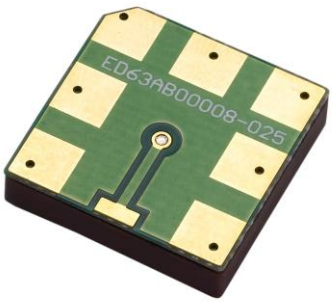
SPECIFICATION

Part No.	:	**SGP.1575.18.4.C.02**
Product Name	:	GPS/GALILEO SMT Patch Antenna
Features	:	18mm*18mm*4.5mm
		1575MHz Centre Frequency
		Patent Pending
		RoHS ✔



1. Introduction

This ceramic GPS 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

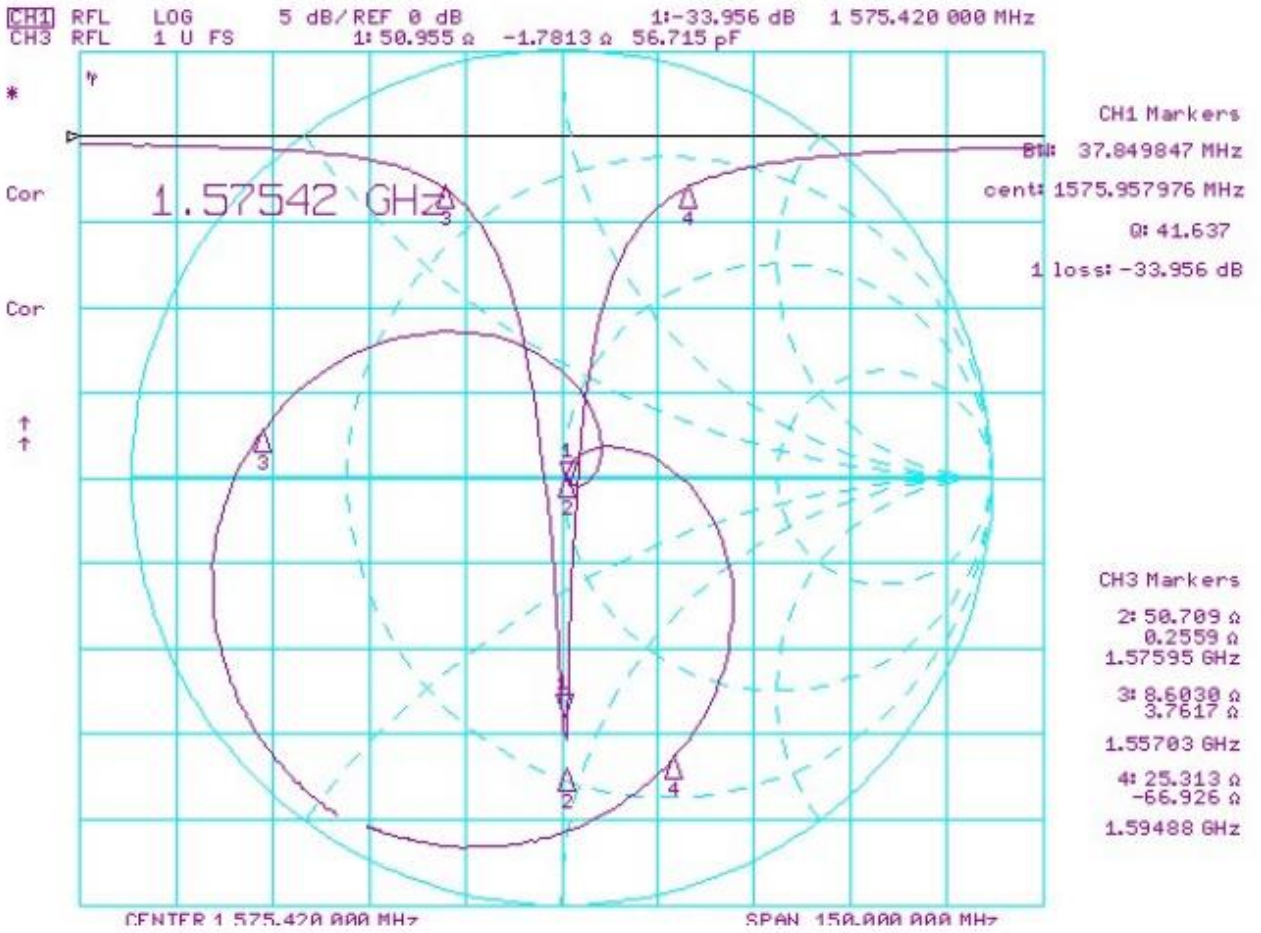
Original Patch Specification tested on 45mm ground plane

