

# APPROVAL SHEET

**OverAir™ SMD Antenna series**  
**RoHS Compliance**

**PN: OA-C07**

**2.4GHz bands antenna**

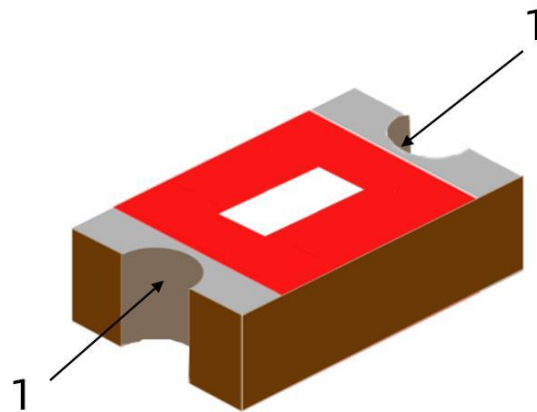
### FEATURES

1. Surface Mounted Devices (SMD) with a small dimension of 3.5 X 1.7 X 1.2 mm<sup>3</sup> meet miniaturization trend.
2. Low power loss and high antenna efficiency.
3. High stability in Temperature and Humidity Change.

### APPLICATIONS

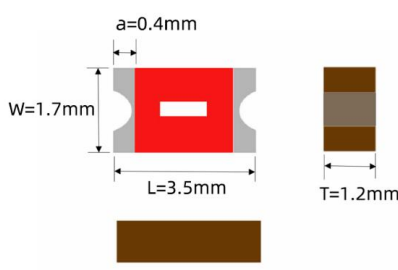
1. 2.4GHz ISM band RF applications
2. WIFI (2.4GHz only)
3. Bluetooth,ZigBee, Wireless, HomeRF

### CONSTRUCTION



1、Antenna Feeding

### DIMENSIONS

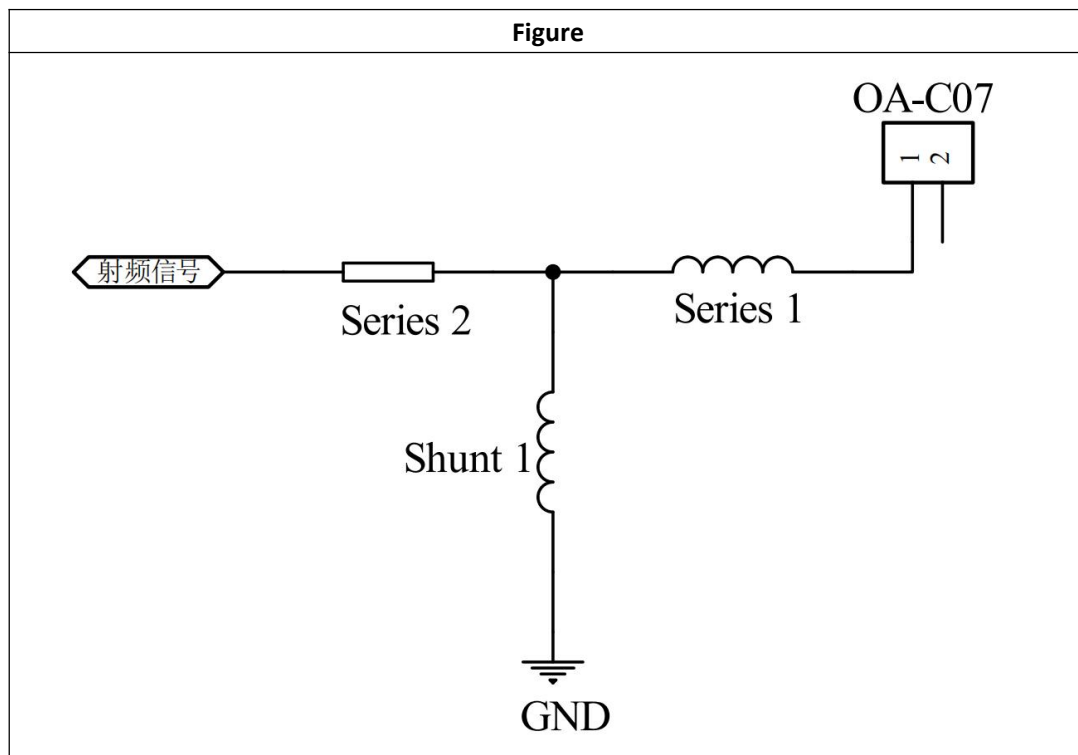
Figure	Symbol	Dimension(mm)
	<b>L</b>	<b>3.5 ± 0.2</b>
	<b>w</b>	<b>1.7 ± 0.1</b>
	<b>T</b>	<b>1.2 ± 0.1</b>
	<b>a</b>	<b>0.4 ± 0.1</b>

