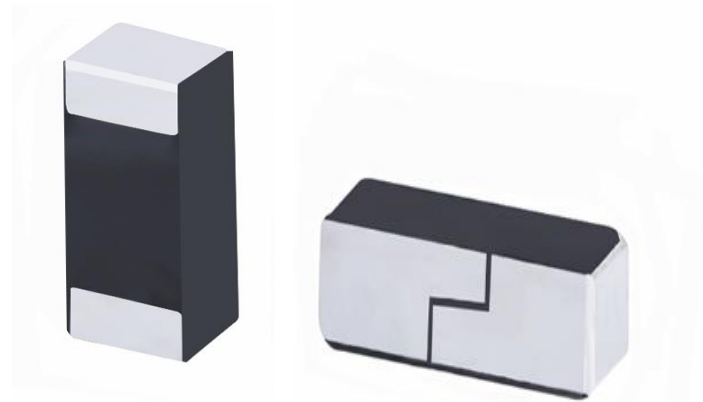


**Description: 2.4-2.4835GHz Ceramic SMT antenna, 4x4.25mm keep out area**

**Series: Chip Antenna**

**PART NUMBER: W3008**



### Features:

- 2400-2483.5MHz
- Size: 3.2 x 1.6 x 1.1mm
- Efficiency: 66 %
- Gain: 1.1 dBi
- Polarization: Linear
- Power Handling: 5W
- RoHS Compliant
- Moisture Sensitivity Level MSL1

### Applications:

- Bluetooth, BLE, Zigbee, WiFi
- 2.4GHz ISM band radios

All dimensions are in mm / inches

Issue: 1946

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For more information:

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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



Description: **2.4-2.4835GHz Ceramic SMT antenna, 4x4.25mm keep out area**

Series: **Chip Antenna**

**PART NUMBER: W3008**

### ELECTRICAL SPECIFICATIONS

|                    |                |
|--------------------|----------------|
| Frequency          | 2400-2483.5MHz |
| Nominal Impedance  | 50 $\Omega$    |
| Return Loss        | -4dB           |
| Radiation Pattern  | Omni           |
| Gain               | 1.1dBi         |
| Efficiency         | 66%            |
| Polarization       | linear         |
| Power Withstanding | 5W             |

### MECHANICAL SPECIFICATIONS

|                                  |                         |
|----------------------------------|-------------------------|
| Weight                           | 0.03 g                  |
| Overall Length                   | 3.2 [0.126] MM [INCHES] |
| Over all width                   | 1.6 [0.063] MM [INCHES] |
| Over all thickness               | 1.1 [0.043] MM [INCHES] |
| MSL (Moisture Sensitivity Level) | 1                       |

### ENVIRONMENTAL SPECIFICATIONS

|                       |            |
|-----------------------|------------|
| Operating Temperature | -40~+85° C |
| Storage Temperature   | -40~+85° C |
| RoHS Compliant        | Yes        |

(\*) All RF parameters measured on 80\*37mm PCB with 4\*4.25mm clearance in free space. No matching component used.

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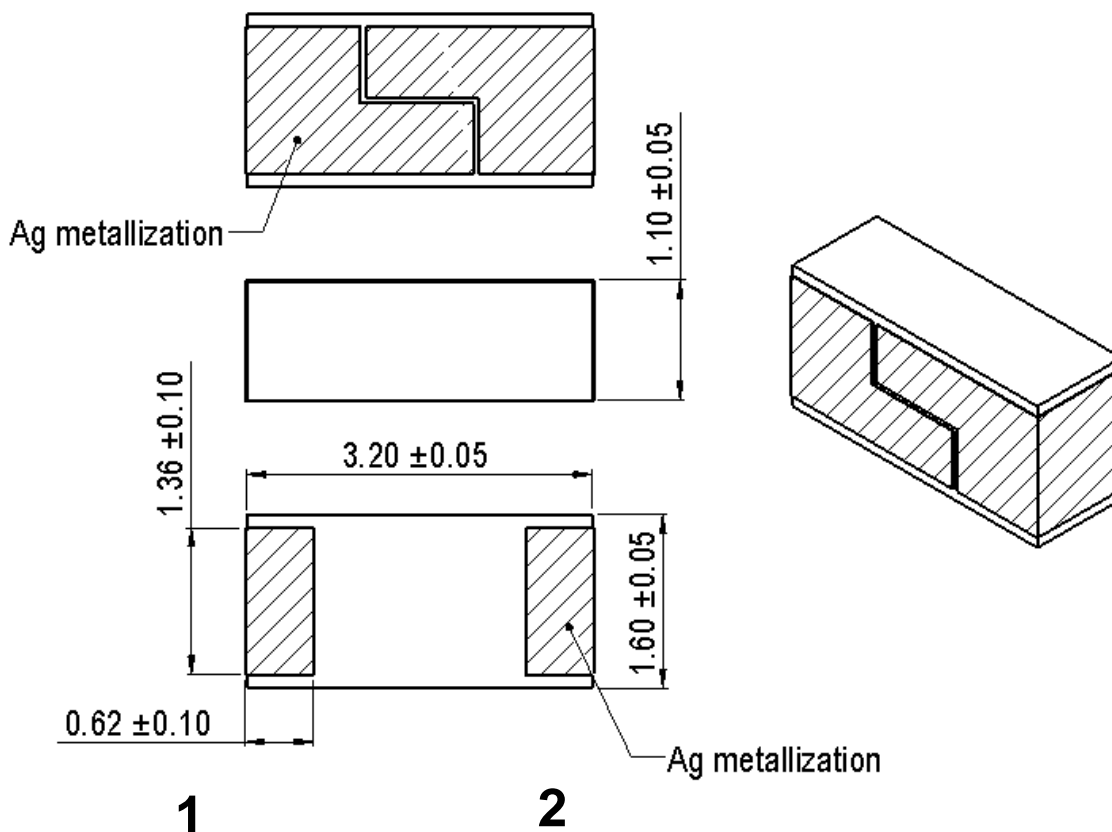
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Description: 2.4-2.4835GHz Ceramic SMT antenna, 4x4.25mm keep out area

Series: Chip Antenna

PART NUMBER: W3008

## 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 one of pads 1 or 2 can be used as feed terminal |               |                     |

Note: This type of antenna is called loaded PIFA. One pad (on the bottom of the ceramic chip antenna) that feedline and GND are connected is a basic PIFA antenna structure. And, another pad on the other side that only GND is connected is for capacitive loading. Loaded capacitive value is optimized by the gap distance between two pads on the top surface. In PIFA, there is short mechanism usually in proximity to feed. This RF shorting affects impedance and current distribution mechanism of antenna. The actual antenna top face can seem to be mirrored, however it can be used same as the non-mirrored version. Please follow the design recommendation specified in this data sheet for either case.

