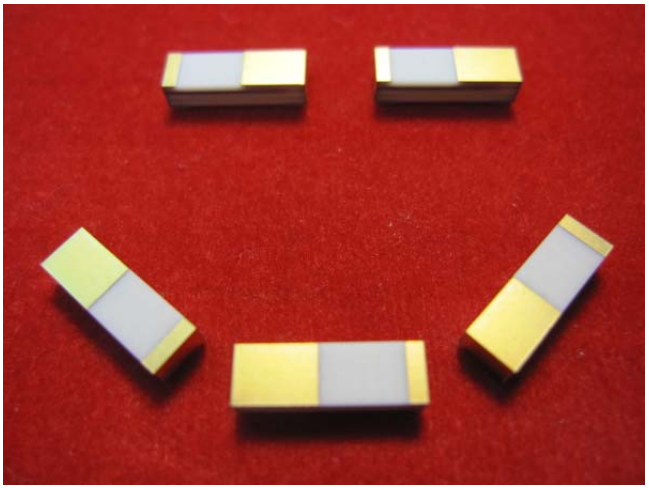
10 x 3.2 x 2.0 GPS Chip Antenna (AA065)

1. Explanation of Product Number

H	2	U	1	6	V	1	A	1	A	0	1	0	0
				(1)	(2)		(3)	(4)		(5)			



Product Code:

(1) Product Categories:

6: polymer substrate

(2) Dimensions:

V1: 10 x 3.2 x 2.0 (mm)

(3) Material:

A: RG

(4) Working Frequency:

1A: 1575.42MHz

(5) Antenna Series:

01: serial number

Tolerances (Unless otherwise specified) **X : ± 1 X.X : ± 0.1 X.XX : ± 0.01** **Angle : ± Hole Dia. : ±**		Unictron Technologies Corporation Website: www.unictron.com	
Scale :	**Unit：mm**		
Prepared By : Meiping	**Checked By : Chinling**		
Designed By : Chinling	**Approved By : Herbert**		
TITLE : 10 x 3.2 x 2.0 GPS Chip Antenna (AA065)		**DOCUMENT NO.**	**H2U16V1A1A0100**	**REV. B**

2. Features

*Stable and reliable in performances
*Low temperature coefficient of frequency
*Compact size
*RoHS compliance

3. Applications

*Navigation systems or position tracking systems
*Hand-held devices when GPS function is needed, e.g., PDA, Smart phone, PND.

4. Description

Unictron's chip antenna series are specially designed for GPS application. 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 (80x40(mm) ground plane)

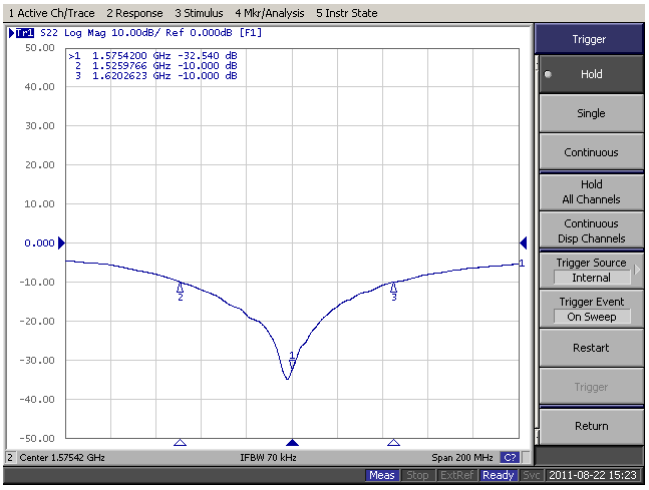
5-1.

Characteristics		Specifications	Unit
Outline Dimensions		10 x 3.2 x 2.0	mm
Ground Plane		80x40	mm
Center Frequency*		1575.42	MHz
Bandwidth (under -10dB return loss)		75 min.	MHz
VSWR		2 max.	
Impedance		50	Ω
Polarization		Linear Polarization	
Gain	Peak	2.8 (typical)	dBi
	Efficiency	82 (typical)	%
Temperature Coefficient of Frequency		0±20 max (@ -40℃~85℃)	ppm/℃

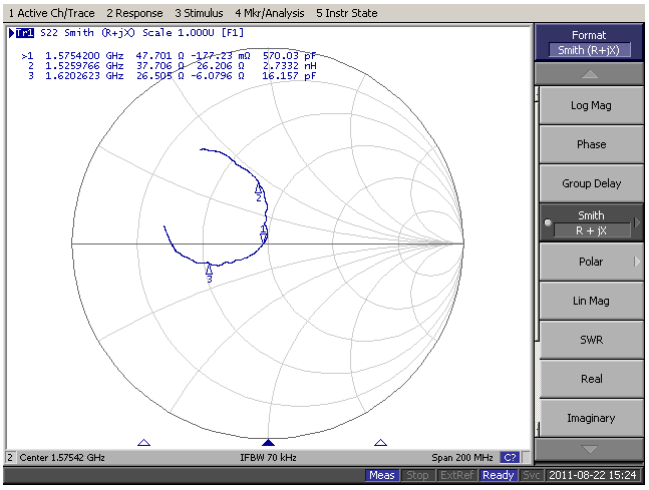
*Center frequency will be offset to working frequency according to the conditions of user's ground plane and radome.

