

The test data

Sample number		
EUTmodel note	AN9520-245	
Frequency	Gain (dBi)	Efficiency
2400MHz	3.16	47%
2410MHz	3.08	49%
2420MHz	3.10	50%
2430MHz	3.45	53%
2440MHz	3.99	55%
2450MHz	4.39	56%
2460MHz	4.38	57%
2470MHz	4.21	59%
2480MHz	4.08	62%
2490MHz	4.01	61%
2500MHz	4.12	58%

AN9520

Multilayer Chip Antenna for 2.4GHz Wireless Communication



AN9520 Multilayer Chip Antenna

◆ Features

- Light weight and low profile 9.5mm(L)X2.1mm(W)X1.0mm(H)
 - Omni-directional in azimuth
- Lead (Pb) Free

◆ Applications

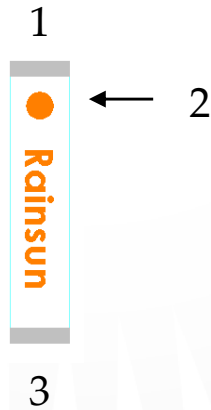
- 2.4GHz wireless communications
 - 2.4GHz Modules
 - Bluetooth System
- 802.11b/g Wireless LAN System

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

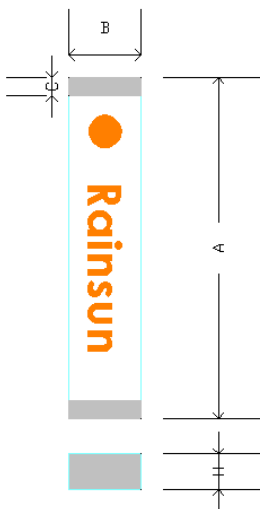
Pin configuration

Top view



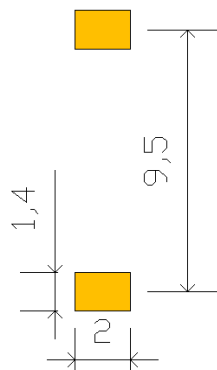
Pin No	Pin assignment
1	Feed termination
2	Feed point mark
3	Solder termination

