SMD Antenna Specification Document

OverAir® SMD Antenna series
Compliant with RoHS regulations

PN: OA-C07

2.4 GHz ISM

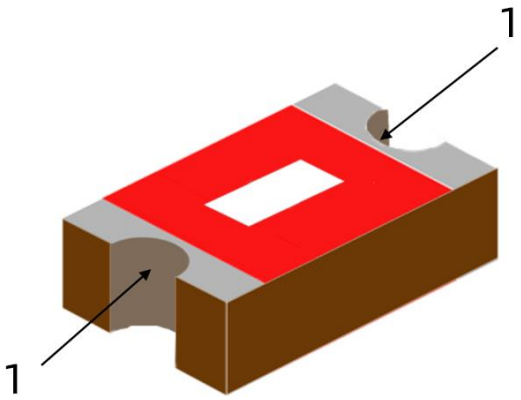
feature

1. A small-sized SMD patch antenna with dimensions of only 3.5X 1.7X 1.2mm3. 2. Low energy loss, high antenna efficiency.
3. Has high stability under changes in temperature and humidity.

application

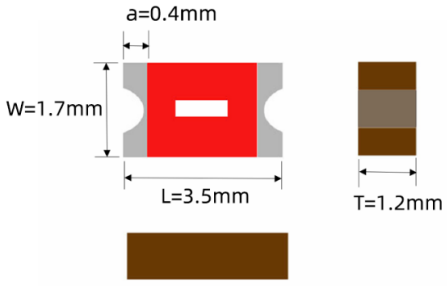
1.2.4GHz ISM band antenna application
2. Bluetooth ZigBee、 Wireless applications, smart home applications, etc.
3. WIFI (only 2.4G)

structure



Not distinguishing between the feeding pads and fixed pads at both ends of the antenna

size

thr ee-view d r awing	symbol	size(mm)
	L	3.5±0.2
	w	1.7±0.1
	T	1.2±0.1
	a	0.4±0.1

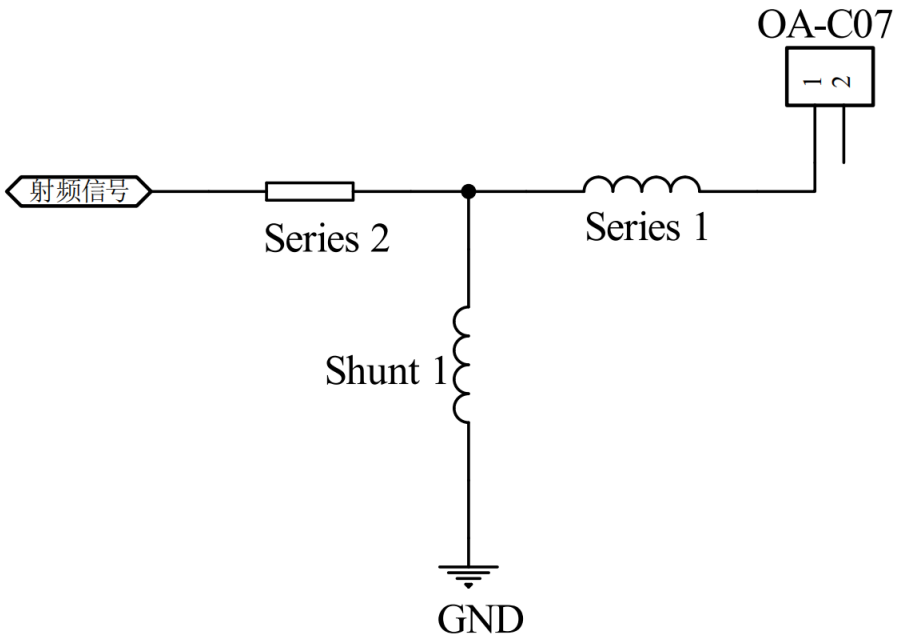
Electrical Characteristics

OA-C07	Specification
工作频率范围 Working Frequency	2450±50MHz
带宽 Band Width	>100MHz
阻抗 Impedance	50Ω
增益 Gain(dBi)	3.74（peak）
驻波比 VSWR	<2
工作温度 Operation Temperature	-40℃~+95℃
可承受功率 Power Capacity	3W

