

# Manual

## Product Specification

文件编号 Document Number: BBD-WI-001

产品名称 Product Name: POWER BANK-GPB 10000mAh

产品型号 Product Model: GPB-MB10(Black);  
GPB-MW10(White); GPB-MX10(X represents the  
color variable)

版本 Edition: V1.0

日期 Date: 2023.12.8

From: 备倍电 Aspirer

型号 Model No: GPB-MB10(Black); GPB-MW10(White); GPB-MX10(X represents  
the color variable)

规格 Specification: (38.5Wh) 3.85V/10000mAh

Total No. of Pages 总页数: Total 16 pages including this cover sheet 共 16 页 (含封面)

审核确认 Audit confirmation:

|                |         |                 |                        |                 |
|----------------|---------|-----------------|------------------------|-----------------|
| 备倍电<br>Aspirer |         | Written<br>制作拟定 | Checked<br>研发工程师<br>审核 | Checked<br>研发批准 |
|                | Name 姓名 |                 |                        |                 |
|                | Date 日期 |                 |                        |                 |

## 更新履历 Update history

[illegible]

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## 1、应用范围 Scope of application

本规格书适用于本公司生产的移动电源 This specification is applicable to the mobile power supply produced by our company.

产品组件 Product components:

1.1 1 节 section 10000mAh/3.85V 电芯 Electric core

1.2 2 片电路主控板 Chip Circuit Master Control Board

1.3 外壳等其他结构件 Shell and other structural parts

### 1.4 测试条件及测量仪表与设备要求 Test Conditions and Instruments and Equipment Requirements

a、测试环境条件 Test environment conditions

b、除非另有规定，本规格书中各项试验应在试验的标准大气条件下进行 Unless otherwise specified, the tests in this specification shall be conducted under standard atmospheric conditions.

c、温度 temperature: 25℃

d、相对湿度 relative humidity: 10%~90%

e、大气质量 Atmospheric quality: AM1.5

f、测量电压的仪表精度应不低于 0.5 级，内阻应不小于 10K  $\Omega$ /V The instrument accuracy of measuring voltage should be no less than 0.5 grade and the internal resistance should be no less than 10K/V.

g、测量电流的仪表精度应不低于 0.5 级。The instrument accuracy of measuring current should not be less than 0.5 grade.

h、测量温度用的仪表准确度应不低于  $\pm 1^\circ\text{C}$  The accuracy of the instrument used for measuring temperature should not be less than ( $\pm 1^\circ\text{C}$ )

### 1.5 移动电源工作状态 Working state of mobile power supply

移动电源有三种工作模式：睡眠，待机，运行 Mobile power supply has three working modes: sleep, standby and operation.。

Tsleep 内无响应：指在休眠等待时间（Tsleap）内不按按键，没有负载，没有充电。电池会自动休眠以节省自耗电，以达到更长的放置时间。本产品 Tsleap 大概在半年左右 No response in Tsleap: refers to not pressing keys, no load, no charge in the sleep waiting time (Tsleap). Batteries will automatically sleep to save power consumption, so as to achieve longer storage time. Tsleap is about half a year old.

## 2.产品参数 Product Parameters

性能如附表 Performance as scheduled:

| 项目 project                      |                                                        | 标准 standard           | 备注 Remarks                                                                                                                               |
|---------------------------------|--------------------------------------------------------|-----------------------|------------------------------------------------------------------------------------------------------------------------------------------|
| 总体特性<br>Overall characteristics | 容量 capacity /mAh                                       | 10000mAh /3.85V       | 用放电柜以 0.2C 的电流放电 Discharge with discharge cabinet at 0.2C current                                                                        |
|                                 | 重量 weight /g                                           | 245                   | 公差范围 Tolerance range: $\pm 10\text{g}$                                                                                                   |
|                                 | 尺寸 size /mm                                            | 109*71*20.30          | 公差范围 Tolerance range: $\pm 0.3\text{mm}$                                                                                                 |
|                                 | 自耗电<br>Self-consuming electricity /uA                  | <700uA (MAX)          | 待机平均电流 Average Standby Current                                                                                                           |
|                                 | 充电温度 Charging temperature / $^{\circ}\text{C}$         | 0-40                  | 环境温度 ambient temperature                                                                                                                 |
|                                 | 放电温度 Discharge temperature / $^{\circ}\text{C}$        | -10-40                | 低温 4 小时, 高温 2 小时 Low temperature 4 hours, high temperature 2 hours                                                                       |
|                                 | 存储湿度 Storage humidity                                  | $\leq 75\%$           | /                                                                                                                                        |
|                                 | 储存温度 Storage Temperature/ $^{\circ}\text{C}$           | 5~35                  | 半年 Half a year                                                                                                                           |
|                                 | 机子表壳温度<br>Machinecase temperature / $^{\circ}\text{C}$ | $\leq 65$             | 环境温度 25 $^{\circ}\text{C}$ Ambient temperature 25 $^{\circ}\text{C}$                                                                     |
| 电芯特性<br>Core characteristics    | 整机转换率<br>Conversion Rate of Whole Machine /%           | $\geq 70$             | 5V/1A                                                                                                                                    |
|                                 | 尺寸 size/mm                                             | 126280                | 公差范围: $\pm 0.5\text{mm}$ Tolerance range: $\pm 0.5\text{mm}$                                                                             |
|                                 | 电芯类别 Core Category                                     | 聚合物电池 Polymer battery | /                                                                                                                                        |
|                                 | 标称容量 Nominal capacity /mAh)                            | 10000                 | /                                                                                                                                        |
|                                 | 标准电压 Standard voltage /V                               | 3.85V                 | /                                                                                                                                        |
|                                 | 内阻 internal resistance /m $\Omega$                     | <60                   | /                                                                                                                                        |
|                                 | 认证<br>Authentication                                   | -                     | 参考电芯规格书 Reference Core Specification                                                                                                     |
| 锂电<br>Lithium battery           | 循环寿命 cycle life                                        | 300                   | 电池放电容量连续 3 次小于额定容量的 80% 为寿命终止 Battery discharge capacity less than 80% of rated capacity for three consecutive times is the end of life. |
|                                 | 过充电保护                                                  | 4.4 $\pm 0.05$        |                                                                                                                                          |

