AN1003

Multilayer Chip Antenna for

2.4GHz & 5~6GHz Wireless Communication

AN1003 Multilayer Chip Antenna

◆ Features

- Light weight and low profile 10.3mm(L)X3.0mm(W)X1.6mm(H)
- Omni-directional in azimuth
- Lead (Pb) Free

◆ Applications

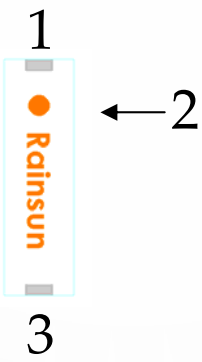
- 2.4GHz & 5~6GHz wireless communications
- 2.4GHz & 5~6GHz Modules
- 802.11a/b/g Wireless LAN System

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

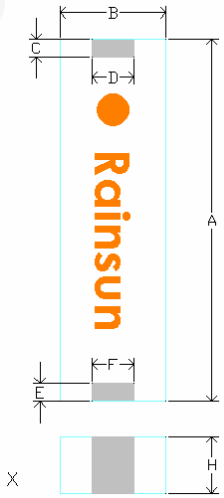
Pin configuration

Top view



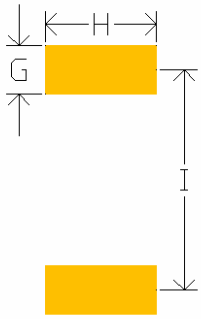
Pin No	Pin assignment
1	Feed termination
2	Feed point mark
3	Solder termination

Dimensions



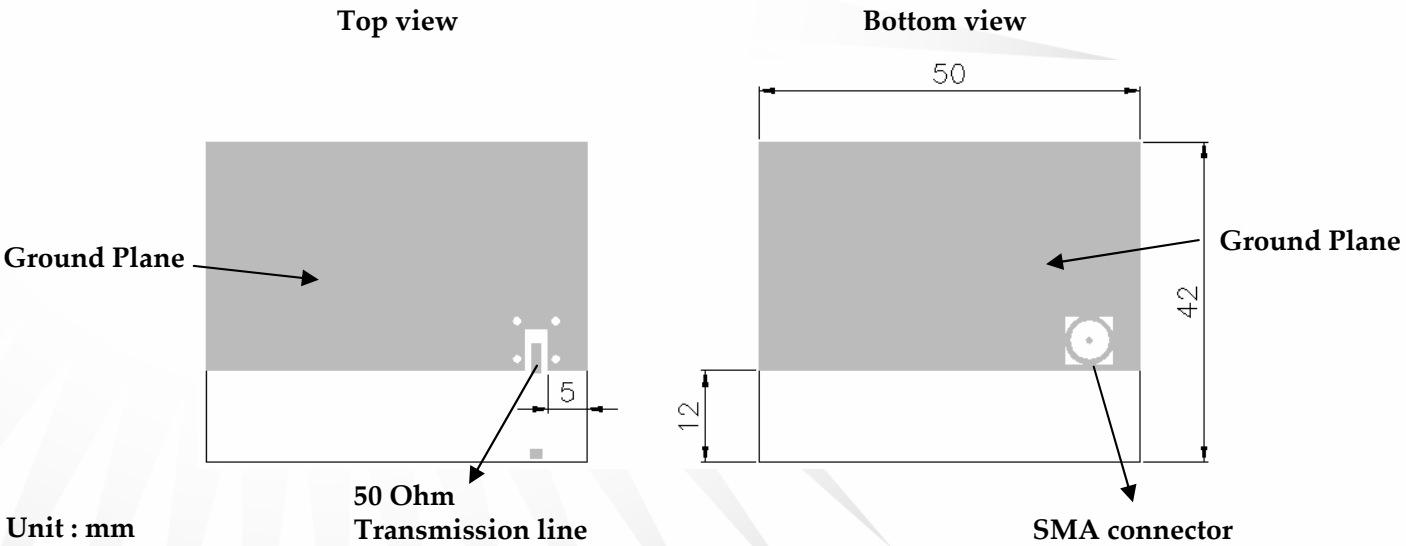
Symbol	Dimensions(mm)
A	10.3 ± 0.10
B	3.00 ± 0.10
C	0.50 ± 0.05
D	1.50 ± 0.10
E	0.50 ± 0.05
F	1.50 ± 0.10
H	1.60 ± 0.20

