

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

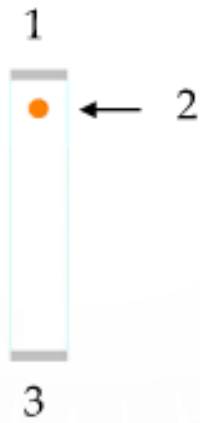
◆ Applications

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

Specifications

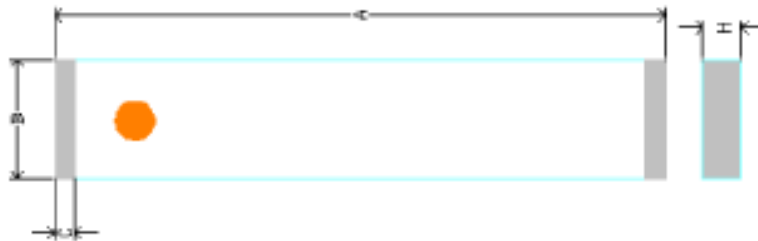
Center frequency	433MHz
Peak gain	0.5dBi
Operation temperature	-40 ~ +85 °C
Storage temperature	-40 ~ +85 °C
VSWR	2.0 (Max)
Input Impedance	50 Ohm
Power handling	3W (Max)
Bandwidth	8MHz
Azimuth beamwidth	Omni-directional
Polarization	Linear

Pin configuration



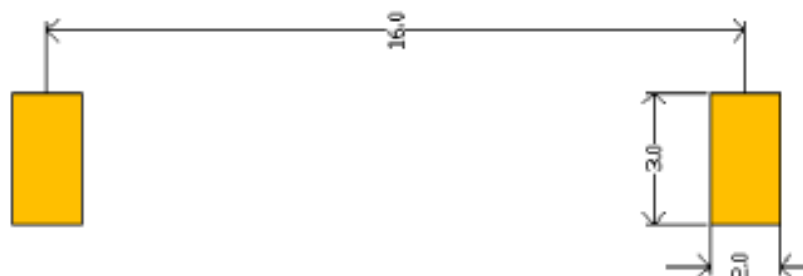
Pin No	Pin assignment
1	Feed termination
2	Feed point mark
3	Solder termination

Dimensions

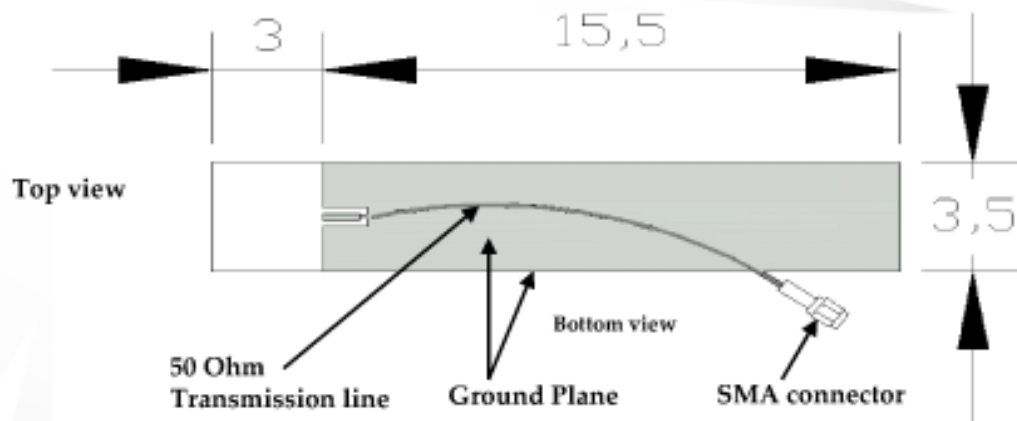


Symbol	Dimensions (mm)
A	16.00 ± 0.10
B	3.10 ± 0.10
C	0.60 ± 0.05
H	1.65 ± 0.20

PCB foot printer



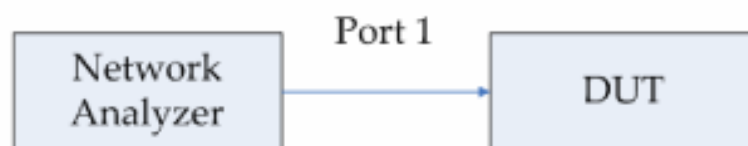
Recommended Test Board Pattern



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

Fig-1

Testing Setup



Measurement



Testing Instrument:

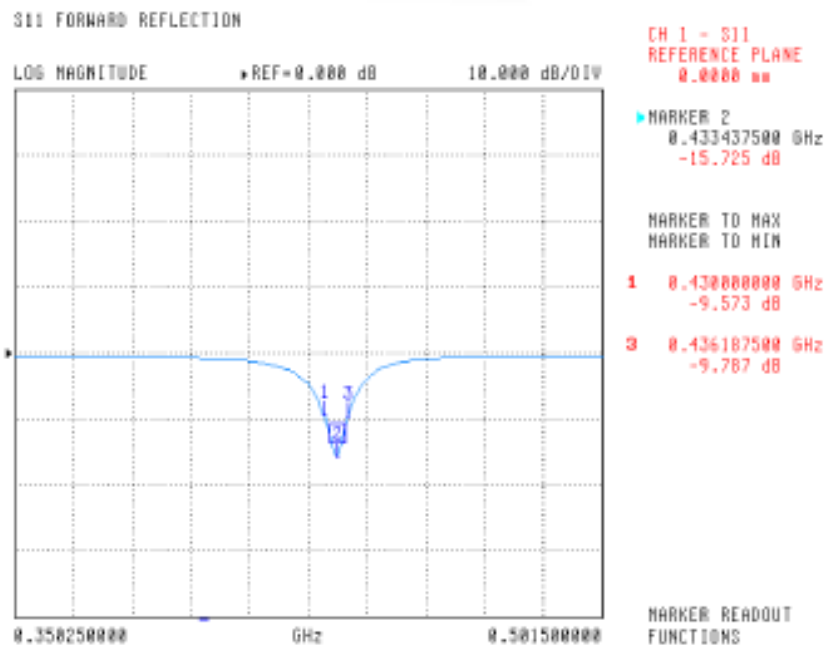
Anritsu 37369C VNA (Vector Network Analyzer)

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

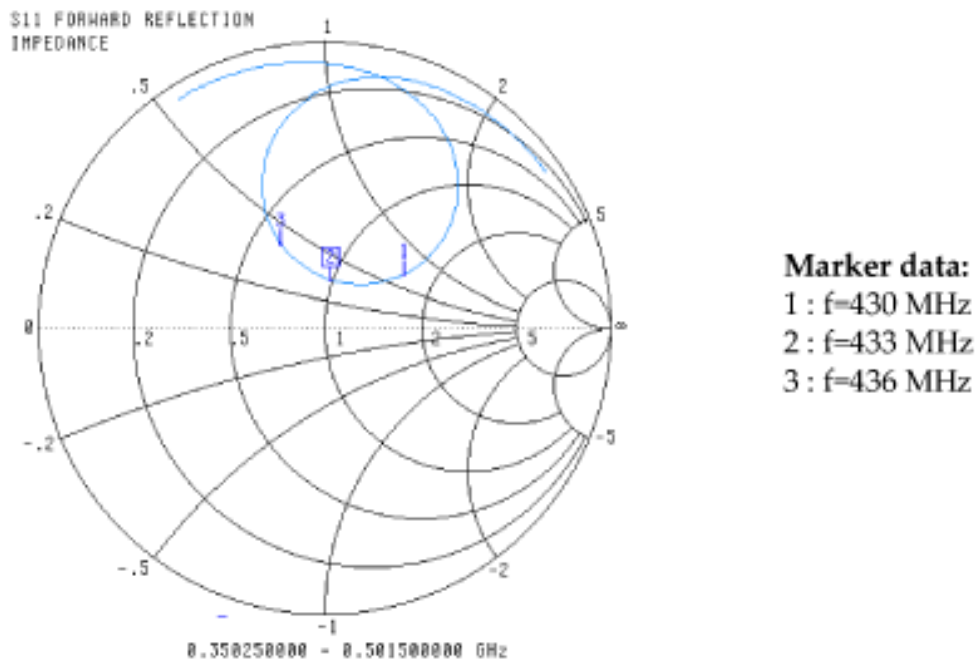
The test board dimension and its layout is the same as recommended Test Board.

