



深圳市迪比通通讯设备有限公司

SHENZHEN DIBITONG TELECOMMUNICATION TECHNOLOGY CO.,LTD.

WiFi 天线

WIFI antenna

产品设计与制造规格书

Product design and manufacturing specifications

- ◆ 客户名称/ Customer:

- ◆ 项目名称/Projec: WiFi 双频贴片天线

- ◆ 物料名称/Name: WiFi antenna

- ◆ 天线材质/Antenna materials: 陶瓷/Ceramics

- ◆ 物料编号/Part no: DBTDWBT3216P

- ◆ 设计/Designer:

- ◆ 审核/Check:

- ◆ 客户确认签章/Approved:

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产品名称 Product name	WiFi 双频贴片天线/ Dual frequency patch antenna	产品编码/ Product code	DBTDWBT3216P
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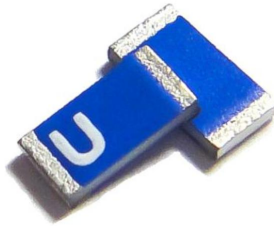
天线技术规格书

Technical specification for antenna

一、概述/Overview

该天线为 WiFi 双频终端贴片天线，工作频率为 2400-2500MHz/5150-5850MHz，广泛应用于 WiFi 产品、蓝牙耳机及音响、PAD、手机多频天线设备、小型贴片机芯片设计。

This antenna is WiFi dual-band terminal patch antenna, the operating frequency is 2400-2500MHz/5150-5850MHz, widely used in WiFi products, Bluetooth headsets and audio, PAD, mobile phone multi-frequency antenna equipment, small size SMD chip design.



二、技术要求/Technical requirements

2.1 天线指标/Antenna Indicator

	技术要求	技术指标	
1	工作频率 Frequency	2400MHz-2500MHz	5150-5850MHz
2	回波损耗 Return Loss	-10dB (典型值)	-10dB (典型值)
3	天线效率 Efficiency	76% (典型值, 在 80*40mm 底板上测试)	67% (典型值, 在 80*40mm 底板上测试)
4	峰值增益 Peak Gain	1.5dBi (峰值)	2.9dBi (峰值)
5	输出驻波比 Output VSWR	≤2	≤2
6	极化 Polarization	线极化 (Linear polarization)	线极化 (Linear polarization)
7	阻抗 Impedance	50Ω	50Ω

2.2 环境适应性/Environmental Adaptability



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1	工作温度/Operating temperature	-25°C ~ +70°C
2	存储温度/Storage temperature	-25°C ~ +85°C
3	相对湿度/Relative humidity	10%~95%

2.3 机械特性/Mechanical properties

1	天线尺寸 Demention	3.2*1.6*0.5mm
2	天线材料 Material	陶瓷/Ceramics

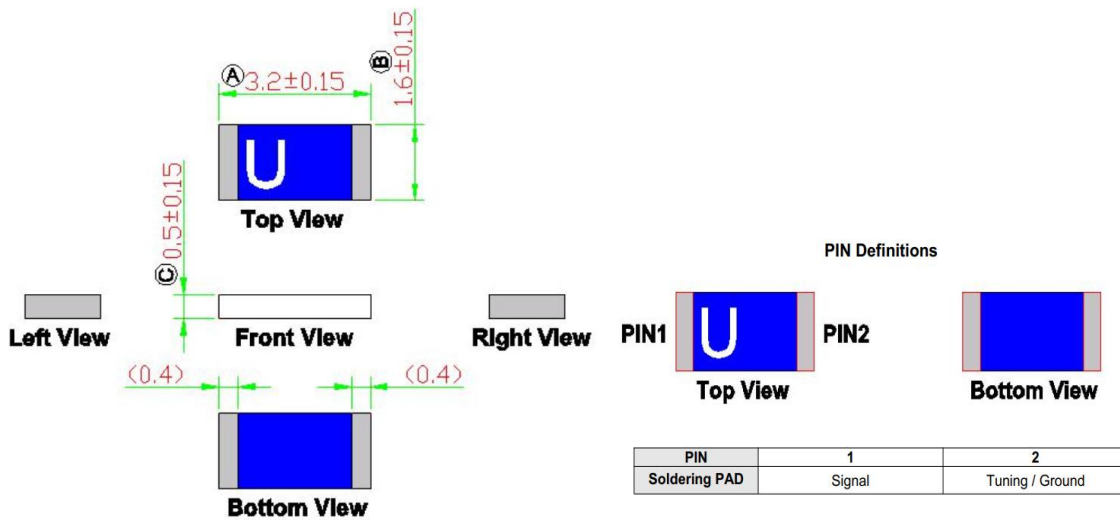


图1 天线外形尺寸和管脚定义/ Fig. 1 antenna outline size and pin definition

三、参考 PCB 设计/Reference PCB design

参考测试板见图 2，天线 PCB 设计建议参考图 3 进行。 /The reference test board is shown in Figure 2, and the antenna PCB design proposal is shown in Figure3 .

