PF1004

Chip Antenna for

Wireless Application

PF1004 Chip Antenna

◆ Features

- Size : 10.2mm(L)X4.2mm(W)X2.4mm(H)
- Light weight and low profile
- Linear Polarization
- Lead (Pb) Free

◆Applications

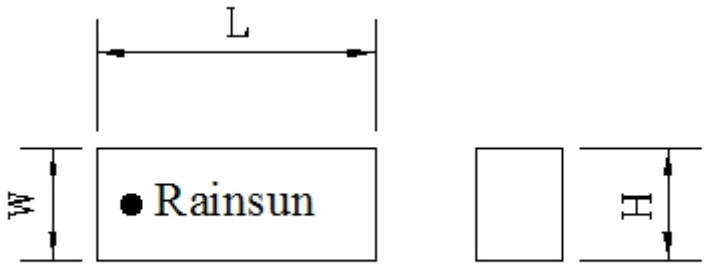
- 2.4 GHz & 5~6GHz Wireless communication
- 802.11a/b/g/n WLAN device, WLAN Router
- Netbook

Specifications

Frequency range	2.45G & 5~6GHz
Peak gain	3 dBi
Operation temperature	-40 ~ +85 ˚C
Storage temperature	-40 ~ +100 ˚C
VSWR	2 (Max)
Input Impedance	50 Ohm
Power handling	5W (Max)
Polarization	Linear
Soldering pad	Natural tin

