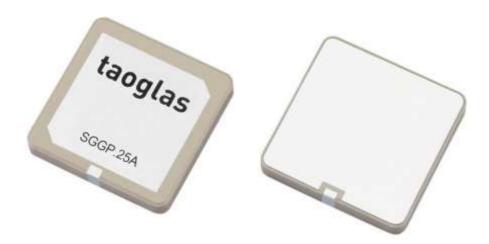


# **Specification**

Part No.	:	SGGP.25.4.A.02
Description	:	GPS/GLONASS/GALILEO SMT Patch Antenna
Features	:	25mm*25mm*4mm
		Single Feed SMT Mount GPS/GALILEO: 1575MHz
		GLONASS: 1602MHz
		Patent pending
		RoHS Compliant





## **1. Introduction**

This ceramic 25\*25\*4mm GPS/GLONASS/GALILEO patch antenna is mounted via SMT process and has been pre-tuned for a 50\*50mm ground plane. Custom part no's tuned for different ground-plane or layout positions and taking into account the specific conditions of your device can be created and supplied by Taoglas.

## 2. Specification

Patch Specification tested on 50\*50mm ground plane

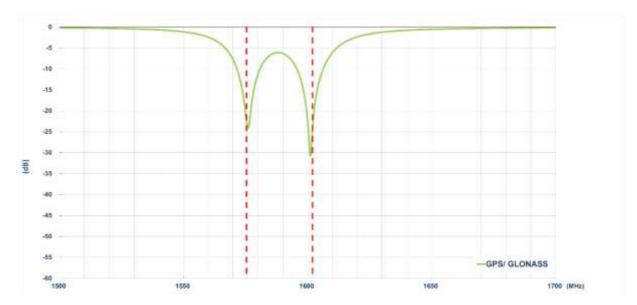
Parameter	Specification	
Operating Bands	GPS/GALILEO: 1575.42 MHz ± 1.023 MHz	
	GLONASS: 1602± 5 MHz	
VSWR	<2.5	
Return Loss in Band	<-10 dB	
Efficiency	GPS/GALILEO (1575.42 MHz): 83% GLONASS (1602 MHz): 84%	
Polarization	RHCP	
Impedance	50 Ω	
Frequency Temperature Coefficient ( -40°C to +85°C )	0 ± 20ppm / °C	
Operating Temperature	-40°C to +85°C	
Moisture Sensitivity Level (MSL)	3 (168 Hours)	