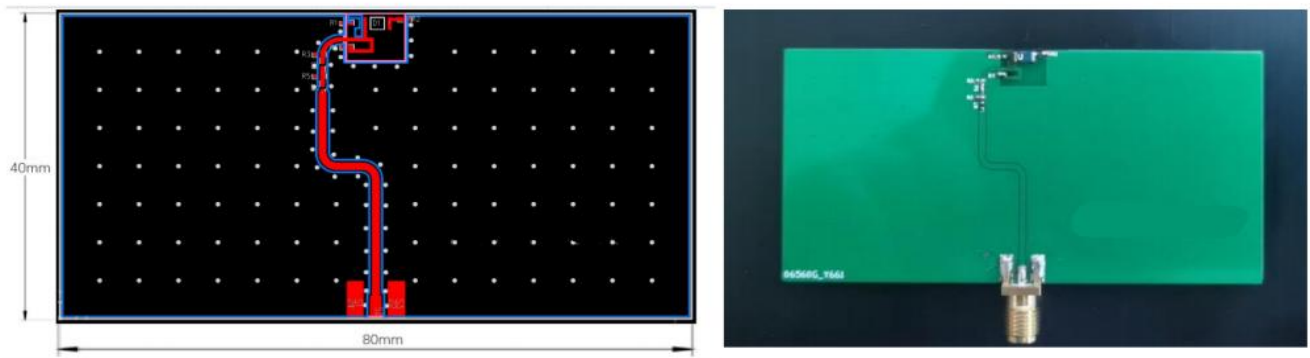
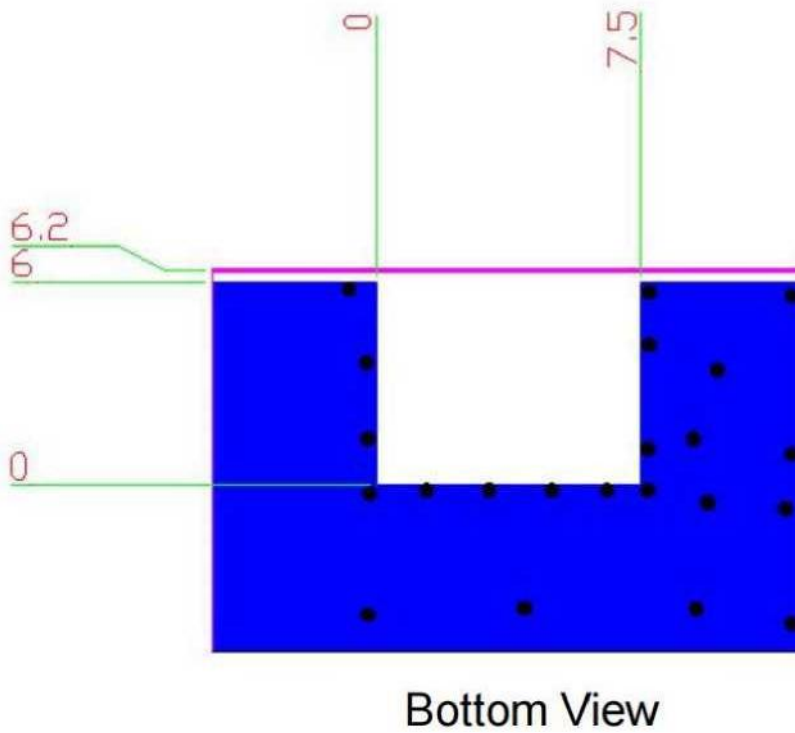
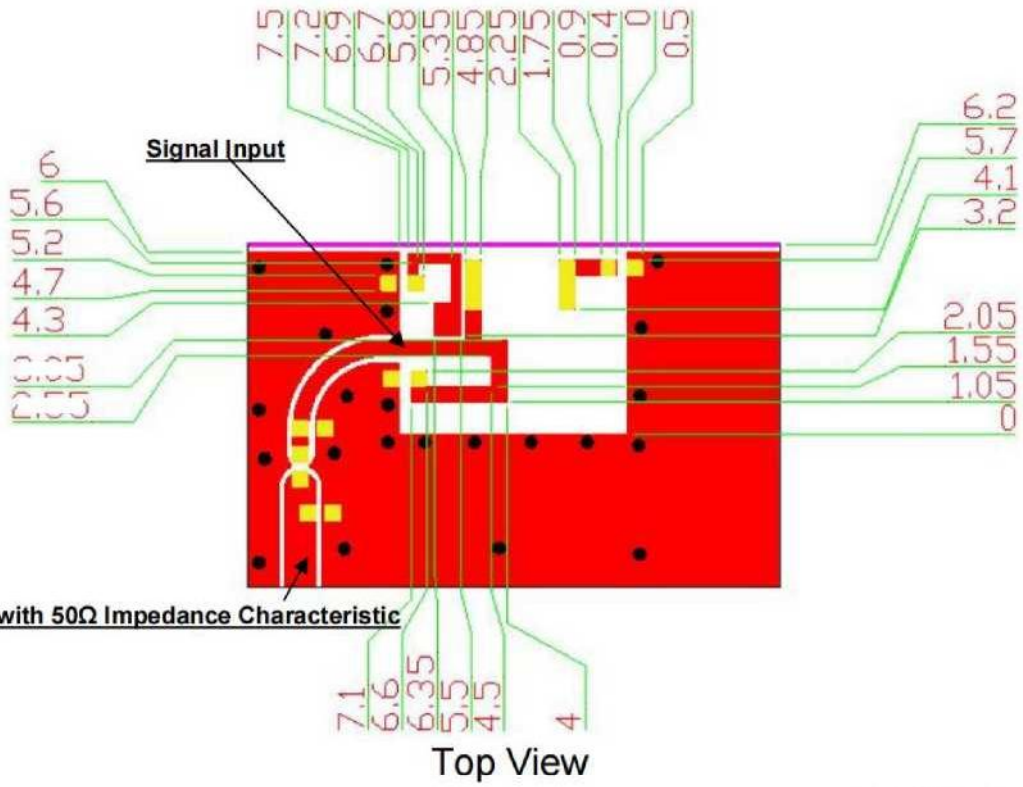