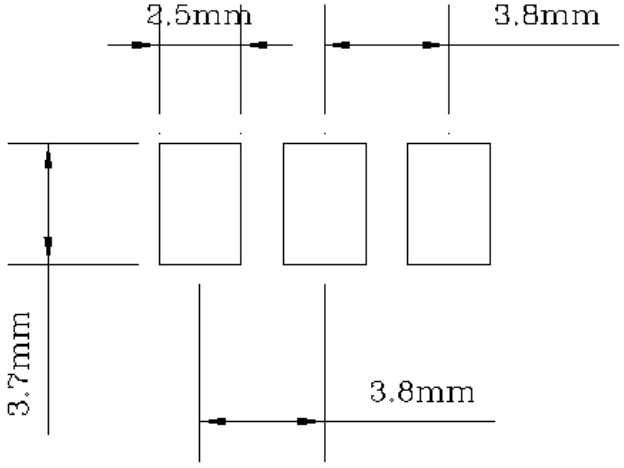
Dimension

Top view



L (Length)	10.2 ±0.2mm
W (Width)	4.2 ±0.2mm
H (Hight)	2.4 ±0.2mm

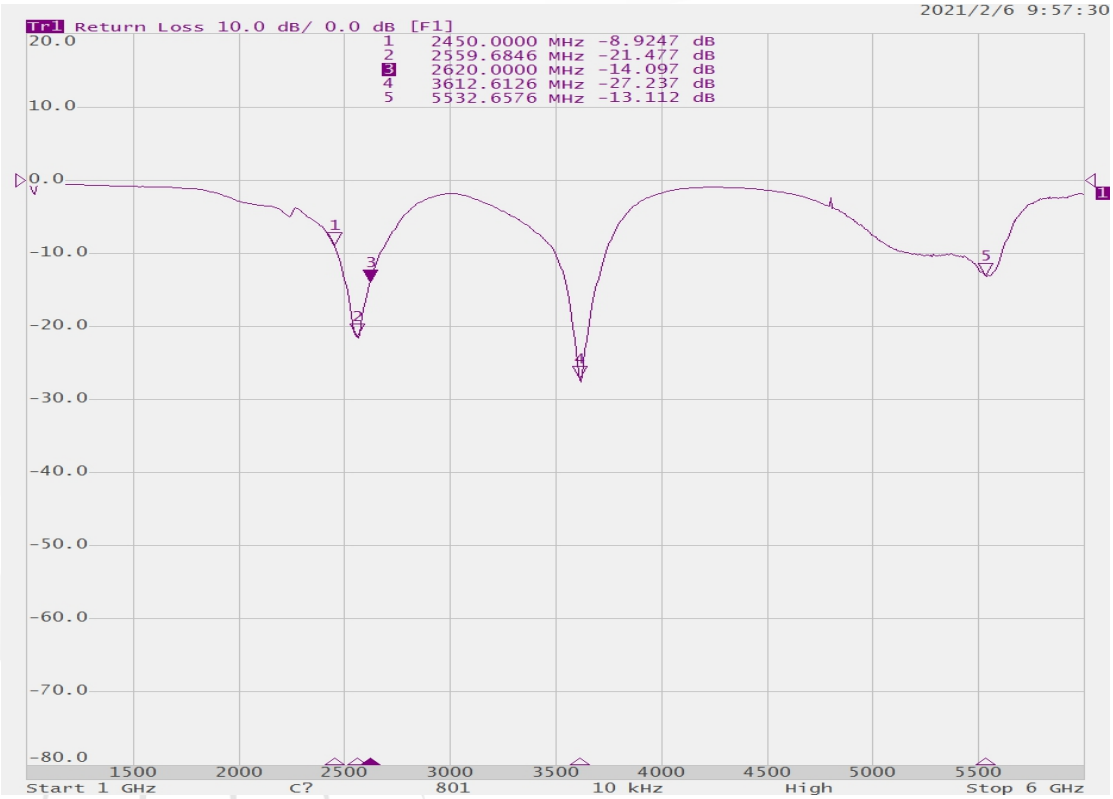
PCB Foot printer



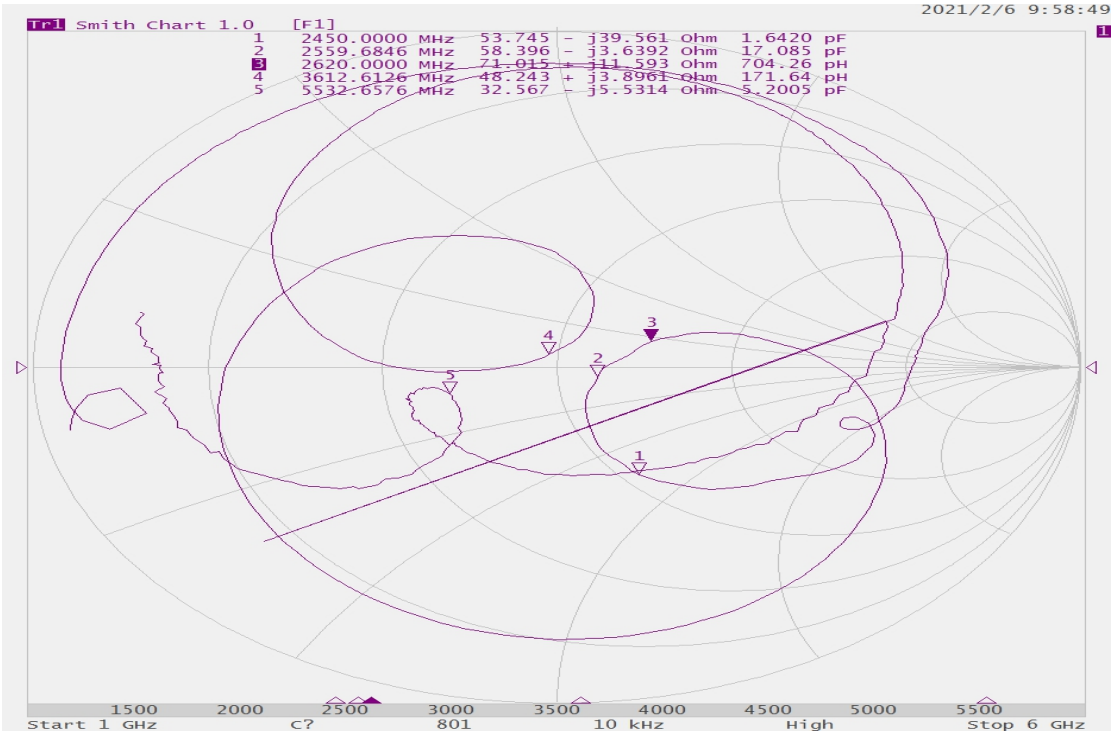
All dimension deviation: ± 0.2mm

Typical Electrical Characteristics

