GPS

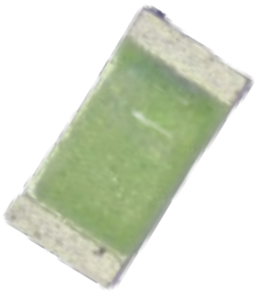
ST0543-00-N08-U

Amphenol

Datasheet

GPS

Chip antenna



3.2 × 1.6 × 0.5 mm

Chip Antenna

Features:

The chip antenna supports GPS and has much higher efficiency with small form factor, suitable for mounting inside device.

Applications:

- Navigation device
- Telematics box
- Fleet management
- Portable Handsets
- Tracking and Positioning

RoHS

Electrical Specifications

Antenna Characteristics

Antenna Type	Radiation Pattern	Polarization	Max. Input Power	Impedance
Chip Antenna	Omni	Linear	1W	50Ω

Frequency (GHz)	**1.56~1.59**
Return Loss (dB)	< -10
Peak Gain (dBi)	2.9
Average Gain (dB)	-1.6
Efficiency (%)	70

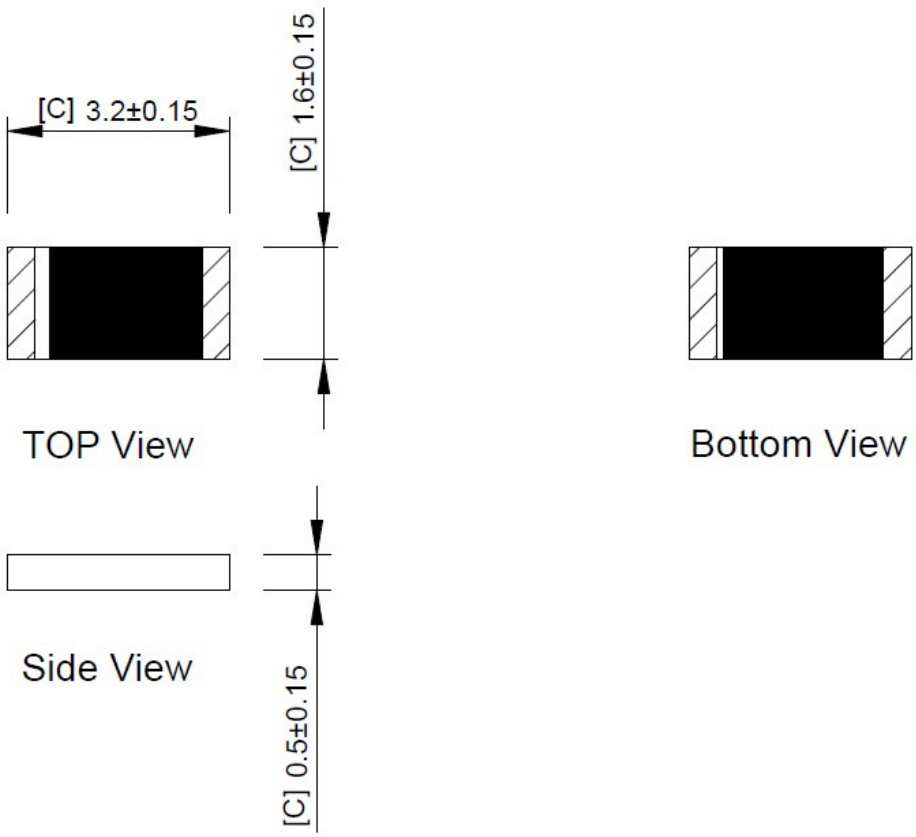
Mechanical Specifications

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

Environmental	
Temperature Range (˚C)	-25 to 70
Humidity	Non-condensing 65°C 95% RH
RoHS Compliant	

