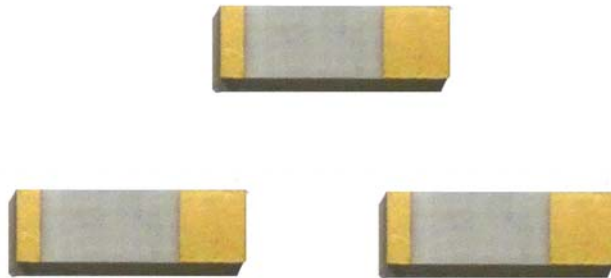


# 10.0 x 3.2 x 2.0 (mm) GNSS Chip Antenna (AA065A)

## Engineering Specification

### 1. Product Number

H 2 U J 6 V 1 A 2 A 0 1 0 0



### 2. Features

- \*Stable and reliable in performances
- \*Low profile, compact size
- \*RoHS compliance
- \*SMT processes compatible

### 3. Applications

- \*GNSS (Global Navigation Satellite System)
- \*Hand-held devices when GPS & BDS & GLONASS & GALILEO functions are needed, e.g., PDA, Smart phone, PND.

### 4. Description

Unictron's AA065A chip antenna is designed for GNSS band applications, covering frequencies 1560~1606 MHz. Fabricated with proprietary design and processes, AA065A shows excellent performance and is fully compatible with SMT processes which can decrease the assembly cost and improve device's quality and consistency.

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Prepared by : **Meiping**

Designed by : **Allen**

Checked by : **Mike**

Approved by : **Herbert**

TITLE : **10.0 x 3.2 x 2.0 (mm) GNSS Chip Antenna (AA065A) Engineering specification**

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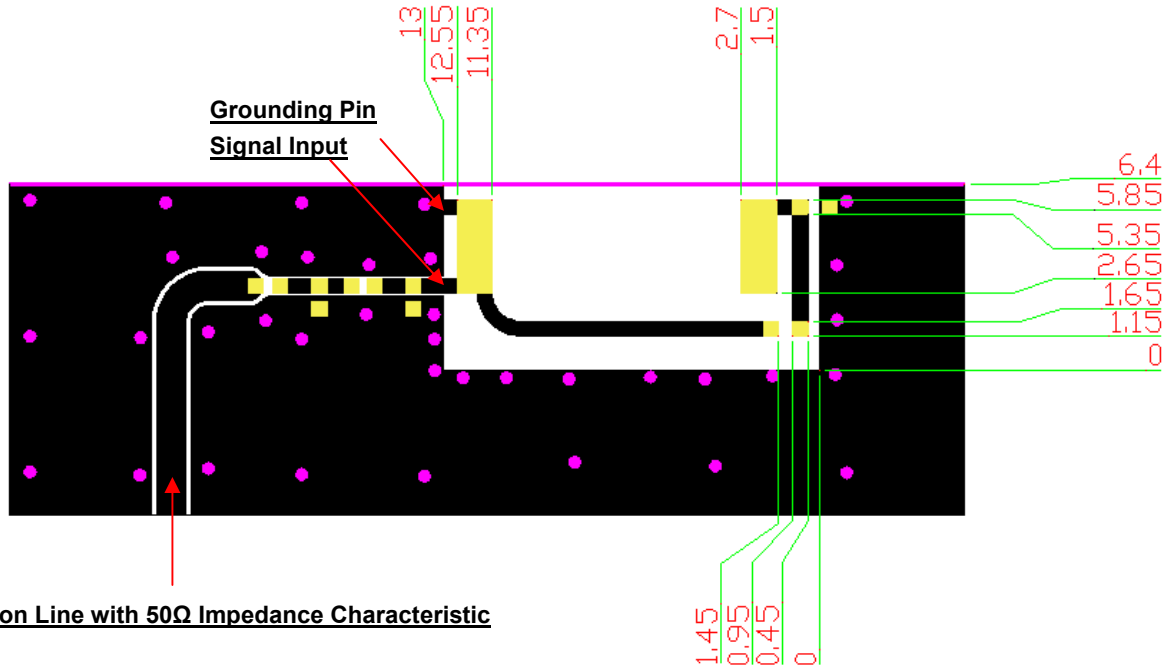
**A**

