

SPECIFICATION FOR APPROVAL

CUSTOMER: 公司中性品

MODEL NO. : QI2QT-6150A1

PART NO. : ILMQI2QT-6150A1C1-XX-1

MODEL NAME: 15W MPP wireless charger TX module

REVISION: A2

DATE: 2025-05-12

APPROVED SIGNATURES

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- ☒ 聯寶電子股份有限公司
- ☐ 東莞聯寶光電科技有限公司
- ☐ LinkCom USA, Inc.
- ☐ 其他

(Taiwan Headquarter)

5F., No.127, Ln. 235, Baoqiao Rd, Xindian Dist, New Taipei City 231, Taiwan(R.O.C.)

Tel: (886) 2-8919-1380

Fax: (886) 2-8919-1370

E-mail: sales@linkcom.com.tw

(China Plant)

Building 1.No. 21 Huanqi Avenue, Qishi Town, Dongguan City,
Guangdong Province, China 523519

Tel: (86-769) 8678-6368

Fax: (86-769) 8678-8988

E-mail: sales@linkcom.com.tw

Model No.	QI2QT-6150A1	Model Name	15W MPP wireless charger TX module
Part No.	ILMQI2QT-6150A1C1-XX-1	Size	72 ^{±0.3} *53.6 ^{±0.3} *5.81 mm

Product Specification

產品規格書

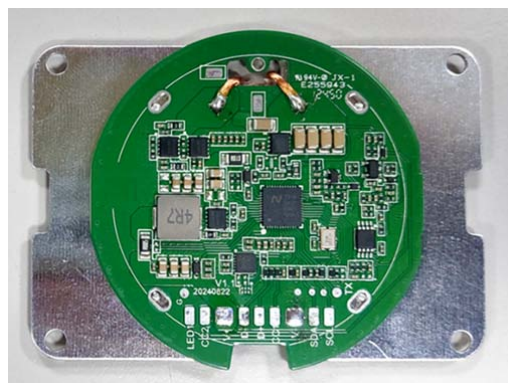
Product name/產品名稱: 15W MPP wireless charger TX module

Model No/ 產品型號: QI2QT-6150A1

File number /文件編號:

Revision/版本號: A2

Date/日期: 2025-05-12



APPROVED BY 批准	CHECKED BY 審核	DESIGNED BY 製作

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Part No.	ILMQI2QT-6150A1C1-XX-1	Size	72 ^{±0.3} *53.6 ^{±0.3} *5.81 mm

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Reversion History/更新記錄

Revision	Date	Changes
A0	2024.11.22	New release
A1	2025.2.21	Update magnetic force、Add audio noise、I2C interface
A2	2025.05.12	Add consumer application description、check sum、 packaging、execution standards. Updates output protocol、dimension.

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1. Product Description/產品描述

QI2QT-6150A1 complies with MPP protocol of 15W magnetic wireless module. The product input supports USB PD 9V/2.22A; 5V/3A and DC power supply 9V/2.22A. The maximum power is 15W, it can support 15W charging power for MPP RX device, and 7.5W fast charging power for Apple non MPP phones, and 5W charging for BPP RX device.

QI2QT-6150A1 module supports LED indicate application. LED indicate application. Developer can connect LED to the module, develop LED indicate product. The product with 7-9N magnetic force

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

QI2QT-6150A1 符合 15W 磁吸無線模組的 MPP 協定。產品輸入支援 USB PD 9V/2.22A；5V/3A 和直流電源 9V/2.22A。最大功率 15W，支援 MPP RX 設備 15W 充電功率，蘋果非 MPP 手機 7.5W 快充功率，BPP RX 設備 5W 充電。

QI2QT-6150A1 模組支援 LED 指示應用。LED 指示應用。開發者可以將 LED 連接到模組上，開發 LED 指示產品。該產品磁力 7-9N。

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

- ◆ Comply with Qi2.0 standard.