PCB Foot Print



Symbol	Dimensions(mm)
G	1.0
H	1.9
I	10.3

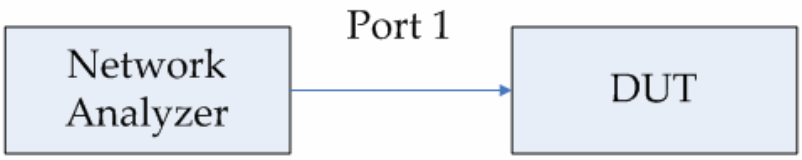
Recommended Test Board Pattern



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

Fig-1

Testing Setup



Measurement

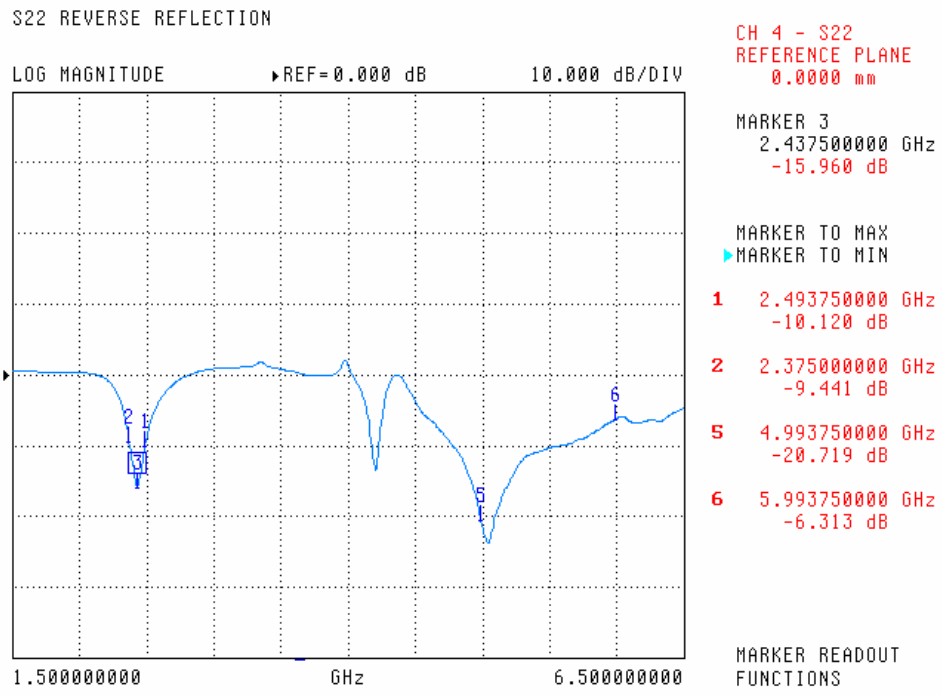
Testing Instrument:
Anritsu 37369C VNA(Vector Network Analyzer)

