CA-C03 SPECIFICATION

SMD Antenna specification sheet

CrossAir™ SMD Antenna series

Compliant with RoHS regulations

PN:CA-C03

2.4 GHz ISM band antenna

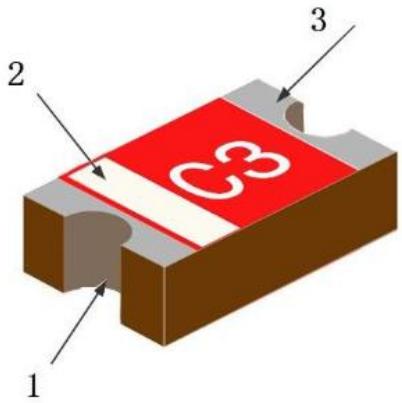
characteristic

1. A small-sized SMD patch antenna with dimensions of only 5.5 X 2.0 X 1.0 mm3
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

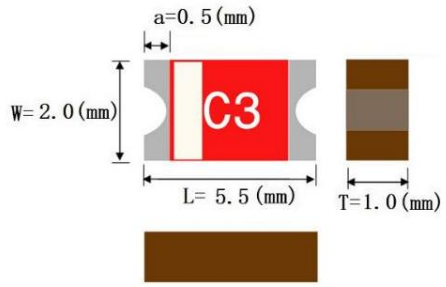


1. Antenna feeding end

2. Feed identification mark

3. Antenna welding fixed end

Size

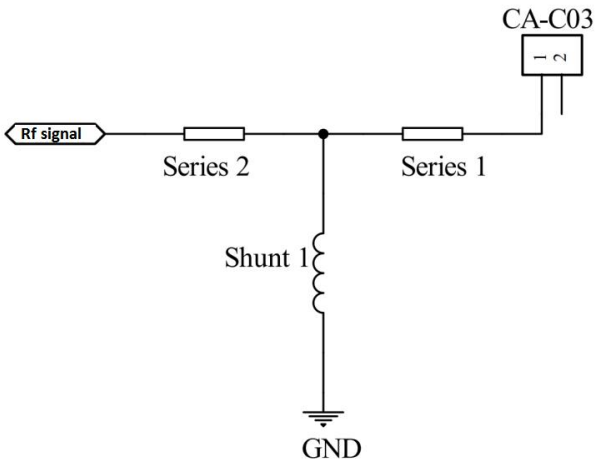
Three views	symbol	Size (mm)
	L	5.5±0.2
	W	2.0±0.1
	T	1.0±0.1
	a	0.5±0.1