符合 Qi2.0 標準

- ◆ Supports charging up to 15W

最高支持到 15W 接收充電

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3. Performance Parameter/性能參數

Item	Parameter
Input Power/輸入功率	USB-C Mode: 9V-2.22A / 5V-3A DC Mode: 9V≥2.22A
Input Protocol/輸入協定	BC1.2/QC/PD protocol function
Standby power/待機功率	<350mW
Efficiency/效率	78% (Max)
Output Protocol/輸出協定	MPP 15W/BPP 5W/7.5W for apple charge/PPDE 10W
Frequency/頻率	BPP:128KHz MPP:360KHz
Coil Type/線圈	MPP, 8.1uH @ 360kHz
Protection/保護	OVP / UVP / OCP / OTP
FOD/異物檢測	Q test (pre-power transfer)/ Power Transfer FOD
Interface Power/介面電源	V+, V-, D+, D-, CC1, CC2
Other/其他	SDA, SCL, LED1,
Audio noise/噪聲規格	The test distance is 15 cm < 30dB (noise spec)
Check sum/軟件版本	V1.1

4. OVP and UVP protection condition/過電壓及欠電壓保護條件

Input OVP Threshold	Input 9V	Trigger:10V ; Recover:9.5V
	Input 5V	Trigger:5.6V ; Recover:5.4V
Input UVP Threshold	Input 9V	Trigger:7.5V ; Recover:8.5V
	Input 5V	Trigger:4.2V ; Recover:4.5V

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5. Input power supply and wireless charger output power comparison table/輸入電源與無線充輸出對照表

Input power supply	Output wireless charger power
DC ≥20W (9V/2.22A)	BPP5W/AFC7.5W/MPP15W
DC ≥12W (5V/2.4A)	BPP5W/AFC7.5W/MPP7.5W
QC 18W (9V/2A)	BPP5W/AFC7.5W/MPP10W
QC 15W (9V/1.67A)	BPP5W/AFC7.5W/MPP10W
PD ≥20W (9V/2.22A)	BPP5W/AFC7.5W/MPP15W
PD 18W (9V/2A)	BPP5W/AFC7.5W/MPP12W
PD 15W (5V/3A)	BPP5W/AFC7.5W/MPP7.5W
BC1.2 12W	BPP5W/AFC3.5W/MPP3.5W
Noted: AFC is apple fast charge.	

6. Environmental characteristic/環境特性

6.1 Operating Temperature and Humidity/工作溫度和濕度

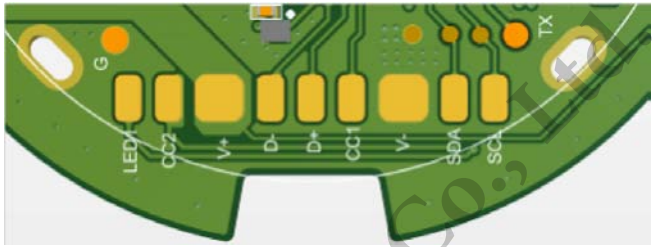
Item	Requirements			
	MIN	TYP.	MAX	Units
Operating Temperature	-10	-	+40	°C
Operating Humidity	10	-	90	%RH

6.2 Store Temperature and Humidity/儲存溫度和濕度

Item	Requirements			
	MIN	TYP.	MAX	Units
Storage Temperature	-20	-	+70	°C
Storage Humidity	5	-	95	%RH

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7. PCBA function/PCBA 功能

Interface	<u>Power pins:</u> V+, V-, D+, D-, CC1, CC2	
	<u>Debug pins:</u> G, SDA, SCL, TX	
	<u>LED pins:</u> LED1	

7.1 Pads definitions/焊點定義

Pin	USB-C cable mode	USB-C Receptacle mode	DC 9V mode
LED1	NC	NC	NC
CC2	NC	USB CC2	NC
V+	VBUS	VBUS	VBUS
D-	USB D-	USB D-	NC
D+	USB D+	USB D+	NC
CC1	USB CC1	USB CC1	NC
V-	GND	GND	GND
SDA	NC	NC	NC
SCL	NC	NC	NC

Note: V+ and V- pads support up to 20AWG wires, the other pads support up to 26AWG wires.

