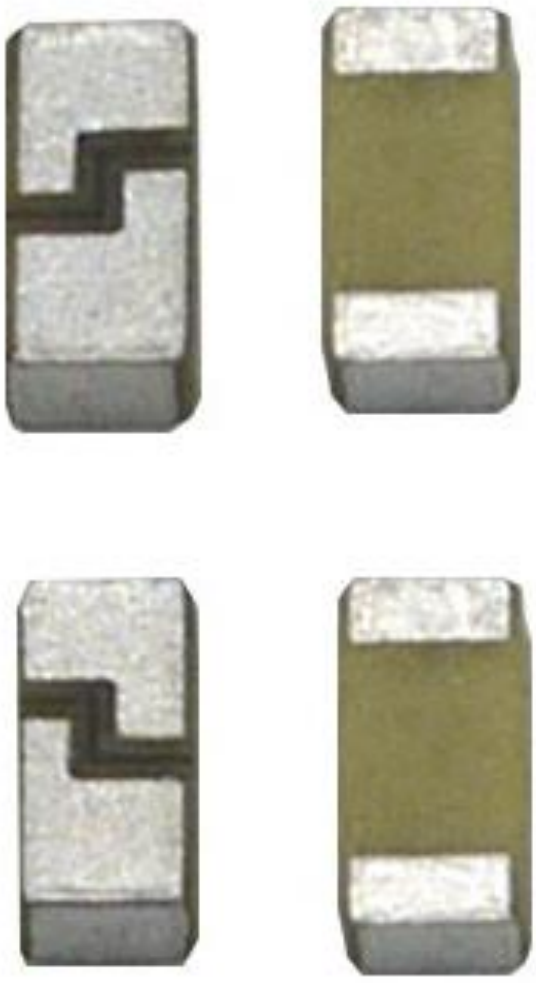
PulseLARSEN Antennas

TECHNICAL DATA SHEET

## 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 x1.6 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

Issue: 1821

RoHS COMPLIANT



For more information:

Pulse Worldwide Headquarters
15255 Innovation Drive #100
San Diego, CA 92128
USA
Tel:1-858-674-8100

Pulse/Larsen Antennas
18110 SE 34th St Bldg 2 Suite 250
Vancouver, WA 98683
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,4th Phase
Suzhou New District
Jiangsu Province, Suzhou 215009 PR China
Tel: 86 512 6807 9998

**Description:**
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## ELECTRICAL SPECIFICATIONS

| | |
|---|---|
| Frequency | 2.5-2.69 GHz |
| Nominal Impedance | 50 Ω |
| 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 matcing capacitor used.*

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## 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/s² |
| Shocks | 0.5 m/s |
| Salt mist | 96 hours |

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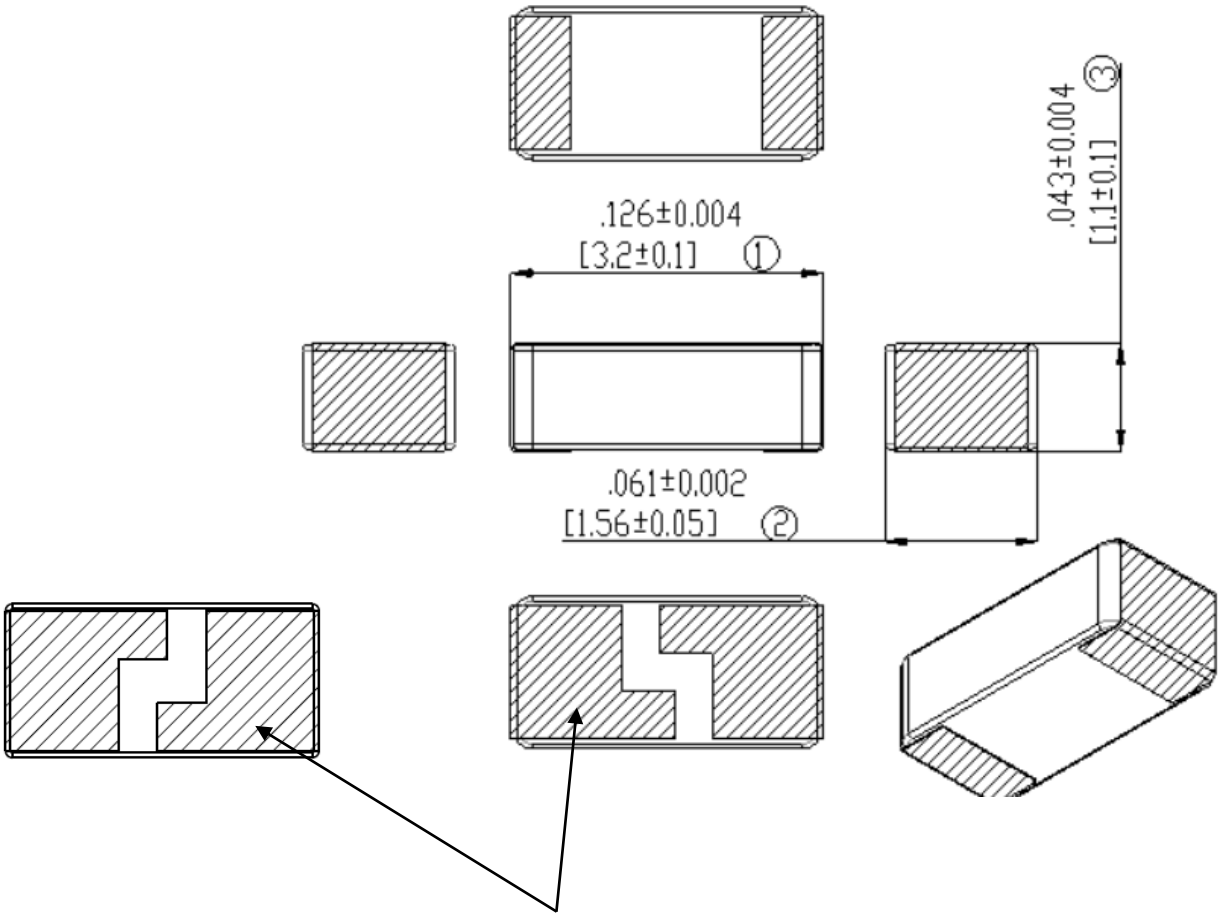
## MECHANICAL DRAWING AND TERMINAL CONFIGURATION




