

AN1603-868

Multilayer Chip Antenna for 868MHz Wireless Communication



AN1603-868 Multilayer Chip Antenna

◆ Features

- Light weight and low profile 16.0mm(L)X3.1mm(W)X1.45mm(H)
 - Omni-directional in azimuth
- Lead (Pb) Free

◆ Applications

- 868MHz wireless communications
- 868MHz Modules

Specifications

Center frequency	868MHz
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	10MHz
Azimuth beamwidth	Omni-directional
Polarization	Linear

Pin configuration



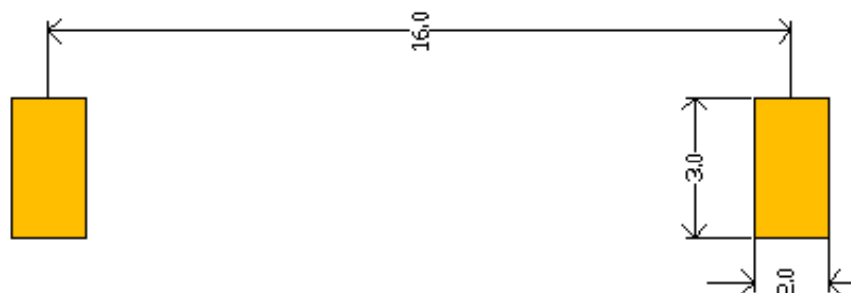
Pin No	Pin assignment
1	Feed termination
2	Feed point mark
3	Solder termination

Dimensions

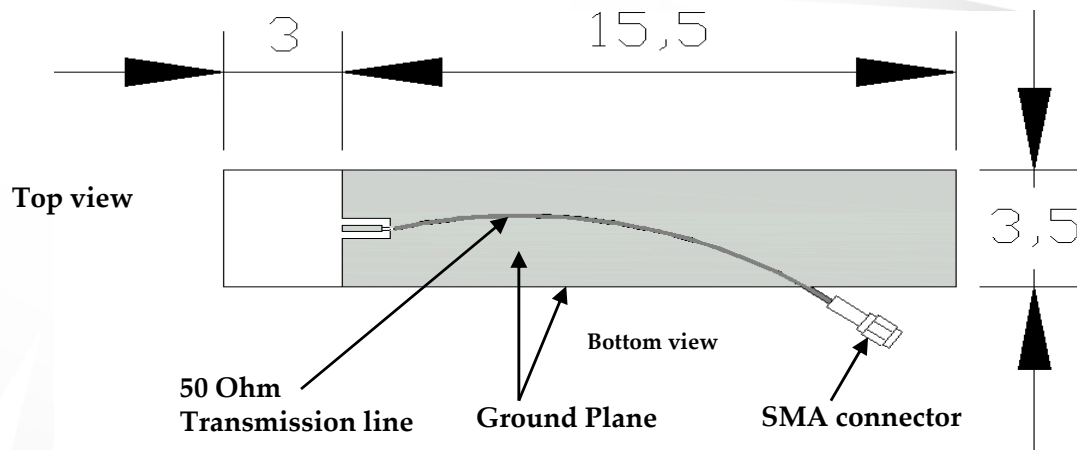


Symbol	Dimensions (mm)
A	16.00±0.10
B	3.10±0.10
C	0.60±0.05
H	1.45±0.20

PCB foot printer



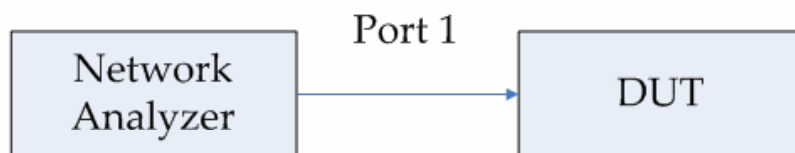
Recommended Test Board Pattern



Unit : cm
Board thickness : 0.6mm
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.

