

# AN1603-433

## Multilayer Chip Antenna for 433MHz Wireless Communication



## AN1603 Multilayer Chip Antenna

### ◆ Features

- Light weight and low profile 16.0mm(L)X3.1mm(W)X1.65mm(H)
  - Omni-directional in azimuth
- Lead (Pb) Free

### ◆ Applications

- 433MHz wireless communications
- 433MHz Modules
- Other ISM band 420MHz~660MHz Wireless Application

## Specifications

Center frequency	433MHz
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	8MHz
Azimuth beamwidth	Omni-directional
Polarization	Linear

## Pin configuration



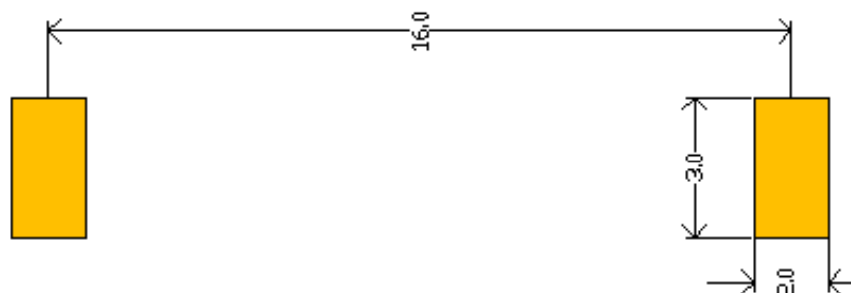
Pin No	Pin assignment
1	Feed termination
2	Feed point mark
3	Solder termination

