

Datasheet

915MHz

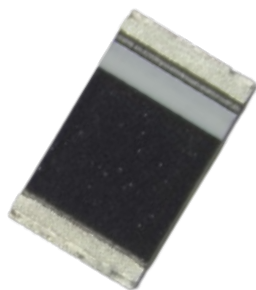
Chip Antenna / Embedded

Features:

This is a small size, high performance, low profile LoRa antenna with low frequency of 915MHz.

Applications:

- Sigfox
- LoRa
- LPWAN
- RFID
- Remote Monitoring
- Healthcare



5 × 3 × 0.5 mm

Chip Antenna



Electrical Specifications

Antenna Characteristics

Antenna Type	Radiation Pattern	Polarization	Max. Input Power	Impedance
Chip Antenna	Omni	Linear	2W	50Ω
Frequency (MHz)	902~928			
Return Loss (dB) @Center Frequency	< -10			
Peak Gain (dBi)	1.6			
Average Gain (dB)	-2.9			
Efficiency (%)	52			

Mechanical Specifications

Mechanical

Dimension (mm)	5.0 × 3.0 × 0.5
Material	Ceramic
Weight (g)	0.03

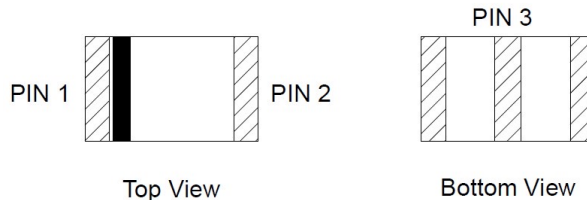
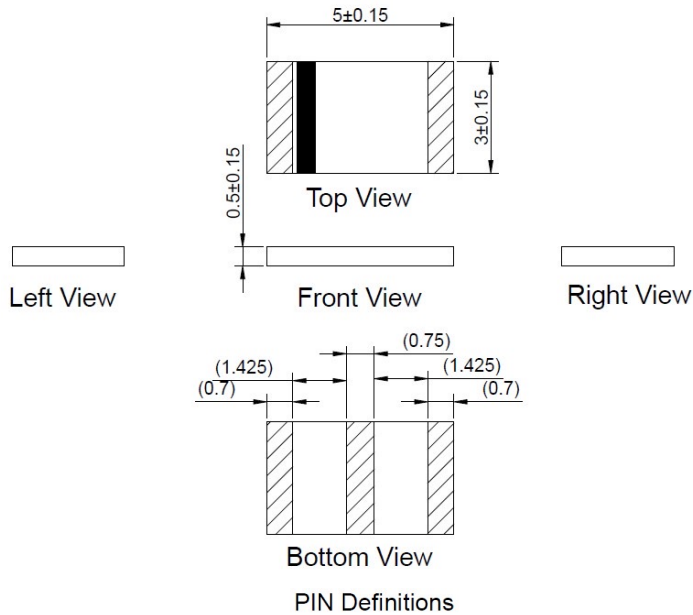
Environmental

