**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



#### **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) -2.0Efficiency (%) 63



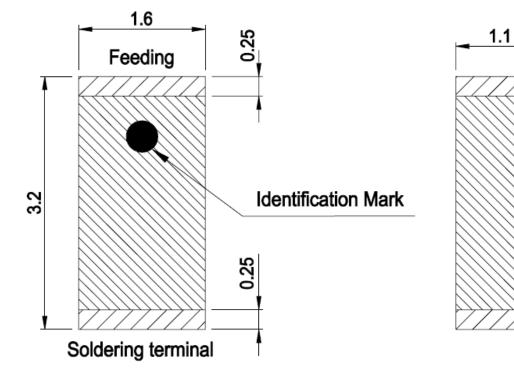
Mechanical Specifications			
<b>Environmental</b>			
Temperature Range (°C)	-40 to 85		
Humidity	Non-condensing 65°C 95% RH		

**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



Cover Area (Color:Blue)

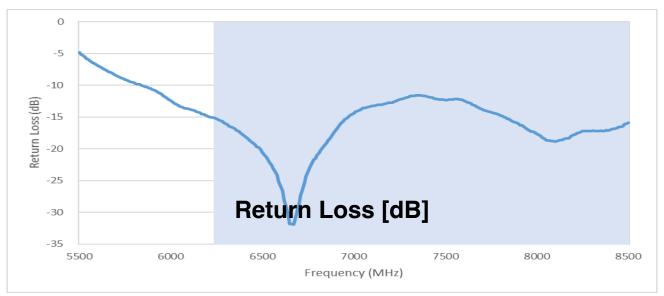
ST1247-00-001-F



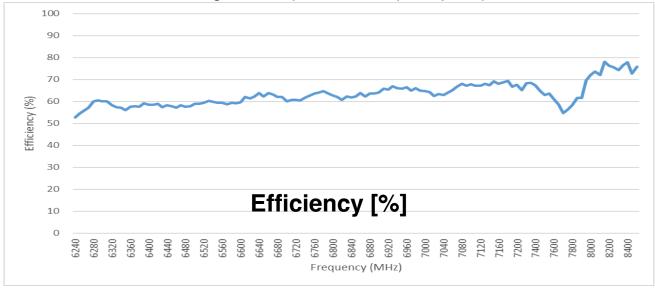
### **Antenna Testing Includes Evaluation Board**



Test setup, measurement performed in 3D anechoic chamber.

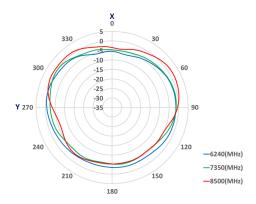


Blue background represents frequency response.

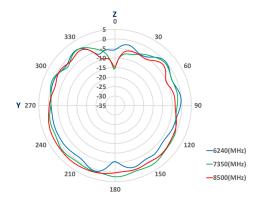


#### **Radiation Pattern - Includes Evaluation Board**

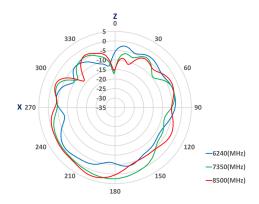
XY - Plane



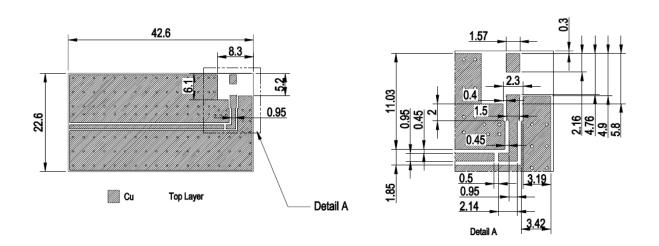
YZ - Plane



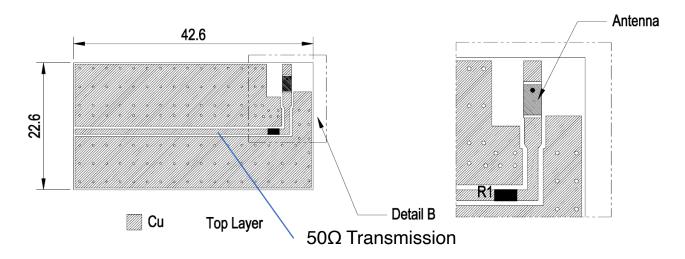
XZ - Plane



#### Clearance Area Design



### **Matching Circuit Design**

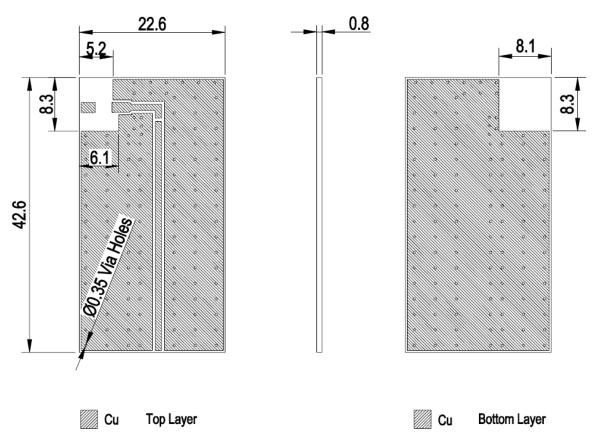


- \* To make the antenna have this resonance, must be matched with matching circuit.
- \* The matching component may be slightly different than that show depending ondistance to ground plane, dielectric constant of PCB, and PCB material thickness.

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.			

<sup>\*</sup> 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.

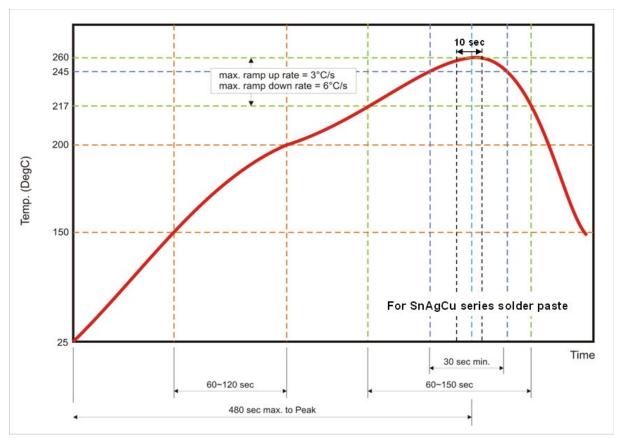


Fig Infrared soldering profile



ST1247-00-001-F

# **Amphenol**

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

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