UWB

ST1247-00-001-F

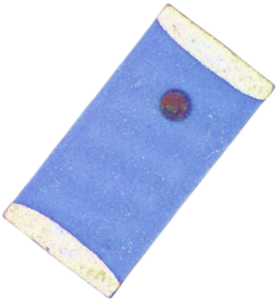
Amphenol

Datasheet

6.2-8.5GHz
Chip antenna

Features:

High performing UWB antenna with SMT mounting on PCB.



3.2 X 1.6 X 1.1mm

Chip Antenna

Applications:

- CPE - Router, Set-top boxes & Gateway
- IoT devices
- UWB Mesh
- Smart Metering
- Robotics

RoHS

Electrical Specifications

Antenna Characteristics

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

Frequency (GHz)	**6.24~8.5**
Return Loss (dB)	< -10
Peak Gain (dBi)	3.2
Average Gain (dB)	-2.0
Efficiency (%)	63

Mechanical Specifications

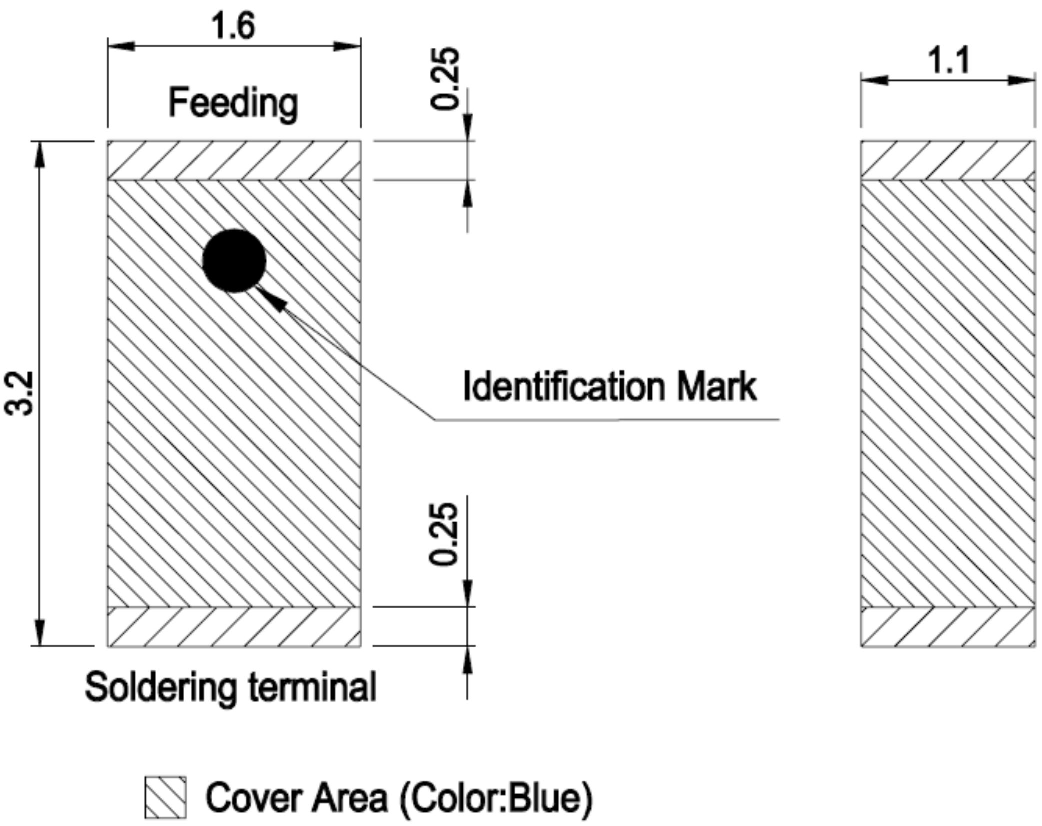
Environmental

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

Part Number	**Dimension (mm)**	**Weight (g)**	**Material**
ST1247-00-001-F	3.2 X 1.6 X 1.1	0.01	Ceramic

