

Approval Sheet

**OverAir® SMD antenna series
RoHS Compliance**

PN: OA-C09

2.4 GHz ISM band antenna

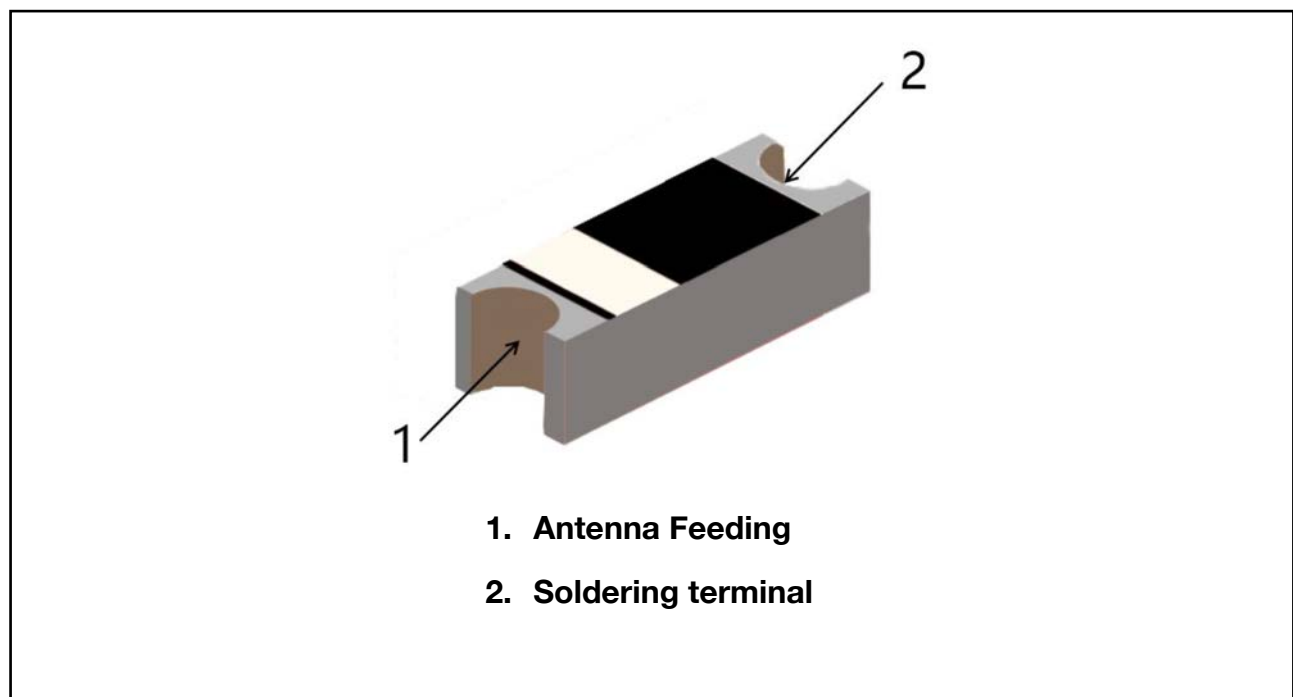
FEATURES

1. Surface Mounted Devices with a small dimension of 5.5 X 1.2 X 1.2 mm³ 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

