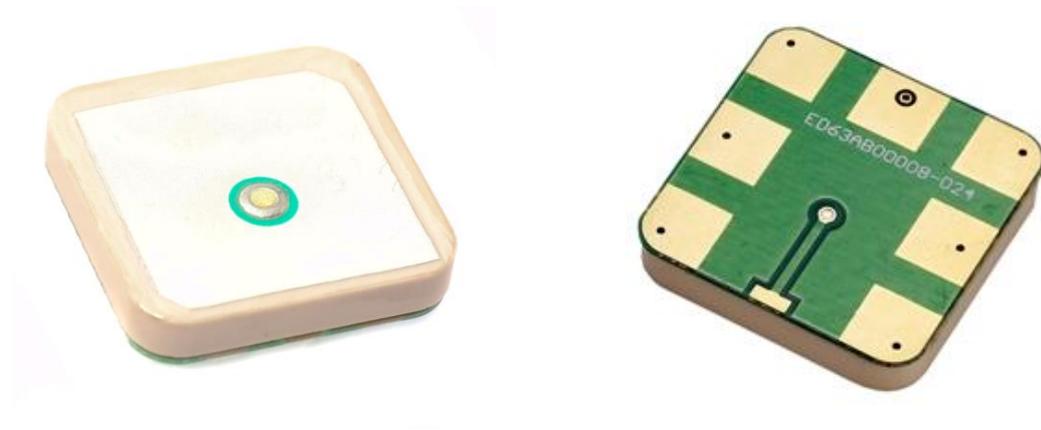


SPECIFICATION

- Part No. : **SGP.1575.25.4.C.02**
- Product Name : GPS/GALILEO SMT Patch Antenna
- Features : 25mm*25mm*4.5mm
1575MHz Centre Frequency
Patent pending
RoHS Compliant



1. Introduction

This ceramic GPS/GALILEO patch antenna is based on smart **XtremeGain™** technology. It is mounted via SMT process and has been selected as optimal solution for the 45*45mm ground plane.

2. Specification

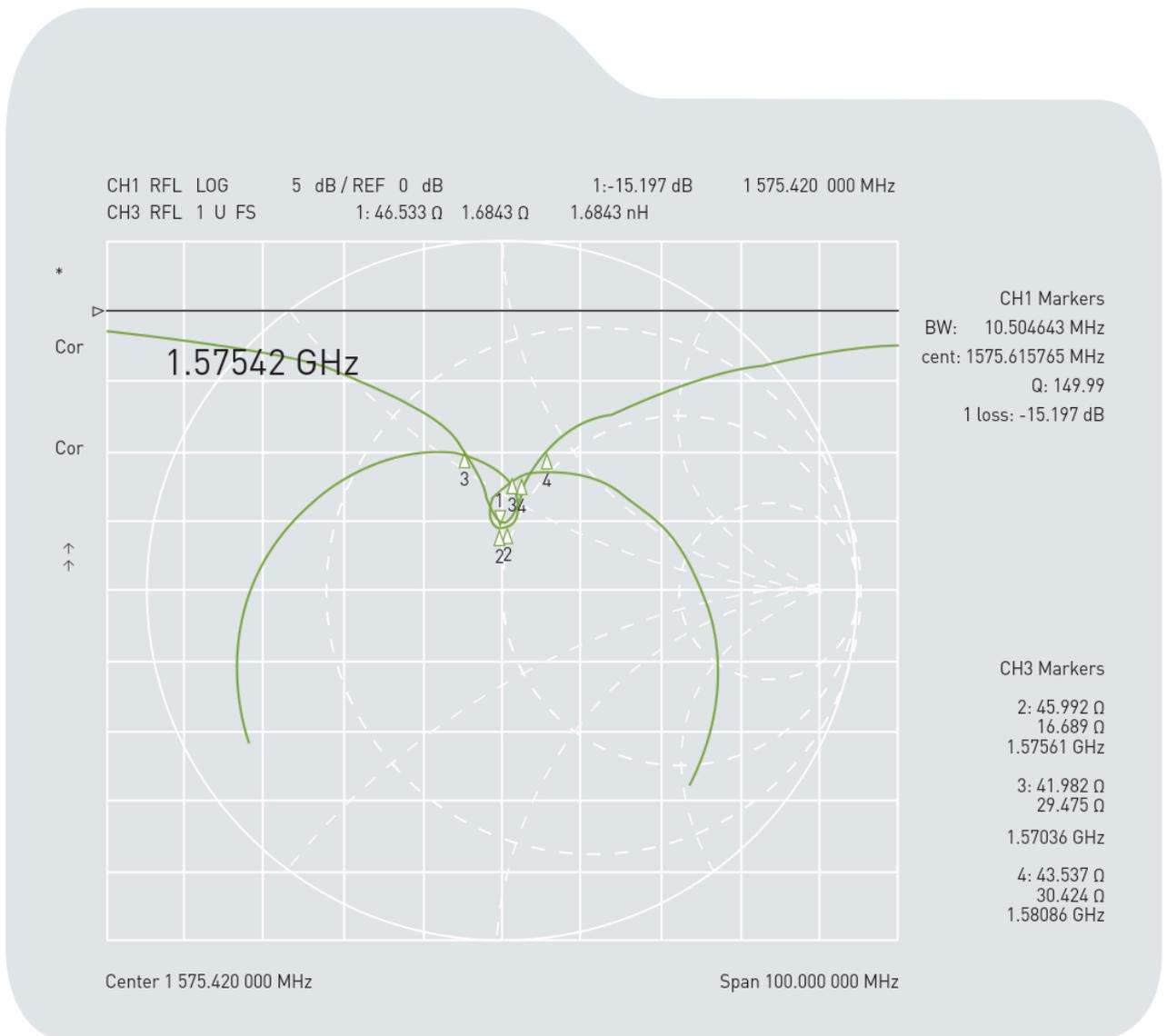
Original Patch Specification tested on 45*45mm ground plane