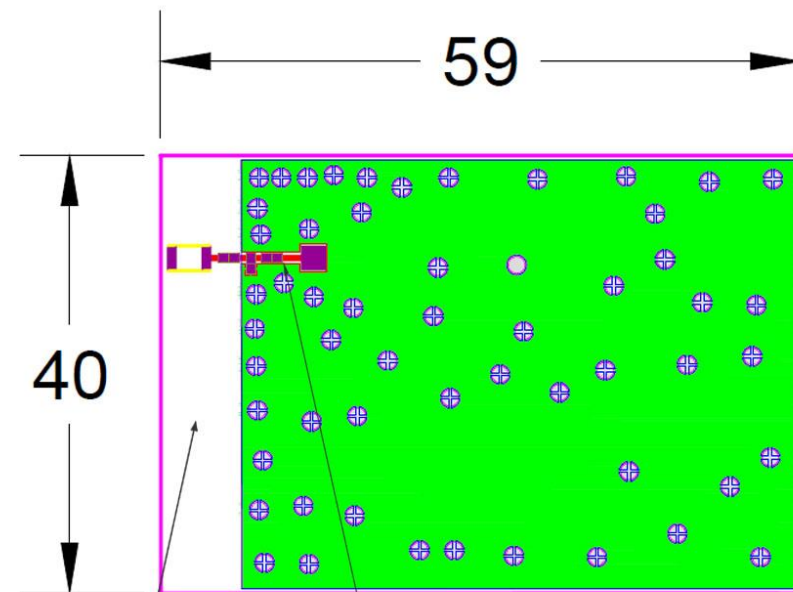
### ELECTRICAL CHARACTERISTICS

OA-C07	Specification
Working Frequency Range	$2450 \pm 50\text{MHz}$
Band Width	$>100\text{MHz}$
Impedance	$50\ \Omega$
Gain(dBi)	3.74(peak)
VSWR	$<2$
Operation Temperature	$-40^{\circ}\text{C} \sim +95^{\circ}\text{C}$
Power Capacity	3W

