

# SMD Antenna Specification

**2.4 GHz ISM band antenna**

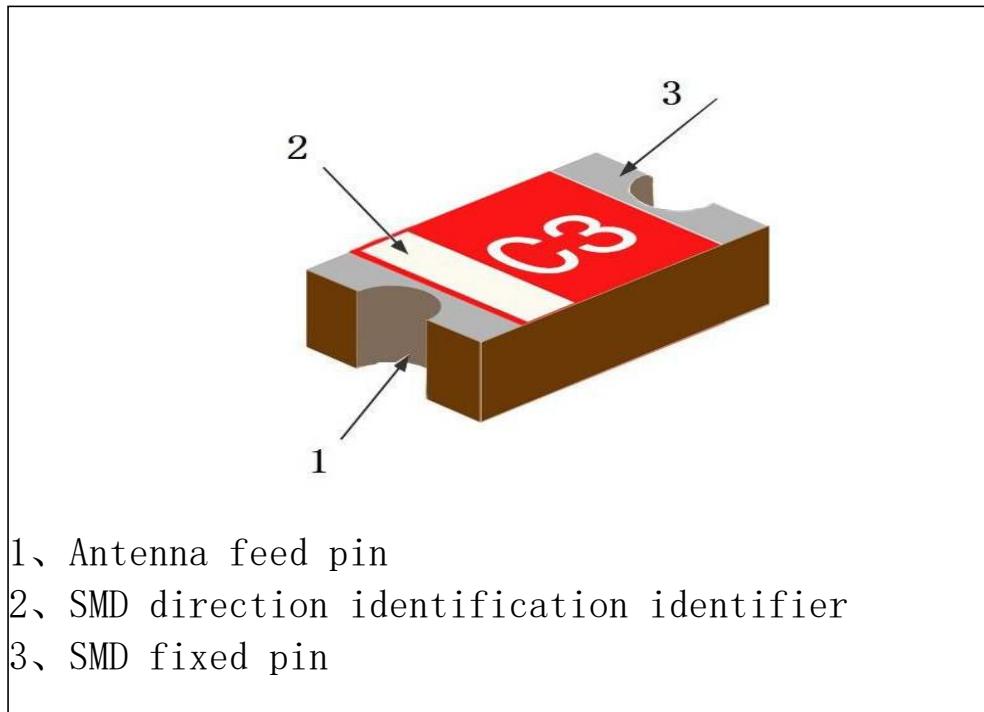
**Model: AB-C03**

**Feature:**

1. Small dimension: 5.5 X 2.0 X 1.0 mm.
2. Low energy loss, high gain antenna.
3. High stability in the case of temperature and humidity changes.

**Apply:**

1. 2.4GHz ISM band antenna application
2. Bluetooth, ZigBee, wireless applications, smart home applications, etc
3. WiFi (Only 2.4G)

