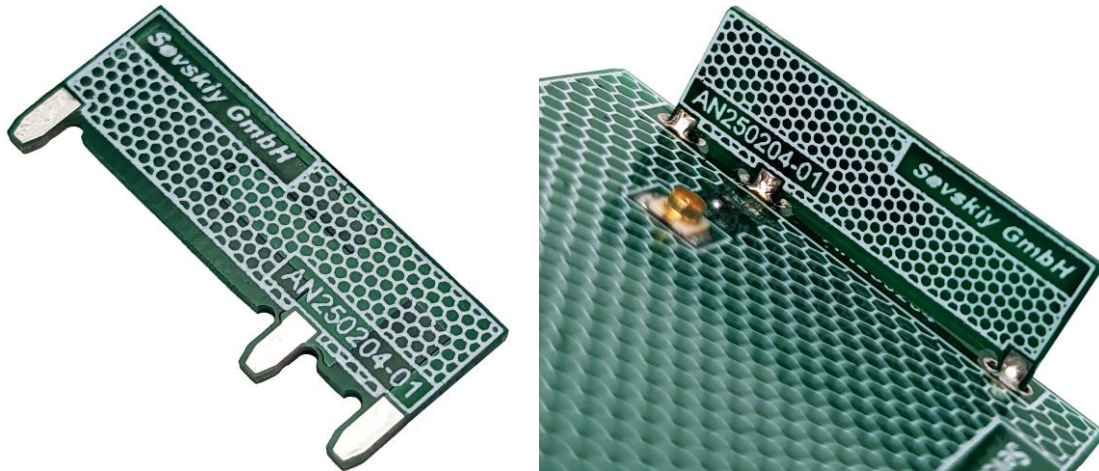


2.4 GHz / 2.5 GHz / 5.15 GHz / 5.85 GHz PCB Antenna (ISM, IoT, Bluetooth, WLAN, Wi-Fi)



General information

This small antenna is intended to be soldered to the main PCB of a mobile device, a router or a gateway. On request, the antenna geometry can be optimized for customer's housing design and material properties.

Typical applications

ISM, IoT, RFID, Bluetooth, WLAN, Wi-Fi

Electrical data

Antenna type	Embedded / internal antenna soldered on the main PCB	
Frequency band	ISM2400, Wi-Fi 2.45/5.5 GHz	
Frequency range [MHz]	2400...2500	5150...5850
Return loss [dB] ¹⁾	-15	-8
Peak gain [dBi]	2.4	3.3
Radiation efficiency [%]	78	67
Nominal input impedance [Ohm]	50	
Polarization	linear	
Radiation pattern	omnidirectional	
Maximum input power [W]	5	

Mechanical data

Antenna PCB dimensions [mm]	25 x 10.5 x 0.8
PCB material	FR4
Weight [g]	0.35

Environmental data

Operating temperature [°C]	-40...+85
Storage temperature [°C]	-40...+85
Ambient relative humidity [%]	0...95
RoHS / REACH compliant	yes / yes

Additional information

All electrical data have been obtained in free space on the reference board (not included) with the following dimensions: 50mm x 35mm x 0.8mm. Please note that the performance in the lower frequency bands is dependent on the ground plane length and may degrade in case of reducing the board size.