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

### SOLDER LAND PATTERN DESIGN



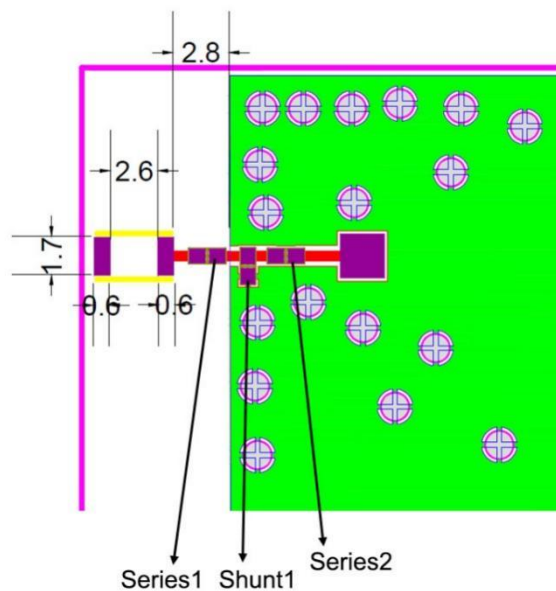


50Ω Feed Line

Empty Area

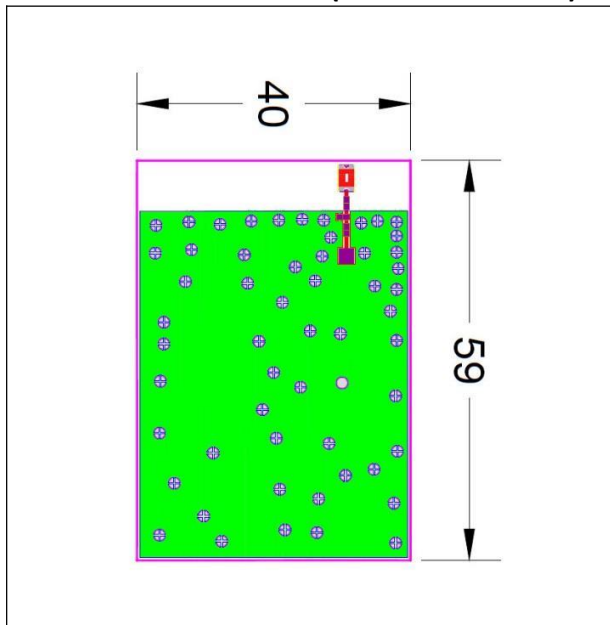
Unit: mm