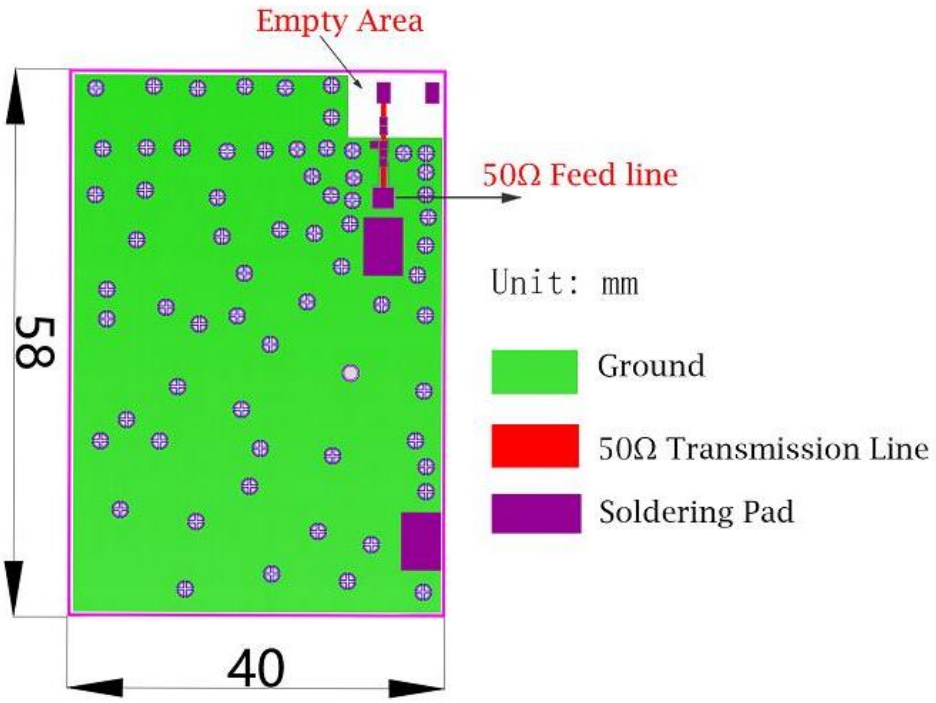
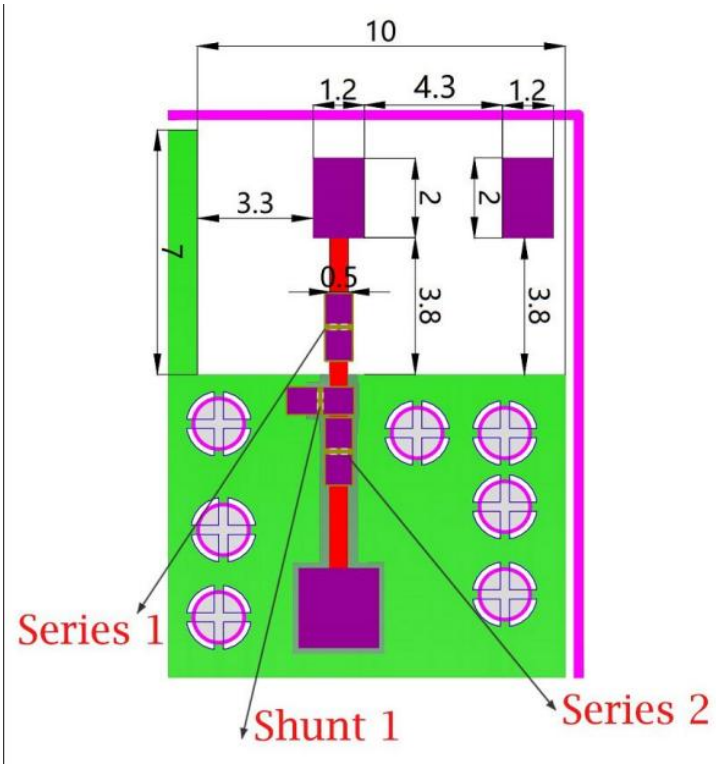
Electrical characteristics

CA-C03	Specification
Working Frequency	2450±50MHz
Band Width	>100MHz
Impedance	50Ω
Gain(dBi)	4.3 (peak)
VSWR	<2
Operation Temperature	-40℃~+95℃
Power Capacity	3W

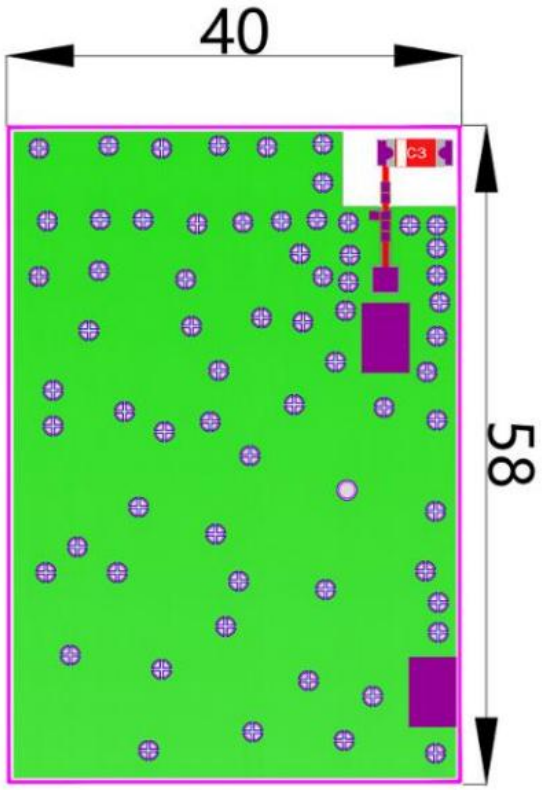
The 2.4G working frequency of the antenna needs to be adjusted through impedance matching devices