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	5MHz min	Return Loss ≤-10 dB
4	VSWR	1.5 max	
5	Gain at Zenith	+1.0 dBic typ.	
6	Gain at 10°elevation	-3.0 dBic typ.	
7	Axial Ratio	4.0 dB max	
8	Polarization	RHCP	
9	Impedance	50 Ohms	
10	Frequency Temperature Coefficient (τf)	0 ± 20ppm / °C	-40ºC to +85ºC
11	Operating Temperature	-40°C to +85°C	

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

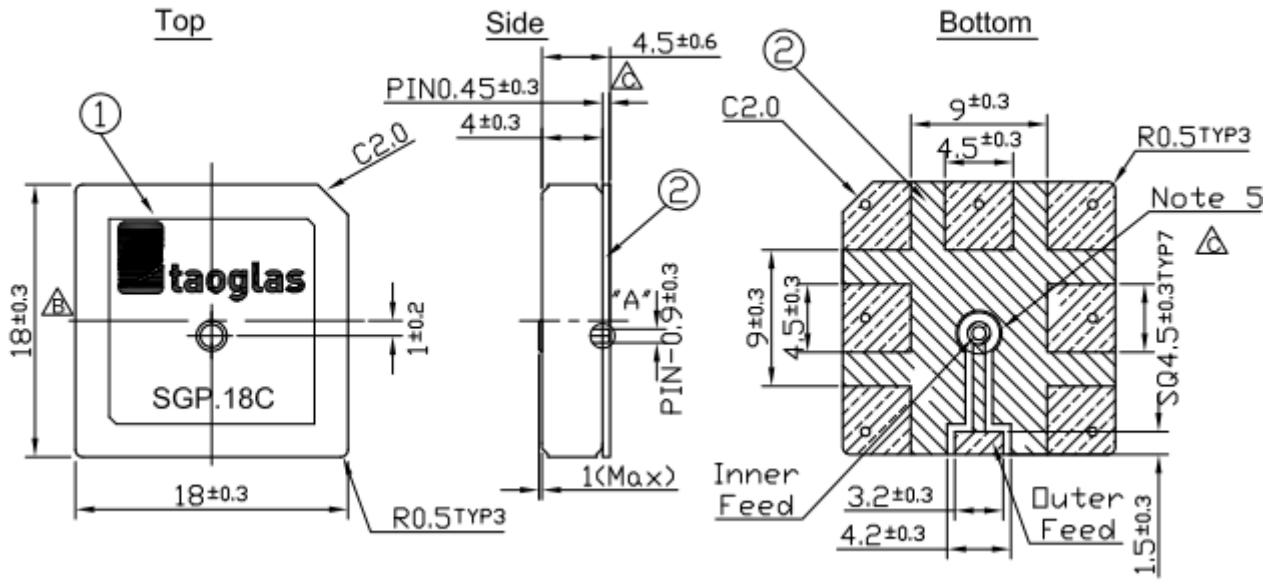
3. Electrical Specifications

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



4. Mechanical Specifications

4.1 Antenna Dimensions and Drawing

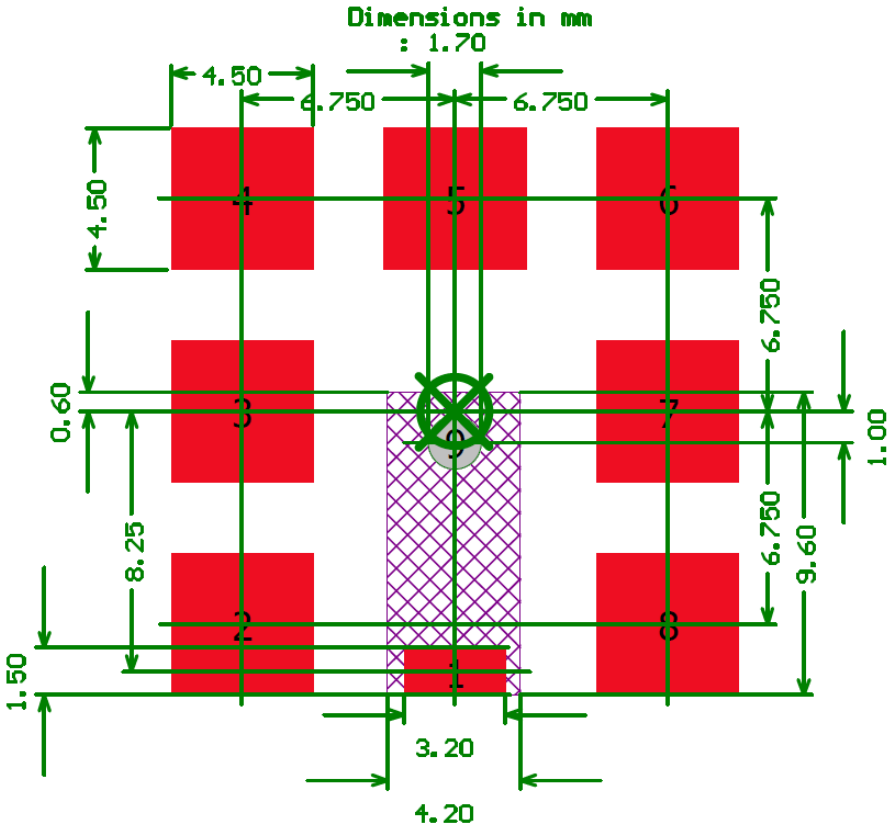


	Name	Part no.	Material	Finish	QTY
1	SGP.18 Patch 18x18x4	SGP.18C	Ceramic	Clear	1
2	SGP.18 PCB		FR 0.5t	Green	1

NOTE:
1.Solder mask
2.Area to be soldered
3.Diemension 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.