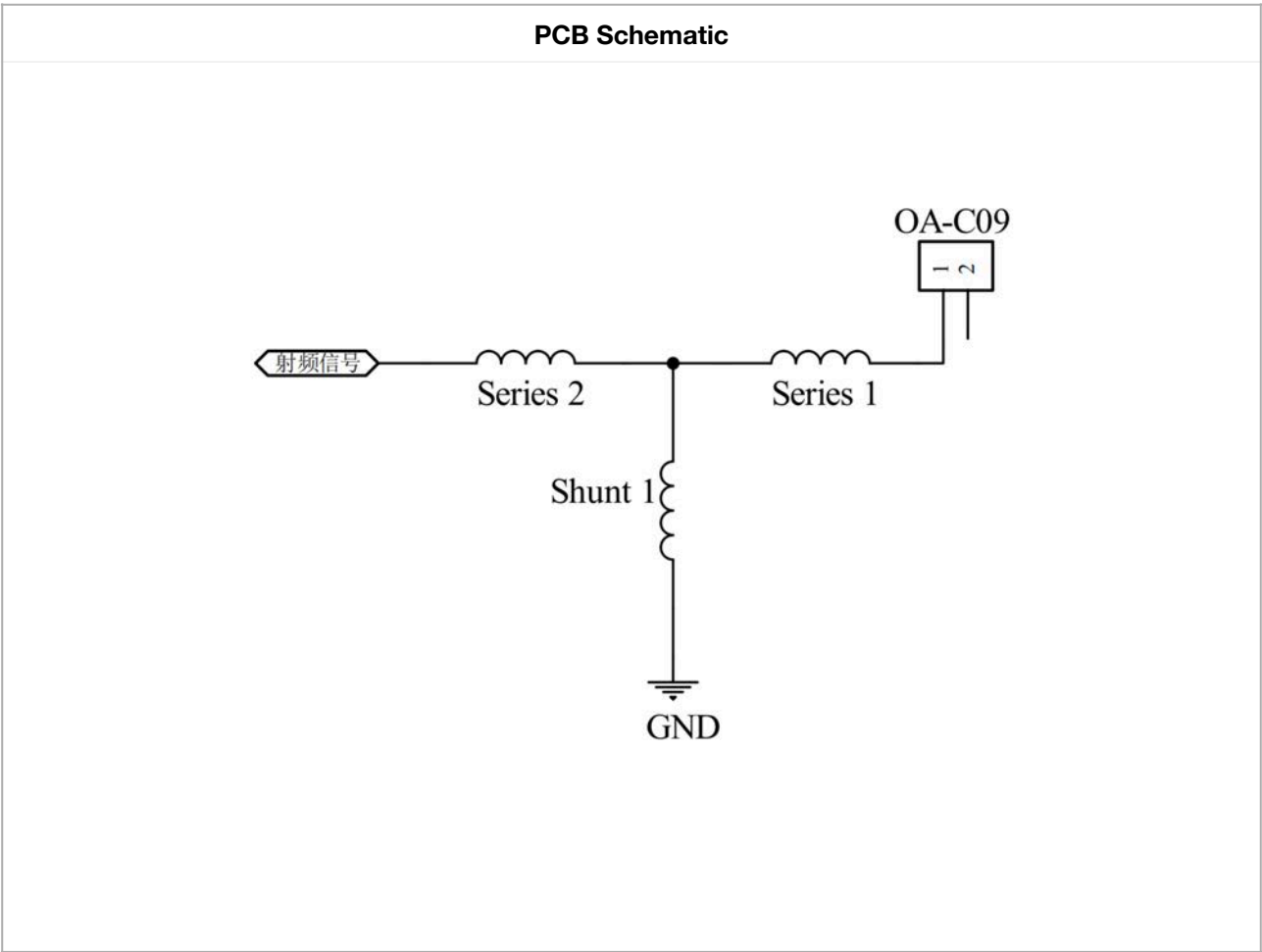
Figure	Symbol	Dimension(mm)
	L	5.5 ± 0.2
	W	1.2 ± 0.1
	T	1.2 ± 0.1
	a	0.4 ± 0.1

