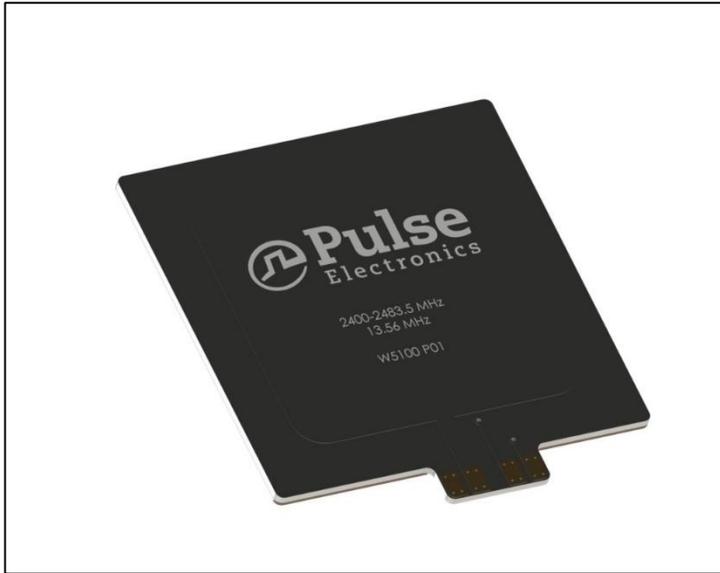


**Description:** On-ground BLE/NFC combo

**Series:** Embedded Antenna

**PART NUMBER:** W5100

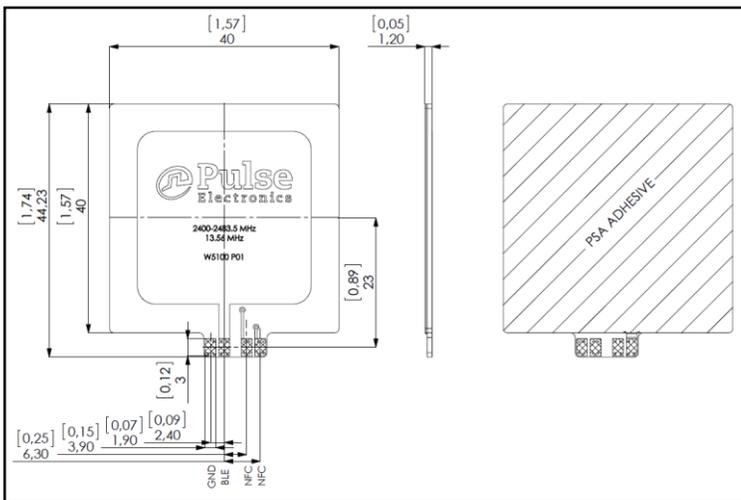


**Features:**

- Own feed ports for 2.4GHz and NFC 13.56MHz
- Ultra thin 1.2mm
- Surface area 40x40mm
- Operates on top of metal ground plane
- Mounting with adhesive tape

**Applications:**

- Devices using 2.4GHz radios and 13.56MHz NFC connectivity
- BLE, Bluetooth, Zigbee, ISM 2.4GHz
- Pairing, sharing



All dimensions are in mm / inches

Issue: 1613

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

CONFIDENTIAL AND PROPRIETARY INFORMATION

This document contains confidential and proprietary information of Pulse Electronics, Inc. (Pulse) and is protected by copyright, trade secret and other state and federal laws. Its receipt or possession does not convey any rights to reproduce, disclose its contents, or to manufacture, use or sell anything it may describe. Reproduction, disclosure or use without specific written authorization of Pulse is strictly forbidden.

