GPS

ST0543-00-N11-U

Amphenol

Datasheet

GPS Patch Antenna

Embedded

18 × 18 × 4 mm

GPS Antenna

Features:

The patch antenna has much higher efficiency and small form factor, easy mounting with SMT, suitable for mounting inside device.

Applications:

- GPS enabled devices
- Portable Handsets
- Automotive Navigation
- Marine buoys
- Tracking and Positioning

RoHS

Electrical Specifications

Antenna Characteristics By Range Of Receiving Frequency	
Frequency (MHz) @Center Frequency	1575.42 ± 1
Return Loss (dB)	< -10.9
Gain (dBic) @Zenith at 50mm × 50mm ground	2.8
Bandwidth (MHz) @Return Loss : -10dB	8
Efficiency (%)	79
Axial Ration (dB)	3 Typ.
Polarization	RHCP
Impedance (Ω)	50

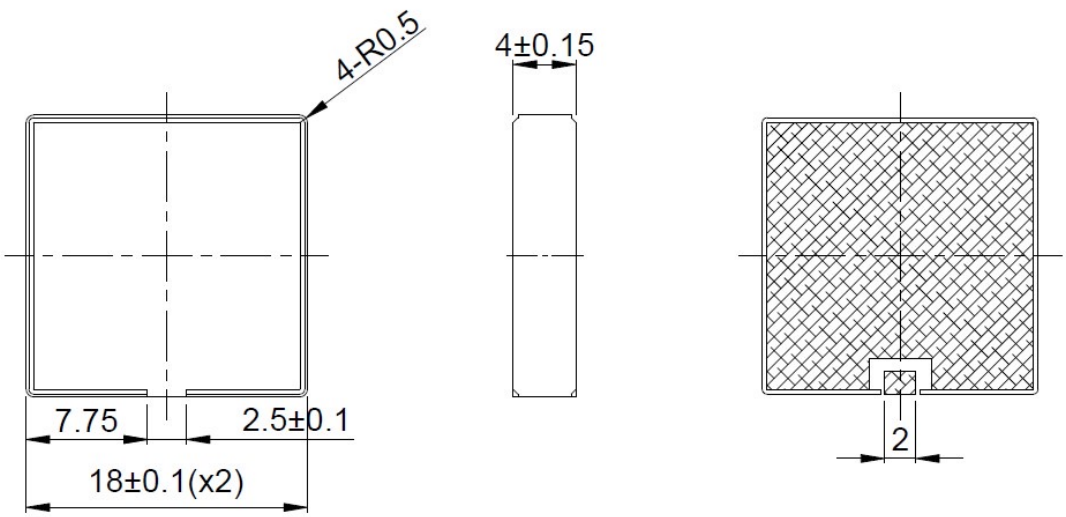
Mechanical Specifications

Mechanical	
Dimension (mm)	18.0 x 18.0 x 4.0
Material	Ceramic
Weight (g)	6.0

Environmental	
Temperature Range (˚C)	-40 to 105
Humidity	Non-condensing 40˚C 95% RH
RoHS Compliant	

