

SPECIFICATION

- Part No. : SGGP.25.2.A.02
- Description : GPS/GLONASS/GALILEO SMD Mount Embedded Ceramic Patch Antenna 25*25*2mm
- Features : 3.34 dBi Peak Gain for GPS/GALILEO Band 3.32 dBi Peak Gain for GLONASS Band 25mm*25mm*2mm dimension SMD direct mount ceramic patch antenna Automotive TS16949 Production and Quality Approved RoHS compliant



Front

Back



1. Introduction

The SGGP.25.2.A.02 is an embedded SMD ceramic GPS/GLONASS/GALILEO passive patch antenna with a low profile of 2mm thickness. It is designed for applications such as

- navigation
- infotainment
- vehicle tracking/fleet management systems
- UAV
- telematics devices

where a high performance solution is needed in a low profile form factor

The antenna has been tuned to mount centrally a 50*50 mm ground plane, working at 1575.42MHz and 1602MHz, with a 3.34 dBi gain and 3.32 dBi gain, respectively. 70% efficiency is best in class. The ceramic patch is mounted via reflow process from a pick and place machine. The antenna itself is manufactured and tested in a TS16949 first tier automotive approved facility.

For further optimization to customer specific device environments where ground-plane size or mounting location is different, which can lead to detuning, a custom tuned patch antennas can be supplied, subject to NRE and MOQ. For more details please contact your regional Taoglas facility.



2. Specification

ELECTRICAL			
Application Bands	GPS/GALILEO	GLONASS	
Operation Frequency (MHz)	1575.42 ±1.023	1602±5	
Return Loss (dB)	< -10		
Gain at Zenith (dBi)	3.34	3.32	
Efficiency (%)	67.41	67.94	
Impedance	50 ohms		
MECHANICAL			
Ceramic Dimension (mm)	25*25*2		
Weight (g)	5.74		
ENVIRONMENTAL			
Operation Temperature	-40°C to 85°C		
Humidity	Non-condensing 65°C 95% RH		

* Antenna properties were measured with the antenna mounted on 50*50mm Ground Plane Taoglas Part # SGGPD.25B







3. Antenna Characteristics

3.1. Return Loss



3.2. Efficiency







3.3. Average Gain

3.4. Peak Gain





4. Antenna Radiation Pattern

4.1. Measurement Setup

The SGGP.25.2.A.02 antenna is tested with 50mm*50mm ground plane in a CTIA certified ETS-Lindgren Anechoic Chamber. The test setup is shown below.





4.2. 2D Radiation Pattern













4.3. 3D Radiation Pattern

1575.42MHz





5. Mechanical Drawing



Unit:mm



6. Evaluation Board (SGGPD.25B)





7.PCB Footprint Recommendation



Unit:mm





NOTE:

- 1. Ag Plated area
- 2. Solder Mask area
- 3. Copper area
- 4. Paste area
- 5. Copper Keepout 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.

8. The dimension tolerances should follow standard PCB manufacturing guidelines



8. Recommended Reflow Soldering Profile

SGGP.12 can be assembled following Pb-free assembly. According to the Standard IPC/JEDEC J-STD-020C, the temperature profile suggested is as follows:

		Pb-Free Assembly
Phase	Profile Features	(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 PE606-P26





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 over 270°C \pm 10°C for 3 seconds, it may cause component surface peeling or damage.

SPE-16-8-080/A/SS Page 14 of 16



9. Packaging

SGGP.25.2.A.02

Packaging Specifications (1/2)





SGGP.25.2.A.02

Packaging Specifications (2/2)



Taoglas makes no warranties based on the accuracy or completeness of the contents of this document and reserves the right to make changes to specifications and product descriptions at any time without notice. Taoglas reserves all rights to this document and the information contained herein.

Reproduction, use or disclosure to third parties without express permission is strictly prohibited.

Copyright © Taoglas Ltd.

Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

Taoglas: SGGP.25.2.A.02