

SPECIFICATION FOR APPROVAL

CUSTOMER: 公司中性

MODEL NO: TF-6104

PART NO : ILMU15FT-6104B0A0-XX-0

MODEL NAME: 15W wireless charger of TX module

REVISION: A0

DATE: 2025-10-07

APPROVED SIGNATURES

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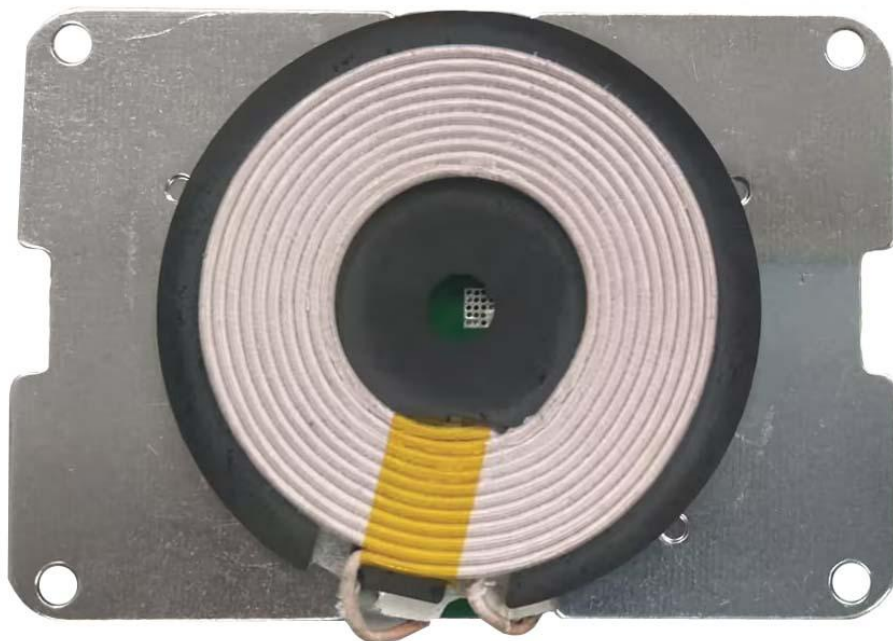
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Model No.	TF-6104	Model Name	15W wireless charger of TX module
Part No.	ILMU15FT-6104B0A0-XX-0	Size	L72±0.5mm※ W50±0.5mm ※ T6±0.5mm

Product Specification

產品規格書

Product name/產品名稱:	15W wireless charger of TX module
Model No/ 產品型號:	TF-6104
File number /文件編號:	
Revision/版本號:	A0
Date/日期:	2025-11-25



APPROVED BY 批准	CHECKED BY 審核	DESIGNED BY 制作
Kelvin Tsai 數位簽署者: Kelvin Tsai 日期: 2025. 12. 01 08:46:42 +08' 00'	Daniel.Huang Mechanical Engineer 2025. 11. 26 13:58:04 +08' 00'	江来平 數位簽署者: 江来平 日期: 2025. 11. 26 11:50:37 +08' 00'

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Reversion History /更新記錄:

Revision	Date	Changes
A0	2025-11-25	New release

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1. Scope/概述

The TF-6104 is a WPC 1.2.4 Qi-compatible multi-functional fixed-frequency voltage-regulating wireless charging module: its peak transmission efficiency can reach 70%±5%, and it can also provide a transmission capacity of up to 7.5W. It can wirelessly charge iPhones and Samsung mobile phones. This product meets the functional requirements of the WPC1.2.4_Qi protocol for transmitting modules and is compatible with all versions below WPC1.2.4.

This product is only suitable for installation in general consumer product applications and is not applicable to any automotive or aerospace product applications

TF-6104 是 WPC 1.2.4 Qi 相容的多功能定頻調壓無線充電模組：其傳輸效率最高點可達 70%±5%，也可提供高達 7.5W 的傳輸容量。它可以為 iPhone&三星手機提供無線充電。本產品符合 WPC1.2.4_Qi 協定發射模組的功能要求.並且相容 WPC1.2.4 以下所有版本.

