

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 : Nancy

Designed by : Mike

Checked by : Mike

Approved by : Herbert

UNIT : mm

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

5-1. Electrical Table

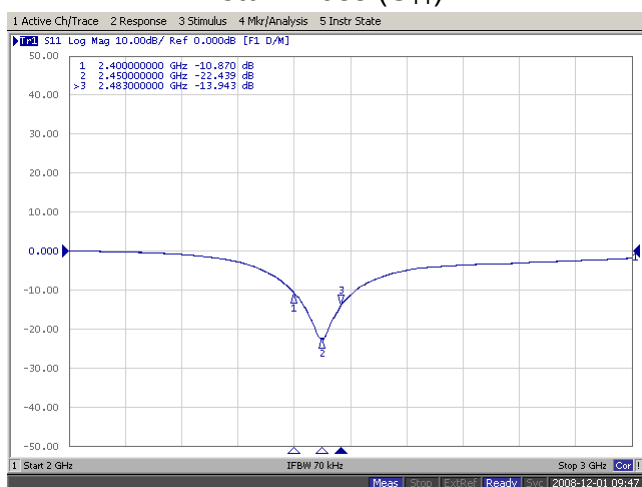
Characteristics		Specifications	Unit
Outline Dimensions		3.2x1.6x0.5	mm
Ground Plane		80x40	mm
Working Frequency		2400~2500	MHz
Bandwidth (under -10dB return loss)		100 Min.	MHz
VSWR (@Center Frequency)*		2 Max.	
Impedance		50	Ω
Polarization		Linear Polarization	
Gain**	Peak	2.5 (typical)	dBi
	Efficiency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

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

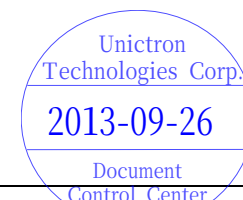
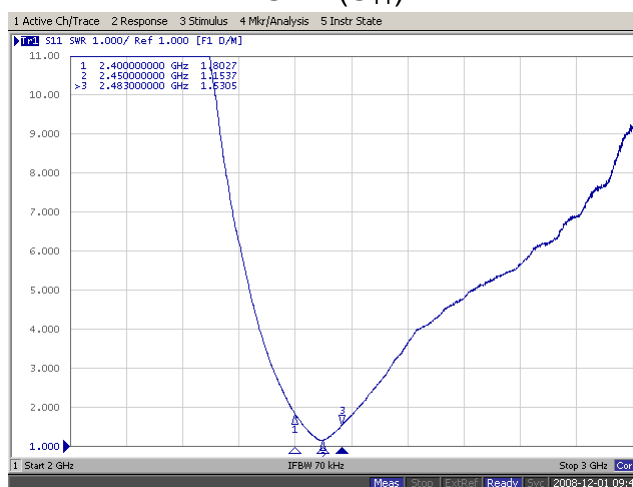
**The data was measured by A Test Lab Techno Corp.(CTIA Authorized Test Lab).

5-2. Return Loss & VSWR

Return Loss (S_{11})



VSWR(S_{11})



