

Datasheet

2.4-2.5GHz & 5.15-5.85GHz
Chip antenna

Features:

High performing Wi-Fi 6 antenna with SMT mounting on PCB.

Applications:

- CPE - Router, Set-top boxes & Gateway
- IoT devices
- Wi-Fi 6 Mesh
- Smart Metering
- Robotics



3.2 × 1.6 × 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 (GHz)	2.4~2.5	5.15~5.825
Return Loss (dB) @ Center frequency	< -10	< -10
Peak Gain (dBi)	1.6	2.3
Average Gain (dB)	-2.0	-3.2
Efficiency (%)	63	48

Mechanical Specifications

Mechanical

Dimension (mm)	3.2 × 1.6 × 0.5
Material	Ceramic
Weight (g)	0.01

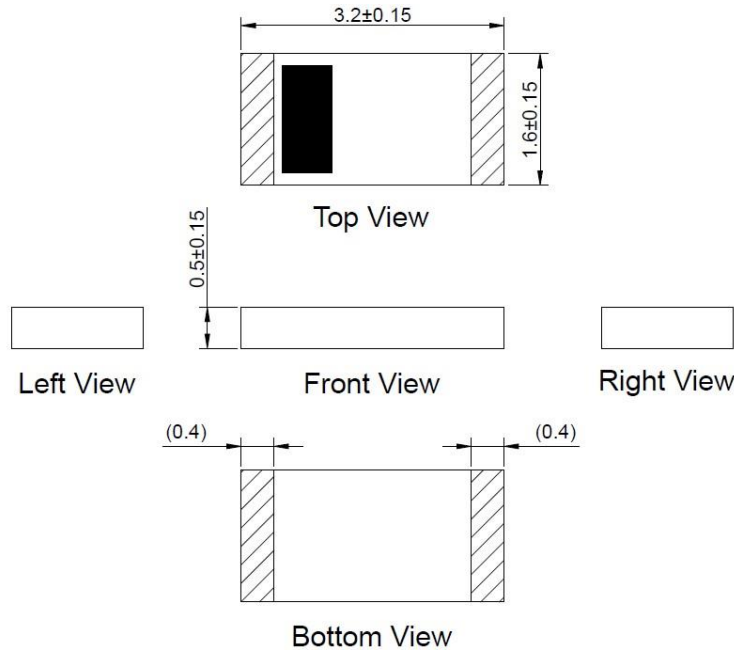
Environmental

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

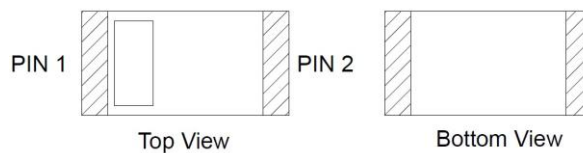
RoHS Compliant

Mechanical Drawing

Unit : mm

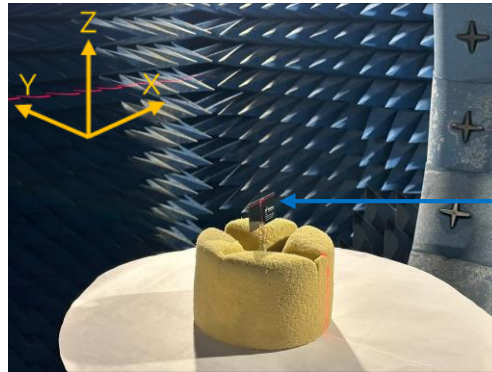


PIN Definitions



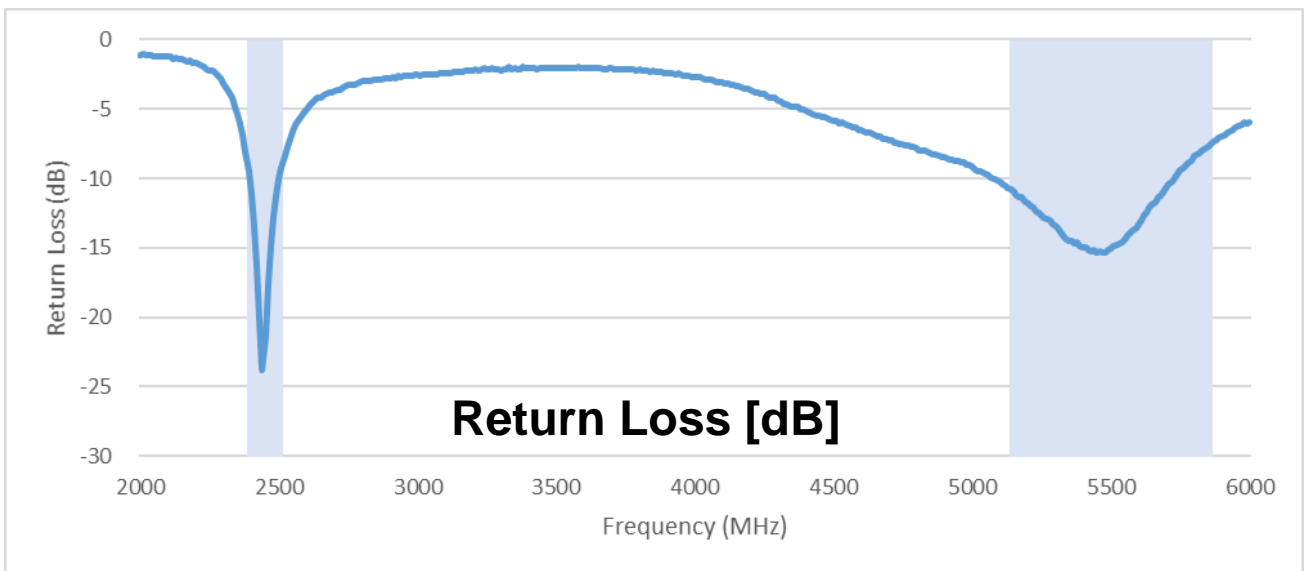
Pin	Soldering PAD
1	Signal
2	Tuning/Ground

Antenna Testing Includes Evaluation Board

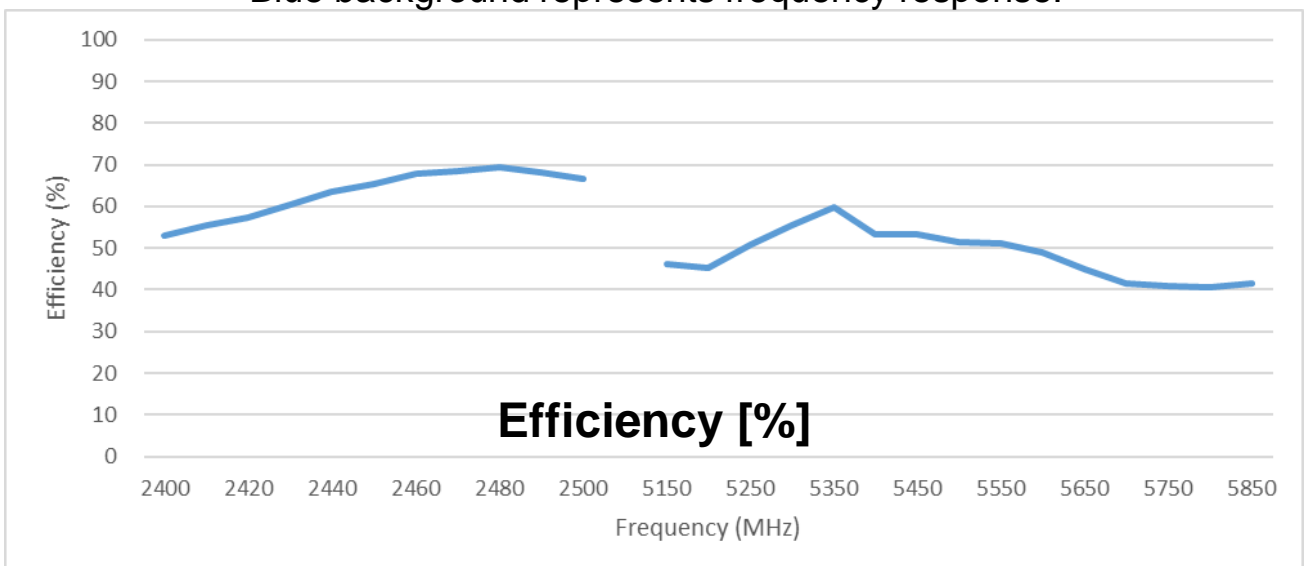


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Test setup, measurement performed in 3D anechoic chamber.