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|                                                            |                                             |                                            |                                                                                                                                                                                                                                                                                                                                                                |
|------------------------------------------------------------|---------------------------------------------|--------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 保护性能<br>lithium<br>Electrical<br>protection<br>performance | Overcharge protection /V                    |                                            |                                                                                                                                                                                                                                                                                                                                                                |
|                                                            | 过放电保护<br>Overdischarge protection /V        | 2.4±0.1                                    |                                                                                                                                                                                                                                                                                                                                                                |
|                                                            | 过电流保护<br>Overcurrent protection /A          | 15±3                                       |                                                                                                                                                                                                                                                                                                                                                                |
|                                                            | 短路保护功能<br>Short circuit protection function | 有 YES                                      | 用 100 mΩ 的负载短路 P+, P-Short-circuit P+, P with 100 m_load-                                                                                                                                                                                                                                                                                                      |
| 充电特性<br>Charging characteristics                           | 充电模式 Charging mode                          |                                            |                                                                                                                                                                                                                                                                                                                                                                |
|                                                            | MICRO 充电 Charge                             |                                            |                                                                                                                                                                                                                                                                                                                                                                |
|                                                            | 充电模式 Charging mode                          | 恒流 - 恒压 Constant Current-Constant Pressure |                                                                                                                                                                                                                                                                                                                                                                |
|                                                            | 充电输入电压<br>Charging input voltage            | /                                          |                                                                                                                                                                                                                                                                                                                                                                |
|                                                            |                                             | /                                          |                                                                                                                                                                                                                                                                                                                                                                |
|                                                            |                                             | /                                          |                                                                                                                                                                                                                                                                                                                                                                |
|                                                            | 充电电流<br>ICHG/mA Charging current            | /                                          |                                                                                                                                                                                                                                                                                                                                                                |
|                                                            |                                             | /                                          |                                                                                                                                                                                                                                                                                                                                                                |
|                                                            |                                             | /                                          |                                                                                                                                                                                                                                                                                                                                                                |
|                                                            | 充满时间 Full of time /h                        | /                                          | /                                                                                                                                                                                                                                                                                                                                                              |
|                                                            |                                             | /                                          | /                                                                                                                                                                                                                                                                                                                                                              |
|                                                            |                                             | /                                          | /                                                                                                                                                                                                                                                                                                                                                              |
|                                                            | 充满电压<br>Full Voltage /V                     | /                                          | /                                                                                                                                                                                                                                                                                                                                                              |
|                                                            | Type-c 充电 Charge                            |                                            |                                                                                                                                                                                                                                                                                                                                                                |
|                                                            | 充电模式 Charging mode                          | 恒流-恒压                                      | 支持充电电流依据充电管理 CC/CV 模式变化, 18W 快速充电, 充电电流大小由外接电源电压大小和连接线长短决定; 建议 PCBA 端的输入电压>4.8V。Supporting charging current varies according to CC/CV mode of charging management, 18W fast charging, charging current is determined by the voltage of external power supply and the length of connection line. It is recommended that the input voltage of PCBA terminal be > |
|                                                            | 充电输入电压<br>Charging input voltage            | 5V                                         |                                                                                                                                                                                                                                                                                                                                                                |
|                                                            |                                             | 9V                                         |                                                                                                                                                                                                                                                                                                                                                                |
|                                                            |                                             | 12V                                        |                                                                                                                                                                                                                                                                                                                                                                |
|                                                            | 充电电流<br>ICHG/mA Charging current            | 5V;0-3000 CC 恒流 2.5-3.3A                   |                                                                                                                                                                                                                                                                                                                                                                |
|                                                            |                                             | 9V;0-2000 CC 恒流 1.5-2.2A                   |                                                                                                                                                                                                                                                                                                                                                                |
|                                                            |                                             | 12V;0-1500 CC 恒流 1.2-1.75A                 |                                                                                                                                                                                                                                                                                                                                                                |