No	Parameter	Specification	Notes
1	Range of Receiving Frequency	1575.42 MHz ± 1.023 MHz	
2	Center Frequency	1575.42 ± 3MHz	With 45*45mm ground plane
3	Bandwidth	8MHz min	Return Loss <-10 dB
4	VSWR	1.5 max	Center Frequency
5	Gain at Zenith	+2.0 dBic typ.	
6	Gain at 10°elevation	-1.0 dBic typ.	
7	Axial Ratio	3 dB max	
8	Polarization	RHCP	
9	Impedance	50 Ohms	
10	Frequency Temperature Coefficient (τ_f)	0 ± 20ppm / °C	-40°C to +85°C
11	Operating Temperature		-40°C to -85°C

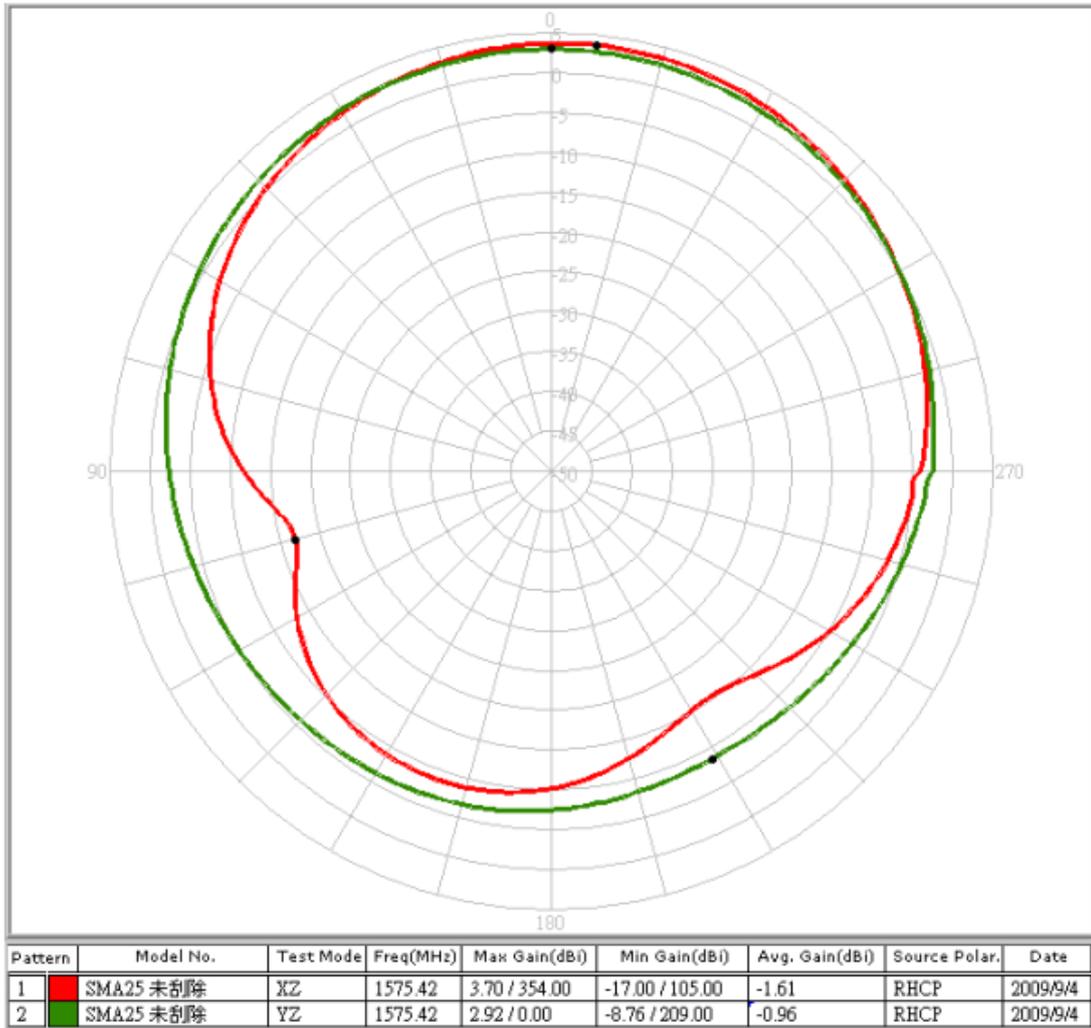
**Changes in user groundplane and environment will offset centre frequency