## Dimensions

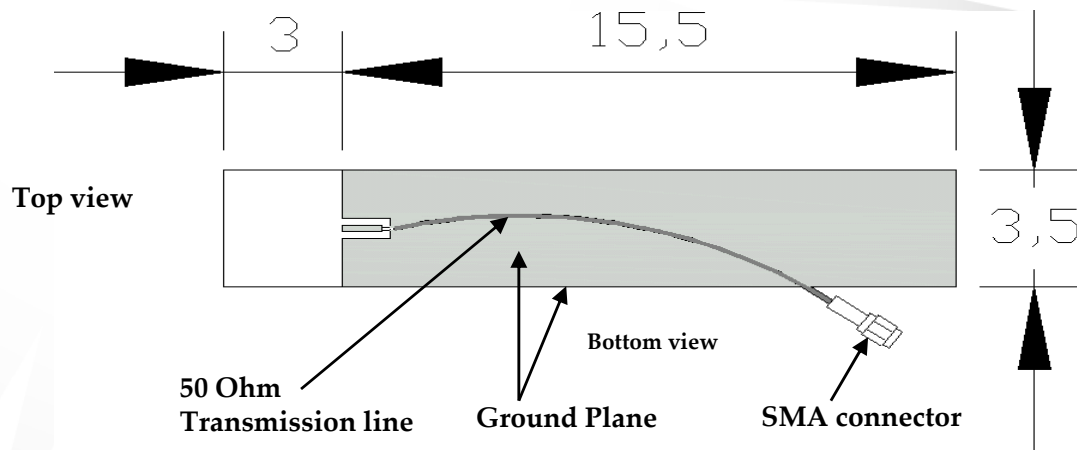


Symbol	Dimensions (mm)
A	16.00±0.10
B	3.10±0.10
C	0.60±0.05
H	1.65±0.20

## PCB foot printer



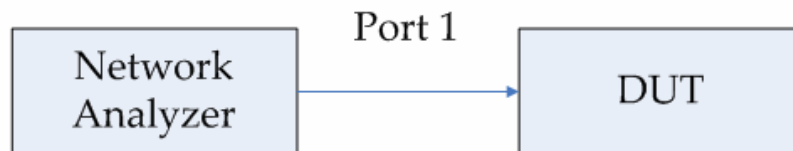
## Recommended Test Board Pattern



Unit : cm  
Board thickness : 0.6mm  
Board material : FR4

Fig-1

## Testing Setup



## Measurement



### Testing Instrument:

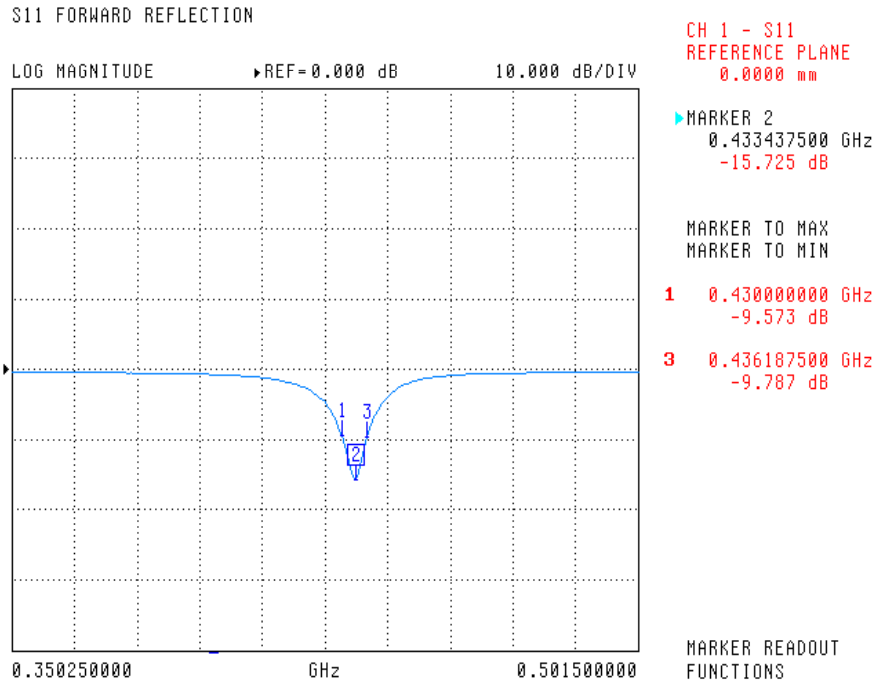
Anritsu 37369C VNA (Vector Network Analyzer)

VNA calibrate with 1 path reflection only calibration sequence on test board feed point.

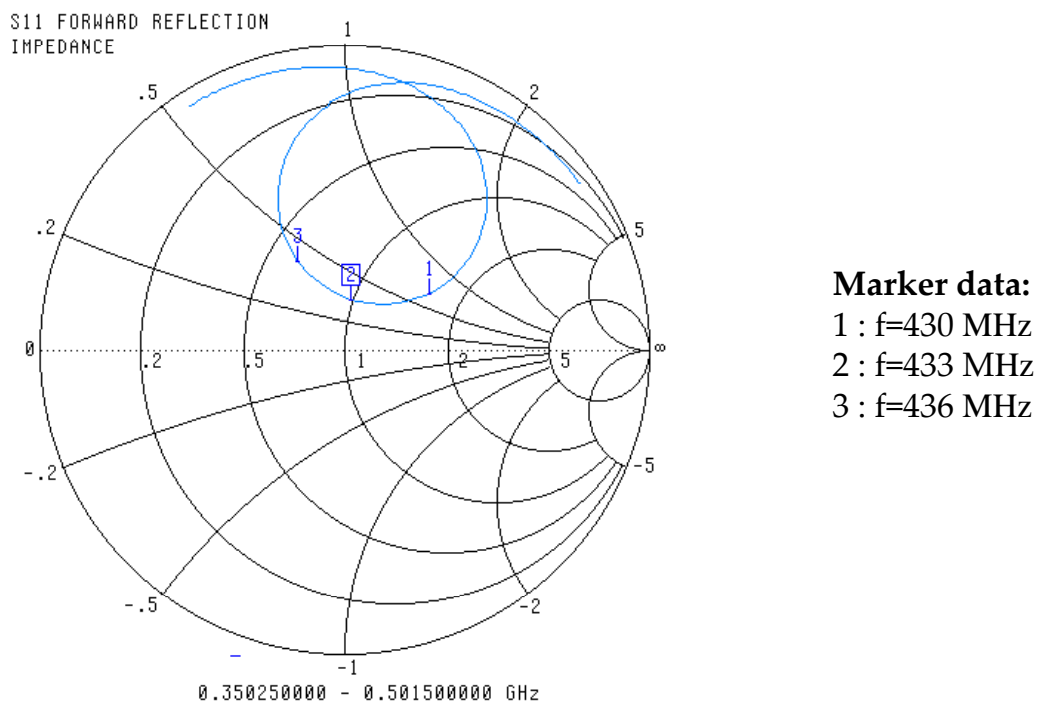
The test board dimension and its layout is the same as recommended Test Board.