4.2 Antenna Footprint

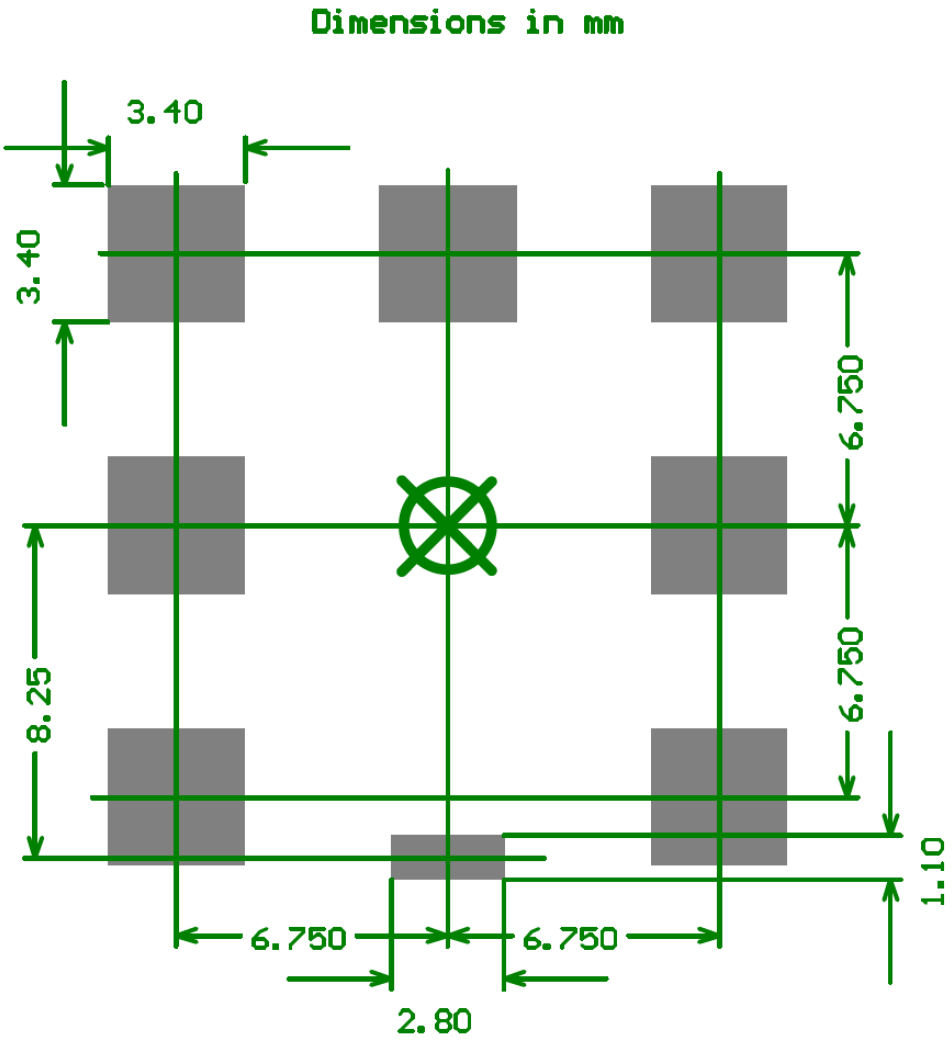
4.2.1 Top Copper



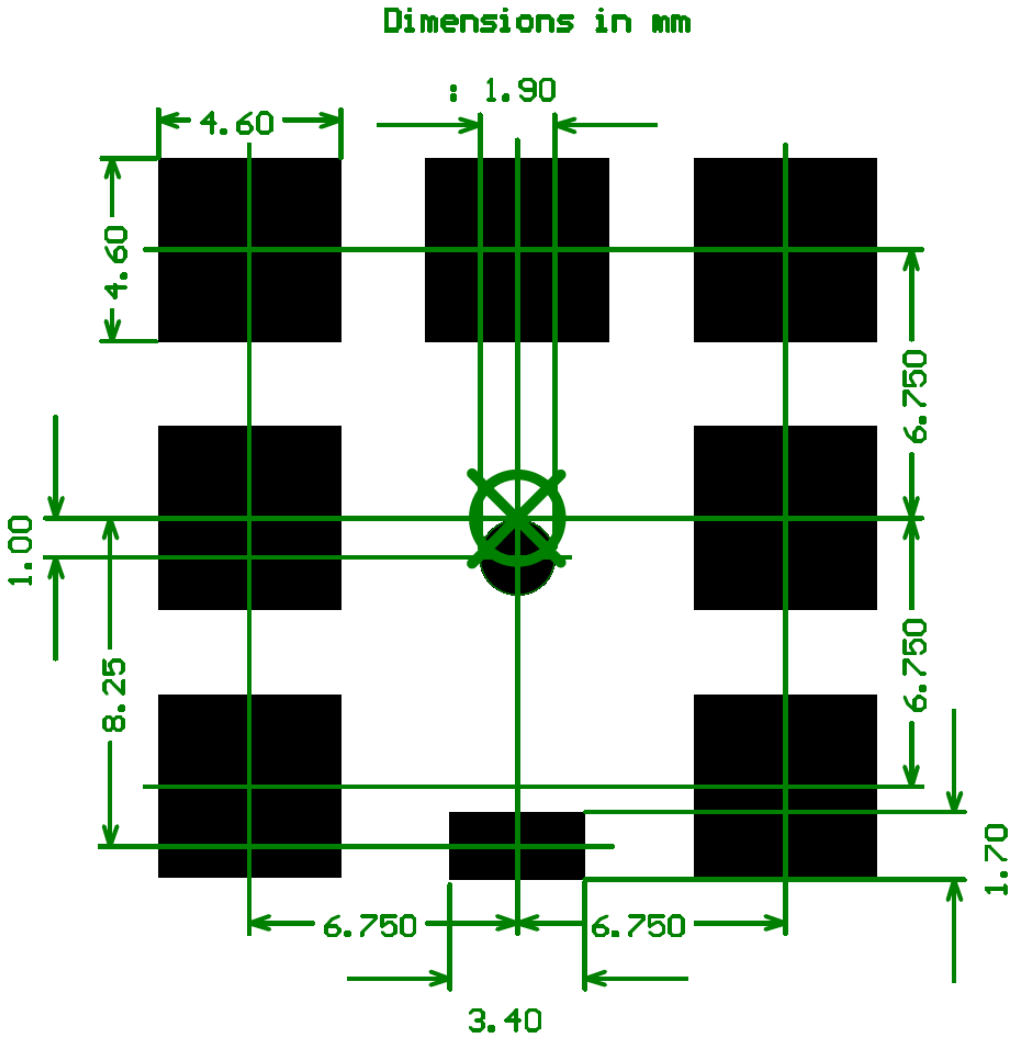
Copper Keepout Region

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 2 mm down into PCB.

