

## SPECIFICATION

Model No. : **SGGP.25.4.A.02**

Product Name : GPS/GLONASS/GALILEO SMT Patch Antenna

Features : 25mm\*25mm\*4.5mm  
Single Feed SMT Mount  
GPS/GALILEO: 1575MHz  
GLONASS: 1602MHz  
Patent pending  
RoHS Compliant



# 1. Introduction

This ceramic 25mm 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 in your device can be created and supplied by Taoglas.

# 2. Specification

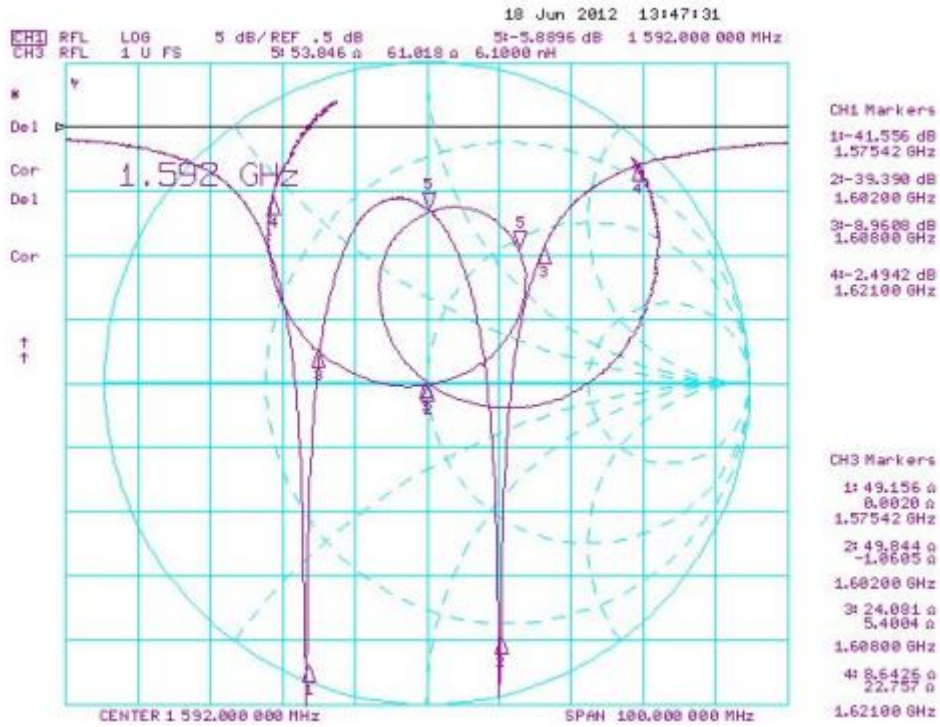
Original Patch Specification tested on 50\*50mm ground plane

No	Parameter	Specification	Notes
1	Range of Receiving Frequency	GPS/GALILEO: 1575.42 MHz ± 1.023 MHz GLONASS: 1602± 5 MHz	
2	Center Frequency	1592± 3MHz	With 50*50mm ground plane
3	Bandwidth	8MHz min	Return Loss <-10 dB
4	VSWR	1.5 max	Center Frequency
5	Gain at Zenith	GPS/GALILEO: -0.14dBic typ. GLONASS: 1.75dBic typ.	
8	Polarization	RHCP	
9	Impedance	50 Ohms	
10	Frequency Temperature Coefficient ( τf )	0 ± 20ppm / oC	-40°C to +85°C
11	Operating Temperature -40°C to +85°C		