5-2.

Return Loss(S_{11})

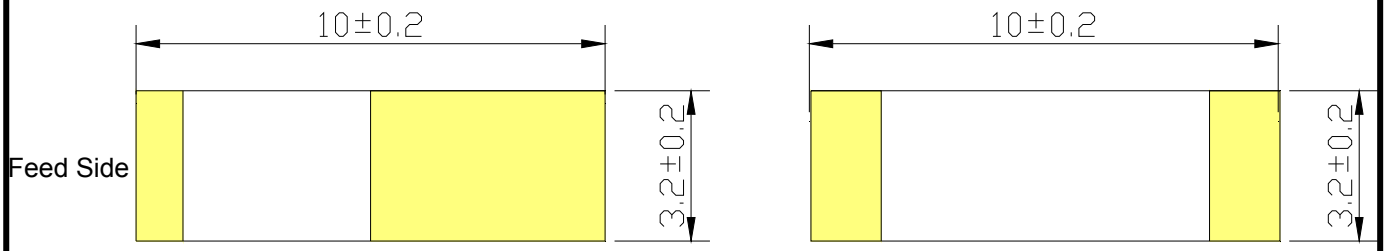


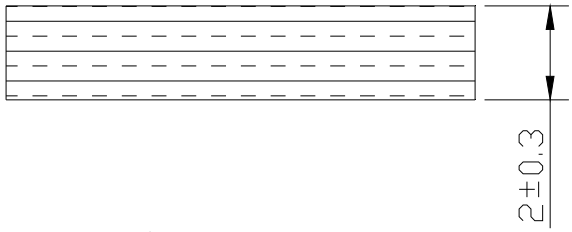
Smith Chart



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

a. Antenna Dimensions

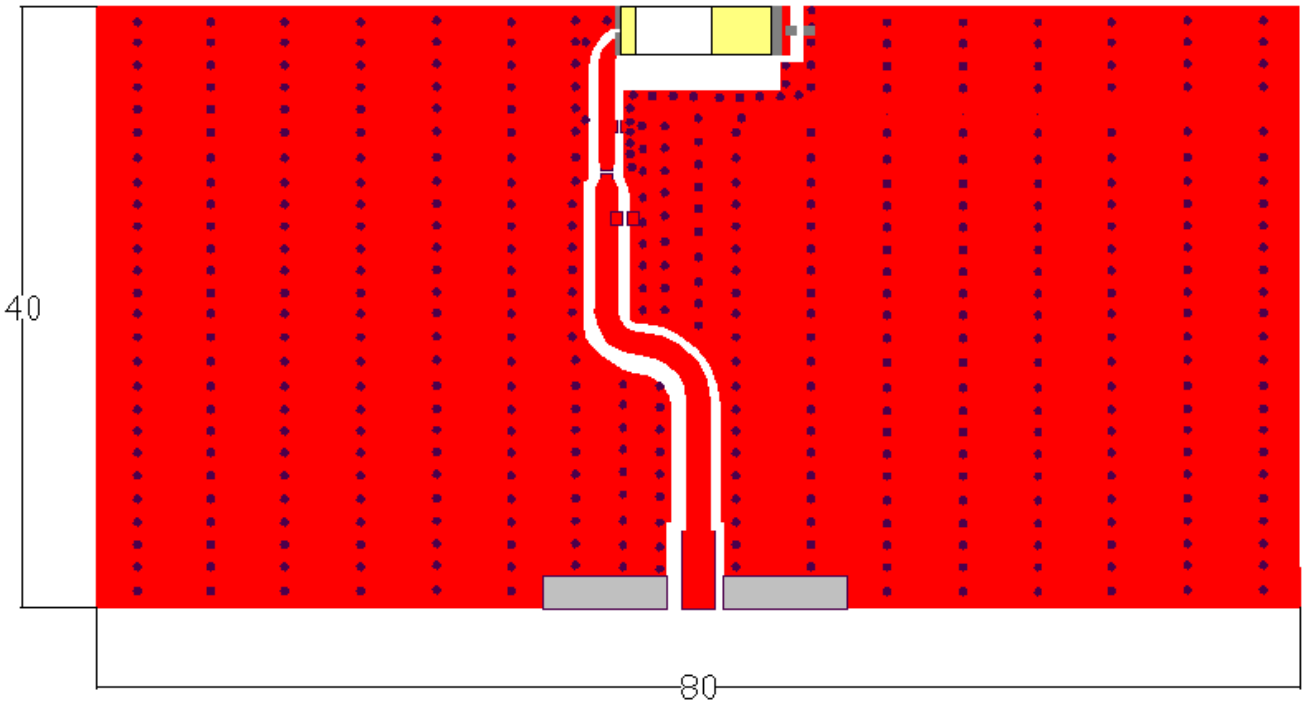




Unit:mm

Tolerances (Unless otherwise specified) **X : ± 1 X.X : ± 0.1 X.XX : ± 0.01** **Angle : ± Hole Dia. : ±**	Unictron Technologies Corporation Website: www.unictron.com	
Scale :	**Unit : mm**	THIS SPECIFICATION IS THE PROPERTY OF UNICTRON TECHNOLOGIES CORPORATION AND SHALL NOT BE REPRODUCED OR USED IN ALL CIRCUMSTANCES WITHOUT WRITTEN PERMISSION
Prepared By : Meiping	**Checked By : Chinling**	
Designed By : Chinling	**Approved By : Herbert**	
