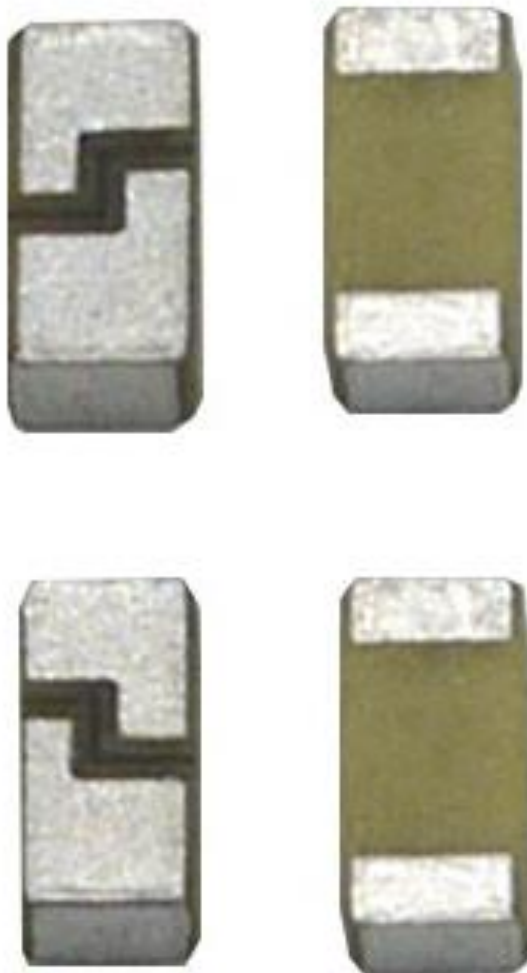


Series: Ceramic Chip

Description:

2.5-2.69GHz Ceramic SMT Antenna

PART NUMBER: W3020



### Features:

- Omnidirectional radiation
- Low profile
- Compact size:  
W x L x H (3.2 x 1.6 x 1.1mm)
- Fully SMD compatible
- Lead free soldering compatible
- Tape and reel packing
- RoHS compliant
- Moisture Sensitivity Level MSL3

### Applications:

- 2.5-2.69 GHz Radios
- LTE B38, B41
- Devices needing smallest form factor high performing miniature antenna

All dimensions are in mm / inches

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Pulse GmbH & Do, KG  
Zeppelinstrasse 15  
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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



Series: Ceramic Chip

Description:

2.5-2.69GHz Ceramic SMT Antenna

PART NUMBER: W3020

## ELECTRICAL SPECIFICATIONS

Frequency	2.5-2.69 GHz
Nominal Impedance	50 $\Omega$
Return Loss(Typical)*	<-5.5dB
Max Gain*	2.9dBi (Peak) 1.5dBi (Band Edges)
Radiation Efficiency*	89%/-0.52dB (Peak) 72%/-1.43dB(Band Edges)

*Note: Electrical characteristics depend on test board (GP) size and antenna positioning on GP and Ground Clearance area size.*

*\*Tested on PULSE test board position 1 (refer to page 10) . The testboard size 80x35 mm, PCB ground clearance area 4.0 x 6.25 mm. 1.0pF shunt matching capacitor used.*

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Series: Ceramic Chip

Description:  
2.5-2.69GHz Ceramic SMT Antenna  
PART NUMBER: W3020

### MECHANICAL SPECIFICATIONS

Weight	0.033 g
Size	3.2 x1.6 x 1.1mm

### ENVIRONMENTAL SPECIFICATIONS

Operating temperature	-40~+85° C
Temperature	-40~+85° C
Humidity	Cyclic 6 +25° C/+55° C 95%
Vibration	
Sinusoidal 2-8Hz	7.5 mm
Sinusoidal 8-200Hz	20 m/s <sup>2</sup>
Shocks	0.5 m/s
Salt mist	96 hours

