

SMD Antenna Data Sheet

**OverAir® SMD Antenna Series
Complies RoHS**

PN: OA-W01

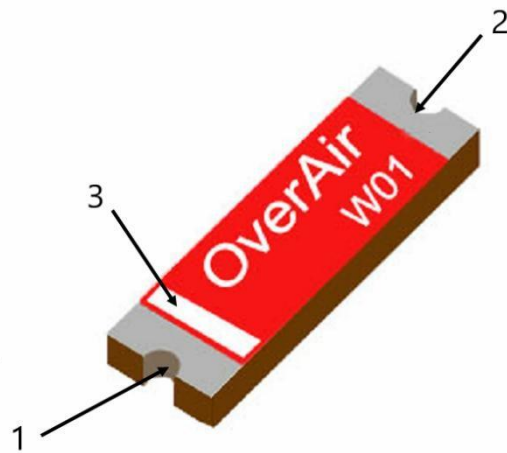
2.4G/5G WIFI band antenna

Features:

1. A small SMD patch antenna measuring only 8.0 x 3.0 x 1.0 mm³.
2. Low energy loss, high antenna efficiency.
3. High stability under temperature and humidity changes.

Application:

1. 2.4G/5G WIFI frequency band antenna application.
2. Other antenna applications operating in the 2.4G or 5G bands.

Structure:

1. Antenna signal feed end
2. Antenna welding fixed end
3. Antenna feeder end marking

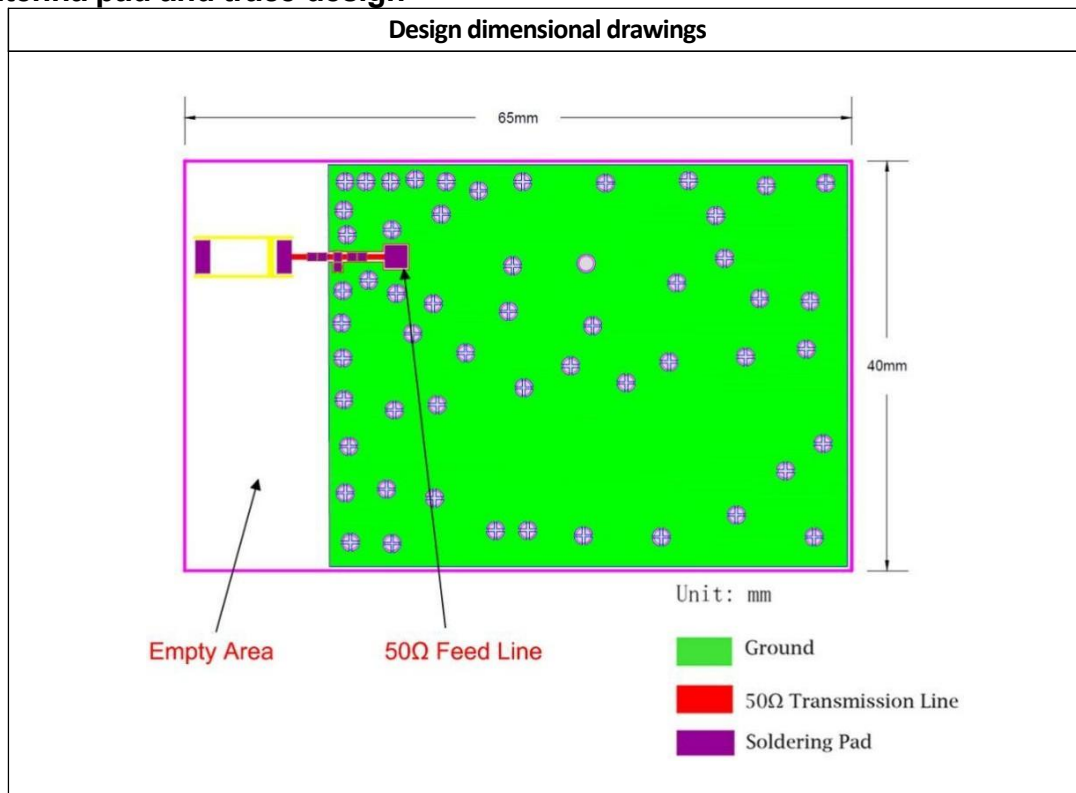
Size:

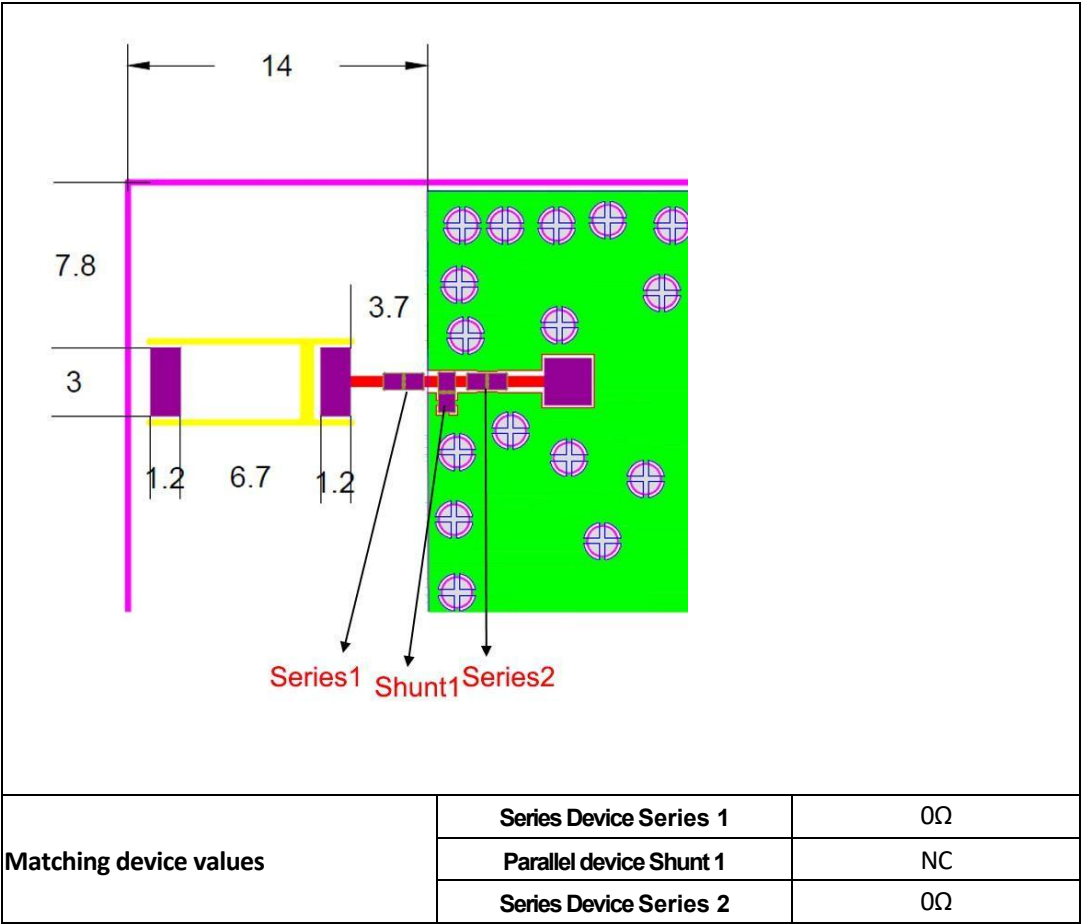
Three views	Symbol	Dimensions (mm).
	L	8.0±0.1
	W	3.0±0.1
	T	1.0±0.1
	a	0.6±0.1

Electrical characteristics

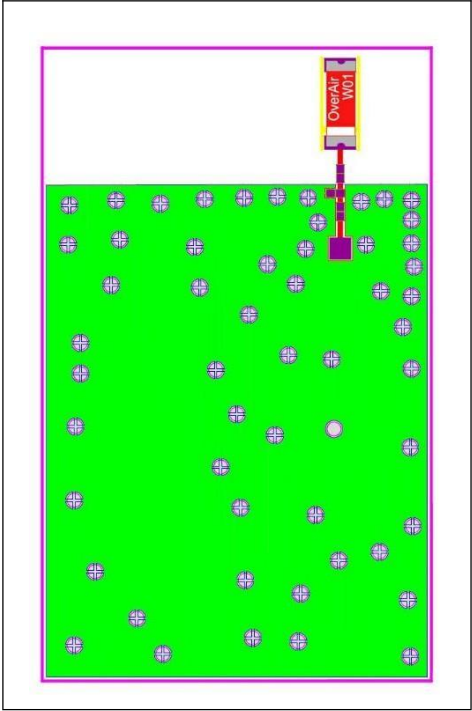
OA-W01	Specification
Working Frequency	2400-2500MHz, 5200-6000MHz
Impedance	50Ω
Gain (dBi).	5.5dBi(2.45GHz), 3.5dBi(5.5Ghz)
VSWR	<2
Operation Temperature	-40°C~+85°C
Power Capacity	3W

The operating frequency of the antenna needs to be realized by debugging the impedance matching device.

