

Specification

- Part No.** : **SGGP.18.4.A.08**
GPS/GLONASS/GALILEO SMD Patch Antenna
- Features** : SMD Direct Mount Ceramic Patch Antenna
GPS/GALILEO/GLONASS Antenna
GPS L1 (1575.42 MHz) – 78% Efficiency
GLONASS L1 (1602 MHz) – 80% Efficiency
Dimensions: 18*18*4mm
RoHS compliant



1. Introduction

The Taoglas SGGP.18 is a ceramic GPS/GLONASS/GALILEO passive patch antenna designed for optimal performance on GPS L1 band (1575.42 MHz) and GLONASS L1 band (1602 MHz). With a low-profile thickness of just 4mm and convenient mounting via standard SMD process, it is ideal for high-volume, low-cost assembly applications. SGGP.18 is designed for applications in navigation devices, vehicle tracking/fleet management systems, and telematics devices. It is an excellent choice for applications in transportation, defense, marine, agriculture, and navigation industries.

This antenna has been tuned for use on a 50mm*50mm ground plane to achieve 2.86 dBi gain at 1575.42 MHz and 3.04 dBi gain at 1602 MHz. In addition to excellent efficiency, it also offers a broadly hemispherical radiation pattern with stable gain across elevations.

SGGP.18 is manufactured and tested in an IATF16949 first tier automotive approved facility. For further optimization to customer-specific device environments, custom tuned patch antennas can be supplied, subject to NRE and MOQ.

For more information or support with integrating this antenna into your device, please contact your regional Taoglas sales office.

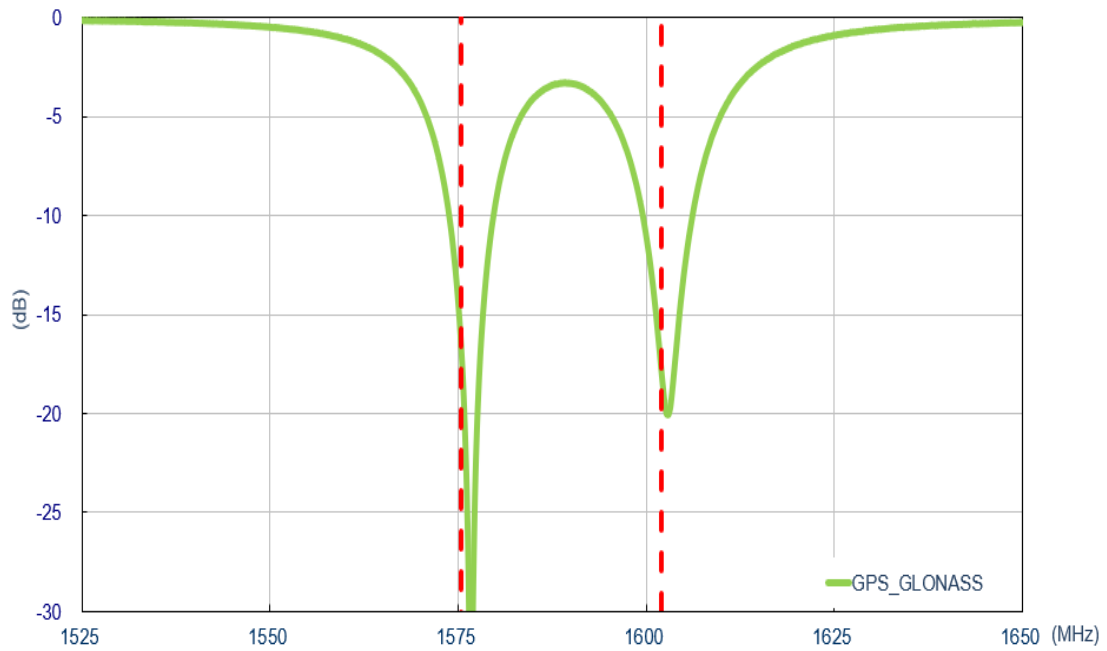
2. Specification

ELECTRICAL*		
Application Bands	GPS/GALILEO	GLONASS
Operation Frequency (MHz)	1575.42 ±1.023	1602±5
Return Loss (dB)	< -10	< -10
Efficiency (%)	78	80
Average Gain (dB)	-1.07	-0.98
Peak Gain (dBi)	2.86	3.04
Impedance	50 ohms	
Polarization	RHCP	
MECHANICAL		
Ceramic Dimension	18*18*4mm	
Weight	5.8g	
ENVIRONMENTAL		
Operation Temperature	-40°C to 85°C	
Humidity	Non-condensing 65°C 95% RH	