TITLE : 10 x 3.2 x 2.0 GPS Chip Antenna (AA065)	**DOCUMENT NO.** **H2U16V1A1A0100**	**REV. B**

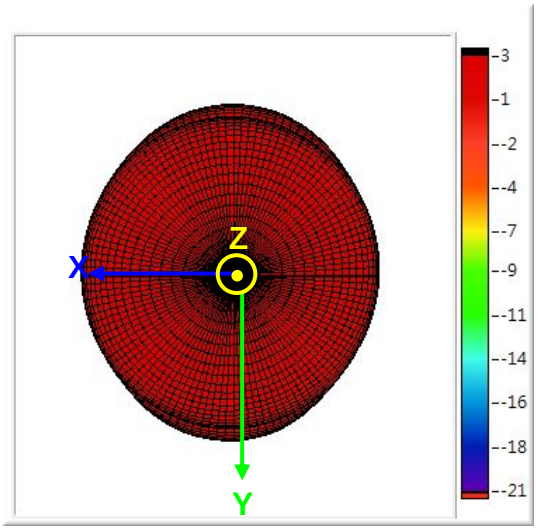
b. Test Board Dimensions

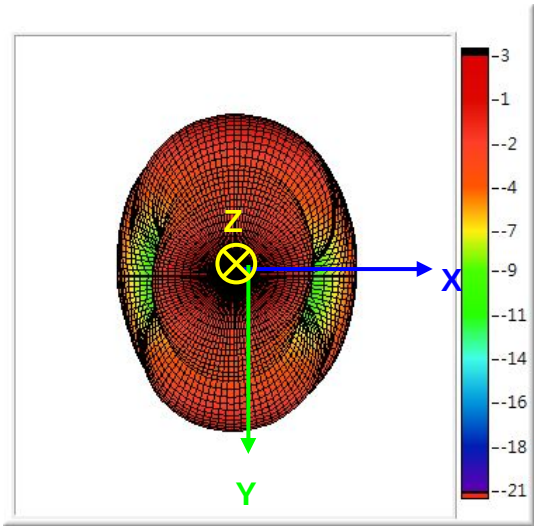


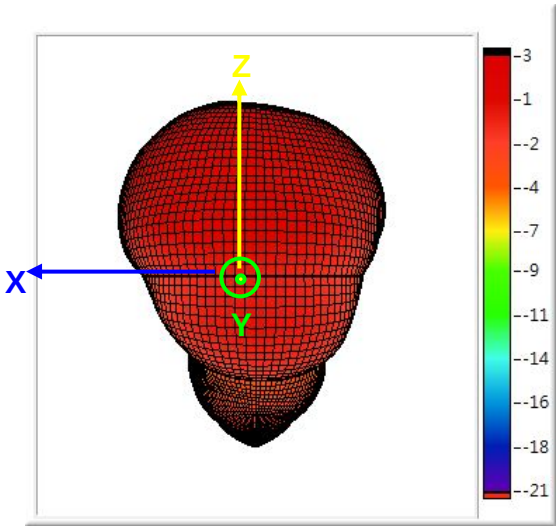
Tolerances (Unless otherwise specified) **X : ± 1 X.X : ± 0.1 X.XX : ± 0.01** **Angle : ± Hole Dia. : ±**		Unictron Technologies Corporation Website: www.unictron.com	
Scale :	**Unit：mm**	THIS SPECIFICATION IS THE PROPERTY OF UNICTRON TECHNOLOGIES CORPORATION AND SHALL NOT BE REPRODUCED OR USED IN ALL CIRCUMSTANCES WITHOUT WRITTEN PERMISSION	
Prepared By : Meiping	**Checked By : Chinling**		
Designed By : Chinling	**Approved By : Herbert**		
TITLE： 10 x 3.2 x 2.0 GPS Chip Antenna (AA065)		**DOCUMENT NO.**	**H2U16V1A1A0100**	**REV. B**