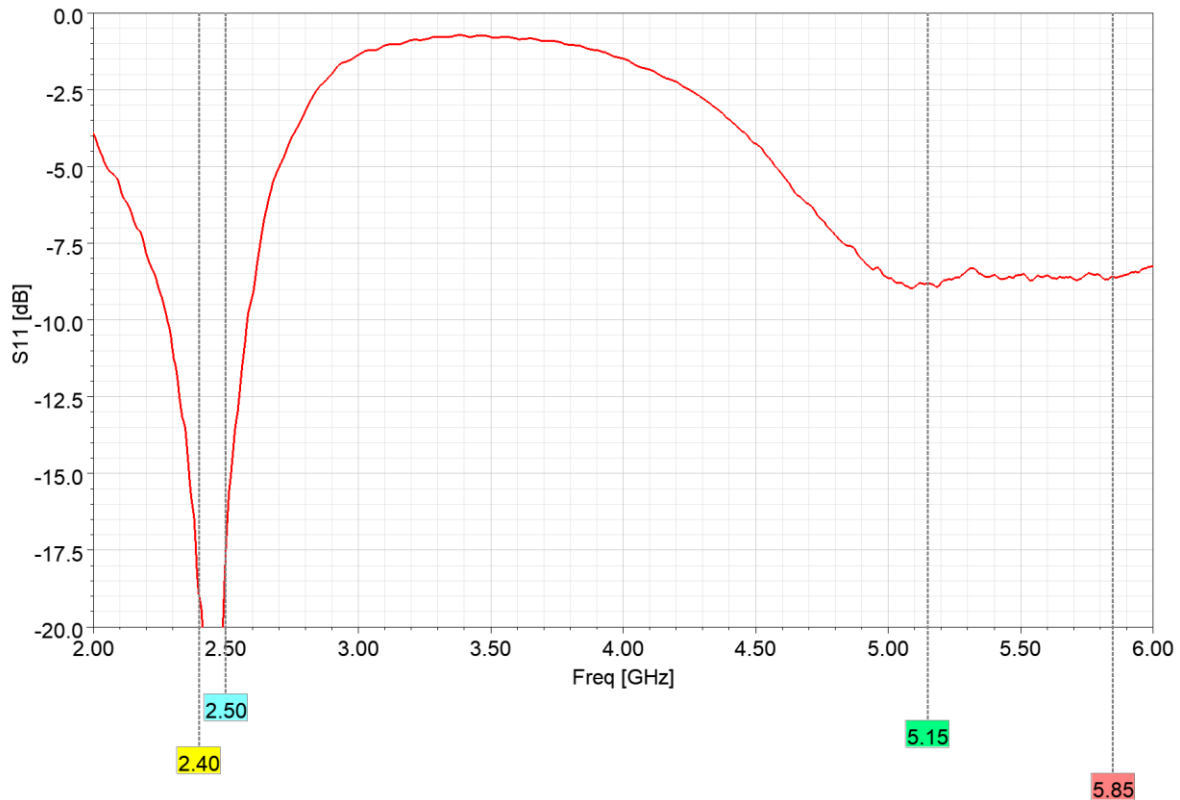
Other mechanical designs, materials or frequency bands are possible on request.

Further customization, electromagnetic simulations and measurements can be offered on request.

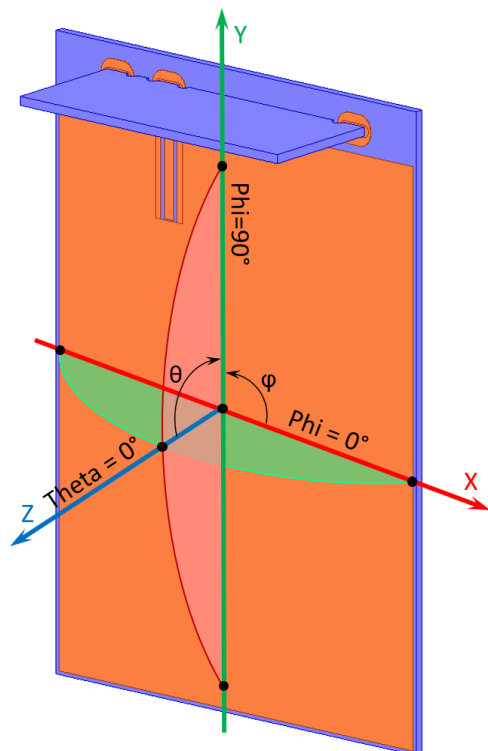
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2.4 GHz / 2.5 GHz / 5.15 GHz / 5.85 GHz PCB Antenna (ISM, IoT, Bluetooth, WLAN, Wi-Fi)

