

SMD antenna specifications

**CrossAir TM SMD The
antenna series
comply to the RoHS
specification**

PN:CA-C03

A 2.4 GHz ISM-band antenna

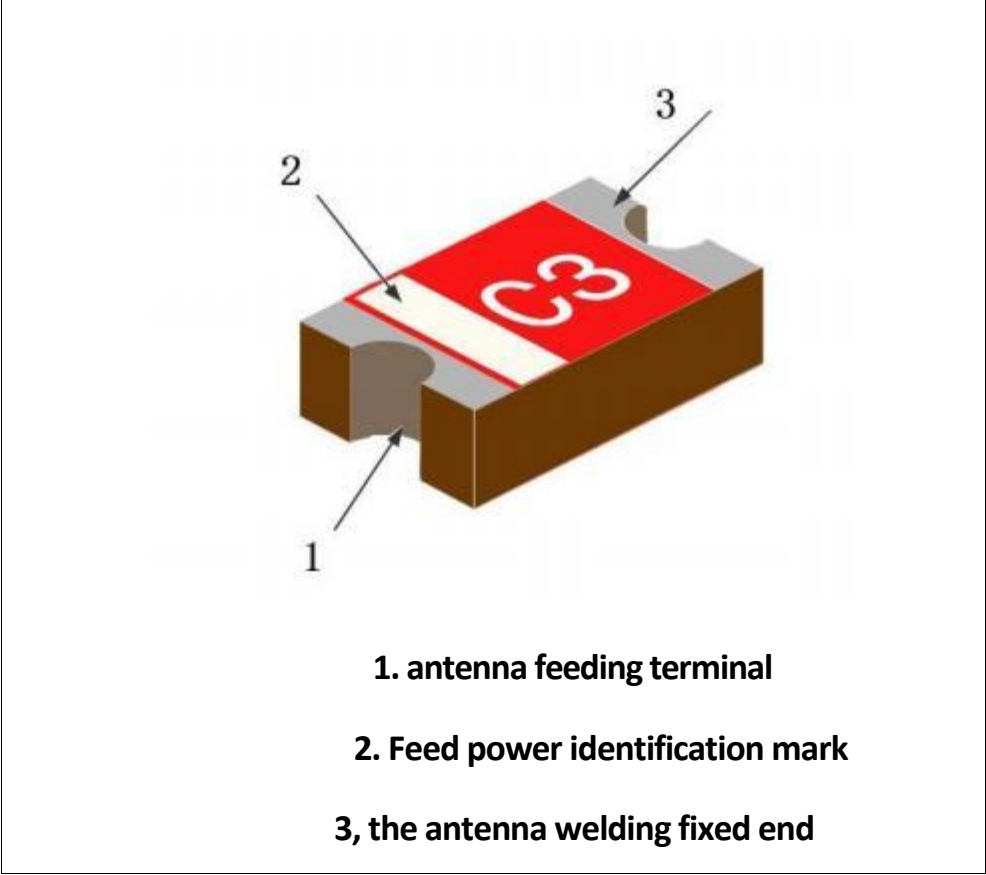
characteristic

- 1. Small size SMD patch antenna measuring only 5.5 X 2.0 X1.0 mm3.
- 2. Low energy loss and high antenna efficiency.
- 3. High stability in the case of temperature and humidity changes.