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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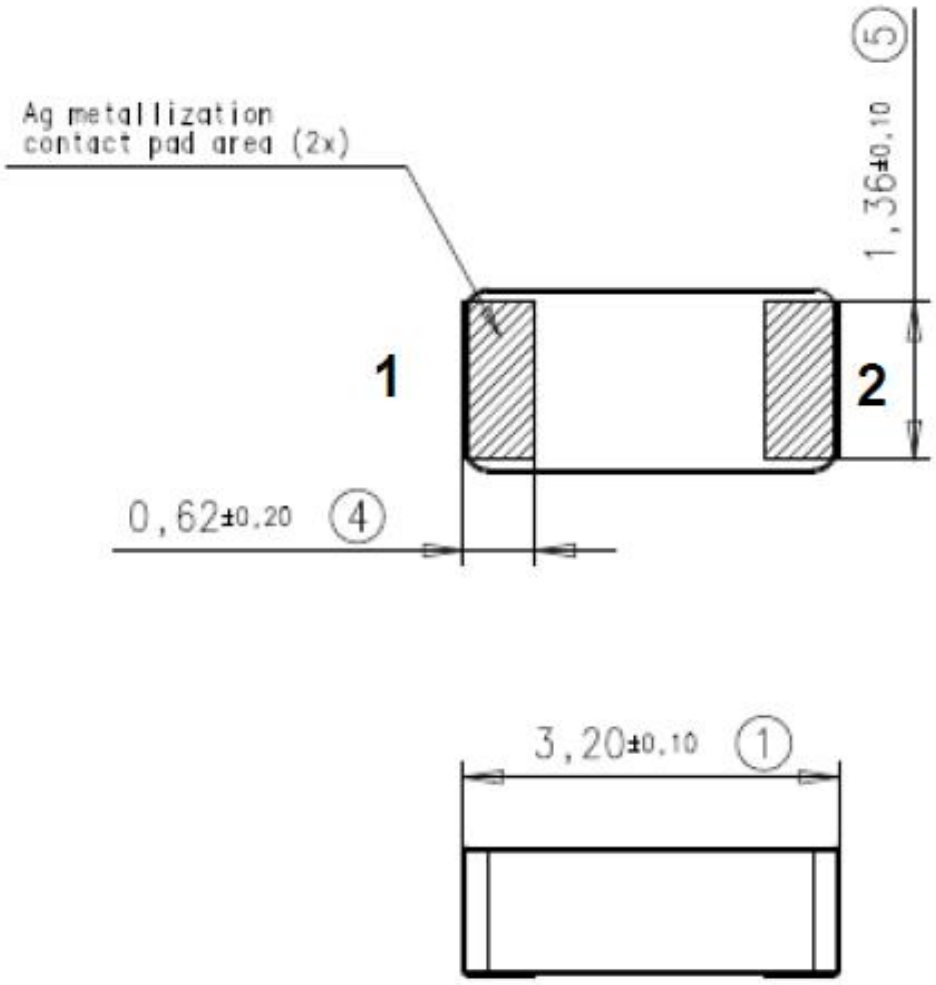


| No. | Terminal Name | Terminal Dimensions |
|---|---|---|
| 1 | Feed / GND | 0.62 x 1.36 mm |
| 2 | Feed / GND | 0.62 x 1.36 mm |
| Antenna is symmetrical. Either of terminals 1 or 2 can be Feed / GND | | |

