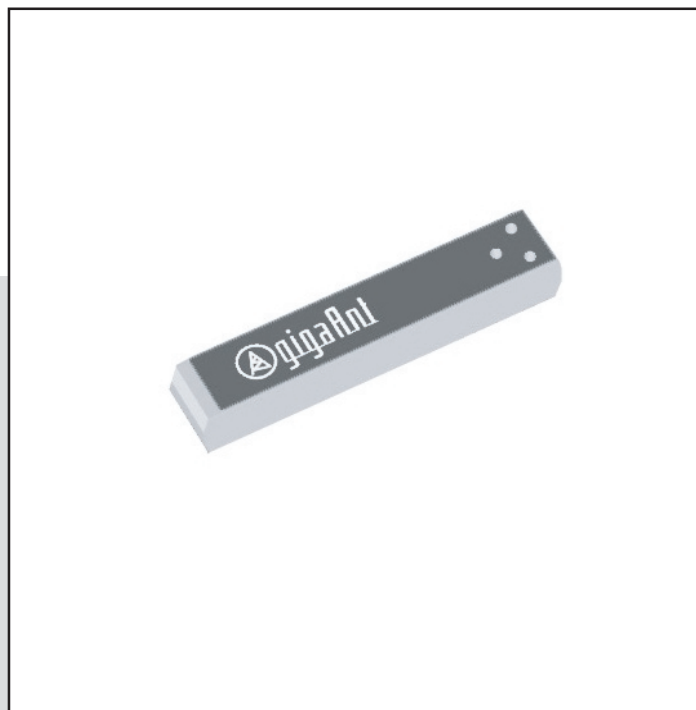


Application Note

2.4 GHz Mica SMD Antenna

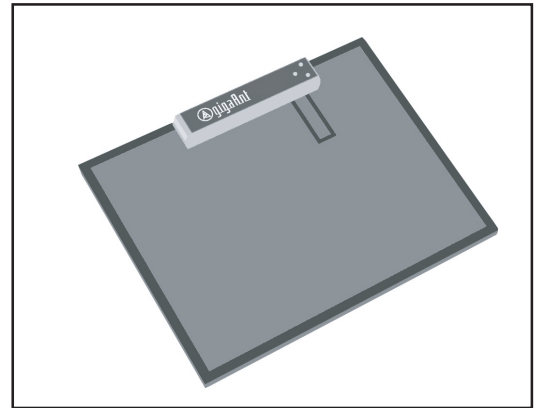


Features

- Designed for 2.4 GHz (Bluetooth™, WLAN 802.11b, Home RF)
- Intended for SMD mounting
- Supplied in tape on reel

Applications

- Mobile phones
- PDAs
- Headsets
- Laptops
- PC Cards
- CF Cards



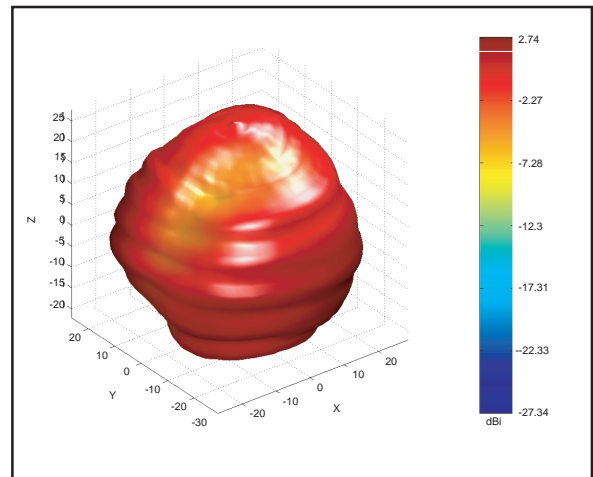
Description

The Mica antenna is intended for use with all 2.4 GHz applications. The antenna requires a groundplane, i.e. your device acts as an active part of the antenna and thus demand careful consideration concerning its placement.

