SMD ANT Specification

CrossAir™ SMD The antenna family comply to the RoHS specification

PN:CA-C03

2.4 GHz ISM band ant

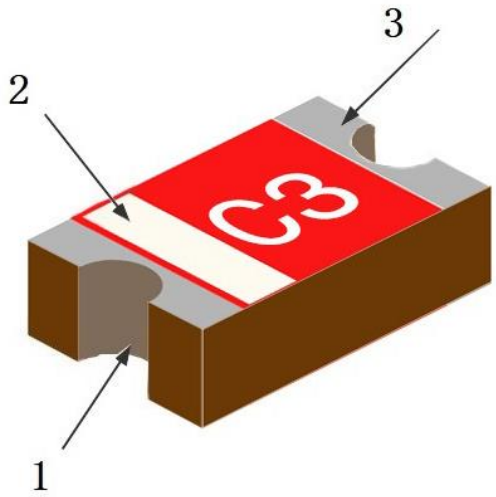
characteristic

1. 1. Small size SMD patch antenna measuring only 5.5 X 2.0 X 1.0 mm3. 2. Low energy loss and high antenna efficiency. 3. High stability in the case of temperature and humidity changes.

Apply

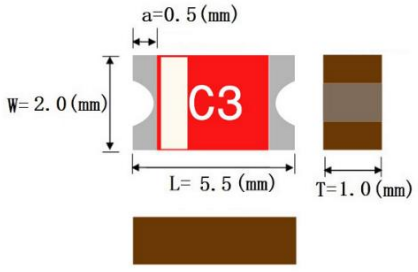
1. 2.4GHz ISM Band antenna applications
2. Bluetooth, ZigBee, wireless applications, smart home applications, etc. 3. WIFI (only 2.4G)