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|                                               |                                                |                                |                                  |
|-----------------------------------------------|------------------------------------------------|--------------------------------|----------------------------------|
|                                               |                                                |                                | 4. 8V.                           |
|                                               | 充满时间 Full of time/h                            | 预估 Estimate 3. 5h (5V, 3A 充电)  | /                                |
|                                               |                                                | 预估 Estimate 3h (9V, 2A 充电)     | /                                |
|                                               |                                                | 预估 Estimate 3h (12V, 1. 5A 充电) | /                                |
|                                               | 充满电压 Full Voltage /V                           | 4. 4±0. 05                     | /                                |
|                                               | 输入电压范围 Input voltage range /V                  | 4. 5-14                        | /                                |
|                                               | 输入过压保护范围 Input Overvoltage Protection Range /V | 14±0. 5                        | PCBA 板端电压 PCBA Board End Voltage |
| 输出口 Output port                               |                                                |                                |                                  |
| USBA1 QC 口输出空载电压 Output No-load Voltage /V    | 4. 9-5. 25                                     | 空载 No load                     |                                  |
|                                               | 8. 5-9. 5                                      |                                |                                  |
|                                               | 11. 5-12. 5                                    |                                |                                  |
| USBA1 QC 口输出负载电压 Output Load Voltage /V       | 4. 75-5. 25                                    | 3. 0A USB 端口电压                 |                                  |
|                                               | 8. 5-9. 5                                      | 2. 0A USB 端口电压                 |                                  |
|                                               | 11. 5-12. 5                                    | 1. 5A USB 端口电压                 |                                  |
| USBA1 QC 口输出口 Output Port                     | D+/V OUT/5V                                    | 2. 7±0. 2                      | 空载 No load                       |
|                                               | D-/V OUT/5V                                    | 2. 7±0. 2                      | 空载 No load                       |
|                                               | D+/V OUT/9V                                    | /                              |                                  |
|                                               | D-/V OUT/9V                                    | /                              |                                  |
|                                               | D+/V OUT/12V                                   | /                              |                                  |
|                                               | D-/V OUT/12V                                   | /                              |                                  |
| USB2 输出空载电压 Output No-load Voltage /V         | /                                              | /                              |                                  |
| USB2 输出负载电压 Output Load Voltage/V             | /                                              | /                              |                                  |
| USB2 输出口 Output Port                          | /                                              | /                              |                                  |
|                                               | /                                              |                                |                                  |
| 纹波 Ripple /mV                                 | <150                                           | 满载                             |                                  |
| Type-c PD3. 0 输出空载电压 Output no-load voltage/V | 4. 9-5. 25                                     | 空载 No load                     |                                  |
|                                               | 8. 5-9. 5                                      |                                |                                  |
|                                               | 11. 5-12. 5                                    |                                |                                  |
| Type-c PD3. 0 输出负载电压 Output Load Voltage/V    | 4. 75-5. 25                                    | 3. 0A USB 端口电压                 |                                  |
|                                               | 8. 5-9. 5                                      | 2. 22 A USB 端口电压               |                                  |
|                                               | 11. 5-12. 5                                    | 1. 67A USB 端口电压                |                                  |
| Type-c 输出口 Output Port                        | D+/V OUT/5V                                    | 2. 7±0. 2                      | 空载 No load                       |
|                                               | D-/V OUT/5V                                    | 2. 7±0. 2                      | 空载 No load                       |
|                                               | D+/V OUT/9V                                    | /                              |                                  |
|                                               | D-/V OUT/9V                                    | /                              |                                  |
|                                               | D+/V OUT/12V                                   | /                              |                                  |
|                                               | D-/V OUT/12V                                   | /                              |                                  |

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|                                                   |                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|---------------------------------------------------|-------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 纹波 Ripple /mV                                     | <150                                      | 3.0A 满载                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| 无线充输出 Wireless charging output                    | 磁吸，支持弹窗功能                                 | 5W                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|                                                   |                                           | 7.5W                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|                                                   |                                           | 10w                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|                                                   |                                           | 15w                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| 同时输出 Simultaneous output                          | 5V/3A                                     | TYPE-C+USB1+Wireless                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| 过放电压保护 Overdischarge voltage protection /V        | 2.9±0.2                                   | /                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| 过流保护 Overcurrent protection /A                    | 3.6±0.5                                   | 当负载电流增大时，会自动降低电压输出；移除负载按键恢复。When the load current increases, the voltage output will be automatically reduced, and the load button will be removed to restore.                                                                                                                                                                                                                                                                                                                                                                      |
| 短路保护 Short circuit protection                     | 有 YES                                     | 拔出负载自动恢复 Pull out load automatic recovery                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| 输出效率 Output efficiency                            | >85%                                      | PCBA 效率 PCBA efficiency                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| 边充边放 Fill and place                               | 5V1A                                      | 边充边放时，输出没有短路保护<br>The output has no short circuit protection when charging and discharging                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 输出开启空载耗电流 Output open no-load current             | <20mA                                     | /                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| 轻载关机电流和时间 Current and time of light load shutdown | <100mA, 25±10S                            | /                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| 输出方式 Output mode                                  | 按键开关和自动输出 Key switch and automatic output | 支持 USB1, TYPE-C 和无线充自动识别负载输出，当产品发生过流保护或者短路保护时需解除保护后重新插入负载自动开启输出，首次上电或者电池电压过低触发低电关机后需要充电激活。Supports USB1, TYPE-C, and wireless charging to automatically identify the load output. When the product has overcurrent protection or short circuit protection, the protection needs to be removed and the load needs to be reinserted to automatically turn on the output. When the product is powered on for the first time or the battery voltage is too low to trigger the low power shutdown, it needs to be activated by charging. |
| 基本功能 basic function                               | 轻触开关 Key                                  | 开机：短按一次 Power on: Press once<br>关机：双击 Shutdown: Double click                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |

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|--|-------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | 工作模式 Working mode | <p>1、Type-c 充电时, 白色 LED 跑马一边后, 指示当前充电电量指示灯闪烁。</p> <p>2、USB1, 或者 Type-c 输出时, 白色 LED 显示当前电量, 当产品电量降低到 5%时, 指示灯闪烁显示电量不足。</p> <p>3、当产品在休眠状态时, 按键开启输出和查询电量。</p> <p>1. Type-c charging, white LED running horse side, indicating the current charging indicator flashing.</p> <p>2. When USB1 or Type-c is exported, the white LED displays the current power. When the product power is reduced to 5%, the indicator lights flicker and the power is not enough.</p> <p>3. When the product is in sleep mode, press the button to turn on output and check the battery level.</p> |
|--|-------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

| 电量指示状态 Electricity Indicating Stat              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                 |
|-------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|
| 充电指示灯状态<br>charging indicator status            | <p>①○○○○电量≤25% 第一个灯闪</p> <p>②●○○○电量26%---50% 第二个灯闪</p> <p>③●●○○电量51%---75% 第三个灯闪</p> <p>④●●●○电量76%---99% 第四个灯闪</p> <p>⑤●●●●电量100% 充饱LED灯全亮</p> <p>①○○○○ Electric quantity ≤25% the first light flash</p> <p>②●○○○ Electric quantity 26% - 50% the second light flash</p> <p>③●●○○ Electric quantity 51% - 75% the third light flash</p> <p>④●●●○ Electric quantity 76% - 99% the fourth light flash</p> <p>⑤●●●● Electric quantity 100% charge full LED lights all lights on</p> <p>*初次上电时所有LED指示灯会跑马灯一遍All the LEDS will run the same way the first time the power is turned on</p> |                                                                 |
| 边充边放指示灯状态<br>Charge+ discharge indicator status | 显示充电状态 Display charging status                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                 |
| 充饱指示灯<br>Fully charged indicator                | 充饱 LED 灯全亮<br>All LED turns light                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                 |
| ○○○○                                            | 没电 No power                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 无电量 No power                                                    |
| ◎○○○                                            | ≤5%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 第一个灯闪, 电池低电压报警 The first LED flashing, Battery low voltagealarm |
| ●○○○                                            | 6%---25%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 亮一个灯 One LED on                                                 |
| ●●○○                                            | 26%---50%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 亮二个灯 Two LED on                                                 |
| ●●●○                                            | 51%---75%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 亮三个灯 Three LED on                                               |
| ●●●●                                            | 76%---100%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 亮四个灯 Four LED on                                                |
| 无线充 LED 灯指示/Wireless charging LED indicator     | <p>1.无线输出开启绿色LED灯闪1下后熄灭。2 充电时LED灯长亮, 异物时灯闪烁。1. Wireless output opens green LED light flash 1, then extinguishes. 2. During wireless charging, the LED light goes out, and the light flashes when there are foreign matters.</p>                                                                                                                                                                                                                                                                                                                                                      |                                                                 |

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|                                                        |                                                                                                                                                                                                                                        |
|--------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 端口输入输出参数                                               | 输入: 5V/3A 9V/2A 12V/1.5A 18W<br>单口输出: TYPE-C 5V/3A 9V/2.22A 12V/1.67A 20W<br>USB-A 5V/3A 9V/2A 10V/2.25A 12V/1.5A 22.5W<br>无线充输出 5W 7.5W 10W 15W MAX<br>多口输出: 5V3A 15W                                                                 |
| (TYPE-C1)<br>C 端口支持协议<br>A port support protocol       | APPLE 5V2.4A SAMSUNG 5V2.0A BC1.2 DCP 1.5A<br>QC2.0 9V 12V QC3.0 3.6-12V QC4+ SAMSUNG AFC 9V 12V<br>HUAWEI FCP 5.0V 9.0V 18W HUAWEI SCP 3.4-12V 25W<br>MTK PE1.1 PE2.0 PD3.0 PPS 22W 5V3A 9V2.22A 12V1.67A<br>5.0-5.9V 3A 5.0-11.0V 2A |
| (USB A1/USB A2)<br>A 端口支持协议<br>A port support protocol | APPLE 5V2.4A SAMSUNG 5V2.0A BC1.2 DCP 1.5A<br>QC2.0 5V 9V 12V QC3.0 3.6-12V SAMSUNG AFC 9V 12V<br>HUAWEI FCP 9V 12V 18W HUAWEI SCP 3.4-12V 25W<br>MTK PE1.1 PE2.0                                                                      |

### 3、可靠性和安全性测试 Reliability and Safety Testing

| 序号<br>Serial number | 测试项目<br>Test items               | 标准要求 Standard requirements                                                                                                                                                                                                                                              | 备注<br>Remarks |
|---------------------|----------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| 1                   | 过充保护<br>Overcharge protection    | 在充电端加5V充电电压,充满电后继续充电1天,电芯电压不超过4.45V。Add 5V charging voltage at the charging end and continue charging for 1 day after full charge. The core voltage does not exceed 4.45V.                                                                                              |               |
| 2                   | 过放保护<br>Overdischarge protection | 产品设置为放电,当电芯电压低于 $2.9 \pm 0.2V$ 时,产品将关闭输出。The product is set to discharge. When the voltage of the core is less than $2.9 + 0.2V$ , the output of the product will be closed.                                                                                            |               |
| 3                   | 短路保护<br>Short circuit protection | 充满电后,用 $0.1m\Omega$ 电阻短路输出端 1H,电池包不应冒烟爆炸、起火、异味。When charged, the battery pack should not smoke, explode, ignite or smell with $0.1m\Omega$ resistance short circuit output 1H.                                                                                          |               |
| 4                   | 跌落试验<br>Drop test                | 跌落测试1米,每面跌落1次。Drop test 1m, fall three times on each side.                                                                                                                                                                                                              |               |
| 5                   | 振动测试<br>Vibration test           | 按照速度 150CPM, 频率 2.5HZ, 时间 90min (3面=30s/面) 模拟震动,包装不得严重破损,产品不得功能性超标。According to the speed 150CPM, frequency 2.5HZ, time 90min (3 sides = 30s/side) simulated vibration, packaging must not be seriously damaged, the product should not exceed the functional standard. |               |

