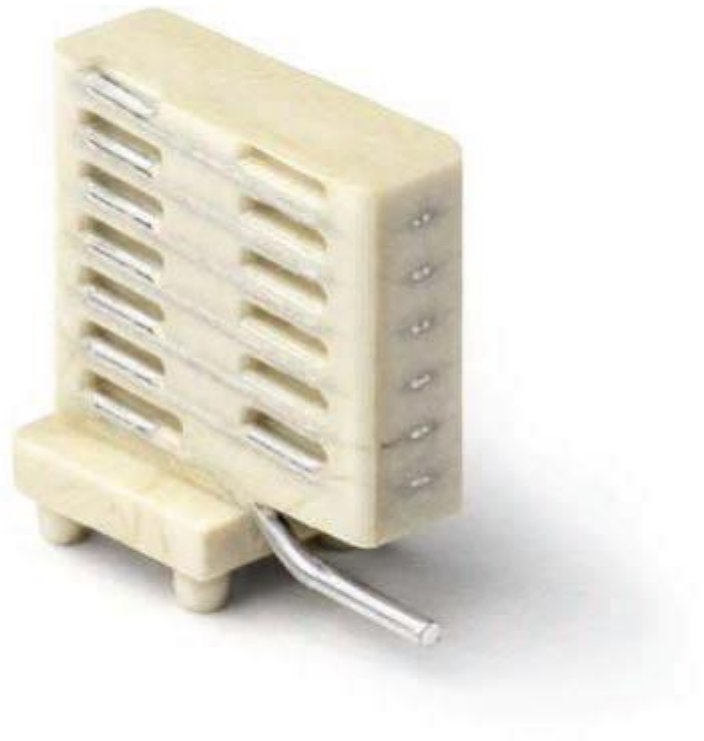
Pulse
a YAGEO company

TECHNICAL DATA SHEET

Series: Helical SMD Antenna

Description: 850 MHz RX Diversity Helical SMD Antenna

PART NUMBER: W3118A



Features:

- Vertical mount on board
- Compact size W x L x H (2.5 x 8 x 8 mm)
- Low weight (390 mg)
- Lead Free materials
- Fully SMD compatible
- Glue needed between antenna and PCB
- Lead free soldering compatible
- Tape and reel packing

Applications:

- GSM Cellualr 850 Band
- 869-894 MHz
- ISM 868 MHz

Issue: 2046

RoHS COMPLIANT

For more information:

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99 Huo Ju Road(#29 Bldg,4th Phase
Suzhou New District
Jiangsu Province, Suzhou 215009 PR China
Tel: 86 512 6807 9998

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ELECTRICAL SPECIFICATIONS

Frequency	869-894MHz
Nominal Impedance	50 Ω
Return Loss	＜-9 dB
Radiation Pattern	Omni
Gain	-1dBi
Efficiency	35%
Polarization	Vertical
Power Withstanding	3W

MECHANICAL SPECIFICATIONS

Dimension	2.5 x 8 x 8 mm
Weight	0.39 g
Antenna Materia	Plastic : LCP
	Helix : Sn Plated Spring Steel