Structure



1, antenna feed terminal 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

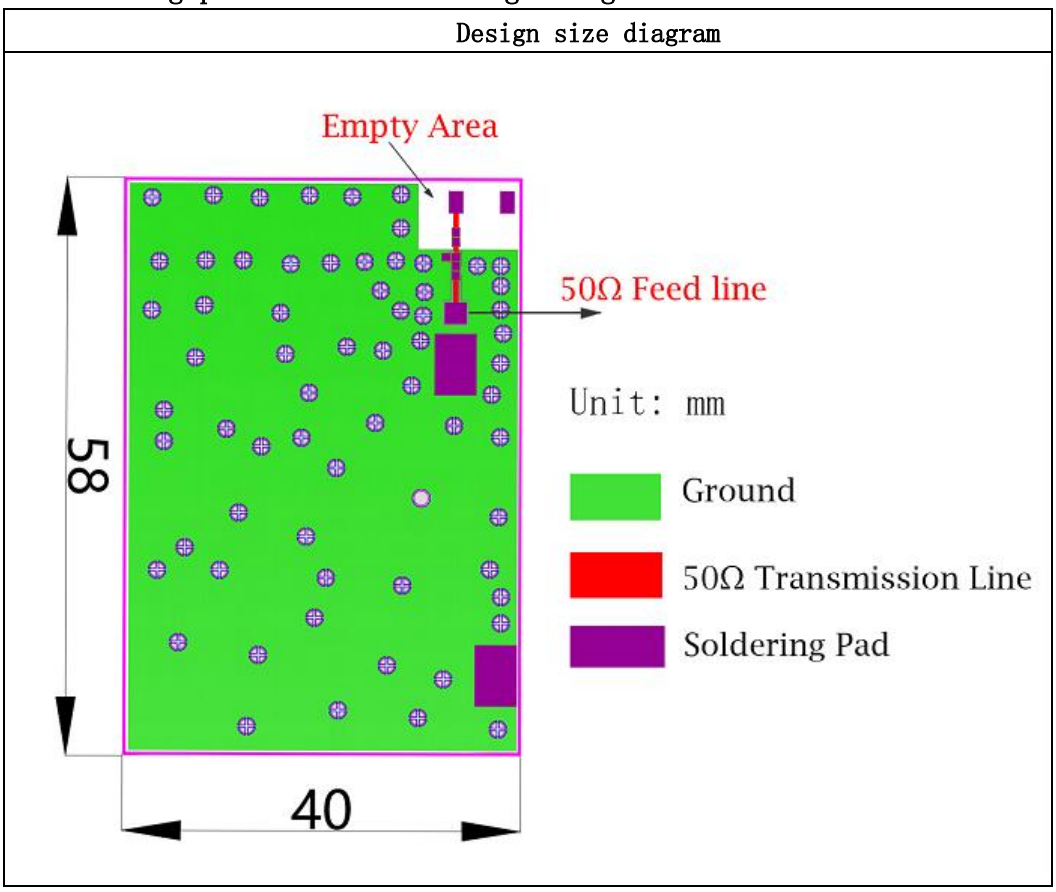
electrical character

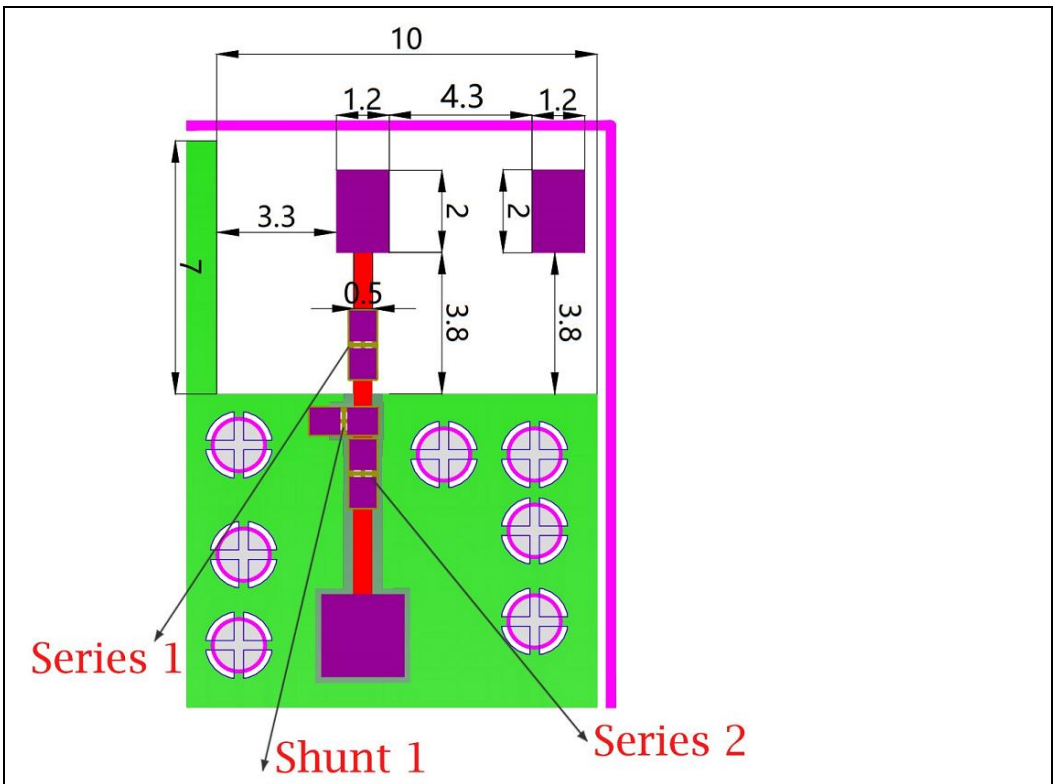
CA-C03	Specification
工作频率范围 Working Frequency	2450±50MHz
初始频段(GHz)	2.7GHz
带宽 Band Width	>100MHz
阻抗 Impedance	50Ω
增益 Gain(dBi)	4.3（peak）
驻波比 VSWR	<2
工作温度 Operation Temperature	-40℃~+95℃
可承受功率 Power Capacity	3W

