



GENERAL SPECIFICATION



Customer Name: _____

Model Name: 10W無線充電TX模組

Model No.: U10QT-6071A

Part No.: ILMU10QT-6071A

Date: _____

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Reversion History / 更新記錄

Revision	Date	Changes
A0	2022-2-22	初版發行

1. Scope/概述

- 1.1 WPC Qi certified wireless charging module, meets the functional requirements of WPC1.3 transmitter module Qi protocol, and compatible with lower version..

本產品符合 WPC1.3_Qi 協定發射模組的功能要求,並且相容 WPC1.3 以下所有版本.

- 1.2 The Wireless Charging TX Module meet ROHS requirement.

無線供電的 TX 模組應符合 ROHS 要求.

2. Product Characteristic/產品特點

U10QT-6071A is a WPC1.3 Qi fast charge wireless charging platform: Its transmission efficiency is up to 70%±5% and can provide up to 10W transmission capacity. It enables powering or charging for any WPC-Qi certified products. With fast charging function for Samsung® and iPhone® mobile phone.

U10QT-6071A 是 WPC 1.3 Qi 相容的多功能快充無線充電平臺：其傳輸效率可達 70%±5%，也可提供高達 10W 的傳輸容量。它可以跟任何 WPC-Qi 認證產品供電或充電；還能夠三星® 和 iPhone® 機提供快速無線充電。

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 WPC1.3 The console will process the corresponding power adjustment based on the encoding of the receiving unit. The module has fulfilled the WPC1.3 Qi requirement and Qi certified.

它採用智慧識別系統並且它的發射和接收單元採用 UART（通用非同步接收器/發送器）加密傳輸控制信號，這是由 WPC1.3 所規定.控制台將基於接收單元編碼進行對應的功率調整。此模組達到了 WPC1.3 Qi 的要求也是 Qi 的認證產品.

LED indicator working status:

LED 指示燈工作狀態:

LED LED 指示燈	Operational States/操作狀態					
	Power On 晶片上電	Standby 待機	Charger 充電中	Full Charged 充電完成	Abnormal 異常	Power Control 功率調整
LED1 : Red	0.5S	Off	Off	Off	On	Blink slow
LED2 : Blue	0.5S	Off	On	Off	Off	Off
外接 LED	Note: When using dual-color LED lamp, common anode LED lamp should be used; the current of LED lamp is limited to less than 10 mA, if it is more than 10 mA, please use external LDO to supply power to LED lamp separately. 注意：使用雙色 LED 燈時，要用共陽極的 LED 燈；LED 燈的電流限制在≤10mA,如果≥10mA 時請外接 LDO 單獨給 LED 燈供電使用					

3. Performance Parameter / 性能參數

3.0	Power input protocol/電源輸入協定	QC2.0/QC3.0/AFC/PD2.0/3.0
3.1	Input voltage & current /輸入電壓電流	DC5V/3A、DC9V/2.2A、
3.2	Working voltage & current/工作電壓電流	DC5V/1.65A、DC9V/1.5A、DC12V
3.3	Output power/輸出功率	5W/7.5W/10W
3.4	Power Transfer Efficiency /轉換效率	70%±5%
3.5	5W/10W Frequency / 5W/10W 頻率	<u>frequency conversion</u> 110KHz-205KHz / 變頻 110KHz-205KHz
3.6	Apple 7.5W frequency/蘋果 7.5W 頻率	<u>Constant frequency</u> 127.7KHz 定頻 127.7KHz
3.7	Ripple noise/紋波及噪音	≤100mVp_p
3.8	Operating temperature/工作溫度	0-40℃
3.9	Relative humidity/相對濕度	10%~80%

4. Safety Control/安全機制

4.1. Short Circuit Protection/短路保護

In the case of short-circuit at the receiver output, the transmitter red light on and stop output. When removed the receiver or short circuit, the transmitter will resume normal operation.