Mechanical Drawing

Unit : mm



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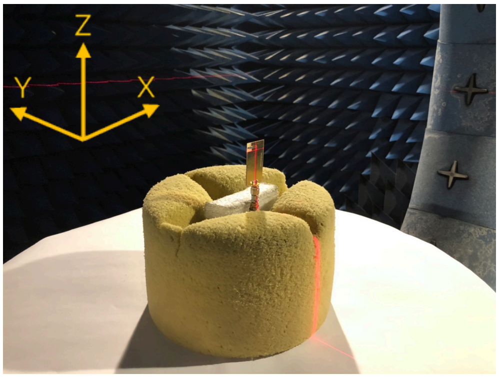
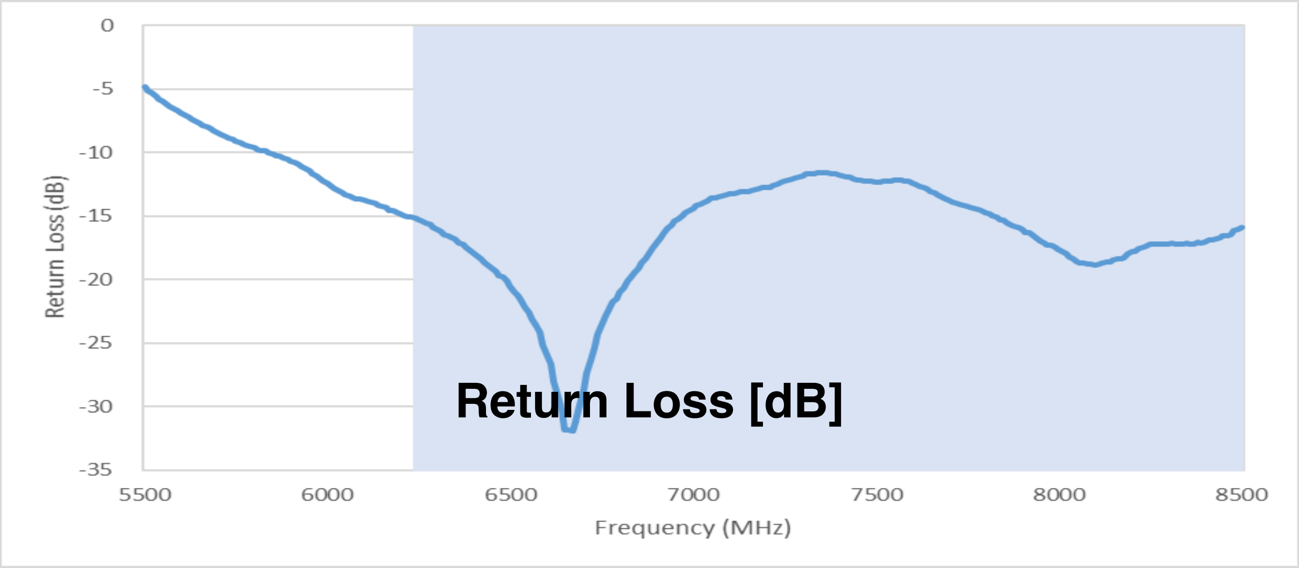
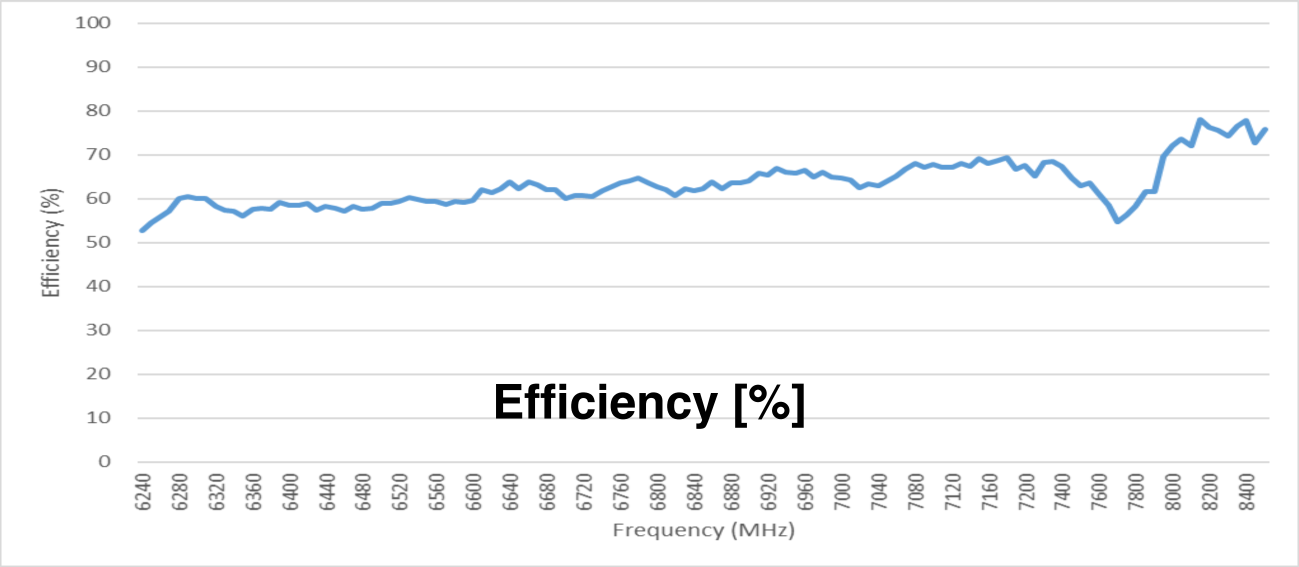
Antenna Testing Includes Evaluation Board



