

SGGP.18A

Specification

PATENT PENDING

<b>Part No.</b>	SGGP.18A
<b>Product Name</b>	GPS/GLONASS SMT Patch Antenna
<b>Features</b>	18mm*18mm*4mm Single Feed SMT GPS: 1575MHz GLONASS: 1602MHz Patent pending RoHS Compliant

# 1. Introduction

This ceramic 18mm GPS/GLONASS 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

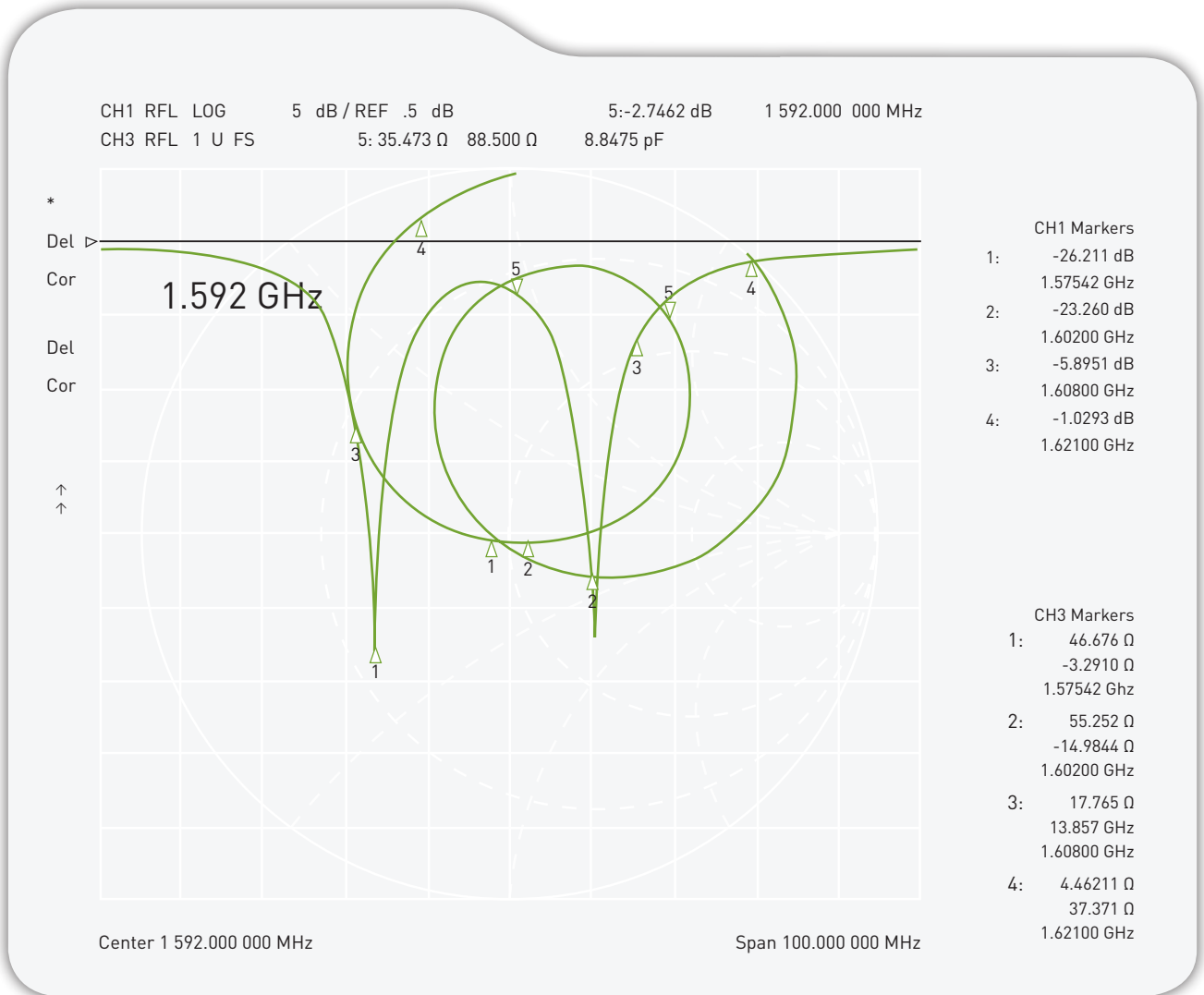
**Original Patch Specification tested on 50\*50mm ground plane**

NO.:	PARAMETER	SPECIFICATION	NOTES
1	Range of Receiving Frequency	GPS: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	2.0 max	Center Frequency
5	Gain at Zenith	GPS: 0.26dBic typ. GLONASS: 1.25dBic typ.	
8	Impedance	50 Ohms	
9	Frequency Temperature Coefficient (τf)	0 ± 20ppm / oC	-40°C to +85°C
10	Operating Temperature	-40°C to +85°C	