For more information:

Pulse Worldwide Headquarters  
12220 World Trade Drive  
San Diego, CA 92128  
USA  
Tel: 1-858-674-8100

Pulse/Larsen Antennas  
3611 NE 112<sup>th</sup> Ave  
Vancouver, WA 98682  
USA  
Tel: 1-360-944-7551

Europe Headquarters  
Pulse GmbH & Do, KG  
Zeppelinstrasse 15  
Herrenberg, Germany  
Tel: 49 7032 7806 0

Pulse (Suzhou) Wireless Products Co, Inc.  
99 Huo Ju Road(#29 Bldg,4<sup>th</sup> Phase  
Suzhou New District  
Jiangsu Province, Suzhou 215009 PR China  
Tel: 86 512 6807 9998



**Description:** On-ground BLE/NFC combo**Series:** Embedded Antenna**PART NUMBER:** W5100**ELECTRICAL SPECIFICATIONS**

Frequency P1	2400-2483.5 MHz
Frequency P2	13.56 MHz
P1 nominal Impedance	50Ω
P1 VSWR	<3:1
P1 Gain in free space	-1dBi
P1 Gain over metal plate	1dBi
P2 Inductance in free space	0.95μH
P2 Q-value in free space	44
P2 Self Resonant Frequency in free space	65.9MHz
P2 Inductance over metal plate	0.92μH
P2 Q-value over metal plate	33
P2 Self Resonant Frequency over metal plate	63.9MHz
Connector type	Contact pads

Issue: 1613

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

CONFIDENTIAL AND PROPRIETARY INFORMATION

This document contains confidential and proprietary information of Pulse Electronics, Inc. (Pulse) and is protected by copyright, trade secret and other state and federal laws. Its receipt or possession does not convey any rights to reproduce, disclose its contents, or to manufacture, use or sell anything it may describe. Reproduction, disclosure or use without specific written authorization of Pulse is strictly forbidden.

**Description:** On-ground BLE/NFC combo**Series:** Embedded Antenna**PART NUMBER:** W5100**MECHANICAL SPECIFICATIONS**

Color	Black
Weight	4.6 g
Fixing system	Pressure sensitive adhesive

**ENVIRONMENTAL SPECIFICATIONS**

Operating temperature	-40 to 85°C
Storage temperature	MIL STD 810G: 24h at 85°C and 24h at -40°C
Temperature shock	MIL STD 810G: Method 503.5, -40 for 1 hr to +85 C for 1 hr @ 15 deg.C/min rate of change; 3 cycles
Humidity	MIL STD 810G: 24h at 60°C and 95%RH
Drop test	Top, bottom, side. 3 times/orientation, 40"

Issue: 1613

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

CONFIDENTIAL AND PROPRIETARY INFORMATION

This document contains confidential and proprietary information of Pulse Electronics, Inc. (Pulse) and is protected by copyright, trade secret and other state and federal laws. Its receipt or possession does not convey any rights to reproduce, disclose its contents, or to manufacture, use or sell anything it may describe. Reproduction, disclosure or use without specific written authorization of Pulse is strictly forbidden.

Description: On-ground BLE/NFC combo

Series: Embedded Antenna

PART NUMBER: W5100

MECHANICAL DRAWING

**NOTES: UNLESS OTHERWISE SPECIFIED**  
 1. INTERPRET THIS SPECIFICATION PER PULSE PQ: 7.004.000 AND STANDARDS REFERENCED THEREIN.  
 2. VISUAL QUALITY PER PULSE PQ: 6.030.000 CLASS III  
 3. PRODUCT IS FREE FROM FINGERPRINTS, DUST, GREASE OR SIMILAR EXTERNAL AGENTS  
 4. DIMENSIONS WITH \* ARE FOR INSPECTION, ONLY DIMENSIONS WITH DIMENSION NUMBER NEED TO BE MEASURED

**Exploded View Labels:**  
 1: Antenna PCB  
 2: Ground plane  
 3: Protective cover  
 4: Mounting bracket  
 5: Back cover

Item	Drawing number	Name of Part	Part Number	Standard Catalogue	Material	Dimensions	Pcs
5	075-0465-001	Copper tape					1
4	075-0463-001	ISBITE					1
3	075-0468-001	ISBITE					1
2	025-41-01-001	Fiber					1
1	025-41-01-001	BLE/NFC PCB					1

**Functional Characteristics:**  
 Please specify the number required, total 0 pcs.  
 Process capability studies required and ongoing statistical process control required, total 0 pcs.