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

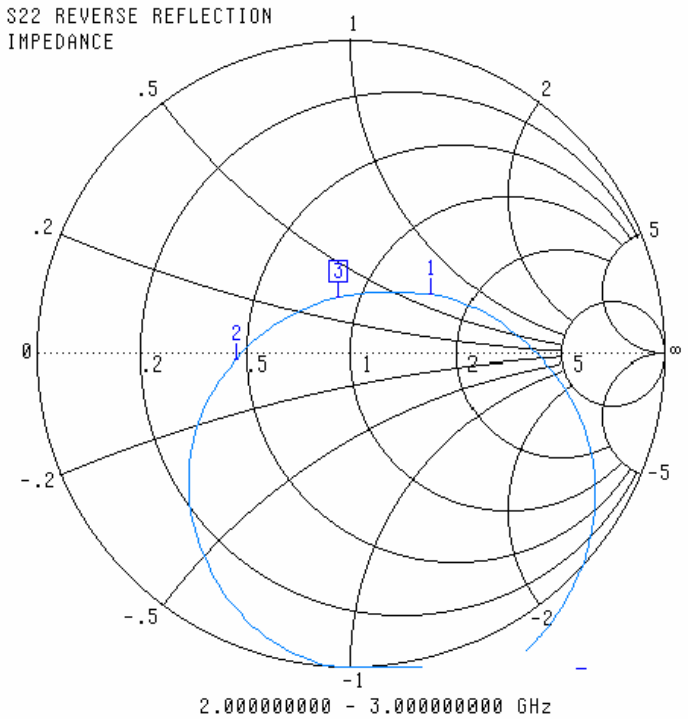
The test board dimension and it's layout is the same as Fig-1.