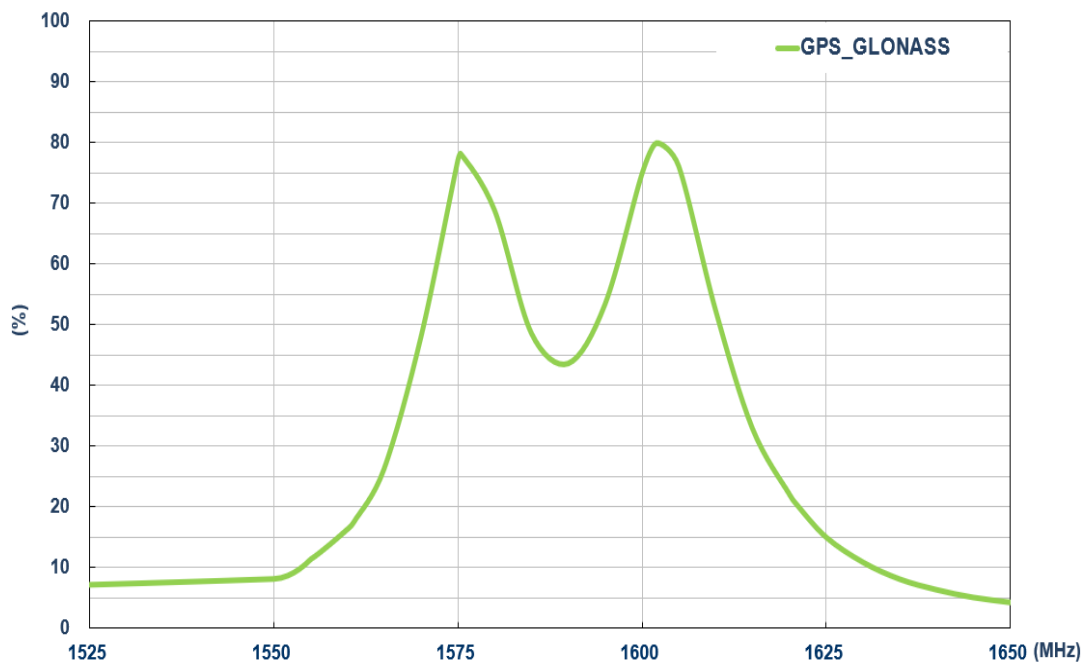
*Measurements tested on 50*50mm ground plane