**Material Application:**

**Assembly:**

**Notes:**  
 Please follow Pulse limits of hazardous substances (RoHS, Halogen) in the document Pulse hazardous substances (HS) sheet.

**REVISION:**  
 W5100  
 REV: 001

**Document number:** W5100  
**Part name:** D01  
**Document Part no.:** 01

**Scale:** 2:1 (A2)

**Sheet number:** 1/2  
**General tolerance:**  
**Customer number:**  
**Drawn:** jef  
**Checked:**  
**Approved:**

Issue: 1613

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

CONFIDENTIAL AND PROPRIETARY INFORMATION

This document contains confidential and proprietary information of Pulse Electronics, Inc. (Pulse) and is protected by copyright, trade secret and other state and federal laws. Its receipt or possession does not convey any rights to reproduce, disclose its contents, or to manufacture, use or sell anything it may describe. Reproduction, disclosure or use without specific written authorization of Pulse is strictly forbidden.

**Description:** On-ground BLE/NFC combo

**Series:** Embedded Antenna

**PART NUMBER:** W5100

### OTHER SPECIFICATIONS

Test setup over metal (80x80mm<sup>2</sup>). Material Ni plated steel  
Antenna contact points shown for BLE(P1) and NFC (P2)



Issue: 1613

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

CONFIDENTIAL AND PROPRIETARY INFORMATION

This document contains confidential and proprietary information of Pulse Electronics, Inc. (Pulse) and is protected by copyright, trade secret and other state and federal laws. Its receipt or possession does not convey any rights to reproduce, disclose its contents, or to manufacture, use or sell anything it may describe. Reproduction, disclosure or use without specific written authorization of Pulse is strictly forbidden.

