

Series: SMD Helical Antenna

Description: 860-930MHz Embedded Helical Antenna

PART NUMBER: W3136



### Features:

- 860-930MHz
- Impedance 50 Ohm
- Plastic support helical antenna
- Length 29.5mm,
- Gain 2dBi
- SMD Mounting on PCB
- RoHS Compliant

### Applications:

- 868MHz and 915MHz ISM Band Systems
- IoT systems
- Metering, Automation
- Security, surveillance
- Remote controls, toys

All dimensions are in mm / inches

Issue: 1943

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**ELECTRICAL SPECIFICATIONS**

Antenna Type	Helical monopole
Frequency	860-930MHz
Nominal Impedance	50 Ω
VSWR	Max 2.5
Radiation Pattern	Omn
Gain	2 dBi
Efficiency	65%
Polarization	Linear
Power Withstanding	2W

**MECHANICAL SPECIFICATIONS**

Overall Length	29.5mm
Weight	2.52g
Antenna Color / Material	White
Fix system	SMD+Glue
Recommended Glue	Resinlab EP1320LV Black
Solder Paste Thickness	Min 0.15mm
MSL	3

**ENVIRONMENTAL SPECIFICATIONS**

Operating Temperature	-40° C~+85° C
Storage Temperature	-40° C~+85° C
RoHS Compliant	Yes

**OTHER SPECIFICATIONS**

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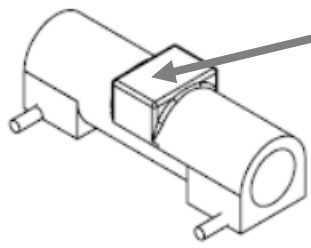
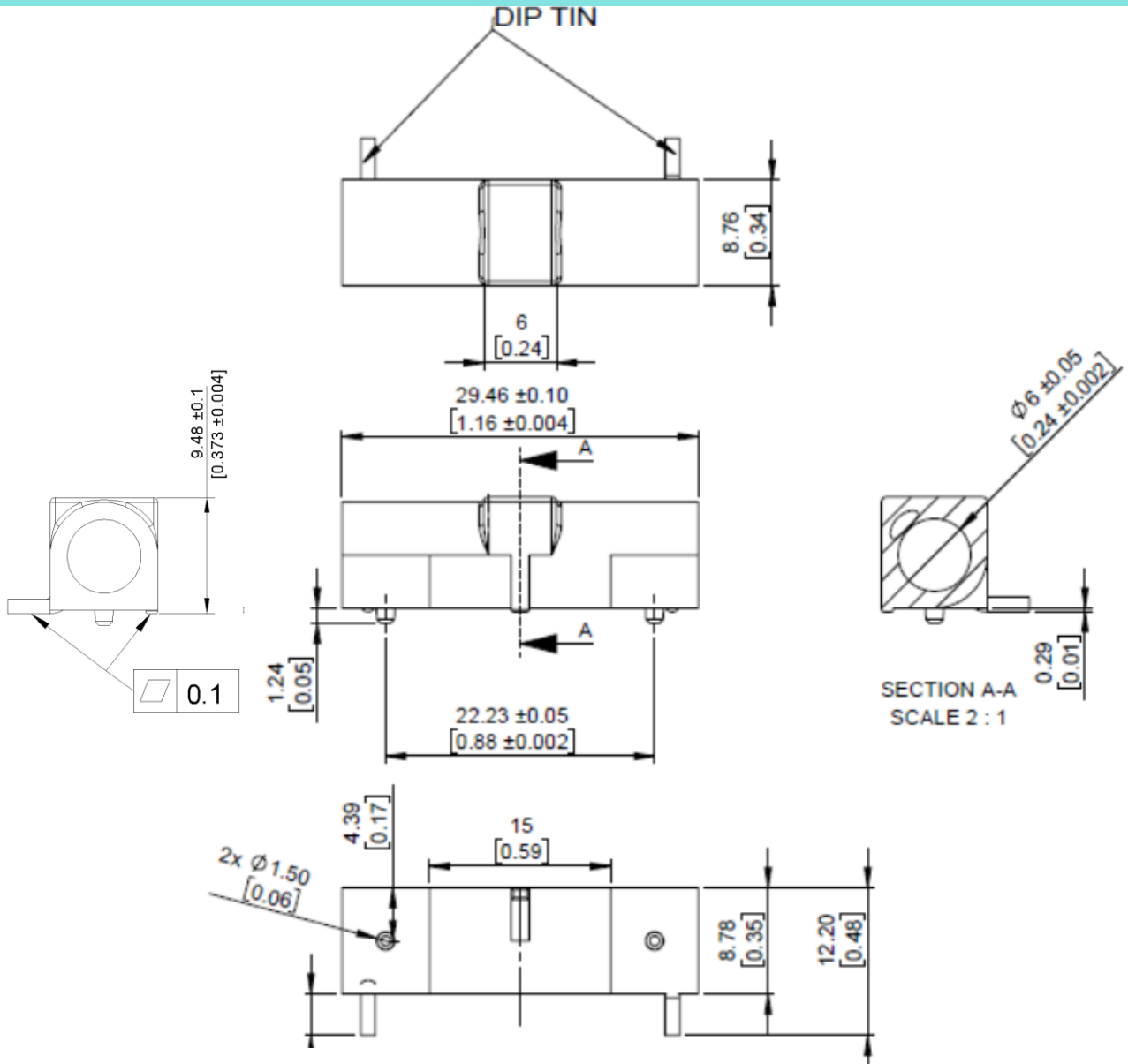
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**MECHANICAL DRAWING**



**Suction Pick Area**

Dimension Unit: mm[inch]

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### FIX SYSTEM RECOMMENDATION

Fix system

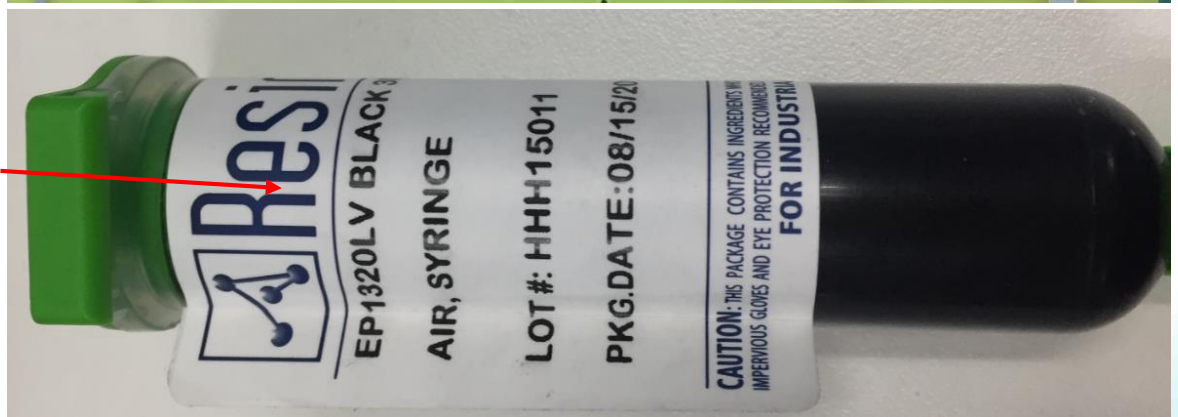
1. SMD process
2. Solder paste thickness: minimum 0.15mm
3. Glue is required, Recommended Glue: Resinlab EP1320LV Black, usage and position see below recommended area.