# Description:
# 2.5-2.69GHz Ceramic SMT Antenna

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## PART NUMBER: W3020

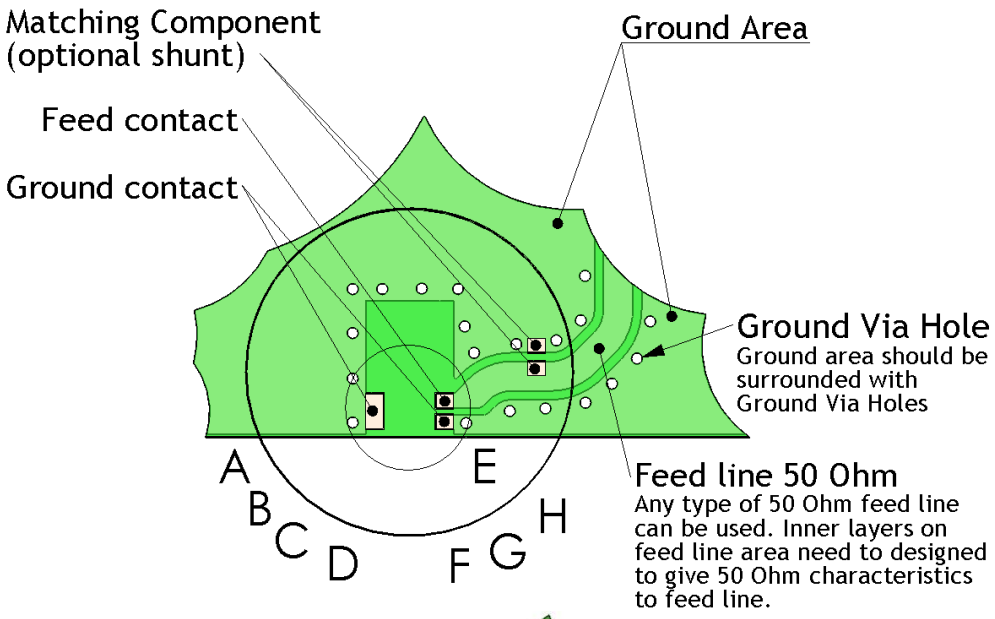
## PCB Layout

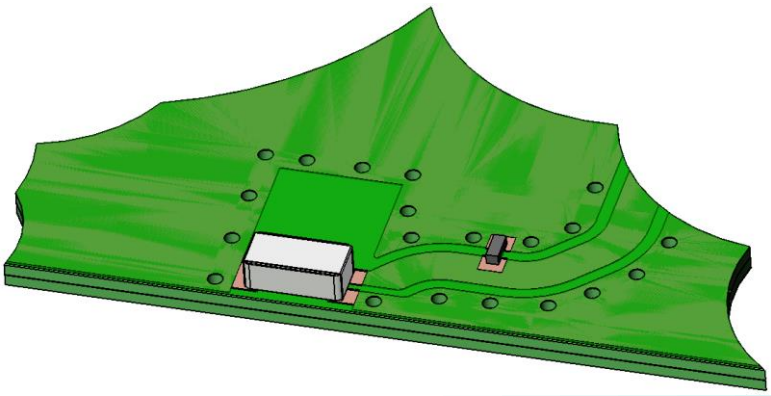
**Ground cleared under antenna, clearance area 4.00 x 6.25 mm**

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

**Feed line should be designed to match 50 Ω characteristic impedance, depending on PWB material and thickness.**

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



# Description:
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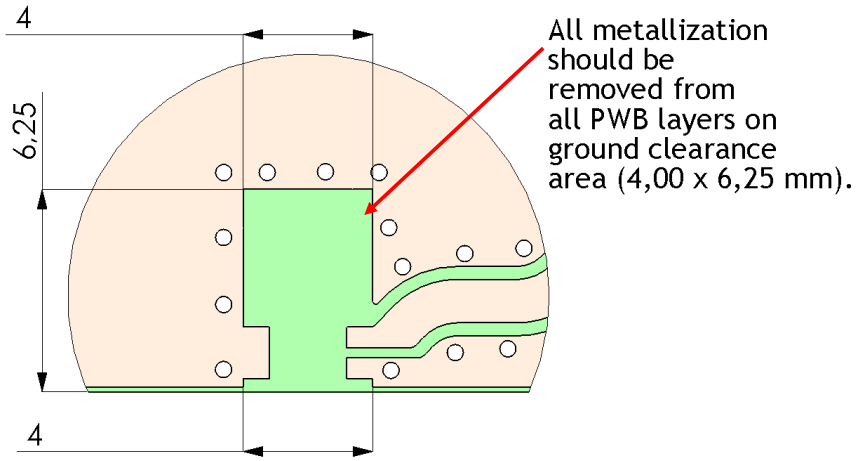
## PART NUMBER: W3020

