



锐迈科技股份有限公司

Remacro Technology Co., Ltd

产品说明书

Product Specification

客户名称

Customer Name: _____

产品型号

Product Model: RW00400659

产品名称

Product Type: 无线充
wireless charging

制定 Prepare	审核 Check	核准 Approve
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客户确认 Confirmed by	签名 Signature	日期 Date

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1、产品简介 Product introduction

1.1 无线充电功能介绍 Introduction of wireless charging function

本产品采用无线传输工作方式,通过磁感应方式实现短距离无线电能传输,产品支持 Qi 协议。
本产品工作电压 DC5V, 5W 功率输出。

This product adopts wireless transmission working mode, realizes short-distance radio energy transmission through magnetic induction, and supports Qi protocol. This product operating voltage DC5V, 5W power output.

2、产品特点 Product Characteristic

全面兼容 Qi 协议

Compatible with all Qi RX devices.

支持三星手机无线充电

charge for Samsung phones wirelessly.

支持苹果手机无线充电

当使用该产品给自带无线充手机充电,手机充满电后,若手机长时间未拿开,该手机将保持电量在 100% 状态(补充充电)。

When this product is used to charge the mobile phone with wireless charging, when the phone is fully charged. If the phone is not removed for a long time, the phone will keep the power at 100% (supplementary charging).

3、指示灯状态 Indicator status

无指示灯

No indicator light

4、接收端放置提示 Receiver Placement Tip

温馨提示: 偏离距离越大, 充电效率越低。

Tips: The greater deviation distance, The lower charging efficiency

手机端接收线圈中心位置偏移发射线圈中心位置超出允许距离(+8-15mm), 发射器将不工作, 需将手机重新正确放置, 设备将重新进入充电状态。



The phone receiver coil center should be place in the center of transmitter, allowed distance is (\pm 8-15mm), If over this range, the transmitter will not work. It needs to put the phone in the correct position and the device will enter the charging status.

5、基本性能参数 Basic Performance Parameters

5.1 输入电压/电流 Input voltage: D5V/2A

5.2 静态功耗 stand-by power consumption: <0.5W

5.3 限流 Output current: DC5V2A

5.4 转换效率（满载）Efficiency (full load): $\geq 78\%$

5.5 5W 工作频率 5W Working Frequency: 变频 frequency conversion 126-128 KHz

5.7 纹波及噪声 Ripple & Noise: $\leq 100\text{mVp_p}$

5.9 工作温度 Working temperature: $-25^{\circ}\text{C} \sim +70^{\circ}\text{C}$

相对湿度 Relative humidity: 10%~80%

6、保护要求 Protection Requirement

6.1 过流保护 OCP-Over Current Protection

当发射器输入电流超过 2A，发射器会停止工作。

When input current of transmitter exceeds 2A, transmitter turn off.

6.2 过压保护 OVP-Over Voltage protection

当发射器输入电压超过 6V 时，发射器会停止工作。

When the transmitter input voltage exceeds 6V, transmitter turn off.

6.3 欠压保护 UVP-Under Voltage Protection

当发射器输入电压低于 4.2V 时，发射器会停止工作。

when the transmitter input voltage is below 4.2V, transmitter turn off.

6.4 过温保护 OTP-Over temperature protection

当发射器温度超过 60°C 时，发射器会停止工作。当温度低于 50°C 时，发射器重新工作。

When the temperature of the transmitter exceeds 60°C , transmitter turn off. When the temperature is below 50°C , transmitter turn on.

6.5 短路保护 Short Circuit Protection

当输出对地短路时，产品输入功率降低且不会损伤，当短路情况解除后，产品将会自动恢复正常。



When the output is short to GND, The power supply shall not damage, and shall be self-recovery when the fault condition is removed.