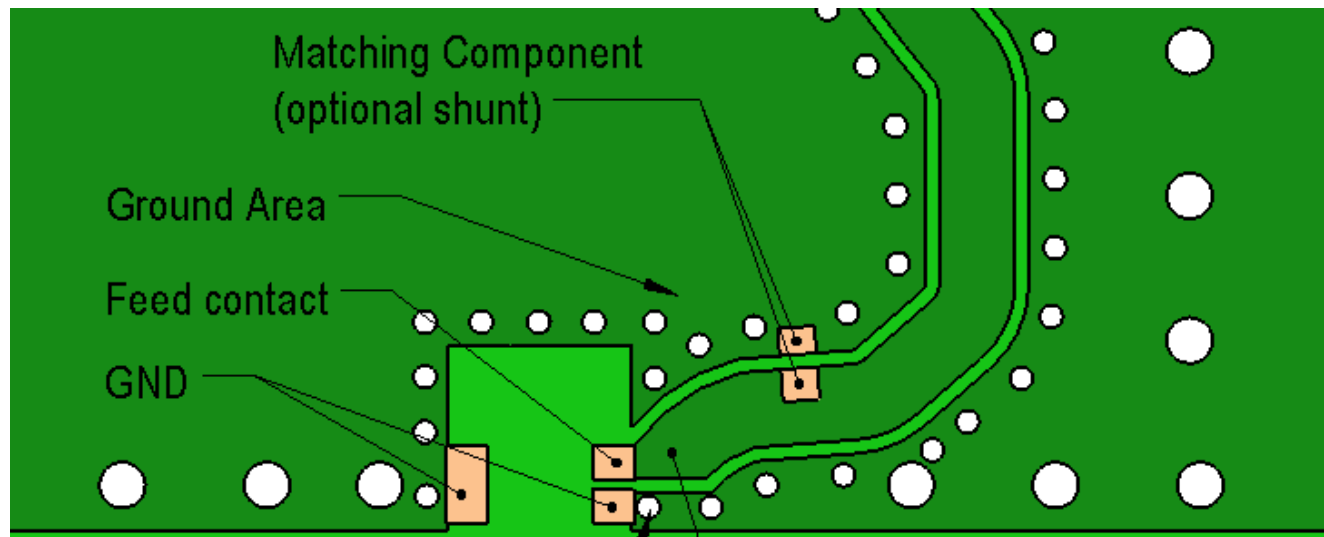
Description: 2.4-2.4835GHz Ceramic SMT antenna, 4x4.25mm keep out area

Series: Chip Antenna

PART NUMBER: W3008

## MECHANICAL DRAWING AND TERMINAL CONFIGURATION

*Ground cleared under antenna, clearance area 4 mm x 4.25mm*

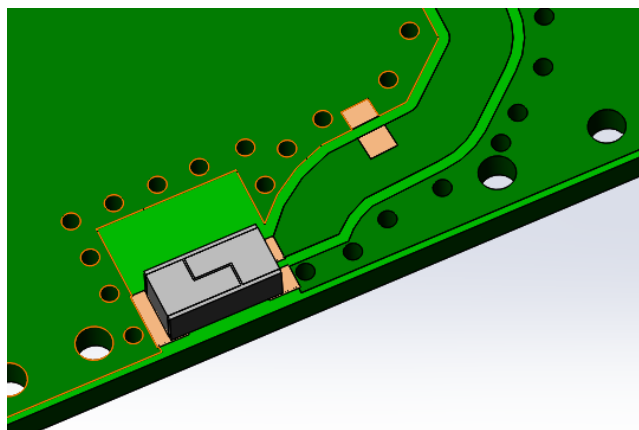


Ground Via Hole

Ground area should be surround with ground via holes

Feed line 50Ohm

Any type of 50 Ohm feed line can be used. inner layers on feed line area need to designed to give 50 Ohm characteristics to feed line.



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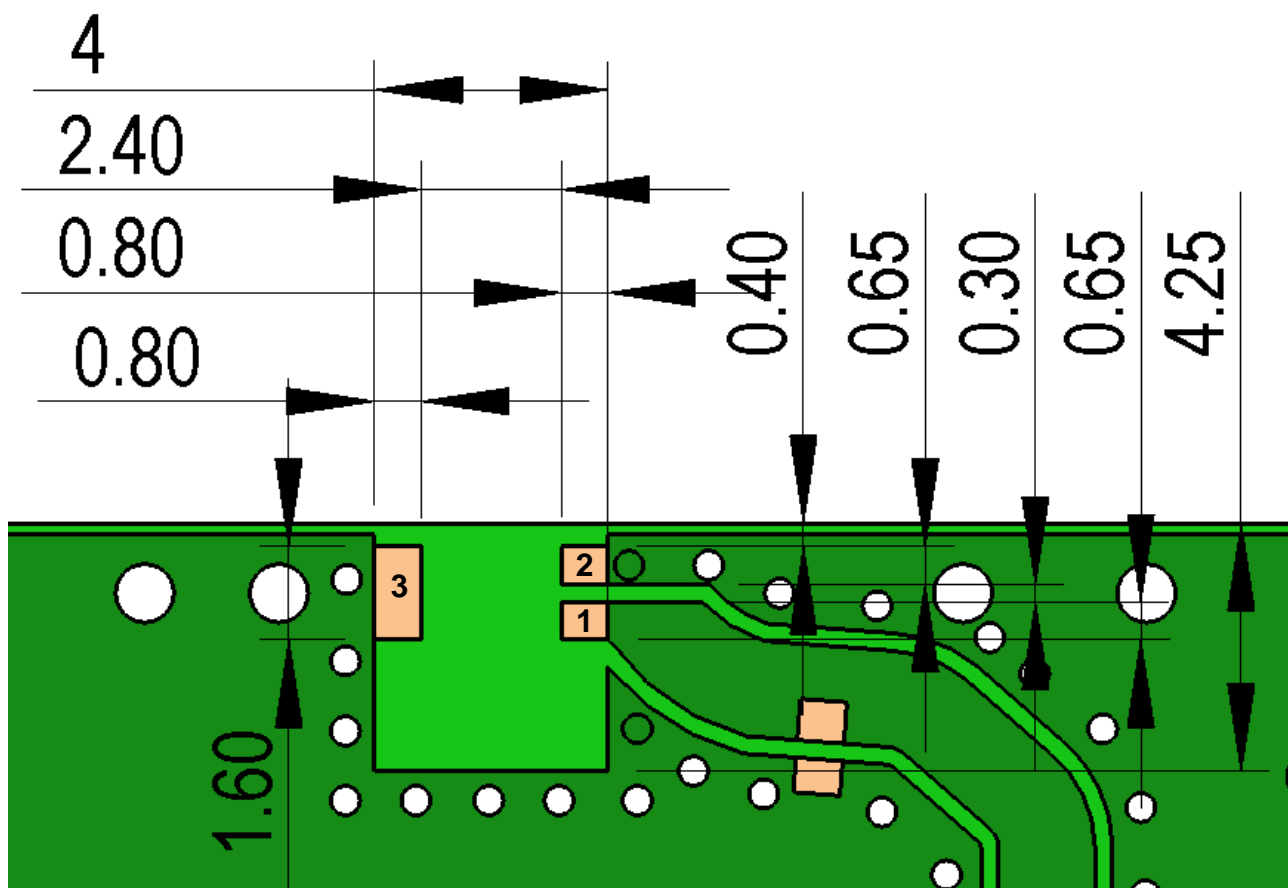
Description: 2.4-2.4835GHz Ceramic SMT antenna, 4x4.25mm keep out area

Series: Chip Antenna

PART NUMBER: W3008

## MECHANICAL DRAWING AND TERMINAL CONFIGURATION

**Recommended Antenna Pad Dimensions on PCB Layout (top surface)**  
**Ground cleared under antenna, clearance area 4 mm x 4.25 mm**



**PCB contact pads**

| No. | Terminal Name | Terminal Dimensions |
|-----|---------------|---------------------|
| 1   | Feed          | 0,80 x 0,65 mm      |
| 2   | GND           | 0,80 x 0,65 mm      |
| 3   | GND           | 0,80 x 1,60 mm      |