本產品僅適用於一般消費性產品應用安裝，不適用任何車規航空產品應用。

2. Product Characteristic / 產品特點

- ◆ PD/QC3.0 direct power supply
PD/QC3.0電源直接供電；
- ◆ Qi 1.2.4 Compatible with Samsung and iPhone Wireless charging for mobile phones;
Tested phone model: IP15 pro, IP16, S23 ultra, S24
Qi 1.2.4 相容 三星和 iPhone手機無線充電；已測試手機型號:IP15 pro, IP16, S23 ultra, S24

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3. Performance Parameter / 性能參數

3.0	Power input protocol / 電源輸入協定	PD/QC/DC
3.1	Input voltage current / 輸入電壓電流	DC12V±0.25V *2.0A
3.2	Working voltage current / 工作電壓電流	12V/0.02 ~ 1.8A Max
3.3	Wireless charging output power/無線充電輸出功率	5W/7.5W/10W/15W(Max)
3.4	Power Transfer Efficiency / 轉換效率	70%±5%
3.5	Operating frequency / 工作頻率	Fixed frequency : 205KHz iPhone fast charging frequency : 127.7KHz
3.6	Operating temperature/ 工作溫度	25°C±5°C
3.7	Relative humidity/ 相對濕度	40% ~ 60%
3.8	Audio noise/躁聲規格	The test distance is 15CM < 30db(noise spec)
3.9	Firmware version / 程序版本	0X4CF1DF

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 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/過電流保護

When the receiver load exceeds the setting, the over current protection is triggered, and the transmitter stops working. When removed the receiver, the transmitter will resume normal operation.

當接收器負載超過設定，觸發過電流保護，觸發過電流保護，發射端停止工作，當接收器被移

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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 ($13V \pm 0.25V$). 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 $13V \pm 0.25V$ 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

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。

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 off. 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

PCBA Patch NTC The temperature protection setting is $85^{\circ}\text{C} \pm 5^{\circ}\text{C}$, and the output stops when the temperature exceeds the set value; NTC The temperature drops to $55^{\circ}\text{C} \pm 5^{\circ}\text{C}$ and returns to normal output. (Optional to replace with external connection) NTC)

PCBA 貼片 NTC 溫度保護設定值為 $85^{\circ}\text{C} \pm 5^{\circ}\text{C}$ ，當溫度超過設定值停止輸出；NTC 溫度降低到 $55^{\circ}\text{C} \pm 5^{\circ}\text{C}$ 恢復正常輸出。(可選擇更換成外接 NTC)

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5. Reliability Requirements / 可靠性要求

5.1. Reliability Test/可靠性測試

Please refer to Link Com's reliability standard and reliability test Report.

請參考聯寶標準《可靠性測試規範》與《可靠性測試報告》

6. Environment Requirement / 環境要求

6.1 Operating Temperature and Relative Humidity/ 操作溫度和相對濕度 25℃±5℃ / RH40~60%

If the working temperature is below 0℃, the mechanism must be waterprooffunction.

如果操作溫度低於 0° C, 結構件需要有防水功能

6.2 Storage Temperature and Relative Humidity/ 儲存溫度和相對濕度-20℃~+40℃ / RH20~80%

6.2.1 Avoid direct exposure to the storage environment, and do a good temperature and humidity control, room temperature should be controlled at 5℃-25℃, relative humidity RH40~ 60%. In order to maintain good functionality of the product, please observe the following storage conditions. 儲存環境應避免產品受陽光直接照射, 並作好溫濕度管控, 室溫宜控制在 5℃-25℃ / RH40~60%。為使產品維持良好之功能性, 請確實遵守以下保存條件

6.2.2 Keep away from high humidity, salt spray or oil spray. 儲存需避開高濕, 鹽霧或油霧之環境

When storing, the storage environment temperature should be avoided too drastic, and the humidity should be avoided too high or too low. High humidity and large temperature difference tend to cause water Vapor condensation phenomenon, too low humidity easily cause the high electrostatic strength. Therefore, humidity will cause the electron ionization, and eventually cause the product functional abnormalities. 儲存時應避免儲存環境溫度變化過於激烈, 同時避免濕度過高或過低。濕度過高和溫差過大容易導致水蒸氣凝結現象, 濕度過低容易導致靜電強度過高。故濕度會造成電子游離, 最終導致產品功能性異常。

