

# Antenna test report

**PN: CA-C03**

**2.4 GHz -ANT**

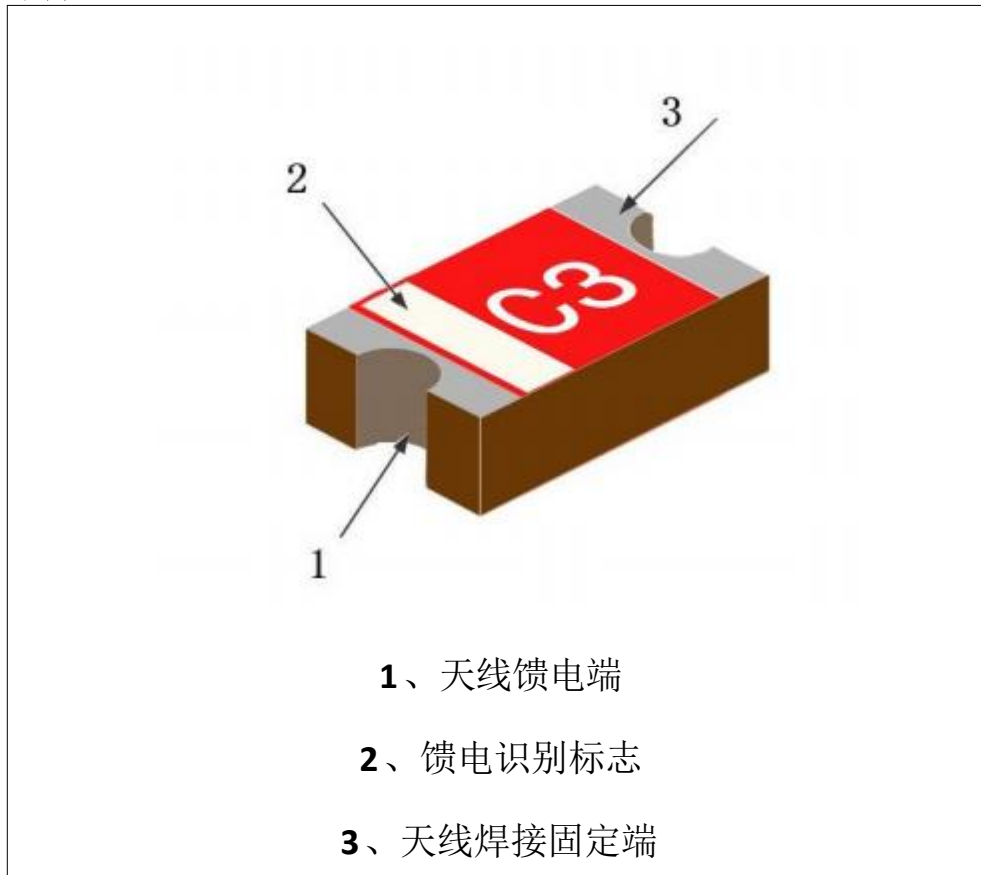
Features

1. Small size SMD patch antenna with the size of only 5.5 X 2.0 X 1.0 mm<sup>3</sup>.
2. Low energy loss, high antenna efficiency.
3. High stability under temperature and humidity changes.

Applications

1. 2.4GHz ISM band antenna application
2. Bluetooth, zigBee, wireless applications, smart home applications, etc.
3. WIFI (2.4G only)