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

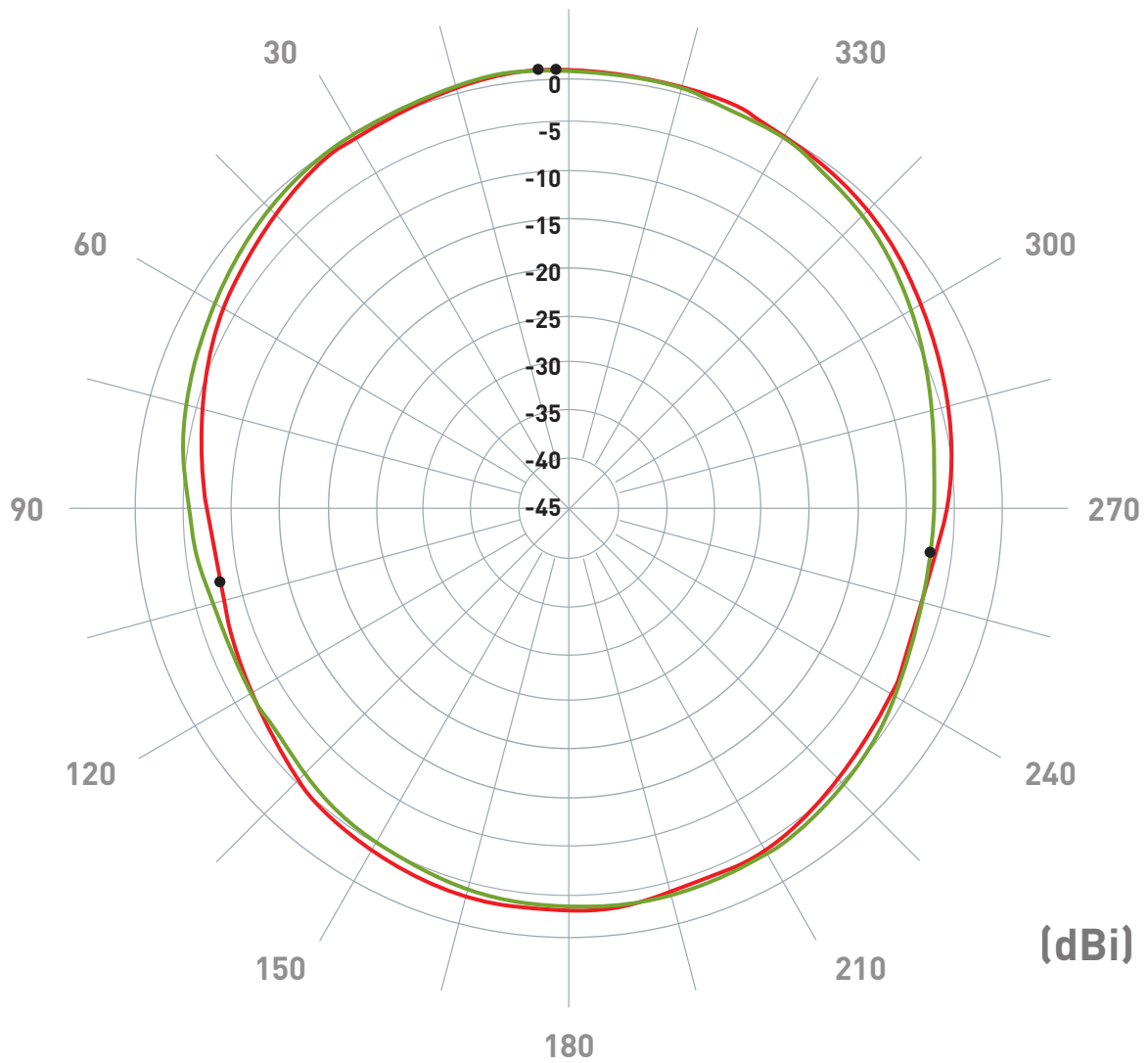
### 3. Electrical Specifications

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



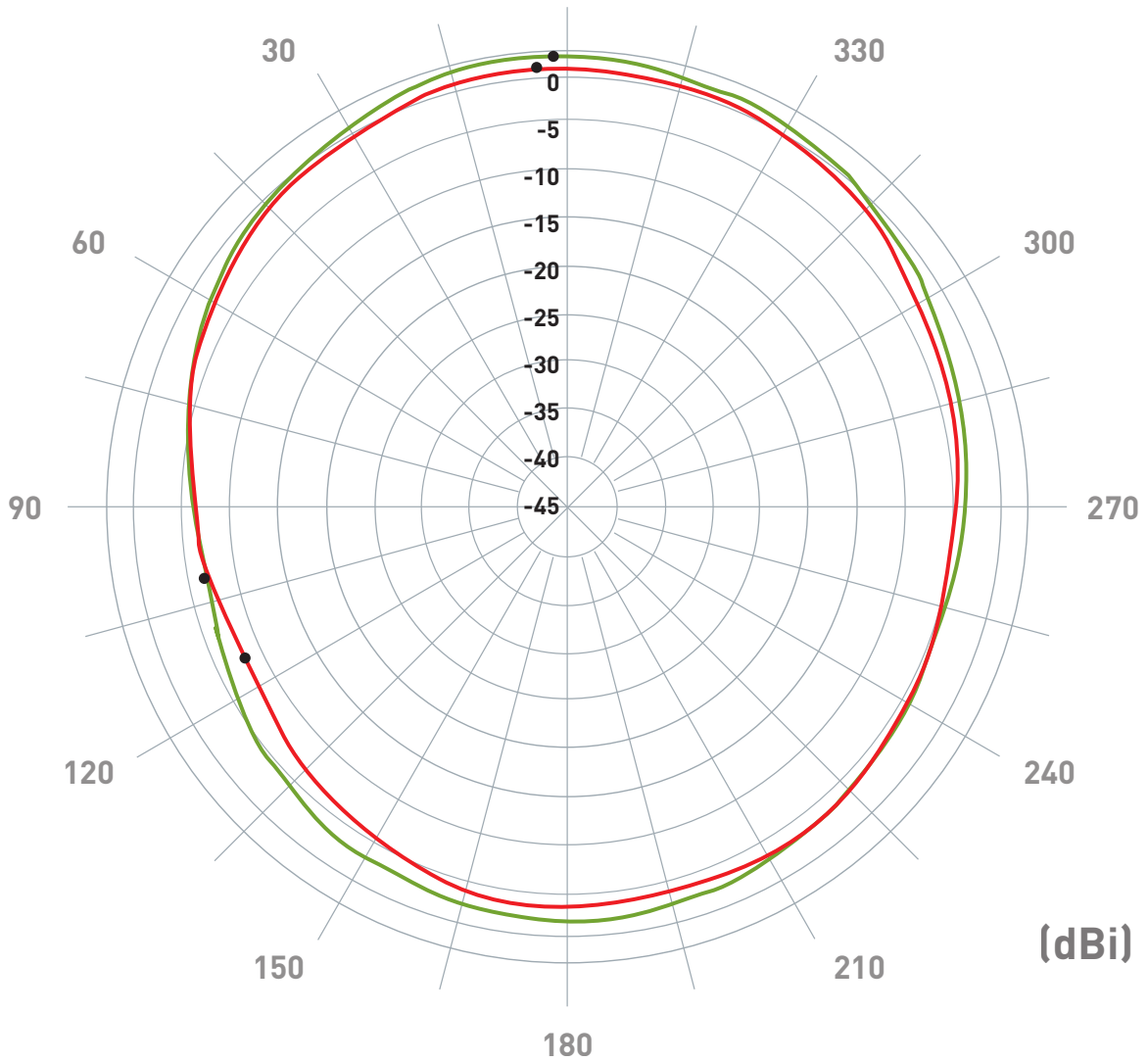
## 4. Radiation Patterns

### 4.1 1575MHz - XZ and YZ Plane



Pattern	Model No.	Test Mode	Freq (Mhz)	Max Gain (dBi)	Min Gain (dBi)	Avg. Gain (dBi)	Source Polar	Date
1	SGGP.18A	XZ	1575.42	0.72 / 2.00	-7.68 / 102.00	-2.81	V+H	2012/6/8
2	SGGP.18A	YZ	1575.42	0.82 / 4.00	-7.33 / 263.00	-2.79	V+H	2012/6/8