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|   |                                                             |                                                                                                                                                                                                                                                                         |  |
|---|-------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| 7 | 喷涂层耐酒精测试<br>Alcohol Resistance Testing of Spraying Coatings | 用棉布蘸满酒精,包在 200g 的法码头上,以 30~40 次/秒速度(来回一次)擦拭 200 次,不能露底材/脱漆 Use cotton cloth to dip in alcohol and wrap it on a 200 g French wharf. Wipe it 200 times at 30-40 times per second (once back and forth). No primer can be exposed/unpainted.                               |  |
| 8 | 丝印耐磨测试<br>Screen Printing Wear Resistance Test              | 用棉布蘸满酒精,包在 200g 的砝码头上,以 30~40 次/秒速度(来回一次)擦拭 100 次,测试后丝印字体不能有脱落。Dip a cotton cloth full of alcohol and wrap it on a 200g weight dock. Wipe it 100 times at a speed of 30-40 times/second (once back and forth). After testing, the silk screen font should not fall off. |  |

4.机械性 Mechanical

外壳材质 Shell Material: 塑料 Plastic PC+ABS

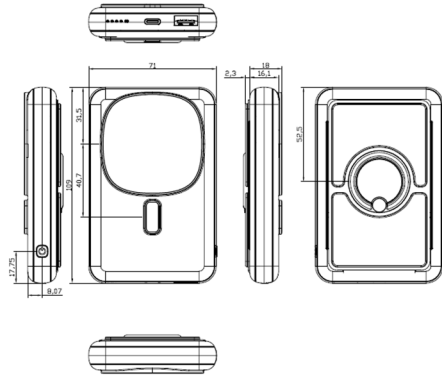
外壳装配方式 Assembly mode: 卡扣 Buckle

表面处理 surface treatment : 橡胶油 Rubber oil

防火等级 Fire Grade : 94V-0

4-1.外形图(单位:mm 公差: ±0.3mm)

Outside Drawing (Unit: mm Tolerance: ±0.3mm)



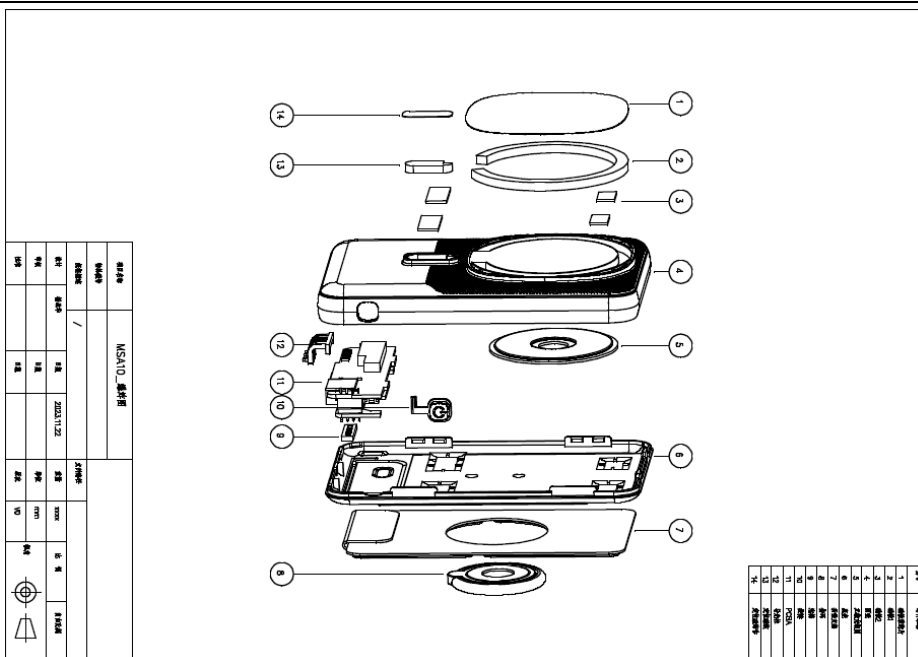
|      |          |    |            |    |      |    |     |
|------|----------|----|------------|----|------|----|-----|
| 项目名称 | MSA10外观图 |    |            |    |      |    |     |
| 物料编号 |          |    |            |    |      |    |     |
| 规格描述 |          |    |            |    |      |    |     |
| 设计   | 杨文平      | 日期 | 2023.08.30 | 数量 | 4000 | 比例 | 1:1 |
| 审核   |          | 日期 |            | 单位 | mm   |    |     |
| 批准   |          | 日期 |            | 设计 | WD   | 校核 |     |