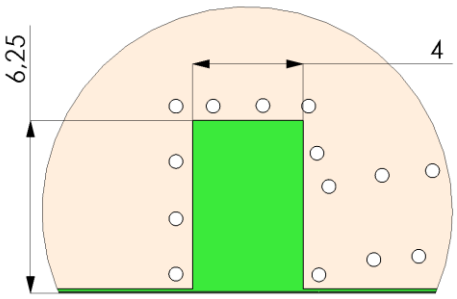
## PCB Layout

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



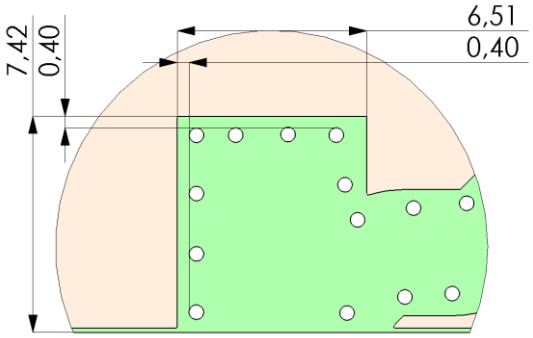

DETAIL A

Opening in bottom/inner ground layers




DETAIL B

Opening in other layers (no ground/ RF)




DETAIL C

Issue: 1821



RoHS COMPLIANT

**Description:**
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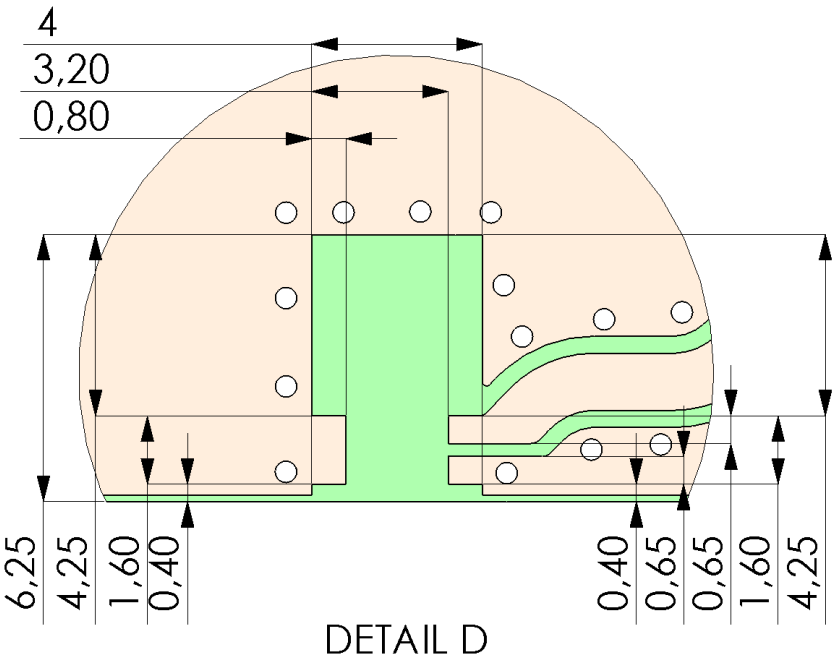
**Series: Ceramic Chip**