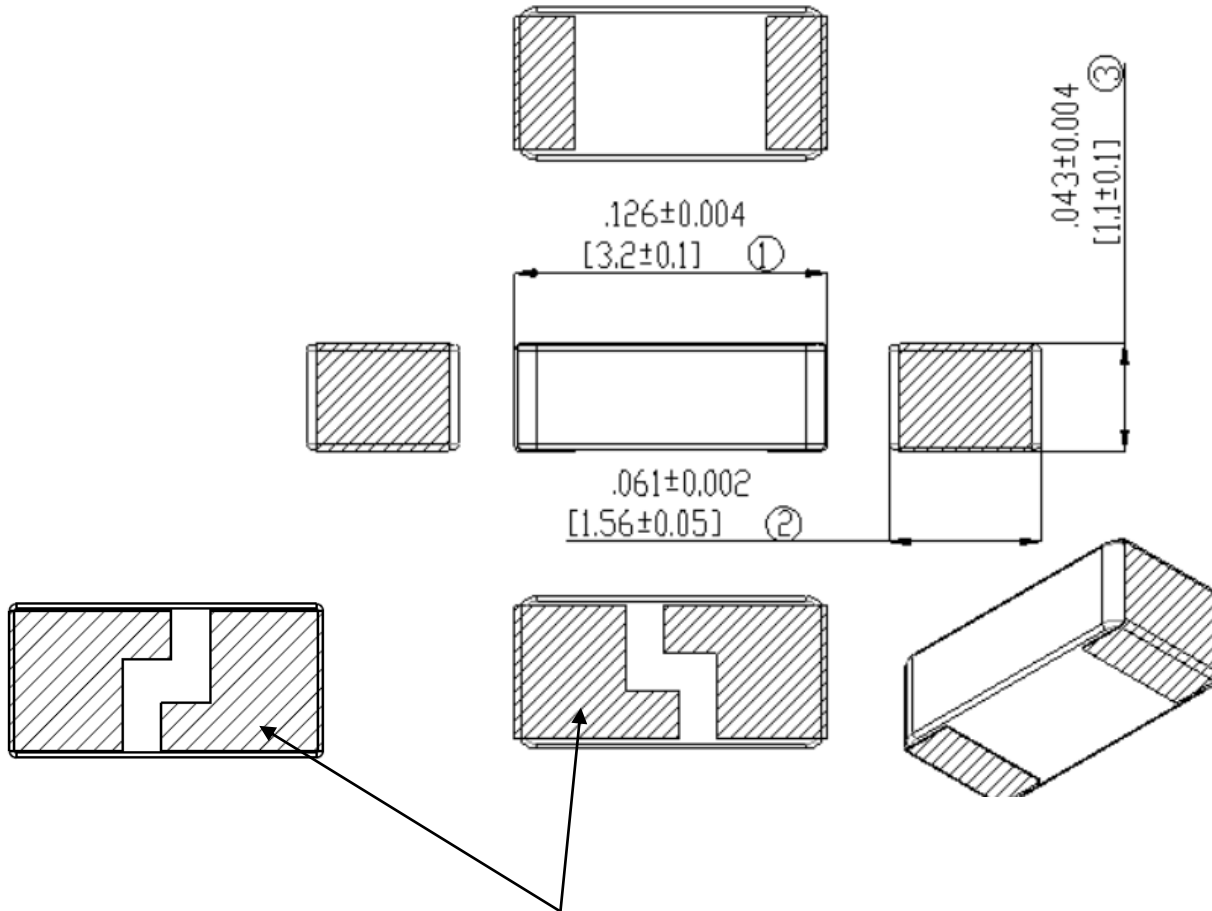
Series: Ceramic Chip

Description:

2.5-2.69GHz Ceramic SMT Antenna

PART NUMBER: W3020

## MECHANICAL DRAWING AND TERMINAL CONFIGURATION



1. Antenna is symmetrical, both of antenna pattern have same RF performance.
2. The size of slot is only for reference.

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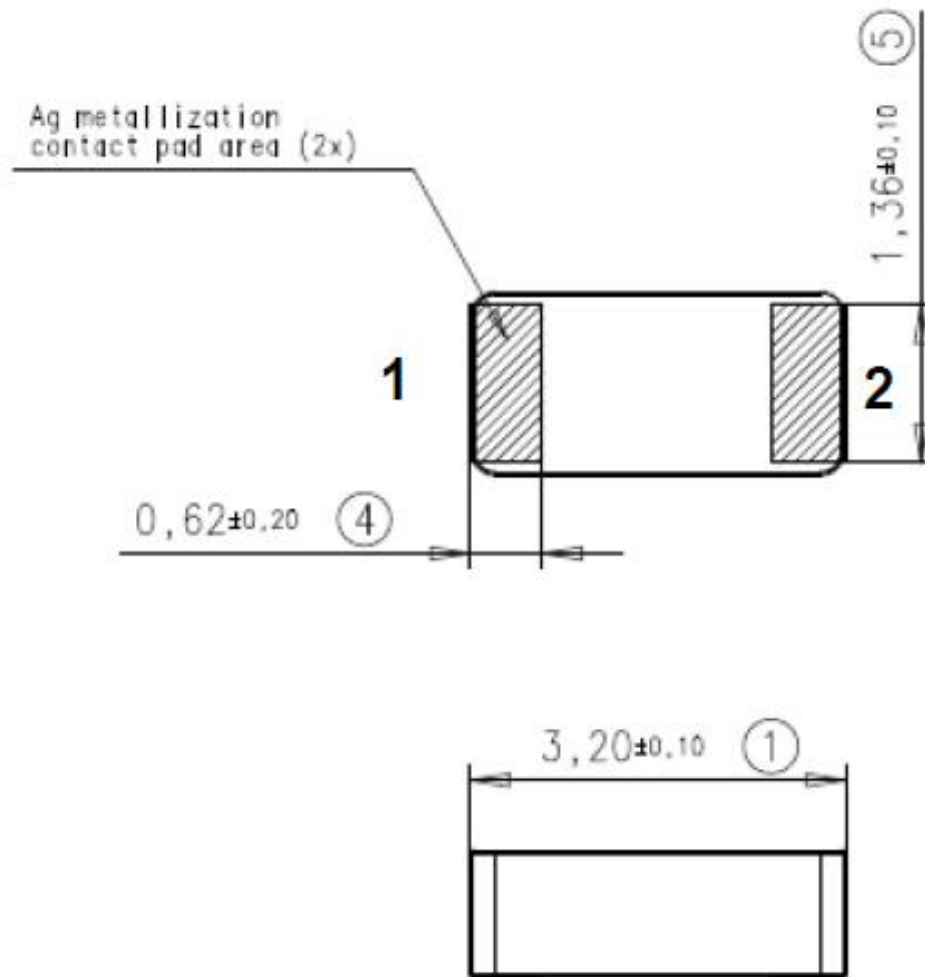
**Description:**