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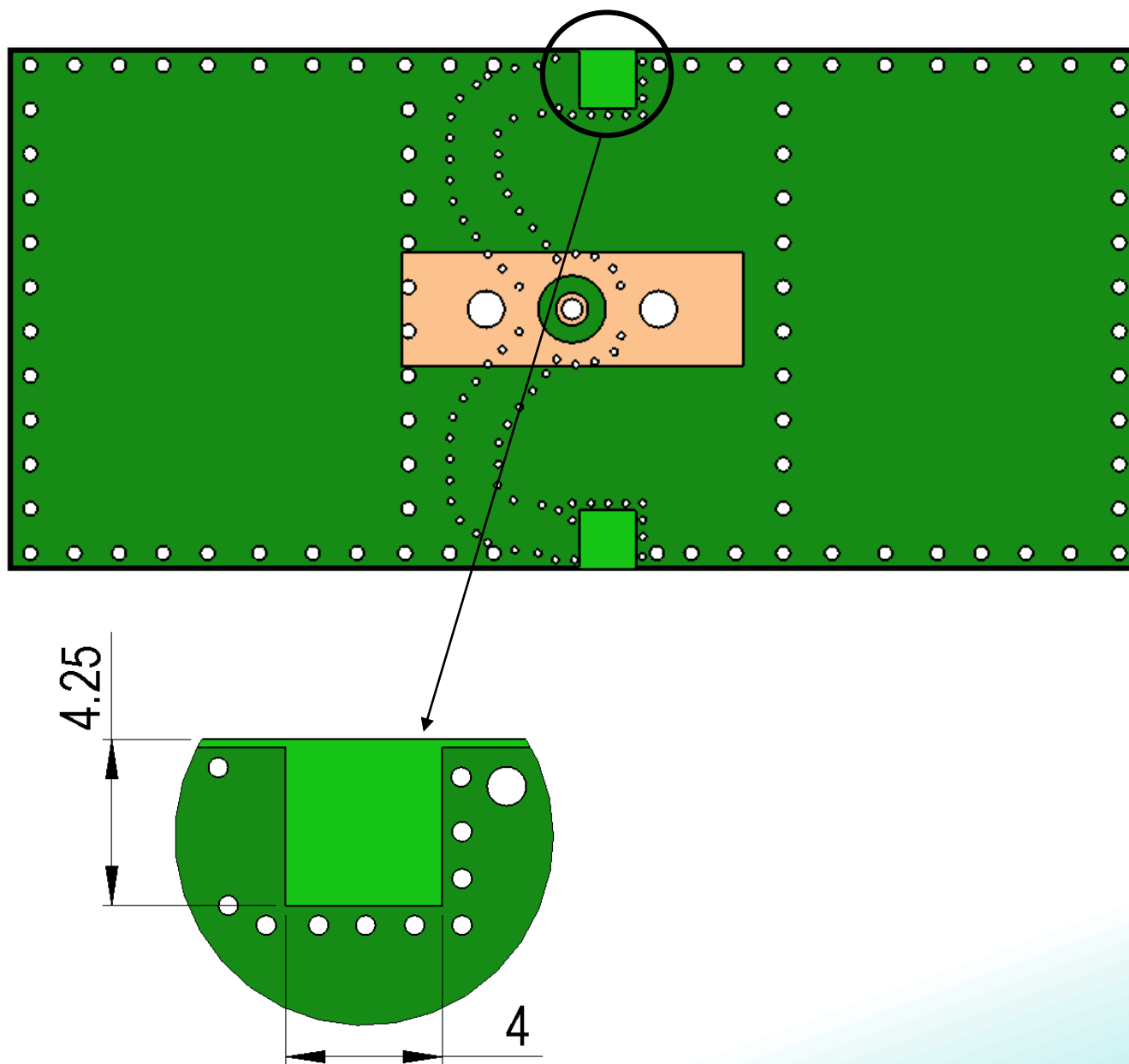
Description: 2.4-2.4835GHz Ceramic SMT antenna, 4x4.25mm keep out area

Series: Chip Antenna

PART NUMBER: W3008

## MECHANICAL DRAWING AND TERMINAL CONFIGURATION

**Recommended Antenna Pad Dimensions on PCB Layout (bottom surface)**  
**Ground cleared under antenna, clearance area 4 mm x 4.25 mm**



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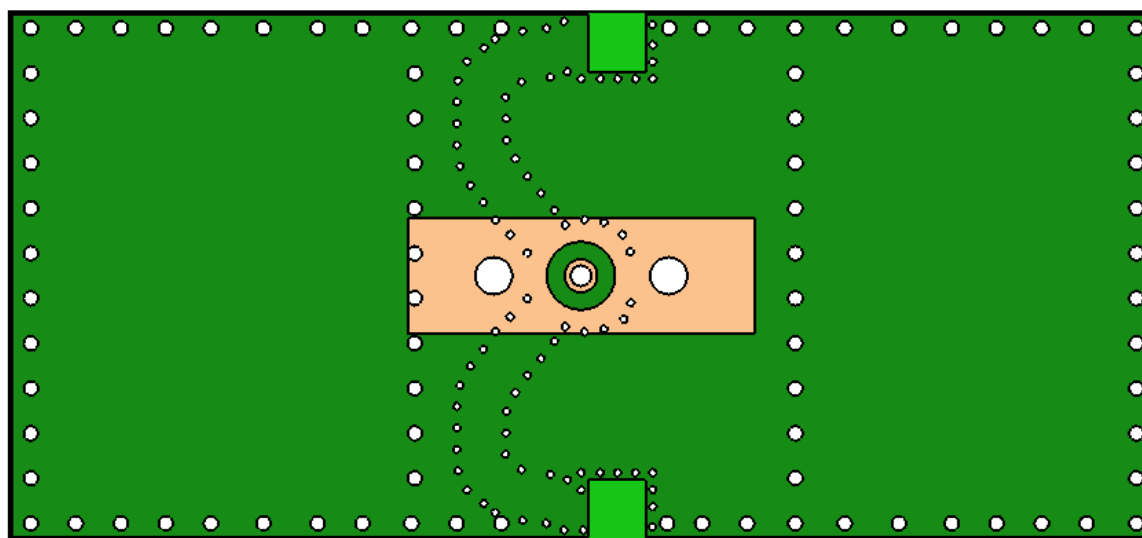
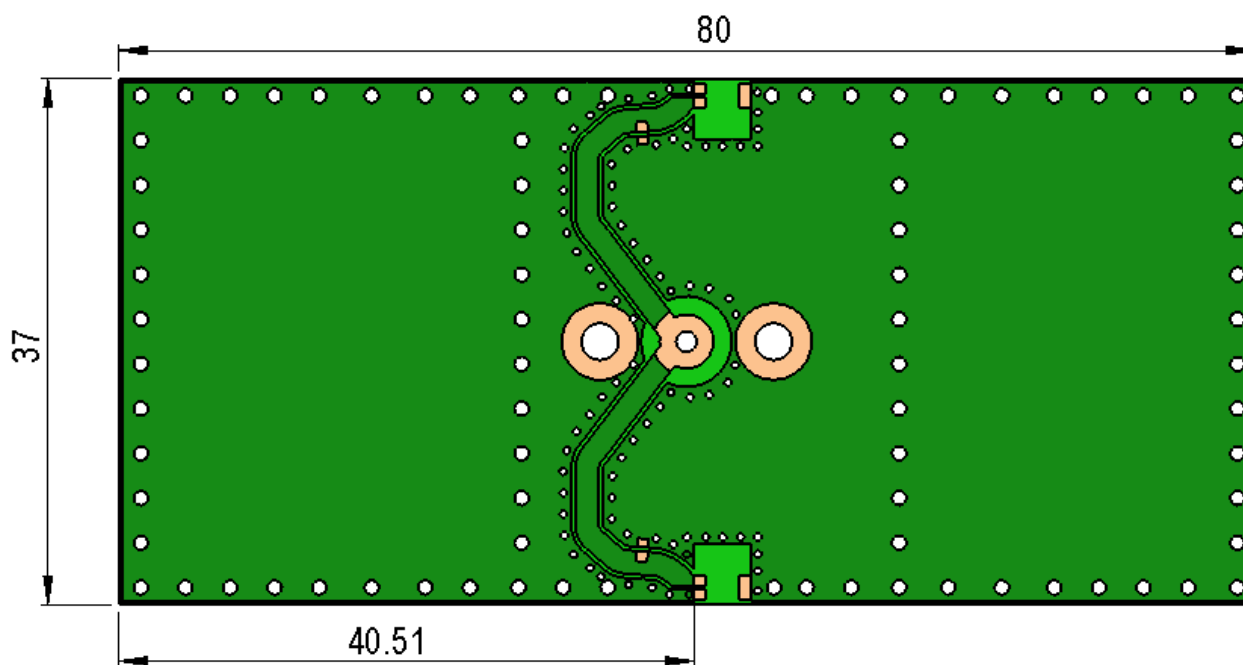
Description: 2.4-2.4835GHz Ceramic SMT antenna, 4x4.25mm keep out area