- Ground
- 50Ω Transmission Line
- Soldering Pad

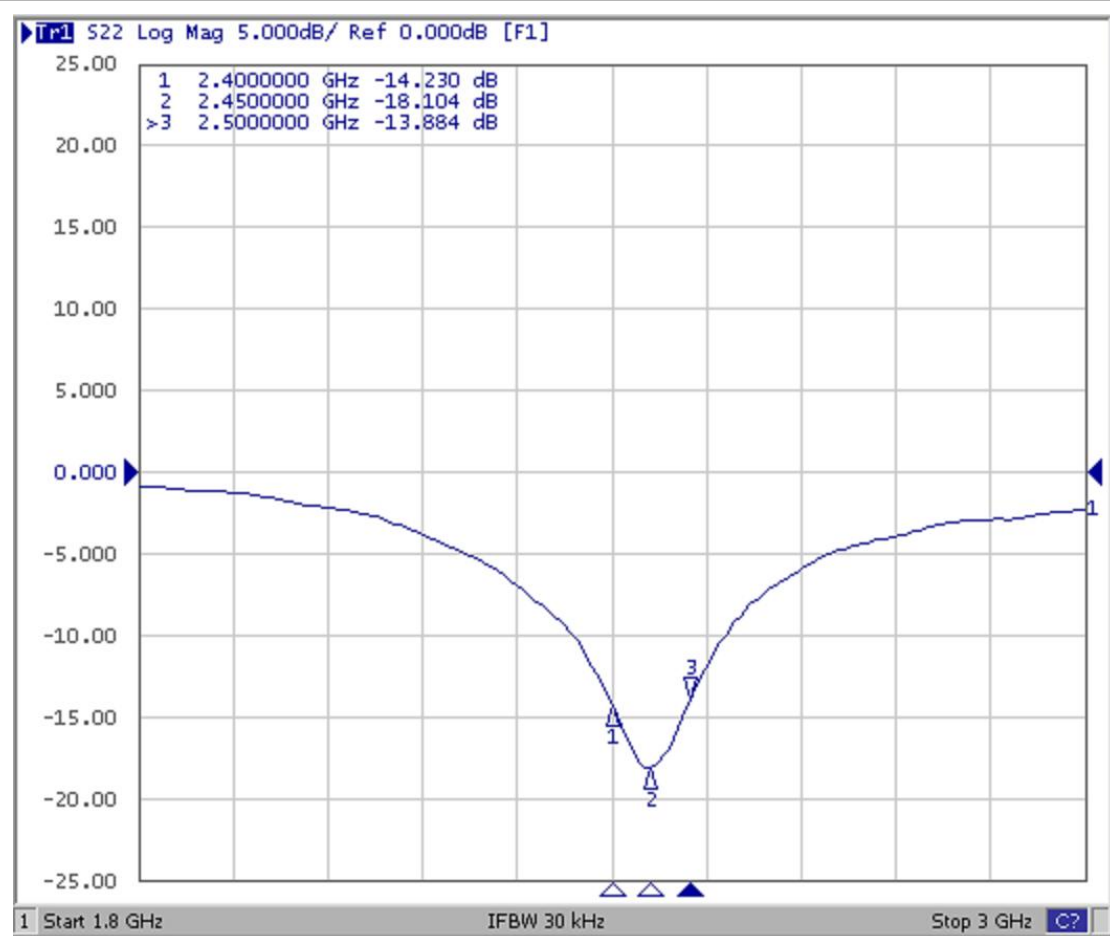


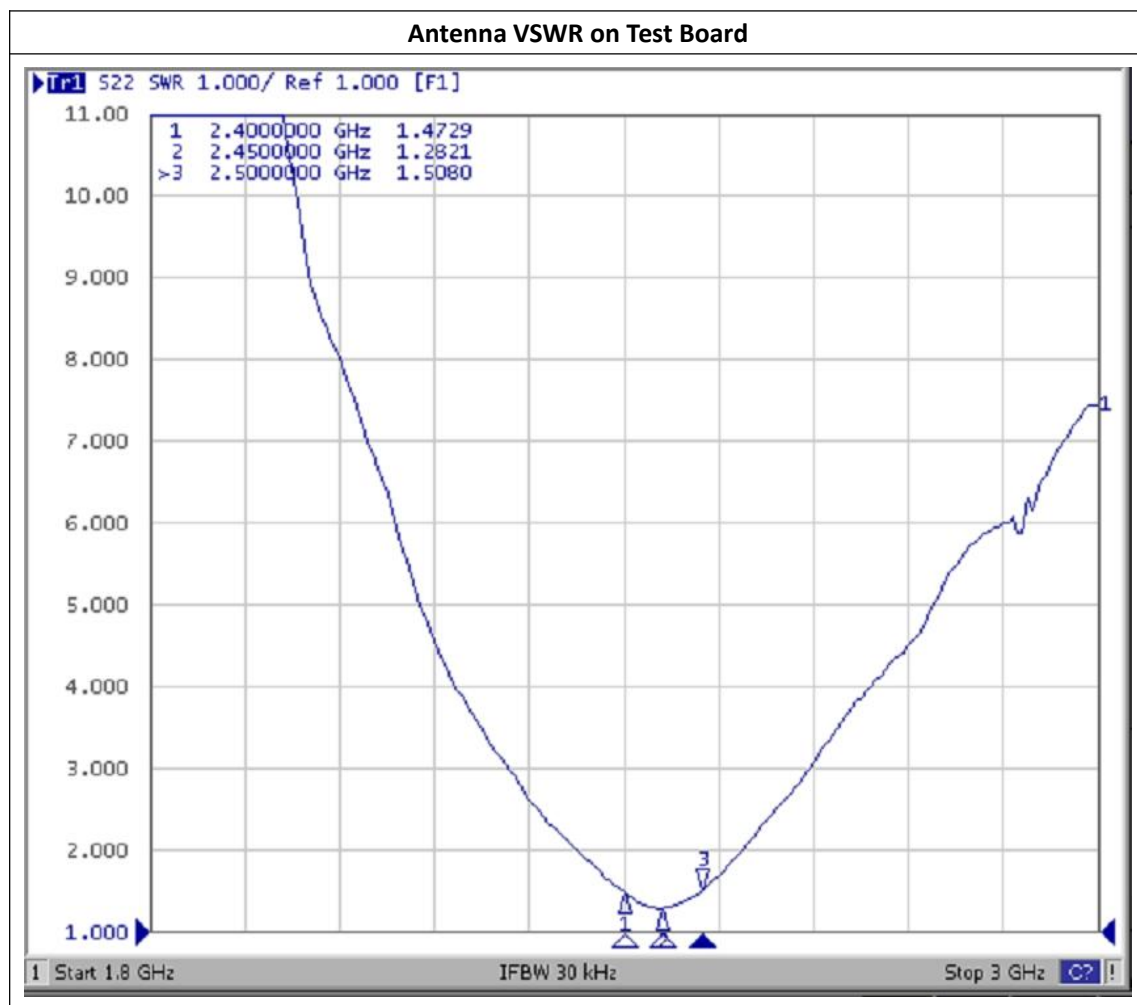
Matching component value	Series 1	5.6nh
	Shunt 1	4.7nh
	Series 2	0 Ω

