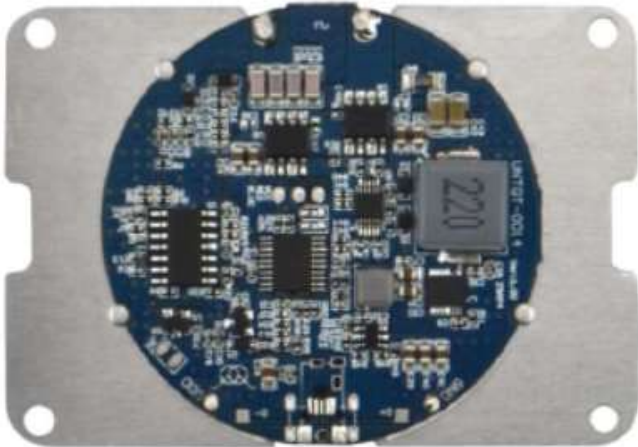


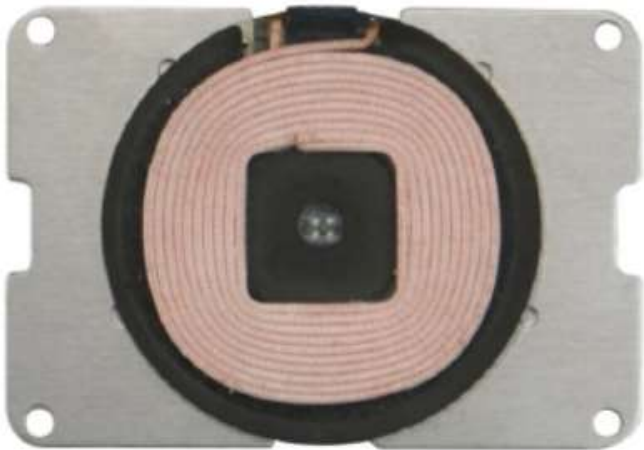
15W Wireless Charger Transmitter

Pulse Part Number SWM1400

Features



- SWM1400 is a WPC1.2.3 Qi Medium Power (15W) wireless charging platform: Its transmission efficiency is up to 76% and can provide up to 15W transmission capacity. It enables powering or charging for any WPC-Qi certified products. With fast charging function for Samsung mobile phone.
- It adopts intelligent identification system while its transmitter and receiver unit adopts UART (Universal asynchronous receiver/transmitter) encrypted transmission control signal which is stipulated by WPC1.2.3 The console will process the corresponding power adjustment based on the encoding of the receiving unit. This module has fulfilled the WPC1.2.3 Qi requirement and is certified by Qi.



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1. Input Characteristics / 输入特性

1.1. Input Voltage & Frequency / 输入电压&频率

Item/项目	Minimum/最小	Normal/标准	Maximum/最大
Input Voltage/输入电压	8Vdc	12.0Vdc	13.0Vdc

TX Input Voltage/TX 输入电压	Rx_Module 类别/RX 模组类别		
	Low Power	Fast charging	Medium Power
12.0Vdc	✓	✓	✓
9.0Vdc	✓	✓	/
5.0Vdc	✓	/	/

1.2. Input Current/输入电流

1.6Amax. @12.0Vdc Full load

1.3. Inrush Current (cold) /浪涌电流 (冷电流)

2.0Amax. @12.0Vdc Full load & Ambient temperature 25 °C

1.4. Energy Consumption/损耗

At 11.5VDC or 12.5VDC, Energy Consumption \leq 0.03A

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2. Output Characteristics (Rx_Module) /输出特性

2.1. Static Output Characteristics <Vo & R+N>/ 静态输出特性 (输出&纹波+噪音)

Output	Rated Load/额定负载		Peak Load	Output Range 输出电压范围	R+N/纹波+噪音	Remark
Power	Min. Load	Max. Load				
15W	0.10A	1.25A	1.50A	12V±5%	≤300mVp-p	

Note: Ripple & Noise: Measurement is done by 20MHz bandwidth oscilloscope and the output end paralleled a 0.1uF ceramic capacitor and a 47uF electrolysis capacitor.

