

Pulse Part Number W7002



The W7002 is a wire loop on plastic carrier product ideal for integration into products such as payment terminal devices or security access and control panels. By design, this antenna can be mounted around LCD or other types of displays, or placed around numeric keypads or control keypads.

The W7002 offers mounting features for machine screws or, with a partnered design approach, snapped into position using snap features. This part can be quickly changed to meet the needs of end-product by changing form-factor, and feeding mechanism.

### Features

- Optimized for metal proximity within the device
- LCD module can be placed inside the antenna perimeter
- Ready mounting features to device mechanics
- Well-known antenna concept ready for production
- RoHS compliant product

### Applications

- Portable and fixed devices
- Payment, sharing, pairing and connect to tags

### Standards

- ISO/IEC 14443 A / B (MIFARE)
- ISO/IEC 18092
- JIS X 6319-4/FeliCa)
- NFCIP-1 / ECMA 3-40

## Electrical Specifications

|                                  |                                |
|----------------------------------|--------------------------------|
| Frequency [MHz]*                 | 13.56                          |
| Reading Distance [mm]*           | 40 EMVCo<br>35 Grid Scan (avg) |
| Impedance [ $\Omega$ ]*          | 50 / 80                        |
| Self Resonance Frequency [MHz]** | 89                             |
| Inductance [ $\mu$ H]**          | 0.65                           |
| Resistance [ $\Omega$ ]**        | 0.95                           |
| Q-Factor**                       | 57                             |
| Matched Q Value***               | 5-30                           |

## Environmental Specifications

|                                       |            |
|---------------------------------------|------------|
| Operating Temperature [ $^{\circ}$ C] | -40 to +85 |
|---------------------------------------|------------|

## Mechanical Specifications

|                    |  |
|--------------------|--|
| Color              | Black                                      |
| Dimensions [in/mm] | 3.72 x 2.24 x 0.14<br>(94.6 x 56.8 x 3.65) |

**NOTE:** Electrical characteristics depend on distance from metal objects and the location of the antenna on the device. Measured in free space

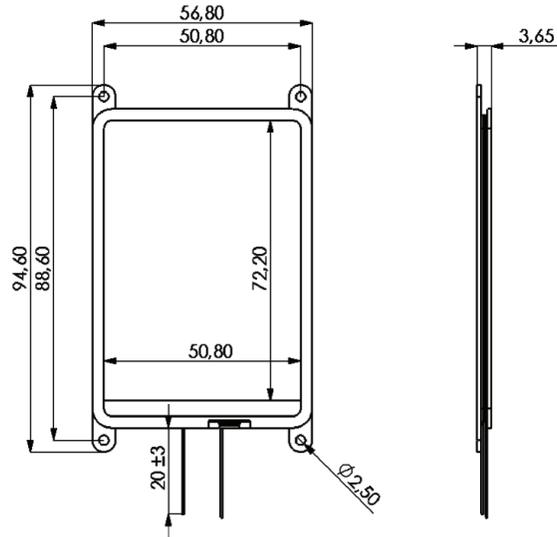
\* With matching network

\*\* Bare coil without any matching network

\*\*\* With matching network (adjustable). Typical network picture refer to page 2.

# NFC Wire Loop Antenna

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## Recommended matching network

| Component       | Value  | Note  |
|-----------------|--------|---|
| L <sub>mc</sub> | 560 nH | Filter resonance at 15.4 MHz  |
| C <sub>mc</sub> | 180 pF | Filter resonance at 15.4 MHz  |
| C1              | 25 pF  | Antenna matching component, value depends on the antenna environment Antenna matching |
| C2              | 180 pF | Antenna matching component, value depends on the antenna environment Antenna matching |
| R <sub>q</sub>  | 0 Ohm  | R <sub>q</sub> resistors used to lower Q-value  |