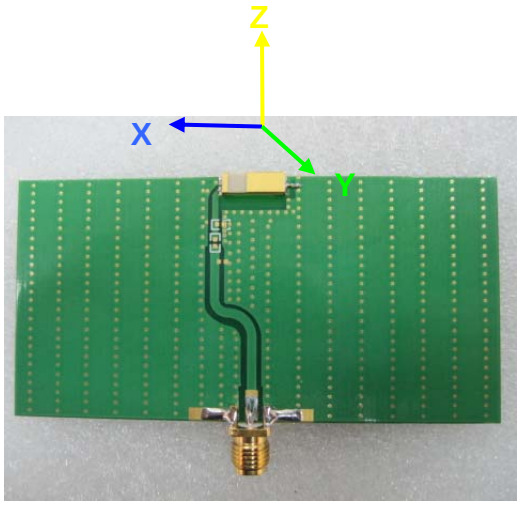
7. Radiation Pattern (80x40(mm) ground plane)

7-1. 3D Gain Pattern at 1575 MHz







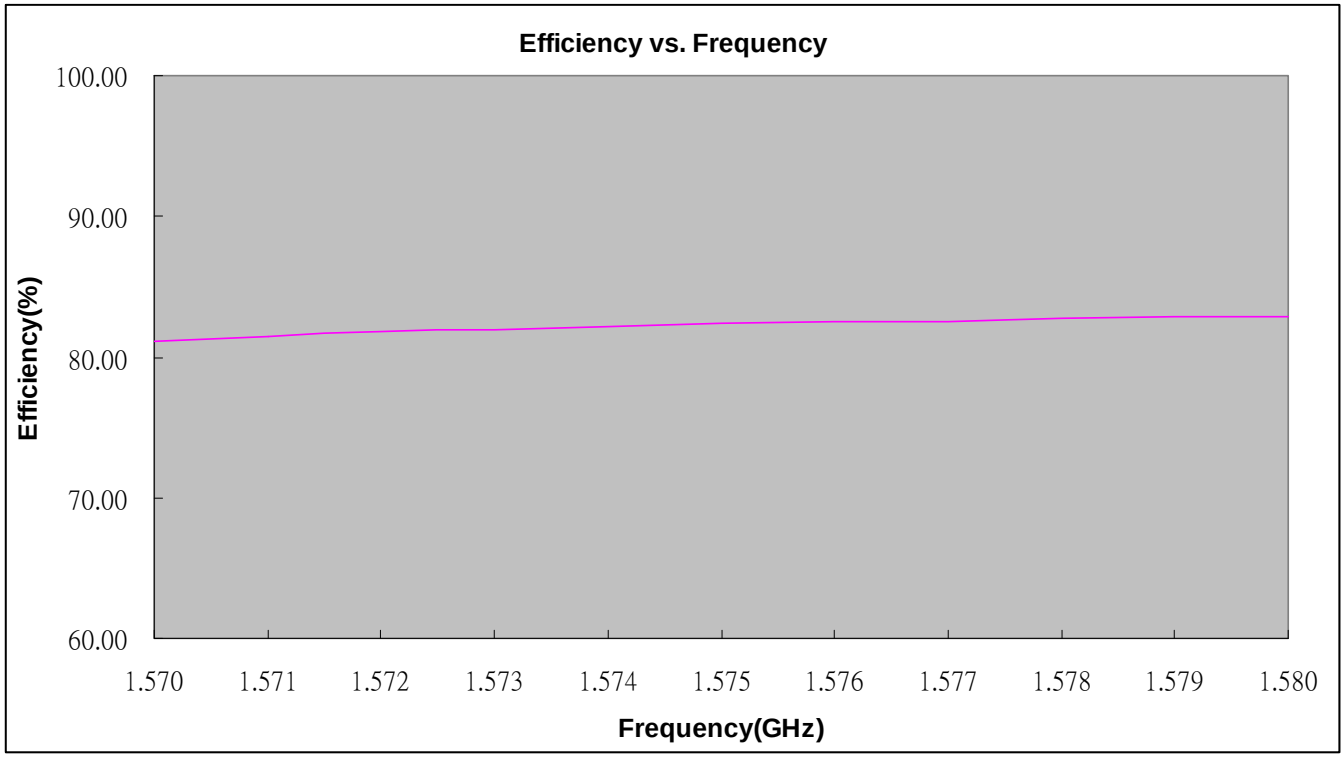


Tolerances (Unless otherwise specified) **X : ± 1 X.X : ± 0.1 X.XX : ± 0.01** **Angle : ± Hole Dia. : ±**		Unictron Technologies Corporation Website: www.unictron.com	
Scale :	**Unit : mm**	THIS SPECIFICATION IS THE PROPERTY OF UNICTRON TECHNOLOGIES CORPORATION AND SHALL NOT BE REPRODUCED OR USED IN ALL CIRCUMSTANCES WITHOUT WRITTEN PERMISSION	
Prepared By : Meiping	**Checked By : Chinling**		
Designed By : Chinling	**Approved By : Herbert**		
TITLE : 10 x 3.2 x 2.0 GPS Chip Antenna (AA065)		**DOCUMENT NO.**	**H2U16V1A1A0100**	**REV. B**