**2.5-2.69GHz Ceramic SMT Antenna**

**PART NUMBER: W3020**

**Series: Ceramic Chip**

**MECHANICAL DRAWING AND TERMINAL CONFIGURATION**



No.	Terminal Name	Terminal Dimensions
1	Feed / GND	0.62 x 1.36 mm
2	Feed / GND	0.62 x 1.36 mm
Antenna is symmetrical. Either of terminals 1 or 2 can be Feed / GND		

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**Description:**

**2.5-2.69GHz Ceramic SMT Antenna**

**PART NUMBER: W3020**

**Series: Ceramic Chip**

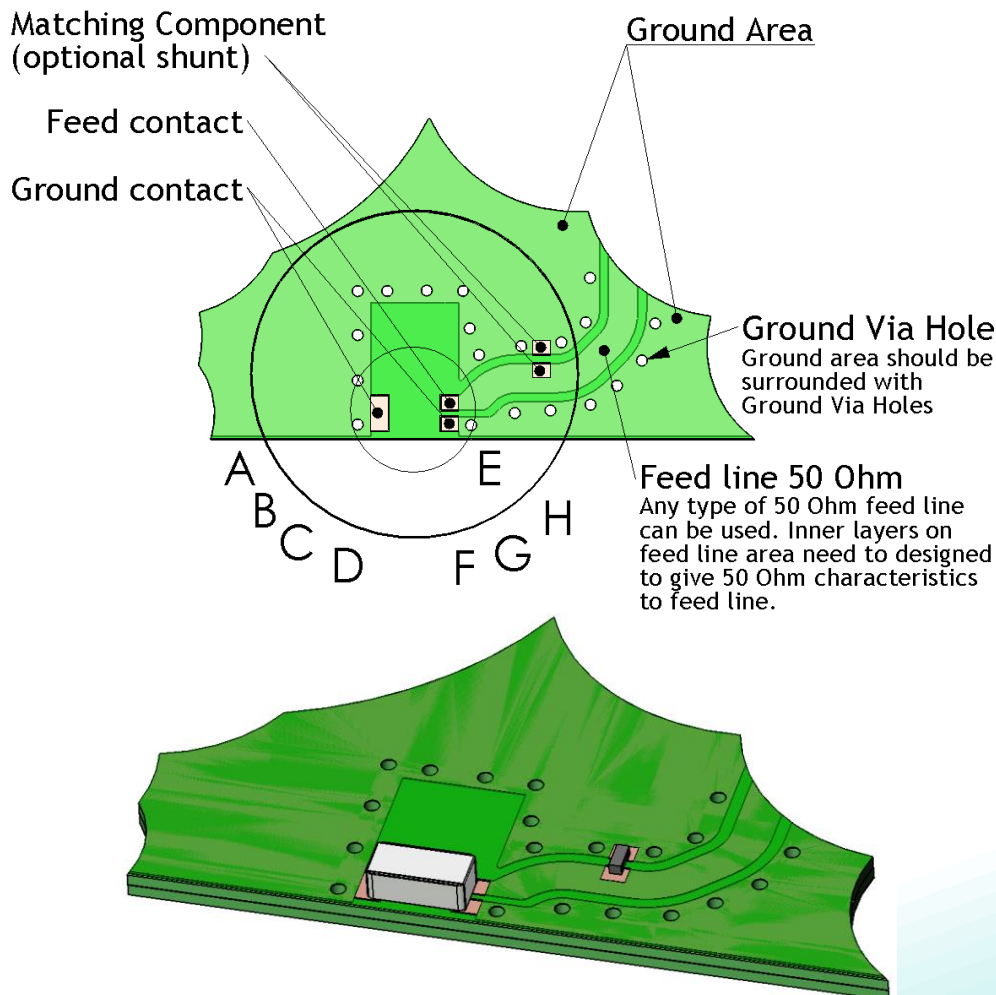
**PCB Layout**

Ground cleared under antenna, clearance area **4.00 x 6.25 mm**

Matching and tuning component value and placement depend on application and surrounding mechanics / materials.

Feed line should be designed to match 50  $\Omega$  characteristic impedance, depending on PWB material and thickness.

Recommended test board layout for electrical characteristic measurement, test board outline size 80 x 37 mm.



