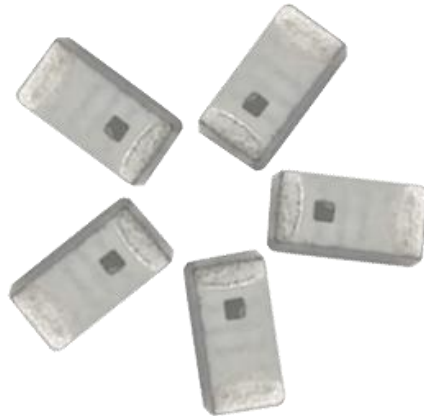


3.2 x 1.6 x 1.2 (mm) WiFi / Bluetooth Chip Antenna (AB002) Engineering Specification

1. Product Number

| | | | | | | | | | | | | | | |
|---|---|---|---|-----|-----|-----|-----|-----|-----|---|---|---|---|---|
| S | 2 | M | 1 | E | 1 | 2 | 0 | Z | 2 | 9 | 6 | 0 | 3 | 0 |
| | | | | | | | | | | | | | | |
| | | | | (1) | (2) | (3) | (4) | (5) | (6) | | | | | |



2. Features

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

3. Applications

- *ISM 2.4 GHz applications
- *ZigBee/BLE applications
- *Bluetooth earphone systems
- *Hand-held devices when WiFi / Bluetooth functions are needed, e.g., Smart phones
- *IEEE802.11 b/g/n
- *Wireless PCMCIA cards or USB dongles

4. Description

Unictron's AB002 chip antenna is designed for ISM 2.4GHz applications, covering frequencies 2400~2500 MHz. Fabricated with proprietary design and processes, AB002 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 : Sara

Designed by : Joy

Checked by : Simon

Approved by: Frank

TITLE: 3.2 x 1.6 x 1.2 WiFi / Bluetooth Chip Antenna (AB002) Engineering Specification

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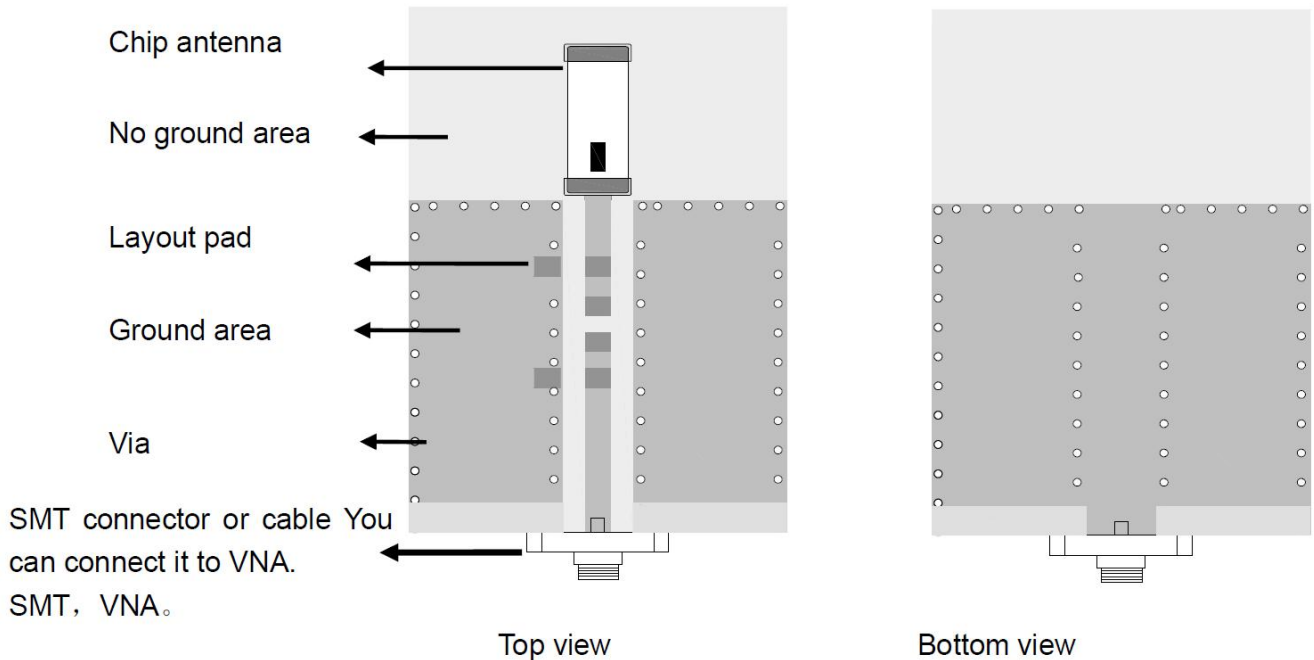
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5. Layout Guide & Electrical Specifications

