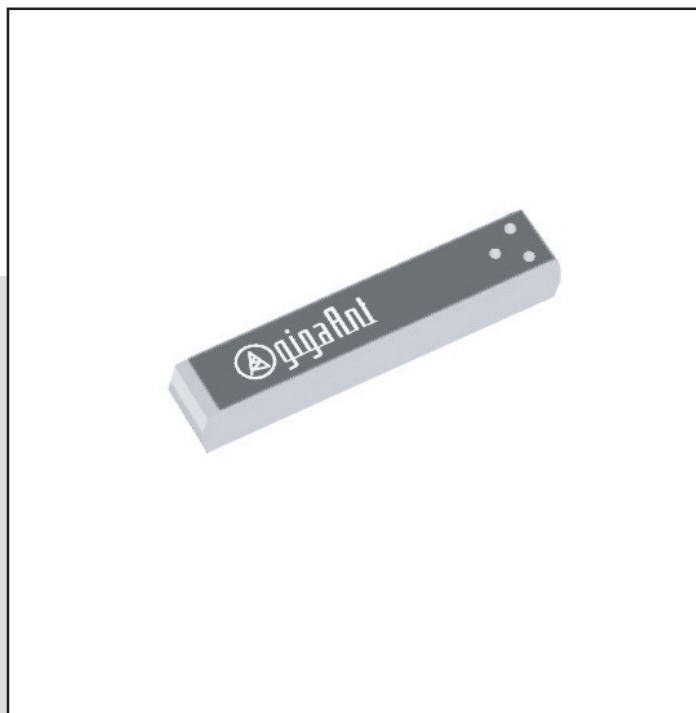


Application Note

2.4 GHz Mica SMD Antenna

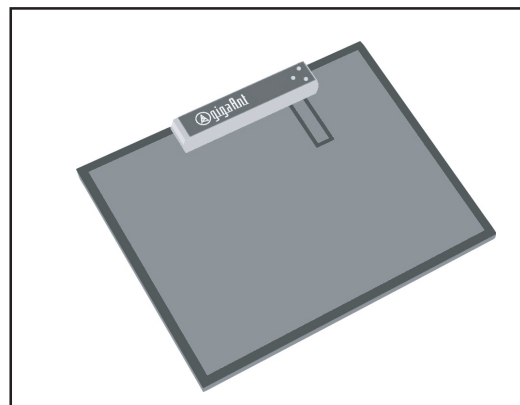


Features

- 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



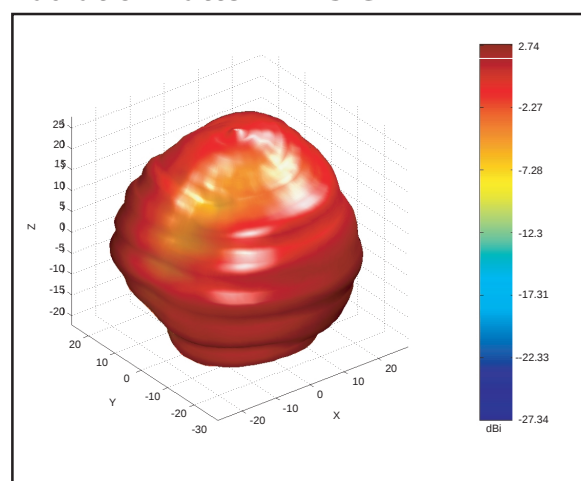
Description

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.