6. 5 异物检测 FOD-Foreign Object Detection

当有一定量的金属异物置于发射与接收之间时，发射根据效率检测认为有异物，会降低或关闭输出。

When a certain amount of metal foreign object is placed between the transmitter and the receiver, the transmitter considers that there is a foreign object based on the efficiency detection, and the output will be reduced or turned off.

7. 1 电性特征 Electric Characteristics

7. 1 平均工作无故障时间：工作 2 万小时，在 25℃ 环境下平均失效率小于 0. 5%

The average work trouble-free time: the average failure rate is less than 0.5% under 25 °C when working 20,000 hours.

8、安规标准 Safety standards

CE	
EMC	
FCC	

9、使用注意事项 Attentions

9. 1 有快充 10W 功能的三星手机有：Galaxy S21, Galaxy S21+, Galaxy S21 Ultra, Galaxy S23, Galaxy S23+, Galaxy S23 Ultra, Note20, Note20 Ultra.

Samsung phones with 10W fast charge feature include: Galaxy S21, Galaxy S21+, Galaxy S21 Ultra, Galaxy S23, Galaxy S23+, Galaxy S23 Ultra, Note20, Note20 Ultra.

9. 3 有快充 7. 5W 功能的苹果手机有：Phone 12 mini, iPhone 12, iPhone 12 Pro, iPhone, 12 Pro Max, iPhone 13 mini, iPhone 13, iPhone 13 Pro, iPhone, 13 Pro Max. iPhone 14, iPhone 14 Pro, iPhone 14 Plus, iPhone, 14 Pro Max.

Apple phones with 7.5W fast charge feature include: Phone 12 mini, iPhone 12, iPhone 12 Pro, iPhone, 12 Pro Max, iPhone 13 mini, iPhone 13, iPhone 13 Pro, iPhone, 13 Pro Max. iPhone 14, iPhone 14 Pro, iPhone 14 Plus, iPhone, 14 Pro Max.

9. 4 其它支持快充 10W 功能的手机有：Pixel 5, Pixel 6, LG Smart Phone, Mate40, P40 Pro, 小米



10, 小米 10 PRO.

Other phones with 10W fast charge feature include: Pixel 5, Pixel 6, LG Smart Phone, Mate40, P40 Pro, 小米 10, 小米 10 PRO.

10、电气性能测试 Electrical Test

电气性能测试报告/Electrical Test Report		
序号	测试项目/TEST ITEMS	结果/Result
1	静态功率测试/Standby Power Test	PASS
2	无线充电协议匹配/Charge Protocol Matching	PASS
3	输入、输出电压、电流测试/Input Voltage Current Test	PASS
4	充电效率测试/Charging Efficiency Test	PASS
5	负载调整率测试/Load Regulation Test	PASS
6	动态功率调节测试/Dynamic Power Regulation Test	PASS
7	响应时间测试/Response Time Test	PASS
8	匹配测试/Matching Test	PASS
9	挪动测试/Moving Test	PASS
10	充电高度测试/Charging Height Test	PASS
11	充电面积测试/Charging Area Test	PASS
12	短路保护/Short Circuit Protection(SCP)	PASS
13	过流保护/Over Current Protection(OCP)	PASS
14	过温保护测试/Over Temp Protection(OTP)	PASS
15	金属异物测试/FOD Test	PASS
16	输入欠压保护/Input Undervoltage Protection	PASS
17	输入过压保护/Input Overvoltage Protection	PASS
18	温升测试/Temp Test & Records During Charging	PASS
19	噪声测试/Noise Test	PASS
20	输入ON-OFF/Input ON-OFF Test	PASS
21	负载ON-OFF/Load ON-OFF Test	PASS
22	充电周期/Charging cycle	PASS



11、可靠性测试 Reliability Test

12.1 丝印移印 95%酒精擦拭测试：用棉布浸有 95%的酒精、负重 500g，以 1S/次的速度行程为 2-3CM，50 次磨擦在印刷体表面。测试后测试面无油漆脱落，无印油褪色，没有丝印/字体脱落、且字体清晰可见。

Silk printing and pad printing 95% alcohol wipe test: Use cotton cloth soaked in 95% alcohol, load 500g, stroke 2-3CM at a speed of 1S/time, rub the surface of the printed body 50 times. After the test, there is no paint peeling off on the test surface, no ink fading, no silk screen/font peeling off, and the fonts are clearly visible.