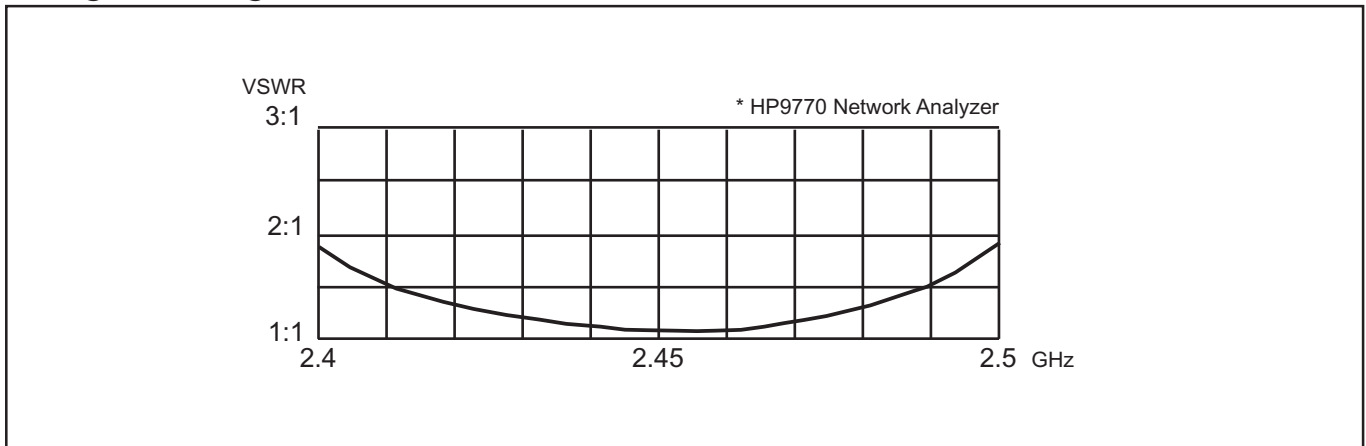
General data

Product name	Mica 2.4 GHz
Article No	3030A5645-01
Frequency	2.4 - 2.5 GHz
Polarization	Linear
Operating temperature	- 40 to 85 °C
Impedance	50Ω
Weight	0.4 g
Antenna type	SMD
Peak Gain*	2.7 dBi
Efficiency*	70 %
VSWR*	>2:1
* Mica reference board	

Radiation Pattern 2.45 GHz

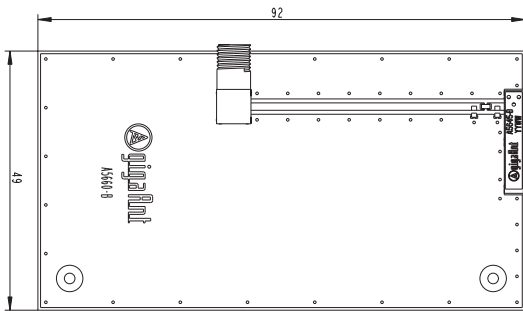


Voltage Standing Wave Ratio



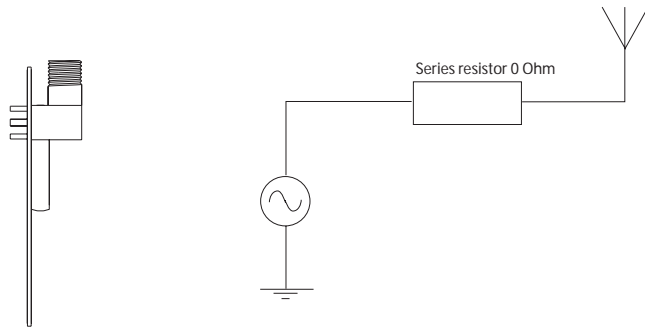
Mica 2.4 GHz test board characteristics & RF performance

Test board dimensions (mm)



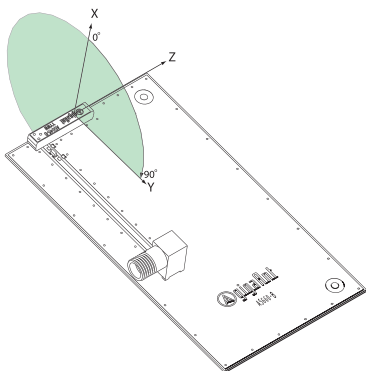
The testboard is designed for evaluation purposes for Mica 2.4 GHz SMD antenna. The card has the same size as a typical PCMCIA card and is fitted with a SMA connector.