Typical Electrical Characteristics

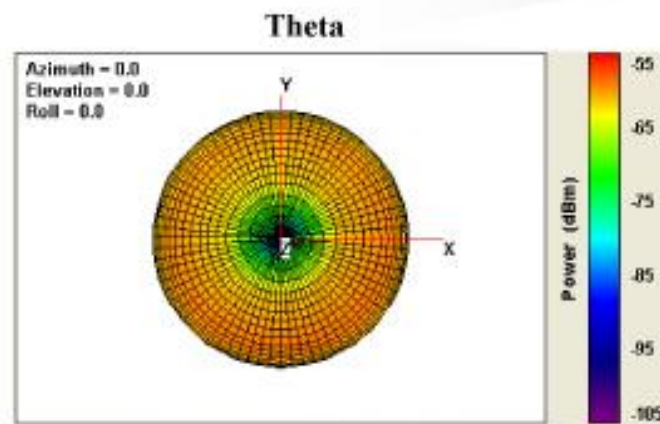
Return loss



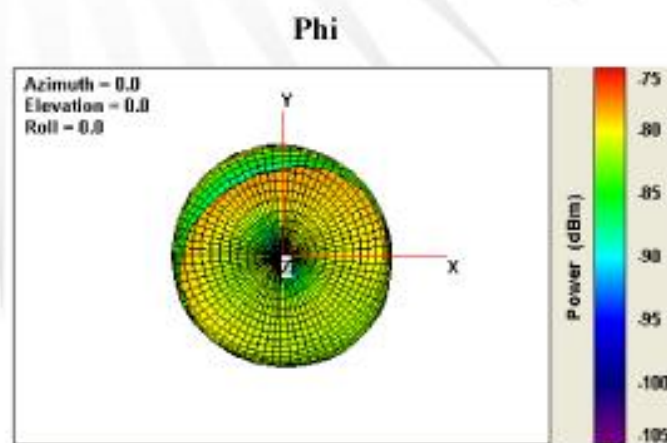
433 MHz Smith Chart



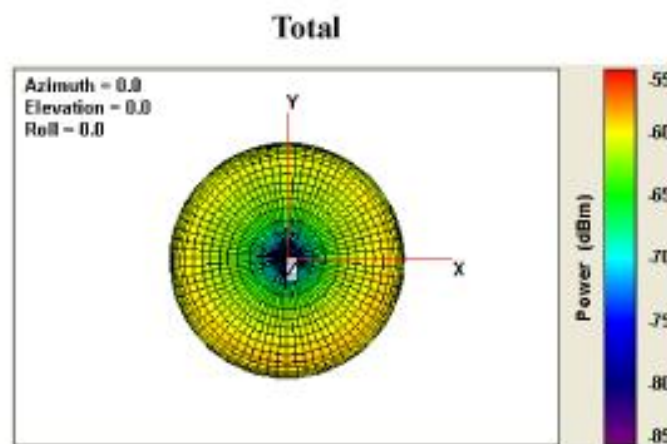
3D Pattern