**PART NUMBER: W3020**

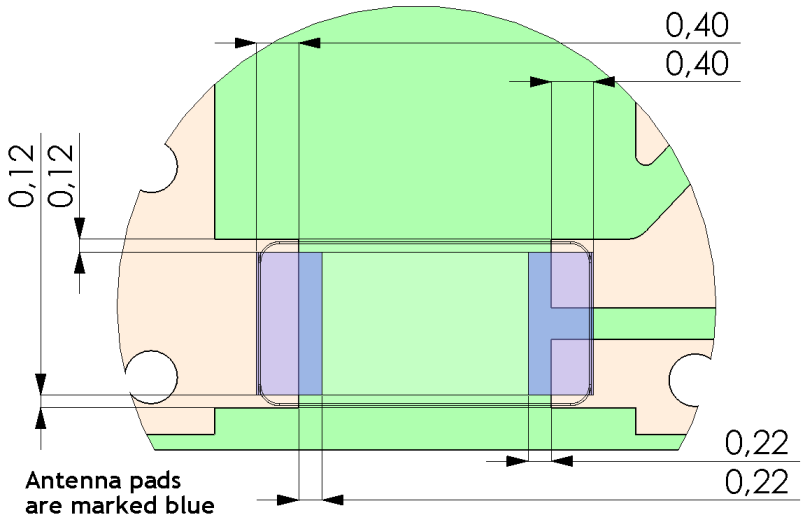
## PCB Layout

### Pad dimensions in top copper




DETAIL D

### Antenna position on PWB layout



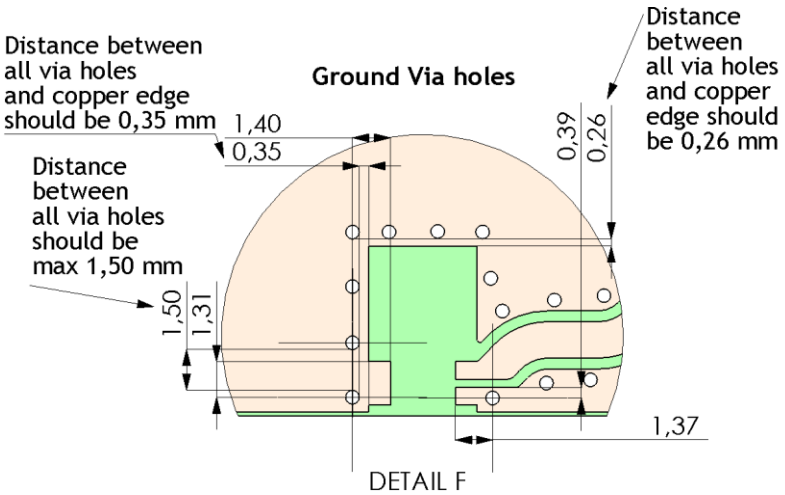

DETAIL E

# Description:
# 2.5-2.69GHz Ceramic SMT Antenna

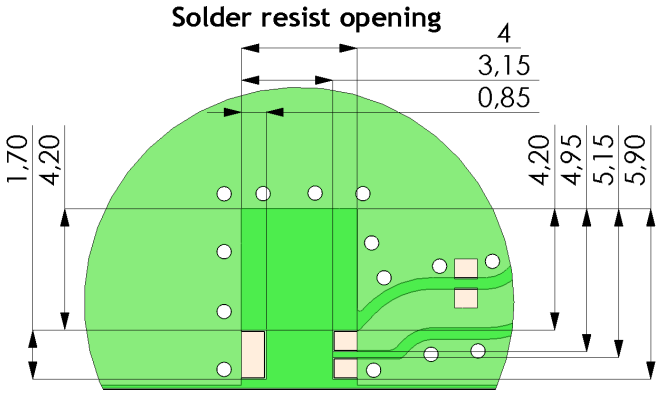
## Series: Ceramic Chip

## PART NUMBER: W3020

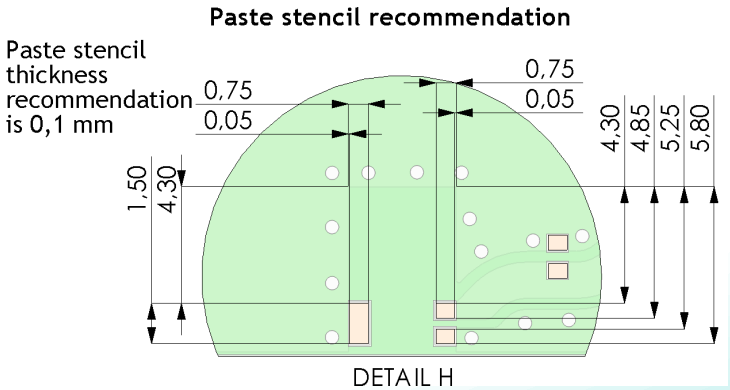
## PCB Layout




DETAIL F




DETAIL G




DETAIL H





RoHS COMPLIANT

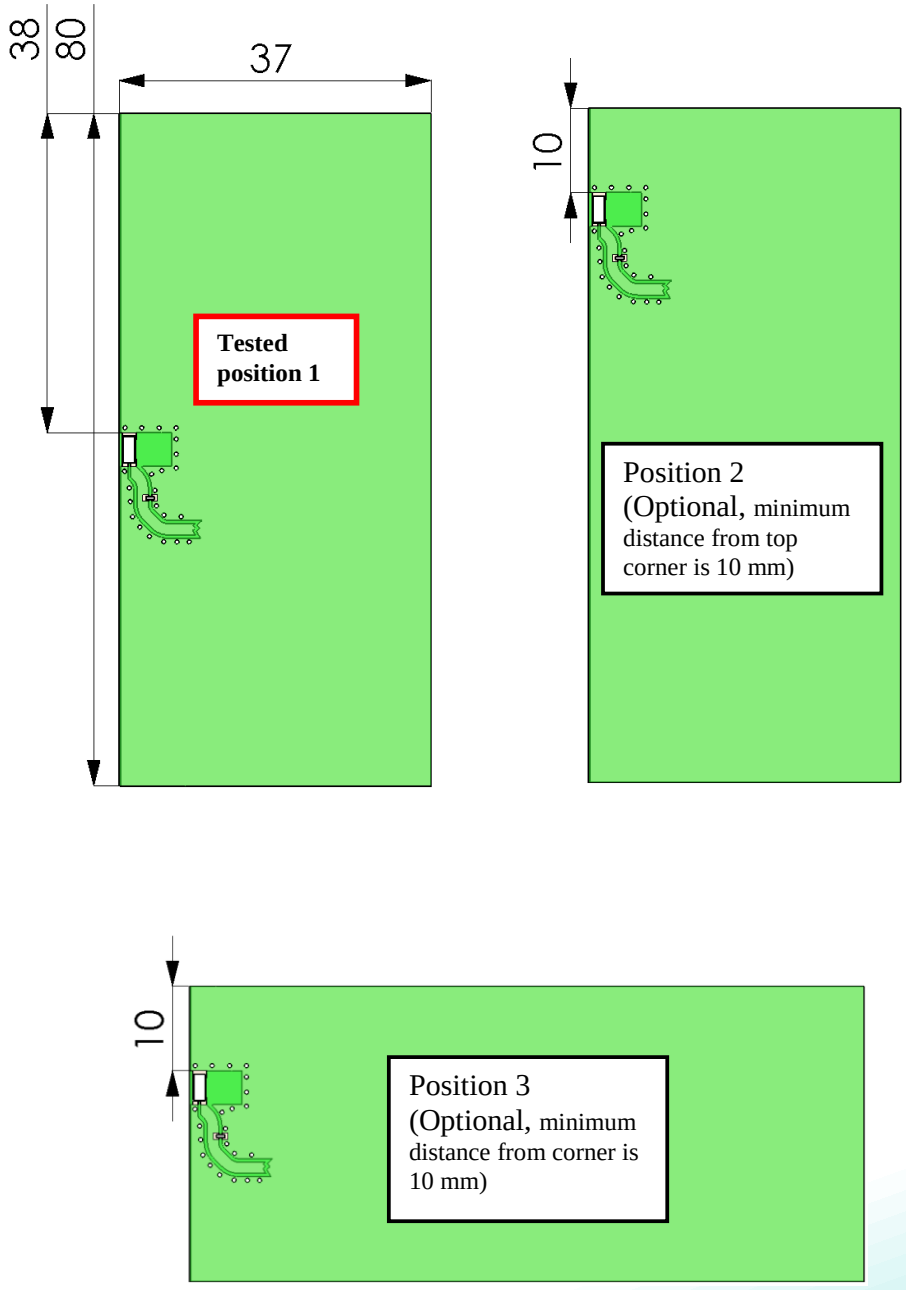
# Description:
# 2.5-2.69GHz Ceramic SMT Antenna

## Series: Ceramic Chip

## PART NUMBER: W3020

## 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)



# Description:
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## Series: Ceramic Chip

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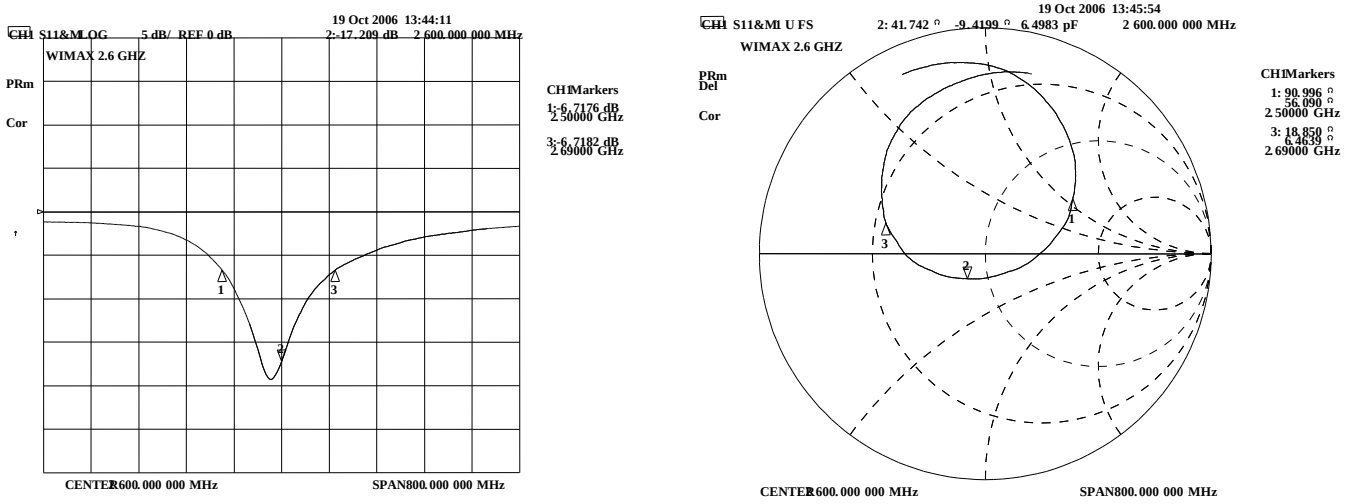
## CHARTS