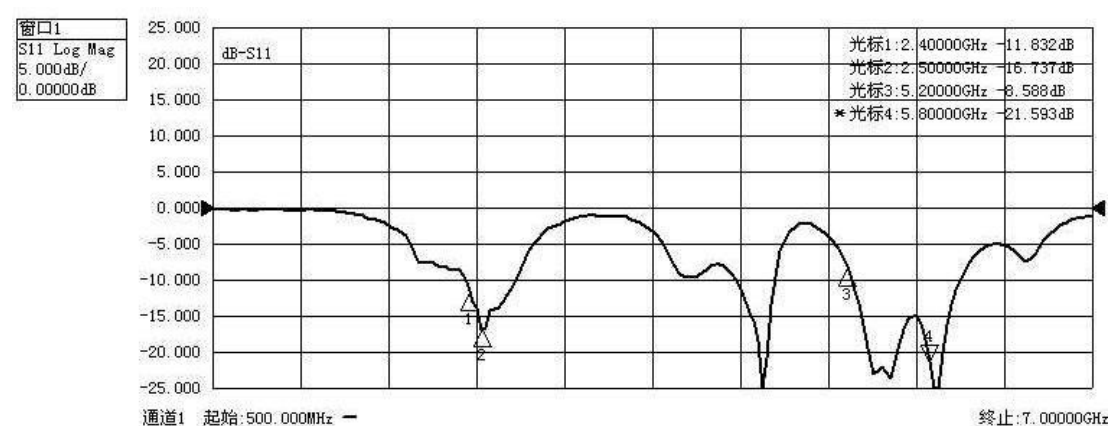
Antenna pad and trace design



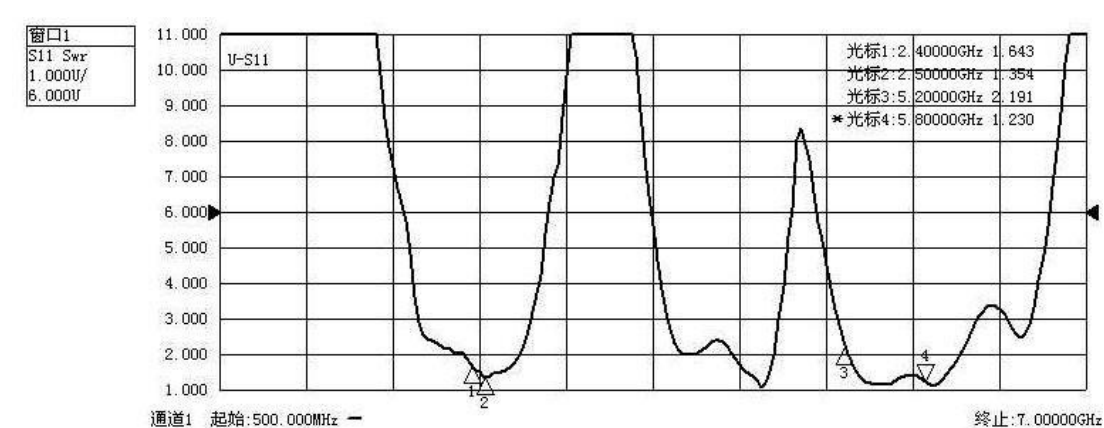
Test the antenna test on the board (1.0mm thick).



