AN1003

Multilayer Chip Antenna for

2.4GHz & 5~6GHz Wireless Communication

AN1003 Chip Antenna

◆ Features

- Light weight and low profile 10.3mm(L)X3.0mm(W)X1.7mm(H)
- Omni-directional in azimuth
- Lead (Pb) Free

◆ Applications

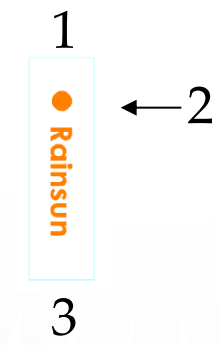
- 2.4GHz & 5~6GHz wireless communications
- 2.4GHz & 5~6GHz Modules
- 802.11a/b/g Wireless LAN System

Specifications

Center frequency	2.45GHz & 5~6GHz
Peak gain	1dBi
Operation temperature	-40 ~ +85 ˚C
Storage temperature	-40 ~ +85 ˚C
VSWR	2.0 (max)
Input Impedance	50 Ohm
Power handling	3W (max)
Bandwidth	2.45GHz 70MHz
	5~6GHz 500MHz
Azimuth beamwidth	Omni-directional
Polarization	Linear

Pin configuration

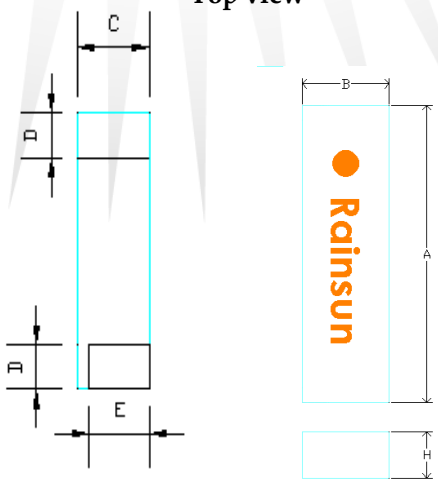
Top view



Pin No	Pin assignment
1	Feed termination
2	Feed point mark
3	Solder termination

Dimensions

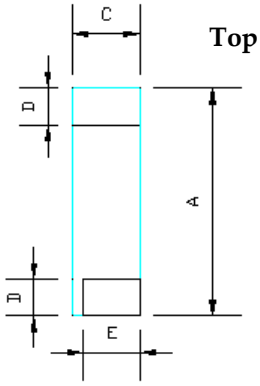
Top view



Symbol	Dimensions(mm)
A	10.3 ± 0.25
B	3.0 ± 0.20
C	3.0 ± 0.20
D	1.6 ± 0.20
E	2.5± 0.20
H	1.70 ± 0.20

