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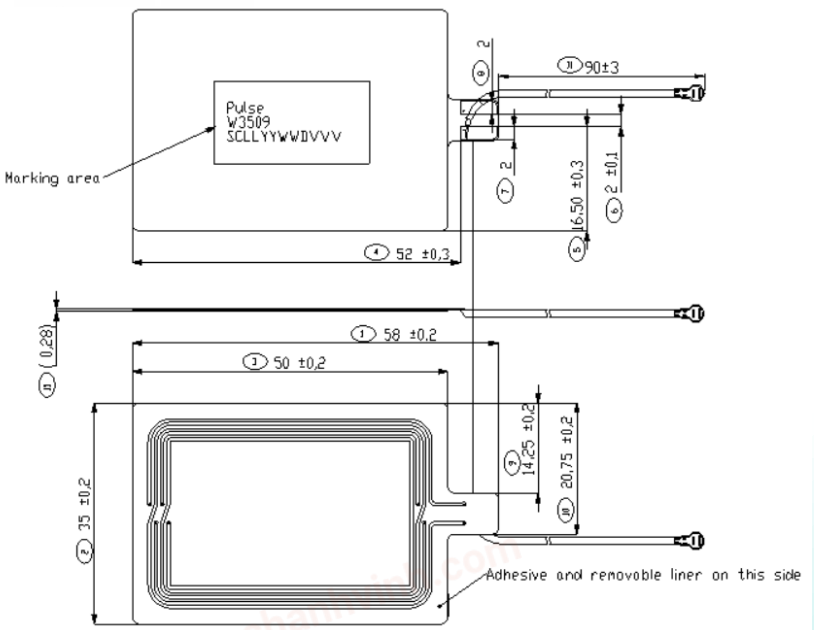
TECHNICAL DATA SHEET

# Description: 13.56MHz NFC Ferrite Antenna with coax feed and U.FL connector

## Series: NFC Antenna

**PART NUMBER: W3509**






## Features:

- Flex PCB antenna
- Coax cable feed with U.FL connector
- Ferrite sheet to enable operation on top of metallic surface
- Mounting with adhesive tape (included)

## Applications:

- Near Field Communication
- Pairing, Sharing
- Connection to RFID tags
- Payment, EMVCo
- Phones, Infotainment, PoS terminals, Toys, Asset Tracking

Issue: 1910

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TECHNICAL DATA SHEET

**Description: 13.56MHz NFC Ferrite Antenna with coax feed and U.FL connector**

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## ELECTRICAL SPECIFICATIONS

| | |
|---|---|
| Frequency * | 13.56 MHz |
| Reading Distance (EMVCo) * | 40 mm |
| Reading Distance (Grid Scan avg) * | 29 mm |
| Impedance * | 50 Ohm |
| Self Resonance Frequency ** | 32 MHz |
| Inductance @ 1MHz ** | 1.8 uH |
| Resistance @ 1MHz ** | 0.9 Ohm |
| Q-Factor ** | 35.9 |
| Matched Q-Value *** | 5-30 |

Note:

- Electrical characteristics depend from distance of metal objects and the location of the antenna on the device
- Data shown in above table is measured in free space

* With matching network

** Bare coil without any matching network

*** With matching network adjustable. Typical network picture refer to page 3



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TECHNICAL DATA SHEET

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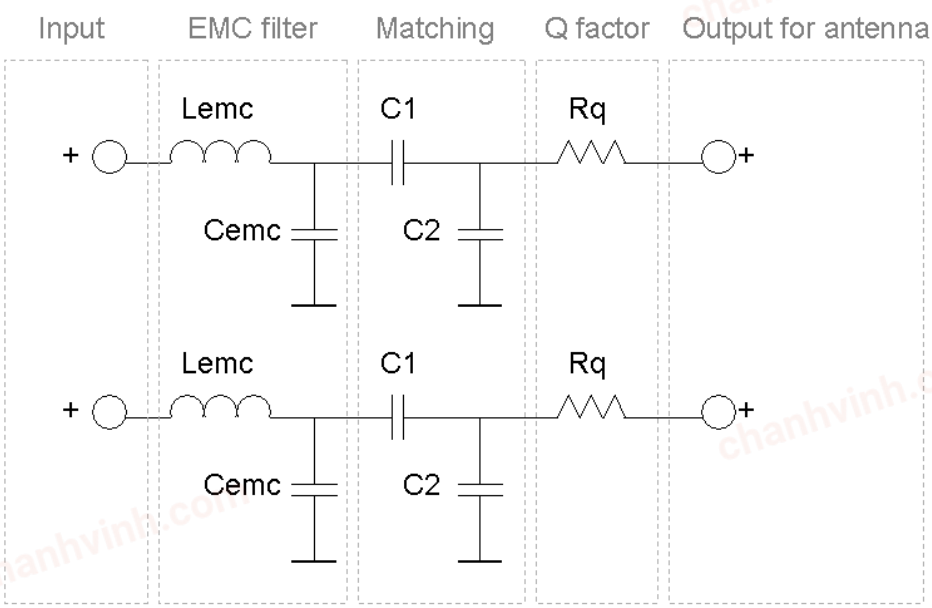
**Series: NFC Antenna**

**PART NUMBER: W3509**

## ELECTRICAL SPECIFICATIONS

### Recommended matching network

| Component | Value | Note |
|---|---|---|
| Lemc | 560 nH | Filter resonance at 15.4 MHz |
| Cemc | 180 pF | Filter resonance at 15.4 MHz |
| C1 | 22 pF | Antenna matching component, value depends on the antenna environment Antenna matching |
| C2 Includes C2a and C2b values) | 132 pF | Antenna matching component, value depends on the antenna environment Antenna matching |
| Rq | 0Ohm | Rq resistors used to lower Q-value |






