SMD Antenna Specification

SMD antenna series
Complies with RoHS specification

PN: Z321612F245

2.4 GHz ISM Band Antenna

2500PCS per roll

Manufacturer: Shenzhen Xunyan Communication Technology Co., LTD
Address: Room 406, Building A, Sanlian Industrial Zone, Tangtou Community, Shiyan Street, Bao 'an District, Shenzhen City

Z321612F245 Specification sheet

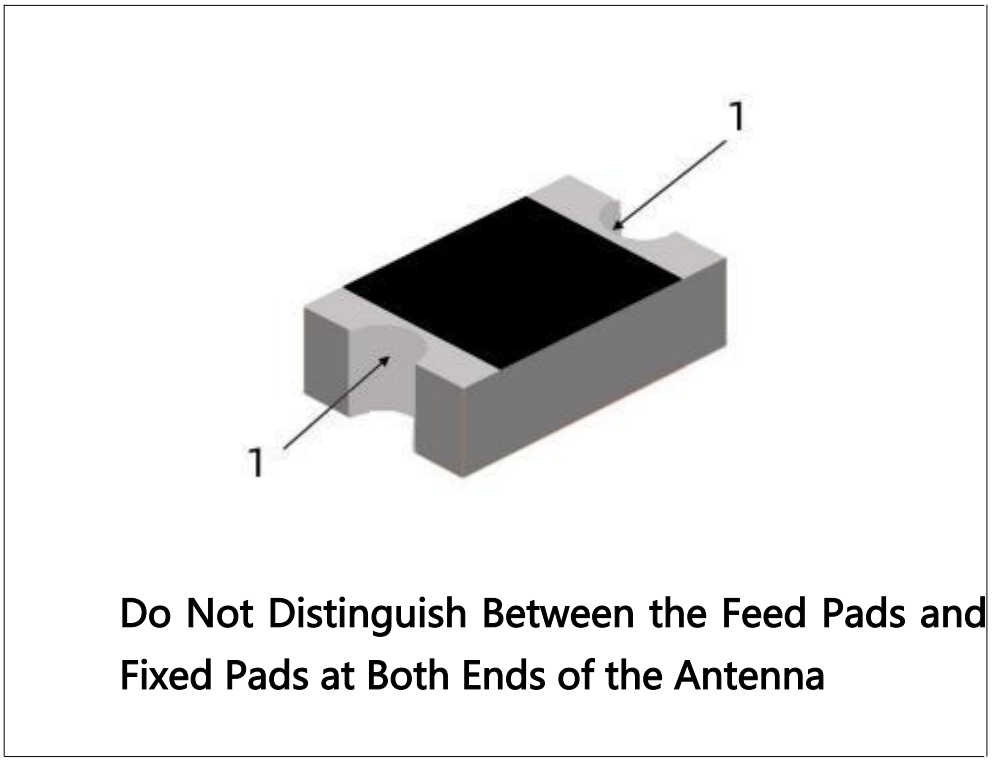
Characteristic

1. A small size SMD surface mount antenna with a size of only 3.35 X 1.75X 1.2 mm^3 .
2. Low energy loss, high antenna efficiency.
3. It has high stability under the condition of temperature and humidity change.

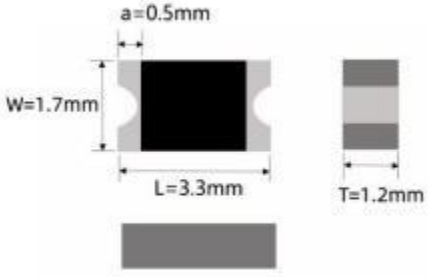
Apply

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	symbol	size （mm）
	L	**3.35**±0. 2
	w	**1.75**±0. 1
	T	**1.2**±0. 1
	a	**0.5**±0. 1

