

# **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



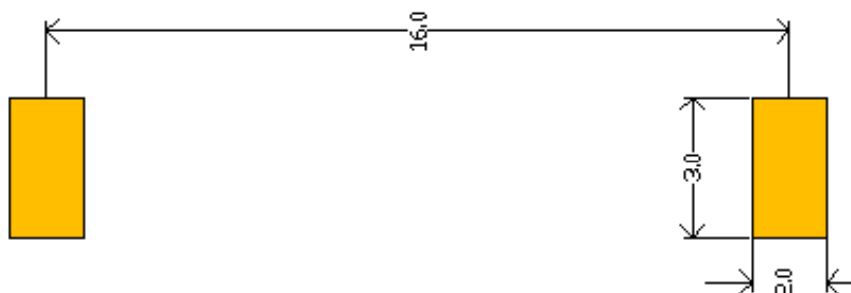
Pin No	Pin assignment
1	Feed termination
2	Feed point mark
3	Solder termination

## Dimensions

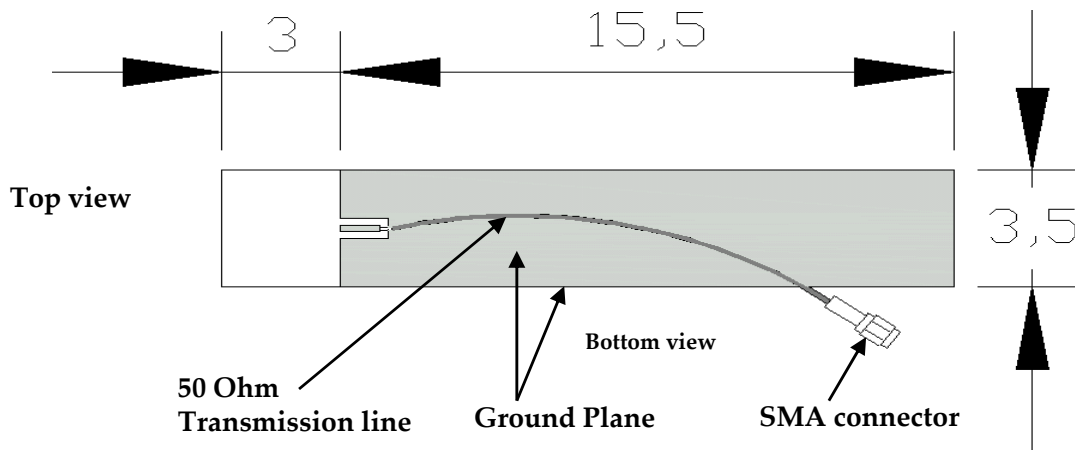


Symbol	Dimensions (mm)
A	16.00±0.10
B	3.10±0.10
C	0.60±0.05
H	1.45±0.20

## PCB foot printer



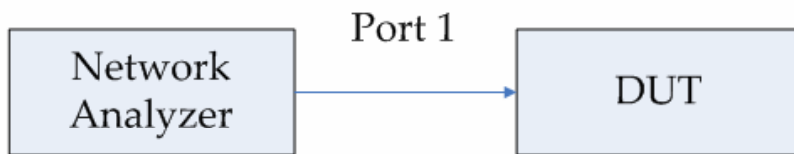
# Recommended Test Board Pattern



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.