Solder paste

Glue



Recommended Glue Type



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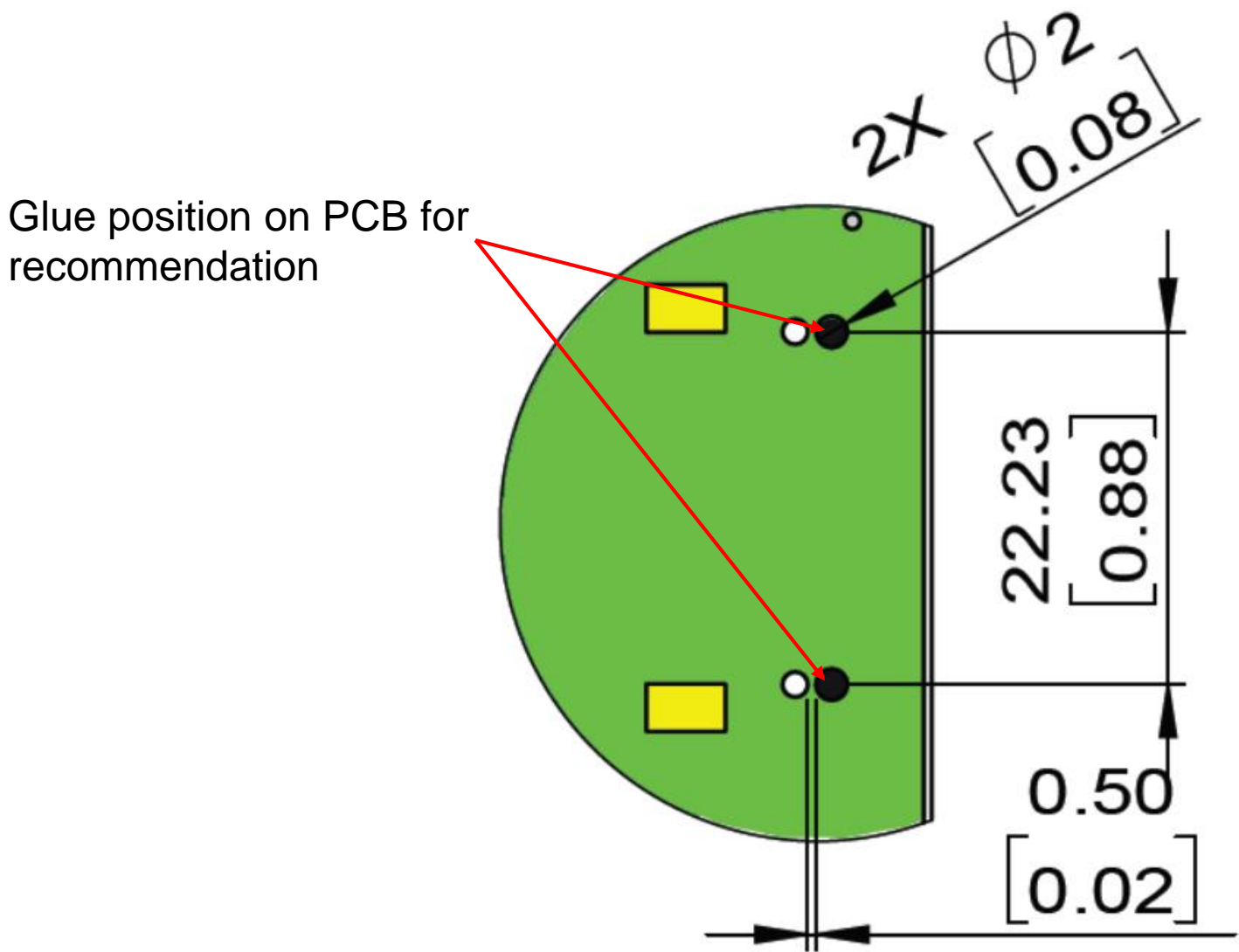
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**FIX SYSTEM RECOMMENDATION**

Fix system

1. Glue position on PCB for recommendation



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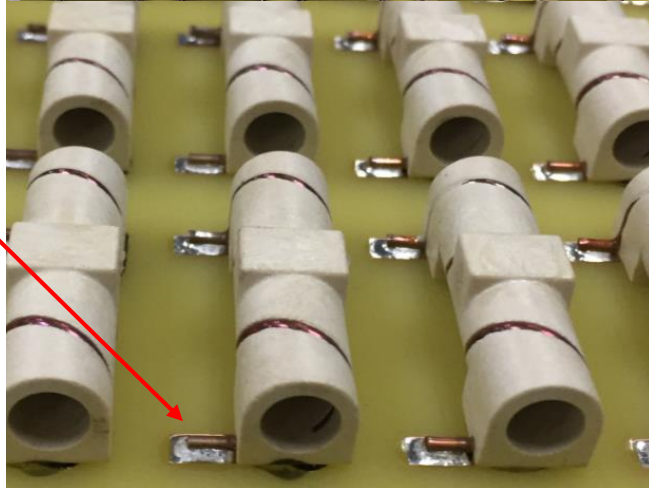
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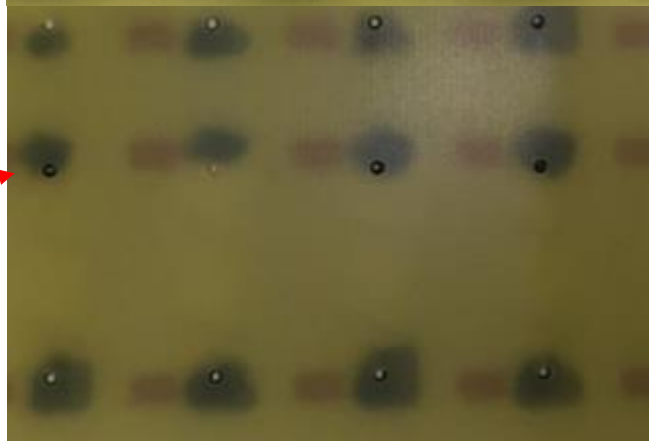
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**FIX SYSTEM RECOMMENDATION**

Solder effect



Back view of glue area



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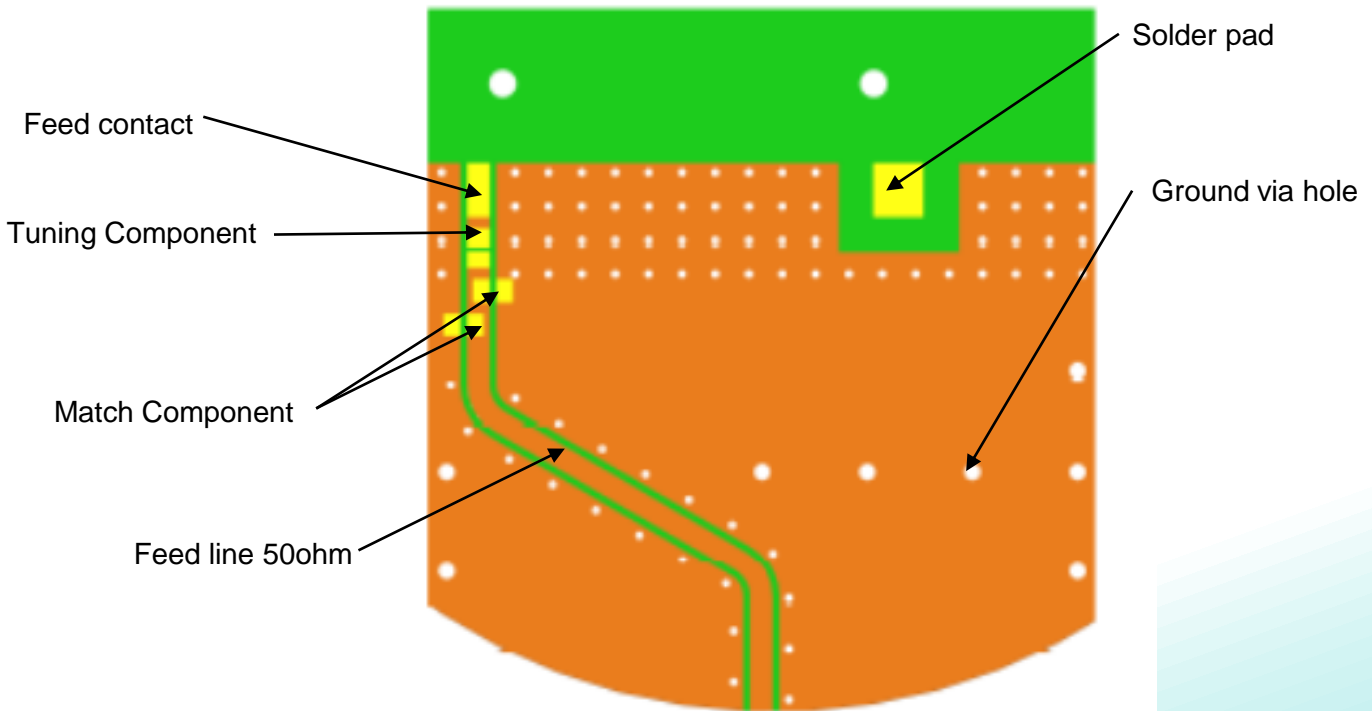
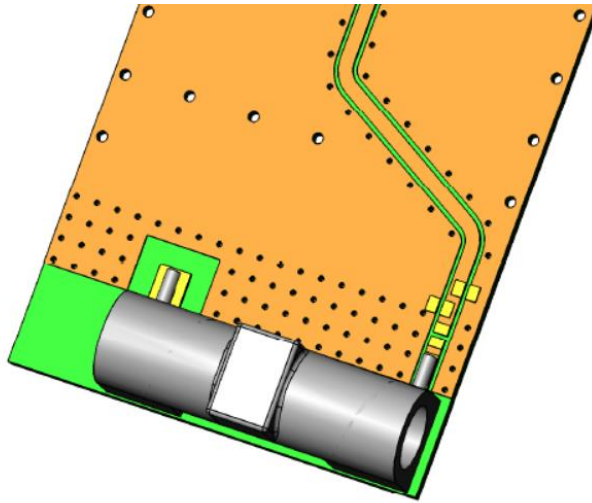
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TEST SETUP