Test board matching

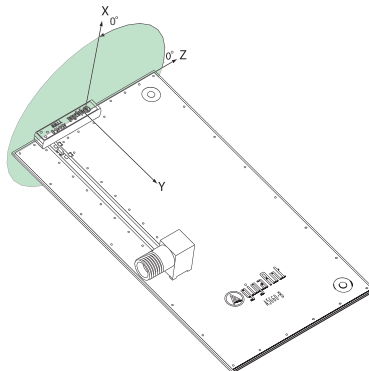


The antenna on the test board does not require any matching. A zero Ohm resistor is used as a series component. Note! Component matching will be necessary for other applications. Component values will vary depending on size of PCB board, surrounding components etc.

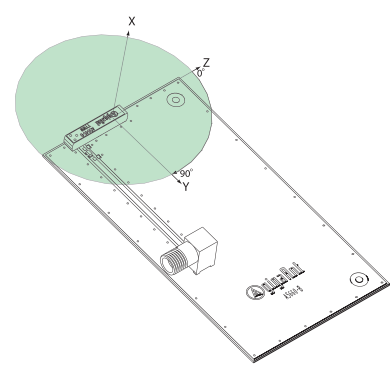
Radiation patterns



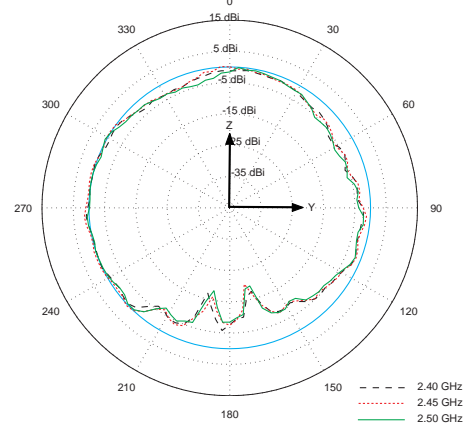
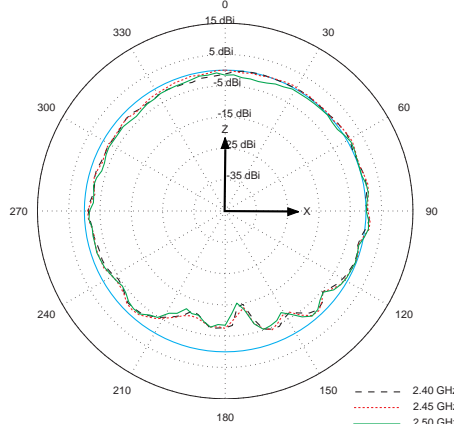
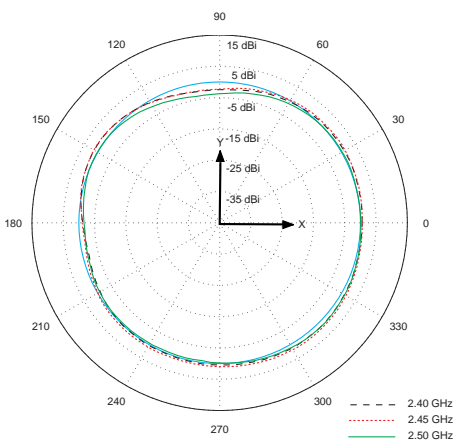
XY- Plane



