# PF1603-comb

## Multilayer Chip Antenna for

# GPS/UWB/Wifi Wireless Communication

# PF1603-Comb 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

- GPS application
- 3400~3800MHz 5G mobile communication
- WiFi/Bluetooth 2.45GHz application

## Specifications

| | |
|---|---|
| frequency | 1561/1575/1598/1606MHz<br>3400~3800MHz<br>2400~2500Mhz |
| Peak gain | 1dBi |
| 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 |

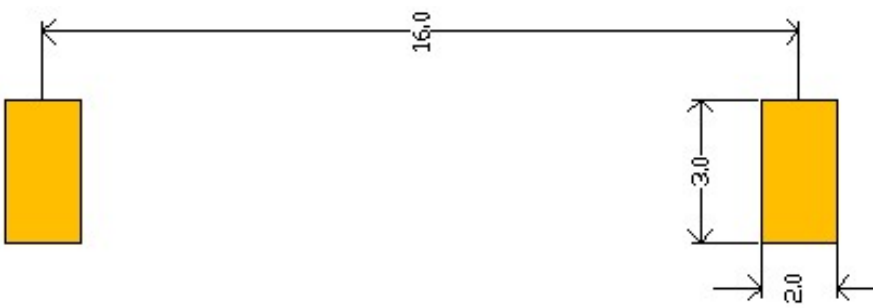
# Pin configuration


| Pin No | Pin assignment |
|---|---|
| 1 | Feed termination 1 |
| 2 | Feed point mark |
| 3 | Feed termination 2 |

