Amphenol

Datasheet

GNSS
Chip Antenna



3.2 × 1.6 × 0.5 mm

Chip Antenna

Features:

This antenna is designed to cover GPS/ GLONASS/QZSS/BDS/Galileo frequency band. High performing and compact size with low profile.

Applications:

- Public Safety, Search and Rescue
- IoT tracker
- GPS Navigator
- Asset tracking
- Navigation devices
- Location based services
- Drones, Robotics and Vehicles

RoHS

Electrical Specifications

Antenna Characteristics

Antenna Type	Radiation Pattern	Polarization	Max. Input Power	Impedance
Chip Antenna	Omni	Linear	2W	50Ω

Frequency (GHz)	**1.56~1.606**
Return Loss (dB) @Center Frequency	< -10 Typ.
Peak Gain (dBi)	2.9
Average Gain (dB)	-1.7
Efficiency (%)	67

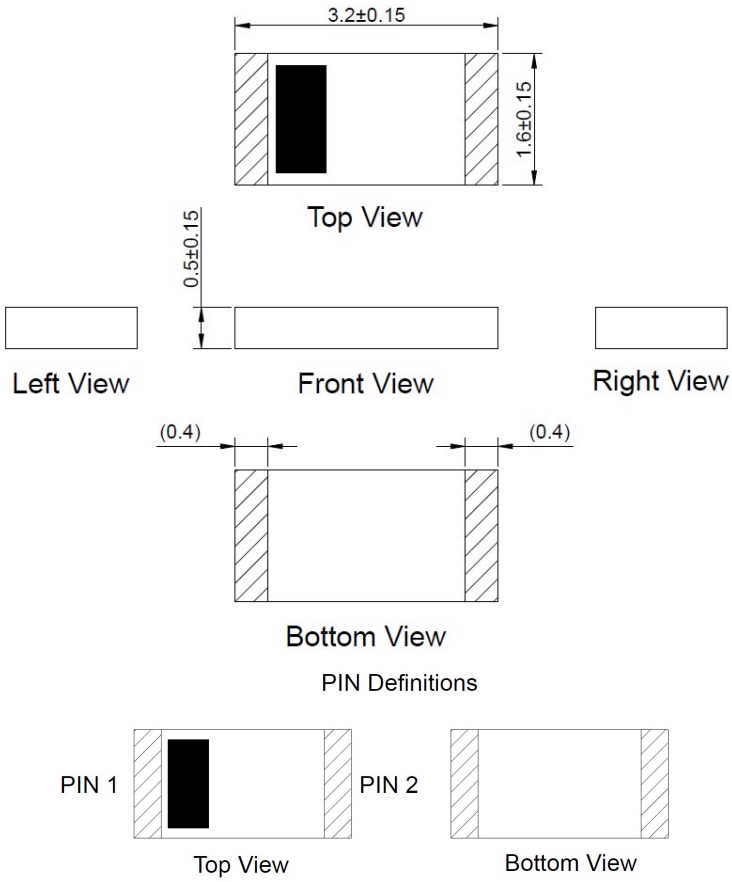
Mechanical Specifications

Mechanical	
Dimension (mm)	3.2 x 1.6 x 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

