

SMD antenna specification

**CrossAir™ SMD antenna
series is RoHS compliant.**

PN: CA-C03

2.4 GHz ISM band antenna

CA-C03 Specification

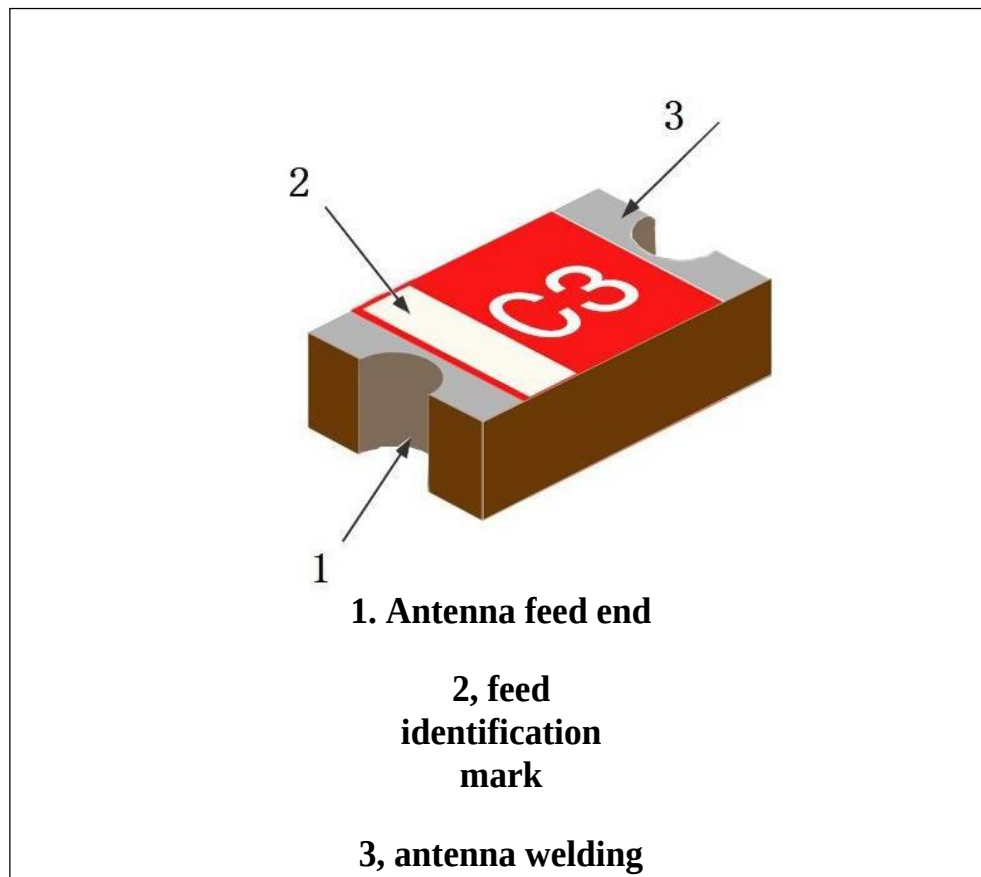
characteristic

1. Small SMD patch antenna with a size of only 5.5 X 2.0 X 1.0 mm³.
2. Low energy loss and high antenna efficiency.
3. It has high stability under the condition of temperature and humidity change.

app; application

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

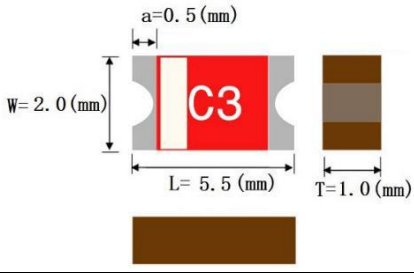
structure



measure

three-view drawing	symbol	Size (mm)
	L	5.5±0.1
	w	2.0±0.1
	T	1.0±0.1

CA-C03 Specification

 The diagram illustrates the dimensions of the CA-C03 component. It features a red square with the text 'C3' in the center. The dimensions are specified as follows: $a = 0.5 \text{ (mm)}$ (width of the central red area), $W = 2.0 \text{ (mm)}$ (height of the central red area), $L = 5.5 \text{ (mm)}$ (total width of the component), and $T = 1.0 \text{ (mm)}$ (thickness of the component). A brown rectangular block is shown below the main diagram.	a	0.5 ± 0.1
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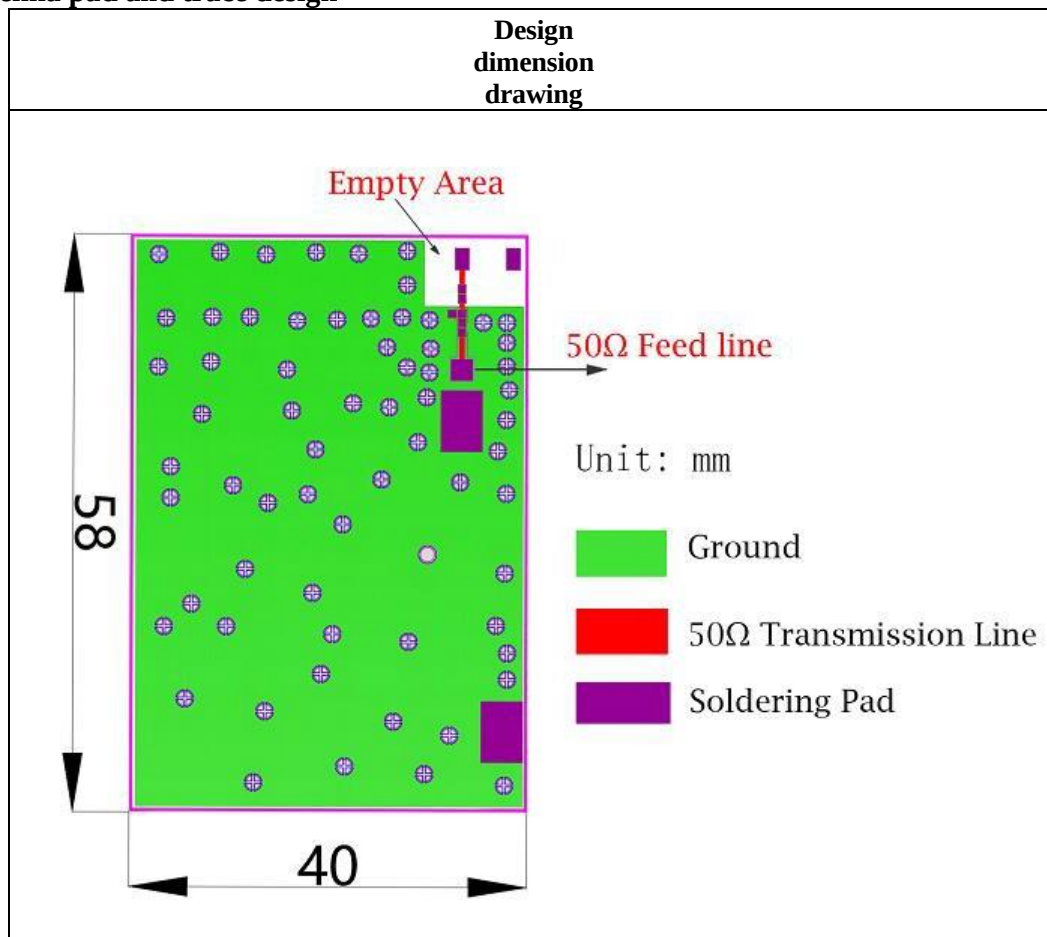
CA-C03 Specification

electrical specification

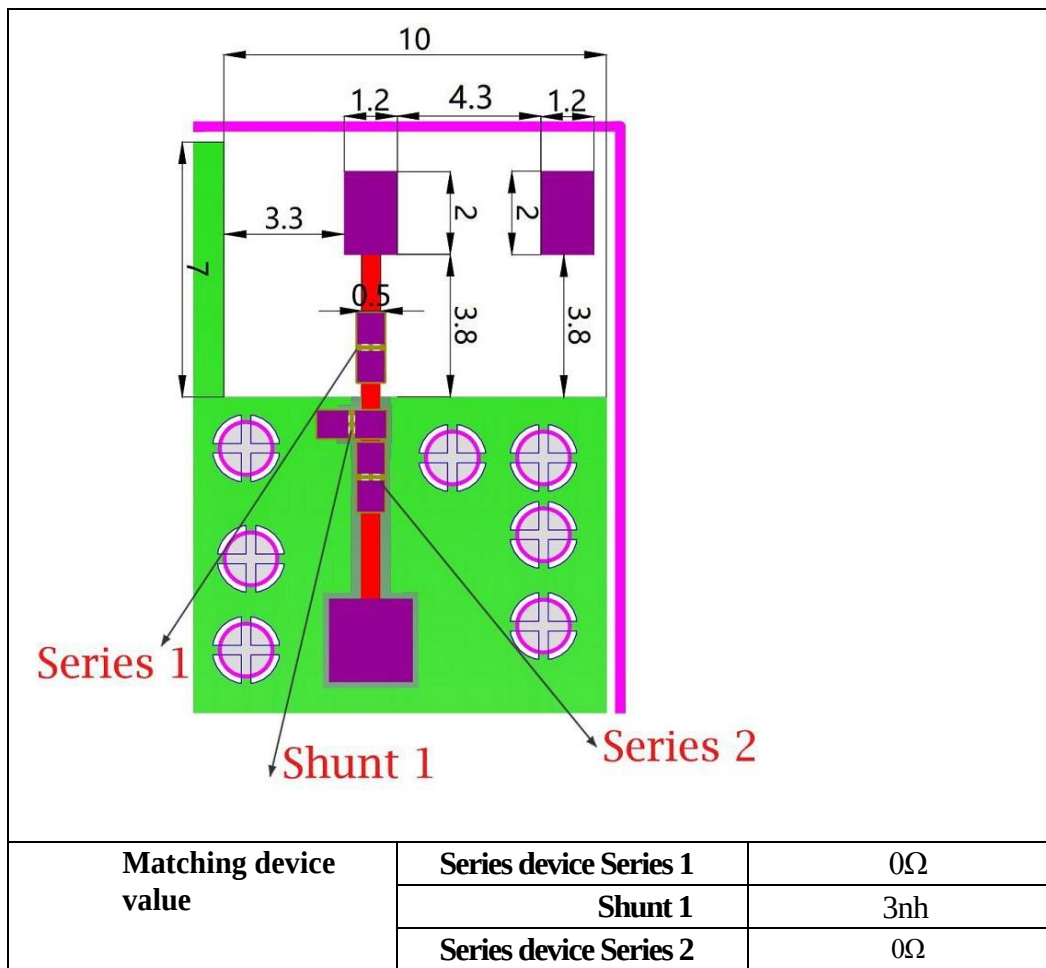
CA-C03	Specification
Working Frequency range	2450 ±50MHz
Initial frequency band (GHz)	2.7GHz
Band Width	>100MHz
Impedance impedance	50Ω
Gain Gain(dBi)	4.3 (peak)
Standing wave ratio VSWR	<2
Operating temperature Operation Temperature	-40℃~+95℃
Acceptable Power Capacity	3W

The working frequency of antenna 2.4G needs to be realized by debugging impedance matching devices.

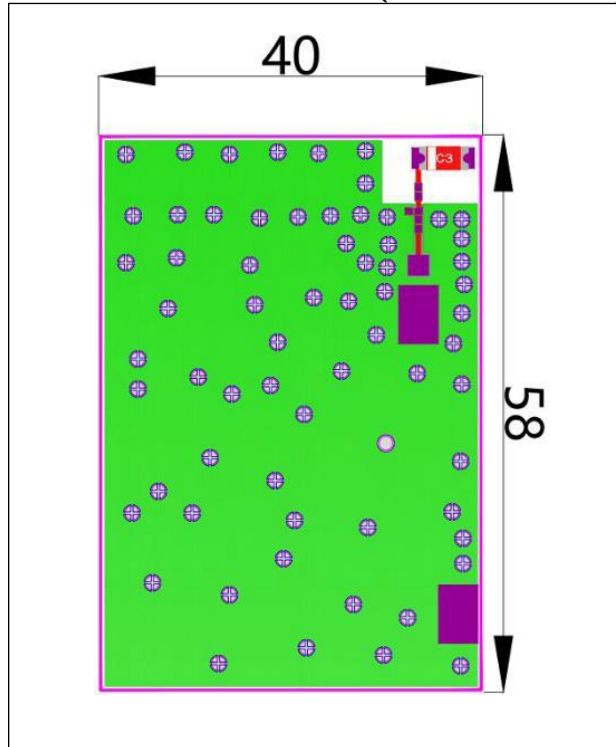
Antenna pad and trace design



CA-C03 Specification

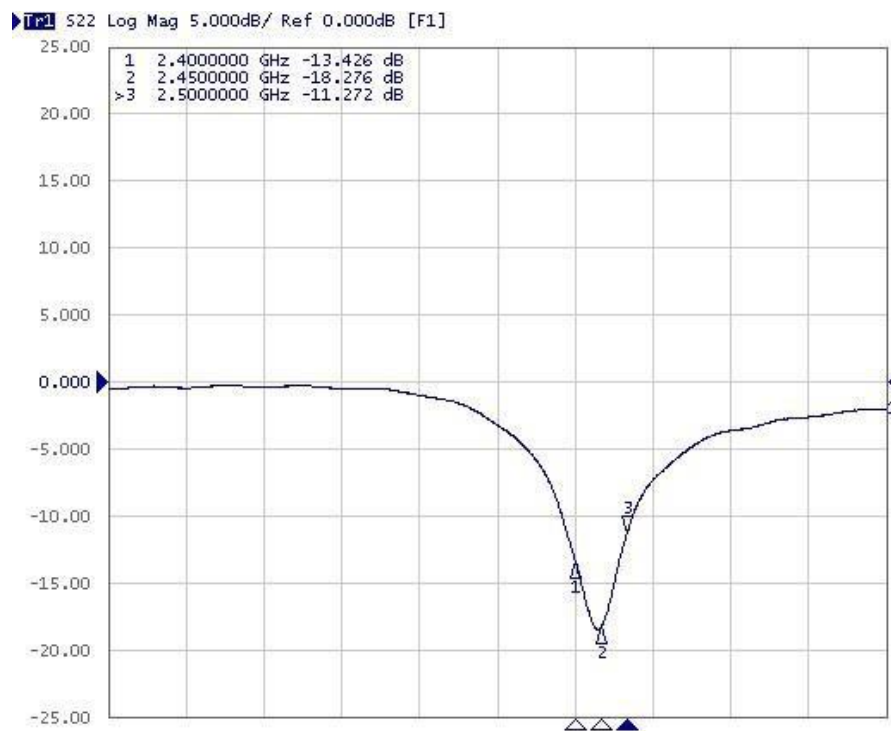


Antenna test on test board (thickness 1.0mm)



CA-C03 Specification

Characteristics of antenna S11



Antenna VSWR characteristics



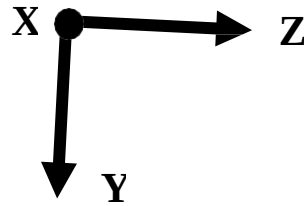
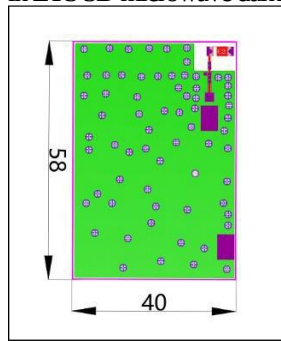
Efficiency and radiation diagram

CA-C03 Specification

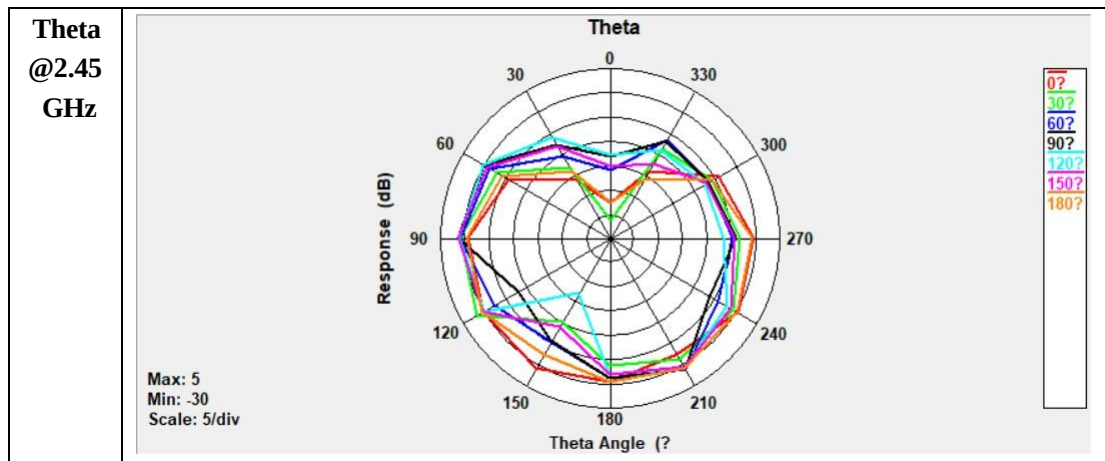
Efficiency, radiation pattern, gain and other performances are based on the design of the test board. The specification and characteristic test data of CA-C03 antenna are

CA-C03 Specification

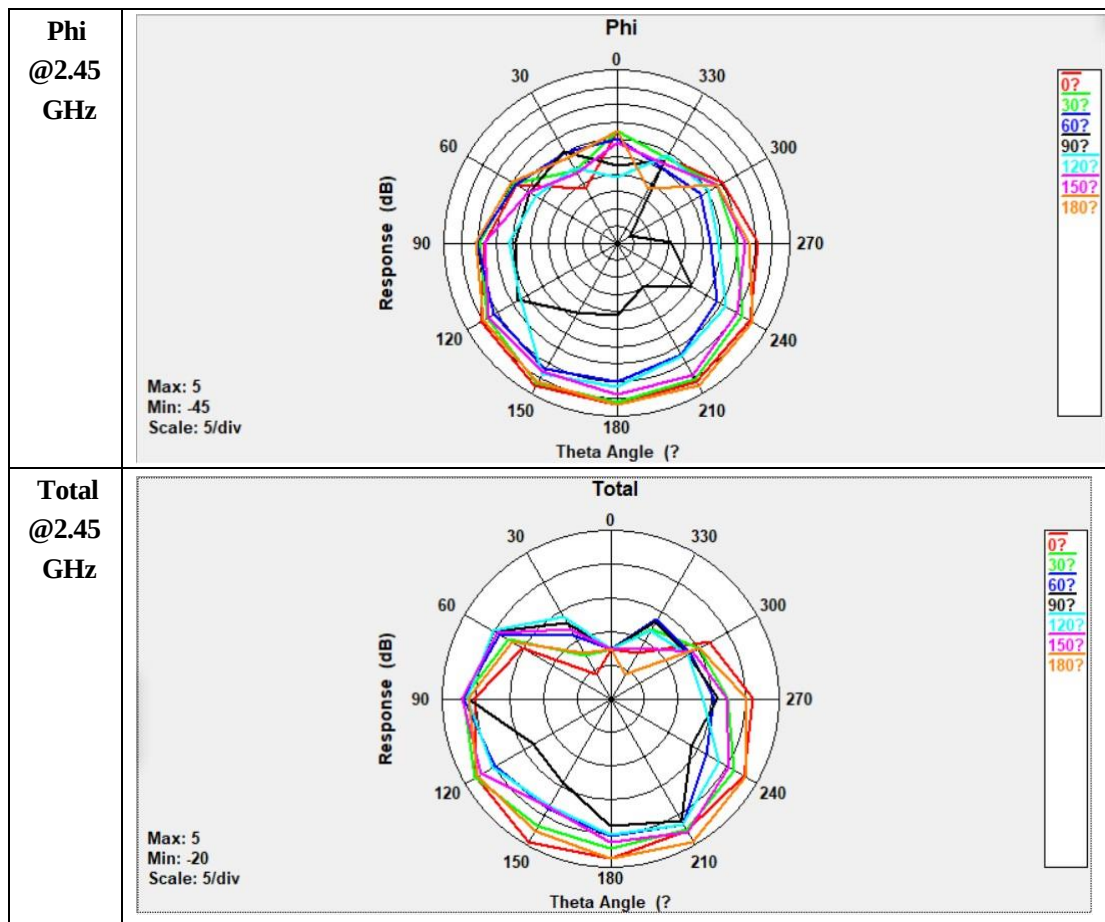
Based on the test PCB board size and the test direction shown in the figure below. The following data were tested in ETS 3D microwave darkroom.



Gain and efficiency	Bandwidth 2.4G-2.5GHz
Peak Gain peak gain	4.3dBi
Average gain in band Average Gain across the band	4.1dBi
In-band gain range Gain Range across the band	3.9dBi~4.3dBi
Peak Efficiency	81.7%
In-band average efficiency Average Efficiency across the band	80.2%
In-band efficiency range Efficiency Range across the band	78.6%~81.7%

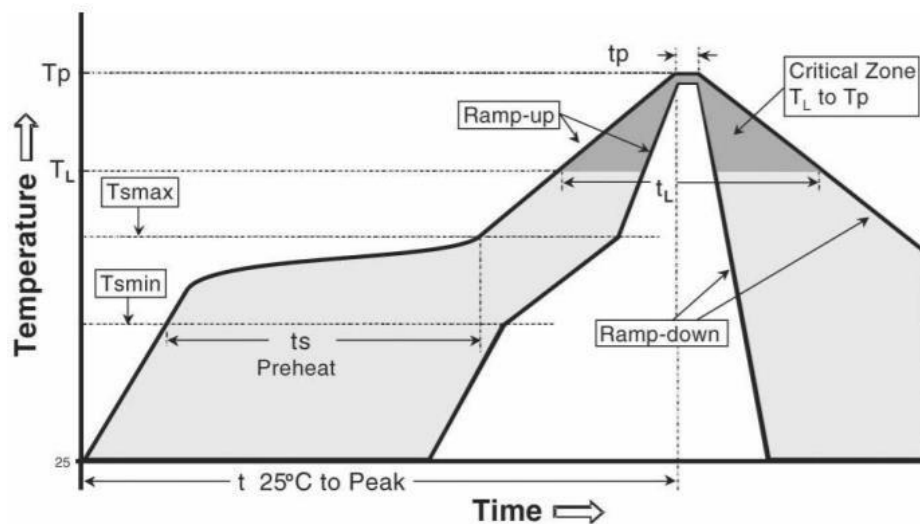


CA-C03 Specification



Welding conditions

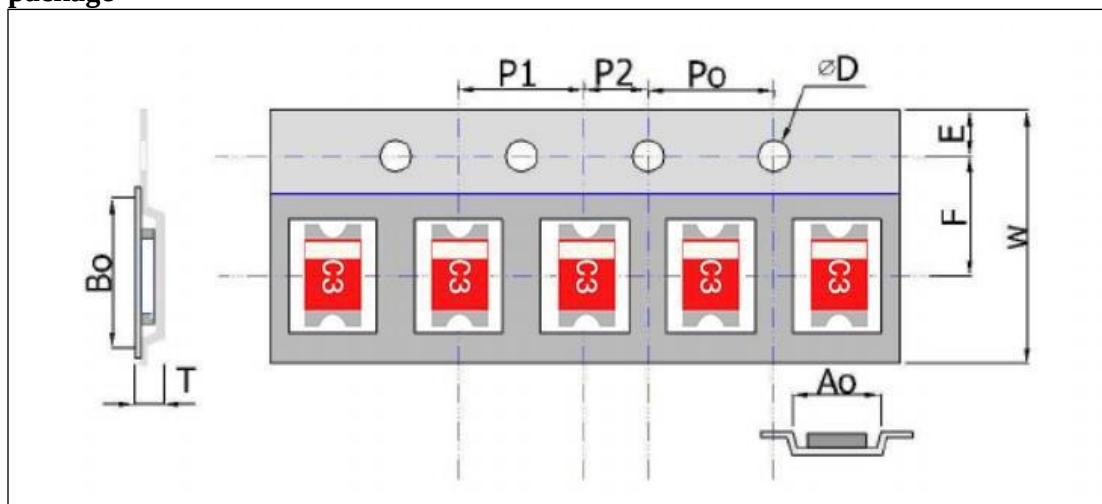
Typical welding specifications that are reliable and nondestructive are shown in the following figure:



CA-C03 Specification

Phase	Profile features	Pb-Free assembly (SnAgCu)
RAMP-UP	Avg. Ramp-up Rate (T _{smax} to T _p)	3 °C / second (max.)
PREHEAT	- Temperature Min (T _{smin})	150 °C
	- Temperature Max (T _{smax})	200 °C
	- Time (t _{smin} to t _{smax})	60-180 seconds
REFLOW	- Temperature (T _L)	217 °C
	- Total Time above T _L (t _L)	60-150 seconds
PEAK	- Temperature (T _p)	260 °C
	- Time (t _p)	20-40 seconds
RAMP-DOWN	Rate	6 °C/second max
Time from 25 °C to Peak Temperature		8 minutes max

package

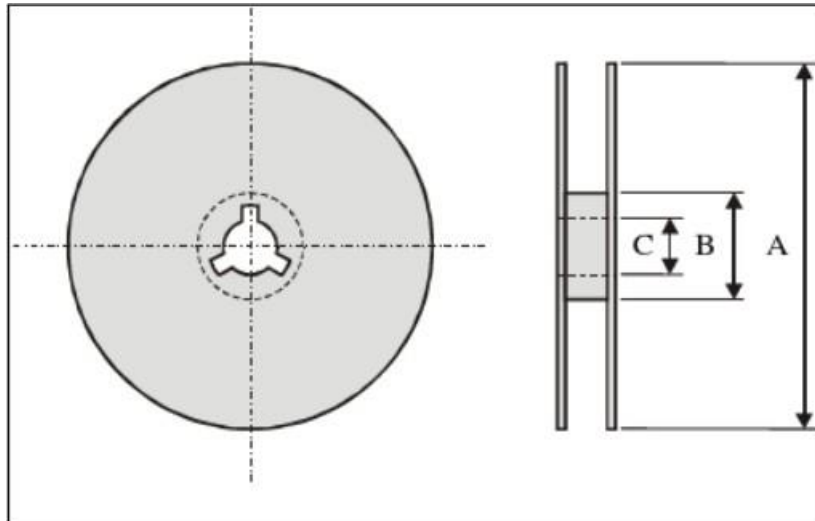


Specification of plastic carrier tape (unit: mm)

Index	A0	B0	ΦD	T	W
Dimension (mm)	3.0±0.1	6.0±0.1	1.55±0.05	1.2±0.1	11.8±0.1
Index	E	F	P0	P1	P2
Dimension (mm)	1.75±0.1	4.6±0.1	4.0±0.1	4.0±0.1	2.0±0.1

Reel size

CA-C03 Specification



Index	A	B	C
Dimension(mm)	178	60	13.5

Standard quantity: 3000 PCS/ plate.

Storage environment

The product shall meet the following conditions during storage: temperature: -10℃~+40℃

Humidity: 30% to 70% relative humidity

Do not touch corrosive gases, such as sulfur, where the product is placed. Chlorine gas or acid may lead to oxidation of product electrode, resulting in poor weldability.

Products should be placed in the toolbox and protected from moisture and dust. Products should be stored in warehouses and protected from heat, vibration and direct sunlight. The product should be stored under closed conditions.