

# **MXX001NC1E.09**

Qi NFC Antenna

DATASHEET Rev. 2.0



## **1. General description**

MXX001NC1E.09 is a double antenna that integrates both Qi coil and NFC antenna. Qi coil is used for inductive wireless charging and NFC antenna for NFC communication.

## 2. Key Features

- Qi wireless power charging 1.5W
- Custom designed double antenna Qi + NFC without cross talking
- Thin coil pattern film
- Thin ferrite sheet

## 3. Antenna Coil Specifications

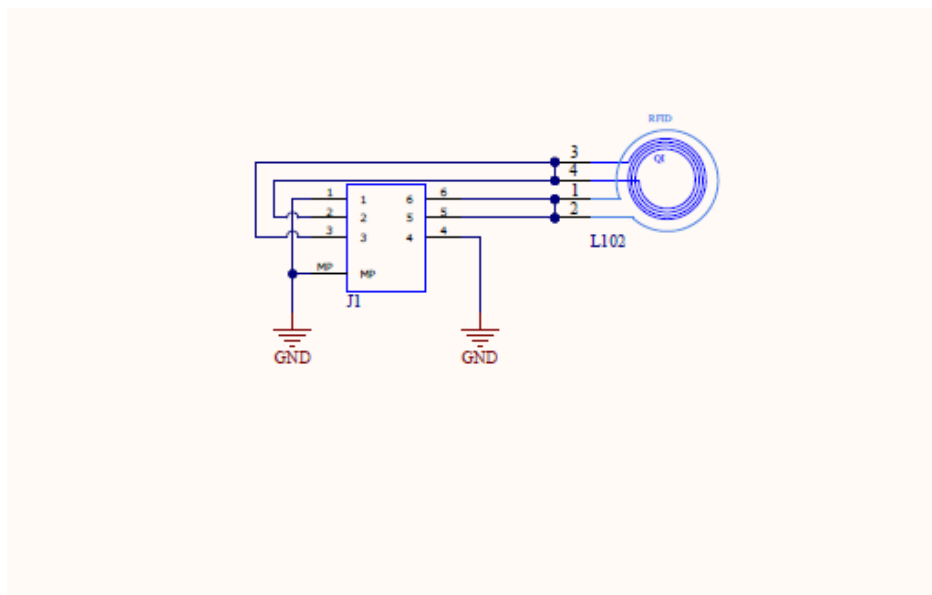
| Antenna | Number of coils | Coil Turns |
|---------|-----------------|------------|
| Qi      | 1               | 18 turns   |
| NFC     | 1               | 3 turns    |

## 4. Connector

| Description              | PN         | Manufacturer |
|--------------------------|------------|--------------|
| Board-to-Board connector | 5035520622 | Molex        |