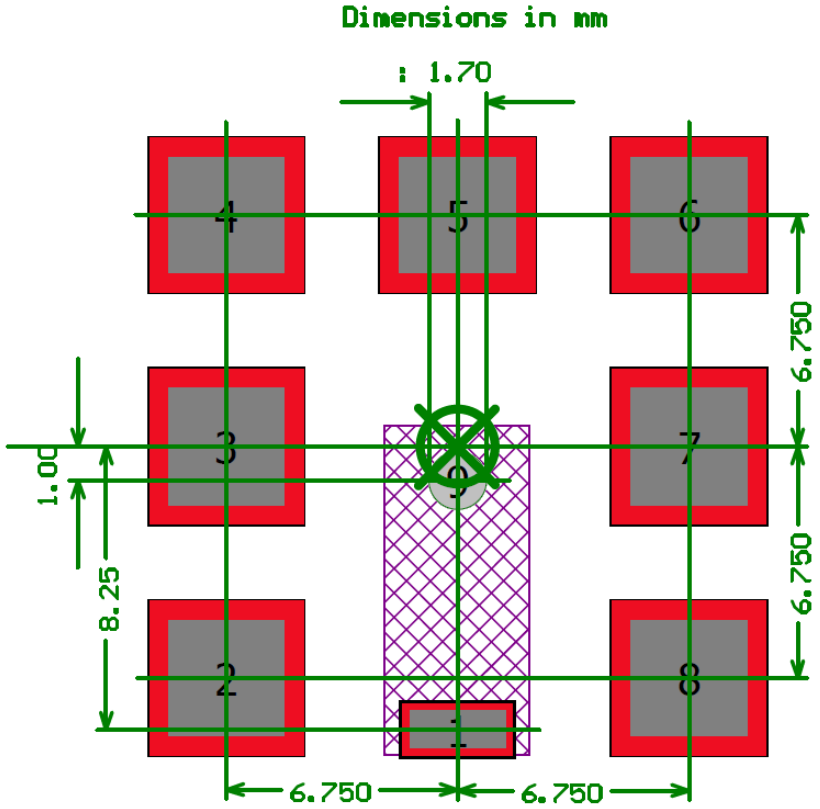
4.2.2 Top Paste



4.2.3 Top Mask


Dimensions in mm
1.90
4.60
4.60
6.750
1.00
8.25
6.750
1.70
6.750
6.750
3.40

4.2.4 Composite



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