

# GPS1003

## Multilayer Chip Antenna for GPS

(Advanced Information)



## GPS1003 Multilayer Chip Antenna

### ◆ Features

- Light weight and low profile 10.0mm(L)X3.0mm(W)X1.47mm(H)
- Omni-directional in azimuth
- Lead (Pb) Free

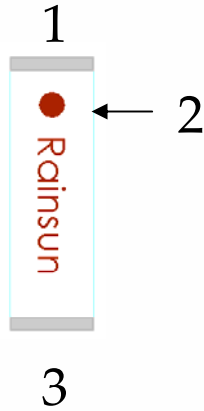
### ◆ Applications

- 1575MHz wireless communications
- GPS (Global Positioning System)

## Specifications

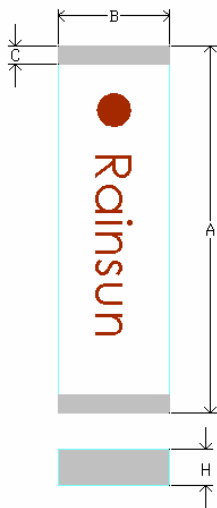
Center frequency	1575MHz
Peak gain	4.3 dBi (Typ)
Operation temperature	-40 ~ +85 °C
Storage temperature	-40 ~ +100 °C
VSWR	1.5 (Max)
Input Impedance	50 Ohm
Power handling	3W (Max)
Bandwidth	150MHz (Typ)
Azimuth beamwidth	Omni-directional
Polarization	Linear

## Pin configuration



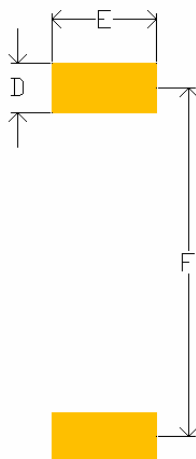
Pin No	Pin assignment
1	Feed termination
2	Feed point mark
3	Solder termination

## Dimensions



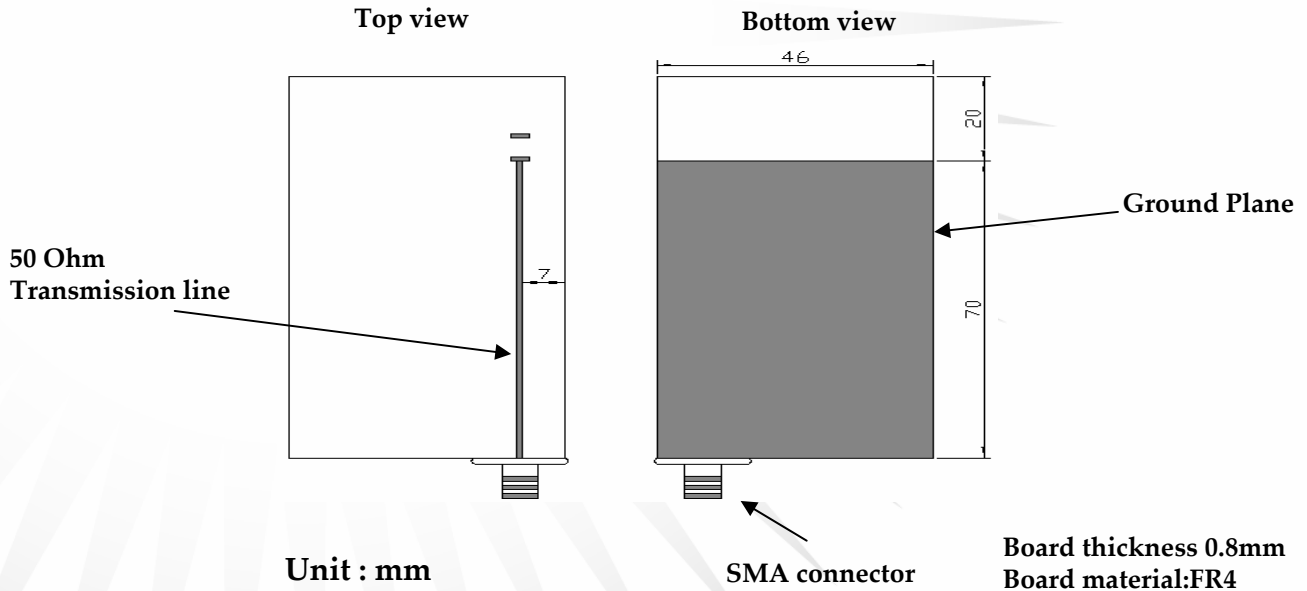
Symbol	Dimensions(mm)
A	10.0±0.1
B	3.0±0.1
C	0.5 ±0.1
H	1.47±0.20