Antenna S11 characteristics

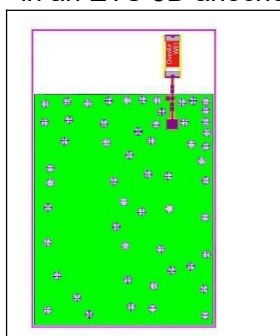


Antenna VSWR characteristics

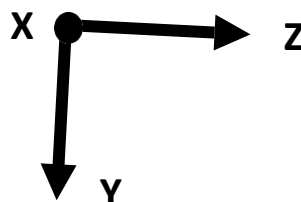


Efficiency and radiation diagram

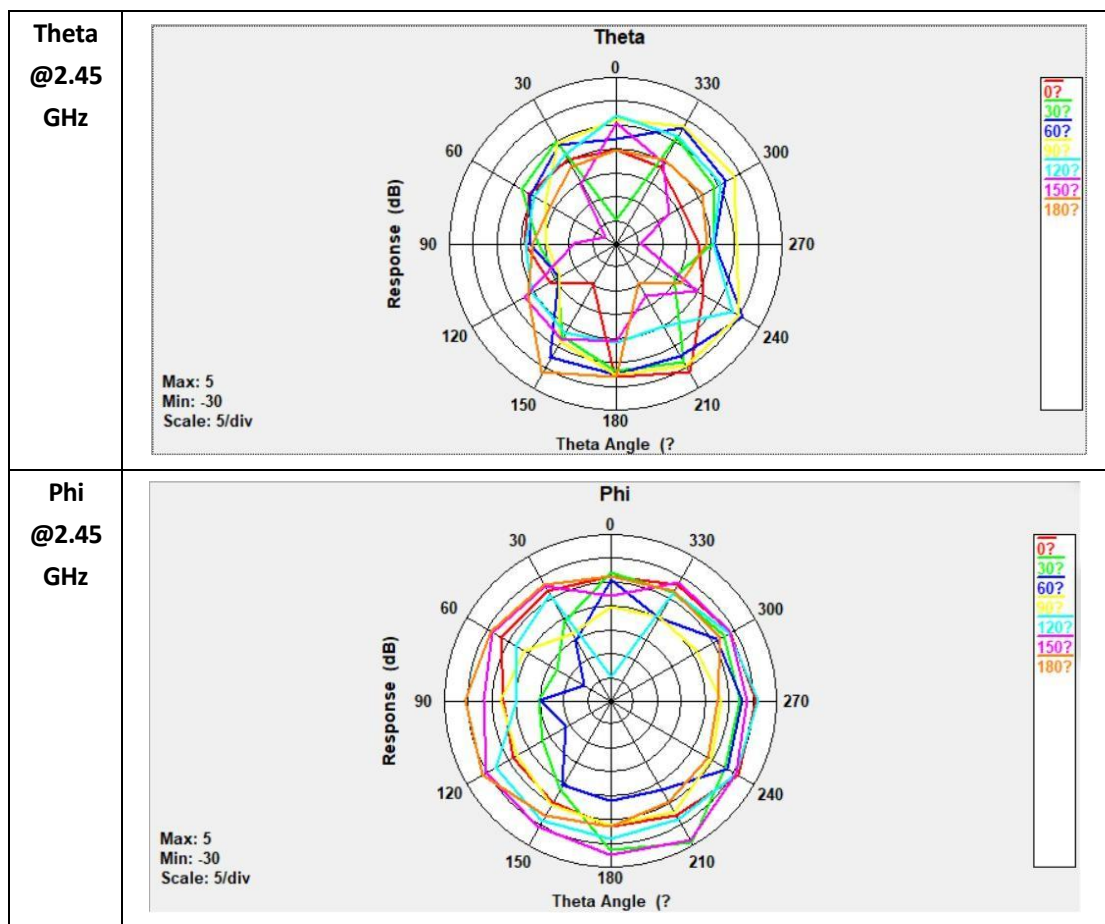
Efficiency, radiograph, gain and other properties are obtained based on the test board design. The specification test data for the OA-W01 antenna is based on the test PCB board size and the test orientation shown in the figure below. The following data was tested in an ETS 3D anechoic chamber.