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

Antenna welding pad and wire running design

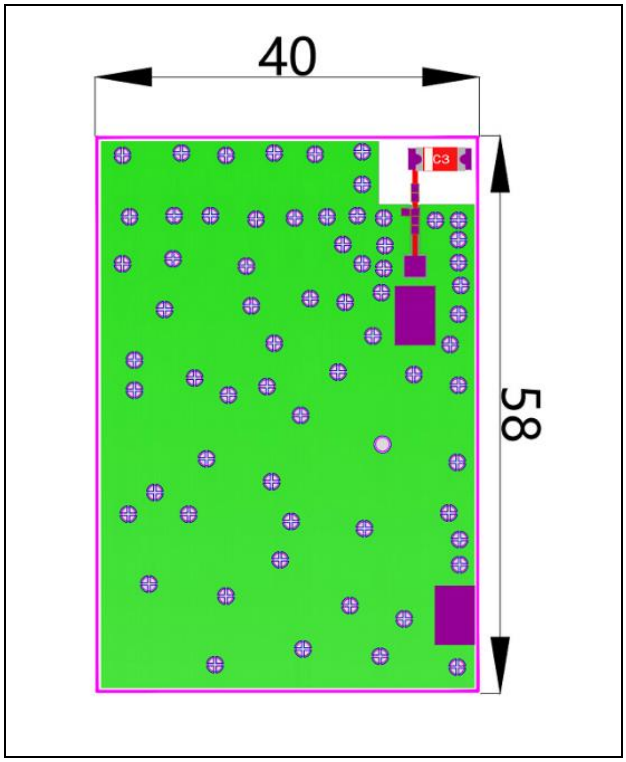
Design size diagram



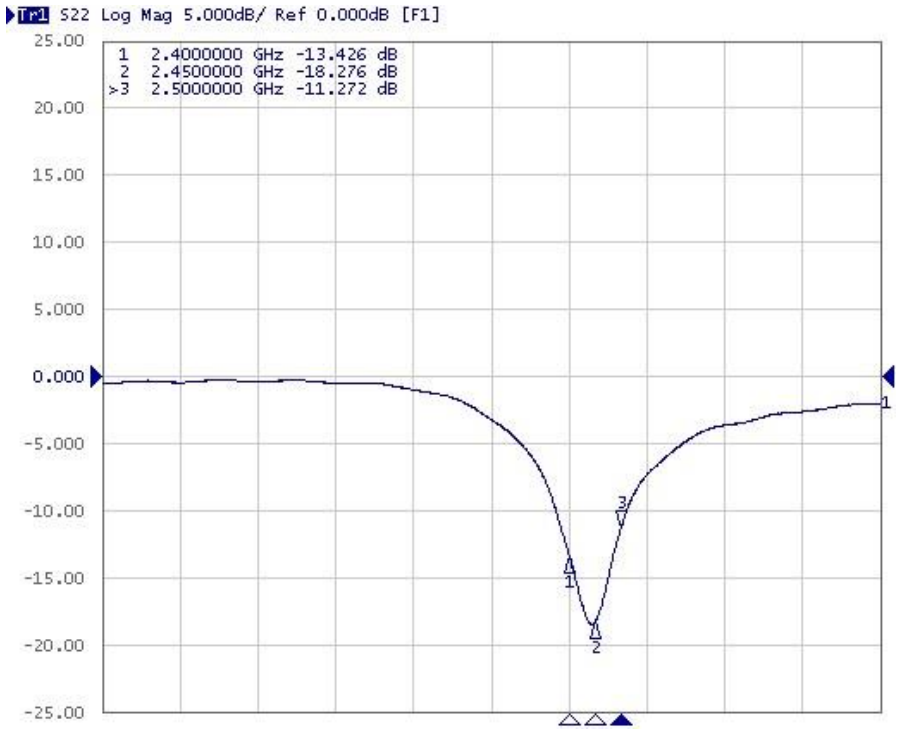


Matching device values	**Series 1**	0Ω
	Shunt 1	3nh
	Series 2	0Ω

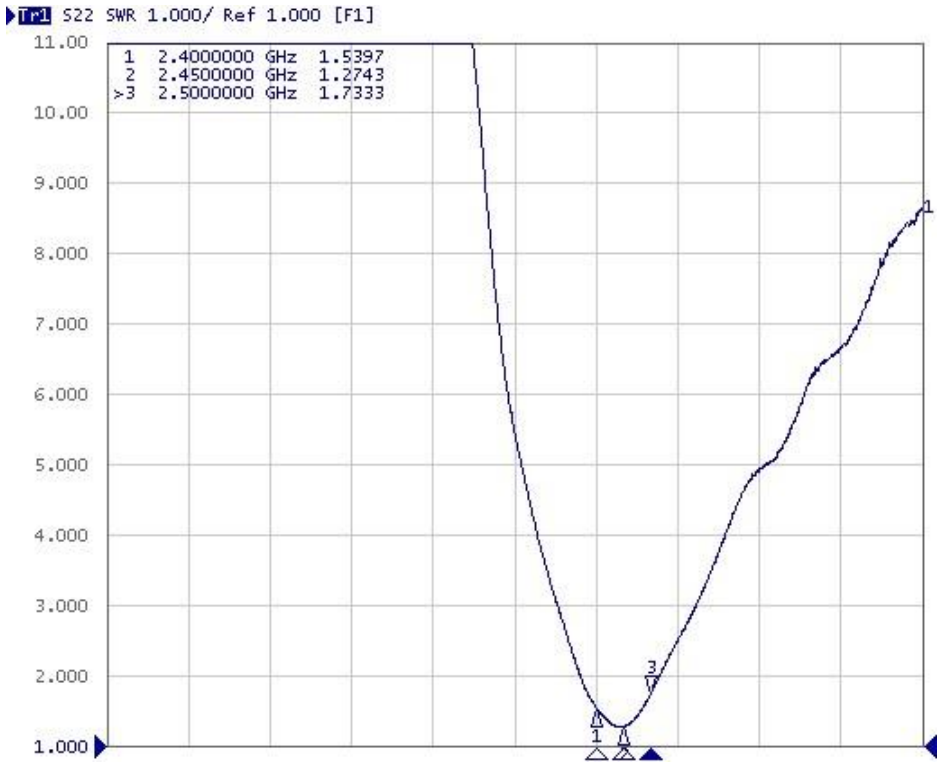
Antenna test on test plate (plate thickness 1.0mm)