3. Electrical Specifications

3.1 Return Loss, SWR, Impedance, measured on the test fixture

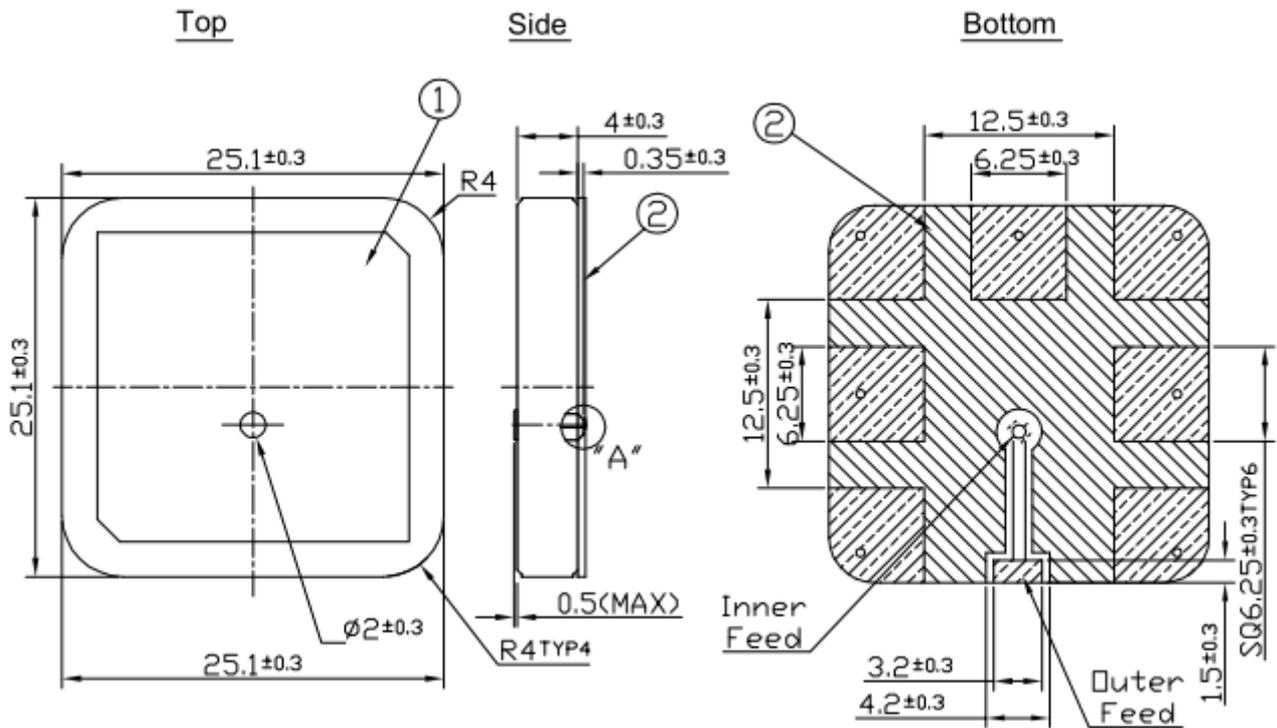


3.2 2D Radiation Pattern



4. Mechanical Specifications

4.1 Antenna Dimensions and Drawing



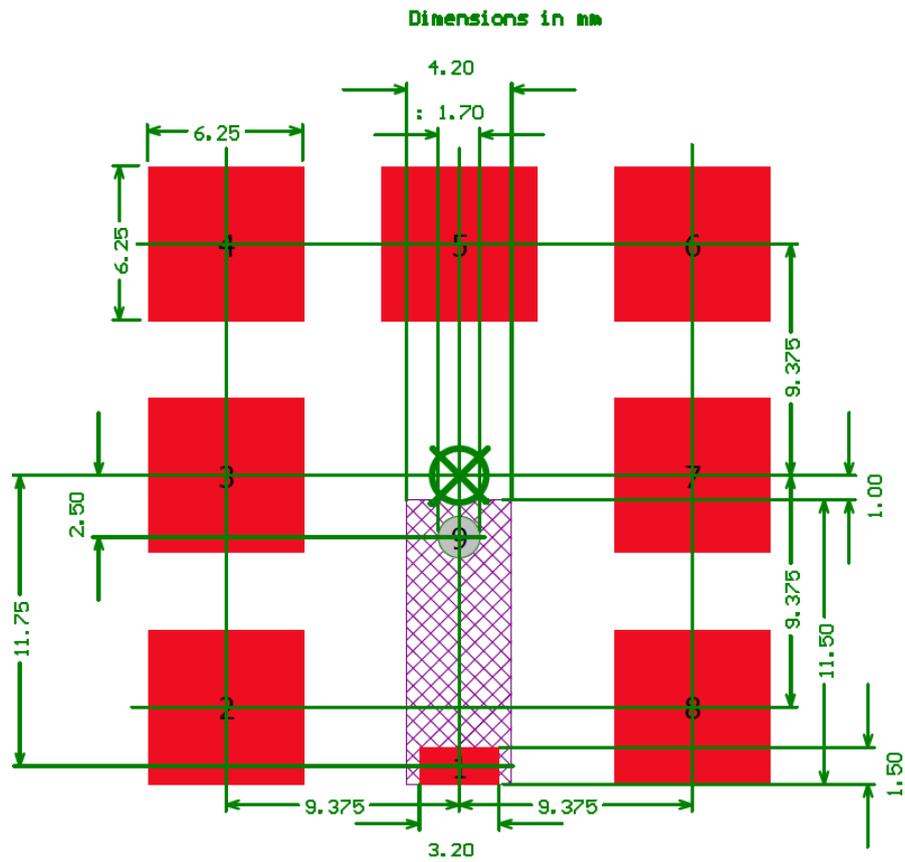
NOTE:

1. Solder mask 
2. Area to be soldered 
3. Dimension of 50 Ohm CPW dependent on individual board.
4. Matching circuit-capacitor and inductor values dependent on individual environment.
5. Must be soldered to complete antenna feed connection.

	Name	Part no.	Material	Finish	QTY
1	SGP.25 Patch 25x25x4	SGP.25C	Ceramic	Clear	1
2	SGP.25 PCB		FR 0.5t	Green	1