Free-Spec, 433 MHz

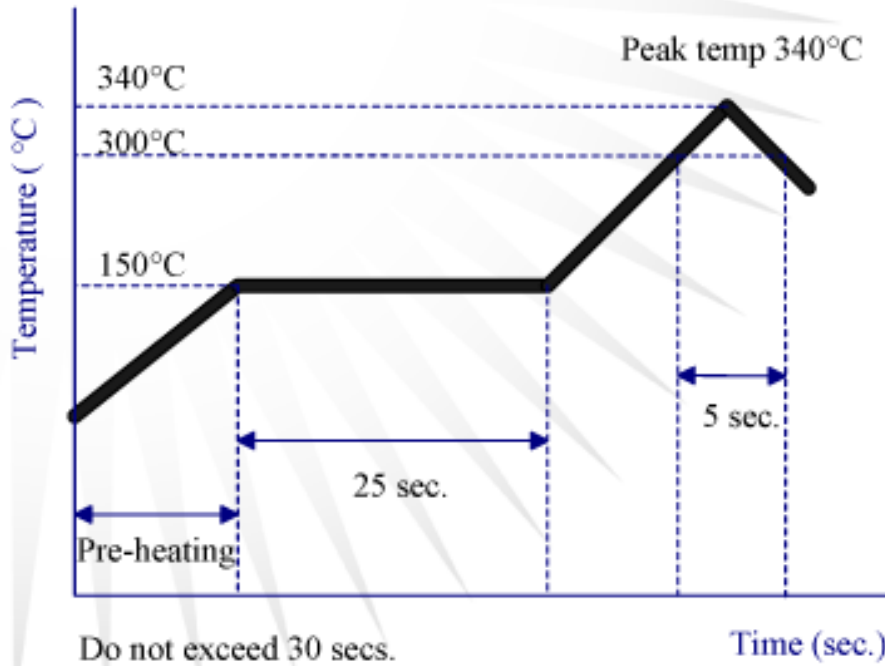


Free-Spec, 433 MHz

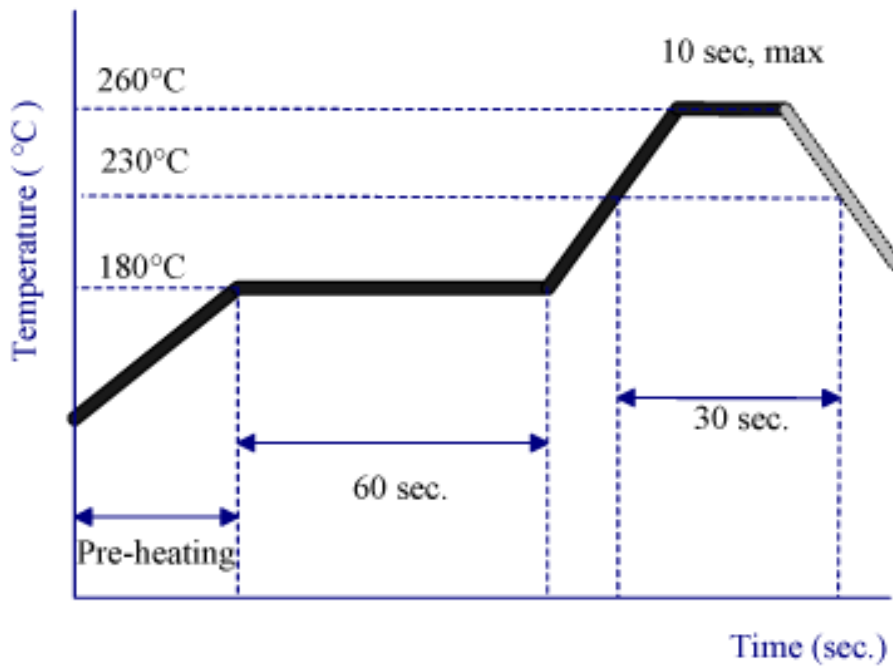


Free-Spec, 433 MHz

Typical Soldering Profile for Lead-free Process