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

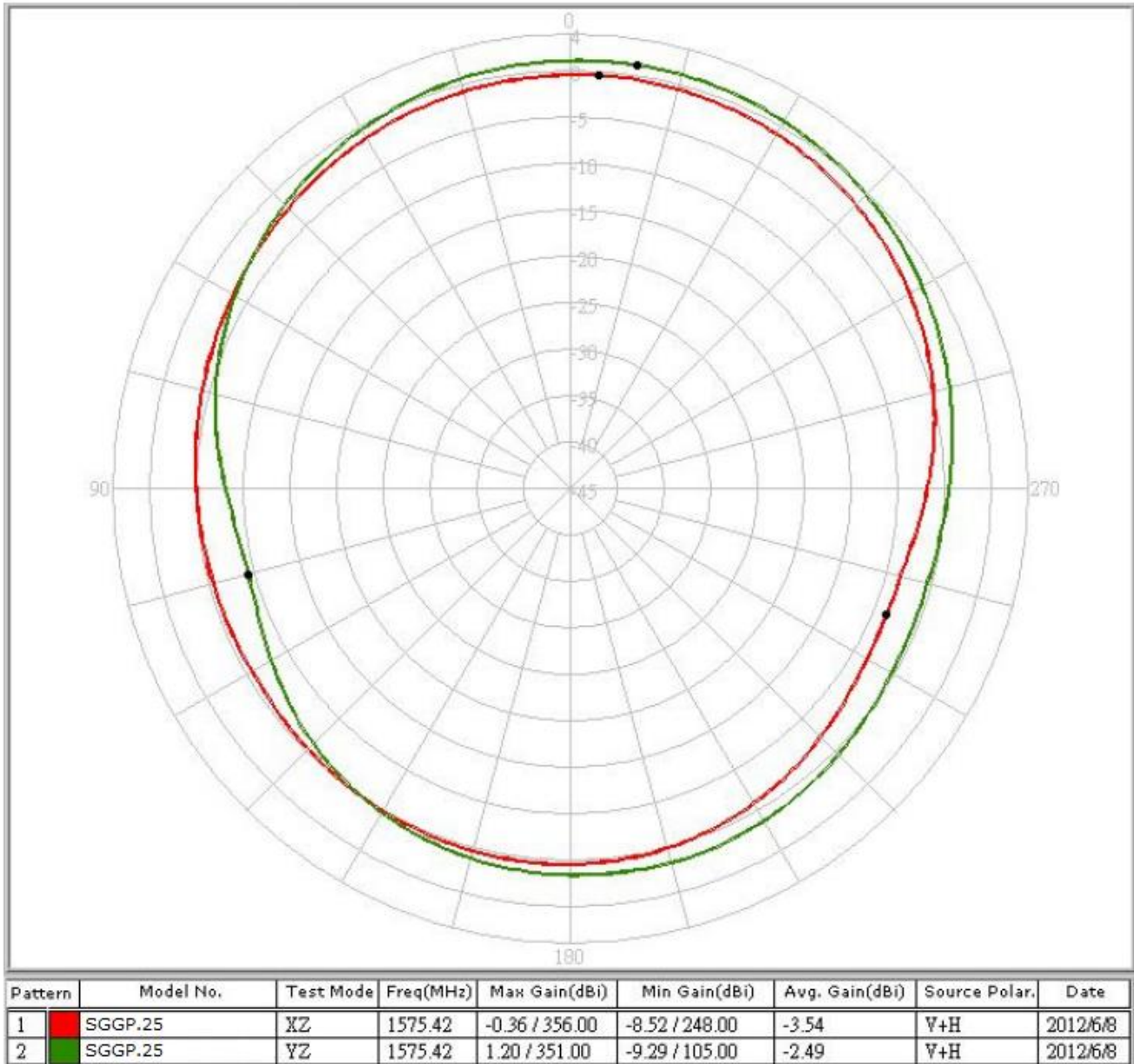
### 3. Electrical Specifications

