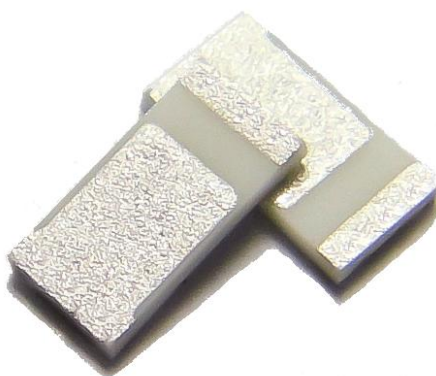


3.2 x 1.6 x 0.5 (mm) WiFi/Bluetooth Ceramic Chip Antenna (AA055)

Engineering Specification

1. Product Number

H 2 U 3 4 W G T Q W 0 1 0 0



2. Features

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

3. Applications

- *Bluetooth earphone systems
- *Hand-held devices when WiFi /Bluetooth functions are needed, e.g., Smart phone.
- *IEEE802.11 b/g/n
- *ZigBee
- *Wireless PCMCIA cards or USB dongle



詠業科技股份有限公司
Unictron Technologies Corporation
Website:www.unictron.com

THIS DRAWINGS AND SPECIFICATIONS ARE THE PROPERTY OF UNICTRON TECHNOLOGIES CORPORATION AND SHALL NOT BE REPRODUCED OR USED AS THE BASIS FOR THE MANUFACTURE OR SALE OF APPARATUS OR DEVICES WITHOUT PERMISSION

Prepared by : Xenia

Designed by : Mike

Checked by : Mike

Approved by : Herbert

TITLE : 3.2 x 1.6 x 0.5(mm) WiFi/Bluetooth Ceramic Chip Antenna (AA055) Engineering Specification

DOCUMENT NO.

H2U34WGTQW0100

REV.

B

4. Description

Unictron's chip antenna series are specially designed for WiFi/Bluetooth applications. Based on Unictron's proprietary design and processes, this chip antenna has excellent stability and sensitivity to consistently provide high signal reception efficiency.

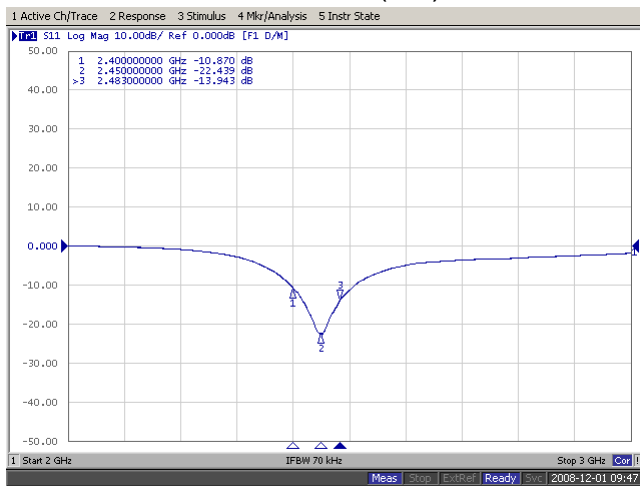
5. Electrical Specifications (80 x 40 mm² ground plane)

5-1. Electrical Table

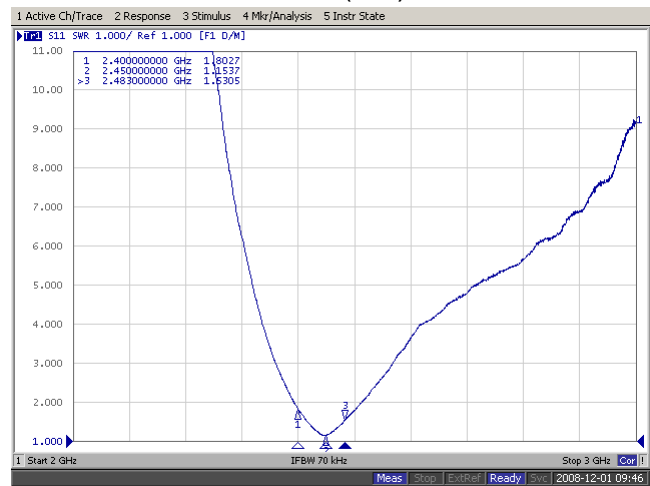
| Characteristics | | Specifications | Unit |
|--------------------|------------|---------------------|----------|
| Outline Dimensions | | 3.2x1.6x0.5 | mm |
| Working Frequency | | 2400~2500 | MHz |
| VSWR | | 2 Max. | |
| Impedance | | 50 | Ω |
| Polarization | | Linear Polarization | |
| Gain | Peak | 2.5 (typical) | dBi |
| | Efficiency | 84 (typical) | % |

5-2. Return Loss & VSWR

Return Loss (S_{11})



VSWR(S_{11})