在接收端輸出短路的情況下，發射端紅色指示燈亮並停止輸出。當移除接收或者短路解除時，發射端將恢復正常工作。

4.2. Over Current Protection/過流保護

When the receiver load exceeds the rated value (110% - 130%), the over current protection is triggered and the transmitter stops working. When removed the receiver, the transmitter will resume normal operation.

當接收器負載>額定值的 110% - 130%時，觸發過電流保護，發射端停止工作，當接收器被移除時，發射端將恢復正常工作。

4.3. Overvoltage Protection 過壓保護

The product would stop working when the input voltage exceeds the rated value (13V). The Product would be restarted working when the voltage returns to the set value range.

P/S: The input voltage shall not exceed 13.5V in case damage the product.

輸入端超過設定過壓電壓值 13V 時，發射端停止工作。電壓恢復設定值範圍時重新啟動工作。

注意：輸入電壓不可以超過 13.5V，以防損壞本產品。

4.4. Foreign Object Detect (FOD) (1 RMB coin as the standard.)

異物檢測（以一元 RMB 硬幣為標準。）

4.4.1 When placing the coin onto the center of the product under no-load condition, the transmitter detected foreign object and reports an error, then stops working. Removes the foreign object to resume normal operation.

空載時放置產品中心，發射端檢測到異物並報錯，停止工作，移除異物可恢復正常工作。

4.4.2 When placing the load and coin together onto the center of the product, an error is reported within 10s (time varies with different mobile phone models) and the output is closed. Removes the foreign

object to resume normal operation.

負載和硬幣一起放置產品中心時，10 秒（不同手機型號時間不同）之內報錯並關閉輸出，
移除異物可恢復正常工作。

4.5. Over-temperature Protection/過溫保護

The NTC temperature protection of the PCBA is $80^{\circ}\text{C} \pm 5^{\circ}\text{C}$. The transmitter stops working when the temperature exceeds the value. Resets the receiver or cools to $55\text{-}60^{\circ}\text{C}$, the transmitter returns to normal operation (optional replacement with external NTC)

PCBA 貼片 NTC 溫度保護設定值為 $80^{\circ}\text{C} \pm 5^{\circ}\text{C}$ ，當溫度超過設定值，發射端停止工作，重新放置接收或者降溫至 $55\text{-}60^{\circ}\text{C}$ 時，發射器恢復正常工作。(可選擇更換成外接 NTC)

4.6. Average Working Time Without Failure 平均工作無故障時間

Working for 20,000 hours, the average failure rate is less than 0.5% at 25°C environment temperature.

工作 2 萬小時，在 25°C 環境下平均失效率小於 0.5%

5. Reliability Requirements/可靠性要求

5.1. Reliability Test/可靠性測試

Test Items/測試項目	Test conditions/測試條件
Storage at high temperature test/ 高溫存儲	$+60^{\circ}\text{C}$ 16Hrs
Storage at low temperature test/ 低溫存儲	-20°C 16Hrs
Operating at high temperature test/高溫操作	$+40^{\circ}\text{C}$ 8Hrs
Operating at low temperature test/低溫操作	0°C 8Hrs
High/low Temperature cycle test 高低溫迴圈測試	$55^{\circ}\text{C}(1\text{Hrs}) \rightarrow -20^{\circ}\text{C}(1\text{Hrs})$ 連續 5 次迴圈

For other tests, please refer to Reliability Test Specification and Reliability Test Report.

其他測試請參考《可靠性測試規範》與《可靠性測試報告》

5.2. Burn-in test 老化測試

Burn-in for 2hours under $35^{\circ}\text{C} (\pm 5^{\circ}\text{C})$, Nominal input voltage, Nominal load.

在 $35^{\circ}\text{C} (\pm 5^{\circ}\text{C})$ 的環境下，額定輸入電壓，額定負載，老化 2 小時

6. Environment Requirement/環境要求

6.1. Operating Temperature and Relative Humidity/操作溫度和相對濕度

$0^{\circ}\text{C} - 40^{\circ}\text{C}$ 20%RH to 80%RH @altitude should be below 10000 feet.