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**Description:**

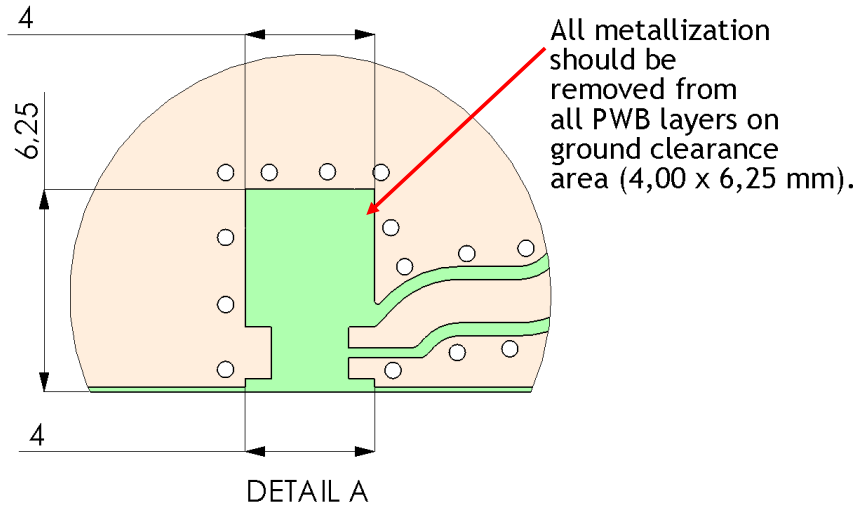
**2.5-2.69GHz Ceramic SMT Antenna**

**PART NUMBER: W3020**

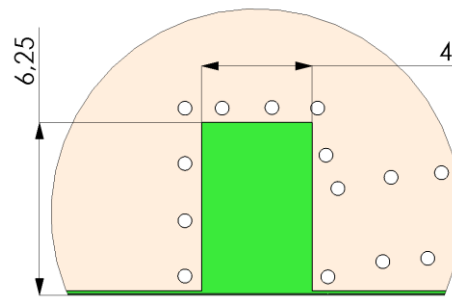
**Series: Ceramic Chip**

**PCB Layout**

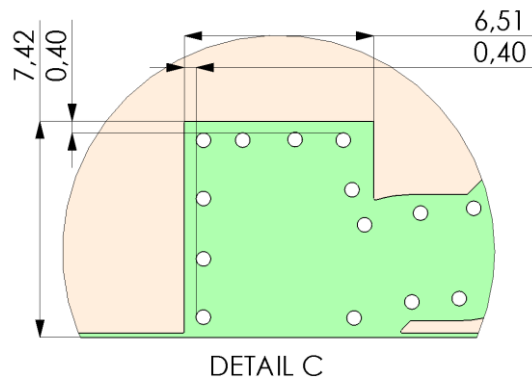
**Ground clearance area (4,00 x 6,25 mm)**