Mechanical Drawing

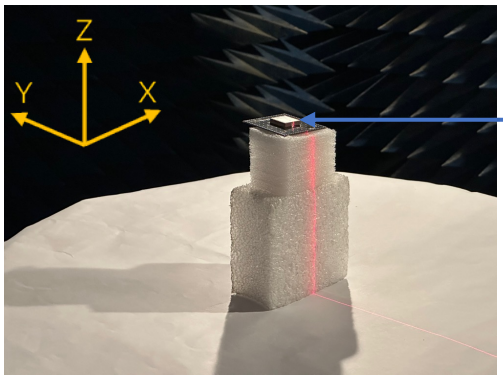
Unit : mm



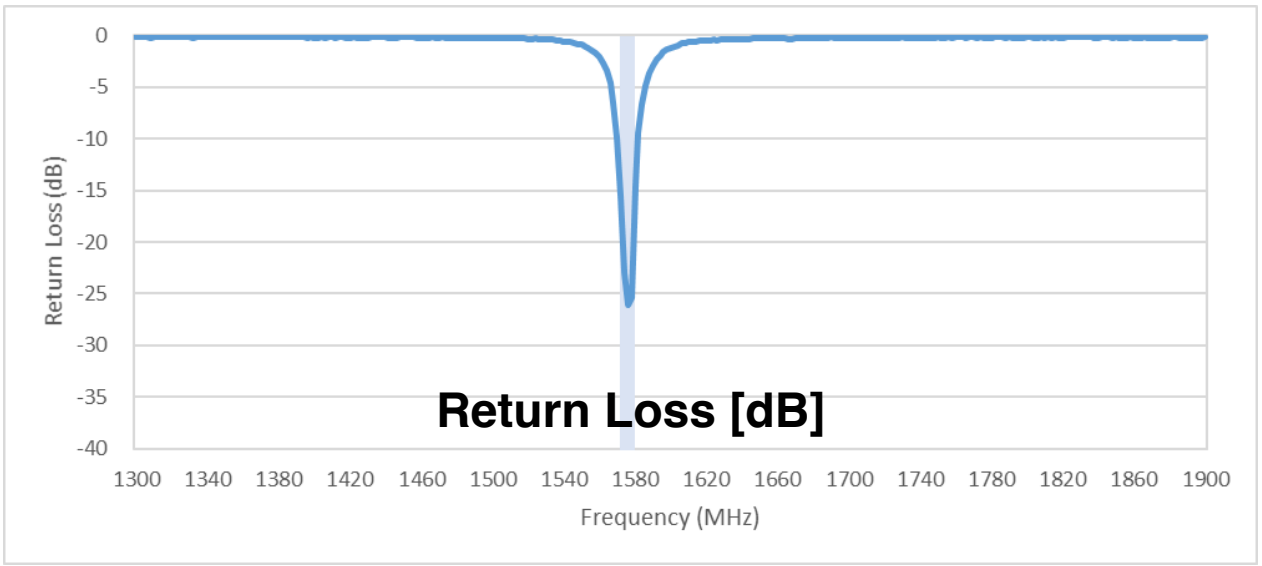
TOP Side

BOTTOM Side

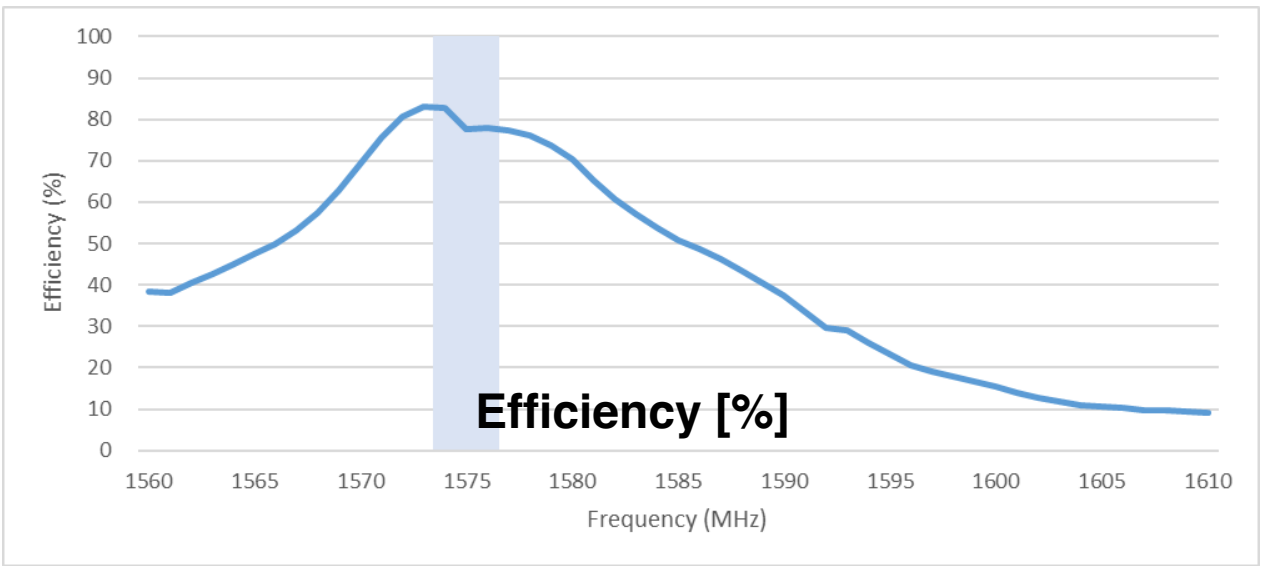
Charts In Free Space



Test setup, measurement performed in 3D anechoic chamber.