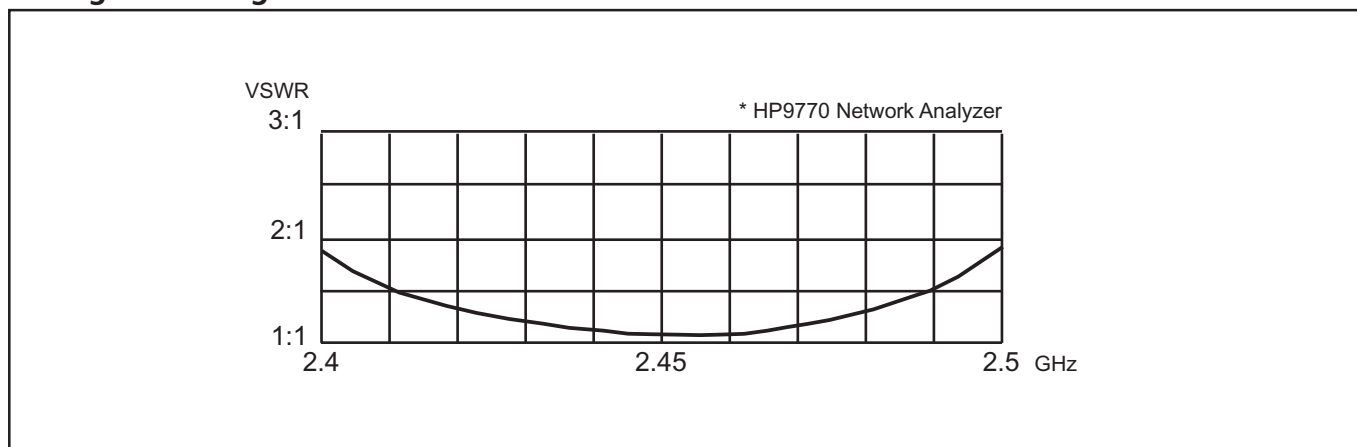
General data

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

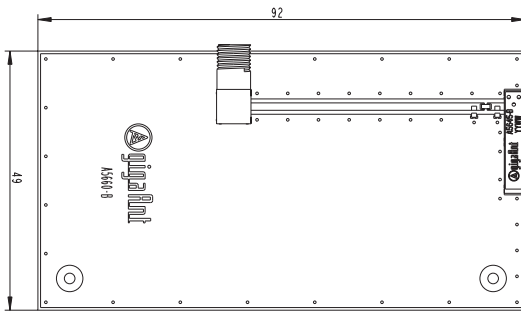


Voltage Standing Wave Ratio



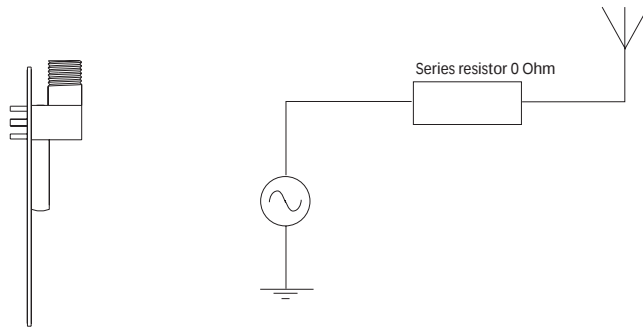
Mica 2.4 GHz test board characteristics & RF performance

Test board dimensions (mm)



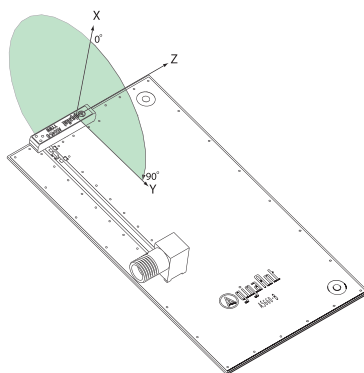
The testboard is designed for evaluation purposes for Mica 2.4 GHz SMD antenna. The card has the same size as a typical PCMCIA card and is fitted with a SMA connector.