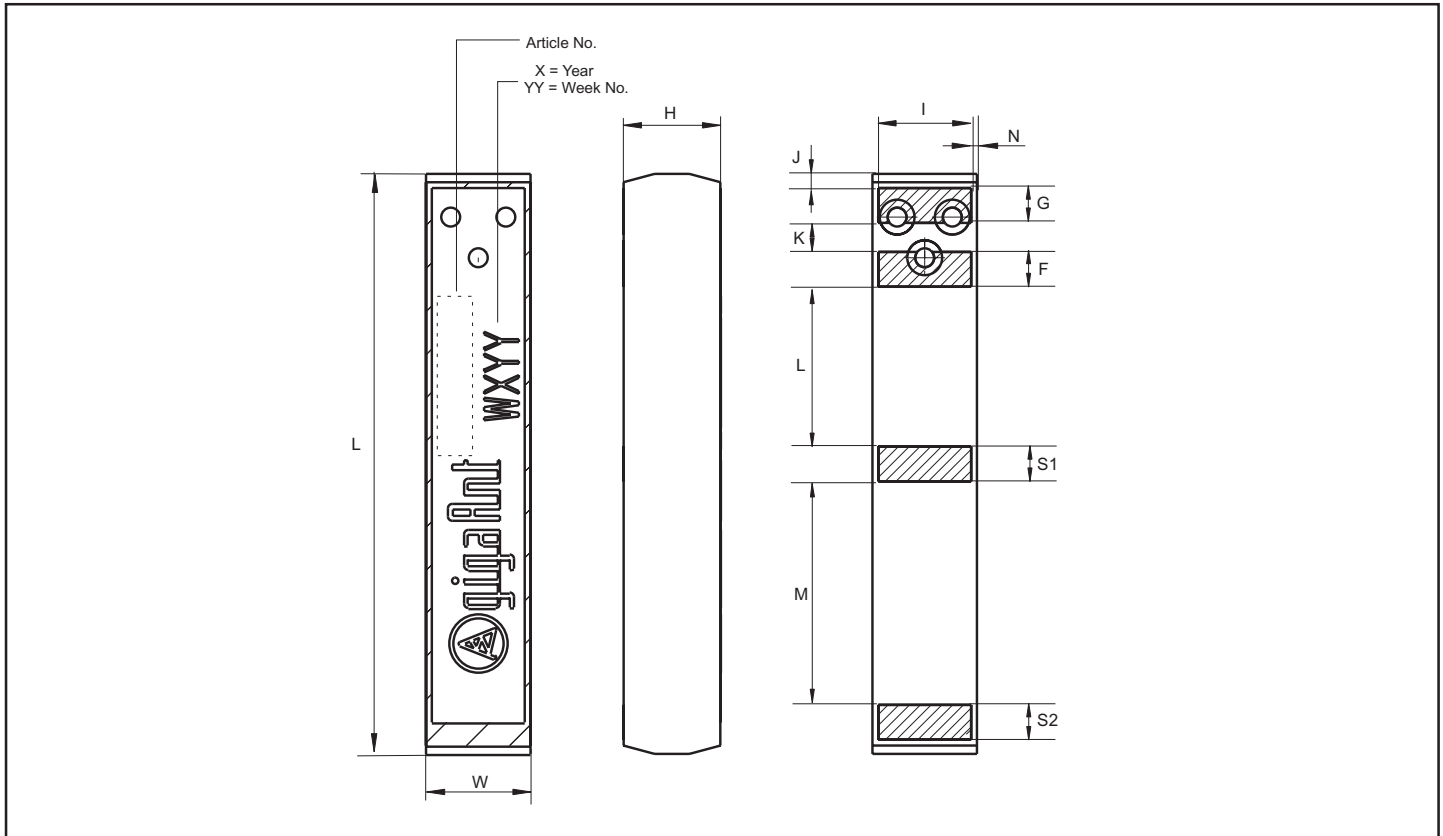
XZ- Plane



YZ- Plane



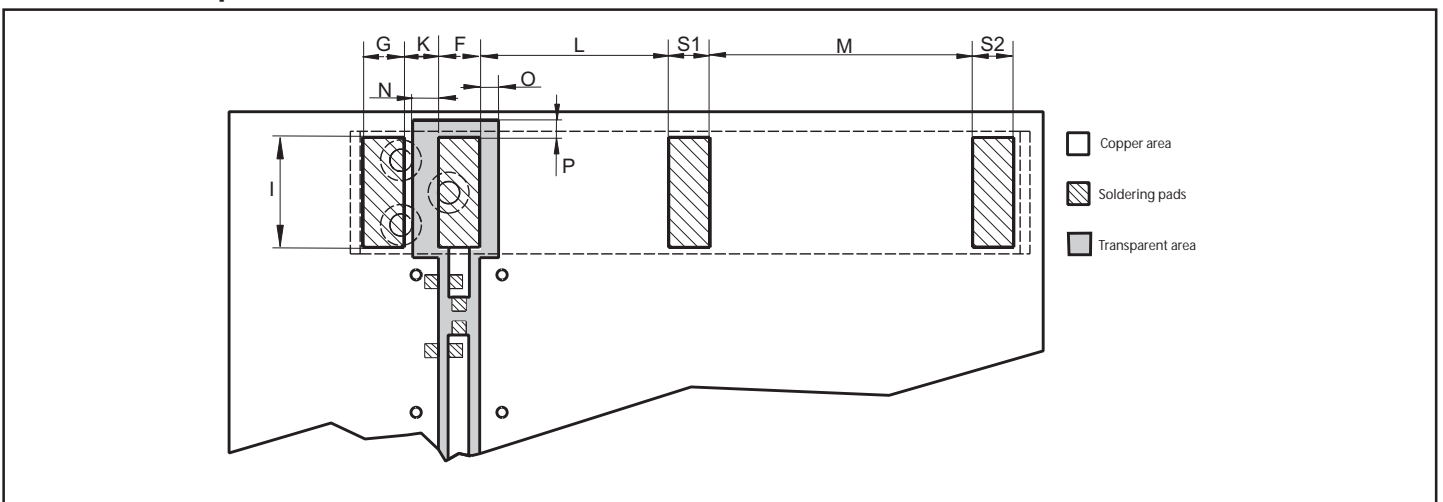
Antenna Dimensions



L	W	H	G	F	S1	S2	I	J	K	L	M	N
Length	Width	Height	Ground	Feed	Solder							
20.5 ±0.2	3.6 ±0.1	3.35 ±0.1	1.2 ±0.1	1.2 ±0.1	1.2 ±0.1	1.2 ±0.1	3.2 ±0.1	0.55 ±0.25	1.0 ±0.1	5.5 ±0.1	7.7 ±0.1	0.2 ±0.1