Temperature Range (°C)	-40 to 85
Humidity	Non-condensing 65°C 95% RH

RoHS Compliant

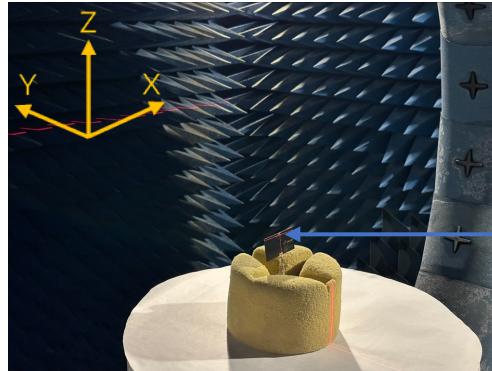
Mechanical Drawing

Unit : mm



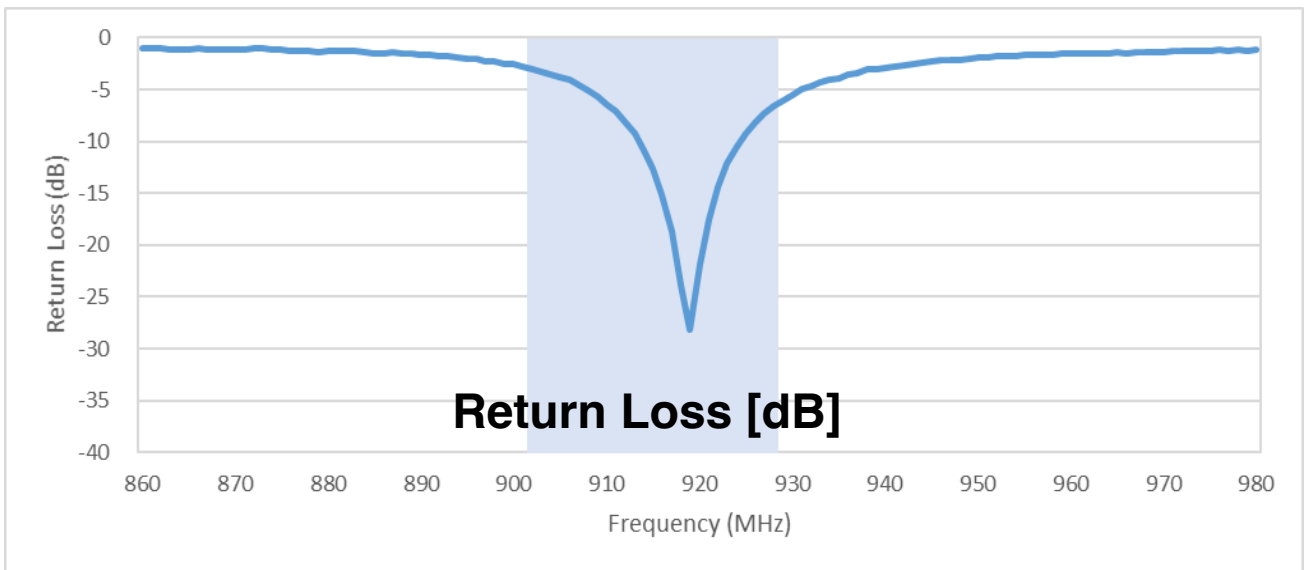
Pin	Soldering PAD
1	Signal
2	Tuning/Ground
3	N/C