3. Antenna Characteristics

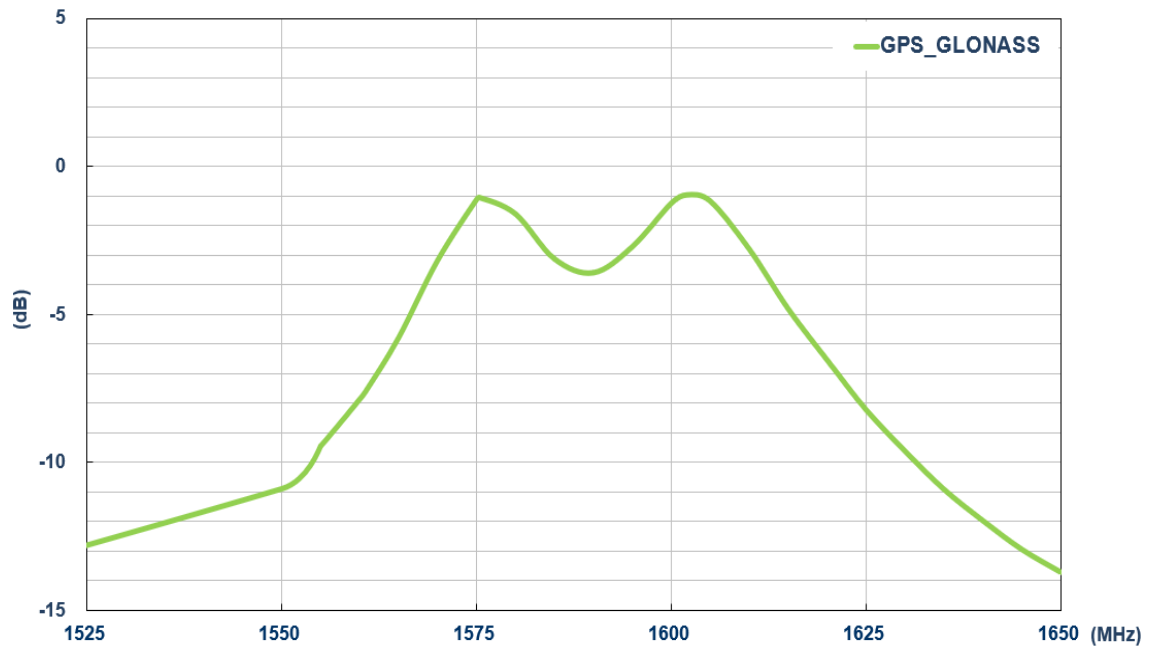
3.1. Return Loss



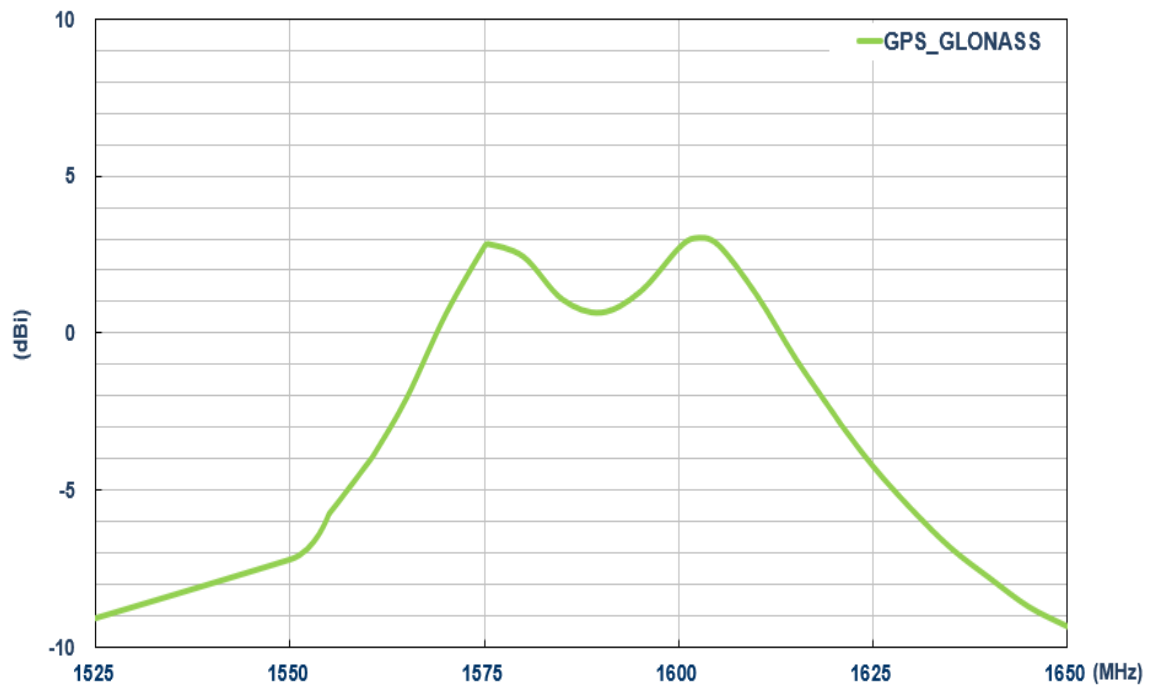
3.2. Efficiency



3.3. Average Gain



3.4. Peak Gain



4. Antenna Radiation Pattern