4.2 Antenna Footprint

4.2.1 Top Copper

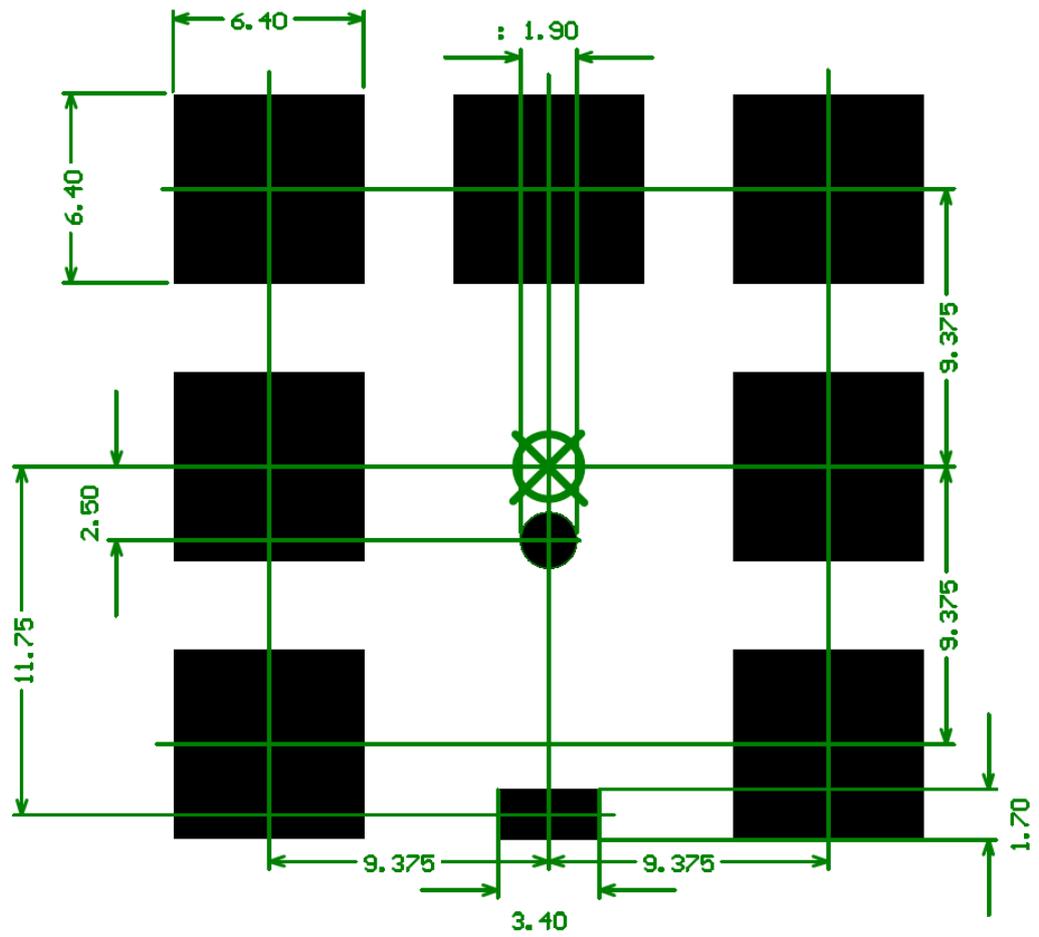


 Copper Keepout Region

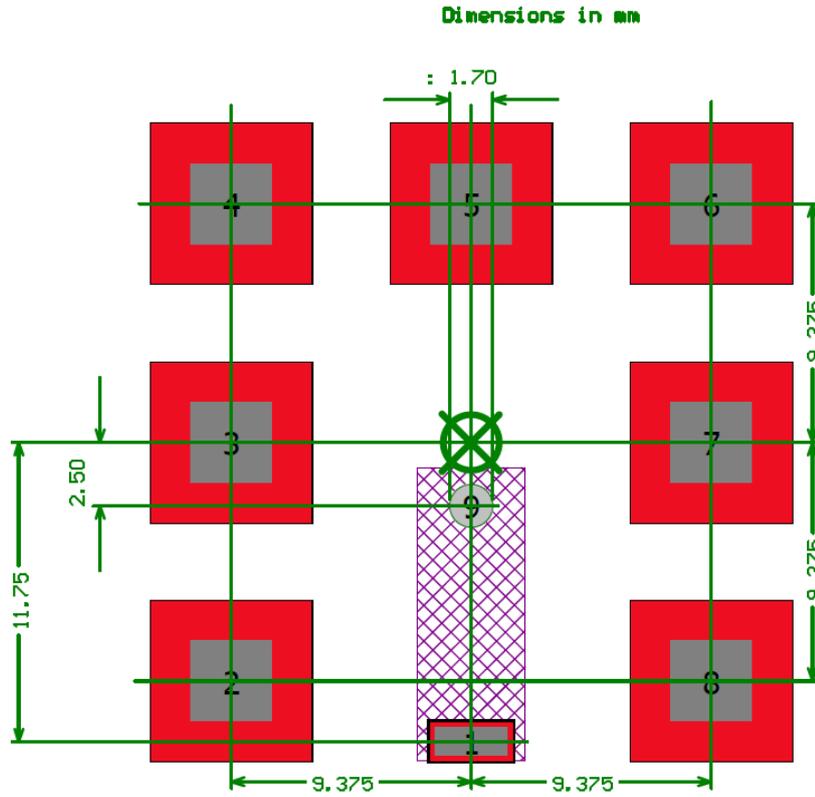
Pads 2, 3, 4, 5, 6, 7, 8 are the same size and should be connected to GND.
 Pad 9 is a 1.70mm dia. non-plated thru-hole.
 Connect 50 ohm transmission line to Pad 1.
 Copper Keepout Region should extend at least 2mm down into PCB.