詠業科技股份有限公司
Unictron Technologies Corporation
Website: www.unictron.com

THIS DRAWINGS AND SPECIFICATIONS ARE THE PROPERTY OF UNICTRON TECHNOLOGIES CORPORATION AND SHALL NOT BE REPRODUCED OR USED AS THE BASIS FOR THE MANUFACTURE OR SALE OF APPARATUS OR DEVICES WITHOUT PERMISSION

Prepared by : Xenia

Designed by : Mike

Checked by : Mike

Approved by : Herbert

TITLE : 3.2 x 1.6 x 0.5(mm) WiFi/Bluetooth Ceramic Chip Antenna (AA055) Engineering Specification

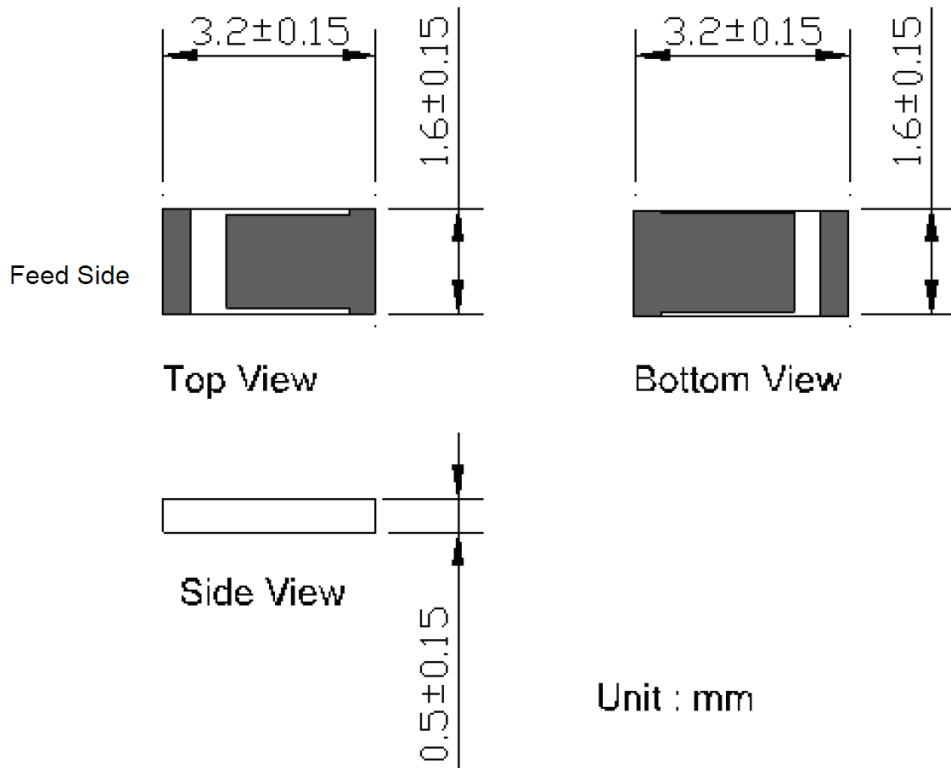
DOCUMENT NO.

H2U34WGTQW0100

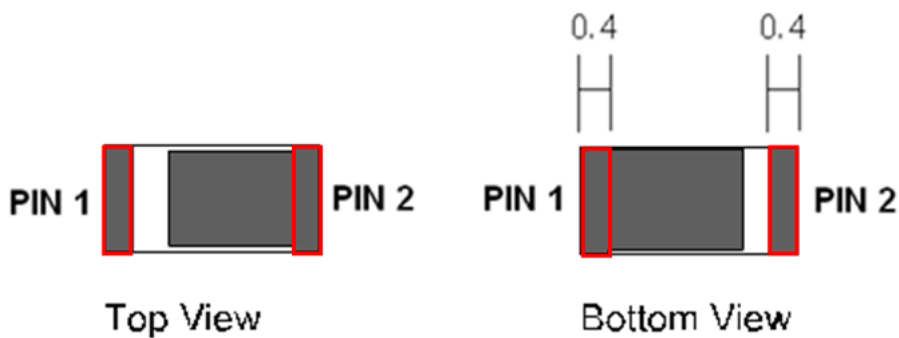
REV.
B

6. Antenna Dimensions & Test Board (unit: mm)

a. Antenna Dimensions



PIN Definitions



詠業科技股份有限公司
Unictron Technologies Corporation
Website: www.unictron.com

THIS DRAWINGS AND SPECIFICATIONS ARE THE PROPERTY OF UNICTRON TECHNOLOGIES CORPORATION AND SHALL NOT BE REPRODUCED OR USED AS THE BASIS FOR THE MANUFACTURE OR SALE OF APPARATUS OR DEVICES WITHOUT PERMISSION