4-2. 装配示意图 Assembly Diagram

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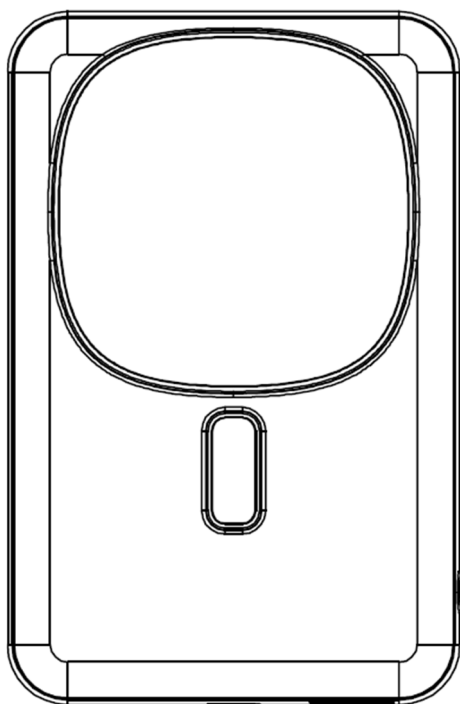
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### 4-3:产品图片及端口定义 Photo of the Product and Pin Assignment

<正面 Top side view>



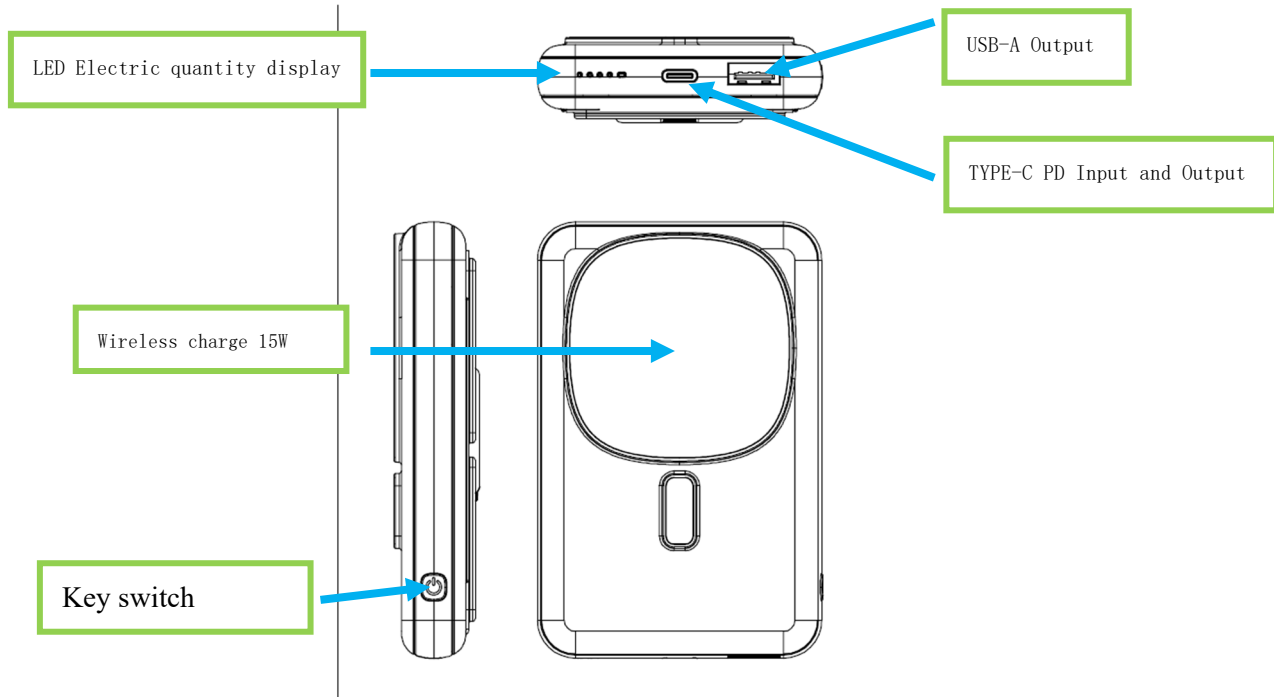