PWB Layout for W3136 SMD Helical Antenna



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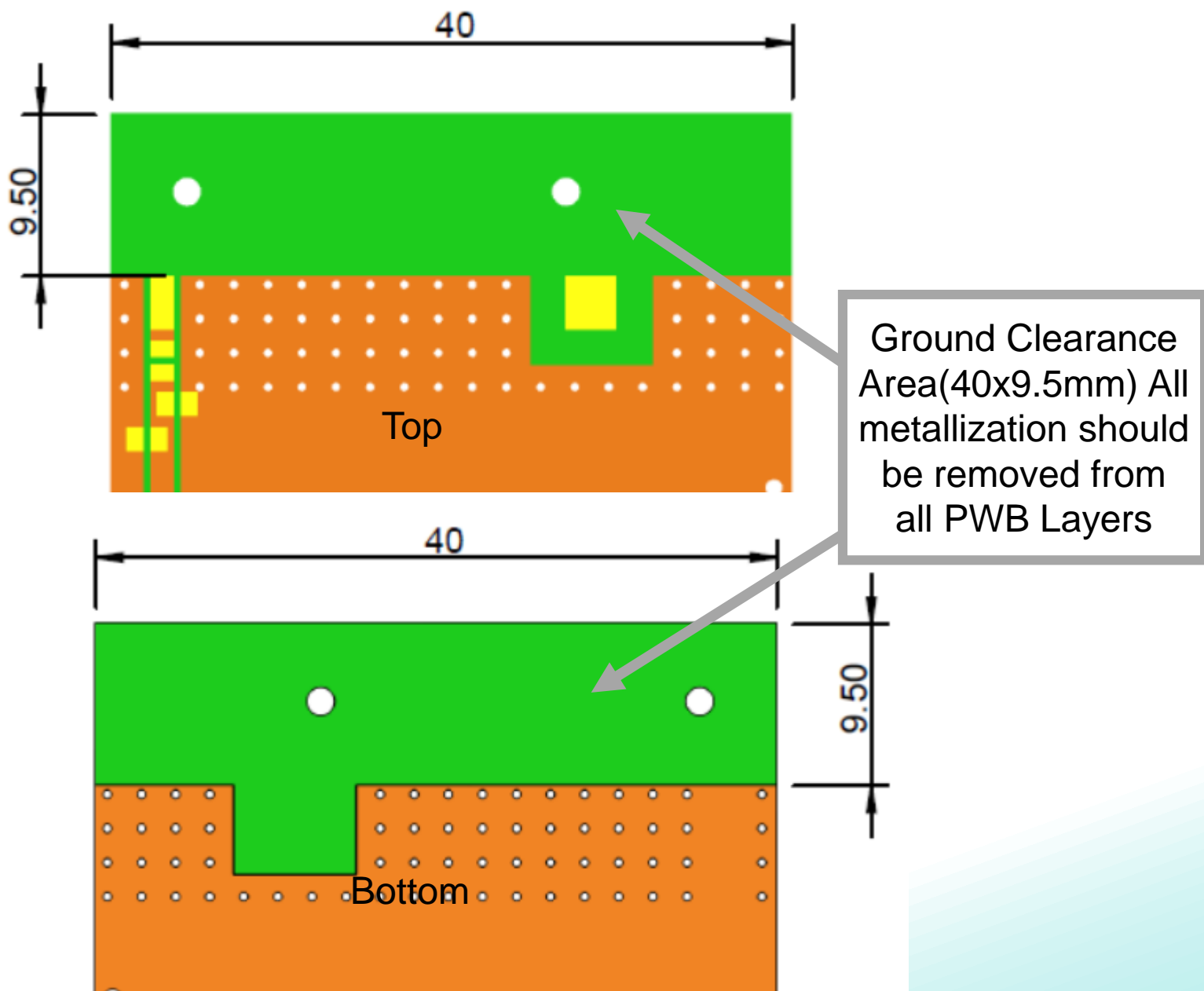
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**TEST SETUP**

PWB ground clearance area (Top): 40x9.5mm  
PWB ground clearance area (Bottom): 40x9.5mm



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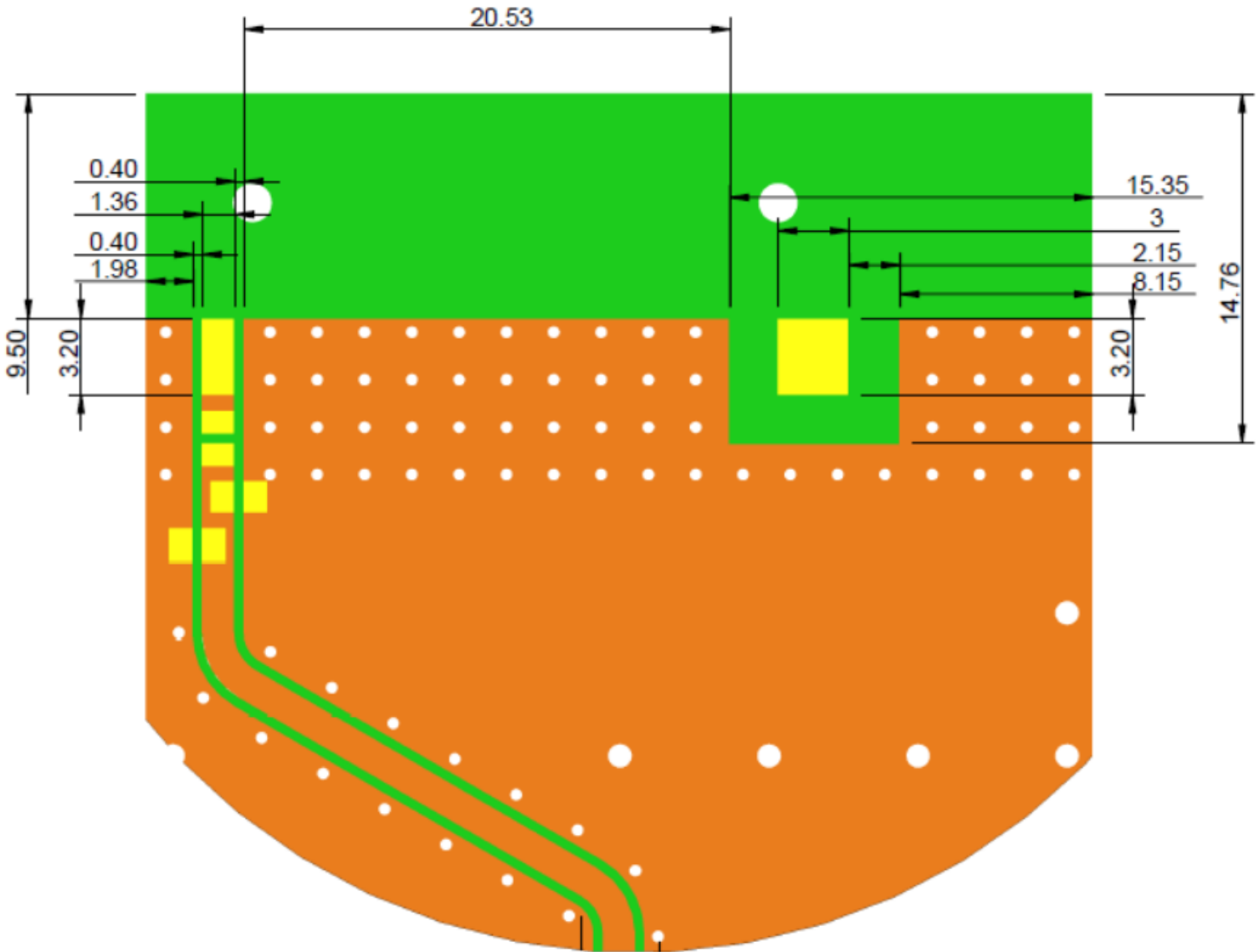
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TEST SETUP