**Opening in bottom/inner ground layers**



**Opening in other layers (no ground/ RF)**



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**Description:**

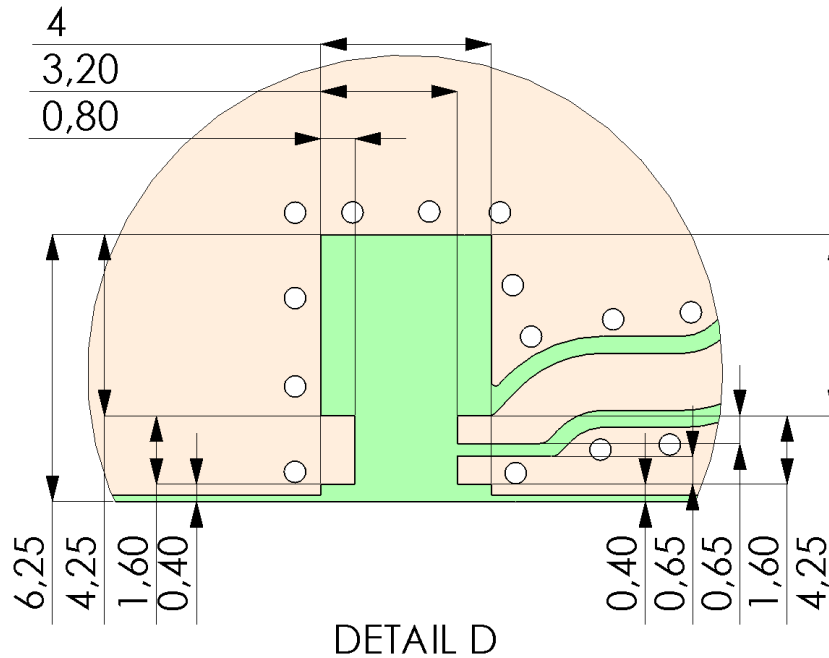
**2.5-2.69GHz Ceramic SMT Antenna**

**PART NUMBER: W3020**

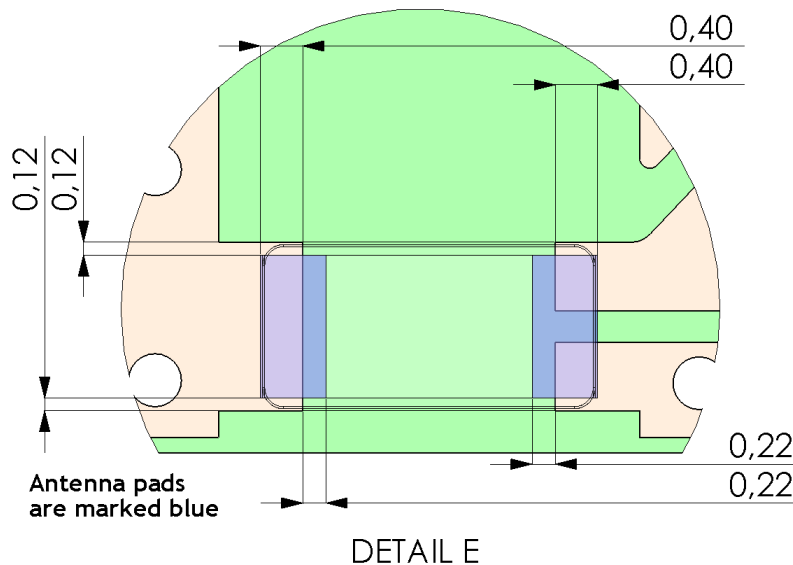
**Series: Ceramic Chip**

**PCB Layout**

**Pad dimensions in top copper**



**Antenna position on PWB layout**



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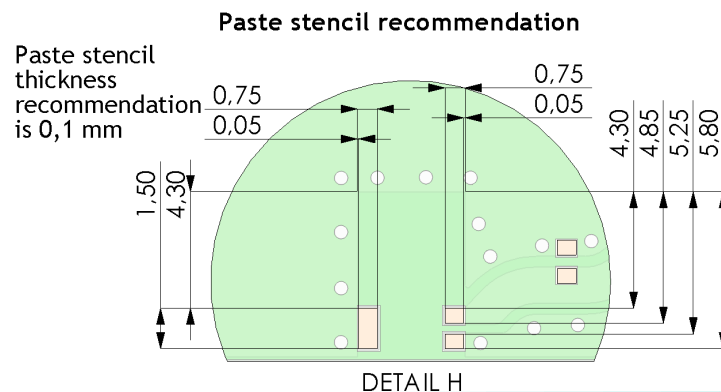
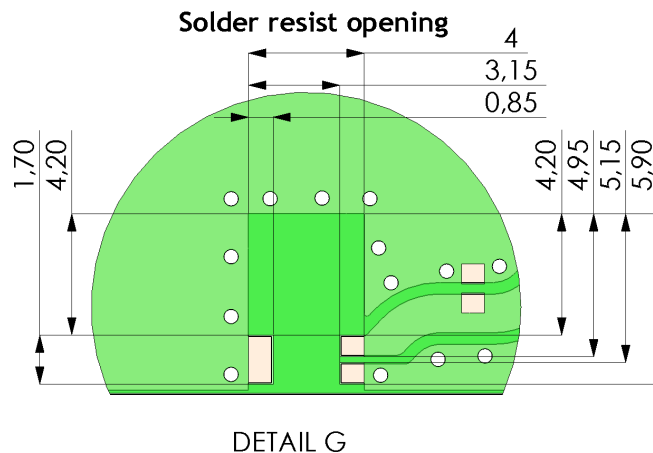
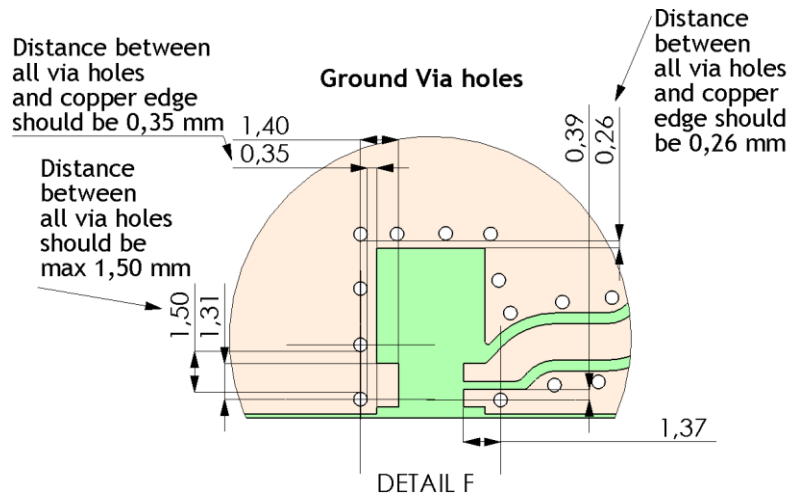
## Description:

2.5-2.69GHz Ceramic SMT Antenna

**PART NUMBER: W3020**

Series: Ceramic Chip

## PCB Layout



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**Description:**

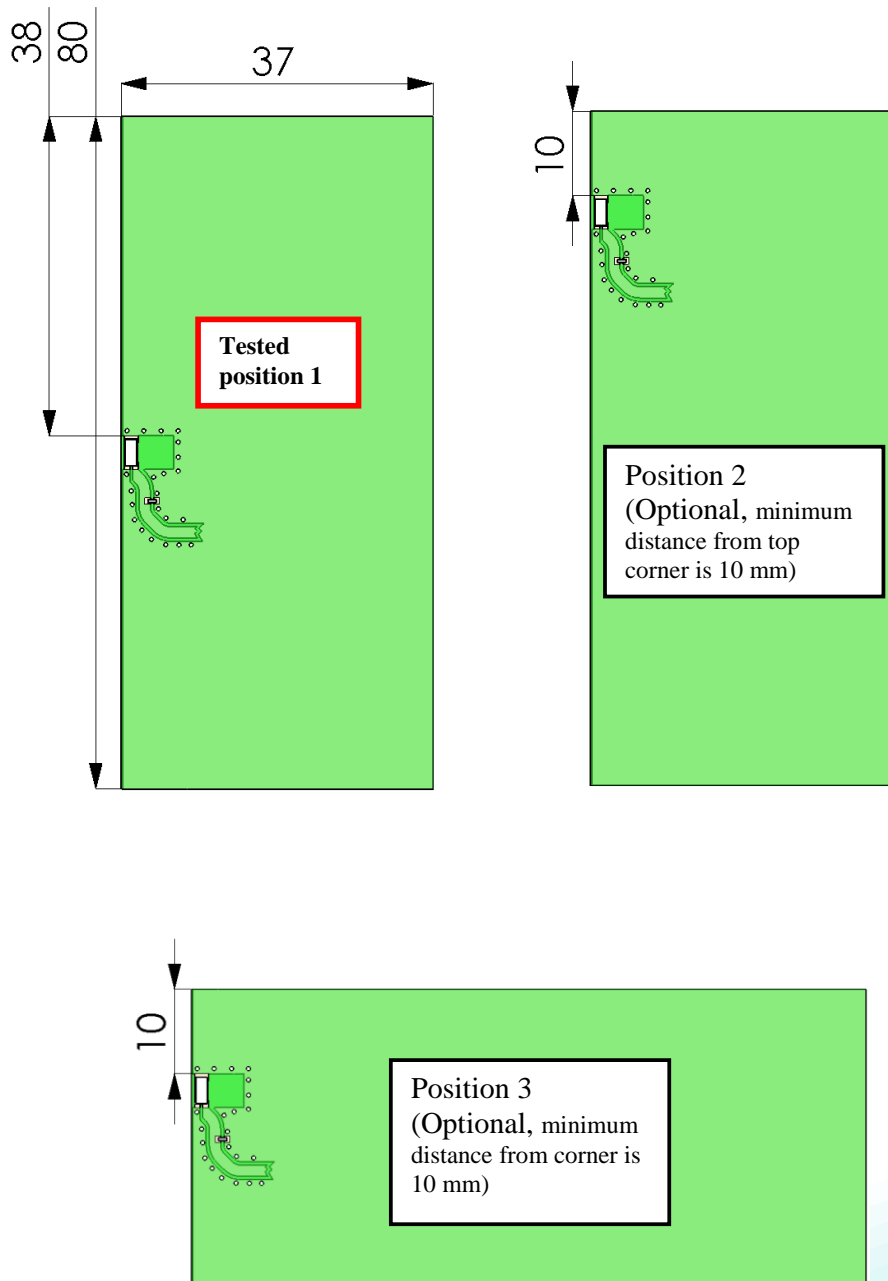
**2.5-2.69GHz Ceramic SMT Antenna**

**PART NUMBER: W3020**

**Series: Ceramic Chip**

**PCB Layout**

Pulse test PWB size is 37 x 80 mm, other sized boards can be used depending on customer device size (minimum 35 x 35 mm)



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## Description:

2.5-2.69GHz Ceramic SMT Antenna

**PART NUMBER: W3020**

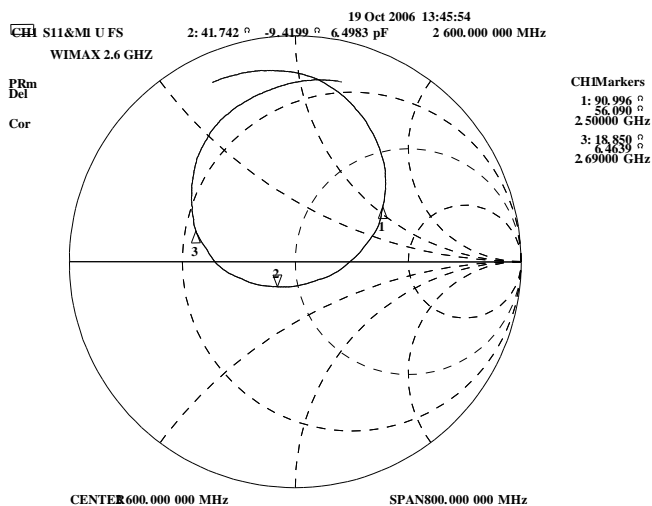
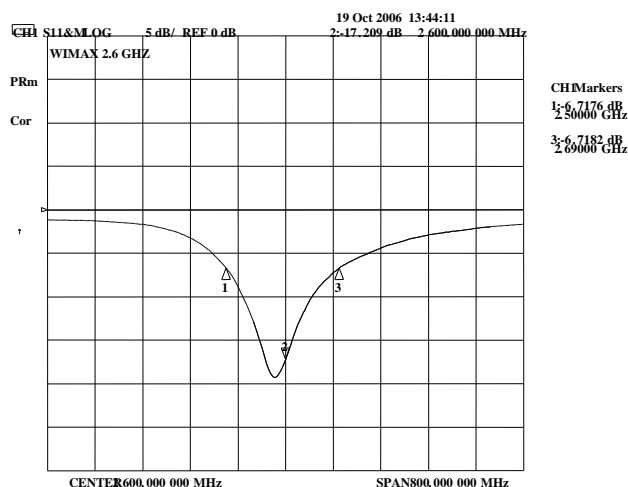
Series: Ceramic Chip

