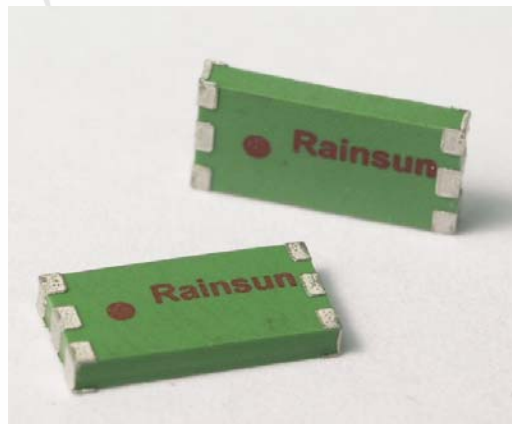


AN7638

Multilayer Chip Antenna for 2.4GHz Wireless Communication



AN7638 Multilayer Chip Antenna

◆ Features

- Light weight and low profile 7.6mm(L)X3.8mm(W)X1.1mm(H)
- Omni-directional in azimuth
- Lead (Pb) Free

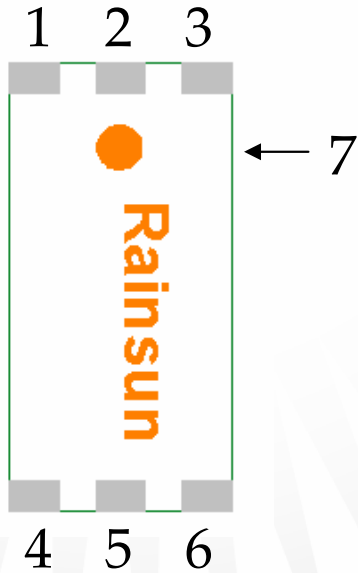
◆ Applications

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

Specifications

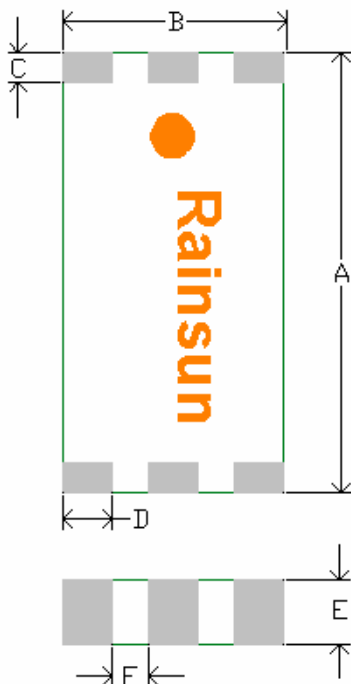
Center frequency	2.45GHz
Peak gain	0.5dBi
Operation temperature	-40 ~ +85 °C
Storage temperature	-40 ~ +85 °C
VSWR	2.0 (max)
Input Impedance	50 Ohm
Power handling	3W (max)
Bandwidth	140MHz
Azimuth beamwidth	Omni-directional
Polarization	Linear