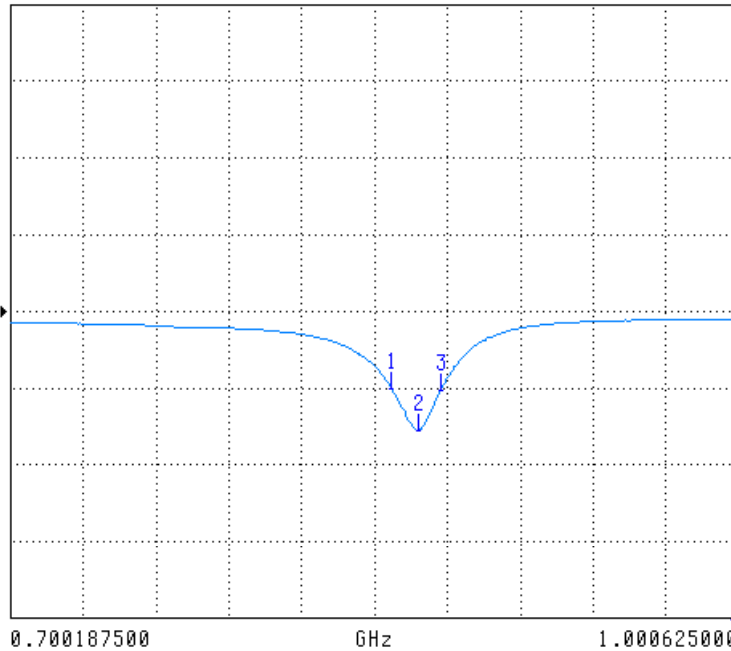
The test board dimension and its layout is the same as Fig-1.

Typical Electrical Characteristics

Return loss

S11 FORWARD REFLECTION

LOG MAGNITUDE REF=0.000 dB 8.000 dB/DIV



SELECT
 READOUT MARKER

MARKER 1
 0.857625000 GHz

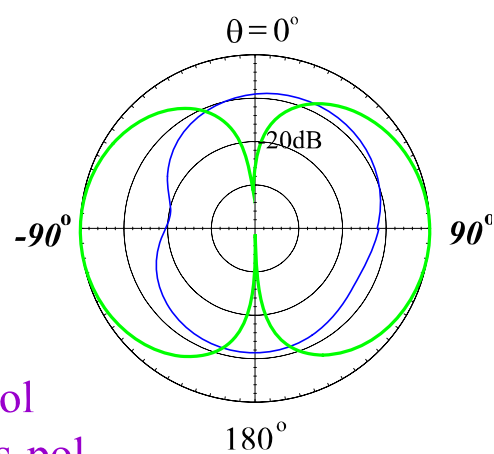
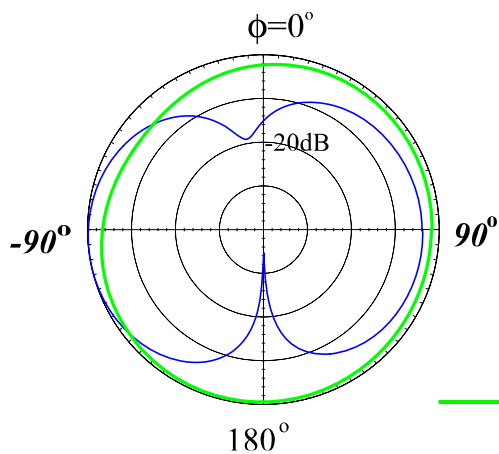
▶ MARKER 2
 0.868625000 GHz