Typical Electrical Characteristics

Return loss

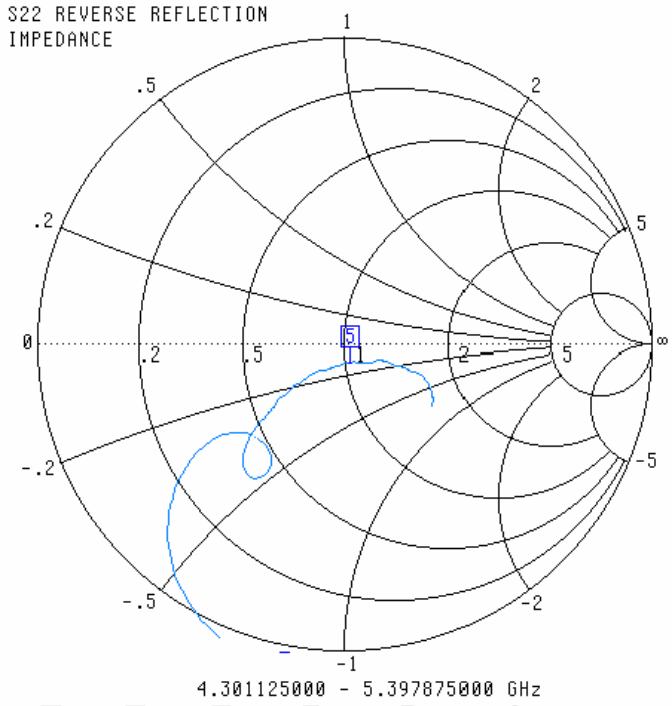


2.45GHz Smith Chart



Marker data:
1 : f=2.493 GHz
2 : f=2.375 GHz
3 : f=2.437 GHz

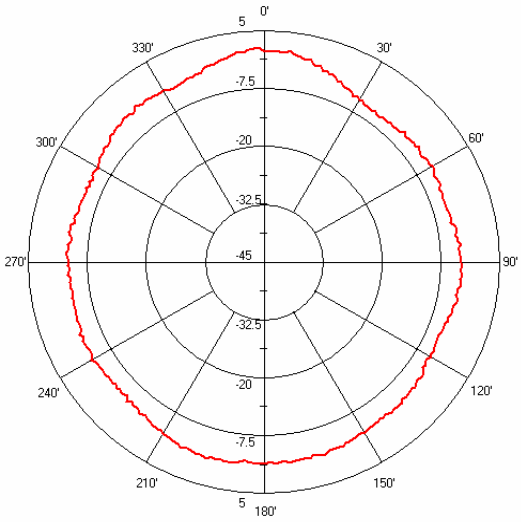
5.2GHz Smith Chart



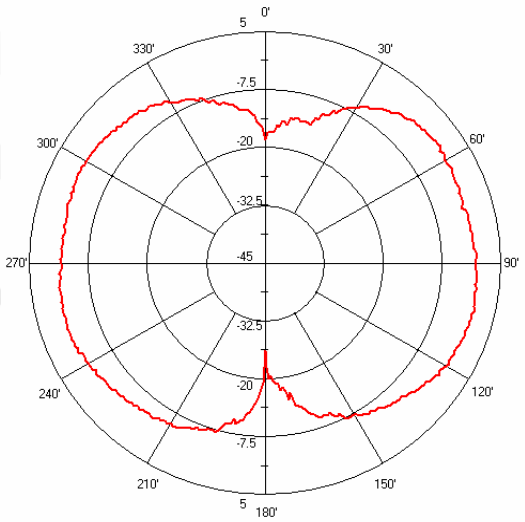