## 5. Layout Guide & Electrical Specifications

### 5-1. Layout Guide (unit : mm)

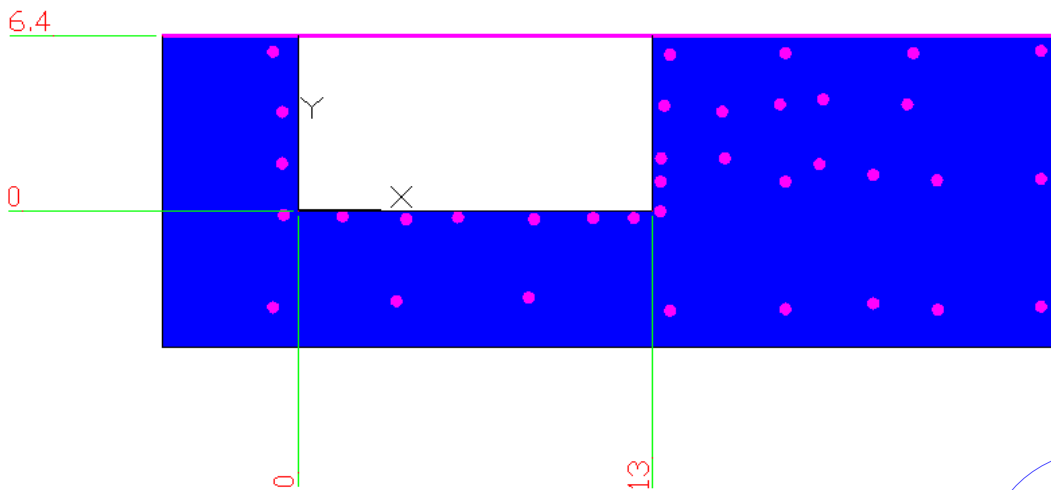
Solder Land Pattern:

The solder land pattern (gold marking areas) is shown below. Recommendation on matching circuit will be provided according to customer's installation conditions.



Transmission Line with 50Ω Impedance Characteristic

Top View



Bottom View



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## 5-2. Electrical Specifications (Evaluation Board Dimensions: 80 x 40 mm<sup>2</sup>)

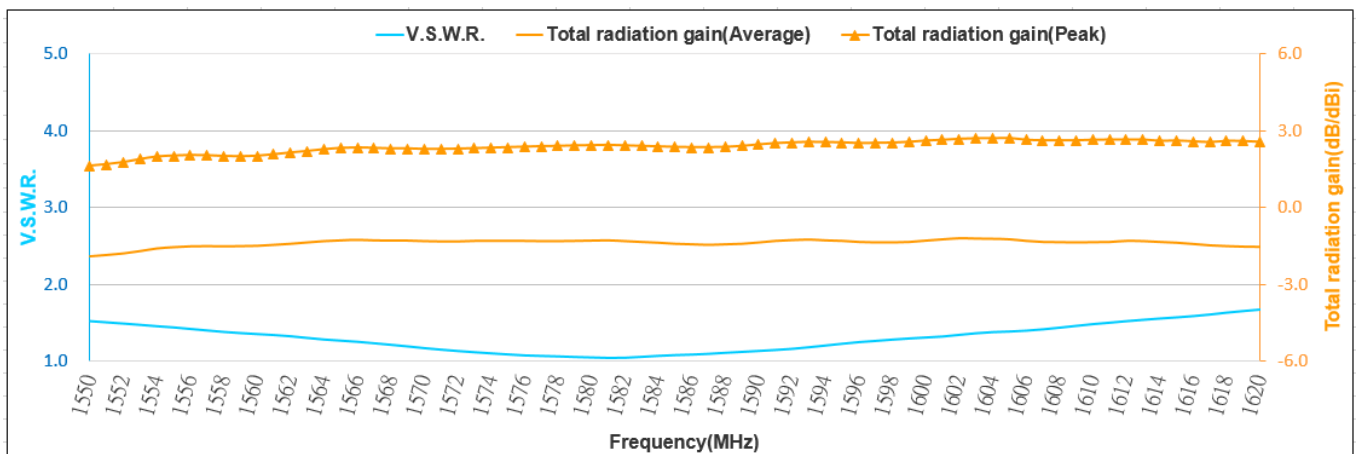
### 5-2-1. Electrical Table

Characteristics	Specifications
Outline Dimensions (mm)	10 x 3.2 x 2.0
Working Frequency (MHz)	1560~1606
Peak Gain (dBi) (typical) **	2.7
Efficiency (%) (typical) **	75
VSWR (@ center frequency)*	< 2 : 1
Characteristic Impedance ( $\Omega$ )	50
Polarization	Linear Polarization

\*Center frequency means the frequency with the lowest value in return loss of the chip antenna on the evaluation board.

\*\*A typical value is for reference only, not guaranteed.