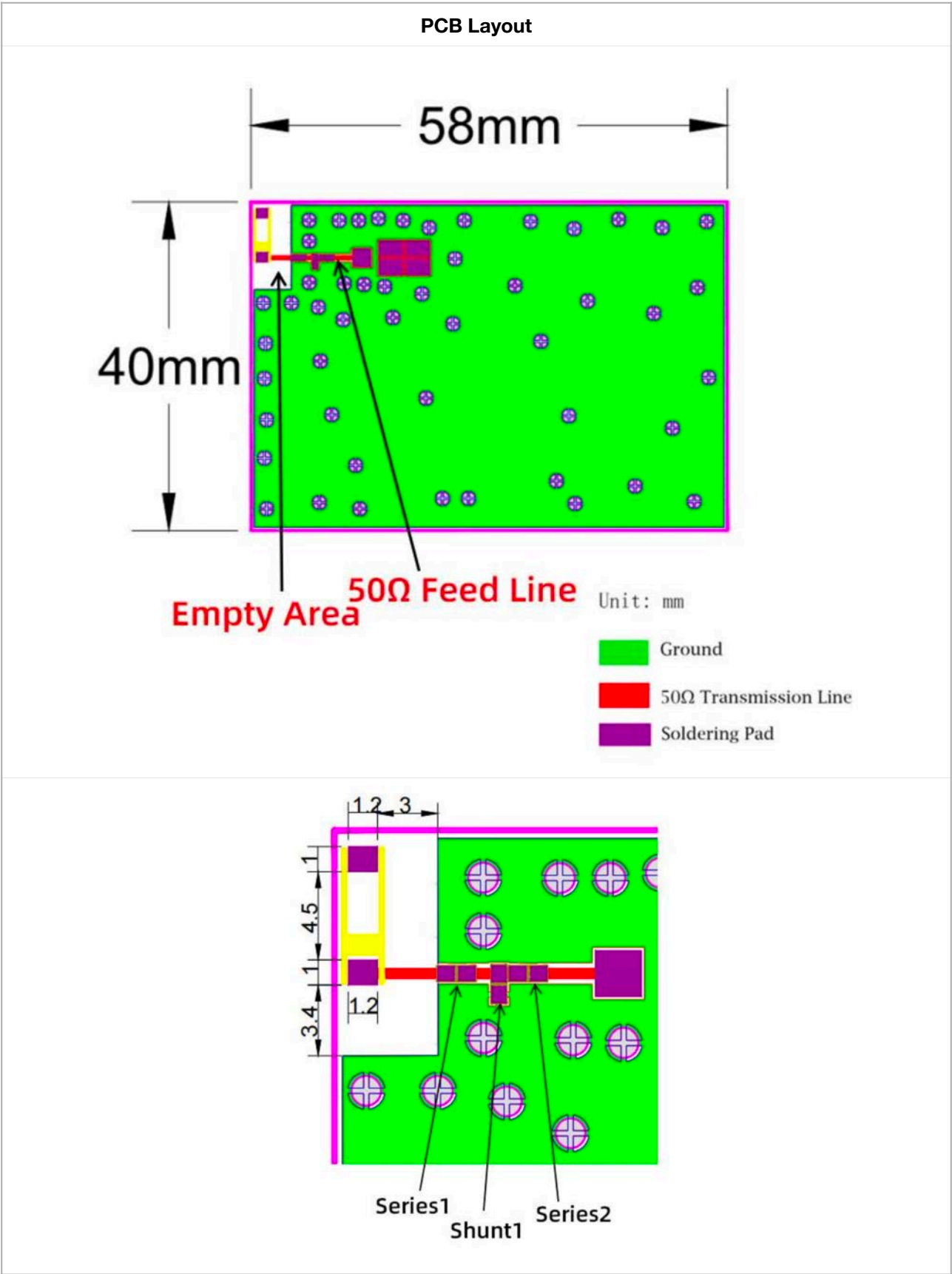
ELECTRICAL CHARACTERISTICS

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