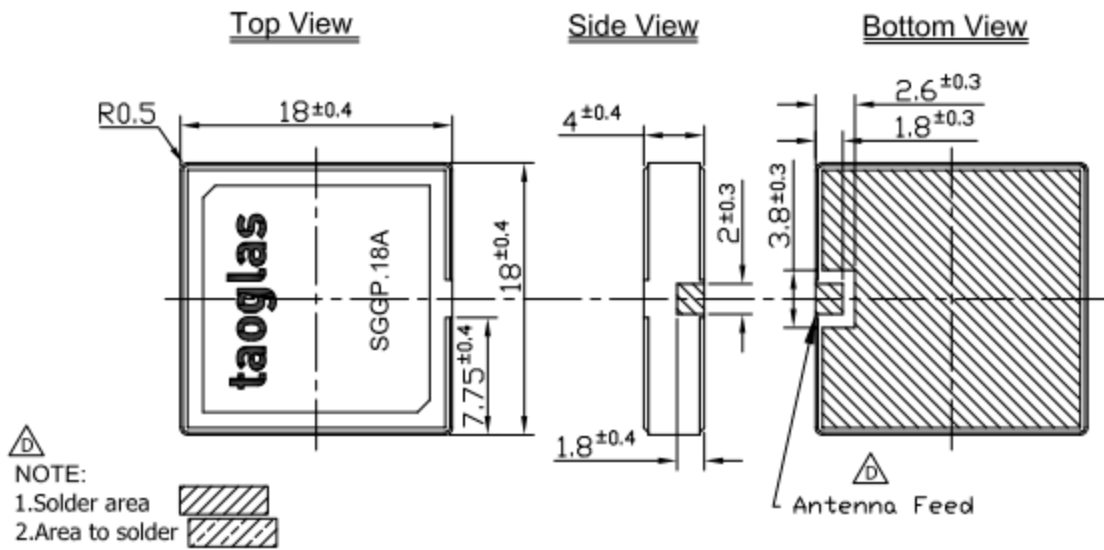
## 4.2 1602MHz - XZ and YZ Plane



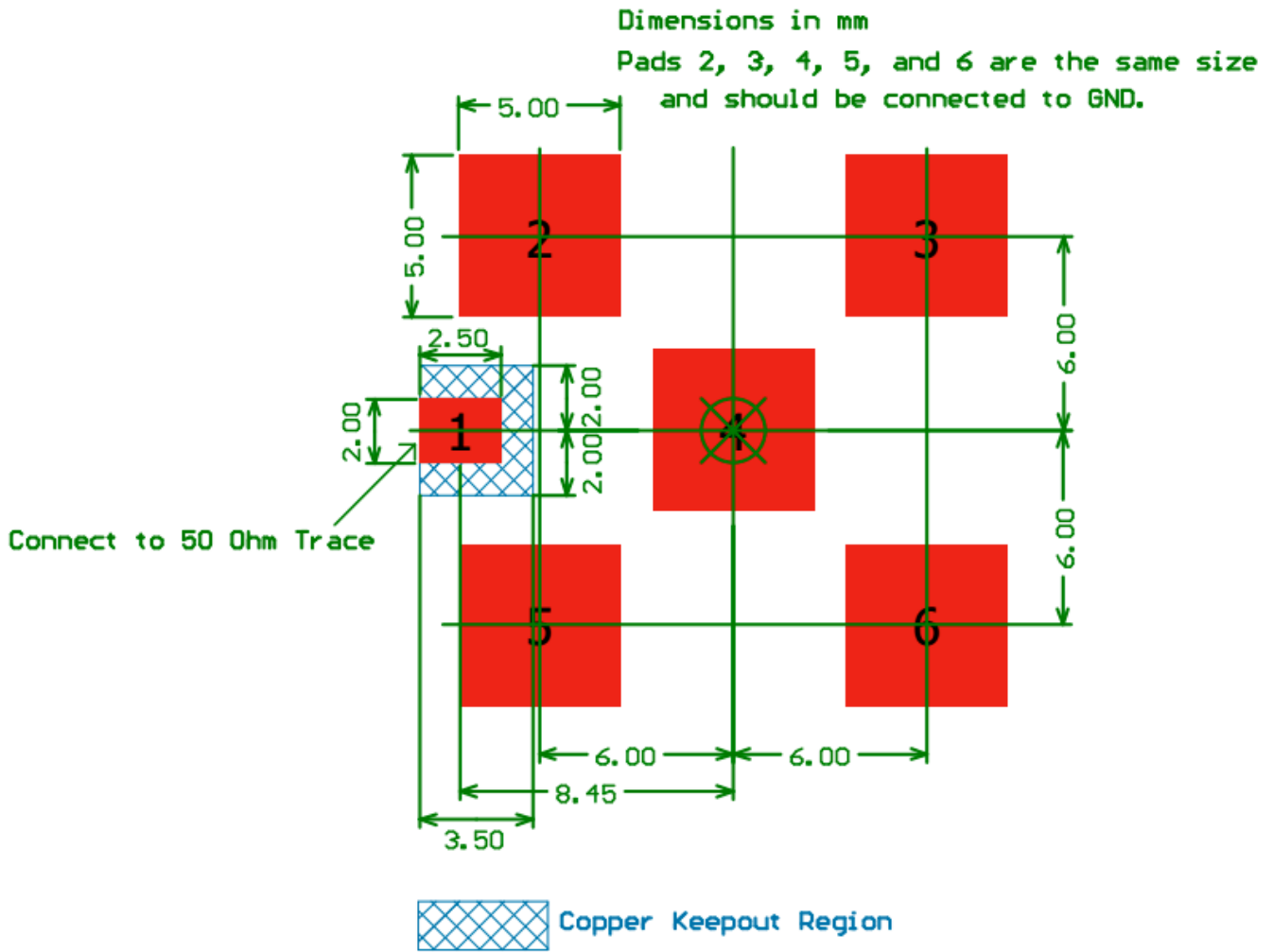
Pattern	Model No.	Test Mode	Freq (Mhz)	Max Gain (dBi)	Min Gain (dBi)	Avg. Gain (dBi)	Source Polar	Date
1	SGGP.18A	XZ	1602.00	1.25 / 4.00	-7.62 / 115.00	-2.19	V+H	2012/6/8
2	SGGP.18A	YZ	1602.00	2.27 / 2.00	-6.30 / 101.00	-1.28	V+H	2012/6/8