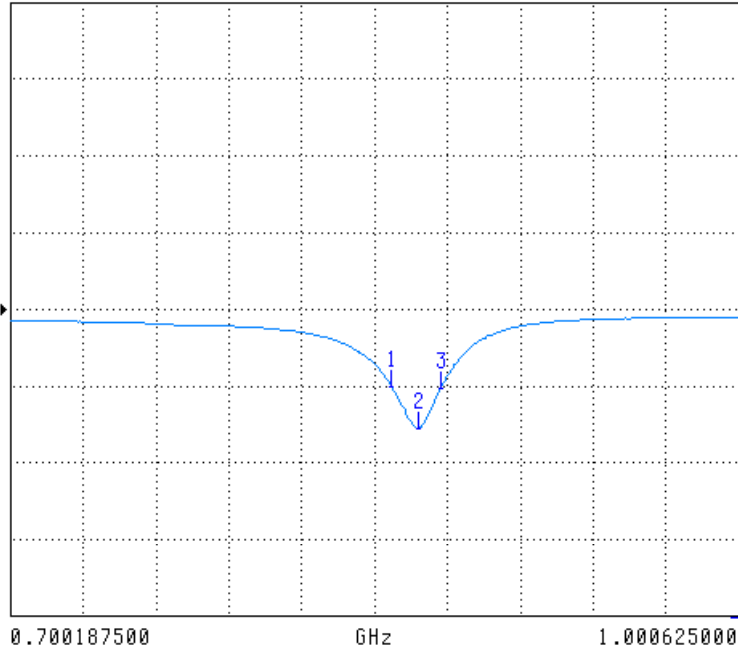
The test board dimension and its layout is the same as Fig-1.

# 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

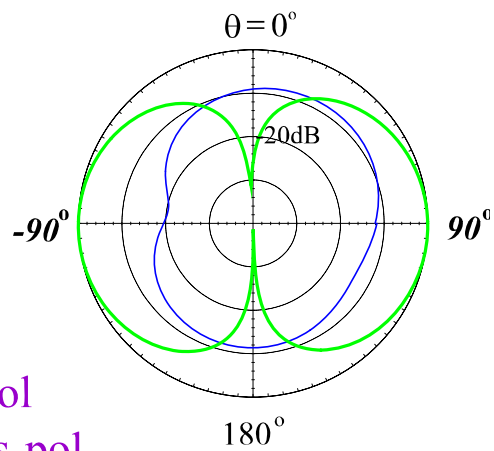
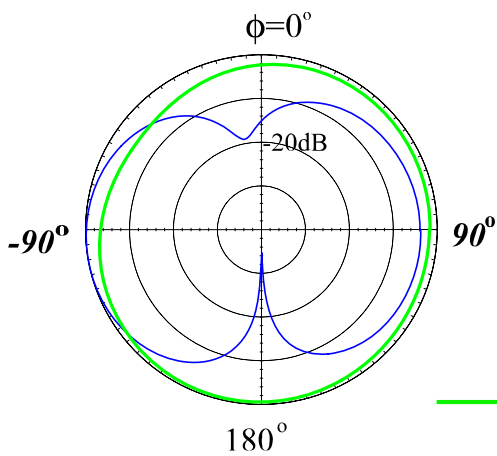
MARKER 2  
0.868625000 GHz