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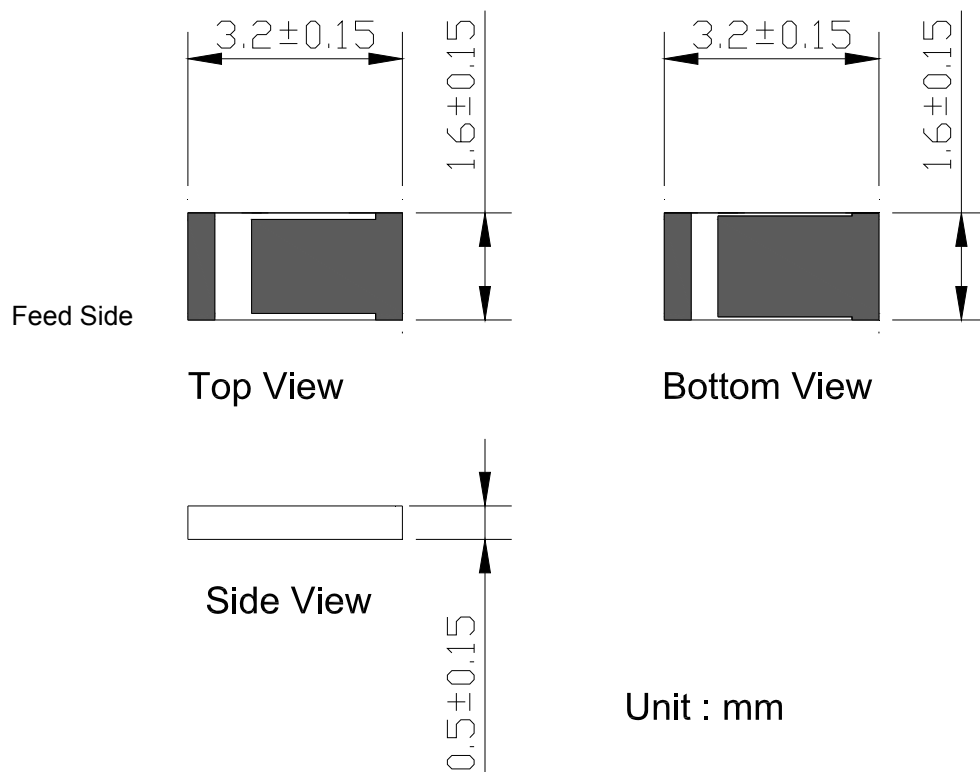
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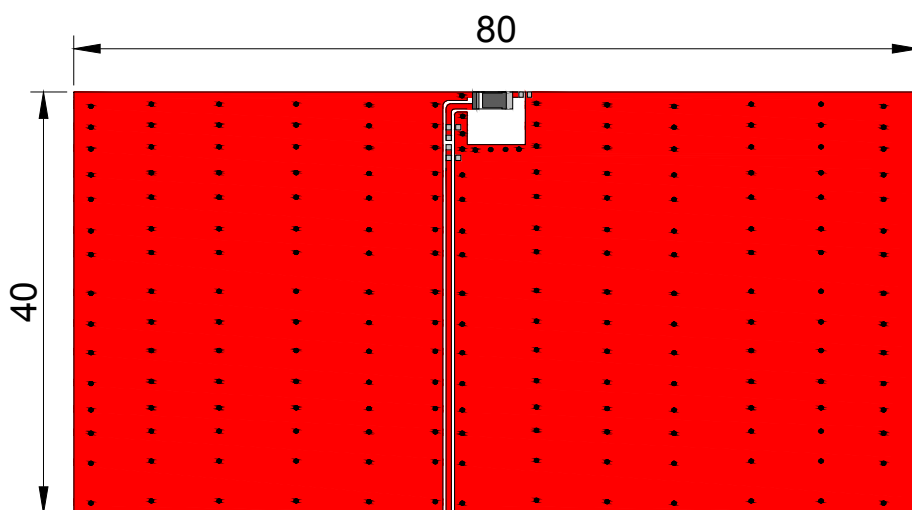
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6. Antenna Dimensions & Test Board (unit: mm)