图2 参考测试电路板/ Fig. 2 reference test circuit board



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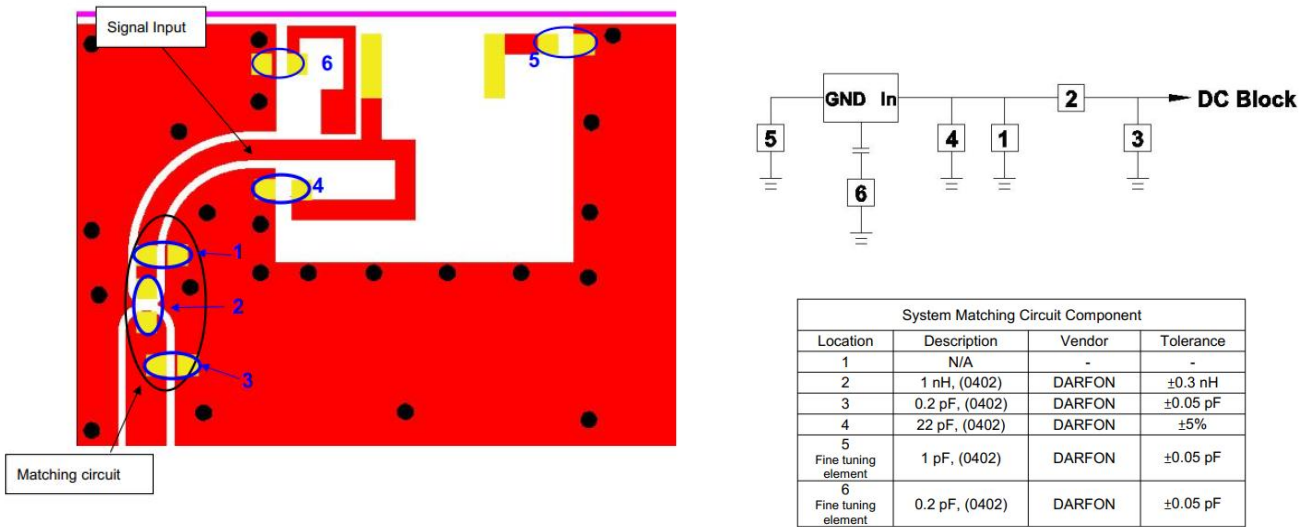