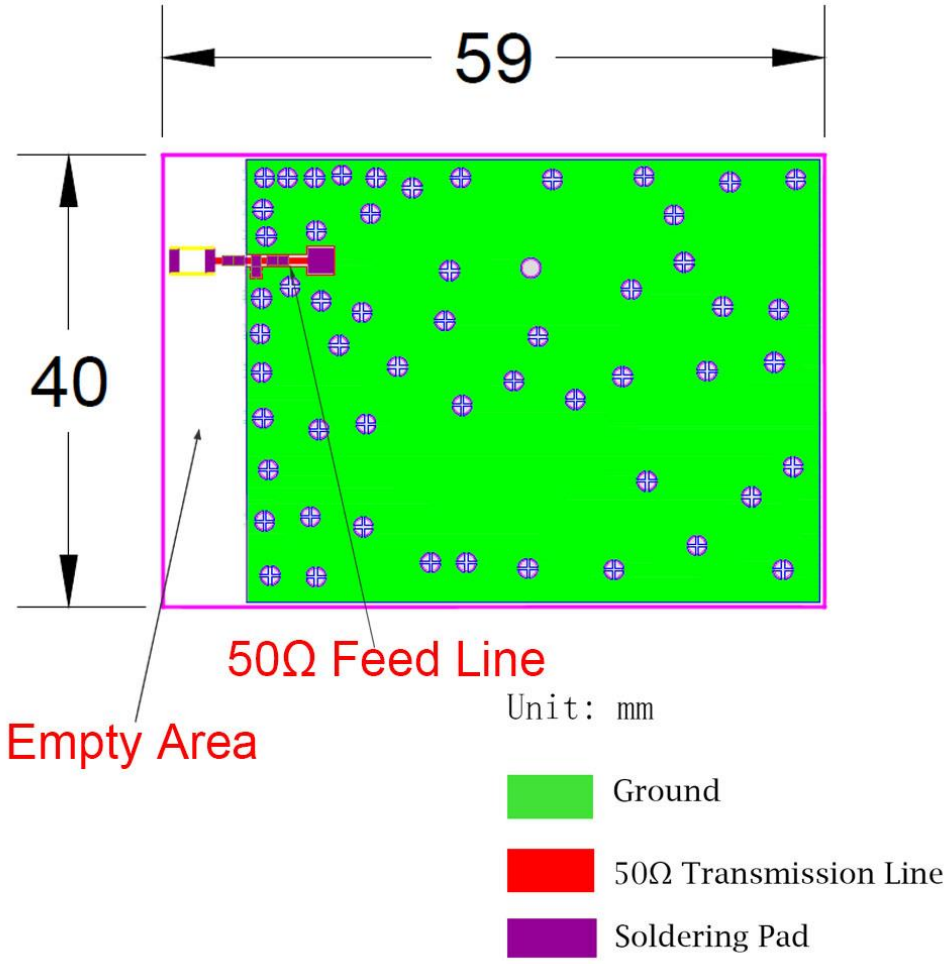
The 2.4G wor king fr equency of the antenna needs to be adjusted thr ough impedance matching devices