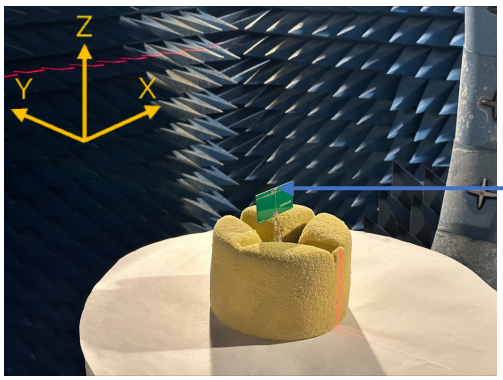
Mechanical Drawing

Unit : mm

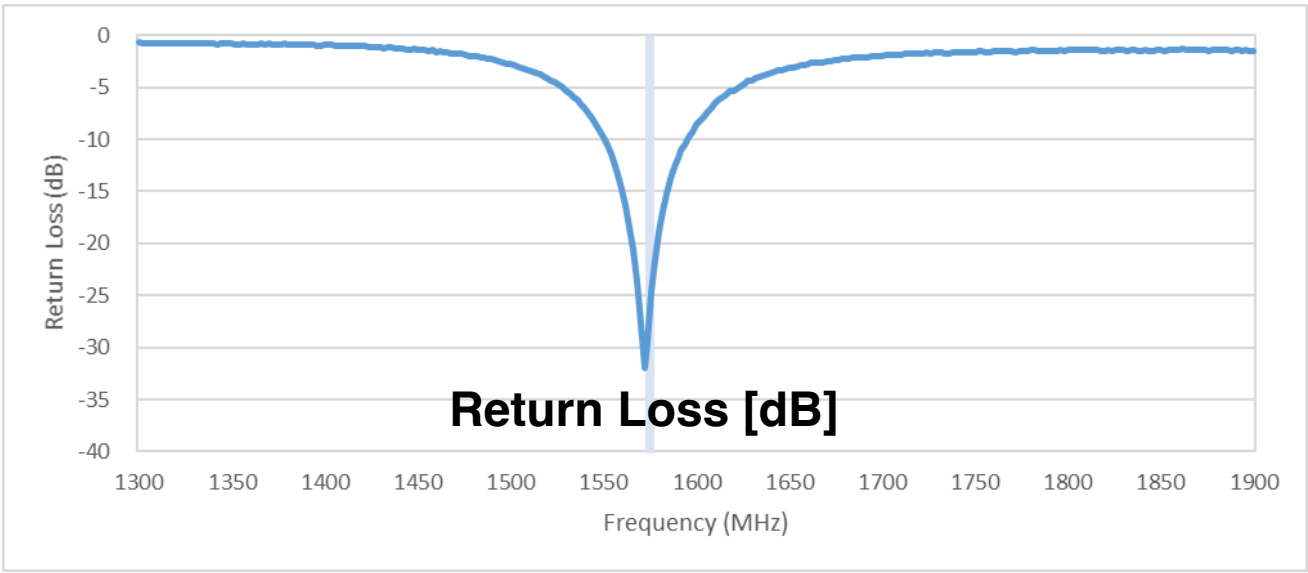


ST0543-00-N08-U

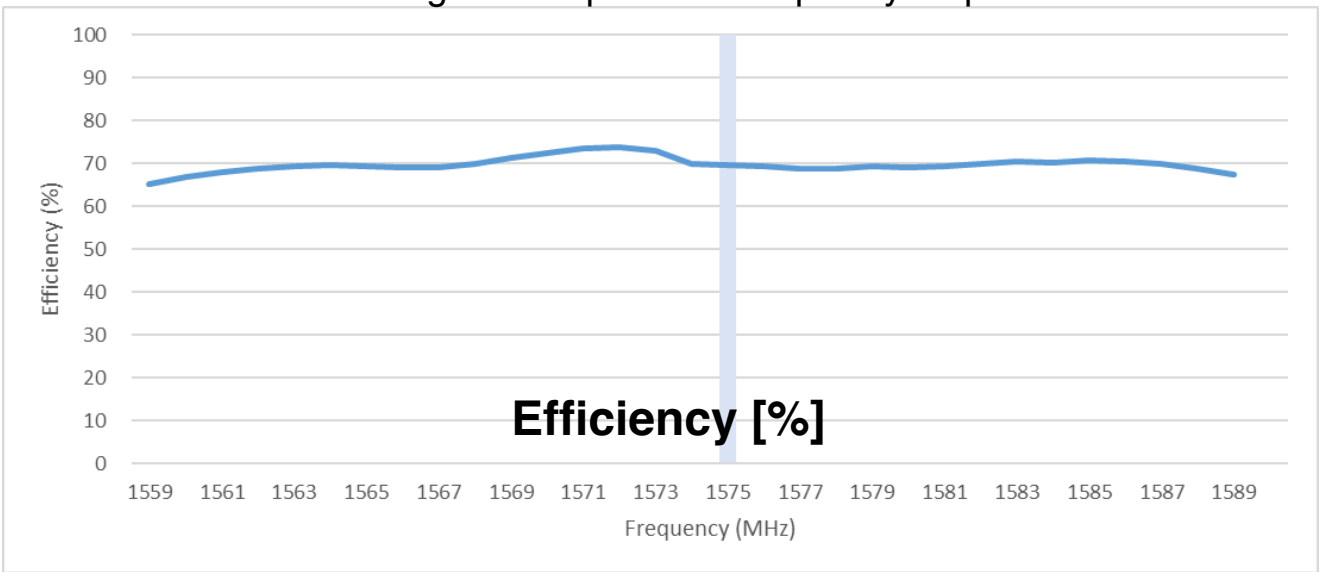
Antenna Testing Includes Evaluation Board



Test setup, measurement performed in 3D anechoic chamber.

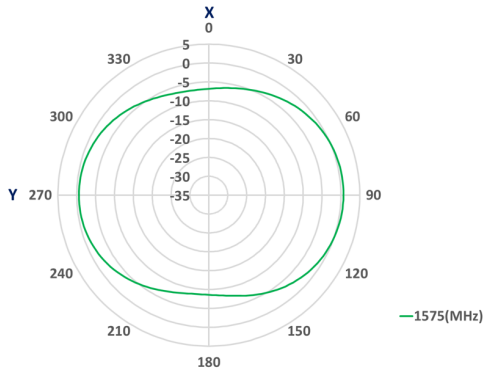


Blue background represents frequency response.