### 5-2-2. Frequency vs. V.S.W.R. and Total Radiation Gain



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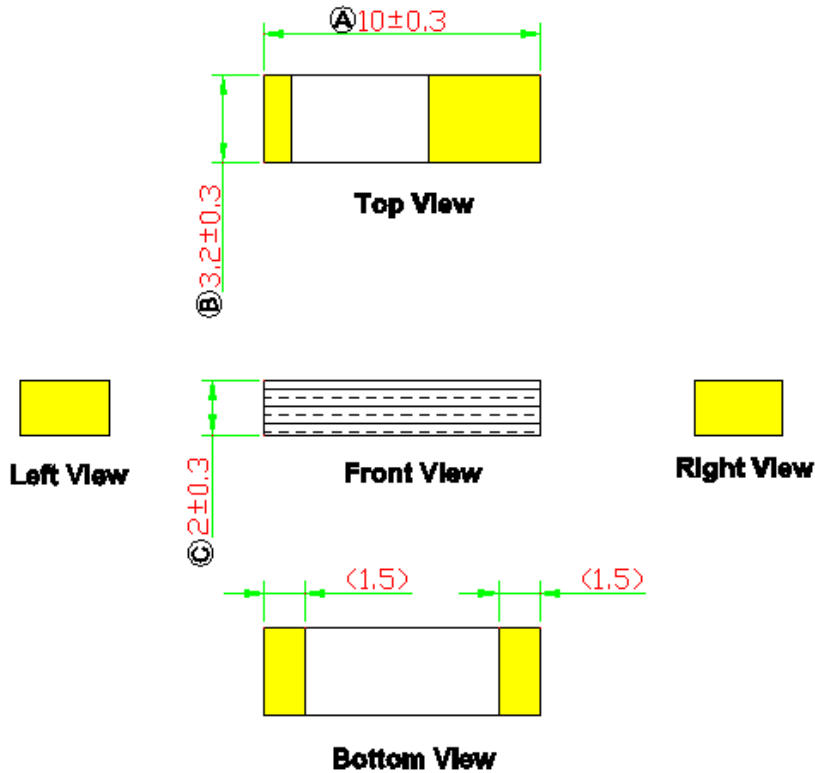
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## 6. Outline Dimensions of Antenna & Evaluation Board (unit: mm)

### 6-1. Antenna Dimensions



**NOTE:**

1. All materials are RoHS compliant.
2. "A~C" Critical Dimensions.
3. "( )" Reference Dimensions.

### PIN Definitions



PIN	1	2
Soldering pad	Signal	Tuning / Ground

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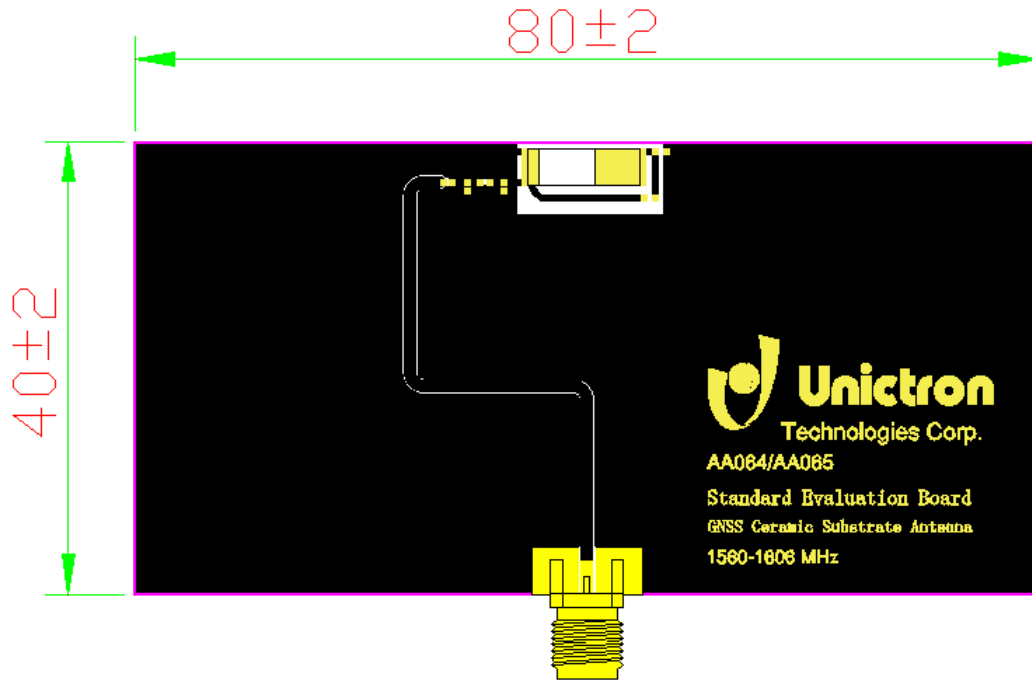
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6-2. Evaluation Board with Antenna