\*\*Changes in user groundplane and environment will offset centre frequenc

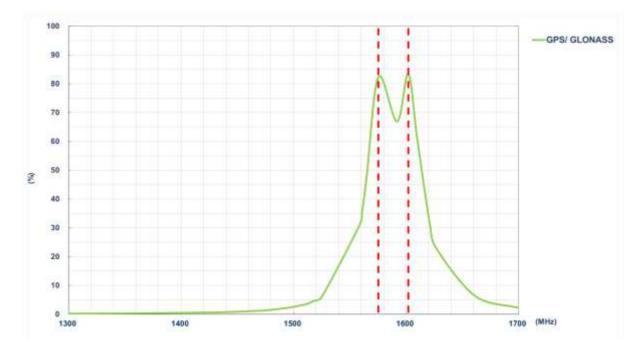


## **3. Electrical Specifications**

#### 3.1. Return Loss

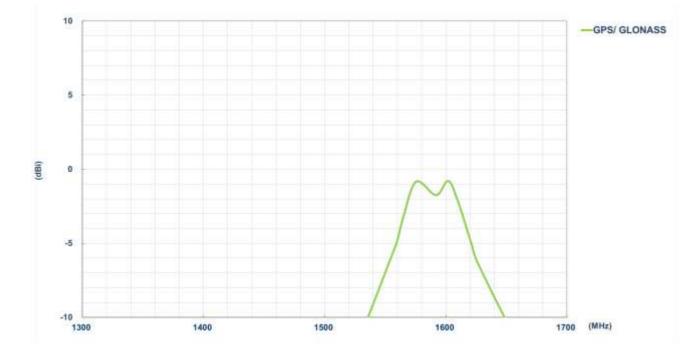


#### **3.2. Efficiency**

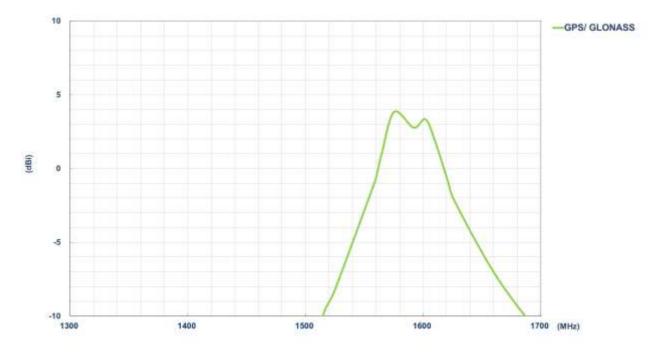




#### 3.3. Average Gain



#### 3.4. Peak Gain



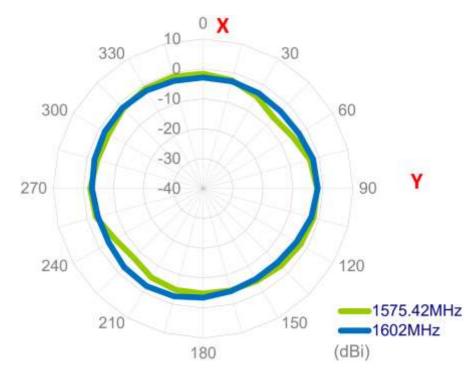


## **4. Radiation Patterns**

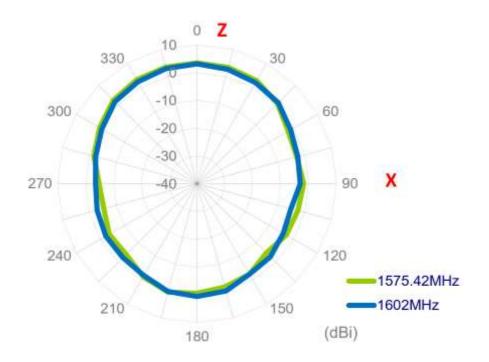
### 4.1. Chamber Test Setup

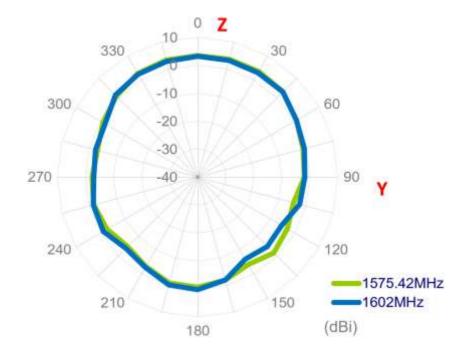