Antenna Testing Includes Evaluation Board

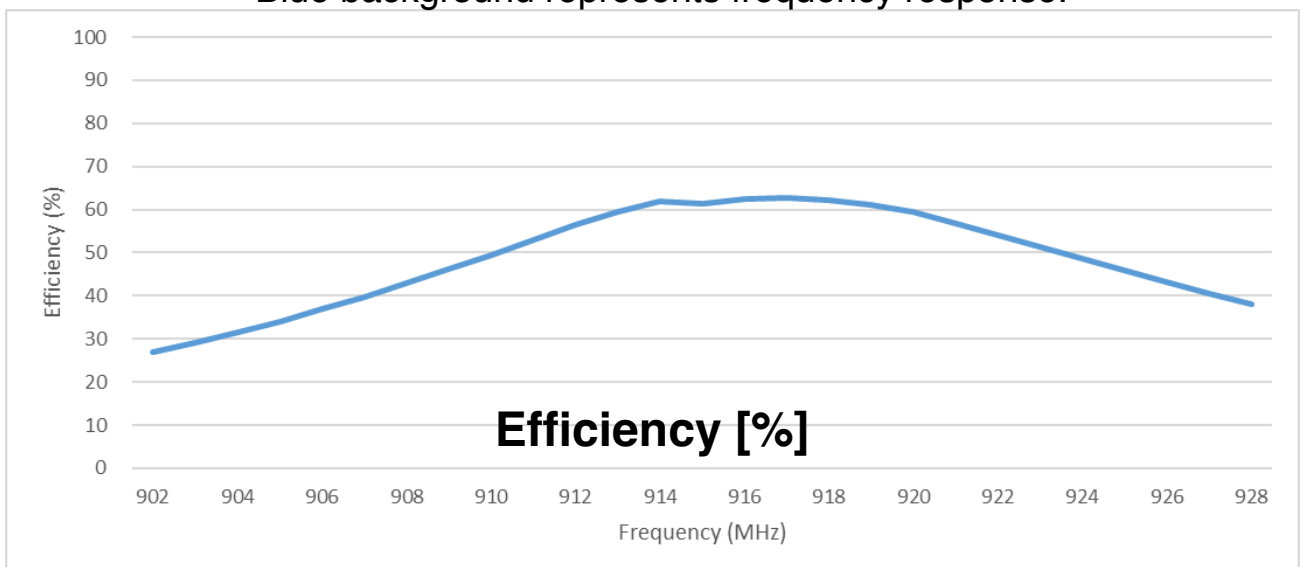


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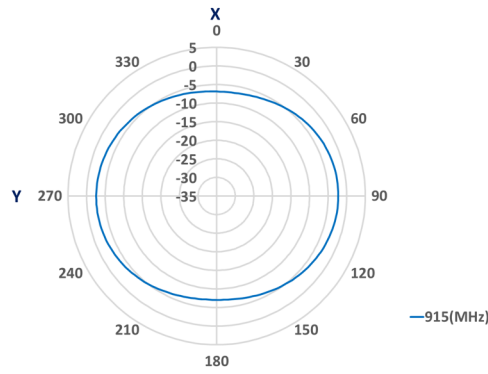
Test setup, measurement performed in 3D anechoic chamber.



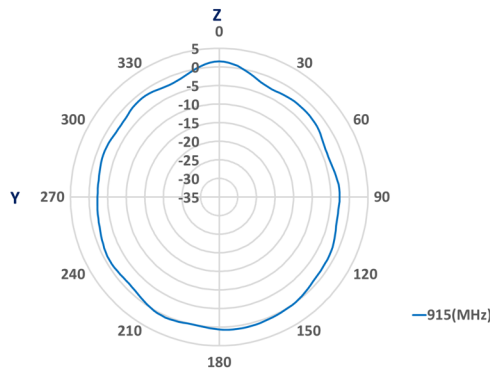
Blue background represents frequency response.