Antenna on Test Board (Thickness 1.0mm)



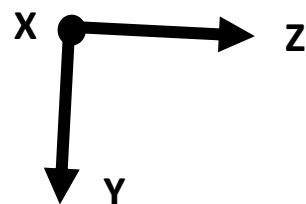
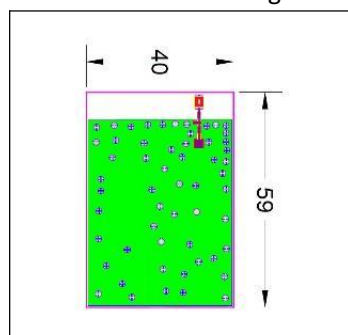
Antenna S11 on Test Board



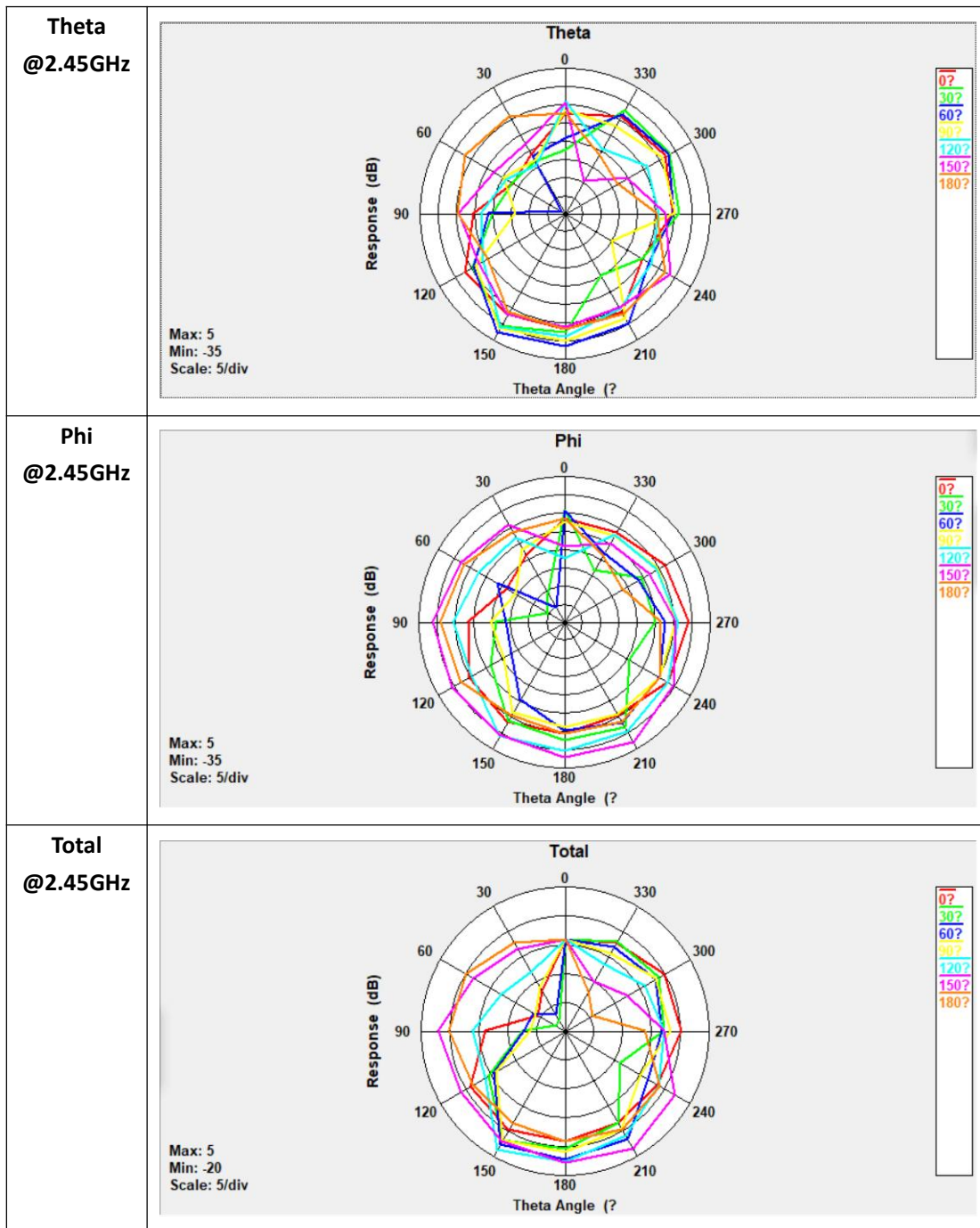


### Efficiency and RADIATION PATTERN

Efficiency, Radiation Pattern and Gain were dependent on measurement board design. The specification of OA-C07 