MARKER 3
 0.878250000 GHz

ΔREF MODE IS OFF
 PRESS <ENTER>
 TO SELECT

868MHz H-Plane

868MHz E-Plane

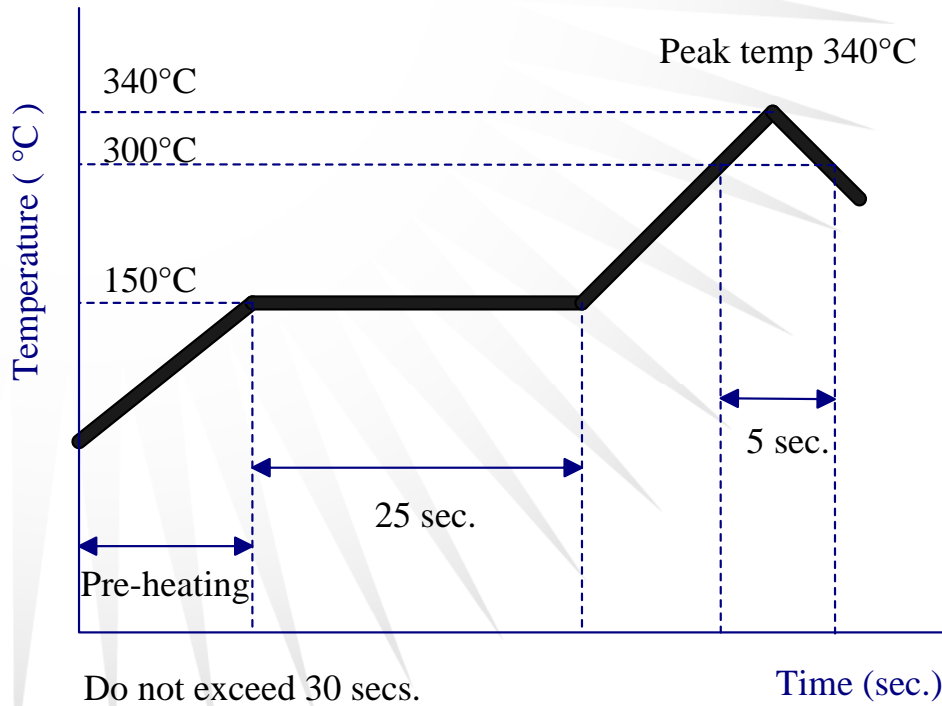


H-plane

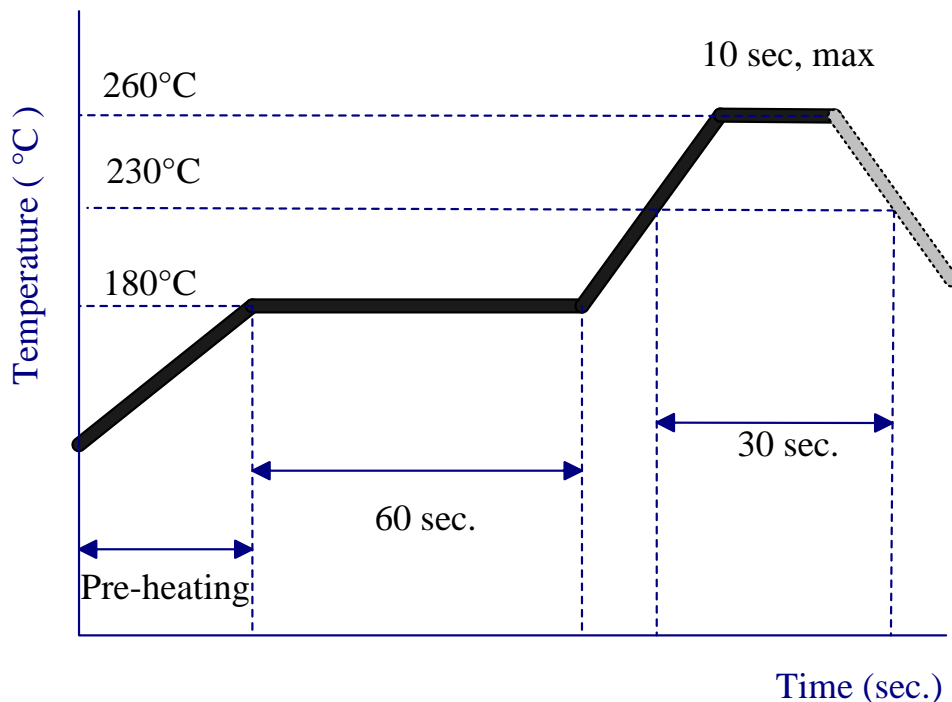
E-plane

— co-pol
 — cross-pol

Typical Soldering Profile for Lead-free Process

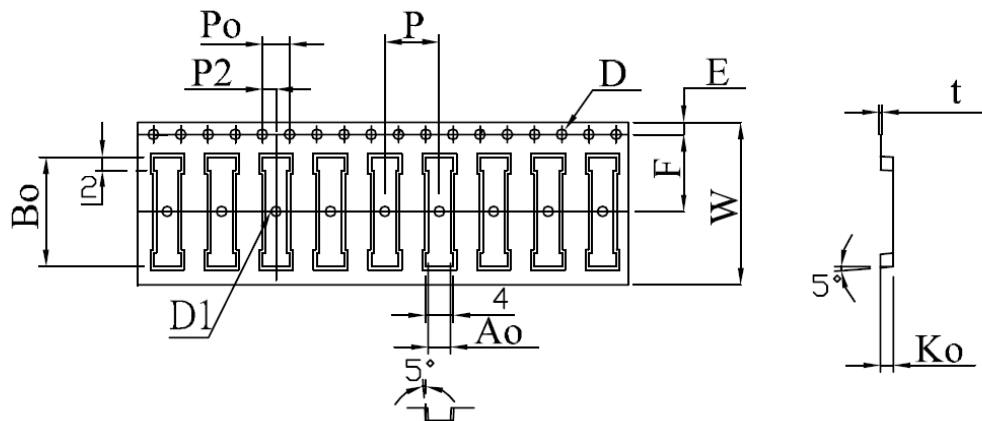


Reflow Soldering