结构structure



尺寸size

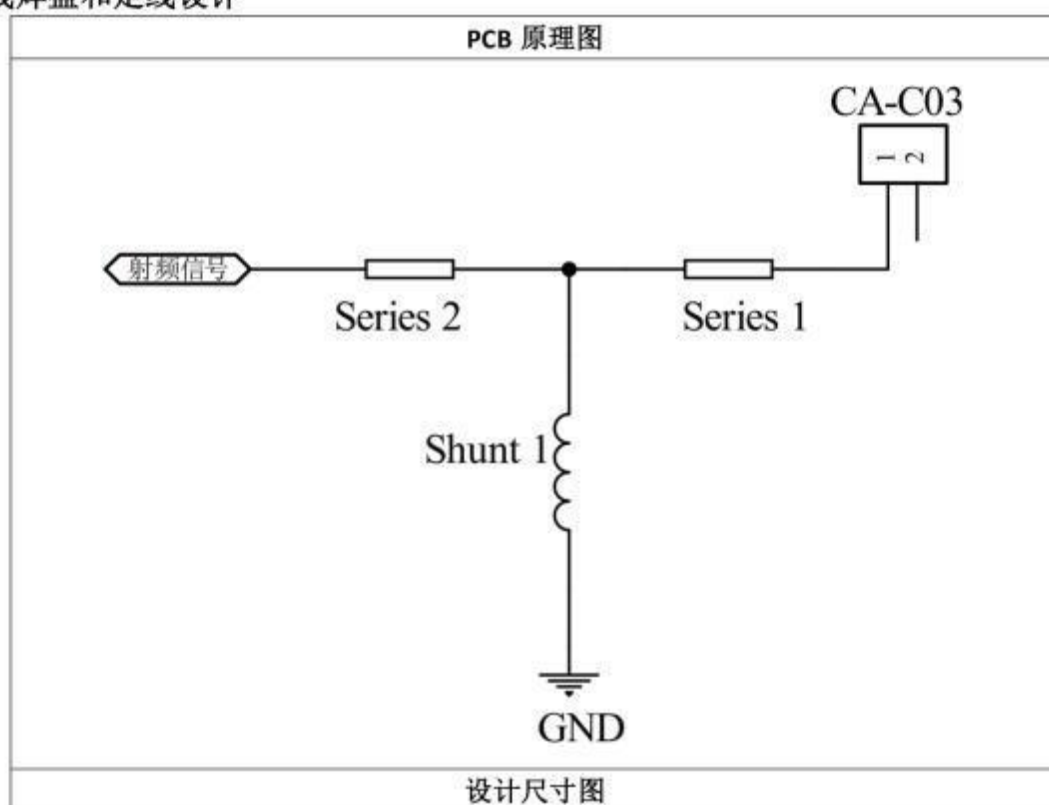
三视图	符号	尺寸(mm)
	<b>L</b>	<b>5.5 ± 0.2</b>
	<b>w</b>	<b>2.0 ± 0.1</b>
	<b>T</b>	<b>1.0 ± 0.1</b>
	<b>a</b>	<b>0.5 ± 0.1</b>

