

## 2.4GHz Chip Antenna

### 1. Explanation of Product Number

R	A	0	0	L	P	F	A	0	0	M	A	0	0	0
		(1)	(2)	(3)	(4)	(5)	(6)							



✖ The direction of white dot forwards to feed point

Product Code:

(1) Dimensions:

00: 5.0x2.0x1.0(mm)

(2) Polarization:

L: Linear Polarization

(3) Product categories:

PF: Polymer Substrate

(4) Working frequency:


A: 2400~2500MHz

(5) Applications::

00: WiFi IEEE802.11 b/g / Bluetooth / ZigBee

(6) Antenna series:

MA000: serial number

<b>Tolerances (Unless otherwise specified)</b> X : $\pm 1$ X.X : $\pm 0.1$ X.XX : $\pm 0.01$ Angle : $\pm$ Hole Dia. : $\pm$		 <b>RIFO Technologies Corporation</b> Website: <a href="http://www.rifo.com.tw">www.rifo.com.tw</a>	
Scale :	Unit : mm	THIS SPECIFICATION IS THE PROPERTY OF RIFO TECHNOLOGIES CORPORATION AND SHALL NOT BE REPRODUCED OR USED IN ALL CIRCUMSTANCES WITHOUT WRITTEN PERMISSION	
Prepared By : Helen	Checked By :Jeff		
Designed By :Jason	Approved By :Allen		
TITLE : 2.4GHz Chip Antenna		DOCUMENT NO.	RA00LPFA00MA000S REV. A

## 2. Features

- \*Stable and reliable in performances
- \*Compact size
- \*ROHS compliance
- \*Low temperature coefficient of frequency
- \*SMD type

## 3. Applications

- \*WiFi IEEE802.11 b/g / Bluetooth / ZigBee
- \*2.4HGz Wireless Devices

## 4. Description

RIFO's chip antenna series are specially designed for 2.4GHz band application. Based on RIFO's proprietary designs and processes, this chip antenna has excellent stability and sensitivity to consistently provide high signal reception efficiency.

## 5. Electrical Specifications

No	Item	SPEC.	Unit
1	Dimensions (LxWxH)	5.0x2.0x1.0	mm
2	Operating Frequency Range	2400~2500	MHz
3	VSWR	2 max.	
4	Impedance	50	$\Omega$
5	Polarization	Linear	
6	Peak gain	3.2 typ.	dBi
7	Efficiency	61 typ.	%
8	Operating Temperature	-40~85	°C

\*The antenna performance is measured on 40x20mm test Board.

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

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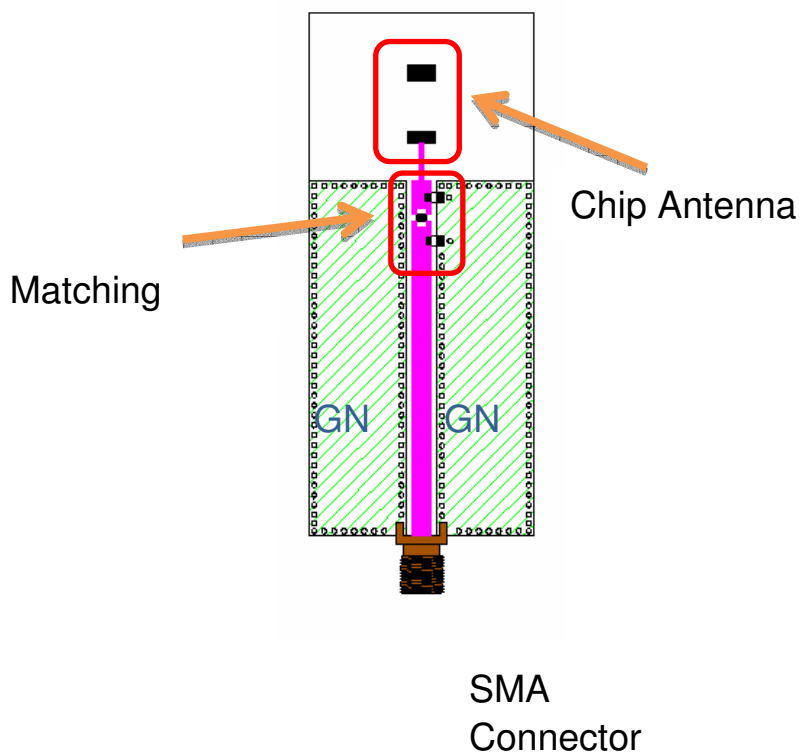
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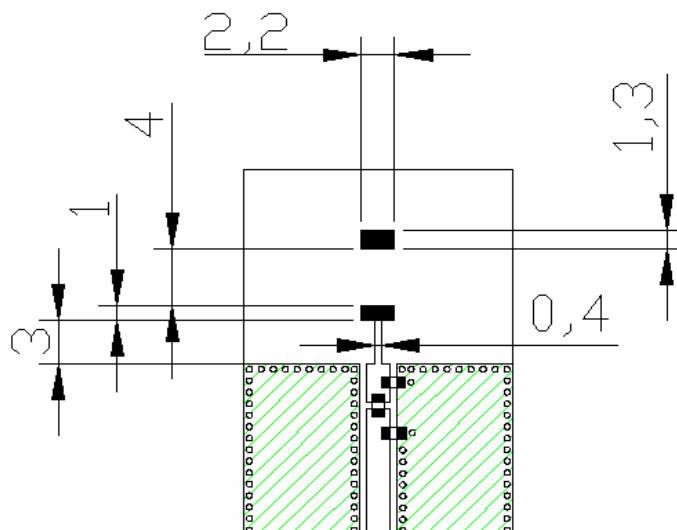
## 6. PCB Design for Measurement