12.2 端子插拔力测试：插入和拔出<30 次 /分钟；端口 6000 次自动。测试后 1. 拔出力 $\geq 8N$ ，2. 样品必须保持 100%功能。3. 不能有严重的划伤或变形。

Terminal plug-in force test: insert and pull out <30 times /min; port 6000 times automatically. After the test 1. pull-out force $\geq 8N$, 2. samples must remain 100% functional. 3. no serious scratches or deformation.

12.3 端子受力测试：测试 PCBA 紧密以避免变形，水平轴：利用推拉力计 5 公斤 10 秒，用充电电缆插在插座上。使用推拉力计应用 1 公斤 10 秒钟。测试后插座可以变形，充电功能正常，附加在 PCBA 没有焊点开裂。

Terminal force test: test the PCBA tightly to avoid deformation, horizontal axis: use a push-pull force gauge for 5 kg for 10 seconds, and plug it into the socket with a charging cable. Use a force gauge to apply 1 kg for 10 seconds. After the test, the socket can be deformed, the charging function is normal, and there is no solder joint cracking on the PCBA.

12.4 冷热冲击试验：试验样品不包装，不通电放置在试验环境： $-40^{\circ}\text{C} \pm 2^{\circ}\text{C}$ 存储 0.5H， $85^{\circ}\text{C} \pm 2^{\circ}\text{C}$ 存储 0.5H，循环 10 次，转换时间小于 10 分钟，高温取出样品，试验结束后在常温条件下放置 2h，再按要求进行相关测试。1. 视觉检查材料和外观无不良。2. SN 标签/印刷没有脱落。2. 电性功能无异常。

Thermal Shock Test: Test samples are not packaged, not energized and placed in the test environment: $-40^{\circ}\text{C} \pm 2^{\circ}\text{C}$ storage for 0.5H, $85^{\circ}\text{C} \pm 2^{\circ}\text{C}$ storage for 0.5H, 10 cycles, conversion time less than 10 minutes, high temperature take out the sample, After the test, place it at room temperature for 2 hours, and then perform related tests as required. 1. Visually inspect the materials and appearance for no defects. 2. The SN label/print did not fall off. 2. There is no abnormality in electrical function.



12.5 高温高湿存储：存储产品在 70℃ 和 90% rh 24 小时，然后 2 小时内冷却至室温。1. 所有样品应保留了 100% 的功能没有性能损失，2. 表面没有腐蚀的迹象，结构性破坏/或其他异常现象。

High-temperature and high-humidity storage: Store the product at 70°C and 90% rh for 24 hours, and then cool to room temperature within 2 hours. 1. All samples should retain 100% function without performance loss, 2. There are no signs of corrosion, structural damage/or other abnormal phenomena on the surface.

12.6 低温存储：存储产品在 -20℃ 24 小时，然后 2 小时内温暖到室温。1. 所有样品通过功能测试 100% 没有性能损失，2. 表面没有腐蚀的迹象，结构性破坏/或其他异常现象。

Low temperature storage: Store the product at -20° C for 24 hours, then warm to room temperature within 2 hours. 1. All samples pass the functional test 100% without performance loss, 2. There is no sign of corrosion, structural damage/or other abnormal phenomena on the surface.

12.7 低温工作：将无线充产品放入 0℃ 的恒温箱内连接快协充电器满载输出测试 24H，并记录数据。在 0℃ 环境内充电过程无中断，电性能测试数据在规格范围内为正常。

Low temperature work: Put the wireless charging into a 0°C incubator and connect the fast-associated charger to a full load output test for 24H, and record the data. There is no interruption in the charging process in a 0°C environment, and the electrical performance test data is normal within the specification range.

