

SMD Antenna Specifications

Cambricon Technologies, Guangzhou. Cambricon Electronics Technology Co., Ltd. Cambricon Electronics Technology Co., Ltd.

CrossAir™ SMD Antenna Series

RoHS compliant

PN:CA-C03

2.4 GHz ISM band antenna

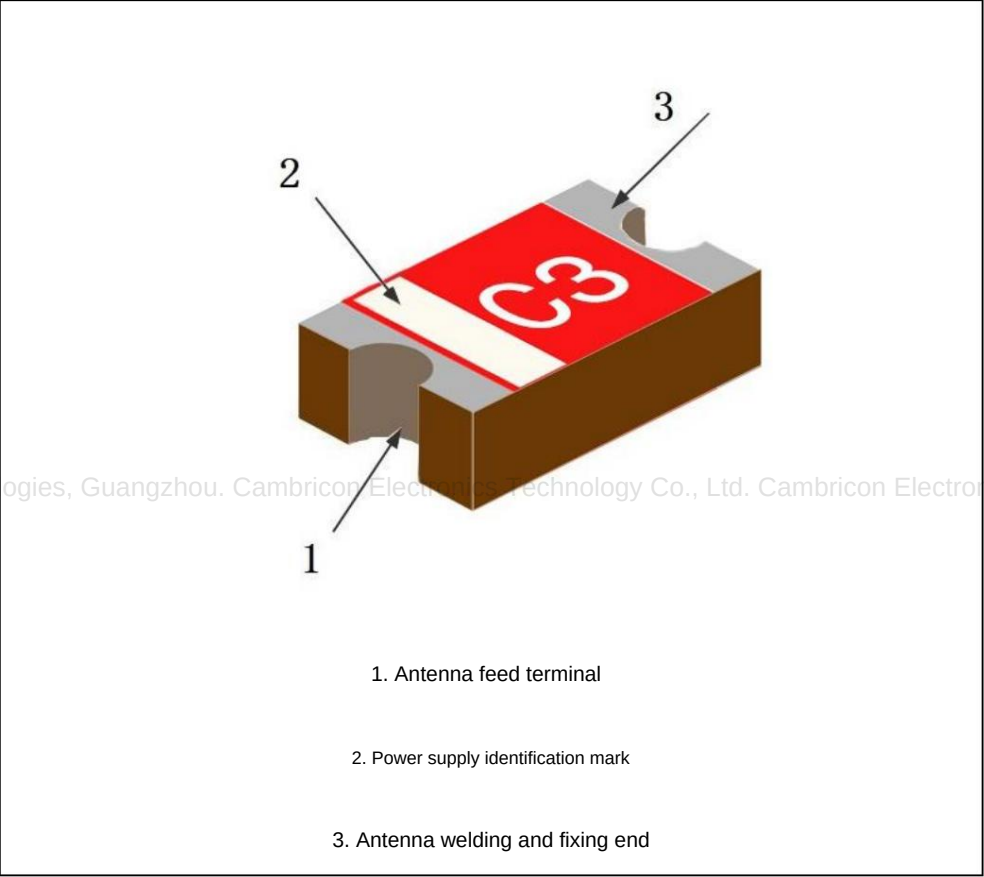
Features

- 1. A small SMD patch antenna measuring only 5.5 x 2.0 x 1.0 mm³ .
- 2. Low energy loss and high antenna efficiency.
- 3. It exhibits high stability under varying temperature and humidity conditions.

application

- 1. Antenna applications in the 2.4GHz ISM band
- 2. Bluetooth, ZigBee, wireless applications, smart home applications, etc.
- 3. WIFI (2.4G only)