**Structure:****Size:**

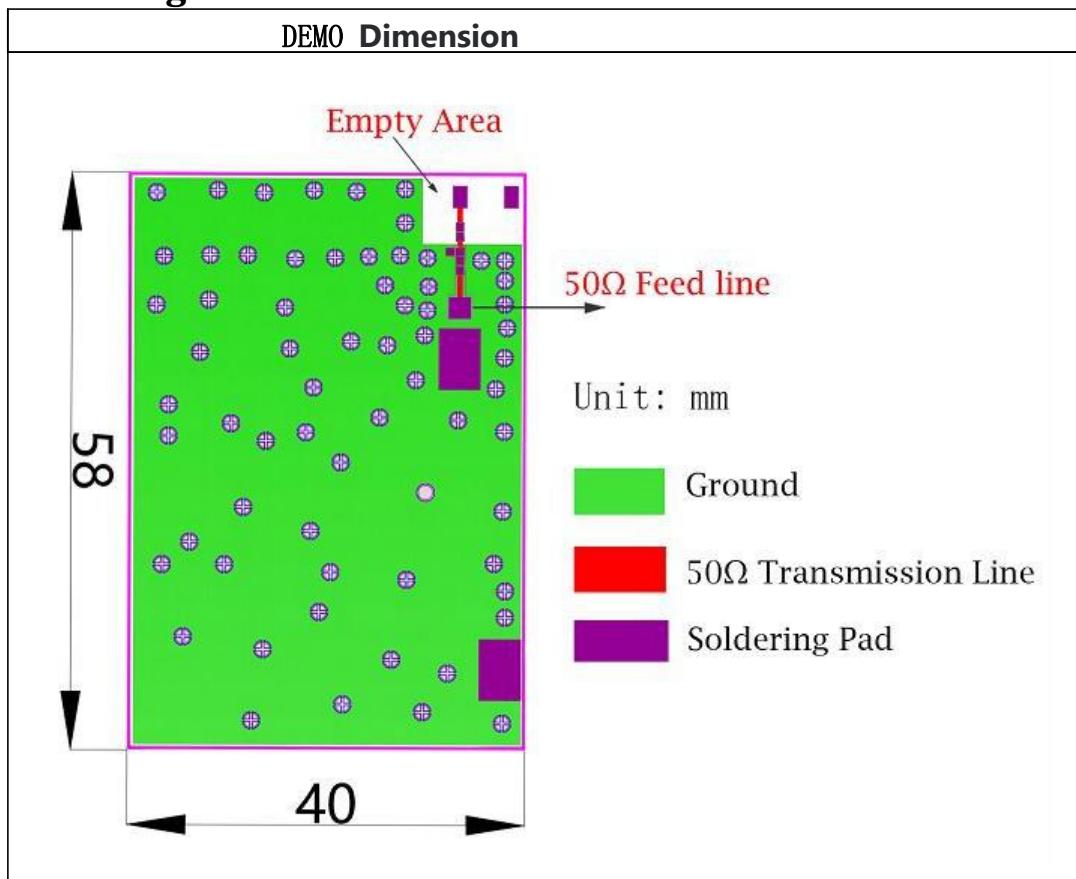
Three views	Sign	Dimensions(mm)
 W= 2. 0 (mm) L= 5. 5 (mm) T= 1. 0 (mm) a= 0. 5 (mm)	<b>L</b>	<b>5.5±0. 2</b>
	<b>w</b>	<b>2.0±0. 1</b>
	<b>T</b>	<b>1.0±0. 1</b>
	<b>a</b>	<b>0.5±0. 1</b>