4.2.3 Top Mask

Dimensions in mm



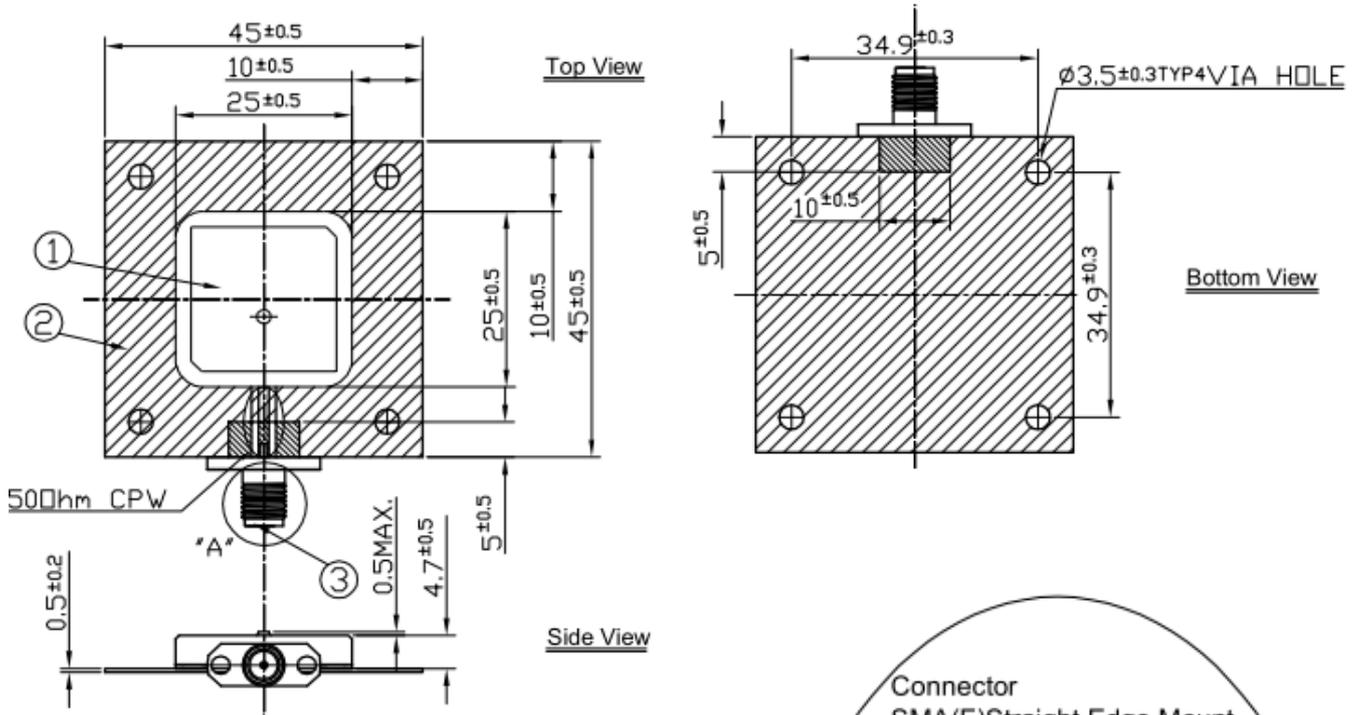
4.2.4 Composite



Copper Keepout Region

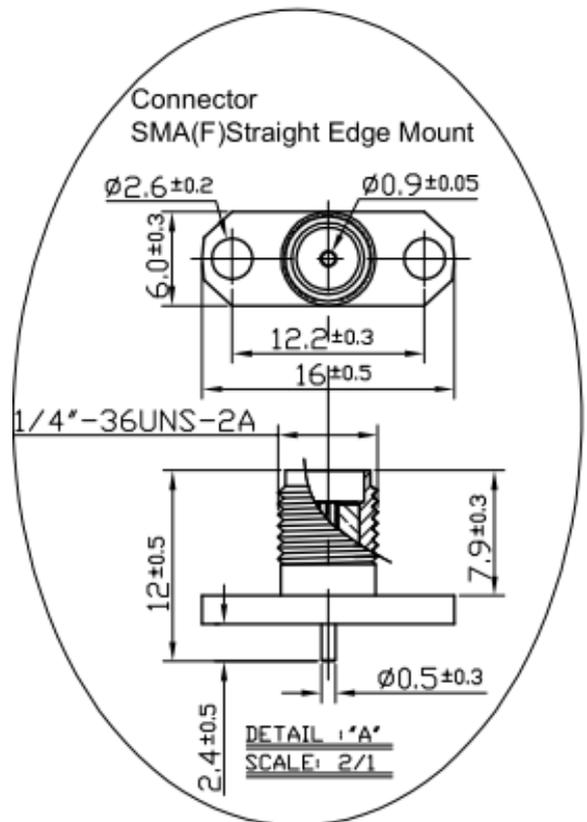
Pads 2, 3, 4, 5, 6, 7, 8 are the same size and should be connected to GND.
 Pad 9 is a 1.70mm dia. non-plated thru-hole.
 Connect 50 ohm transmission line to Pad 1.
 Copper Keepout Region should extend at least 2 mm down into PCB.