7.Execution Standards/執行標準

7.1. EMI Standards電磁相容標

NA

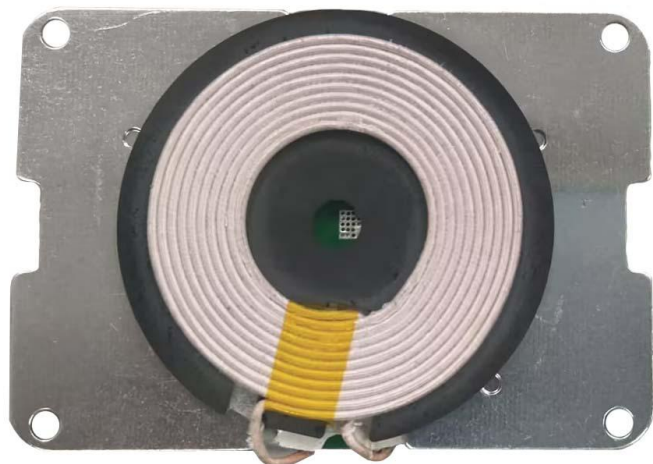
Note : The EMI test should include the actual testing of the enclosure and RX equipment.

備註: EMI 測試需包含外殼與 RX 設備實際測試。

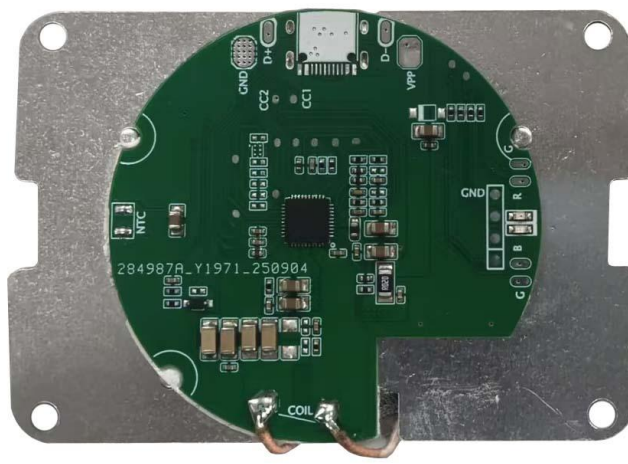
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8.Photo of Product/產品照片

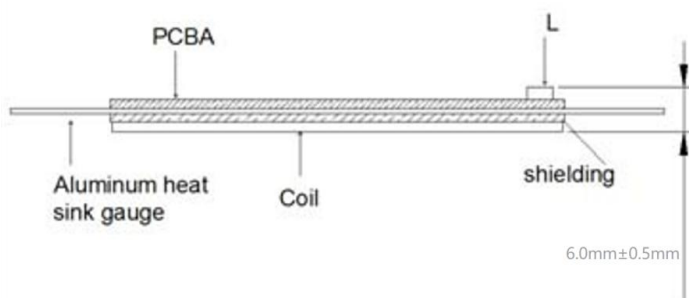
Size : 72±0.5* 50±0.5*6.0±0.5 mm



正視圖 TOP View



背面圖 Bottom View



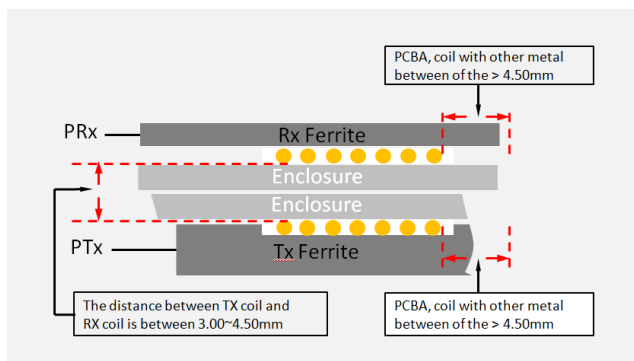
9.Module/模組

9.1.Product design proposal/產品設計要求

According to the standardization of Qi, Please note the following:

為了要符合Qi的標準，以下幾點需注意：

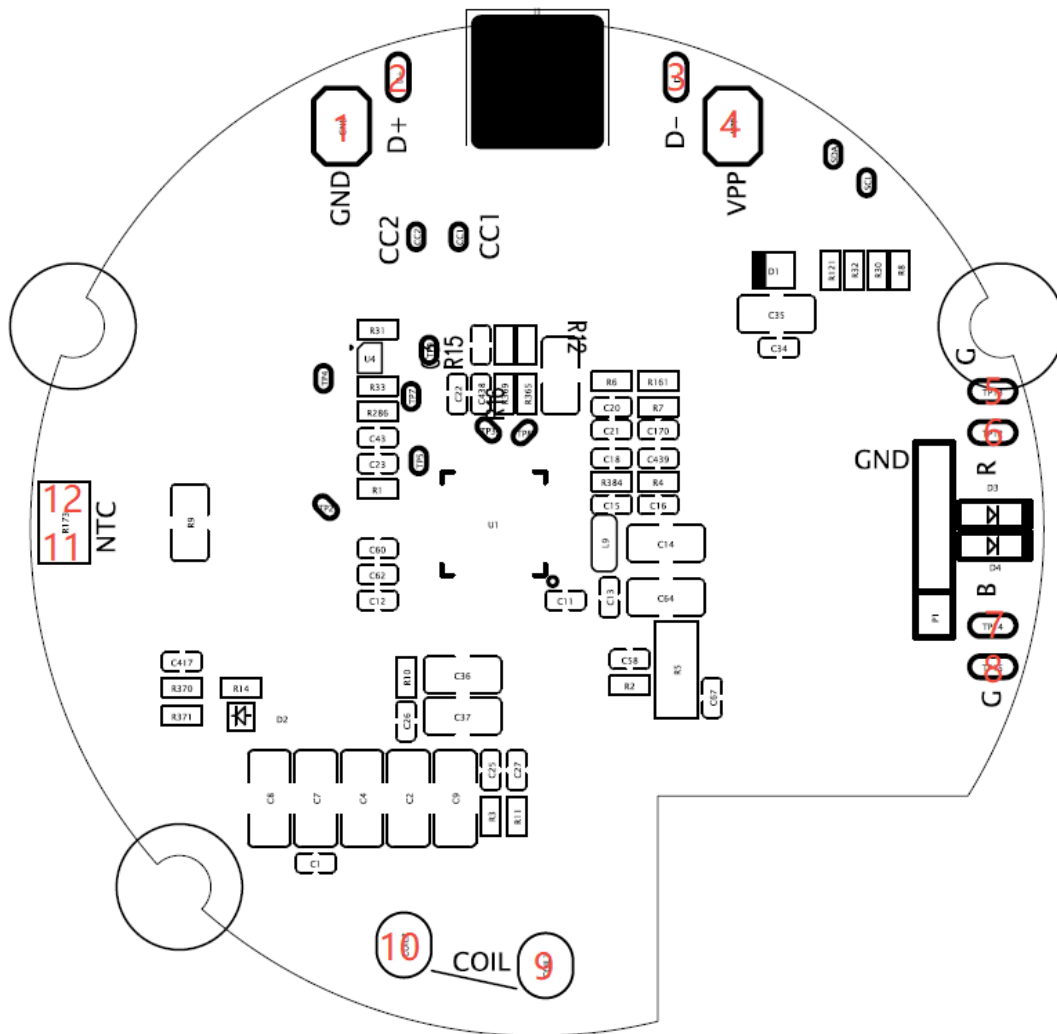
1. The distance between Coil with PCBA and other metal components is Min: 4.50mm.
線圈，PCBA和其他金屬部件之間的最小距離：4.50mm.
2. The surface distance between Tx Coil and Rx Coil is 3.00 – 4.50mm.
輸出線圈和接收線圈之間的表面距離為3.00 – 4.50mm.



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9.2.PCBA Port Functional Illustration/PCBA功能說明

PCBA Size: φ 50mm(±0.15mm) *2.5mm(±0.2mm)