## Recommended PCB foot print

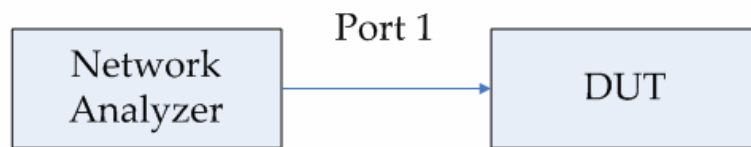


Symbol	Dimensions(mm)
D	1.4
E	3.0
F	10.0

## Recommended Test Board Pattern



## Testing Setup



## Measurement



### Testing Instrument:

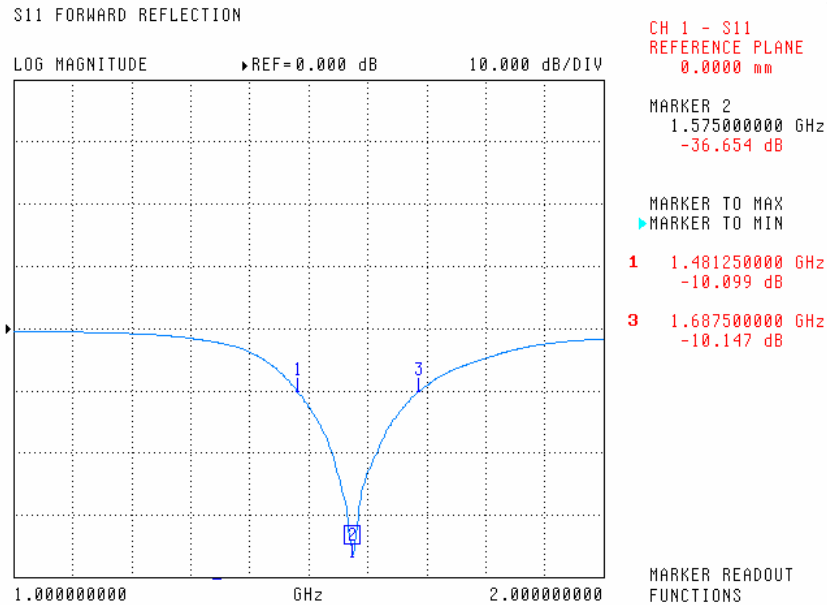
Anritsu 37369C VNA (Vector Network Analyzer)

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

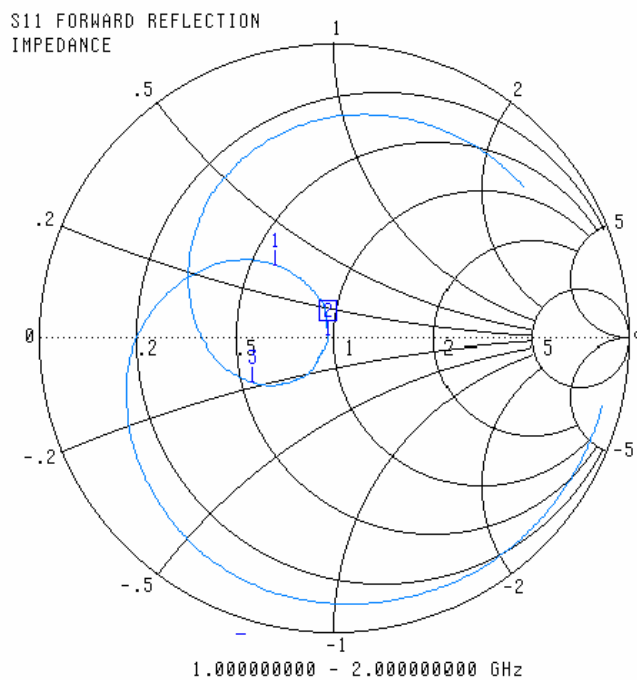
The test board and its layout is the same as recommended Test Board.