6.2. Storage Temperature and Relative Humidity/儲存溫度和相對濕度

-20°C to $+60^{\circ}\text{C}$ 10%RH to 90%RH(non-condensing) @altitude should be below 30000 feet.

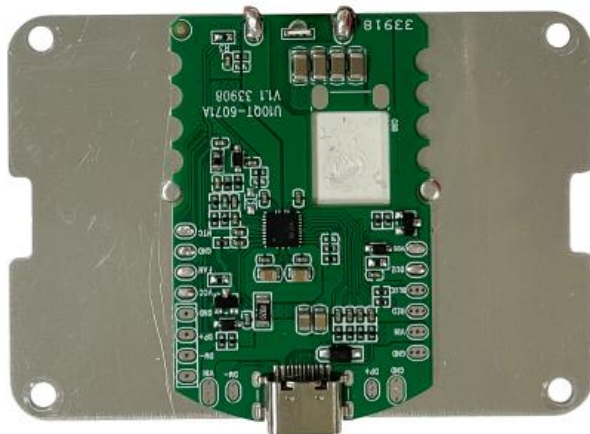
7. Execution Standards/執行標準(Compatible with these specifications)

7.1. EMC Standards/EMC/電磁相容標準

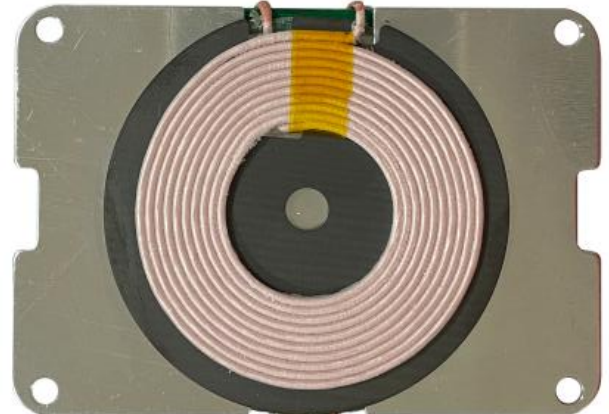
EN55032	EN55035
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7.2. WPC1.2.4_Qi Standards/ WPC1.2.4_Qi 標準