a. Antenna Dimensions



b. Test Board with Antenna



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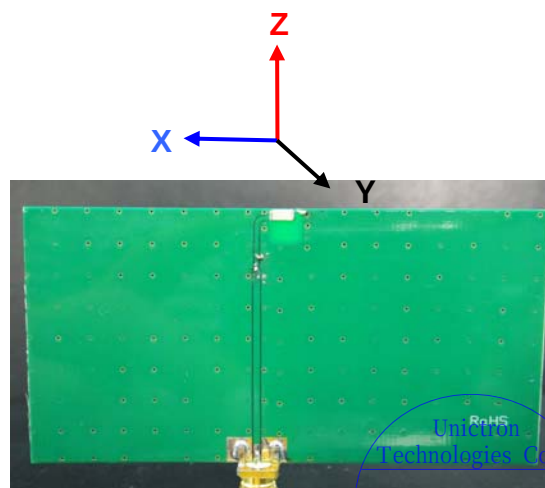
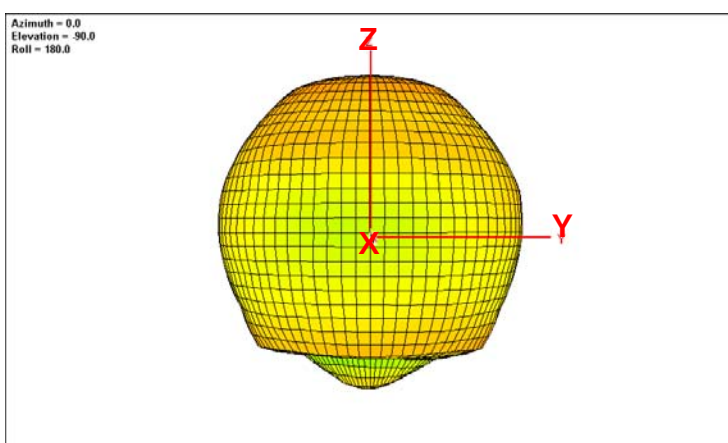
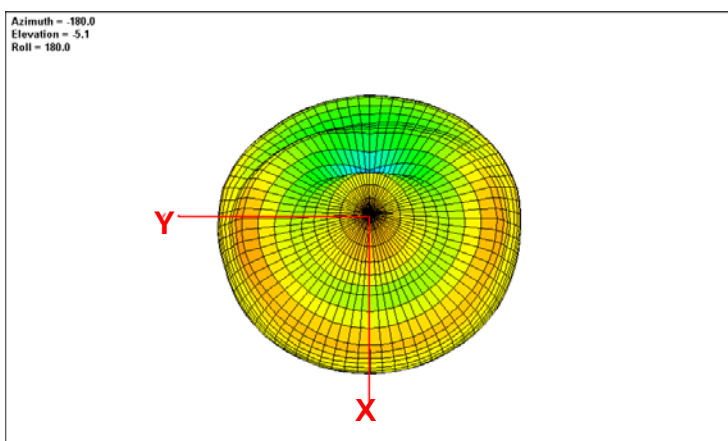
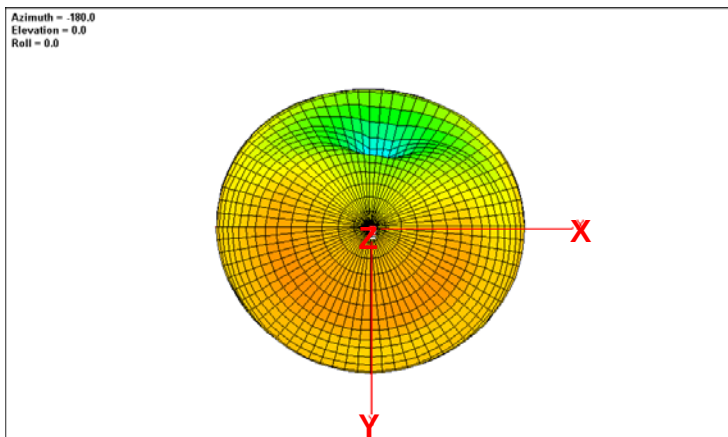
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7. Radiation Pattern (80x40(mm) ground plane)