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



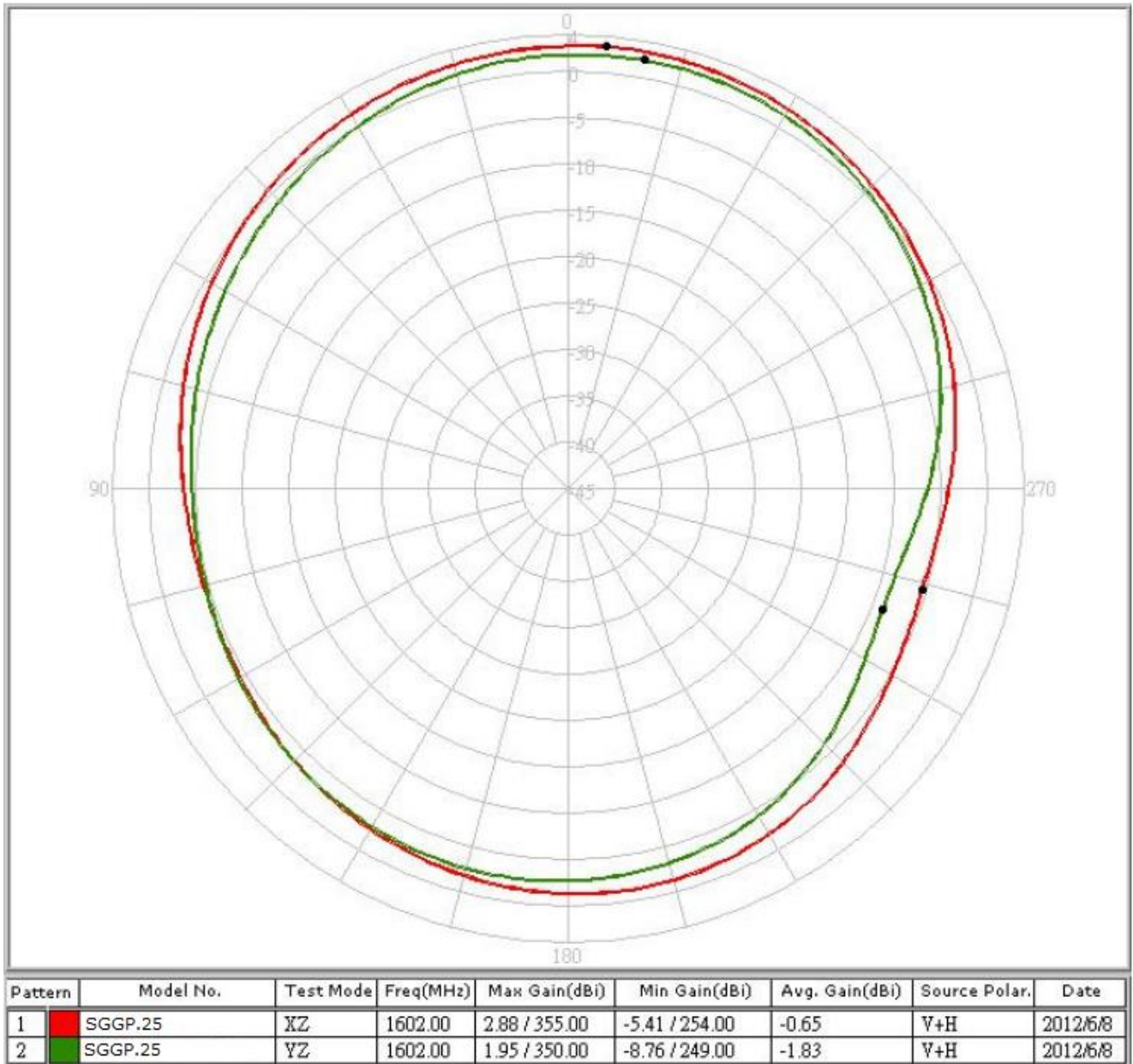
## 4. Radiation Patterns

### 4.1. 1575MHz



1575.4 MHz XZ+YZ-Plane