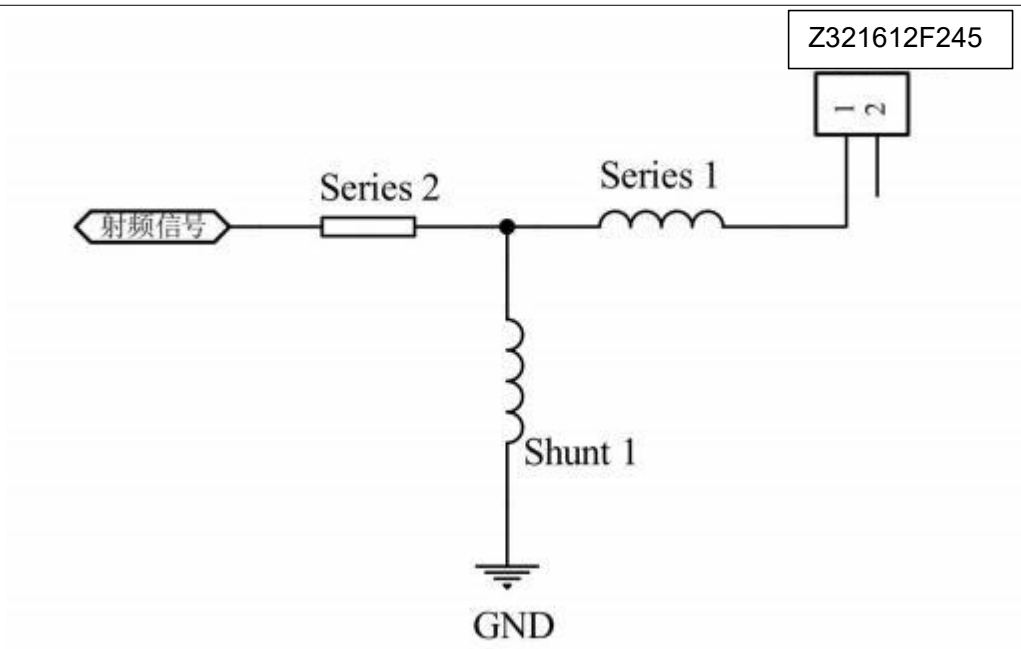
Electrical Character

Z321612F245	Specification
Working frequency range Working Frequency	2450±50MHz
Bandwidth	>100MHz
Impedance	50 Ω
Gain (dBi)	3.85（peak）
standing-wave ratio VSWR	<2
Operating temperature	-40℃~+95℃
Power capacity	3W

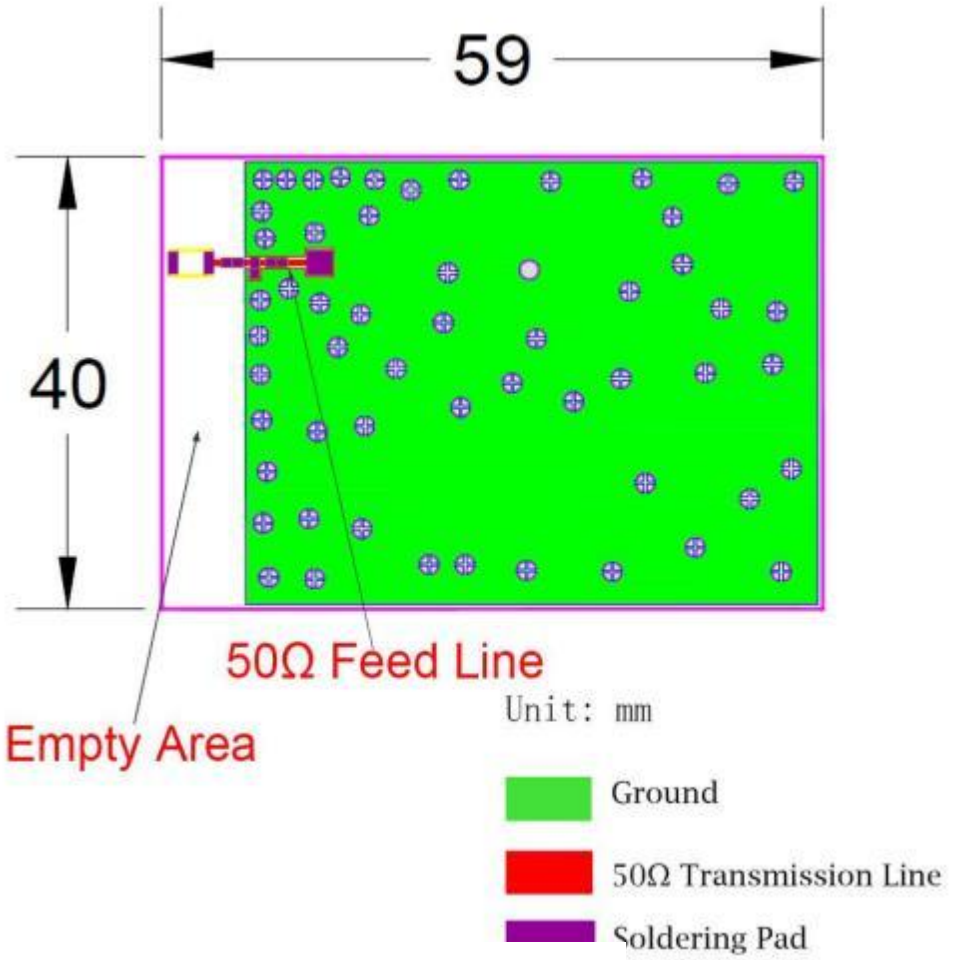
Antenna 2.4G working frequency needs to be achieved through impedance matching device debugging.