7-1. 3D Gain Pattern @ 2442 MHz



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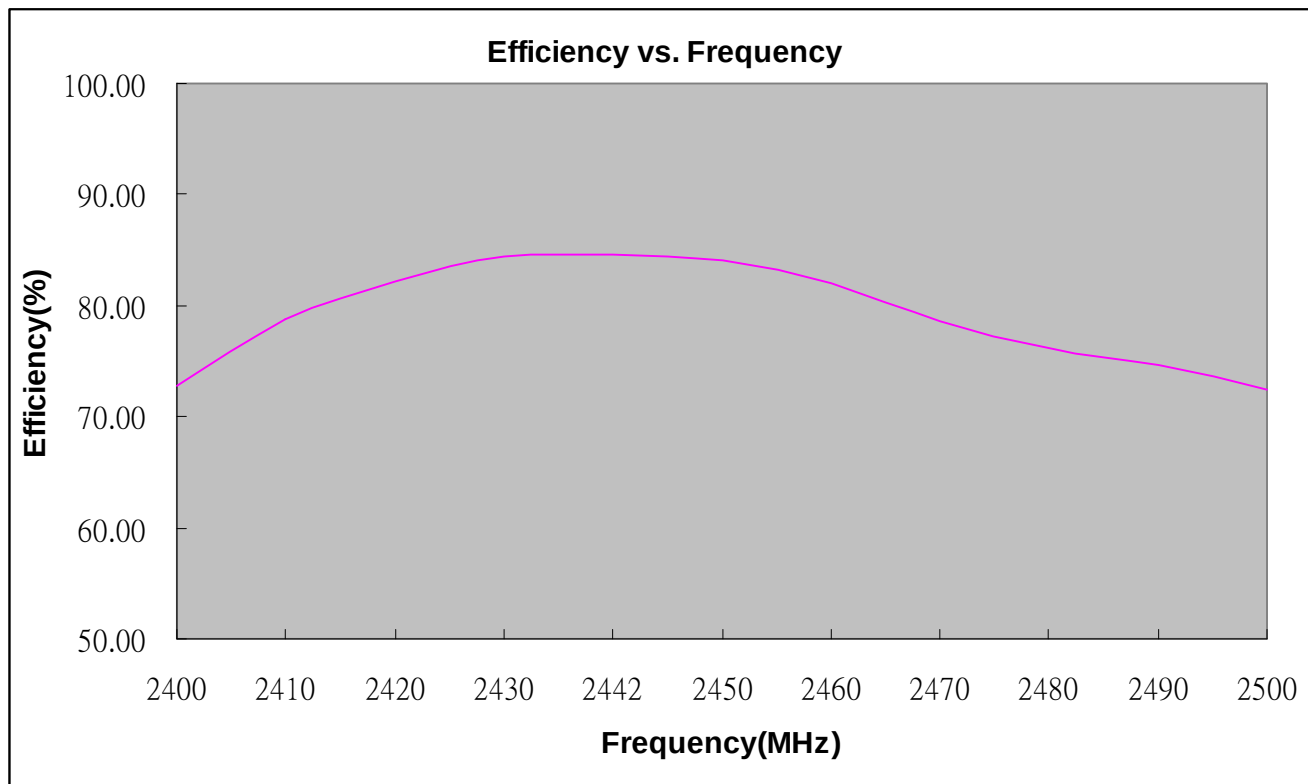
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7-2. 3D Efficiency Table

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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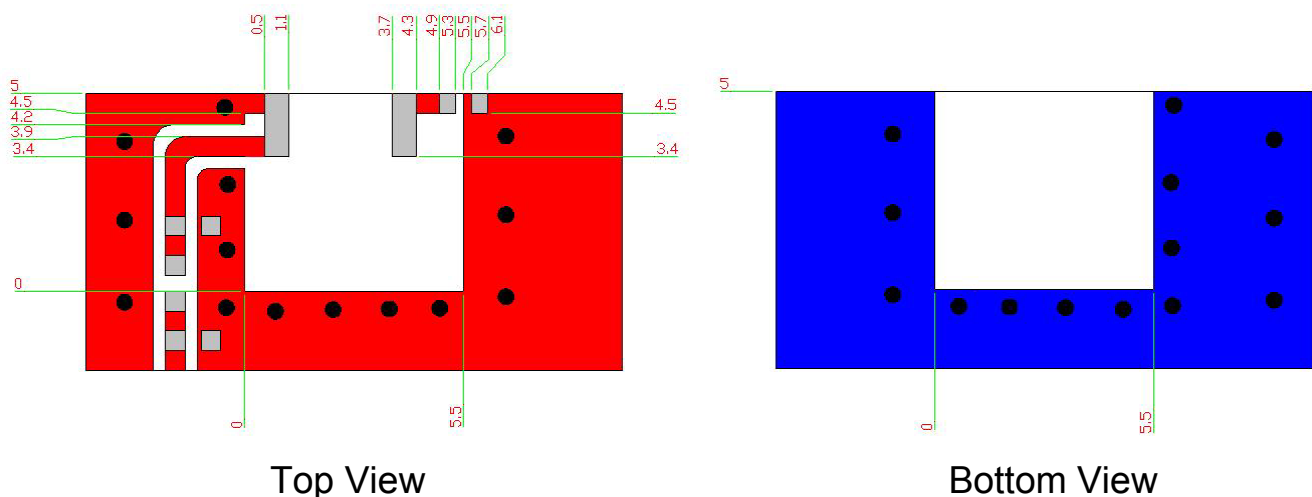
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8. Layout Guide