PWB Pad dimension in top copper



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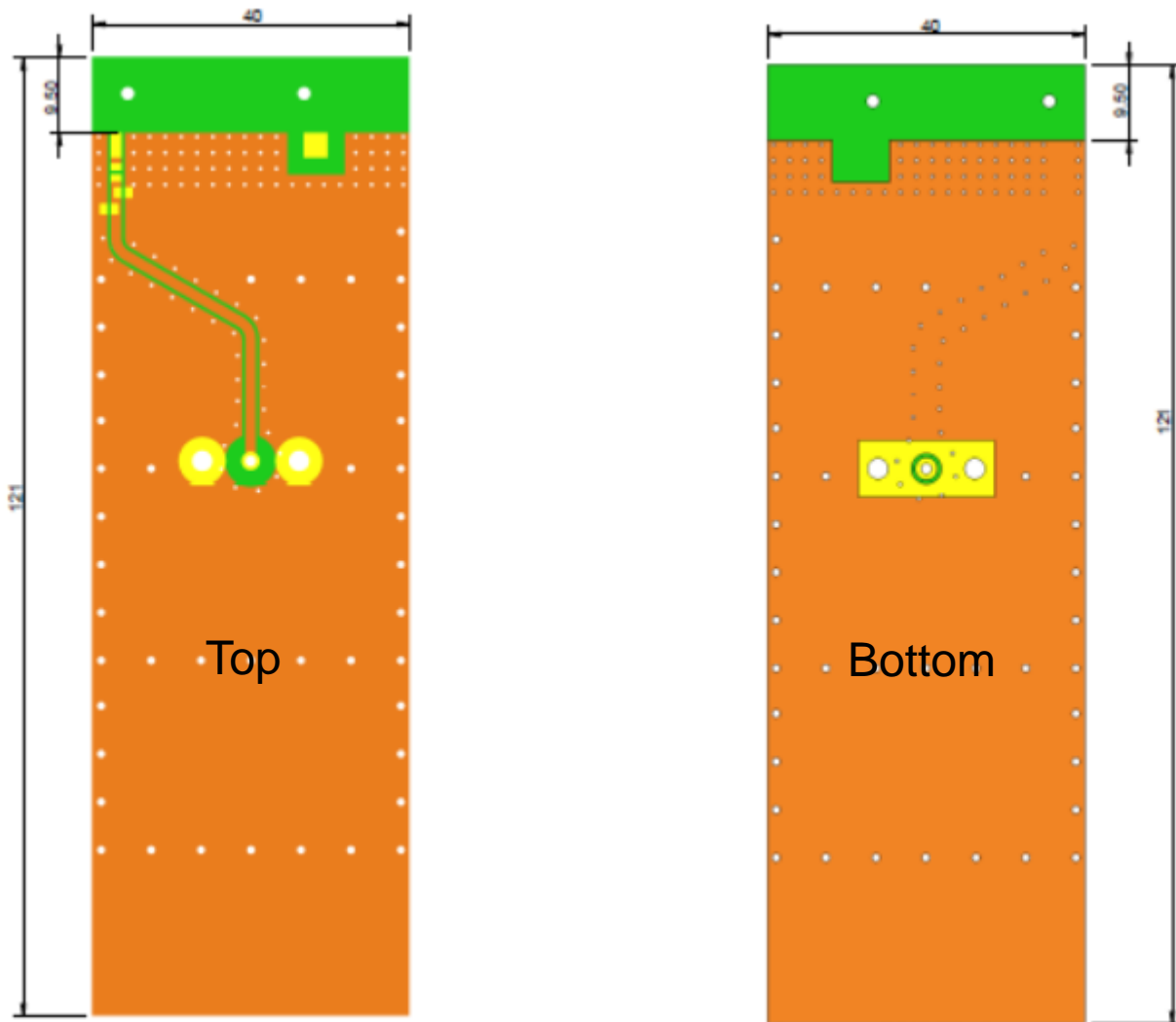
**Description:** 860-930MHz Embedded Helical Antenna

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**TEST SETUP**

PWB Layout, Pulse PWB size:121x40mm, Thickness 1.0mm, other size boards can be used depending on customer size.



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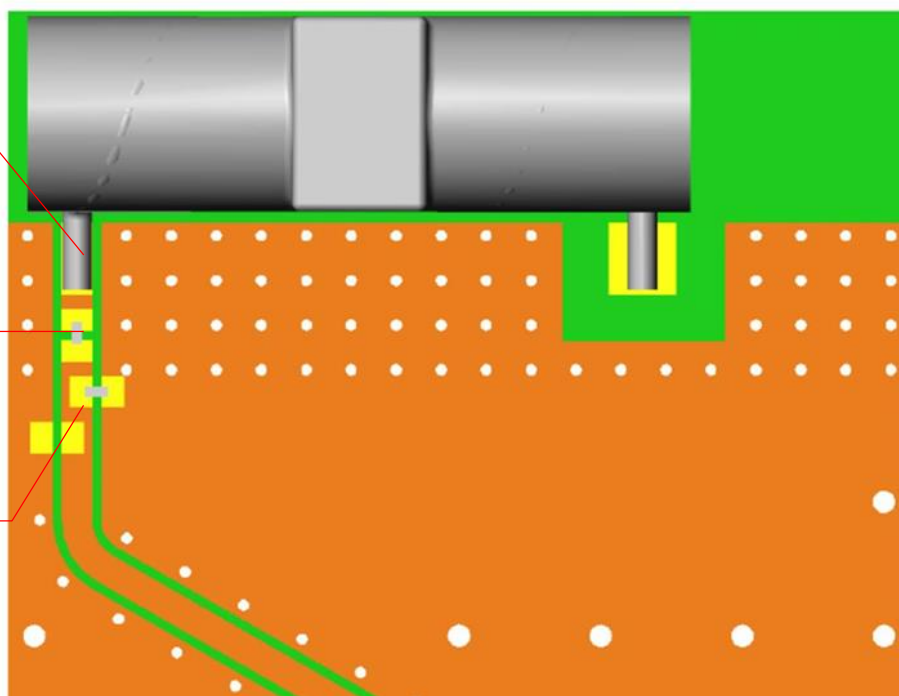
### TEST SETUP

PWB Layout, Pulse PWB size:121x40mm, Thickness 1.0mm, other size boards can be used depending on customer size.

Antenna feed point

Capacitance for S11 matching , 3.6pF, series

Inductance for S11 matching , 8.2nH, shunt



Note : Exact matching and tuning components value depend on application , board size ,cover etc.