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8. LED light function/ LED 功能說明

User can connect a LED anode to the LED1 pad. There is a 1K Ω resistor connect LED1 pad in TX module, and the high Voltage of this pad is 5V, and the low Voltage of this pad is 0V.

LED1 function LED1功能	Action LED 動作
Power On 上电	LED lights up for 5s then led light goes off 上电后LED亮5秒后熄灭
Standby 待机	Work in standby, led light goes off 待机时, LED不亮
Charging 充电	Work in charging, led light keeps on 充电时, LED保持长亮
Charging Full 充满电	When charging is full, led light goes off (Depending on mobile type) 充满电后灯熄灭(部分手机支持)
Malfunctions 异常	All malfunctions are designed blinking for led on 0.5s and off 0.5s 所有异常状态LED闪烁, 亮0.5s, 灭0.5秒 Malfunctions including FOD, OVP, UVP 异常状态包含FOD, OVP, UVP

9. Appearance Requirements/結構與外觀要求

Please refer to LinkCom's appearance inspection specification.

請參考聯寶電子外觀檢驗規範

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10. Temperature and output power/溫度和輸出功率

There is a NTC resistor inside the module to provide OTP for the module. The module can adjust output power according to the different temperature. It starts to decrease output power when the temperature exceeds 55°C, the output power decreases 1W for every 1°C increases. The module stops running when the temperature exceeds 72°C. It resumes operate when the temperature drops below 55°C.

PCB NTC Temperature (°C)	RX (W)
≤55	15
56	14
57	13
58	12
59	11
60	10
61	9
62	8
63	7
64	6
65	5
66	4
67	3
68	2
69	1or Cloak
70	
71	
72	TX stop

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11. Execution Standards/執行標準

11.1 EMI Standards/電磁相容標準

EN55032

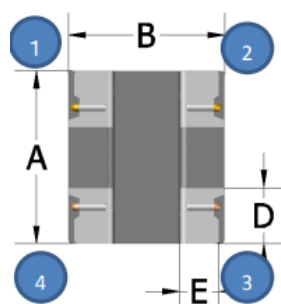
Note: The EMI test should include the actual testing of the enclosure and RX equipment.

備註: EMI 測試需包含外殼與 RX 設備實際測試。

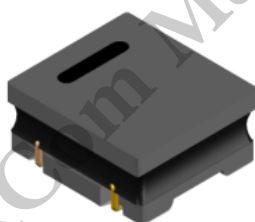
11.2 In order to pass the EMI test, it is recommended to add a common-mode inductor to the power source before connecting it to the module PCBA. The recommended specifications of common mode inductors are as follows, which can be adjusted according to actual conditions:

為了通過EMI測試，電源來源建議外加共模電感再連接至模組PCBA上。共模電感建議規格如下，可依實際狀況做調整：

PACKING DIMENSIONS (mm)



Marking



5045	Dimensions
A	5.0 ± 0.3
B	4.5 ± 0.3
C	2.5 Max.
D	1.6 ± 0.3
E	1.4 ± 0.3

Electrical Characteristics

P/N	Z(Ω) Common Mode	DCR (Ω)	IDC (A)	Rated Voltage	Insulation Resistance	Withstand Voltage
	Impedance at 100MHz	±40%	Max.	Vdc (V)Typ.	IR (MΩ) Min.	Vdc (V)Typ.
PCN5045A-102	1000 Typ.	0.024	3.0	50	10	125

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12. I2C interface/I2C 接口

User can get the Module status or send Power supply capacity of the adapter to the module through I2C.
The Module is configured to be a slave, and the maximum communication frequency is up to 400KHz.
The pull-up voltage can use 3.3V or 5V.