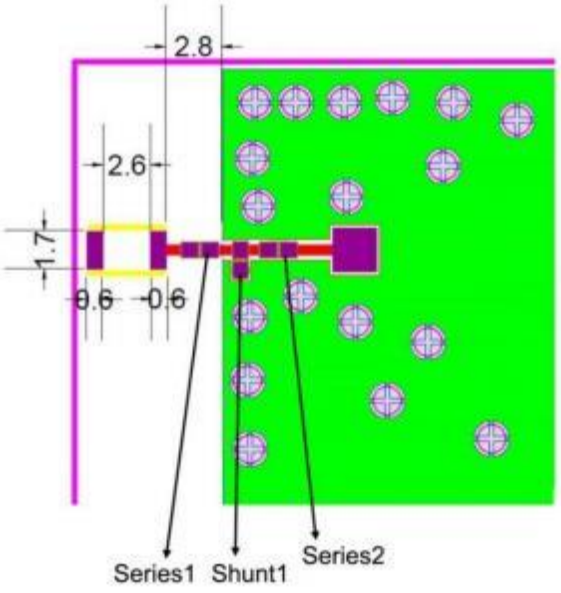
Antenna Pad and Wiring Design

PCB， schematic diagram



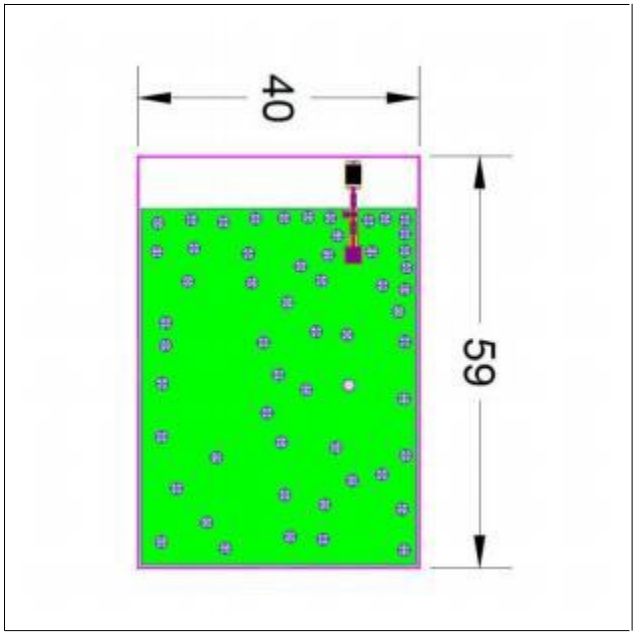
PCB design size diagram



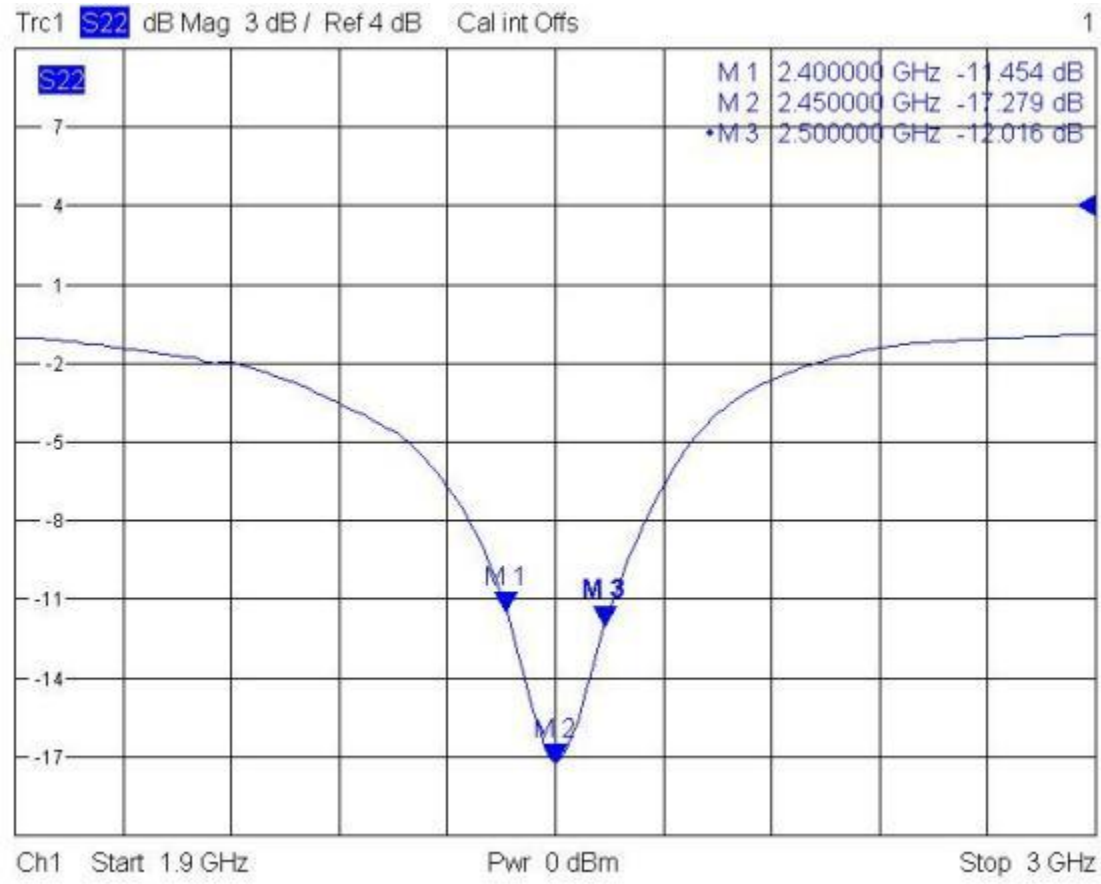


Match component values	**Series 1 of the serial device**	High frequency inductance 2. 2nh
	Shunt 1 is a parallel device	High frequency inductance 3.9nh
	Series 2 of the serial device	The resistance is 0 ohms

