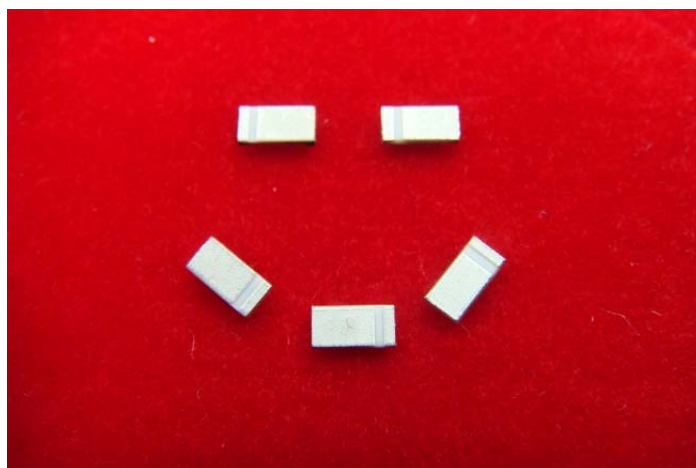


# 3.2 x 1.6 x 0.5 (mm) WiFi/Bluetooth Ceramic Chip Antenna (AA055)

## Engineering Specification

### 1. Product Number

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



### 2. Features

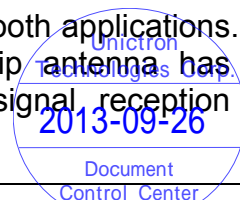
- \*Stable and reliable in performances
- \*Low temperature coefficient of frequency
- \*Low profile, compact size
- \*RoHS compliance
- \*SMT processes compatible

### 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

### 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.



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Prepared by : **Nacy**      Designed by : **Mike**      Checked by : **Mike**      Approved by : **Herbert**      UNIT : **mm**

TITLE : <b>3.2 x 1.6 x 0.5(mm) WiFi/Bluetooth Ceramic Chip Antenna (AA055) Engineering Specification</b>	DOCUMENT NO.	<b>H2U34WGTQW0100</b>	REV.
			<b>M</b>

## 5. Electrical Specifications (80x40(mm) ground plane)

### 5-1. Electrical Table

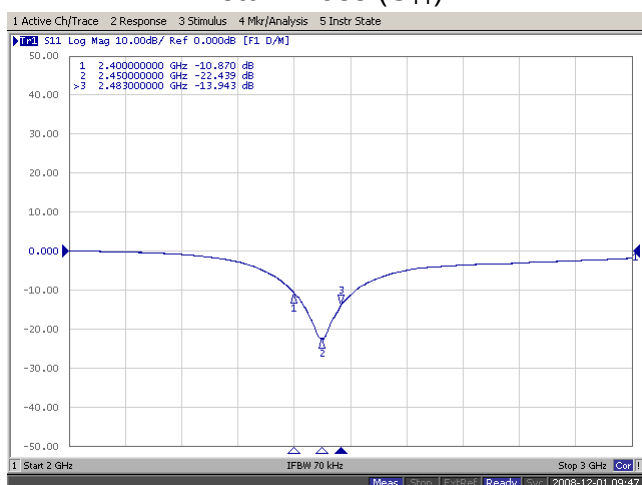
Characteristics		Specifications	Unit
Outline Dimensions		3.2x1.6x0.5	mm
Ground Plane		80x40	mm
Working Frequency		2400~2500	MHz
Bandwidth (under -10dB return loss)		100 Min.	MHz
VSWR (@Center Frequency)*		2 Max.	
Impedance		50	$\Omega$
Polarization		Linear Polarization	
Gain**	Peak	2.5 (typical)	dBi
	Efficiency	84 (typical)	%

\*\* Center frequency will be offset to another frequency according to the conditions of user's ground plane and radome.