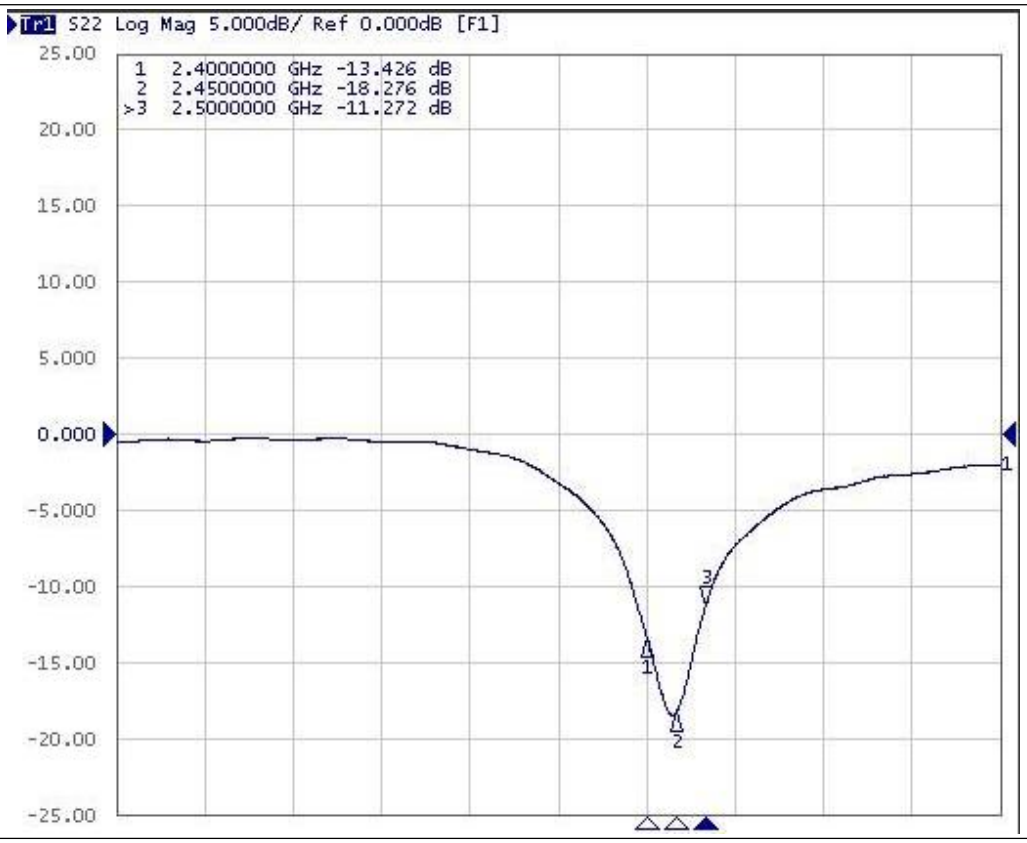
Antenna pad and routing design

PCB schematic diagram


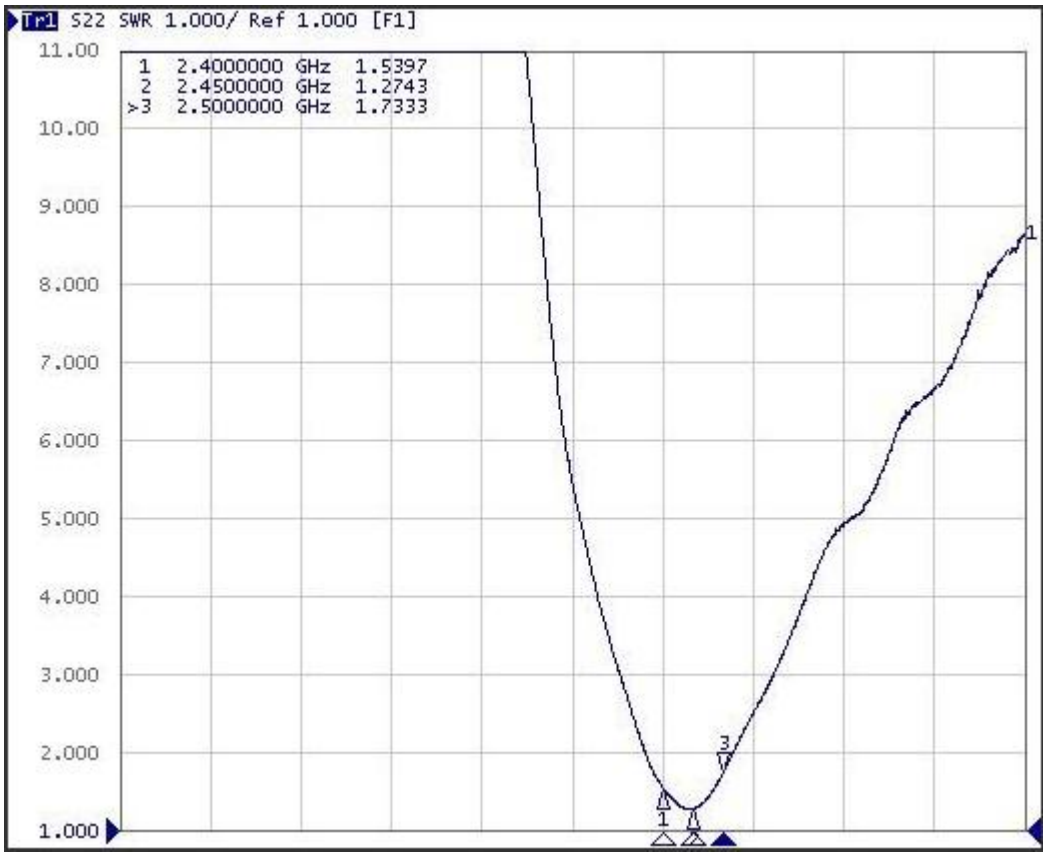
Design dimension diagram



Matching device values	Serial device Series 1	Resistance 0 Ω
	Parallel device Shun 1	High frequency inductor 3nh

	Serial device Series 2	Resistance 0 Ω
Antenna testing on the test board (board thickness 1.0mm)		
		
Characteristics of antenna S11		



Antenna VSWR characteristics

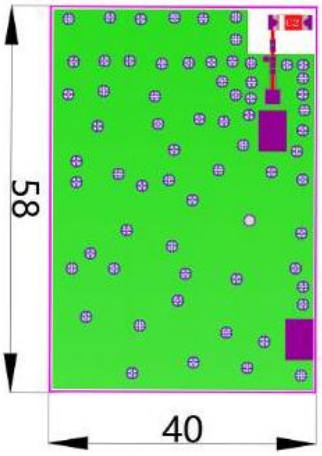