SCL, SDA

V _{IH}	GPIO Logic input high threshold	1.3	V
V _{IL}	GPIO Logic input low threshold	0.6	V
I _{LKG}	Leakage Current	-1	uA
F _{SCL}	Clock Frequency	100	400 kHz

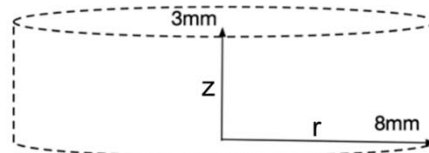
I2C information as below/I2C 資訊如下

Slave Device Addr: 0x71(7bit)													
Read Addr: 0xE3													
Write Addr: 0xE2													
Info Addr (HEX)	Info Name	R/W	D7	D6	D5	D4	D3	D2	D1	D0	Default Value (HEX)	Descriptions	
00	TX_FW_VERSION	R	FW_VERSION									XX	Firmware version of TX, 0x14 means v1.4
01	TX_CHIP_ID	R	CHIP_ID									XX	Hardware version of TX, 0x50 meas v5.0
02	TX_STATUS	R	TX_ERR	OTP	OVP	FOD	RESERVED			STATUS	00	STATUS=1, device present; *STATUS=0*, no device; TX_ERR=1, an error occurred at Tx side, such as FOD, OTP, ...; TX_ERR=0, no error;	
03	RESERVED_0	R	RESERVED										
04	TX_REQUIRED_VOLT_L	R	REQUIRED_VOLT[7:0]									88	unit: mV
05	TX_REQUIRED_VOLT_H	R	REQUIRED_VOLT[15:8]									13	The master should set the voltage to 9V/5V directly.
06	TX_WORKING_VOLT_L	R	WORKING_VOLT[7:0]									88	unit: mV
07	TX_WORKING_VOLT_H	R	WORKING_VOLT[15:8]									13	
08	TX_WORKING_CURRENT_L	R	WORKING_CURRENT[7:0]									00	unit: mA
09	TX_WORKING_CURRENT_H	R	WORKING_CURRENT[15:8]									00	
0A	TX_NTC_TEMPERATURE	R	NTC_TEMPERATURE[7:0]									15	unit: °C
0B	TX_NTC_TEMPERATURE	R	NTC_TEMPERATURE[15:8]									00	
0C	MASTER_MSG	R/W	READY	RESERVED					ADP_TYPE		00	"READY=1", master ready; "READY=0", master not ready; "ADP_TPYPE=0b000", DCP; "ADP_TPYPE=0b001", QC2.0(can support 5V/9V output adapter, but the current capacity is not clear); "ADP_TPYPE=0b010", PD2.0(can support 5V/9V output adapter, and the current capacity is clear); "ADP_TPYPE=0b011", QC3.0_12V/QC3.0_20V; "ADP_TPYPE=others", DCP;	
0D	TX_Q_VALUE	R	Q_VALUE									00	TX QDT value
0E	TX_F_VALUE_L	R	F_VALUE[7:0]									00	unit: 0.1KHz
0F	TX_F_VALUE_H	R	F_VALUE[15:8]									00	
10	MASTER_SEL_ADP_VOLT_L	R/W	MASTER_SEL_ADP_VOLT[7:0]									00	unit: mV
11	MASTER_SEL_ADP_VOLT_H	R/W	MASTER_SEL_ADP_VOLT[15:8]									00	"MASTER_SEL_ADP_VOLT" is the selected voltage value of adapter. The master should send this value before setting the "READY" to 1.
12	MASTER_SEL_ADP_CURRENT_L	R/W	MASTER_SEL_ADP_CURRENT[7:0]									00	unit: mA
13	MASTER_SEL_ADP_CURRENT_H	R/W	MASTER_SEL_ADP_CURRENT[15:8]									00	"MASTER_SEL_ADP_CURRENT" is the selected current value of adapter. The master should send this value before setting the "READY" to 1.