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.

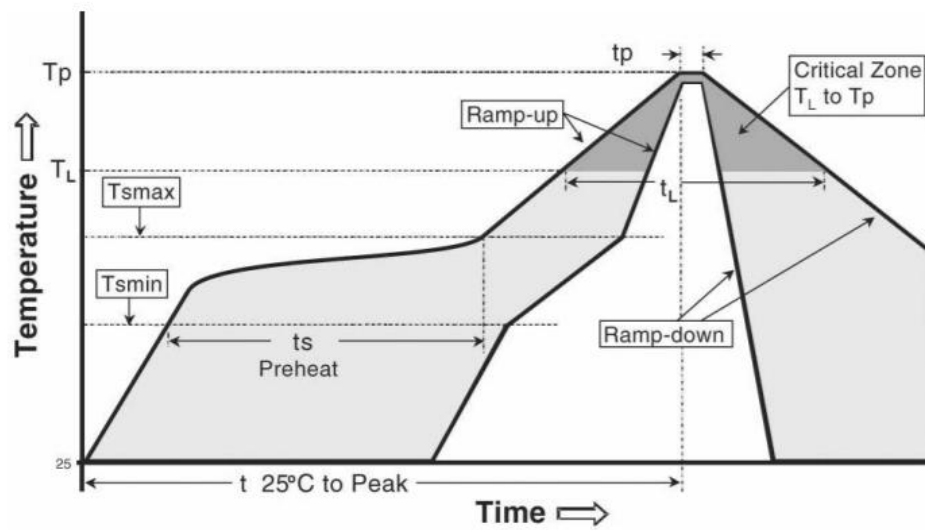


Gain and Efficiency	2.4G-2.5GHz
Peak Gain	3.74dBi
Average Gain across the band	3.66dBi
Gain Range across the band	3.42dBi~3.74dBi
Peak Efficiency	58.9%
Average Efficiency across the band	55.9%
Efficiency Range across the band	53.0%~58.9%