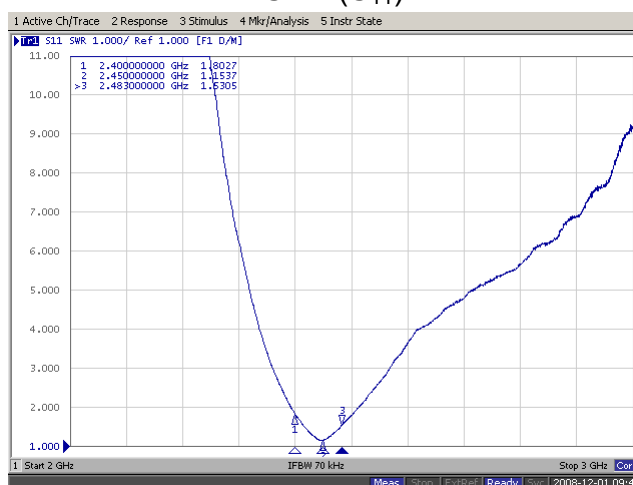
\*\*The data was measured by A Test Lab Techno Corp.(CTIA Authorized Test Lab).

### 5-2. Return Loss & VSWR

Return Loss ( $S_{11}$ )



VSWR( $S_{11}$ )



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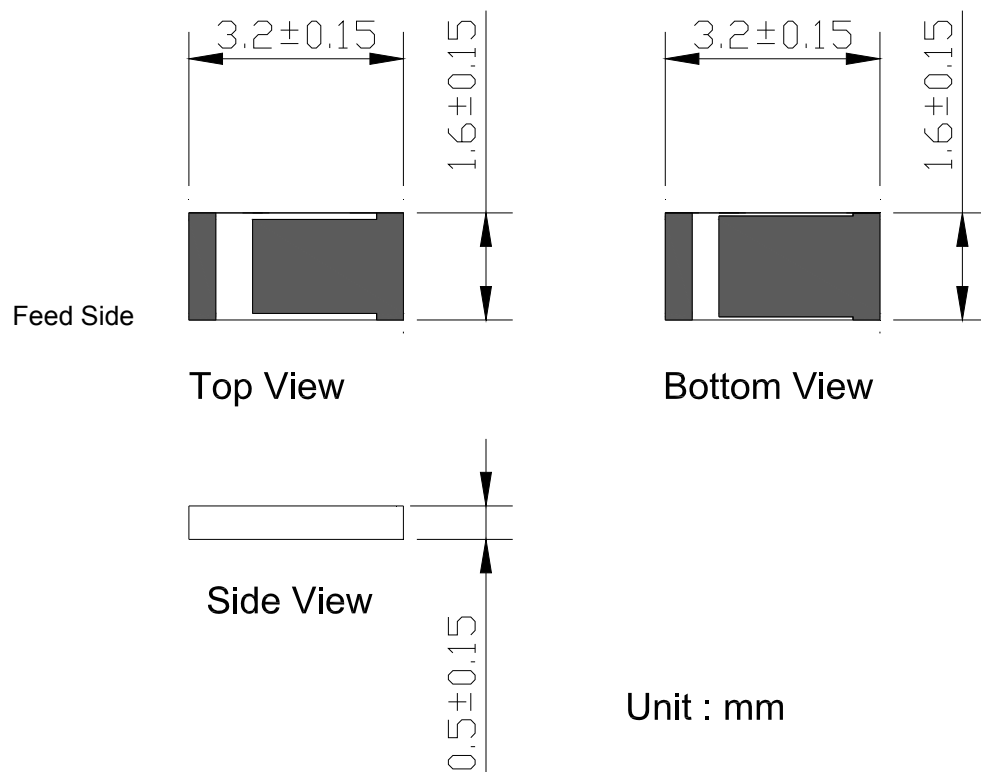
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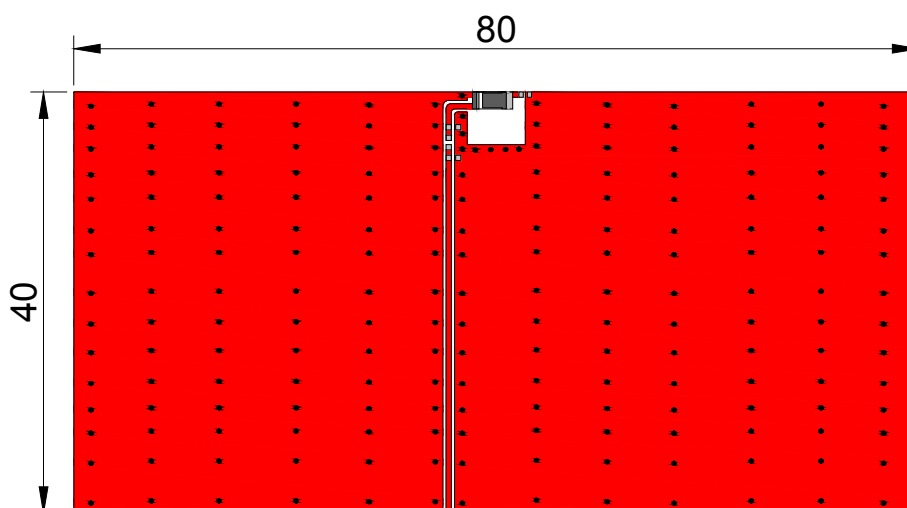
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## 6. Antenna Dimensions & Test Board (unit: mm)