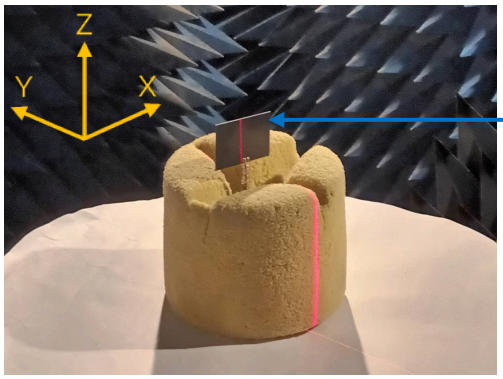
Unit : mm



Pin	Soldering PAD
1	Signal
2	Tuning/Ground

ST0543-00-N07-U

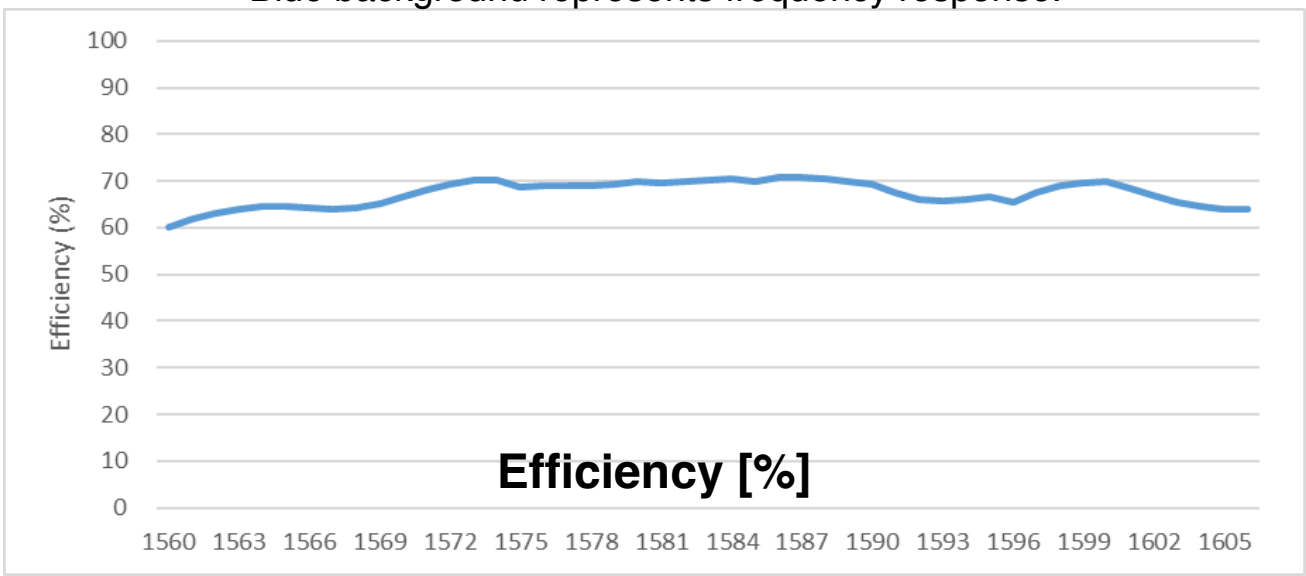
Antenna Testing Includes Evaluation Board



Test setup, measurement performed in 3D anechoic chamber.

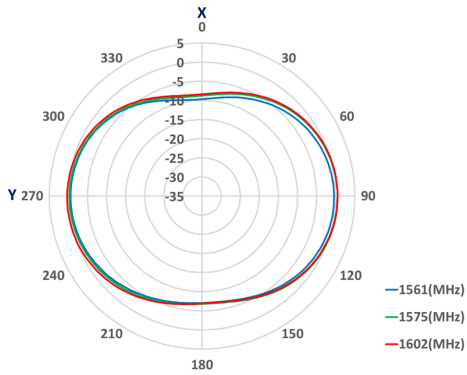


Blue background represents frequency response.