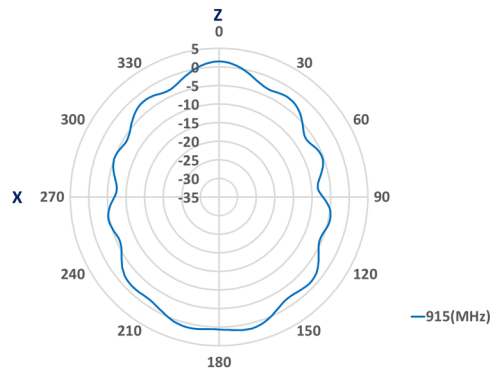
XY - Plane



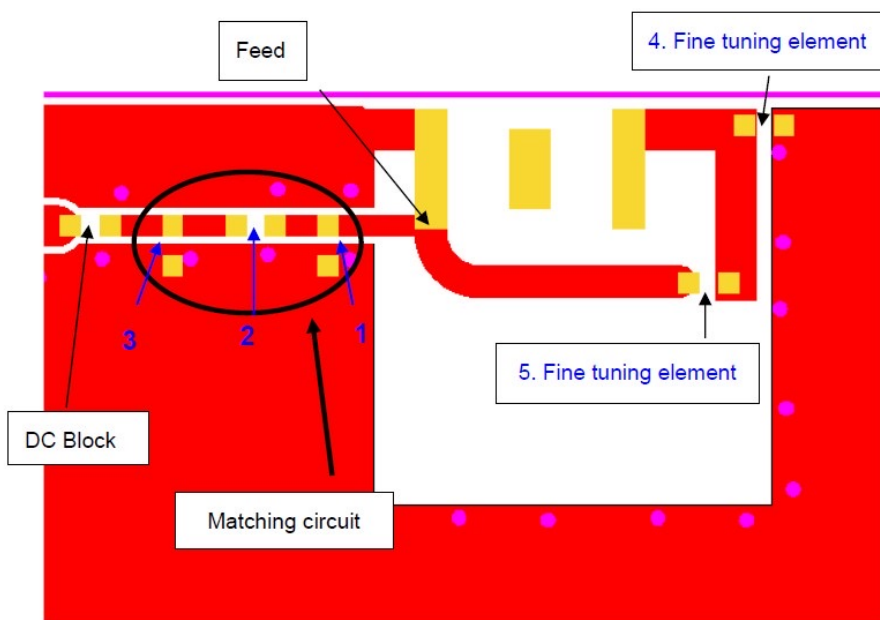
YZ - Plane



XZ - Plane



Matching Circuit Design

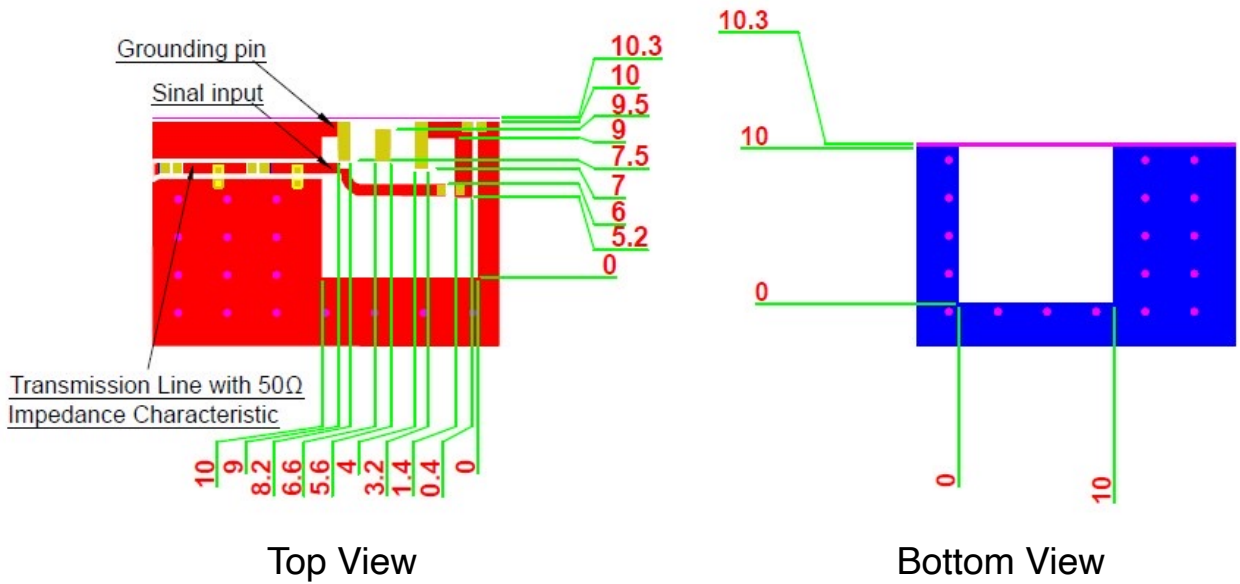


- * To make the antenna have this resonance must be matched with the matching circuit.
- * The matching component may be slightly different than that shown depending on the distance to the ground plane, the dielectric constant of the PCB, and PCB material thickness.

Circuit Matching Components

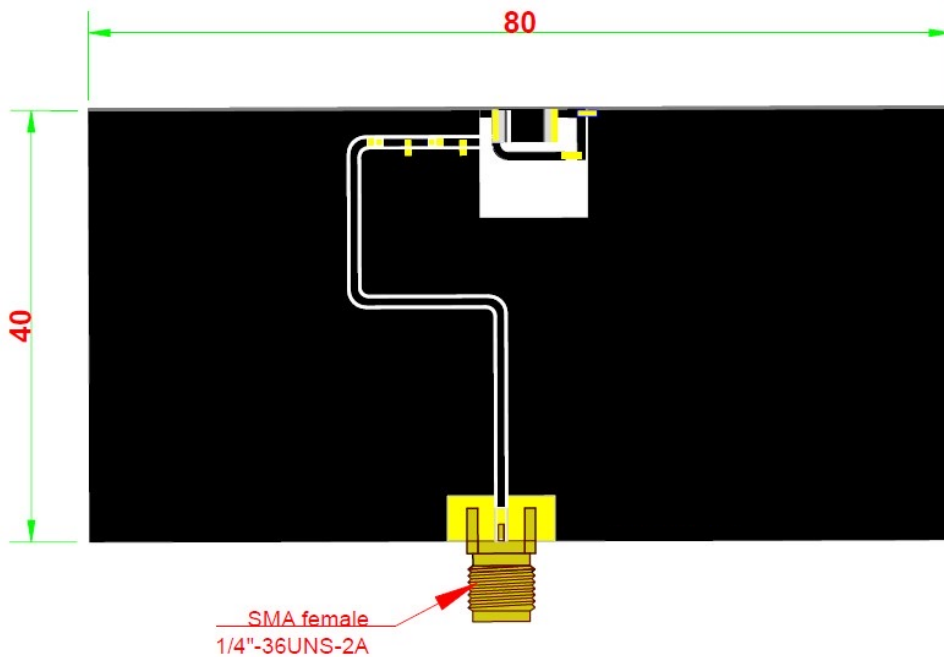
Circuit Symbol	Size	Description
1	0402	10 nH Inductance
2	0402	22 pF Capacitor
3	0402	None
DC Block	0402	22 pF Capacitor
4. Fine tuning element	0402	3.0 pF Capacitor
5. Fine tuning element	0402	3.3 pF Capacitor