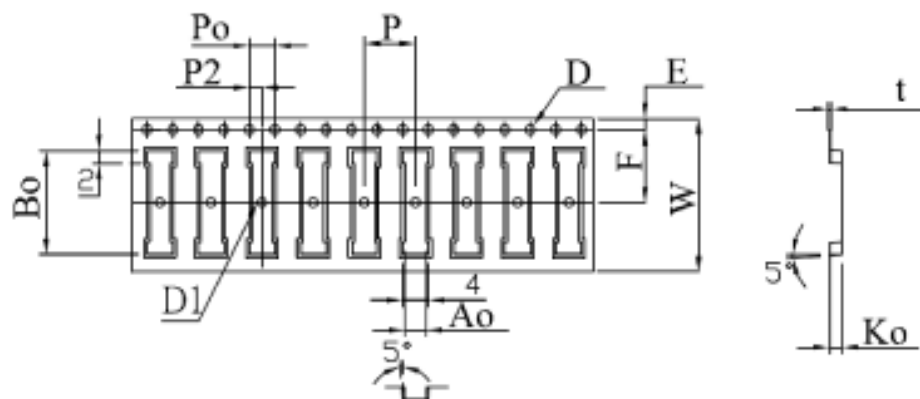


Reflow Soldering



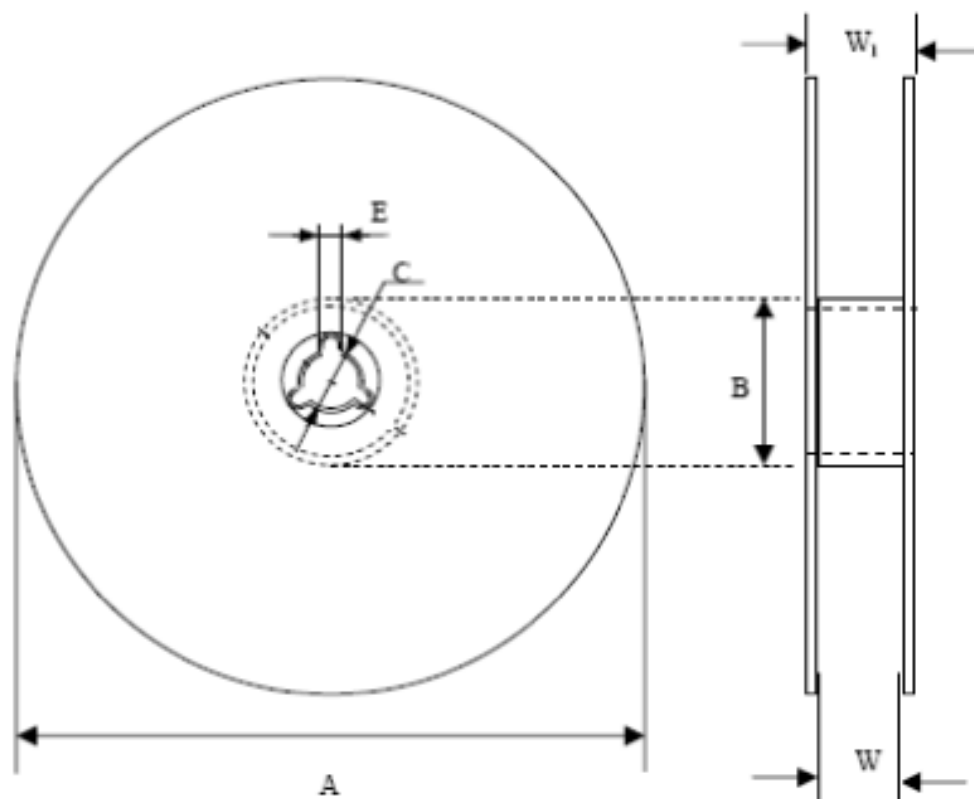
Packing

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±1	13.0±0.5	100.0±0.5	2.2±0.5	24.0±0.5	28.9±0.2