Return loss

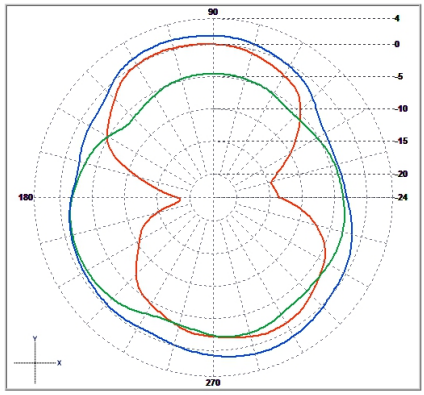


Smith Chart



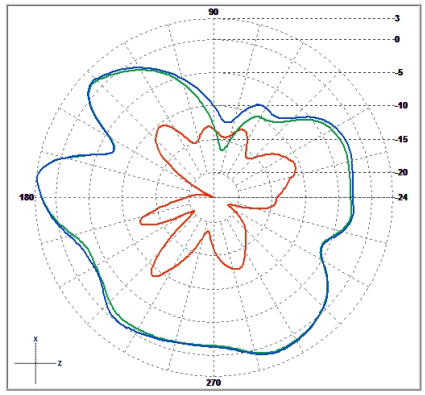
2.4GHz Radiation Pattern

X-Y



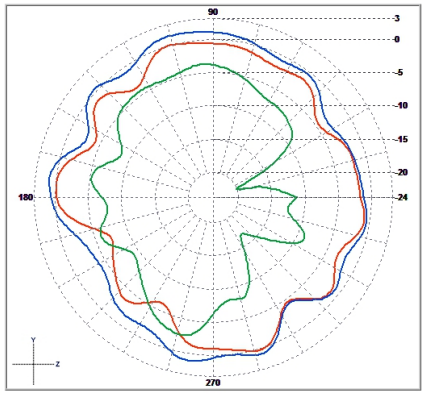
	Vertical	Horizontal	Total
Avg. Gain	-3.47	-3.37	-0.41
Peak Gain	0.28	-1.12	1.46