# Dimensions

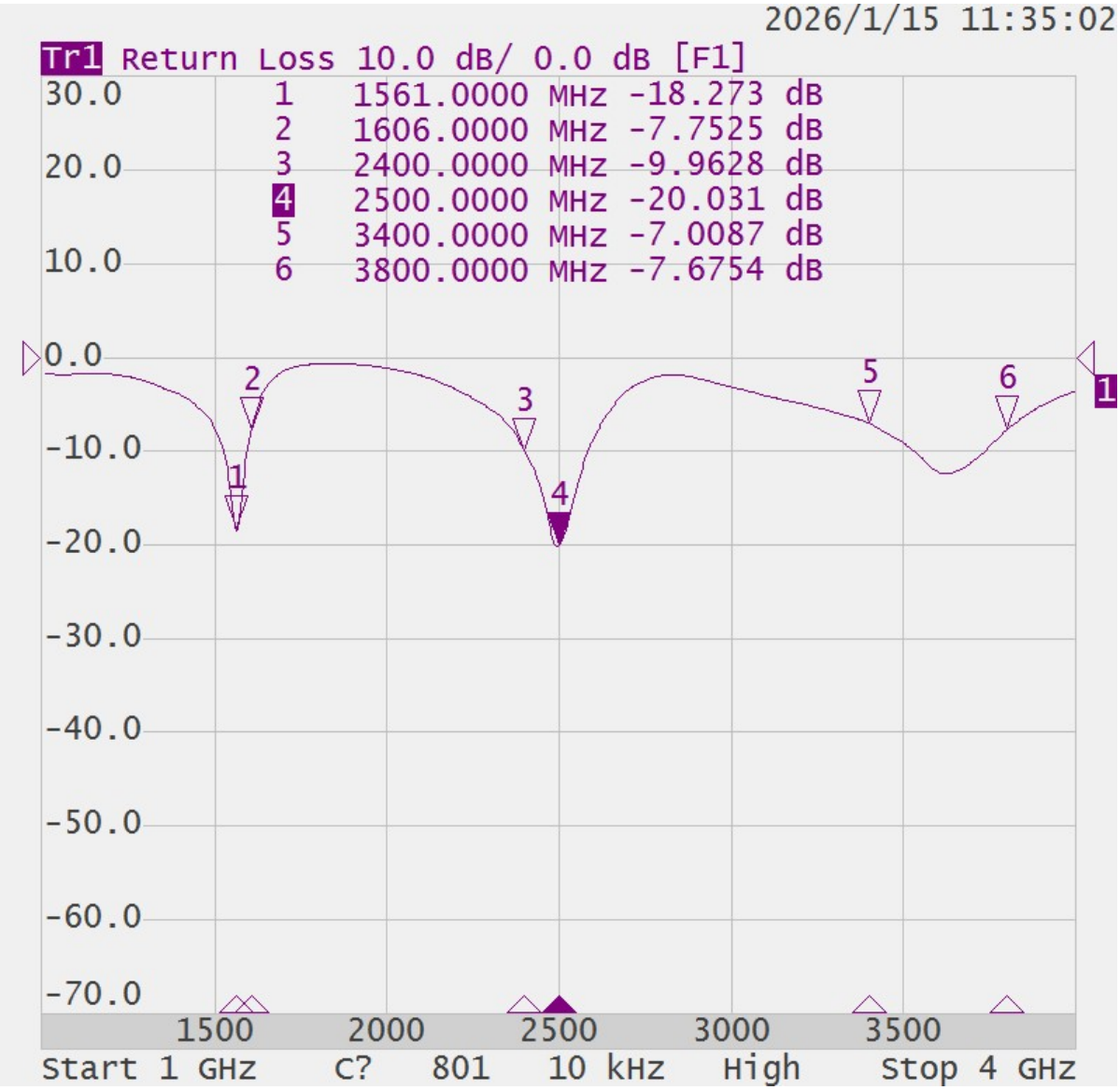

| Symbol | Dimensions (mm) |
|---|---|
| A | 16.00±0.10 |
| B | 3.10±0.10 |
| C | 0.60±0.05 |
| H | 1.45±0.20 |