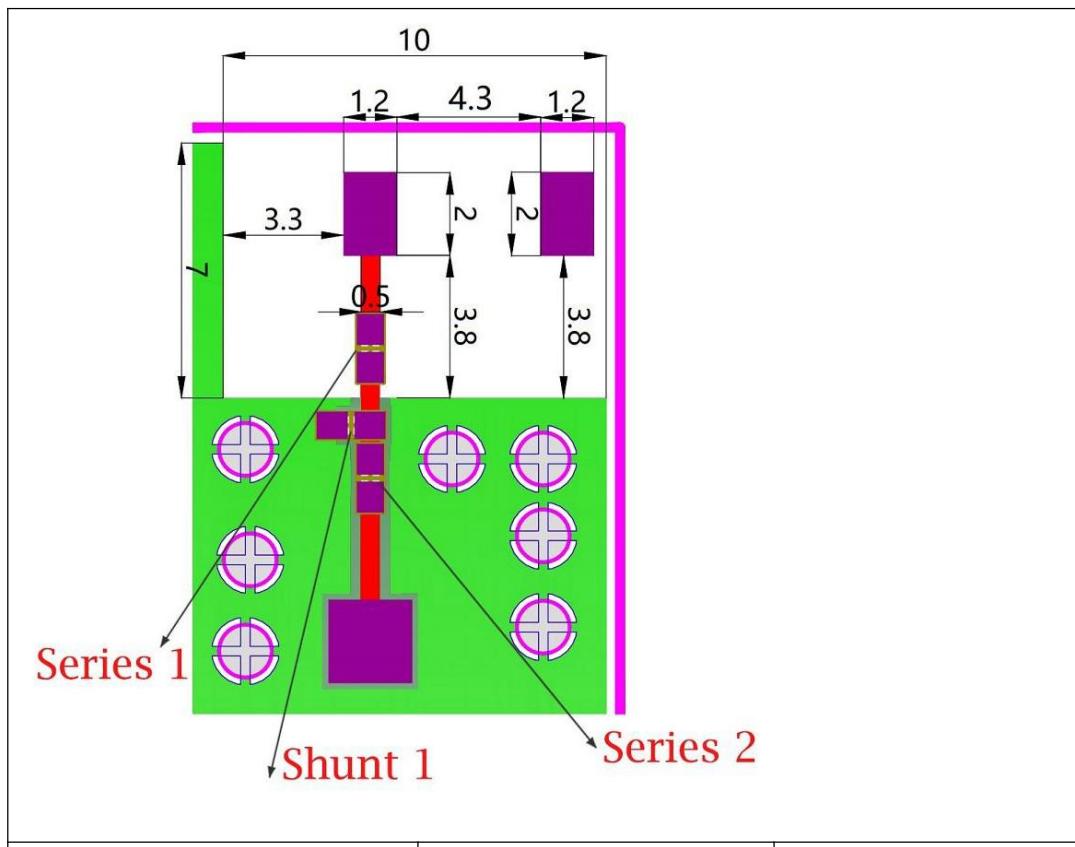
## Electrical specification

AB-C03	Specification
工作频率范围 <b>Working Frequency</b>	2450±50MHz
带宽 <b>Band Width</b>	>100MHz
阻抗 <b>Impedance</b>	50 Ω
增益 <b>Gain(dBi)</b>	4.3 (peak)
驻波比 <b>VSWR</b>	<2
工作温度 <b>Operation Temperature</b>	-40°C~+95°C
可承受功率 <b>Power Capacity</b>	3W

The antenna 2.4G operating frequency needs to be realized through impedance matching device debugging.