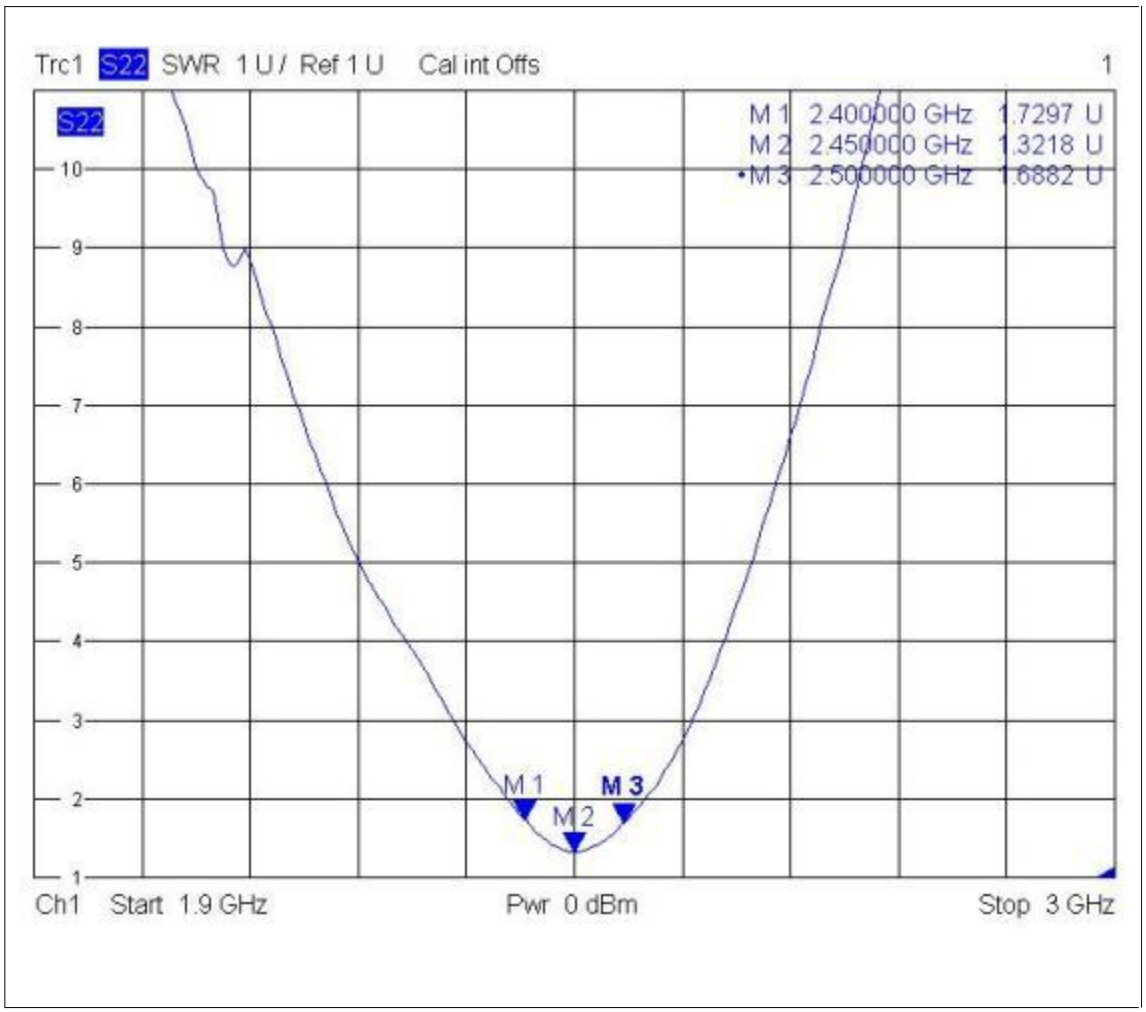
Antenna test on test board (board thickness 1.0mm)