Test board matching

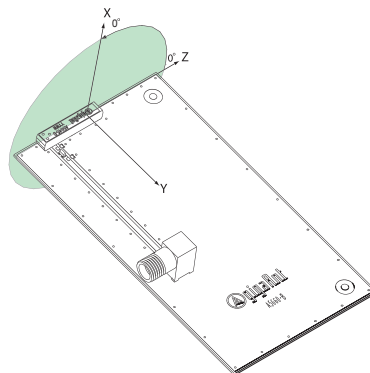


The antenna on the test board does not require any matching. A zero Ohm resistor is used as a series component. Note! Component matching will be necessary for other applications. Component values will vary depending on size of PCB board, surrounding components etc.

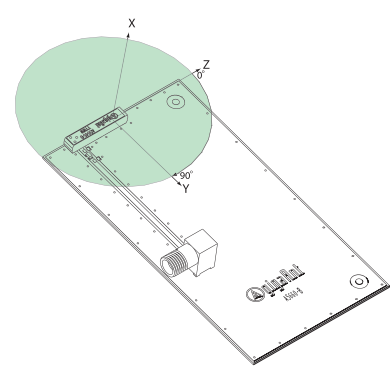
Radiation patterns



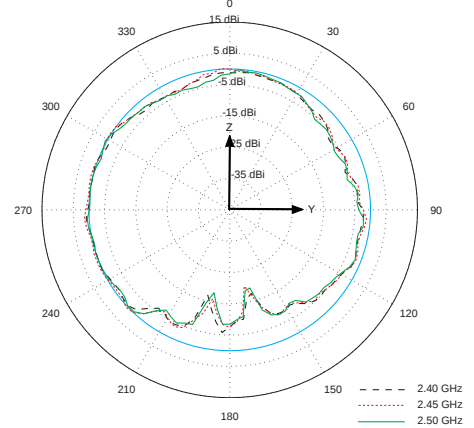
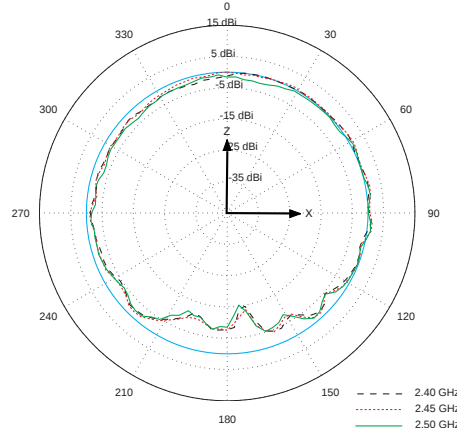
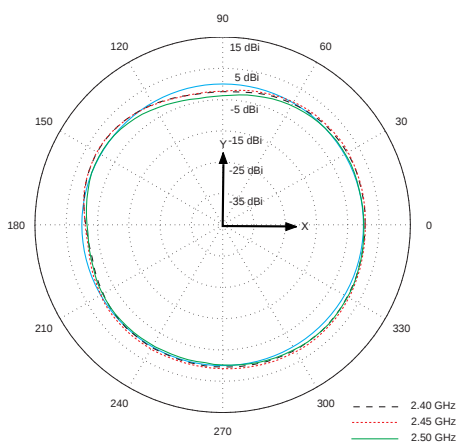
XY- Plane