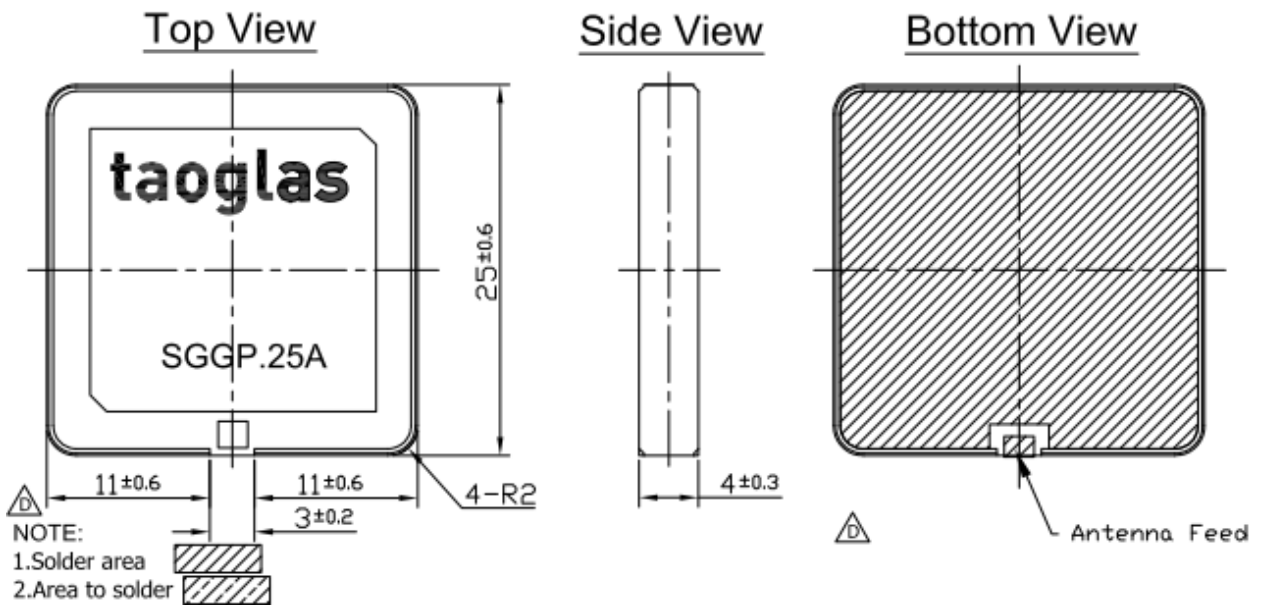
## 4.2. 1602MHz



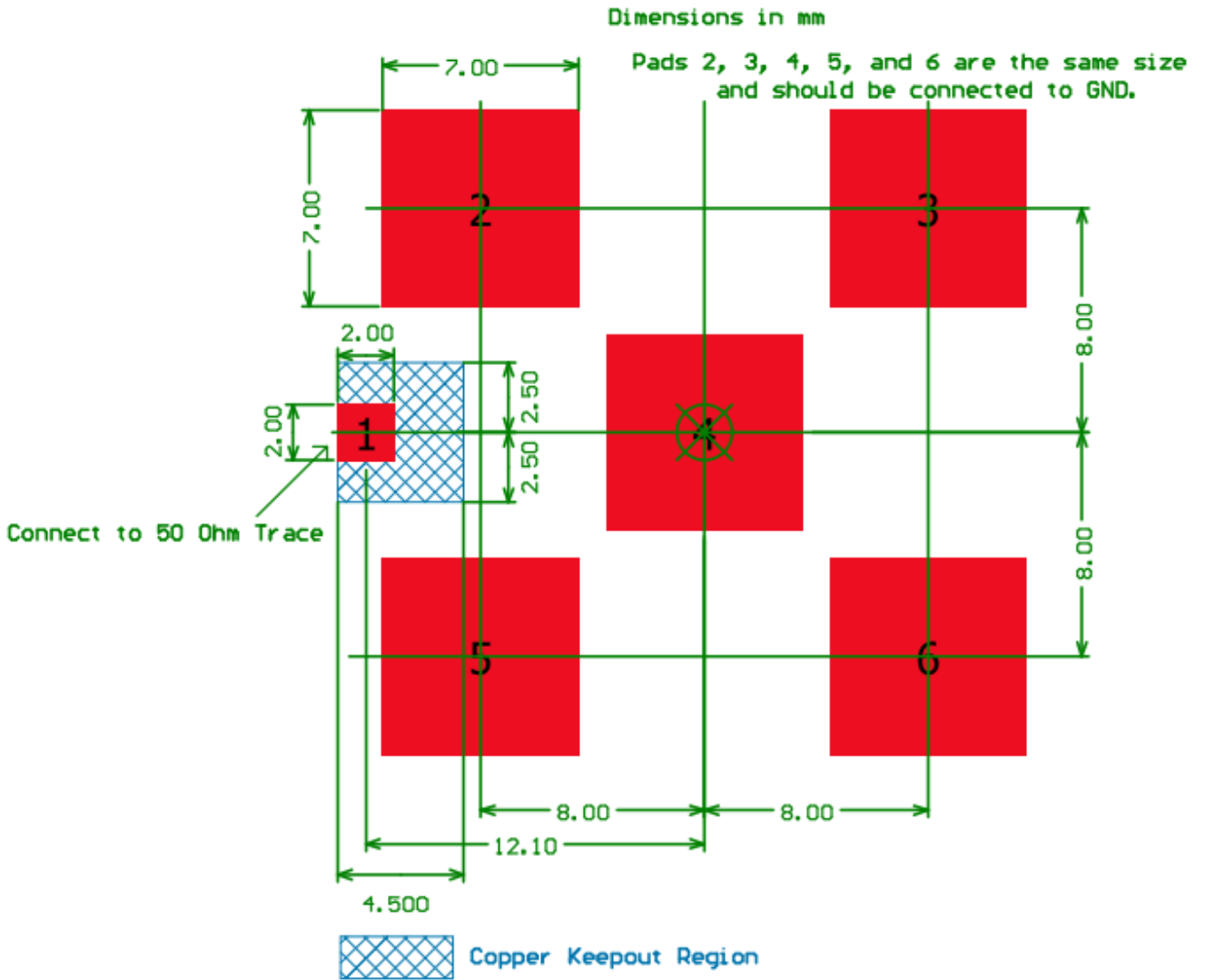
1602.0 MHz XZ+YZ-Plane