Series: Chip Antenna

PART NUMBER: W3008

## MECHANICAL DRAWING AND TERMINAL CONFIGURATION

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



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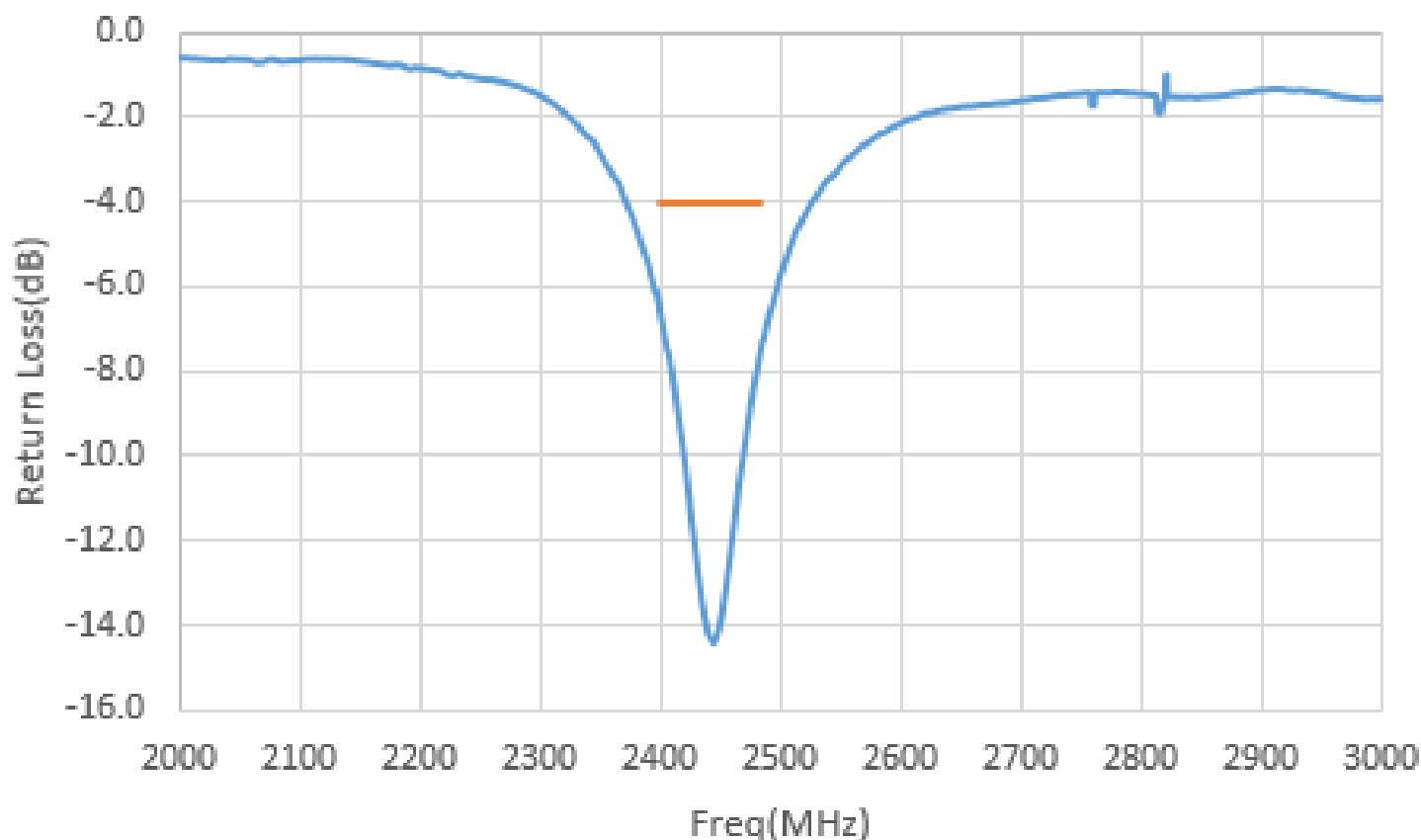
Series: Chip Antenna

Description: 2.4-2.4835GHz Ceramic SMT antenna, 4x4.25mm keep out area

PART NUMBER: W3008

## CHARTS

### Return loss



(\*) All RF parameters measured on 80\*37mm PCB with 4\*4.25mm clearance in free space. No matching component used.

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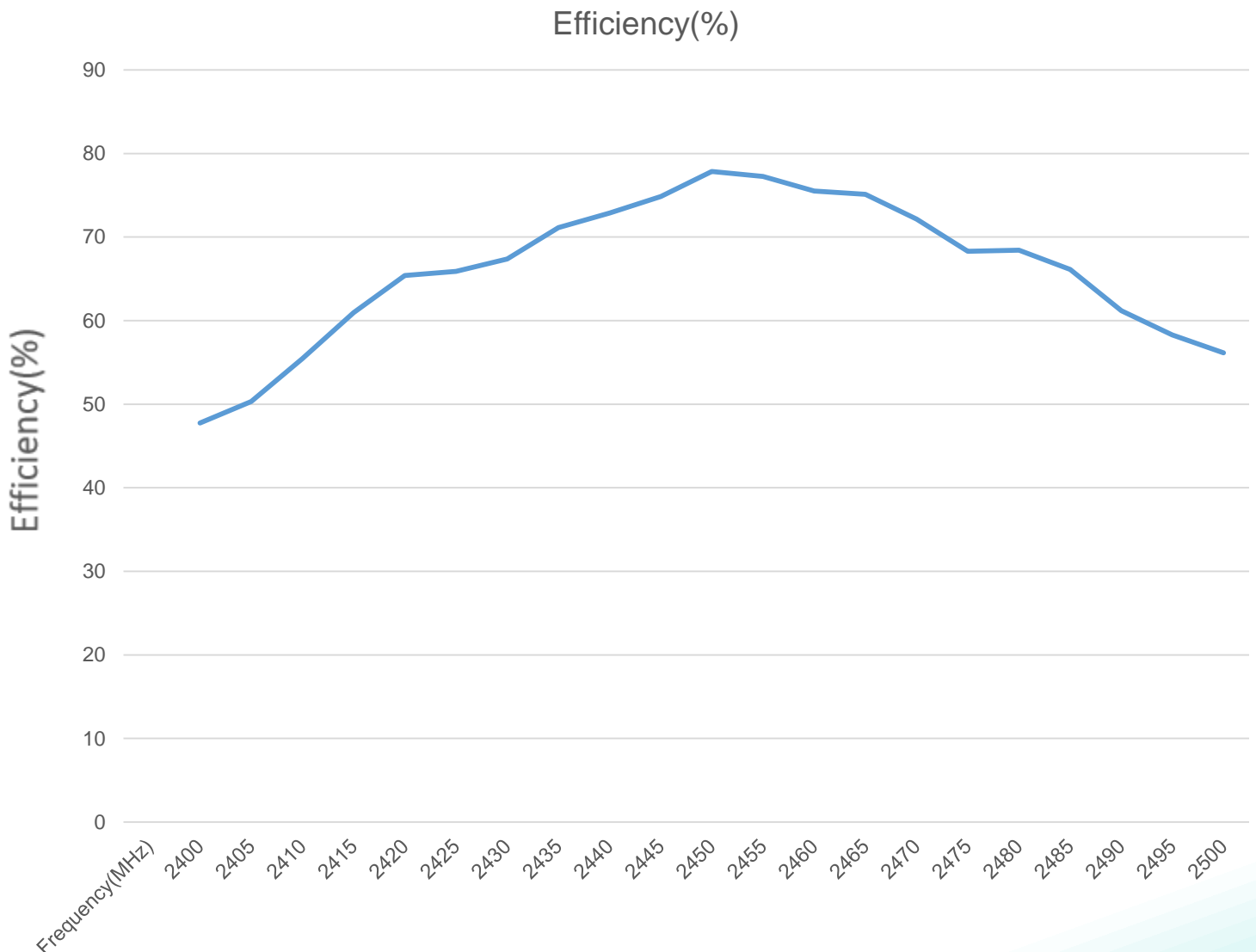