# PCB foot printer

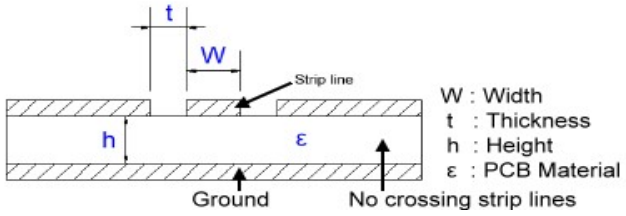


# Typical Electrical Characteristics

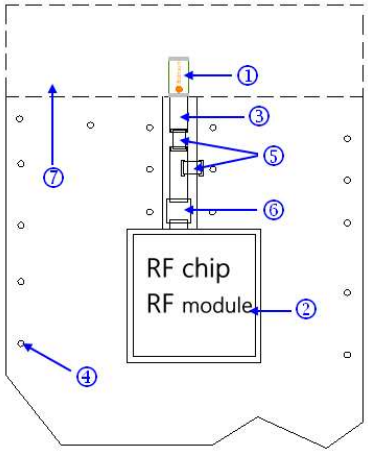
## Return loss



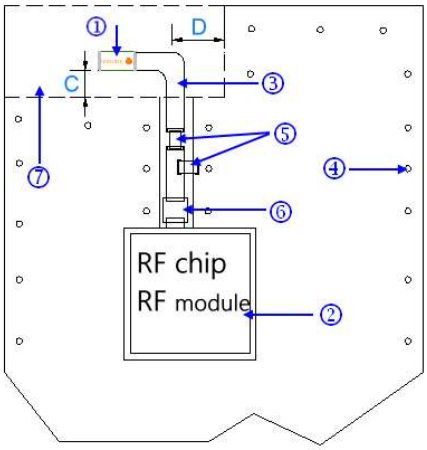
## Application design guide




**Best Choice**




**Acceptable**

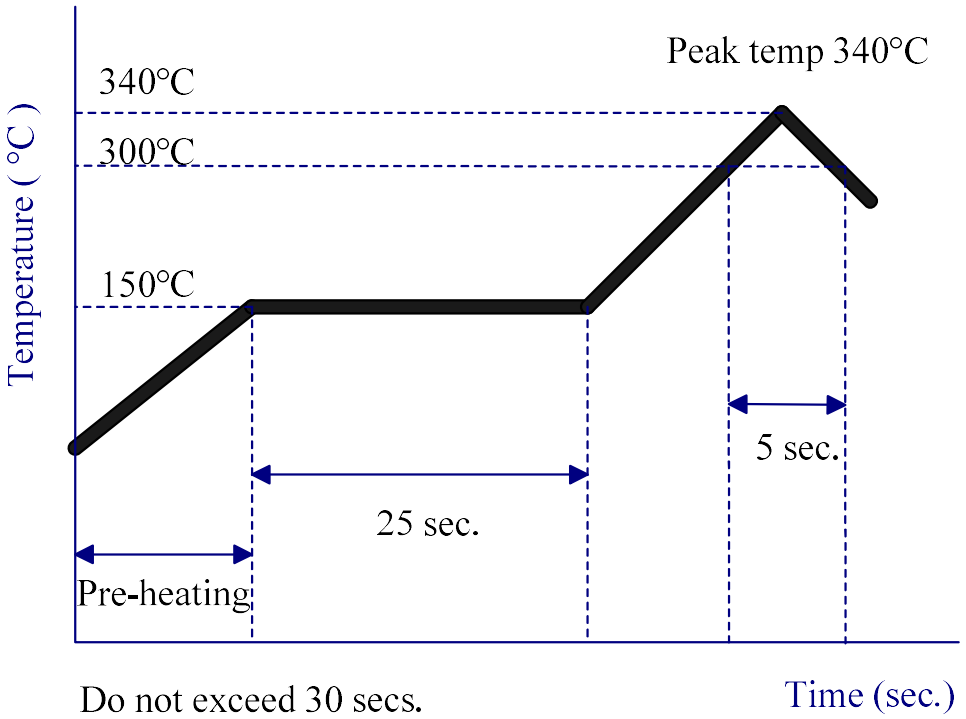



Ground plane area

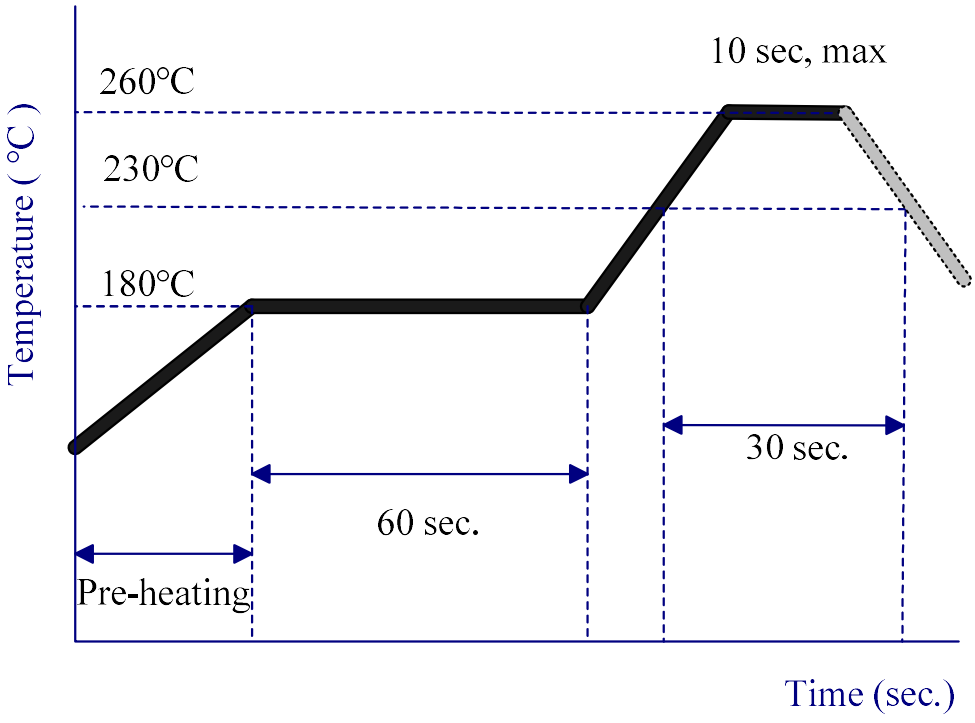
Clearance area

1. **Placement of the antenna**
   The antenna shall be placed on a area without underlying ground plane at the edge of the PCB oriented as above. Ground plane area surrounding the antenna should be with minimum clearence 3mm.
   DO NOT pleace the antenna on the PCB edge with V-cut. The antenna body size is bigger than passive component. Antenna may damage on the V-cut snap off. In PCB panel layout, CNC board edge is better then V-cut edge.
2. **Placement of RF chip set or module**
   To avoid losses in the strip line, the module shall be placed as close to the antenna as possible.
3. **Strip line**
   The strip line impendence must be dimensioned according to your specific PCB (see fig.2) to 50 Ohm. No crossing strip lines are allowed between the strip line and its ground plane.
4. **Via Connections on PCB**
   To avoid spurious effects via connections must be made to analogue ground. Via connection depends on PCB layout design. Figure for reference only.
5. **Component matching**
   Component values are depending on antenna placement, PCB dimensions and location of other components. PCB dimension and antenna location will effect the antenna frequency.
6. **DC Block**
   It might be needed depending on RF Module or chip hardware design.
7. **Clearance**
   No components allowed within the clearence area with a minimum distance to other components. The minimum distance is 3mm.