## 5. Mechanical Specifications

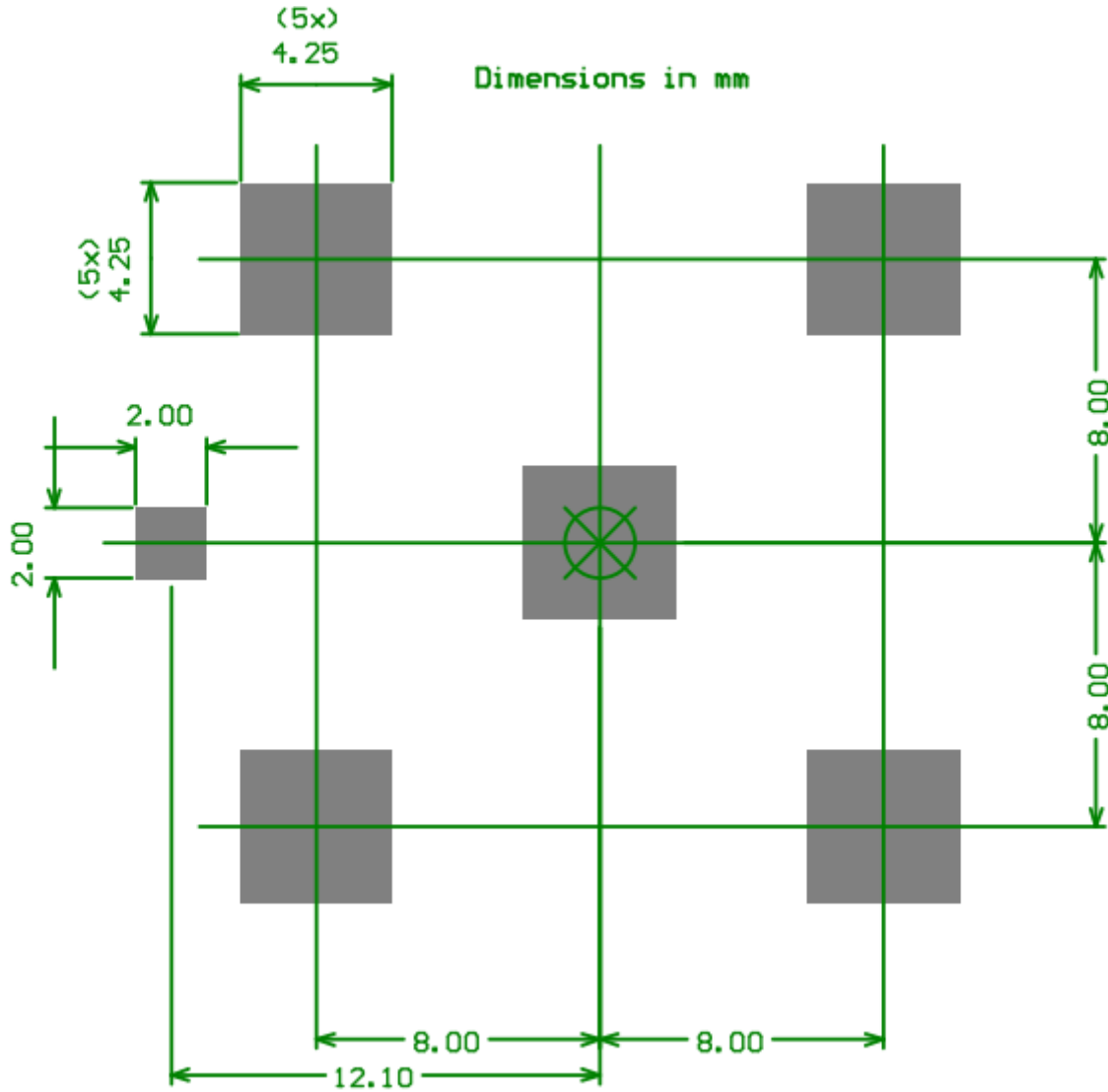
### 5.1. Antenna Dimensions and Drawing



## 5.2. Footprint