### a. Antenna Dimensions



### b. Test Board with Antenna



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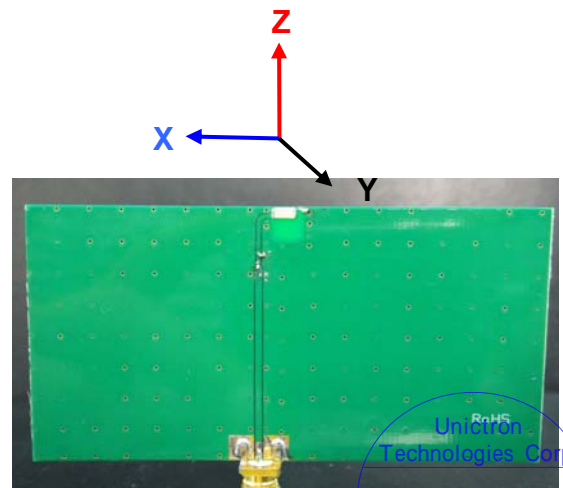
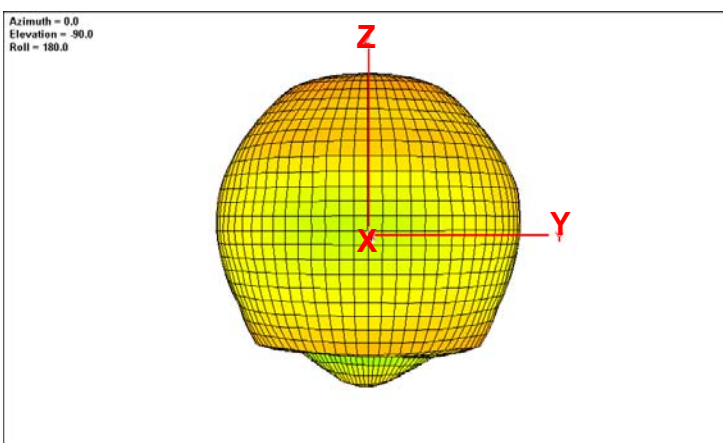
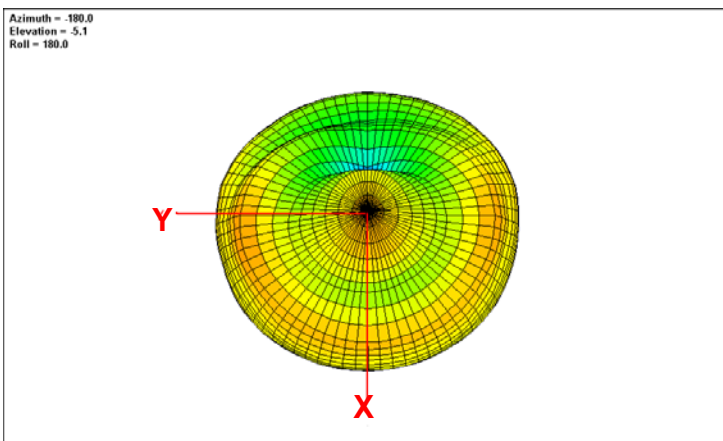
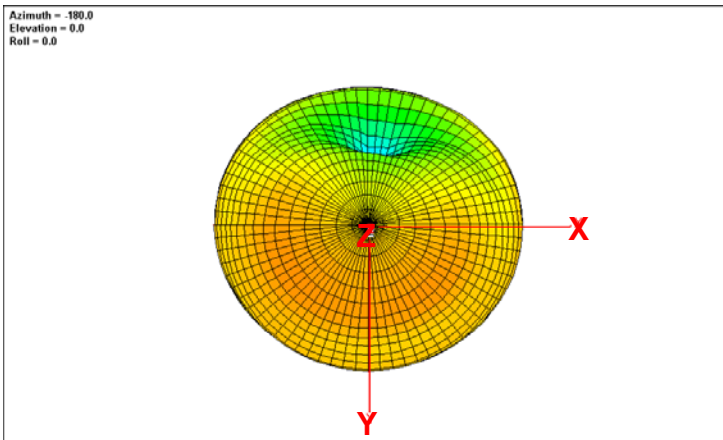
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## 7. Radiation Pattern (80x40(mm) ground plane)