a. Solder Land Pattern:

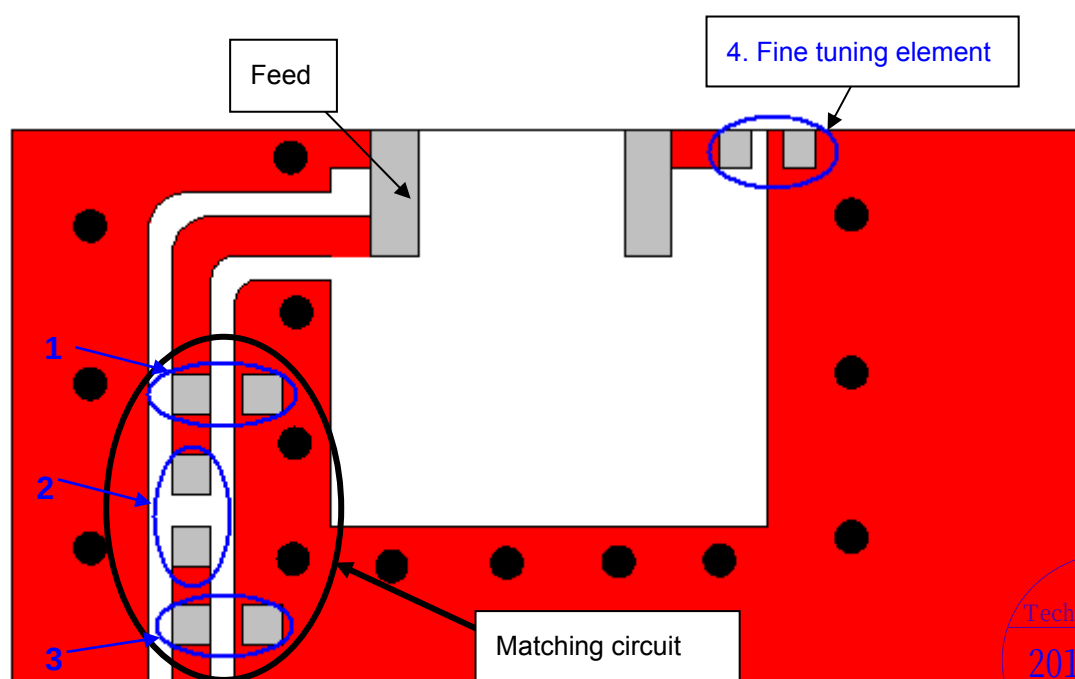
Land pattern for soldering (gray marking areas) is as shown below. Depending on Customer's requirement, matching circuit as shown below is also recommended.