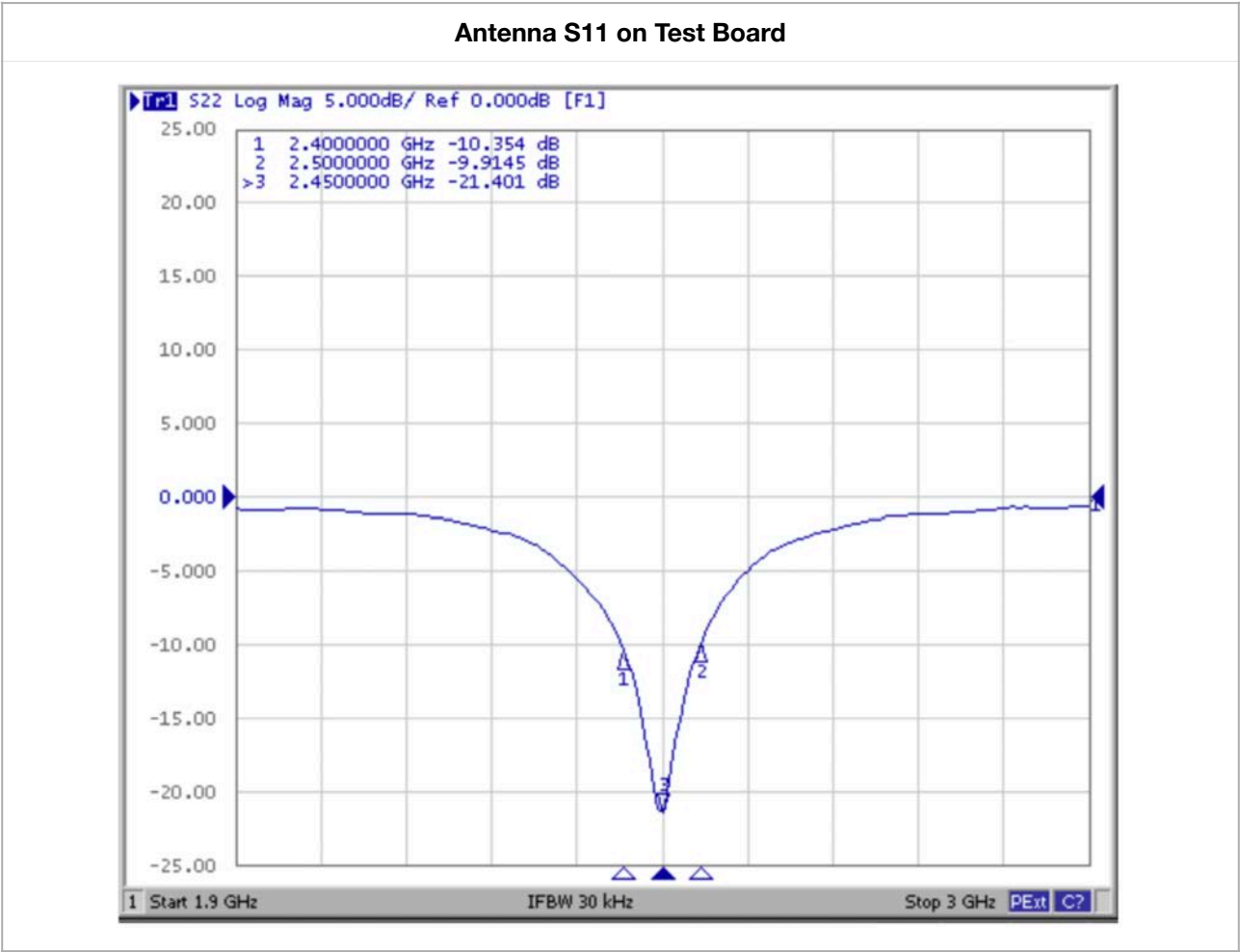
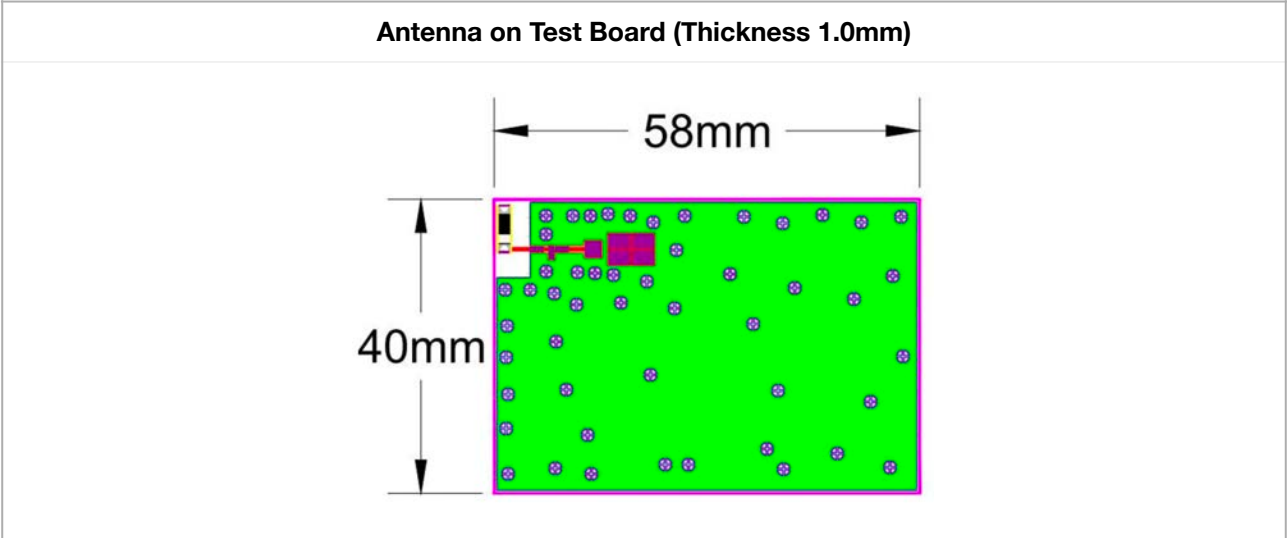
The working frequency need be adjusted to working band with match

