



深圳市腾海电子发展有限公司

Shenzhen TengHai Electronics Co.,Ltd

无线充 PCBA 规格书

Wireless Charging PCBA Datasheet

产品型号：TH-D101

Product Model: TH-D101

产品类型：10W无线充PCBA

Product type: 10W wireless charging PCBA

发布日期：2023.9.15

Release date: 2023.9.15



目录Directory

• 深圳市腾海电子发展有限公司.....	1
• Shenzhen Tenghai Electronics Development Co., Ltd.....	1
• 目录.....	2
• Directory.....	2
• 1, 产品介绍.....	3
• 1. Product introduction.....	3
• 2, 电器参数.....	4
• 2. Electrical parameters.....	4
• 3, 极限参数.....	5
• 3, Absolute Maximum Ratings.....	5
• 4.5,工作指示灯/FOD异物说明.....	6
• 4.5,Work indicator/FOD Description.....	6
• 6.7,温度保护说明/充电测试曲线图.....	7
• 6.7,OTP Description/Charge test graph.....	7
• 8, 充电测试数据.....	8
• 8, Charging test data.....	8
• 9, 产品实物图片和尺寸.....	9
• 9,Product physical pictures and dimensions.....	9



1. 产品介绍 Product Introduction

TH-D101是一款高集成无线充电发射模块，兼容 WPC Qi v1.2.4 最新标准，支持 5W、苹果 7.5W、三星 10W 充电。模块通过analog ping 检测到无线接收设备，并建立与接收端设备之间的通信，成功后开始功率传输。模块通过检测接收设备发送的通信数据包并进行解码，然后用 PID 算法来改变振荡频率从而调整模块上的输出功率。一旦接收器上的电池充满电时，模块 终止功率传输。

TH-D101 is a highly integrated wireless charging transmitter module, compatible with the latest WPC Qi v1.2.4 standard, supporting 5W, Apple 7.5W, Samsung 10W charging. The module detects the wireless receiving device through analog ping, establishes communication with the receiving device, and starts power transmission after success. The module adjusts the output power on the module by detecting and decoding the communication packets sent by the receiving device, and then using the PID algorithm to change the oscillation frequency. Once the battery on the receiver is fully charged, the module terminates power transfer.

1.1 产品特点 Products Features

多重保护：欠压锁定(UVLO)、过流保护(OCP)、过温保护(OTP)。
支持所有快充：支持苹果、华为、三星、LG、SONY、Google、小米等无线快充。

Multiple Protections: Under-Voltage Lockout (UVLO), Over-Current Protection (OCP), Over-Temperature Protection (OTP) .

Support all fast charging: Support Apple, Huawei, Samsung, LG, SONY, Google, Xiaomi, etc. wireless fast charging .



2. TH-D101电器参数 Electrical parameters

参数 Parameter	测试调节 Test	最小值 Min	典型值 Typ	最大值 MAX	单位 Units
工作频率 Frequency	AUTO	110	/	205	KHz
工作电压 Voltage	/	5	12	13.5	V
工作距离 Distance	/	1	3	6	mm
工作效率 Efficiency	/	72	75	80	%
过温保护 OTP	/	60	65	70	°C
过流保护 OCP	/	1.5	2	2.5	A
过压保护 OVP	/	/	14	/	V
输出功率 Output power	/	/	/	/	W
	12V	9.8	10	10.3	W
	/	/	/	/	/



3. 极限参数Absolute Maximum Ratings

参数 Parameters	符号 Symbol	值 Value	单位 UNIT
输入电压范围 Input voltage range	Vcc	-0.5~+15	V
工作环境温度范围 Operating ambient temperature range	TA	-40~85	°C
存储温度范围 Storage temperature range	Tstg	-60~150	°C
存储湿度范围 Storage humidity range	Tstr	<95%	RH
供电电压 Supply voltage	Vcc	-0.5~+13	V
供电电流 Supply current	I _{max}	3.5	A

注意：实际参数超过上述各项绝对最大额定值可能会对设备造成永久性损坏。
Note: Actual parameters exceeding the absolute maximum ratings listed above may cause permanent damage to the device.