4.3 Test Jig and Dimension

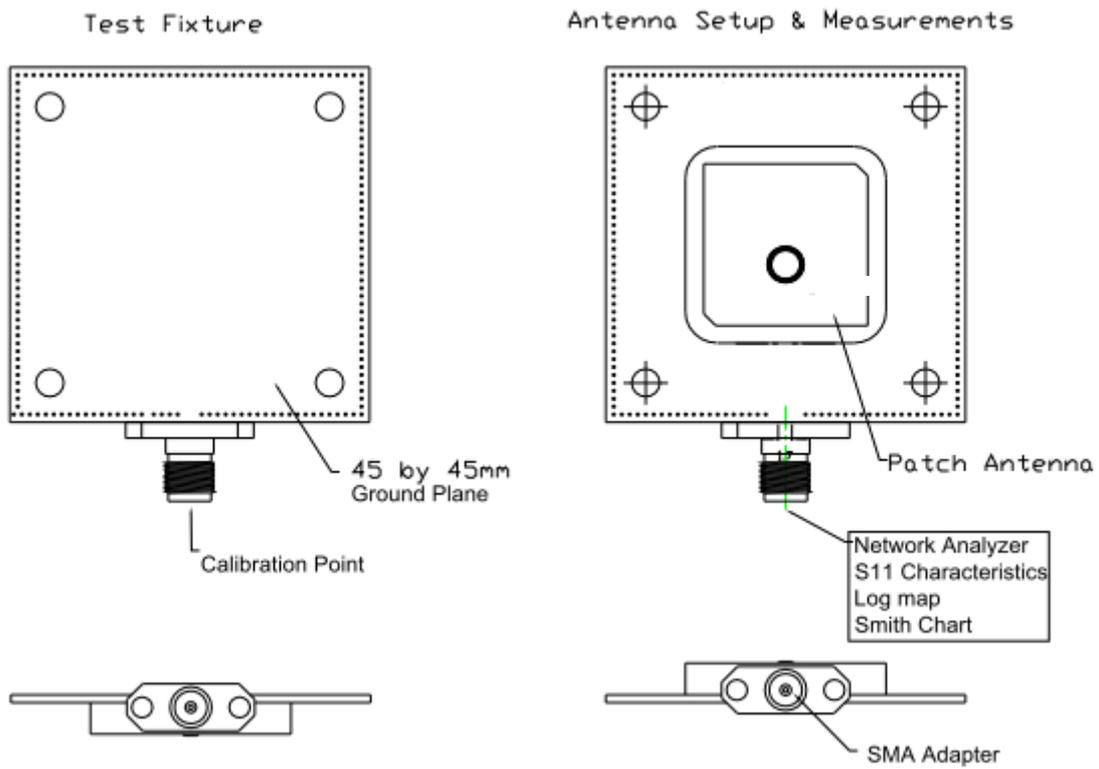


NOTES:

- 1. Solder Mask (Black) 
- 2. Solder Area 



4.4 Test Fixture set up and measurements

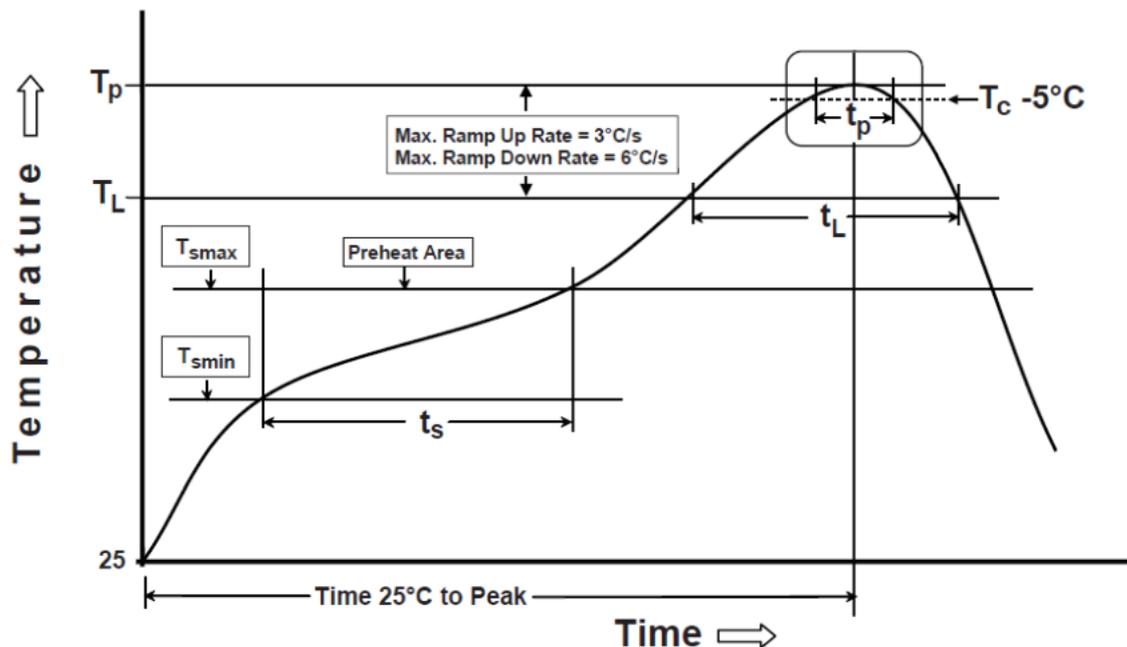


5. Antenna Recommended Soldering Conditions

SGP.25C 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(T_{smin})	150°C
	Temperature Max(T_{smax})	200°C
	Time(t_s) from (T_{smin} to T_{smax})	60-120 seconds
RAMP-UP	Avg. Ramp-up Rate (T_{smax} to TP)	3°C/second(max)
REFLOW	Temperature(T_L)	217°C
	Total Time above T_L (t_L)	30-100 seconds
PEAK	Temperature(T_P)	260°C
	Time(t_p)	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

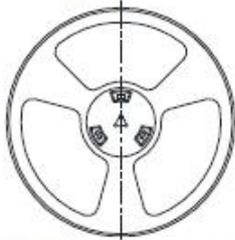
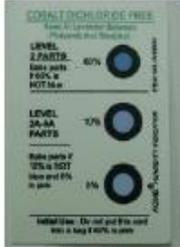
The graphic shows temperature profile for component assembly process in reflow ovens