ENVIRONMENTAL SPECIFICATIONS

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

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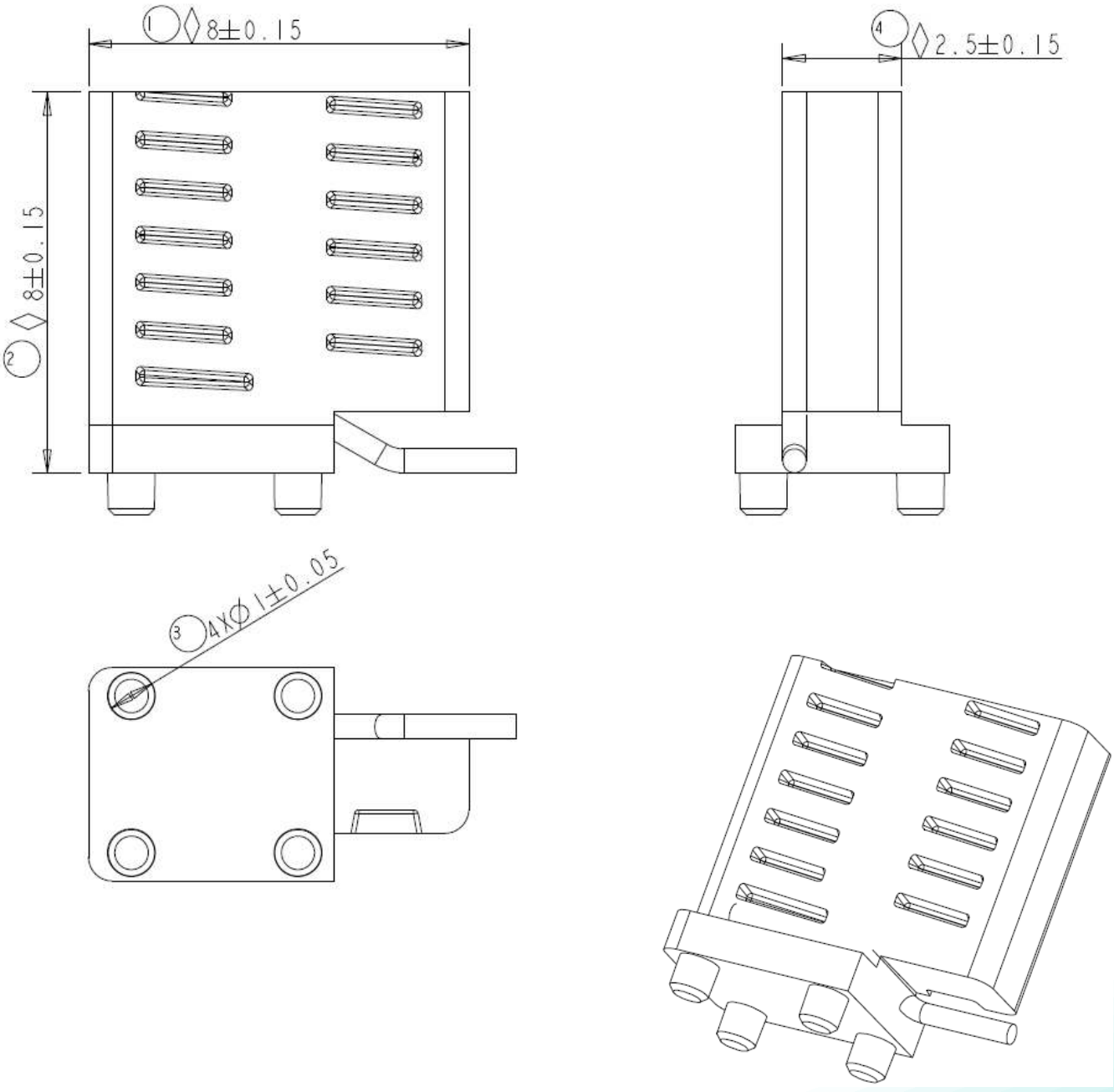
MECHANICAL DRAWING



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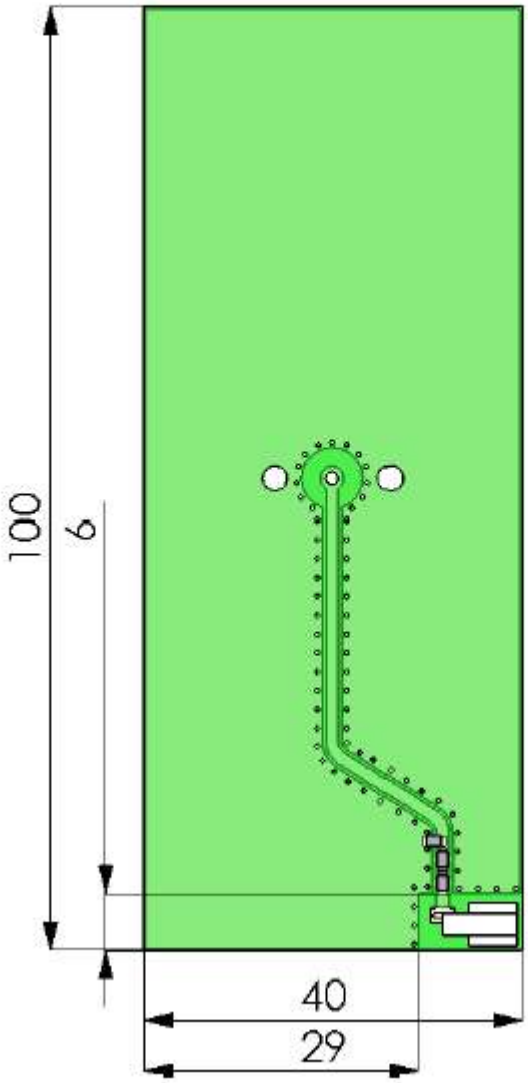
PWB Layout

Test board layout

Ground cleared under antenna, clearance area **6.00 mm x 11.00 mm**

Feed line should be designed to mach 50 Ω characteristic impedance, depending on PWB material and thickness.