Marker data:
4 : f=4.998 GHz

Typical Radiation Patterns

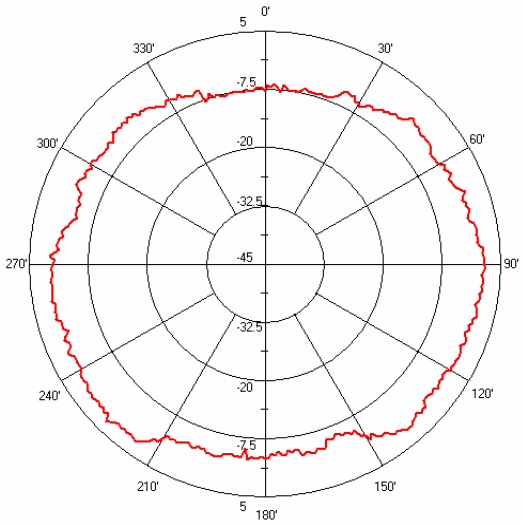
2.45 GHz H-Plane



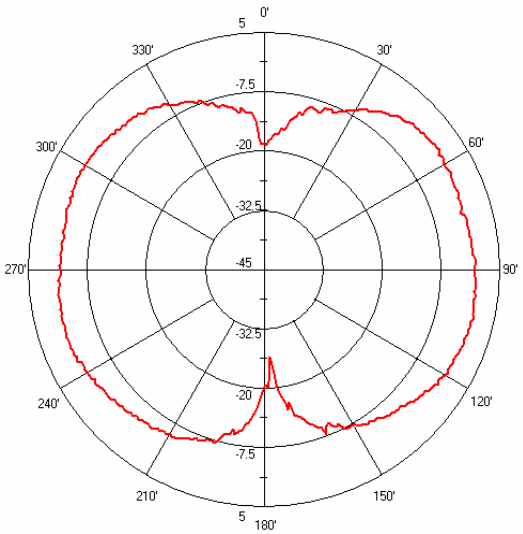
2.45 GHz E-Plane



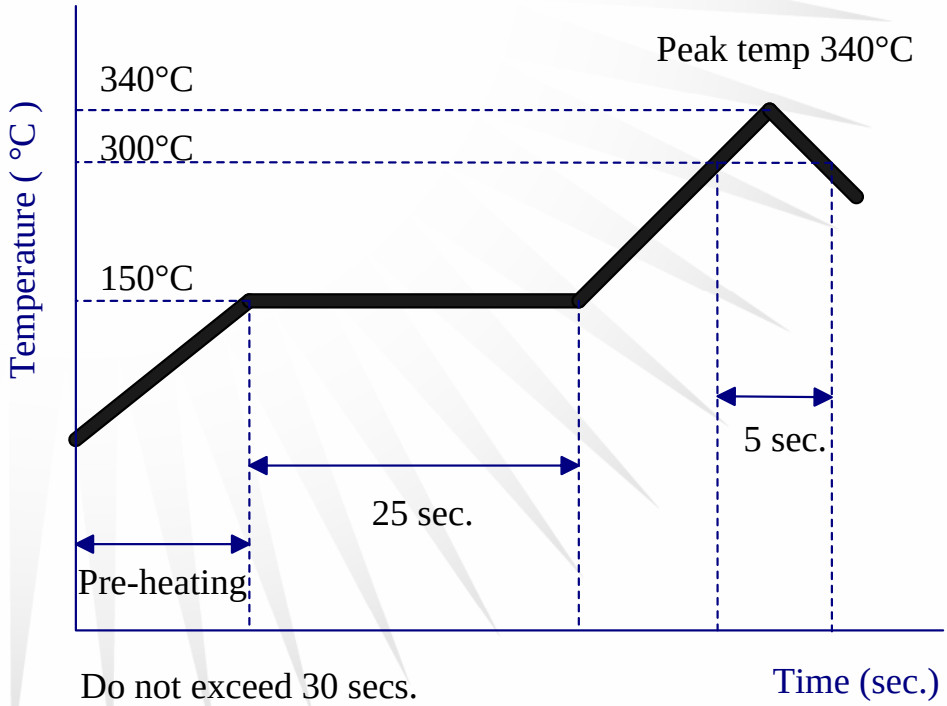
5.2 GHz H-Plane