Prepared by : Xenia

Designed by : Mike

Checked by : Mike

Approved by : Herbert

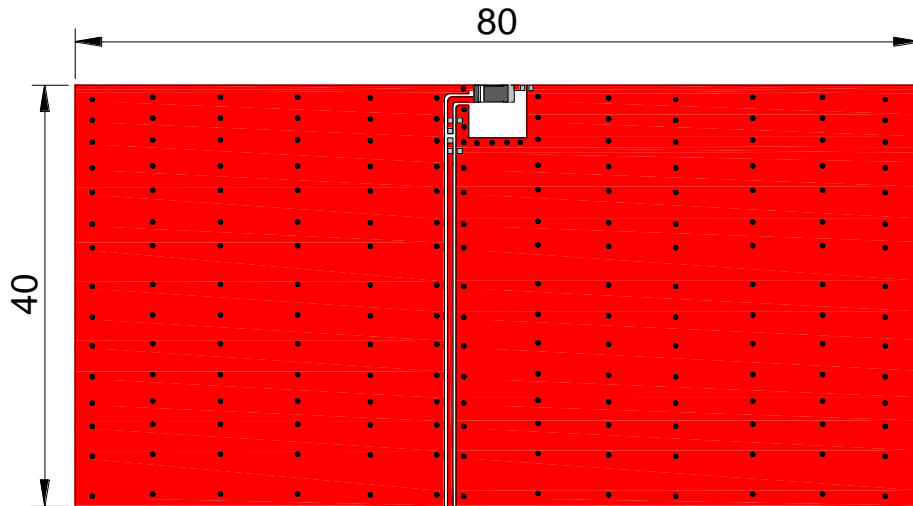
TITLE : 3.2 x 1.6 x 0.5(mm) WiFi/Bluetooth Ceramic Chip
Antenna (AA055) Engineering Specification

DOCUMENT
NO.

H2U34WGTQW0100

REV.
B

b. Test Board with Antenna



Unit: mm



詠業科技股份有限公司
Unictron Technologies Corporation
Website: www.unictron.com

THIS DRAWINGS AND SPECIFICATIONS ARE THE PROPERTY OF UNICTRON TECHNOLOGIES CORPORATION AND SHALL NOT BE REPRODUCED OR USED AS THE BASIS FOR THE MANUFACTURE OR SALE OF APPARATUS OR DEVICES WITHOUT PERMISSION

Prepared by : Xenia

Designed by : Mike

Checked by : Mike

Approved by : Herbert

TITLE : 3.2 x 1.6 x 0.5(mm) WiFi/Bluetooth Ceramic Chip
Antenna (AA055) Engineering Specification

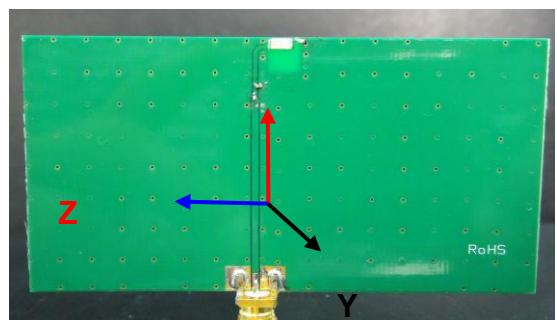
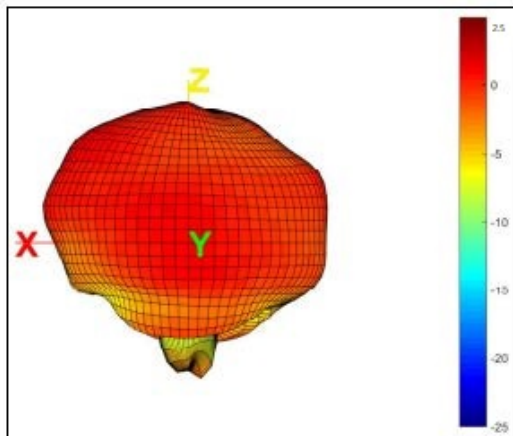
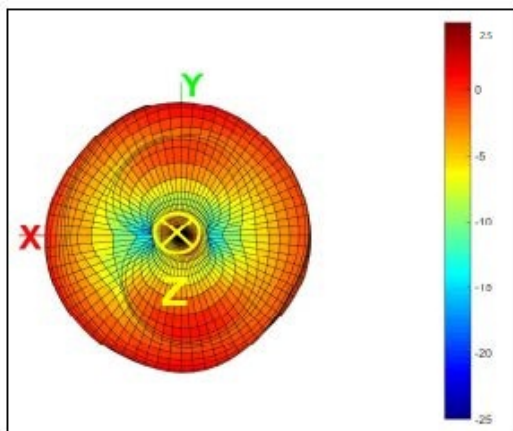
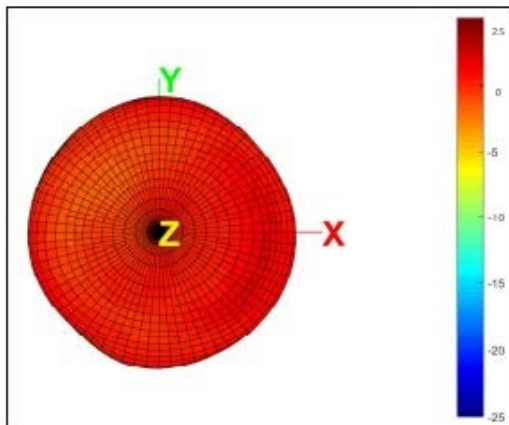
DOCUMENT
NO.