4. 工作指示灯 Work indicator

工作状态 Work status	红灯 Red LED	蓝灯 Blue LED
上电状态 Power-on	闪3次 Flicker	闪3次 Flicker
待机状态 Standby	灭 OFF	常亮 ON
充状态 Charge	灭 OFF	闪 Flicker
充满状态 Full	常亮 ON	常亮 ON
FOD（异常）	常亮 ON	灭 OFF

5. FOD异物说明 FOD Description

FOD异物检测功能是Qi 标准中的一项重要安全保障。是无线充电系统检测充电器表面是否有异物，比如充电器表面有金属物品，此刻为了避免异物过热造成设备损坏，无线充电器会立即断电，保障安全。

FOD foreign object detection is an important safety guarantee in the Qi standard. It is the wireless charging system that detects whether there is a foreign object on the surface of the charger, such as a metal object on the surface of the charger, at this moment, in order to avoid overheating of the foreign object and damage to the device, the wireless charger will immediately cut off the power to ensure safety.

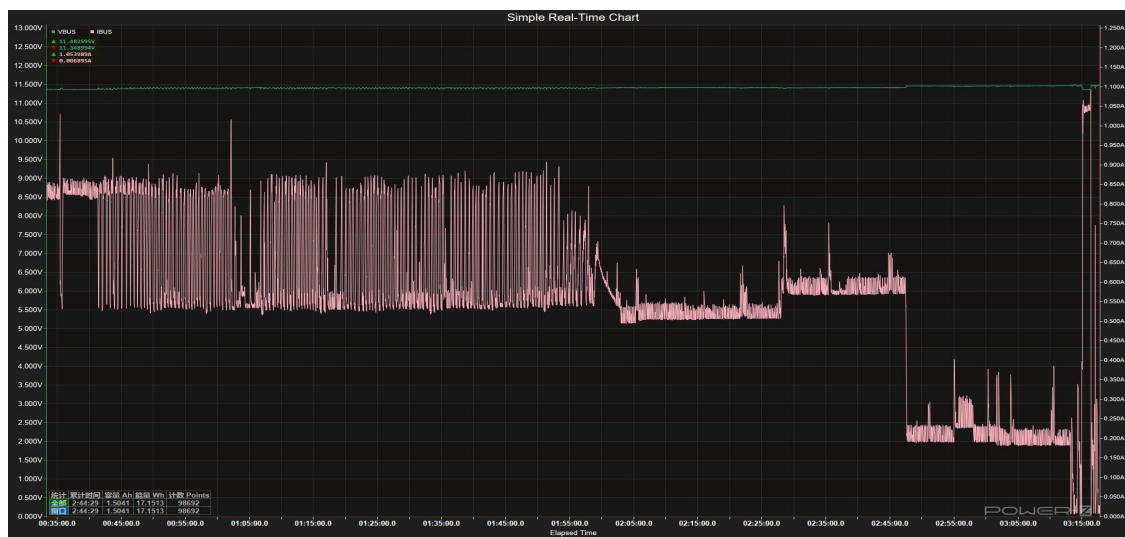


6. 温度保护说明 OTP Description

PCB板上有加NTC温度传感器，有动态控制功能，即温度达到一定值时会降低功率输出，如果温度超出 65°C 则会报警，并停止无线充充电。

There is an NTC temperature sensor on the PCB board, which has a dynamic control function, that is, when the temperature reaches a certain value, the power output will be reduced, and if the temperature exceeds 65°C , it will alarm and stop wireless charging.

7. 充电测试曲线图 Charge test graph



*左边为电压单位，右边为电流单位。

*The left is the voltage unit, and the right side is the current unit.