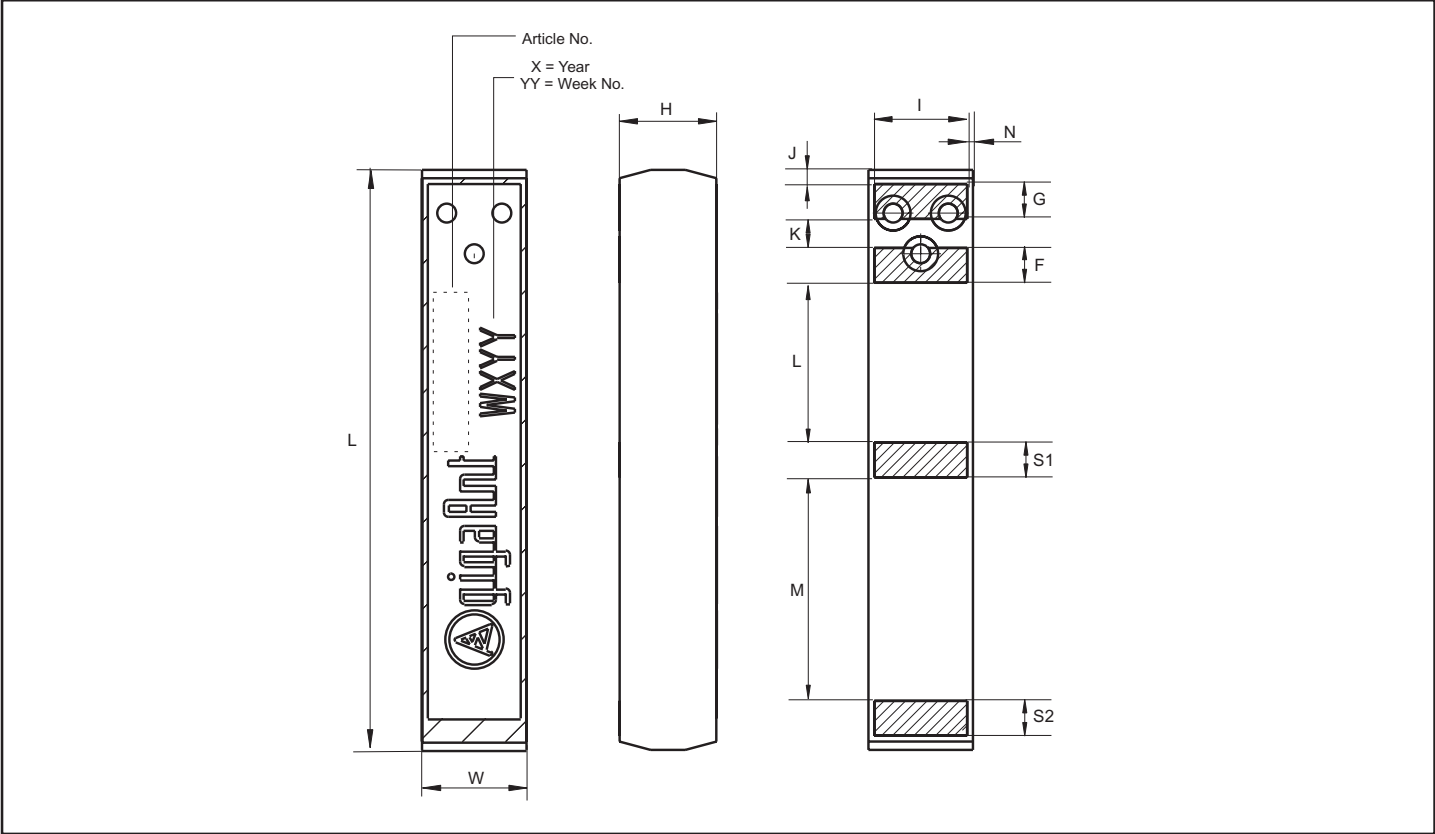
XZ- Plane



YZ- Plane

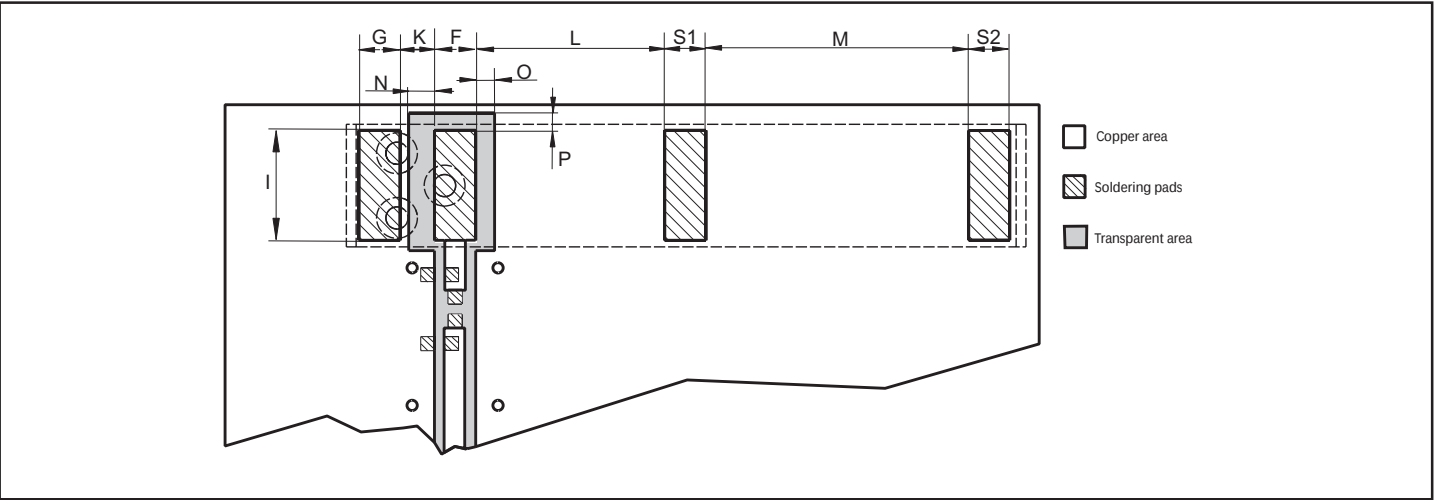


Antenna Dimensions