H2U34WGTQW0100

REV.
B

7. Radiation Pattern (80 x 40 mm² ground plane)

7-1. 3D Gain Pattern @ 2442 MHz



詠業科技股份有限公司
 Unictron Technologies Corporation
 Website: www.unictron.com

THIS DRAWINGS AND SPECIFICATIONS ARE THE PROPERTY OF UNICTRON TECHNOLOGIES CORPORATION AND SHALL NOT BE REPRODUCED OR USED AS THE BASIS FOR THE MANUFACTURE OR SALE OF APPARATUS OR DEVICES WITHOUT PERMISSION

Prepared by : Xenia

Designed by : Mike

Checked by : Mike

Approved by : Herbert

TITLE : 3.2 x 1.6 x 0.5(mm) WiFi/Bluetooth Ceramic Chip Antenna (AA055) Engineering Specification

DOCUMENT NO.

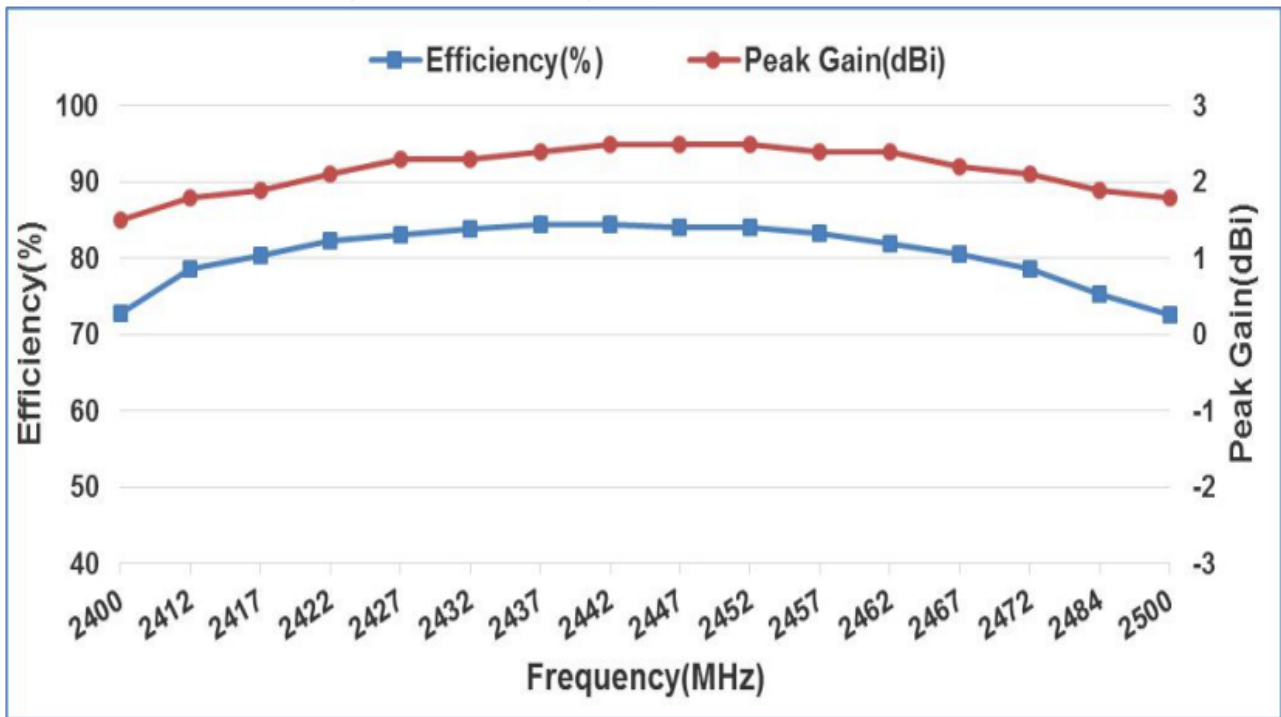
H2U34WGTQW0100

REV. B

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) | -1.4 | -1.0 | -0.9 | -0.8 | -0.8 | -0.8 | -0.7 | -0.7 | -0.8 | -0.8 | -0.8 | -0.9 | -0.9 | -1.0 | -1.2 | -1.4 |
| Efficiency(%) | 72.8 | 78.7 | 80.4 | 82.3 | 83.0 | 83.9 | 84.4 | 84.5 | 84.1 | 84.0 | 83.2 | 82.0 | 80.5 | 78.6 | 75.4 | 72.5 |
| Peak Gain(dBi) | 1.5 | 1.8 | 1.9 | 2.1 | 2.3 | 2.3 | 2.4 | 2.5 | 2.5 | 2.5 | 2.4 | 2.4 | 2.2 | 2.1 | 1.9 | 1.8 |