structure



size

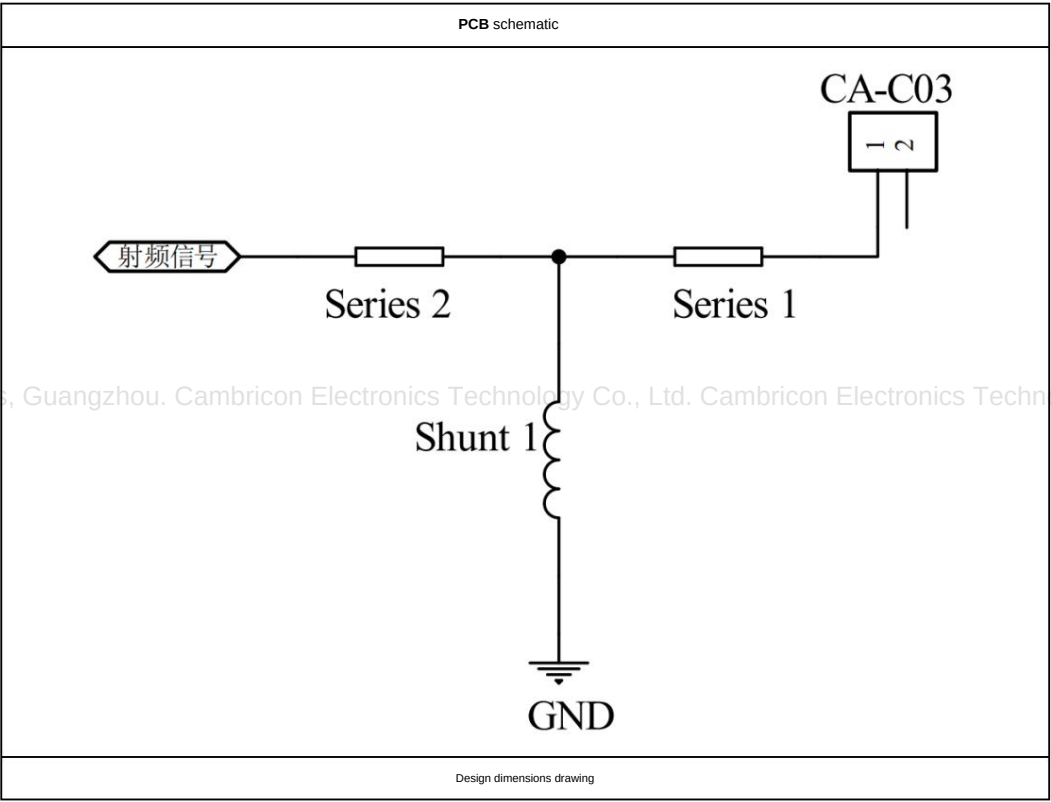
Three views	symbol	Dimensions (mm)
	L	5.5±0.2
	w	2.0±0.1
	T	1.0±0.1
	a	0.5±0.1