## 5. Mechanical Specifications

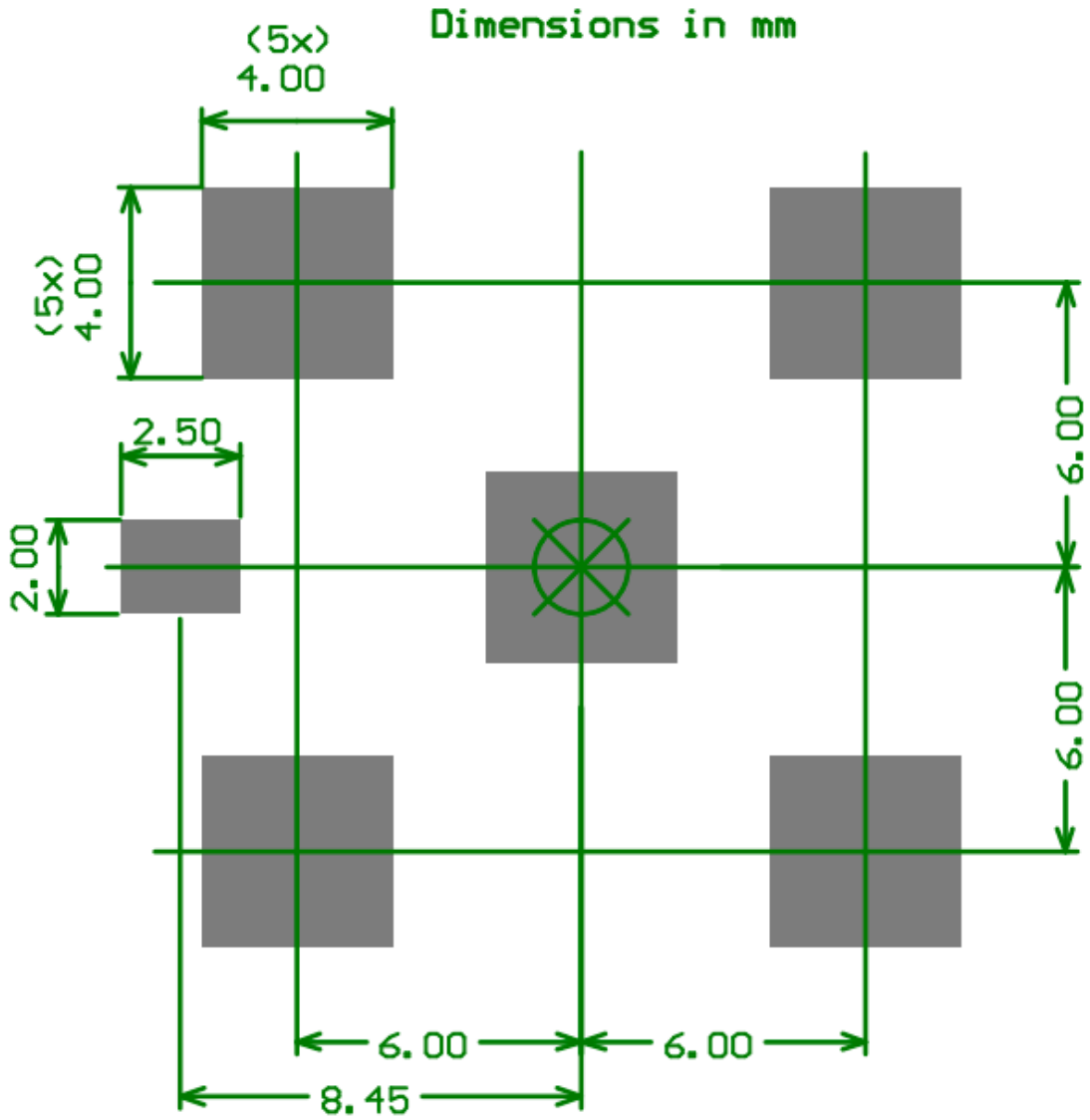
### 5.1 Antenna Dimensions and Drawing



### 5.1.1 Footprint Copper Keepout Area