注意: 纹波与噪声:量测时示波器选用 20MHz 带宽限制,输出端要并联一颗 0.1uF 的陶瓷电容和一颗 47uF 的电解电容。

2.2. Line & Load Regulation/线性&负载调整率

Output	Load Condition/负载条件		Line Regulation	Load Regulation	Remark
Power	Min. Load	Max. Load	线性调整率	负载调整率	
15W	0.10A	1.25A	±5%	±5%	

3. Protection Requirement/保护要求

3.1. Short Circuit Protection/短路保护

When the output is short circuit to ground, the input power should decrease,the power supply remains undamaged and automatically recover when fault condition is removed

输出对地短路, 输入功率减少, 电源不得损坏,并应自恢复时解除故障条件

3.2. Over Current Protection/过流保护

OCP Point Limited: 120%-130% auto restart

OCP 限制: 120% - 130%自动重启

The output will be blocked when output is over-current, and should automatically recover when fault condition is removed

当电流输出过量时会有阻碍, 然后会自动恢复并解除故障。

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4. Reliability Requirements/可靠性要求

4.1. Reliability Test/可靠性测试

Test Items/测试项目	Test conditions/测试条件
Storage at high temperature test/ 高温存储	+60℃ 16Hrs
Storage at low temperature test/ 低温存储	-20℃ 16Hrs
Operating at high temperature test/高温操作	+40℃ 8Hrs
Operating at low temperature test/ 低温操作	-20℃ 8Hrs
High/low Temperature cycle test 高低温循环测试	45℃(2Hrs)→-20℃(2Hrs)→45℃(2Hrs) →-20℃(2Hrs) Continually work 24 Hours

4.2. Burn-in/老化

Burn-in for 2hours under 35℃(±5℃) environment, Nominal input voltage, Nominal load.

在 35℃(±5℃)的环境下, 额定输入电压, 额定负载, 老化 2 小时

0

4.3. Vibration Test /震动测试

Vibration Condition: vibration amplitude 2mm ;Vibration frequency :12.4Hz;Vibration direction :X, Y ;

Vibration time :30 minutes / pc 振动条件: 振动幅度 2mm; 振动频率 12.4Hz; 振动方向: X、Y;

振动时间: 30 分钟/个

4.4. Dropping Test/跌落测试

Test height: Determined by the weight;levelDrop times: drop 10 times (one triangle ,3 edge, six surface);

Drop platform: 1~2cm thickness solid wood 测试高度: 由重量决定高度; 跌落次数: 跌落次数 10 次

(1 个角, 3 个边, 6 个面,) 跌落环境: 1~2 cm 厚的实心木板

Equal to or greater than		But Less than		Free Fall	
lb	Kg	lb	Kg	In	mm
0	0	21	10	30	760
21	10	41	19	24	610
41	19	61	28	18	460
61	28	100	45	12	310
100	45	150	68	8	200

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5. Environment Requirement/环境要求

5.1 . Operating Temperature and Relative Humidity/操作温度和相对湿度

0°C - 40°C 20%RH to 80%RH @altitude should be below 10000 feet.

5.2 . Storage Temperature and Relative Humidity/储存温度和相对湿度

-20°C to +60°C 10%RH to 90%RH(non-condensing) @altitude should be below 30000 feet.

6. Execution Standards/执行标准(Compatible with these specifications)/

6.1. EMC Standards/EMC/电磁兼容标准

EN55022	EN55024
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6.2. WPC1.2.3 _Qi Standards/ WPC1.2.3 _Qi 标准

7.Module/模块

7.1. Product design proposal / 产品设计要求

According to the standardization of Qi, Please note below 3 points:

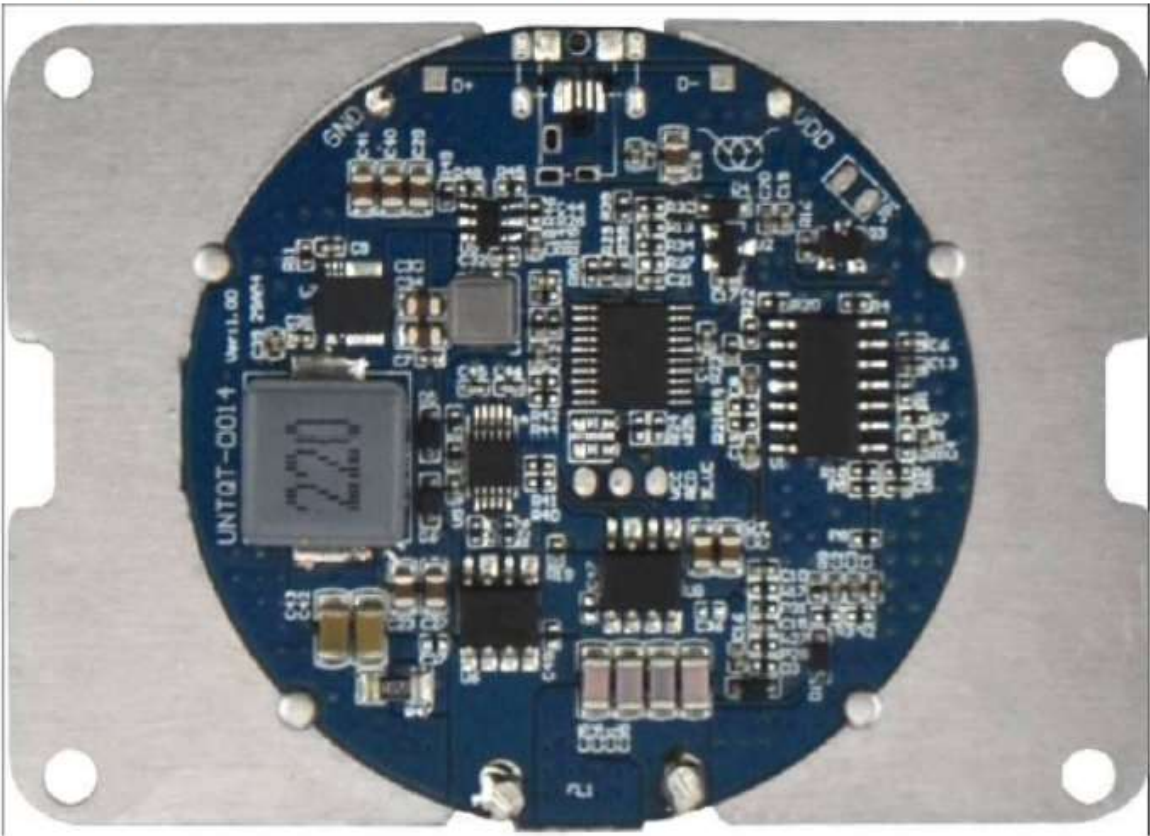
为了要符合 Qi 的标准，有三个项目要注意：

1. The distance between Tx Coil with PCB and other metal components is Min: 4.5mm/
输出线圈，PCB 和其他金属部件之间的最小距离：4.50mm;
2. The distance between the surface of Tx coil and the surface of product (Working Face) is $2.0_{-0.5}^{+0.25}$ mm,
which means the thickness of the working face plastic is not more than 2.25mm;
Tx 线圈表面和产品的表面之间的距离（正面）是 $3.0_{-0.2}^{+0.5}$ mm，即正面塑料的厚度不超过 2.25mm
3. The surface distance between Tx Coil and Rx Coil is 3.0 – 4.5mm
输出线圈和接收线圈之间的表面距离为 3.0– 4.5mm
4. Added cooling device to 22uH inductor to do heat treatment (similar to the computer CPU cooling method)
22uH 的电感要做散热处理（类似电脑 CPU 的方式用来散热用）
5. In order to pass the EMI, it is recommended to connect the PCBA with the DC 12V power
为了好通过 EMI，建议用 DC 12V 的电源外加共模电感连接 PCBA 的电源。

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7.2 PCBA Port Functional Illustration/PCBA 功能说明



PCB 图

PCBA :Φ 50(±0.3) × 4.7(±0.2) mm

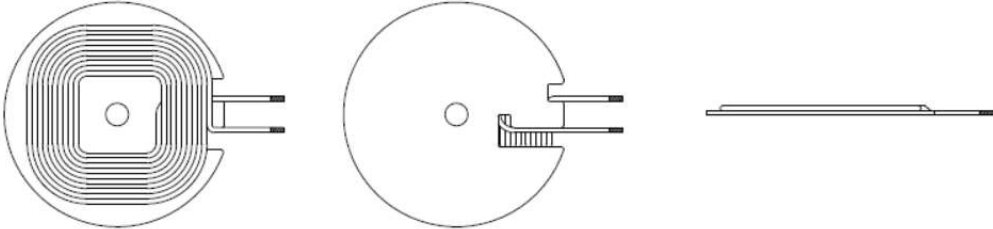
Port	JP1-1	JP1-2	VCC	RED	BLUE
Function	BUZZ+	BUZZ-	LED VDD	Red LED-	Blue LED-
Port	GND	D+/D-	VDD	CL1-1	CL1-2
Function	QC3.0/12V GND	QC3.0 D+/D-	QC3.0/12V VDD	TX Coil	