### 4.4: <端口定义 Port Definitions>

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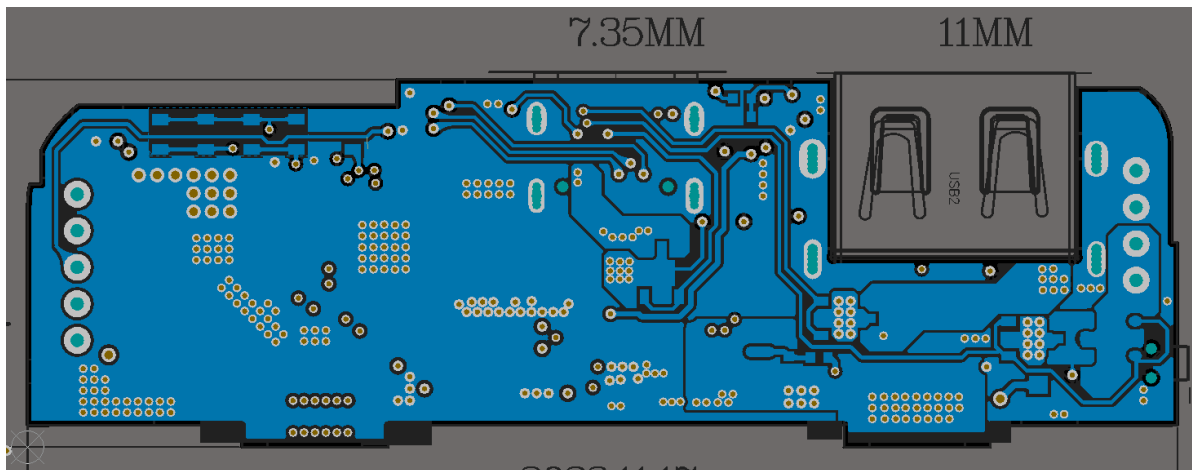
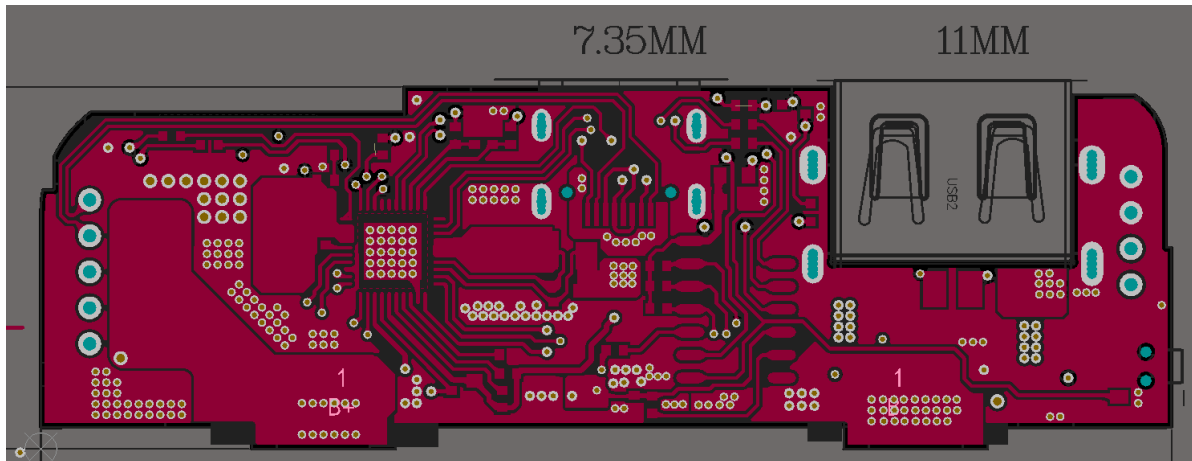


## 5. PCB 及板的连接 PCB and Board Connection

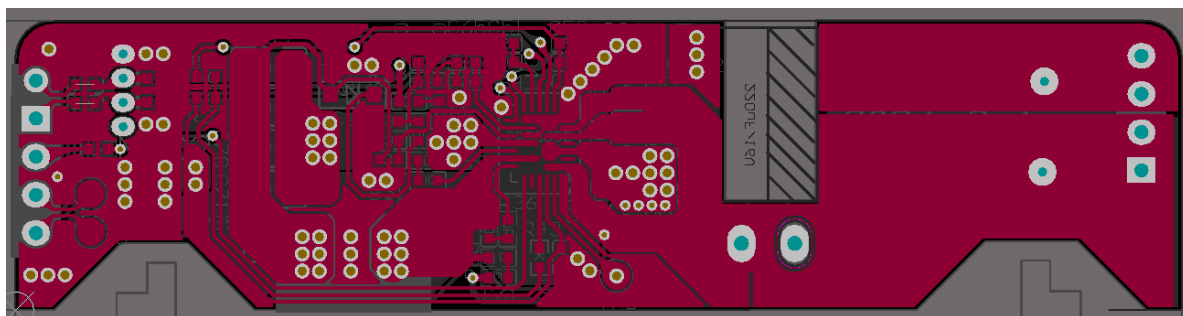
PCB 型号 PCB Model :MSA10-A V1.0    MSA10-B V1.0