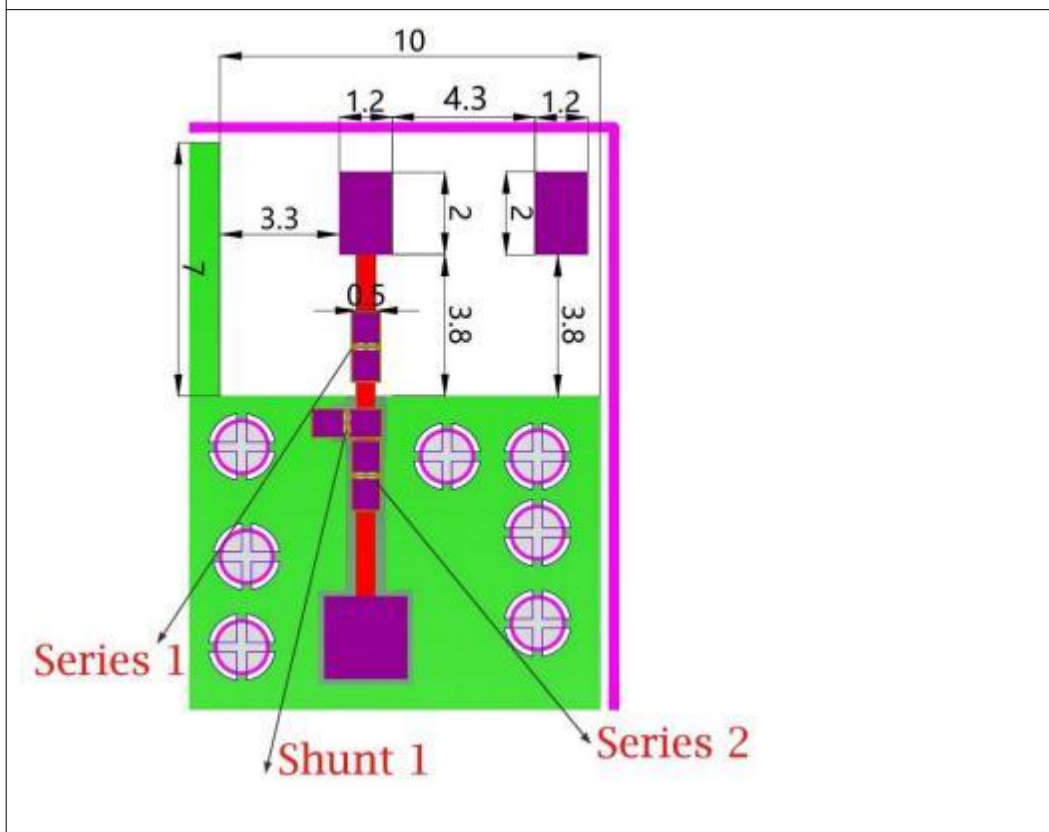
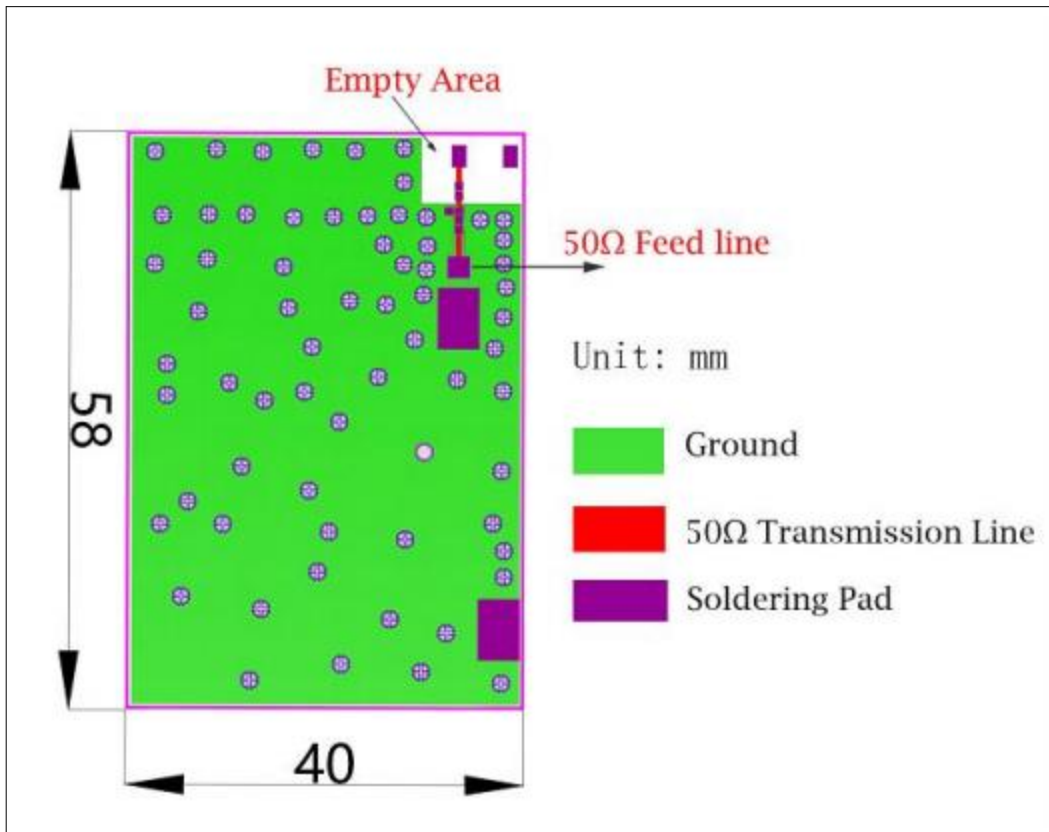
## 电气特性