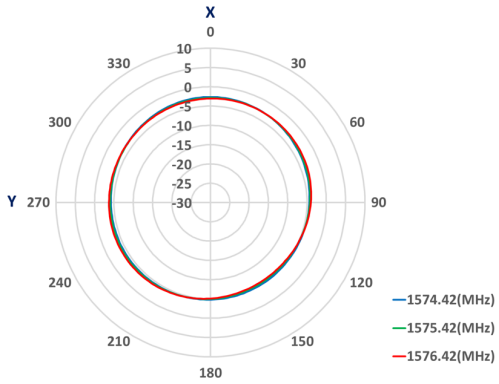


Blue background represents frequency response.

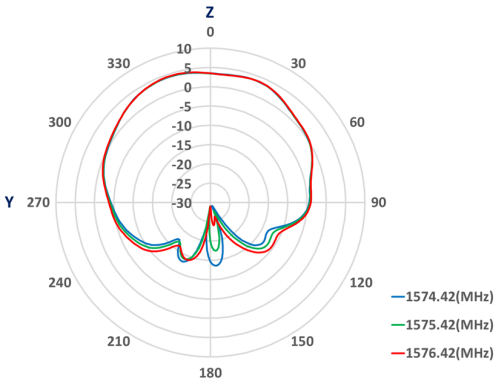


Radiation Pattern - Free Space

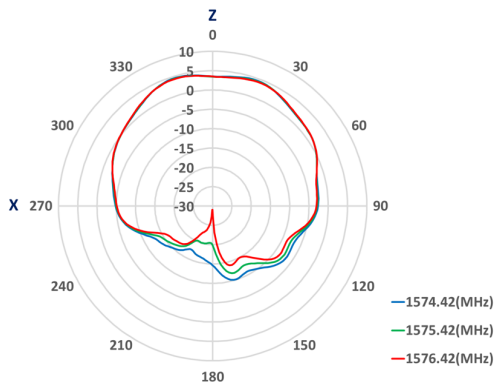
XY - Plane



YZ - Plane

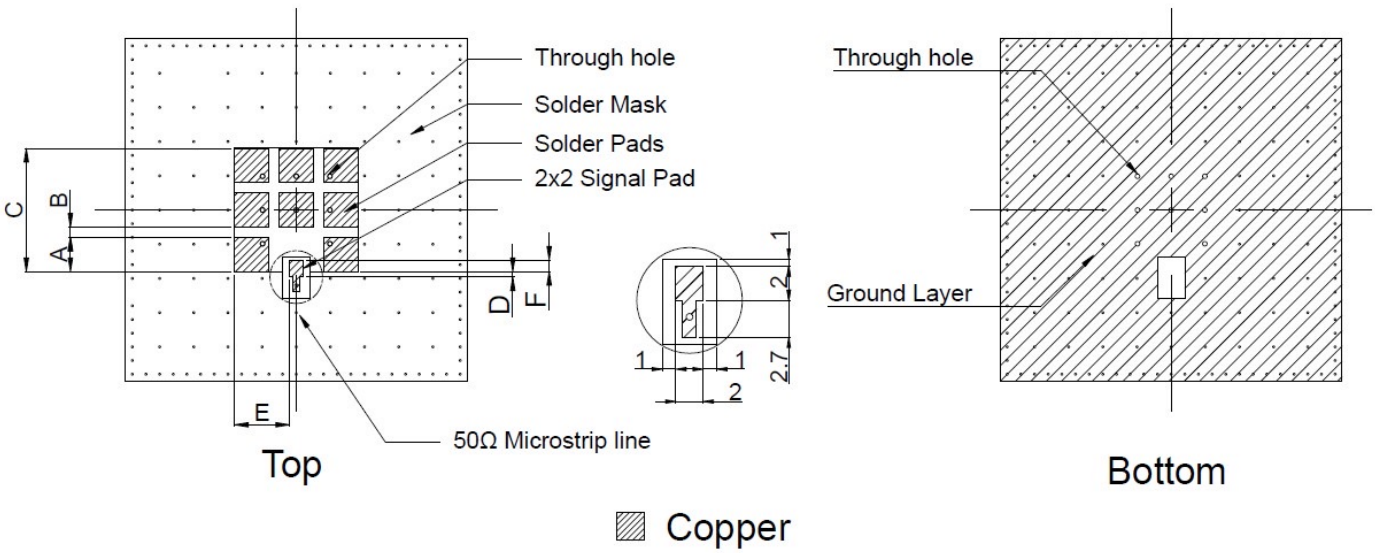


XZ - Plane