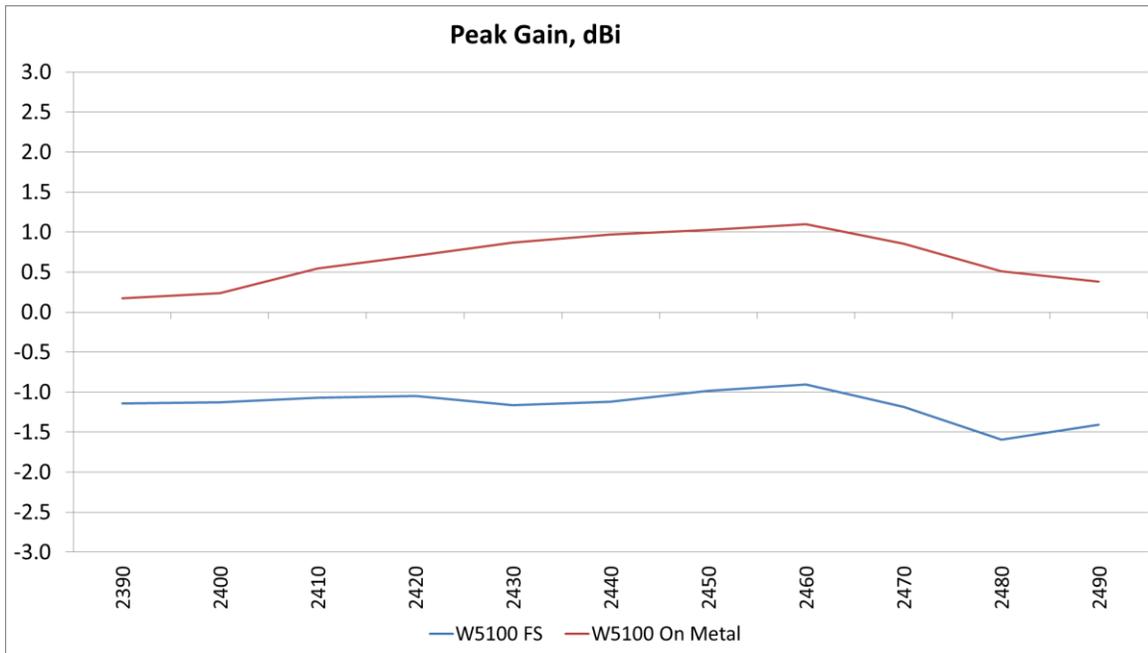
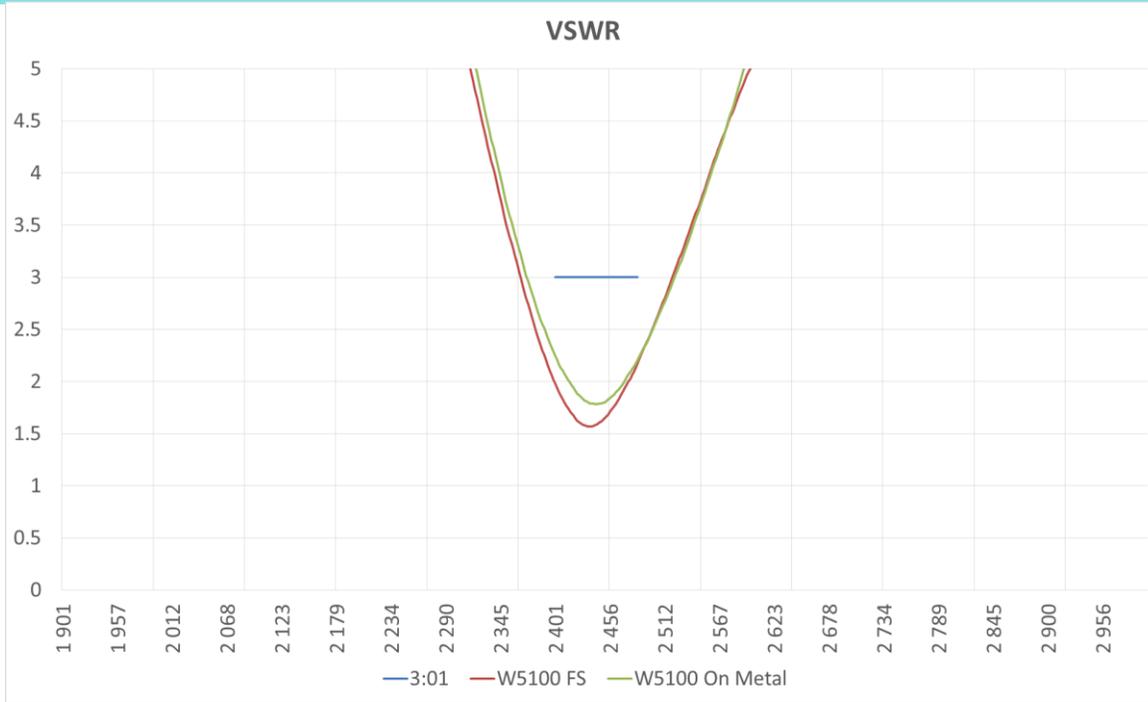
Description: On-ground BLE/NFC combo

Series: Embedded Antenna

PART NUMBER: W5100

CHARTS

P1



Issue: 1613

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

CONFIDENTIAL AND PROPRIETARY INFORMATION

This document contains confidential and proprietary information of Pulse Electronics, Inc. (Pulse) and is protected by copyright, trade secret and other state and federal laws. Its receipt or possession does not convey any rights to reproduce, disclose its contents, or to manufacture, use or sell anything it may describe. Reproduction, disclosure or use without specific written authorization of Pulse is strictly forbidden.