CA-C03	Specification
工作频率范围 Working Frequency	2.4G-2.5G
带宽 Band Width	>100MHz
阻抗 Impedance	50Ω
增益 Gain(dBi)	2.0(peak)
驻波比 VSWR	<2
工作温度 Operation Temperature	-40℃~+95℃
可承受功率 Power Capacity	3W

天线 2.4G 工作频率需要通过阻抗匹配器件调试来实现。

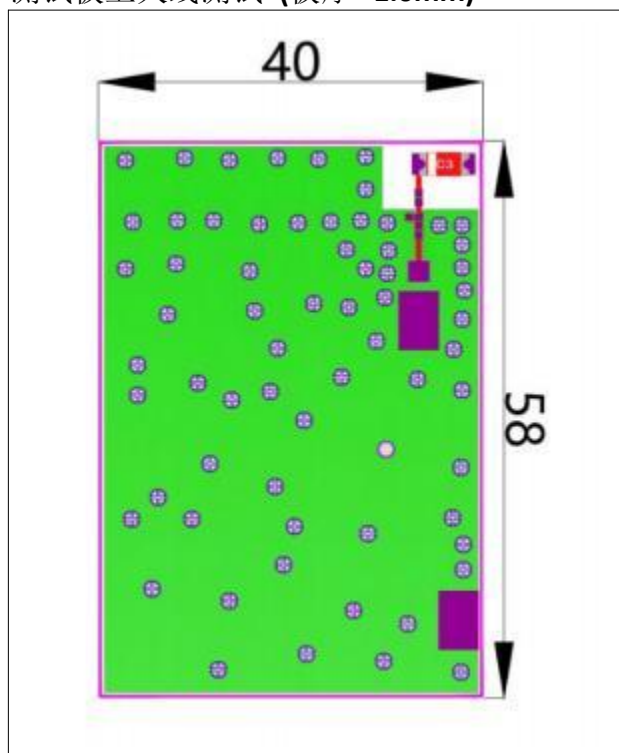
## 天线焊盘和走线设计



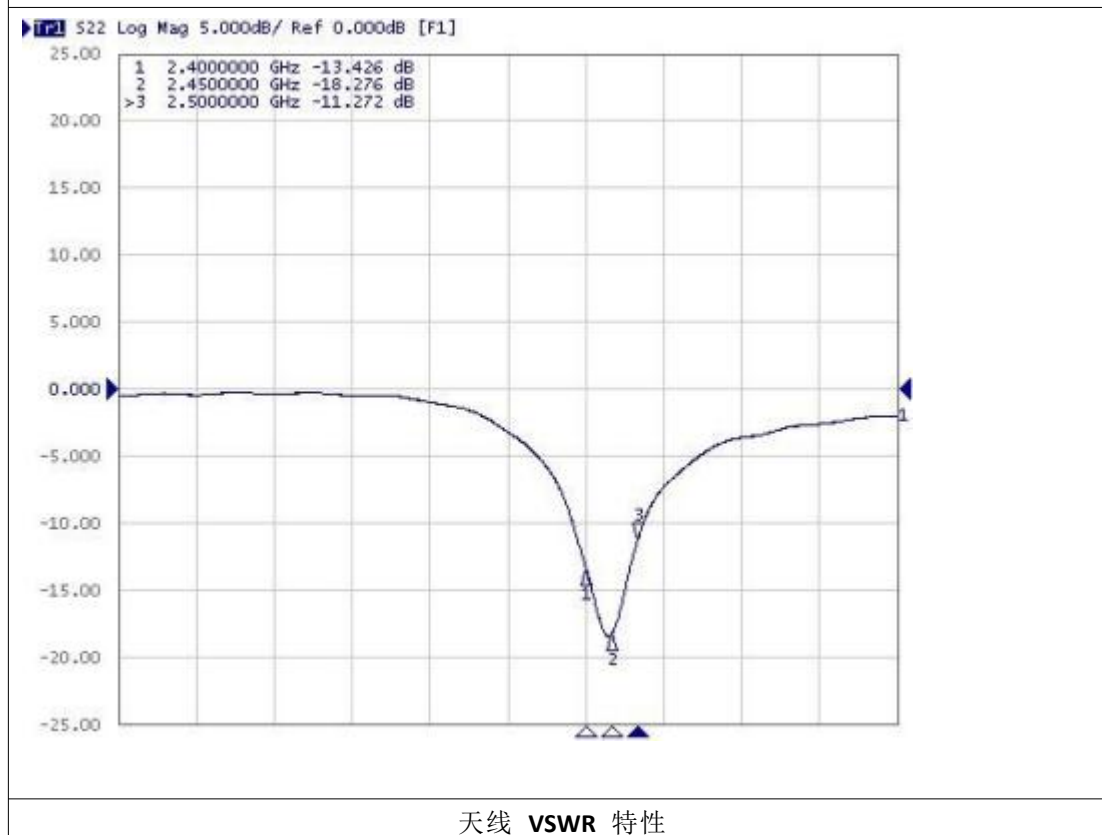


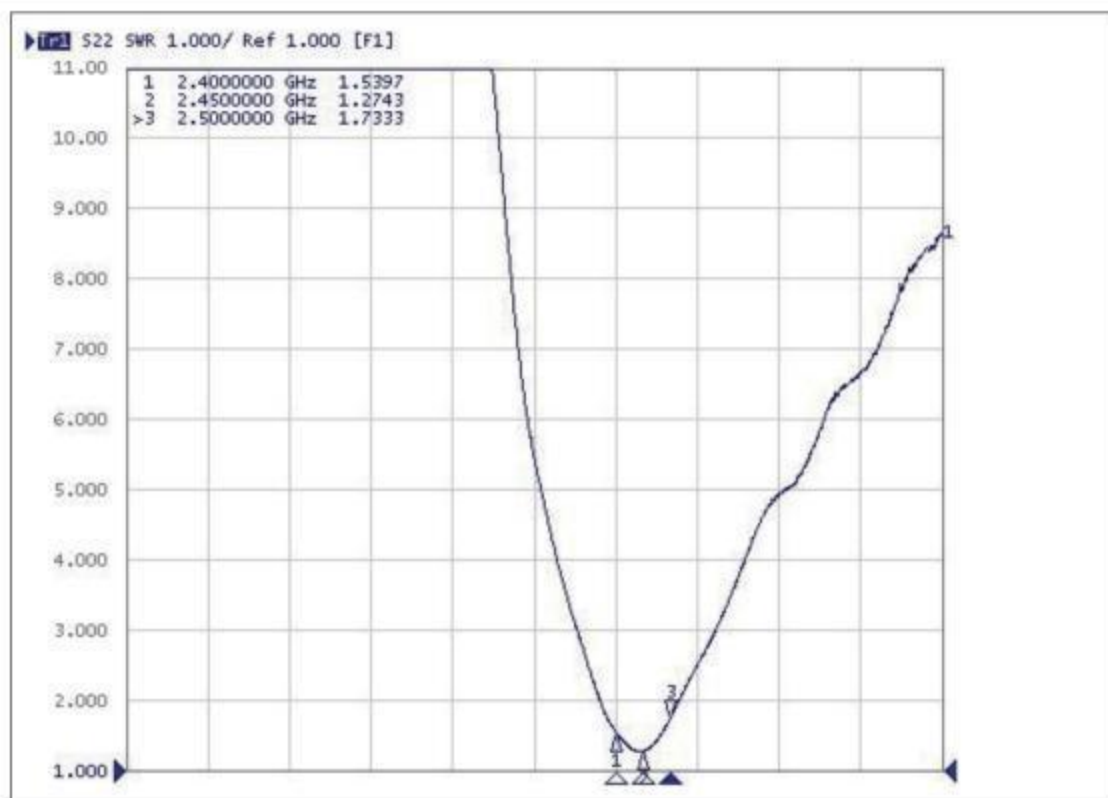
匹配器件值	串联器件 <b>series 1</b>	电阻 0 Ω
	并联器件 <b>shunt 1</b>	高频电感 3nh
	串联器件 <b>series 2</b>	电阻 0 Ω

测试板上天线测试 (板厚 1.0mm)



