

# APPROVAL SHEET

**CrossAir™ SMD Antenna series**  
**RoHS Compliance**

**PN: CA-C03**

**2.4 GHz ISM band antenna**

# Approval sheet

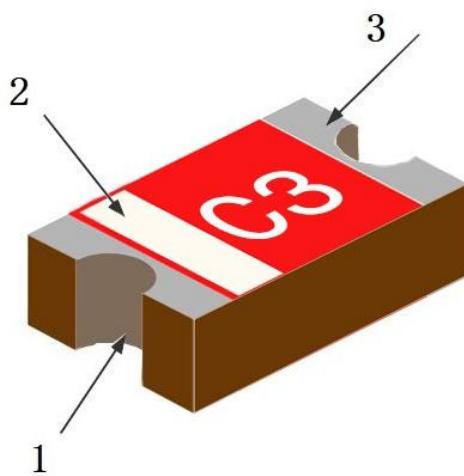
## FEATURES

1. Surface Mounted Devices (SMD) with a small dimension of 5.5 X 2.0 X 1.0 mm<sup>3</sup> meet miniaturization trend.
2. Low power loss and high antenna efficiency.
3. High stability in Temperature and Humidity Change.

## APPLICATIONS

1. 2.4GHz ISM band RF applications
2. Bluetooth, ZigBee, Wireless, HomeRF
3. WIFI (2.4G only)

## CONSTRUCTION



**1、Antenna Feeding**

**2、Identification Mark**

**3、Soldering terminal**

## DIMENSIONS

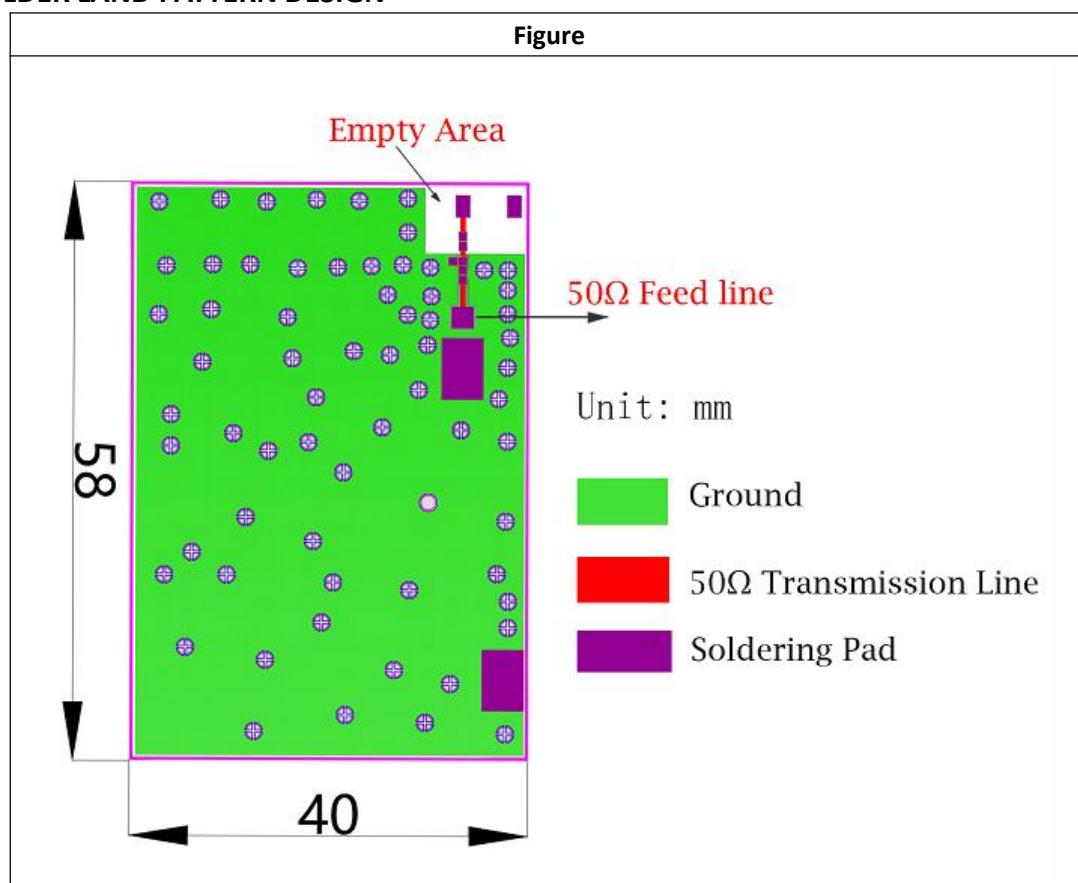
Figure	Symbol	Dimension(mm)
	<b>L</b>	<b>5.5±0.1</b>
	<b>W</b>	<b>2.0±0.1</b>
	<b>T</b>	<b>1.0±0.1</b>
	<b>a</b>	<b>0.5±0.1</b>

## ELECTRICAL CHARACTERISTICS

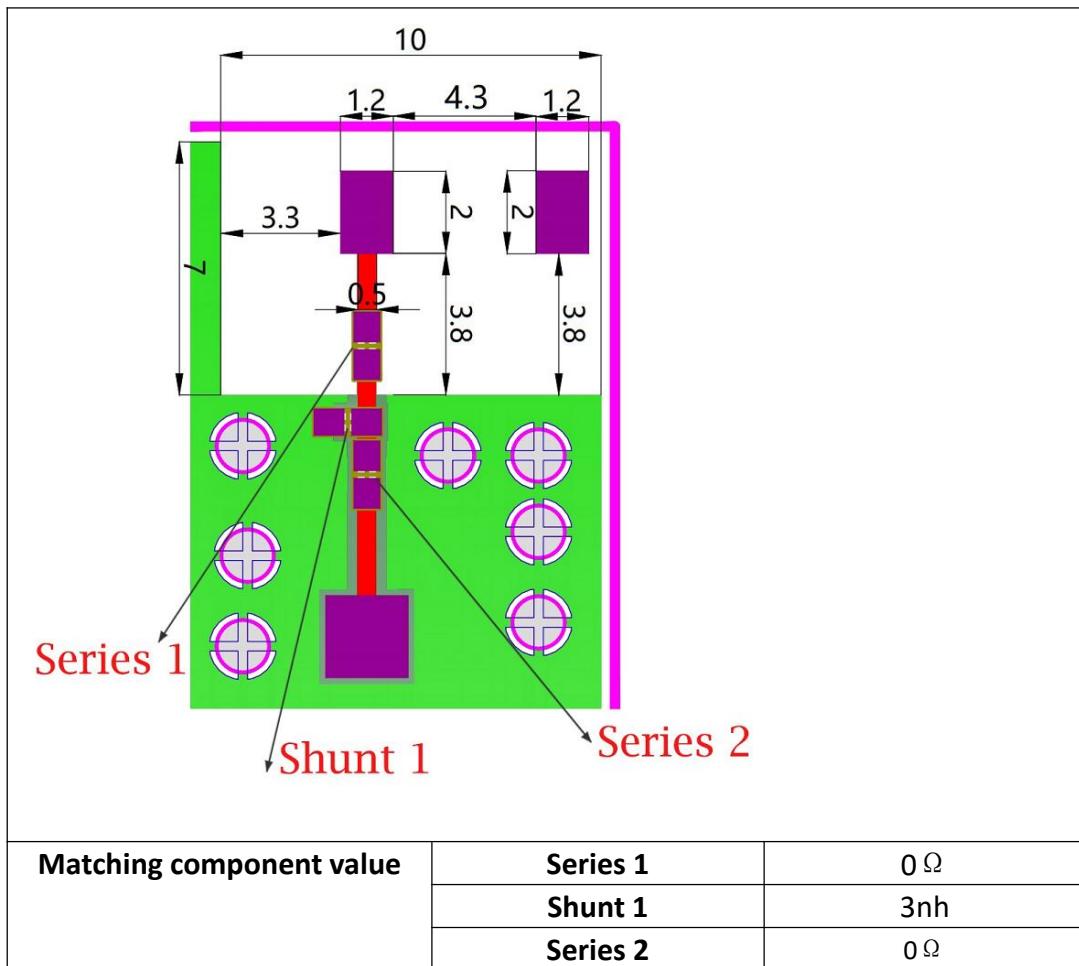
CA-C03	Specification
<b>Working Frequency Range</b>	$2450 \pm 50\text{MHz}$
<b>Band Width</b>	$>100\text{MHz}$
<b>Impedance</b>	$50 \Omega$
<b>Gain(dBi)</b>	4.3 (peak)
<b>VSWR</b>	<2
<b>Operation Temperature</b>	$-40^\circ\text{C} \sim +95^\circ\text{C}$
<b>Power Capacity</b>	3W

The working frequency need be adjusted to 2.45GHz with matching circuit.

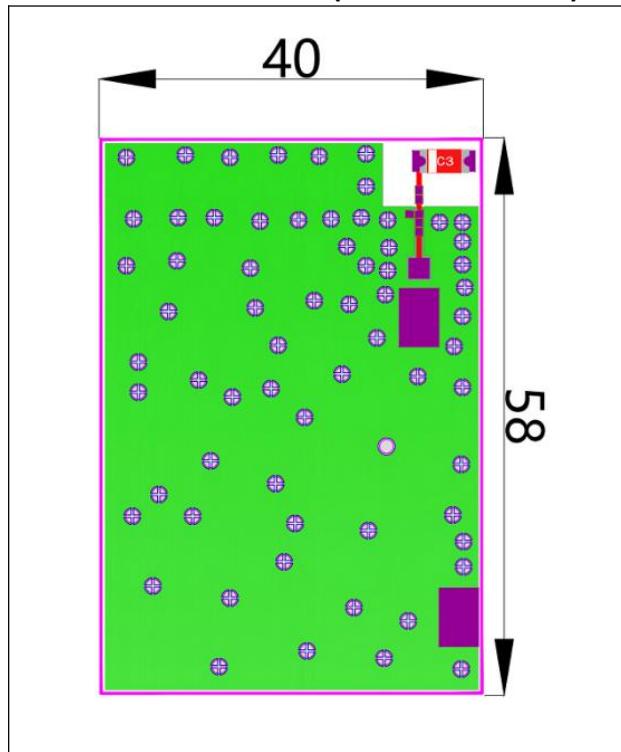
## SOLDER LAND PATTERN DESIGN



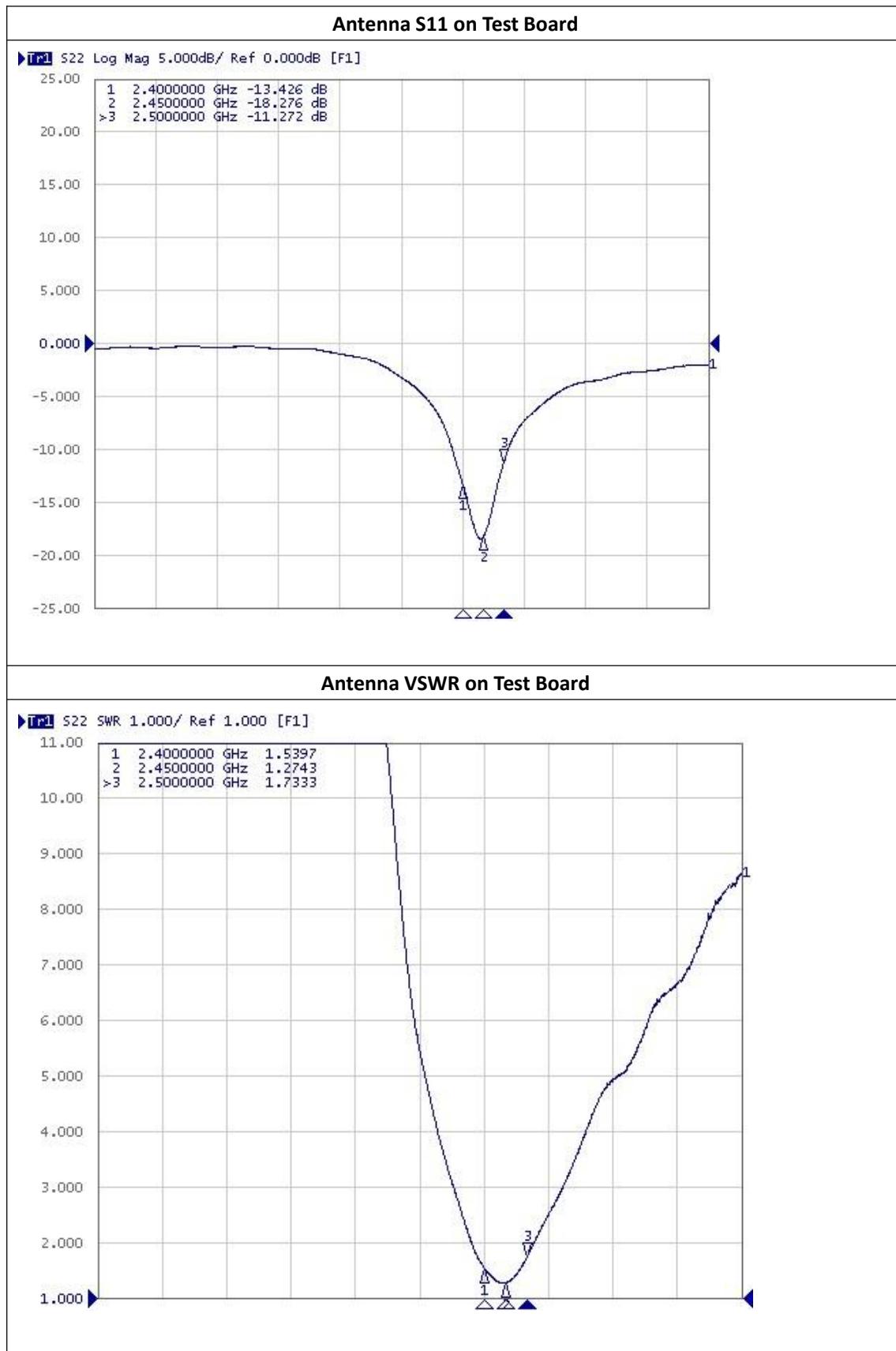
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Antenna on Test Board (Thickness 1.0mm)



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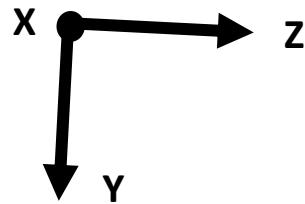
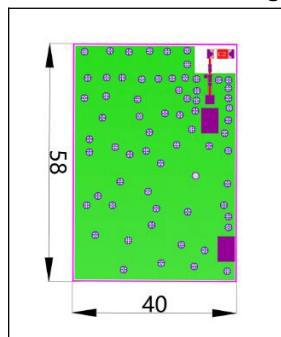


## Efficiency and RADIATION PATTERN

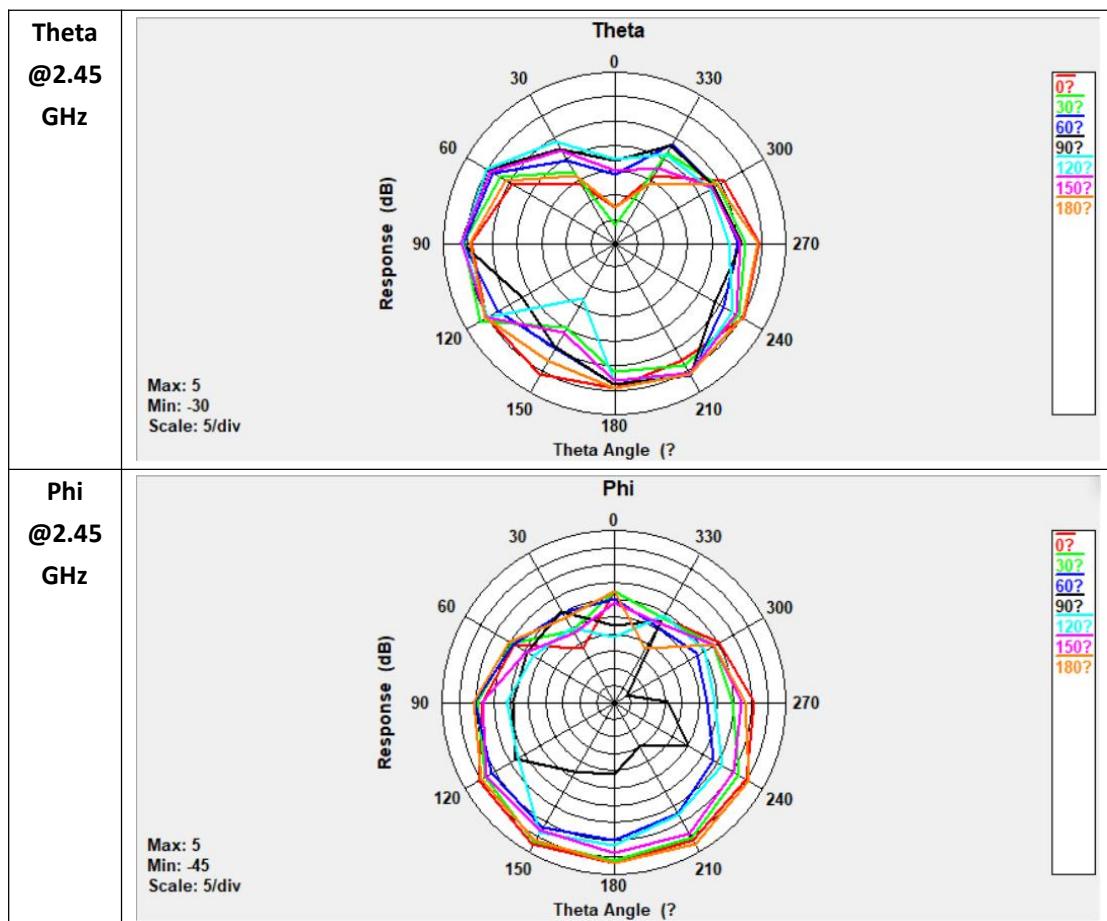
Efficiency, Radiation Pattern and Gain were dependent on measurement board design. The

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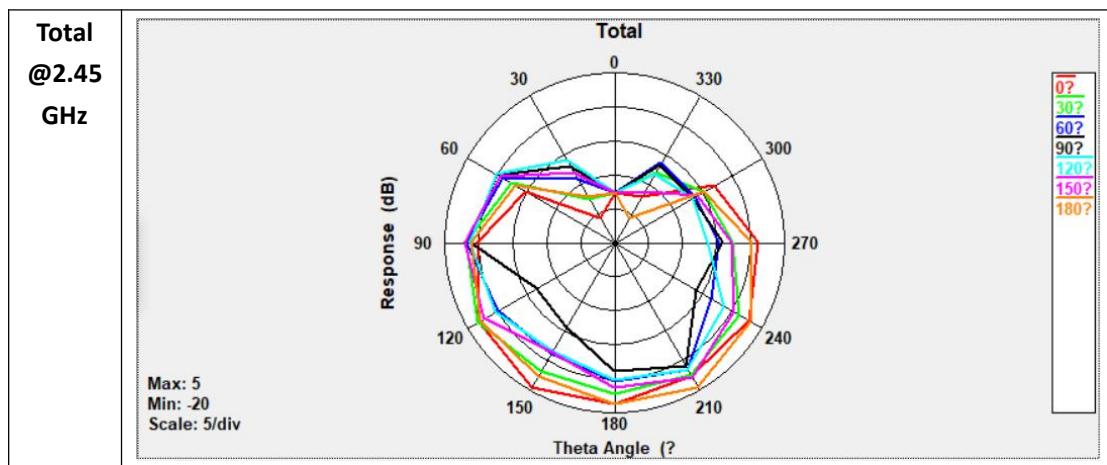
specification of CA-C03 antenna was measured based on the PCB size and installation position as shown in the below figure test board. The test results were tested in ETS 3D Chamber.



Gain and Efficiency		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%

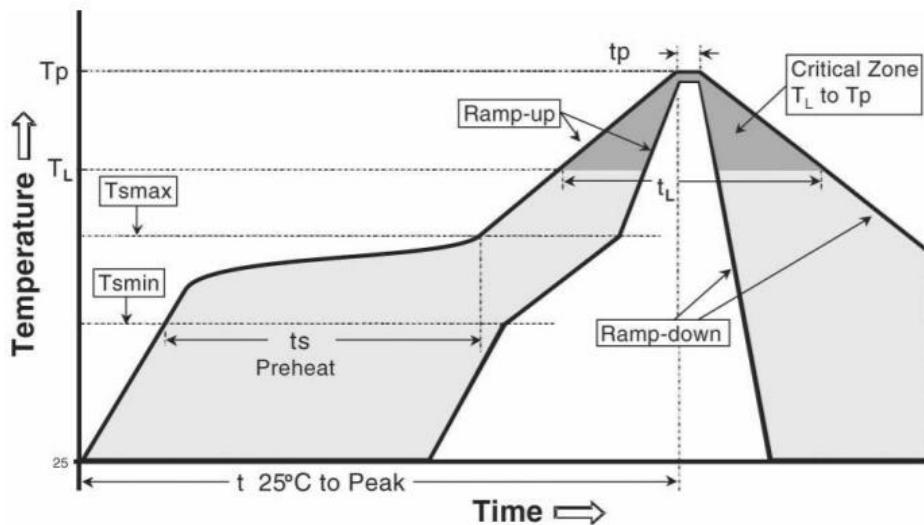


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### SOLDERING CONDITION

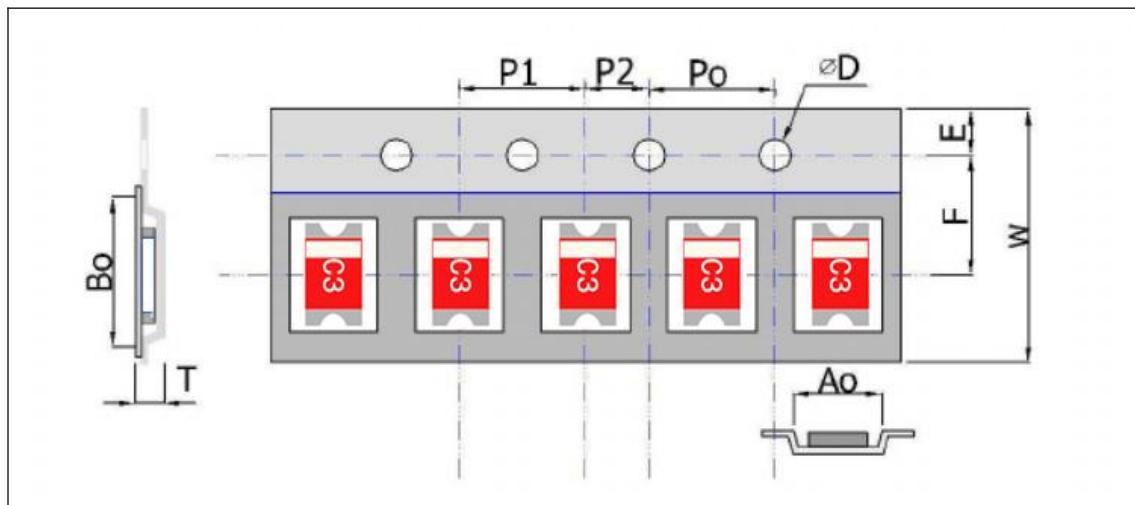
Typical examples of soldering processes that provide reliable joints without any damage is as follows:



Phase	Profile features	Pb-Free assembly (SnAgCu)
RAMP-UP	Avg. Ramp-up Rate (Tsmax to Tp)	3 °C / second (max.)
PREHEAT	<ul style="list-style-type: none"> <li>- Temperature Min (Tsmin)</li> <li>- Temperature Max (Tsmax)</li> <li>- Time (tsmin to tsmax)</li> </ul>	<ul style="list-style-type: none"> <li>150 °C</li> <li>200 °C</li> <li>60-180 seconds</li> </ul>
REFLOW	<ul style="list-style-type: none"> <li>- Temperature (TL)</li> <li>- Total Time above TL (tL)</li> </ul>	<ul style="list-style-type: none"> <li>217 °C</li> <li>60-150 seconds</li> </ul>
PEAK	<ul style="list-style-type: none"> <li>- Temperature (Tp)</li> <li>- Time (tp)</li> </ul>	<ul style="list-style-type: none"> <li>260 °C</li> <li>20-40 seconds</li> </ul>
RAMP-DOWN	Rate	6 °C/second max
Time from 25 °C to Peak Temperature		8 minutes max

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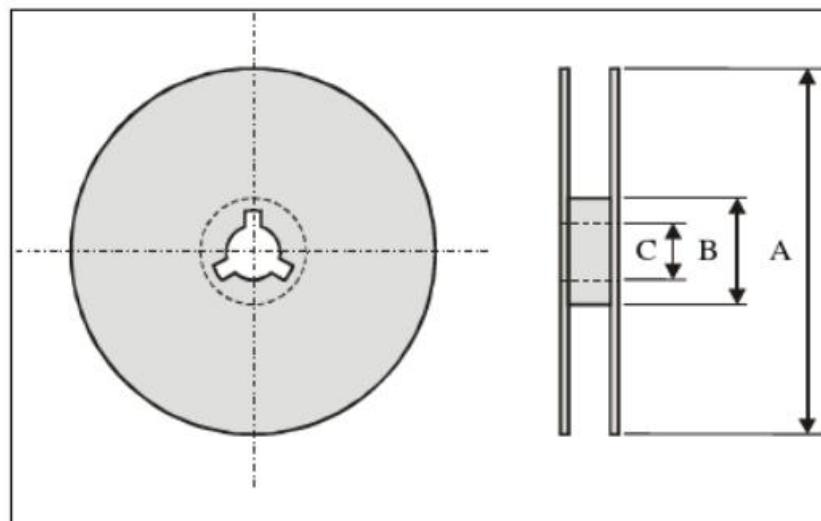
## PACKAGING



### Plastic Tape specification (unit:mm)

Index	<b>Ao</b>	<b>B<sub>o</sub></b>	<b>ΦD</b>	<b>T</b>	<b>W</b>
Dimension (mm)	<b><math>3.0 \pm 0.1</math></b>	<b><math>6.0 \pm 0.1</math></b>	<b><math>1.55 \pm 0.05</math></b>	<b><math>1.2 \pm 0.1</math></b>	<b><math>11.8 \pm 0.1</math></b>
Index	<b>E</b>	<b>F</b>	<b>P<sub>o</sub></b>	<b>P<sub>1</sub></b>	<b>P<sub>2</sub></b>
Dimension (mm)	<b><math>1.75 \pm 0.1</math></b>	<b><math>4.6 \pm 0.1</math></b>	<b><math>4.0 \pm 0.1</math></b>	<b><math>4.0 \pm 0.1</math></b>	<b><math>2.0 \pm 0.1</math></b>

### Reel dimensions



Index	<b>A</b>	<b>B</b>	<b>C</b>
Dimension(mm)	<b>178</b>	<b>60</b>	<b>13.5</b>

Typing Quantity: 3000 pieces per reel.

## CAUTION OF HANDLING

### Storage environment condition

Products should be storage in the warehouse on the following conditions:

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Temperature : -10°C~+40°C

Humidity : 30% to 70% relative humidity

Don't keep products in corrosive gases such as sulfur. Chlorine gas or acid or it may cause oxidization of electrode, resulting in poor solderability.

Products should be storage on the palette for the prevention of the influence from humidity, dust and so on.

Products should be storage in the warehouse without heat shock, vibration, direct sunlight and so on.

Products should be storage under the airtight packaged condition.

Manufacturer: Guangzhou Cambrian electronic Technology Co., LTD

Address: Room 1119, 11th Floor, Building 1, Hongda Creative Park, No. 96, Yuanxiang Road, Yunpu Street, Huangpu District, Guangzhou