Description: On-ground BLE/NFC combo

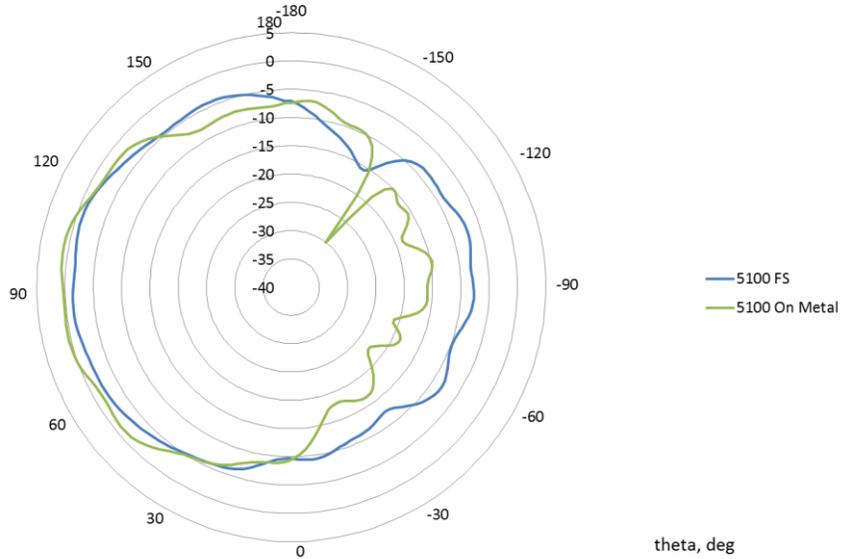
Series: Embedded Antenna

PART NUMBER: W5100

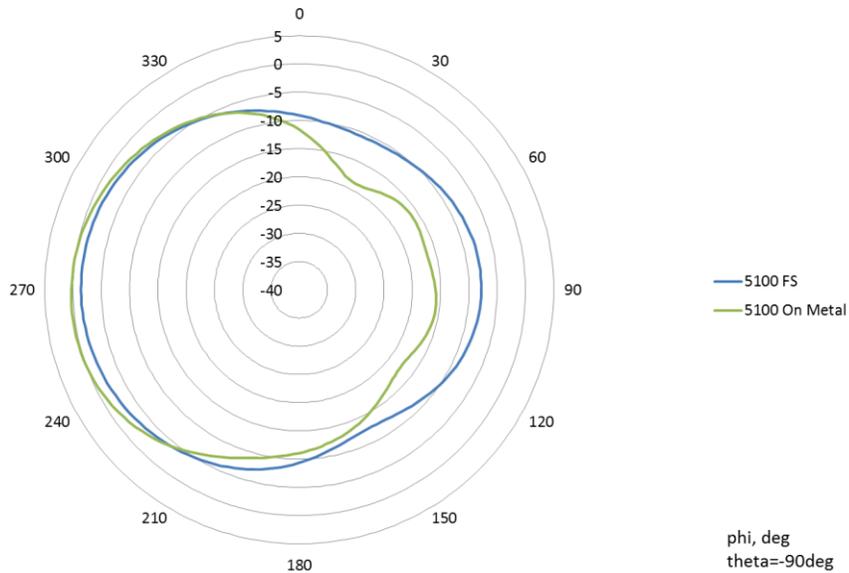
CHARTS

P1

Vertical plane



Horizontal plane



Issue: 1613

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

CONFIDENTIAL AND PROPRIETARY INFORMATION

This document contains confidential and proprietary information of Pulse Electronics, Inc. (Pulse) and is protected by copyright, trade secret and other state and federal laws. Its receipt or possession does not convey any rights to reproduce, disclose its contents, or to manufacture, use or sell anything it may describe. Reproduction, disclosure or use without specific written authorization of Pulse is strictly forbidden.