Test setup, measurement performed in 3D anechoic chamber.

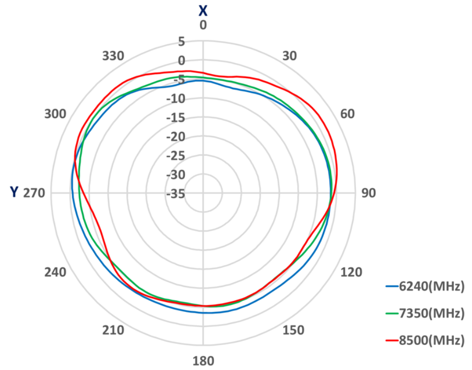


Blue background represents frequency response.

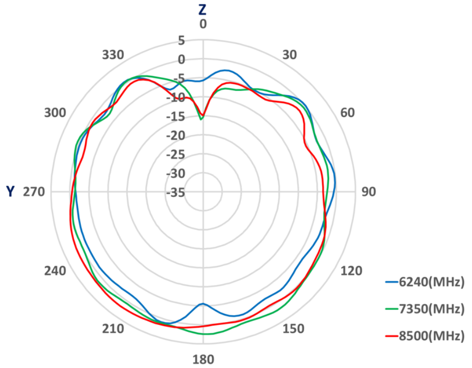


Radiation Pattern - Includes Evaluation Board

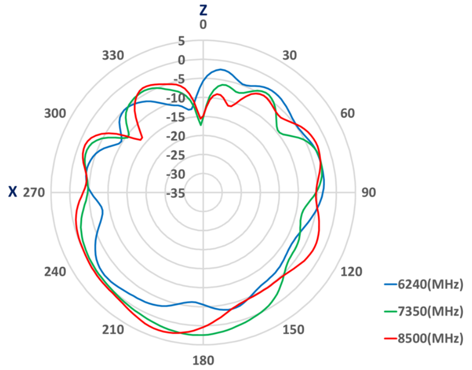
XY - Plane



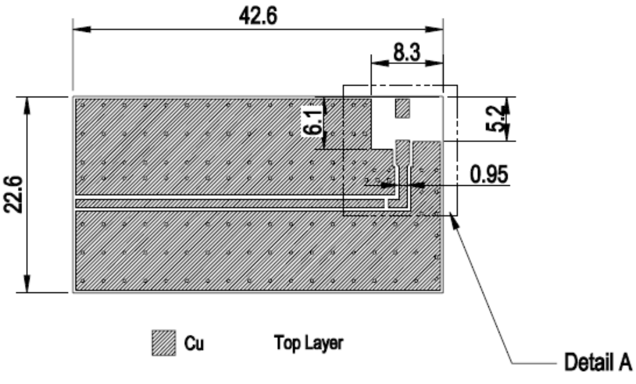
YZ - Plane

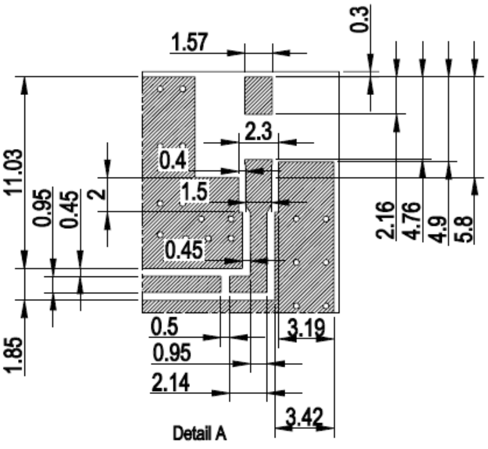


XZ - Plane

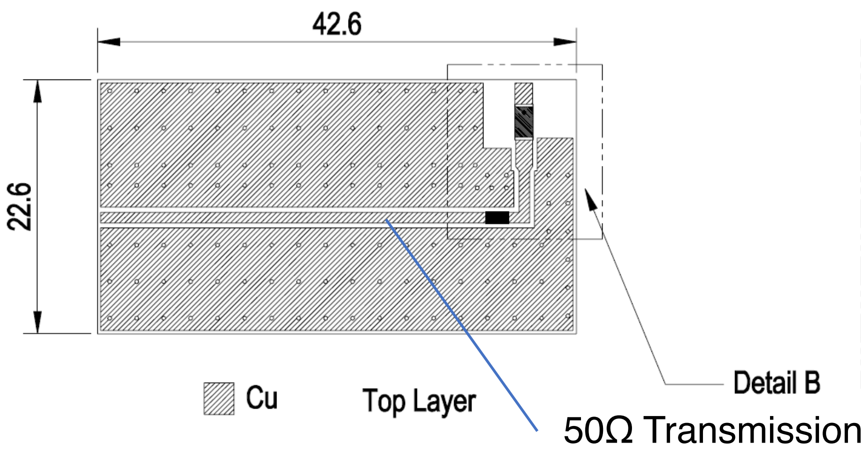


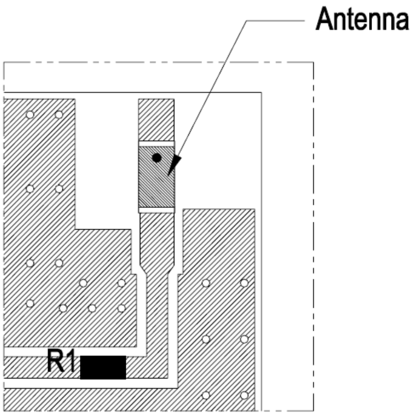
Clearance Area Design





Matching Circuit Design