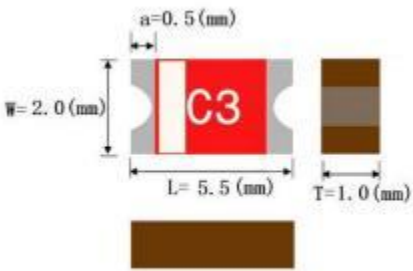
apply

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

structure



size

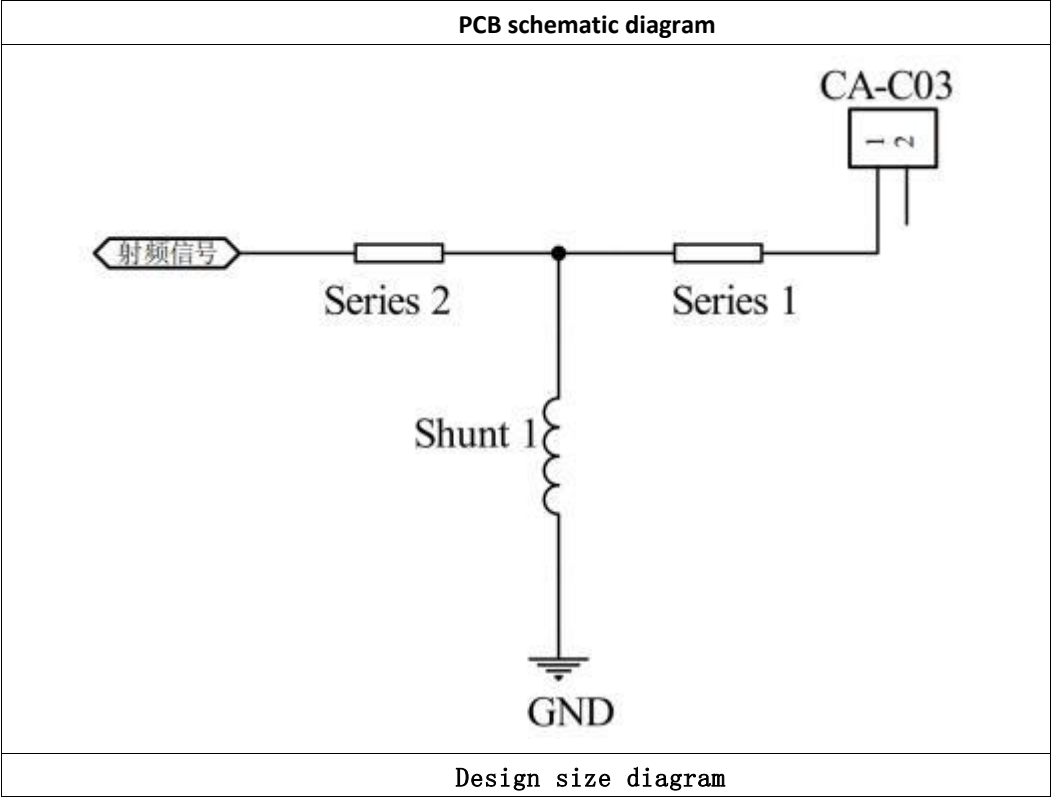
three views	symbol	size (mm)
	L	5.5±0.2
	w	2.0±0.1
	T	1.0±0.1
	a	0.5±0.1