# Typical Electrical Characteristics

## Return loss



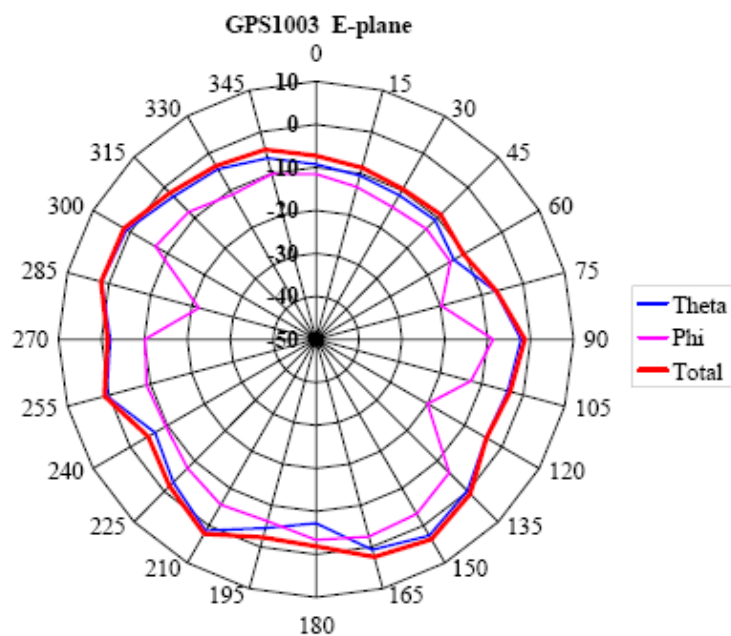
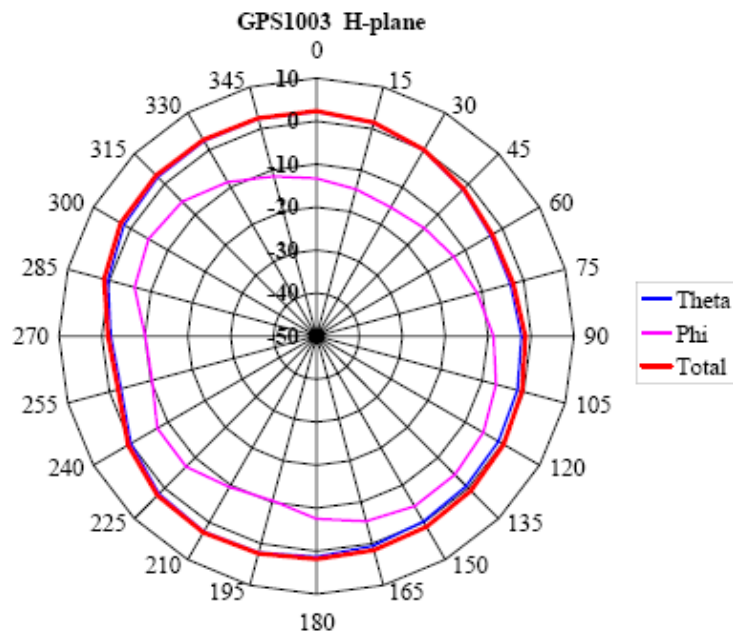
## Smith Chart