### 7-1. 3D Gain Pattern @ 2442 MHz



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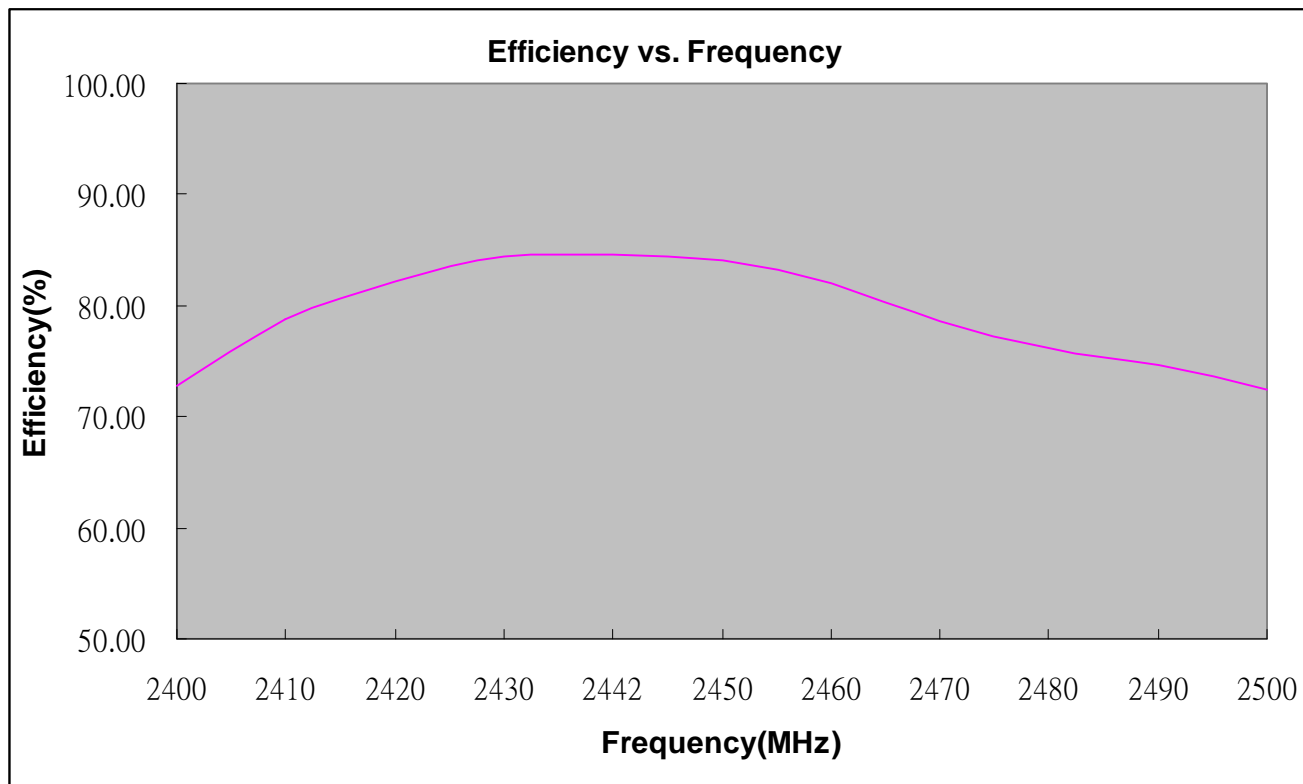
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## 7-2. 3D Efficiency Table