9.3. PCBA of pin definitions /PCBA 功能說明

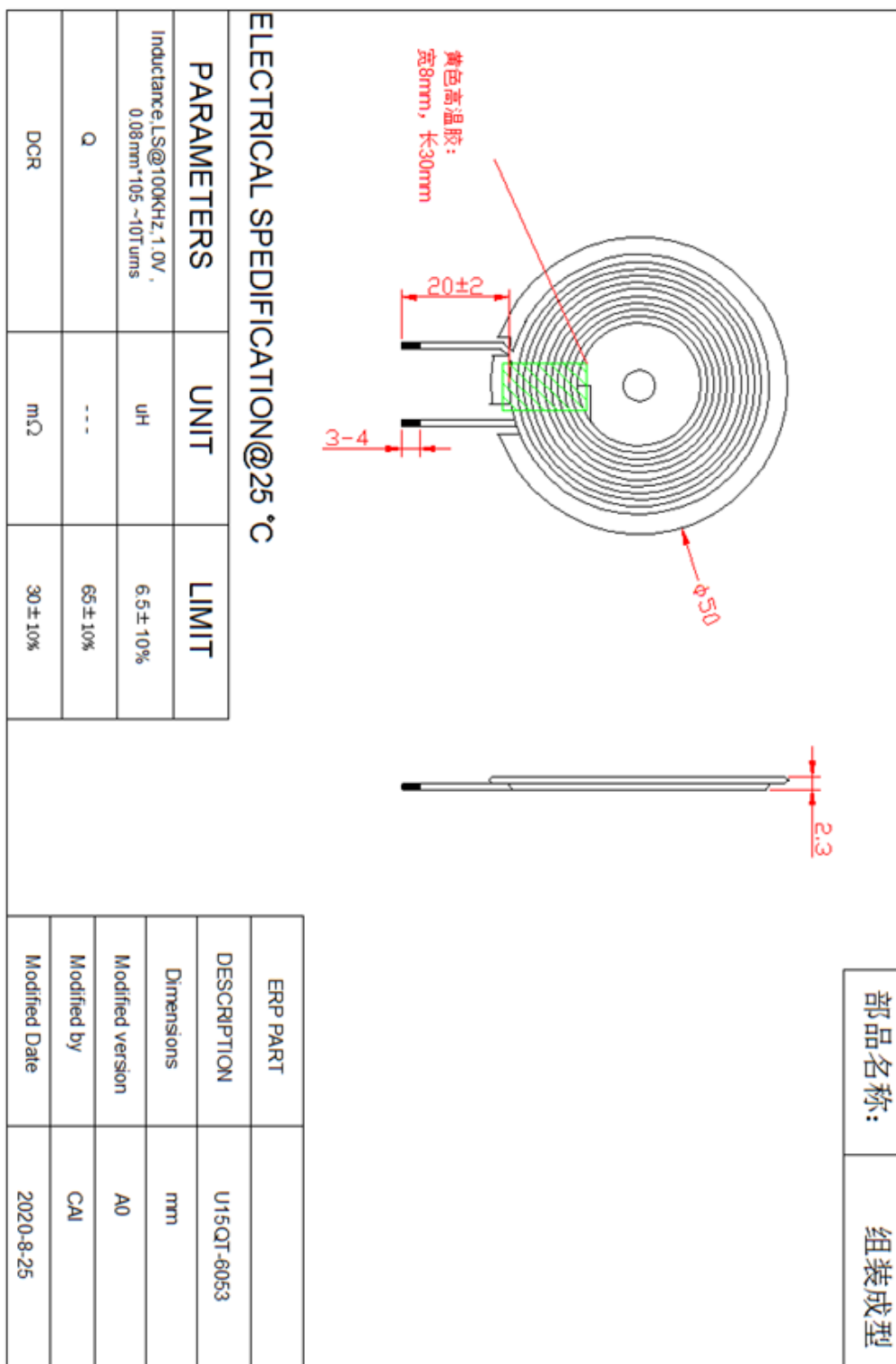
Port	Pin1	Pin2	Pin3	Pin4	Pin5	Pin6
Function	INPUT GND	USB D+	USB D-	IN VPP	LED GND	LED Red
Port	Pin7	Pin8	Pin9	Pin10	Pin11	Pin12
Function	LED Bule	LED GND	Coil_1	Coil_2	NTC-	NTC+

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9.4. Tx Coil Spec : TX 線圈規範

Coil dimensions:

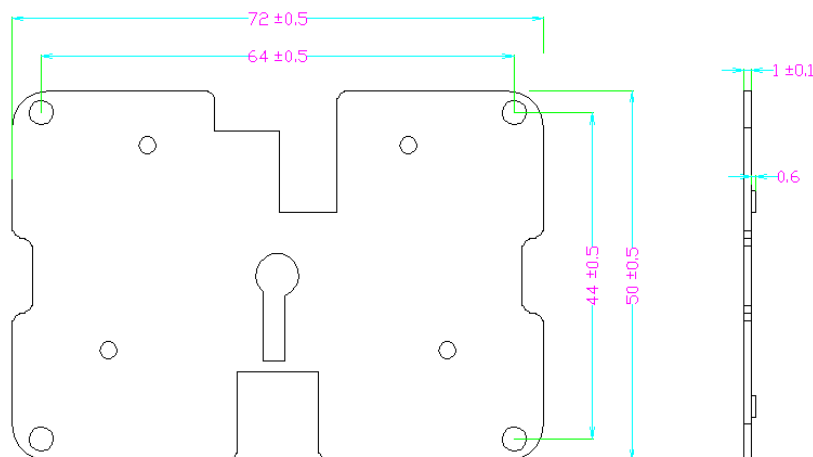
SCHEMATIC DIAGRAM:



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9.5.Aluminum heat sink gauge Spec 鋁散熱片規格

72(±0.5)*50(±0.5)*1.0(±0.1)mm



10. LED Indicators /指示燈

- ◆Power on : Blue + Red LED flashes 2 times /通電：藍+紅色 LED 閃爍 2 下
- ◆Standby: All of LEDs off / 待機：無燈
- ◆When charging: the green light is always on / 充電時：綠燈常亮
- ◆Abnormal at OVP, UVP: Red LED On / 異常：紅燈長亮
- ◆OTP Protection: The red light stays on for a long time / OTP 保護：紅燈長亮
- ◆FOD: Red light flashing rapidly / 檢測到異物：紅燈快閃

11.Attentions/使用注意事項

11.1.Please use the correct rated Adapter, to ensure the normal function.

請使用配置的正确規格火牛，保證功能正常。

11.2.This product is only suitable for general consumer product application installation and is not suitable for any automotive or aviation product application.

本產品僅適用於一般消費性產品應用安裝，不適用於任何汽車或航空產品應用。

12. Weight / 重量

25±2g

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13.Packaging/包裝

中尺寸模組 (白盒) _Carton Packing Method

2025.08.11

outer carton : 200 pcs
材質: A=A (4 boxes) size : W 555 × D 420 × H 230 mm
NW : kg GW : kg
inner carton : 50 pcs
材質: A3A (boxes) size : W 400 × D 265 × H 103 mm
NW : kg GW : kg
天地蓋 (材質: A3A): 390 x 255mm(2PCS/箱)

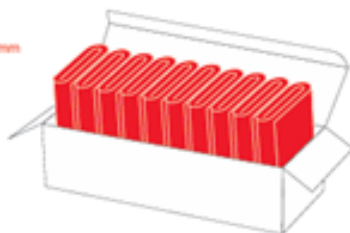
PRODUCT

汽泡袋
本厂标准的模组用汽泡袋

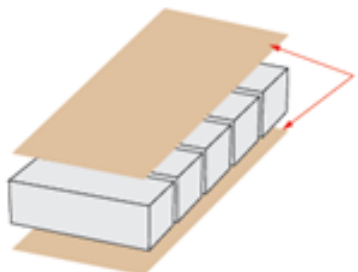


10PCS
模組入白盒

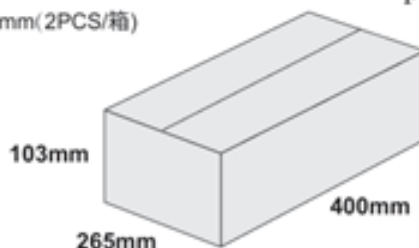
weight:



INNER



390 x 255mm(2PCS/箱)



shipping mark: 4 faces

line:

pcs: 50

OUTER

shipping mark: faces

line:

pcs: 200



230mm

420mm

555mm

Inner Material:

Outer Material: A=A

Designer: Bruce

Coordinate:



Please make sure to get our approval of following issues before you start mass production of the cartons:

- printing of the shipping mark (link color, printing date etc.)
- weight and size of the carton
- fitting between product & Inner carton, Inner carton & outer carton

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14.Statement / 聲明

All rights reserved by LinkCom Manufacturing Co., Ltd. for all of this specification for approval. About warranty, please refer to LinkCom company warranty policy.