Description: On-ground BLE/NFC combo

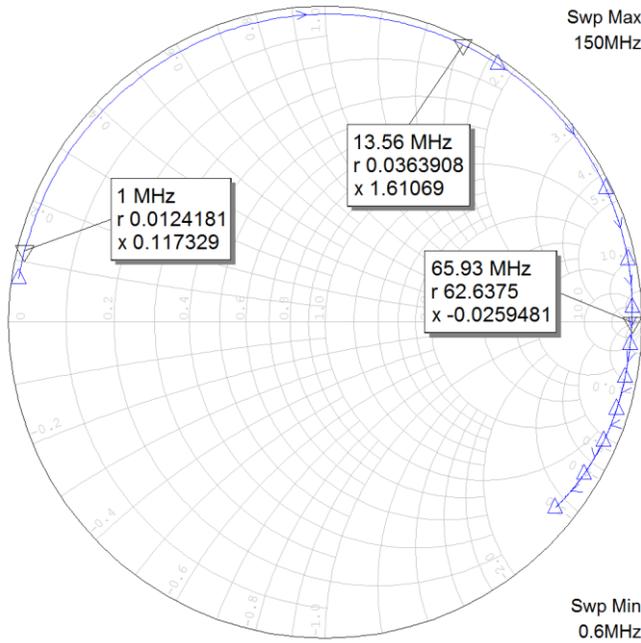
Series: Embedded Antenna

PART NUMBER: W5100

CHARTS

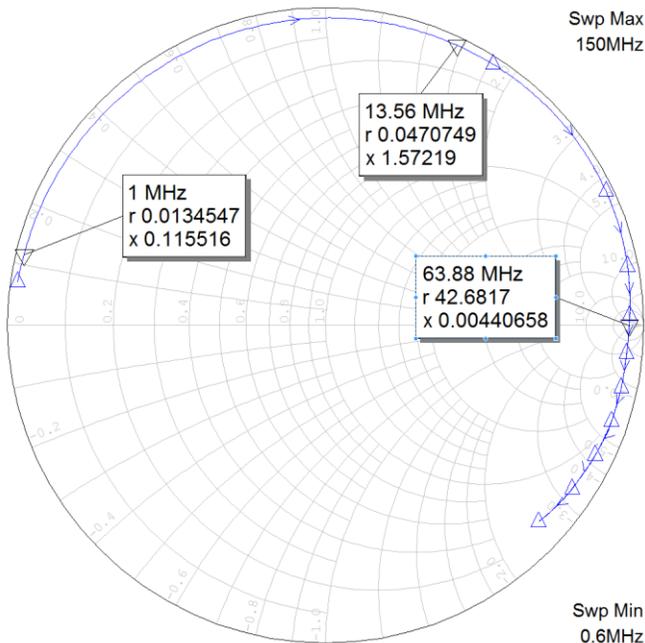
P2

Free Space



L @ 13.56MHz, $\mu\text{H}$	0.95
Q @ 13.56MHz	44
SRF, MHz	65.9

On Metal



L @ 13.56MHz, $\mu\text{H}$	0.92
Q @ 13.56MHz	33
SRF, MHz	63.9

Issue: 1613

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

CONFIDENTIAL AND PROPRIETARY INFORMATION

This document contains confidential and proprietary information of Pulse Electronics, Inc. (Pulse) and is protected by copyright, trade secret and other state and federal laws. Its receipt or possession does not convey any rights to reproduce, disclose its contents, or to manufacture, use or sell anything it may describe. Reproduction, disclosure or use without specific written authorization of Pulse is strictly forbidden.

**Description:** On-ground BLE/NFC combo

**Series:** Embedded Antenna

**PART NUMBER:** W5100

## PACKAGING

Sealed plastic bag 60x90mm

## ASSEMBLY

Pull off adhesive cover from backside and attach. Apply pressure 10N/cm<sup>2</sup> for 4 seconds to activate pressure sensitive adhesive.

Issue: 1613

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

CONFIDENTIAL AND PROPRIETARY INFORMATION

This document contains confidential and proprietary information of Pulse Electronics, Inc. (Pulse) and is protected by copyright, trade secret and other state and federal laws. Its receipt or possession does not convey any rights to reproduce, disclose its contents, or to manufacture, use or sell anything it may describe. Reproduction, disclosure or use without specific written authorization of Pulse is strictly forbidden.