Unit: mm



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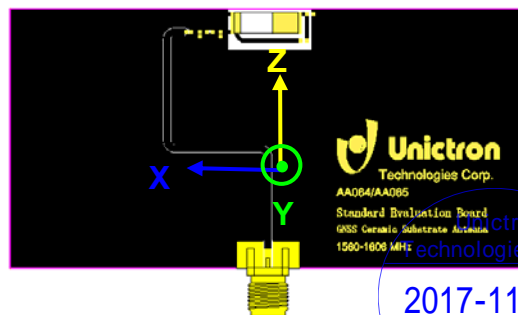
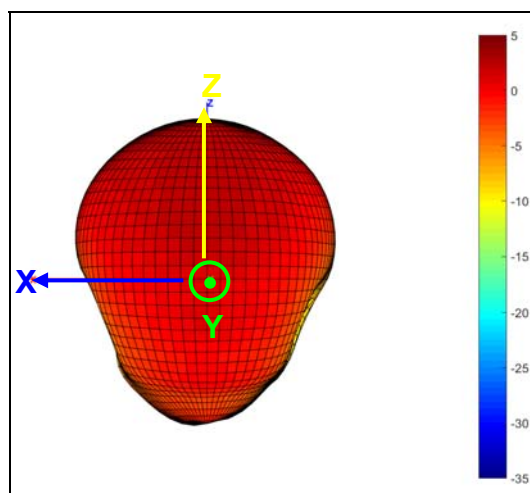
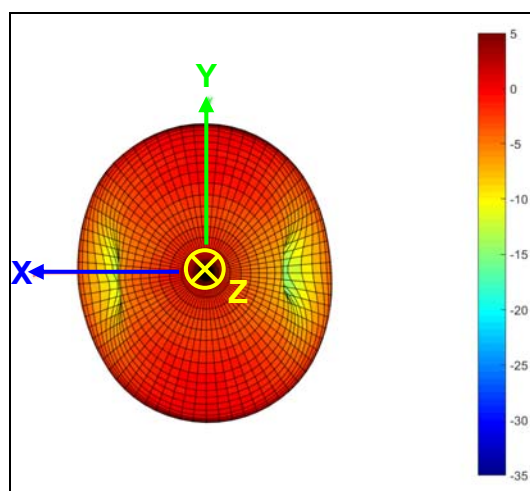
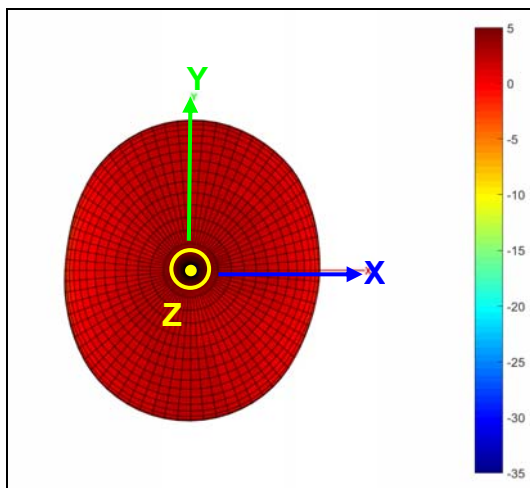
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## 7. Radiation Pattern (with 80 x 40 mm<sup>2</sup> Evaluation Board)