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7.3. Tx_Coil Spec: TX 线圈规范

Coil + Shielding : 50 * 50 * 2.25mm (Max)



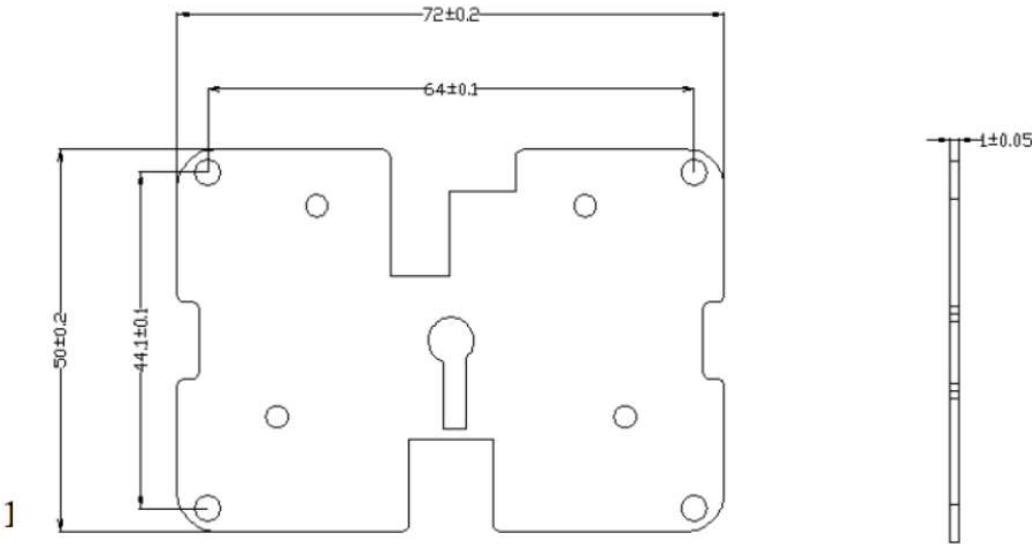
部品名称:	组装成品
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ELECTRICAL SPEDIFICATION@25 °C

PARAMETERS	UNIT	LIMIT
Inductance,LS@100KHz,1.0V , 0.08mm*100 ~10Turns	uH	6.3±10%
Q	---	40±10%
DCR	mΩ	30±10%

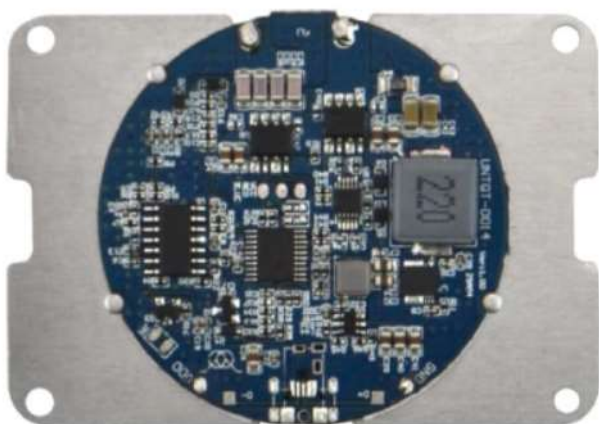
ERP PART	MP-A2
DESCRIPTION	UNIQT-0014
Dimensions	mm
Modified version	A0
Modified by	David
Modified Date	2017-04-10