5-1. Layout Guide (unit : mm)

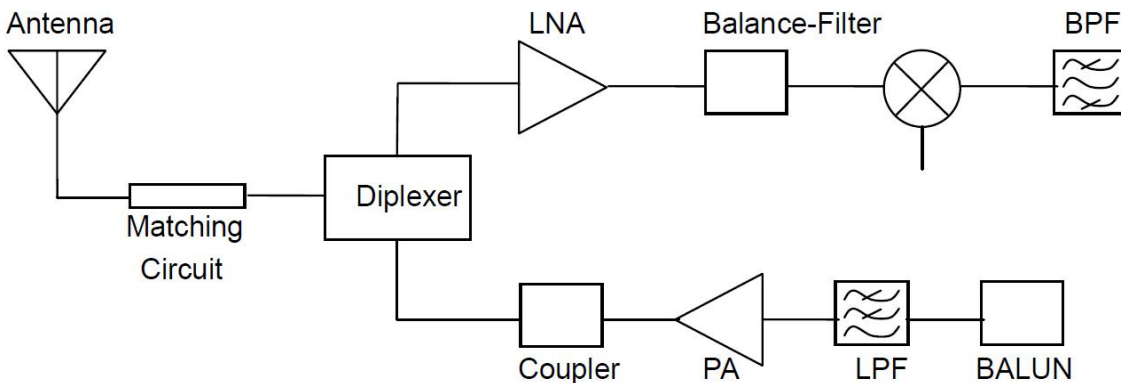
Solder Land Pattern:

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

6. APPLICATION GUIDE



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5-2. Electrical Specifications (Evaluation Board Dimensions: 40 x 40 mm²)

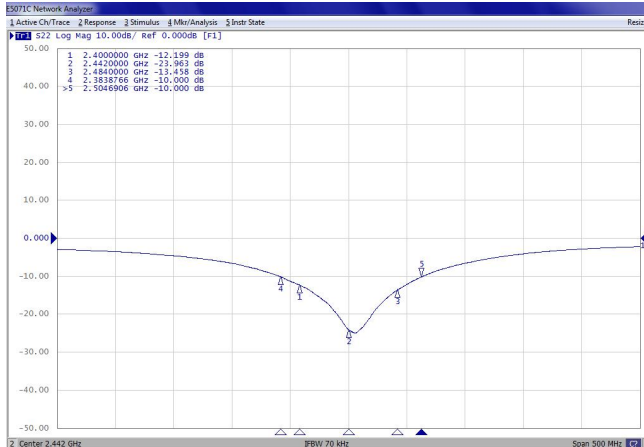
5-2-1. Electrical Table

| Characteristics | | Specifications | Unit |
|---------------------------|-------------|---------------------|------|
| Outline Dimensions | | 3.2 x 1.6 x 1.2 | mm |
| Working Frequency | | 2400 ~ 2500 | MHz |
| VSWR(@ center frequency)* | | 2 Max. | |
| Characteristic Impedance | | 50 | Ω |
| Polarization | | Linear Polarization | |
| Peak Gain | (@2442 MHz) | 1.2 (typical) | dBi |
| Efficiency | | 52 (typical) | % |