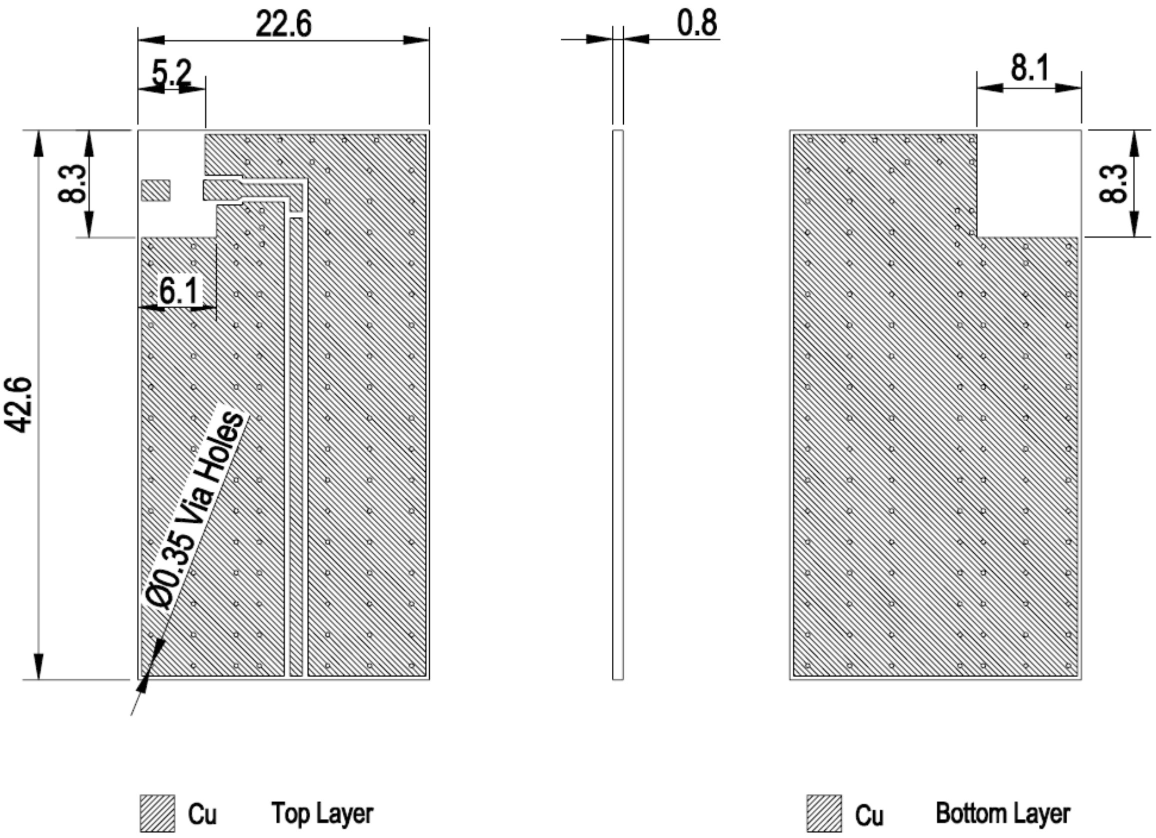


* To make the antenna have this resonance, must be matched with matching circuit.

* 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**
R1	0402	0 ohm Resistance

Evaluation Board



Base Material : FR-4

Recommended Reflow Temperature Profile

This product can be assembled after Sn-Pb or lead-free assembly. According to standard **IPC/JEDEC J-STD-020C**, the recommended temperature profile is as follows :

Reflow Setting			
Phase	**Profile features**	**Sn-Pb Assembly**	**Pb-Free Assembly (Sn Ag Cu)**
RAMP-UP	Avg. ramp-up rate (Ts max. to TP)	3°C / second (max.)	3°C / second (max)
PREHEAT	-Temperature min (TS min.) -Temperature max (TS min.) -Time (ts min. to ts max.)	100°C 150°C 60~120 seconds	100°C 150°C 60~120 seconds
REFLOW	-Temperature (TL) -Total time above TL (t L)	183°C 60~150 seconds	217°C 60~150 seconds
PEAK	-Temperature (TP) -Time (tp)	235°C 10~30 second	260°C 20~40 second
RAMP-DOWN	Rate	6°C / second max.	6°C / second max.
Time from 25°C to peak temperature		6 minutes max.	8 minutes max.