Antenna S11 characteristics



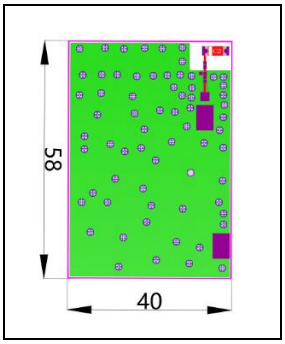
Antenna VSWR characteristics

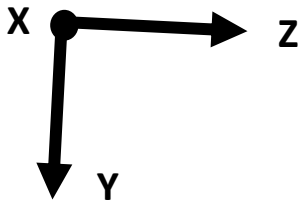


Efficiency and radiation diagram

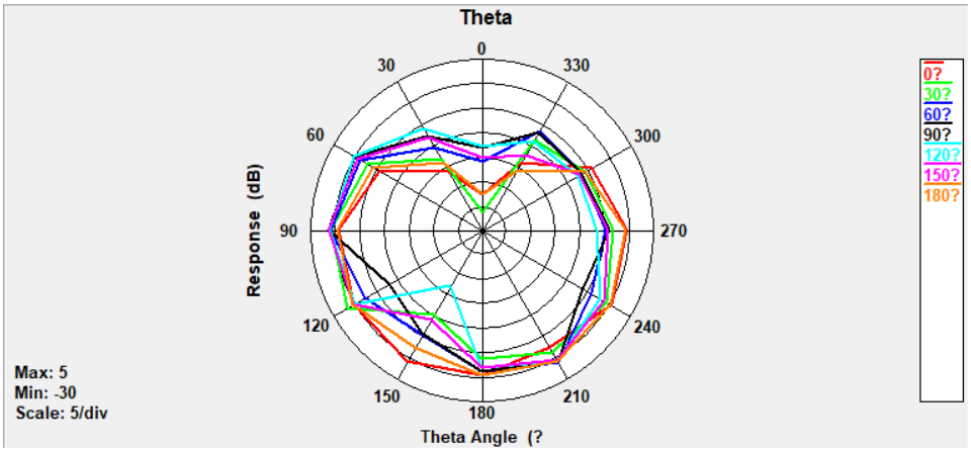
Efficiency, radiation map, gain and other properties are obtained based on the test plate design. The specification characteristics test data for the CA-C03 antenna is