## CHARTS

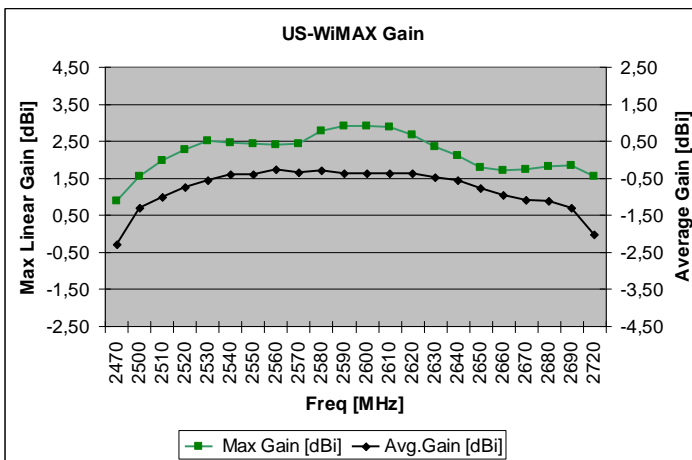
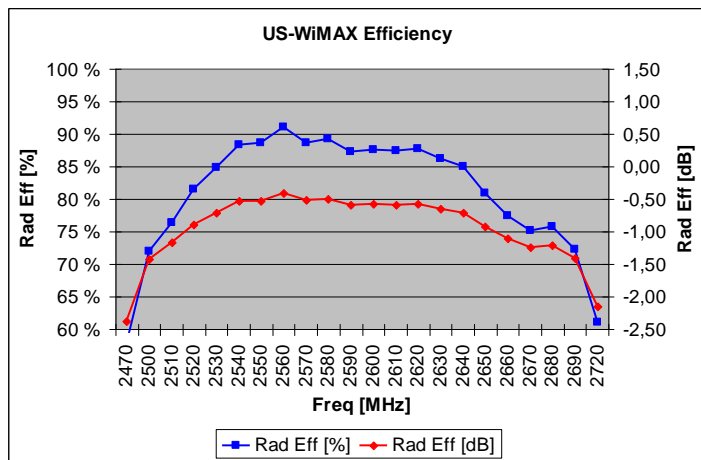
Ground cleared under antenna, clearance area 4.00 x 6.25 mm

### Typical Electrical Characteristics (T=25 °C)

Measured on the 80 x 37mm test board with matching circuit (shunt 1.0 pF) and in antenna position 1 on PWB layout, see page 9.