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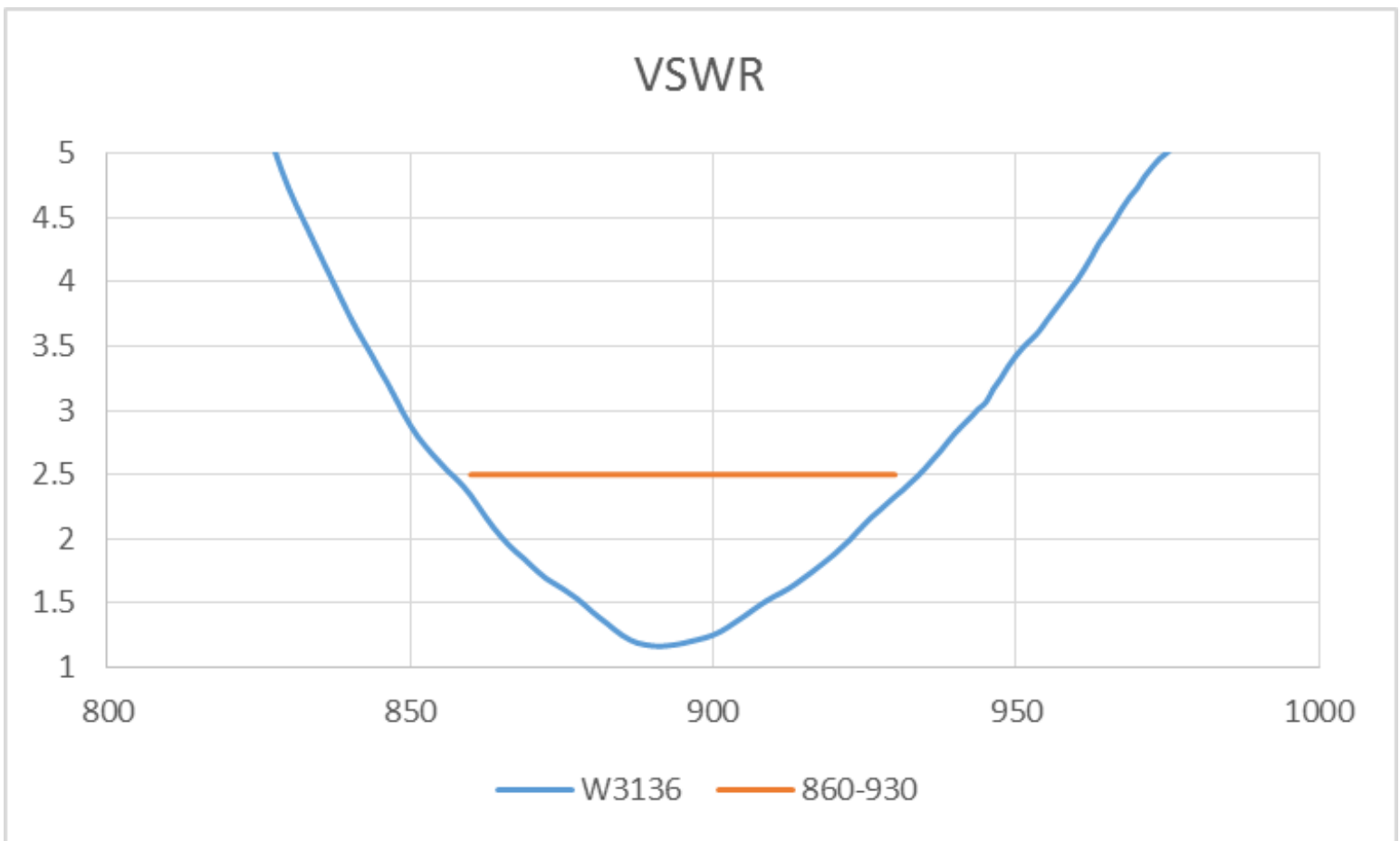
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CHARTS

Measured on the 121x40mm test board with tuning and matching circuit



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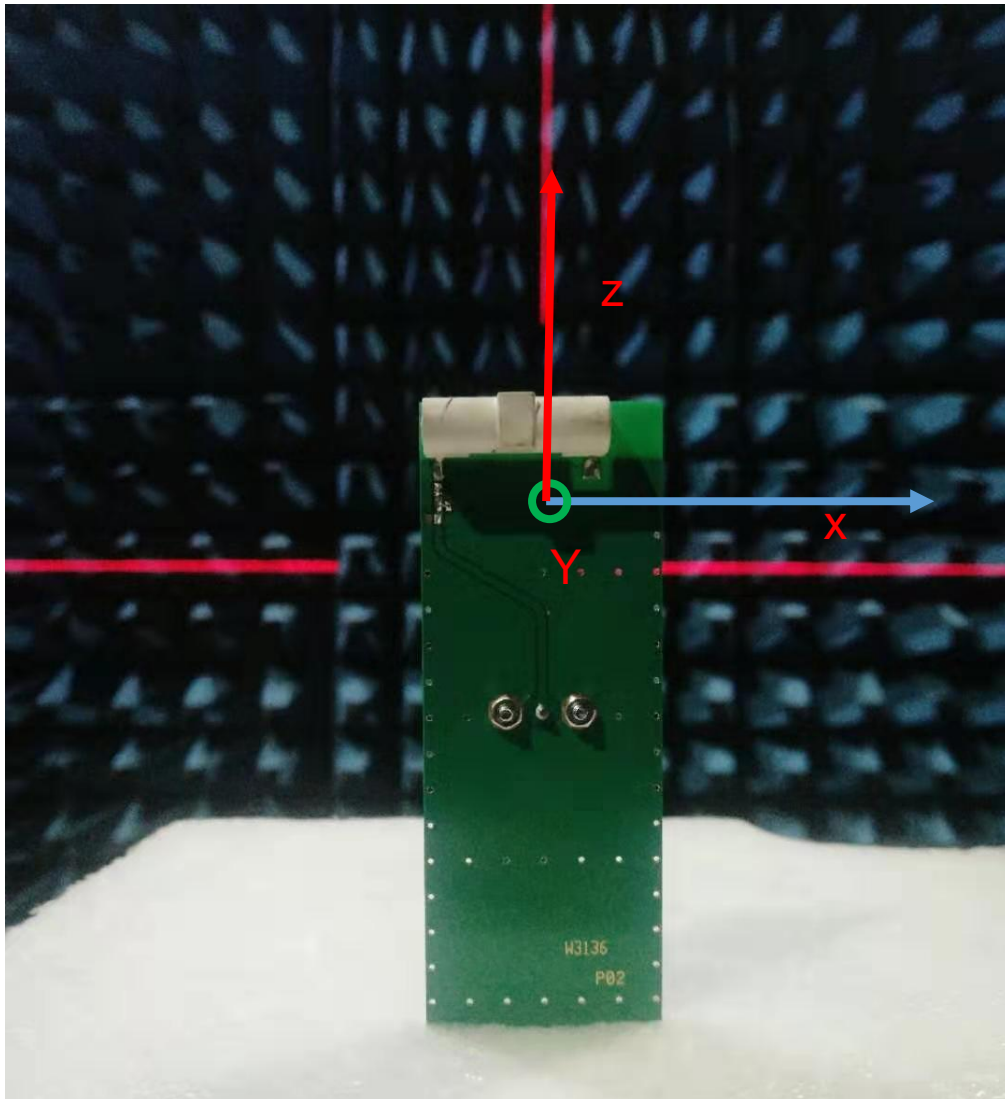
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### TEST SETUP

Measured on the 121x40mm test board with tuning and matching circuit.

Test in PSU China Chamber.