8. 充电测试数据Charging test data

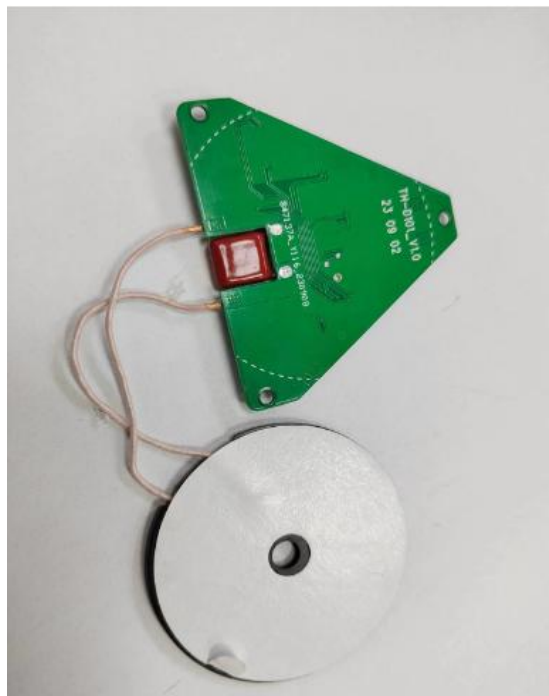
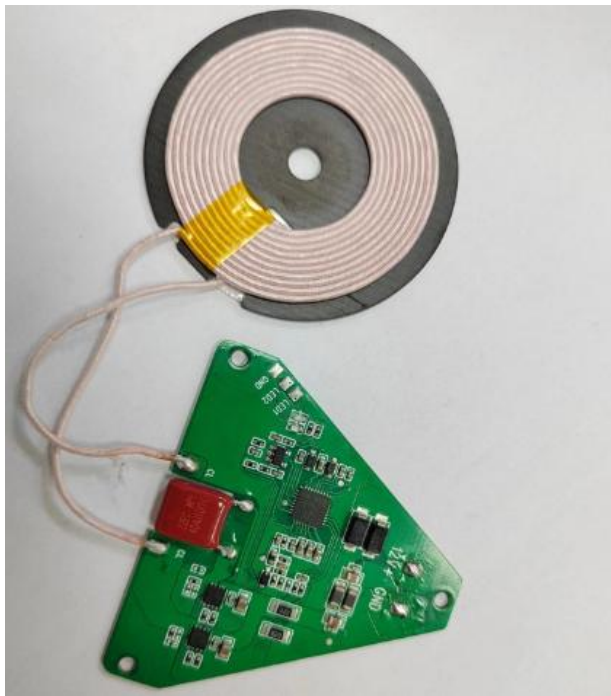
负载设备 Load equipment	环境温度（恒温） Ambient temperature (constant temperature)	充满时间（0-100）% Fill Time (0-100)%
Apple14	26°C	3.5H
华为mate40E	26°C	2.2H

手机充电时长特别说明：无线充手机充满时长极易受环境影响，当手机温度高时，手机会自动发送限制功率接收指令限制发射板发送过大的功率，特此说明，以上测试资料仅供参考，充电时长根据实际测试为准。

Special instructions for mobile phone charging time: When the mobile phone temperature is high, the mobile phone will automatically send a limited power receiving instruction to limit the transmission board to send excessive power, hereby explain, the above test data is for reference only, and the charging time is subject to the actual test.



9. 产品实物图片和尺寸 Product physical pictures and dimensions



描述 Description	规格尺寸 Specifications
PCB	54.5*49.5*1.0mm
发射线圈 TX coil	A11 G50X0.8-0.08X105丝包线双槽出线30MM， 反面贴白胶6.3UH 普通15W A11 G50X0.8-0.08X105 SILK WRAPPED WIRE DOUBLE SLOT OUTLET 30MM, REVERSE SIDE WHITE GLUE 6.3UH ORDINARY 15W