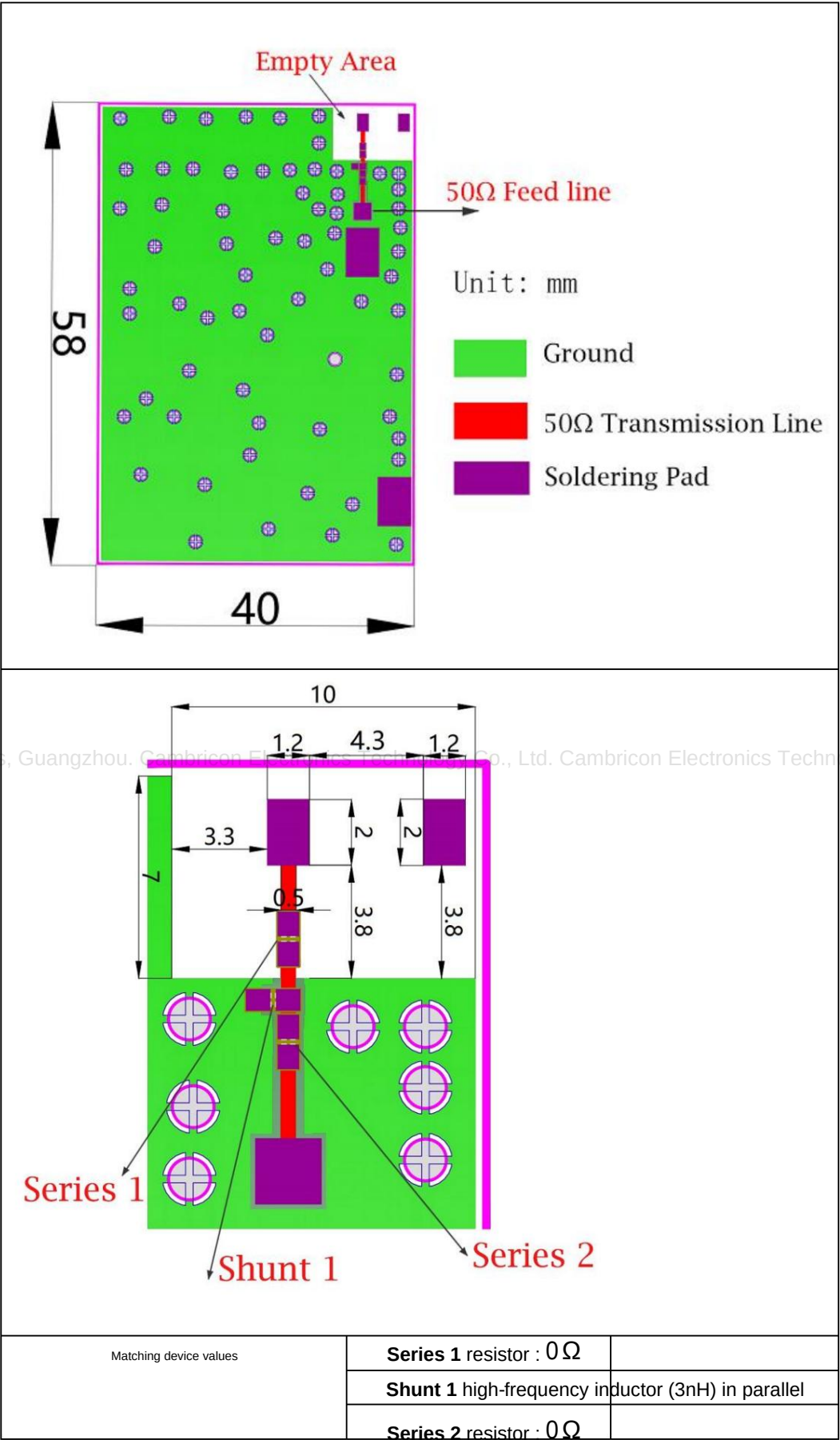
Electrical characteristics

CA-C03	Specification
Operating Frequency Range ,	2450±50MHz
Bandwidth,	>100MHz
Impedance , Gain	50 Ω
(dBi) , VSWR,	4.3 (peak)
Operating	<2
Temperature, Power Capacity	-40°C~+95°C
	3W