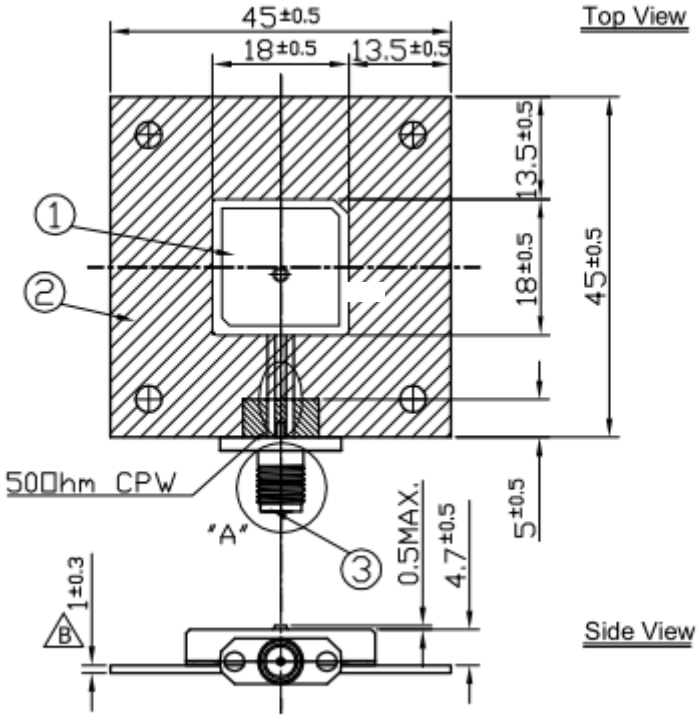
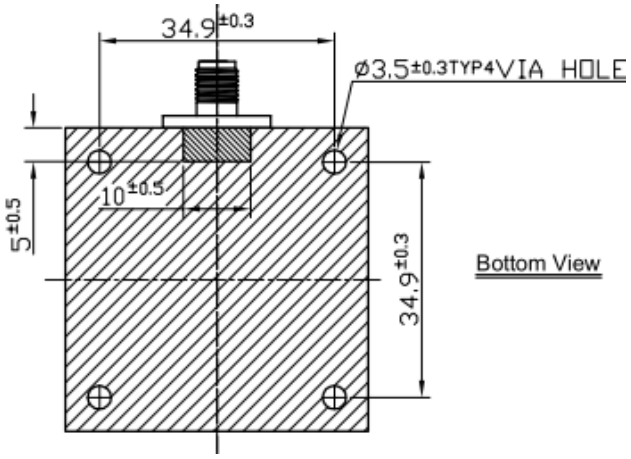
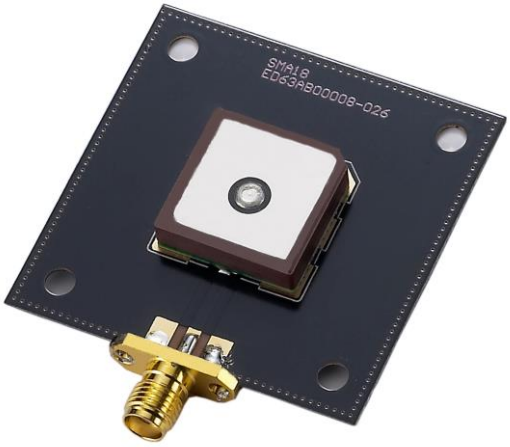
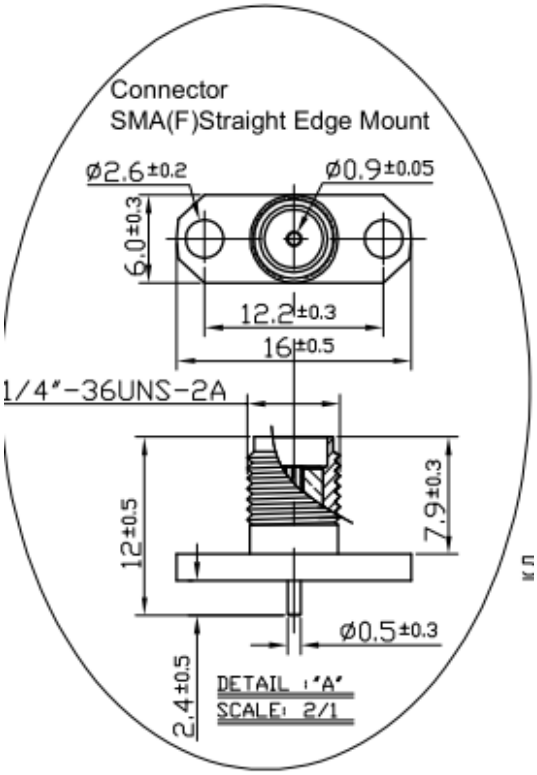
4.3 Test Jig and Dimension