### 6.1 Test Board Dimension



- ※ Test Board size is 40\*20mm
- ※ Ground plane size is 30\*20mm

### 6.2 PCB Design Guide



#### Tolerances (Unless otherwise specified)

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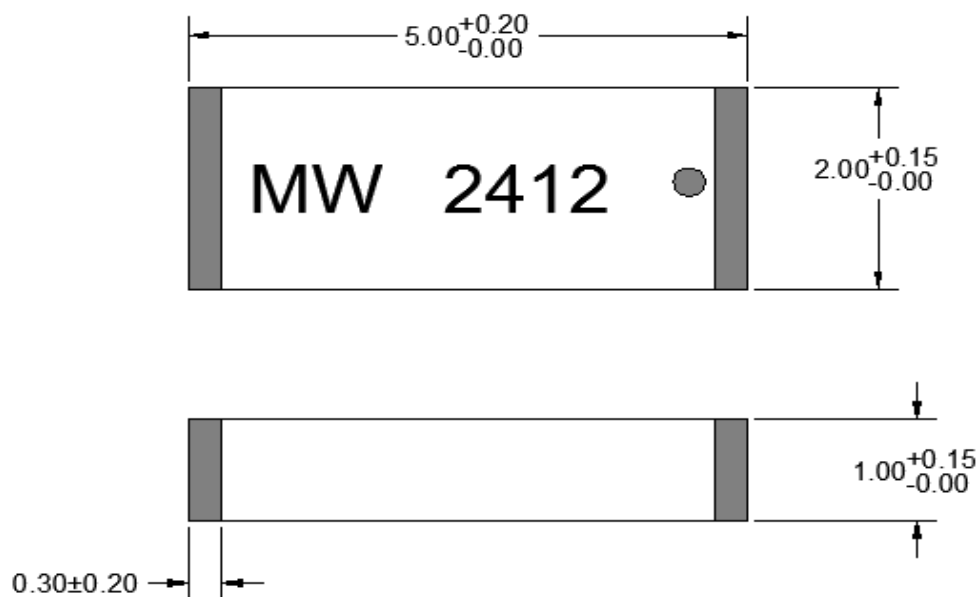
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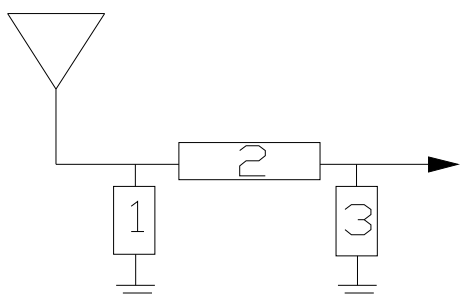
## 6. Antenna Dimensions(unit:mm)



## 8. Measurement Result

### 8.1 Matching circuit

#### Antenna



System Matching Circuit Component		
Location	Description	Vendor
Antenna	502010	MW
1	NC	
2	2.7nH	0402 TDK
3	1.2pf	0402TDK