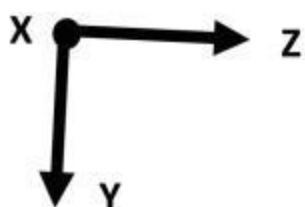
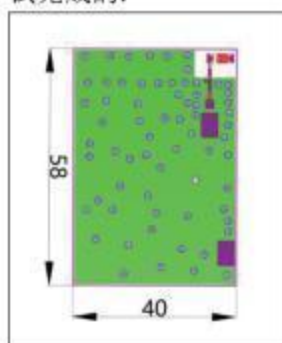
天线 S11 特性



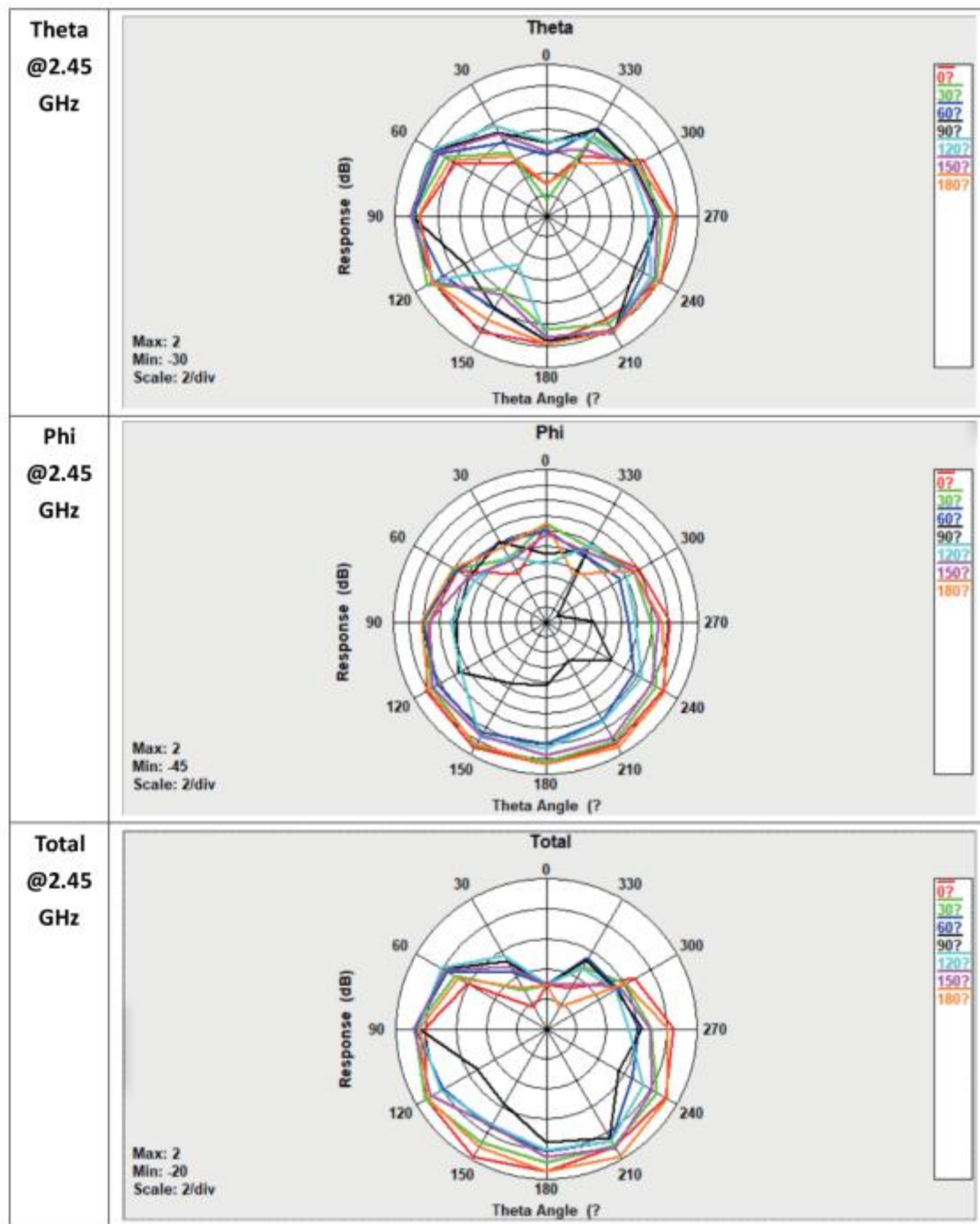


### 效率和辐射图

效率、辐射图、增益等性能是基于测试板设计得到的。CA-C03 天线的规格特性测试数据是基于测试 PCB 板尺寸以及下图所示的测试方向所得到的。以下数据是在 ETS 3D 微波暗室测试完成的。

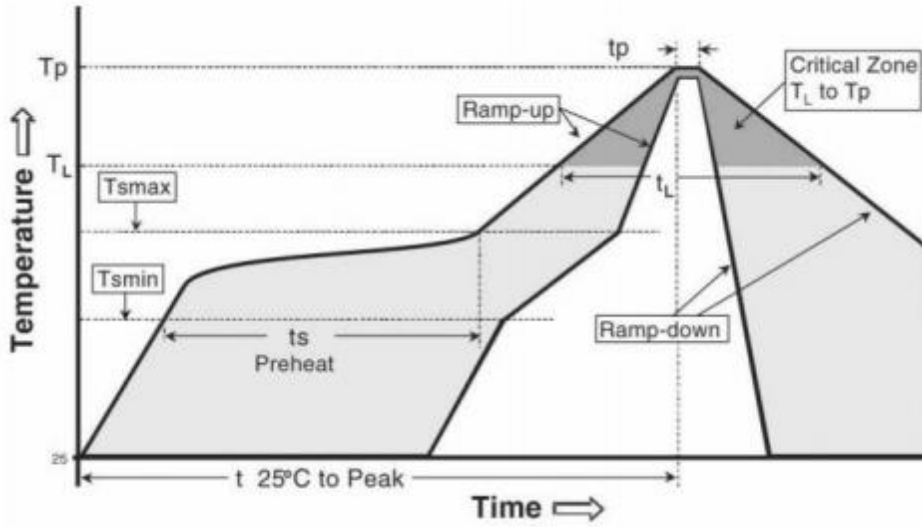


增益和效率	带宽 2.4G-2.5GHz
峰值增益 Peak Gain	2dBi
带内平均增益 Average Gain across the band	1.5dBi
带内增益范围 Gain Range across the band	1.8dBi~1.9dBi
峰值效率 Peak Efficiency	81.7%
带内平均效率 Average Efficiency across the band	80.2%
带内效率范围 Efficiency Range across the band	78.6%~81.7%