**Description: 2.4-2.4835GHz Ceramic SMT antenna, 4x4.25mm keep out area**

**Series: Chip Antenna**

**PART NUMBER: W3008**

## CHARTS



(\*) All RF parameters measured on 80\*37mm PCB with 4\*4.25mm clearance in free space. No matching component used.

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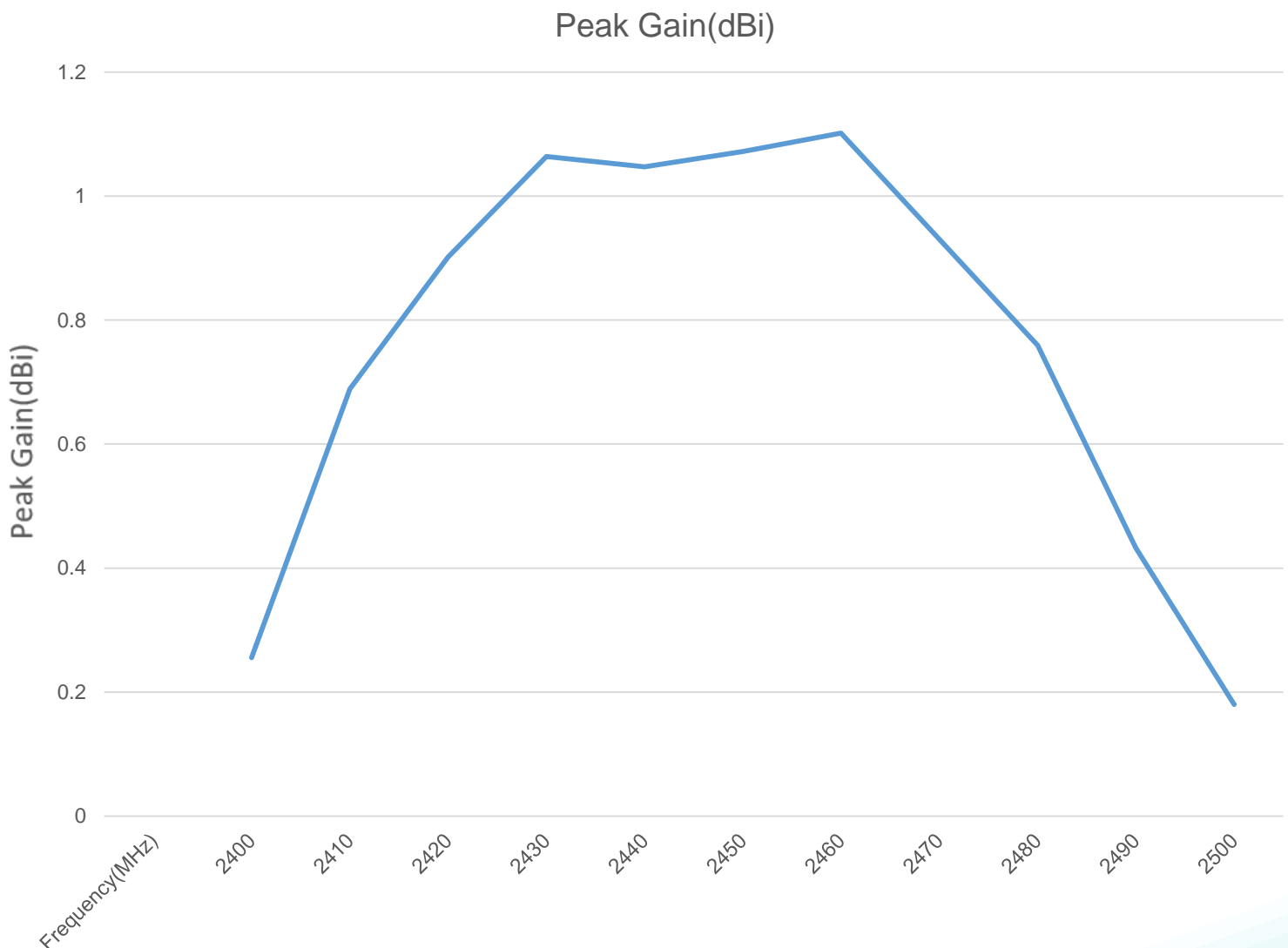
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## CHARTS



(\*) All RF parameters measured on 80\*37mm PCB with 4\*4.25mm clearance in free space. No matching component used.

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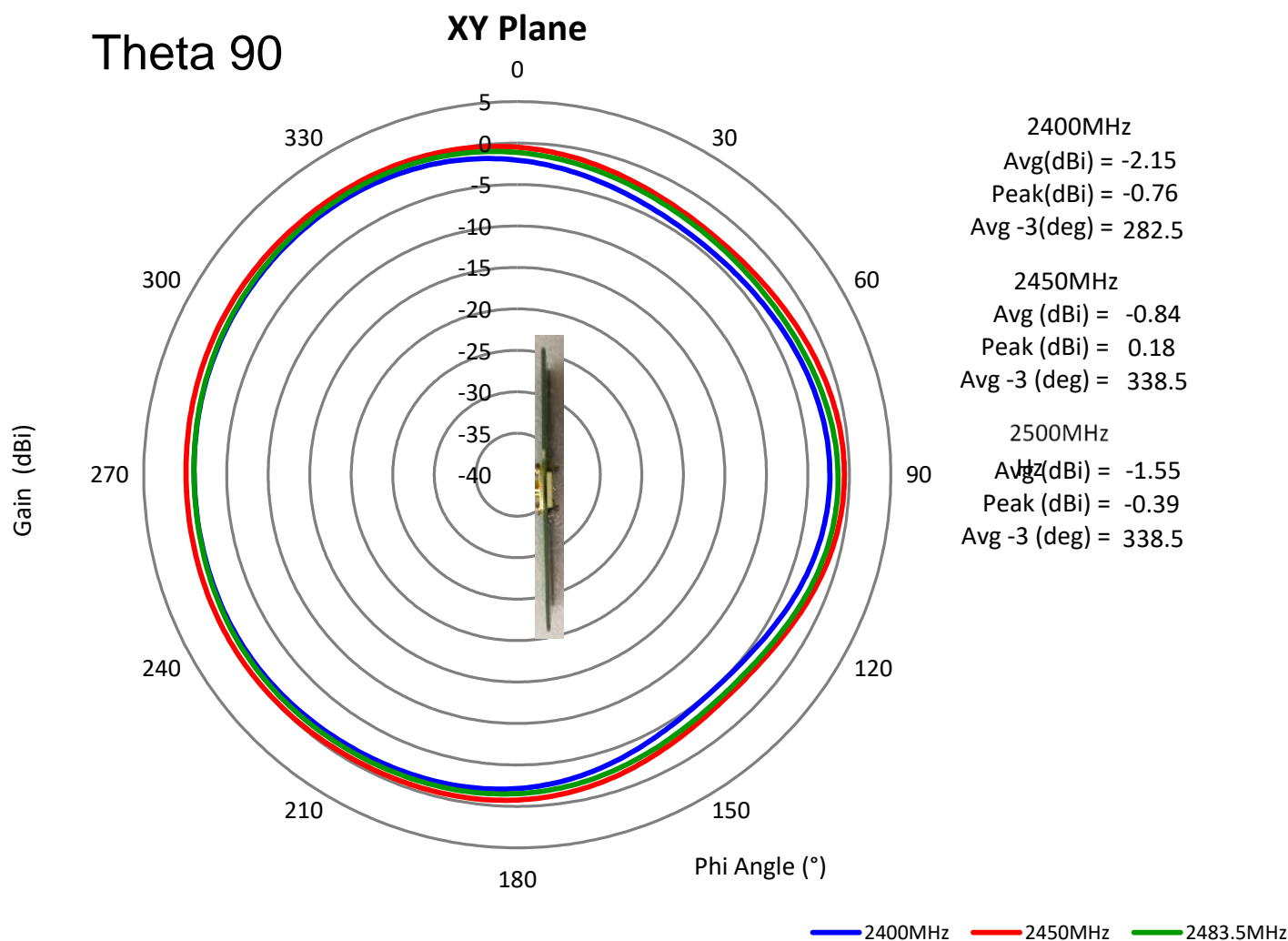
Series: Chip Antenna