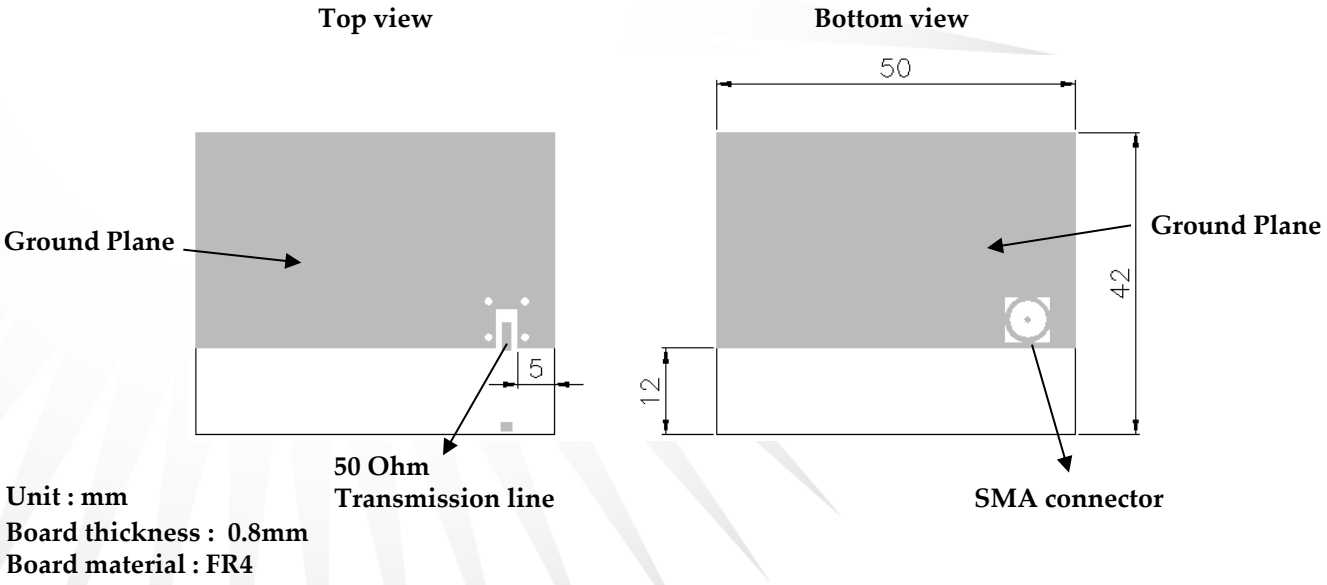
PCB Foot Print

Top view



Symbol	Dimensions(mm)
A	8.4
C	3.0
D	1.6
E	2.5

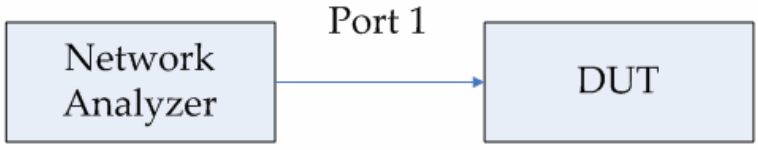
Recommended Test Board Pattern



Unit : mm
Board thickness : 0.8mm
Board material : FR4

Fig-1

Testing Setup



Measurement

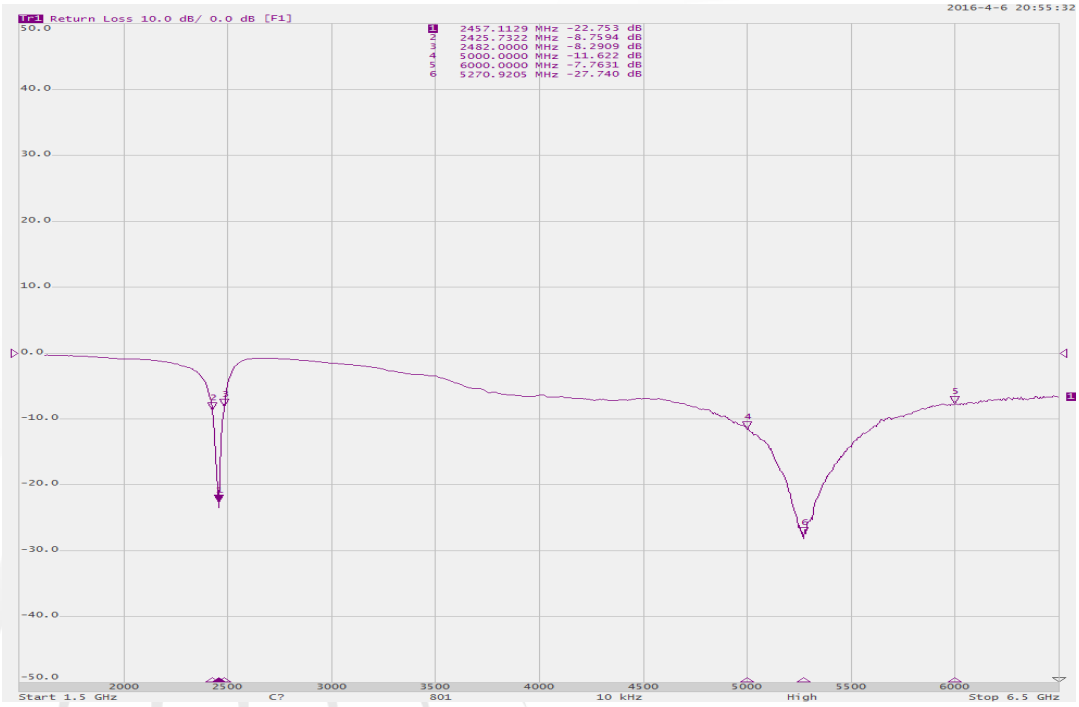
Testing Instrument:
Anritsu 37369C VNA(Vector Network Analyzer)

VNA calibrate with 1 path reflection only calibration sequence on test board feed point.