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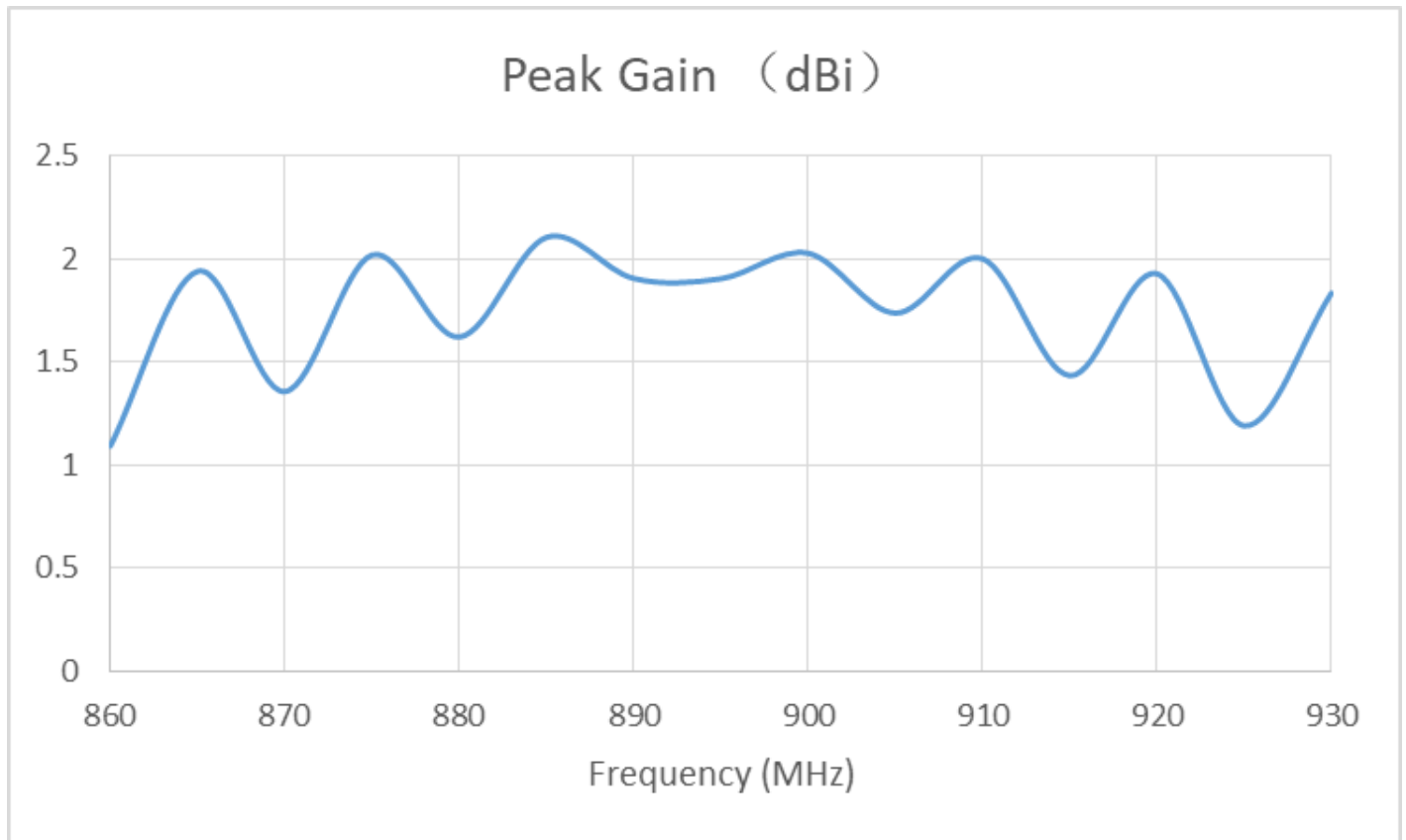
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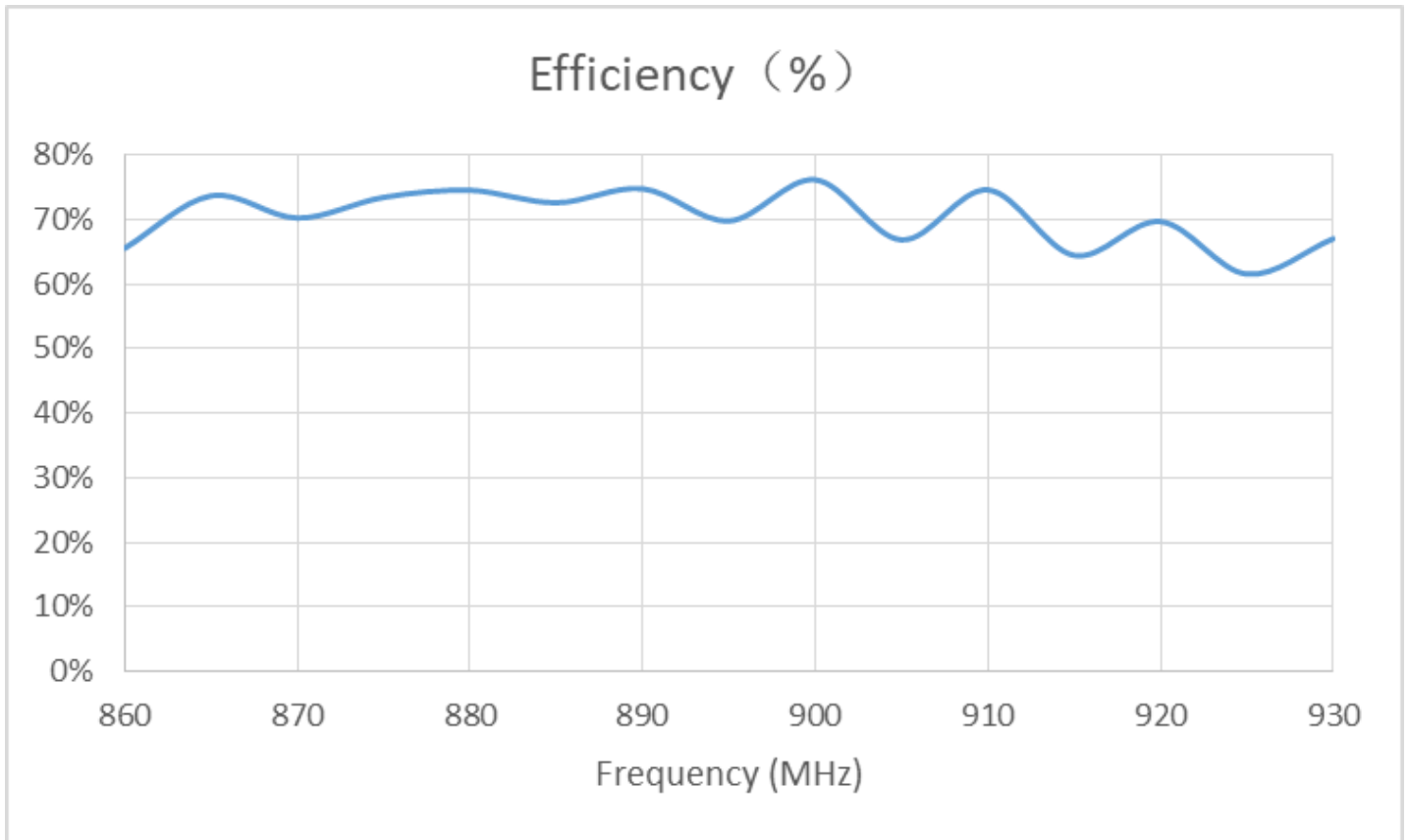


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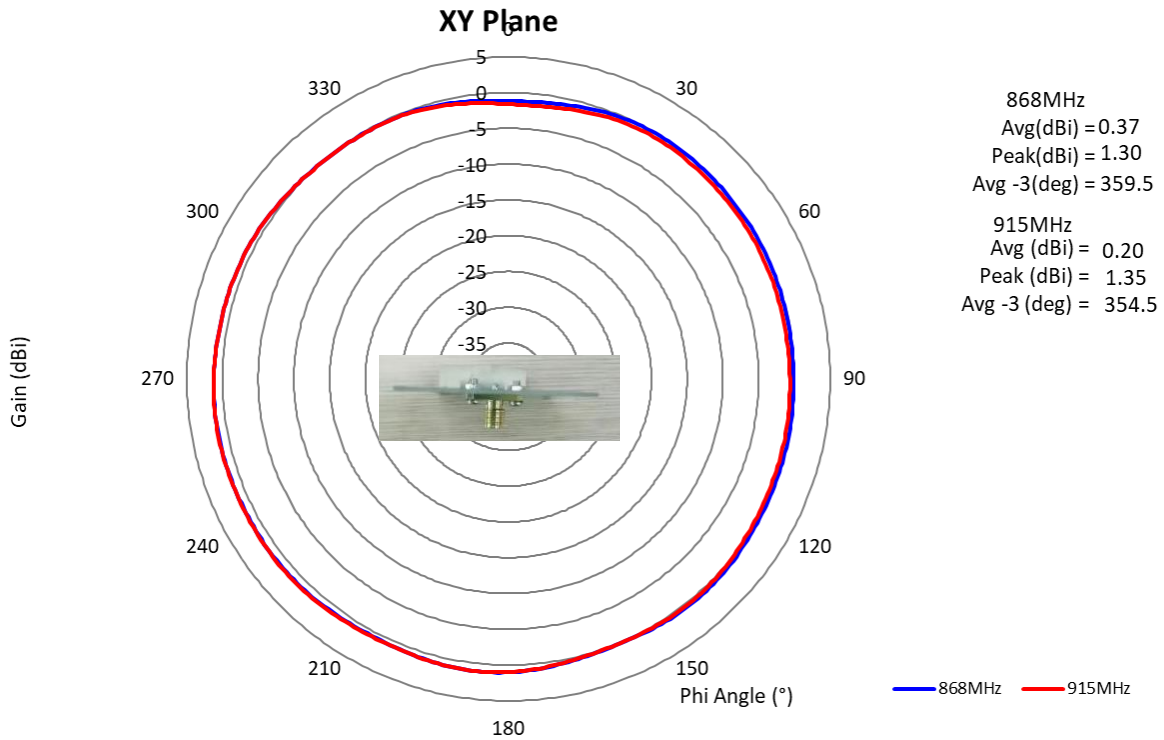
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CHARTS