Copper Keepout Area

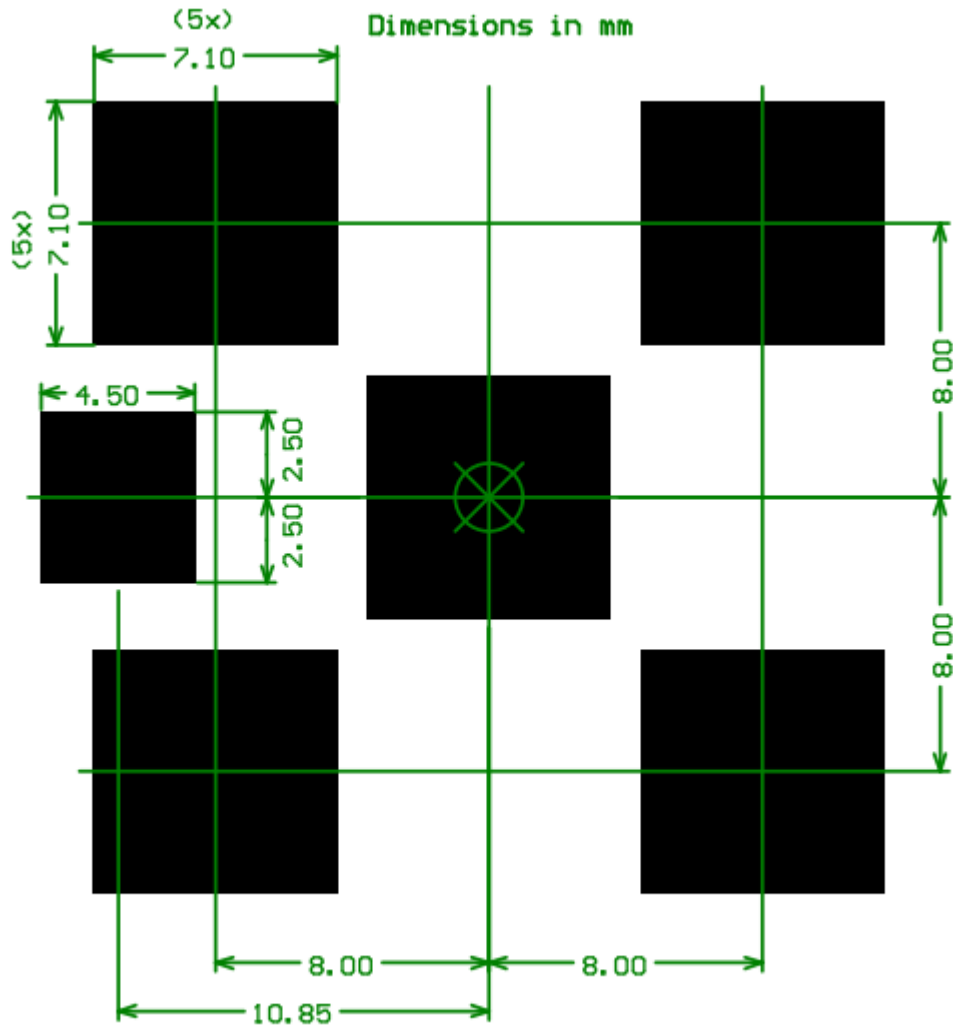


### 5.3. Paste Area



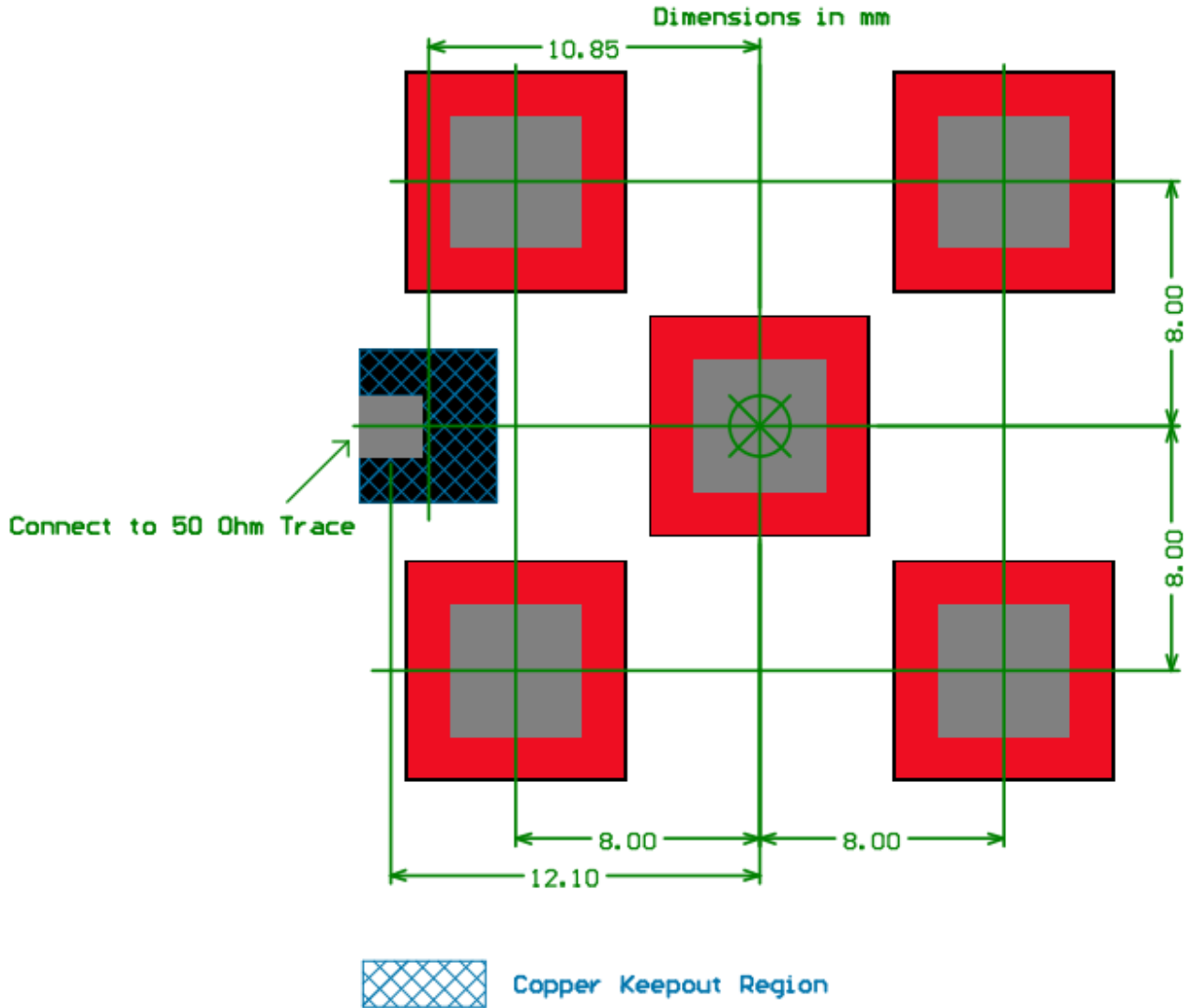