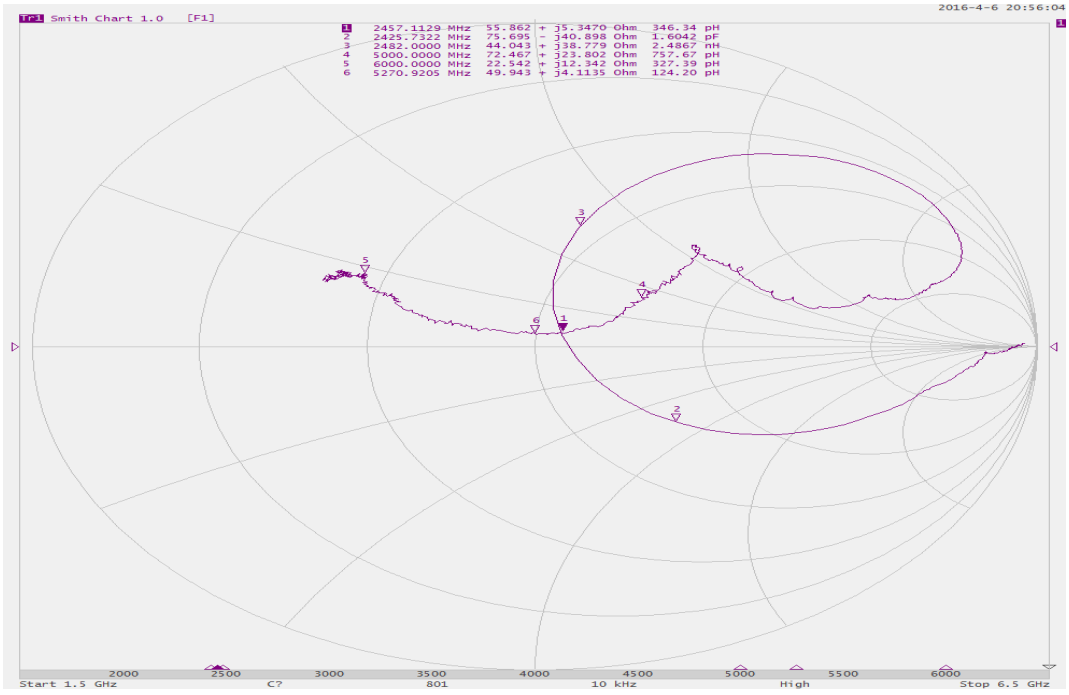
The test board dimension and it's layout is the same as Fig-1.