Antenna S11 characteristics

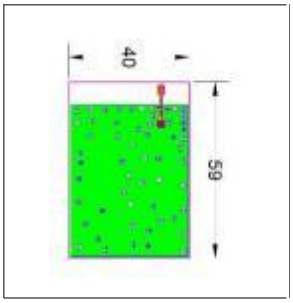


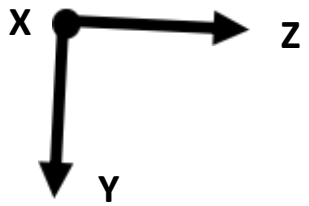
Antenna VSWR characteristics



Efficiency and Radiation Map

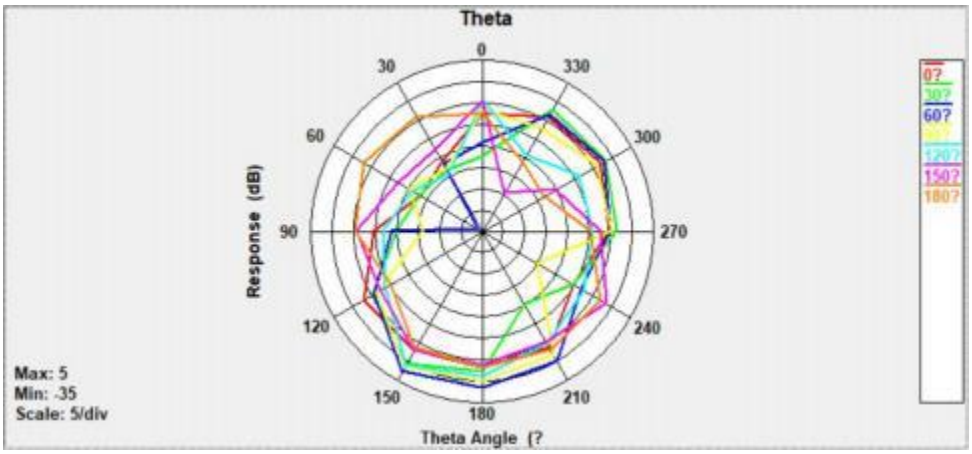
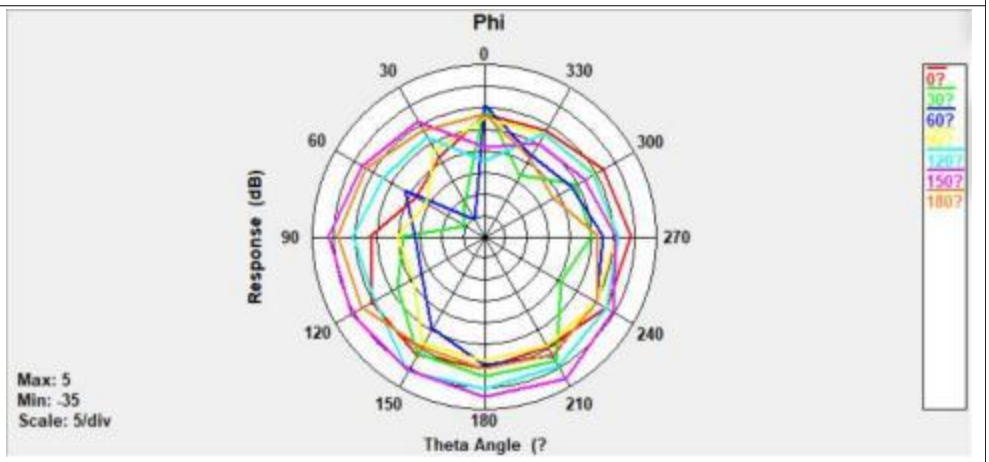
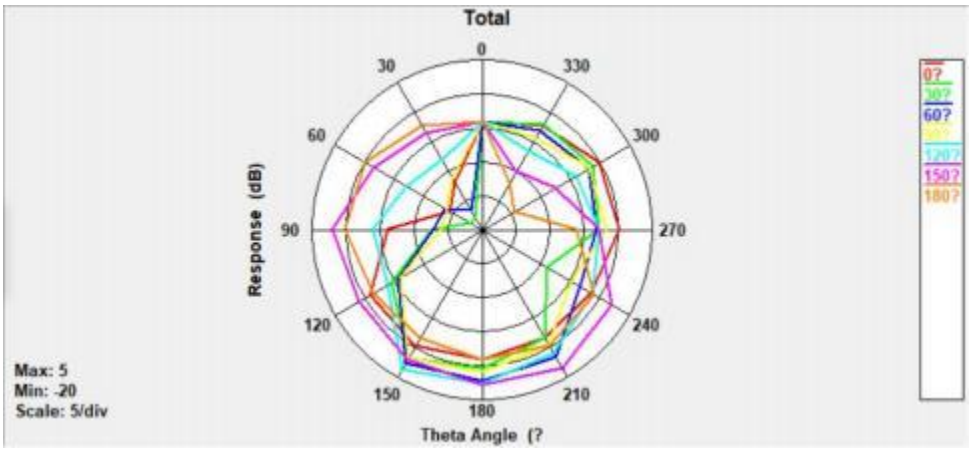
The performance metrics, including efficiency, radiation pattern, and gain, are derived from the test board design. The specification characteristics of the Z321612F245 antenna are based on the dimensions of the test PCB board and the test direction illustrated in the figure below. The following data were obtained after completing the ETS 3D microwave anechoic chamber tests.