Dimensions in millimeters

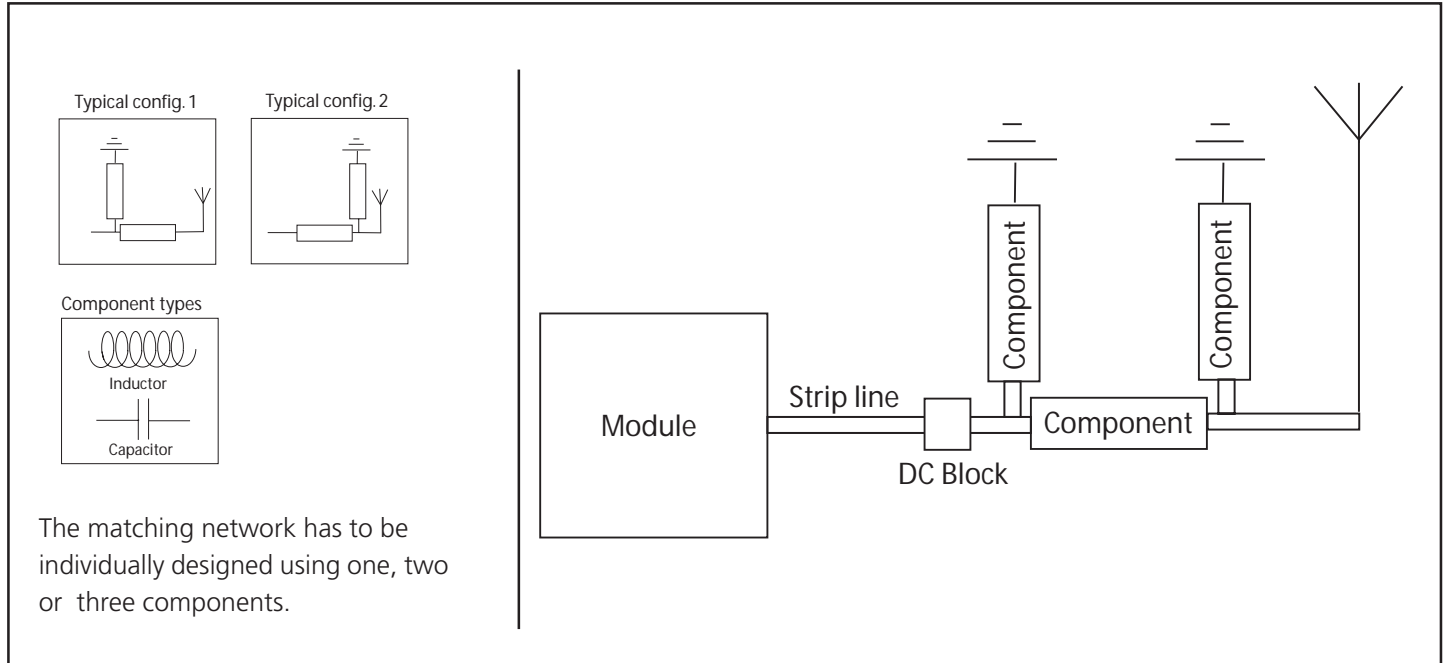
Antenna Foot print



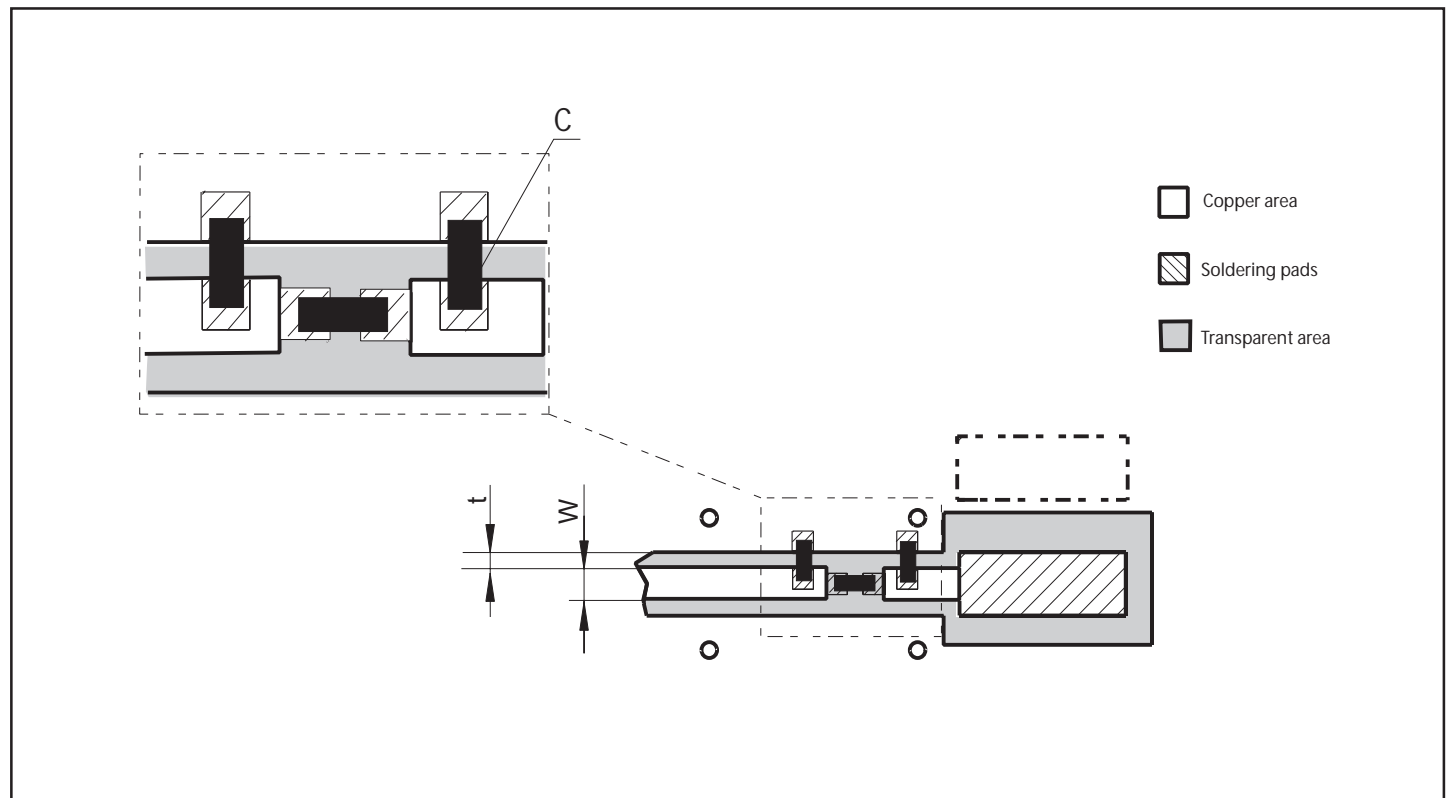
G	F	S1	S2	I	K	L	M	N	O	P
Ground	Feed	Solder	Solder							
1.2 ±0.1	1.2 ±0.1	1.2 ±0.1	1.2 ±0.1	3.2 ±0.1	1.0 ±0.1	5.5 ±0.1	7.7 ±0.1	0.75 ±0.1	0.5 ±0.1	0.5 ±0.1