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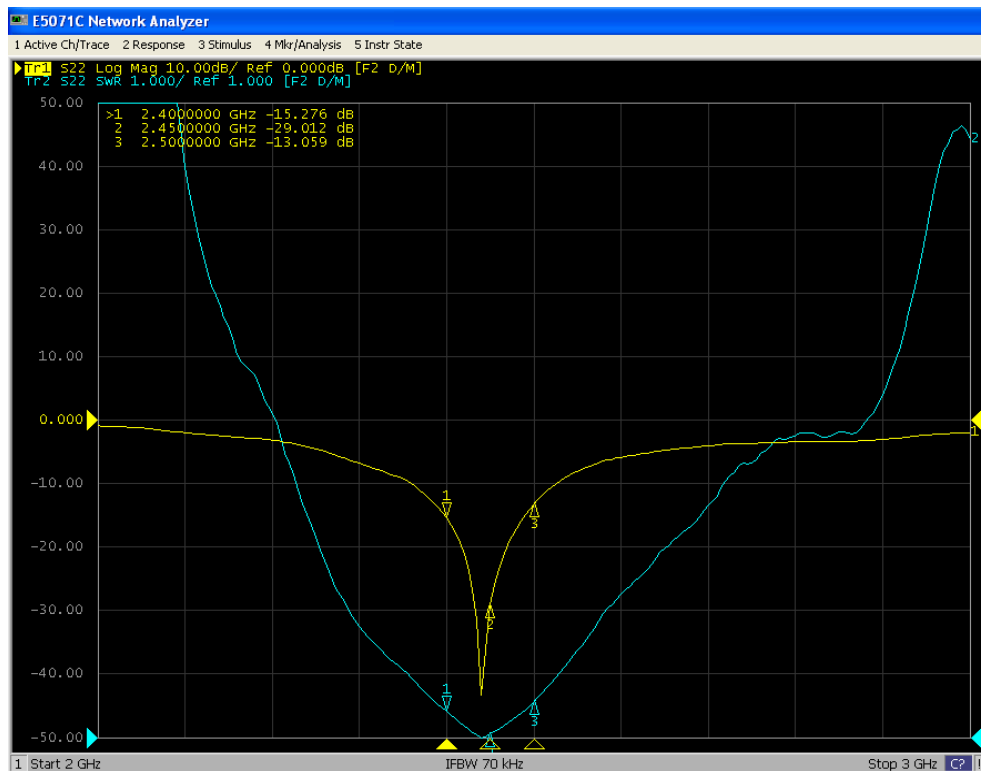
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## 8.2 Return Loss (S11 / VSWR)



	2.4GHz	2.45GHz	2.5GHz
S11(dB)	-16	-29	-14
VSWR	1.4	1.1	1.5

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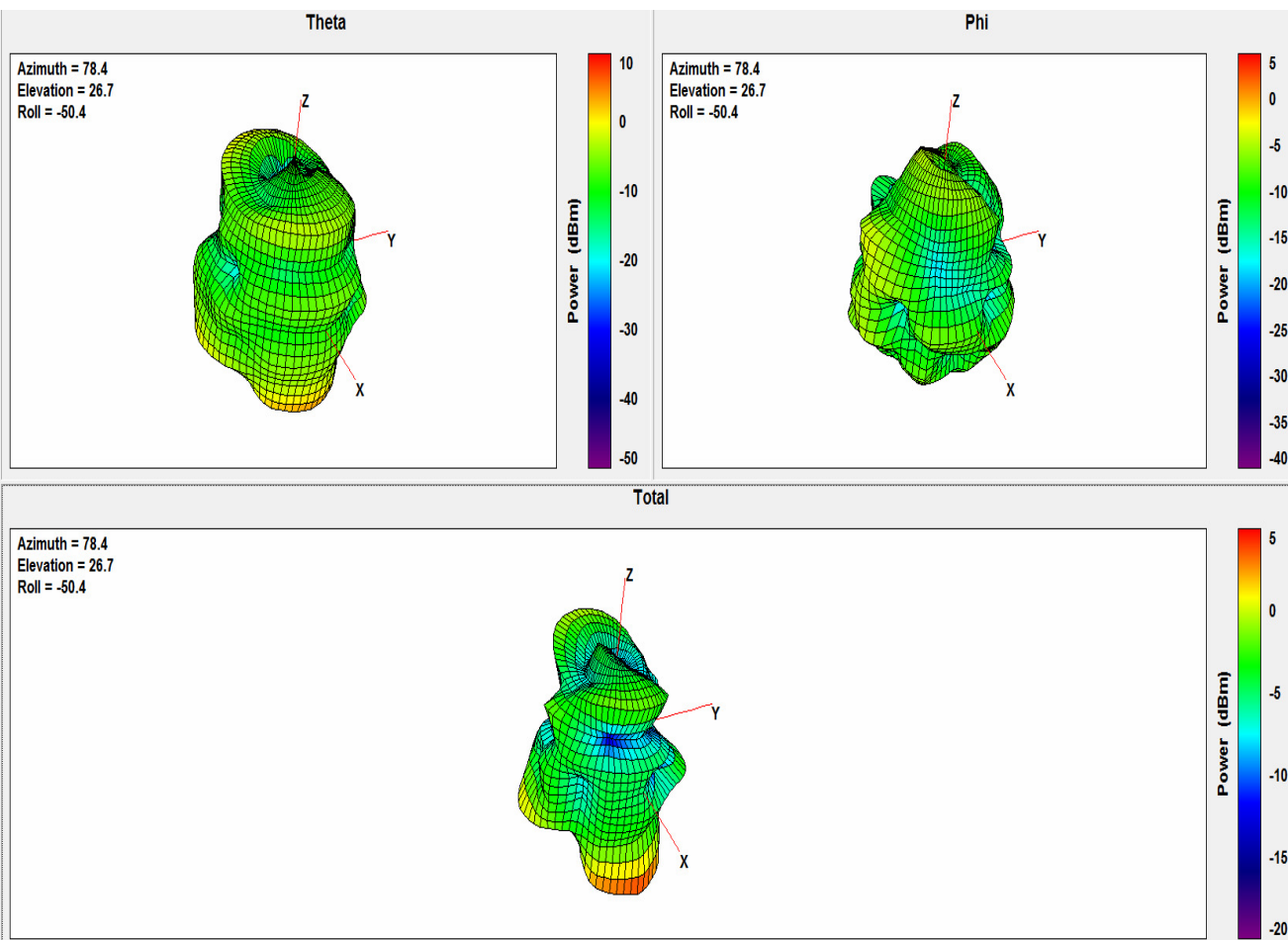
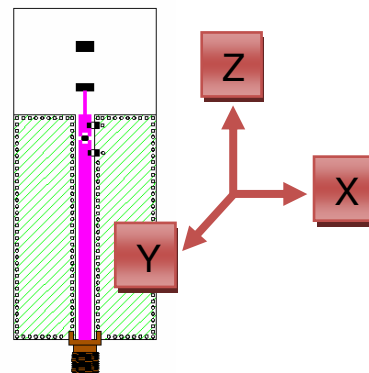
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## 9. Radiation Pattern(@2450MHz)