Description: 2.4-2.4835GHz Ceramic SMT antenna, 4x4.25mm keep out area

PART NUMBER: W3008

## CHARTS

### Free Space Radiation Pattern



(\*) All RF parameters measured on 80\*37mm PCB with 4\*4.25mm clearance in free space. No matching component used.

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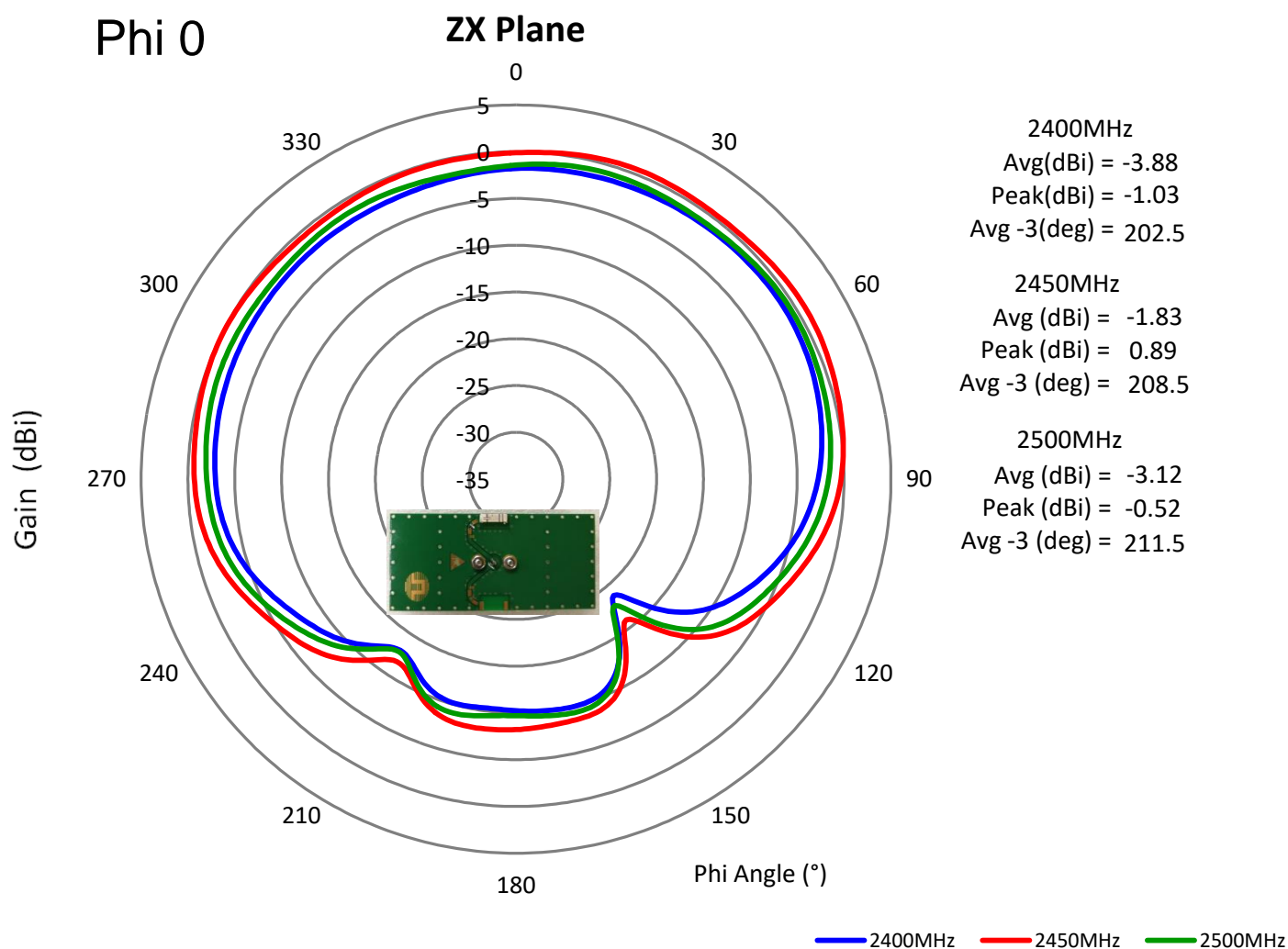
Series: Chip Antenna

Description: 2.4-2.4835GHz Ceramic SMT antenna, 4x4.25mm keep out area

PART NUMBER: W3008

## CHARTS

### Free Space Radiation Pattern



(\*) All RF parameters measured on 80\*37mm PCB with 4\*4.25mm clearance in free space. No matching component used.