Matching and tuning component values depend on application and surrounding mechanics / materials



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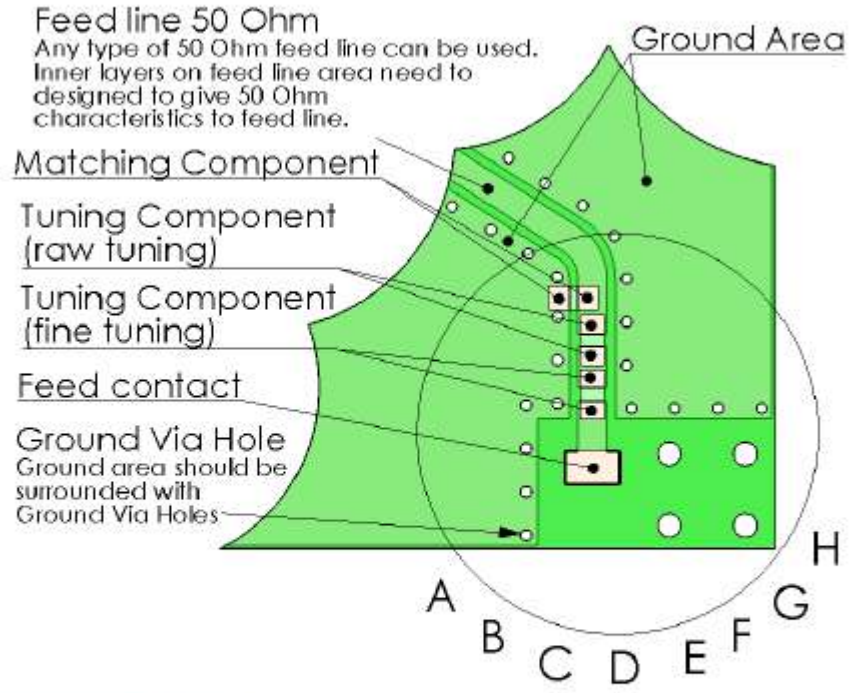
PWB Layout

Note: All dimensions are in metric system.



Components on test board

Matching component = 5n6H inductor

Tuning component (raw tuning) = 8n2H inductor

Tuning component (fine tuning) = 1n8H inductor

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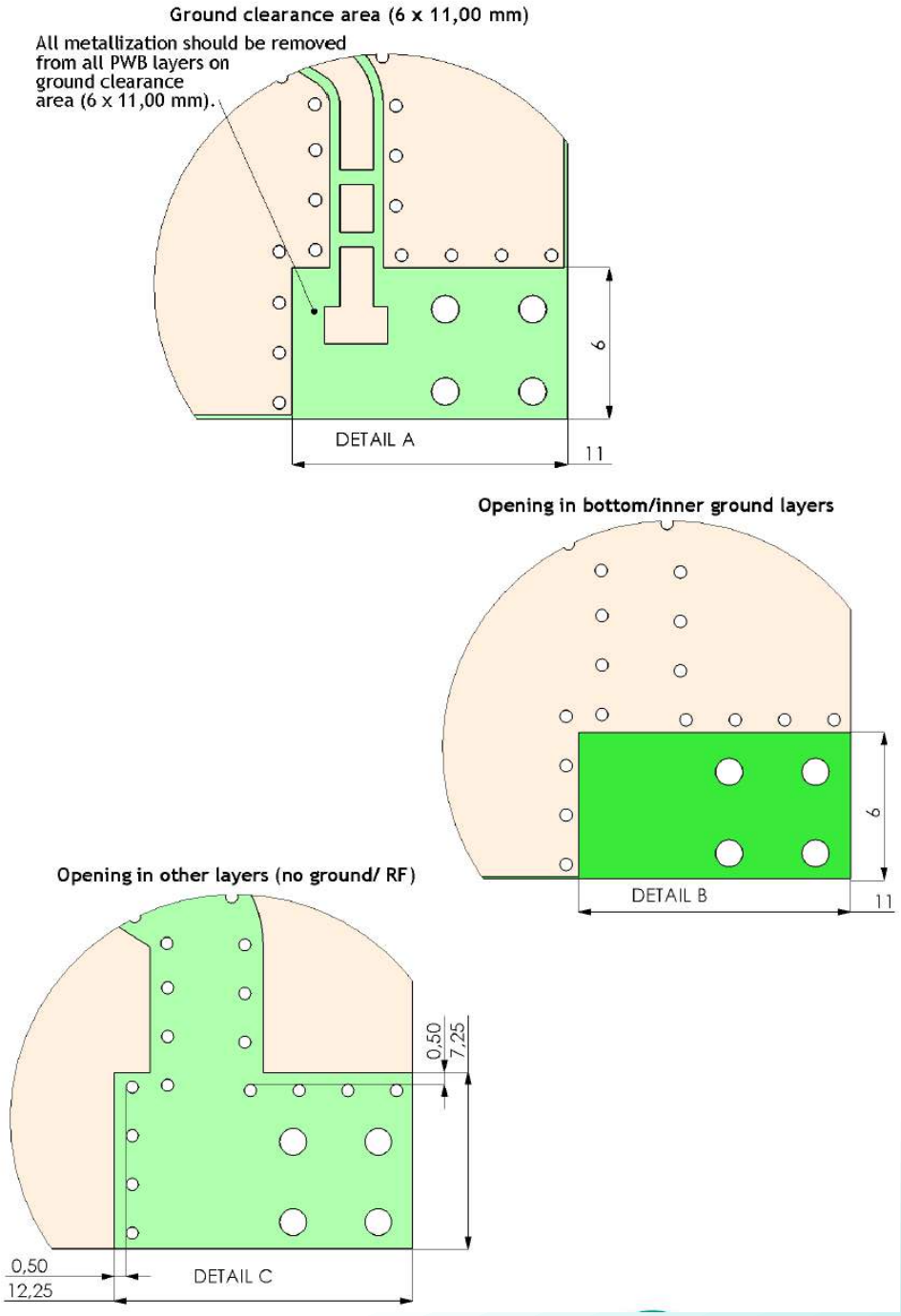
PWB Layout