SOLDER LAND PATTERN DESIGN

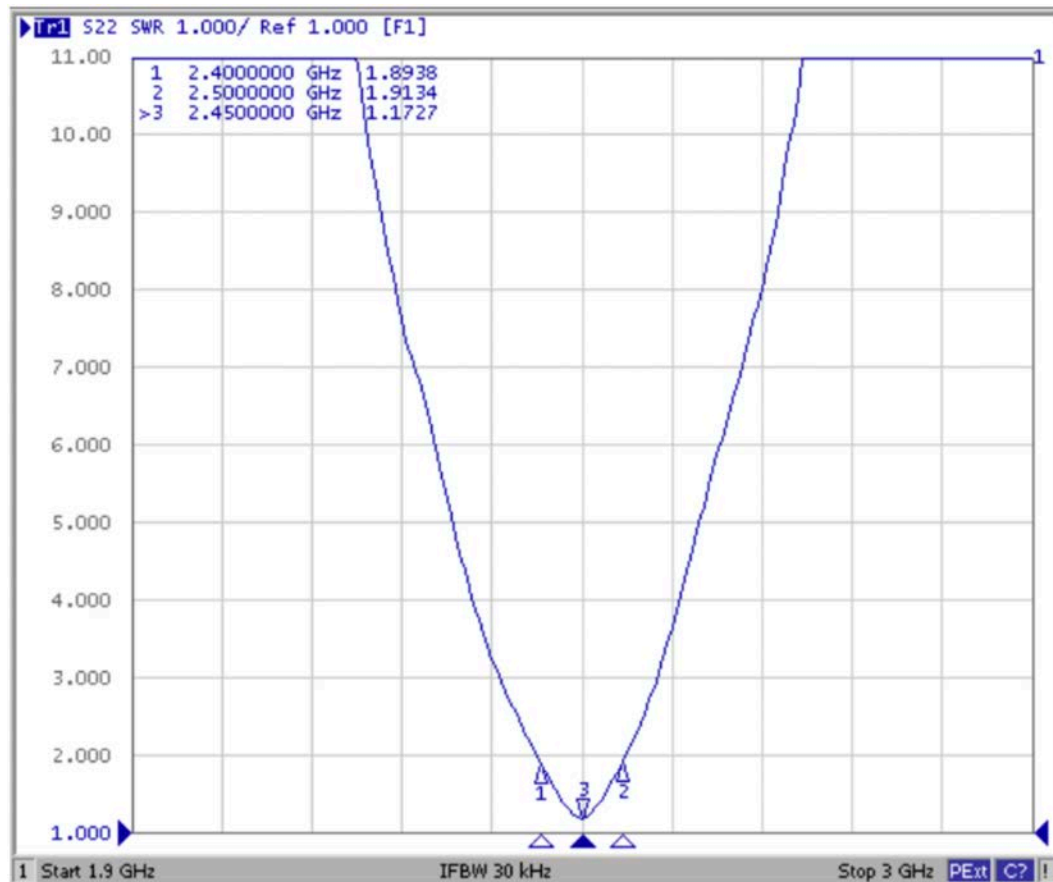




Matching component value		
Series 1		3.0nh
Shunt 1		2.7nh
Series 2		3.6nh

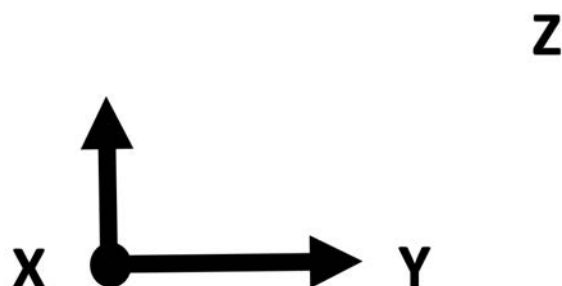
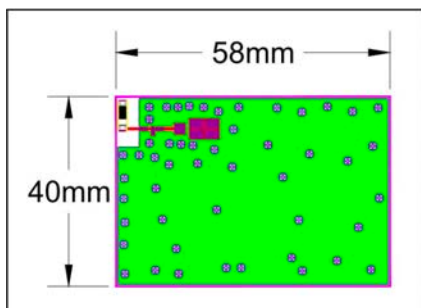