Dimensions

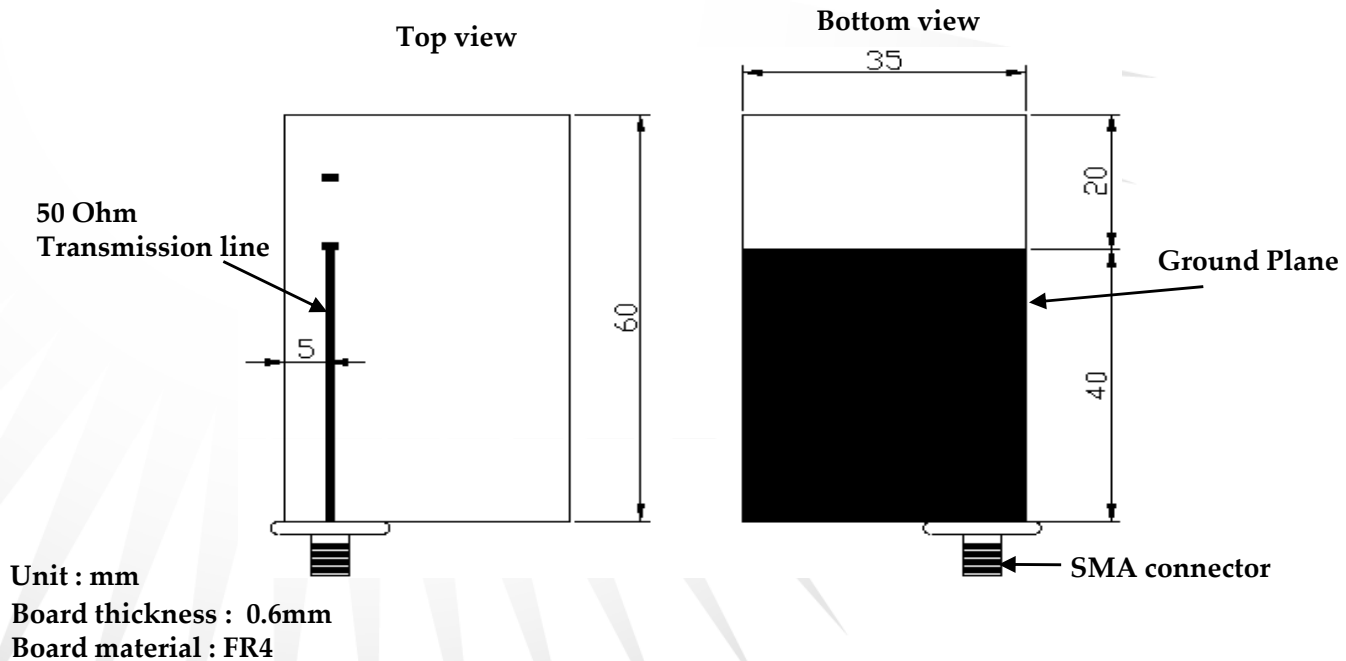


Symbol	Dimensions(mm)
A	9.50 ± 0.10
B	2.10 ± 0.10
C	0.65 ± 0.05
H	1.00 ± 0.20

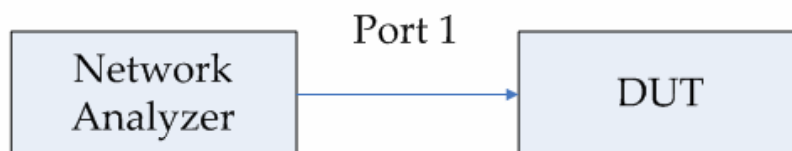
PCB foot printer



Recommended Test Board Pattern



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

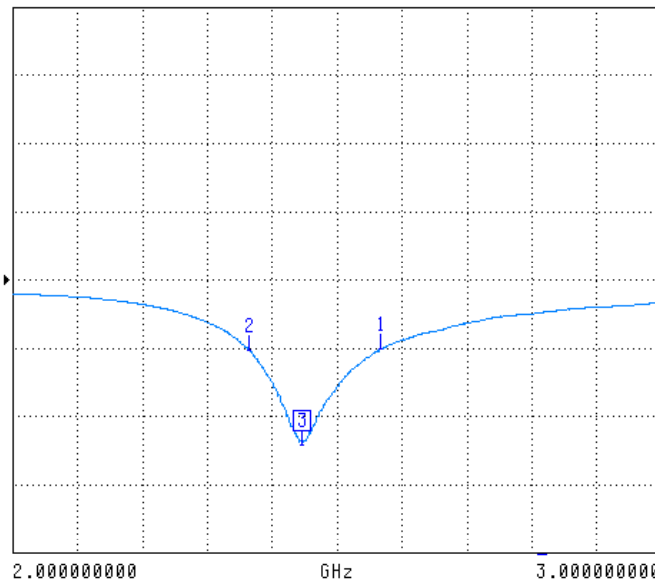
Return loss

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

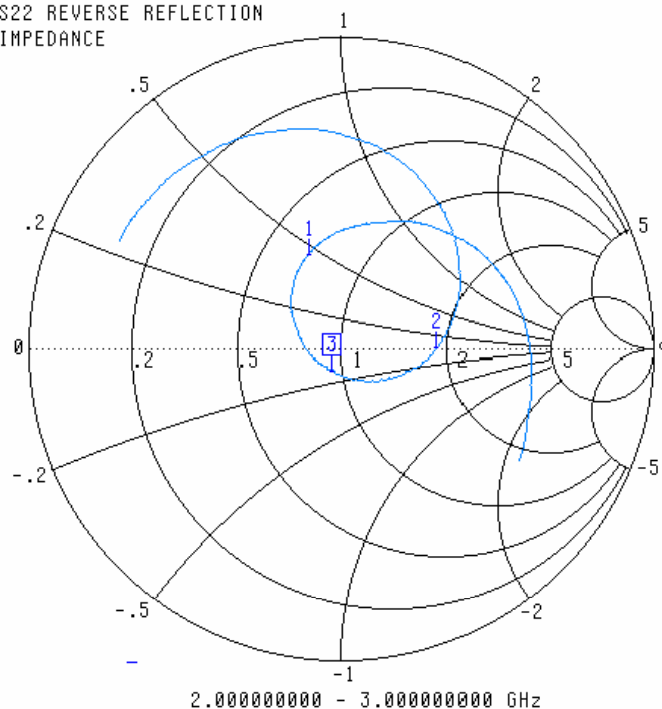
1 2.567500000 GHz
-10.256 dB

2 2.365000000 GHz
-10.283 dB

MARKER READOUT
FUNCTIONS

Smith Chart

S22 REVERSE REFLECTION
IMPEDANCE



Marker data:

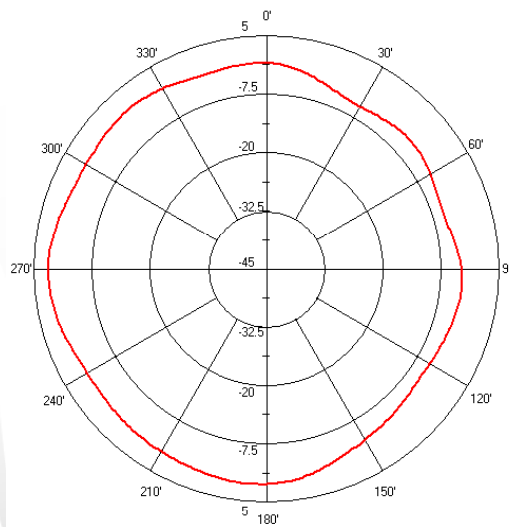
1 : f=2.567 GHz

2 : f=2.365 GHz

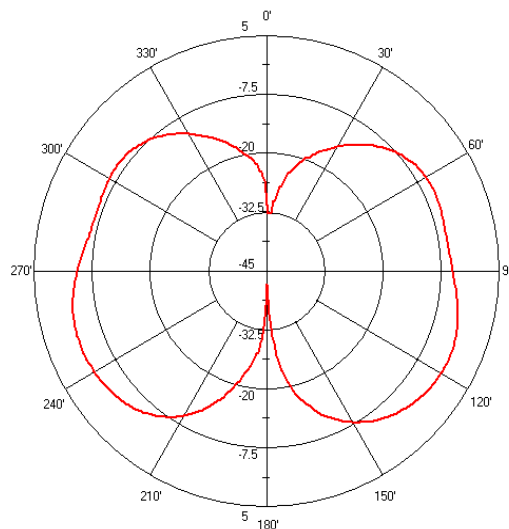
3 : f=2.447 GHz

Typical Radiation Patterns

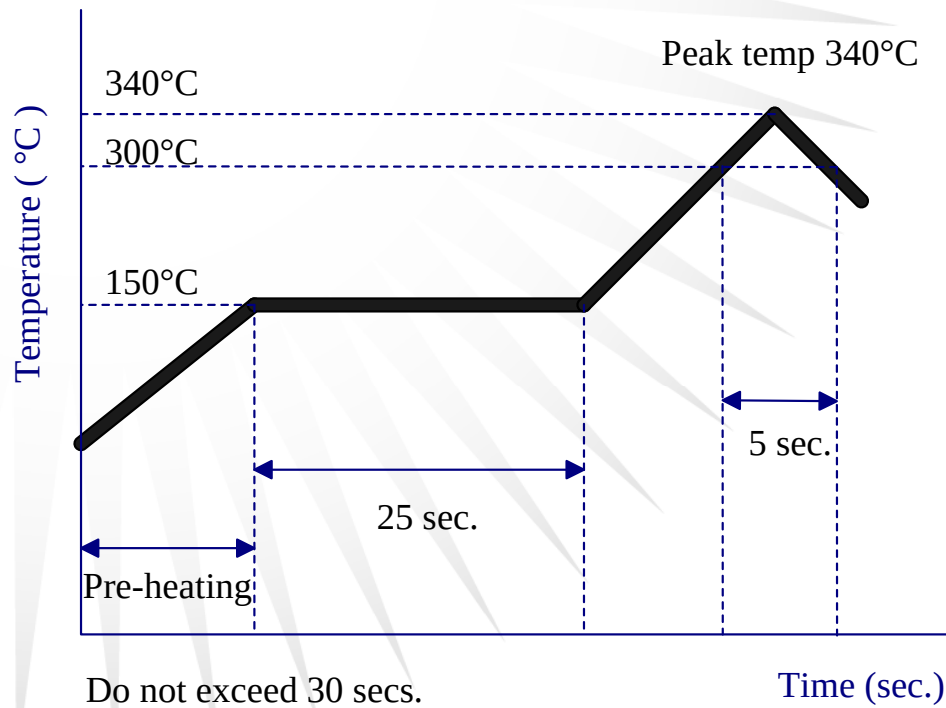
2.45 GHz H-Plane



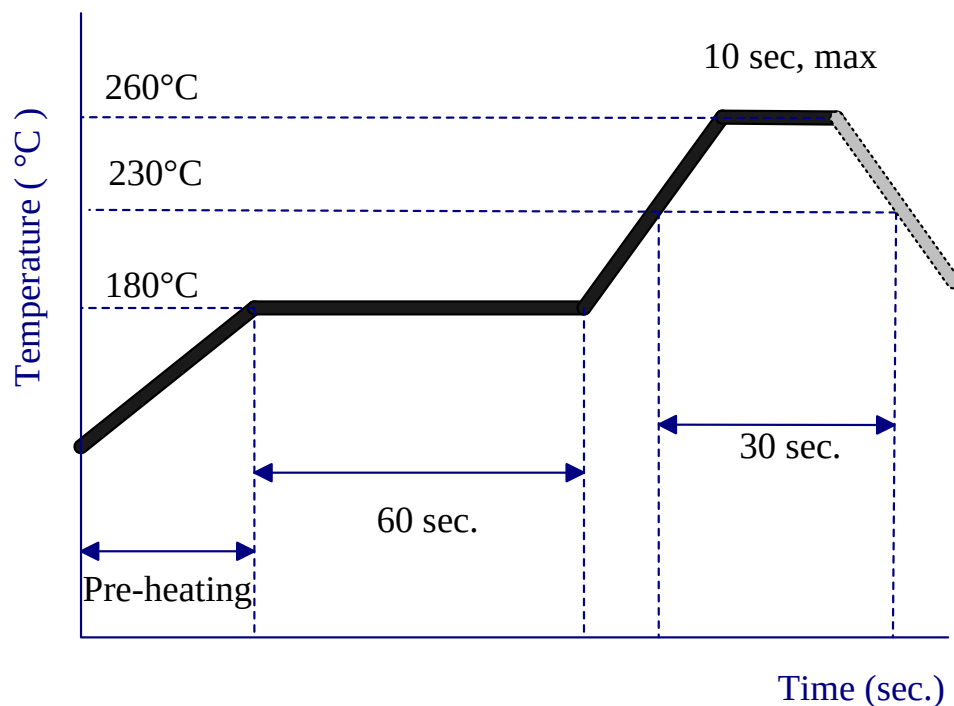