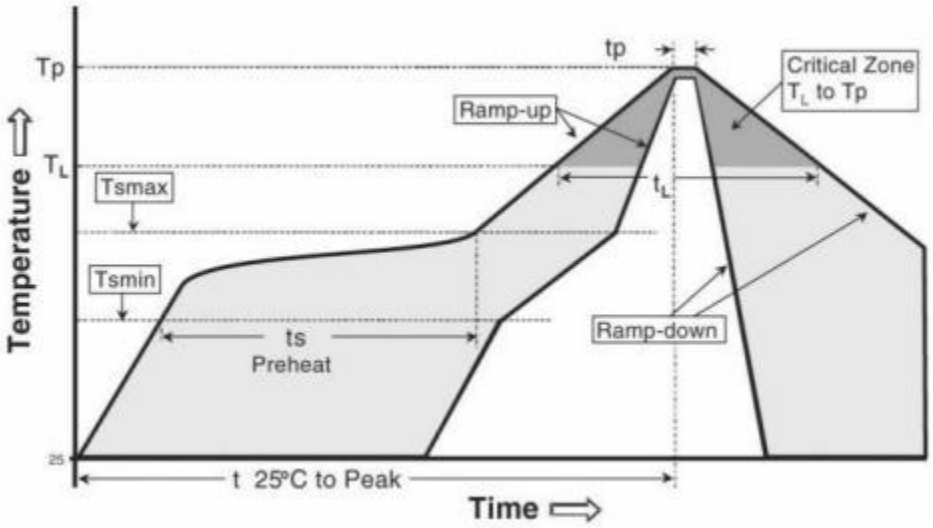
Gain and efficiency	Bandwidth 2.4G-2.5GHz
Peak gain (Peak Gain)	3.85dBi
Average gain in the band Average Gain across the band	3.76dBi
Band gain range Gain Range across the band	3.53dBi~3.85dBi
Peak efficiency	63.2%
Average efficiency in the band	58.8%

Average Efficiency across the band	
Band efficiency range **Efficiency Range across the band**	**54.1%~63.2%**