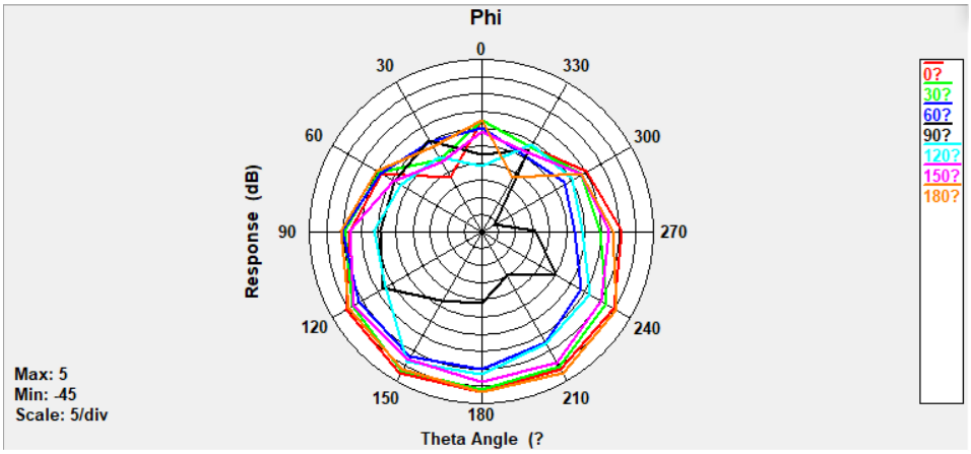
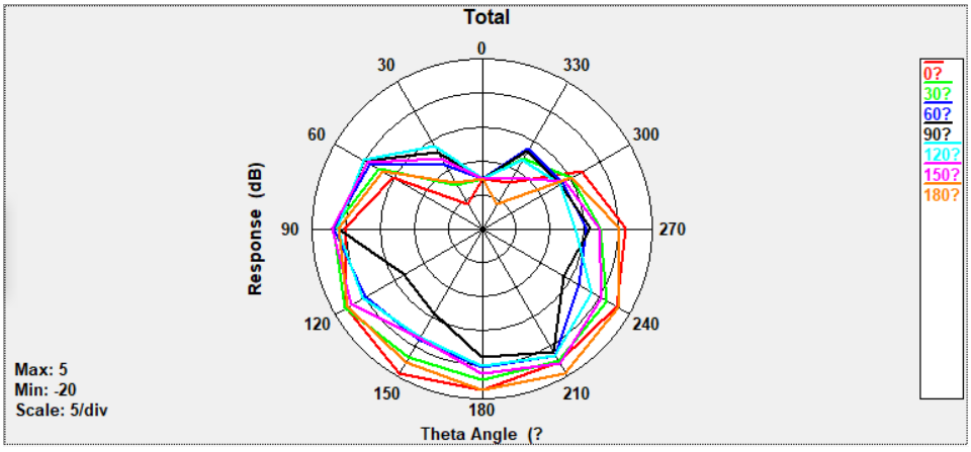
Based on the test PCB plate size and the test direction shown in the following below. The following data were tested in the ETS 3D microwave darkroom





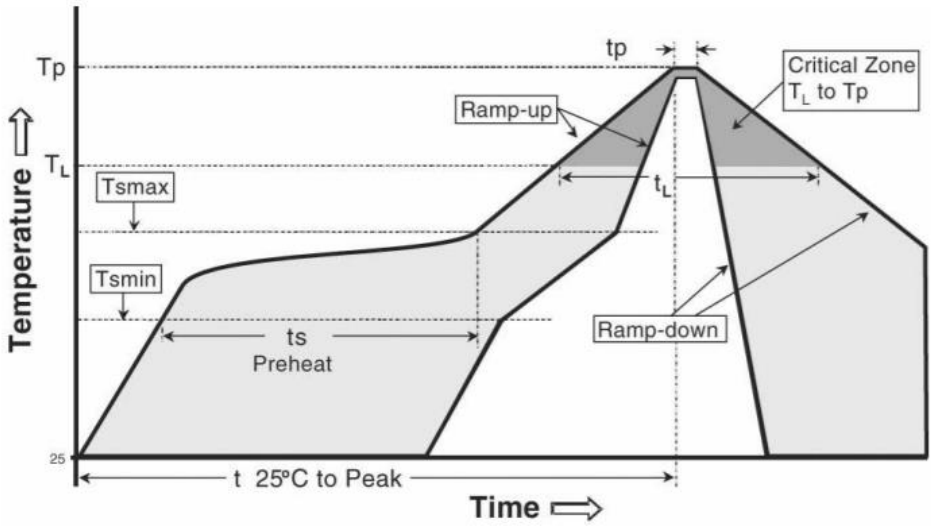
Gain and Efficiency	Bandwidth 2.4G-2.5GHz
峰值增益 Peak Gain	4.3dBi
带内平均增益 Average Gain across the band	4.1dBi
带内增益范围 Gain Range across the band	3.9dBi~4.3dBi
峰值效率 Peak Efficiency	81.7%
带内平均效率 Average Efficiency across the band	80.2%
带内效率范围 Efficiency Range across the band	78.6%~81.7%