Measured input impedance matching



Coordinate system

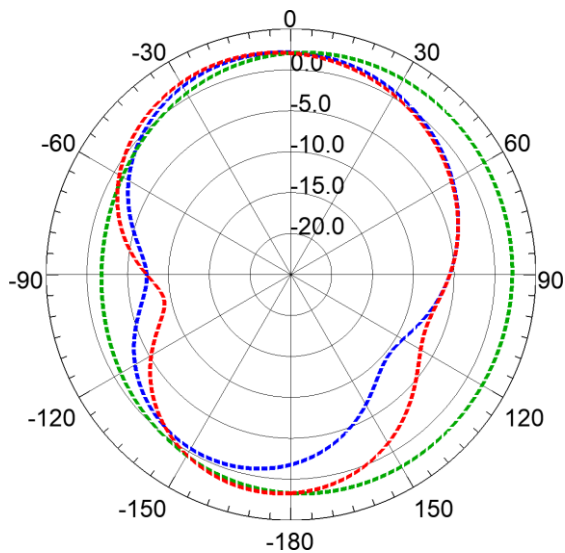


Phi=0°, plane XZ, green curve
Phi=90°, plane YZ, red curve
Theta=90°, plane XY, blue curve

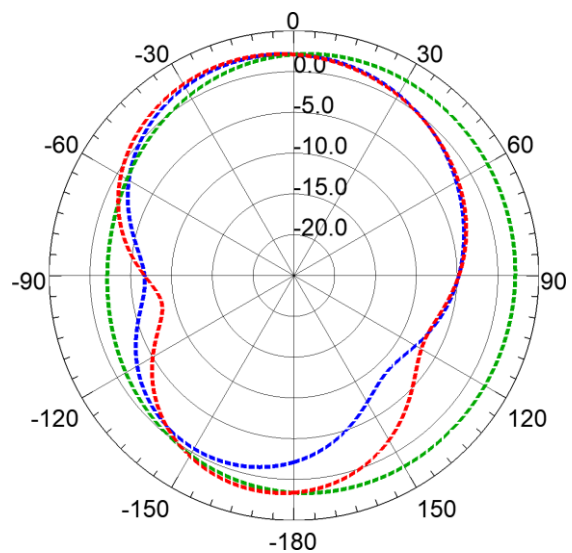
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2.4 GHz / 2.5 GHz / 5.15 GHz / 5.85 GHz PCB Antenna (ISM, IoT, Bluetooth, WLAN, Wi-Fi)

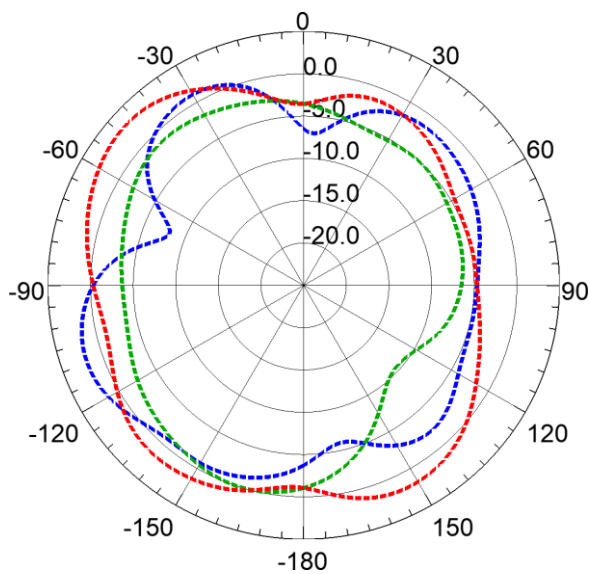
Radiation pattern (total realized gain, dBi)