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

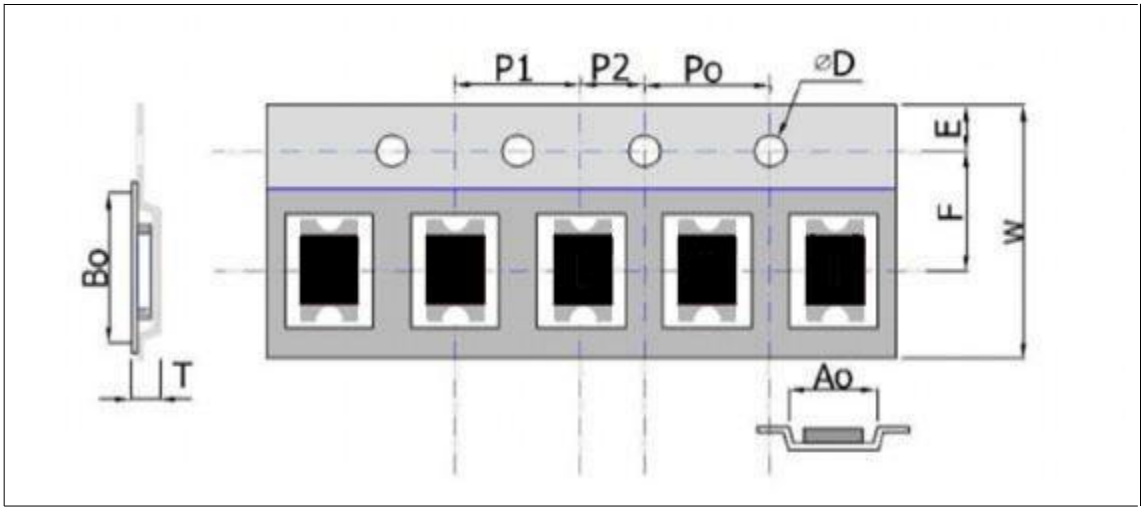
Welding Condition

The typical welding specifications for reliable nondestructive testing are shown in the following figure:



Phase	Profile features	Pb-Free assembly (SnAgCu)
RAMP-UP	Avg. Ramp-up Rate (Tsmax to Tp)	3 °C / second (max.)
PREHEAT	- Temperature Min (Tsmin) - Temperature Max (Tsmax) - Time (tsmin to tsmax)	150 °C 200 °C 60-180 seconds
REFLOW	- Temperature (TL) - Total Time above TL (tL)	217 °C 60-150 seconds
PEAK	- Temperature (Tp) - Time (tp)	260 °C 20-40 seconds
RAMP-DOWN	Rate	6 °C/second max
Time from 25 °C to Peak Temperature		8 minutes max

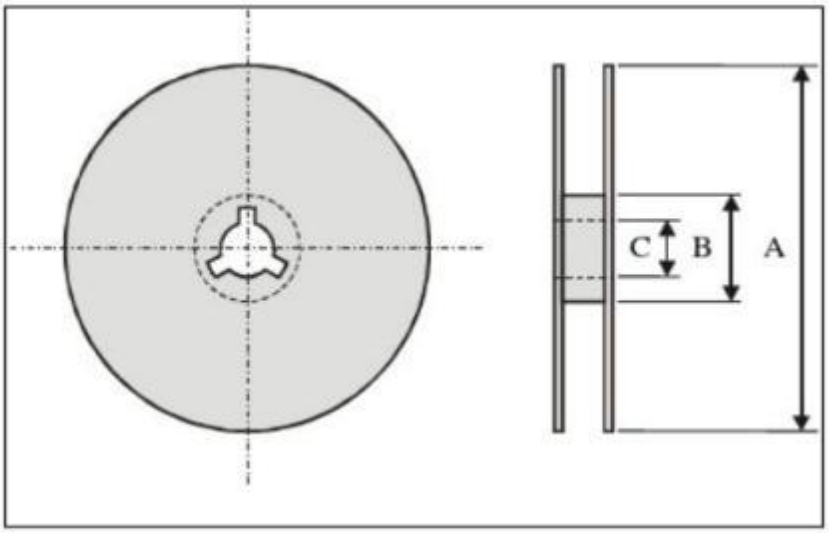
pack



Specification of plastic tape (unit: mm)

Index	Ao	Bo	ΦD	T	W
Dimension (mm)	2.0±0.1	4.0±0.1	1.55±0.05	1.8±0.1	12±0.1
Index	E	F	Po	P1	P2
Dimension (mm)	1.5±0.1	5.4±0.1	4.0±0.1	4.0±0.1	2.0±0.1

Roll Size



Index	A	B	C
Dimension(mm)	178	60	13.5

Standard quantity: 2500 PCS/ disk.

Storage Environment

The product shall be stored under the following conditions:

temperature： -10℃~+40℃

Humidity: 30% to 70% relative humidity

The product should not be placed in contact with corrosive gases such as sulfur. Chlorine or acid may cause the product electrode to oxidize and reduce weldability.

The product should be placed in the toolbox and avoid moisture and dust.

Products should be stored in the warehouse and avoid heat, vibration, direct sunlight.

Products should be stored under closed conditions.