

# Approval Sheet

**OverAir® SMD antenna series  
RoHS Compliance**

**PN: OA-C09**

**2.4 GHz ISM band antenna**

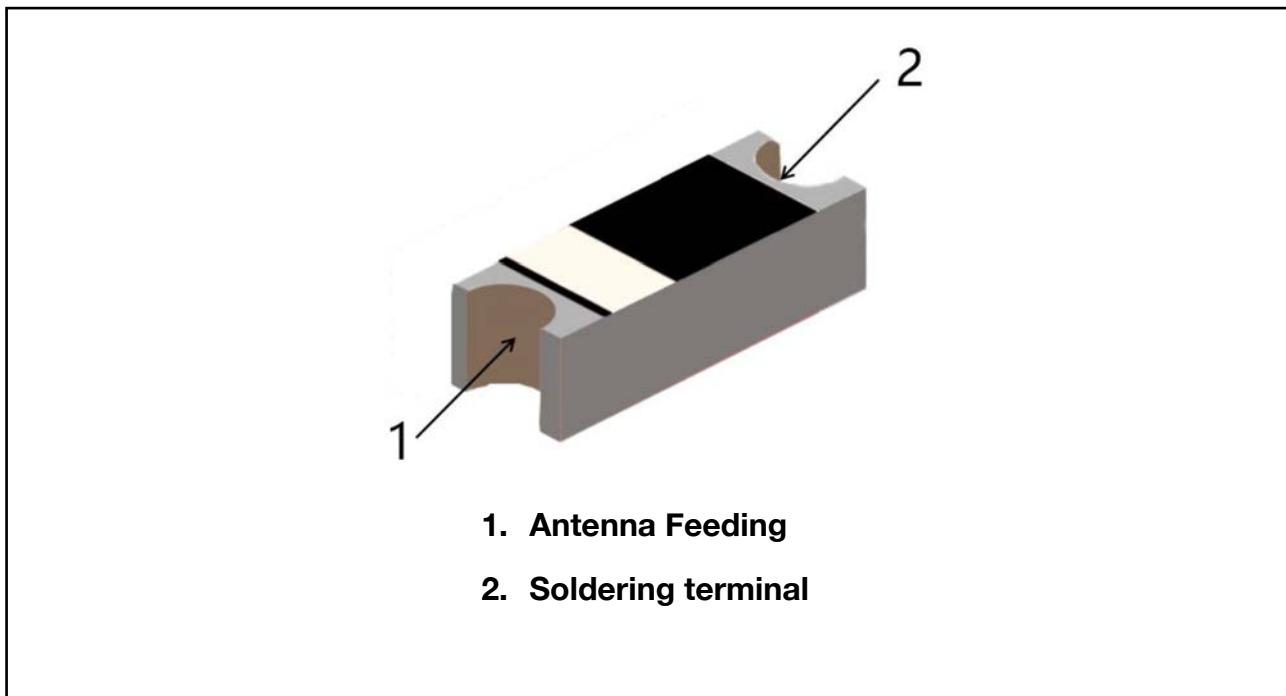
## FEATURES

1. Surface Mounted Devices with a small dimension of 5.5 X 1.2 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. Bluetooth, ZigBee, Smart Home applications.
3. Wi-Fi (2.4GHz only)