Unit : mm

9. Frequency tuning

a. Chip antenna tuning scenario :



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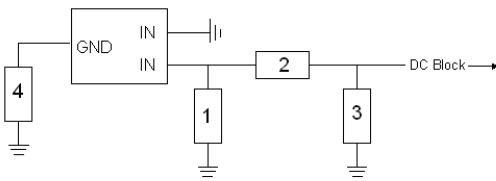
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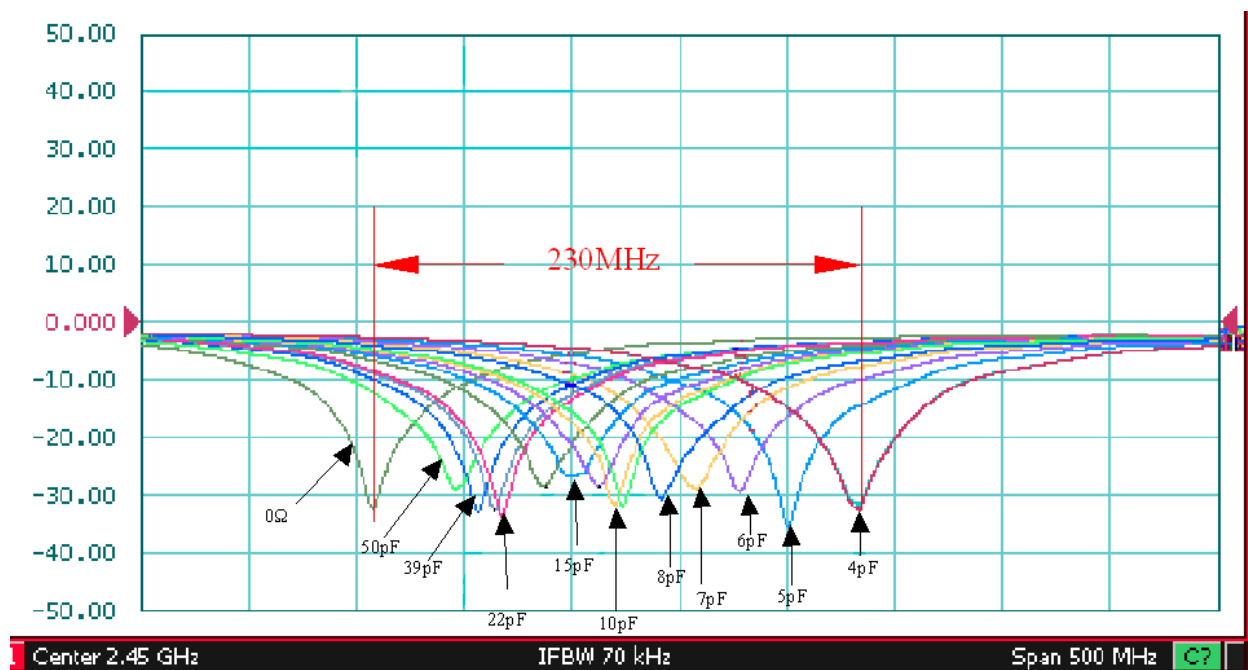
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b. Matching circuit : (Center frequency is about 2442MHz @ 80x40(mm) ground plane)