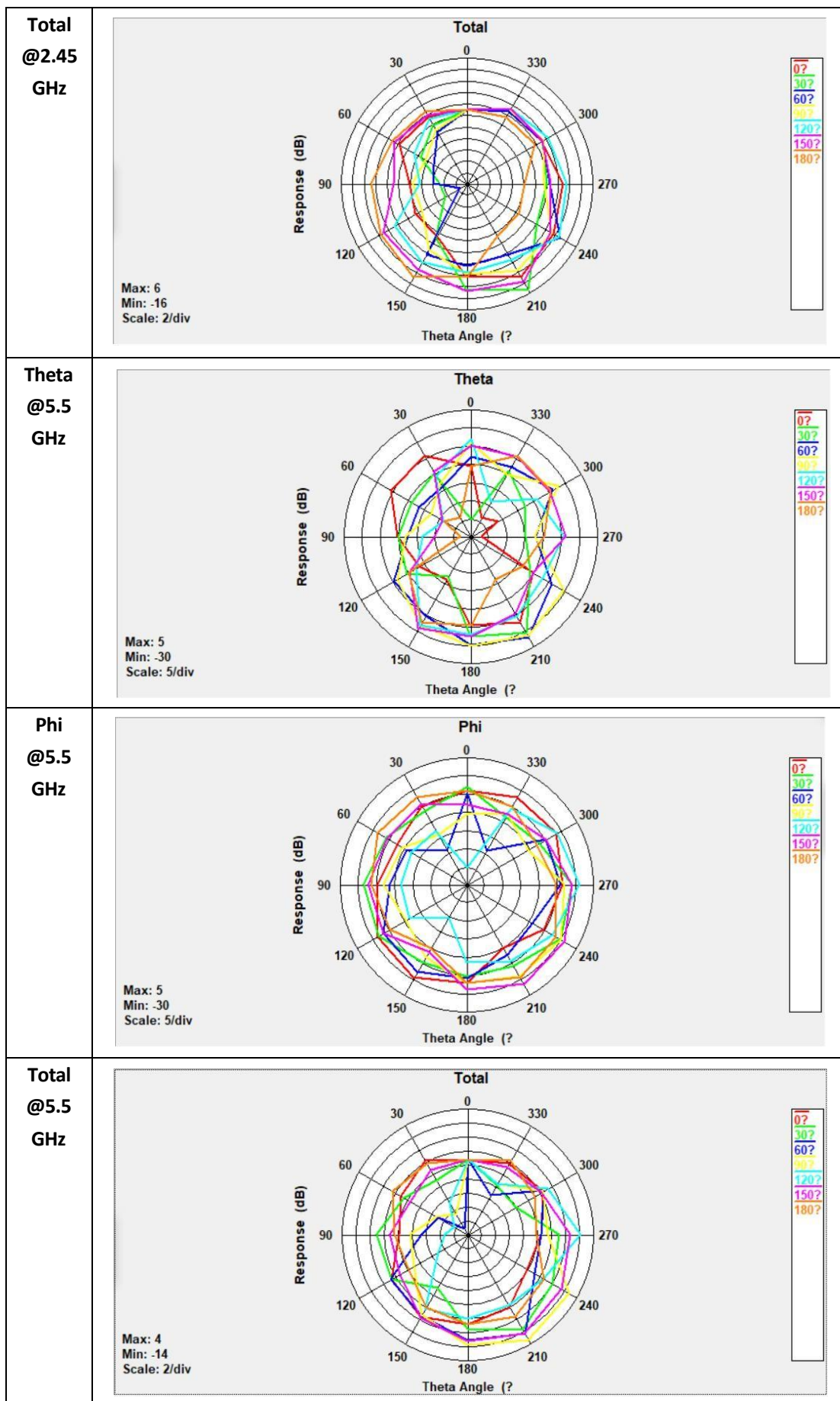


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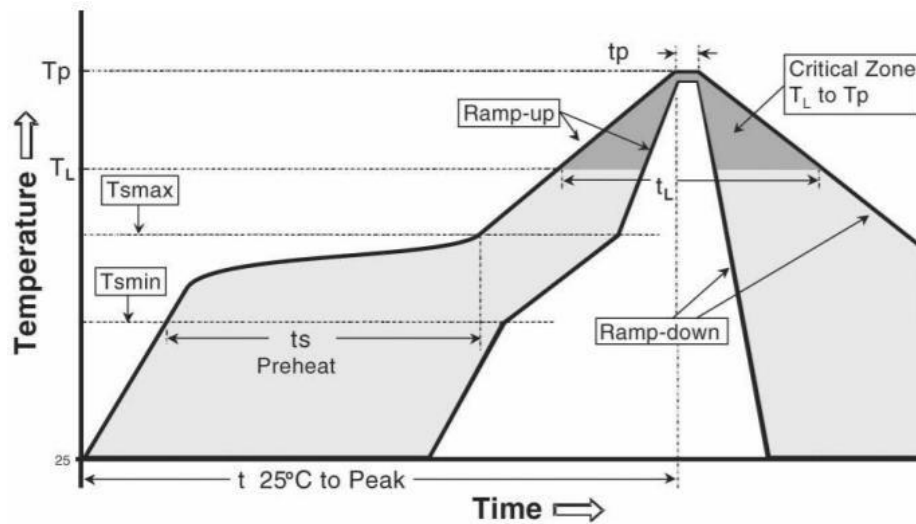
Gain and efficiency	Bandwidth 2.4G-2.5GHz	Bandwidth 5.2G-5.8GHz
Peak Gain	6.1dBi	3.67dBi
Average Gain across the band	5.7dBi	2.63dBi
Gain Range across the band	5.5dBi~6.1dBi	1.33dBi~3.67dBi
Peak Efficiency	82.5%	62.4%
Average Efficiency across the band	79%	51%
Efficiency Range across the band	74.8%~82.5%	30.77%~62.4%