### 5.4. Soder Mask (Negative)

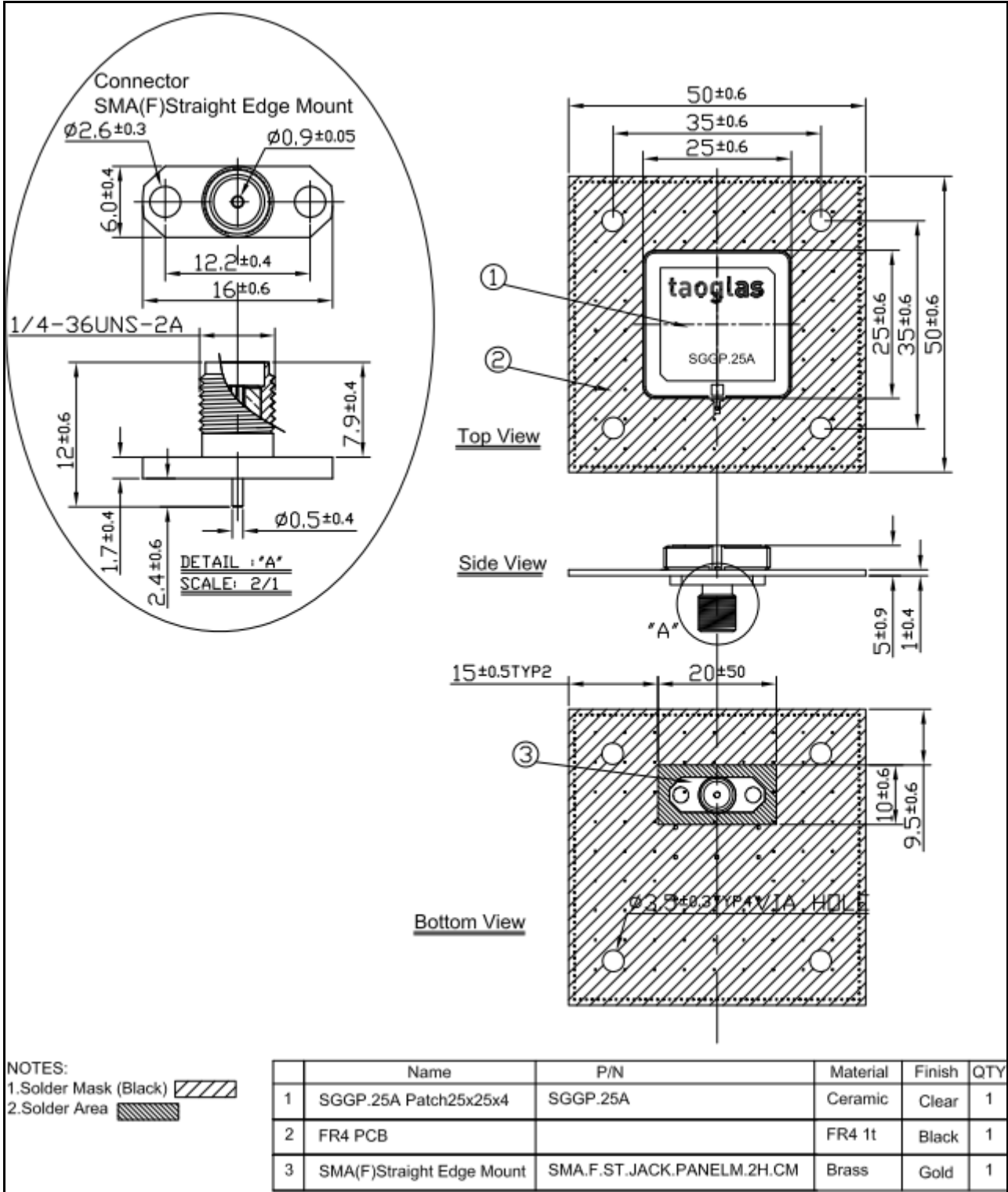


This drawing is a negative of solder mask.  
Black regions are anti-mask.