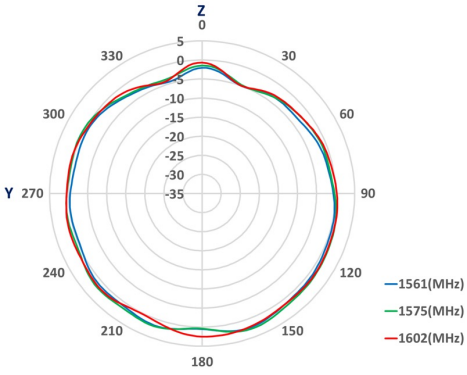


Radiation Pattern - Free Space

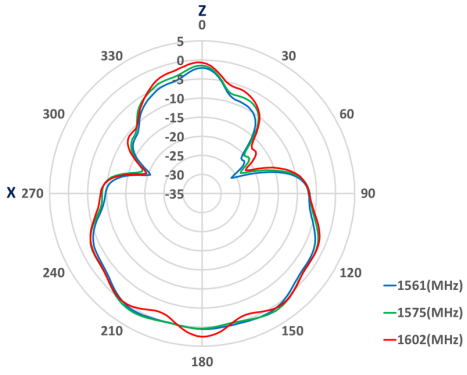
XY - Plane



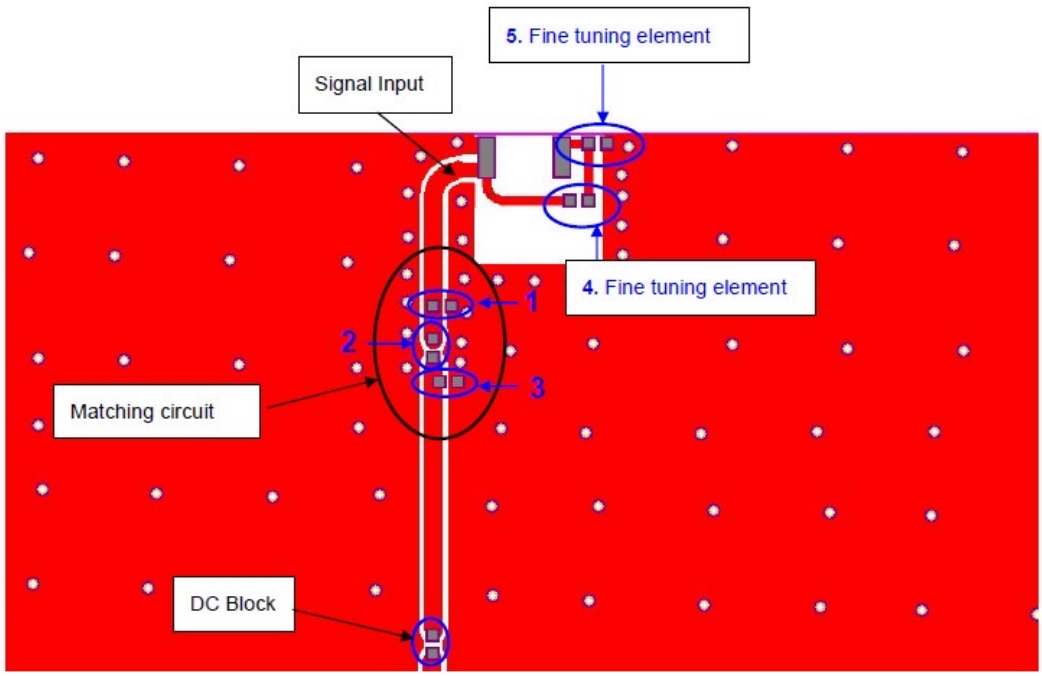
YZ - Plane



XZ - Plane



Matching Circuit Design

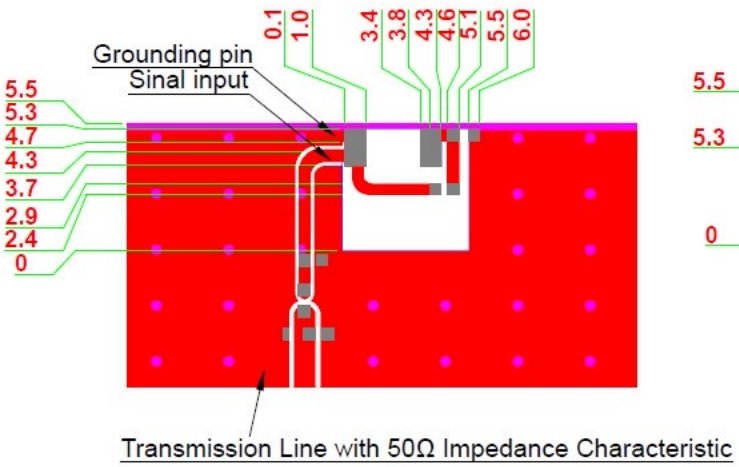


* To make the antenna have this resonance must be matched with the matching circuit.
* The matching component may be slightly different than that shown depending on the distance to the ground plane, the dielectric constant of the PCB, and PCB material thickness.

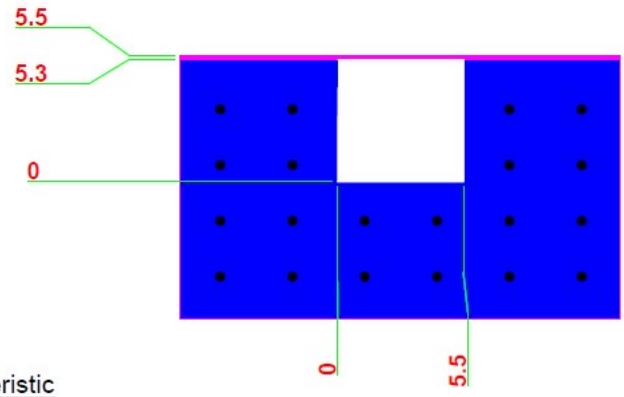
Circuit Matching Components

Circuit Symbol	Size	Description
1	0402	1.5 pF Capacitor
2	0402	0 Ohm Resistance
3	0402	3.3 pF Capacitor
4. Fine tuning element	0402	1 pF Capacitor
5. Fine tuning element	0402	2.7 pF Capacitor
DC Block	0402	22 pF Capacitor