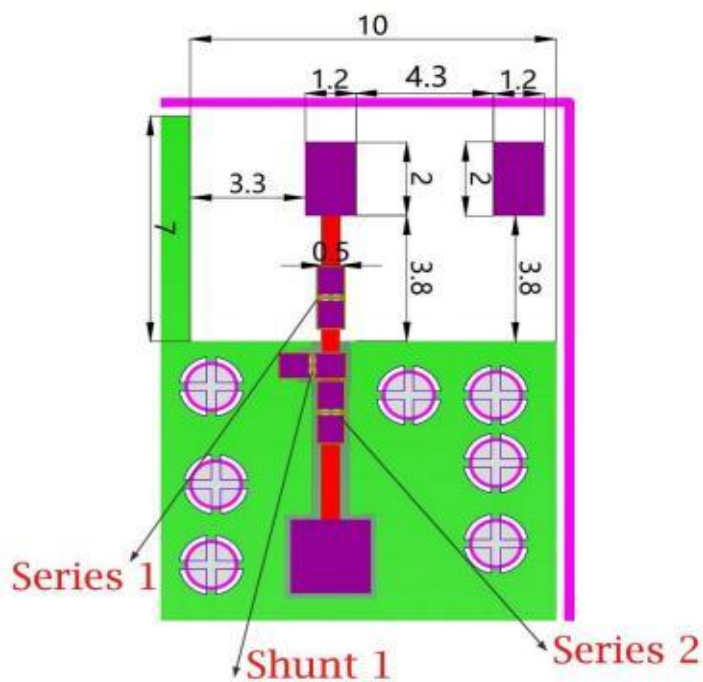
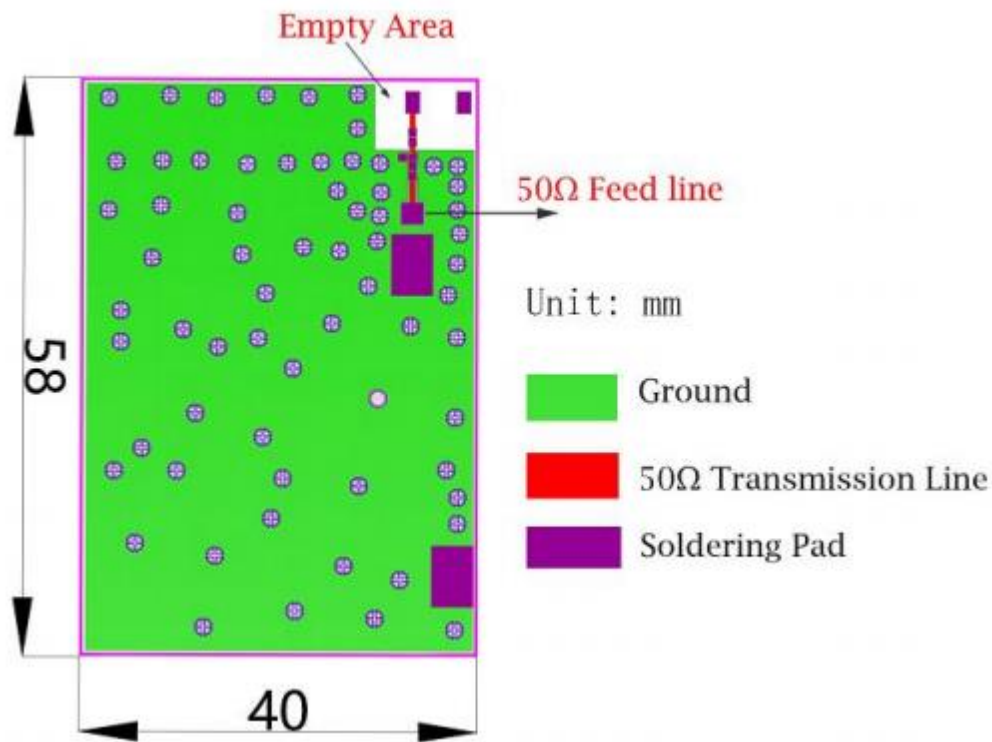
electrical character

CA-C03	Specification
Operating frequency range is Working Frequency	2450±50MHz
Bandwidth of Band Width	>100MHz
Impedance of Impedance	50 Ω
Gain Gain (dBi)	2.3 (peak)
standing-wave ratio VSWR	<2
Operating temperature: Operation Temperature	-40℃~+95℃
Aferable power Power Capacity	3W