# Typical Electrical Characteristics

## Return loss

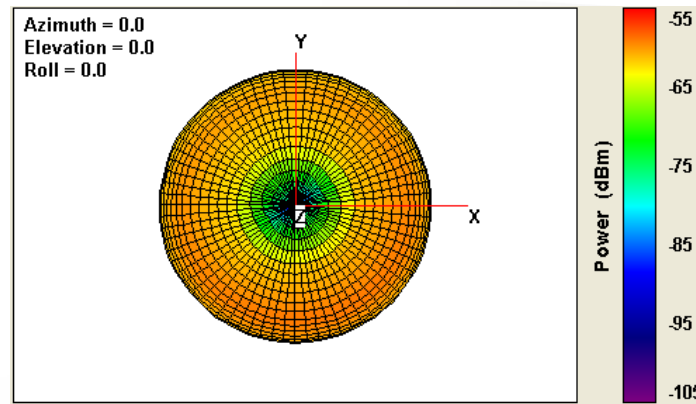


## 433 MHz Smith Chart



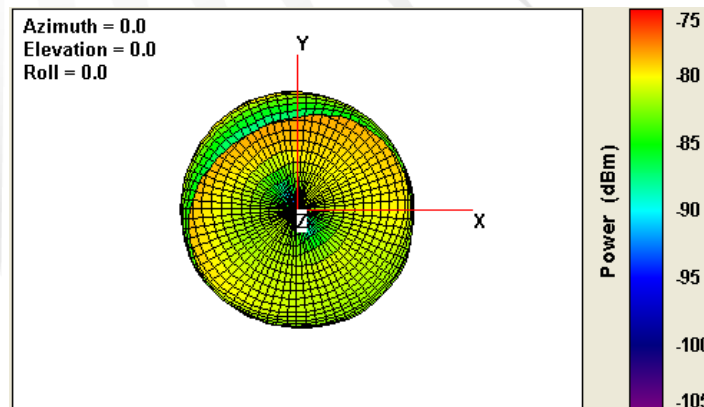
## 3D Pattern

### Theta



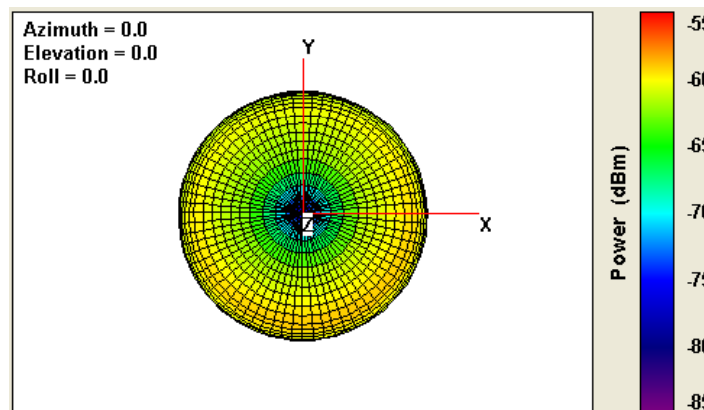