图 3 天线 PCB 设计参考板/ Fig. 3 Antenna PCB design reference board

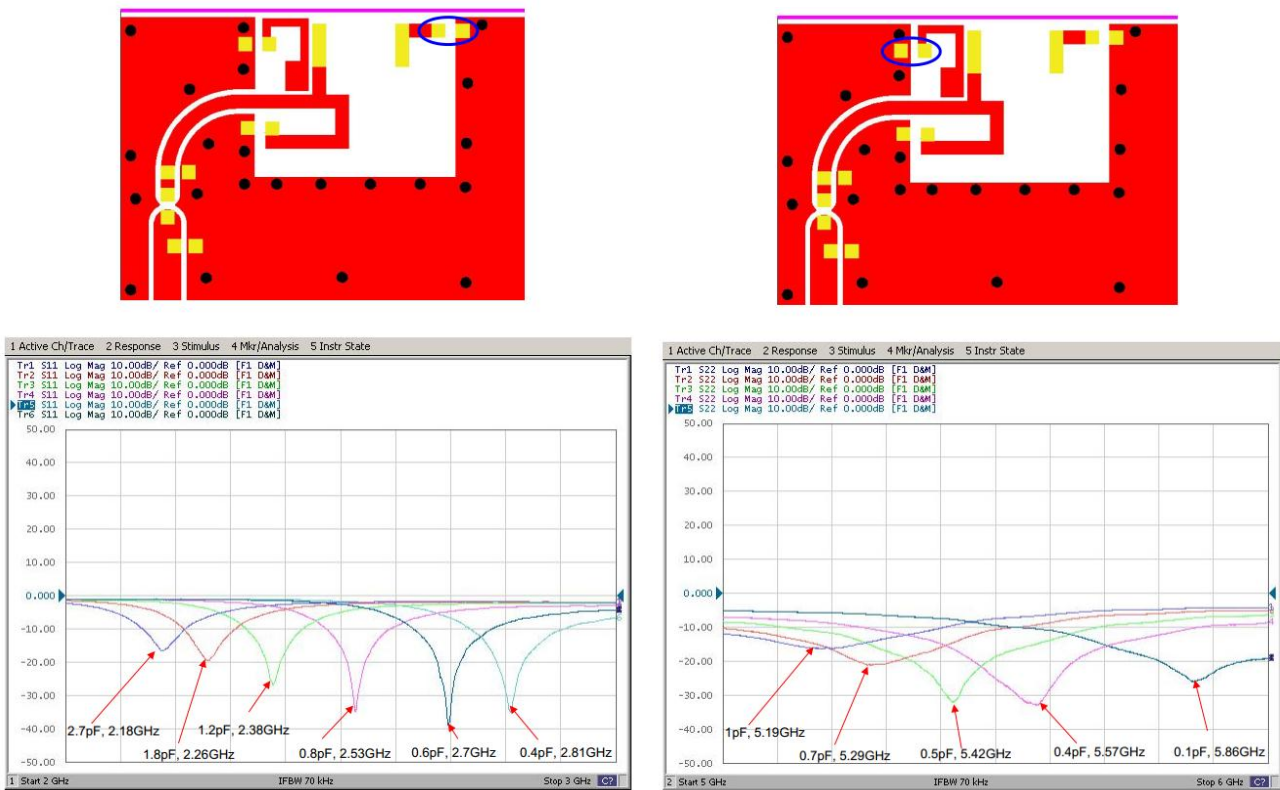


图 4 天线调谐电路和频率调整/ Fig. 4 antenna tuning circuit and frequency adjustment

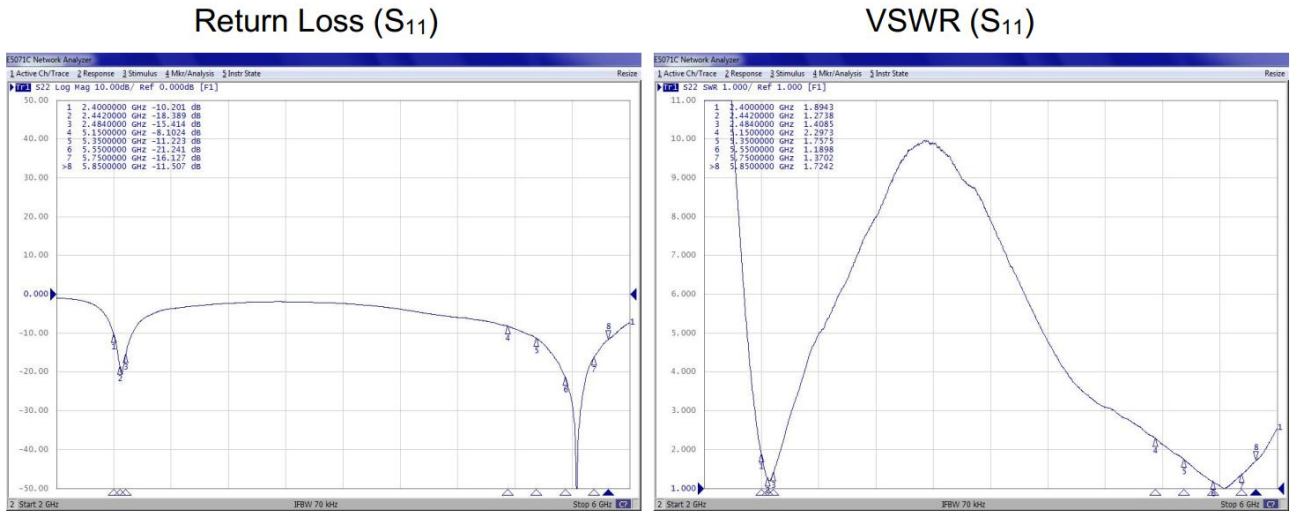


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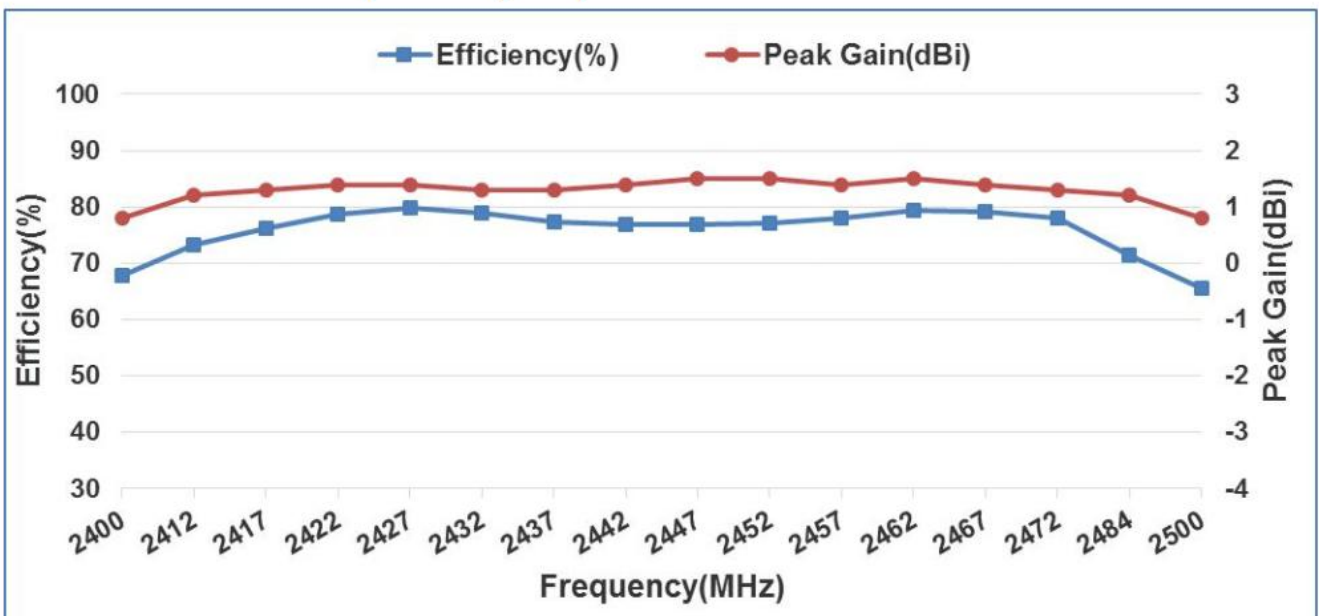
四、天线测试数据/Antenna test data

1、阻抗原图和回波损耗 (dB) : /Impedance diagram and echo loss (dB)



2、天线效率和增益/Antenna efficiency and gain:

Frequency(MHz)	2400	2412	2417	2422	2427	2432	2437	2442	2447	2452	2457	2462	2467	2472	2484	2500
Efficiency(dB)	-1.7	-1.4	-1.2	-1.0	-1.0	-1.0	-1.1	-1.1	-1.2	-1.1	-1.1	-1.0	-1.0	-1.1	-1.5	-1.8
Efficiency(%)	67.9	73.2	76.1	78.7	79.9	78.8	77.4	76.8	76.8	77.2	78.1	79.3	79.2	78.1	71.5	65.5
Peak Gain(dBi)	0.8	1.2	1.3	1.4	1.4	1.3	1.3	1.4	1.5	1.5	1.4	1.5	1.4	1.3	1.2	0.8