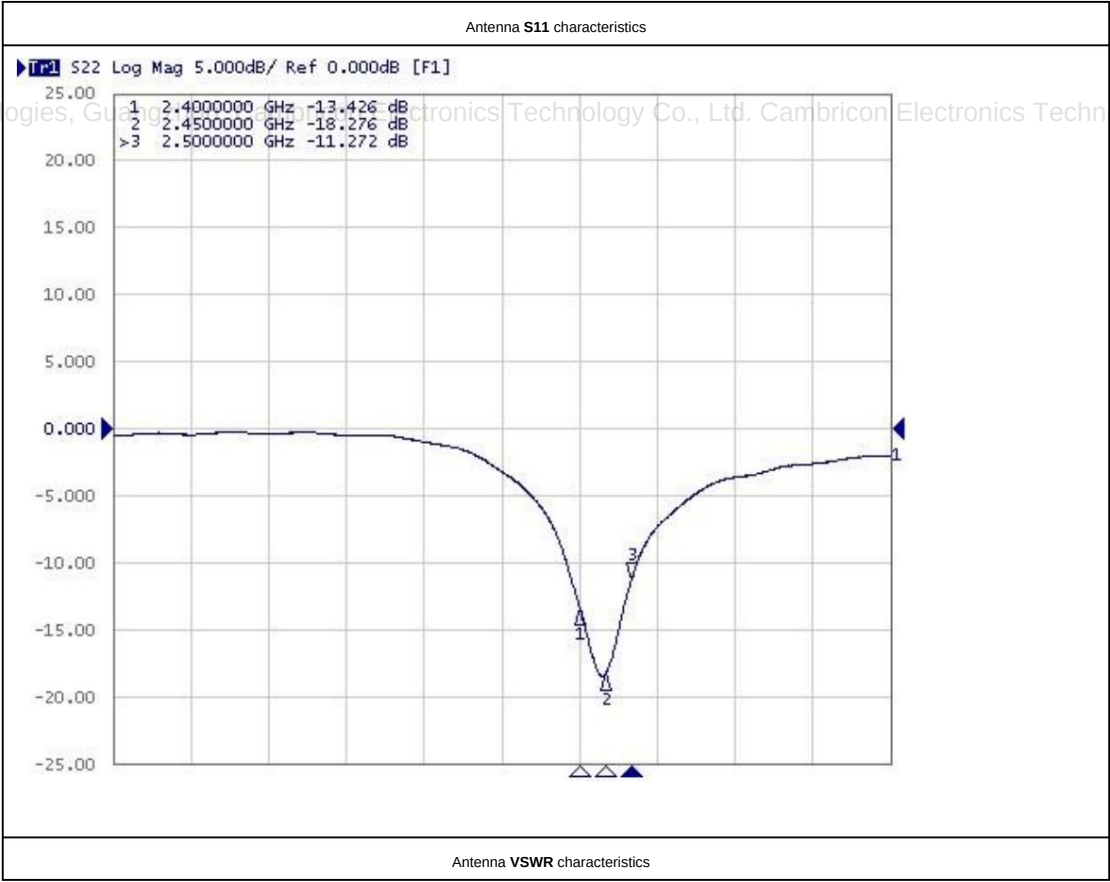
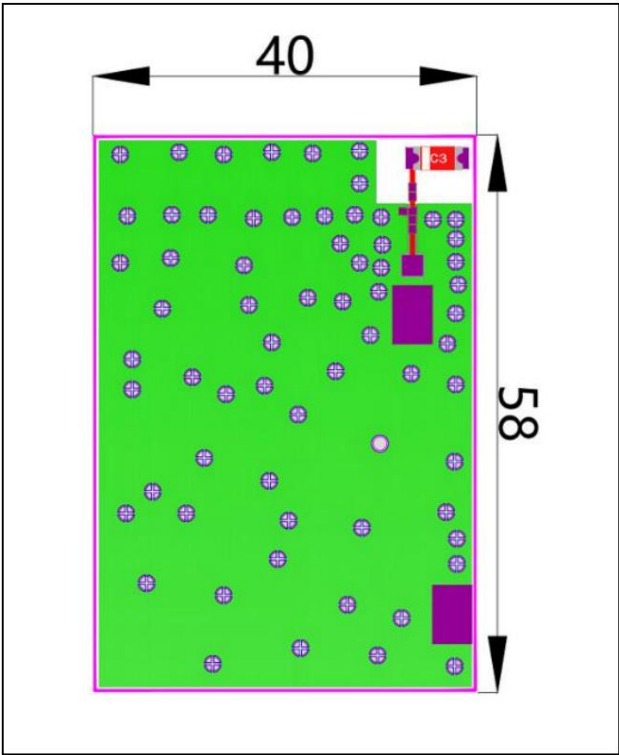
The antenna's 2.4 GHz operating frequency needs to be adjusted using impedance matching devices.