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

Antenna welding pad and wire running design





Matching device
values

Tandem device Series1

Resistor 0 Ω

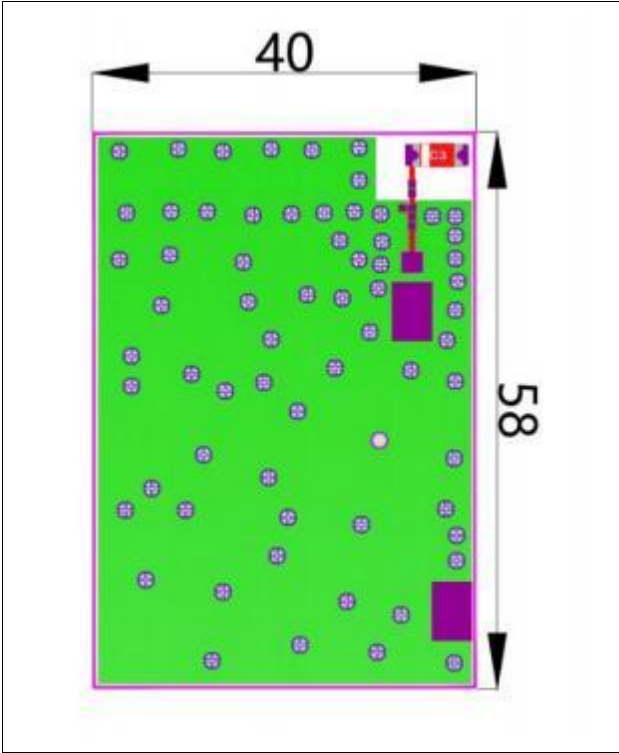
Parallel device