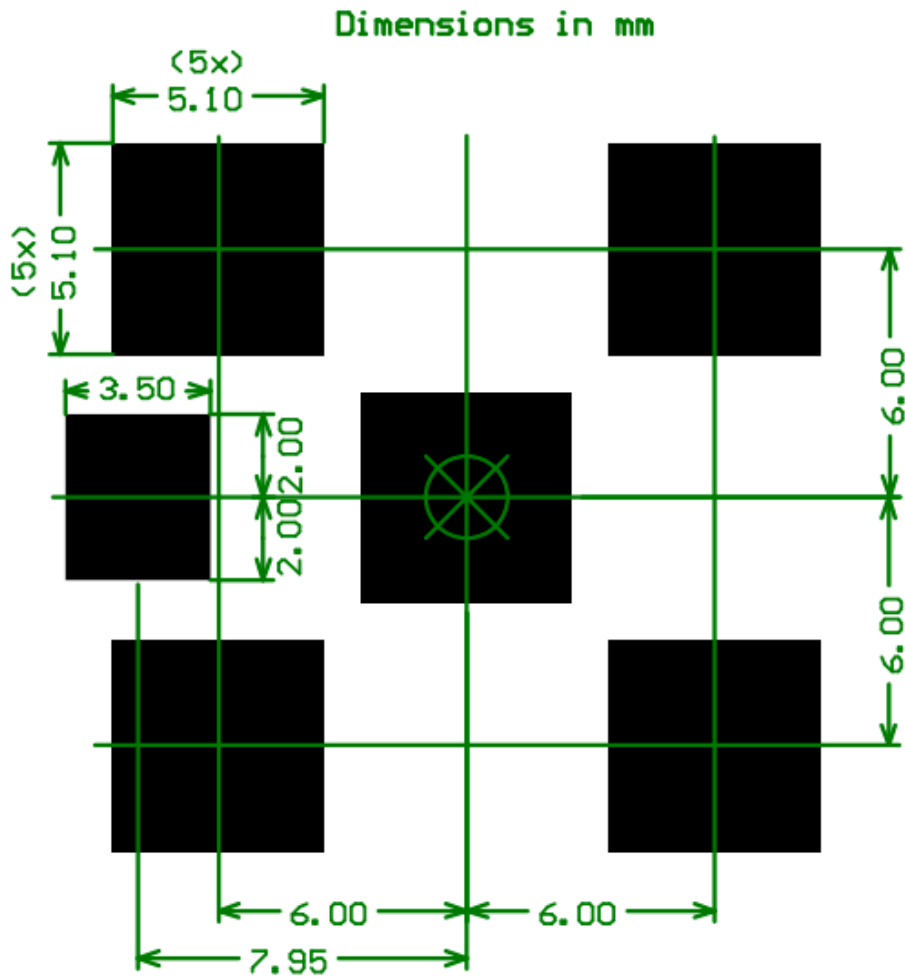


### 5.1.2 Paste Area



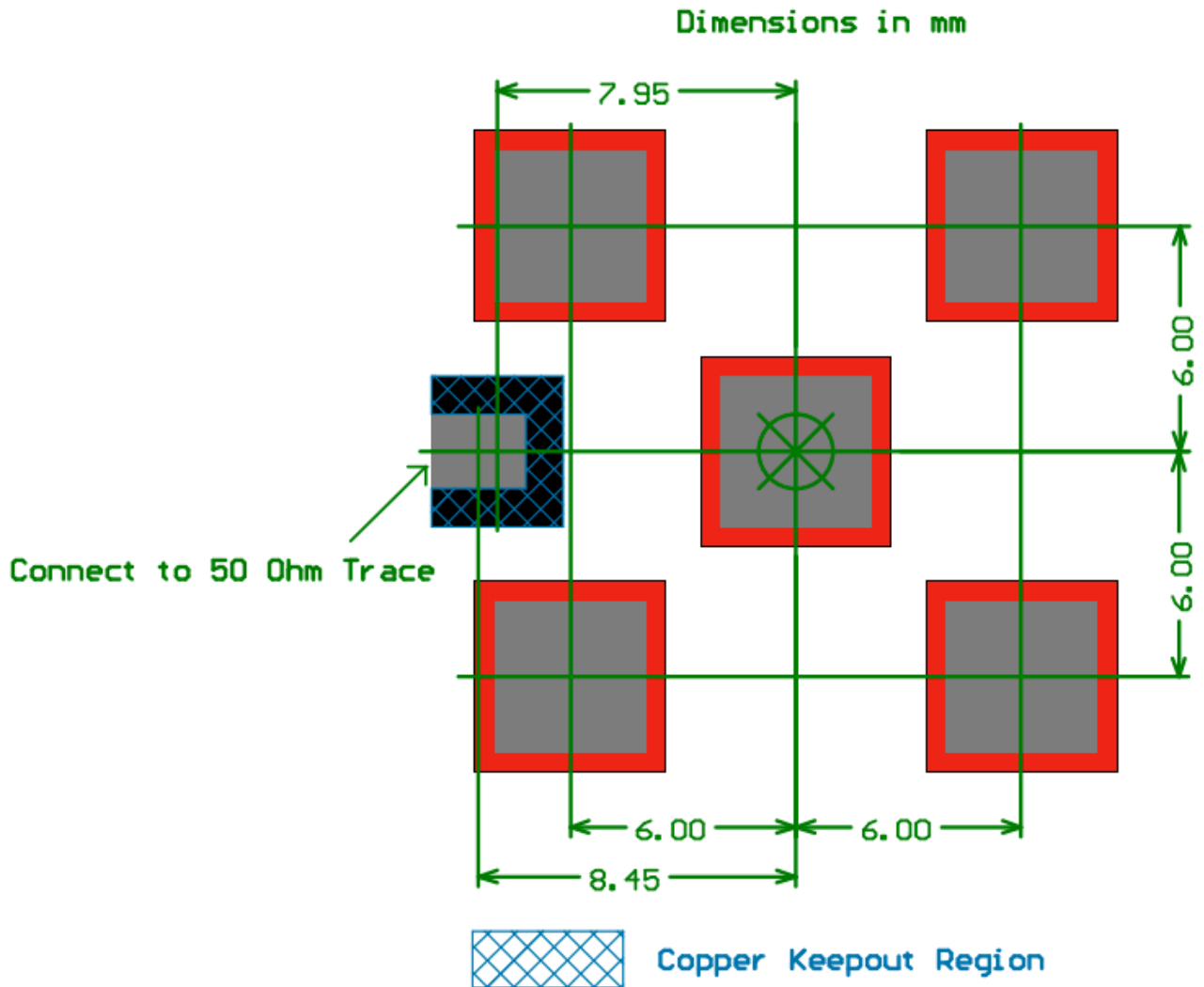


### 5.1.3 Soder Mask (Negative)