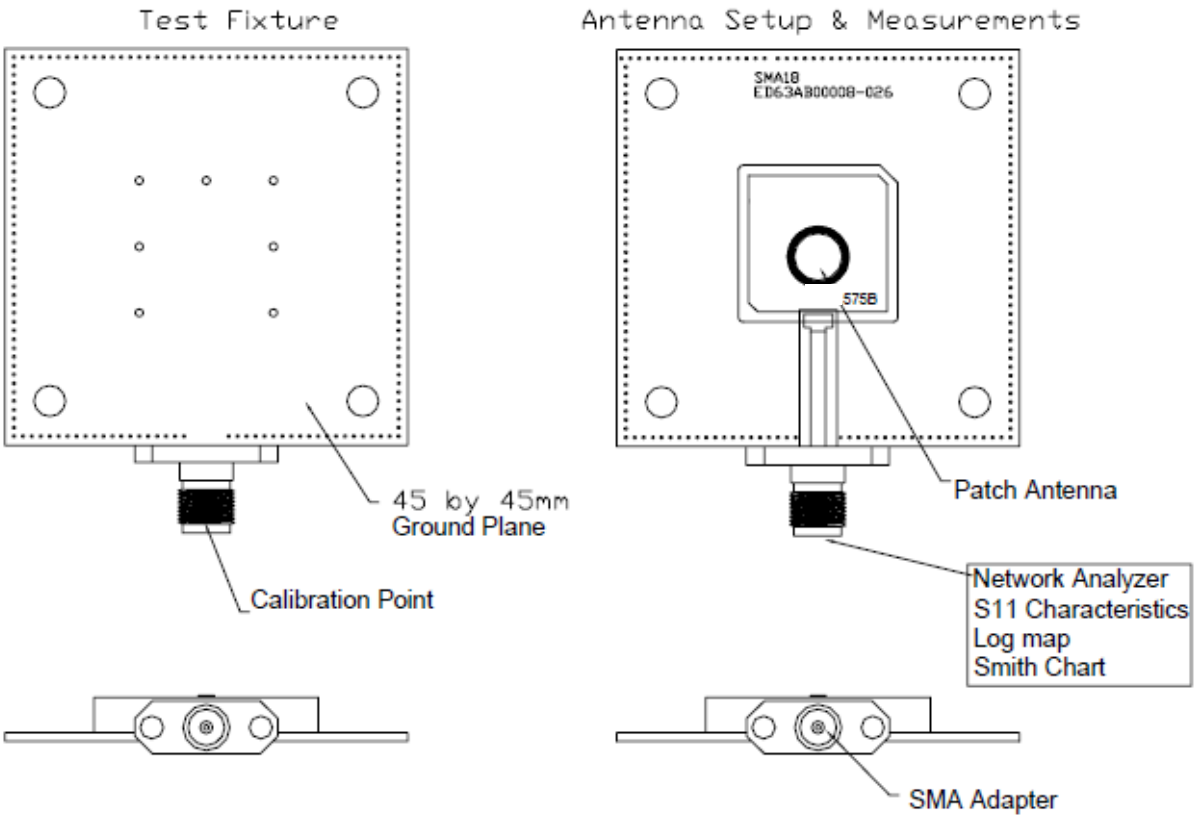




NO
1.S
2.Solder Area

		P/N	Material	Finish	QTY
1	[illegible]	SGP.18C	Ceramic	Clear	1
2	FR4 PCB		FR4 1t	Black	1
3	SMA(F)Straight Edge Mount	SMA.F.ST.JACK.PANELM.2H.CM	Brass	Gold	1

4.4 Test Fixture set up and measurements