Antenna VSWR on Test Board



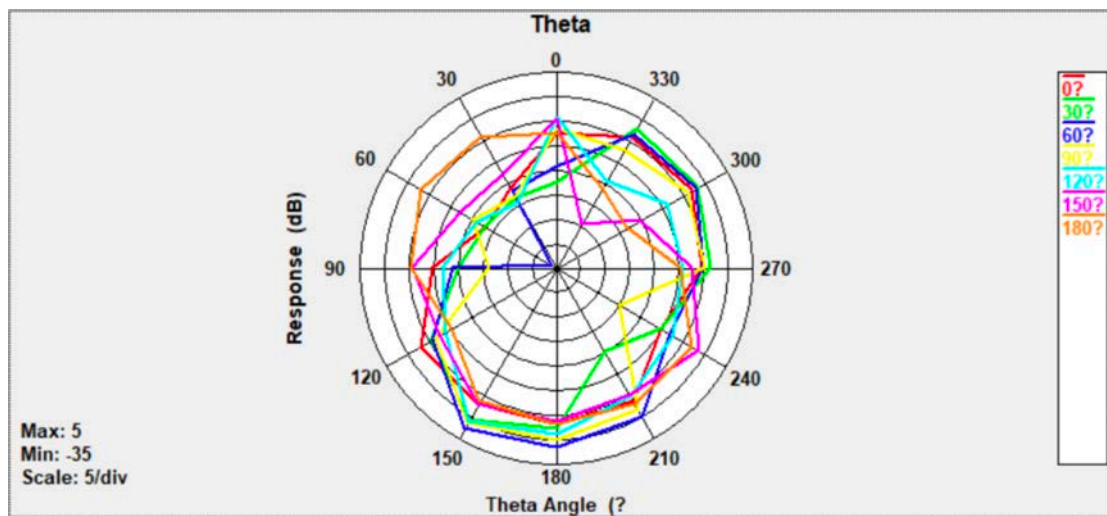
Efficiency and RADIATION PATTERN

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.