Typical radiation pattern in free space



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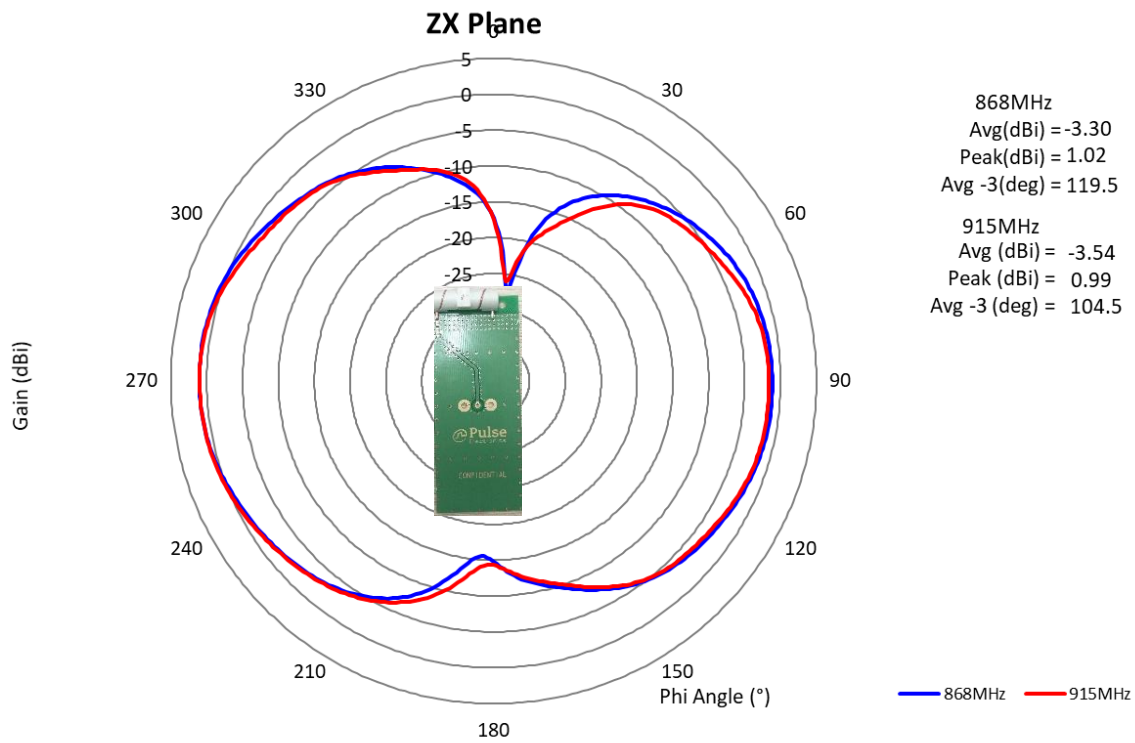
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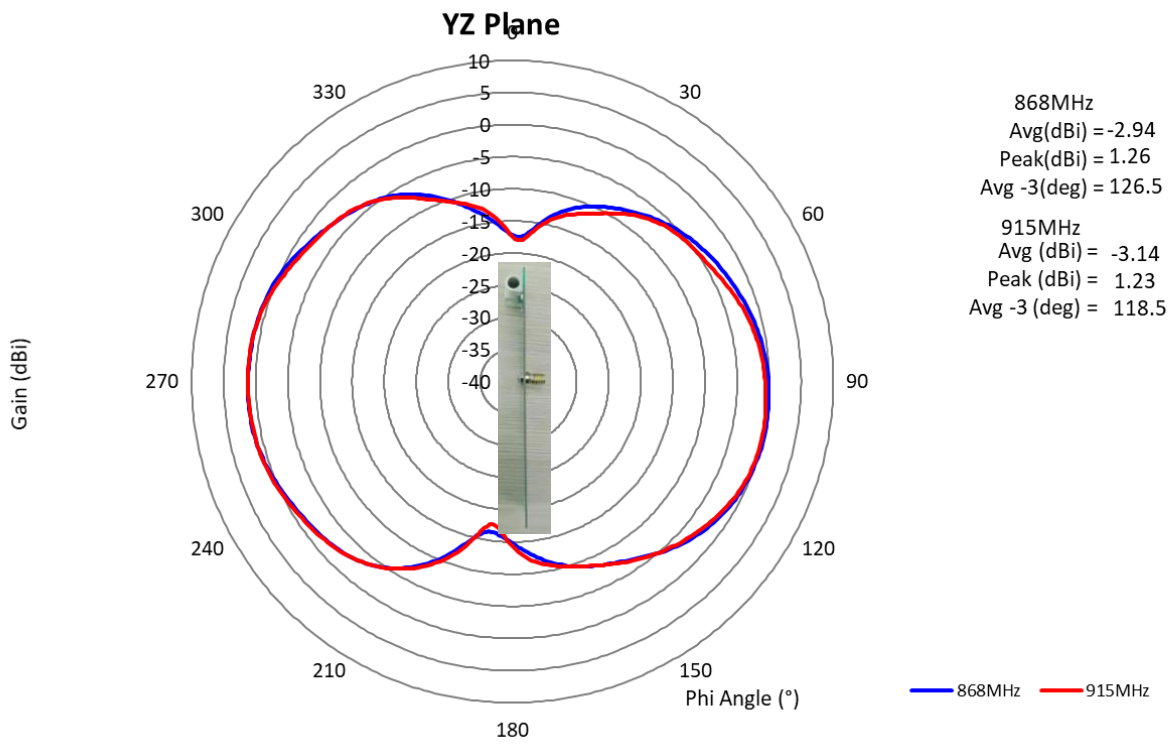
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**Recommendation for reflow soldering process**

Printing stencil thickness 0,15 - 0,25 mm is recommended for the solder paste. The maximum soldering temperature should not exceed 260°C. The temperature profile recommendations for reflow soldering process is presented in the Figures 1 and 2. The reflow profile

presented in figure 1 describes minimum reflow temperatures. The reflow profile presented in figure 2 describes maximum reflow temperatures. located at the center of the coverage area.