### 7-1. 3D Gain Pattern @ 1561 MHz (Unit: dBi)



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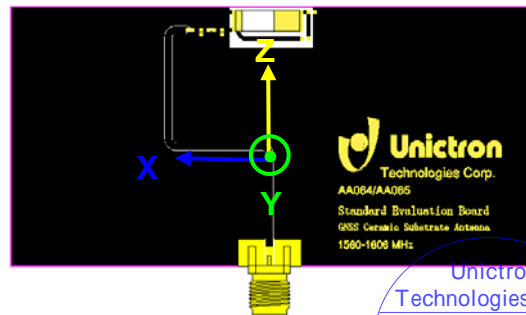
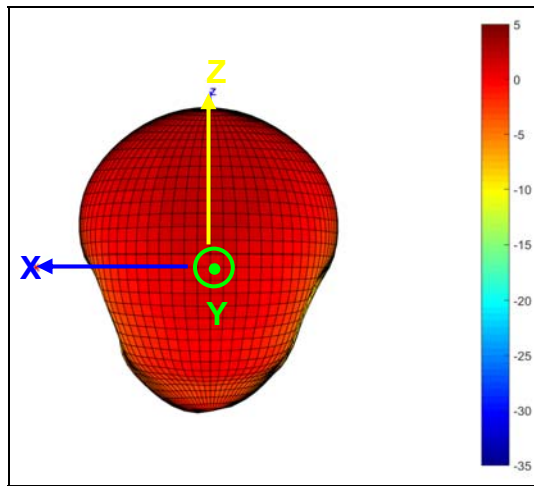
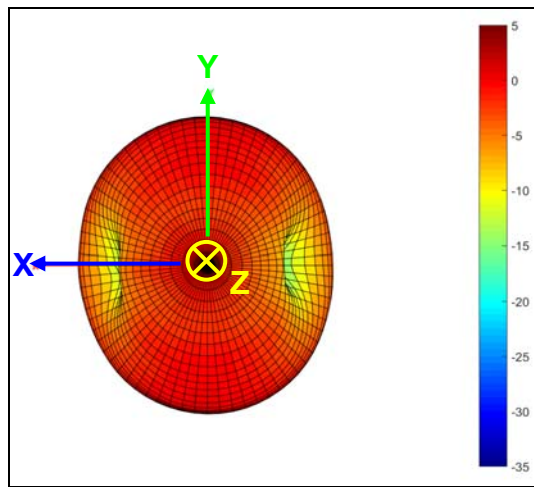
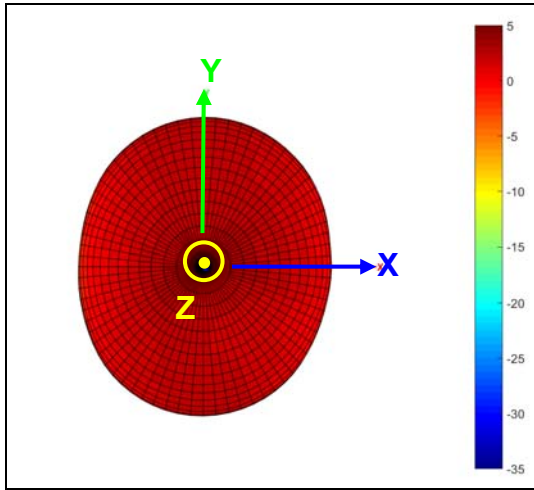
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7-2. 3D Gain Pattern @ 1575.42 MHz (Unit: dBi)



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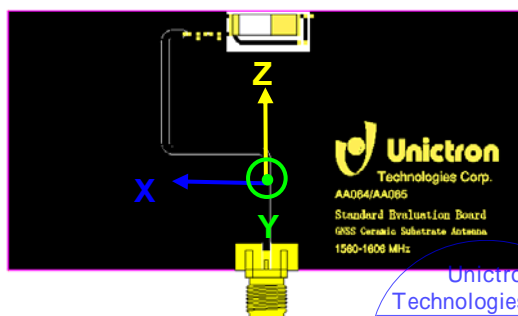
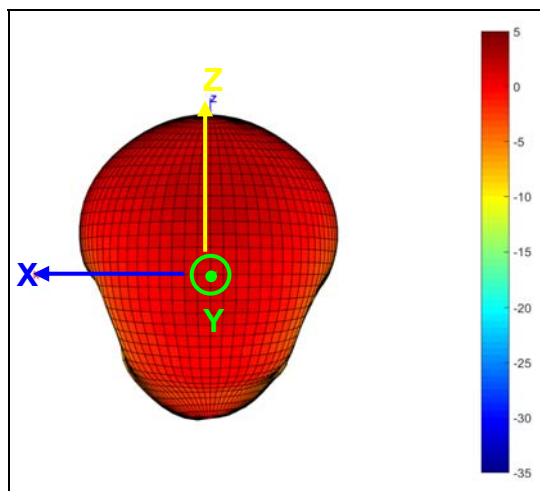
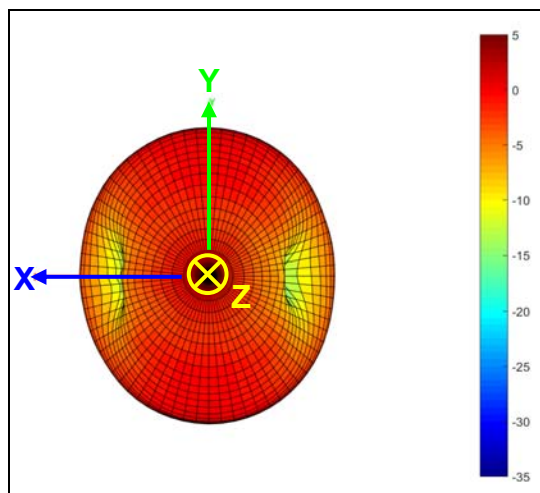
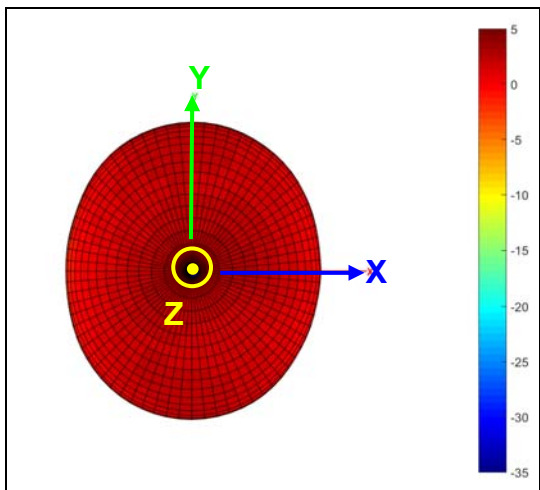
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7-3. 3D Gain Pattern @ 1590 MHz (Unit: dBi)