## SOLDERING CONDITION

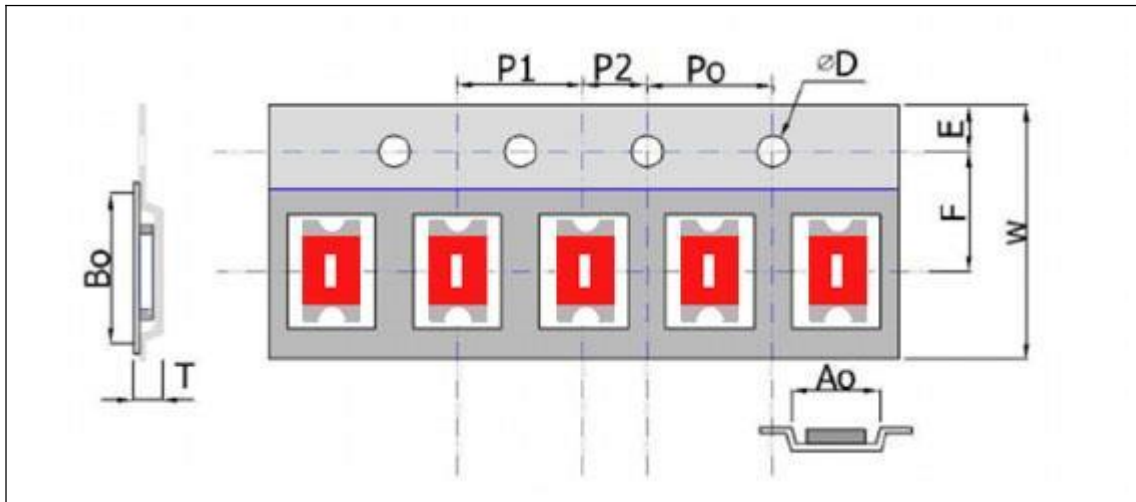
Typical examples of soldering processes that provide reliable joints without any damage is as follows:



Phase	Profile features	Pb-Free assembly (SnAgCu)
<b>RAMP-UP</b>	Avg. Ramp-up Rate ( $T_{smax}$ to $T_p$ )	3 °C / second (max.)
<b>PREHEAT</b>	<ul style="list-style-type: none"> <li>- Temperature Min (<math>T_{smin}</math>)</li> <li>- Temperature Max (<math>T_{smax}</math>)</li> <li>- Time (<math>t_{smin}</math> to <math>t_{smax}</math>)</li> </ul>	150 °C 200 °C 60-180 seconds
<b>REFLOW</b>	<ul style="list-style-type: none"> <li>- Temperature (<math>T_L</math>)</li> <li>- Total Time above <math>T_L</math> (<math>t_L</math>)</li> </ul>	217 °C 60-150 seconds
<b>PEAK</b>	<ul style="list-style-type: none"> <li>- Temperature (<math>T_p</math>)</li> <li>- Time (<math>t_p</math>)</li> </ul>	260 °C 20-40 seconds
<b>RAMP-DOWN</b>	Rate	6 °C/second max
<b>Time from 25 °C to Peak Temperature</b>		8 minutes max



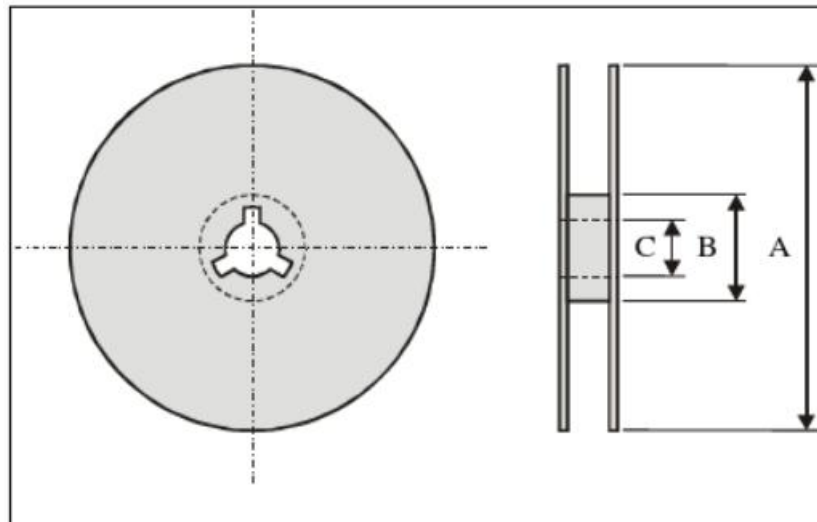
PACKAGING



Plastic Tape specification (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 dimensions



Index	A	B	C
Dimension(mm)	330	100	13.5

Typing Quantity: 2500 pieces per reel.

### CAUTION OF HANDLING

#### Storage environment condition

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

Temperature : -10℃~+40℃

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.