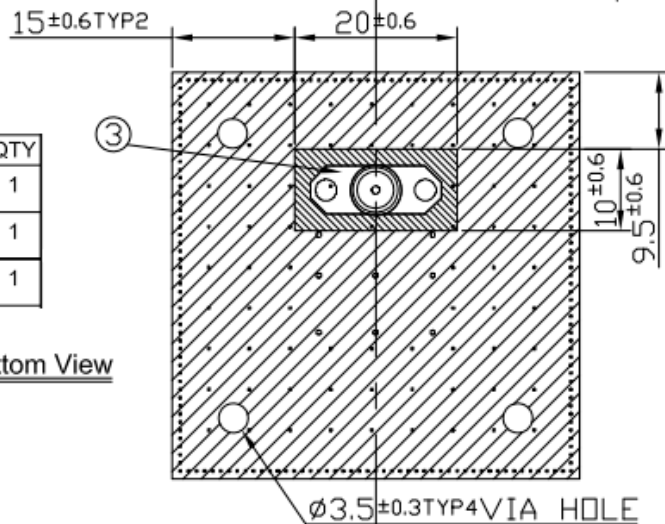
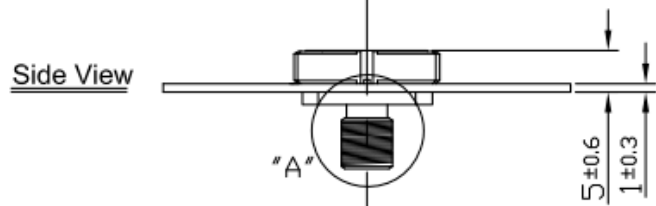
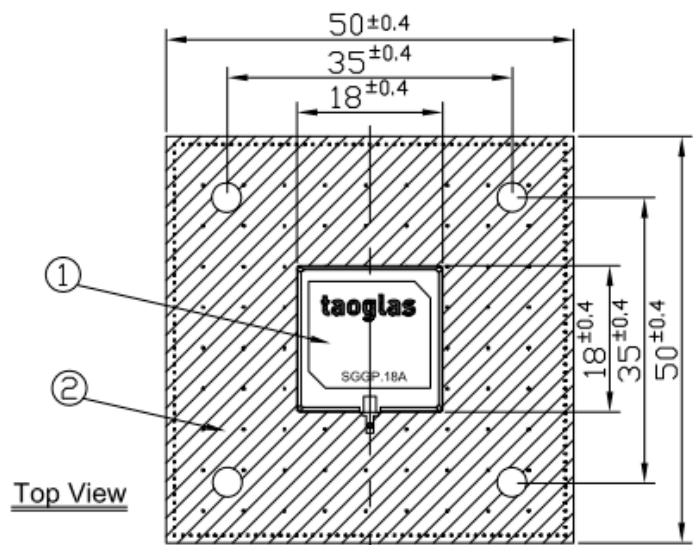
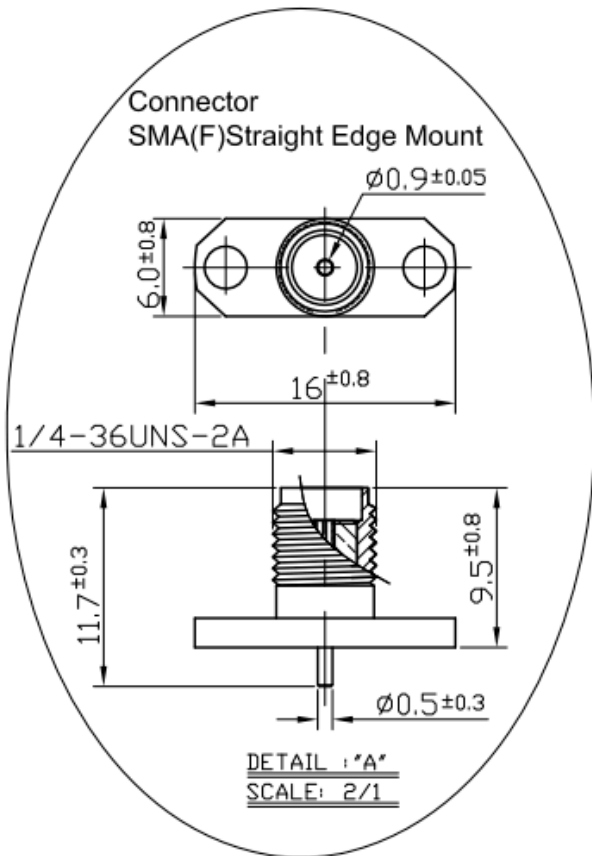