Typical Electrical Characteristics

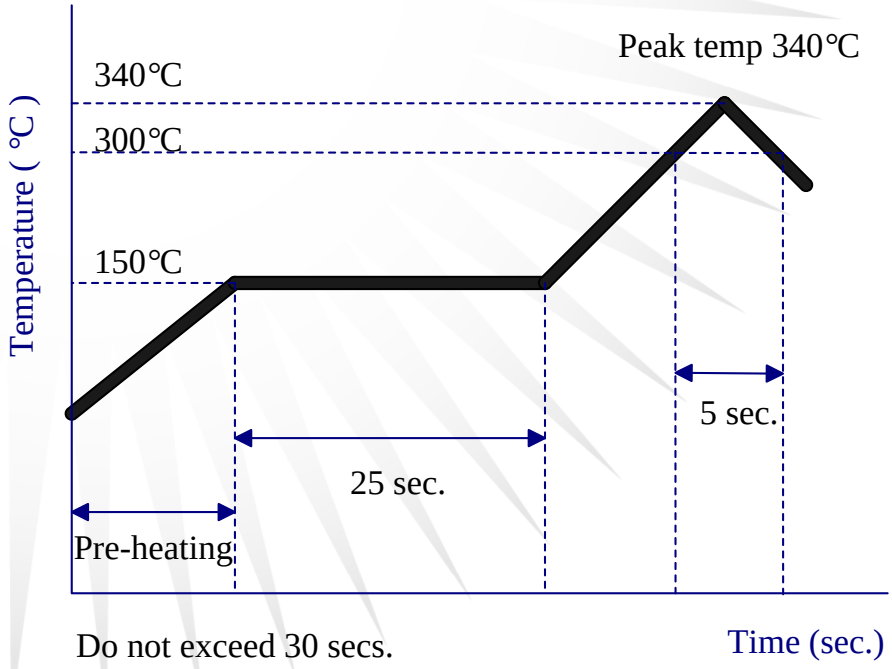
Return loss



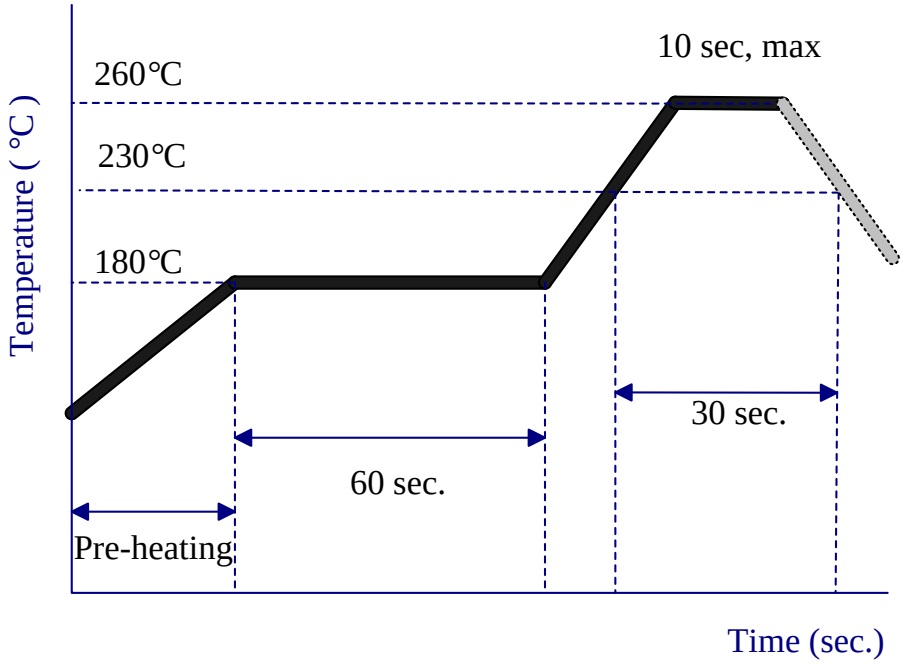
2.45GHz Smith Chart



Typical Soldering Profile for Lead-free Process

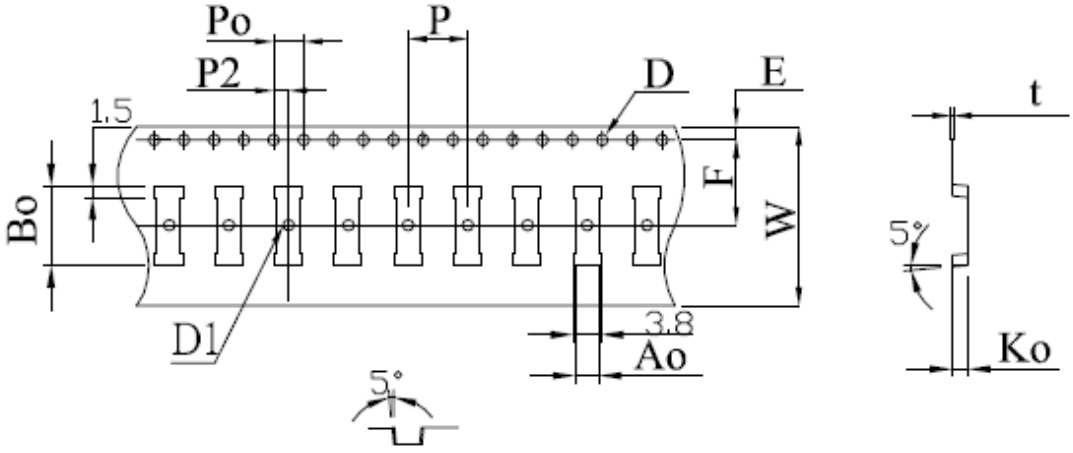


Reflow Soldering



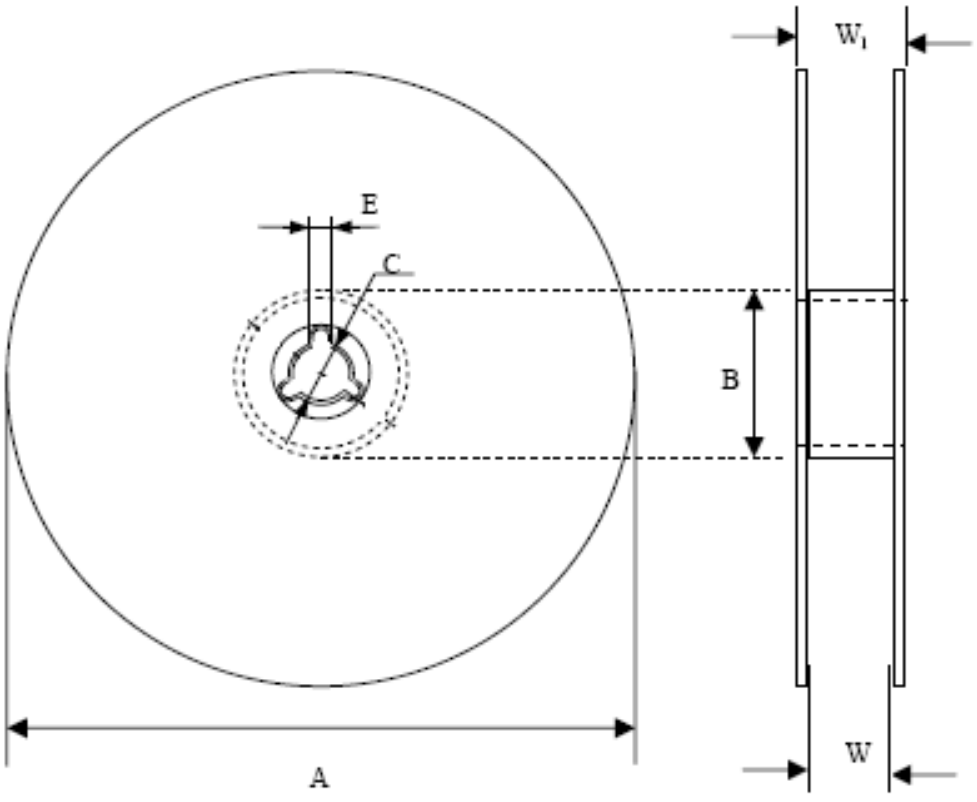
Packing

Blister Tape Specifications



Symbol	Dimension	Tolerance	Unit
W	24.00	± 0.30	mm
E	1.75	± 0.10	mm
F	11.50	± 0.10	mm
D	1.50	+ 0.10 - 0.00	mm
D_1	1.50	+ 0.25 - 0.00	mm
P_0	4.00	± 0.10	mm
P	8.00	± 0.10	mm
P_2	2.00	± 0.10	mm
A_0	3.20	+ 0.10 3.20	mm
B_0	10.60	± 0.10	mm
K_0	2.20	± 0.10	mm
t	0.30	± 0.05	mm

Reel Specifications



Quantity Per Reel	Tape Width (mm)	A (mm)	C (mm)	B (mm)	E (mm)	W (mm)	W_1 (mm)
3,000	24	330±1	13.0±0.5	100.0±0.5	2.2±0.5	24.0±0.5	28.9±0.2

Installation guide:

Request Rainsun's application notes "General guidelines for the installation of Rainsun's chip antennas" for further information at lee@jointwel.com.cn.

Reminders for users of Rainsun ceramic chip antennas

1. This chip antenna is made of ceramic materials which are relatively more rigid and brittle compared to printed circuit board materials. Bending of circuit board at the locations where chip antenna is mounted may cause the cracking of solder joints or antenna itself.

2. Punching/cutting of the break-off tab of PCB panel may cause severe bending of the circuit board which may result in cracking of solder joints or chip antenna itself. Therefore break-off tab shall be located away from the installation site of chip antenna.

3. 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.

Presented data were measured on reference PCB (ground) as shown in this specification. When the antenna placement or size of the PCB is changed, antenna performance and values of matching components may differ from data shown here.

4. Information presented in this Reference Specification is believed to be correct as of the date of publishing. Rainsun Technologies Corporation reserves the rights to change the Reference Specification without notice due to technical improvements, etc. Please consult with Rainsun's engineering team about the latest information before using this product. Per request, we may provide advice and assistance in implementing this antenna to a customer's device by simulation or real measurement of the interested device in our testing facilities.