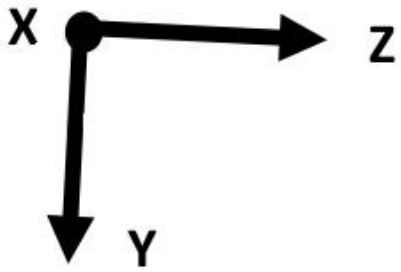
Efficiency and radiation diagram

Efficiency, radiation pattern, gain and other performance are based on the design of the test board. The specification and characteristic test data of CA-C03 antenna are

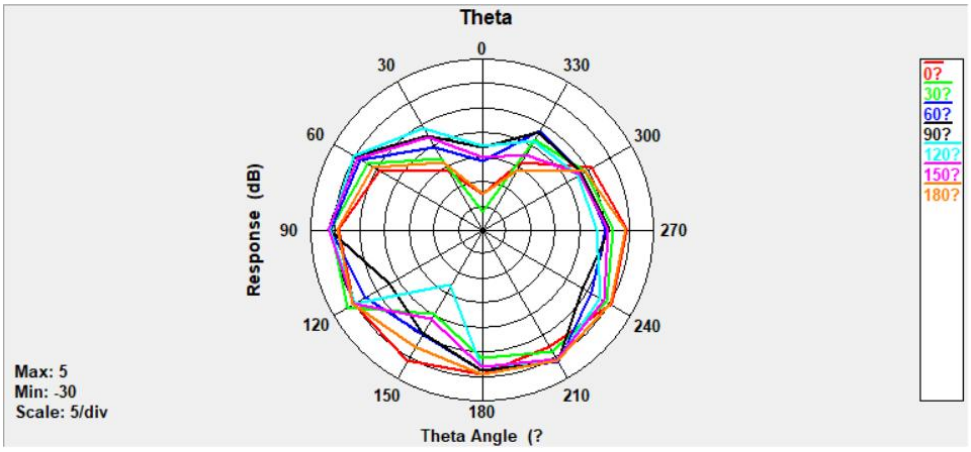
Based on the size of the PCB board and the testing direction shown in the following figure. The following data was measured in an ETS 3D microwave anechoic chamber