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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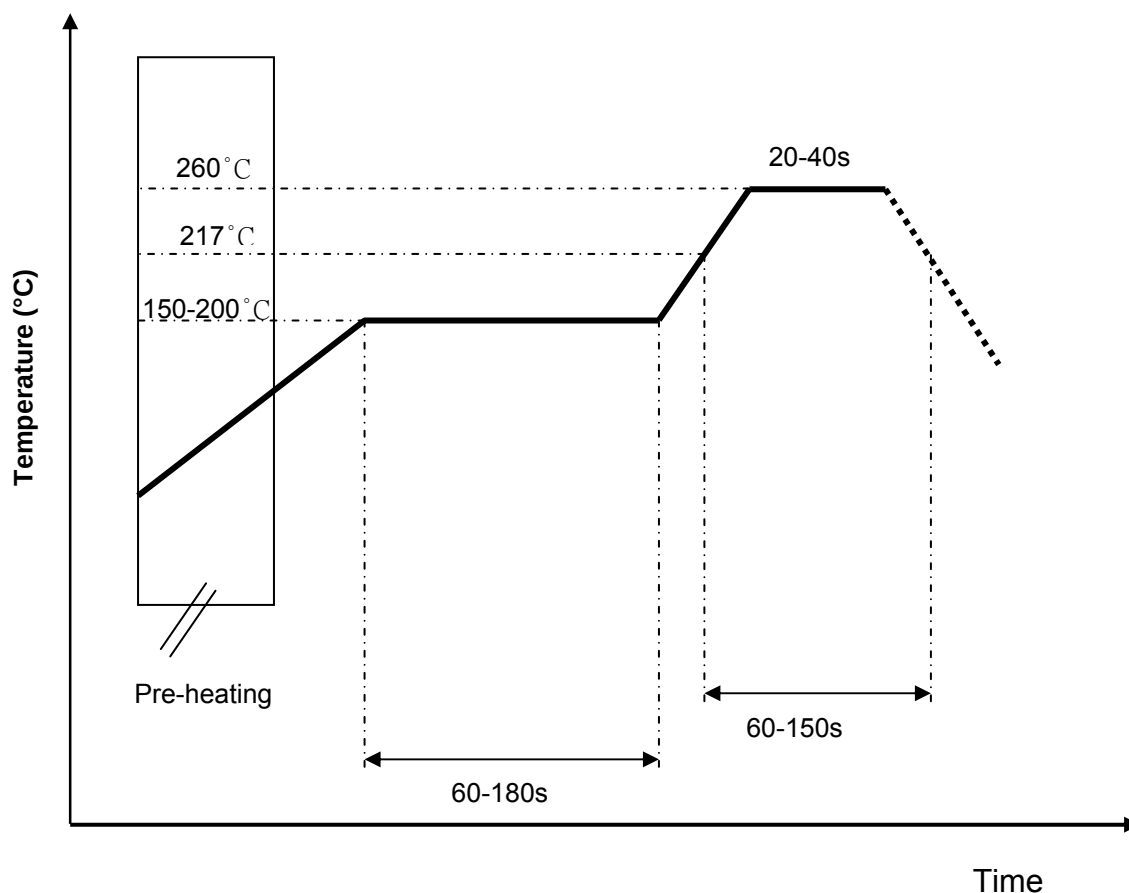
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10. Soldering Conditions

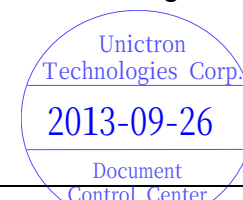
a. Typical Soldering Profile for Lead-free Process



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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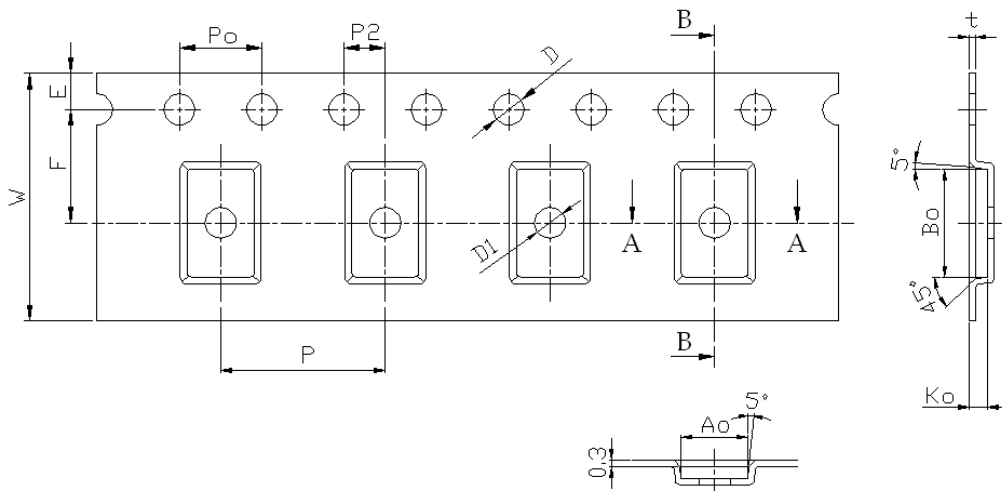
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12. Packing

(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	± 0.30
P	8.00	± 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

2.2 Pocket Dimensions(unit: mm)

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

13. Storage Conditions

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



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