Frequency(MHz)	2400	2410	2420	2430	2442	2450	2460	2470	2480	2490	2500
Efficiency(dB)	-1.38	-1.04	-0.85	-0.74	-0.73	-0.76	-0.86	-1.05	-1.18	-1.27	-1.40
Efficiency(%)	72.83	78.71	82.27	84.39	84.53	84.04	82.00	78.60	76.14	74.64	72.50
Gain(dBi)	1.47	1.81	2.10	2.40	2.50	2.50	2.37	2.10	1.90	1.87	1.75

## 7-3. 3D Efficiency vs. Frequency



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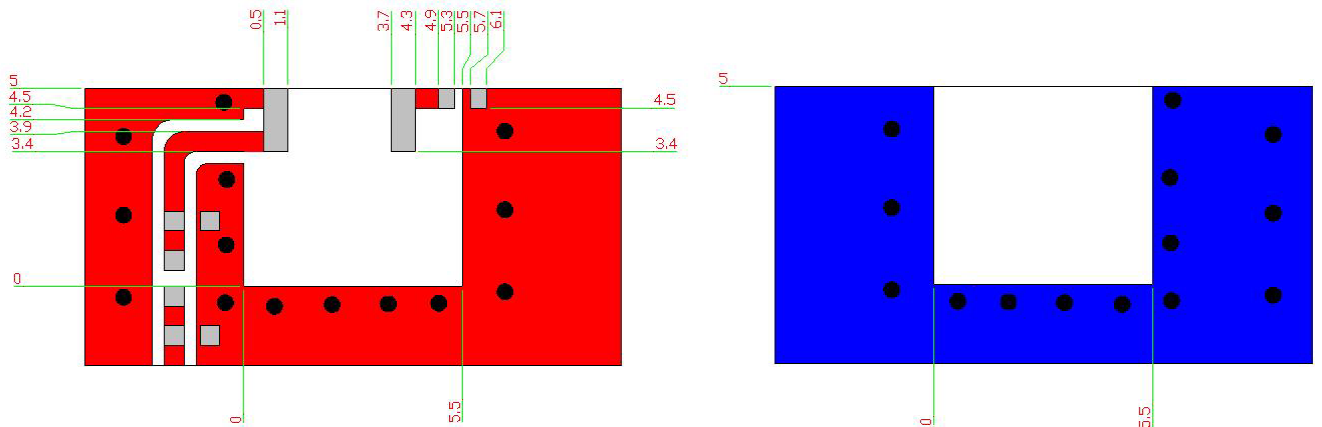
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## 8. Layout Guide