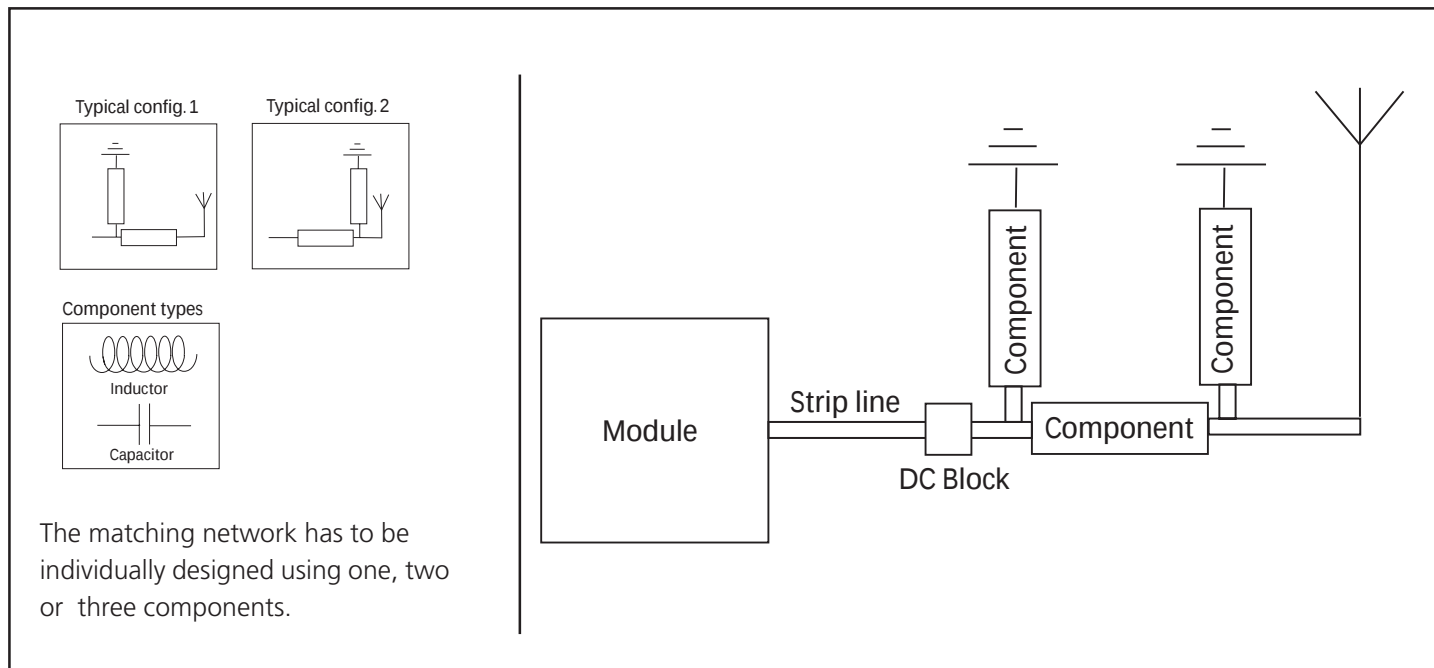
L	W	H	G	F	S1	S2	I	J	K	L	M	N
Length	Width	Height	Ground	Feed	Solder							
20.5 ±0.2	3.6 ±0.1	3.35 ±0.1	1.2 ±0.1	1.2 ±0.1	1.2 ±0.1		3.2 ±0.1	0.55 ±0.25	1.0 ±0.1	5.5 ±0.1	7.7 ±0.1	0.2 ±0.1
Dimensions in millimeters												