## DEMO Design Reference:

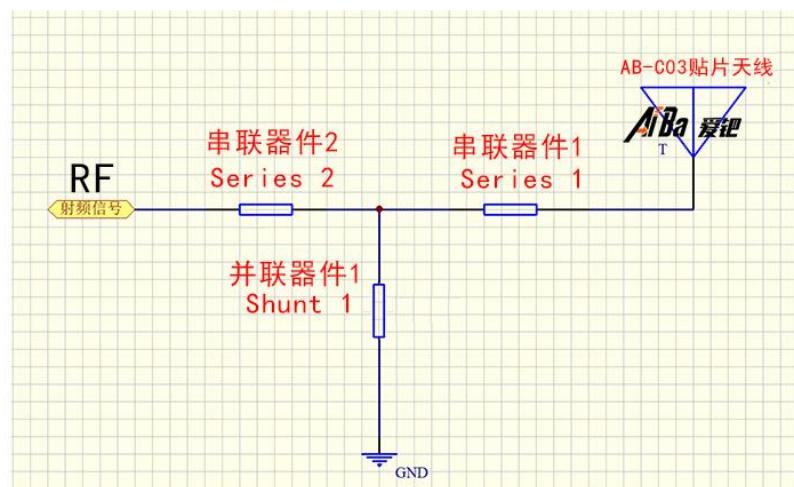




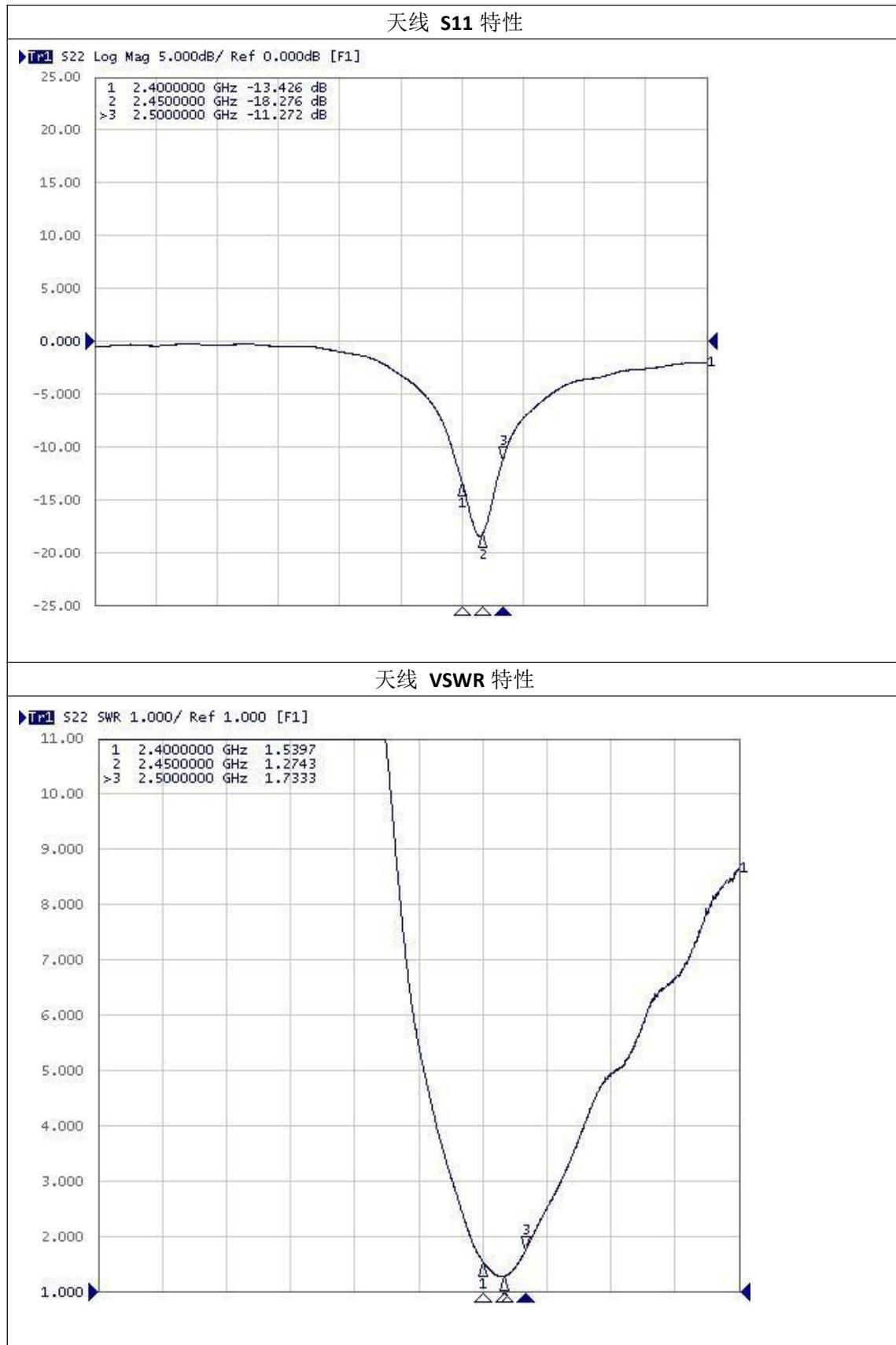
匹配器件值 Matching element values	串联器件 Series 1	0 Ω
	并联器件 Shunt 1	3nh
	串联器件 Series 2	0 Ω

**Note:** Matching inductors should use **white high-frequency** inductors

### SCH of Antenna Impedance Matching



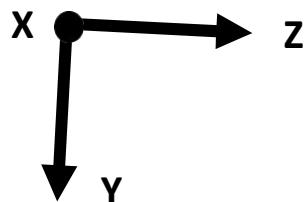
Attention: For the peripheral components of the RF chip reference design, follow the circuit design recommended by the chip manufacturer, the above antenna matching elements are independent of each other and cannot be replaced by each other