Shunt1

High-frequency
inductance of 3
nh

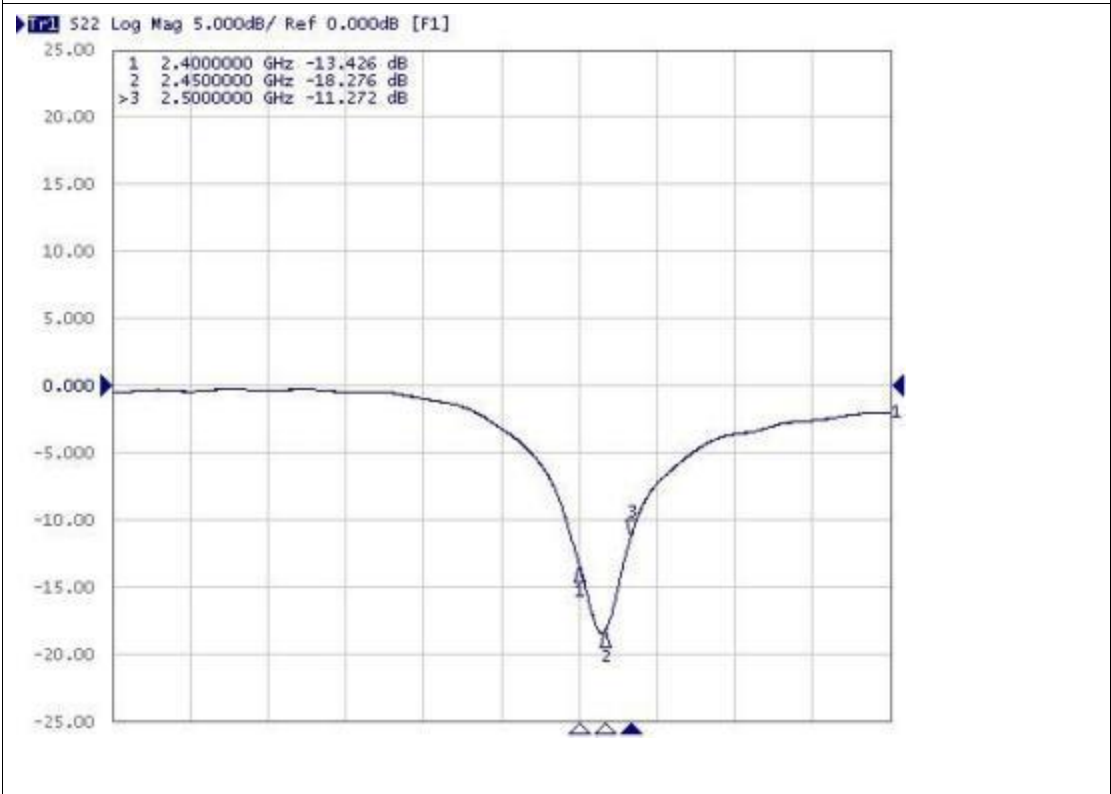
Tandem device Series2

Resistor 0 Ω

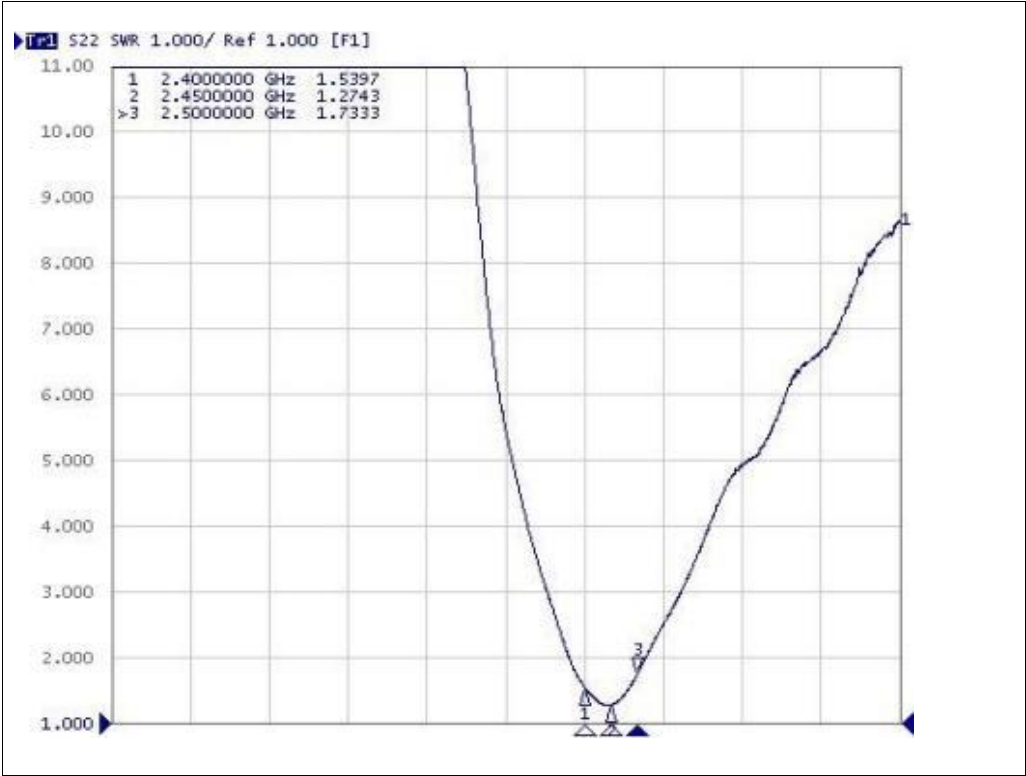
Antenna test on test plate (plate thickness 1.0mm)