Typical Return Loss S11/ impedance, free space efficiency and gain



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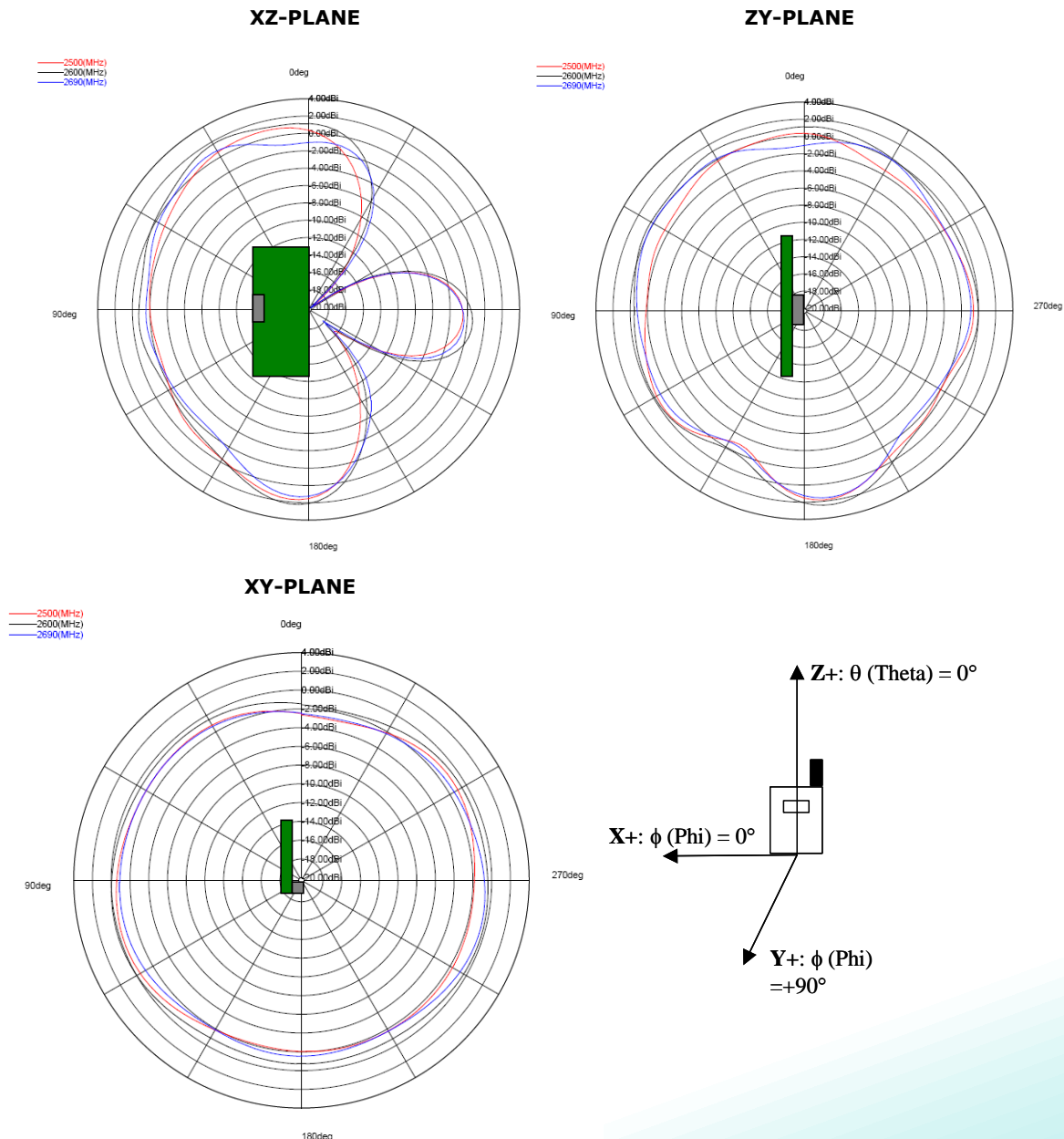
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**Description:**  
**2.5-2.69GHz Ceramic SMT Antenna**  
**PART NUMBER: W3020**

**Series: Ceramic Chip**

## CHARTS

### Typical Free Space Radiation Patterns



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**Series: Ceramic Chip**

**Description:**

**2.5-2.69GHz Ceramic SMT Antenna**

**PART NUMBER: W3020**

## PACKAGING

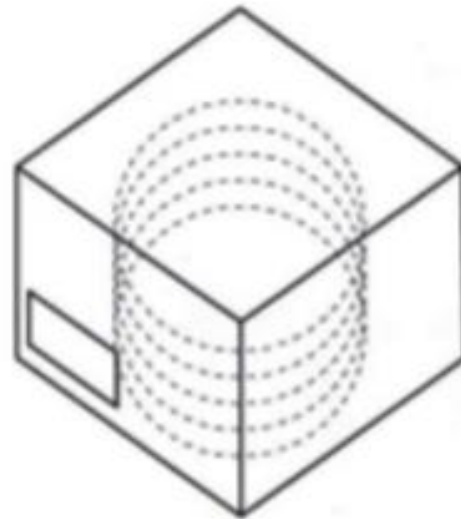
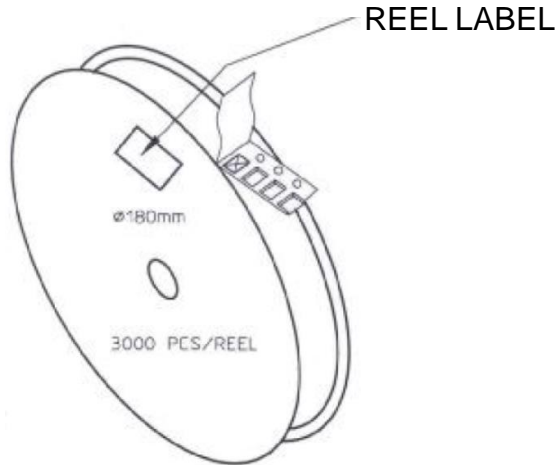
3000pcs antennas per 7" reel

5pcs 7" reel per inner package box

2pcs inner box per out box

Total 30000pcs antenna per out box

Out box size: 390mmx215mmx165mm



According to MSL3 packing requirement, MBB-Moisture Barrel Bag, Desiccant, HIC-Humidity Indicator Card, MSID Label, Caution Label are required.

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- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



#### Как с нами связаться

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**Факс:** 8 (812) 320-02-42

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**Адрес:** 198099, г. Санкт-Петербург, ул. Калинина, дом 2, корпус 4, литера А.