X-Z

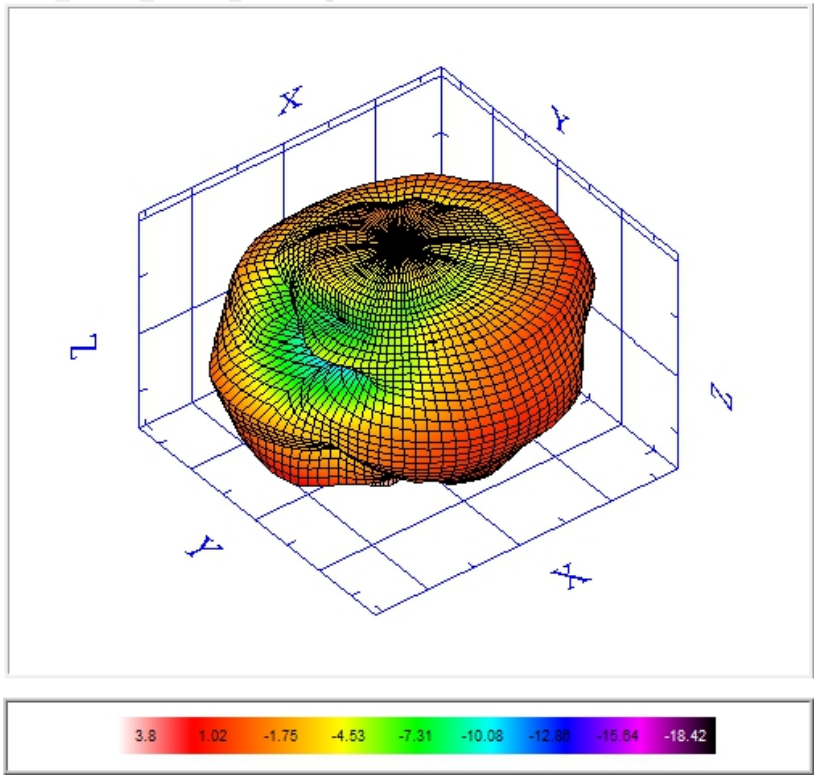


	Vertical	Horizontal	Total
Avg. Gain	-13.36	-1.66	-1.38
Peak Gain	-7.24	3.66	3.67

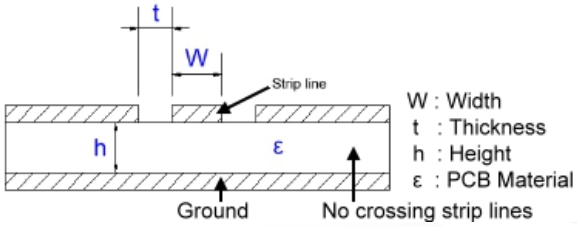
Y-Z



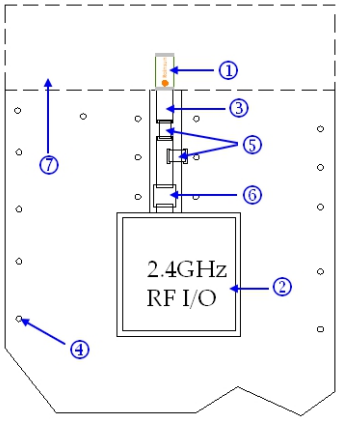
	Vertical	Horizontal	Total
Avg. Gain	-1.91	-6.57	-0.63
Peak Gain	0.65	-2.08	1.46