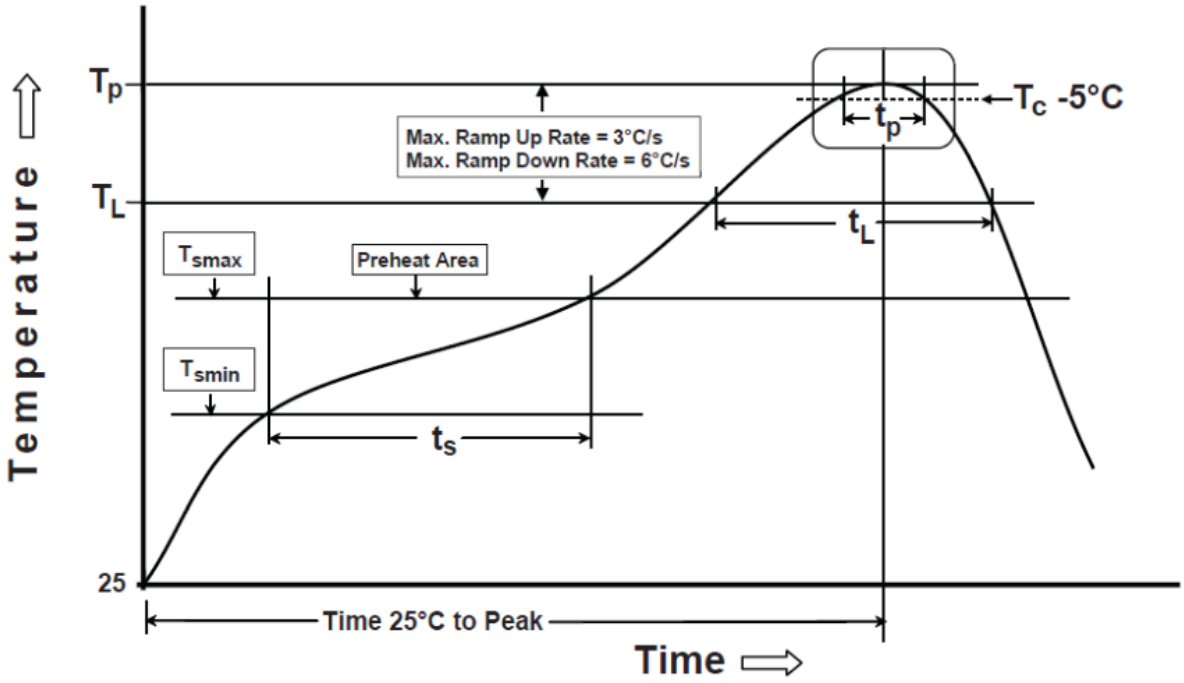


5. Recommended Reflow Soldering Profile

SGP.18C 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

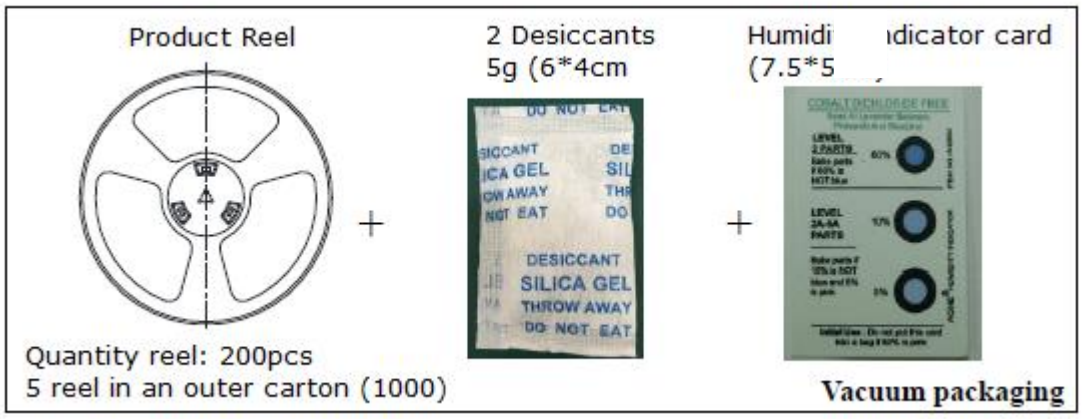
The graphic shows temperature profile for component assembly process in reflow ovens

