

AN9520

Multilayer Chip Antenna for 2.4GHz Wireless Communication

AN9520 Multilayer Chip Antenna

◆ Features

- Miniaturized size 9.5(L)x2.0(W)x1.0(H)
- Light weight and low profile
- Omni-directional in azimuth

◆ Applications

- 2.4GHz wireless communications
- Modules
- Bluetooth
- 802.11b
- Other 2.4GHz Wireless Application



Specifications

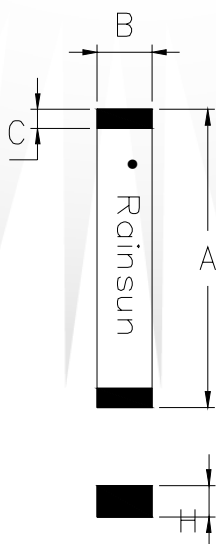
Center frequency	2.45GHZ
Peak gain	1.5dBi
Operation temperature	-40 ~ +85 °C
Storage temperature	-40 ~ +85 °C
VSWR	2.0 (Max)
Input Impedance	50 Ohm
Power handling	3W (Max)
Bandwidth	200MHz
Azimuth beamwidth	Omni-directional
Polarization	Linear

Pin configuration



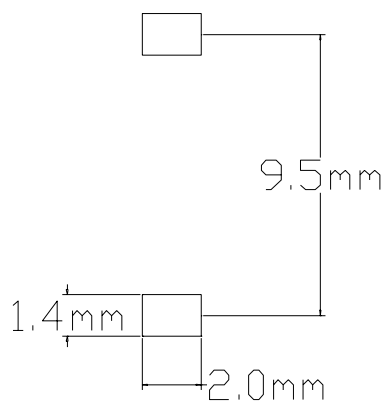
Pin No	Pin assignment
1	Feed termination
2	Feed point mark
3	Solder termination