12.8 高温存贮：存储产品在 70℃ ± 2℃ 湿度 70 ± 5% RH 恒温恒湿箱 24 小时，然后在常温下放置 2 小时。所有样品通过功能测试 100% 没有性能损失，2. 表面没有腐蚀的迹象，结构性破坏/或其他异常现象。

High temperature storage: Store the product in a constant temperature and humidity box at 70 °C ± 2 °C and 70 ± 5% RH for 24 hours, and then place it at room temperature for 2 hours. 1. All samples pass the functional test 100% without performance loss, 2. There is no sign of corrosion, structural damage/or other abnormal phenomena on the surface.

12.9 高温工作：将无线充产品放入 35℃ 的恒温箱内连接快协充电器满载输出测试 24H，并记录数据。在 35℃ 环境内充电过程无中断，电性能测试数据在规格范围内为正常。

High-temperature work: Put the wireless charging in a 35° C incubator and connect to the fast-associated charger for a full-load output test for 24H, and record the data. There



is no interruption in the charging process in a 35°C environment, and the electrical performance test data is normal within the specification range.

12.10 化学油试验：将少量的化学物质应用于 EUT 的表面，并将其暴露在 25 摄氏度的室温下 24 小时。产品没有任何部件松动，没有视觉或机械损坏。

Chemical oil test: Apply a small amount of chemical substance to the surface of the EUT and expose it to room temperature of 25 degrees Celsius for 24 hours. The product has no loose parts, no visual or mechanical damage.

12.11 老化实验：将无线充产品放入 35°C 的恒温箱内连接快充充电器满载输出测试 24H，并记录数据。产品外观符合要求，安规、结构和电器功能正常，且老化过程不能出现 OTP。

Aging test: Put the wireless charging in a 35°C incubator and connect the fast-associated charger to a full-load output test for 24H, and record the data. The appearance of the product meets the requirements, the safety, structure and electrical functions are normal, and OTP cannot appear in the aging process.

12.12 盐雾实验：将试验样品放入盐雾试验箱，配置 5% 的氯化钠溶液，在环境温度为 35°C ± 2°C、5%NaCl 的条件下连续喷雾 24H (普通镀镍)，试验结束后在常温下放置 2 小时，再用清水冲洗后目视观察。1. 所有样品通过功能测试没有性能损失，2. 表面没有腐蚀的迹象，结构性破坏和/或其他异常现象（镀层无氧化、脱落、气泡等现象）。

Salt spray test: Put the sample in the salt spray test box, configure 5% sodium chloride solution, and spray continuously for 24H (normal nickel plating) under the conditions of 35°C ± 2°C and 5%NaCl. The test is over. Then place it at room temperature for 2 hours, then rinse with water and observe it visually. 1. All samples have passed the functional test without performance loss, 2. There are no signs of corrosion, structural damage and/or other abnormal phenomena on the surface (the coating has no oxidation, shedding, bubbles, etc.).

12.13 跌落测试（裸机）：试验前检测单体机外观及性能，将单体机从 120CM 的高度垂直自由跌落于混凝土上（每个面二次共 12 次）。试验后产品无摇响、松动、裂开、无机械损坏、无电性能损坏。

Drop test (bare product): Check the appearance and performance of the single machine before the test, and drop the single machine freely from a height of 120cm on the concrete (12 times on each side). After the test, the product has no shaking, loosening, cracking, mechanical damage, or electrical performance damage.