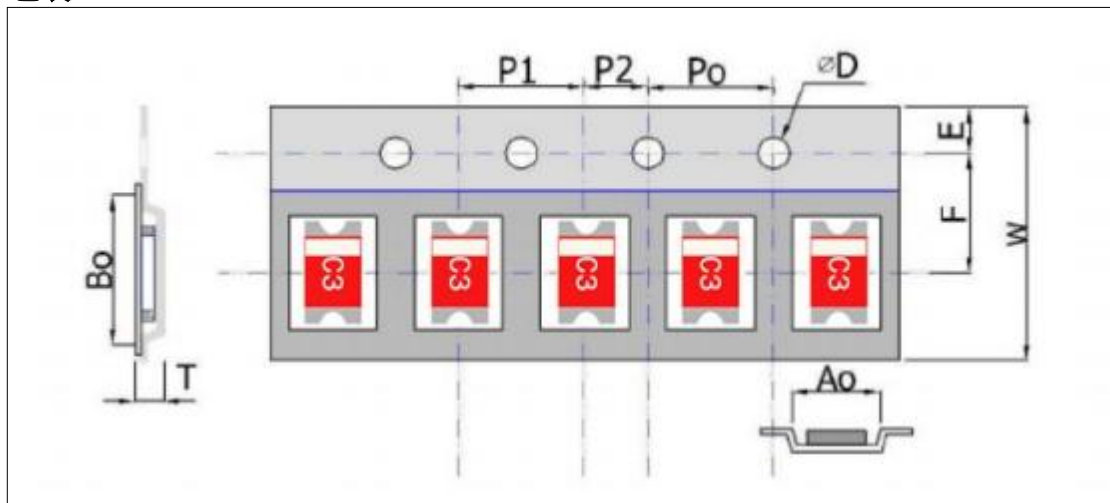
**焊接条件**

可靠无损的典型焊接规范如下图所示：



Phase	Profile features	Pb-Free assembly (SnAgCu)
RAMP-UP	Avg. Ramp-up Rate ( $T_{smax}$ to $T_p$ )	3 °C / second (max.)
PREHEAT	- Temperature Min ( $T_{smin}$ ) - Temperature Max ( $T_{smax}$ ) - Time ( $t_{smin}$ to $t_{smax}$ )	150 °C 200 °C 60-180 seconds
REFLOW	- Temperature ( $T_L$ ) - Total Time above $T_L$ ( $t_L$ )	217 °C 60-150 seconds
PEAK	- Temperature ( $T_p$ ) - Time ( $t_p$ )	260 °C 20-40 seconds
RAMP-DOWN	Rate	6 °C/second max
Time from 25 °C to Peak Temperature		8 minutes max

包装

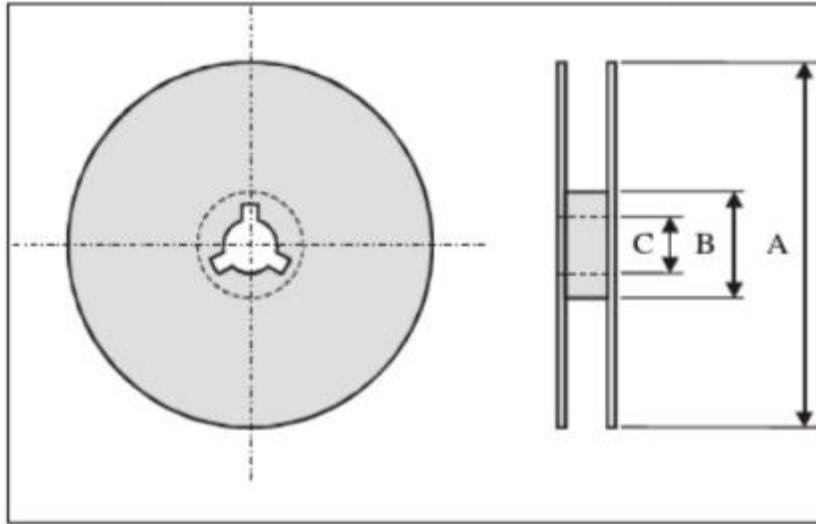


塑胶载带规格 (单位:mm)



Index	<b>Ao</b>	<b>Bo</b>	<b>ΦD</b>	<b>T</b>	<b>w</b>
Dimension (mm)	<b>3.0 ± 0.1</b>	<b>6.0 ± 0.1</b>	<b>1.55 ± 0.05</b>	<b>1.6 ± 0.1</b>	<b>16 ± 0.2</b>
Index	<b>E</b>	<b>F</b>	<b>Po</b>	<b>P1</b>	<b>P2</b>
Dimension (mm)	<b>1.75 ± 0.1</b>	<b>7.0 ± 0.1</b>	<b>4.0 ± 0.1</b>	<b>4.0 ± 0.1</b>	<b>2.0 ± 0.1</b>

## 卷盘尺寸



Index	<b>A</b>	<b>B</b>	<b>C</b>
Dimension(mm)	<b>330</b>	<b>100</b>	<b>13.5</b>

标准数量： 3000 PCS/盘.

## Storage environment

The following conditions should be met when storing the product: Temperature: -10°C~+40°C

Humidity: 30% to 70% relative humidity

The product should not be placed in a location that is exposed to corrosive gases such as sulfur, Chlorine or acid may cause oxidation of the product electrodes, resulting in poor weldability.

The product should be placed in a tool box and avoid moisture and dust. The product should be stored in a warehouse and avoid heat, vibration, and direct sunlight. The product should be stored in a closed condition.