### 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.



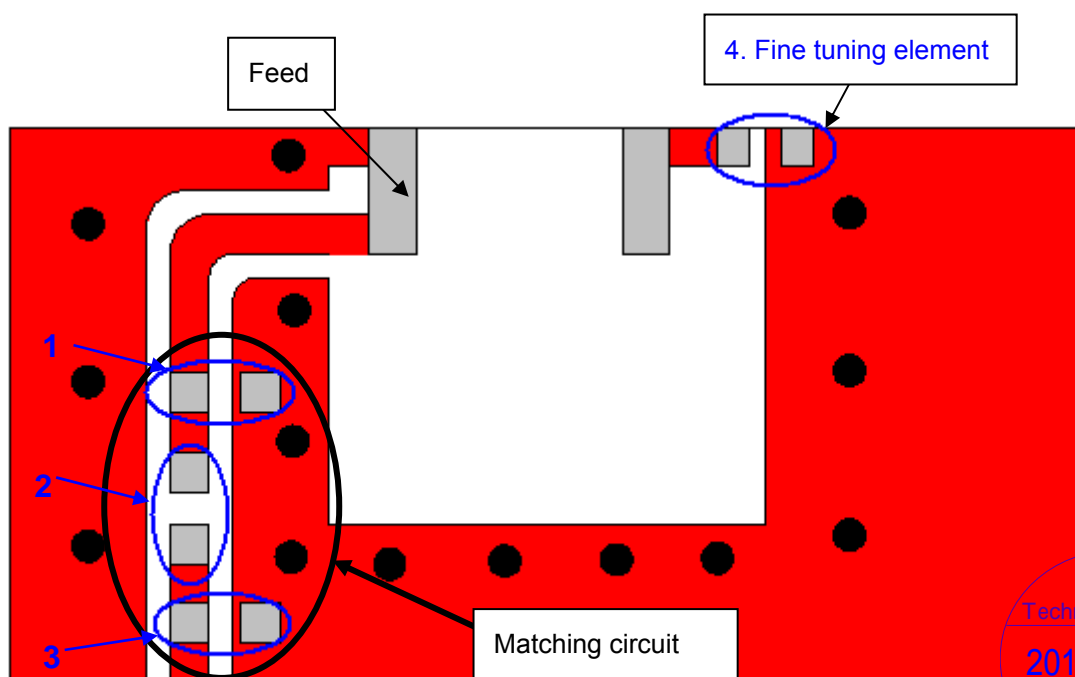
Top View

Bottom View

Unit : mm

## 9. Frequency tuning

### a. Chip antenna tuning scenario :



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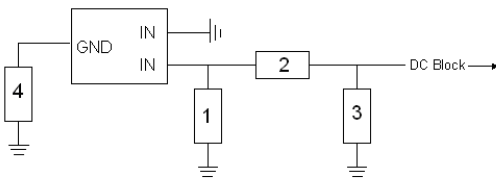
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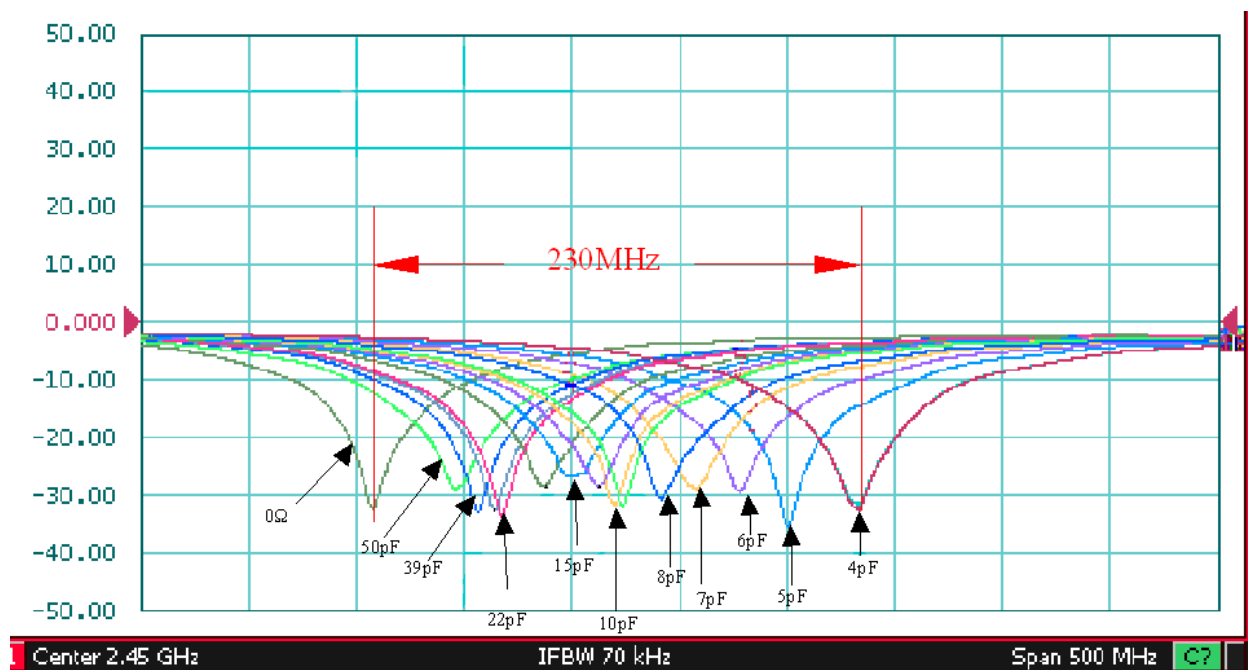
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b. Matching circuit : (Center frequency is about 2442MHz @ 80x40(mm) ground plane)