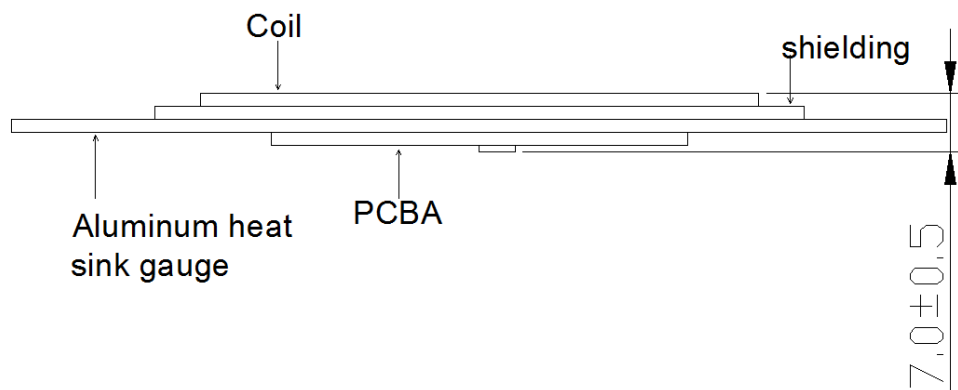
8. Photo of Product/產品照片



Module Back Side 模組後面



Module Front Side 模組前面



Thickness information 模組側面

9. Module/模組

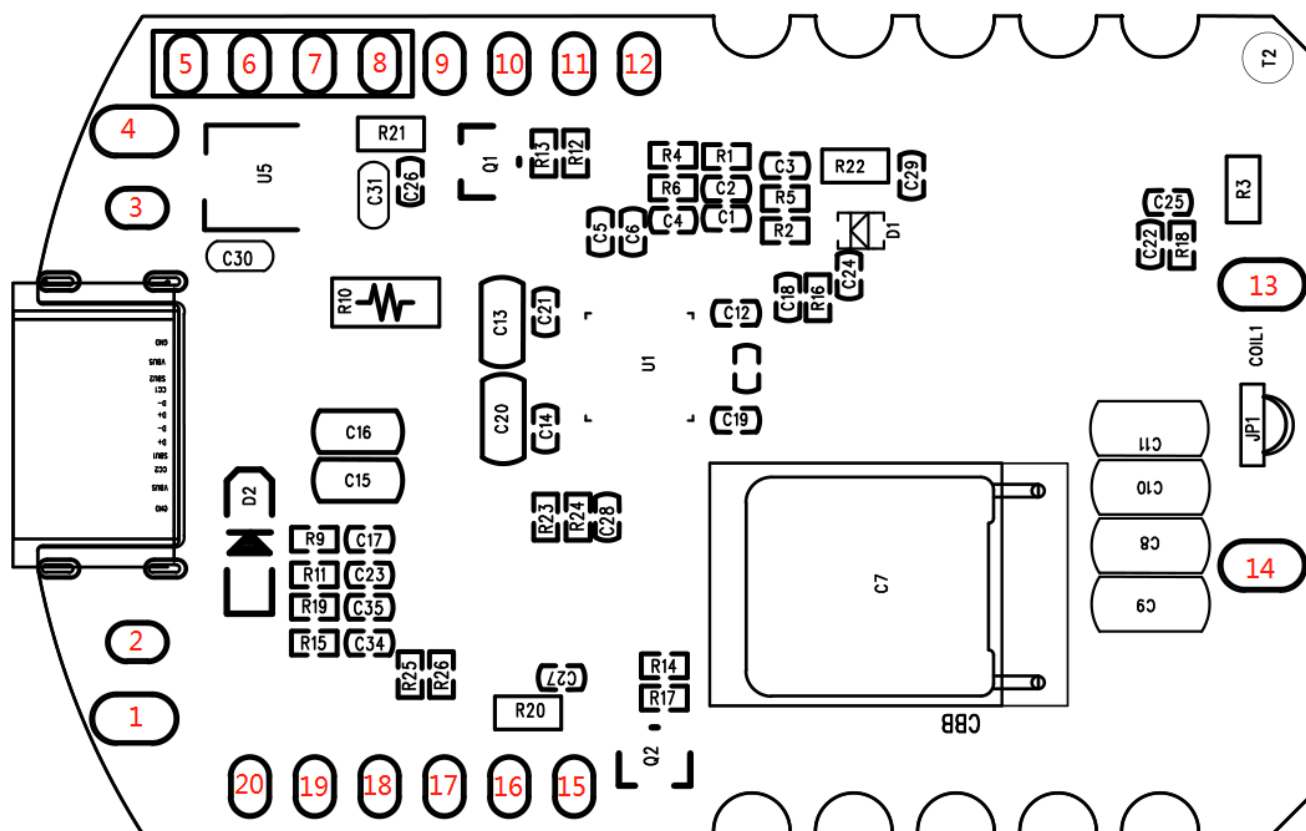
9.1. Product design proposal / 產品設計要求, 具體產品設計&規範請參考 (附件: xxx)

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

為了要符合 Qi 的標準, 有三個專案要注意 :

1. The distance between Tx Coil with PCB and other metal components is Min: 4.50mm
輸出線圈到 PCB 或者其他金屬部件之間的最小距離 : 4.50mm ;
2. The distance between the surface of Tx coil and the surface of product (Working Face) is $3.0_{-0.25}^{+0.5}$ mm, which means the thickness of the working face plastic is not more than 2.00mm;
Tx 線圈表面和產品的表面之間的距離 (正面) 是 $3.0_{-0.25}^{+0.5}$ mm, 工作面塑膠的厚度不超過 2.00mm (發射線圈表面到塑膠殼之間, 應保留 0.75mm 以上的間隙)。
3. The surface distance between Tx Coil and Rx Coil Ideal value is 3.0 – 4.5mm
輸出線圈和接收線圈之間的表面距離最理想值為 3.0– 4.5mm