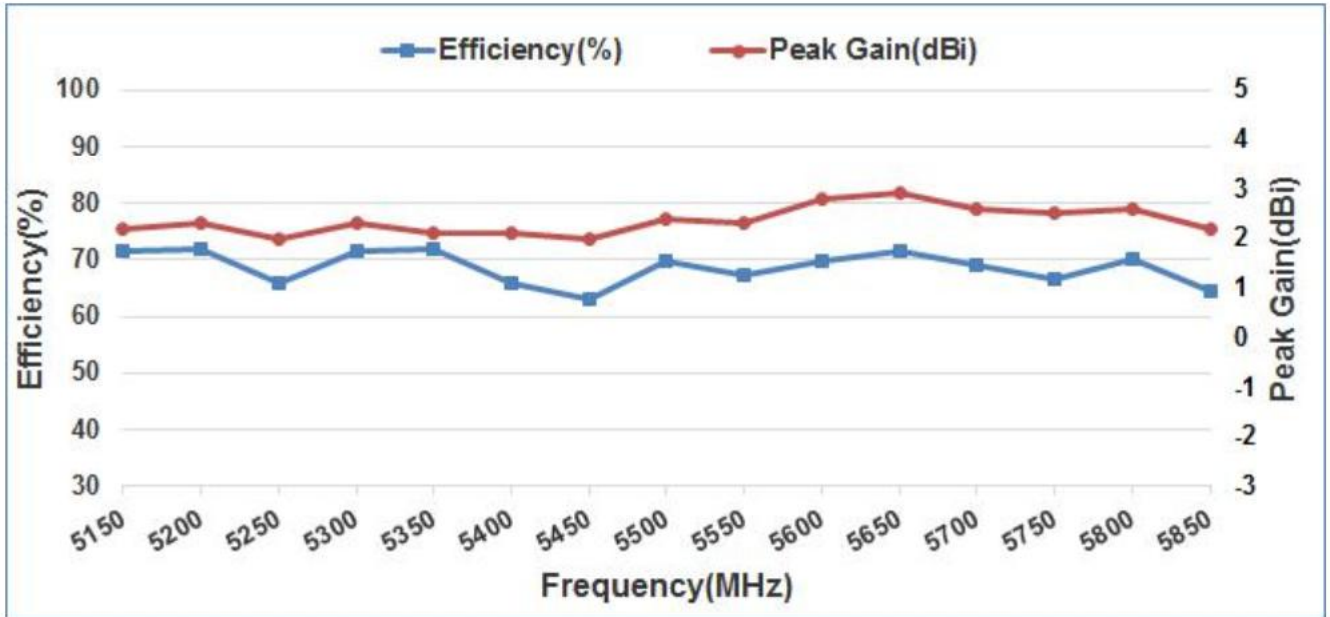




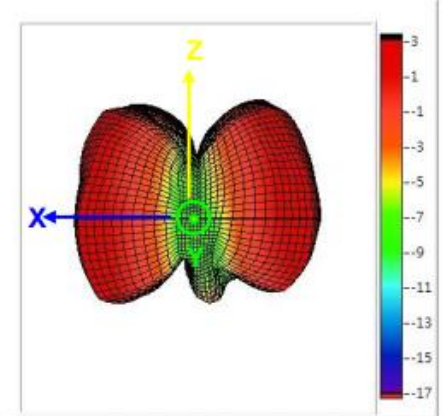
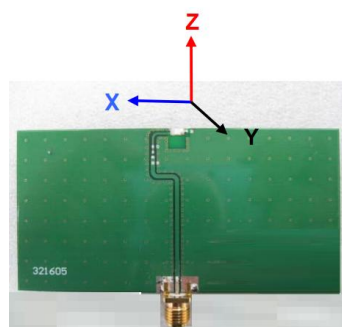
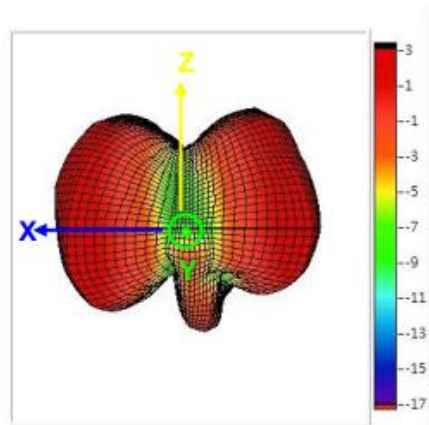
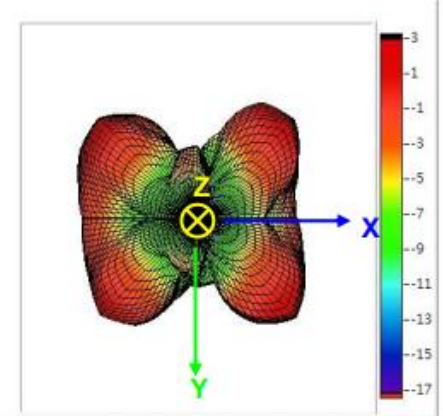
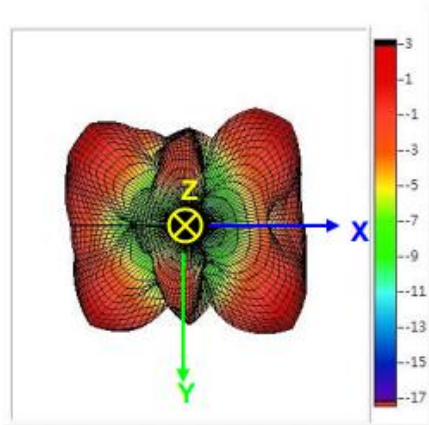
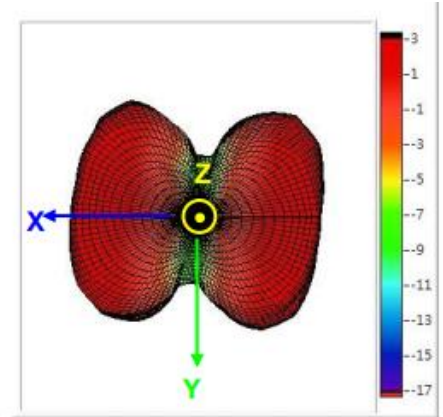
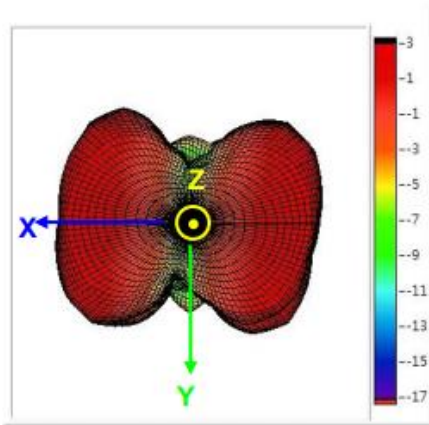
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Frequency(MHz)	5150	5200	5250	5300	5350	5400	5450	5500	5550	5600	5650	5700	5750	5800	5850
Efficiency(dB)	-1.5	-1.4	-1.8	-1.5	-1.4	-1.8	-2.0	-1.6	-1.7	-1.6	-1.4	-1.6	-1.8	-1.5	-1.9
Efficiency(%)	71.5	71.9	65.7	71.6	71.9	65.8	63.2	69.9	67.3	69.6	71.7	68.9	66.6	70.1	64.6
Peak Gain(dBi)	2.2	2.3	2.0	2.3	2.1	2.1	2.0	2.4	2.3	2.8	2.9	2.6	2.5	2.6	2.2



