

**Description:** 

2.5-2.69GHz Ceramic SMT Antenna

PART NUMBER: W3020

# **Series: Ceramic Chip**









#### 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

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

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#### **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 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/s<sup>2</sup>

Shocks 0.5 m/s

Salt mist 96 hours



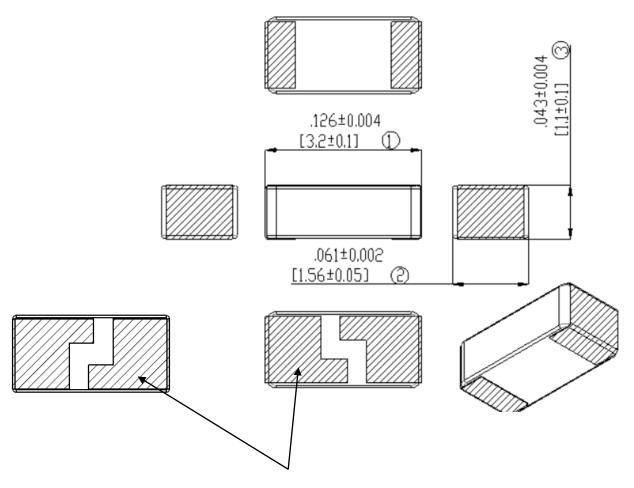


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#### MECHANICAL DRAWING AND TERMINAL CONFIGURATION



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

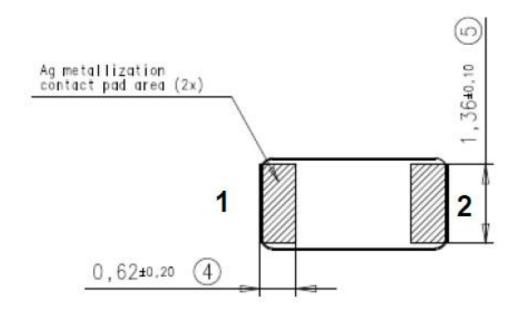


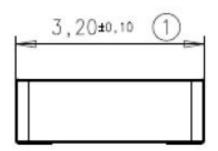
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## **MECHANICAL DRAWING AND TERMINAL CONFIGURATION**





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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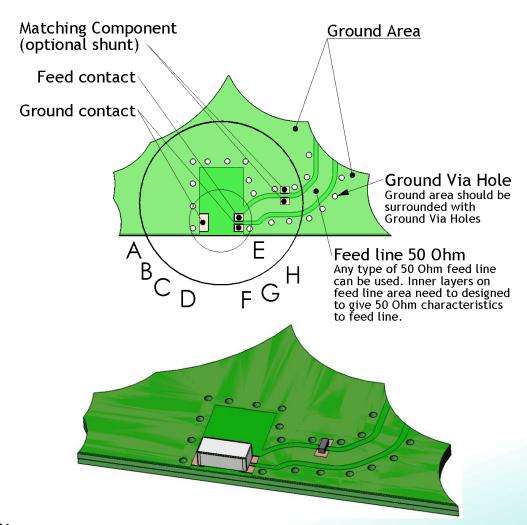
### **PCB Layout**

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.







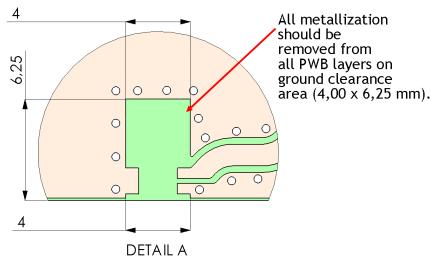
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## 2.5-2.69GHz Ceramic SMT Antenna

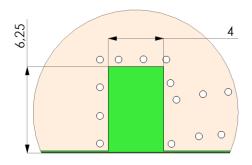
**PART NUMBER: W3020** 

## **PCB Layout**

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

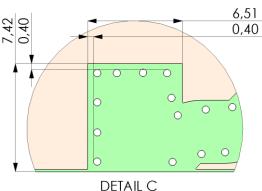


#### Opening in bottom/inner ground layers



**DETAIL B** 

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







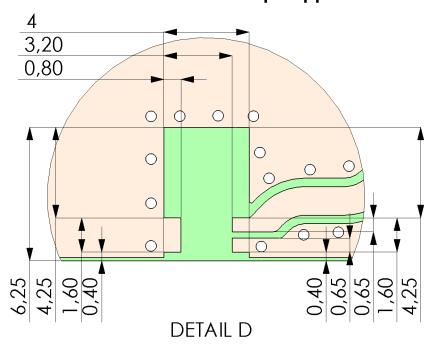
# **Description:**

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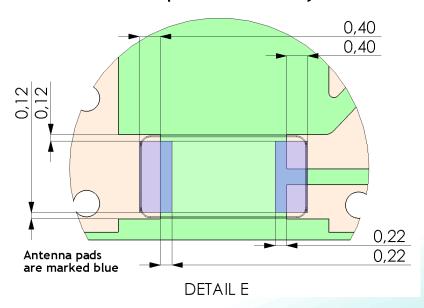
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## **PCB Layout**