Clearance Area Design



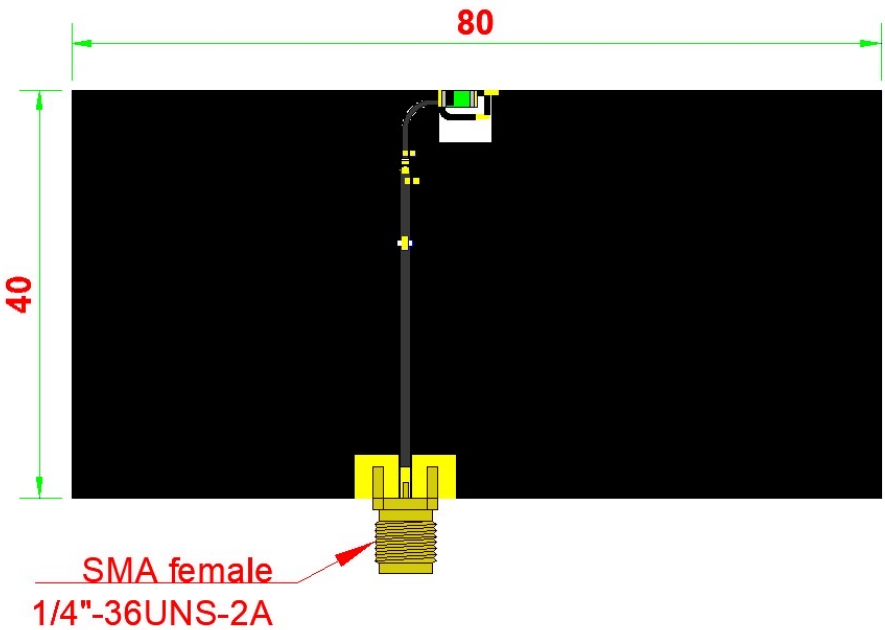
Top View



Bottom View

Evaluation Board

Unit : mm

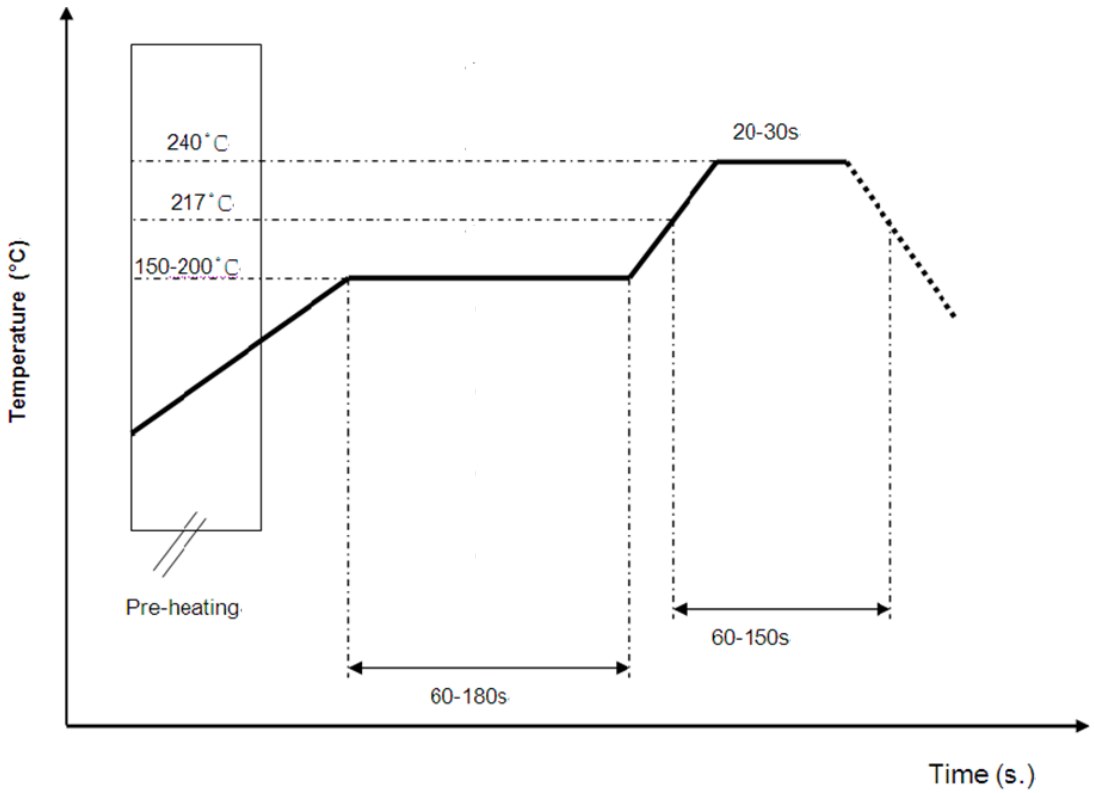


Base Material : FR-4, T=1.0

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	2023-02-15	ST0543-00-N07-U-RA00	ATC

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