7-3. 3D Efficiency vs. Frequency



詠業科技股份有限公司
 Unictron Technologies Corporation
 Website: www.unictron.com

THIS DRAWINGS AND SPECIFICATIONS ARE THE PROPERTY OF UNICTRON TECHNOLOGIES CORPORATION AND SHALL NOT BE REPRODUCED OR USED AS THE BASIS FOR THE MANUFACTURE OR SALE OF APPARATUS OR DEVICES WITHOUT PERMISSION

Prepared by : Xenia

Designed by : Mike

Checked by : Mike

Approved by : Herbert

TITLE : 3.2 x 1.6 x 0.5(mm) WiFi/Bluetooth Ceramic Chip Antenna (AA055) Engineering Specification

DOCUMENT NO.

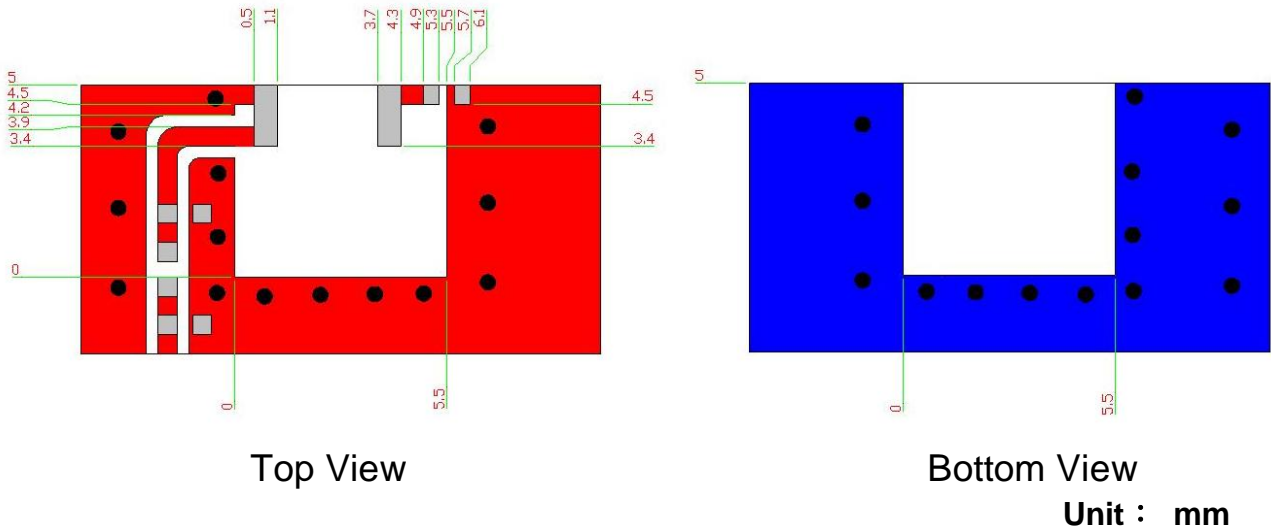
H2U34WGTQW0100

REV. B

8. Layout Guide

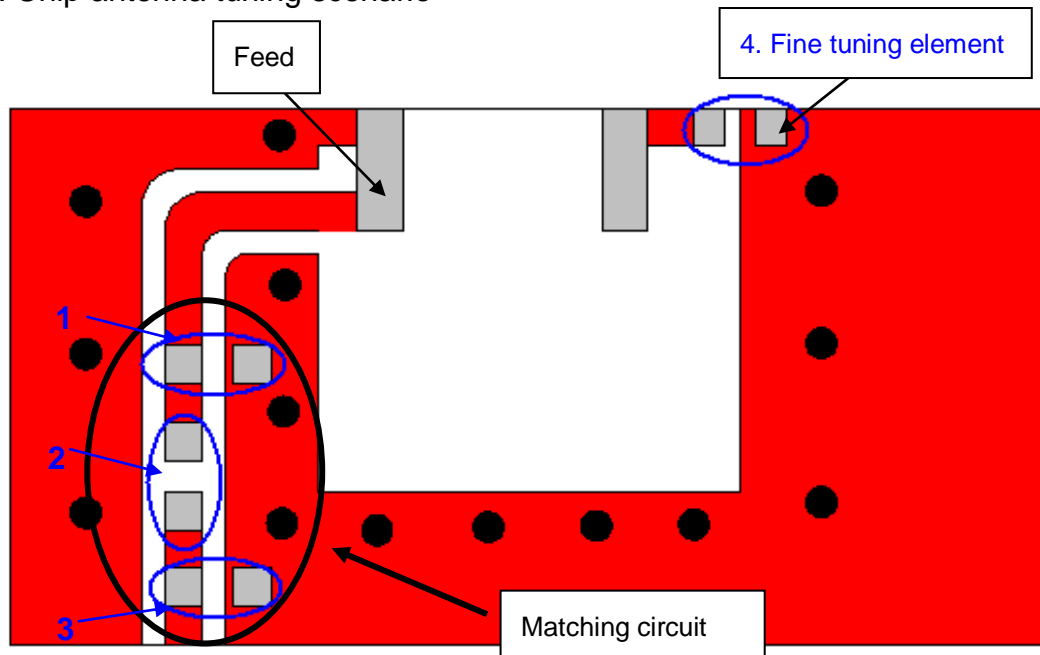
a. Solder Land Pattern:

Land pattern for soldering (gray marking areas) is as shown below. Depending on Customer's requirement, matching circuit as shown below is also recommended.



9. Frequency tuning

a. Chip antenna tuning scenario :



詠業科技股份有限公司
Unictron Technologies Corporation
Website: www.unictron.com

THIS DRAWINGS AND SPECIFICATIONS ARE THE PROPERTY OF UNICTRON TECHNOLOGIES CORPORATION AND SHALL NOT BE REPRODUCED OR USED AS THE BASIS FOR THE MANUFACTURE OR SALE OF APPARATUS OR DEVICES WITHOUT PERMISSION

Prepared by : Xenia

Designed by : Mike

Checked by : Mike

Approved by : Herbert

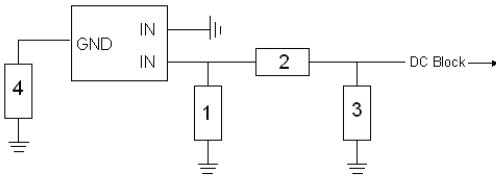
TITLE : 3.2 x 1.6 x 0.5(mm) WiFi/Bluetooth Ceramic Chip Antenna (AA055) Engineering Specification

DOCUMENT NO.

H2U34WGTQW0100

REV.
B

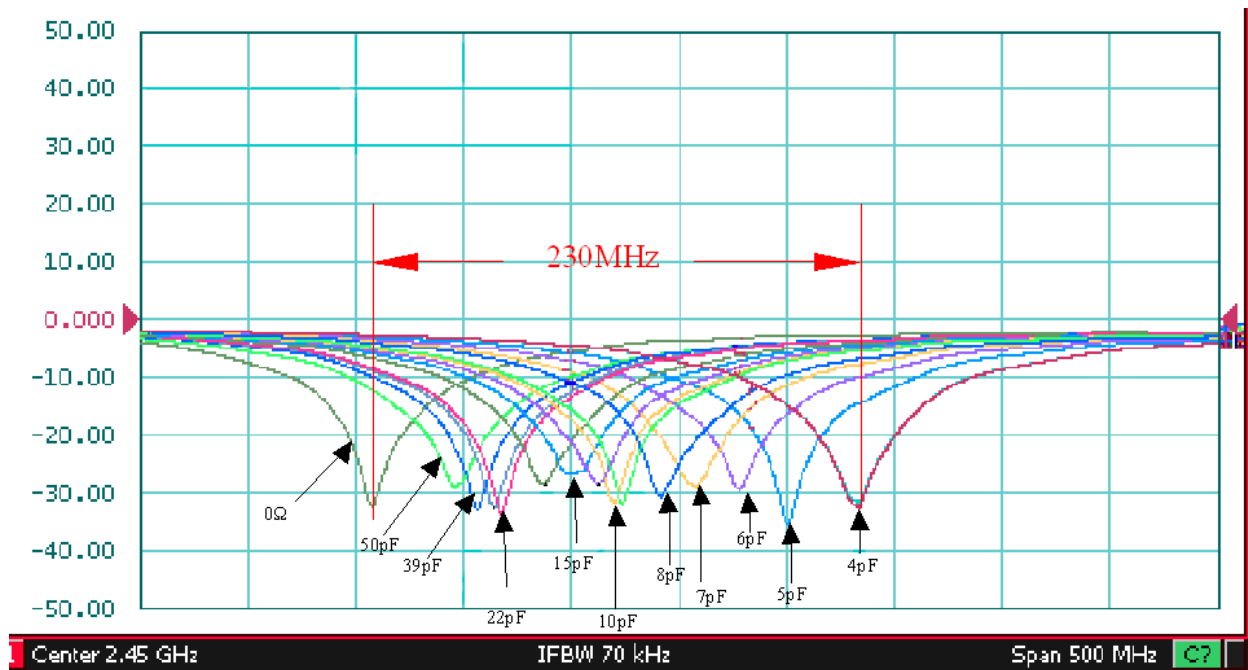
b. Matching circuit : (Center frequency is about 2442 MHz @ 80 x 40 mm² ground plane)



| System Matching Circuit Component | | | |
|-----------------------------------|-------------|---------------|-----------|
| Location | Description | Vendor | Tolerance |
| 1 | 1.2 pF* | Murata (0402) | ±0.1 pF |
| 2 | 10PF* | Murata(0402) | ±0.5 PF |
| 3 | N/A* | - | - |
| Fine tuning element 4 | 1.5 pF* | Murata (0402) | ±0.1 pF |