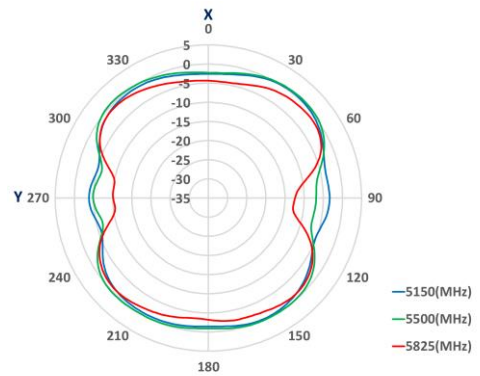
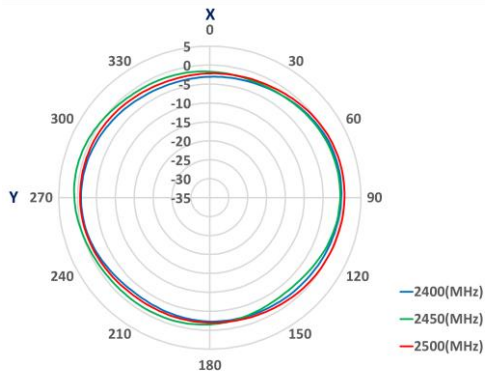


Blue background represents frequency response.

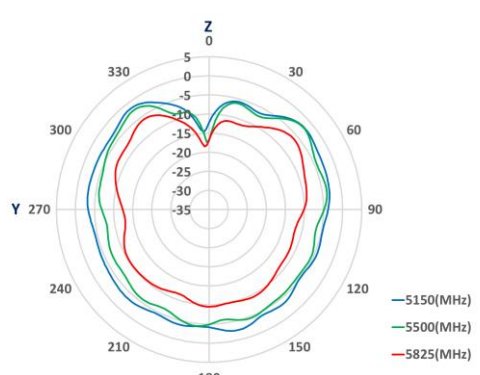
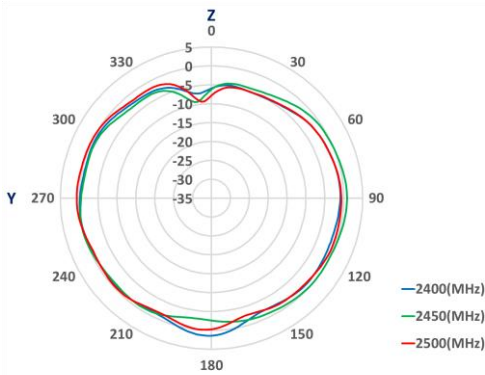


Radiation Pattern - Free Space

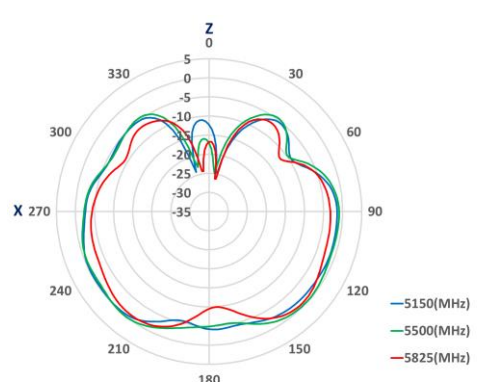
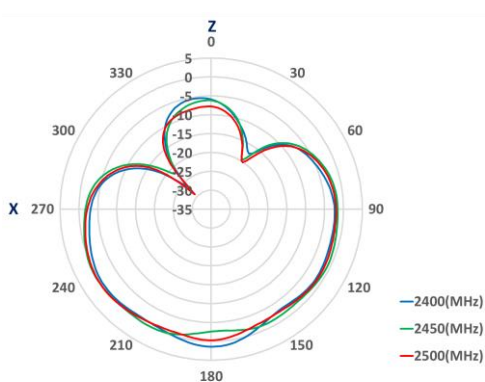
XY - Plane