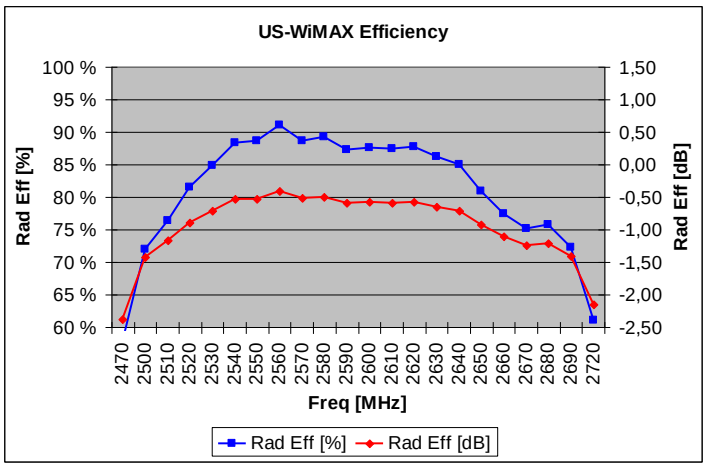
**Ground cleared under antenna, clearance area 4.00 x 6.25 mm**

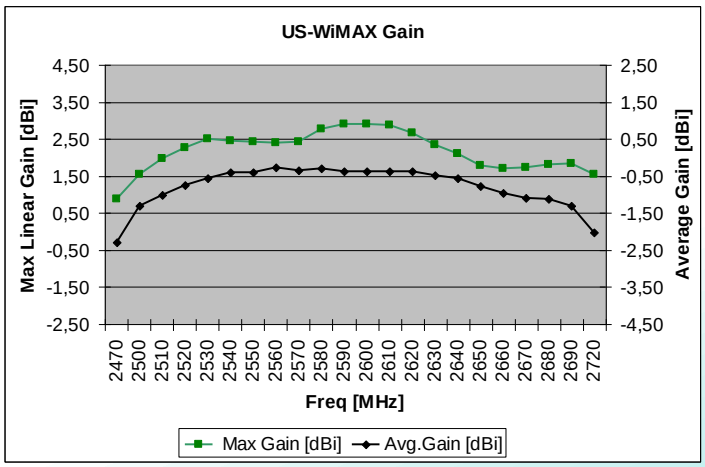
### *Typical Electrical Characteristics (T=25 ℃)*

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






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

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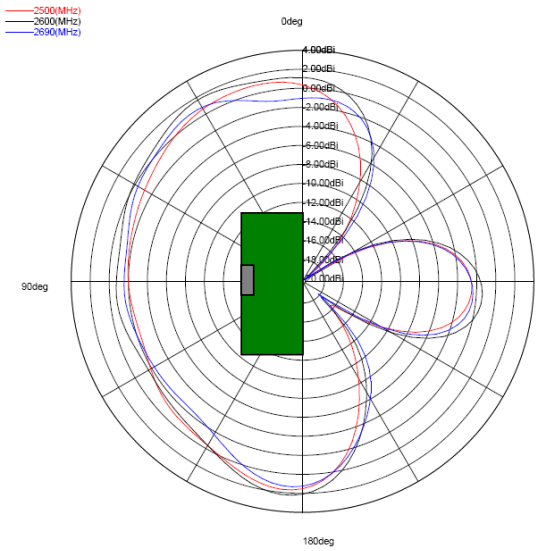
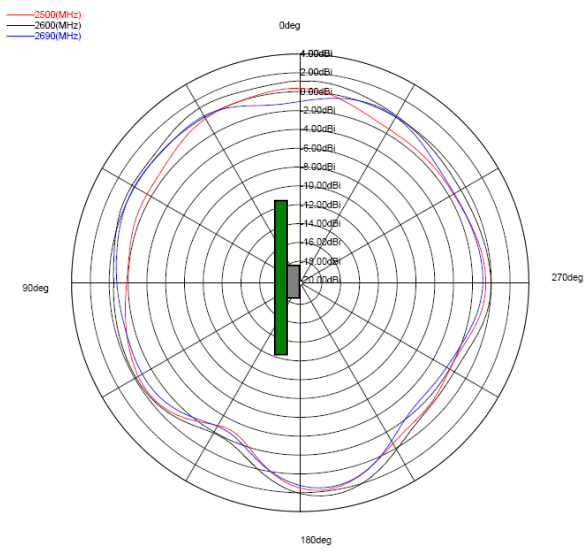
## CHARTS