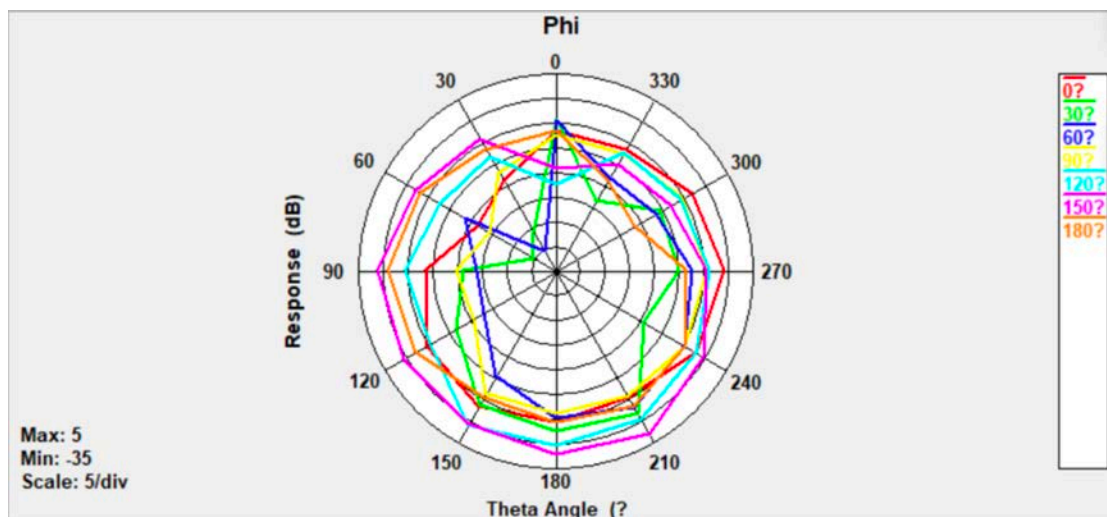


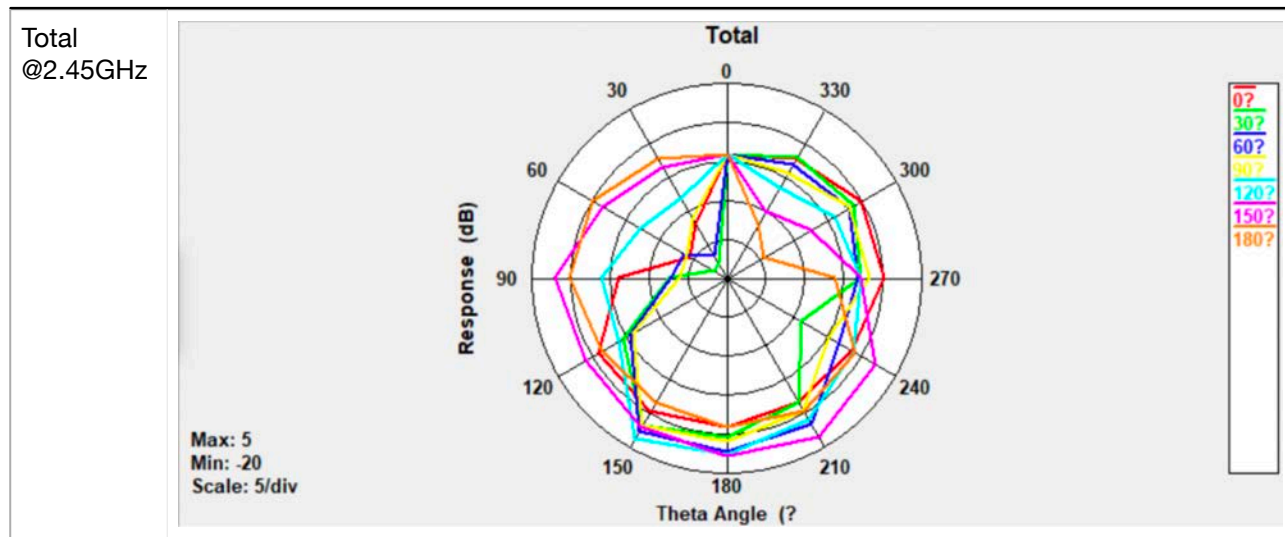
Gain and Efficiency	2.4G-2.5GHz
Peak Gain	4.33dBi
Average Gain across the band	4.0dBi
Gain Range across the band	3.59dBi ~ 4.33dBi
Peak Efficiency	62.5%
Average Efficiency across the band	57.5%
Efficiency Range across the band	51.3% ~ 62.5%