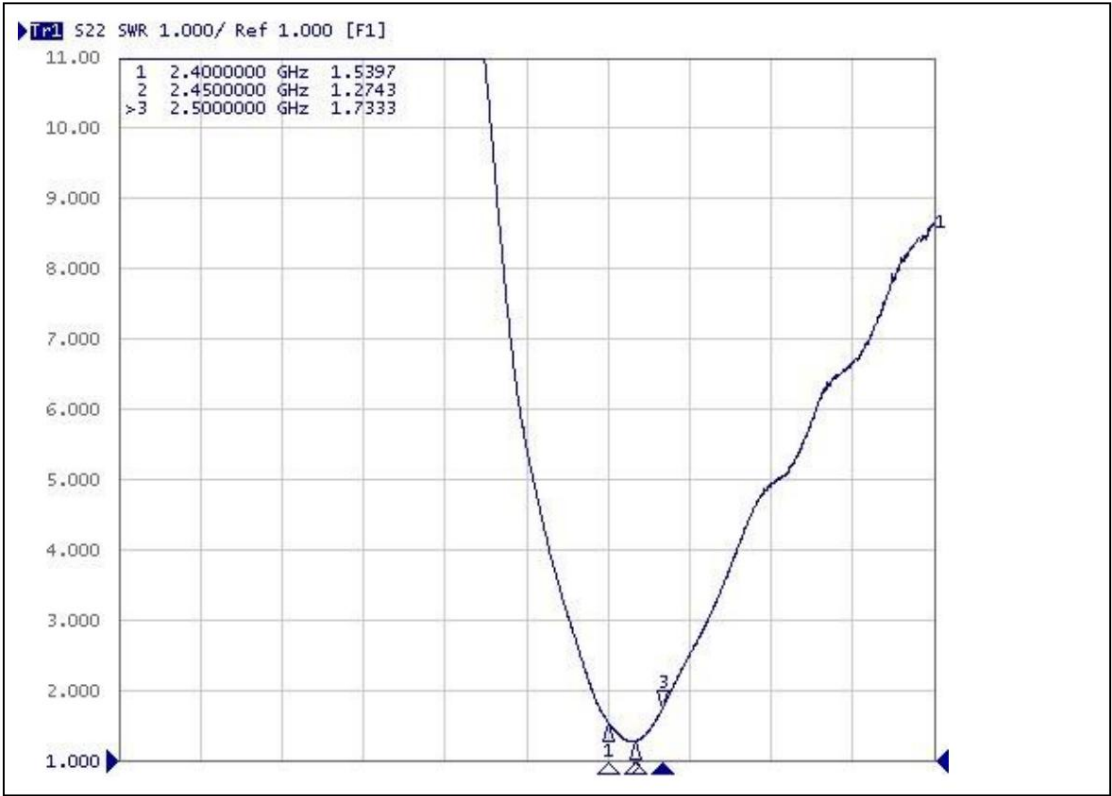
Antenna pad and trace design





Antenna testing on the test board (board thickness 1.0mm)



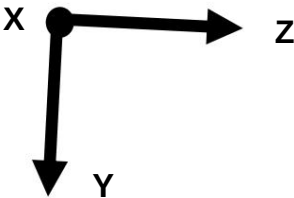
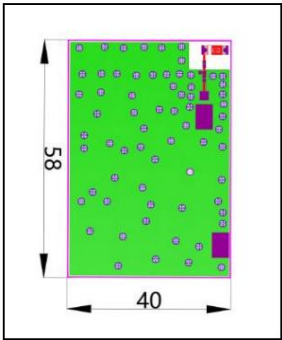