Antenna Foot print

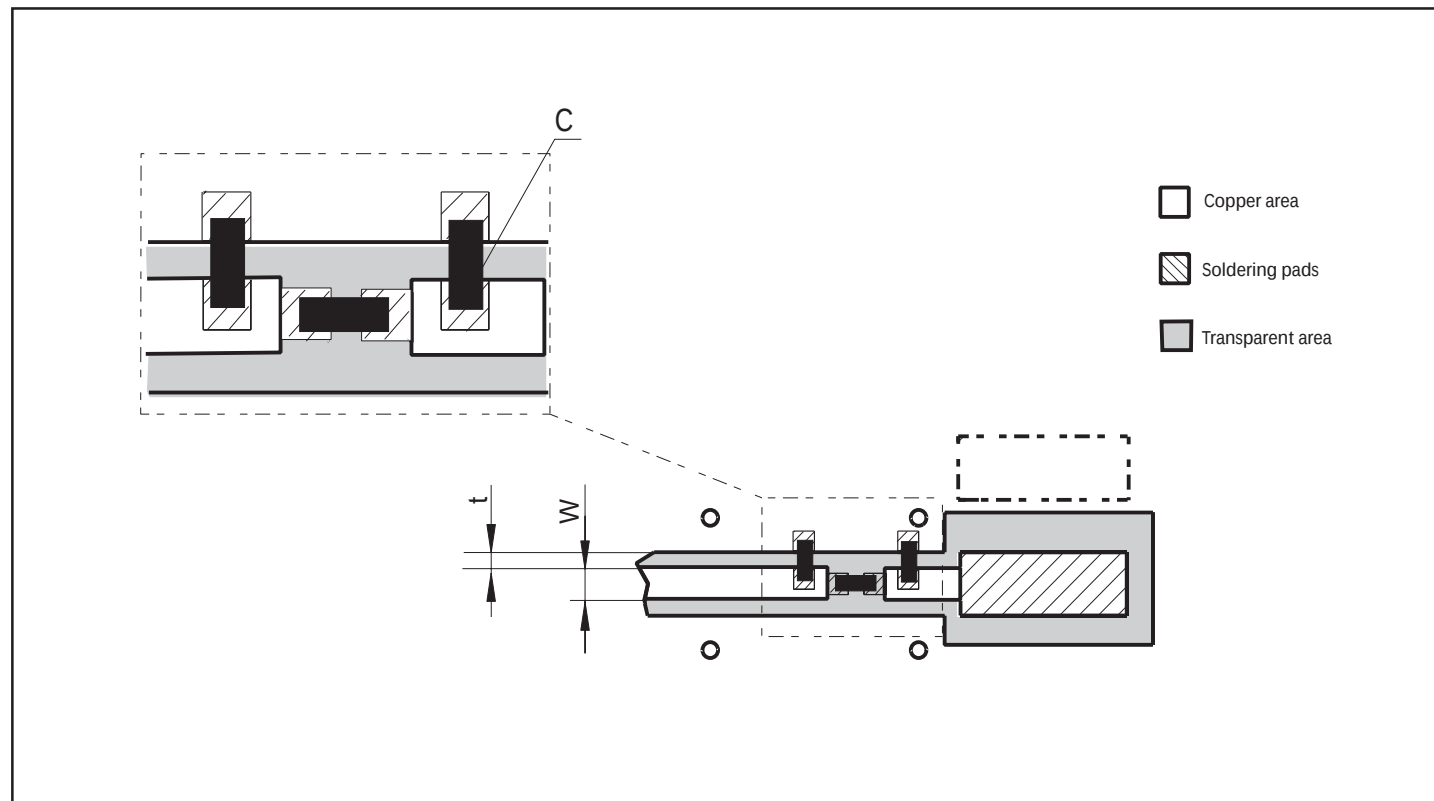


G	F	S1	S2	I	K	L	M	N	O	P
Ground	Feed	Solder	Solder							
1.2 ±0.1	1.2 ±0.1	1.2 ±0.1	1.2 ±0.1	3.2 ±0.1	1.0 ±0.1	5.5 ±0.1	7.7 ±0.1	0.75±0.1	0.5 ±0.1	0.5±0.1
Dimensions in millimeters										