PCB 板材和防火等级 PCB Sheet and Fire Grade: FR4, 94V\_0

### MSA10-A V1.0



### MSA10-B V1.0

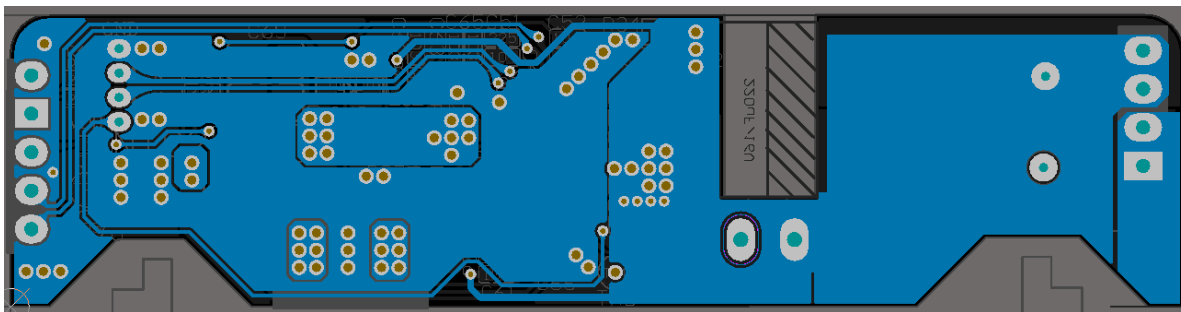


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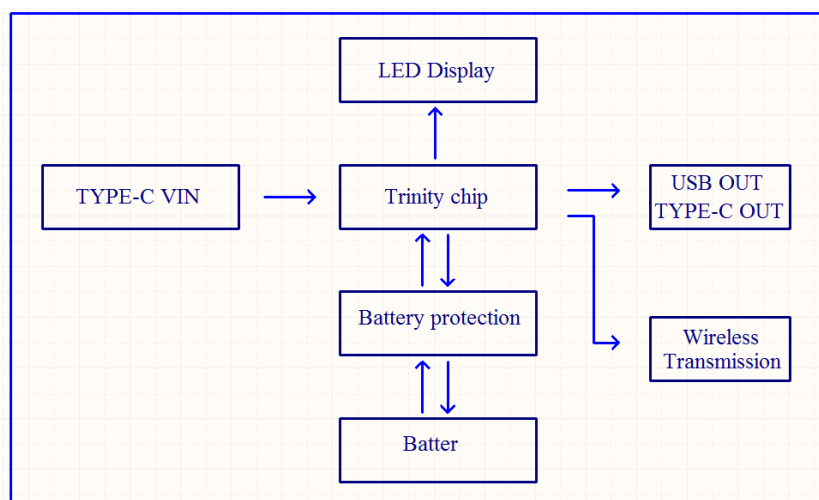
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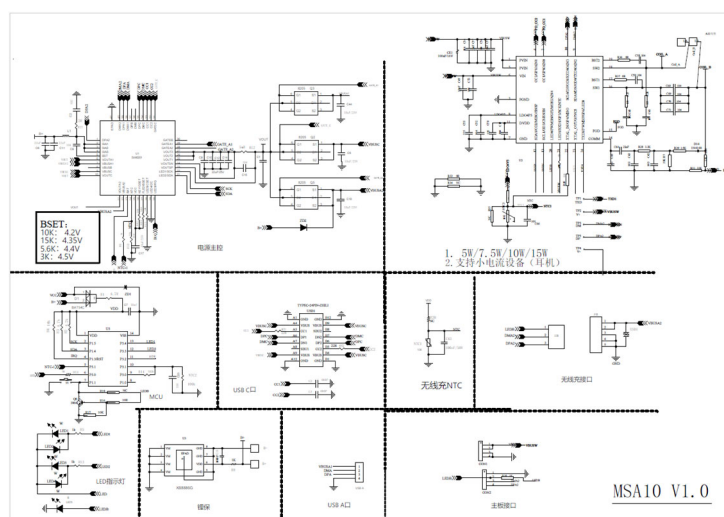
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## 6. 电气方框图 Electrical block diagram



## 7. 原理图 Schematic diagram



## 8. 储存 Storage

长期存储（超过 3 个月）须置于温度为 5-35℃、湿度为≤75%RH 的环境中。

Long-term storage (more than 3 months) shall be placed in temperature for 5 to 35 °C, humidity environment for 75% RH or less.

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产品在储存过程中每 3 个月应充电 1 次。

The product should be charged once every 3 months during storage.

## 9. 注意事项 Matters needing attention

---

9.1 所有电气参数不得超过本规格书中规定的参数范围。

All electrical parameters shall not exceed the stipulated in this specification.

9.2 禁止拆开移动电源。

Prohibit open mobile power supply.

在任何情况下不得拆卸移动电源，更不得拆卸内置 PCBA 和电芯，拆卸移动电源可能会导致内部短路，进而引起着火，电芯鼓起及其他问题。

Under no circumstances shall not remove the mobile power supply, more shall not remove the built-in PCBA and batteries, remove the mobile power can lead to internal short circuit, resulting in fire, batteries, summon up and other issues.

9.3 禁止用尖锐部件碰撞移动电源。

With sharp parts collision mobile power supply is prohibited.

9.4 禁止坠落、冲击、折弯移动电源。

It is prohibited to fall, impact, bending mobile power supply.

9.5 禁止将移动电源投入火中。

It is forbidden to move the power into the fire.

在任何情况下，不得燃烧移动电源或将移动电源投入火中，否则会引起内部电芯燃烧，可能引起爆炸，非常危险，应绝对禁止。

In any case, it may not burn mobile power or will move into the fire, otherwise it will cause internal batteries burning, may cause explosion, very dangerous, should be absolutely prohibited.

9.6 禁止将移动电源浸入液体中。

It is forbidden to mobile power immersed in a liquid.

不得将移动电源浸泡在任何液体中，如淡水、海水、饮料、汽油等等。

The mobile power supply must not be immerse in any liquid, such as fresh water, sea water, beverage, gasoline and so on.

9.7 禁止将移动电源放置于高温环境中。

It is forbidden to mobile power placed in high temperature environment.

9.8 禁止将移动电源随意丢弃于普通的垃圾站中。

It is forbidden to mobile power discarded in ordinary tips.

9.9 禁止使用已损坏的移动电源。

To ban the use of damaged mobile power supply.

移动电源在运输过程中可能因撞击等原因而损坏，若发现移动电源有任何异常，不得使用，且应该远离火源、烈日底下等温度高的场合以避免出现危险。

Mobile power supply in the process of transportation may be due to the impact of damage, if there is any abnormalities found mobile power supply, shall not be used, and should be far away from the fire source, the sun is high temperature occasion such as to avoid danger.

### FCC Warning

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:(1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Any Changes or modifications not expressly approved by the party responsible for compliance could void the

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user's authority to operate the equipment.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

The device has been evaluated to meet general RF exposure requirement. The device can be used in portable exposure condition without restriction.