



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of "Quality Parts,Customers Priority,Honest Operation,and Considerate Service",our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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

**Series: NFC Antenna**

**PART NUMBER: W3509**

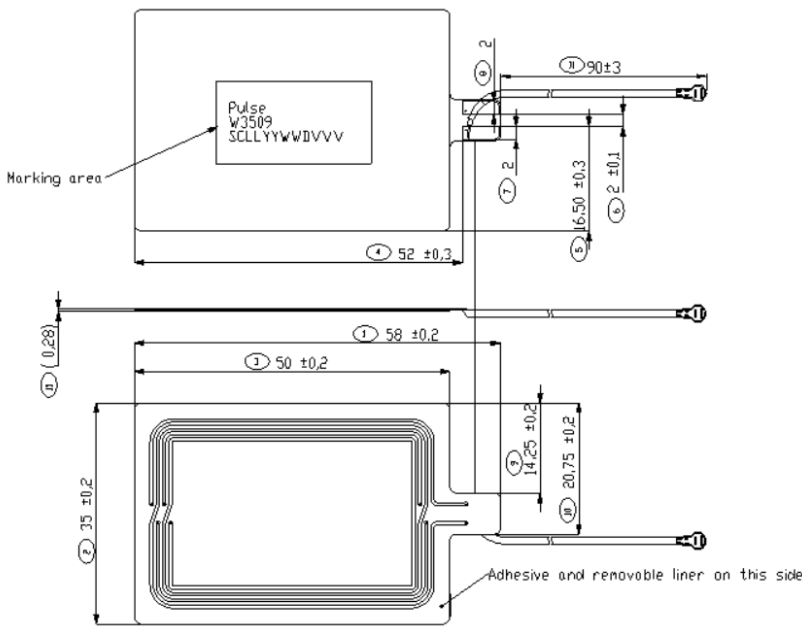


**Features:**

- 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: 1634P

In the effort to improve our products, we reserve the right to make changes judged to be necessary.

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Preliminary



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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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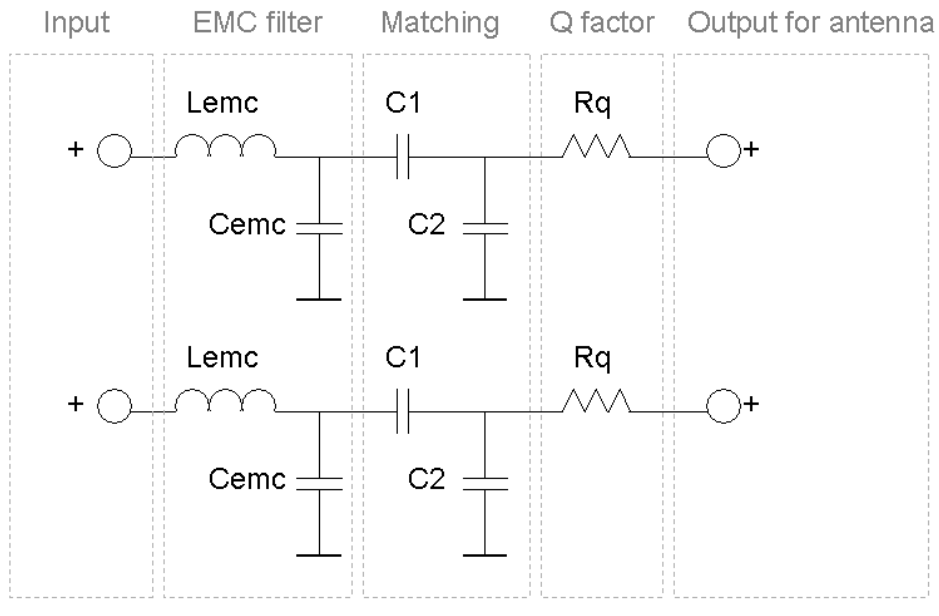
**Series: NFC Antenna**

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**ELECTRICAL SPECIFICATIONS**