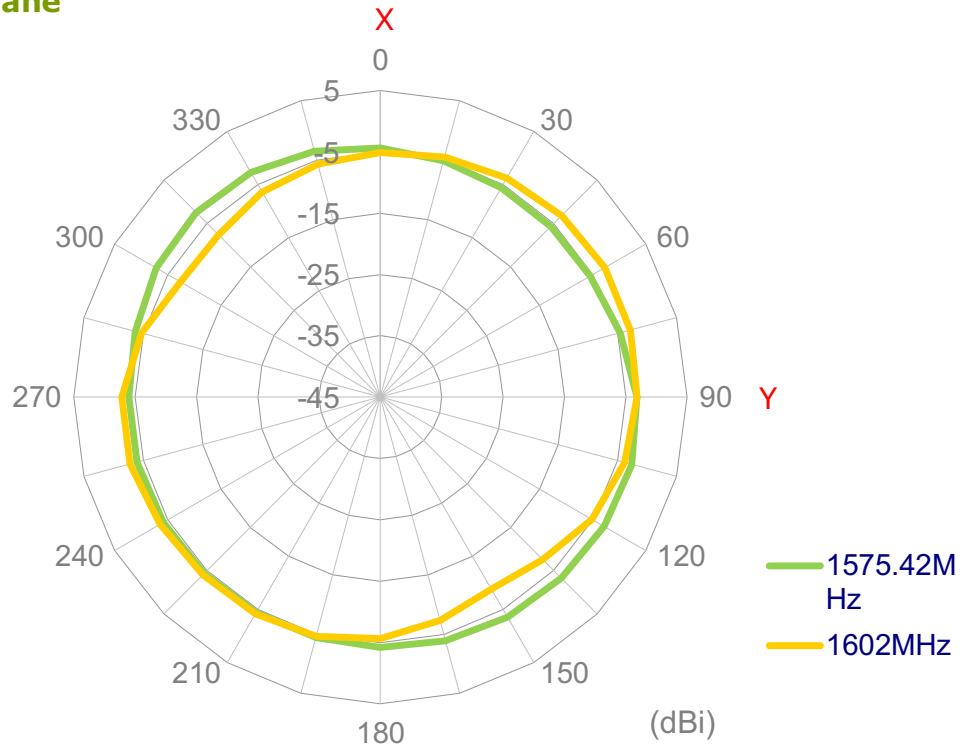
4.1. Measurement Setup

The SGGP.18.4.A.08 antenna is tested with 50mm*50mm ground plane in a CTIA certified ETS-Lindgren Anechoic Chamber. The test setup is shown below.