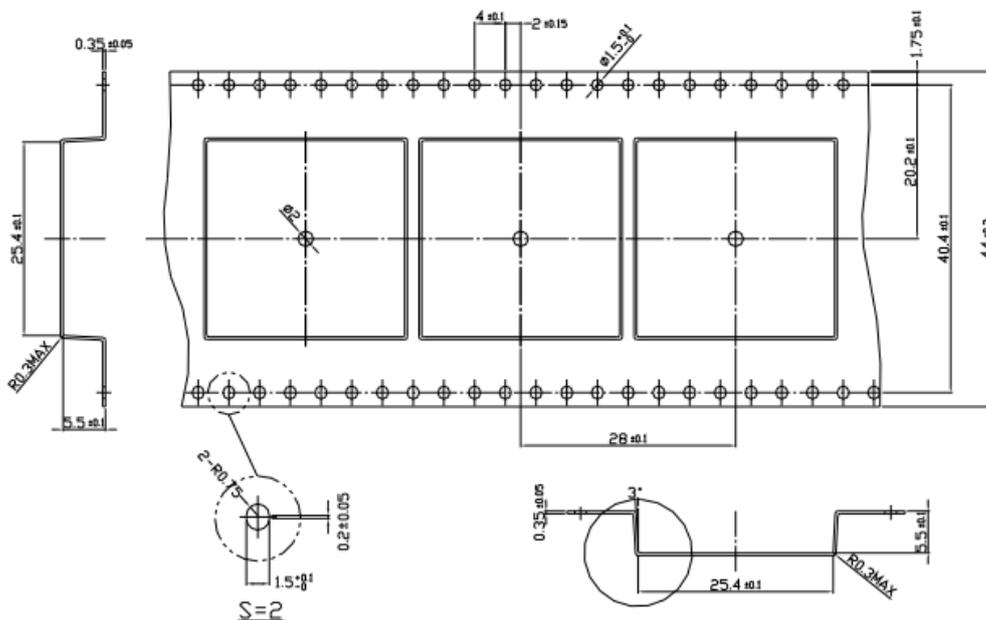
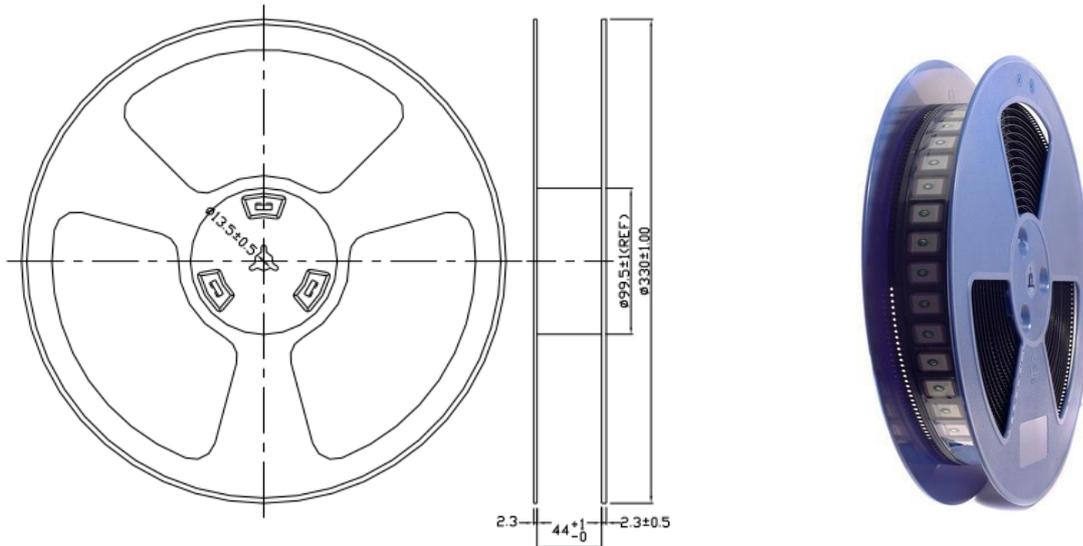


Soldering Iron condition: Soldering iron temperature $270°C \pm 10°C$.

Apply preheating at 120°C for 2-3 minutes. Finish soldering for each terminal within 3 seconds, if soldering iron temperature over $270°C \pm 10°C$ or 3 seconds, it will make cause component surface peeling or damage.

6. Packaging

<p>Product Reel</p>  <p>Quantity reel: 200pcs 4 reels in outer carton (800)</p>	<p>2 Desiccants 5g (6*4cm)</p> 	<p>Humidity indicator card (7.5*5cm)</p>  <p>Vacuum packaging</p>
--	--	---



Unit: mm

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.