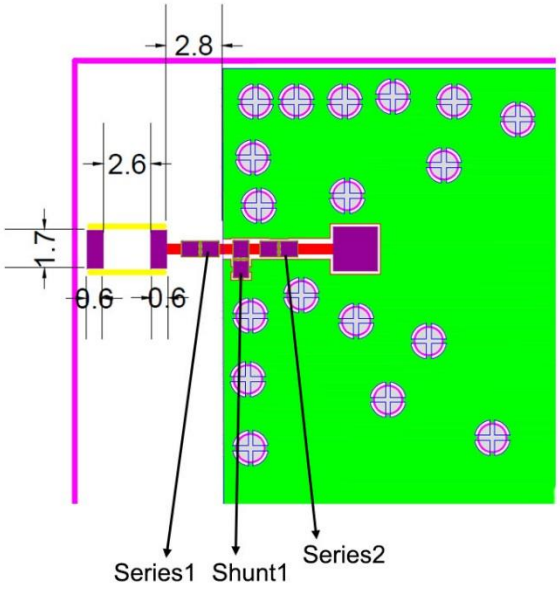
Antenna pad and routing design

PCB



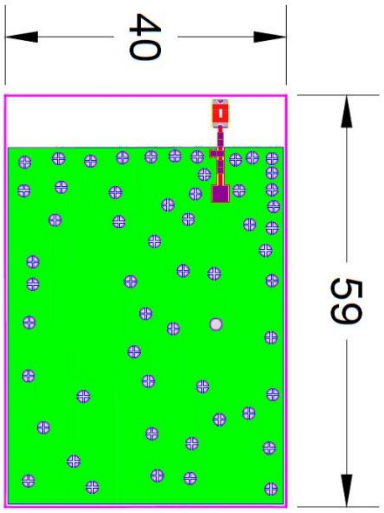
PCB Design dimension diagram



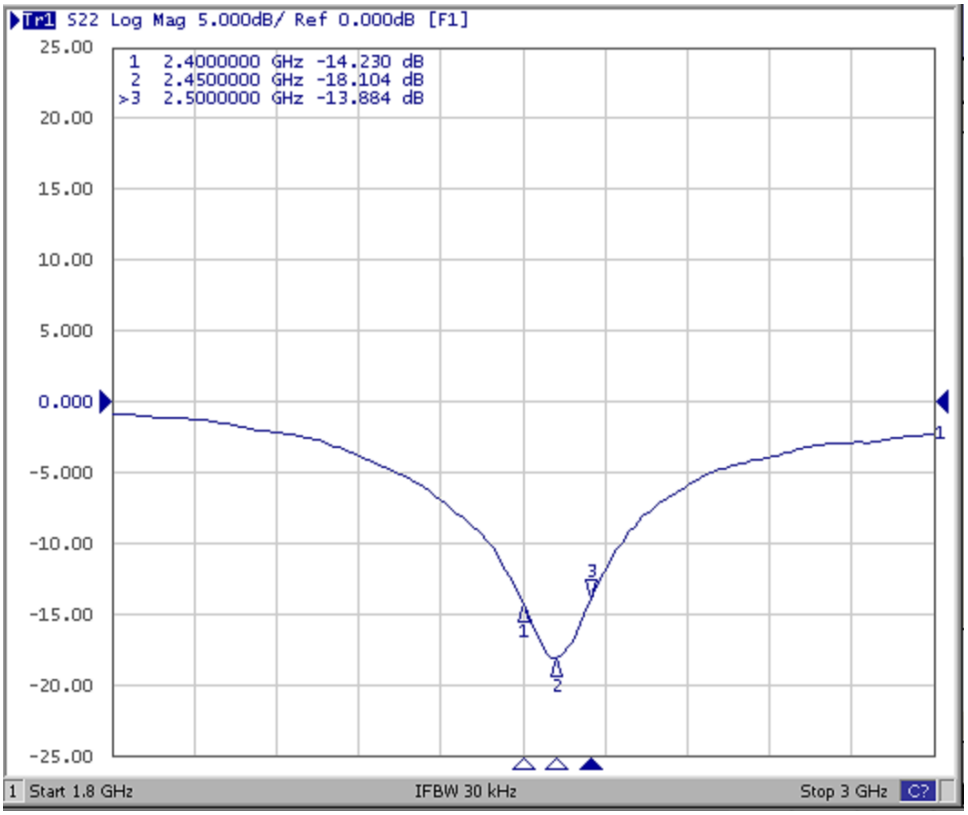


Matching device values	串联器件 **Series 1**	5.6nh
	并联器件 **Shunt 1**	4.7nh
	串联器件 **Series 2**	0Ω