Antenna S11 characteristics

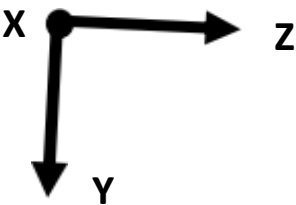
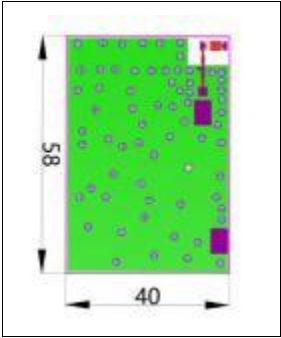


Antenna VSWR feature

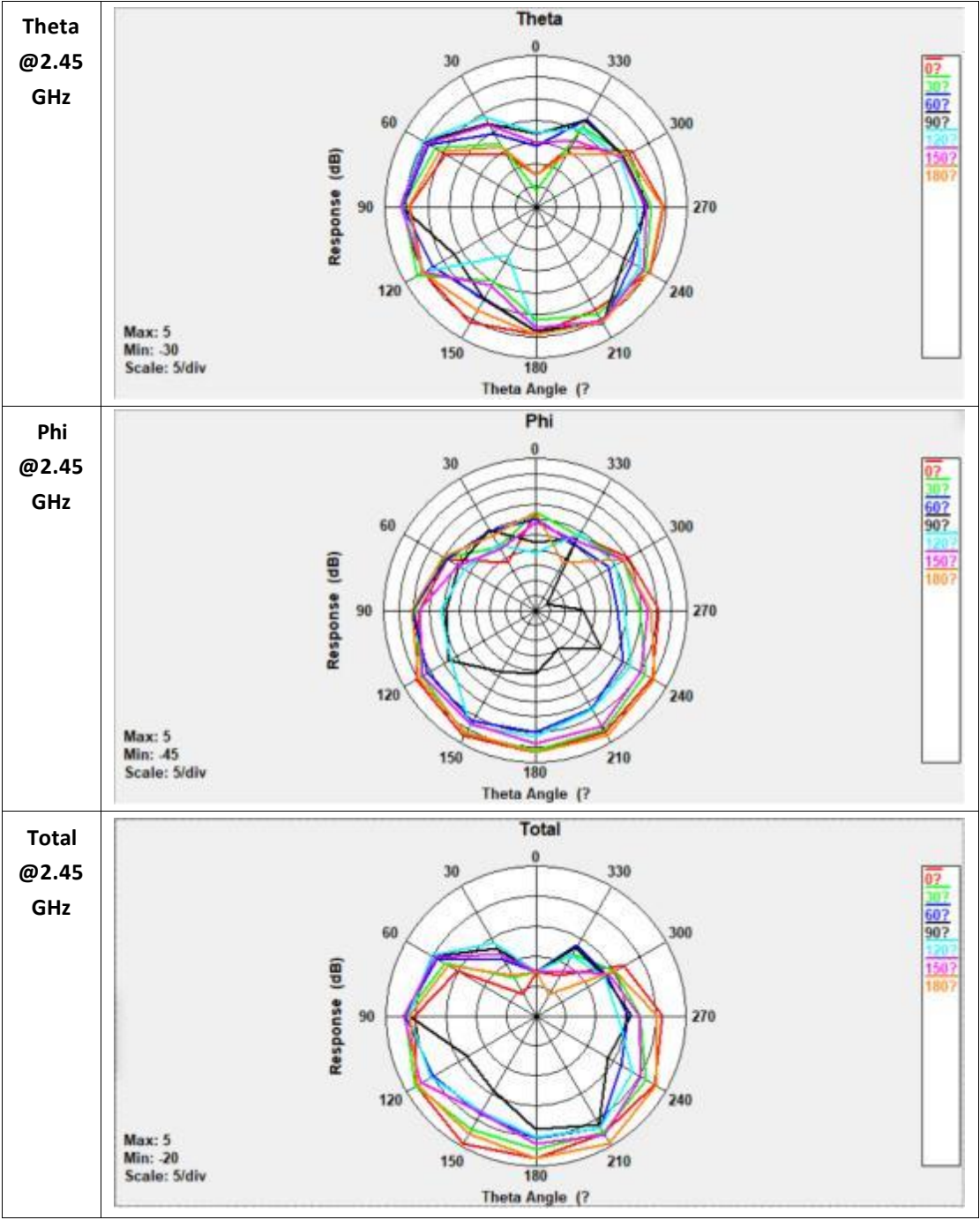


Efficiency and radiation diagram

Efficiency, radiation map, gain and other properties are obtained based on the test board design. The test data of 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.

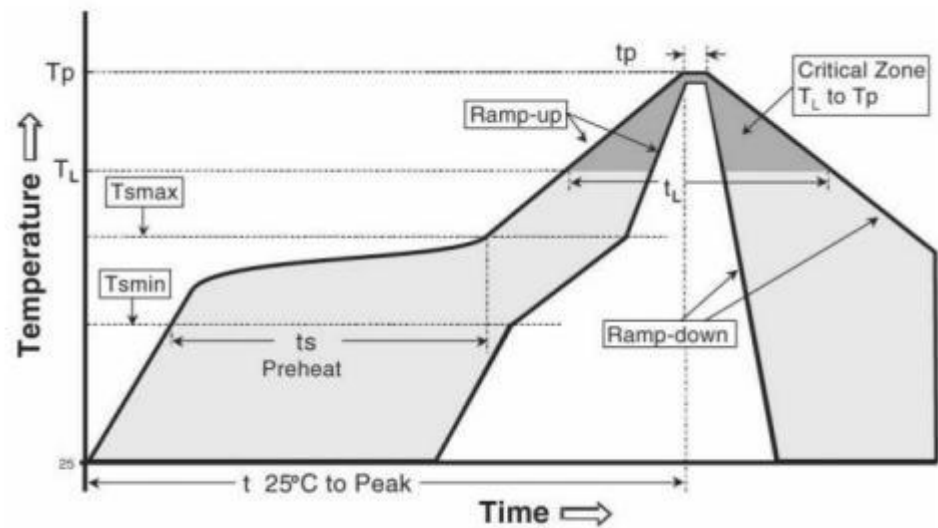


Gain and Efficiency	Bandwidth is 2.4G-2.5 GHz
The peak gain of Peak Gain	2.3 dBi
Mean gain within the band	2.1 dBi
Average Gain across th e band	
Zone gain range	1.9 dBi~2.3 dBi
GainRange across the band	
Peak efficiency of Peak Efficiency	81.7%
Intra-band average efficiency	80.2%
AverageEfficiency across the band	
Within-band efficiency range	78.6%~81.7%
EfficiencyRange across the band	