**Recommended matching network**

| Component                           | Value  | Note  |
|-------------------------------------|--------|---|
| L <sub>emc</sub>                    | 560 nH | Filter resonance at 15.4 MHz  |
| C <sub>emc</sub>                    | 180 pF | Filter resonance at 15.4 MHz  |
| C1                                  | 22 pF  | Antenna matching component, value depends on the antenna environment Antenna matching |
| C2<br>(Includes C2a and C2b values) | 132 pF | Antenna matching component, value depends on the antenna environment Antenna matching |
| R <sub>q</sub>                      | 00hm   | R <sub>q</sub> resistors used to lower Q-value  |



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## 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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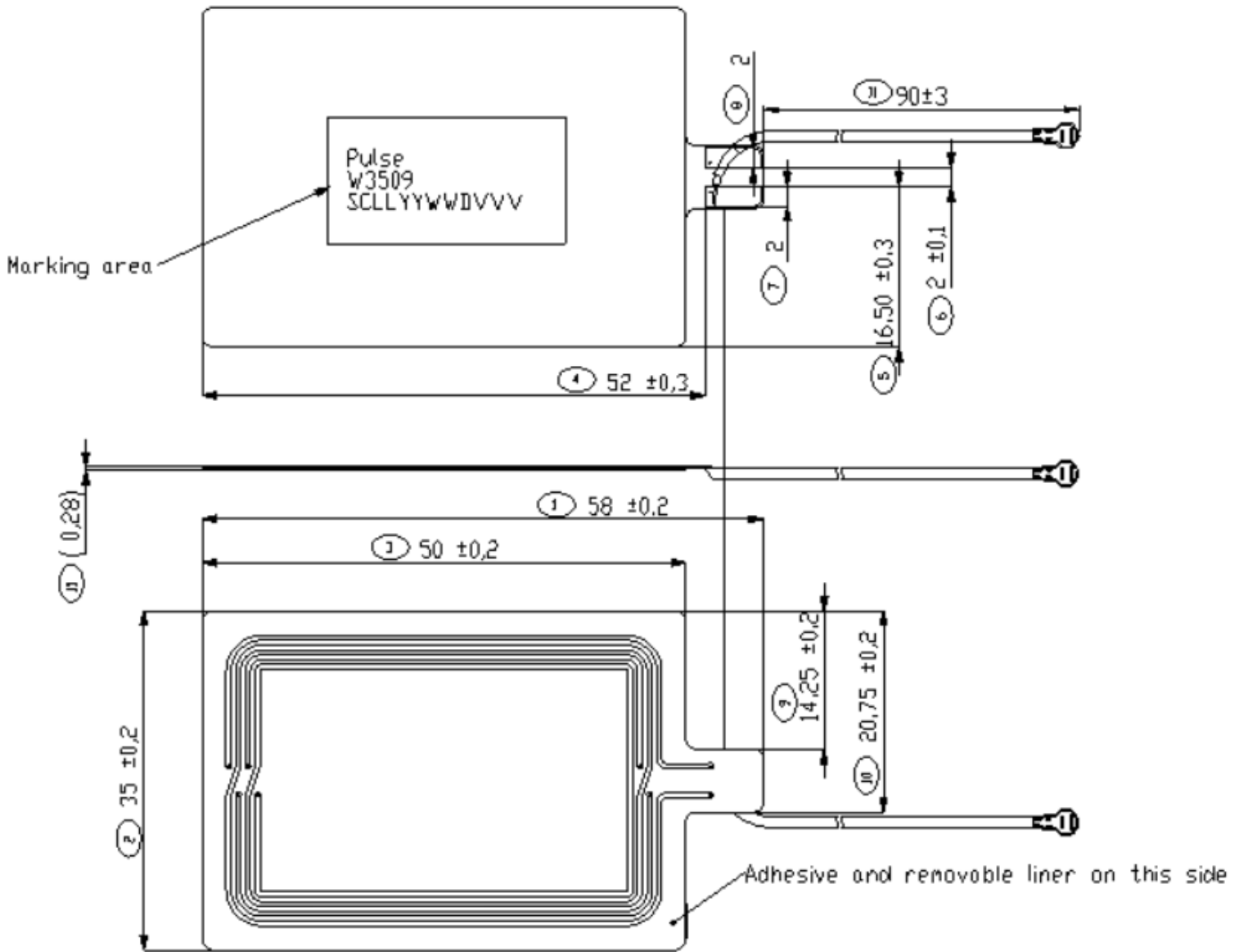


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MECHANICAL DRAWING



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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 NO. 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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