	X-Y plane	Y-Z plane	X-Z plane
Avg. gain(dBi)	-2.95	-0.61	-2.03
Peak gain(dBi)	1.43	3.20	2.18

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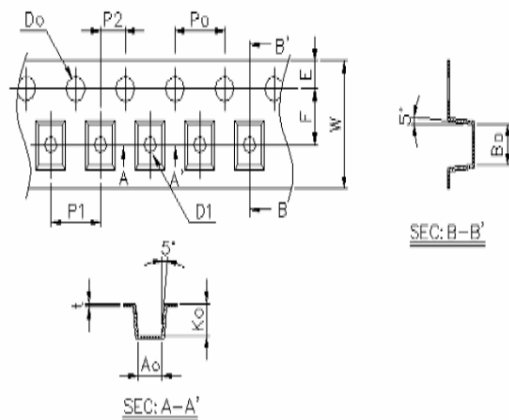
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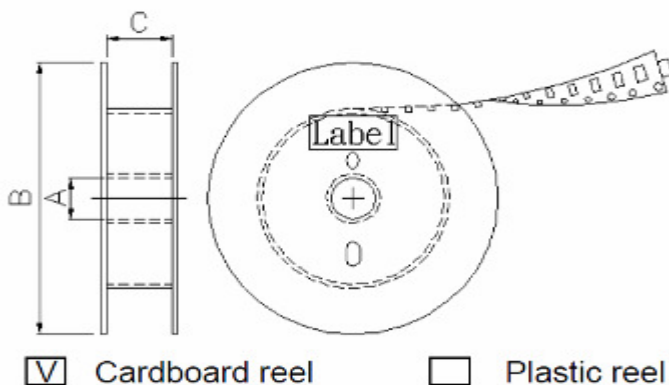
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## 10. Package

### 5.1 Dimension (Unit: mm)



### 5.2 Reel & Packing Specification



Item	Specifications	Tolerance s
W	12.00	$\pm 0.20$
E	1.75	$\pm 0.10$
F	5.50	$\pm 0.05$
D0	1.50	$+0.10, -0$
D1	1.50	$\pm 0.10$
P0	4.00	$\pm 0.05$
P1	4.00	$\pm 0.10$
P2	2.00	$\pm 0.05$
P0 x 10	40.00	$\pm 0.20$
t	0.25	$\pm 0.05$
A0	2.20	$\pm 0.10$
B0	5.10	$\pm 0.10$
K0	1.40	$\pm 0.10$

Product code: 1101 - Polycarbonate natural transparent.  
 1201 - Polycarbonate conductive black.  
 Surface resistivity 10E4 to E6 ohm/sq.

Reel Dimensions		
A	77	mm
B	560	mm
C	96	mm

Packing		
Length / Roll	700	meters
Each Carton	3	rolls

Carton Dimension (mm)	
V	575(L)*345(W)*585(H)

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