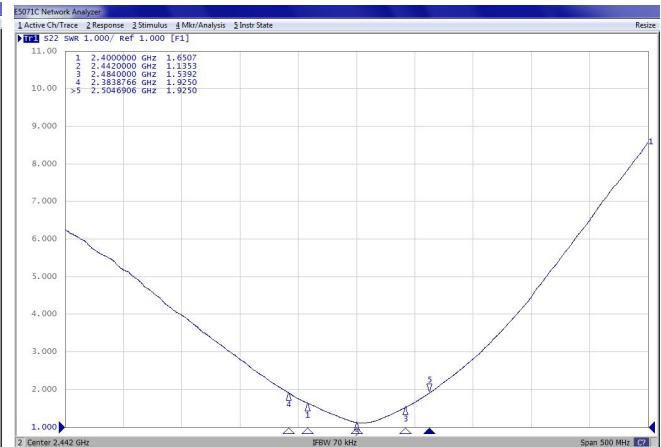
*Center frequency means the frequency with the lowest value in return loss of the chip antenna on the evaluation board.

5-2-2. Return Loss & VSWR

Return Loss (S_{11})



VSWR (S_{11})



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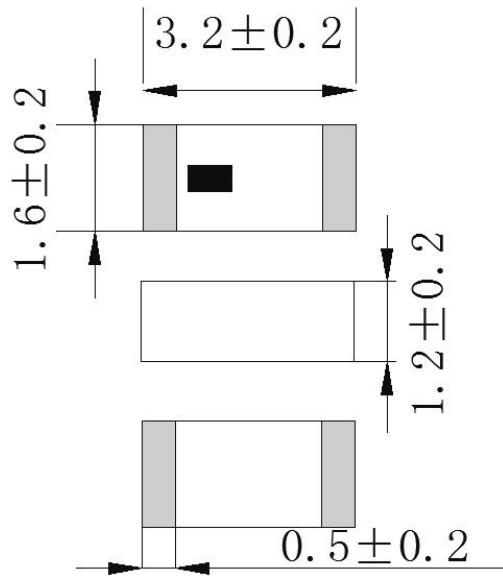
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7. Outline Dimensions of Antenna & Evaluation Board (unit: mm)
 6-1. Antenna Dimensions



PIN Definitions



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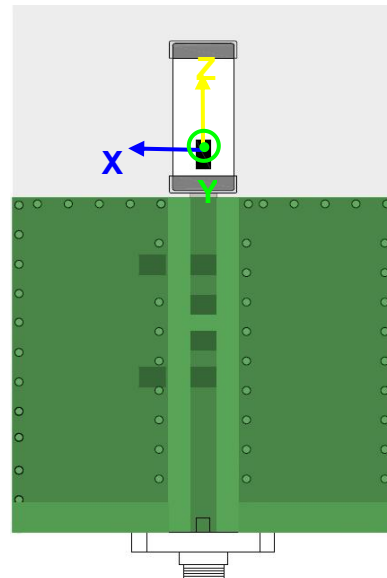
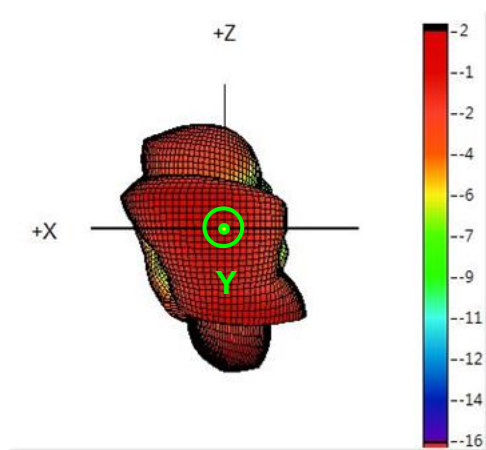
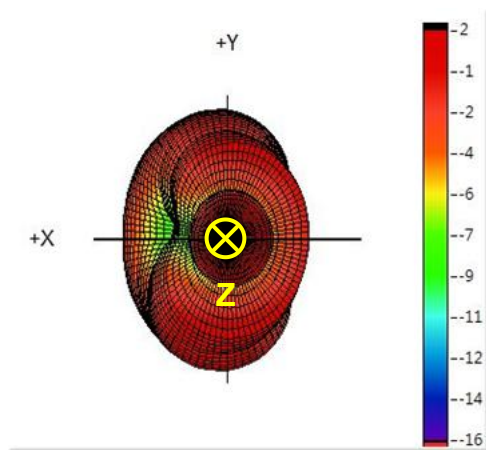
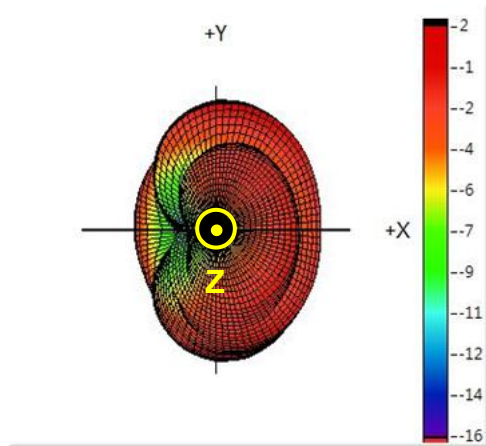
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8. Radiation Pattern (with 40 x 40 mm² Evaluation Board)