## CONSTRUCTION



## DEMENSIONS

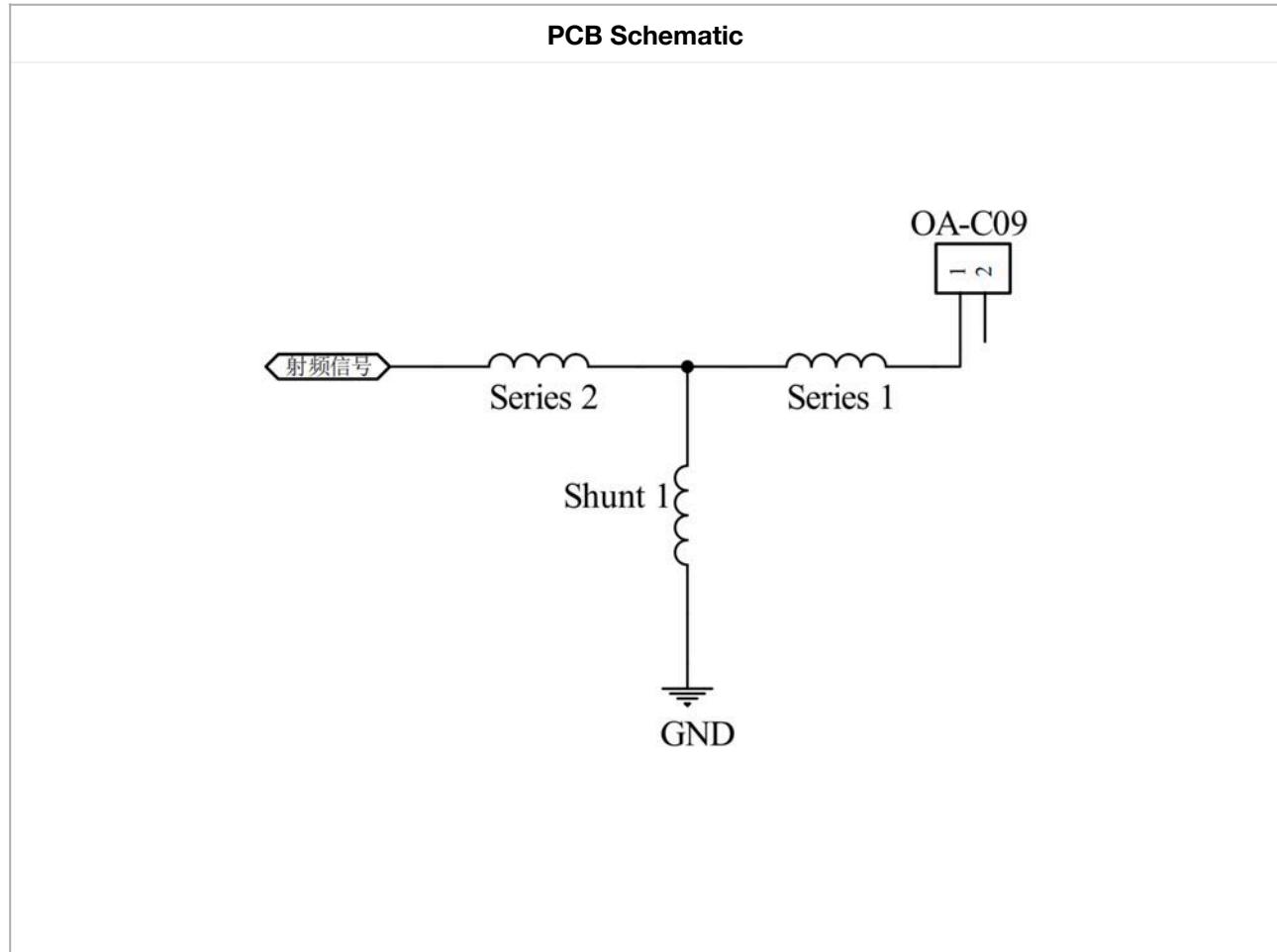
Figure	Symbol	Dimension(mm)
	<b>L</b>	<b>5.5 ± 0.2</b>
	<b>W</b>	<b>1.2 ± 0.1</b>
	<b>T</b>	<b>1.2 ± 0.1</b>
	<b>a</b>	<b>0.4 ± 0.1</b>