## Pad dimensions in top copper



### Antenna position on PWB layout



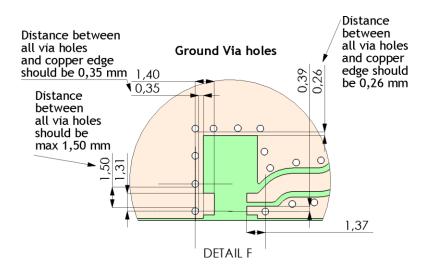


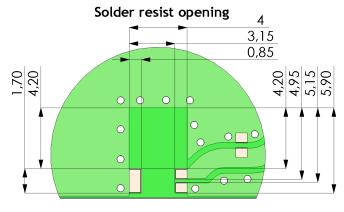
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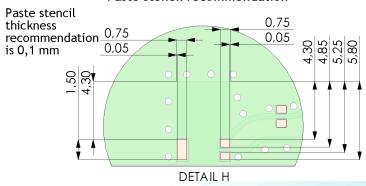
## **PCB Layout**





DETAIL G

#### Paste stencil recommendation





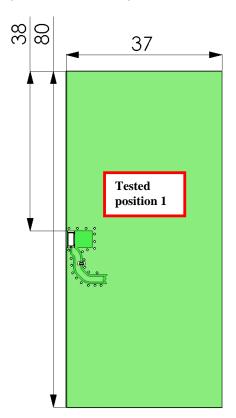
# **Description:**

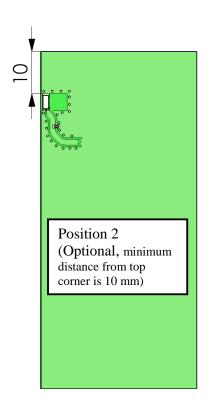
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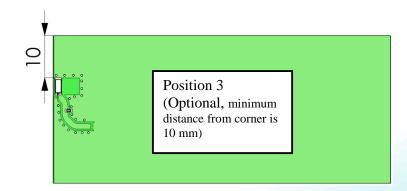
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## **PCB Layout**

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









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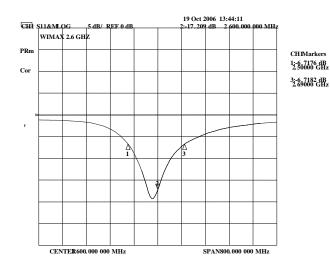
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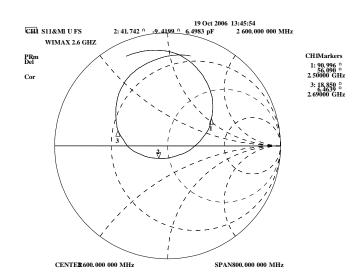
#### **CHARTS**

Ground cleared under antenna, clearance area 4.00 x 6.25 mm

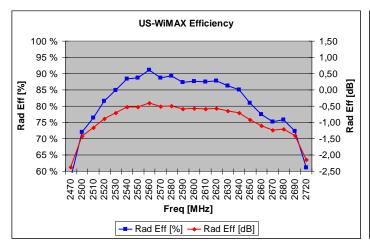
#### Typical Electrical Characteristics (T=25 $\mathcal{C}$ )

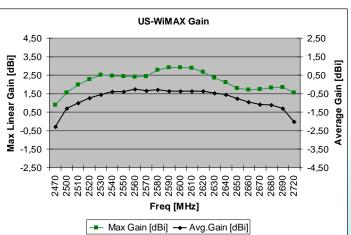
Measured on the  $80 \times 37$ mm test board with matching circuit (shunt 1.0 pF) and in antenna position 1 on PWB layout, see page 9.





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







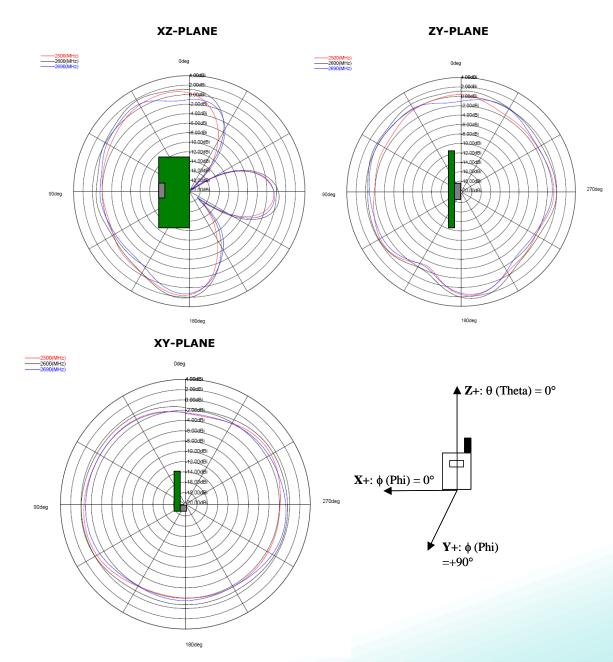
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### **CHARTS**

**Typical Free Space Radiation Patterns** 









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#### **PACKAGING**

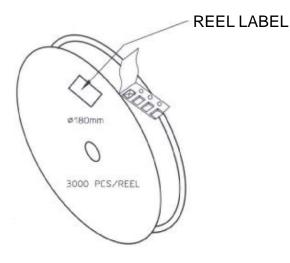
3000pcs antennas per 7" reel

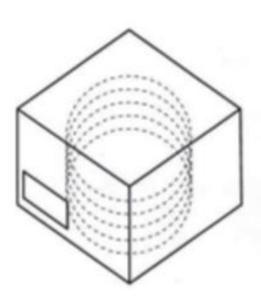
5pcs 7" reel per inner package box

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.



OOO «ЛайфЭлектроникс" "LifeElectronics" LLC

ИНН 7805602321 КПП 780501001 P/C 40702810122510004610 ФАКБ "АБСОЛЮТ БАНК" (ЗАО) в г.Санкт-Петербурге К/С 3010181090000000703 БИК 044030703

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- Техническую поддержку проекта.
- Защиту от снятия компонента с производства.
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