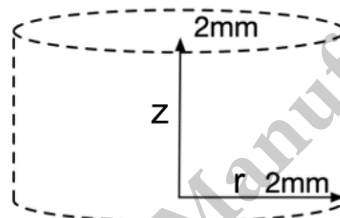
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13. Attentions- Power Delivery/注意事項-功率分配

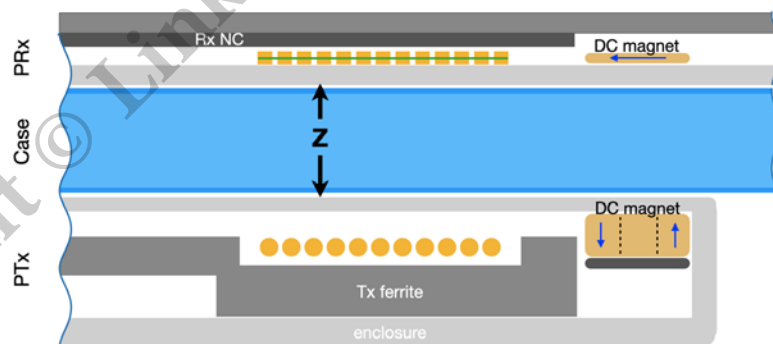
- 13.1 The PTx shall provide a BPP PRx with at least 5W of rectified power for $0\text{mm} \leq z \leq 3\text{mm}$, $0\text{mm} \leq r \leq 8\text{mm}$, see below figure.



- 13.2 The PTx shall provide a MPP PRx with at least 15W of rectified power inside the 2x2 cylinder ($0\text{mm} \leq z \leq 2\text{mm}$, $0\text{mm} \leq r \leq 2\text{mm}$), see below figure.



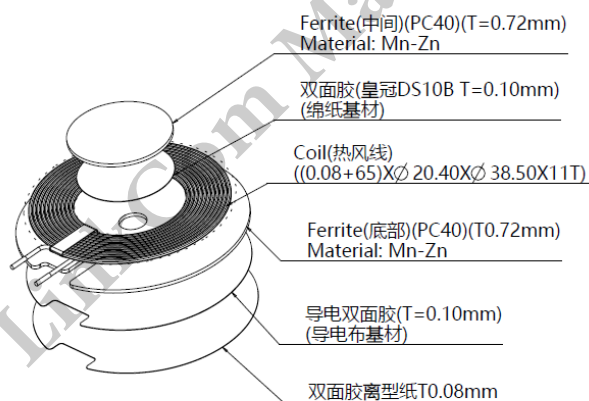
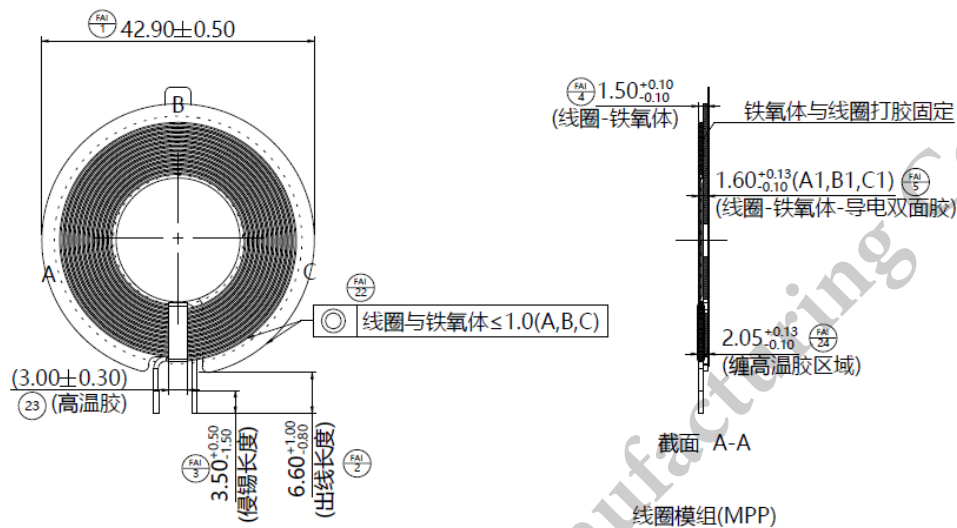
- 13.3 The PTx shall provide a MPP PRx with at least 5W of rectified power for $0 \leq z \leq 3\text{mm}$, $0\text{mm} \leq r \leq 4\text{mm}$



z: distance from transmitter surface to receiver surface
Coil-to-coil distance is larger than z.