Dimensions

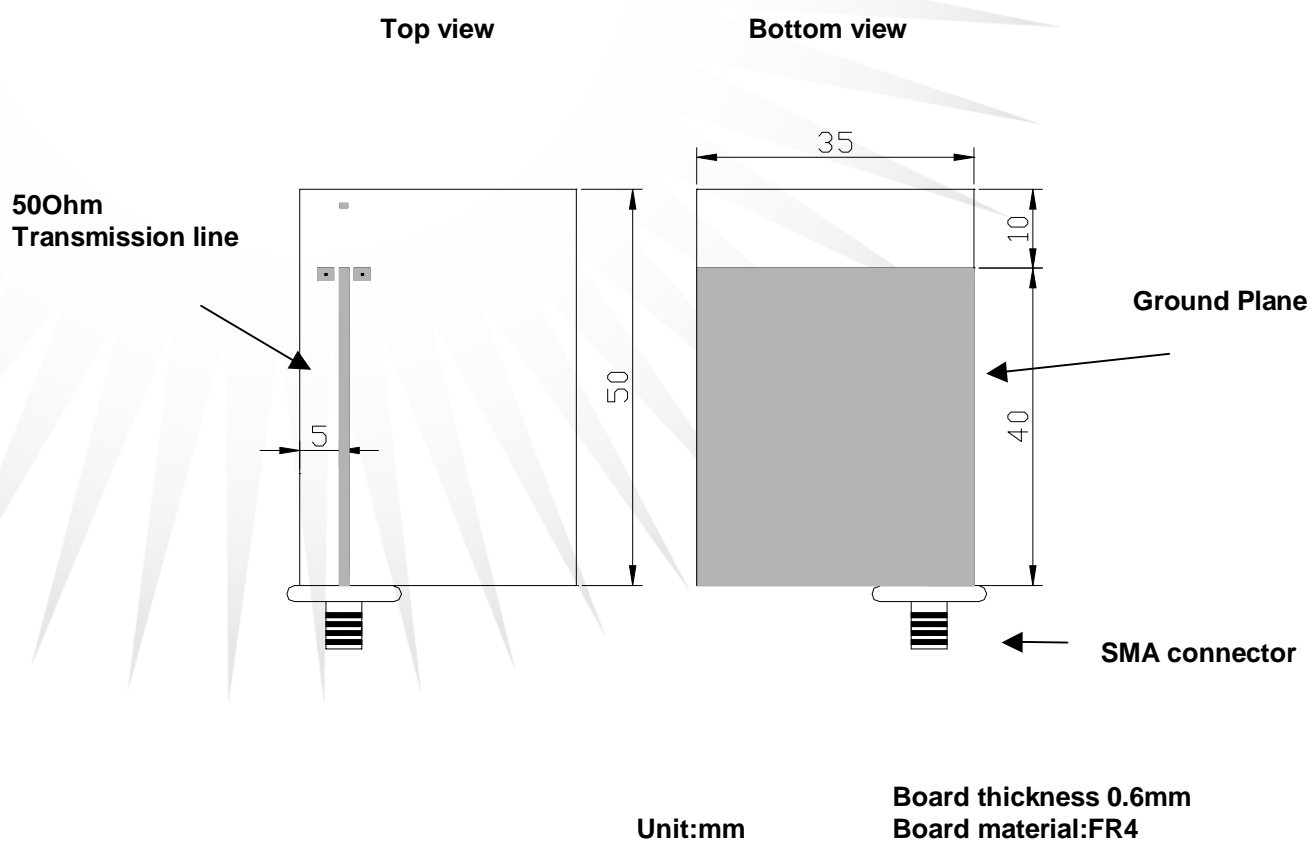


symbol	Dimensions(mm)
A	9.5±0.1
B	2.0±0.1
C	0.5 ±0.1
H	1.0±0.2

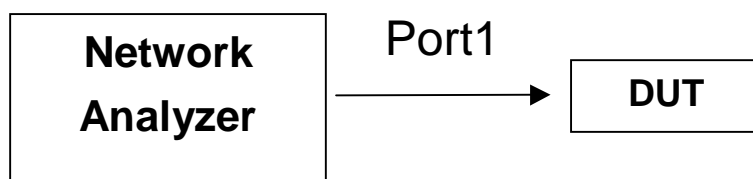
PCB foot printer



Recommend Test Board Pattern



Testing Block



Measurement



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

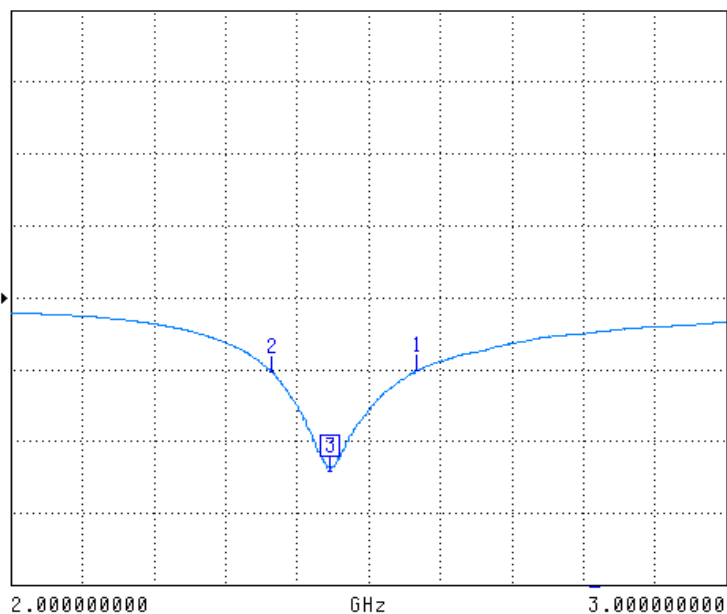
VNA calibrate with 1 path reflection only calibration sequence on test board feed point. The test board layout as recommend dimension.