Theta @2.45 GHz	

Phi @2.45 GHz	
Total @2.45 GHz	

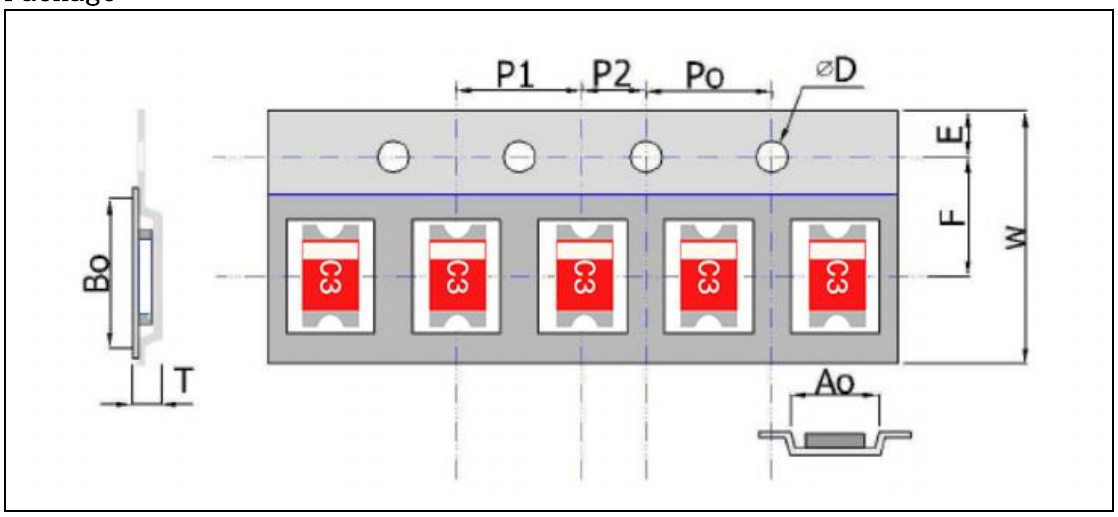
welding condition

The reliable and nondestructive typical welding specifications are shown below:



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

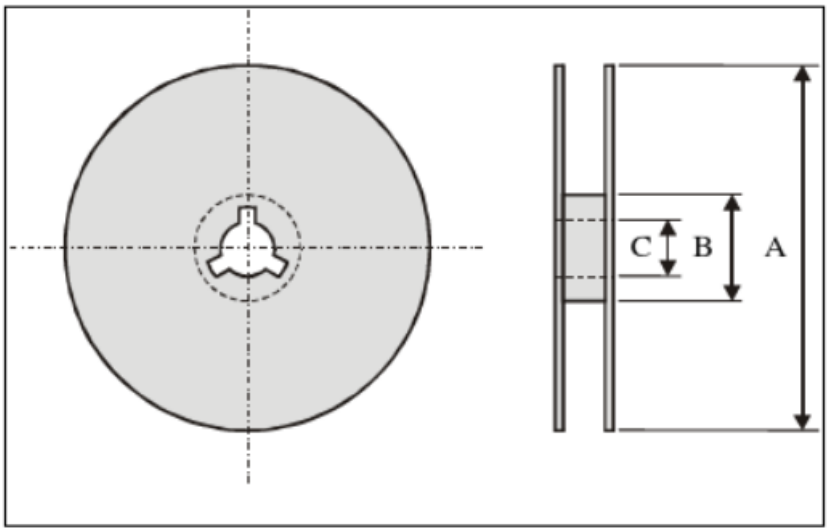
Package



Plastic tape specifications (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

Volume disc size



Index	A	B	C
Dimension(mm)	**330**	**100**	**13.5**

Standard quantity: 3000 PCS / disk.