Dimensions in millimeters

Electrical interface

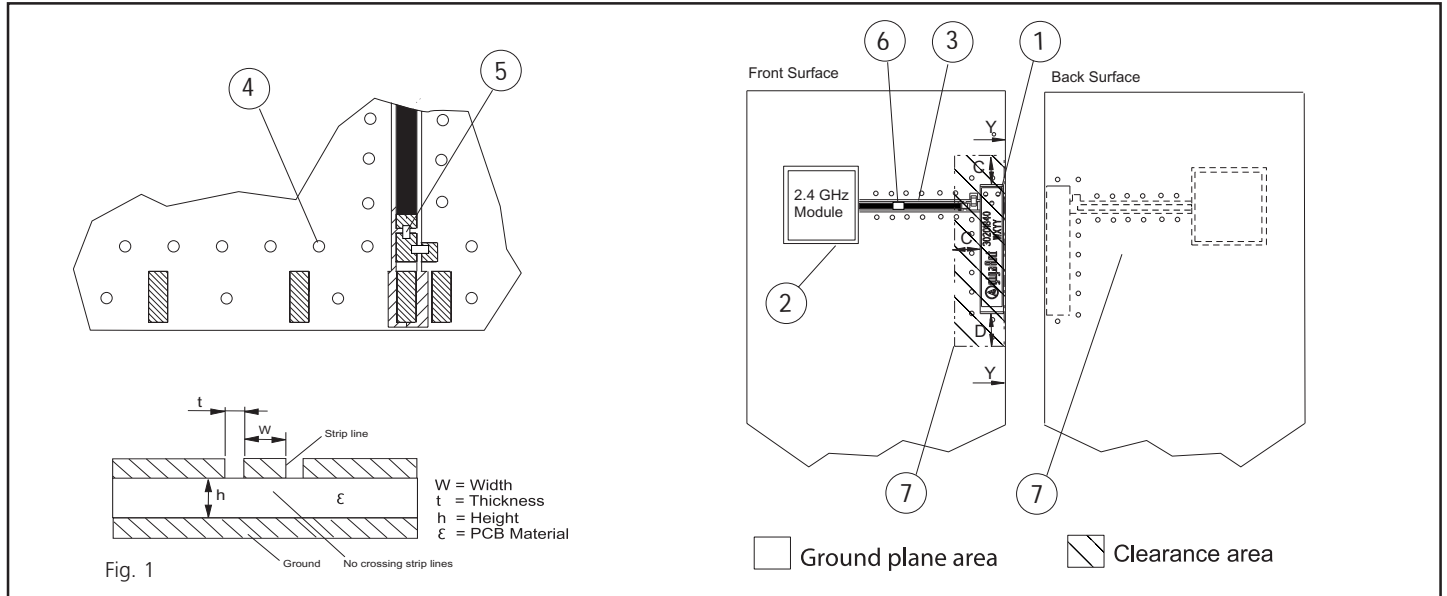


Proposed land dimensions



t	Transmission line: Unique dimensioning according to your PCB *
w	Transmission line: Unique dimensioning according to your PCB *
C	Component matching: Inductor and capacitor values according to your specific device*