System Matching Circuit Component			
Location	Description	Vendor	Tolerance
1	1.2 pF	DARFON(0402)	±0.1 pF
2	3.3nH	DARFON(0402)	±0.1 nH
3	N/A	-	-
4 Fine tuning element	1.5 pF	DARFON(0402)	±0.1 pF

c. Fine tuning element vs. Center frequency



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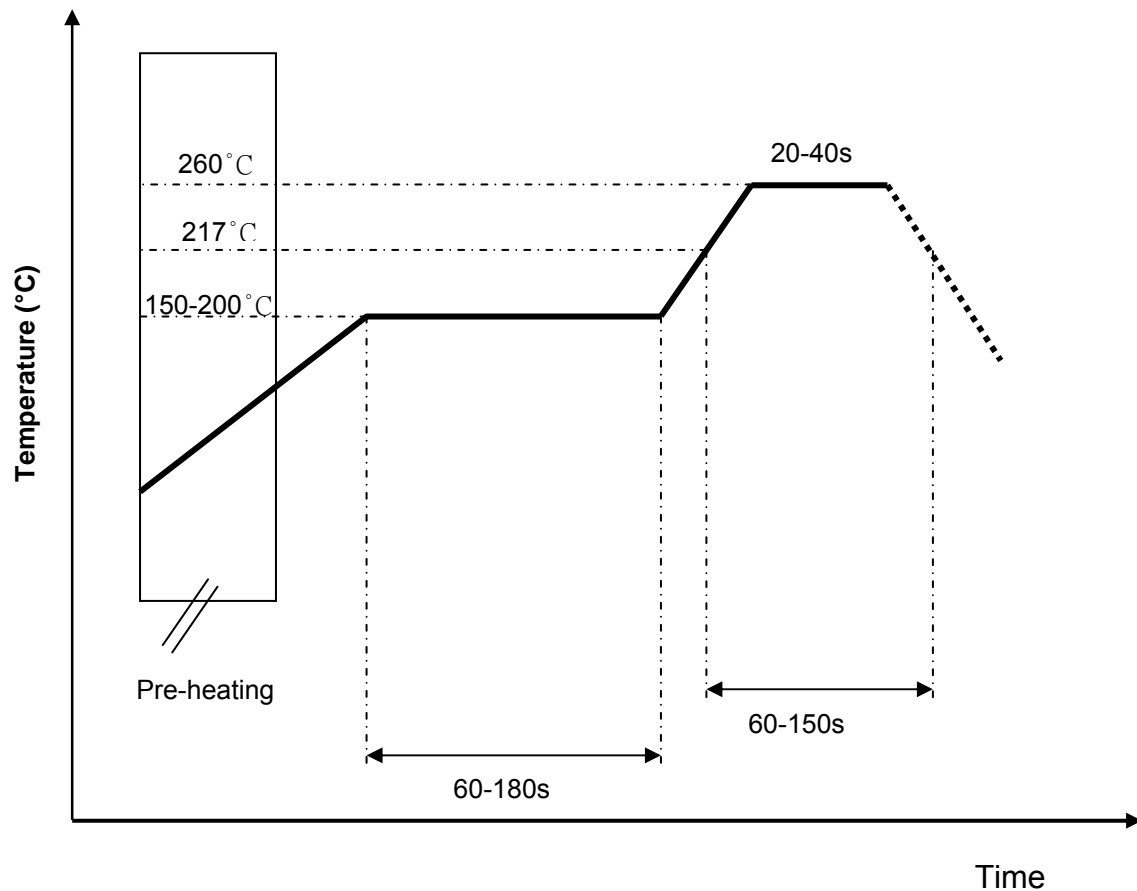
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## 10. Soldering Conditions