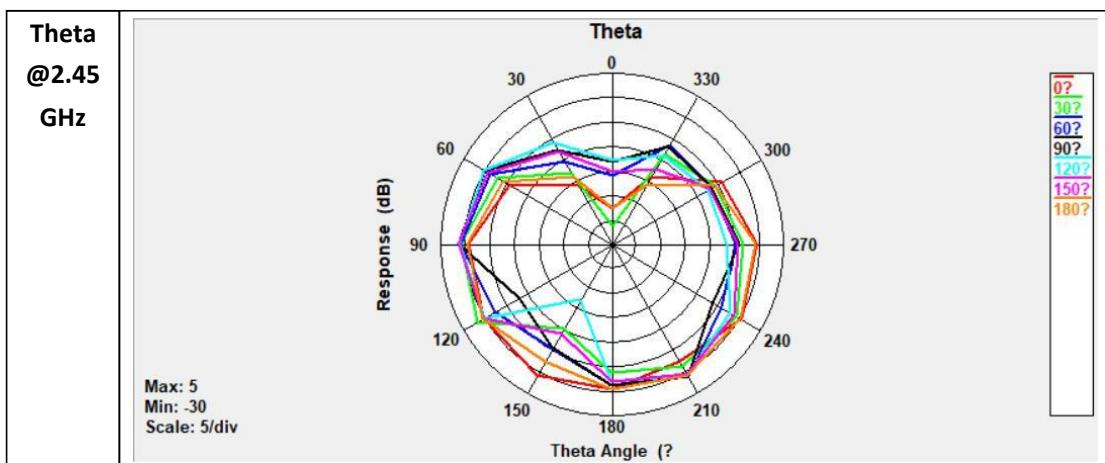
Efficiency and radiation map (PCB board thickness 1.0mm)

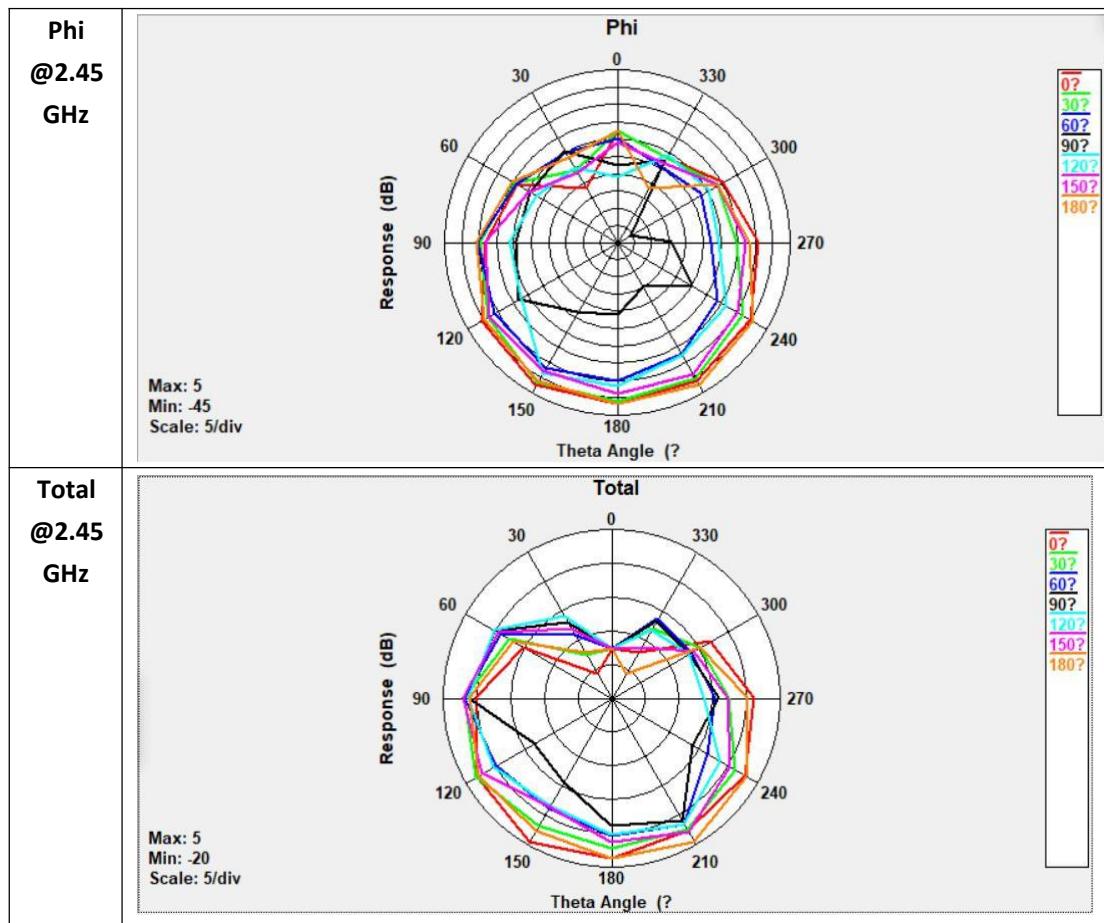
Efficiency, radiation pattern, gain and other properties are designed based on the test plate. The specifications and characteristics test data of AB-C03 antenna are as follows