# Typical Soldering Profile for Lead-free Process

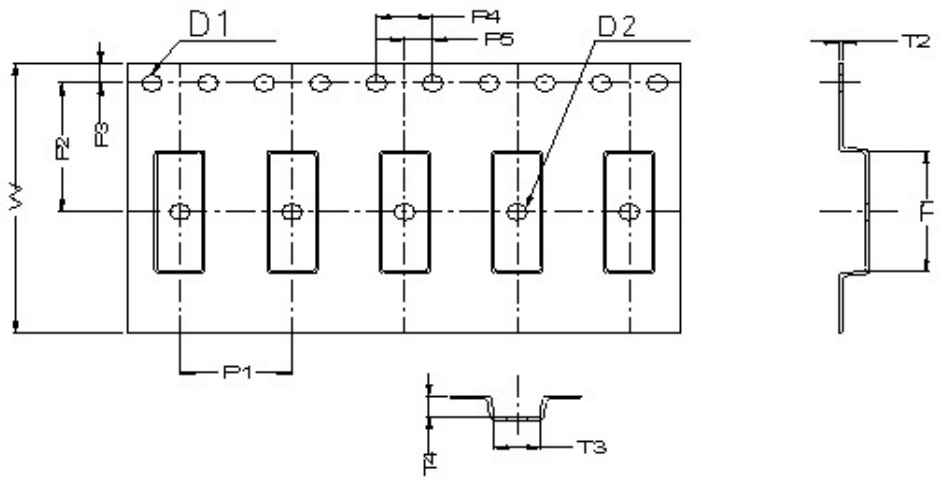



Reflow Soldering



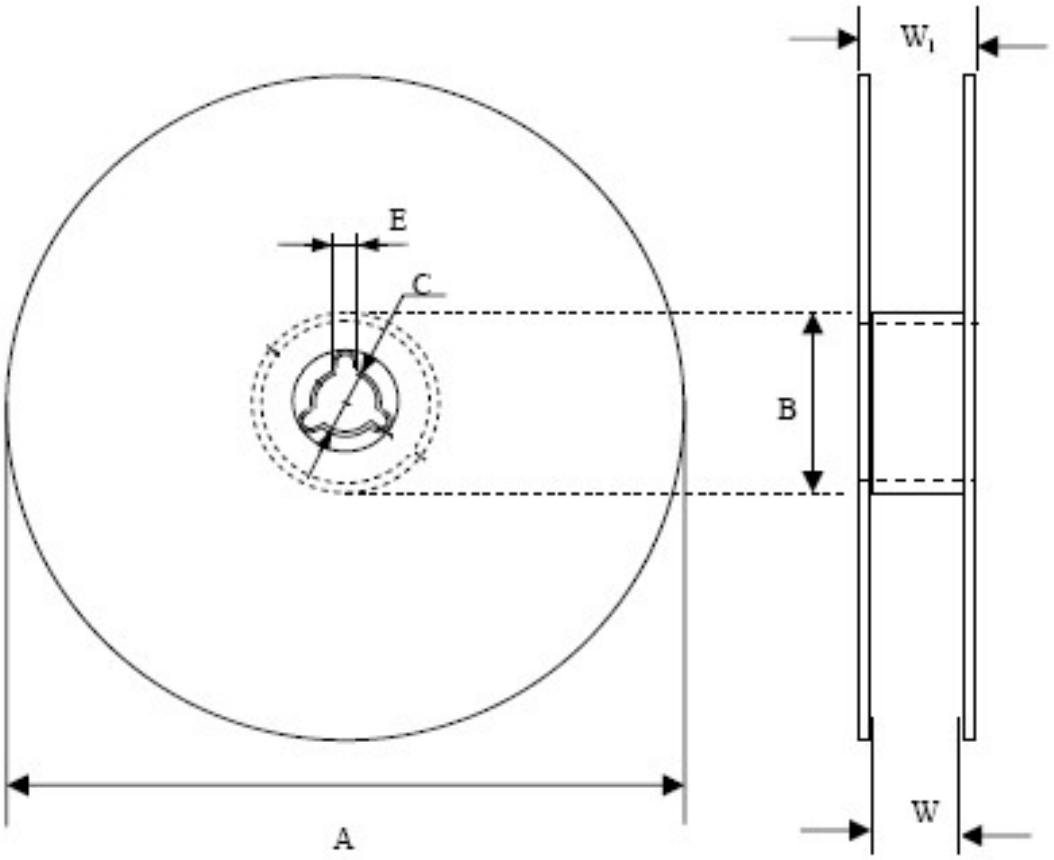
# Packing

## Blister Tape Specifications




| Symbol | Dimension | Tolerance | Unit |
|---|---|---|---|
| W | 24.00 | ± 0.30 | mm |
| P1 | 8.00 | ± 0.10 | mm |
| P2 | 11.50 | ± 0.10 | mm |
| P3 | 1.75 | ± 0.10 | mm |
| P4 | 4.00 | ± 0.10 | mm |
| P5 | 2.00 | ± 0.10 | mm |
| D1 | 1.50 | ± 0.10 | mm |
| D2 | 1.50 | ± 0.10 | mm |
| T1 | 10.6 | ± 0.10 | mm |
| T2 | 0.30 | ± 0.05 | mm |
| T3 | 3.30 | ± 0.10 | mm |
| T4 | 1.90 | ± 0.10 | 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 |