4.2. 2D Radiation Patterns

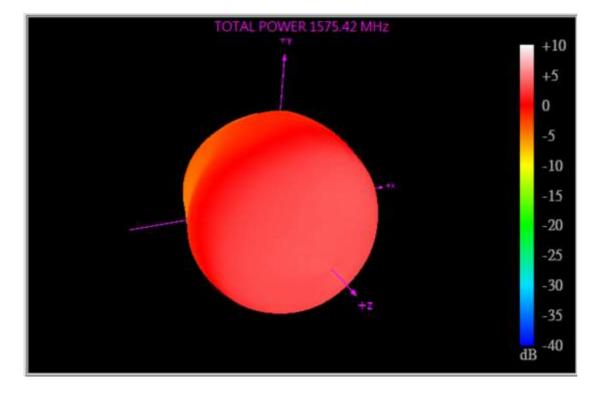




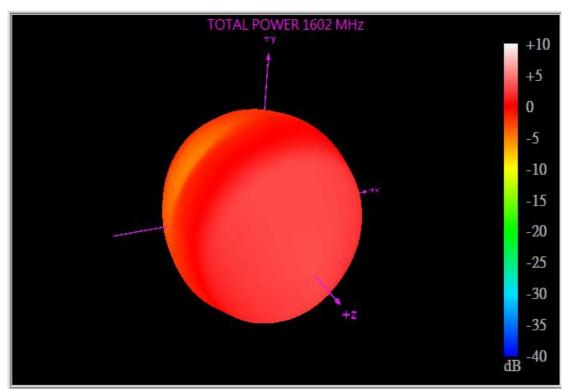








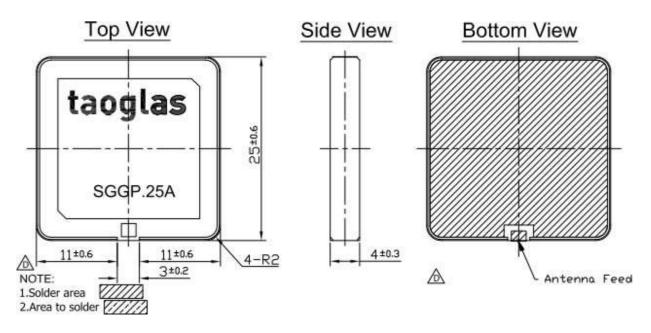
#### 4.2. 3D Radiation Patterns





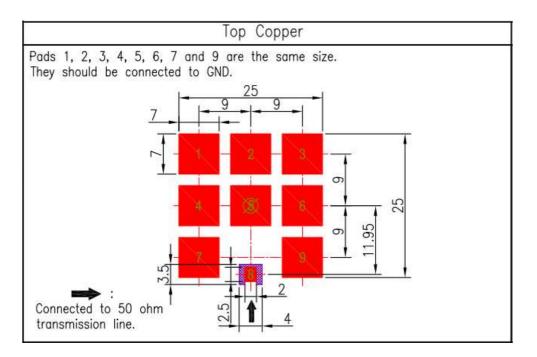
## **5. Mechanical Specifications**

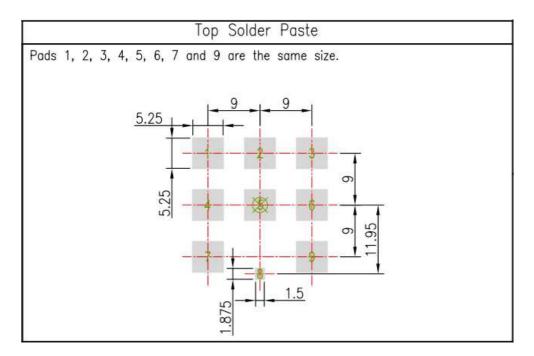
#### 5.1. Antenna Dimensions and Drawing (Unit: mm)



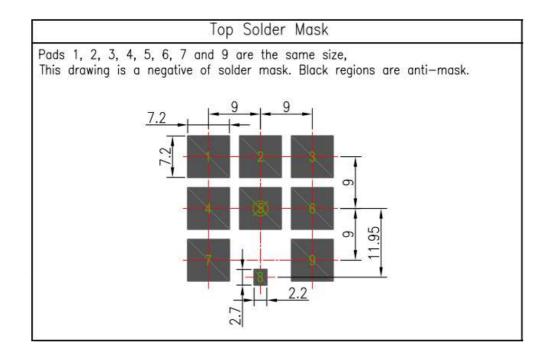


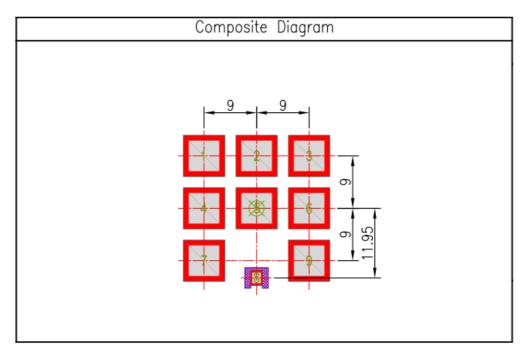
#### 5.2. PCB Footprint Recommendation (Unit: mm)