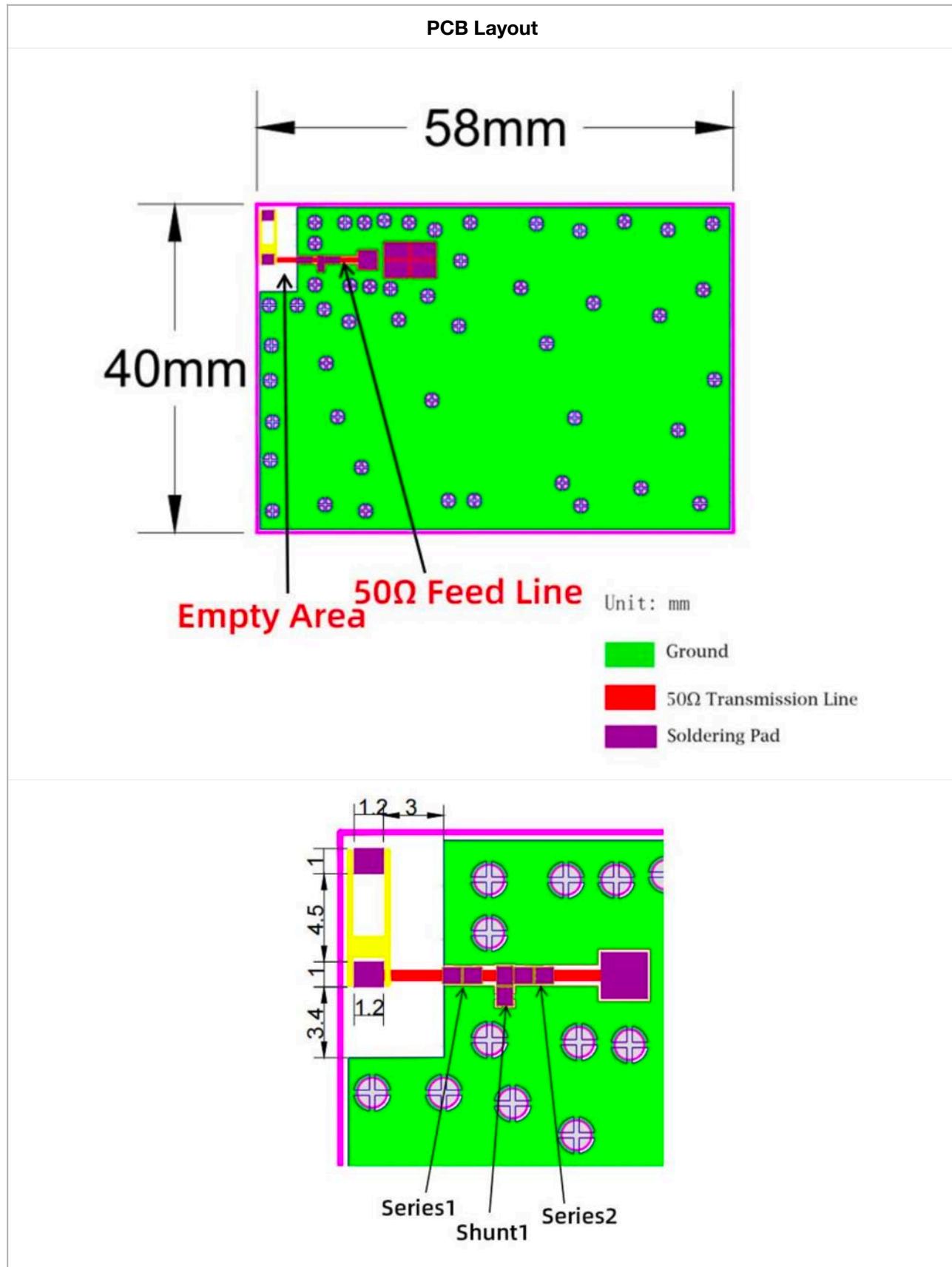
## ELECTRICAL CHARACTERISTICS

OA-C09	Specification
Working Frequency Range	2450 ± 50MHz
Band Width	>100MHz
Impedance	50Ω
Gain(dBi)	4.0 (peak)
VSWR	<2
Operation Temperature	-40°C ~ + 95°C
Power Capacity	3W