## Schematic

FS\_QINFC\_rev1.0.0\_V1.0.0



## 6. Gerber

5\_Gerbers\_L102 FS\_QINFC\_rev1.0.0.zip

## 7. Ferrite DMEGC MS1400

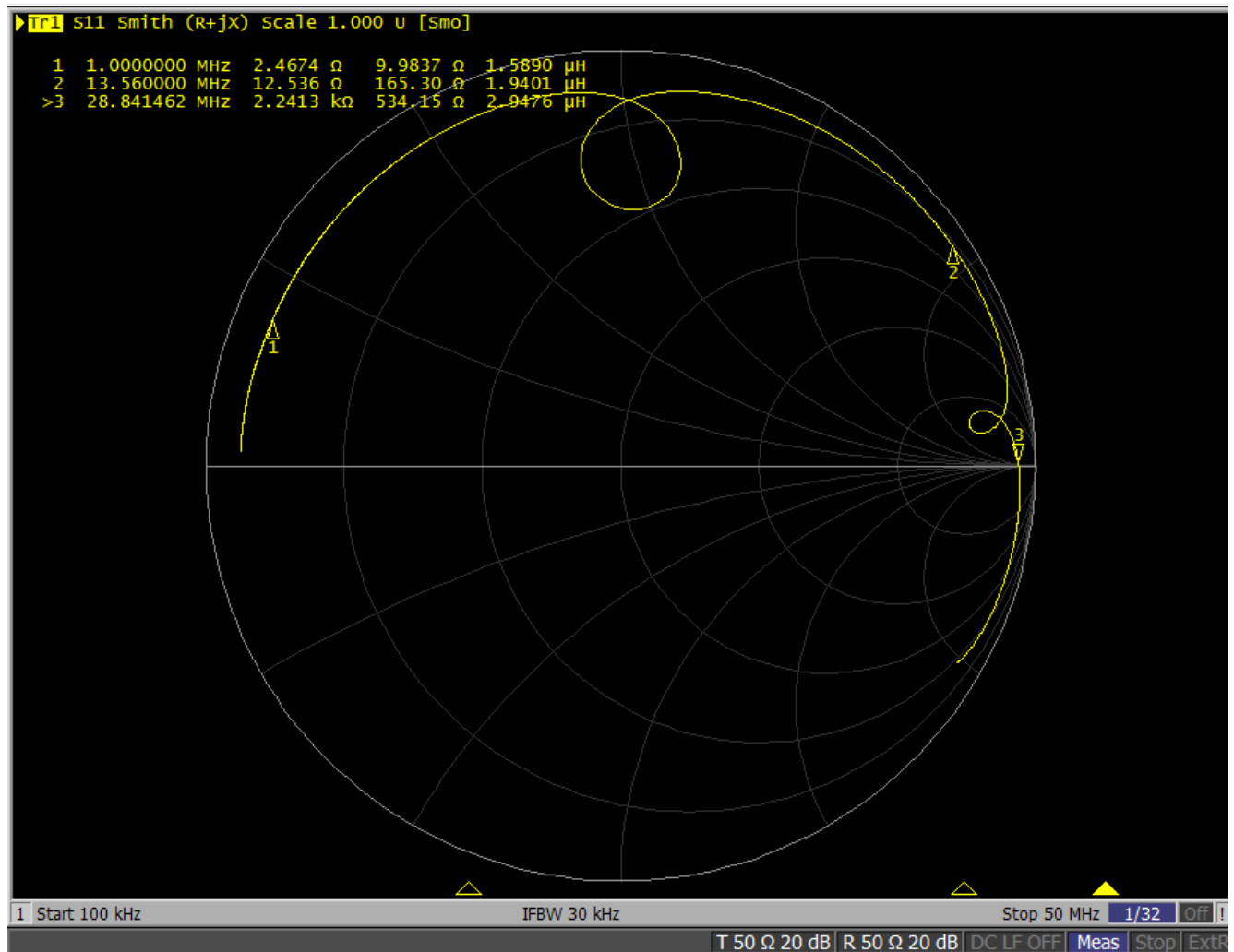
Nanocrystalline material is DMEGC MS1400

| 项目 (Property)                     |         | 单位                | 条件             | 数值               |
|-----------------------------------|---------|-------------------|----------------|------------------|
| 尺寸 (Size)                         |         | mm                | 25°C           | 60×60            |
| 厚度 (Thickness)                    |         | mm                | 25°C           | 0.04~3.0         |
| 磁导率/Permeability                  | $\mu'$  | /                 | 128kHz         | 500-1400         |
|                                   | $\mu''$ | /                 | 128kHz         | <200             |
|                                   | $\mu'$  | /                 | 13.56MHz       | 200-400          |
|                                   | $\mu''$ | /                 | 13.56MHz       | <300             |
| 密度/ Density                       |         | g/cm <sup>3</sup> | 25°C           | 7.18             |
| 表面电阻率/Electrical resistivity      |         | $\rho(\Omega.m)$  | with tape@25°C | >10 <sup>8</sup> |
| 饱和磁感就强度 B/Saturation flux density |         | T                 | 25°C,1600A/m   | 1.2              |
| 工作温度/Operating temperature        |         | °C                | /              | -40~85°C         |
| 环境安全/Environment                  |         | /                 | /              | 符合 ROHS 要求       |