7-2. Efficiency Table

Frequency(GHz)	1.570	1.571	1.572	1.573	1.574	1.575	1.576	1.577	1.578	1.579	1.580
Efficiency(dB)	-0.91	-0.89	-0.87	-0.86	-0.85	-0.84	-0.83	-0.83	-0.82	-0.81	-0.81
Efficiency(%)	81.07	81.43	81.80	81.98	82.17	82.35	82.54	82.54	82.72	82.91	82.91
Gain(dBi)	2.86	2.87	2.88	2.84	2.85	2.85	2.84	2.82	2.80	2.81	2.80

7-3. Efficiency vs. Frequency

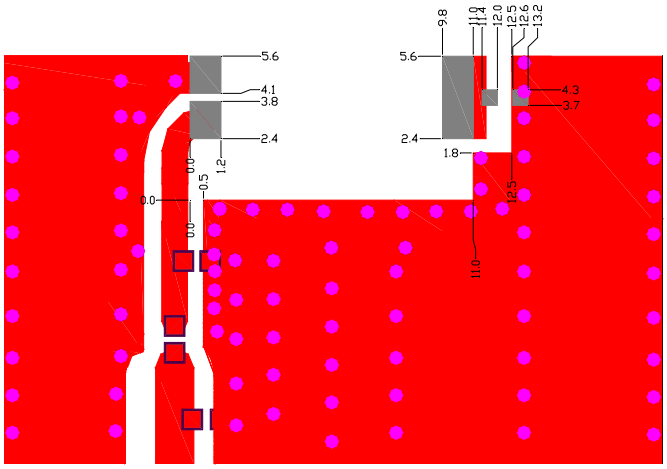


Tolerances (Unless otherwise specified) **X : ± 1 X.X : ± 0.1 X.XX : ± 0.01** **Angle : ± Hole Dia. : ±**		Unictron Technologies Corporation Website: www.unictron.com	
Scale :	**Unit：mm**	THIS SPECIFICATION IS THE PROPERTY OF UNICTRON TECHNOLOGIES CORPORATION AND SHALL NOT BE REPRODUCED OR USED IN ALL CIRCUMSTANCES WITHOUT WRITTEN PERMISSION	
Prepared By : Meiping	**Checked By : Chinling**		
Designed By : Chinling	**Approved By : Herbert**		
TITLE： 10 x 3.2 x 2.0 GPS Chip Antenna (AA065)		**DOCUMENT NO.**	**H2U16V1A1A0100**	**REV. B**

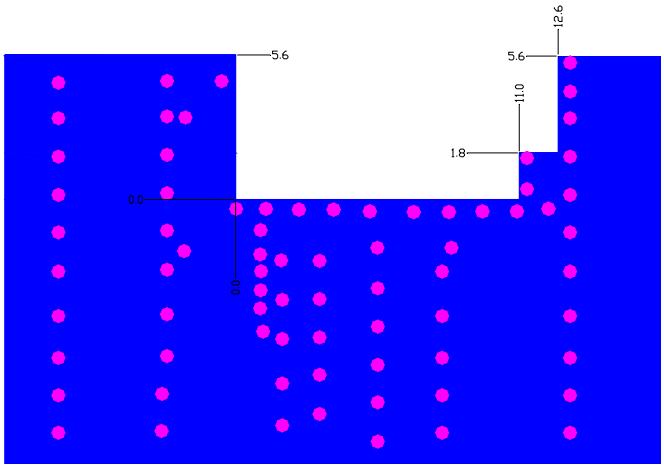
8. Layout Guide:

a. Solder Land Pattern:

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



Top View

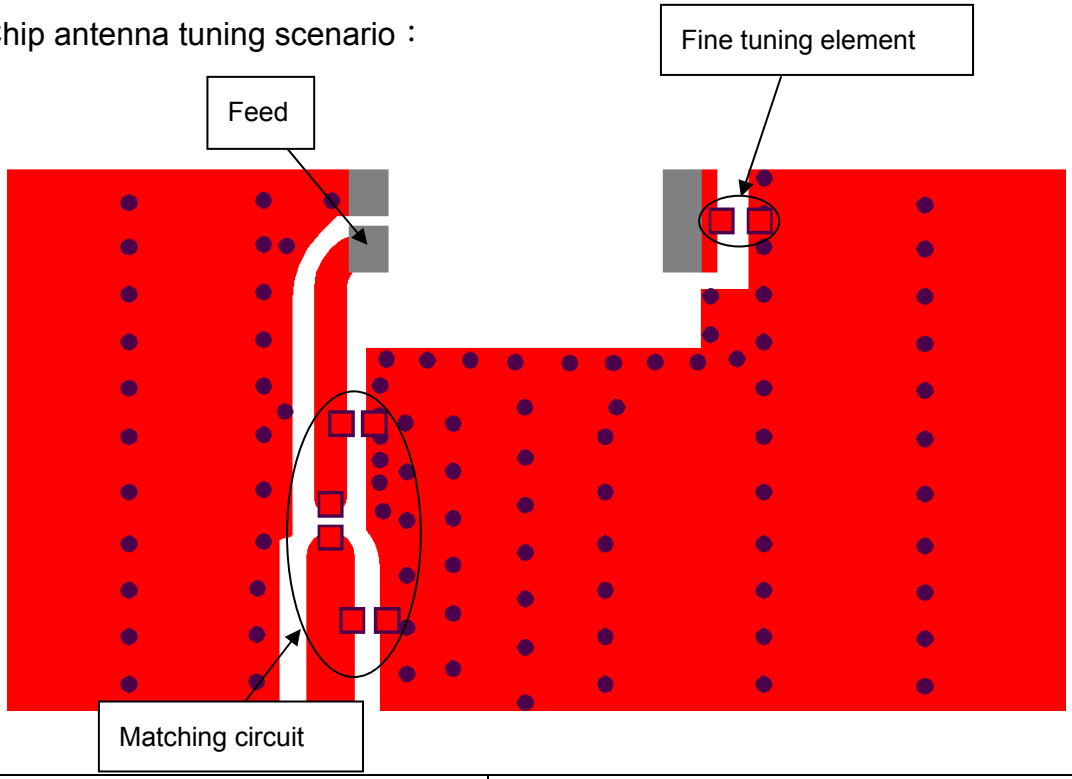


Back View

Unit：mm

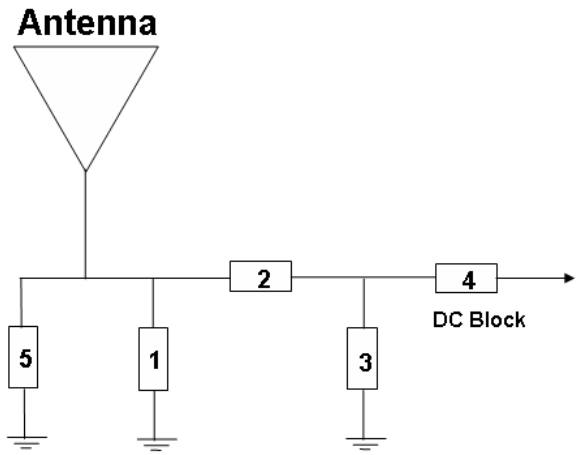
9. Frequency tuning:

a. Chip antenna tuning scenario：



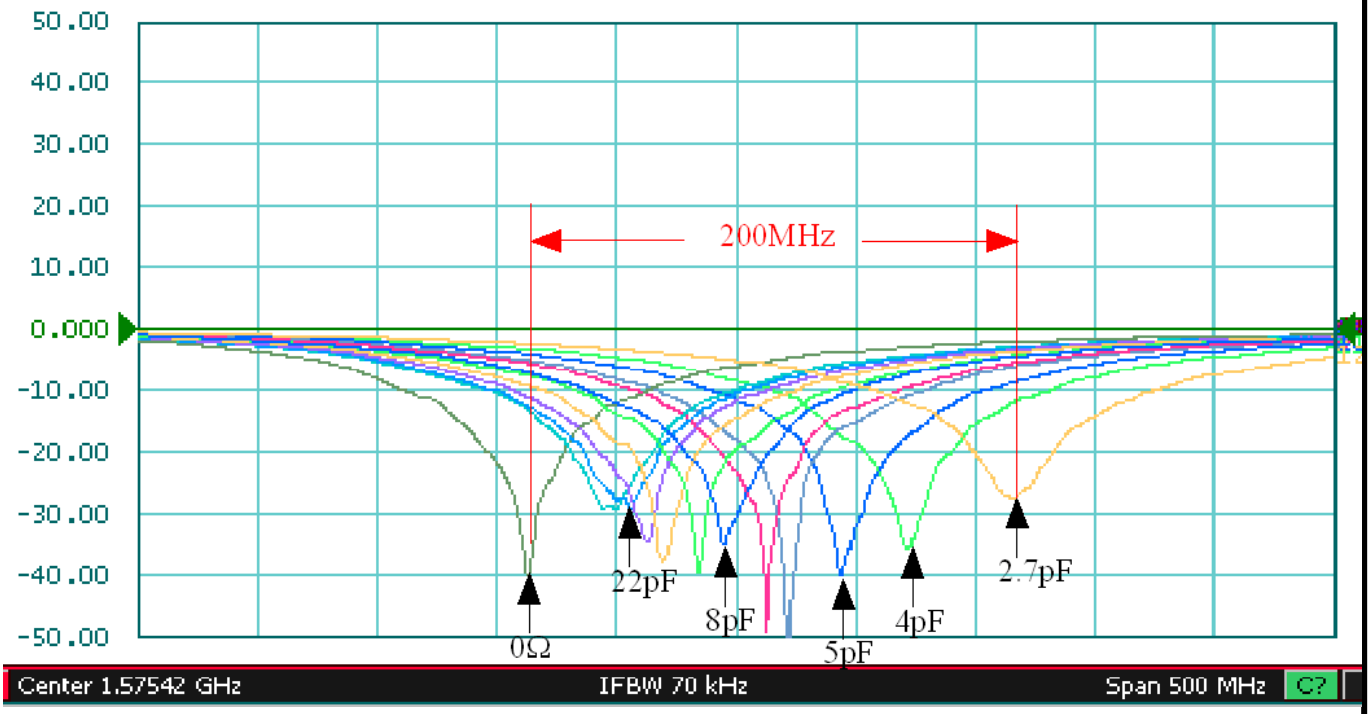
Tolerances (Unless otherwise specified) **X：± 1　　X.X：± 0.1　　X.XX：± 0.01** **Angle：±　　Hole Dia.：±**		Unictron Technologies Corporation Website: www.unictron.com	
Scale：	**Unit：mm**	THIS SPECIFICATION IS THE PROPERTY OF UNICTRON TECHNOLOGIES CORPORATION AND SHALL NOT BE REPRODUCED OR USED IN ALL CIRCUMSTANCES WITHOUT WRITTEN PERMISSION	
Prepared By : Meiping	**Checked By : Chinling**		
Designed By : Chinling	**Approved By : Herbert**		
TITLE：10 x 3.2 x 2.0 GPS Chip Antenna (AA065)		**DOCUMENT NO.**	**H2U16V1A1A0100**	**REV. B**