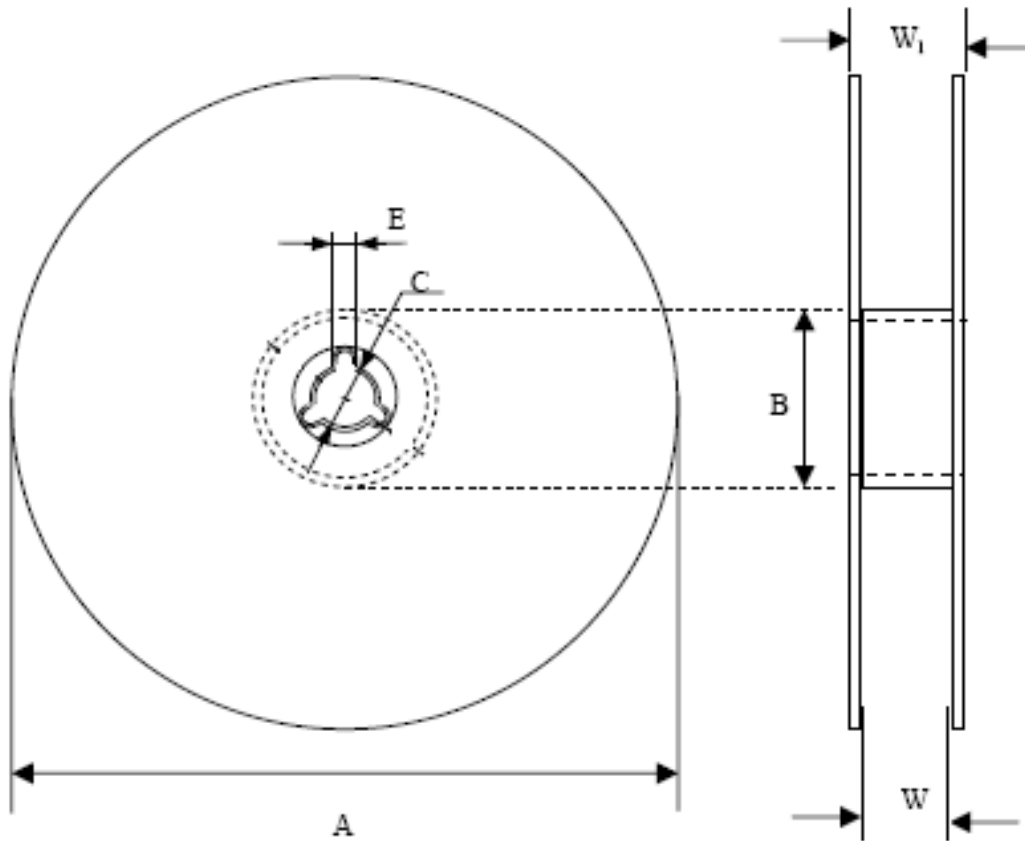
Packing

Blister Tape Specifications



Symbol	Dimension	Tolerance	Unit
W	24.00	± 0.30	mm
P	8.00	± 0.10	mm
P2	2.00	± 0.10	mm
Ao	4.70	+ 0.10 - 3.20	mm
Bo	16.20	± 0.10	mm
Ko	1.90	± 0.10	mm
F	11.50	± 0.10	mm
E	1.75	± 0.10	mm
D	1.50	+ 0.10 - 0.00	mm
Po	4.00	± 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