Ground clearance area for W3118A



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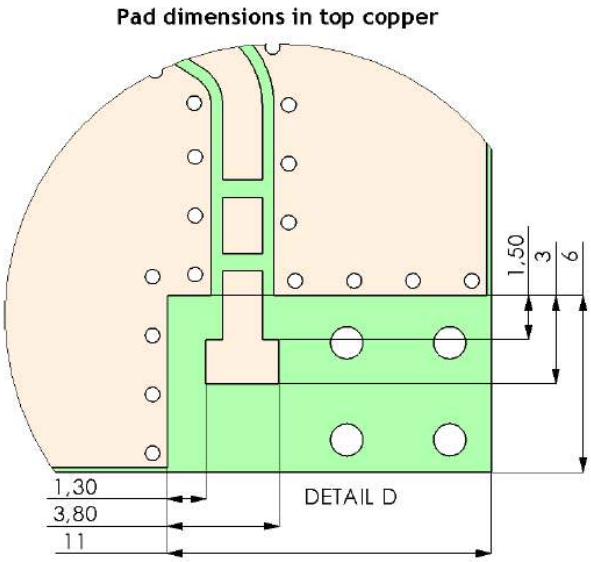
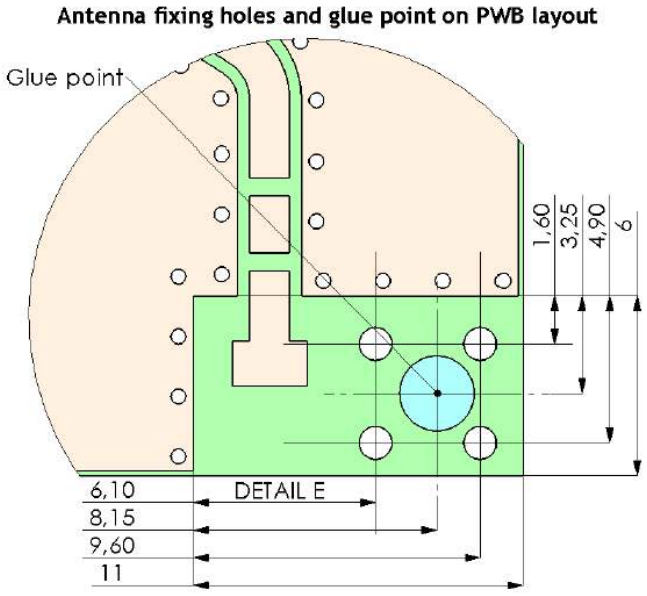
PWB Layout

PWB pad dimensions and antenna attachment for W3118A



It is recommended to use glue between antenna and PWB to get enough mechanical strength.



The glue could be SMD-adhesive (Heraeus PD 955M) or hot setting adhesive, depending on manufacturing method. (Reflow or hand soldering)