7.4. Aluminum heat sink gauge Spec 铝散热片规格

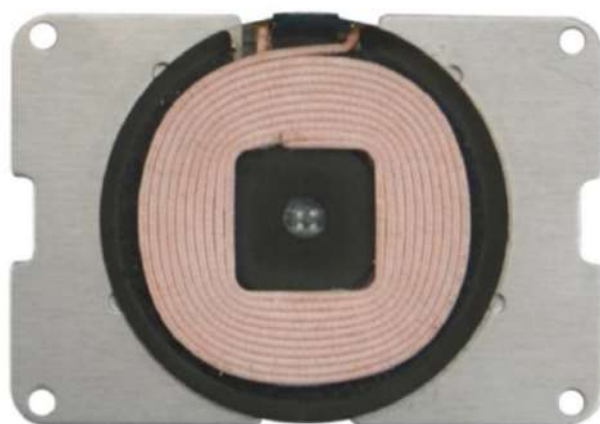


15W Wireless Charger Transmitter

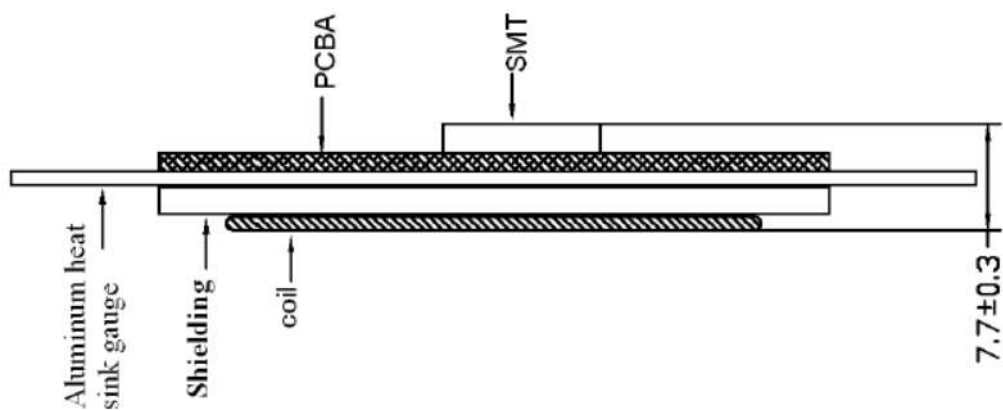
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Module Back Side 模块后面



Module Front Side 模块前面



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Packing

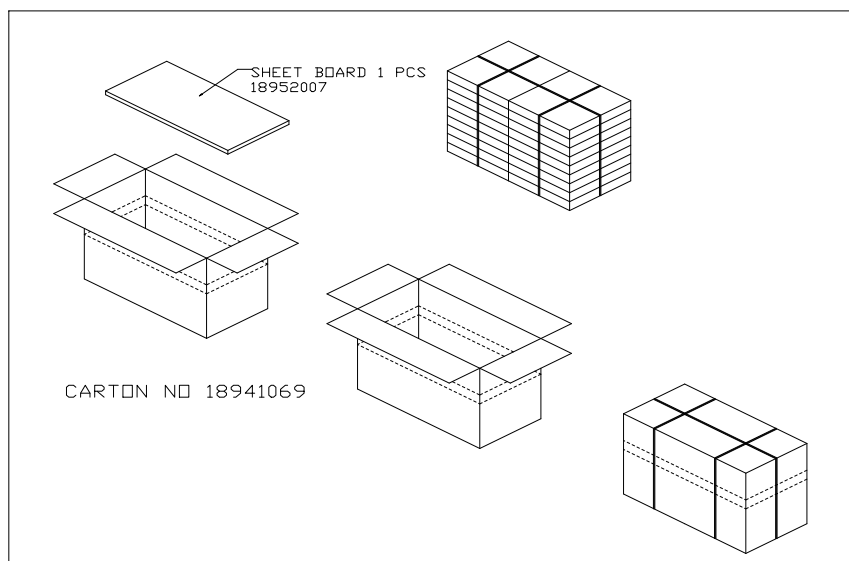
- Put 1pc product in the poly bag, then add the info label.
- Align the finished goods into the tray.
- Cardboard sheet under and on the top of the tray stack in the tray stack. Every second tray must be rotated 180 degrees, binding of the stack-1 strap lengthwise and 2 strap crosswise.
- Add foam paper between two trays.
- First put down 1pc sheet board in box, then put binding tray in box, empty 1 pc on the top of the box.
- Binding of the carton: scaled with tape, 1 strap length wise and 2 strap crosswise.



Label content:

P/N:
Project Name:
Inductance:

- P/N, e.g. SWM1400
- Project Name, e.g. A6 Wireless Charge Coil
- Inductance, e.g. 12.5uH



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