Issue: 1946

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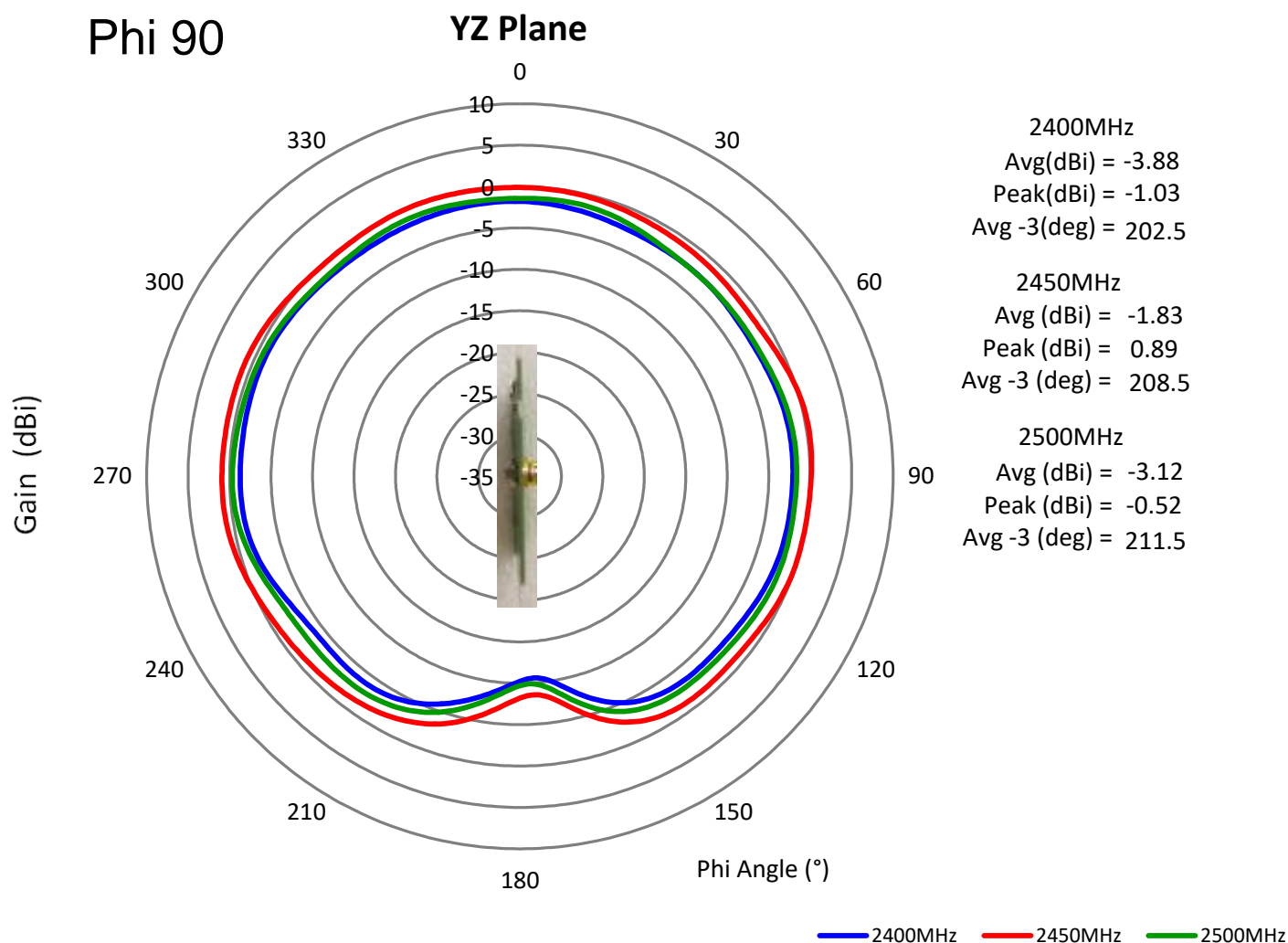
Series: Chip Antenna

Description: 2.4-2.4835GHz Ceramic SMT antenna, 4x4.25mm keep out area

PART NUMBER: W3008

## CHARTS

### Free Space Radiation Pattern



(\*) All RF parameters measured on 80\*37mm PCB with 4\*4.25mm clearance in free space. No matching component used.

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**Description: 2.4-2.4835GHz Ceramic SMT antenna, 4x4.25mm keep out area**

**Series: Chip Antenna**

**PART NUMBER: W3008**

**Recommendation for reflow soldering process**

Printing stencil thickness 0,15 - 0,25 mm is recommended for the solder paste. The maximum soldering temperature should not exceed 260°C. The temperature profile recommendations for reflow soldering process is presented in the Figures 1 and 2. The reflow profile

presented in figure 1 describes minimum reflow temperatures. The reflow profile presented in figure 2 describes maximum reflow temperatures. located at the center of the coverage area.

|   | Method of heat transfer                    | Controlled hot air convection |
|---|--|-------------------------------|
| 1 | Average temperature gradient in preheating | 2.5 °C/s                      |
| 2 | Soak time                                  | 2-3 minutes                   |
| 3 | Max temperature gradient in reflow         | 3 °C/s                        |
| 4 | Time above 217 °C                          | Max 30 sec                    |
| 5 | Peak temperature in reflow                 | 230 °C for 10 seconds         |
| 6 | Temperature gradient in cooling            | Max -5 °C/s                   |

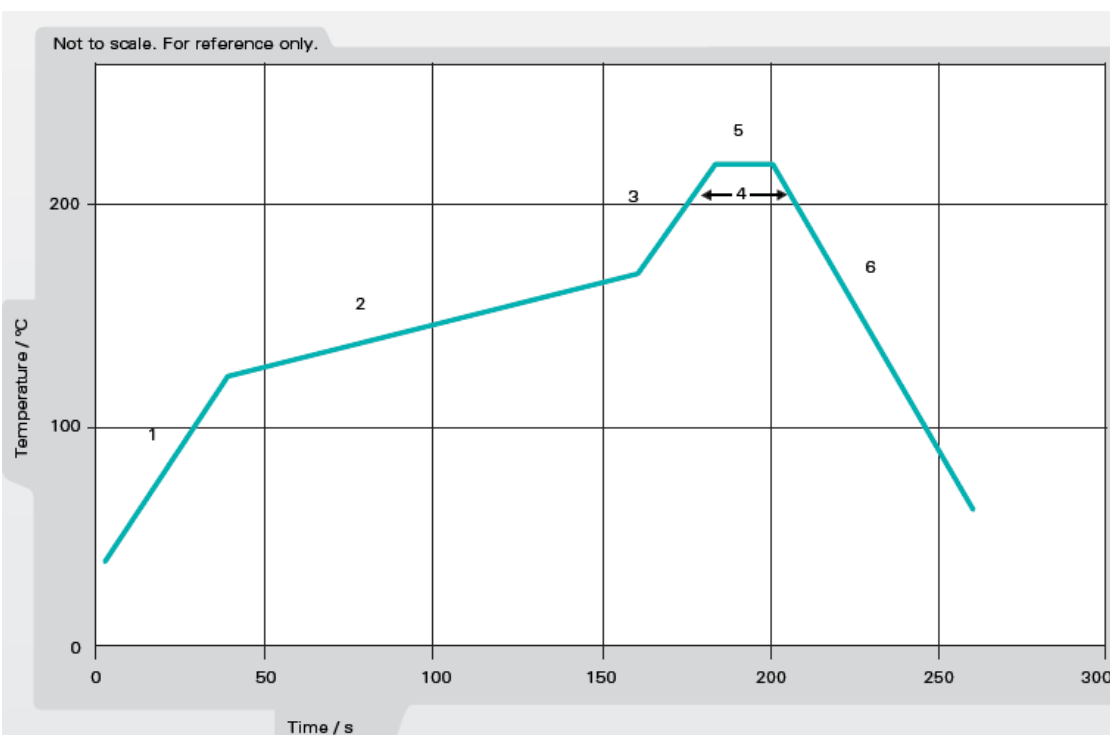


Figure 1. Minimum temperature profile recommendation for reflow soldering process

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Description: 2.4-2.4835GHz Ceramic SMT antenna, 4x4.25mm keep out area

Series: Chip Antenna

PART NUMBER: W3008

### Recommendation for reflow soldering process

|   | Method of heat transfer                    | Controlled hot air convection |
|---|--|-------------------------------|
| 1 | Average temperature gradient in preheating | 2.5 °C/s                      |
| 2 | Soak time                                  | 2-3 minutes                   |
| 3 | Max temperature gradient in reflow         | 3 °C/s                        |
| 4 | Time above 217 °C                          | Max 60 sec                    |
| 5 | Time above 230 °C                          | Max 50 sec                    |
| 6 | Time above 250 °C                          | Max 10 sec                    |
| 7 | Peak temperature in reflow                 | 260 °C for 5 seconds          |
| 8 | Temperature gradient in cooling            | Max -5 °C/s                   |