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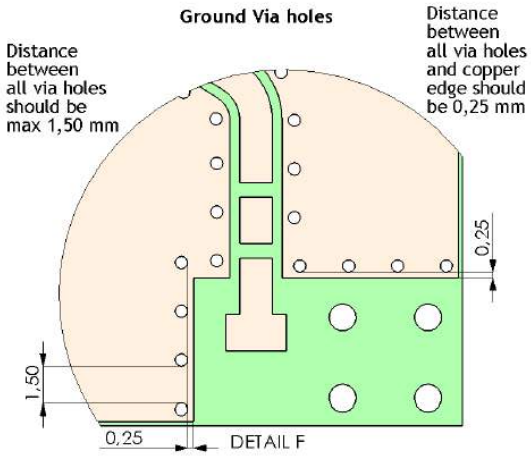
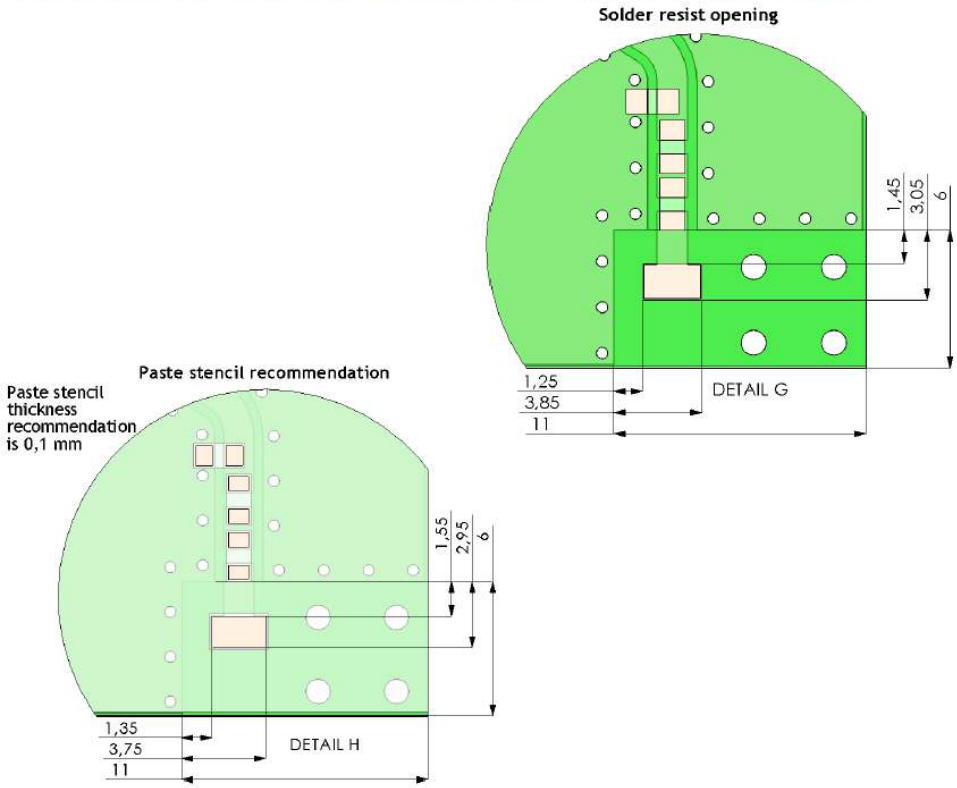
PWB Layout

Typical ground via hole placement in PWB layout for W3118A



Solder resist opening and Paste stencil recommendation for W3118A



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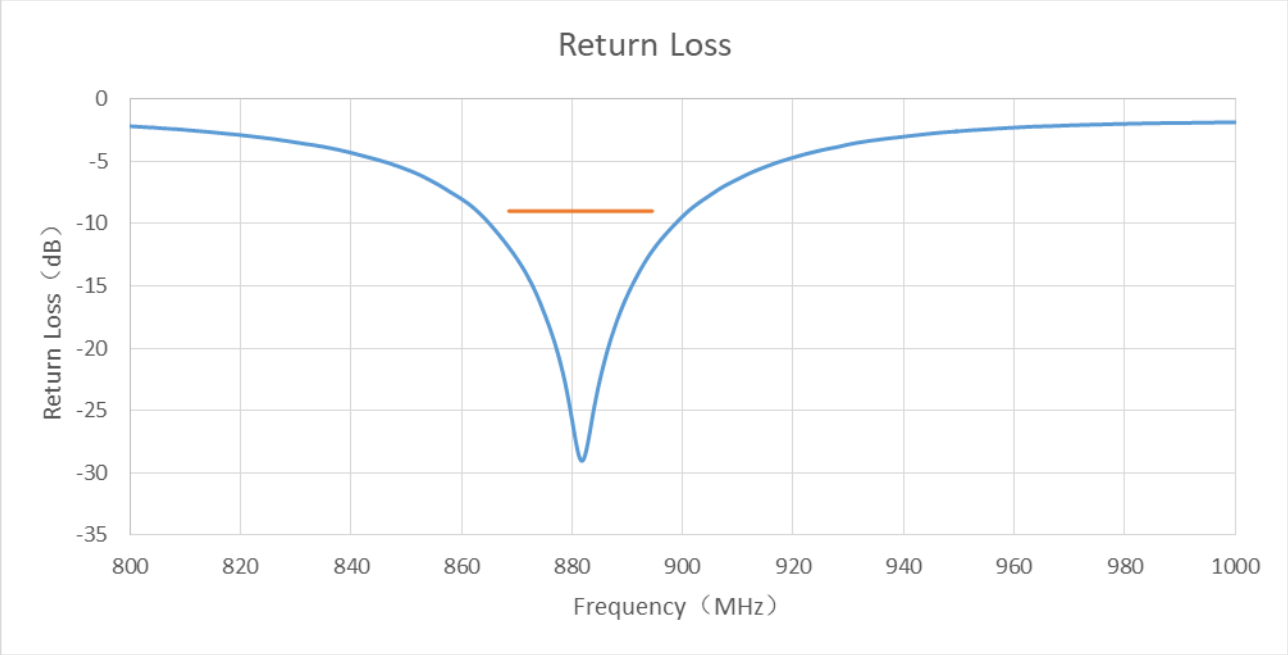
CHARTS