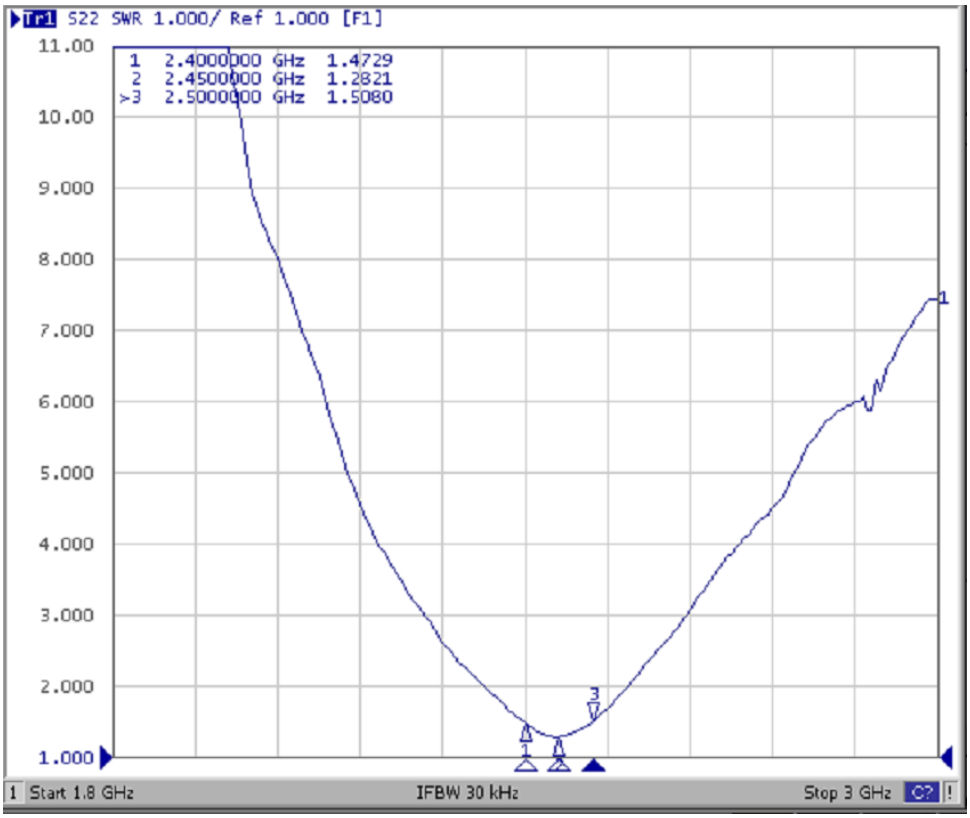
Antenna testing on the test board (board thickness 1.0mm)