b. Matching circuit：(Center frequency is about 1575MHz at 80x40(mm) ground plane)



System Matching Circuit Component		
Location	Description	Vendor
1	2.2pF	TDK(0402)
2	0Ω	(0402)
3	N/A	-
4	22pF	TDK(0402)
5 (Fine tuning element)	8pF	TDK(0402)

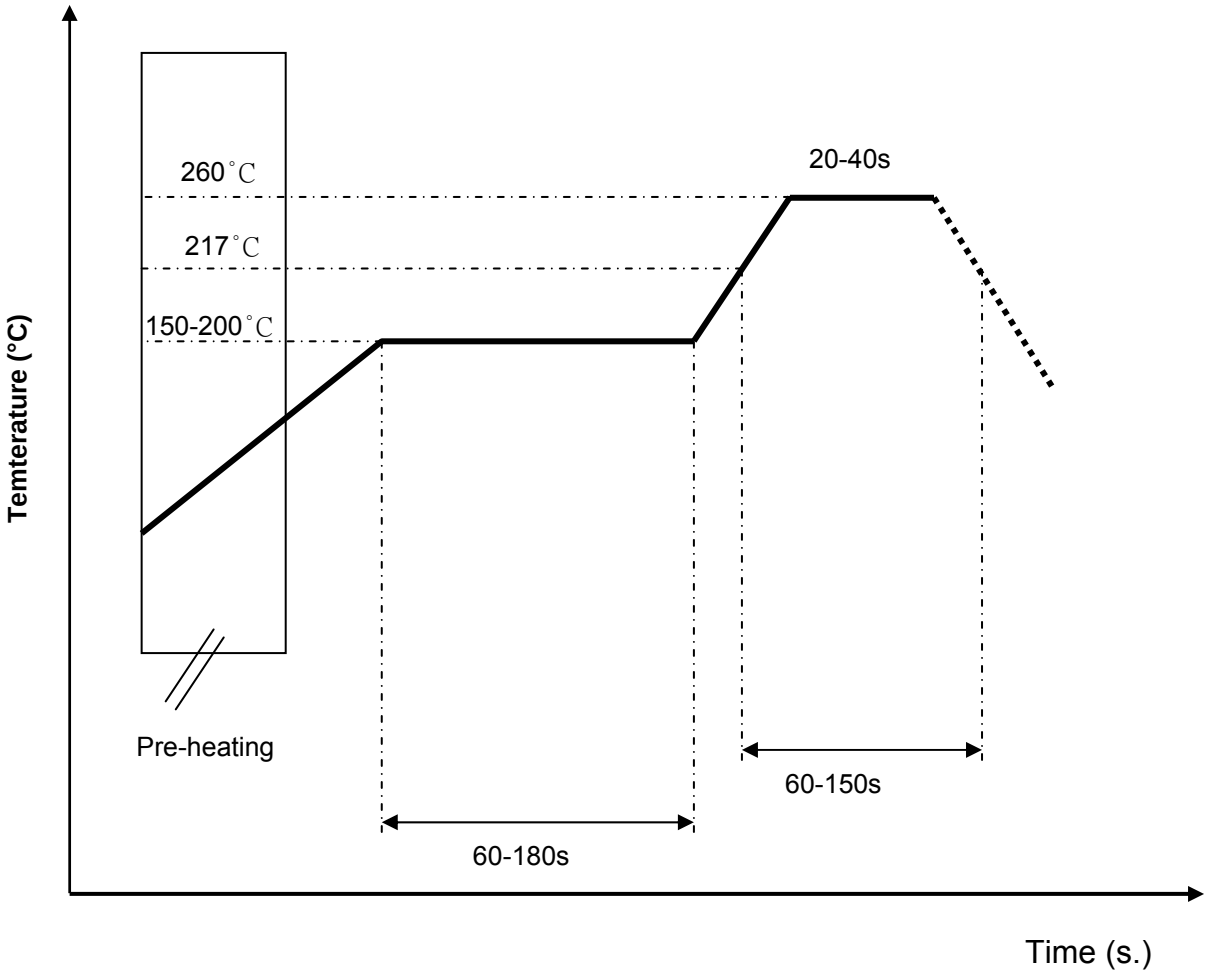
c. Fine tuning element vs. Center frequency



Tolerances (Unless otherwise specified) **X : ± 1 X.X : ± 0.1 X.XX : ± 0.01** **Angle : ± Hole Dia. : ±**		Unictron Technologies Corporation Website: www.unictron.com	
Scale :	**Unit：mm**	THIS SPECIFICATION IS THE PROPERTY OF UNICTRON TECHNOLOGIES CORPORATION AND SHALL NOT BE REPRODUCED OR USED IN ALL CIRCUMSTANCES WITHOUT WRITTEN PERMISSION	
Prepared By : Meiping	**Checked By : Chinling**		
Designed By : Chinling	**Approved By : Herbert**		
TITLE： 10 x 3.2 x 2.0 GPS Chip Antenna (AA065)		**DOCUMENT NO.** **H2U16V1A1A0100**	**REV.** **B**

10. Soldering Conditions:

a. Typical Soldering Profile for Lead-free Process

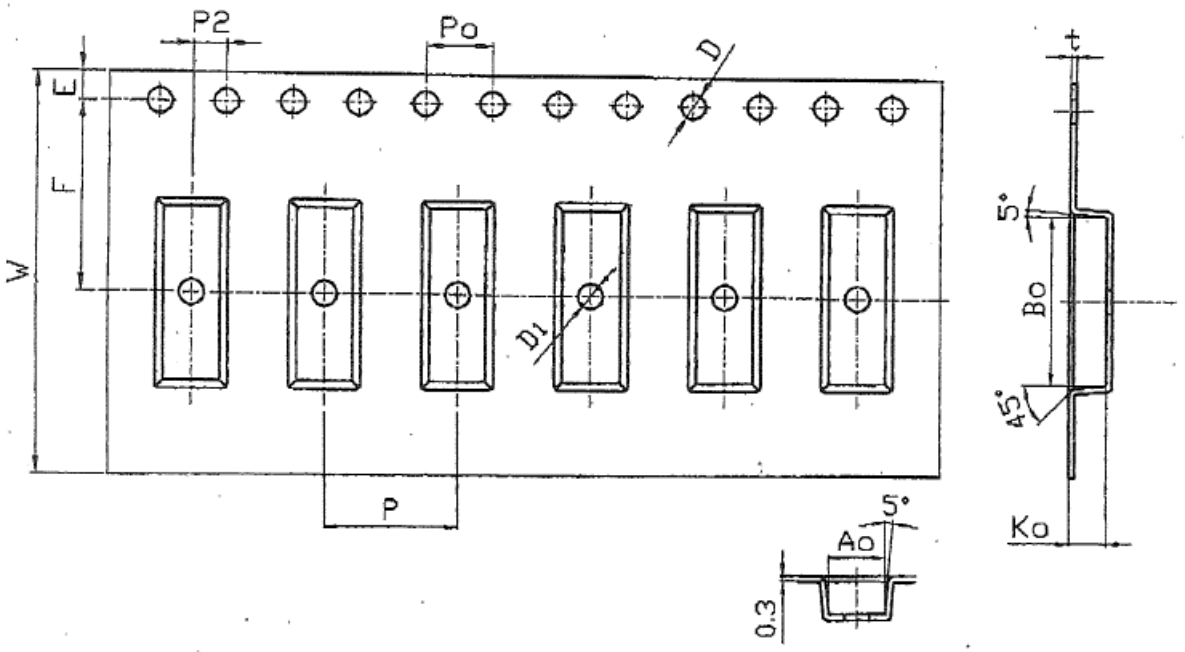


Tolerances (Unless otherwise specified) **X : ± 1 X.X : ± 0.1 X.XX : ± 0.01** **Angle : ± Hole Dia. : ±**		Unictron Technologies Corporation Website: www.unictron.com	
Scale :	**Unit：mm**	THIS SPECIFICATION IS THE PROPERTY OF UNICTRON TECHNOLOGIES CORPORATION AND SHALL NOT BE REPRODUCED OR USED IN ALL CIRCUMSTANCES WITHOUT WRITTEN PERMISSION	
Prepared By : Meiping	**Checked By : Chinling**		
Designed By : Chinling	**Approved By : Herbert**		
TITLE： 10 x 3.2 x 2.0 GPS Chip Antenna (AA065)		**DOCUMENT NO.**	**H2U16V1A1A0100**	**REV. B**

11. Packing:

(1) Quantity/Reel: 2000pcs/Reel

(2) Plastic tape:



1. Cumulative tolerance of 10 sprocket hole pitch: ±0.20mm
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	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

2.2 Pocket Dimensions(unit: mm)

Feature	Specifications	Tolerances
Ao	3.60	±0.10
Bo	10.50	±0.10
Ko	2.40	±0.10
t	0.35	±0.05

12. Storage Conditions:

(1) Temperature: -25℃ to 85℃

(2) Relative Humidity: 20% to 70%