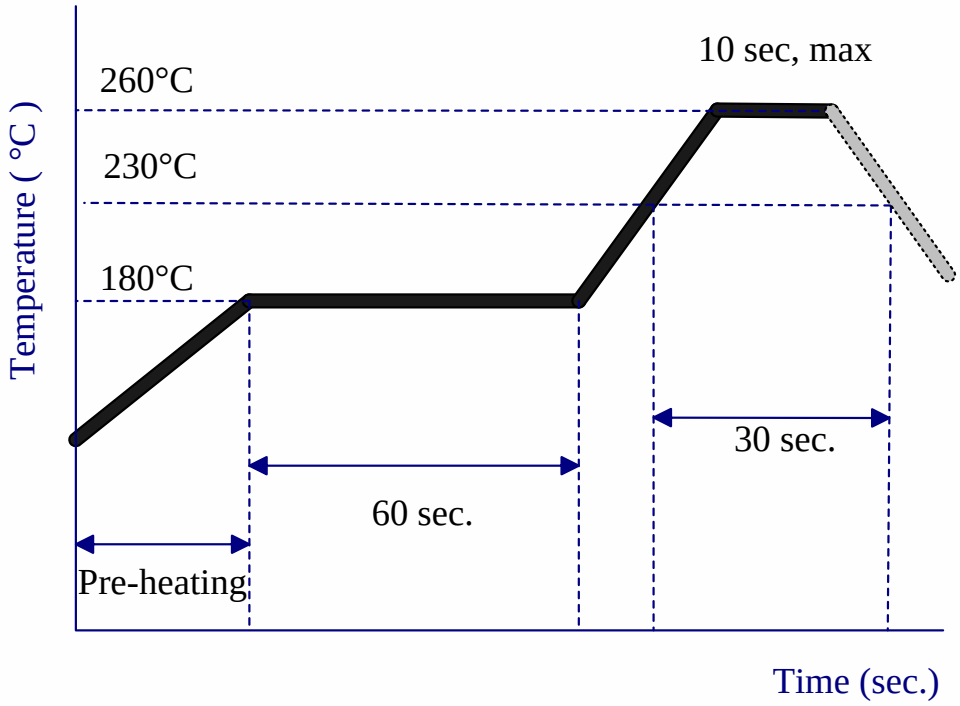
5.2 GHz E-Plane



Typical Soldering Profile for Lead-free Process

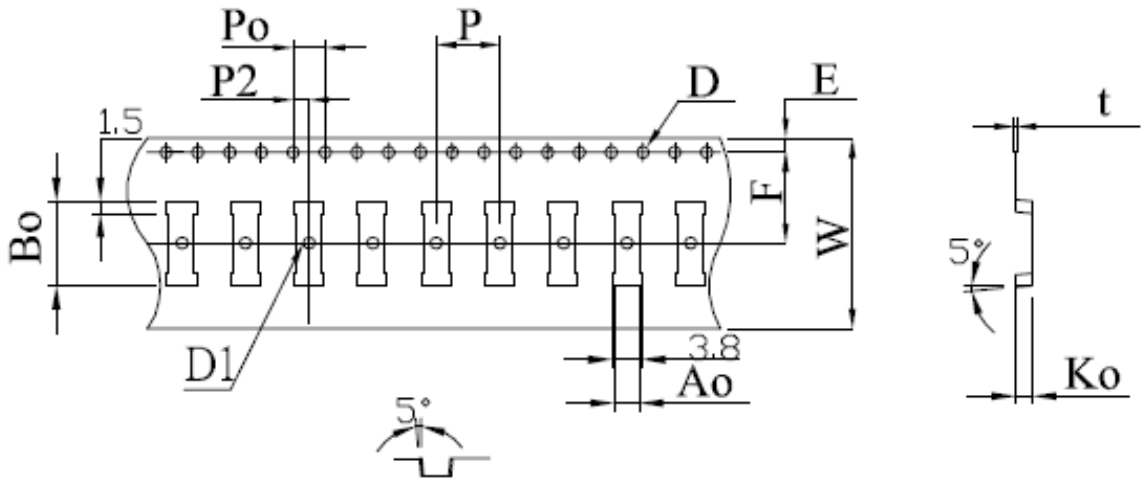


Reflow Soldering



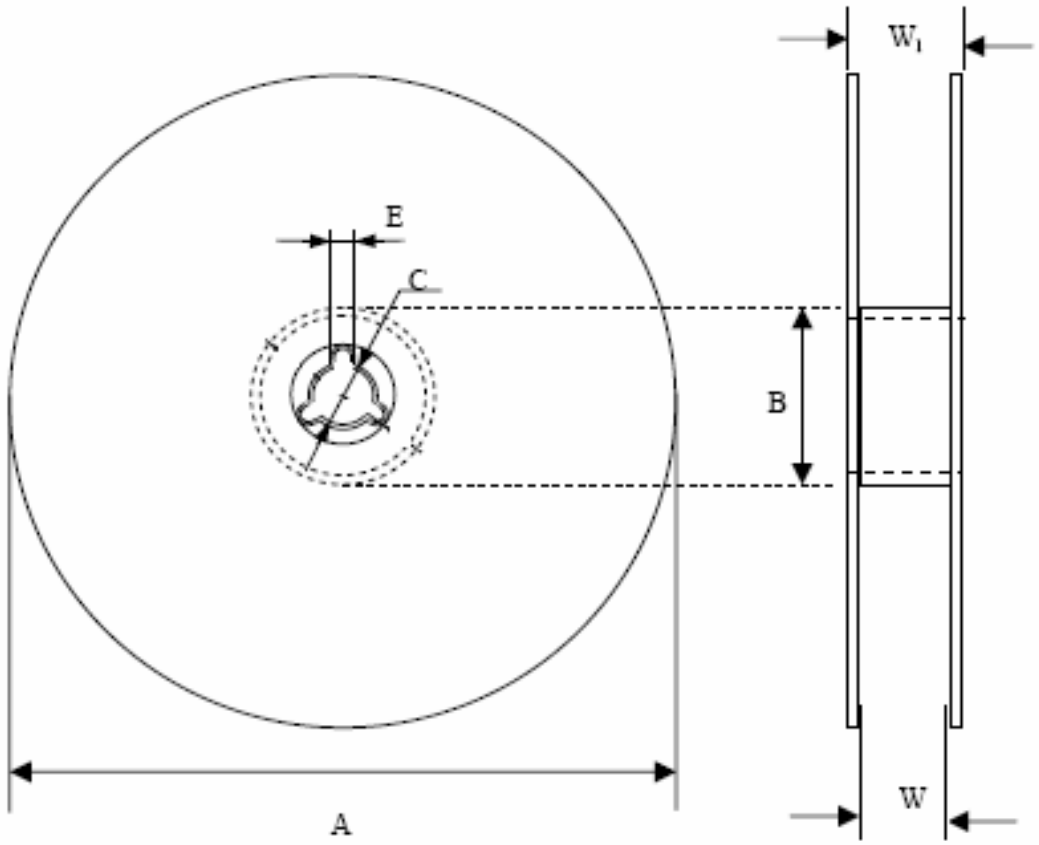
Packing

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