*Typical Free Space Radiation Patterns*

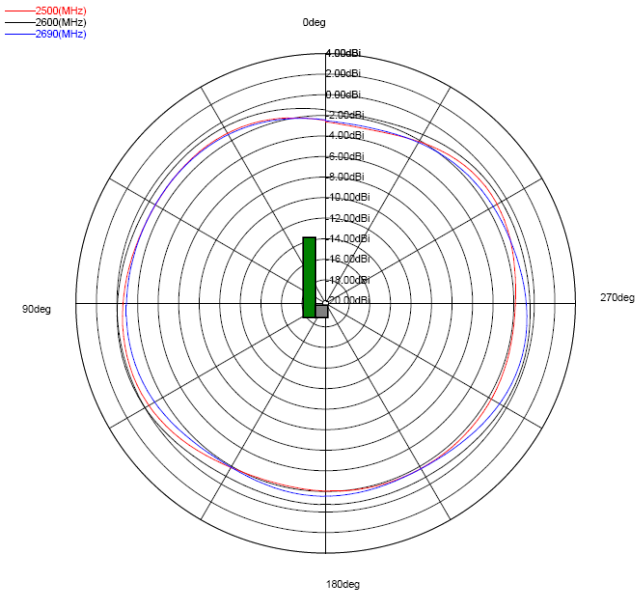
**XZ-PLANE**

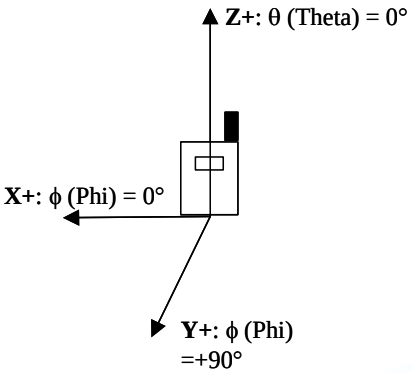



**ZY-PLANE**




**XY-PLANE**



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## PACKAGING

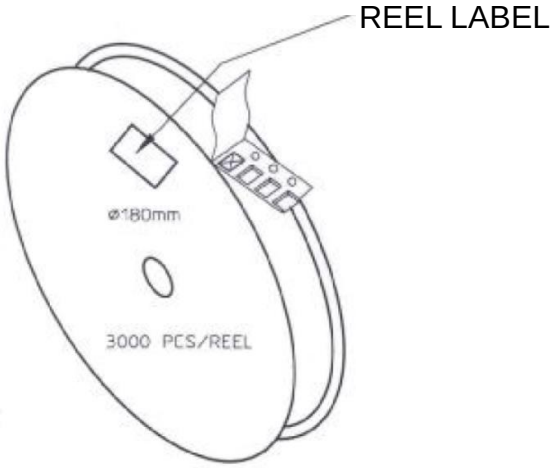
3000pcs antennas per 7” reel

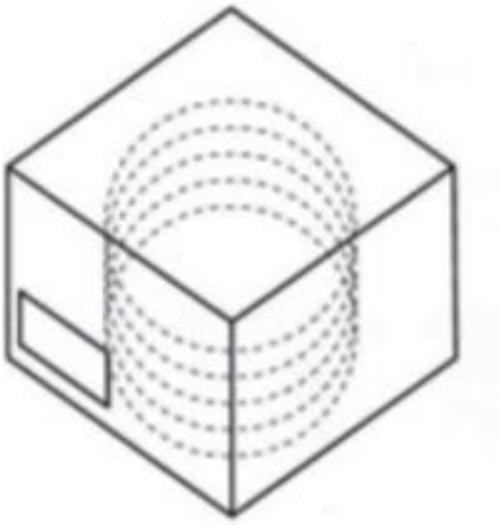
5pcs 7” reel per inner package box

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.