Layout Dimension

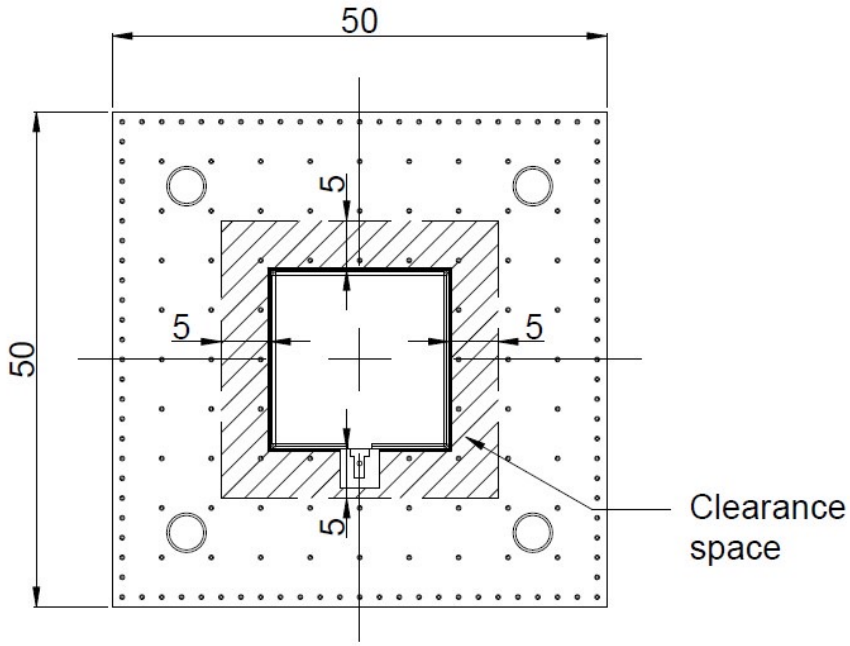
Unit : mm



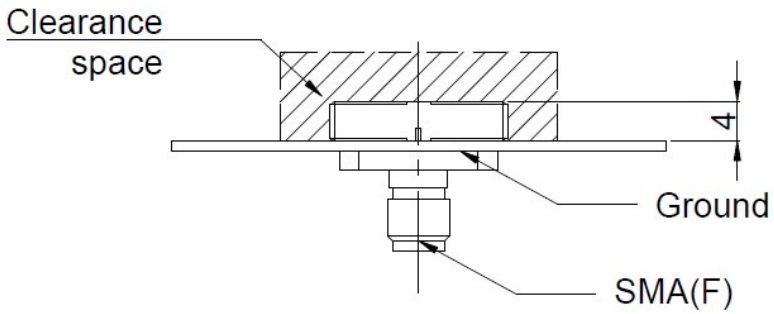
Size						
Type	A	B	C	D	E	F
18x18x4	5±0.2	1.5±0.2	18±0.2	0.4±0.2	8±0.2	1.6±0.2

Evaluation Board

Unit : mm



It's can't be obscured metal
in top of antenna space.