Clearance Area Design



Evaluation Board

Unit : mm

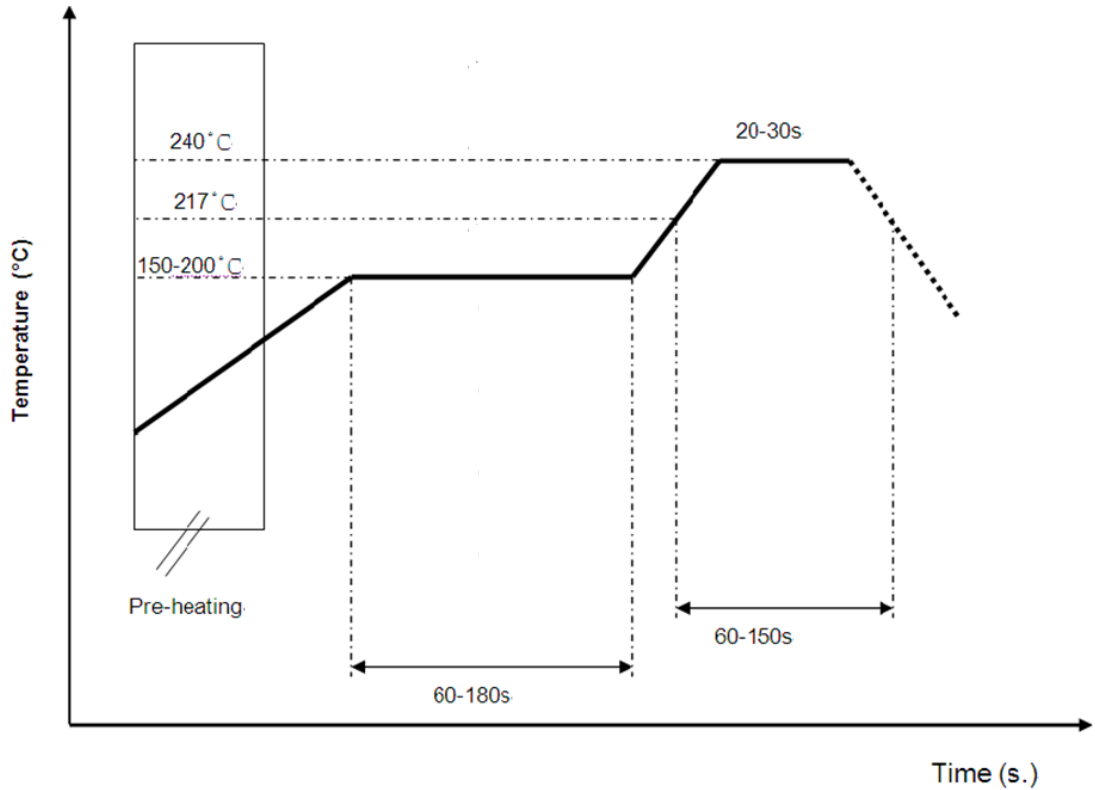


Base Material : FR-4, T=1.0

Recommended Reflow Temperature Profile

Recommended solder paste alloy:

SAC305 (Sn96.5 /Ag3 /Cu0.5) Lead Free solder paste



Revisions

Rev.	Description	Date	ECN	Approval
A	Initial Release	2023-02-18	ST0643-00-N04-A-RA00	ATC

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