Pin configuration



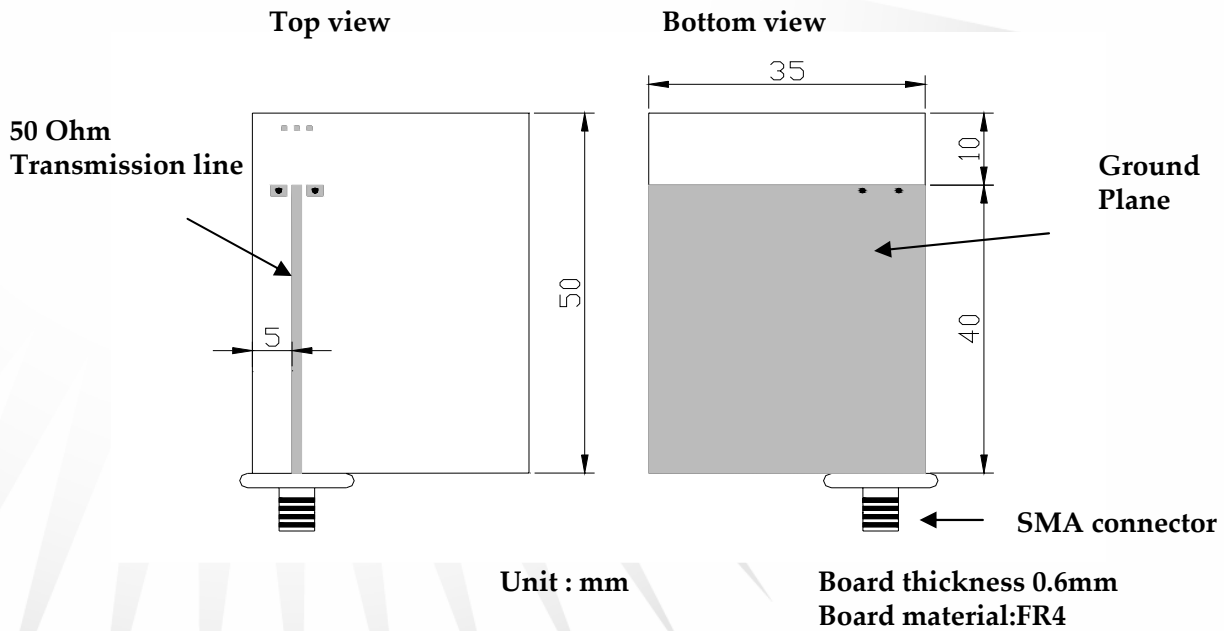
Pin No	Pin assignment
1	Ground termination
2	Feed termination
3	Ground termination
4	Solder termination
5	Solder termination
6	Solder termination
7	Feed point mark

Dimensions

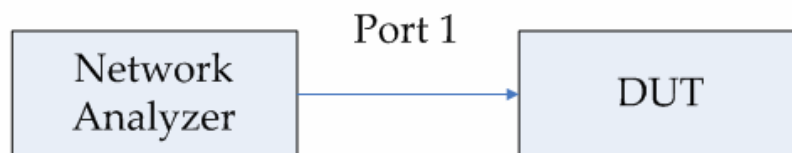


Symbol	Dimensions(mm)
A	7.60 ± 0.10
B	3.80 ± 0.10
C	0.50 ± 0.05
D	0.80 ± 0.05
E	1.10 ± 0.20
F	0.70 ± 0.05

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.

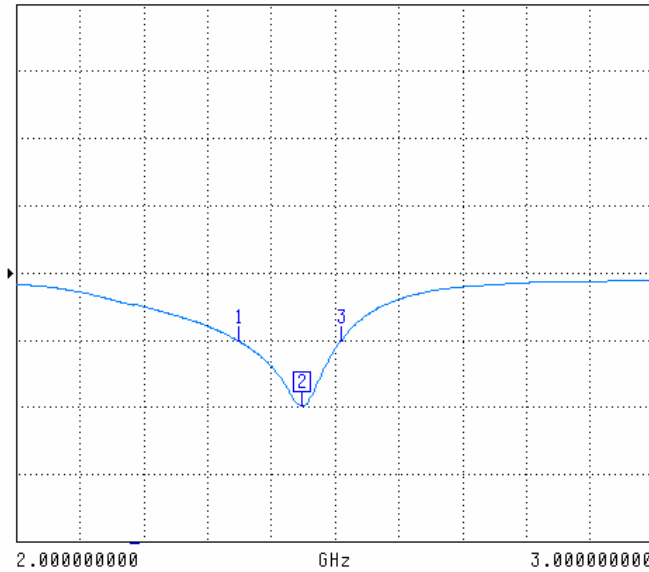
The test board dimension and it's layout is the same as recommended Test Board.