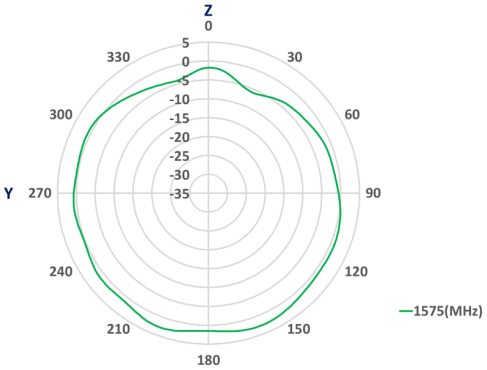


Radiation Pattern - Free Space

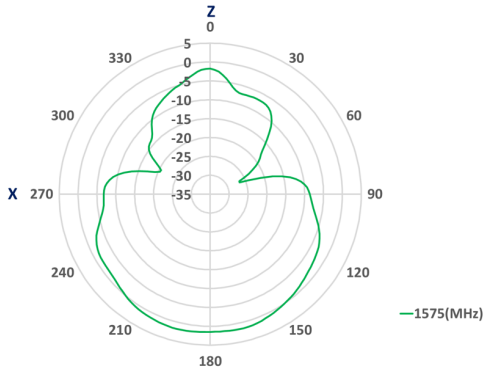
XY - Plane



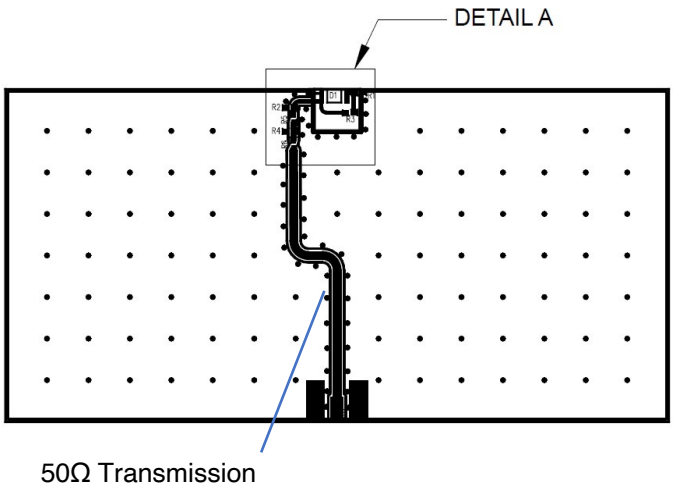
YZ - Plane

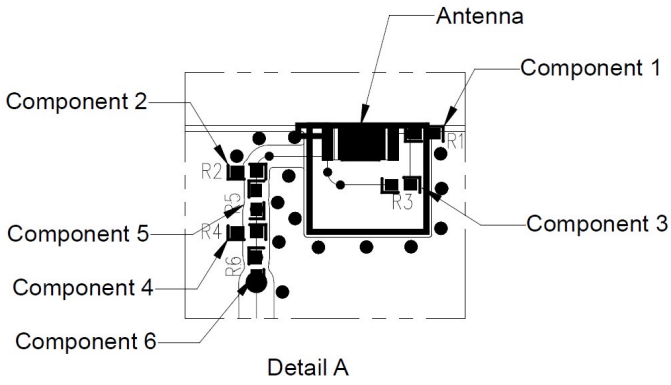


XZ - Plane



Matching Circuit Design

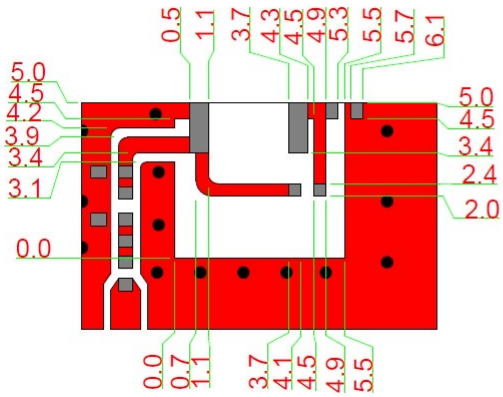




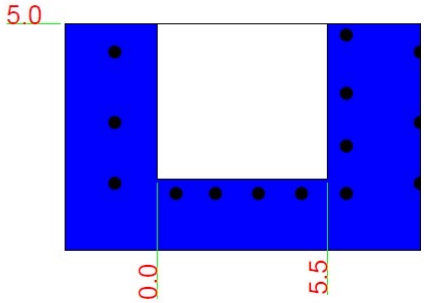
* To make the antenna have this resonance, must be matched with matching circuit.
* The matching component may be slightly different than that show depending ondistance to ground plane, dielectric constant of PCB, and PCB material thickness.