Return Loss



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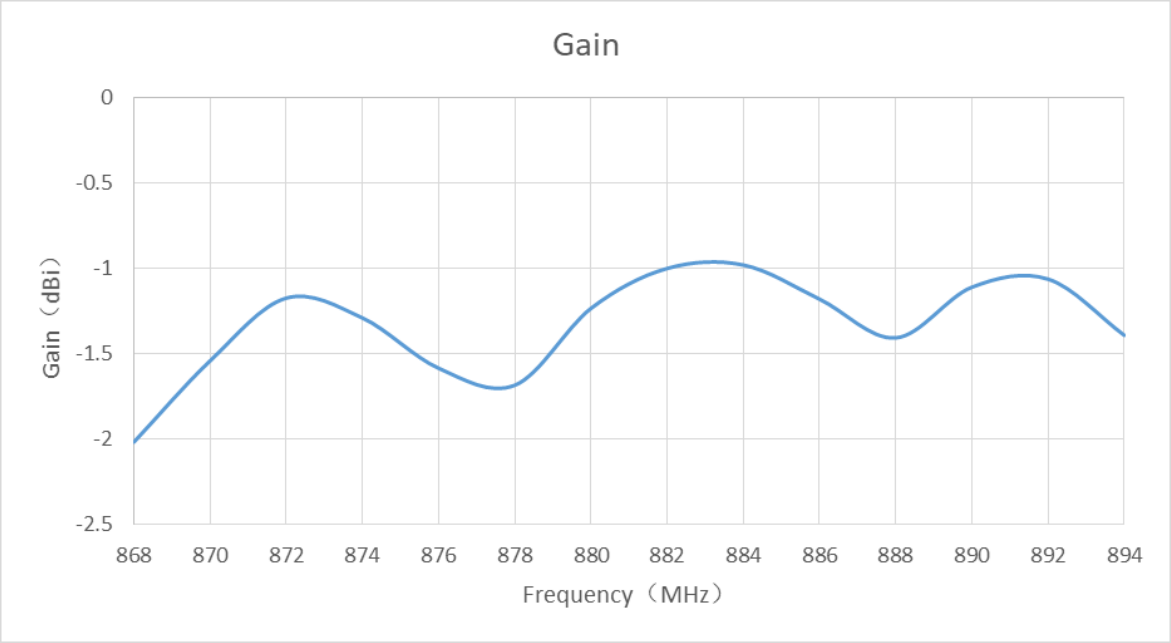
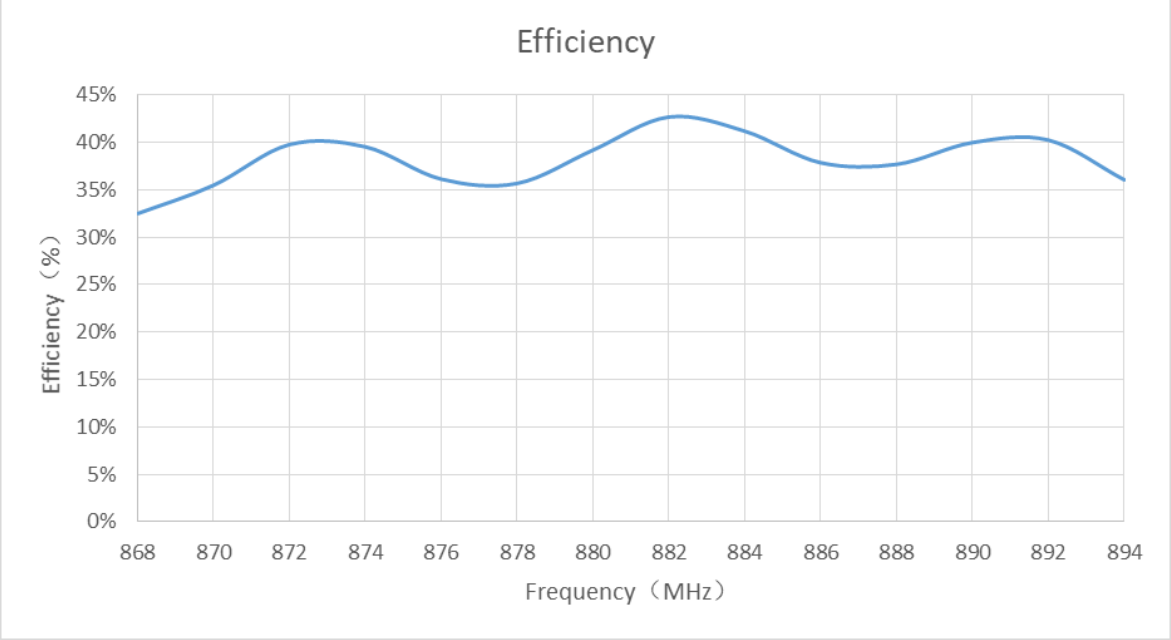
CHARTS