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

c. Fine tuning element vs. Center frequency



詠業科技股份有限公司
Unictron Technologies Corporation
Website:www.unictron.com

THIS DRAWINGS AND SPECIFICATIONS ARE THE PROPERTY OF UNICTRON TECHNOLOGIES CORPORATION AND SHALL NOT BE REPRODUCED OR USED AS THE BASIS FOR THE MANUFACTURE OR SALE OF APPARATUS OR DEVICES WITHOUT PERMISSION

Prepared by : Xenia

Designed by : Mike

Checked by : Mike

Approved by : Herbert

TITLE : 3.2 x 1.6 x 0.5(mm) WiFi/Bluetooth Ceramic Chip Antenna (AA055) Engineering Specification

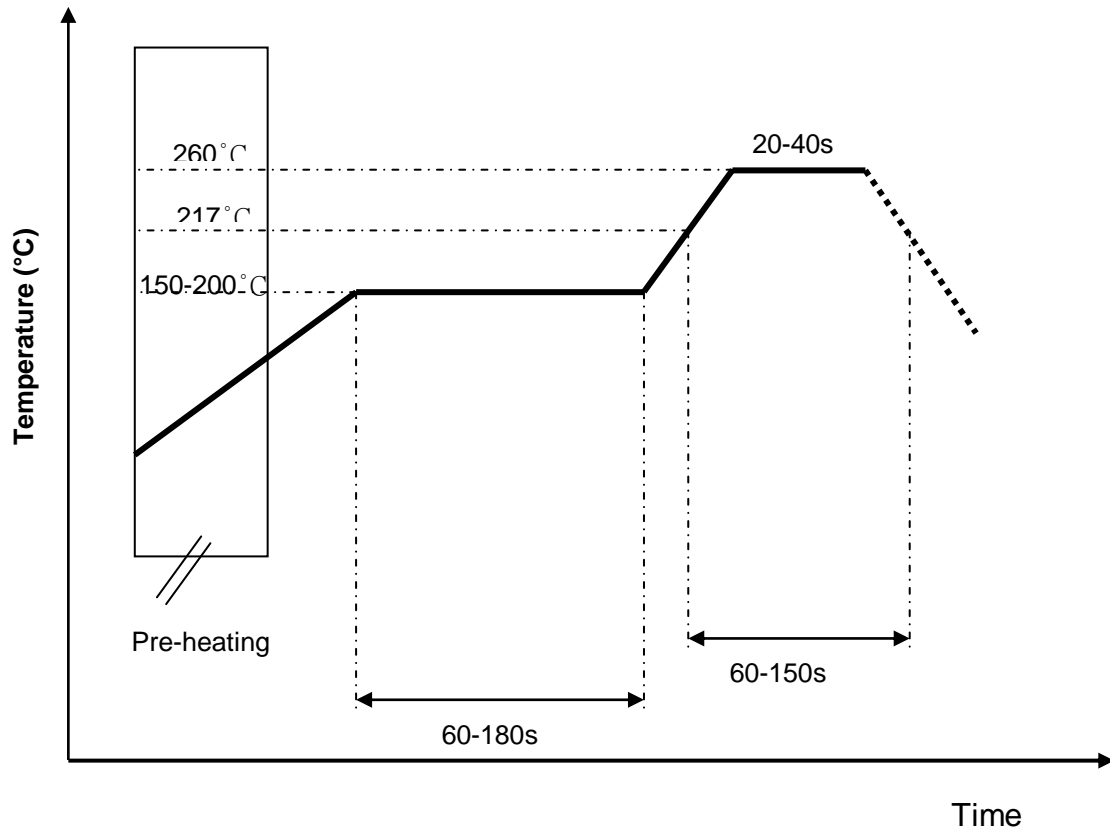
DOCUMENT NO.

H2U34WGTQW0100

REV. B

10. Soldering Conditions

a. Typical Soldering Profile for Lead-free Process



11. Reminders for users of Unictron’s chip antennas

- Since Unictron’s chip antennas are made of ceramic materials which show different rigidity than circuit board materials, bending of circuit board at the locations where chip antennas are mounted may cause the cracking of solder joints or antenna itself.
- Any connecting strip which will be cut off at PCB assembly process shall be located away from the installation site of chip antenna. Punching of the connecting strip may cause severe bending of the circuit board and cracking of solder joint or chip antenna itself may occur.
- Be cautious when ultrasonic welding process needs to be used near the locations where chip antennas are installed. Strong ultrasonic vibration may cause the cracking of chip antenna solder joints.