3、天线辐射方向图/Antenna radiation pattern:



2.4GHz 天线方向图/Antenna Directions
2.4GHz Antenna Directions

天线测试参考板 /
Antenna test reference panel

5GHz 天线方向图/
5GHz Antenna Directions

五、天线焊接条件 /Welding condition of antenna

1、焊剂 /Flux

- ① 使用松香助焊剂, 禁止使用卤化物含量超过 0.2wt%的强酸性助焊剂。 /Use Rosin flux, do not use strong acid flux with halide content up to 0.2 wt% .
- ② 使用纯锡焊料 /Use pure tin solder

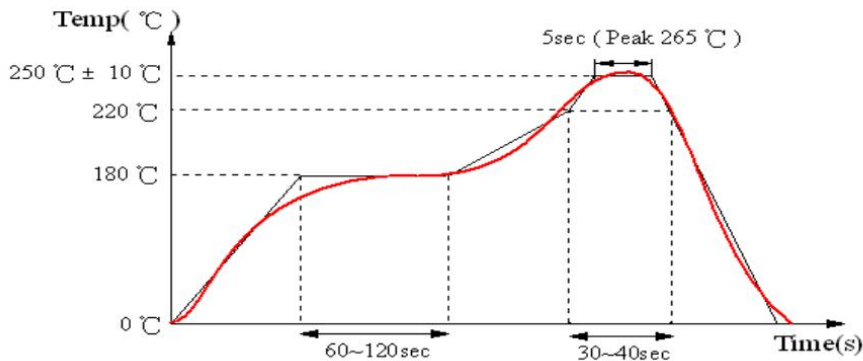


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2、回流焊条件 /Reflow soldering conditions

●预热时，产品表温与焊料温度的温差最大不允许超出 150°C，焊接完后冷却时，产品表温与溶剂温度之间的温差最大不允许超出 100°C。预热不足有可能引发产品表面裂纹，导致产品品质下降。/The maximum temperature difference between surface temperature and solder temperature is not allowed to exceed 150 ° C during preheating, and the maximum temperature difference between surface temperature and solvent temperature is not allowed to exceed 100 ° C during cooling after welding. Lack of preheating may lead to surface cracks, resulting in product quality decline.



●标准回流焊曲线 /Standard reflow soldering curve

3、手工返工 /Manual rework

当使用电烙铁进行手工焊接时，以下条件必须严格遵守 /When soldering by hand, the following conditions must be strictly observed

预热 Pre-heating	150°C, 1 minute
尖端温度 Tip temperature	350°C max
输出功率 Soldering iron output	80w max
电烙铁头尖端尺寸 End of soldering iron	φ3mm max
焊接时间 Soldering time	3 seconds max

六、包装/Packaging

①编带和带轮尺寸/Braid and pulley dimensions : Unit: mm

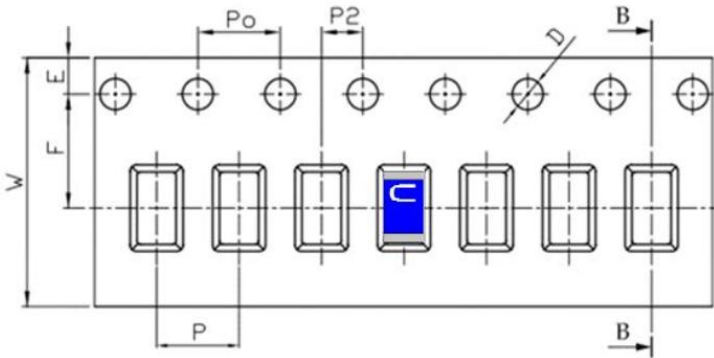
②包装数量/Quantity of packing: 5000 PCS / Plate