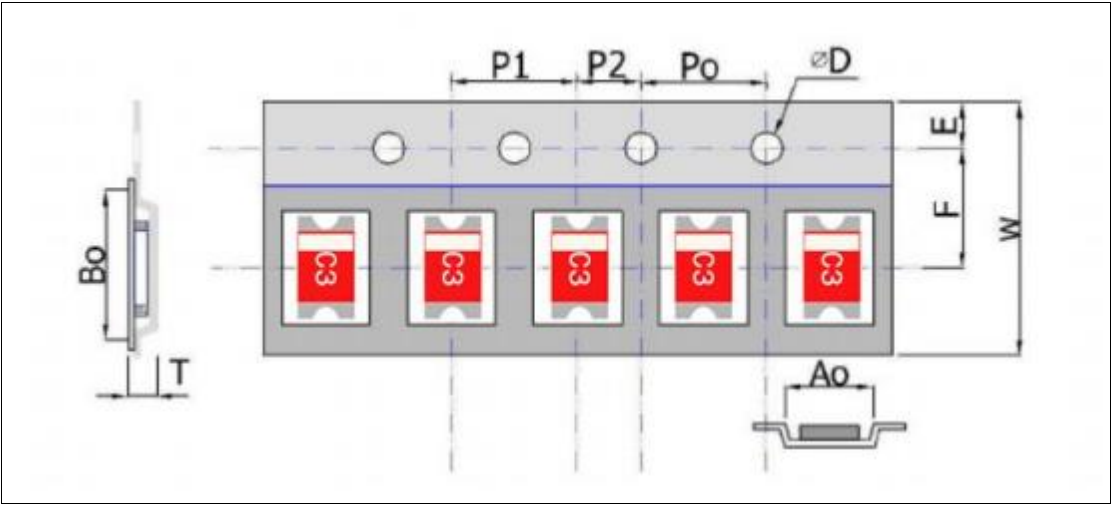
welding condition

The reliable and nondestructive typical welding specifications are shown below:



Phase	Profile features	Pb-Free assembly (SnAgCu)
RAMP-UP	Avg. Ramp-up Rate (Tsmmax to Tp)	3 °C / second (max.)
PREHEAT	<ul style="list-style-type: none">- Temperature Min (Tsmmin)- Temperature Max (Tsmmax)- Time (tsmin to tsmax)	<ul style="list-style-type: none">150 °C200 °C60-180 seconds
REFLOW	<ul style="list-style-type: none">- Temperature (Tl)- Total Time above Tl (tl)	<ul style="list-style-type: none">217 °C60-150 seconds
PEAK	<ul style="list-style-type: none">- Temperature (Tp)- Time (tp)	<ul style="list-style-type: none">260 °C20-40 seconds
RAMP-DOWN	Rate	6 °C/second max
Time from 25 °C to Peak Temperature		8 minutes max

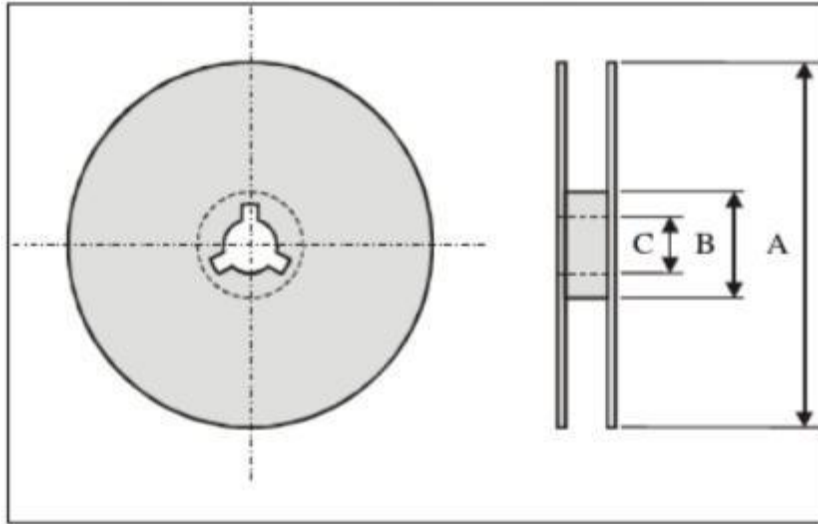
pack



Specification of plastic carrier belt (in 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.

Storage environment

For product storage, the following conditions shall be met: Temperature: -10℃ ~ + 40℃

Humidity: 30% to 70% relative humidity

The product should not contact corrosive gases such as sulfur. Chlorine gas or acid may cause poor weldability due to product electrode oxidation.

Products shall be placed in the toolbox and avoid the influence of moisture and dust. Products shall be stored in the warehouse to avoid heat, vibration and direct sunlight. Products shall be stored under closed conditions.