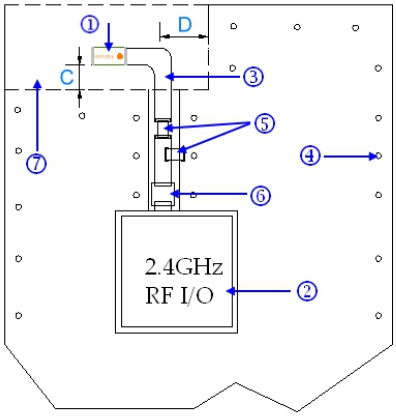
4. Application design guide



Best Choice



Acceptable

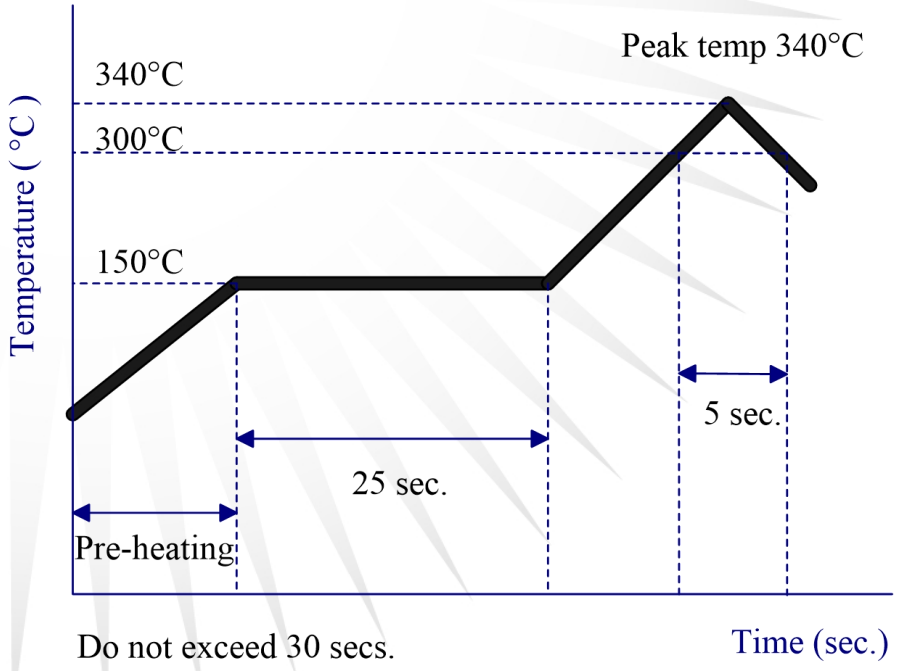


Ground plane area

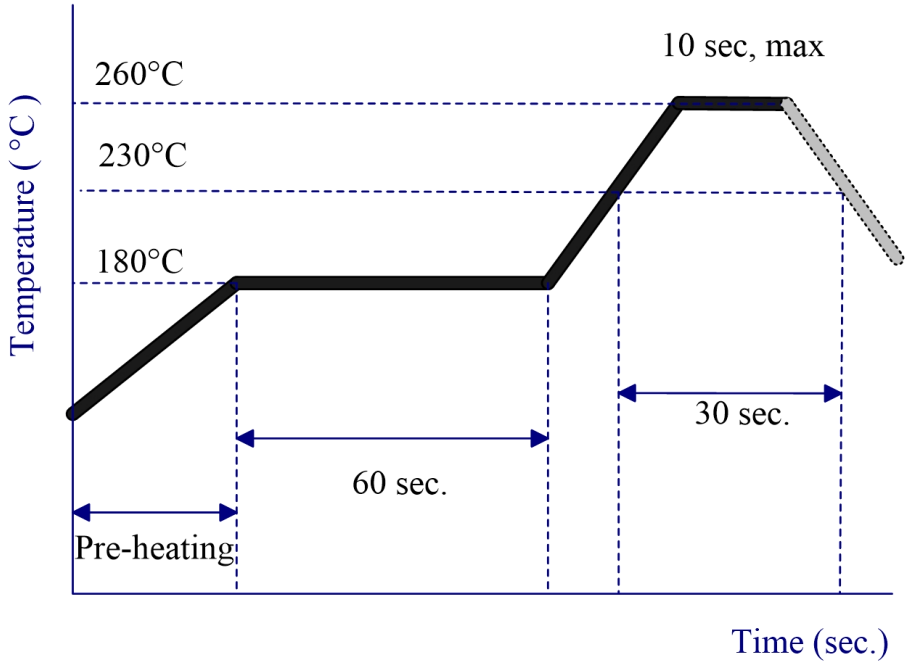
Clearance area

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.
2. **Placement of 2.4 GHz 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 2 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

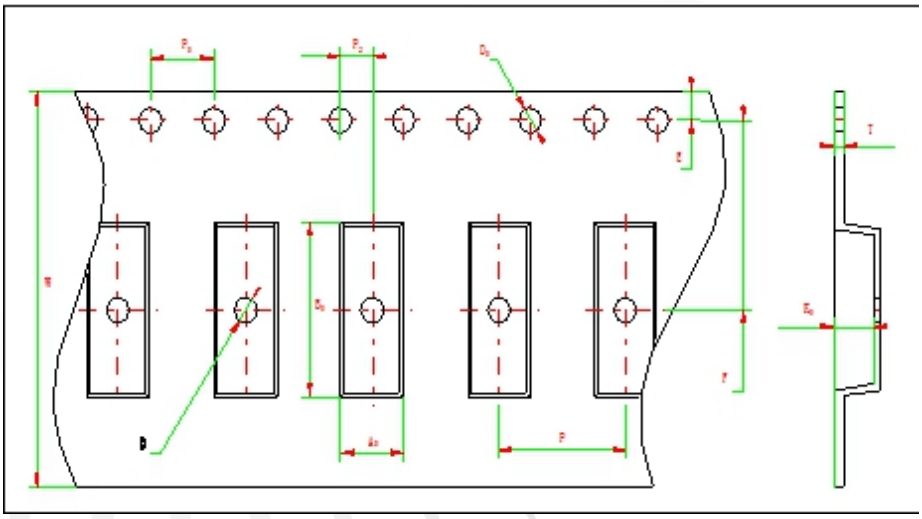


Reflow Soldering



Packing

Blister Tape Specifications



Symbo	Dimension (mm)
W	$24^{\pm 0.3}$
P	$8^{\pm 0.1}$
E	$1.75^{\pm 0.1}$
F	$11.5^{\pm 0.05}$
ΦD_0	$1.5^{+0.1}_{-0}$
ΦD_1	1.5MIN
P_0	$4^{\pm 0.1}$
$10P_0$	$40^{\pm 0.2}$
P_2	$2^{\pm 0.05}$
A_0	$4.3^{\pm 0.1}$
B_0	$10.6^{\pm 0.1}$
K_0	$3.5^{\pm 0.1}$
t	$0.3^{\pm 0.05}$