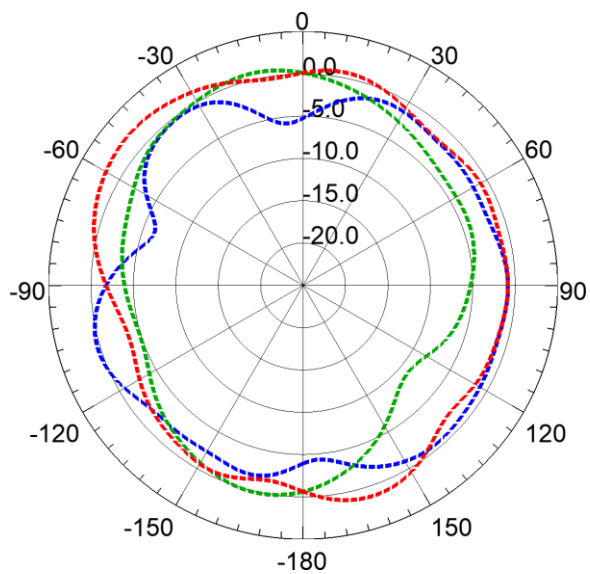
2400 MHz



2485 MHz



5150 MHz

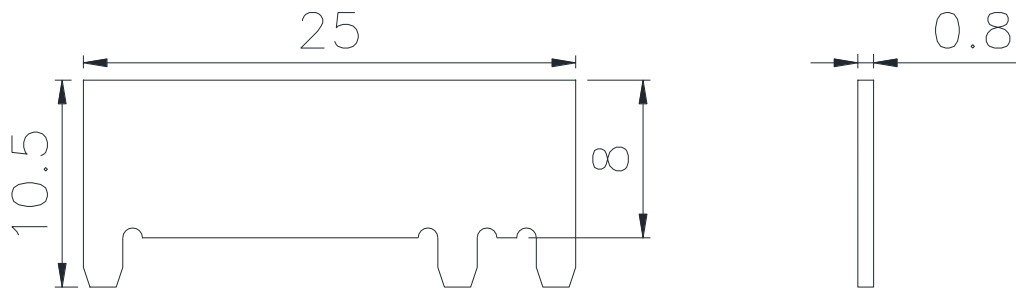


5850 MHz

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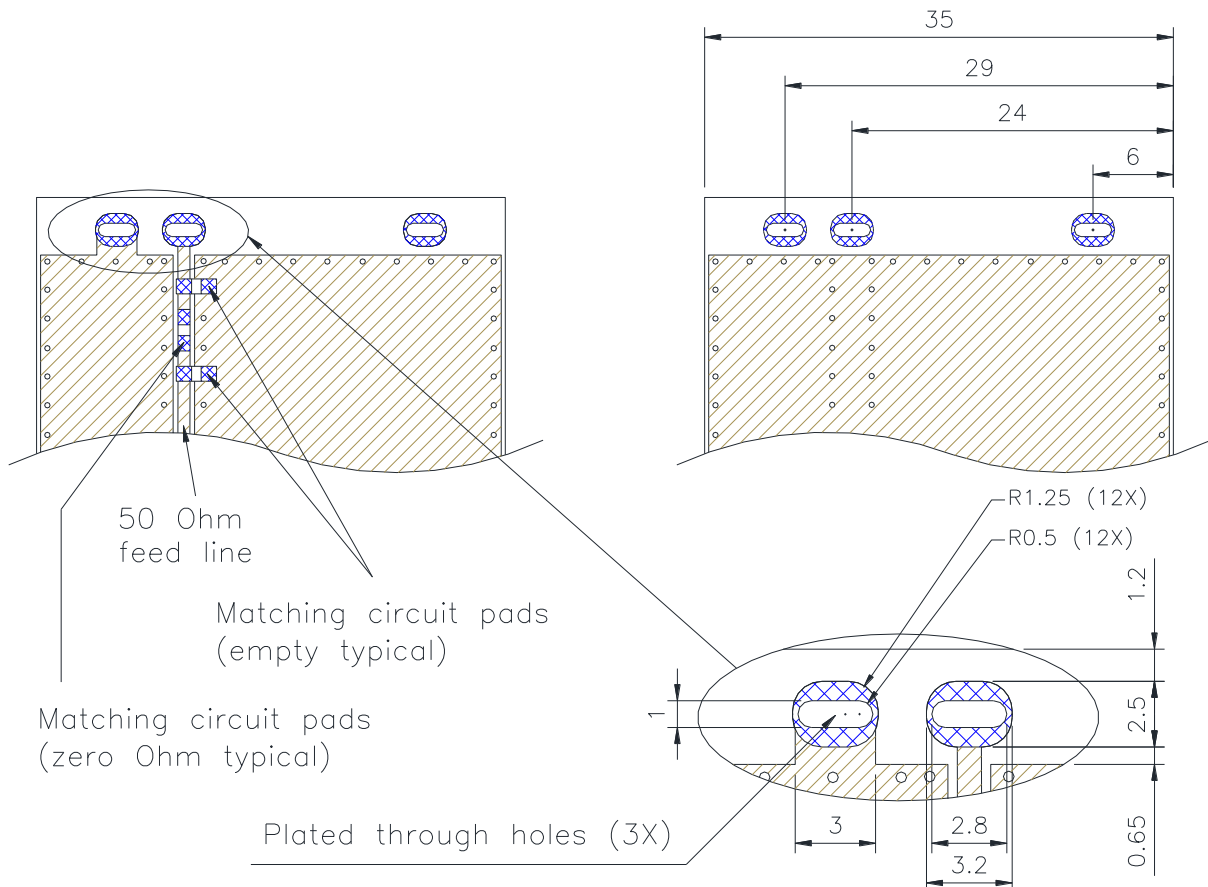
2.4 GHz / 2.5 GHz / 5.15 GHz / 5.85 GHz PCB Antenna (ISM, IoT, Bluetooth, WLAN, Wi-Fi)