7-1. 3D Gain Pattern @ 2442 MHz (unit: dBi)



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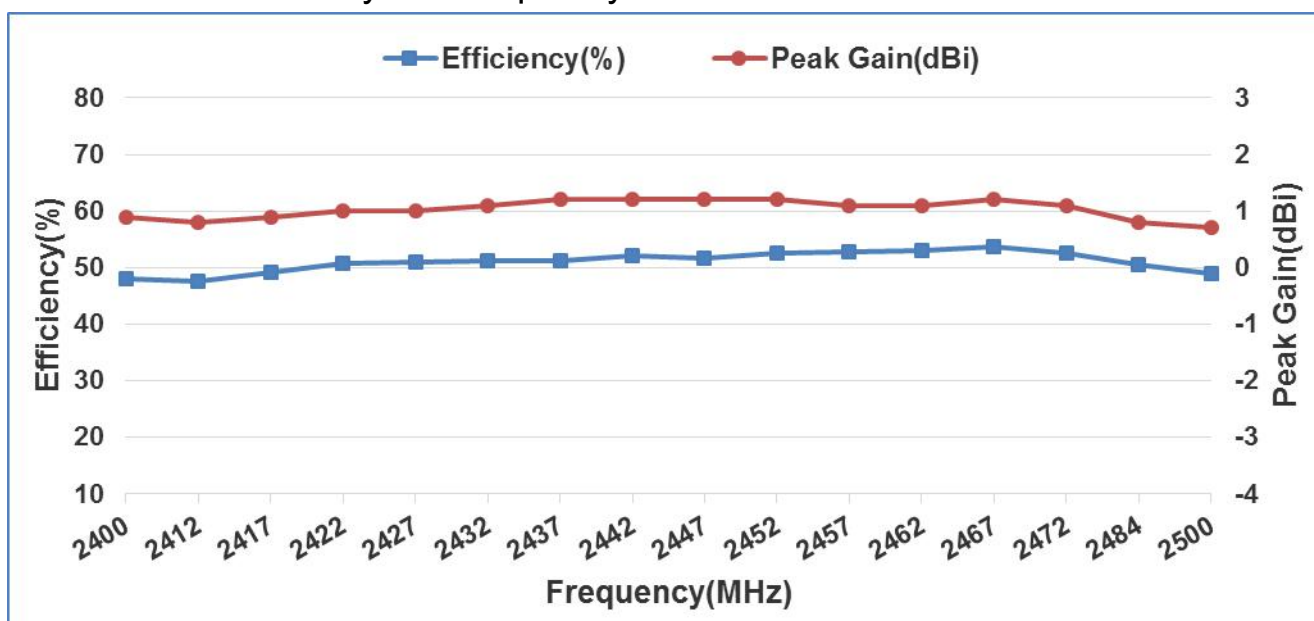
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7-2. 3D Efficiency Table