Efficiency and radiation

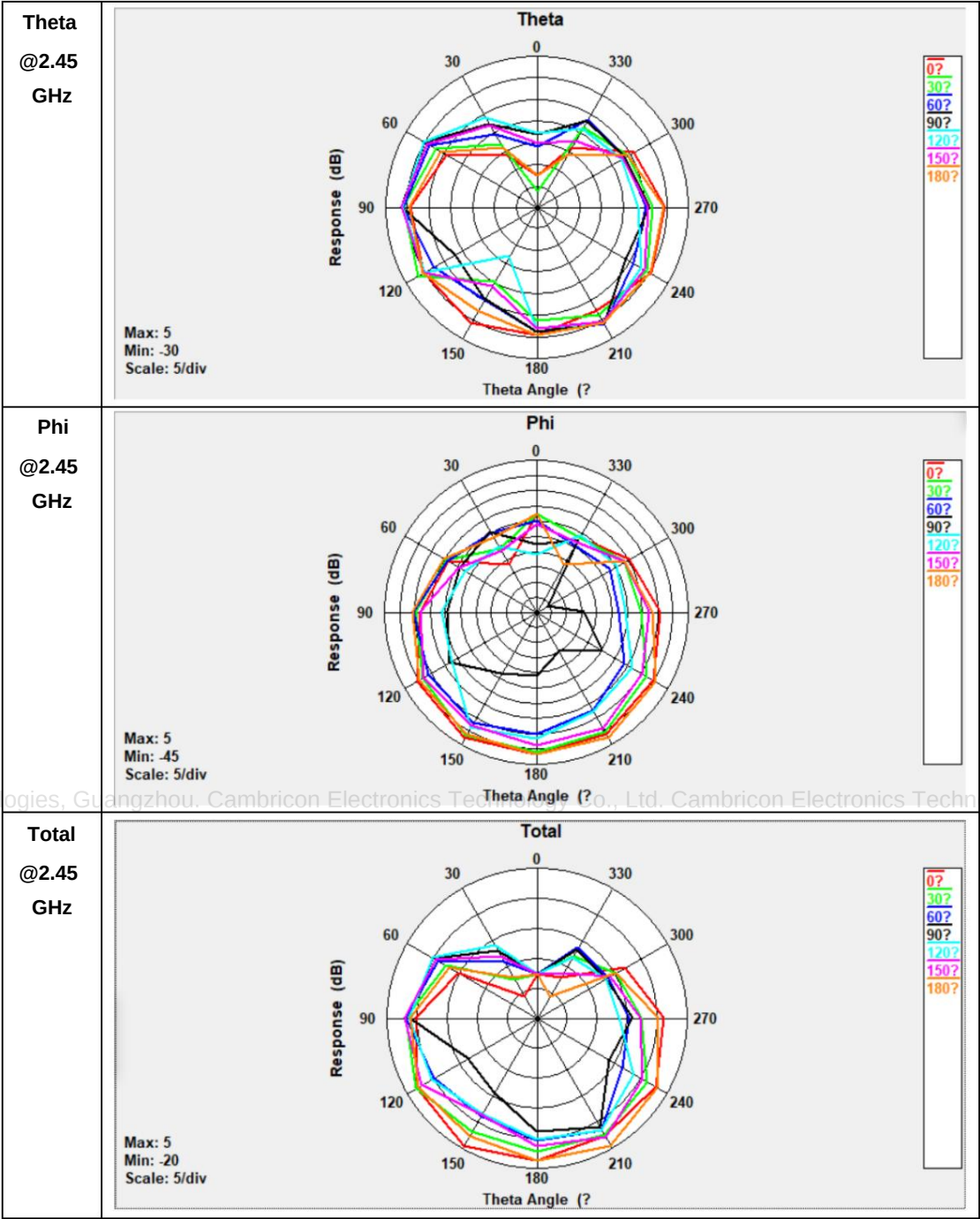
pattern: Performance parameters such as efficiency, radiation pattern, and gain are based on the test board design. The specification characteristics test data for the CA-C03

antenna are based on the test PCB board dimensions and the test orientation shown in the diagram below. The following data were obtained after testing in the ETS 3D Technology Co., Ltd.

microwave anechoic chamber.

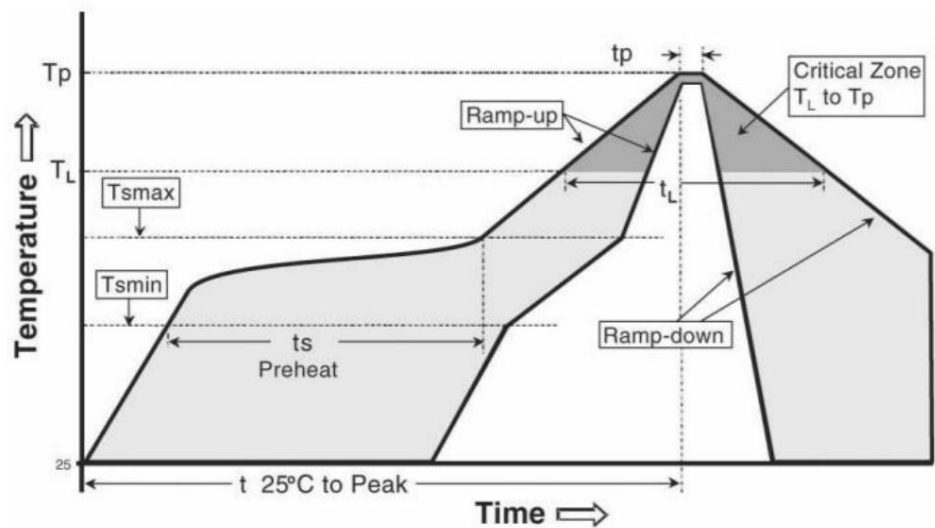


Gain and	Bandwidth 2.4G-2.5GHz
efficiency: Peak gain,	4.3dBi
Average gain within the band	4.1dBi
Average Gain Across the Band	3.9 dBi ~ 4.3 dBi
Gain Range Across the Band :	
Peak Efficiency	81.7%
Average efficiency across the band	80.2%
Efficiency Range across the band	78.6%~81.7%