Based on the test PCB board size and the test direction shown in the figure below. The following data were tested in ETS 3D microwave anechoic chamber.

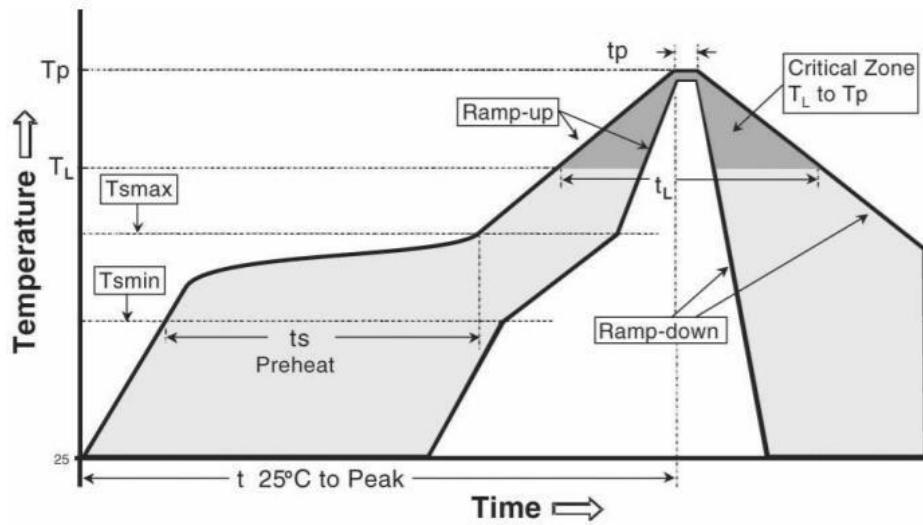


增益和效率 Gain and efficiency	<b>Bandwidth</b> 2.4G-2.5GHz
峰值增益 Peak Gain	4.3dBi
带内平均增益 Average Gain across the band	4.1dBi
带内增益范围 Gain Range across the band	3.9dBi~4.3dBi
峰值效率 Peak Efficiency	81.7%
带内平均效率 Average Efficiency across the band	80.2%
带内效率范围 Efficiency Range across the band	78.6%~81.7%