2.45 GHz E-Plane



Typical Soldering Profile for Lead-free Process

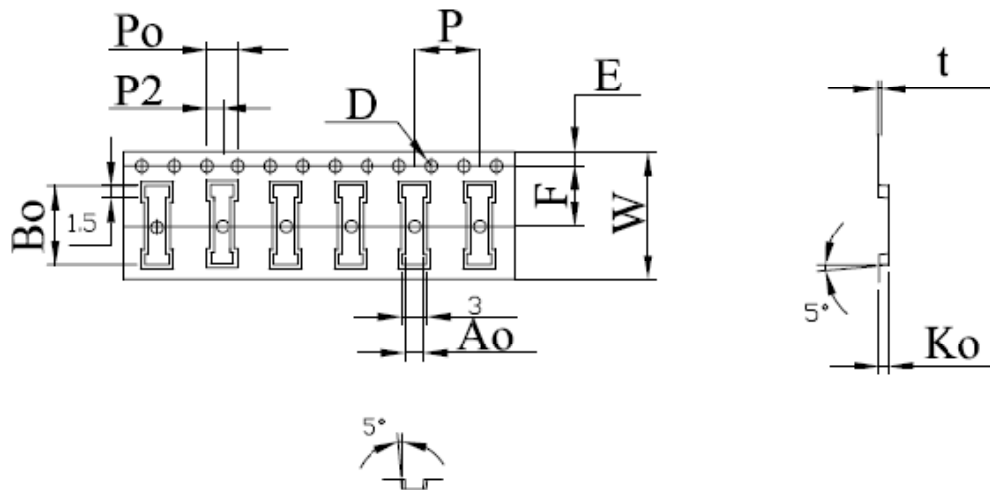


Reflow Soldering



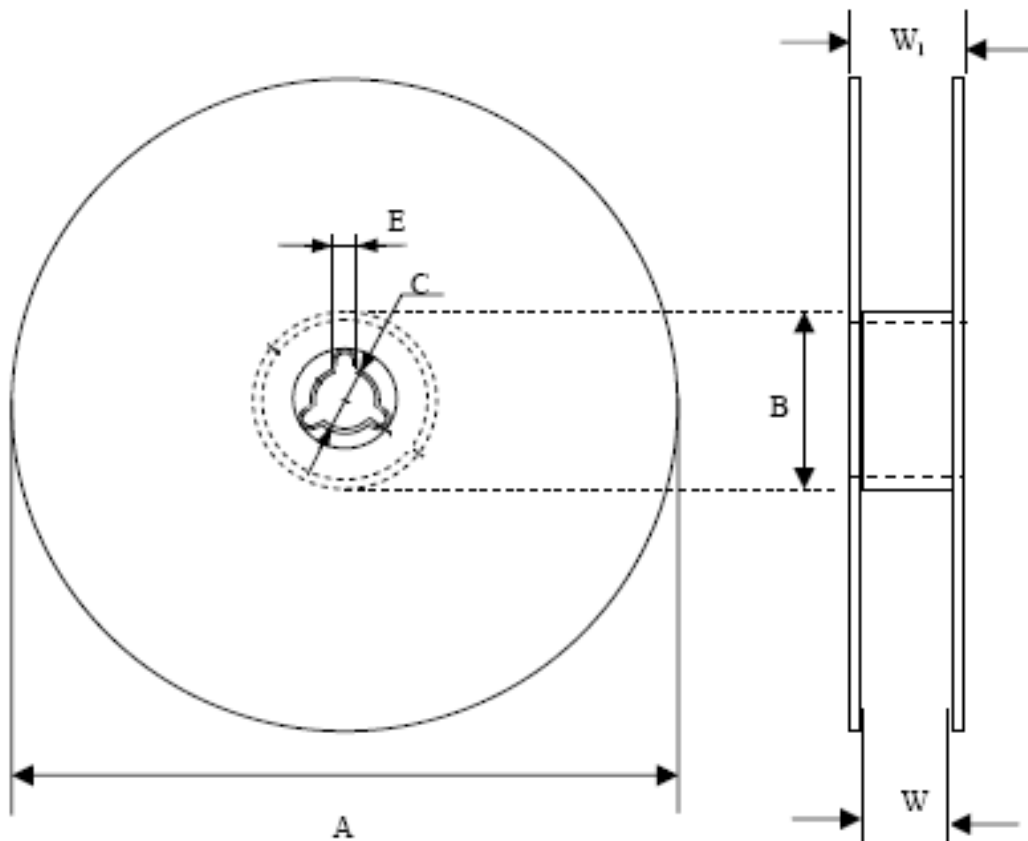
Packing

Blister Tape Specifications



Symbol	Dimension	Tolerance	Unit
W	16.00	± 0.30	mm
E	1.75	± 0.10	mm
F	7.50	± 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	2.20	± 0.10	mm
B_0	10.00	± 0.10	mm
K_0	1.20	± 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)
1,500	16	180±1	13.0±0.5	62±0.5	2.2±0.5	16±0.5	20±0.2