### Free-Spec, 433 MHz

### Phi



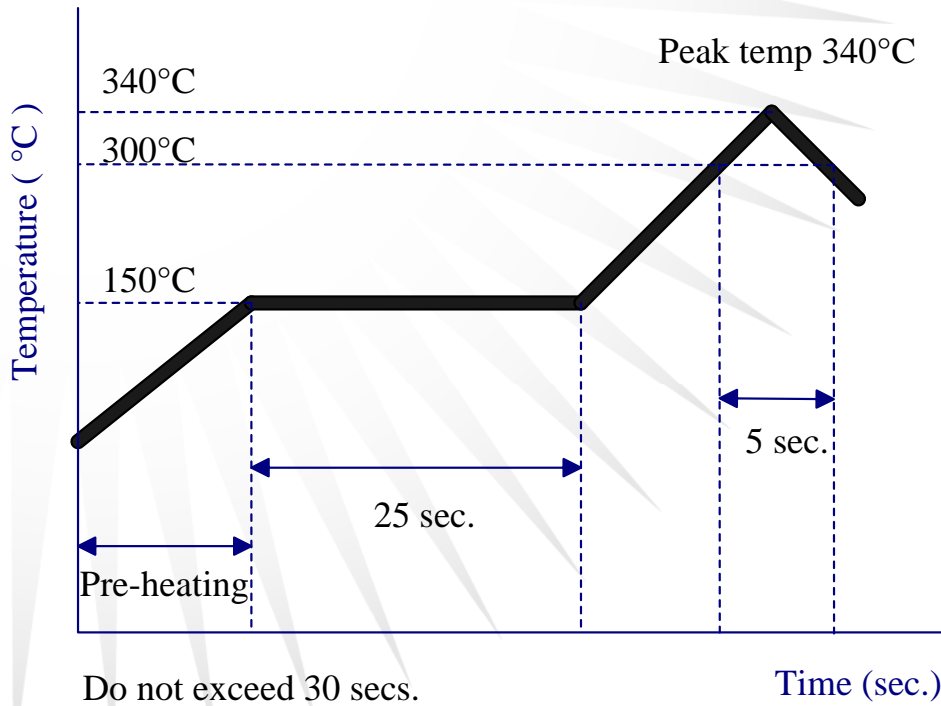
### Free-Spec, 433 MHz

### Total

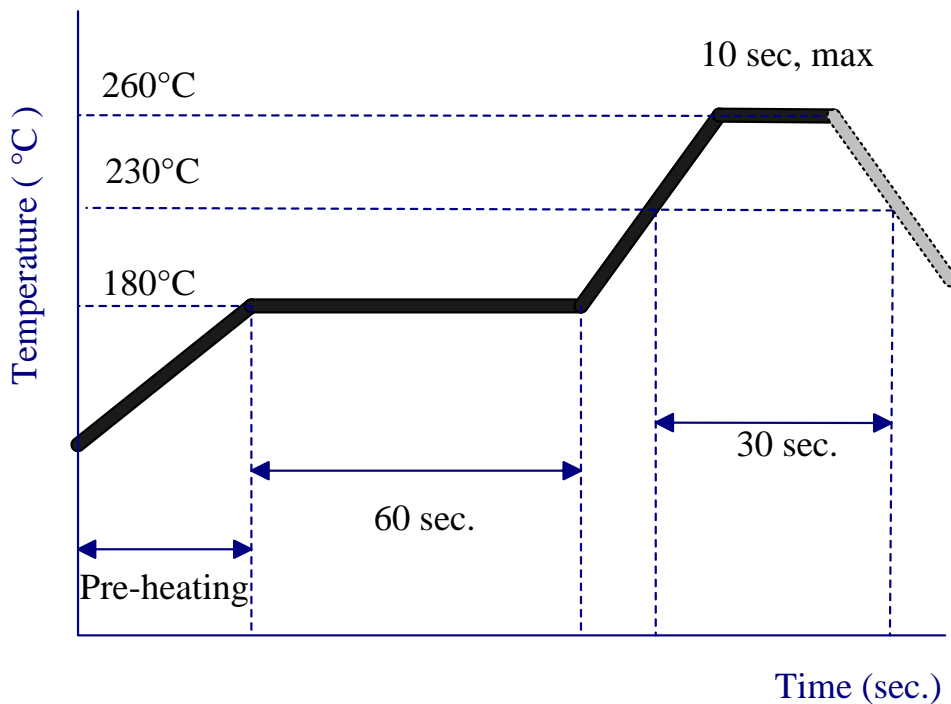


### Free-Spec, 433 MHz

## Typical Soldering Profile for Lead-free Process

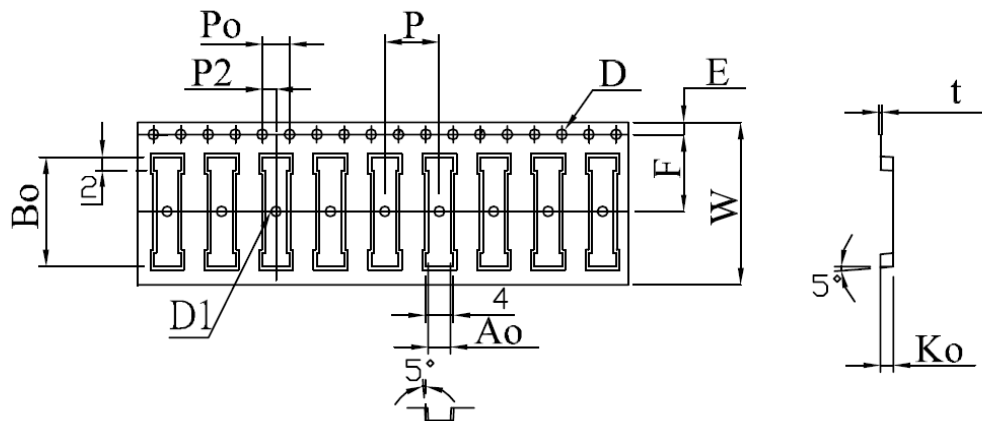