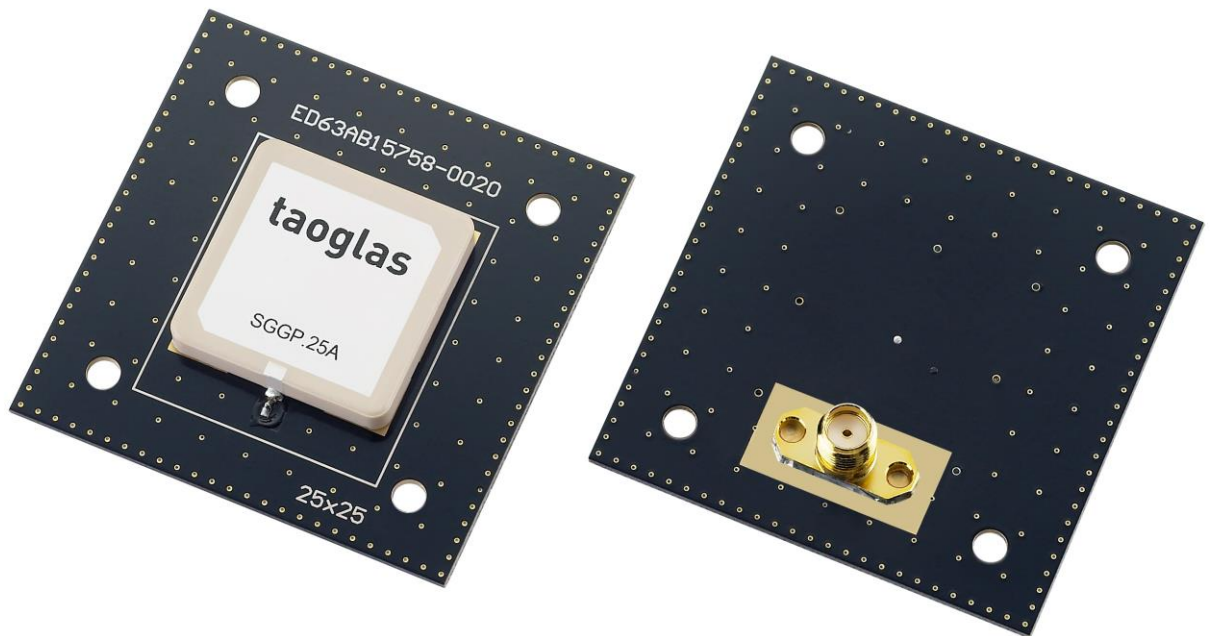
### 5.5. Footprint Composite



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



## 5.7. SGGPD.25A

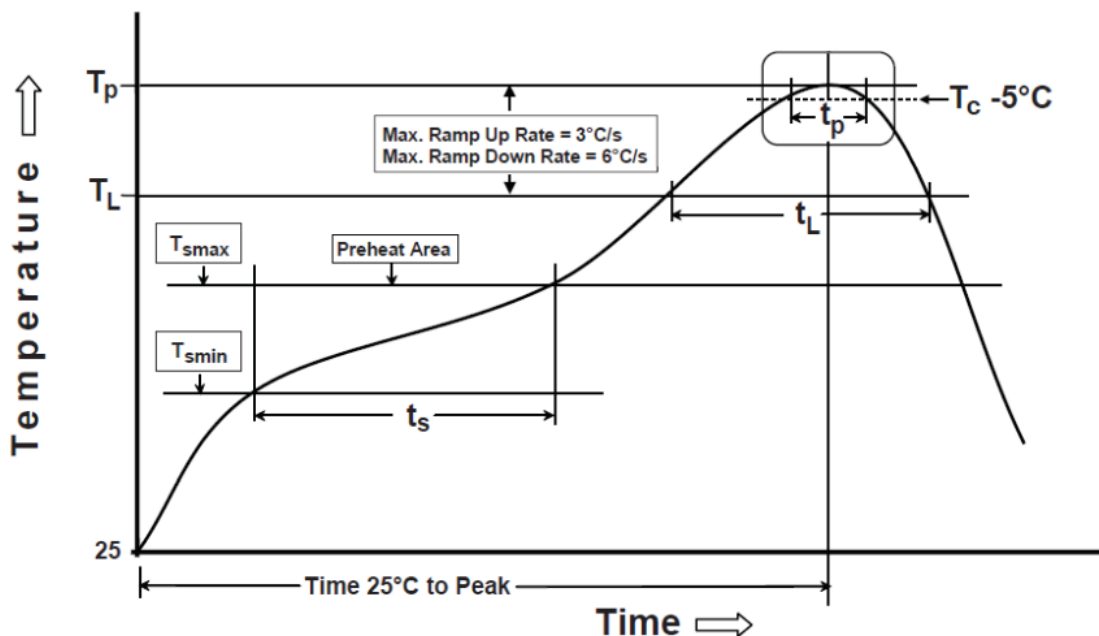


## 6. Recommended Reflow Soldering Profile

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( $T_{smin}$ )	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

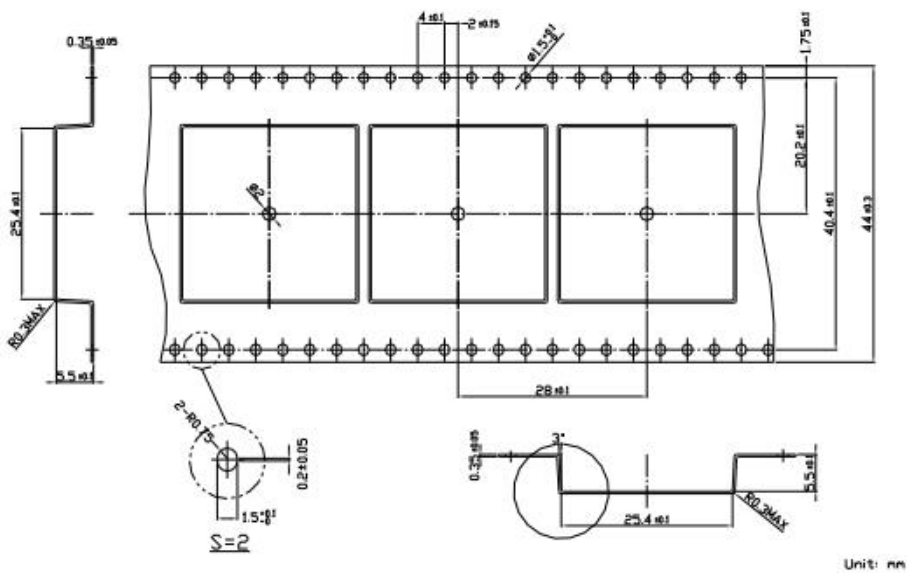
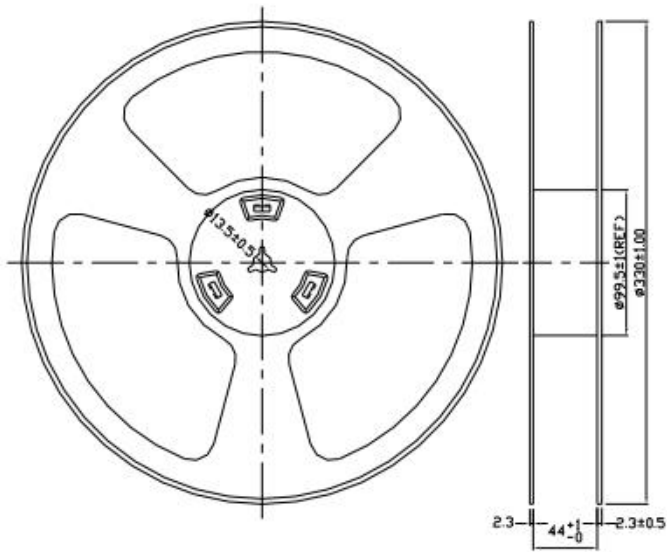


Soldering Iron condition: Soldering iron temperature  $270^{\circ}\text{C} \pm 10^{\circ}\text{C}$ .

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

# 7. Packaging

200 pcs / reel / inner carton  
 4 reels in an outer carton (800)



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