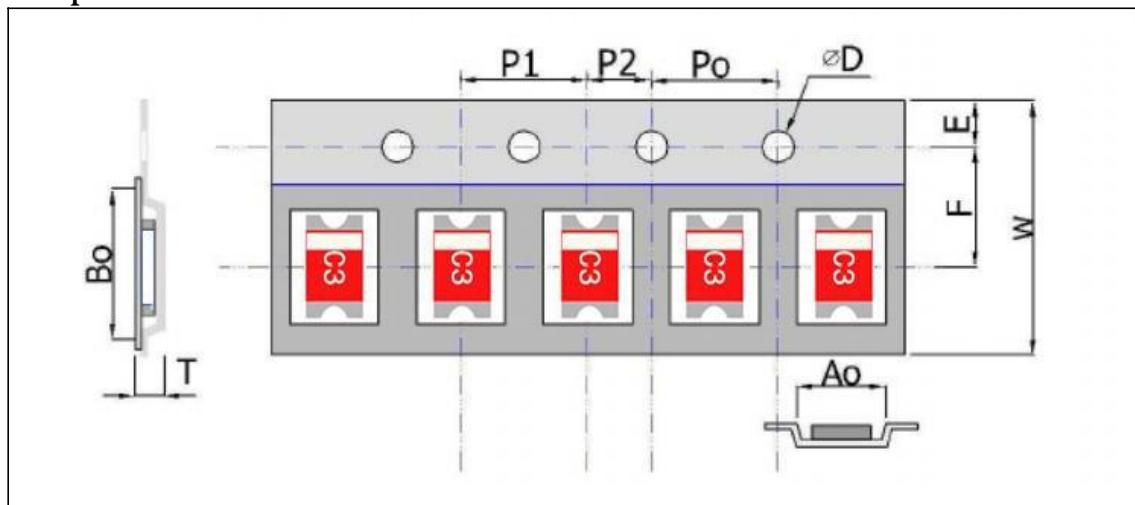


### Welding condition:



Phase	Profile features	Pb-Free assembly (SnAgCu)
RAMP-UP	Avg. Ramp-up Rate (Tsmax to Tp)	3 °C / second (max.)
PREHEAT	<ul style="list-style-type: none"> <li>- Temperature Min (Tsmin)</li> <li>- Temperature Max (Tsmax)</li> <li>- Time (tsmin to tsmax)</li> </ul>	150 °C 200 °C 60-180 seconds
REFLOW	<ul style="list-style-type: none"> <li>- Temperature (TL)</li> <li>- Total Time above TL (tL)</li> </ul>	217 °C 60-150 seconds
PEAK	<ul style="list-style-type: none"> <li>- Temperature (Tp)</li> <li>- Time (tp)</li> </ul>	260 °C 20-40 seconds
RAMP-DOWN	Rate	6 °C/second max
Time from 25 °C to Peak Temperature		8 minutes max

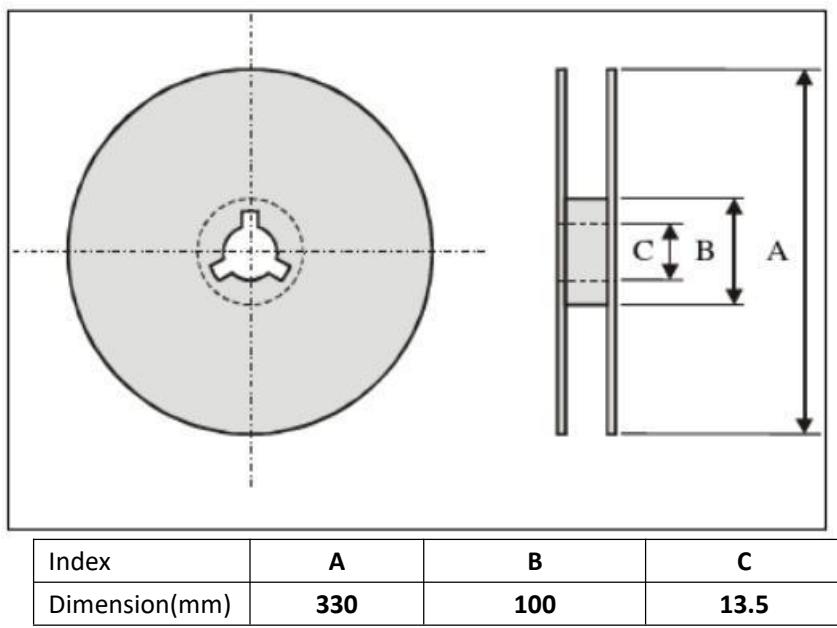
Tape:



Specification of plastic carrier tape (Unit:mm)

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

Reel size:



Standard number of package: 3000 PCS/roll.

### Storage Environment:

The following conditions shall be met when the product is stored:

Storage temperature of material tray: -10°C ~ +40°C (non-antenna operating temperature)

Material tray storage humidity: 30% to 70% relative humidity (non-antenna operating humidity)

Keep the product away from corrosive gases such as sulfur. Chlorine gas or acid may lead to oxidation of product electrodes, resulting in poor weldability.

The product should be placed in the toolbox and protected from moisture and dust. Products should be stored in the warehouse and away from heat, vibration and direct sunlight. Products should be stored in closed conditions.