12.14 振动测试（裸机）：测试将正弦波 7-200 赫兹的频率测试，位移 > 3.15 毫米。总测试时间 30 分钟每轴（10 分钟）。测试应当执行三个互相垂直的轴：z 轴（垂直），轴（首尾），轴（横向）注意：所有测试后单位需要提供 CN 或美国 EE MTP 进行检查。实验结束后要求内部无零件松动、脱落、无异响，外观、结构、性能正常。

Vibration test (bare product): Test the frequency of sine wave 7-200 Hz, and the displacement is > 3.15 mm. The total test time is 30 minutes per axis (10 minutes). The test should be performed on three mutually perpendicular axes: z-axis (vertical), axis (head and tail), and axis (horizontal). Note: All units after the test need to provide CN or US EE MTP for inspection. After the experiment, it is required that no internal parts are loose, falling off, no abnormal noise, and the appearance, structure, and performance are normal.

12.15 包装振动测试：随机振动：频率 5-200Hz，加速度 1.15Grms，时间：Y 轴 60 分钟，X/Z 轴 10 分钟。1. 样品无任何机械类损伤。2. 样品不能的异音、脱落、损坏。

Packaging vibration test: Random vibration: frequency 5-200Hz, acceleration 1.15Grms, time: 60 minutes on Y axis, 10 minutes on X/Z axis. 1. The sample has no mechanical damage. 2. Abnormal noise, falling off, or damage that the sample cannot.

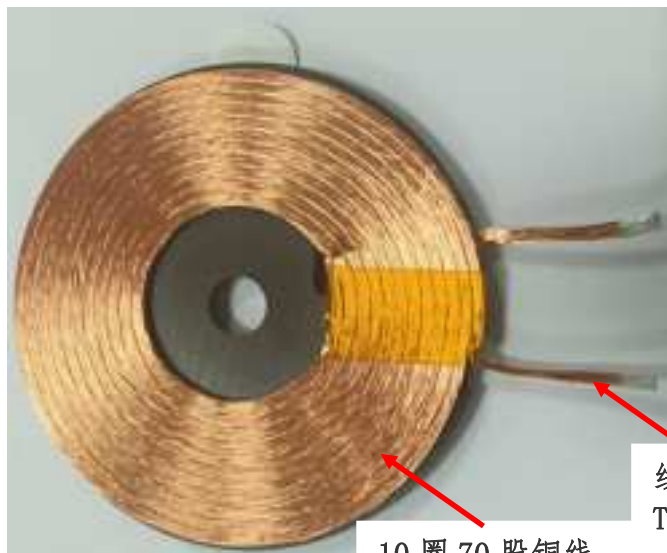
12.16 包装跌落测试：将被测试样品放入 -10℃ 的环境内存储 16H 后再进行跌落测试（产品整箱重量为 5.5Kg，小于 10Kg 的包装跌落高度为 0.8 米，跌落顺序：1 角 3 棱 6 面）。1. 样品无任何机械类损伤。2. 样品不能的异音、脱落、损坏。

Packaging drop test: Put the tested sample in an environment of -10℃ and store it for 16 hours before performing a drop test (the weight of the whole product box is 5.5Kg, and the drop height of packages less than 10Kg is 0.8 meters, the order of drop: 1 corner, 3 edges, 6 surface). 1. The sample has no mechanical damage. 2. Abnormal noise, falling off, and damage that the sample cannot.

12.17 胶壳阻燃测试：将被测样品垂直地固定在金属罩的中心位置，燃烧点与火焰蓝色内锥体接触，点火 10S 后熄灭火源，重复两次，记录测试样品的有焰燃烧和无焰燃烧的总时间，以及观察在整个燃烧过程中是否有熔滴物落下。对样品进行 2 次 10 秒燃烧，火焰需在 30 秒内熄灭且无熔滴物。

Rubber shell flame retardant test: Fix the tested sample vertically in the center of the metal cover, the burning point is in contact with the blue inner cone of the flame, and the fire source is extinguished after ignition for 10 seconds, repeat twice. Record the total time of flame burning and flameless burning of the test sample, and observe whether any droplets fall during the entire burning process. Burn the sample twice for 10 seconds, and the flame must be extinguished within 30 seconds without any droplets.