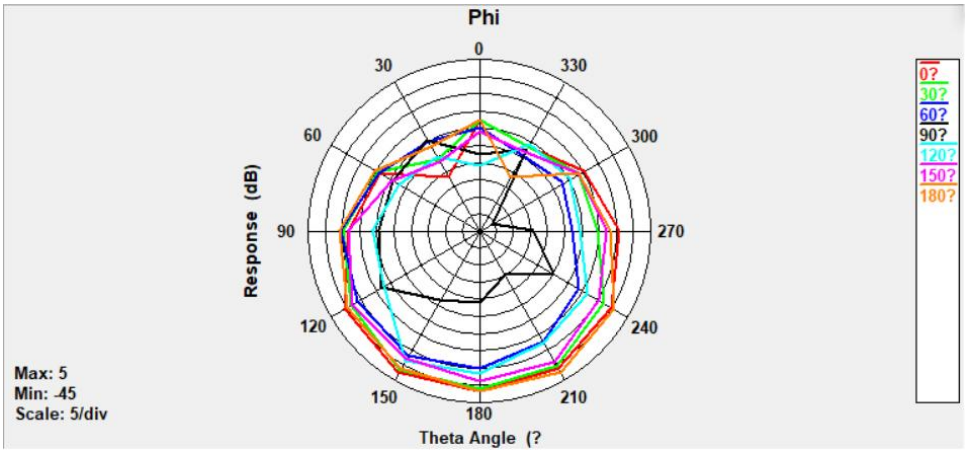
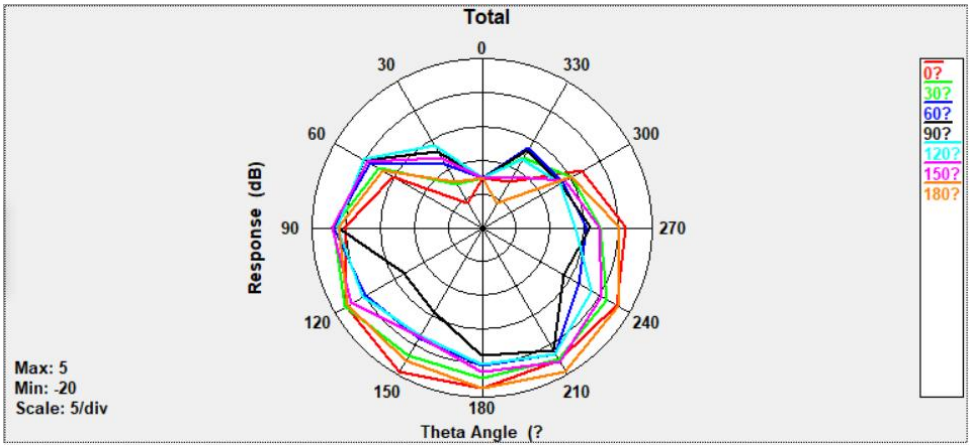
Tested completed





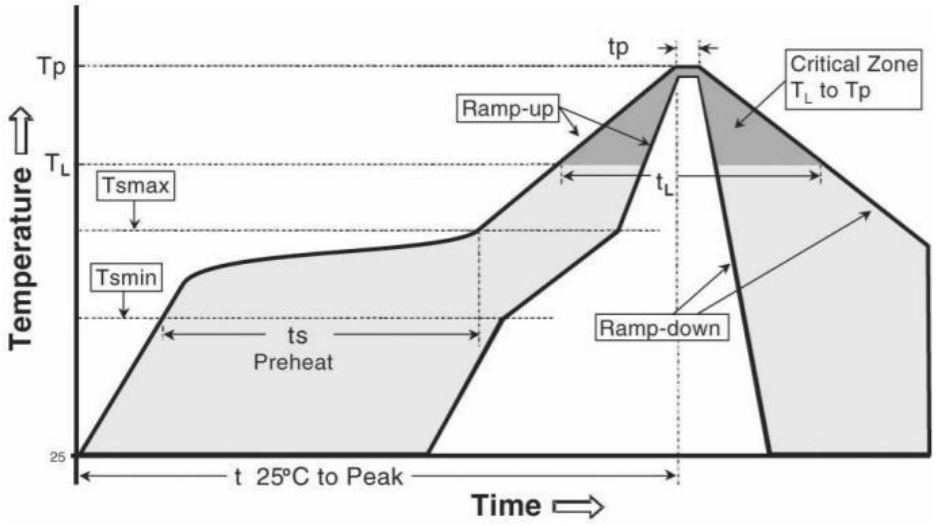
Gain and efficiency	Bandwidth: 2.4G-2.5GHz
Peak Gain	4.3dBi
Average Gain across the band	4.1dBi
Gain Range across the band	3.9dBi~4.3dBi
Peak Efficiency	81.7%
Average Efficiency across the band	80.2%
Efficiency Range across the band	78.6%~81.7%