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14. Coil and ferrite drawing descriptions/線圈和鐵氧體圖紙說明



Parameter		
IND (100 KHZ/1.0V)	DCR	Q (100 KHZ/1.0V)
8.1uH±5%	70mΩ(Max)	60±10%

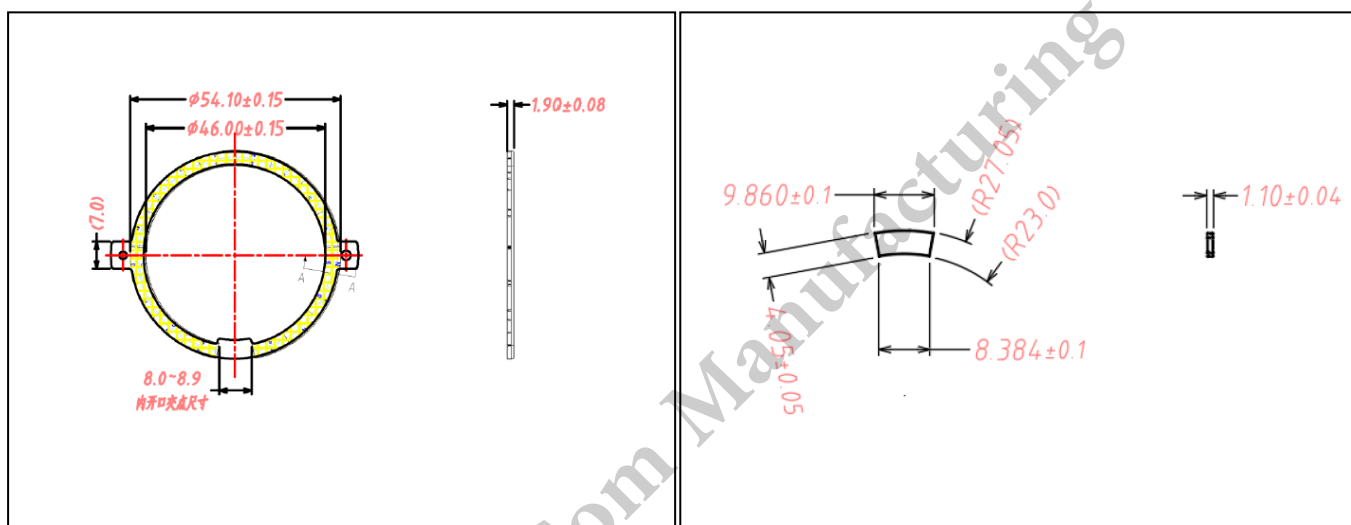
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15. Magnet diagram description/磁鐵圖紙說明

This magnetic module is mainly used in conjunction with the magnetic wireless charging solution. It is composed of 16 customized single-sided bipolar magnets and 1 pre-galvanized magnetic steel sheet.

此磁性模組，主要配合磁吸無線充電方案配套使用，由定制的 16pcs 單面雙極磁鐵和 1pcs 預鍍鋅導磁鋼片組合而成。

15.1 Magnet diagram/磁鐵尺寸圖

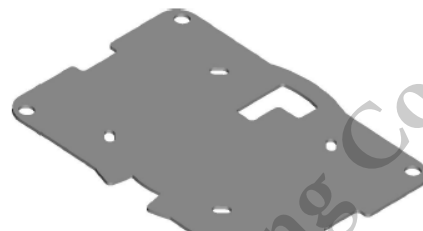
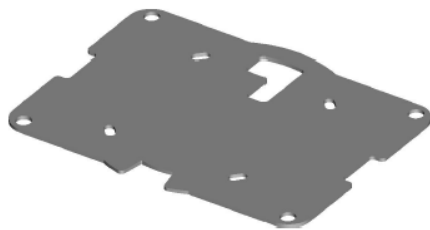