The working frequency need be adjusted to working band with match

## SOLDER LAND PATTERN DESIGN

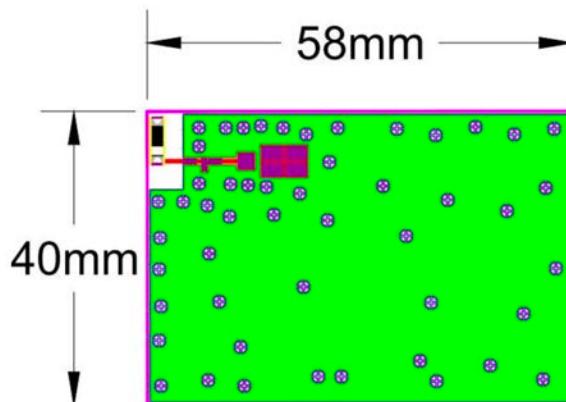




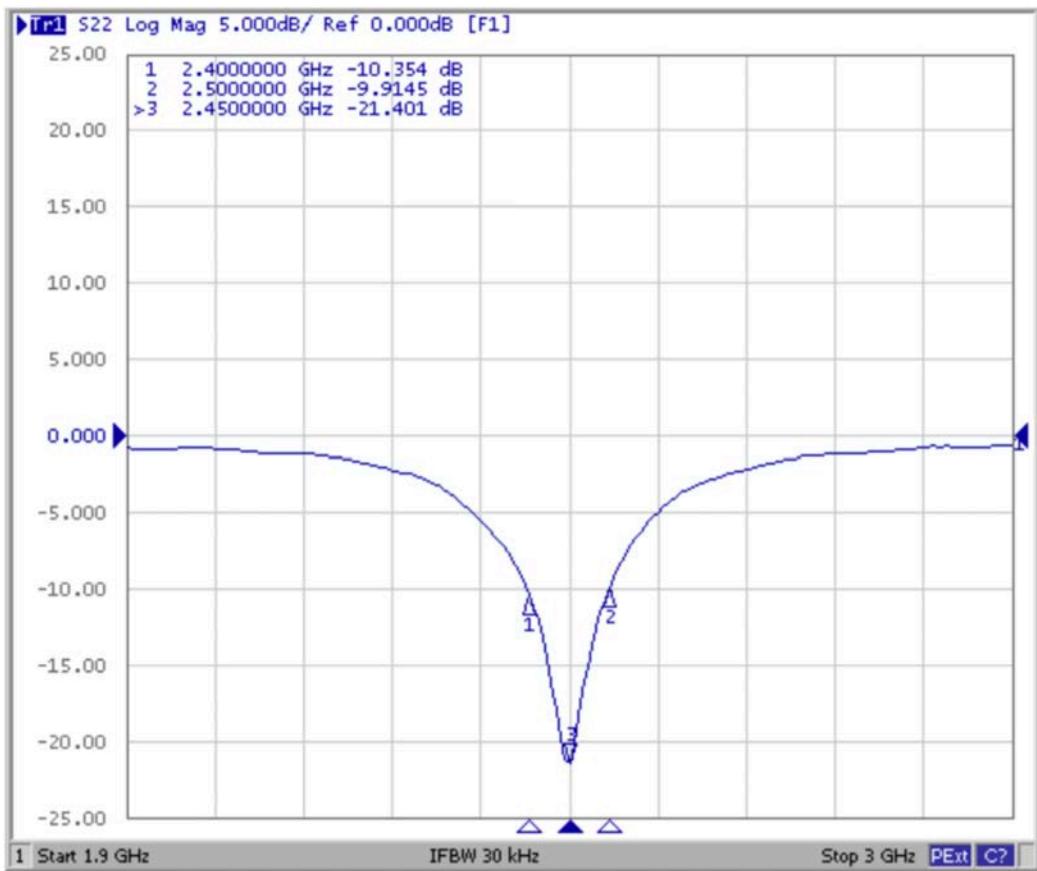