Electrical interface

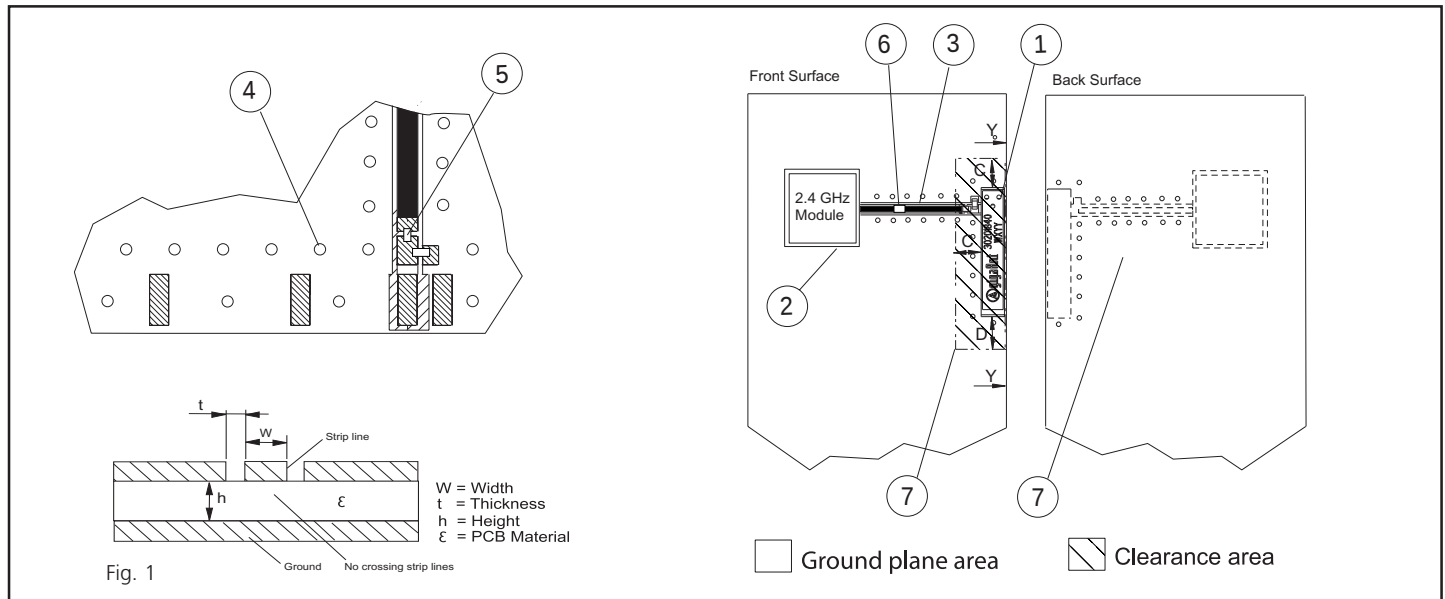


Proposed land dimensions



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

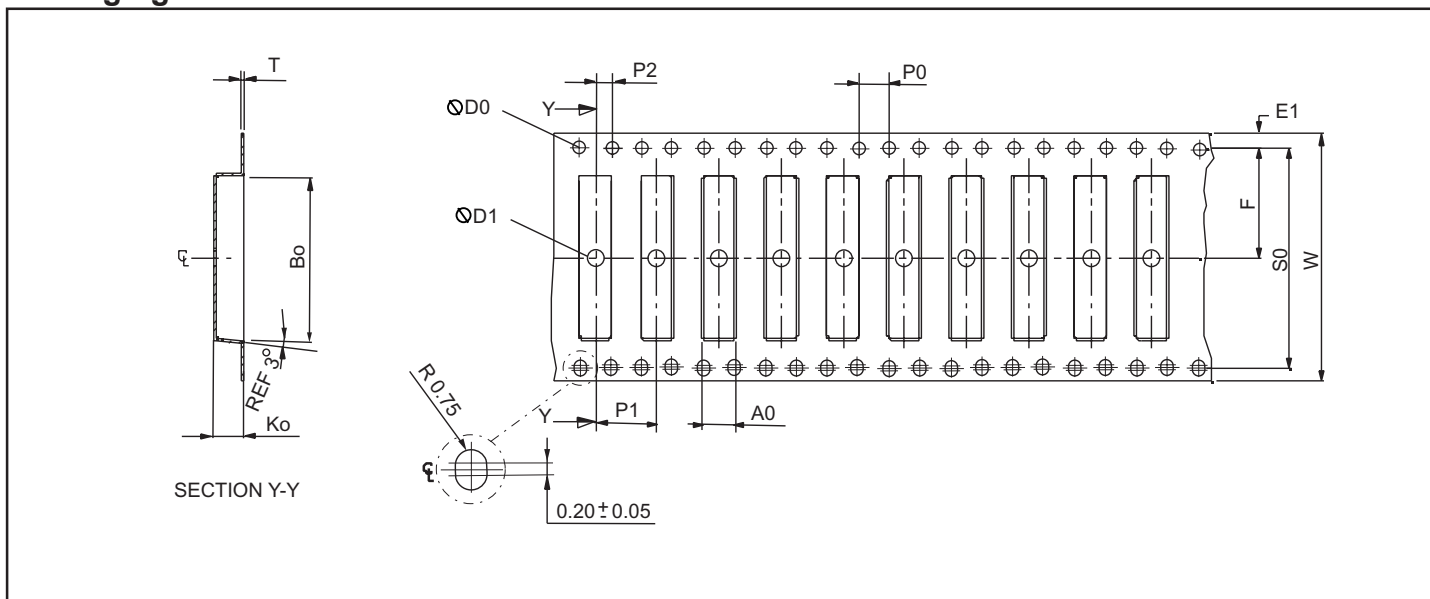
Front surface: Minimum clearance to other components, C = 2-5 mm, D = 4-7 mm.
Back surface: Components allowed.

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	P0	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	
			Drawing No.
			Technology
			-PCB
			Antenna Family
			-SMD

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