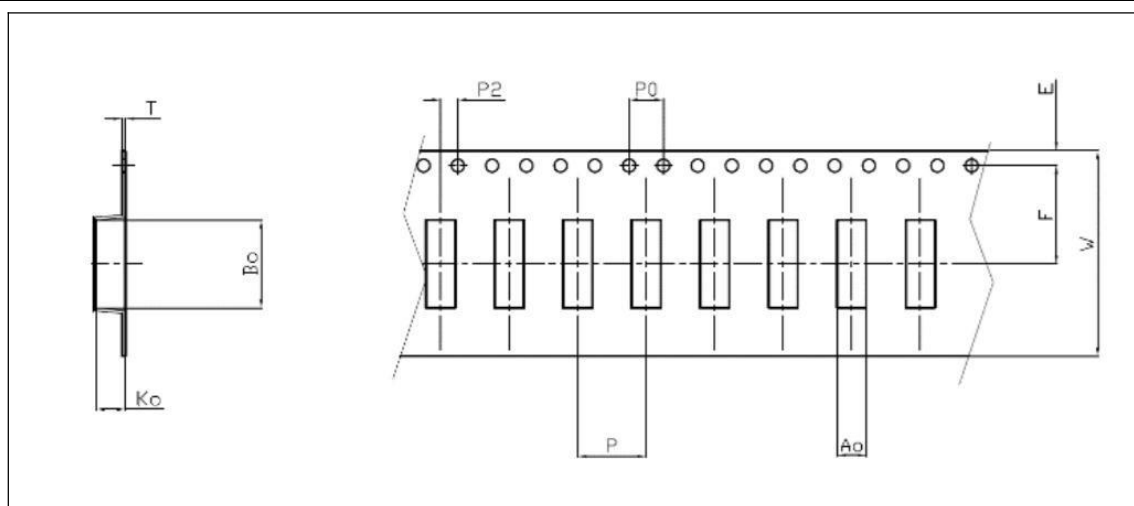
Welding conditions

Typical welding specifications for reliable and non-destructive are shown in the figure below:



Phase	Profile features	Pb-Free assembly (SnAgCu)
RAMP-UP	Avg. Ramp-up Rate (T _{max} to T _p)	3 °C / second (max.)
PREHEAT	- Temperature Min (T_{min}) - Temperature Max (T_{max}) - Time (t_{min} to t_{max})	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

Packaging



Plastic carrier tape specification (unit: mm).

Index	By	Bo	It is	T	W
Dimension (mm)	3.3 ± 0.1	8.4 ± 0.1	1.3 ± 0.1	0.3 ± 0.05	16.0 ± 0.3
Index	E	F	P	P0	P2
Dimension (mm)	1.75 ± 0.1	7.0 ± 0.1	8.0 ± 0.1	4.0 ± 0.1	2.0 ± 0.1

Reel size

Index	A	B	C
Dimension(mm)	330	100	13.5

Standard Quantity: 2000 PCS/Plate

Storage environment

The following conditions should be met when the product is stored:

Storage temperature of the tray : $-10^{\circ}\text{C} \sim +40^{\circ}\text{C}$ (non-antenna operating temperature)

The trays store humidity : 30% to 70% Relative Humidity (non-Antenna Operating Humidity)

The place where the product is placed should not come into contact with corrosive gases, such as sulfur, etc. Chlorine or acid may cause the product to oxidize and cause poor weldability.

The product should be placed in the toolbox and protected from moisture and dust.

Products should be stored in warehouses and protected from heat, vibration, and direct sunlight.

Products should be stored under closed conditions.