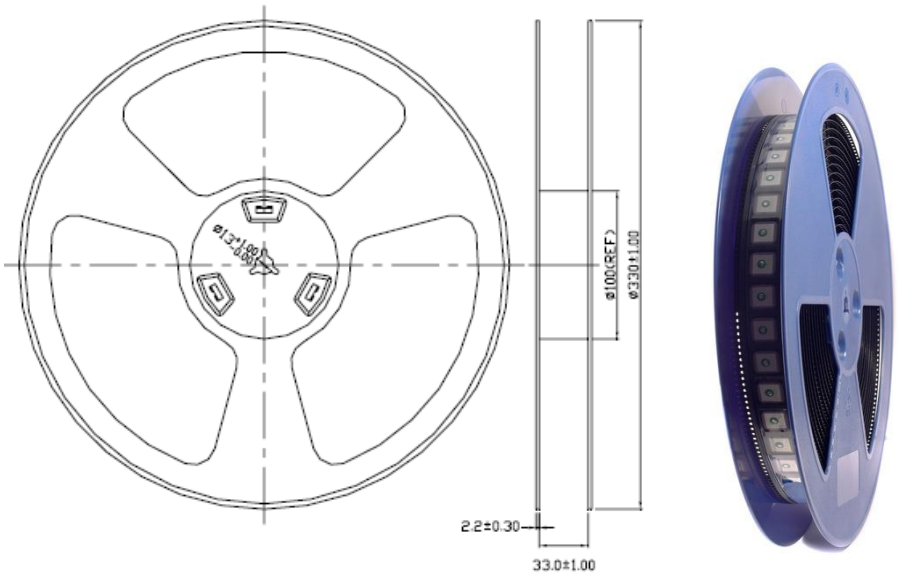


Soldering Iron condition: Soldering iron temperature 270°C±10°C.

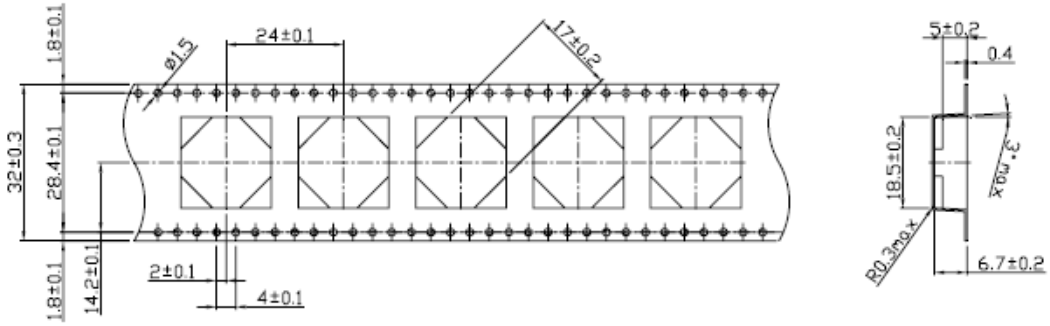
Apply preheating at 120°C for 2-3 minutes. Finish soldering for each terminal within 3 seconds, if soldering iron temperature over270°C±10°C or 3 seconds, it will make cause component surface peeling or damage.

6. Packaging


Product Reel
2 Desiccants
5g (6*4cm
Humidi
idicator card
(7.5*5
DESICCANT
SILICA GEL
THROW AWAY
DO NOT EAT
Quantity reel: 200pcs
5 reel in an outer carton (1000)
Vacuum packaging


ø100(REF.)
ø330±1.00
2.2±0.30
33.0±1.00


18.5±0.2
3°max
R0.3max


1.8±0.1
ø1.5
24±0.1
17±0.2
32±0.3
28.4±0.1
1.8±0.1
14.2±0.1
2±0.1
4±0.1
5±0.2
0.4
18.5±0.2
3°max
R0.3max
6.7±0.2