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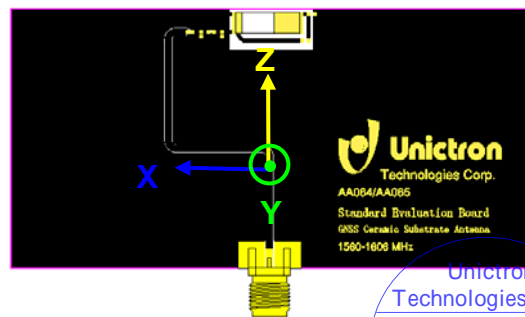
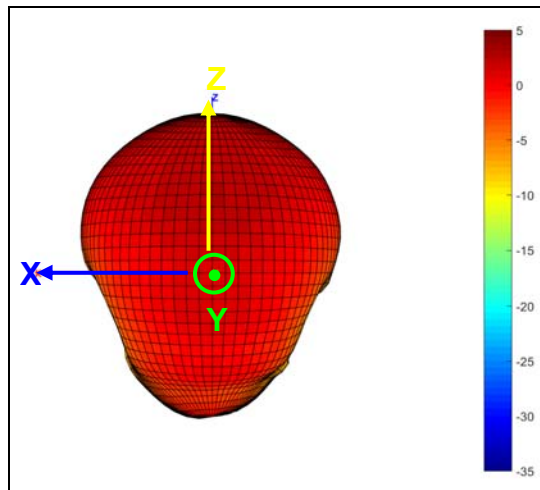
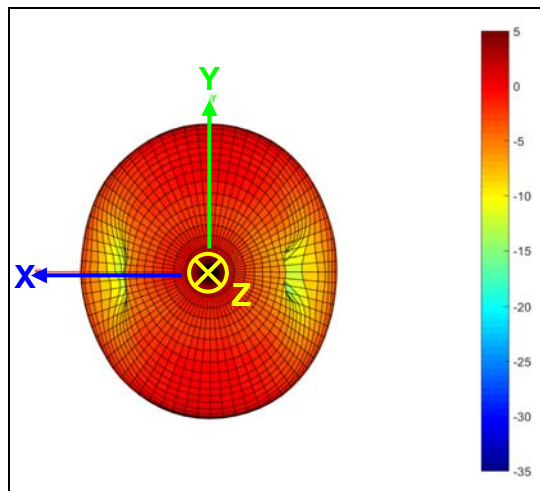
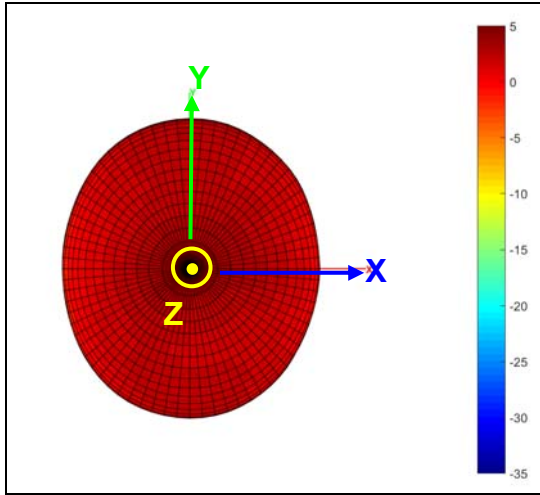
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7-4. 3D Gain Pattern @ 1602 MHz (Unit: dBi)