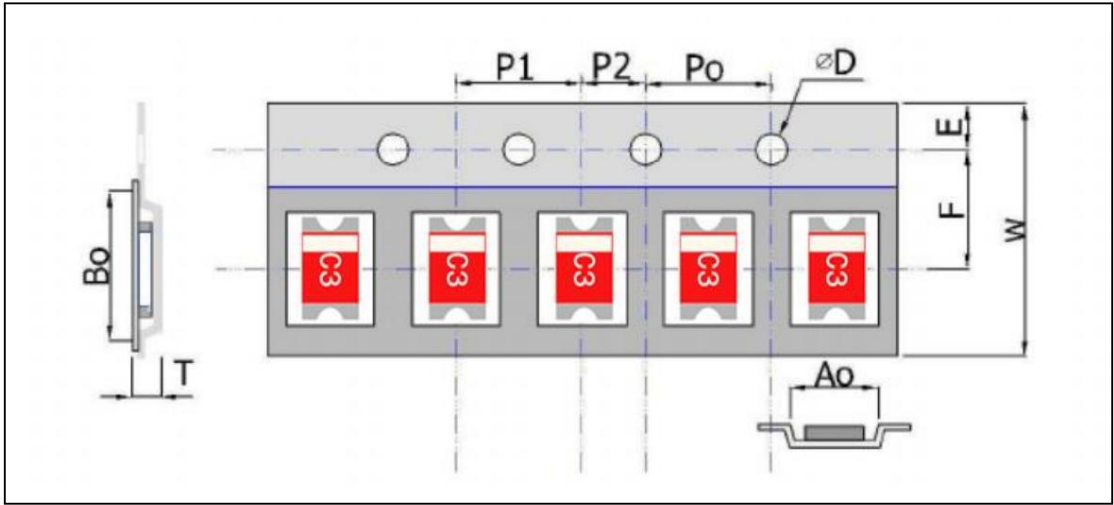
Typical welding

specifications for reliable and non-destructive welding conditions are shown in the figure below:



Phase	Profile features	Pb-Free assembly (SnAgCu)
RAMP-UP	Avg. Ramp-up Rate (Tsmax to Tp)	3 °C / second (max.)
PREHEAT	- Temperature Min (Tsmmin) - Temperature Max (Tsmmax) - 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

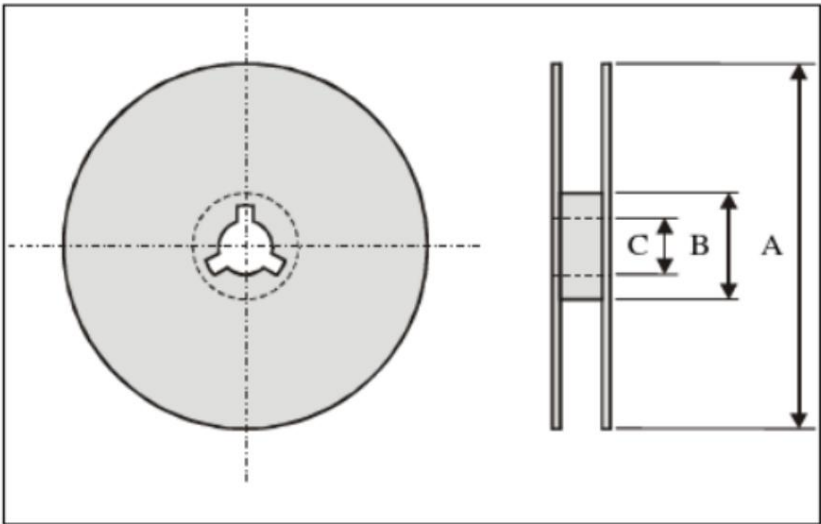
Package



Plastic carrier tape specifications (unit: mm)

Index	Ao	Bo	ýD	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/disk.

Storage environment

- The following conditions must be met when storing the product:
- Temperature: -10ÿ to +40ÿ
 - 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 oxidation of the product's electrodes.
 - This results in poor weldability.
 - The product should be stored in a toolbox and protected from moisture and dust.
 - The product should be stored in a warehouse and protected from heat, vibration, and direct sunlight.
 - The product should be stored in a sealed environment.



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