Theta @2.45 GHz	

Phi @2.45 GHz	
Total @2.45 GHz	

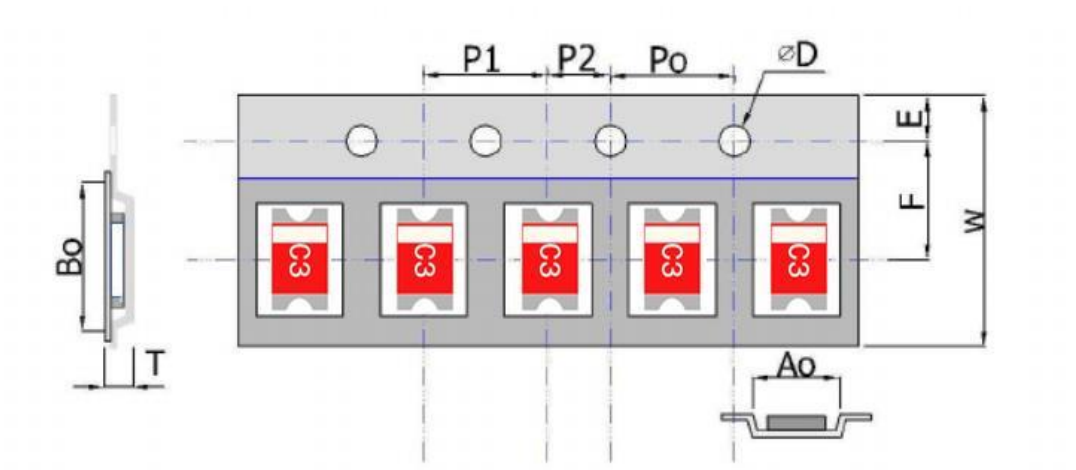
Welding conditions

The typical reliable and non-destructive welding specifications 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

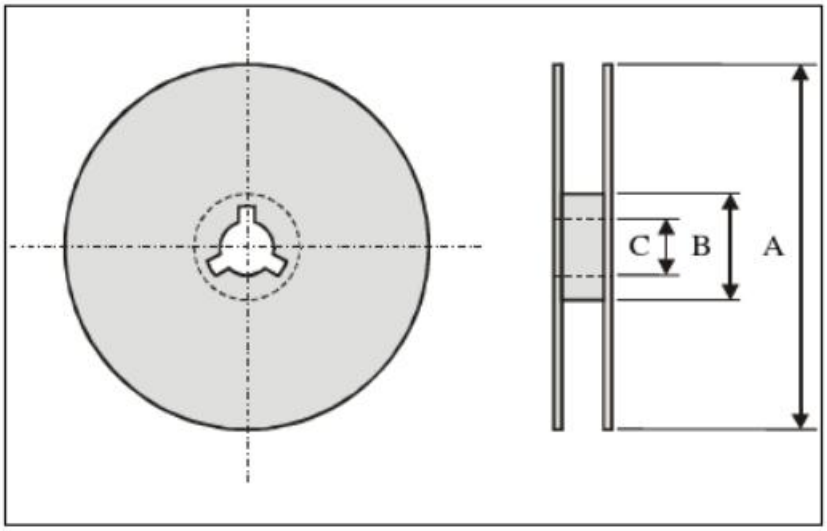
Packaging



Specifications of plastic carrier tape (Unit :mm)

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

Reel size



Index	A	B	C
Dimension(mm)	330	100	13.5

Standard quantity: 3000 PCS/disc.

Storage environment

The following conditions should be met when storing the product:

Temperature: -10℃ to +40℃

Humidity: 30% to 70% relative humidity

The location where the product is placed should not come into contact with corrosive gases such as sulfur. Chlorine gas or acid may cause oxidation of the product electrodes

This leads to a deterioration in weldability.

The products should be placed in the toolbox and kept away from moisture and dust.

The products should be stored in the warehouse and kept away from heat, vibration and direct sunlight.