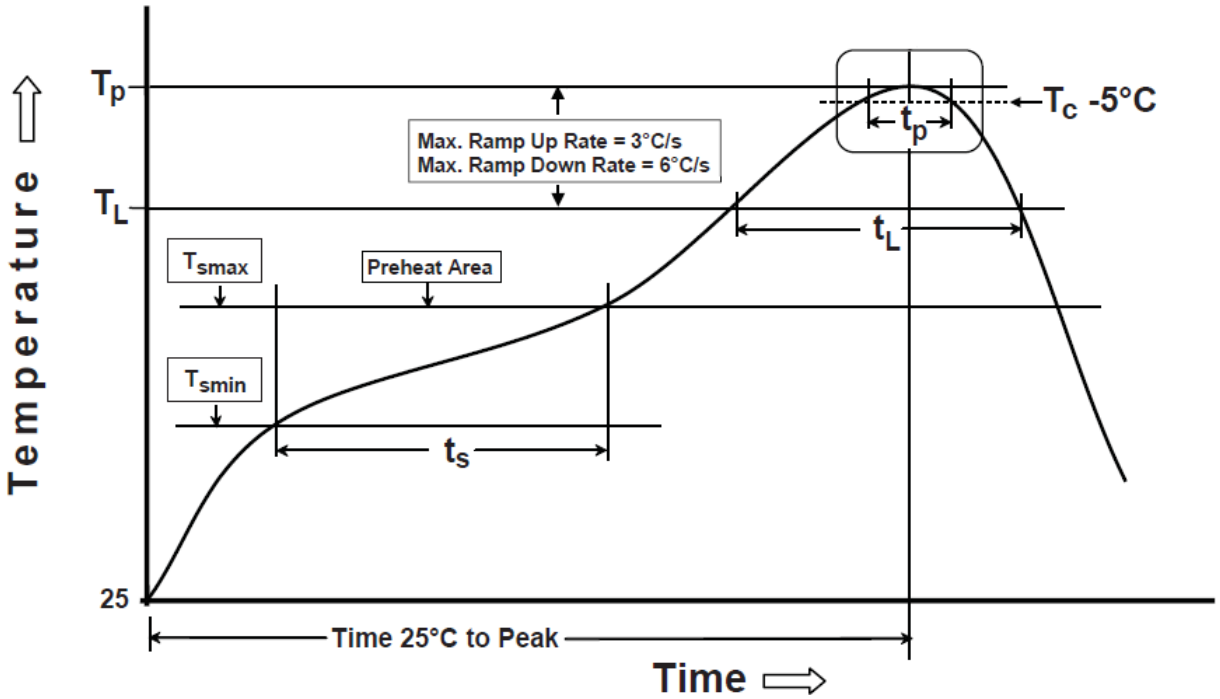
Base Material : FR-4, T=1.0

Recommended Reflow Temperature Profile

This products can be assembled following Pb-free assembly. According to the Standard **IPC/JEDEC J-STD-020C**, the temperature profile suggested is as follow :

Reflow Setting		
Phase	**Profile Features**	**Pb-Free Assembly (Sn Ag Cu)**
PREHEAT	-Temperature min (Ts min.) -Temperature max (Ts max.) -Time (ts) form (Ts min. to Ts max.)	150°C 200°C 60~120 seconds
RAMP-UP	Avg. ramp-up rate (Ts max. to TP)	3°C / second (max)
REFLOW	-Temperature (TL) -Total time above TL (t L)	217°C 30~100 seconds
PEAK	-Temperature (TP) -Time (tp)	260°C 10~20 second
RAMP-DOWN	Rate	6°C / second max.
Time from 25°C to peak temperature		8 minutes max.
Composition of solder paste		96.5Sn / 3Ag / 0.5Cu
Solder paste model		SHENMAO PF606-P26

*Note：All the temperature measure point is on top surface of the component, if temperature over recommend, it will make component surface peeling or damage.



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

Soldering With Iron

Soldering condition :
Soldering iron temperature 270± 10˚C. Apply preheating at 120˚C for 2~3 minutes. Finish soldering for each terminal within 3 seconds, if soldering iron over temperature 270± 10˚C or 3 seconds, it will make component surface peeling or damage. Soldering iron can not leakage of electricity.

Revisions				
Rev.	Description	Date	ECN	Approval
A	Initial Release	2023-06-17	ST0543-00-N11-U-RA00	ATC