詠業科技股份有限公司
 Unictron Technologies Corporation
 Website: www.unictron.com

THIS DRAWINGS AND SPECIFICATIONS ARE THE PROPERTY OF UNICTRON TECHNOLOGIES CORPORATION AND SHALL NOT BE REPRODUCED OR USED AS THE BASIS FOR THE MANUFACTURE OR SALE OF APPARATUS OR DEVICES WITHOUT PERMISSION

Prepared by : Xenia

Designed by : Mike

Checked by : Mike

Approved by : Herbert

TITLE : 3.2 x 1.6 x 0.5(mm) WiFi/Bluetooth Ceramic Chip Antenna (AA055) Engineering Specification

DOCUMENT NO.

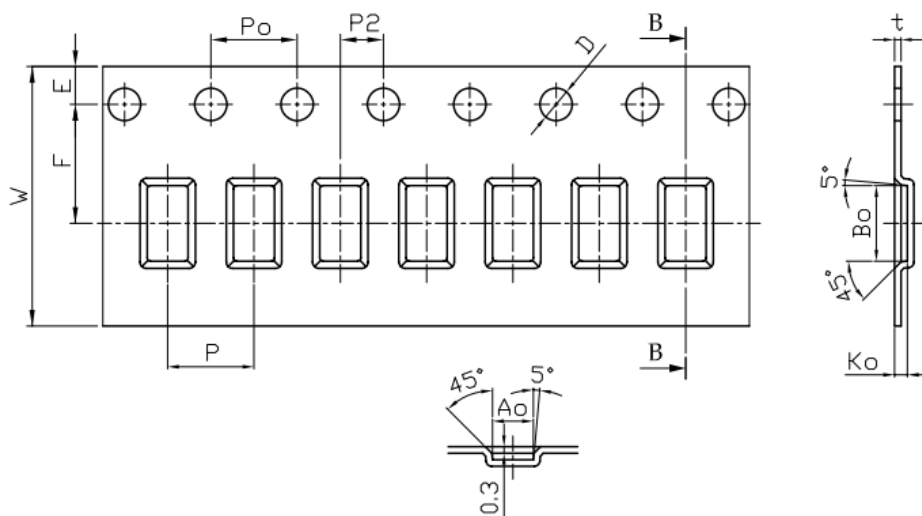
H2U34WGTQW0100

REV. B

12. Packing

(1) Quantity/Reel: 5000 pcs/Reel

(2) Plastic tape:



1. Cumulative tolerance of 10 sprocket hole pitch: $\pm 0.20\text{mm}$
2. Carrier camber not to exceed 1mm in 250mm
3. A_o and B_o measured on a plane above the inside bottom of the pocket.
4. K_o measured from a plane on the inside bottom of the pocket to the top surface of the carrier.
5. All dimensions meet EIA-481-B requirements.
6. Material: Clear Non Anti-Static Polystyrene.
 Black Conductive Polystyrene.

2.1 Tape Dimensions(unit: mm)

| Feature | Specifications | Tolerances |
|---------|----------------|----------------|
| W | 12.00 | ± 0.30 |
| P | 4.00 | ± 0.10 |
| E | 1.75 | ± 0.10 |
| F | 5.50 | ± 0.10 |
| P2 | 2.00 | ± 0.10 |
| D | 1.50 | +0.10 -0.00 |
| Po | 4.00 | ± 0.10 |
| 10Po | 40.00 | ± 0.20 |

13. Operating & Storage Conditions

13-1. Operating

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

13-2. Storage

- (1) Storage Temperature: -25°C to 85°C
- (2) Relative Humidity: 20% to 70%
- (3) Shelf Life: 1 year

2.2 Pocket Dimensions(unit: mm)

| Feature | Specifications | Tolerances |
|---------|----------------|------------|
| A_o | 1.90 | +0.20 |
| B_o | 3.50 | -0.10 |
| K_o | 0.60 | ± 0.10 |
| t | 0.30 | ± 0.05 |



詠業科技股份有限公司
Unictron Technologies Corporation
Website: www.unictron.com

THIS DRAWINGS AND SPECIFICATIONS ARE THE PROPERTY OF UNICTRON TECHNOLOGIES CORPORATION AND SHALL NOT BE REPRODUCED OR USED AS THE BASIS FOR THE MANUFACTURE OR SALE OF APPARATUS OR DEVICES WITHOUT PERMISSION

Prepared by : Xenia

Designed by : Mike

Checked by : Mike

Approved by : Herbert

TITLE : 3.2 x 1.6 x 0.5(mm) WiFi/Bluetooth Ceramic Chip Antenna (AA055) Engineering Specification

DOCUMENT NO.

H2U34WGTQW0100

REV.
B