Measured Antenna patterns

Return loss

S22 REVERSE REFLECTION

LOG MAGNITUDE REF=0.000 dB 10.000 dB/DIV



CH 4 - S22
REFERENCE PLANE
0.0000 mm

MARKER 3
2.447500000 GHz
-24.238 dB

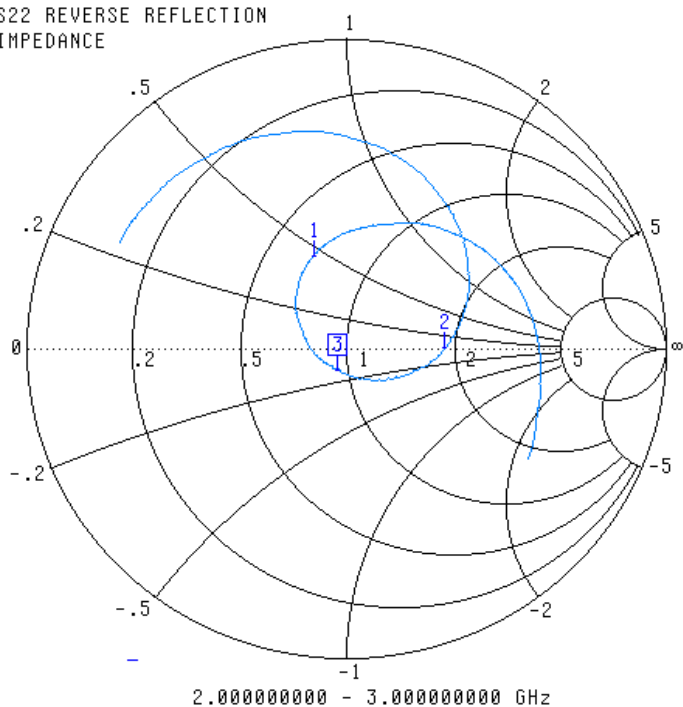
MARKER TO MAX
▶ MARKER TO MIN

1 2.567500000 GHz
-10.256 dB
2 2.365000000 GHz
-10.283 dB

MARKER READOUT
FUNCTIONS

Smith Chart

S22 REVERSE REFLECTION
IMPEDANCE



CH 4 - S22
REFERENCE PLANE
0.0000 mm

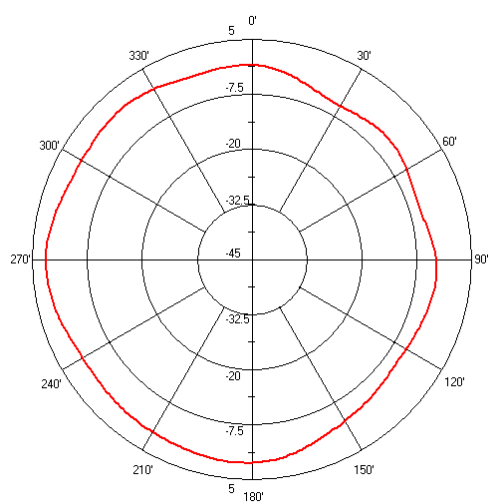
MARKER 3
2.447500000 GHz
47.043 Ω
-6.770 $j\Omega$

MARKER TO MAX
▶ MARKER TO MIN

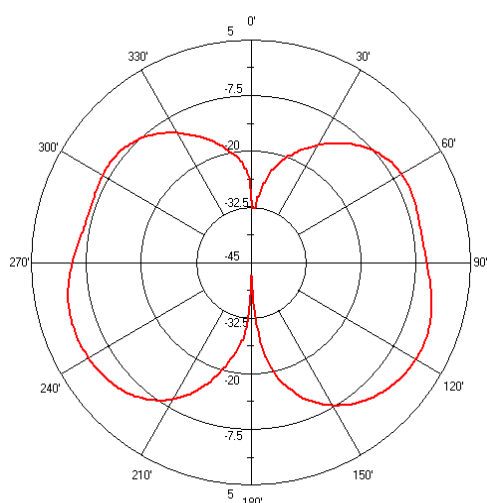
1 2.567500000 GHz
34.911 Ω
23.017 $j\Omega$
2 2.365000000 GHz
95.356 Ω
-124.341 $j\Omega$