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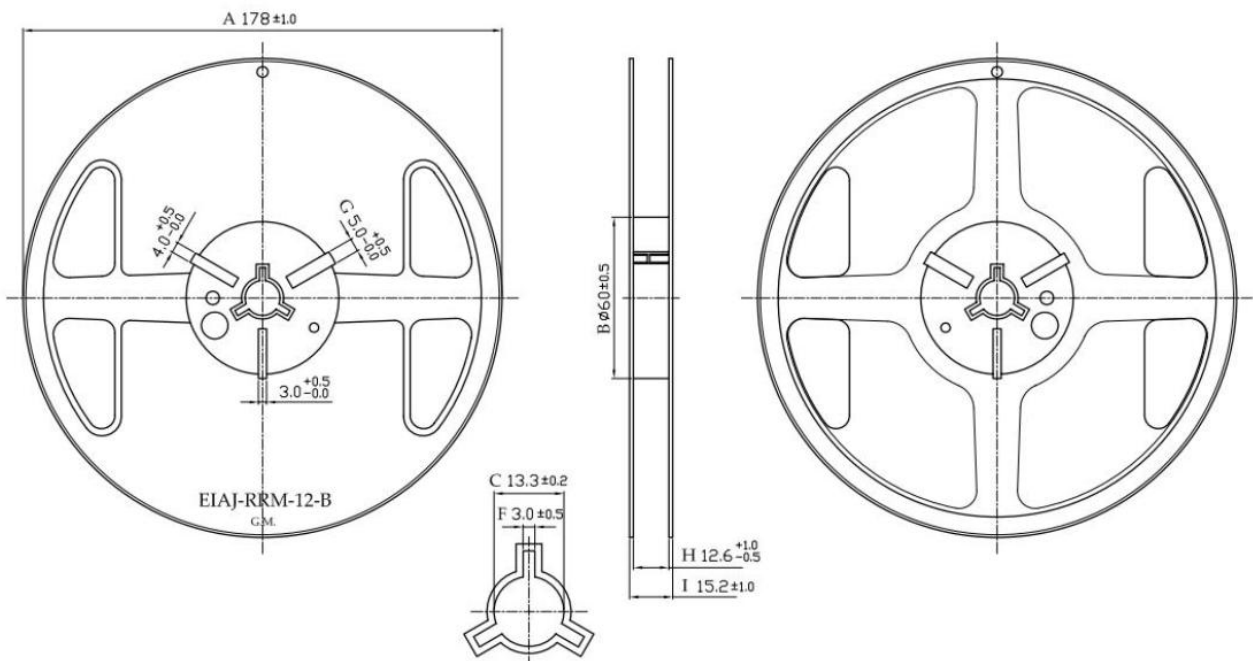
a. Tape Drawing



b. Tape Dimensions (unit: mm)

Feature	Specifications	Tolerances
W	12.00	±0.30
P	4.00	±0.10
E	1.75	±0.10
F	5.50	±0.10
P2	2.00	±0.10
D	1.50	+0.10 -0.00
P0	4.00	±0.10
10P0	40.00	±0.20

c. Reel Drawing



七、保管 /Storage

①. 保管期限 /Storage period

距出厂检验时间六个月内，产品可以使用；检验时间可以通过包装外侧标记的检验号确认；

若时间超出六个月，应检查焊接性能后方可使用。/The product can be used within six months from the time of inspection.

The inspection time can be confirmed by the inspection number marked on the outside of the package.



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②. 保存条件/Save condition

●存放货物的库房应满足以下条件/The warehouse where the goods are stored shall meet the following conditions

温度/Temperature : 10 ~40°C 湿度/Humidity : 30 to 70% relative humidity

不允许温、湿度有极剧变化。/Extreme changes in temperature and humidity are not allowed.

●禁止将产品保管在腐蚀性物质中, 例如硫磺、氯气或者酸, 否则将引起端头氧化, 导致降低焊

接性。/Do not store products in corrosive substances, such as sulfur, chlorine or acid, as this will cause oxidation of the end, resulting in reduced solderability.

●为了避免受潮气、灰尘等物质的影响, 产品应保管于货架上。/In order to avoid moisture, dust and other substances, the product should be kept on the shelf.

●产品保管在库房中时, 应避免热冲击, 振动以及直接光照等等。/Products in storage, should avoid thermal shock, vibration and direct lighting and so on.

●产品应密封包装。/The product should be sealed and packaged.