Gain



Radiation Efficiency



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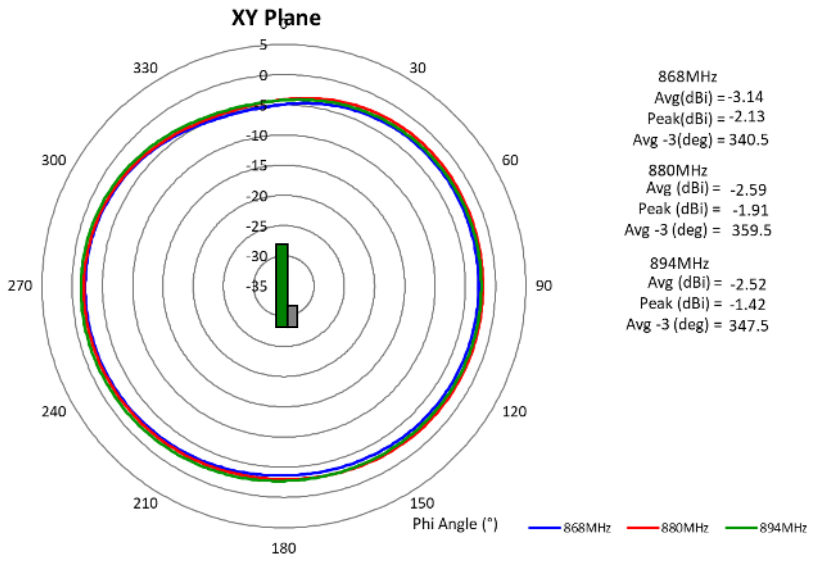