#### NOTE:

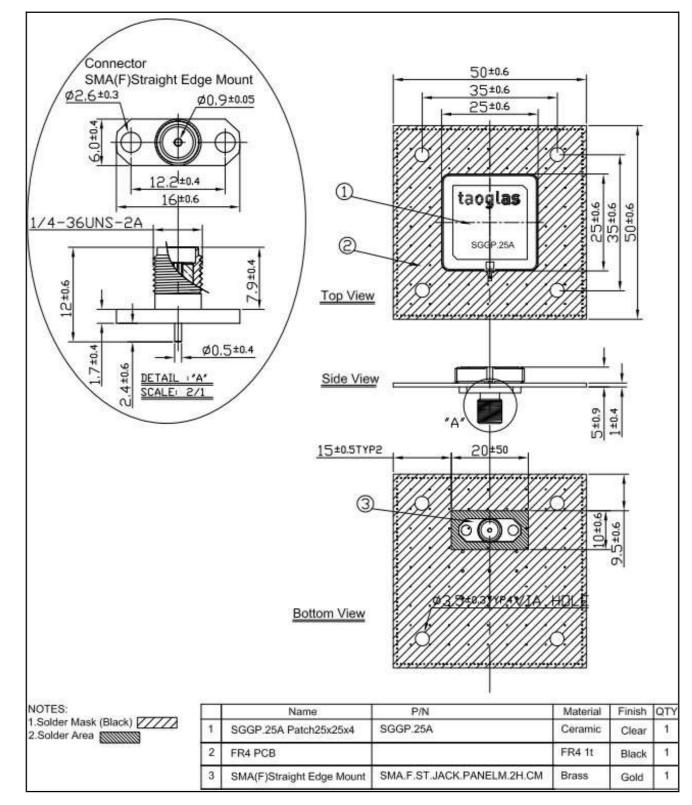
- 1. Ag Plated area 2. Solder Mask area
- Solder Mask area
  Copper area

4. Paste area



- 6. Copper keepout should extend through all PCB layers.
- 7. Any vias in pads should be either filled or tented to prevent solder from wicking away from the pad during reflow.
- 5. Copper Keepout Area
- 8. The dimension tolerances should follow standard PCB manufacturing guidelines





#### 5.3. Test Jig and Dimension SGGPD.25A



#### 5.4. SGGP.25A On Evaluation Board



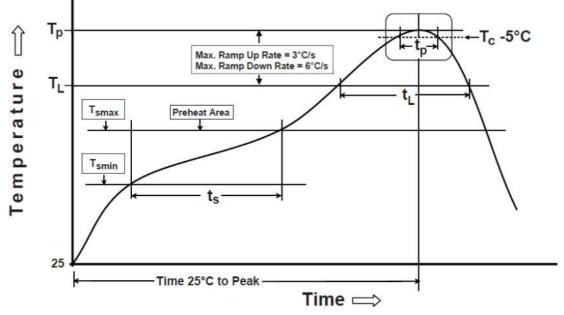


## **6. Recommended Reflow Soldering Profile**

SGGP.25A can be assembled following Pb-free assembly. According to the Standard IPC/JEDEC J-STD-020C, the temperature profile suggested is as follow:

Phase	Profile Features	Pb-Free Assembly (SnAgCu)
PREHEAT	Temperature Min(Tsmin)	150°C
	Temperature Max(Tsmax)	200°C
	Time(ts) from (Tsmin to Tsmax)	60-120 seconds
RAMP-UP	Avg. Ramp-up Rate (Tsmax to TP)	3°C/second(max)
REFLOW	Temperature(TL)	217°C
	Total Time above TL (tL)	30-100 seconds
PEAK	Temperature(TP)	260°C
	Time(tp)	2-5 seconds
RAMP-DOWN	Rate	3°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

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



Soldering Iron condition: Soldering iron temperature 270°C±10°C.

Apply preheating at 120°C for 2-3 minutes. Finish soldering for each terminal within 3 seconds, if soldering iron temperature over270°C±10°C or 3 seconds, it will make cause component surface peeling or damage.