9.2. PCBA Port Functional Illustration/PCBA 功能說明



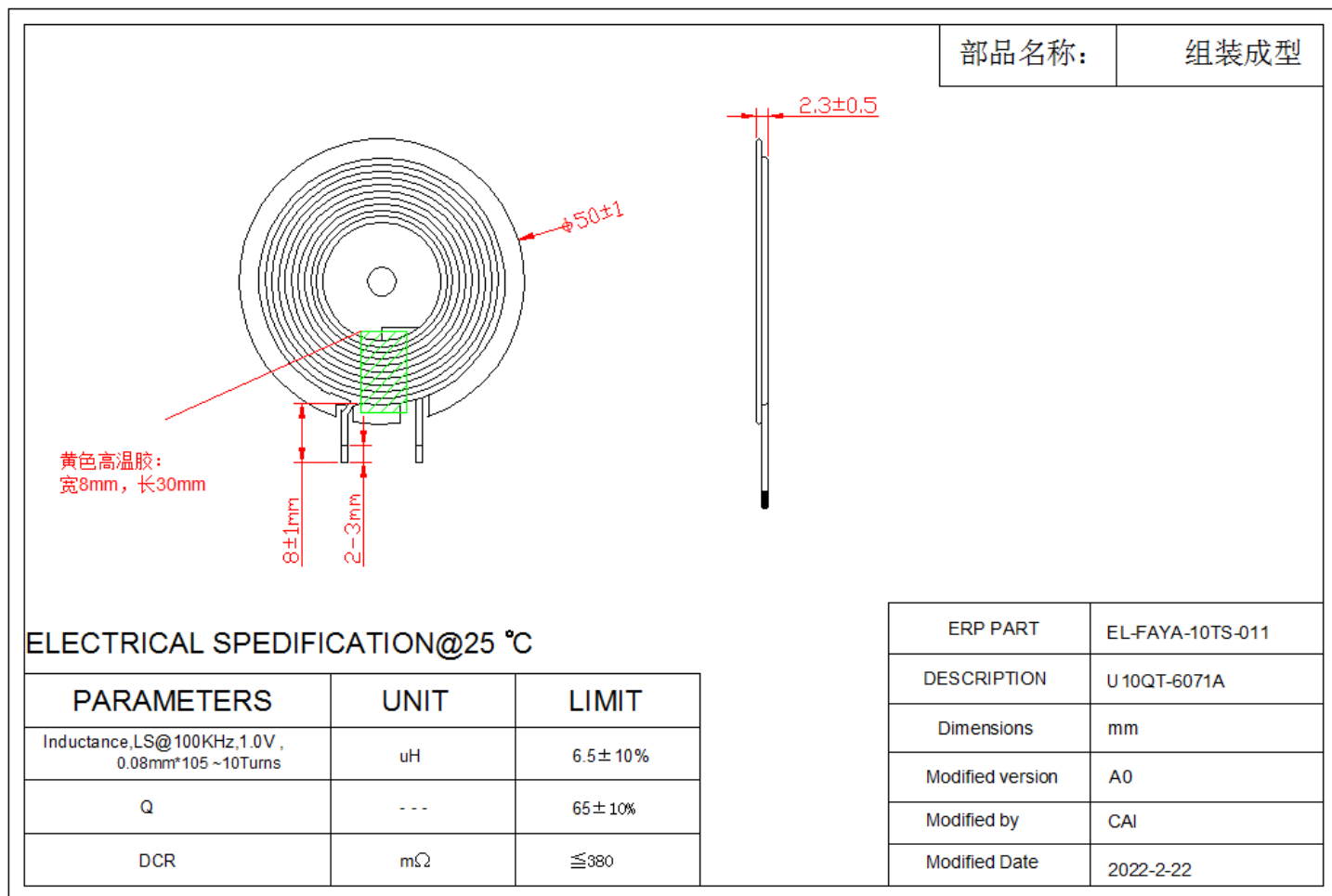
PCB 版面圖

PCBA Size: 50 (±0.5)*32(±0.5)*3.0(±0.5)mm

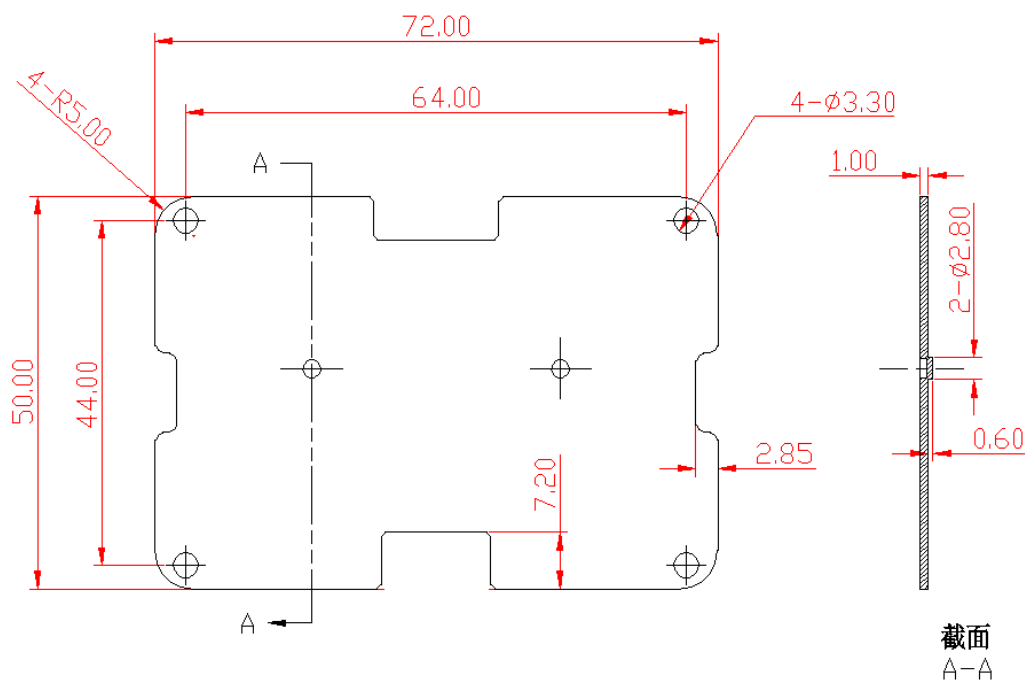
Port	Pin1	Pin2	Pin3	Pin4	Pin5	Pin6	Pin7
Function	GND	USB/D+	USB/D-	VIN	Burn_VCC	Burn_I/O	Burn_I/O
Port	Pin8	Pin9	Pin10	Pin11	Pin12	Pin13	Pin14
Function	Burn_GND	FAN+	FAN-	NTC-	NTC+	Coil	Coil
Port	Pin15	Pin16	Pin17	Pin18	Pin19	Pin20	
Function	Buzz-	Buzz+	LED_Blue	LED_Red	LED_VCC	LED_GND	

9.3. Tx_Coil Spec : TX 線圈規範

Coil + Shielding : $\Phi 50 \times 2.3 (\pm 0.5) \text{mm}$



9.4. 散熱鋁片規範 : 72*50*1.0mm



10. Other Features / 其他特性

10.1. Weight 重量

26±2g

*All dimensions are nominal

Device	Package Type	Package Drawing	SPQ	L(mm)	W(mm)	H(mm)
U10QT-6071A	Module	MOD				

11. Inspection Standards/檢查標準

NO.	Test project	Test standard	Sample Level	Test standard
1	Performance			Serious defect:
2	Size			Main defect:
3	Shell, Package			Petit defect:

12. Major Test Equipment/測試儀器

12.1. DC Supply

12.2. Rx_Module

12.3. Electronic Load

12.4. DPO3014 Digital Phosphor Oscilloscope

12.5. Logical Analyzer

12.6. Q110 Qi BST (Base Station Tester)

13. Statement/聲明

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