This drawing is a negative of solder mask.  
Black regions are anti-mask.



### 5.1.4 Footprint Composite



## 5.2 Test Jig and Dimension SGGP.18A

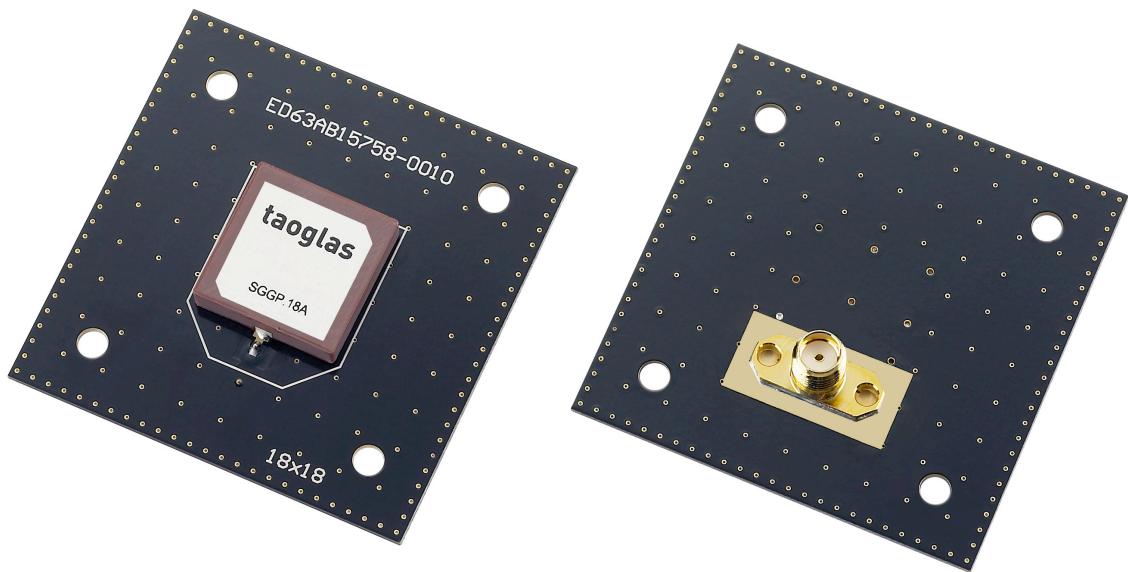


### NOTES:

1. Solder Mask (Black) 
2. Solder Area 

	Name	Material	Finish	QTY
1	SGGP.18A Patch 18x18x4	Ceramic	Clear	1
2	FR4 PCB	FR4 1t	Black	1
3	SMA(F)Straight Edge Mount	Brass	Gold	1

### 5.3 SGGPD.18A

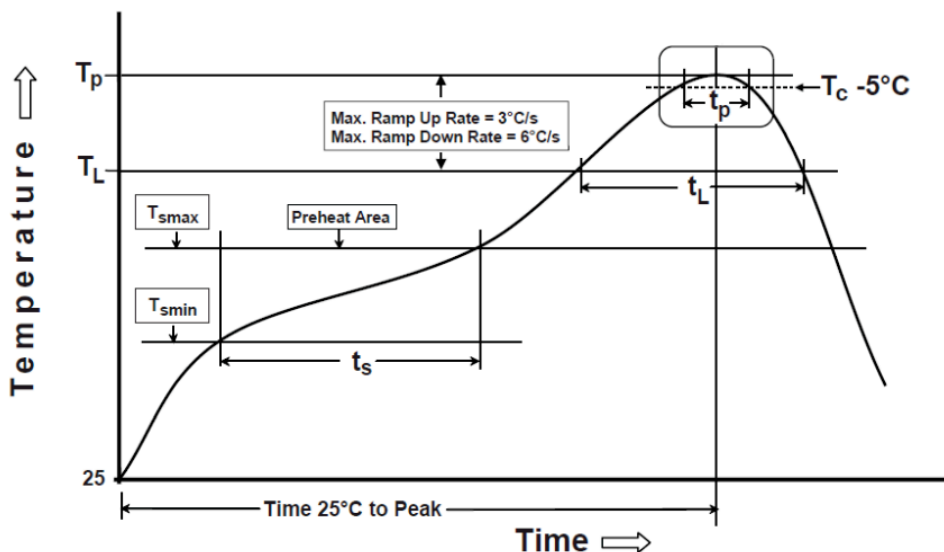


## 6. Recommended Reflow Soldering Profile

SGGP.18A can be assembled following Pb-free assembly. According to the Standard IPC/JEDEC J-STD-020C, the temperature profile suggested is as follows:

Phase	Profile Features	Pb-Free Assembly (SnAgCu)
PREHEAT	Temperature Min( $T_{smin}$ ) Temperature Max( $T_{smax}$ ) Time( $t_s$ ) from ( $T_{smin}$ to $T_{smax}$ )	150°C 200°C 60-120 seconds
RAMP-UP	Avg. Ramp-up Rate ( $T_{smax}$ to TP)	3°C/second(max)
REFLOW	Temperature( $T_L$ ) Total Time above $T_L$ ( $t_L$ )	217°C 30-100 seconds
PEAK	Temperature( $T_P$ ) Time( $t_p$ )	260°C 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

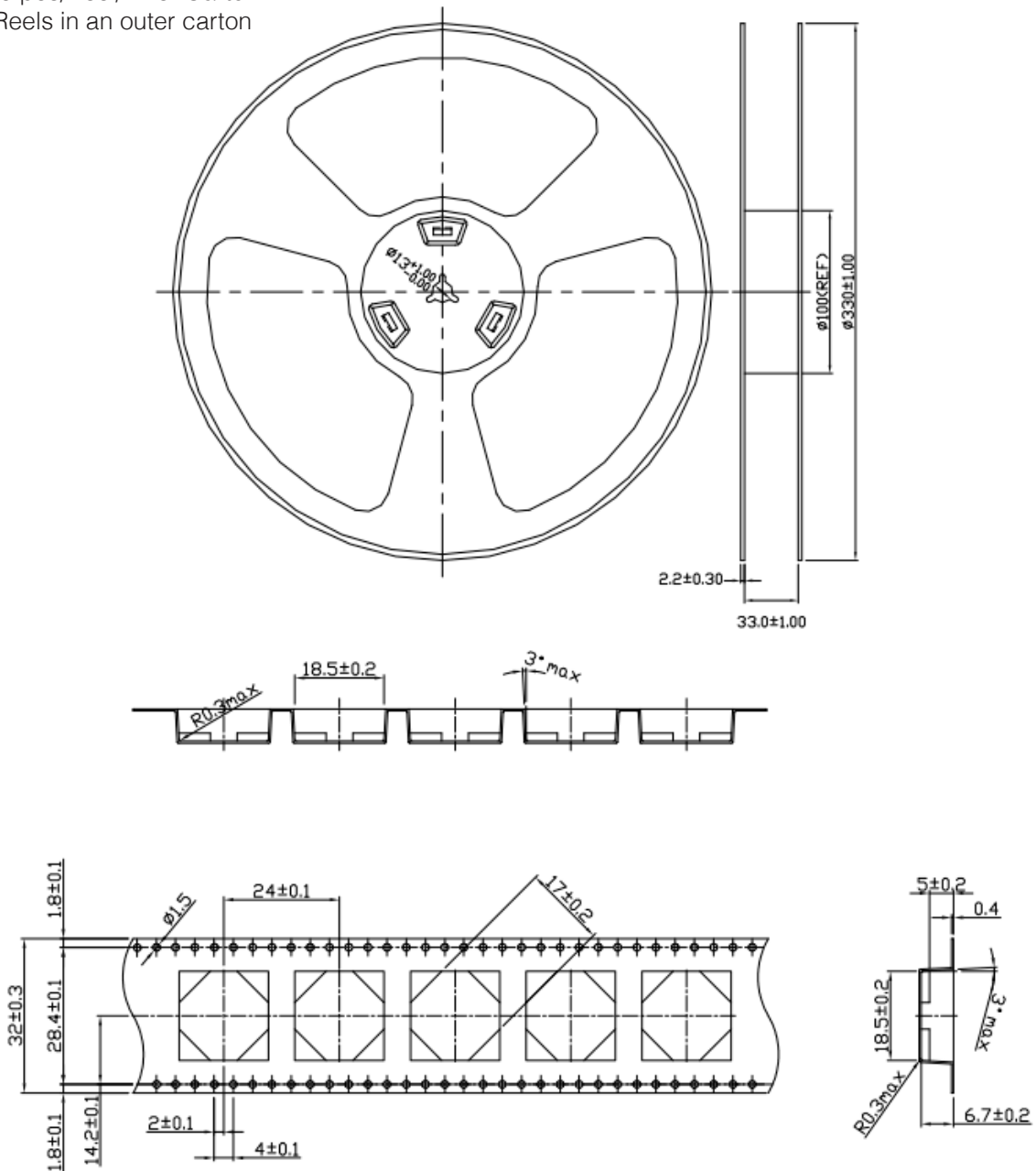


Soldering Iron condition: Soldering iron temperature  $270^{\circ}\text{C} \pm 10^{\circ}\text{C}$ .

Apply preheating at  $120^{\circ}\text{C}$  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  
5 Reels in an outer carton



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