Application example



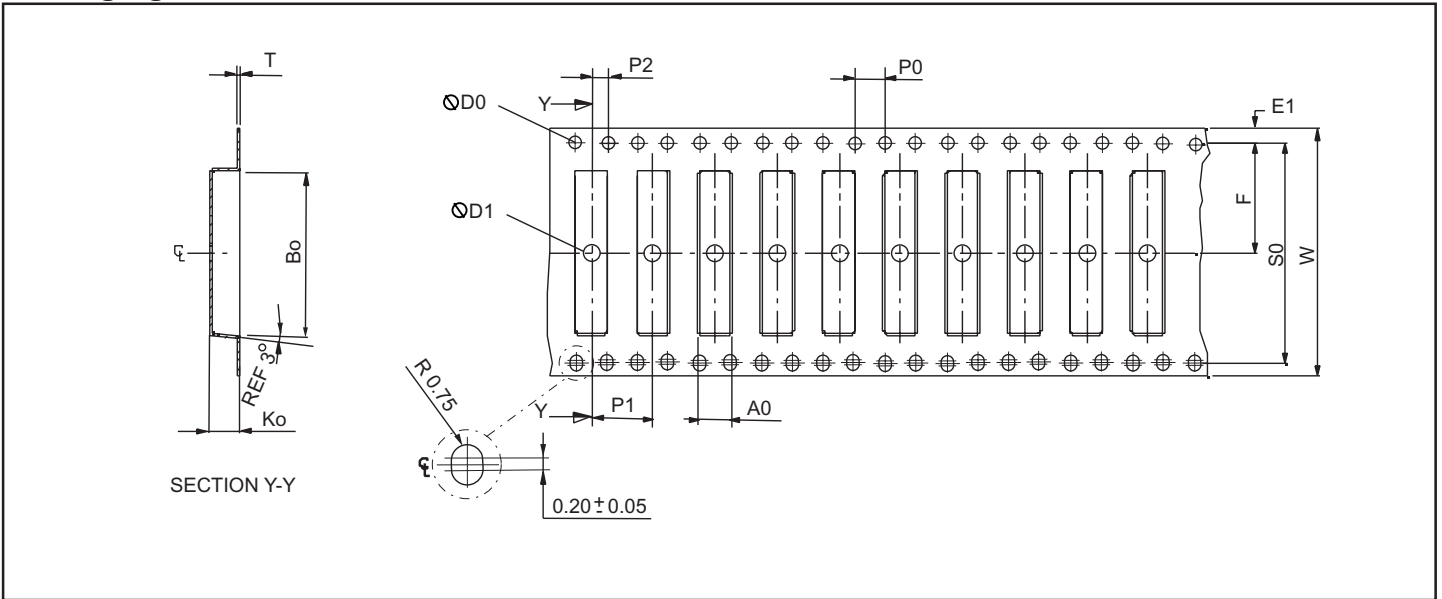
General

The antenna is of a quarter wave type and is dependent of the groundplane area to complete the antenna function. The antenna performance is also dependent of the size of the groundplane.

1. **Placement of the antenna**
The antenna shall be placed on a groundplane area, preferably at the edge of the PCB oriented as above. Ground plane shall be avoided in the Y- direction.
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 must be dimensioned according to your specific PCB. (see fig 1). No crossing strip lines are allowed between the strip line and its ground plane.
4. **Via connections**
To avoid spurious effects, via connections must be made to analogue ground.
5. **Component matching**
Component values are depending on antenna placement, PCB dimensions and location of other components.
6. **DC Block**
Might be needed depending on RF Module configuration.
7. **Clearance**
Front surface: Minimum clearence to other components, C = 2-5 mm, D = 4-7 mm.
Back surface: Components allowed.
8. **Casing material**
No metal casing or plastics using metal flakes shall be used, avoid also metallic based paint or laquer.

**Note ! Incorrect implementation of the antenna will affect the performance.
 Contact gigaAnt for implementation services.**

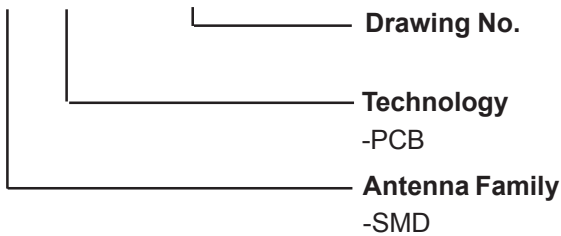
Packaging



W	S0	F	E1	PO	P1	P2	A0	B0	K0	T	D0	D1
32 ±0.3	28.4 ±0.1	14.2 ±0.1	1.75 ±0.1	4.0 ±0.1	8.0 ±0.1	2.0 ±0.1	4 ±0.1	21 ±0.1	3.7 ±0.1	0.3 ±0.05	1.5 +0.1	Min 2.0
Dimensions in millimeters												

Ordering Code

30 30 A5645 - 01



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