在一起存储和移动。如果电池被短路,将会有超大电流流过,导致损坏电池,造成电池发热、冒烟、变形或燃烧。

Do not connect the positive and negative electrodes of batteries with metal, nor store and move the batteries with metal. If the battery is short-circuited, there will be excessive current flowing through, causing damage to the battery, resulting in heating, smoking, deformation or combustion of the battery.

### 14.3 严禁加热和燃烧电池/Strictly prohibit heating and burning batteries

加热和燃烧电池将会造成电池隔离物的熔化、安全功能丧失或电解质燃烧。过热就会使电池发热、冒烟、变形或燃烧。

Heating and burning batteries will result in melting of battery isolates, loss of safety functions or burning of electrolytes.

Overheating can heat and smoke batteries. Deformation or combustion.

### 14.4 避免在热源附近使用电池/Avoid using batteries near heat sources

不要在火源、烤炉附近或超 $80^{\circ}\text{C}$ 的环境中使用电池。过热将会导致电芯化学物质损坏,电池内部短路,使电池发热、冒烟、变形或燃烧。

Do not use batteries in fires, near ovens or in environments over  $80^{\circ}\text{C}$ . Overheating will cause damage to the chemical substances in

 <b>珠海市古鑫电子科技有限公司</b> Zhuhai Gushine Electronic Technology Co., Ltd.	<h1>产品规格书</h1> Product specifications	文件编号/ Document Number: W-PS-1940 版本/ Edition: A1 日期/ Date: 2024-11-01 页数/ Page: 21 / 24
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the cell, short circuit in the cell, and make the cell heated, smoked, deformed or burned.

#### 14.5 禁止弄湿电池/No wetting of batteries

不要弄湿电池，更不能将电池投入水中。否则会造成电池内部保护电路功能损坏和发生不正常的化学反应，电池有可能发热、冒烟、变形或燃烧。

Don't wet the battery, let alone put it into water. Otherwise, the internal protection circuit of the battery will be damaged and abnormal chemical reactions will occur. The battery may be heated, smoked, deformed or burned.

#### 14.6 避免在火源附近使用电池/Avoid using batteries near fire sources

否则会造成电池内部保护电路功能损坏和发生不正常的化学反应，电池有可能发热、冒烟、变形或燃烧。

Otherwise, the internal protection circuit of the battery will be damaged and abnormal chemical reactions will occur. The battery may be heated, smoked, deformed or burned.

#### 14.7 使用专用充电器和正确充电/Use special chargers and correct charging

使用非专用充电器给电池充电，会发生危险。在不正常的条件下充电会造成电池内部保护电路功能损坏和发生不正常的化学反应，电池有可能发热、冒烟、变形或燃烧。

It is dangerous to charge the battery with a non-special charger. Charging under abnormal conditions will cause damage to the function of the battery internal protection circuit and abnormal chemical reactions. Batteries may heat, smoke, deform or burn.

#### 14.8 禁止破坏电池/No Battery Damage

禁止用金属凿入电池、捶打或摔打电池、或其它方法破坏电池，否则会造成电池发热、冒烟、变形或燃烧，甚至会发生危险。

It is forbidden to use metal to cut into batteries, hammer or smash batteries, or other methods to destroy batteries. Otherwise, the batteries will be heated, smoked, deformed or burned, and even dangerous.

严禁将电池直接接在电源插座或车载式点烟器上充电。

It is strictly forbidden to connect batteries directly to power sockets or on-board cigarette lighters for charging.

高压、大电流将会流过电池而使其损坏，或使电池发热、冒烟、变形，燃烧。

High voltage and high current will flow through the battery and damage it, or make the battery hot, smoke, deform and burn.


#### 14.9 泄漏的电解液会造成皮肤不适/Leakage of electrolyte can cause skin discomfort.

万一电解液进入眼睛，尽快用清水冲洗，不可揉眼，并迅速送医院处理。

In case the electrolyte enters the eyes, rinse it with clean water as soon as possible. Do not rub your eyes and send it to the hospital for treatment.



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 <b>珠海市古鑫电子科技有限公司</b> Zhuhai Gushine Electronic Technology Co., Ltd.		生产线 <input checked="" type="checkbox"/> 辅助 <input type="checkbox"/> 组装 <input type="checkbox"/> 检测 <input type="checkbox"/> 包装 <input type="checkbox"/> 版本号 A0 编制 审核 批准 页码 S 制作日期 2024/10/11 郭志武 <b>工位8: 杜邦线焊点打UV胶</b>																															
文件名称	QR013B-SBA 作业指导书	作业指导书 Standard Operation Procedure																															
适用范围	1200mAh 锂电池组	工位8: 杜邦线焊点打UV胶																															
文件编号	W-WI-1940	作业内容																															
 <p>调节时，目视压力</p> <p>调节时，目视压力</p> <p>设置气压为 <math>0.2 \pm 0.1\text{mpa}</math></p> <p>针筒内的胶不要装太满</p>		 <p>1 此处打胶，完全覆盖焊点，过UV炉固化</p> <p>紫光机</p>																															
<p>1、生产前，将注胶机接上电源与气管；气压设置为 <math>0.2 \pm 0.1\text{mpa}</math>，并将紫外光固化胶针筒装入；</p>		<p>2、在图示3根导线焊点位置打UV胶。</p> <p>3、检查胶水完全覆盖焊点，不外露。</p>																															
		<p>4、把产品打胶面朝上，放到紫光固化炉传送带上进行固化。</p> <p>5、自检合格后流入下一工序。</p>																															
		<p><b>注意事项</b></p> <p>1、工作台面保持干净、整洁；</p> <p>2、在图示的杜邦线焊点位置打UV胶，要完全覆盖焊点。</p> <p>3、打完胶后放到UV炉固化。</p>																															
		<p><b>质量管控要求</b></p> <p>1、穿戴防静电手环。</p> <p>2、在图示位置打UV胶，完全覆盖焊点，不外露。</p> <p>3、UV胶要完成固化。</p>																															
		<p><b>变更履历</b></p> <table border="1"> <thead> <tr> <th>版本</th> <th>日期</th> <th>变更事由</th> </tr> </thead> <tbody> <tr> <td>A0</td> <td>2024/10/11</td> <td>新规制成</td> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>		版本	日期	变更事由	A0	2024/10/11	新规制成																								
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固化胶	30719000720	紫外光固化胶KU3043/东信/UV胶/1支50g	0.05	点胶机 UV炉																													
表单编号: F-IE-038-E																																	







变更履历:

版本	修订日期	修订内容	制定人	确认
A0	2024-10-08		魏茜	陈赵云
A1	2024-11-01	1、更新尺寸图 (P12) 2、增加打UV胶、刷三防漆工艺图 (P22、P23、P24)	魏茜	陈赵云