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TECHNICAL DATA SHEET

**Series: NFC Antenna**

# Description: 13.56MHz NFC Ferrite Antenna with coax feed and U.FL connector

**PART NUMBER: W3509**

## MECHANICAL SPECIFICATIONS

| | |
|---|---|
| Color | Black |
| Weight | 1.7 g |
| Coil + ferrite dimensions + tape | 1.38x1.97x0.012 in<br>(35x50x0.30) mm |
| Cable length | 3.54 (90) in/mm |
| Cable type | 1.13mm OD mini coax |
| Connector | U.FL compatible |
| Fixing system | Adhesive tape |

## ENVIRONMENTAL SPECIFICATIONS

| | |
|---|---|
| Operating temperature | -40 to +85 ° C |



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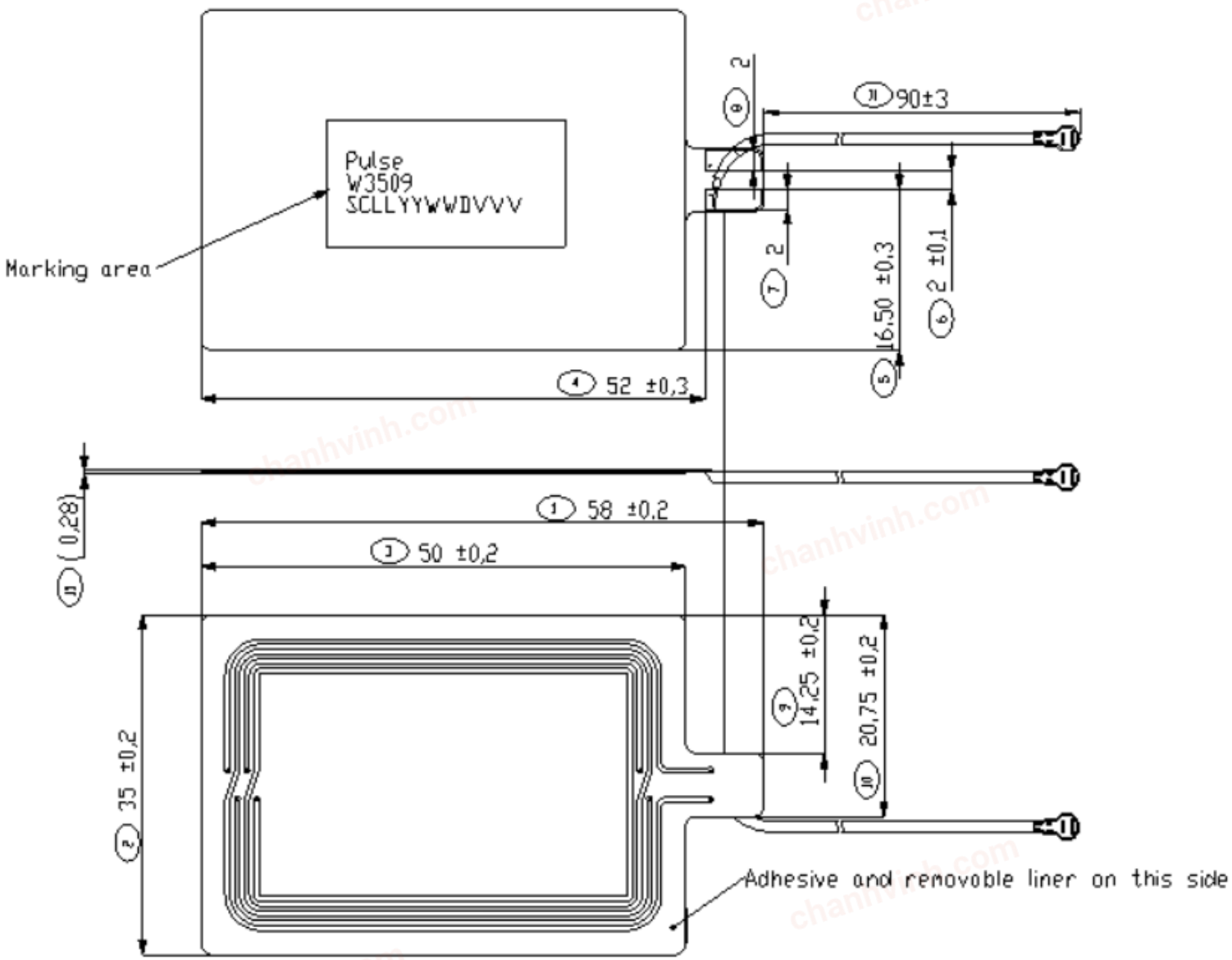
TECHNICAL DATA SHEET

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## MECHANICAL DRAWING






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TECHNICAL DATA SHEET

**Description: 13.56MHz NFC Ferrite Antenna with coax feed and U.FL connector**

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## OTHER SPECIFICATIONS

**Mounting of NFC Antenna:**

1. Recommend mounting of NFC antenna: Inside surface of device cover
2. Surface texture of face of joint: VDI 3400 N0. 24 (Ra 1.6) of equal
3. Double-curvature on face of joint are not recommended

## PACKAGING

Pack 100pcs antennae in sealed PE bag, 10 bags in one box


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