Matching component value

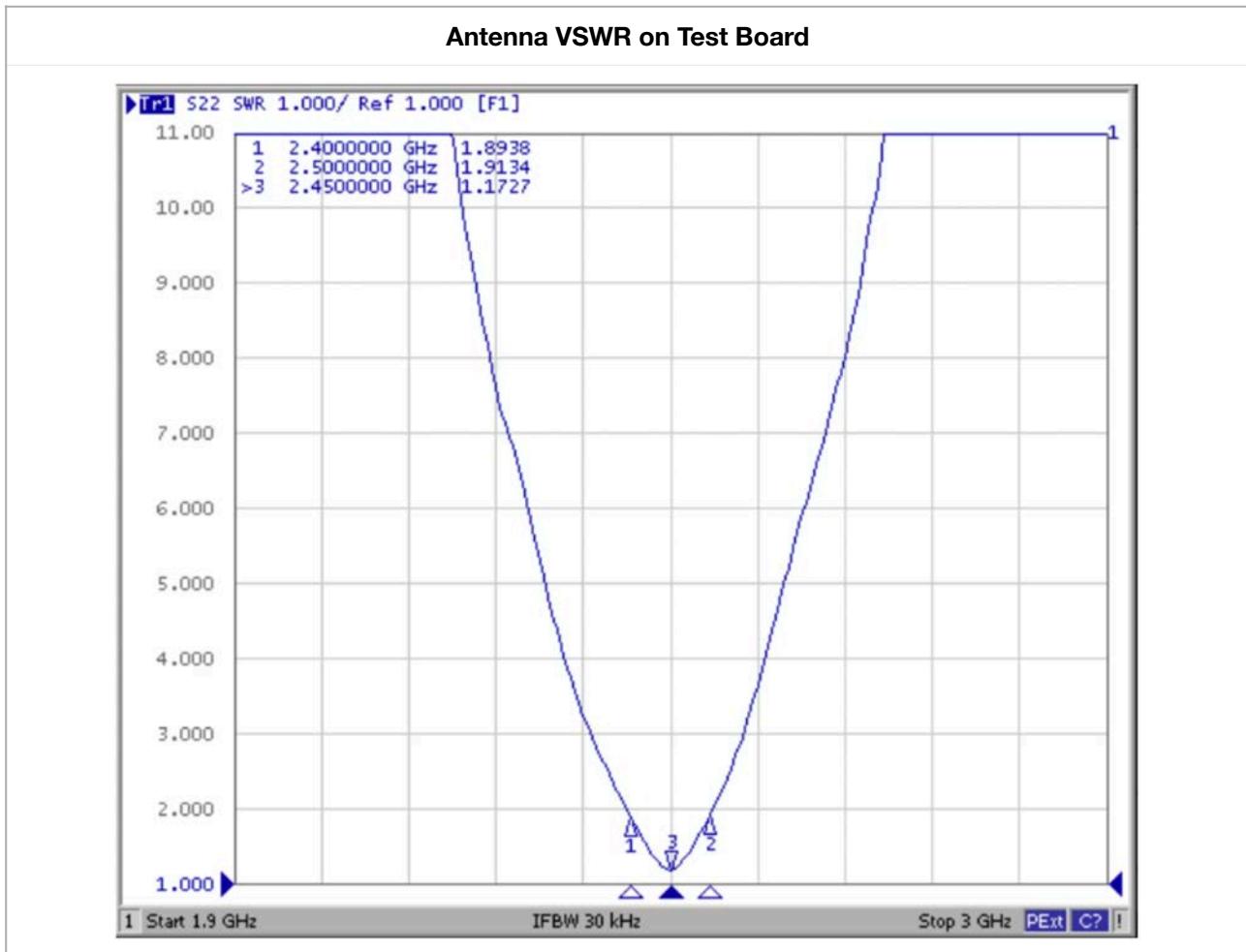
Series 1	3.0nh
Shunt 1	2.7nh
Series 2	3.6nh

Antenna on Test Board (Thickness 1.0mm)