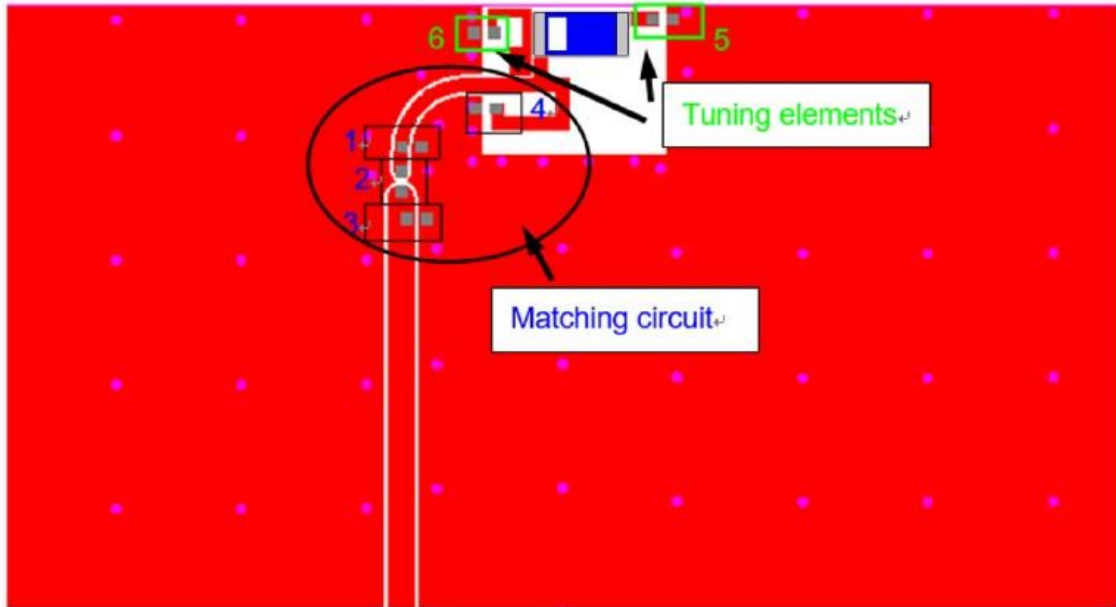
YZ - Plane



XZ - Plane



Matching Circuit Design

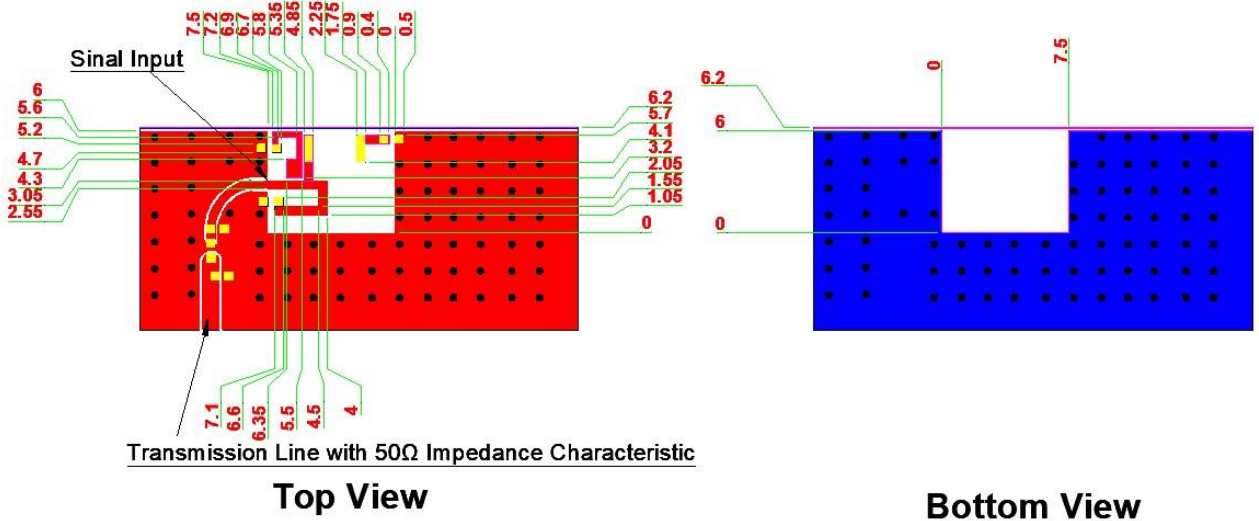


- * To make the antenna have this resonance, must be matched with matching circuit.
- * The matching component may be slightly different than that show depending on distance to ground plane, dielectric constant of PCB, and PCB material thickness.