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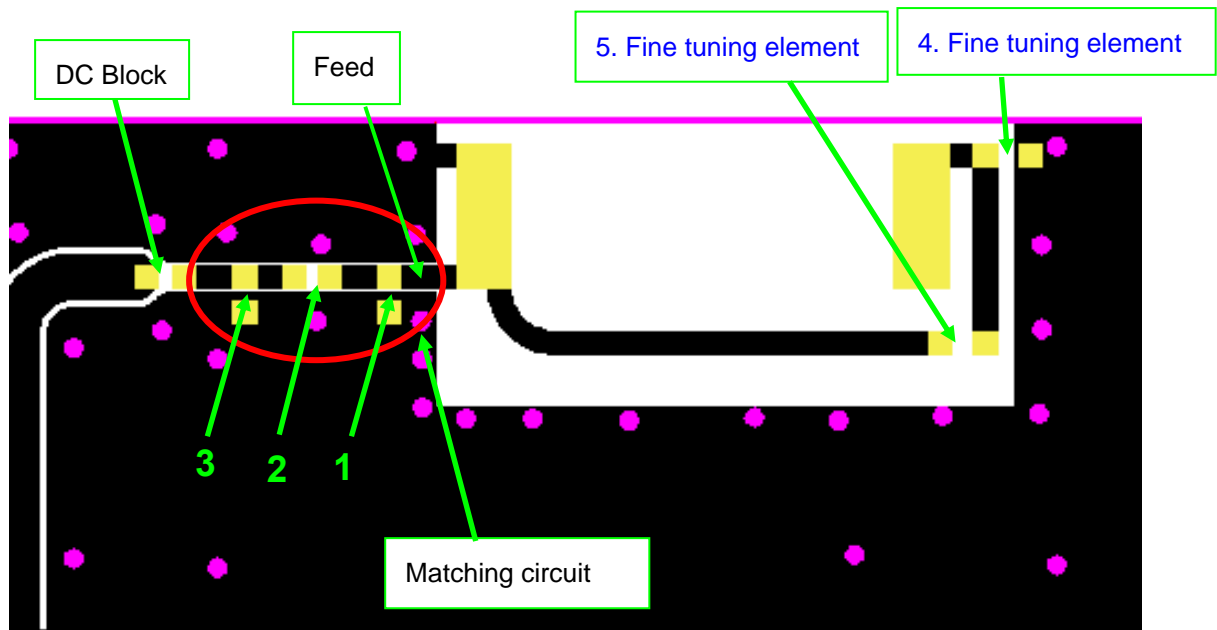
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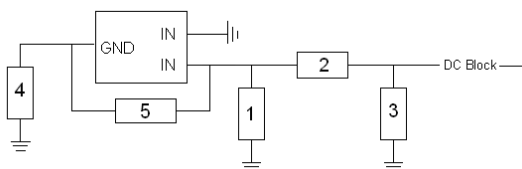
## 8. Frequency tuning

### 8-1. Chip antenna tuning scenario :



### 8-2. Matching circuit :

Matching circuit : (Center frequency is about 1575.42MHz @ 80 x 40 mm<sup>2</sup> ground plane)



System Matching Circuit Component			
Location	Description	Vendor	Tolerance
1	N/A*	N/A	N/A
2	1.5nH*, 0402	MURATA	±0.3nH
3	1.5pF*, 0402	MURATA	±0.05pF
Fine tuning element 4	1.8 pF*, 0402	MURATA	±0.05pF
Fine tuning element 5	0.7 pF*, 0402	MURATA	±0.05pF

\*Typical reference values which may need to be changed when circuit boards or part vendors are different.