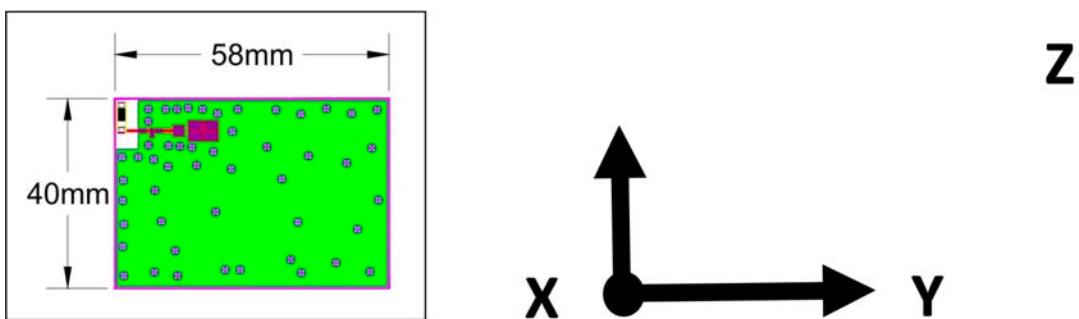
Antenna S11 on Test Board





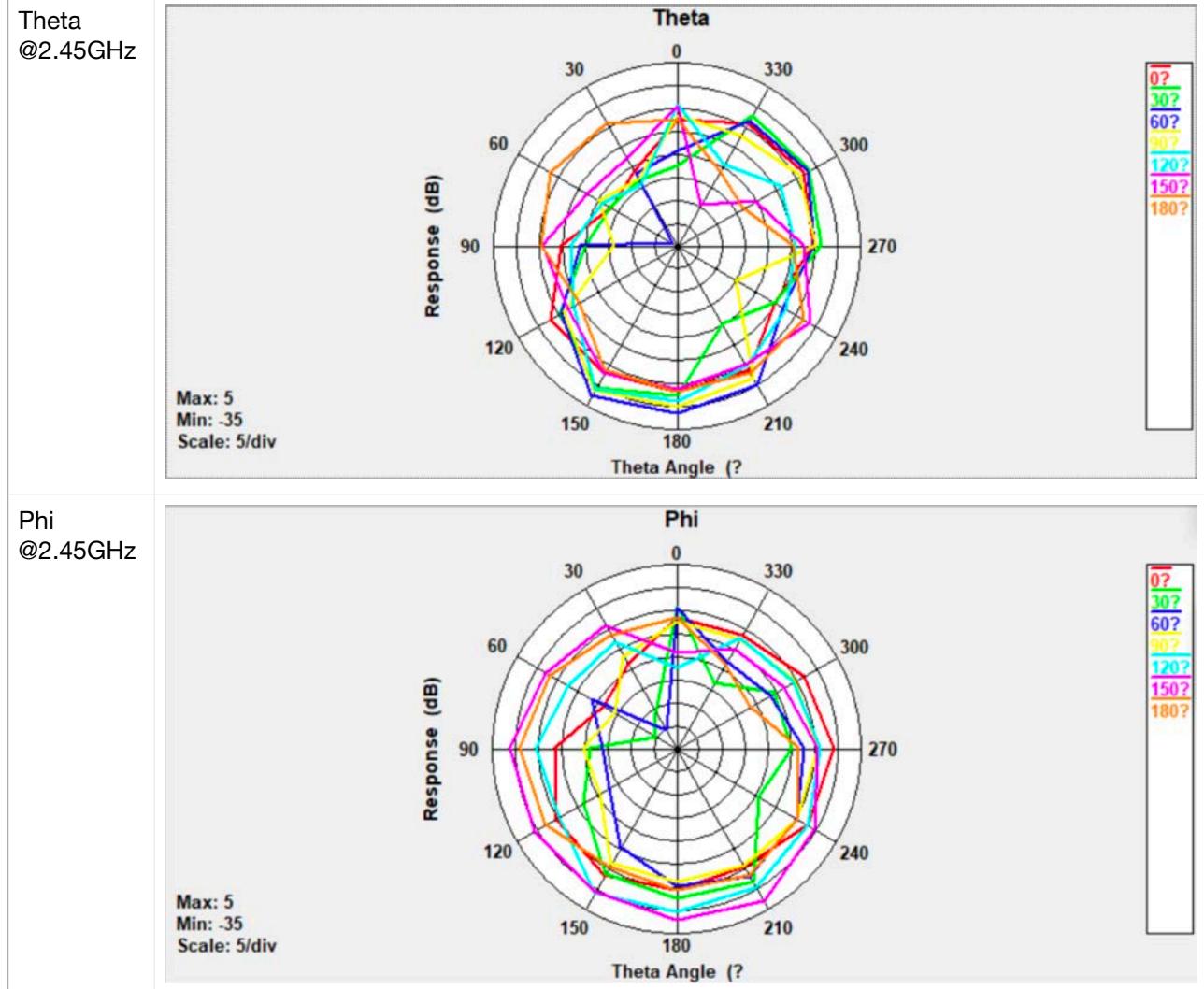
#### Efficiency and RADIATION PATTERN

Efficiency, Radiation Pattern and Gain were dependent on measurement board design. The specification of OA-C09 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.