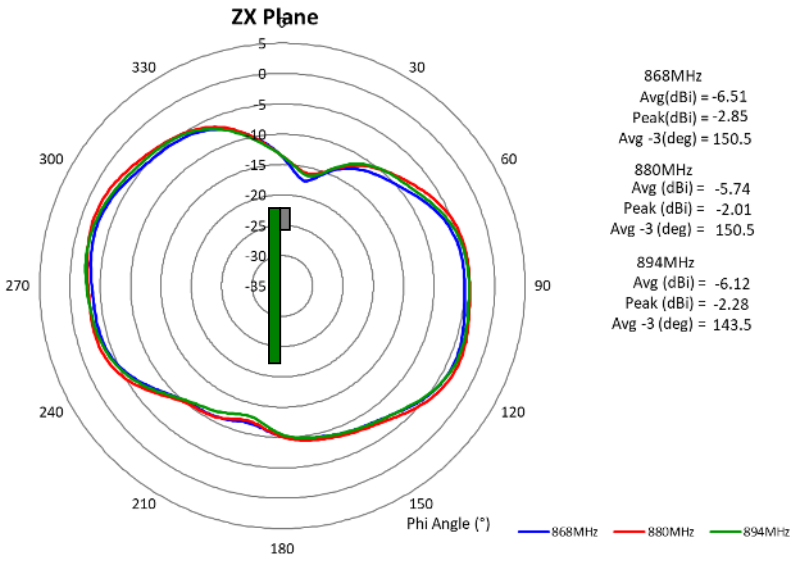

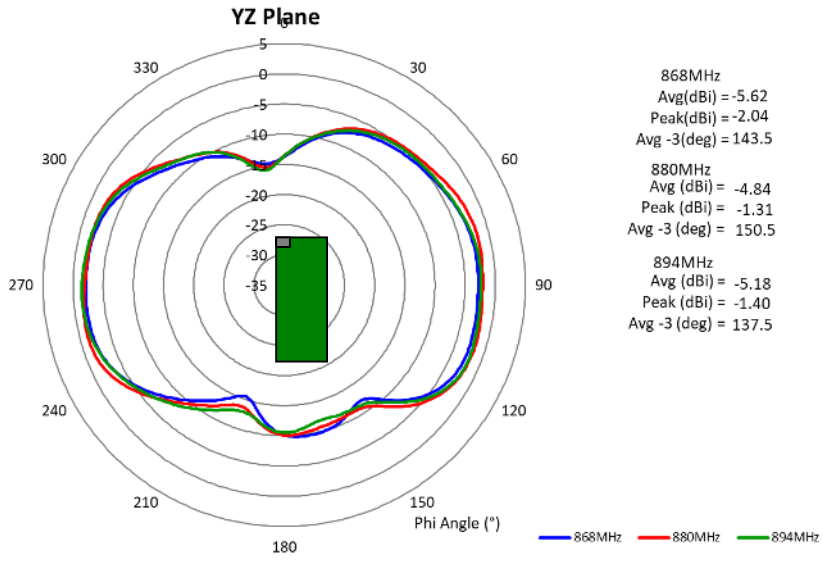

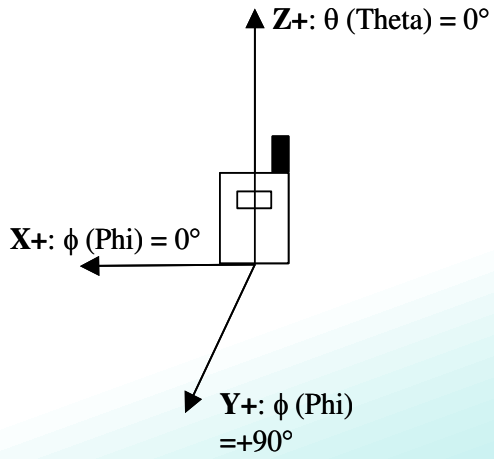

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Recommendation for reflow soldering process

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

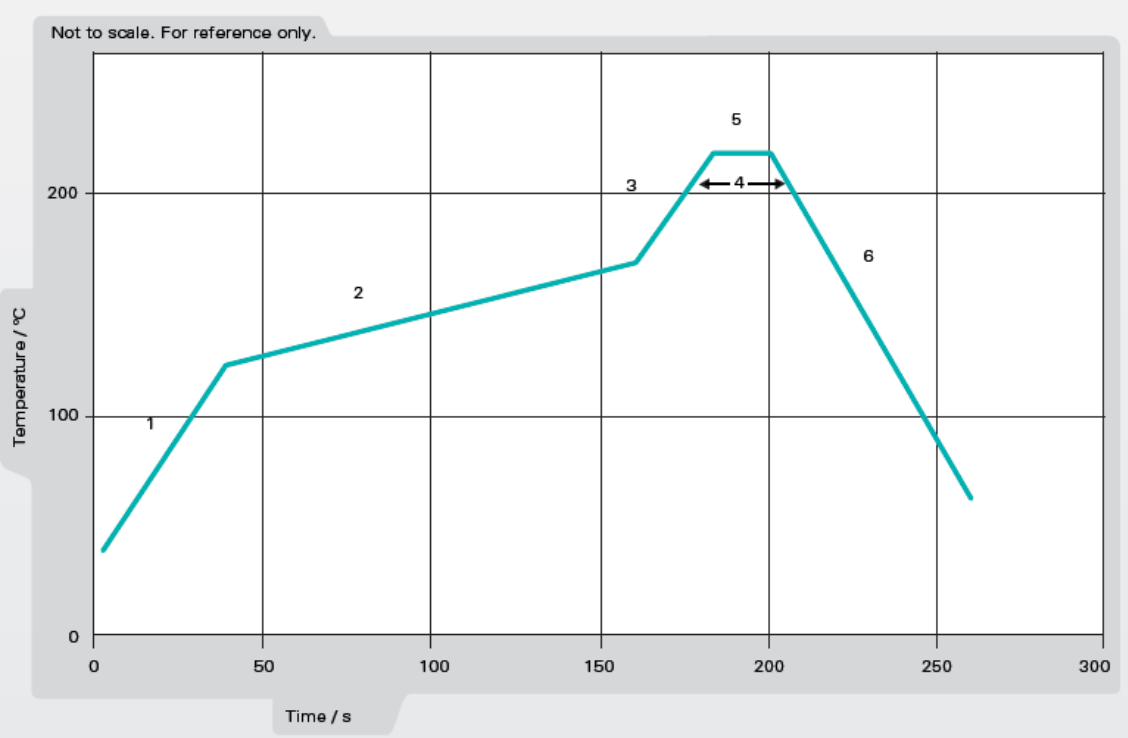

Figure 1. Minimum temperature profile recommendation for reflow soldering process

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PACKAGING

600pcs antennas packed in a tape & reel.

1 label on each tape & reel with part number, date code and Qty.

4 tape & reels of antennas (total 2400pcs antennas) packed in a Carton

1 label on each Carton with part number, date code and Qty.

P.S.: The antenna is placed vertically in the tape & reel, so it can be picked and placed for the SMT process.