Product dimensions and recommended layout



Top layer

Bottom layer



50 Ohm
feed line

Matching circuit pads
(empty typical)

Matching circuit pads
(zero Ohm typical)

Plated through holes (3X)

 Copper

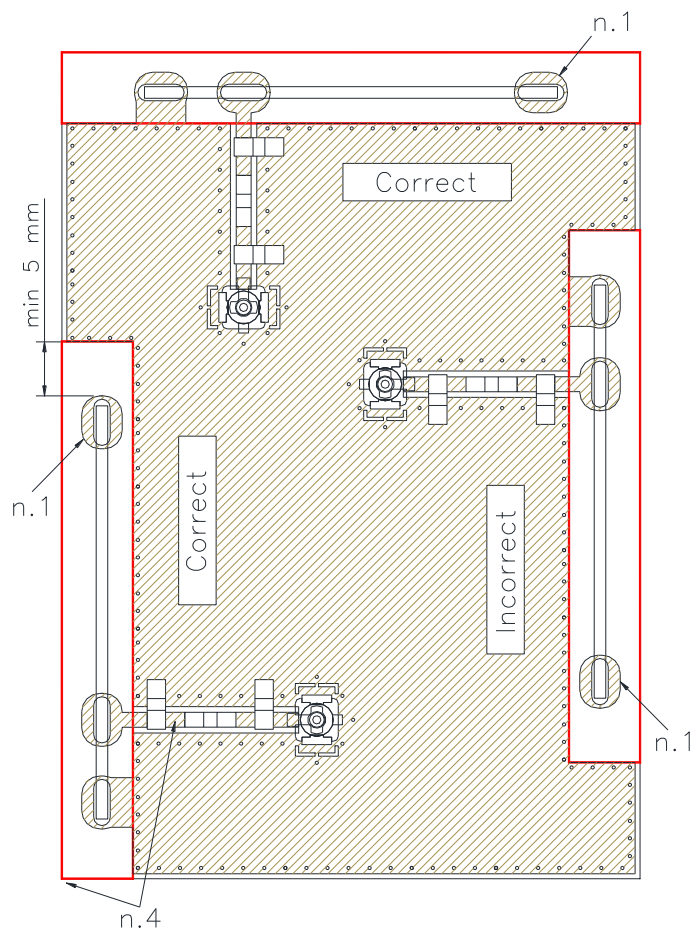
 Free solder mask area

Unit: mm

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2.4 GHz / 2.5 GHz / 5.15 GHz / 5.85 GHz PCB Antenna (ISM, IoT, Bluetooth, WLAN, Wi-Fi)

Antenna placement



 Copper

 Copper keep-out area through the all PCB layers

Notes:

1. Mechanical mounting pads (without GND connection)
2. Reference board size: 50x35mm
3. Antenna must be mounted on the PCB board edge
4. The feedline should be placed as close as possible to the PCB corner

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