Characteristics of antenna S11

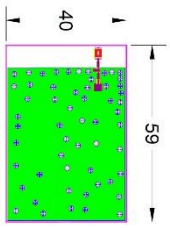


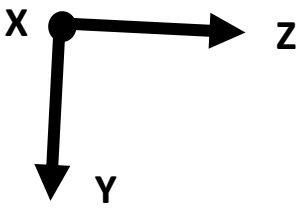
Antenna VSWR characteristics



Efficiency and radiation diagram

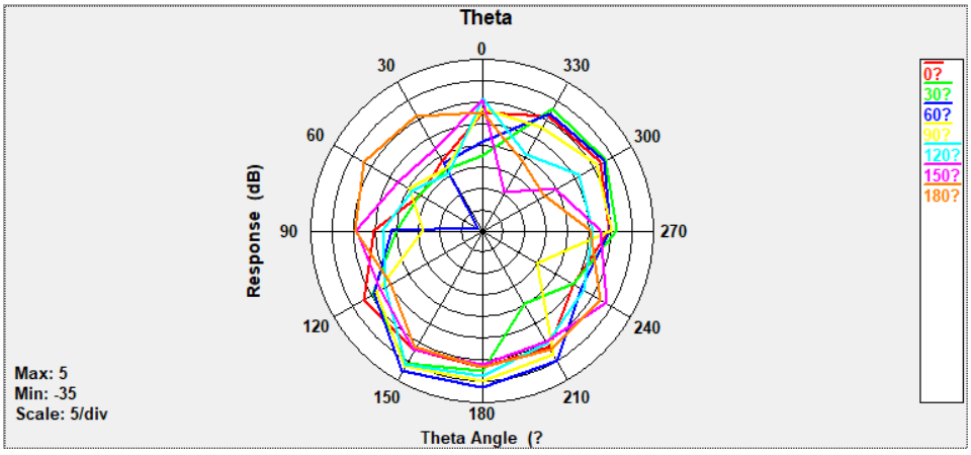
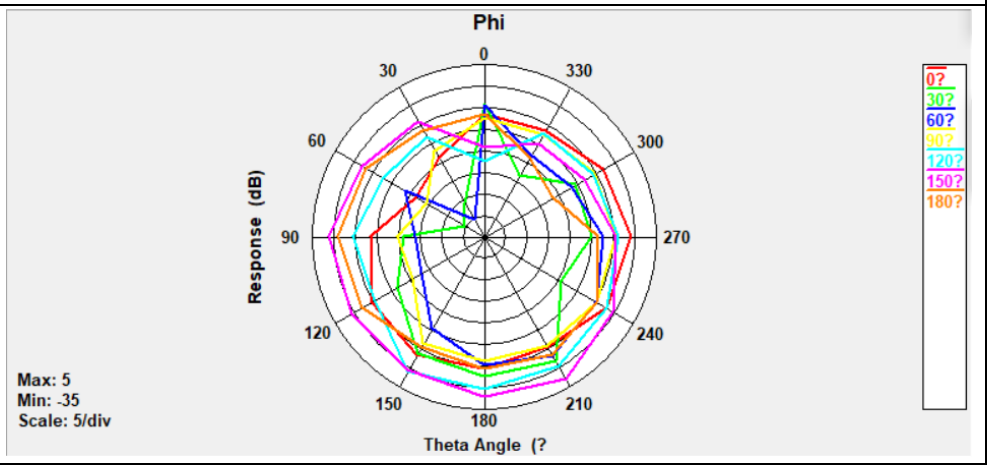
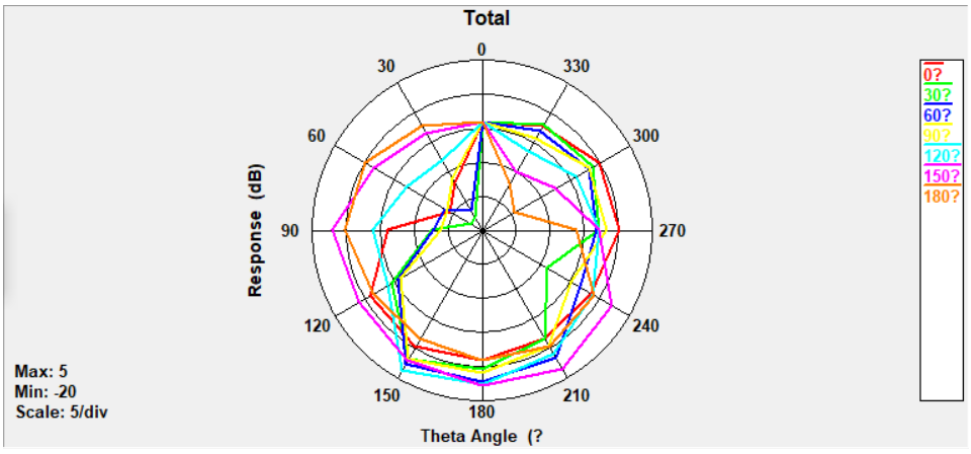
Efficiency, radiation pattern, gain and other performance are based on the design of the test board. The specification and characteristic test data of OA-C07 antenna are obtained based on the size of the tested PCB board and the testing direction shown in the following figure. The following data was tested in ETS 3D microwave anechoic chamber





Gain and efficiency	bandwidth 2.4G-2.5GHz
峰值增益 Peak Gain	3.74dBi
带内平均增益 Average Gain across the band	3.66dBi
带内增益范围 Gain Range across the band	3.42dBi~3.74dBi
峰值效率 Peak Efficiency	58.9%
带内平均效率 Average Efficiency across the band	55.9%

带内效率范围 **Efficiency Range across the band**	**53.0%~58.9%**

Theta @2.45 GHz	
Phi @2.45 GHz	
Total @2.45 GHz	

Welding conditions

The typical welding specifications for reliable and non-destructive welding are shown in the following figure: