



SMD Antenna Specifications

OverAir[®] SMD Antenna series

conform to RoHS specification

PN: OA-C11

2.4 GHz ISM Frequency band antenna

**Manufacturer's Name : Guangzhou Cambrian Electronic Technology Co., Ltd.
Address : Building 1, Hongda Creative Park, No. 1 Yunsang Road, Yunpu Street,
Huangpu District, Guangzhou City**

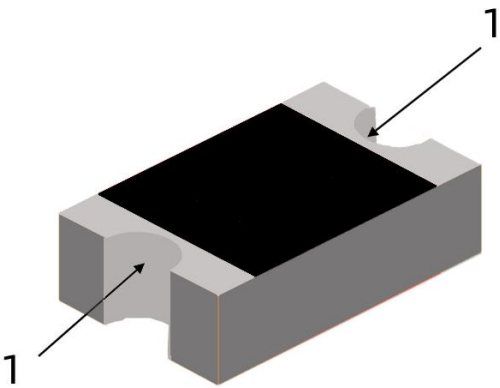
Features

- 1.Size only3.3 x 1.7 x 1.2 mm³small sizeSMDPatch antenna.
- 2.Low energy loss and high antenna efficiency.
- 3.It exhibits high stability under varying temperature and humidity conditions.

application

- 1. 2.4GHz ISMFrequency band antenna applications
- 2.Bluetooth,ZigBeeWireless applications, smart home applications, etc.
- 3. WIFI(only2.4G)

structure



The feed pads and mounting pads at both ends of the antenna are not distinguished.

size

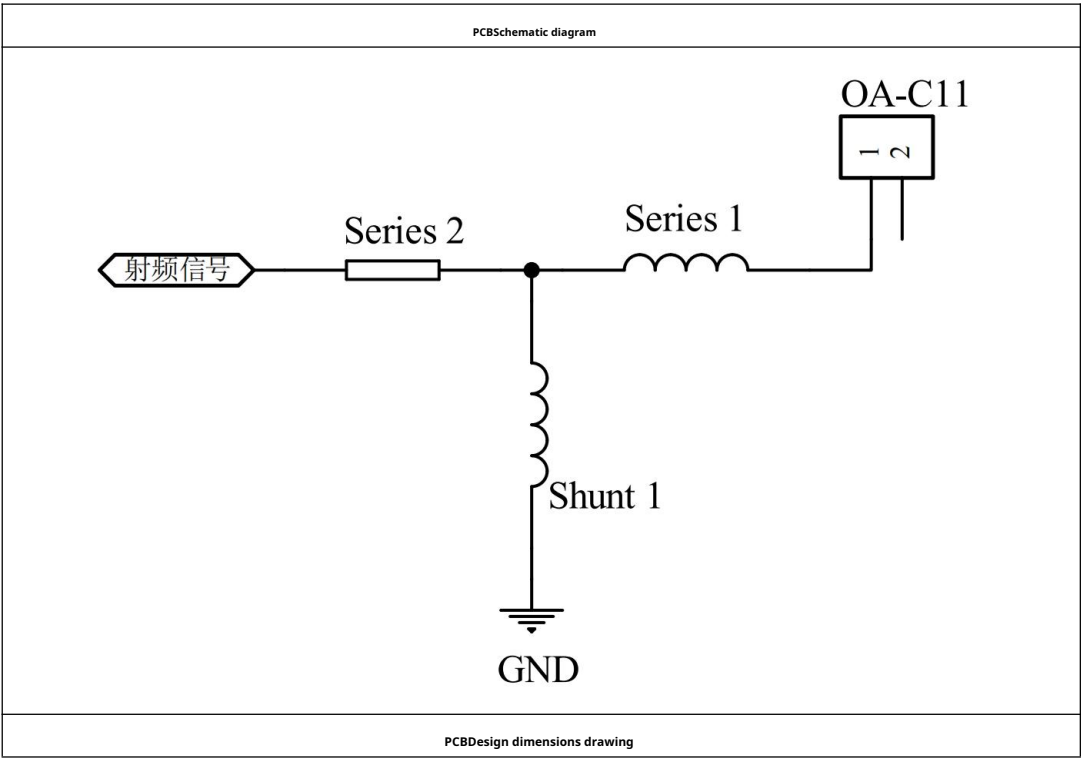
Three views	symbol	size(mm)
	L	3.3±0.2
	w	1.7±0.1
	T	1.2±0.1
	a	0.5±0.1

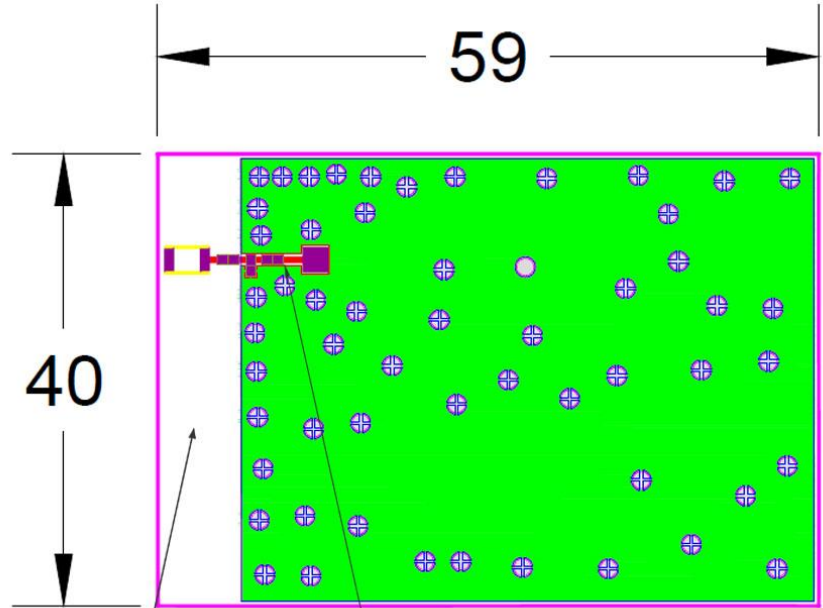
Electrical characteristics

OA-C11	Specification
Operating frequency rangeWorking Frequency	2450±50MHz
bandwidthBand Width	> 100MHz
impedanceImpedance	50Ω
GainGain(dBi)	3.85(peak)
Standing BobbyVSWR	<2
Operating temperatureOperating Temperature	- 40°C~+95°C
Power withstandPower Capacity	3W

antenna2.4GThe operating frequency needs to be adjusted using impedance matching devices.

Antenna pad and trace design



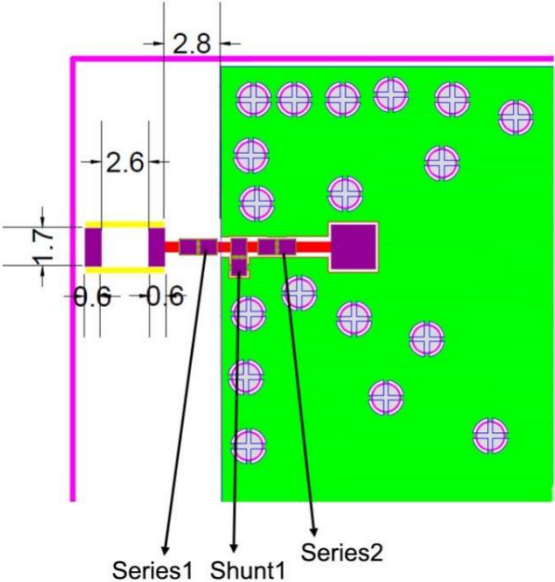


50Ω Feed Line

Empty Area

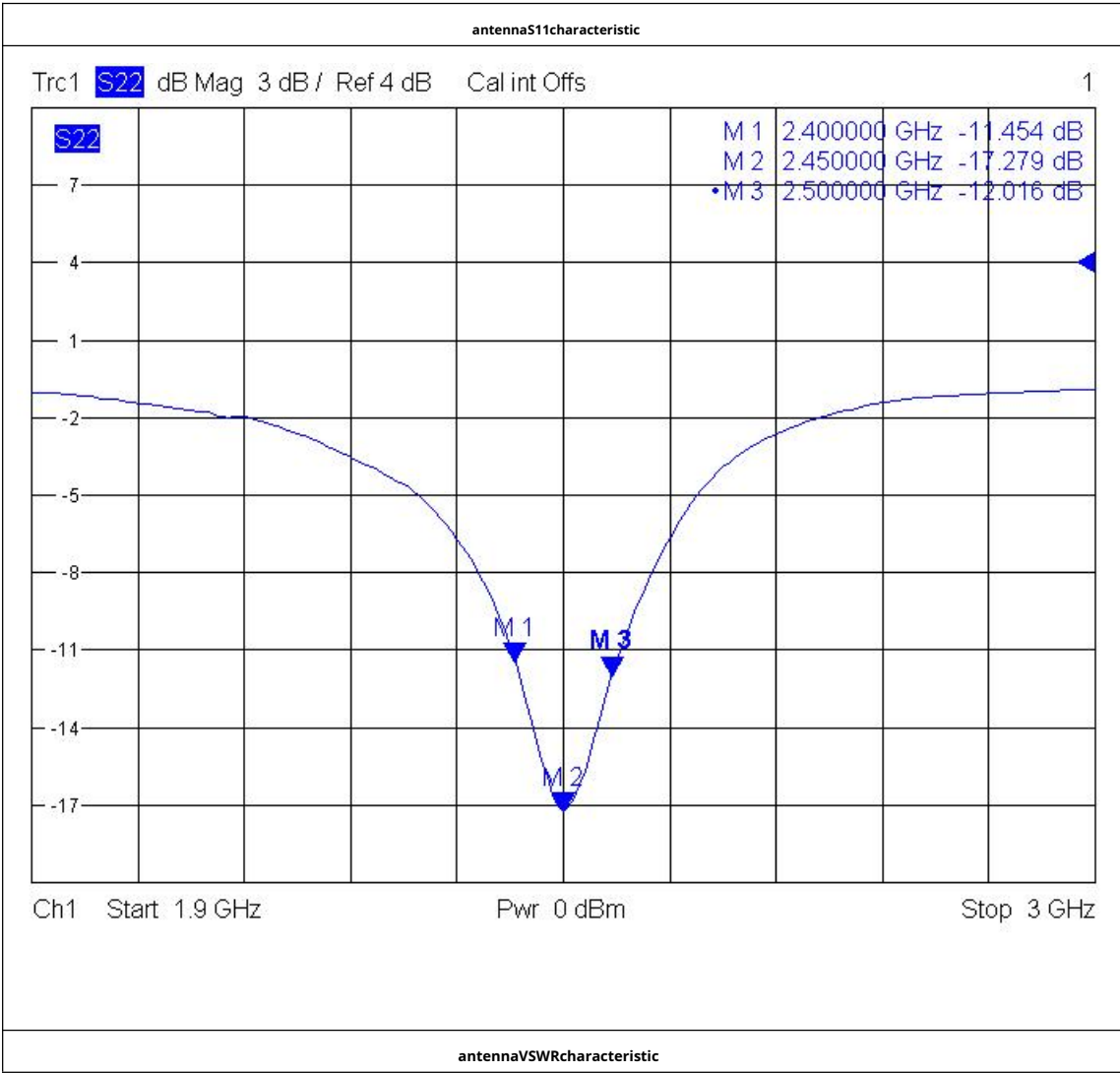
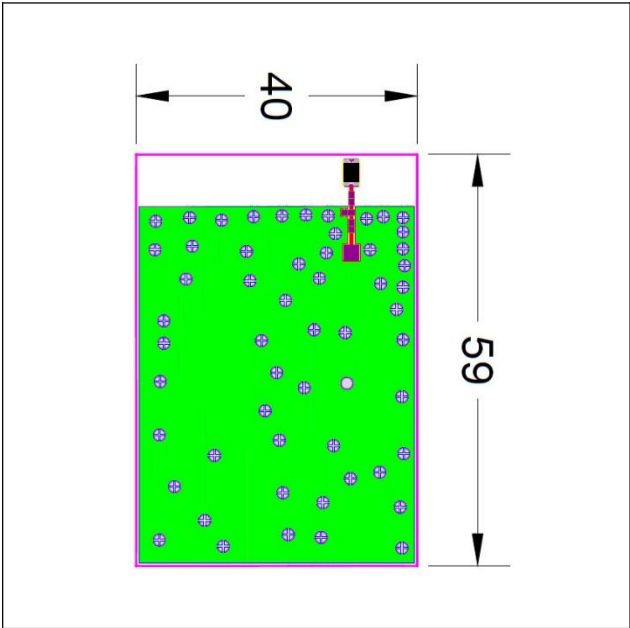
Unit: mm

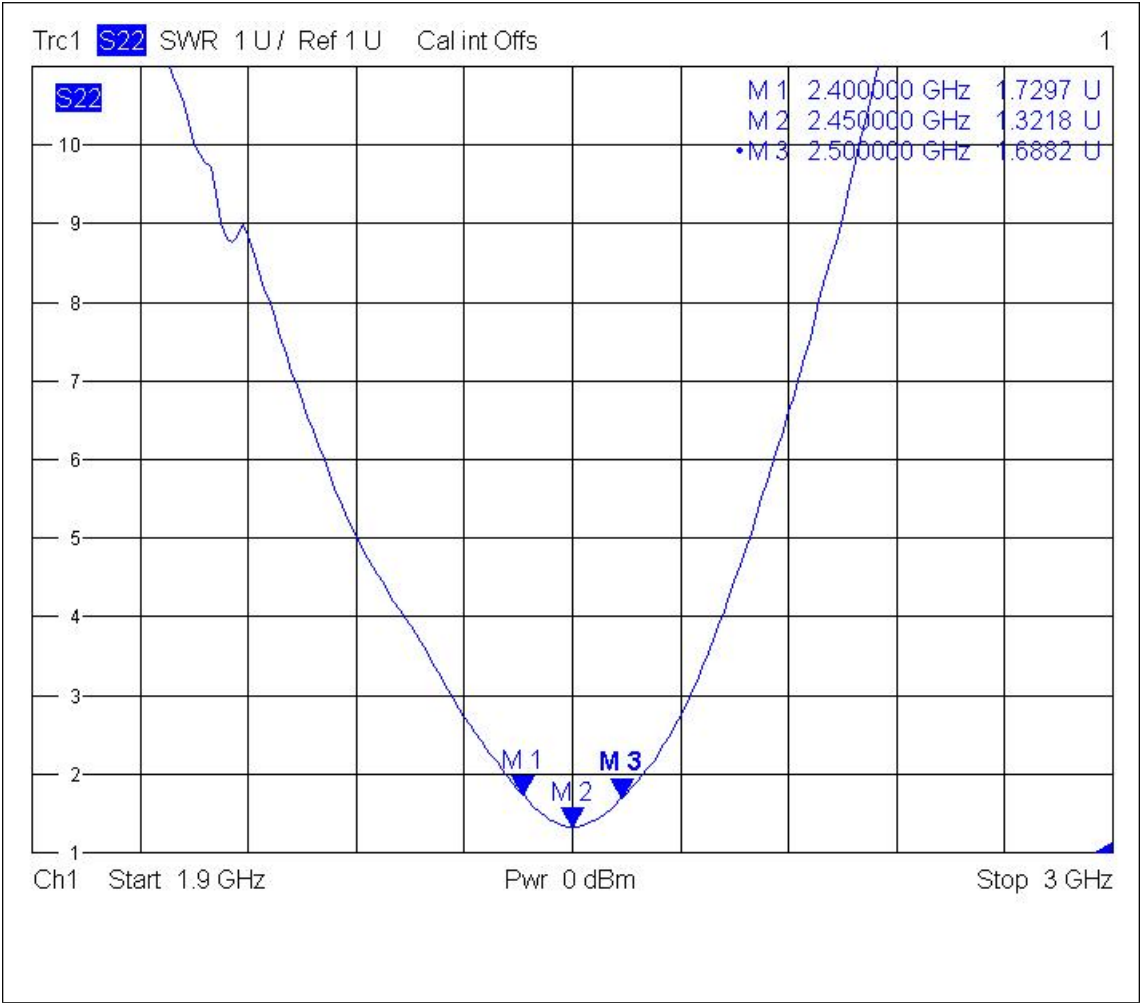
- Ground
- 50Ω Transmission Line
- Soldering Pad



Matching device values	Series devicesSeries 1	High frequency inductor2.2nh
	Parallel devicesShunt 1	High frequency inductor3.9nh
	Series devicesSeries 2	resistance0ohm

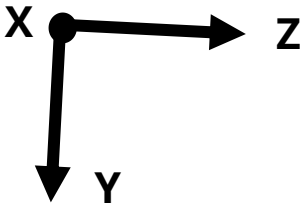
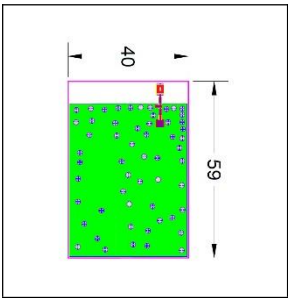
Antenna testing on test board (board thickness)1.0mm





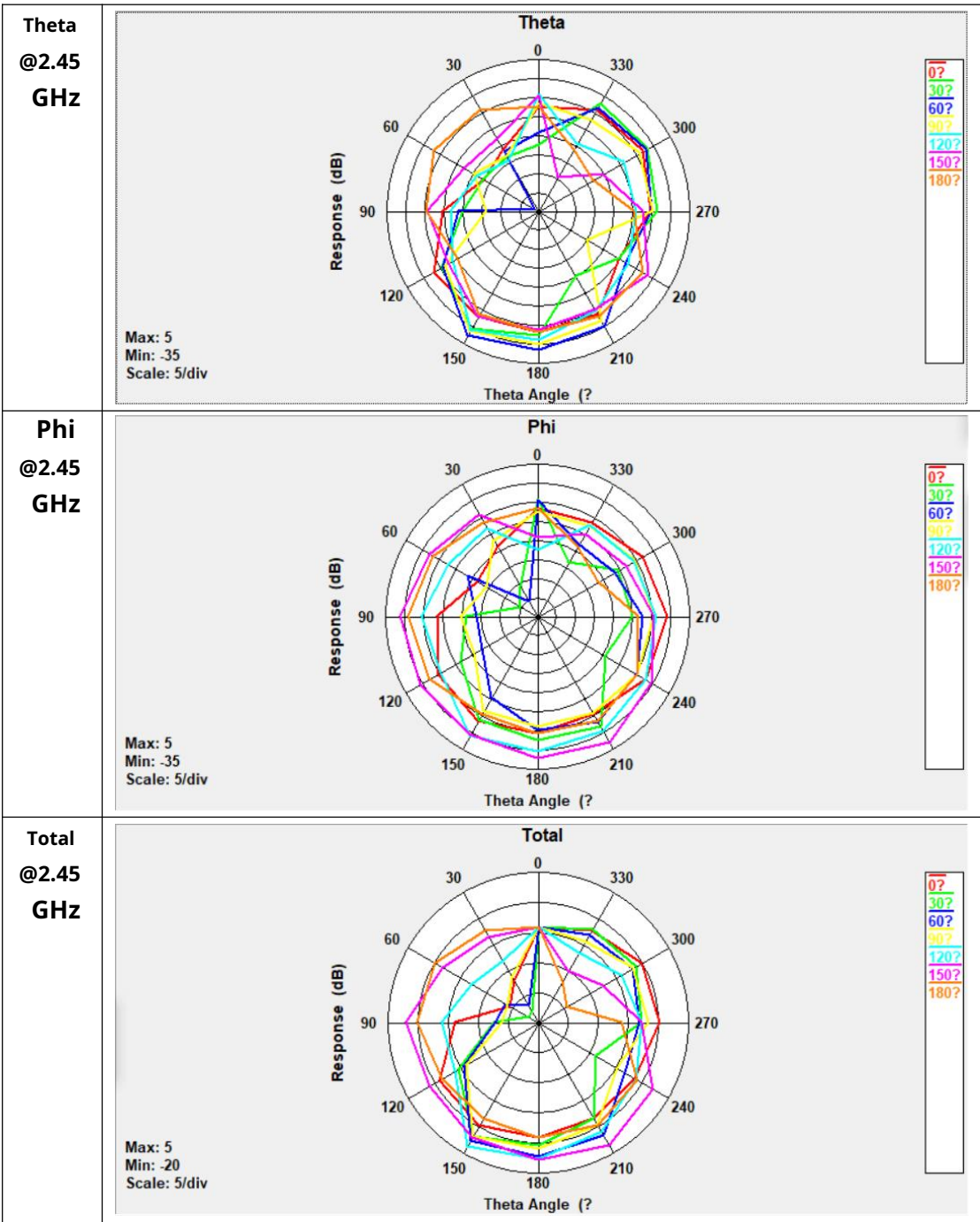
Efficiency and Radiation Diagram

Efficiency, radiation pattern, gain, and other performance metrics are derived from the test board design.OA-C11Antenna specification characteristic test data is based on tests.PCBThe data was obtained based on the board dimensions and the test orientation shown in the diagram below. The following data is from...ETS 3DThe microwave anechoic chamber test has been completed.



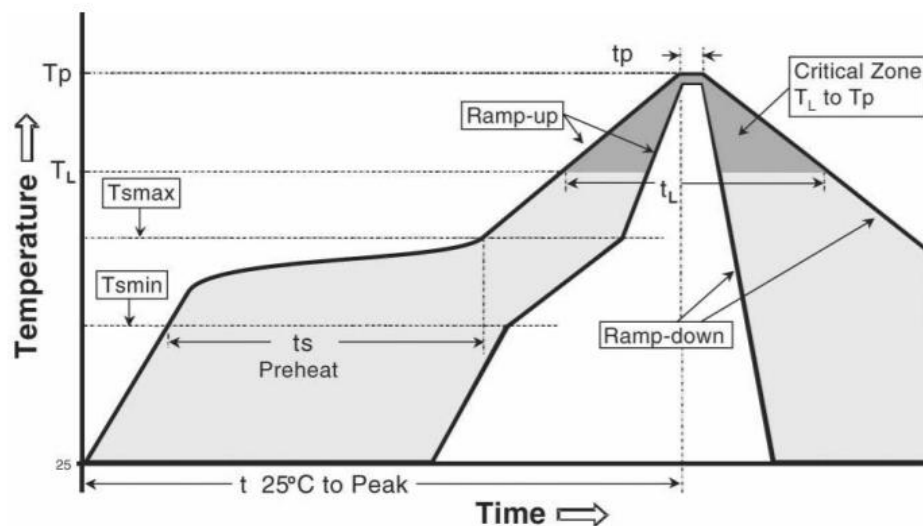
Gain and efficiency	bandwidth2.4G-2.5GHz
Peak gainPeak Gain	3.85dBi
In-band average gain	3.76dBi
Average Gain across the band	
In-band gain range	3.53dBi~3.85dBi
Gain range across the band	
Peak efficiencyPeak Efficiency	63.2%
In-band average efficiency	58.8%

Average Efficiency across the band	
In-band efficiency range	54.1%~63.2%
Efficiency Range across the band	



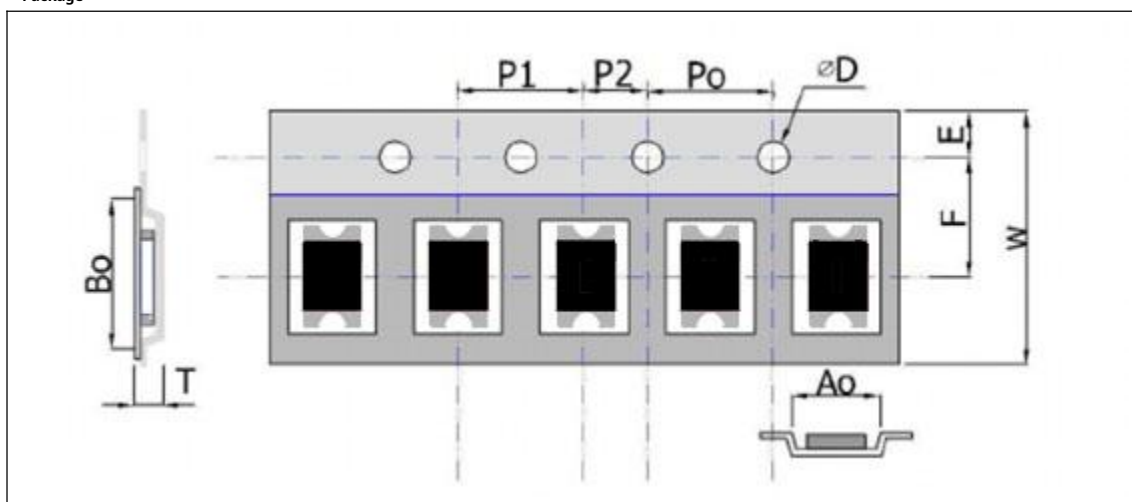
Welding conditions

A typical reliable and non-destructive welding specification is shown in the figure below:



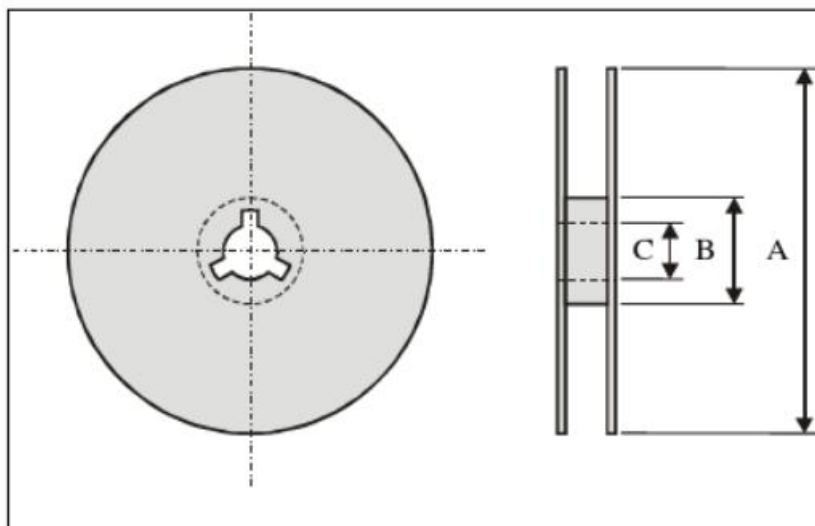
Phase	Profile features	Pb-Free assembly (SnAgCu)
RAMP-UP	Avg. Ramp-up Rate (T_{smax} to T_p)	3 °C / second (max.)
PREHEAT	- Temperature Min (T_{smin}) - Temperature Max (T_{smax}) - Time (t_{smin} to t_{smax})	150 °C 200 °C 60-180 seconds
REFLOW	- Temperature (T_L) - Total Time above T_L (t_L)	217 °C 60-150 seconds
PEAK	- Temperature (T_p) - Time (t_p)	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	ΦD	T	W
Dimension (mm)	2.0±0.1	4.0±0.1	1.55±0.05	1.8±0.1	12±0.1
Index	E	F	Po	P1	P2
Dimension (mm)	1.5±0.1	5.4±0.1	4.0±0.1	4.0±0.1	2.0±0.1

Reel size

Index	A	B	C
Dimension (mm)	178	60	13.5

Standard quantity:2500 PCS/plate.

Storage environment

The following conditions must be met when storing the product:

temperature : - 10°C~+40°C

humidity : 30%to70%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 electrodes, resulting in decreased solderability.

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.