MARKER READOUT
FUNCTIONS

2.45 GHz H-Plane

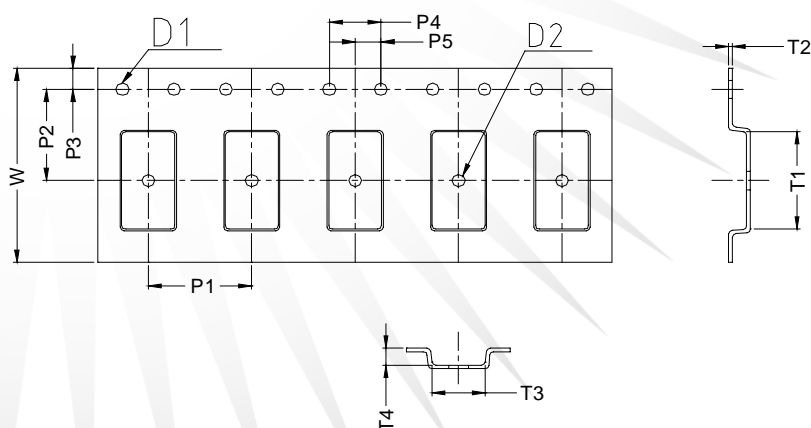


2.45 GHz E-Plane



Packing

Blister Tape

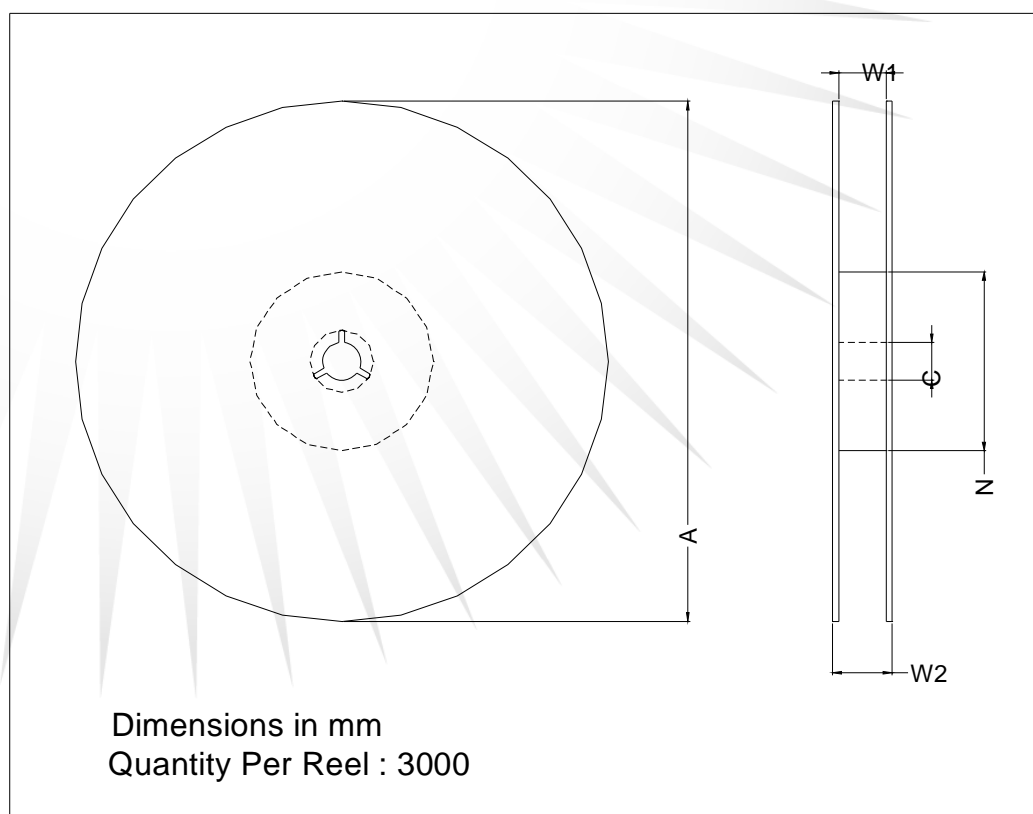


1. 10 Sprocket hole pitch cumulative tolerance ± 0.2
2. Carrier camber is 1mm in 100mm

Symbol	W	P1	P2	P3	P4	P5
Dimension	1.6 \pm 0.3	8.0 \pm 0.1	7.5 \pm 0.1	1.75 \pm 0.1	4.0 \pm 0.1	2.0 \pm 0.1
Symbol	D1	D2	T1	T2	T3	T4
Dimension	1.5 \pm 0.1	1.5 \pm 0.1	10.0 \pm 0.1	0.3 \pm 0.05	2.5 \pm 0.1	1.5 \pm 0.1

Dimensions in mm

Reel



Symbol	A	C	N	W1	W2
Dimension	330±0.1	13.0±0.5	100±0.1	16±0.2	20.8±0.2

Dimensions in mm