Typical Electrical Characteristics

Return loss

S11 FORWARD REFLECTION

LOG MAGNITUDE REF=0.000 dB 10.000 dB/DIV



CH 1 - S11
 REFERENCE PLANE
 0.0000 mm

MARKER 2
 2.450000000 GHz
 -19.873 dB

MARKER TO MAX
 MARKER TO MIN

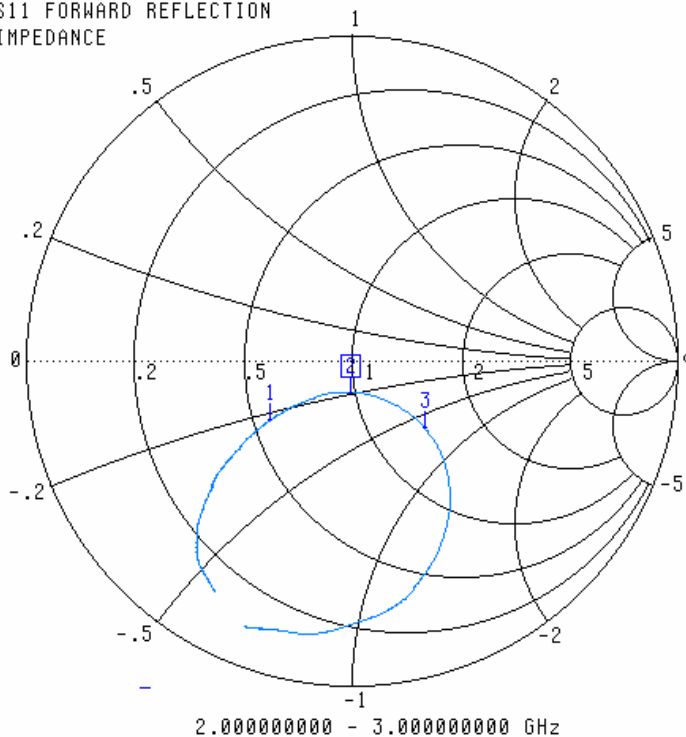
1 2.350000000 GHz
 -10.219 dB

3 2.509375000 GHz
 -10.247 dB

MARKER READOUT
 FUNCTIONS

Smith Chart

S11 FORWARD REFLECTION
 IMPEDANCE



Marker data:

1 : f=2.350 GHz

2 : f=2.450 GHz

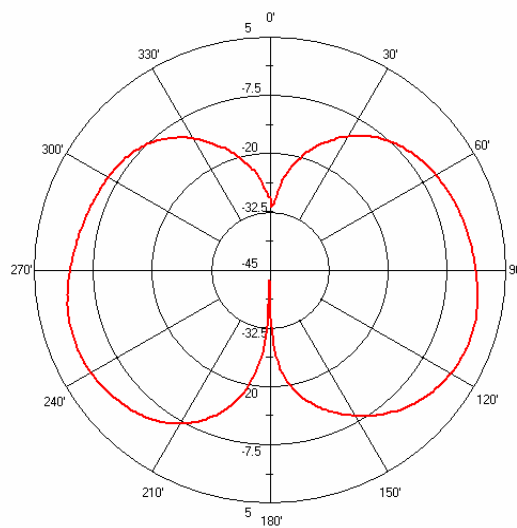
3 : f=2.509 GHz

Typical Radiation Patterns

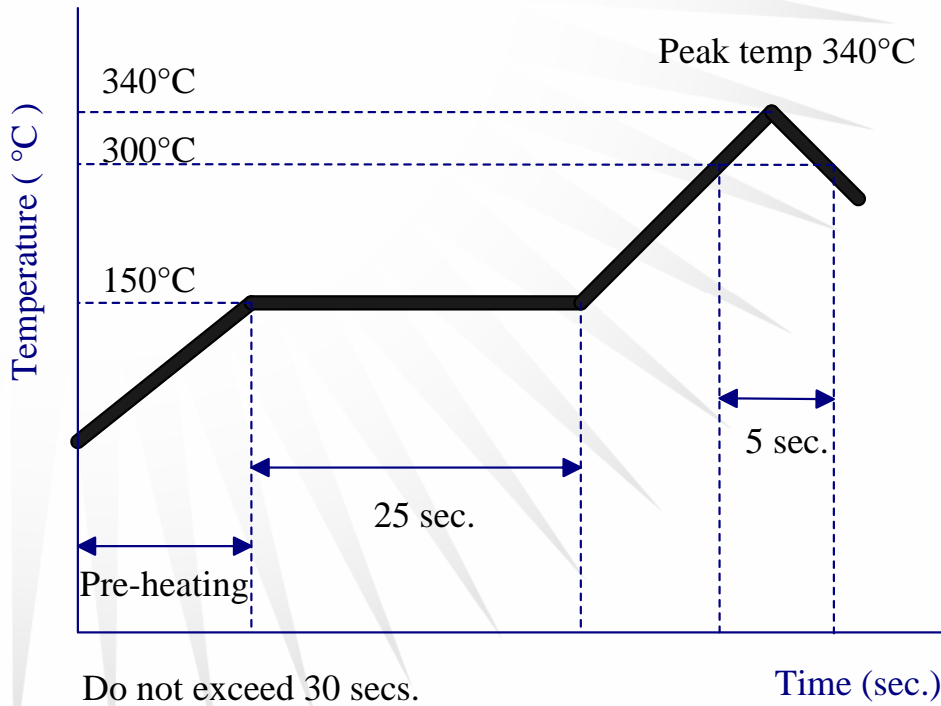
2.45 GHz H-Plane



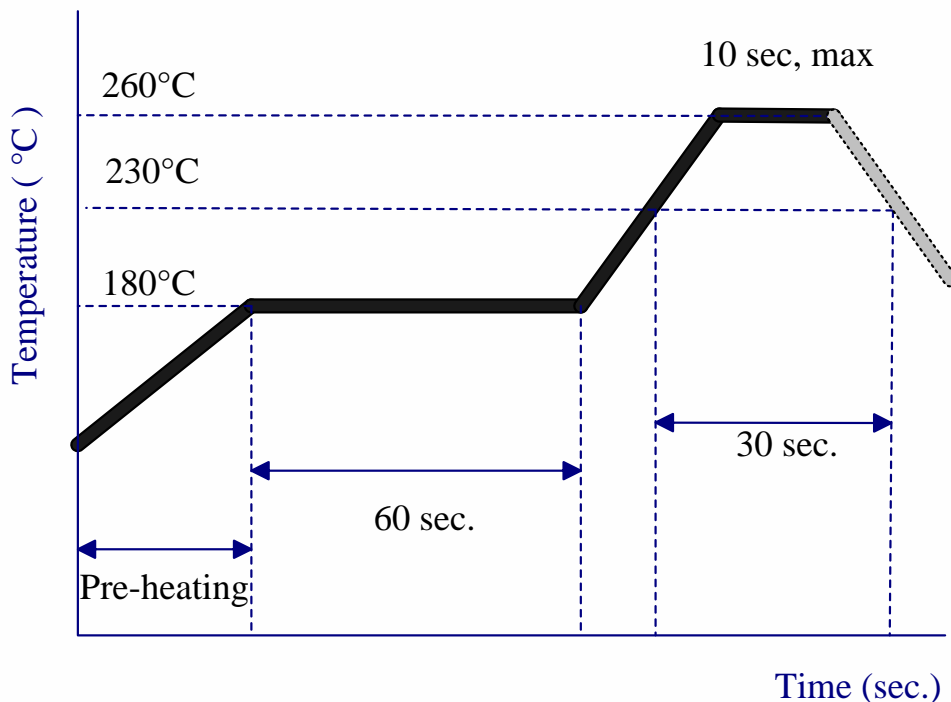
2.45 GHz E-Plane



Typical Soldering Profile for Lead-free Process