MARKER 3  
0.878250000 GHz

REF MODE IS OFF  
PRESS <ENTER>  
TO SELECT

868MHz H-Plane

868MHz E-Plane

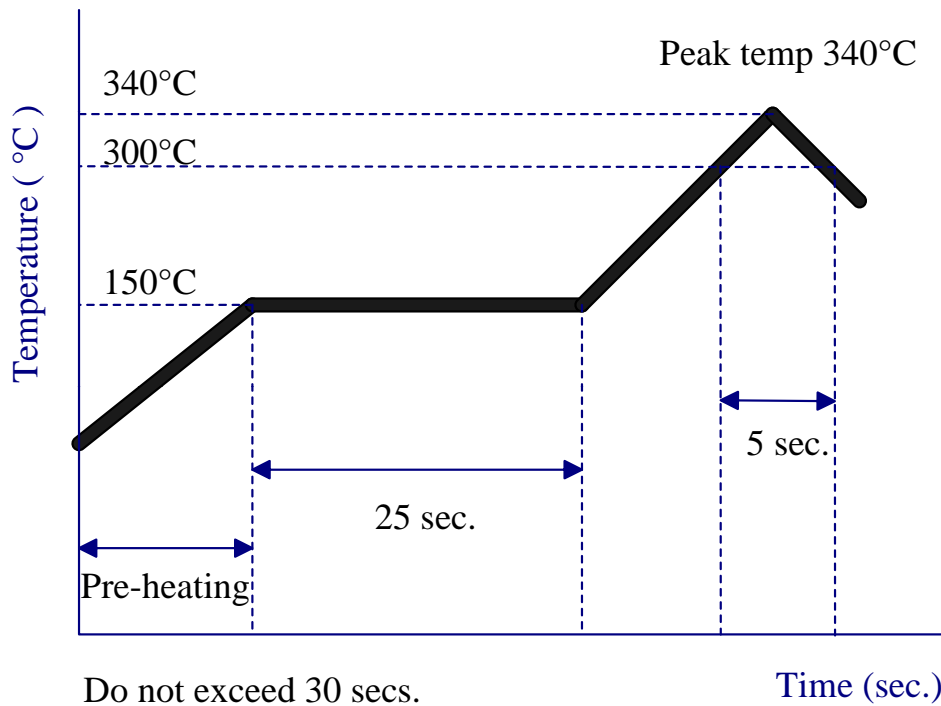


H-plane

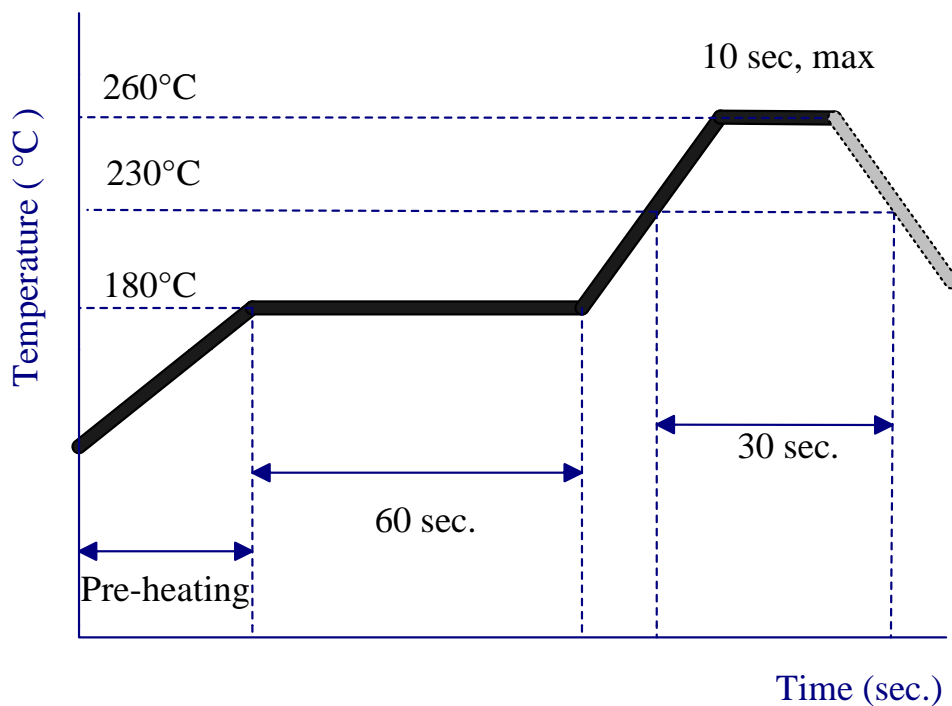
E-plane

— co-pol  
— cross-pol

## Typical Soldering Profile for Lead-free Process

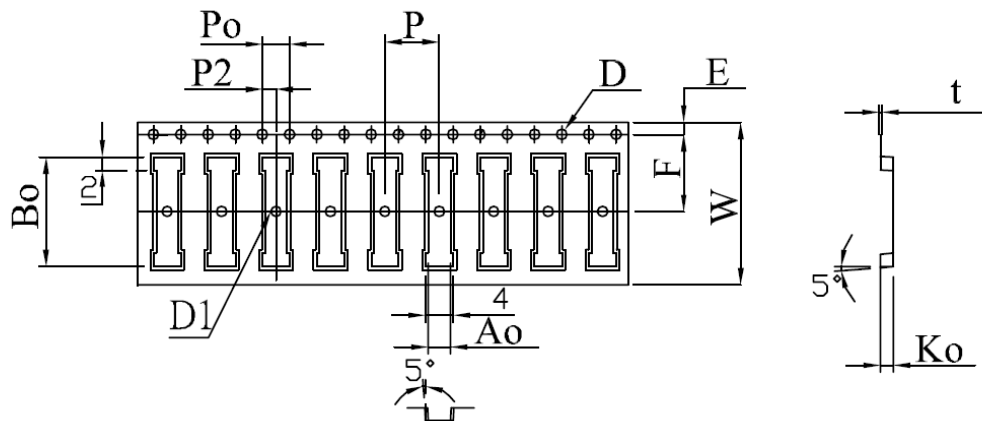


### Reflow Soldering



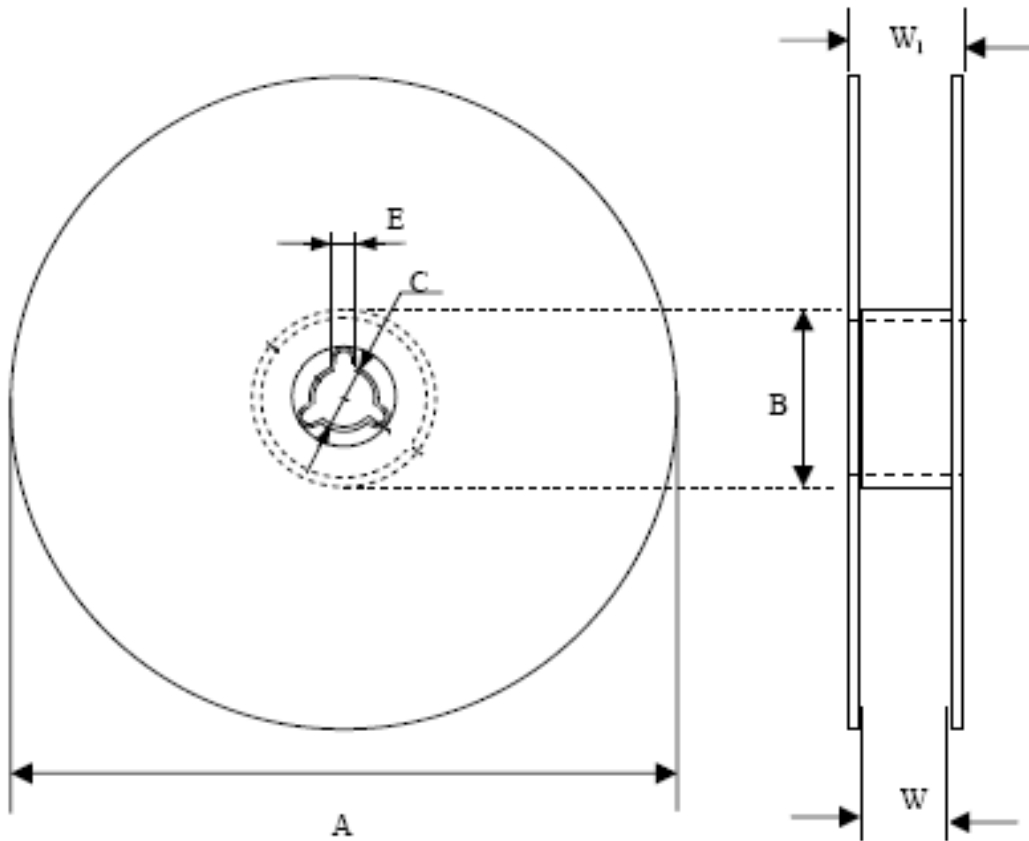
# Packing

## Blister Tape Specifications



Symbol	Dimension	Tolerance	Unit
W	24.00	± 0.30	mm
P	8.00	± 0.10	mm
P <sub>2</sub>	2.00	± 0.10	mm
A <sub>0</sub>	4.70	+ 0.10 - 3.20	mm
B <sub>0</sub>	16.20	± 0.10	mm
K <sub>0</sub>	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
P <sub>0</sub>	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 <sub>1</sub> (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