15.2 Magnet performance table/磁鐵性能表

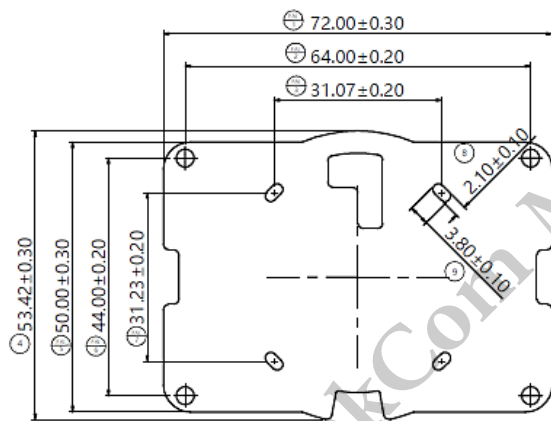
項 目	描 述
原材料	燒結釹鐵硼 NdFeB N48H Br : 13.7~14.1 (KGs) HcB : 13.0 MIN (Koe) Hcj. : 17.0MIN (Koe) BH(max) : 45~48.0 (MG0e)
拉力值 (吸附力)	> 7 N (Interval 0.85mm, according to the specified test method)
極性	單面雙極性，正面磁鋼面朝上/外弧 N 極，內弧 S 極
形狀	弧形磁鐵
表面處理	Nicuni plating 7-15um
高斯值	3300 Gs MIN
數量	16 pcs

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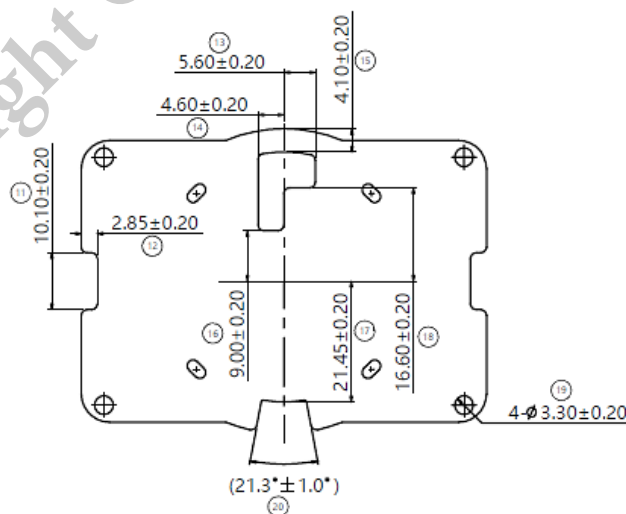
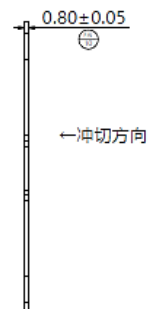
16. Aluminum heat sink gauge Spec/鋁散熱片規格