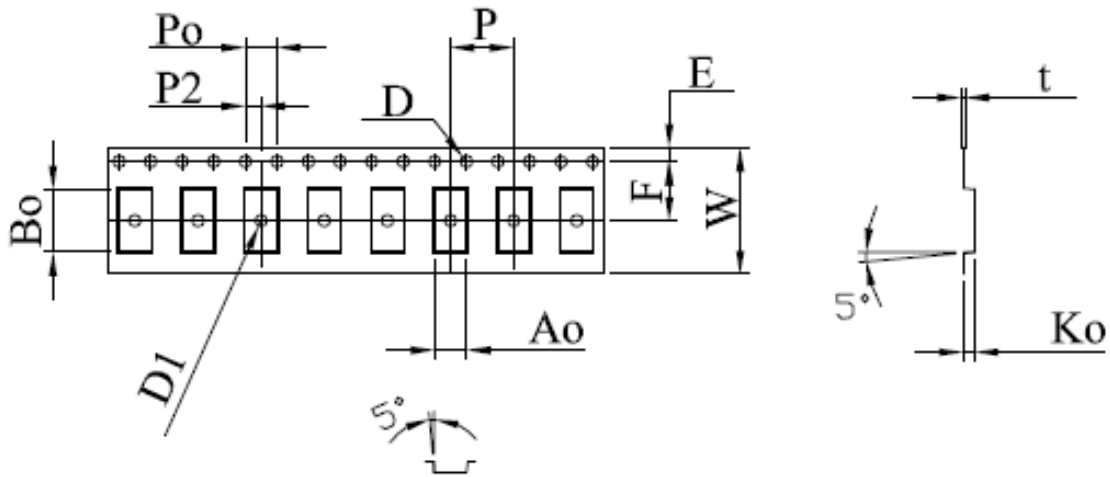


Reflow Soldering



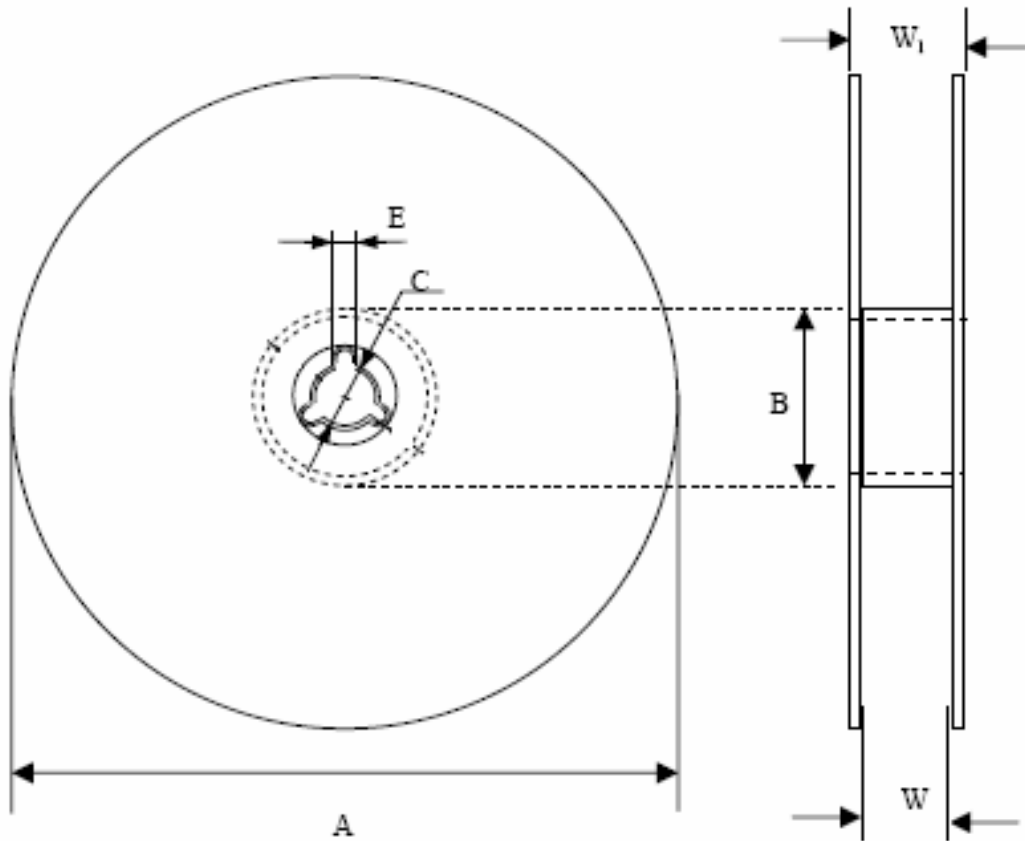
Packing

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	4.10	± 0.10	mm
B ₀	8.00	± 0.10	mm
K ₀	1.40	± 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)
1,000	16	180±1	13.0±0.2	62±0.5	2.2±0.5	16±0.5	20±0.2