### Reflow Soldering



# Packing

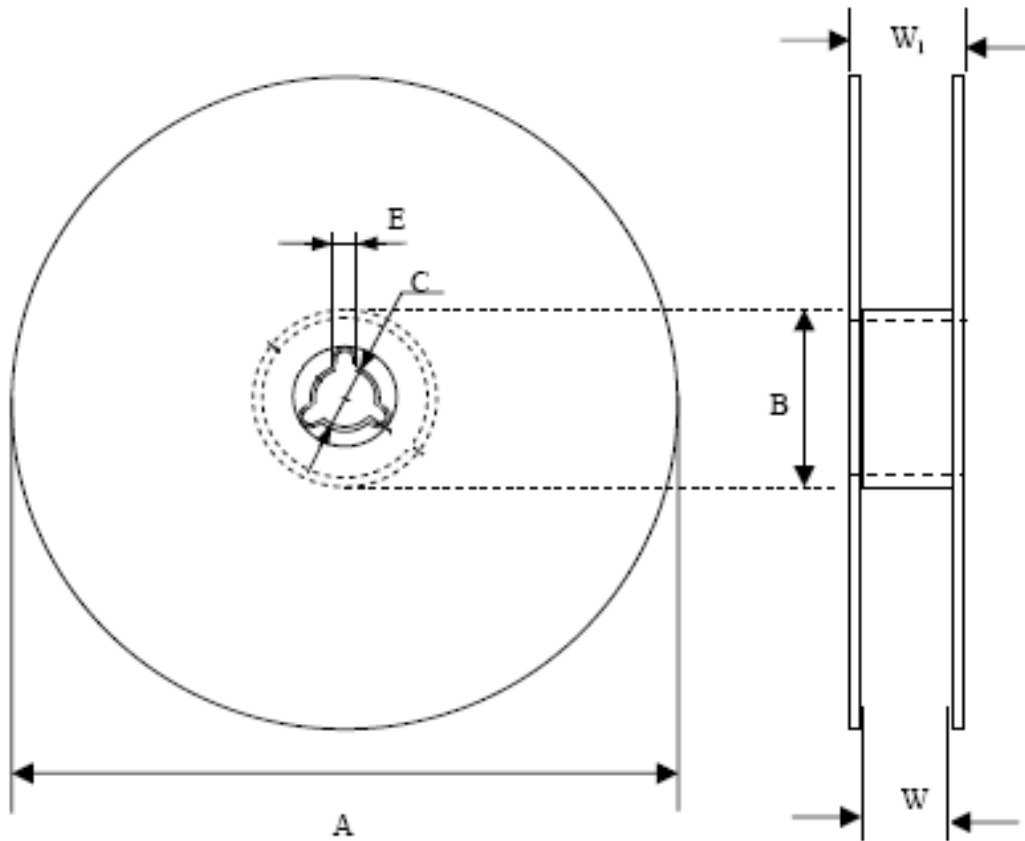
## Blister Tape Specifications



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	$330 \pm 1$	$13.0 \pm 0.5$	$100.0 \pm 0.5$	$2.2 \pm 0.5$	$24.0 \pm 0.5$	$28.9 \pm 0.2$