Circuit Matching Components		
Circuit Symbol	**Size**	**Description**
Component 1	0402	2.5 pF Capacitor
Component 2	0402	0 Ohm Resistance
Component 3	0402	None
Component 4	0402	4.7 pF Capacitor
Component 5	0402	1 pF Capacitor
Component 6	0402	0 Ohm Resistance

Clearance Area Design



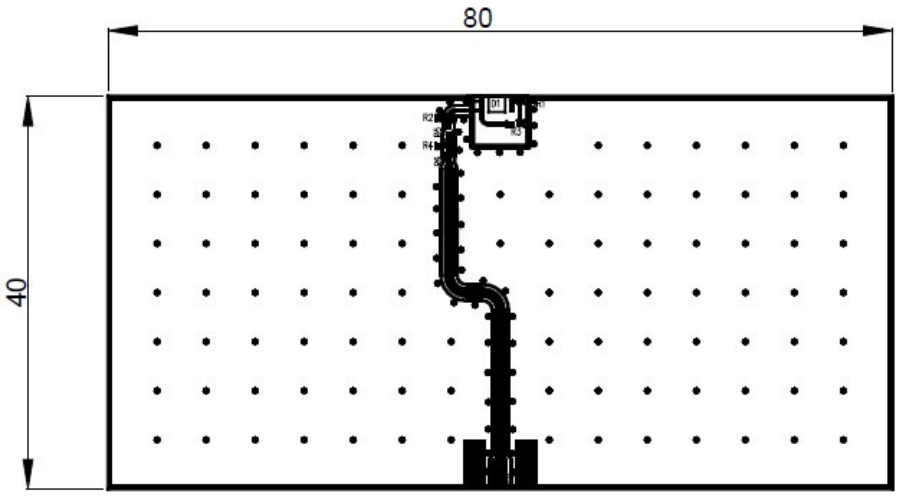
Top View



Bottom View

Evaluation Board

Unit : mm



Base Material : FR-4, T=1.2

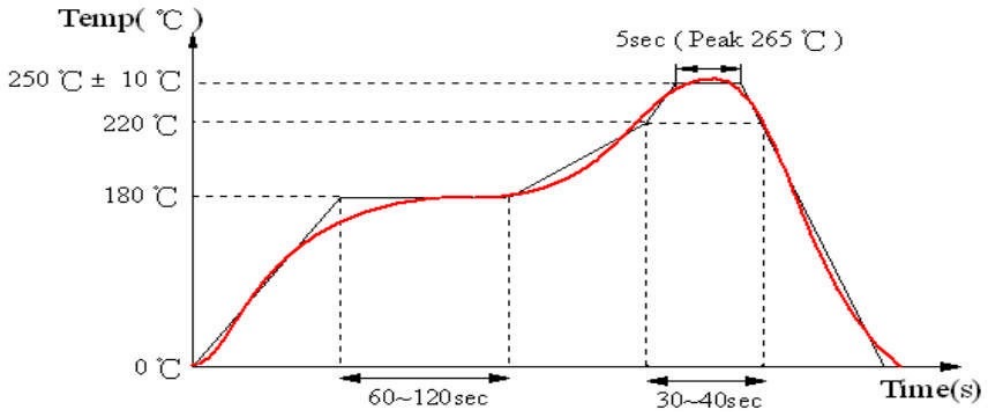
Recommended Reflow Temperature Profile

Flux :

- Use rosin flux, prohibit the use of strong acid flux with halide content exceeding 0.2wt%.
- Use pure tin solder.

Reflow Soldering Conditions :

- During preheating, the maximum temperature difference between the surface of the product and the solder is not allowed to exceed 150˚C.
- When cooling down after soldering, the temperature difference between the surface of the product and the solvent is not allowed to exceed 100˚C.
- Insufficient preheating may cause cracks on the product surface, resulting in a decline in product quality.



The graphic shows temperature profile component assembly process in reflow ovens.

Soldering With Iron

Soldering condition

Item	The conditions
Pre-heating	150˚C, 1 Minute
Tip temperature	350˚C Max.
Soldering iron output	80W Max.
End of soldering	Φ3mm Max.
Soldering time	3 Seconds Max.

Revisions				
Rev.	Description	Date	ECN	Approval
A	Initial Release	2023-02-23	ST0543-00-N08-U-RA00	ATC

Mouser Electronics

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