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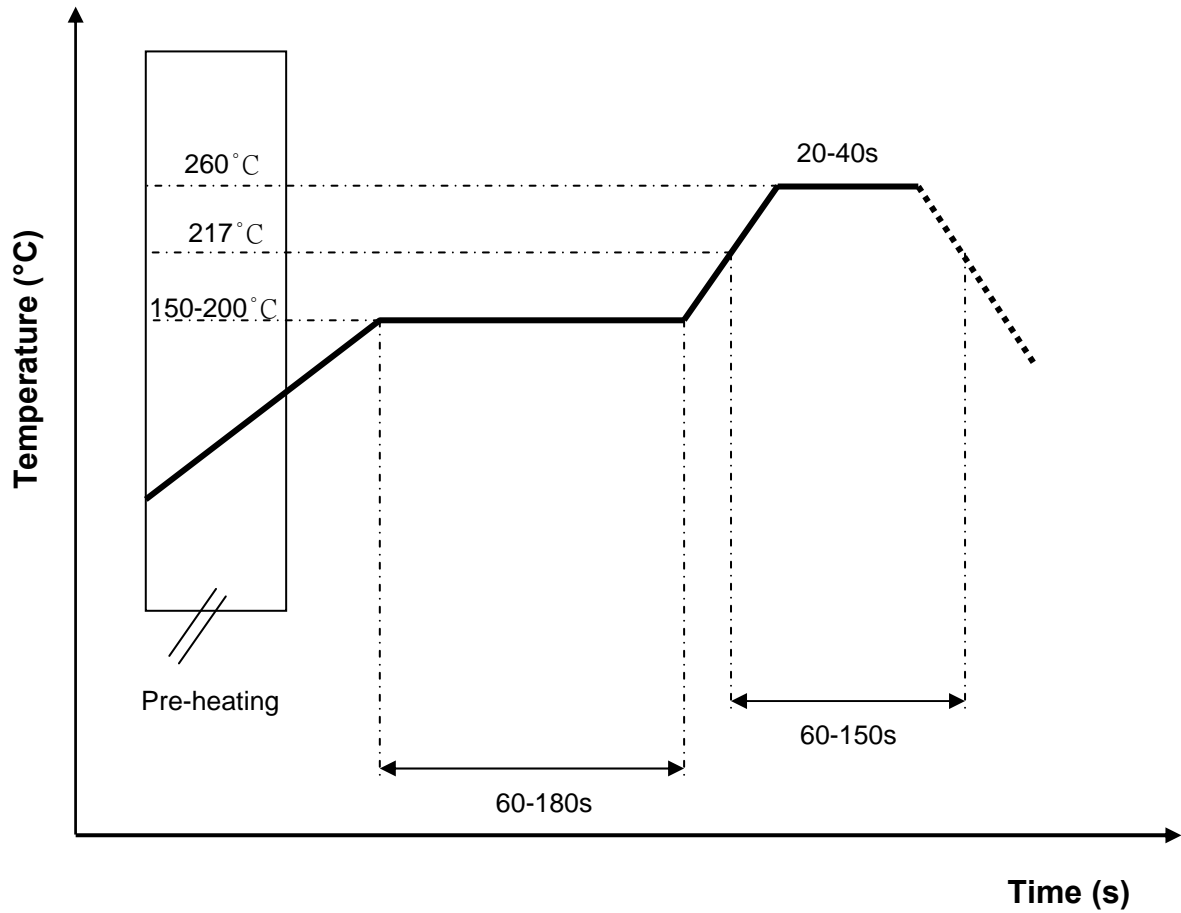
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## 9. Soldering Conditions

Typical Soldering Profile for Lead-free Process



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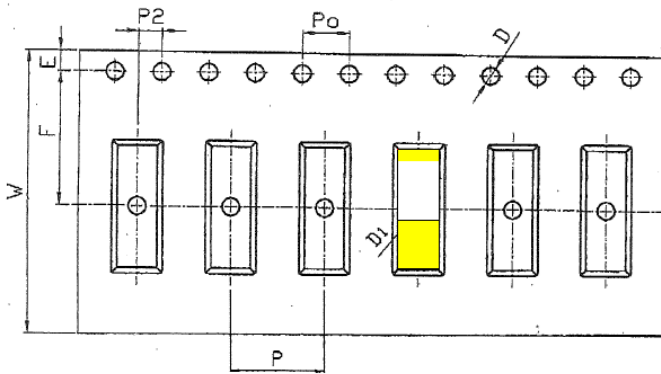
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## 10. Packing:

- (1) Quantity/Reel: 2000pcs/Reel
- (2) Plastic tape:

a. Tape Drawing



b. Tape Dimensions (unit: mm)

Feature	Specifications	Tolerances
W	24.00	±0.30
P	8.00	±0.10
E	1.75	±0.10
F	11.50	±0.10
P2	2.00	±0.10
D	1.50	+0.10 -0.00
D1	1.50	±0.10
Po	4.00	±0.10
10Po	40.00	±0.20

## 11. Operating & Storage Conditions

### 11-1. Operating

- (1) Maximum Input Power: 2 W
- (2) Operating Temperature: -40°C to 85°C
- (3) Relative Humidity: 10% to 70%

### 11-2. Storage (sealed)

- (1) Storage Temperature: -5°C to 40°C
- (2) Relative Humidity: 20% to 70%
- (3) Shelf Life: 1 year

### 11-3. Storage (unsealed)

Meet the criteria of J-STD-033 MSL2a

### 11-4. Storage (After mounted on customer's PCB with SMT process)

- (1) Storage Temperature: -40°C to 85°C
- (2) Relative Humidity: 10% to 70%



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## 12. Notice

(1) Installation Guide:

Please refer to Unictron's application note "General guidelines for the installation of Unictron's chip antennas" for further information.

(2) All specifications are subject to change without notice.



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