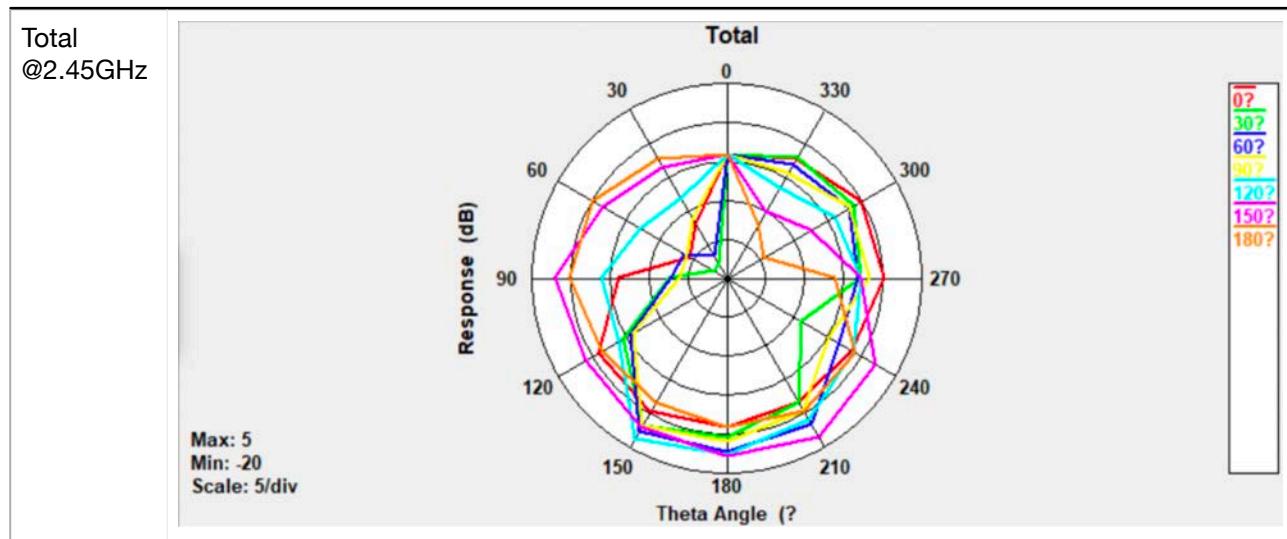


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Gain and Efficiency		2.4G-2.5GHz
Peak Gain		4.33dBi
Average Gain across the band		4.0dBi
Gain Range across the band		3.59dBi ~ 4.33dBi
Peak Efficiency		62.5%
Average Efficiency across the band		57.5%
Efficiency Range across the band		51.3% ~ 62.5%