Circuit Matching Components

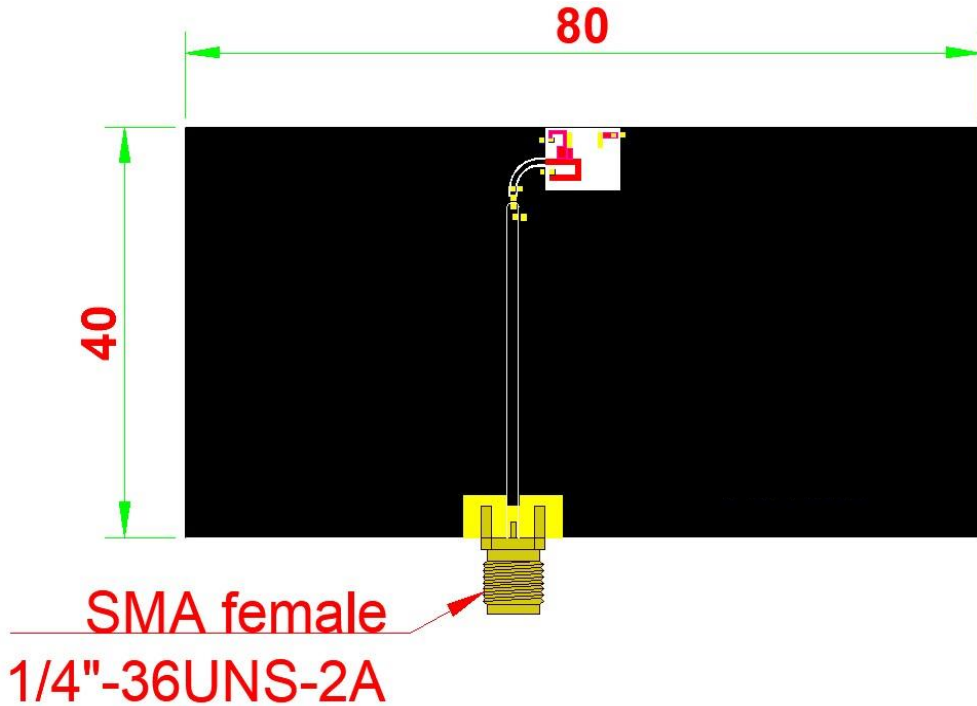
Circuit Symbol	Size	Description
1	0402	None
2	0402	0 Ohm Resistance
3	0402	0.1 pF Capacitor
4	0402	12 pF Capacitor
5	0402	1 pF Capacitor
6	0402	0.8 pF Capacitor

Clearance Area Design



Evaluation Board

Unit : mm

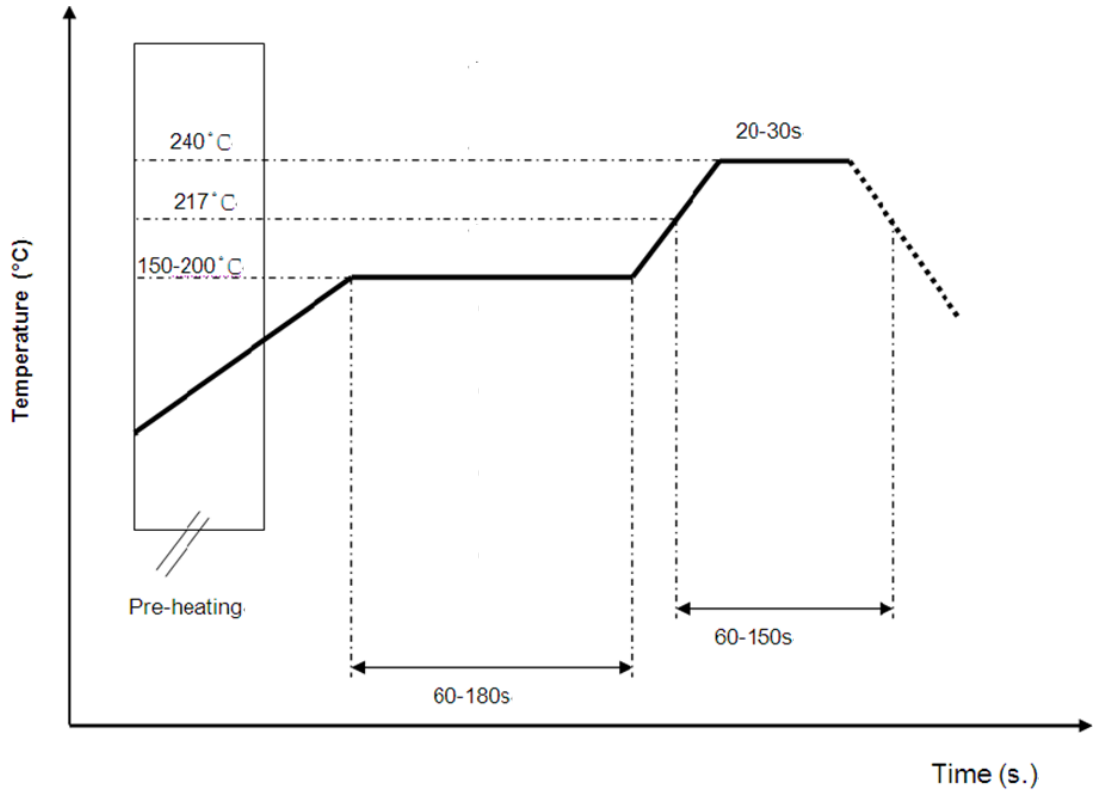


Base Material : FR-4, T=1.0

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	2023-02-06	ST0243-00-N01-B-RA00	ATC

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