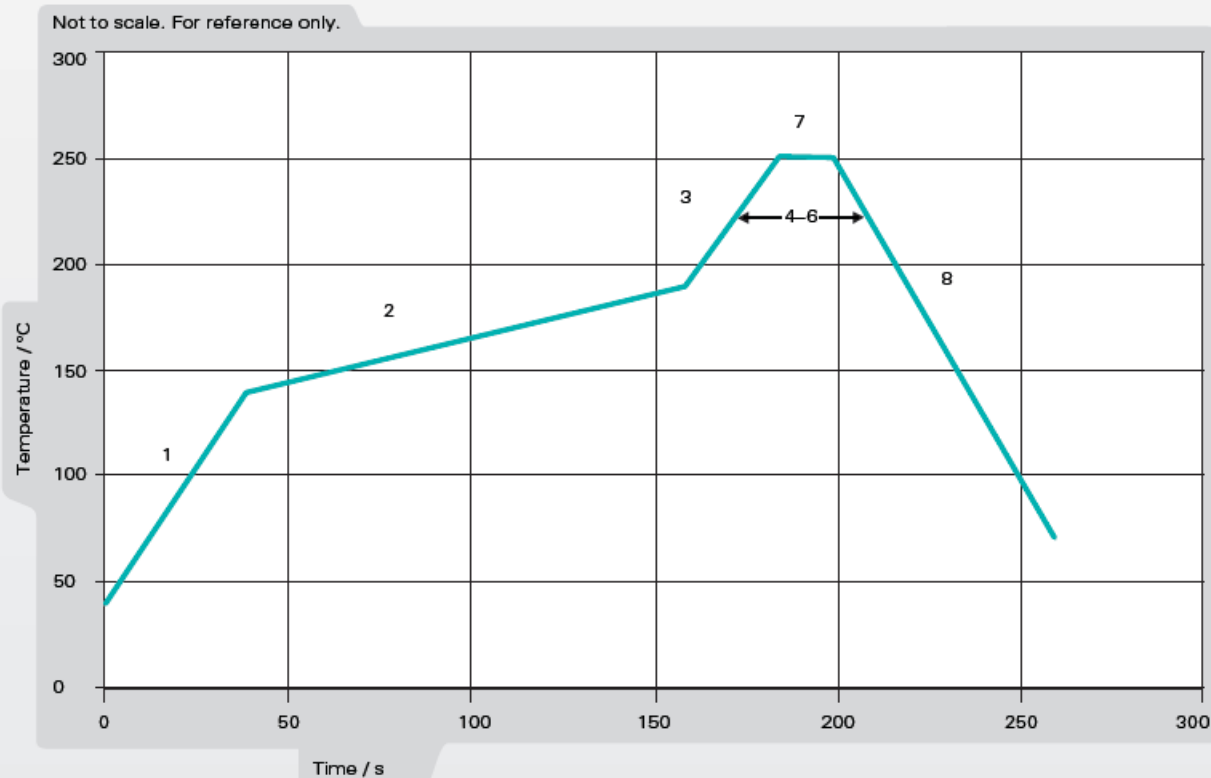


Figure 2. Maximum temperature profile recommendation for reflow soldering process

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**Description: 2.4-2.4835GHz Ceramic SMT antenna, 4x4.25mm keep out area**

**Series: Chip Antenna**

**PART NUMBER: W3008**

## PACKAGING-1

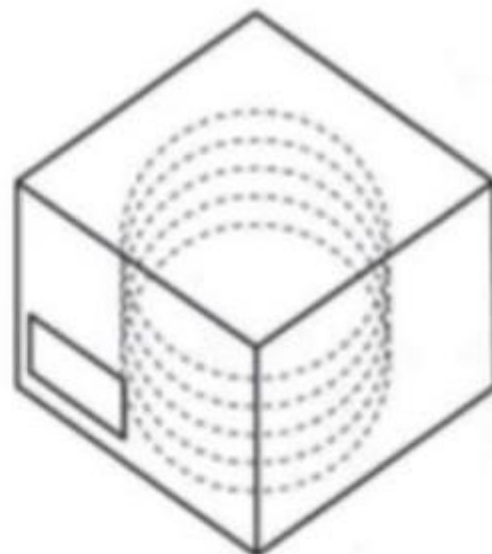
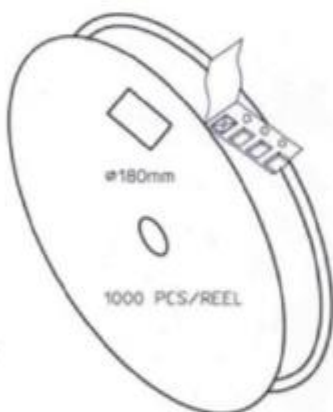
3000pcs antennas per 7" reel

5pcs 7" reel per inner package box

2pcs inner box per out box

Total 30000pcs antenna per out box

Out box size: 390mmx215mmx165mm



**LEVEL**

**NOT MOISTURE SENSITIVE**

**1**

These Devices do not require special storage conditions provided:

1. They are maintained at conditions equal to or less than 30°C and 85% RH.
2. They are solder reflowed at a peak body temperature which does not exceed 260°C.

Note: Level 1 and body temperature defined by IPC/JEDEC J-STD-020

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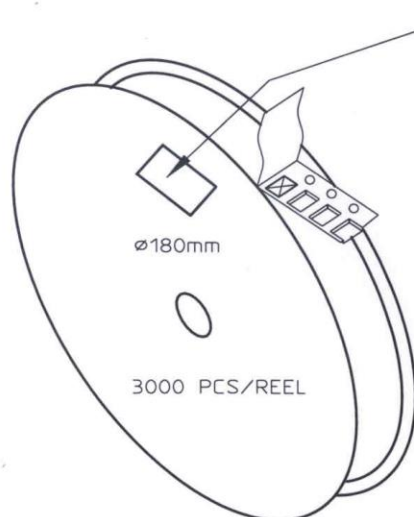


**Description: 2.4-2.4835GHz Ceramic SMT antenna, 4x4.25mm keep out area**

**Series: Chip Antenna**

**PART NUMBER: W3008**

## PACKAGING-2



REEL LABEL INFORMATION:

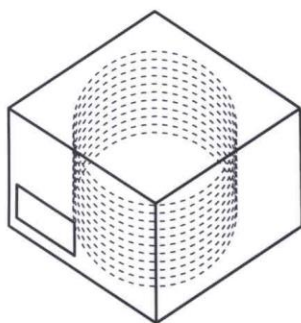
- TRACEABILITY
- QUANTITY
- PRODUCT CODE

CARRIER TAPE H85-00125  
width=8,00 depth=1,22  
COVER TAPE H85-00126  
width=5,60

LENGTH OF TAPE:

- Leader section: min 350 mm before component section
- Trailer section: min 40 mm after component section.


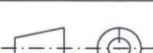
Empty part cavities at leader and trailer section of the tape must be sealed with top cover tape.



BOX H85-00128 1 pcs  
(182x182x132)  
- LABEL 1 pcs/BOX  
REEL H85-00127 10 pcs  
(D180, W12)  
- REEL LABEL 1 pcs/REEL

MATERIAL

HANDLINGS

|   |   |              |          |             |               |  |
|---|---|--------------|----------|-------------|---------------|--|
|  |  | RATIO        | DRWN     | 090507 PeHa | H             |  |
|   |   |              | DGNER    |             | G             |  |
|   |   |              | CHKD     |             | F             |  |
|   |   |              | APPRD    |             | E             |  |
| PRODUCT   | H90-OY805   |              | APPRD BY |             | D             |  |
|   |   |              |          |             | C             |  |
| DENOMINATION  |   | PACKING FORM |          |             | B             |  |
|   |   |              |          |             | A             |  |
|   |   |              | VERSION  |             | MOD/DATE/NAME |  |

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