| Frequency(MHz) | 2400 | 2412 | 2417 | 2422 | 2427 | 2432 | 2437 | 2442 | 2447 | 2452 | 2457 | 2462 | 2467 | 2472 | 2484 | 2500 |
|----------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Efficiency(dB) | -3.2 | -3.2 | -3.1 | -3.0 | -2.9 | -2.9 | -2.9 | -2.8 | -2.9 | -2.8 | -2.8 | -2.8 | -2.7 | -2.8 | -3.0 | -3.1 |
| Efficiency(%) | 48.1 | 47.6 | 49.1 | 50.7 | 50.9 | 51.2 | 51.3 | 52.0 | 51.6 | 52.5 | 52.7 | 53.1 | 53.6 | 52.6 | 50.5 | 49.0 |
| Peak Gain(dBi) | 0.9 | 0.8 | 0.9 | 1.0 | 1.0 | 1.1 | 1.2 | 1.2 | 1.2 | 1.2 | 1.1 | 1.1 | 1.2 | 1.1 | 0.8 | 0.7 |

7-3. 3D Efficiency vs. Frequency



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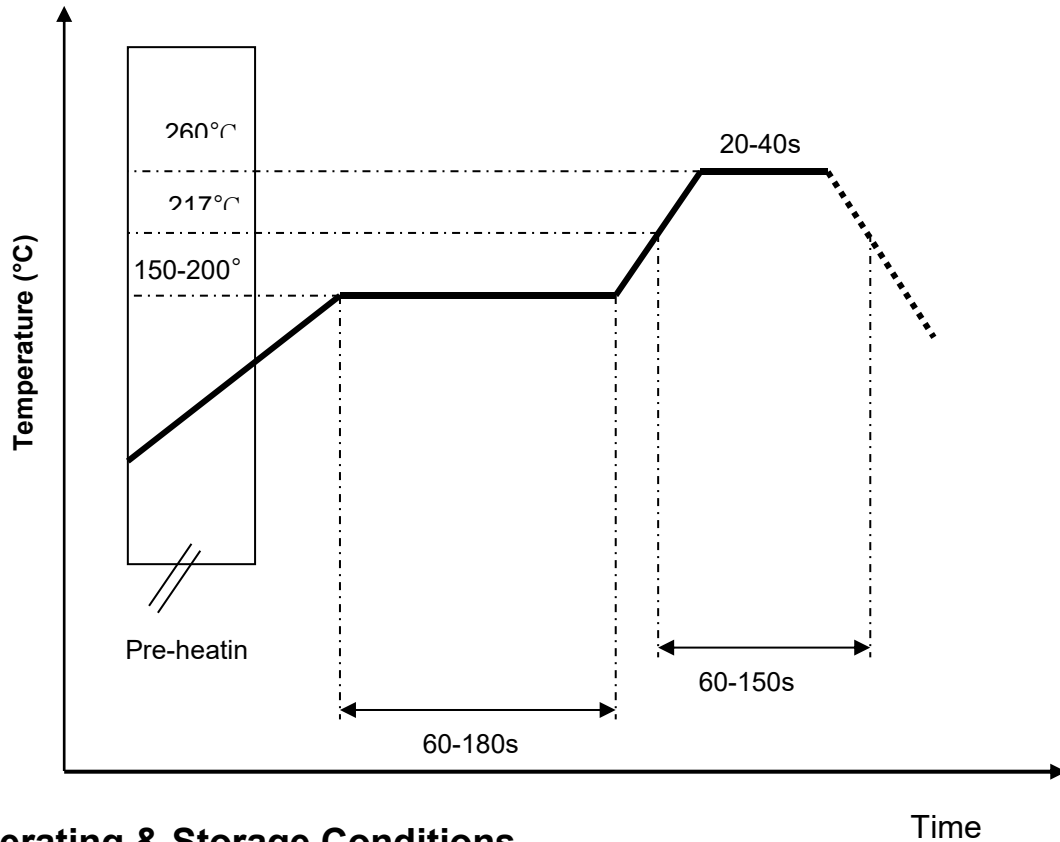
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9. Soldering Conditions

9-1. Typical Soldering Profile for Lead-free Process



10. Operating & Storage Conditions

11-1. Operating

- (1) Maximum Input Power: 2 W
- (2) Operating Temperature: -40°C to 85°C

11-2. Storage

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

11. Notice



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(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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