# Small Planar NFC Antenna with Ferrite

*Pulse Part Number W7013*




The W7013 is a flexible Near Field Communication (NFC) antenna ideal for tight-space embedded products such as tablets, laptops, printers and other unique system using NFC technology. It is intended for pairing and sharing modes typically found in non-payment NFC applications.

The W7013 has a semi-flexible sintered ferrite backing designed to optimize magnetic fields, thus increasing the corresponding field strength of the antenna. The W7013 is a thin, flexible antenna which can be fed with customer-supplied interconnect cables by using direct-solder methods or with the use of Pulse's own interface connections. Mounting the antenna is easily accomplished using the thin but aggressive holding adhesive backing. Recommended for mounting on the inside of battery covers, directly onto PCB or metal surfaces, or locations where the antenna will be on or in close proximity to ground planes or displays.

**Features**
- Excellent performances on metal surfaces
- Thin, semi-flexible structure
- Easily assembles to device covers or mechanics
- Well-known antenna concept, reliable technology
- RoHS compliant product

**Applications**
- Mobile devices
- Reader / Writer devices
- Sharing / pairing

## Electrical Specifications

| | |
|---|---|
| Frequency [MHz]* | 13.56 |
| Reading Distance on Ground [mm]* | 20 - 25<br>Grid Scan (avg) |
| Impedance [Ω]* | 50 / 80 |
| Self Resonance Frequency [MHz]** | 71.5 |
| Inductance [µH]** | 1.05 |
| Resistance [Ω]** | 2.7 |
| Q-Factor** | 33 |
| Matched Q Value*** | 5-25 |

## Environmental Specifications

| | |
|---|---|
| Operating Temperature [°C] | -40 to +85 |

## Mechanical Specifications

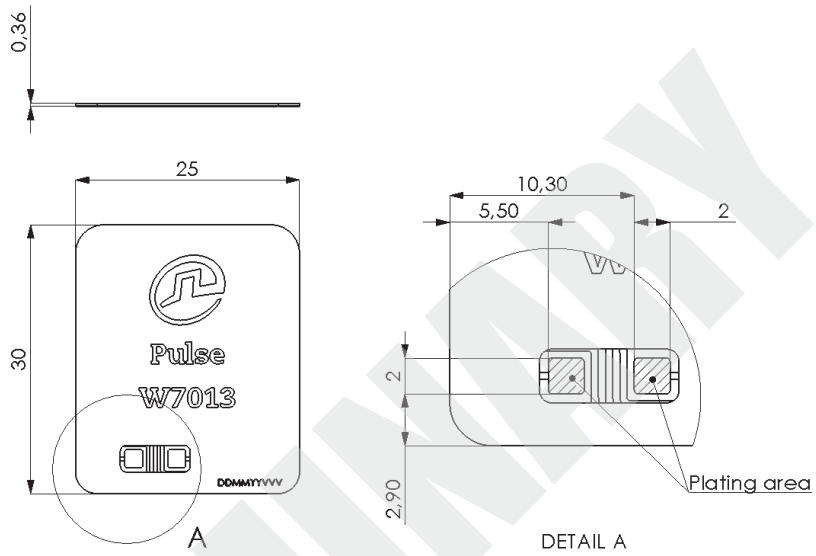
| | |
|---|---|
| Color | Black |
| Dimensions [in/mm] | 1.18 x 0.98 x 0.01<br>(30 x 25 x 0.36) |

**NOTE**: Electrical characteristics depend on distance from metal objects and the location of the antenna on the device. Measured in free space
* With matching network
** Bare coil without any matching network
*** With matching network (adjustable). Typical network picture refer to page 2.

PRELIMINARY

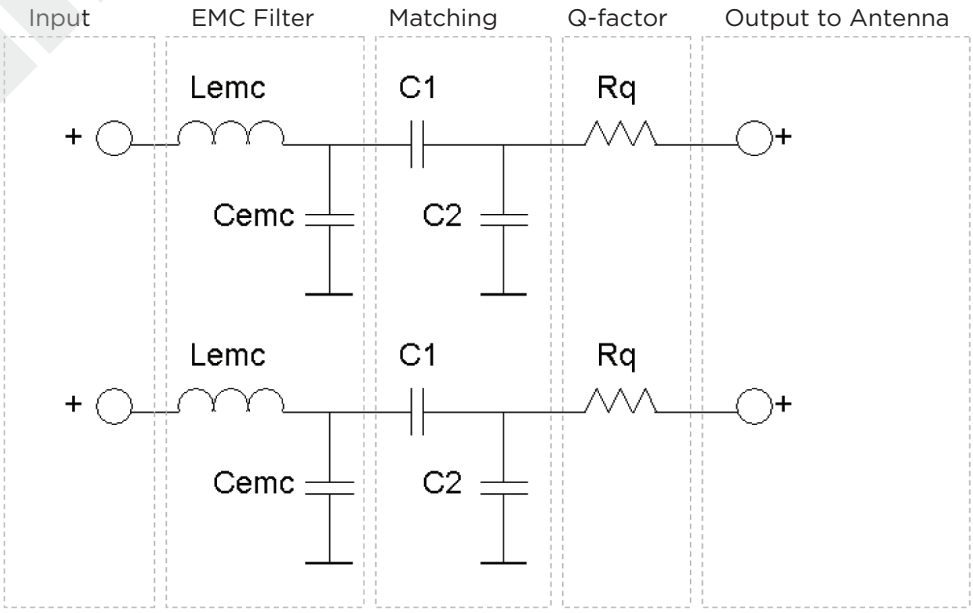
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**Recommended matching network**

| Component | Value | Note |
|---|---|---|
| Lemc | 560 nH | Filter resonance at 15.4 MHz |
| Cemc | 180 pF | Filter resonance at 15.4 MHz |
| C1 | 36 pF | Antenna matching component, value depends on the antenna environment Antenna matching |
| C2 | 124 pF | Antenna matching component, value depends on the antenna environment Antenna matching |
| Rq | 0 Ohm | Rq resistors used to lower Q-value if above 35 |




PRELIMINARY