	Method of heat transfer	Controlled hot air convection
1	Average temperature gradient in preheating	2.5 °C/s
2	Soak time	2-3 minutes
3	Max temperature gradient in reflow	3 °C/s
4	Time above 217 °C	Max 30 sec
5	Peak temperature in reflow	230 °C for 10 seconds
6	Temperature gradient in cooling	Max -5 °C/s

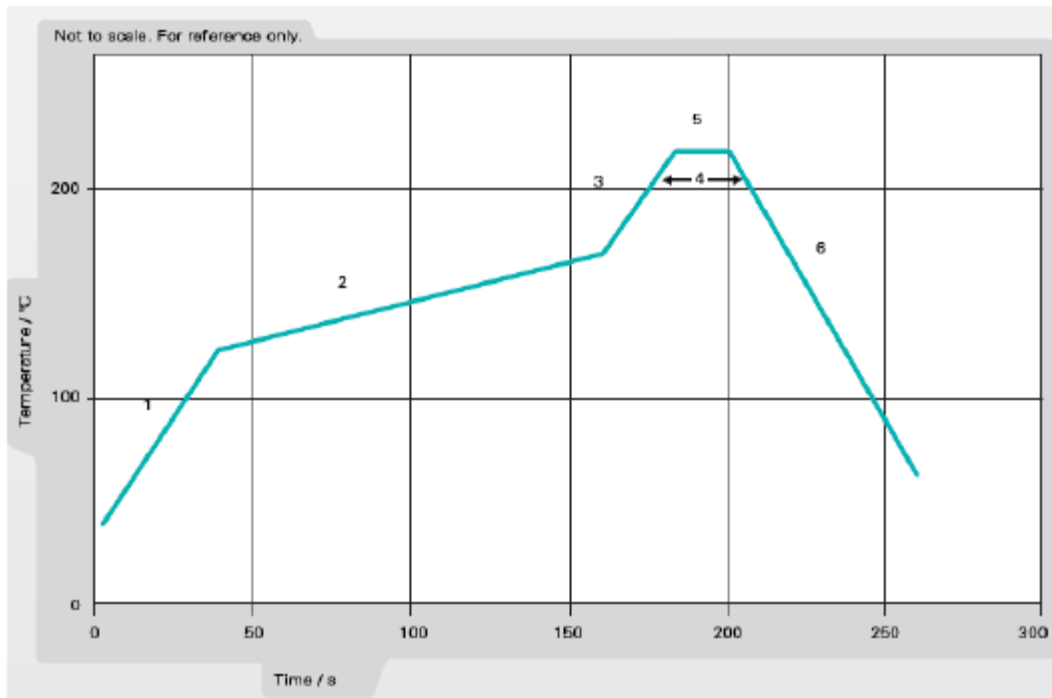
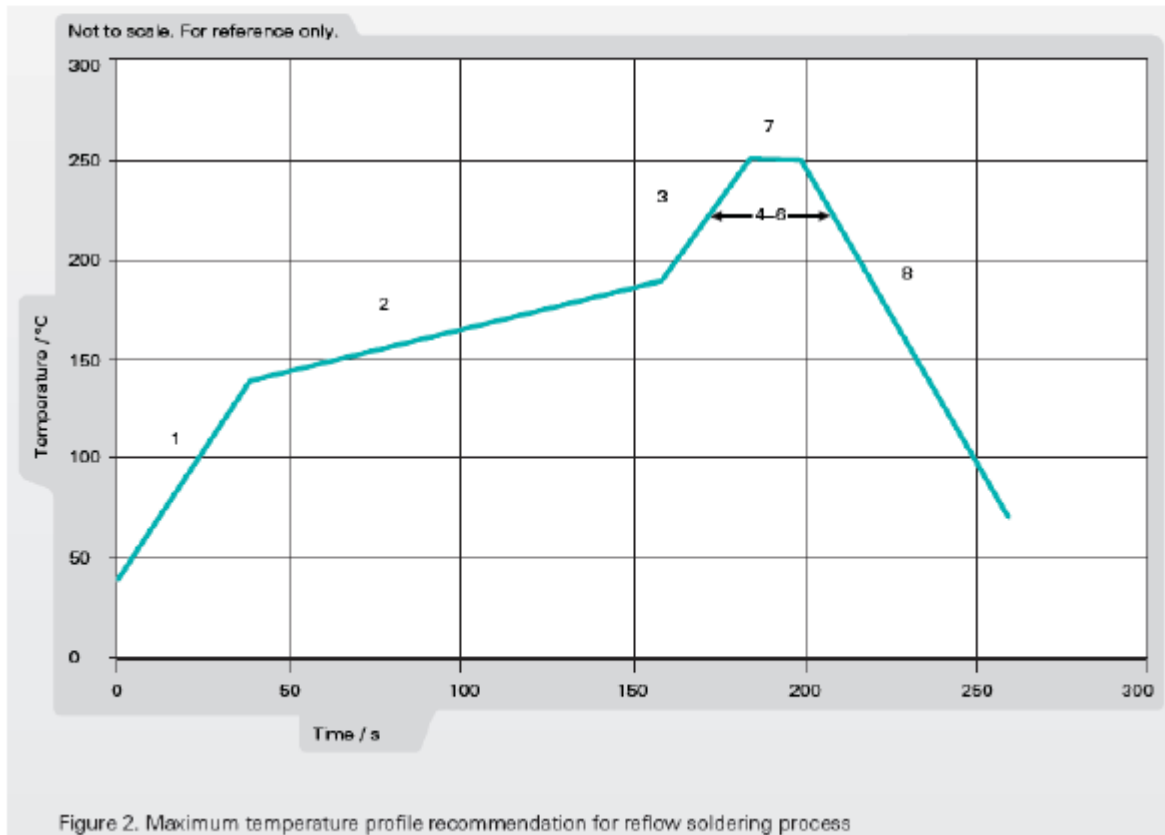


Figure 1. Minimum temperature profile recommendation for reflow soldering process

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**Recommendation for reflow soldering process**

	Method of heat transfer	Controlled hot air convection
1	Average temperature gradient in preheating	2.5 °C/s
2	Soak time	2-3 minutes
3	Max temperature gradient in reflow	3 °C/s
4	Time above 217 °C	Max 60 sec
5	Time above 230 °C	Max 50 sec
6	Time above 250 °C	Max 10 sec
7	Peak temperature in reflow	250 °C for 5 seconds
8	Temperature gradient in cooling	Max -5 °C/s



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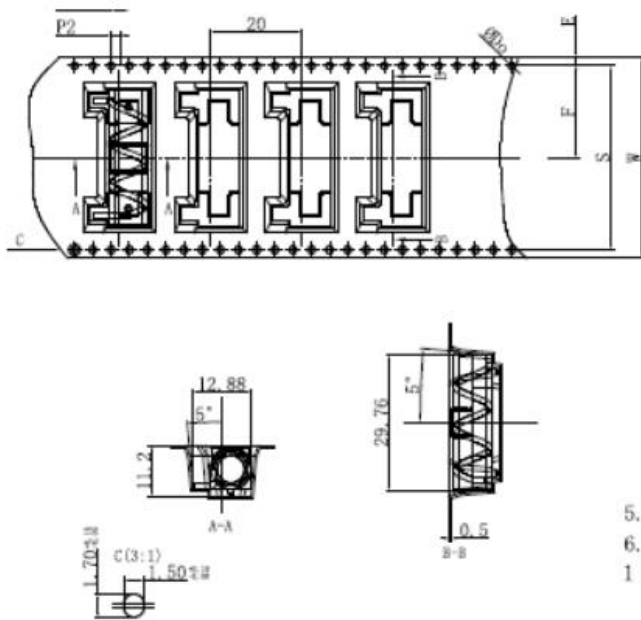
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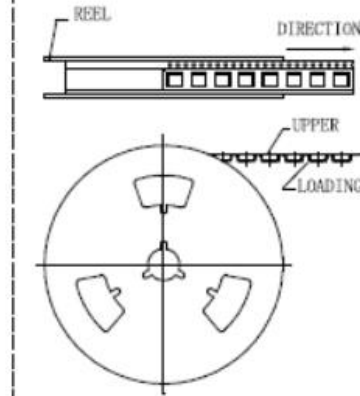


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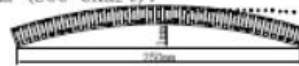
**PACKAGING**



REFERENCE VIEW



- 5. All the size design with reference to the EIA - 481 - C - 2003.
- 6. Loading within 250 mm length maximum curvature is less than 1 mm (see chart).



Notes:

- 1. 10 side hole of the cumulative tolerance cannot be more than + / - 0.2 mm.
- 2. Material specifications: PS black antistatic, thickness of 0.50 mm.
- 3. 13 inches (100) axis reel package length: 4.6 m. (the front air bag length: 0.33 m, parts packing length: 4 m, after a period of empty packet length: 0.33 meters).
- 4. 13 inches (100) axis reel packaging components to the total number of stars: 230. (the front air bag star count: 15, actual packing parts the number: 200, after a period of empty bag star count: 15).

Manufacture Data	
Total PCS	230PCS
Reel	13"/44
Package Qty	200PCS

**Total 200 PCS In Reel**  
**Reel Size: 330MM[13INCH]**  
**Total 2 PCS Reel In Package Box**  
**Package Box Size:350x350x120mm**

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