材質: AL 1060(T=0.80mm)
需清潔去油污

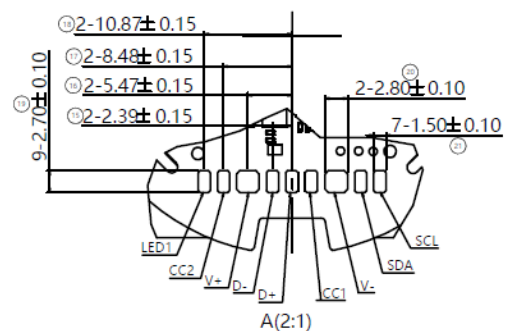
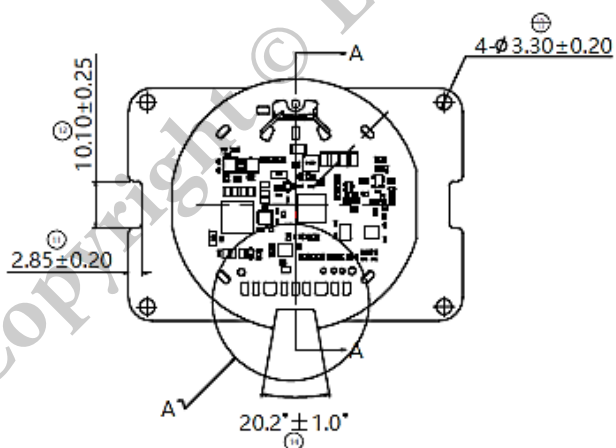
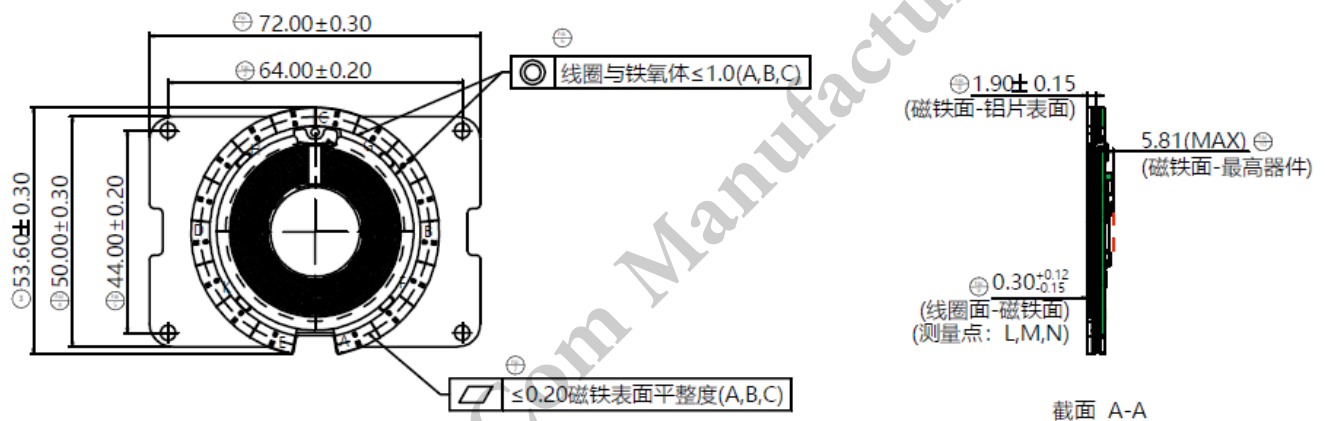
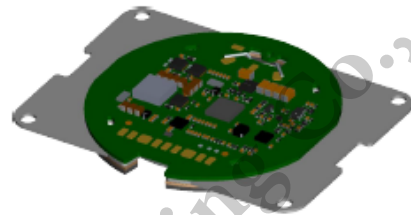
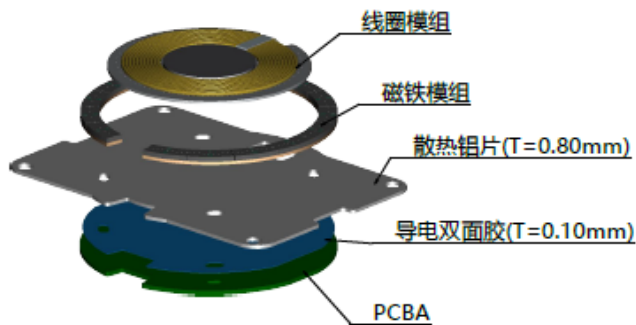


此面是毛刺面



Model No.	QI2QT-6150A1	Model Name	15W MPP wireless charger TX module
Part No.	ILMQI2QT-6150A1C1-XX-1	Size	72 ^{±0.3} *53.6 ^{±0.3} *5.81 mm

17. Module dimension/模組尺寸



18. Weight/重量

1 piece: 33.5±2g

1 Carton/1 箱: 200pcs; Net Weight/淨重: about 6.34kg; Gross Weight/毛重: about 9.5kg

19. Packaging/包裝

2025.05.07

Size:380x350x28mm

A 3D perspective diagram of a rectangular box. The dimensions are labeled with pink arrows and text: the top edge is labeled 'w400mm', the right vertical edge is labeled 'h328mm', and the bottom receding edge is labeled 'd370mm'.

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



LinkCom Manufacturing Co., Ltd.

聯寶電子股份有限公司

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Part No.	ILMQI2QT-6150A1C1-XX-1	Size	72 ^{±0.3} *53.6 ^{±0.3} *5.81 mm

20. Statement/聲明

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