* Next graphic shows temperature profile for the antenna assembly process in reflow ovens.

Soldering Condition

*Typical examples of soldering processes that provide reliable joints without any damage are given in Fig.

*This product could sustain by reflow process three times, and the temperature below 260°C.

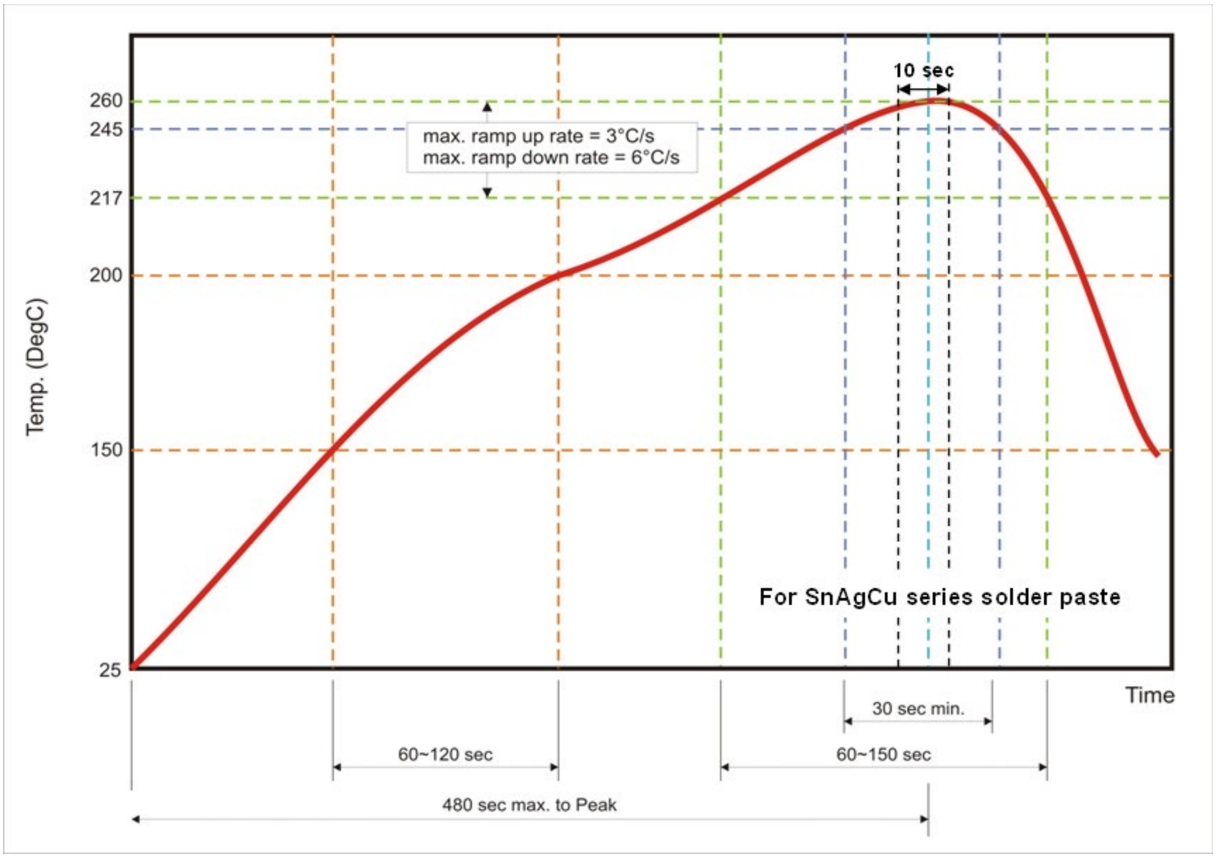


Fig Infrared soldering profile

Revisions

Rev	Description	Date	ECN	Approval
A	Initial Release	2022-10-25	ST1247-00-001-F-RA00	ATC
B	RF Performance update	2023-01-02	ST1247-00-001-F-RB00	ATC