Theta
@2.45GHz



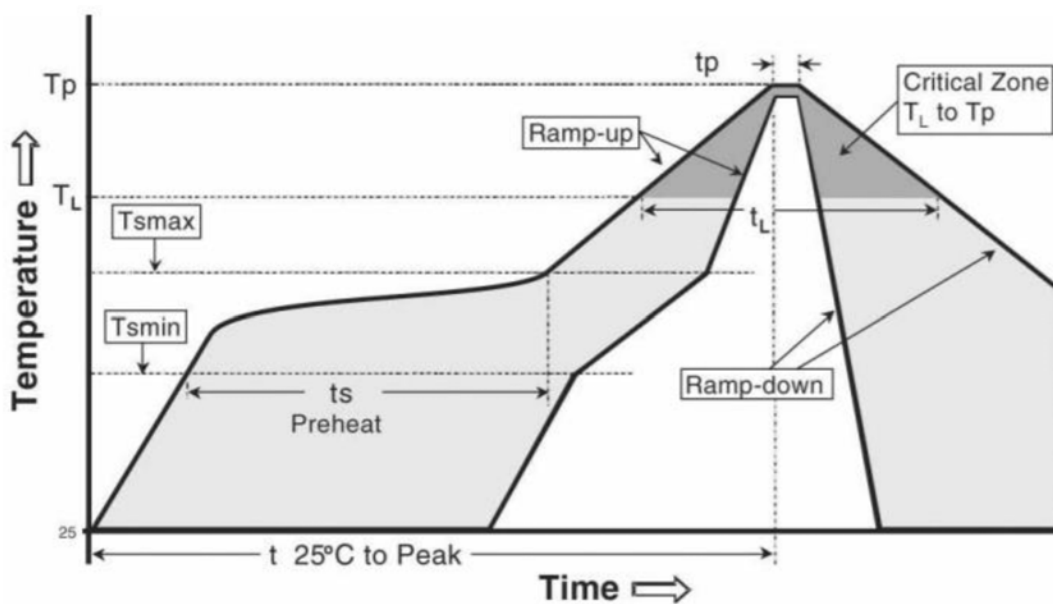
Phi
@2.45GHz





SOLDERING CONDITION

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

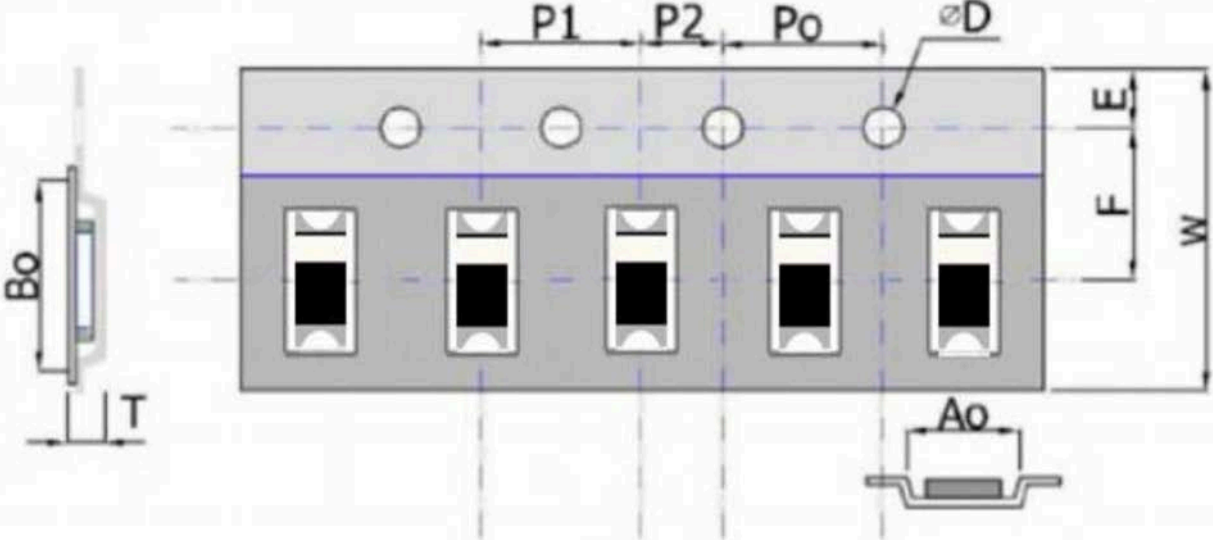


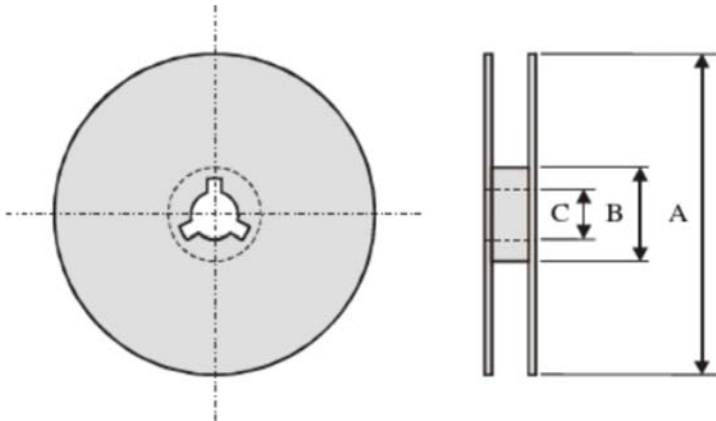
Phase	Profile Features	Pb-Free assembly(SnAgCu)
RAMP-UP	Avg. Ramp-up Rate (T_{smax} to T_p)	3°C / second (max.)
PREHEAT	- Temperature Min (T_{min}) - Temperature Max (T_{smax}) - Time (t_{min} to t_{smax})	150°C 200°C 60 -180 seconds
REFLOW	- Temperature (T_L) - Total Time above T_L (t_L)	217°C 60 -150 seconds

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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
Time from 25°C to Peak Temperature		8 minutes max

PACKAGING

Plastic Tape Specification (unit: mm)					
					
Index	Ao	Bo	ΦD	T	W
Dimension (mm)	1.3±0.1	5.8±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: 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.