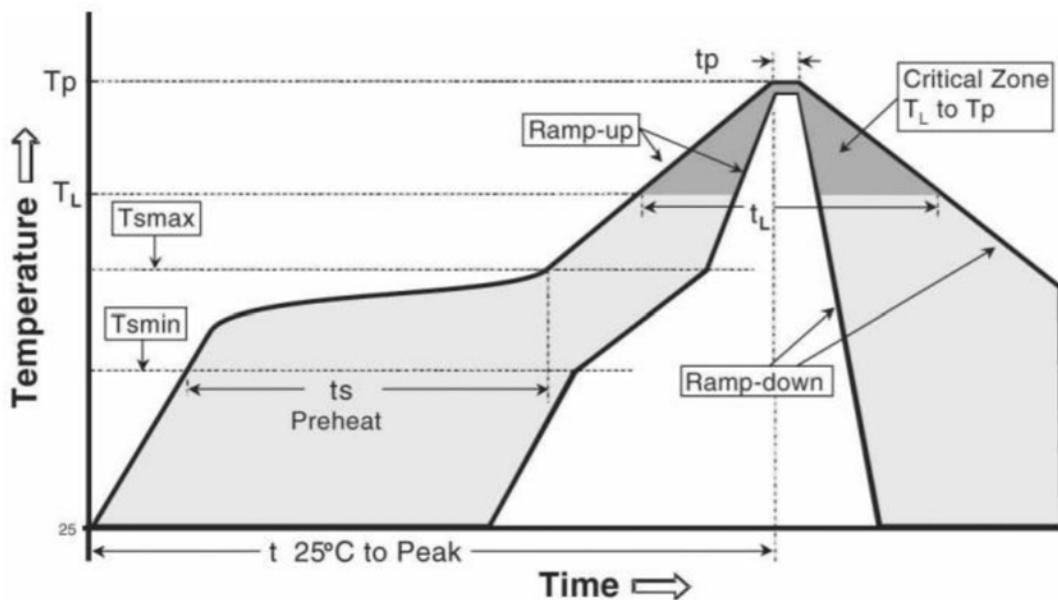


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## SOLDERING CONDITION

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

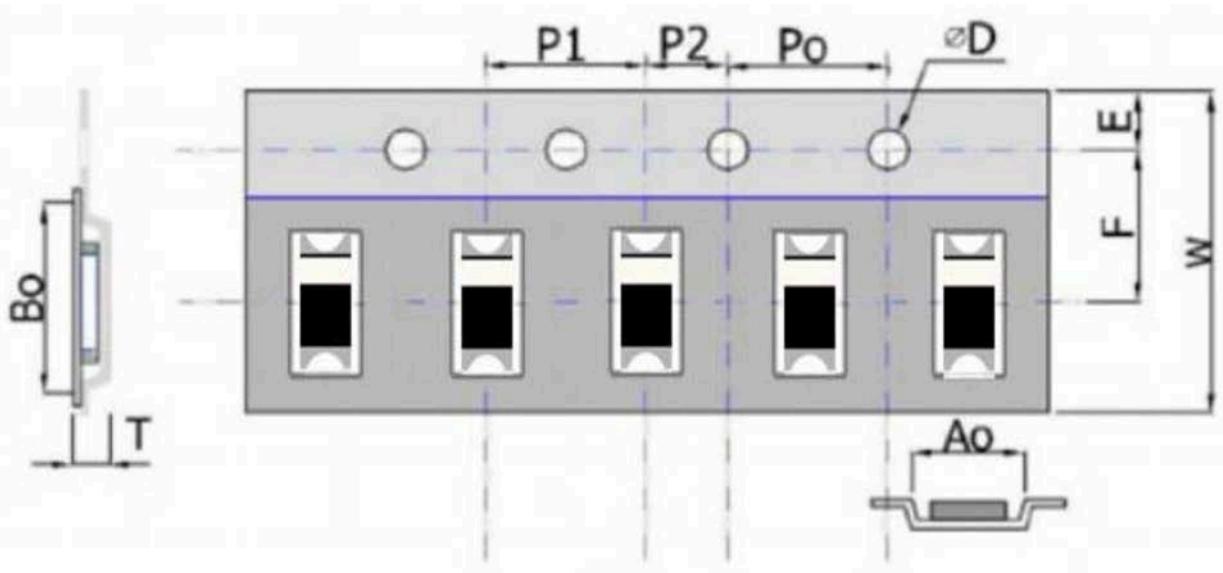


Phase	Profile Features	Pb-Free assembly(SnAgCu)
<b>RAMP-UP</b>	Avg. Ramp-up Rate (Tsmax to Tp)	3°C / second (max.)
<b>PREHEAT</b>	<ul style="list-style-type: none"> <li>- Temperature Min (Tsmin)</li> <li>- Temperature Max (Tsmax)</li> <li>- Time (tsmin to tsmax)</li> </ul>	150°C 200°C 60 -180 seconds
<b>REFLOW</b>	<ul style="list-style-type: none"> <li>- Temperature (TL)</li> <li>- Total Time above TL (TL)</li> </ul>	217°C 60 -150 seconds

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Phase	Profile Features	Pb-Free assembly(SnAgCu)
PEAK	- Temperature (Tp) - Time (tp)	260°C 20 - 40 seconds
RAMP-DOWN	Rate	6°C/second max
<b>Time from 25°C to Peak Temperature</b>		<b>8 minutes max</b>

## PACKAGING

Plastic Tape Specification (unit: mm)					
					
Index	<b>Ao</b>	<b>Bo</b>	<b>ΦD</b>	<b>T</b>	<b>W</b>
Dimension (mm)	1.3±0.1	5.8±0.1	1.55±0.05	1.8±0.1	12±0.1
Index	<b>E</b>	<b>F</b>	<b>Po</b>	<b>P1</b>	<b>P2</b>
Dimension (mm)	1.5±0.1	5.4±0.1	4.0±0.1	4.0±0.1	2.0±0.1

<b>Reel Dimensions</b>			
Index	<b>A</b>	<b>B</b>	<b>C</b>
Dimension (mm)	330	100	13.5

Typing Quantity: 3000 pieces per reel.

## **STORAGE ENVIRONMENT CONDITION**

- Products should be storage in the warehouse on the following conditions:
- 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 solder-ability.
- 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.