### Marker data:

- 1 : f=1.481 GHz
- 2 : f=1.575 GHz
- 3 : f=1.687 GHz

## Typical Radiation Patterns

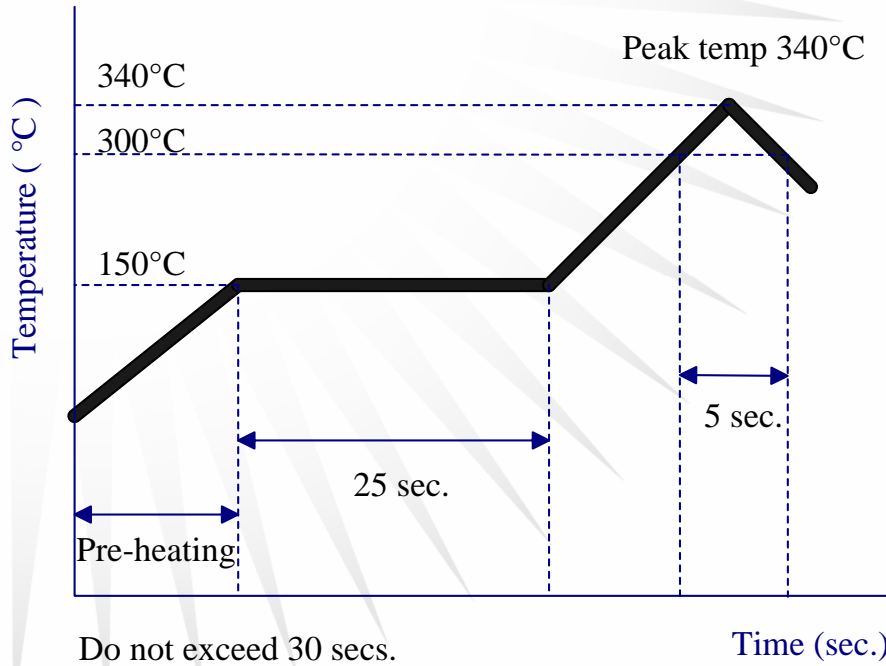


Theta: Co-polarization of antenna

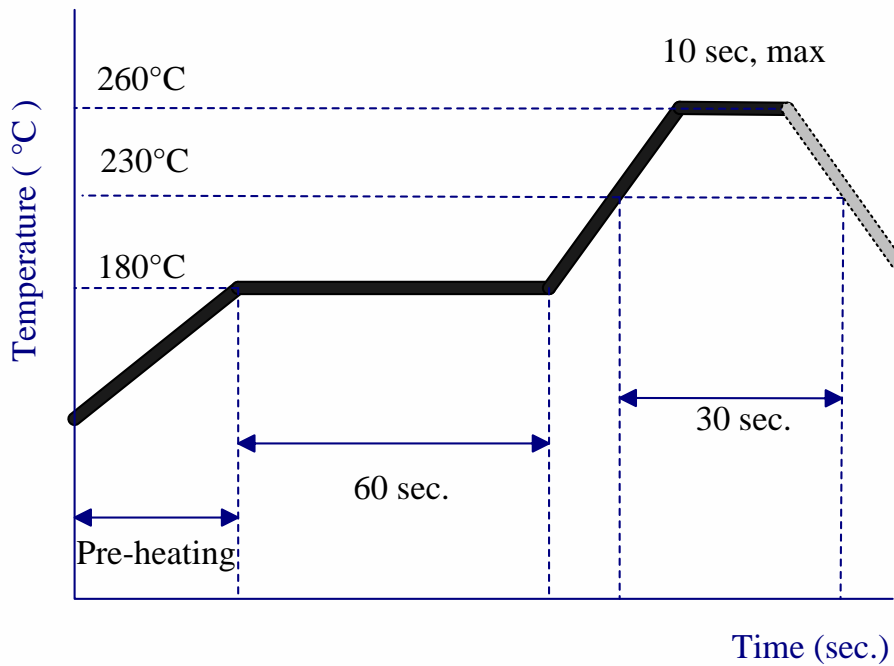
Phi: X-polarization of antenna

Total: Total power of antenna

## Typical Soldering Profile for Lead-free Process

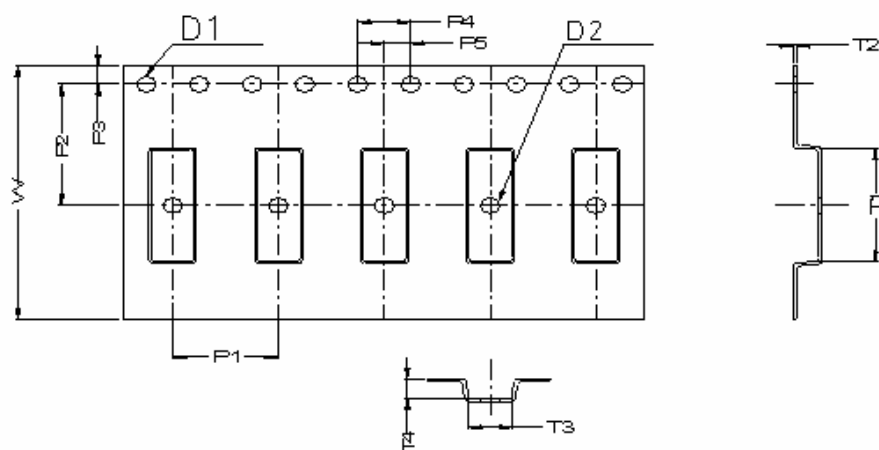


### Reflow Soldering



# Packing

## Blister Tape Specifications



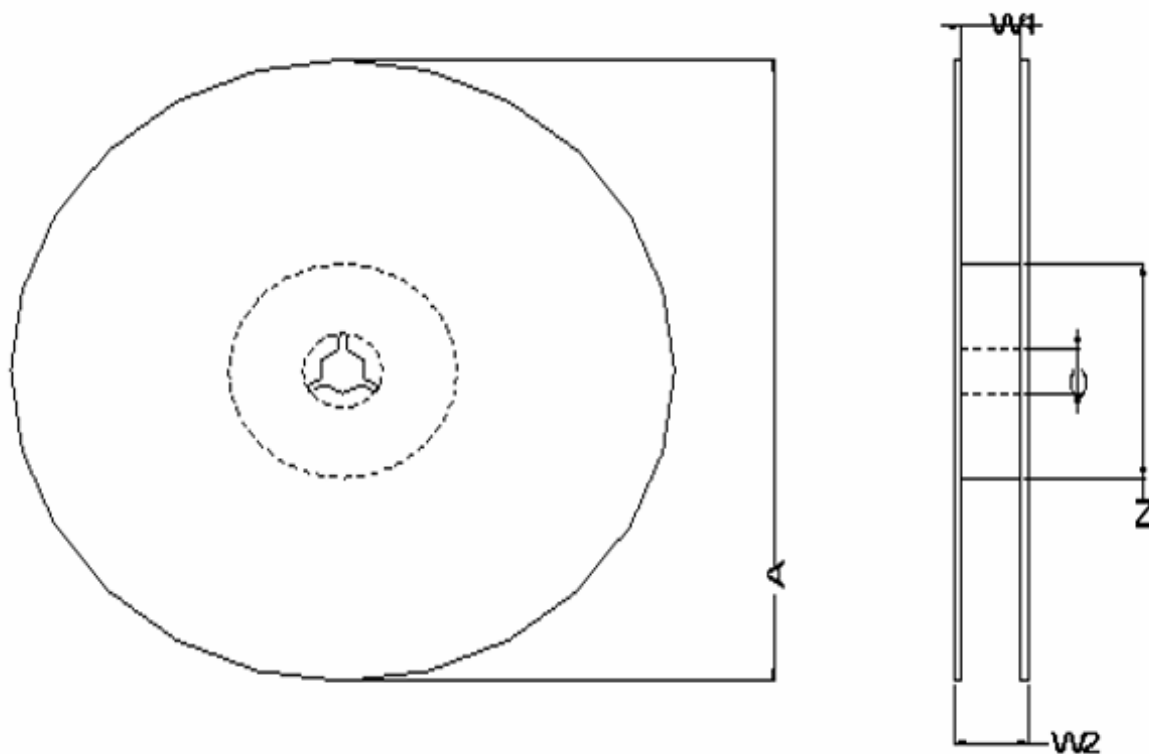
Symbol	Dimension	Tolerance	Unit
W	24.0	$\pm 0.30$	mm
P1	8.0	$\pm 0.10$	mm
P2	11.5	$\pm 0.10$	mm
P3	1.75	$\pm 0.10$	mm
P4	4.0	$\pm 0.10$	mm
P5	2.0	$\pm 0.10$	mm
D1	1.5	$\pm 0.10$	mm
D2	1.5	$\pm 0.10$	mm
T1	10.6	$\pm 0.10$	mm
T2	0.3	$\pm 0.05$	mm
T3	3.3	$\pm 0.10$	mm
T4	1.9	$\pm 0.10$	mm

### Notes

1. Possible product displacement in pocket.
2.  $P_0$  pitch tolerance over any 10 pitches is  $\pm 0.2\text{mm}$



## Reel Specifications



Quantity Per Reel	Tape Width (mm)	A (mm)	C (mm)	N (mm)	W1 (mm)	W2 (mm)
3,000	24	330±0.1	13.0±0.5	100±0.1	24±0.2	28.8±0.2