## 8. Electrical characteristics

| Antenna | Rating                        | Typ  | Tolerance | Unit |
|---------|-------------------------------|------|-----------|------|
| Qi      | Inductance Value - @100kHz    | 11.6 | ± 10%     | uH   |
|         | DC resistance                 | 1.7  | max       | Ohm  |
| NFC     | Inductance Value - @13.56 MHz | 1.7  | ± 5%      | uH   |
|         | DC resistance                 | 1.2  | max       | Ohm  |
|         | Resonance frequency           | 36.7 | ± 5%      | MHz  |
|         | Impedance at resonance        | 3000 | ± 10%     | Ohm  |

## 9. Typical reflection parameters



## 12. Assembly notes

### a. Ferrite

Peel off the protection film on the ferrite and place it with the adhesive face on the bottom side of the FPCB following the position tolerances of the 2D drawing.

### b. QR code

Place the QR code sticker on the back side of the antenna (on the ferrite) following the position tolerances of the 2D drawing.

### c. Bending

Use the lines on the FPCB tail as START, MID and FINISH reference for the bending. Take care to bend the tail with the proper radius.

### d. Warning

Make sure the surfaces are clean, without scratches or breaks.

## 13. Packaging

The antennas are packaged in plastic trays and collected in a carton box where each carton box contains up to 23 plastic trays.

| Item       | Dimensions(mm)   | Quantity Antenna (pcs) | Notes                                            |
|------------|------------------|------------------------|--------------------------------------------------|
| Tray       | 390 x 340 x 13.9 | 30                     | Pcs per tray                                     |
| Carton Box | 400*350*250      | 750                    | 25 trays per carton.<br>Carton weight:<br>0.7 kg |

#### 14. Others

|                   |           |
|-------------------|-----------|
| <b>Weight (g)</b> | 2.5 ± 0.5 |
| <b>FPCB color</b> | yellow    |

#### 15. Ordering information

| Prefix | Number | Color | Package | Version |
|--------|--------|-------|---------|---------|
| MXX    | 001    | NC    | 1E      | 09      |

#### 16. Minimum ordering quantity

|            |       |
|------------|-------|
| <b>MOQ</b> | 84000 |
|------------|-------|

#### 17. QR code

The QR code is a 6x6mm sticker, consisting of 25 digits with no empty digit/space within the code. The break down of the digits as follow:

| Vendor Name                 | P/N              | Date Code*      | Version          | S/N (HW version + Drawing Version) |
|-----------------------------|------------------|-----------------|------------------|------------------------------------|
| 1-2 (2 digits)              | 3-13 (11 digits) | 14-18(5 digits) | 19-20 (2 digits) | 21-25 (5 digits)                   |
| EG                          | MXX001NC1E.      | YMMDD           | 09               | 10212**                            |
| EGMXX001NC1E.403130910212** |                  |                 |                  |                                    |

\* The Date code changes with each batch.

\*\* Provided only as an example.

S/N (HW version + Drawing Version): 102 (=L102 HW version) + 12 (=Rev1.2 DRW)

**Appendix A - Revision history**

| Revision number | Date          | Description                                                                                                                                                                                                                               |
|-----------------|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.0             | 14th Mar 2024 | Initial release                                                                                                                                                                                                                           |
| 2.0             | 15th Mar 2024 | Updated for alignment to: <ul style="list-style-type: none"><li>- final drawing;</li><li>- packaging specification;</li><li>- QR code content;</li><li>- stack-up layout;</li><li>- electrical parameters;</li><li>- Shelf Life</li></ul> |



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