12、线圈规格图 Coil specifications picture

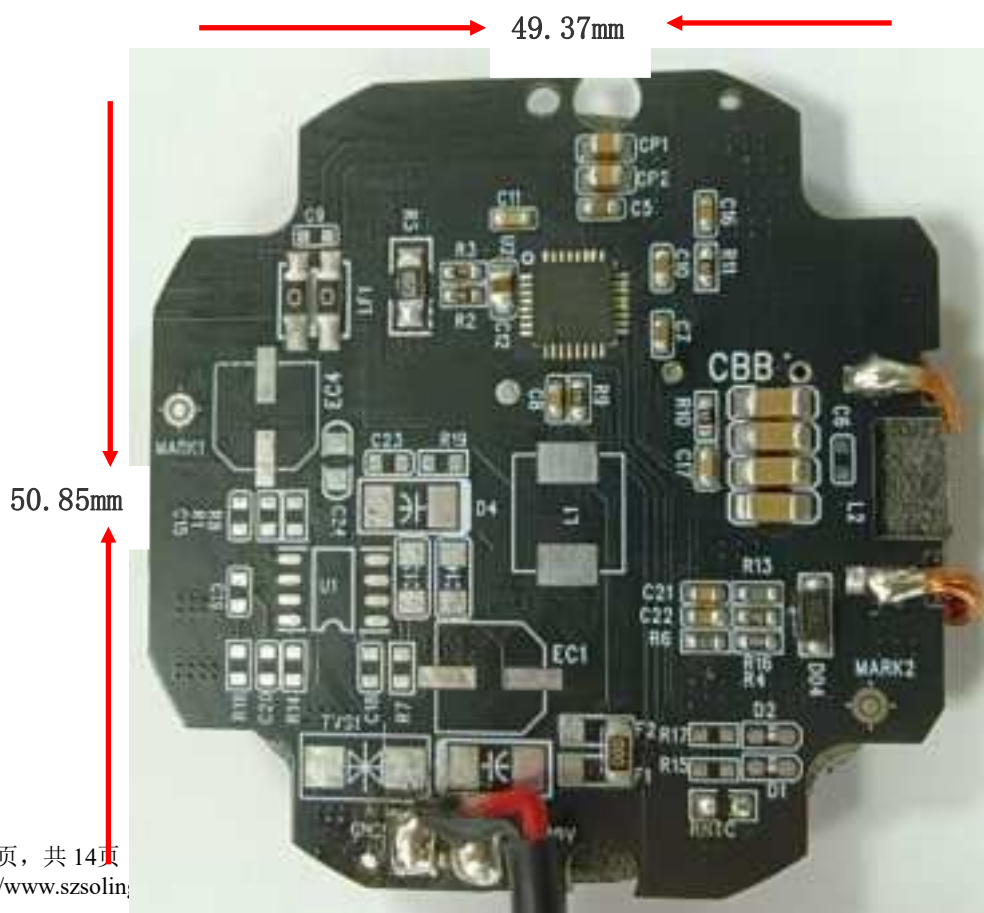


A11 线圈感量 6.3uH(含磁片), 线圈数 10Ts 一层绕制
A11 coil inductance 6.3uH(including magnetic disc), coil number 10Ts one layer winding

线头长度 15mm
Thread length 15mm

10 圈 70 股铜线
10 turns 70 strands of copper wire

13、PCB 规格图 PCB specification picture





14、产品重量 Weight

52.2g±5g

15、产品尺寸、外形图 Product size、 picture



16、声明 Statement

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The specification final property right return the Remacro Technology Co.,Ltd and own.

FCC STATEMENT

1. 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.

(2)This device must accept any interference received, including interference that may cause undesired operation.

2. Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Note: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. This equipment should be installed and operated with a minimum distance of 20 cm between the radiator and your body.