### a. Typical Soldering Profile for Lead-free Process



## 11. Notifications for Assembly

We recommend the notifications as following:

- Do NOT touch or push the chip antenna after SMT process.
- Do NOT bend PCB after SMT process.
- Do NOT place the cutting point between PCB and frame near the chip antenna.
- Do NOT use ultrasonic welding process or vibration process to avoid the cracking of the soldering of the chip antenna.



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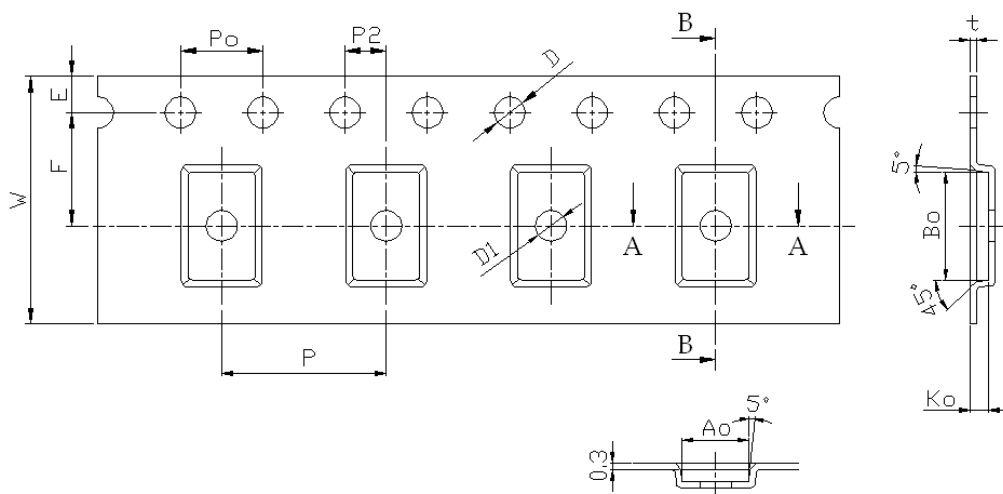
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## 12. Packing

(1) Quantity/Reel: 6000pcs/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. Ao and Bo measured on a plane above the inside bottom of the pocket.
4. Ko 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	$\pm 0.30$
P	8.00	$\pm 0.10$
E	1.75	$\pm 0.10$
F	5.50	$\pm 0.10$
P2	2.00	$\pm 0.10$
D	1.50	+0.10 -0.00
Po	4.00	$\pm 0.10$
10Po	40.00	$\pm 0.20$

### 2.2 Pocket Dimensions(unit: mm)

Feature	Specifications	Tolerances
Ao	1.90	+0.20 -0.10
Bo	3.50	
Ko	0.60	$\pm 0.10$
t	0.30	$\pm 0.05$

## 13. Storage Conditions

- (1) Temperature:  $-25^{\circ}\text{C}$  to  $85^{\circ}\text{C}$
- (2) Relative Humidity: 20% to 70%
- (3) Shelf Life :1 year



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