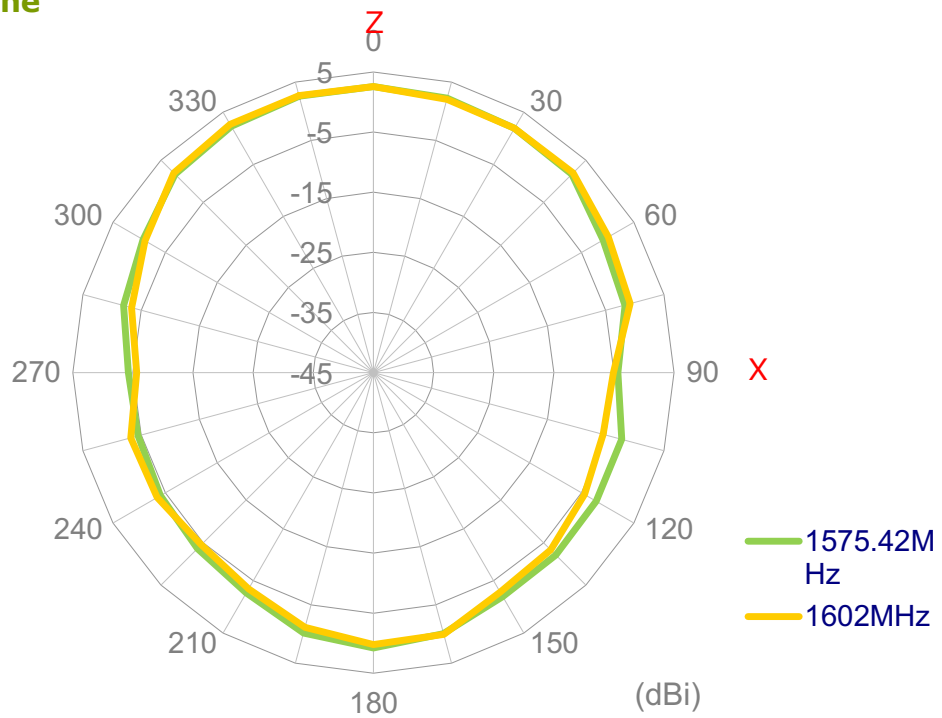


4.2. 2D Radiation Pattern

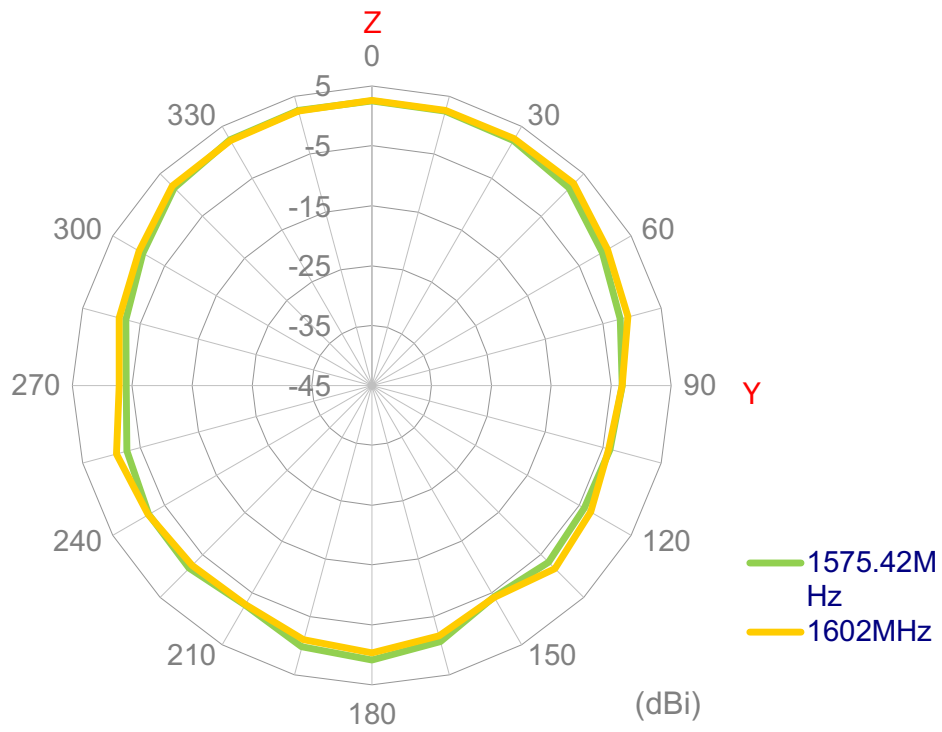
XY Plane



XZ Plane

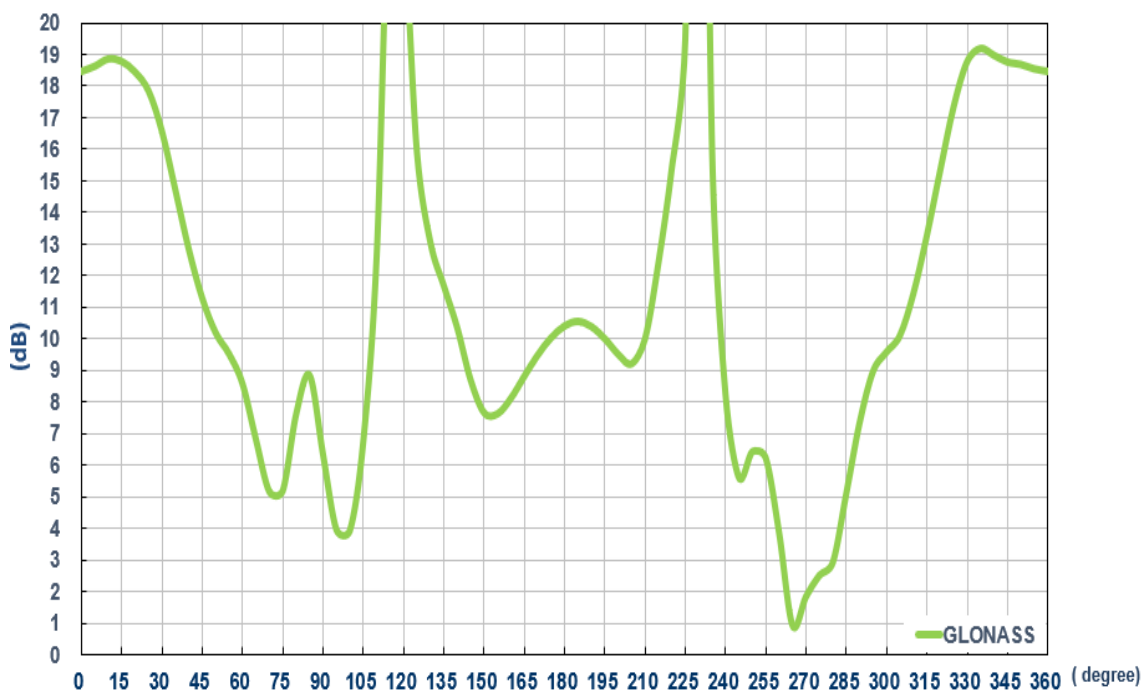
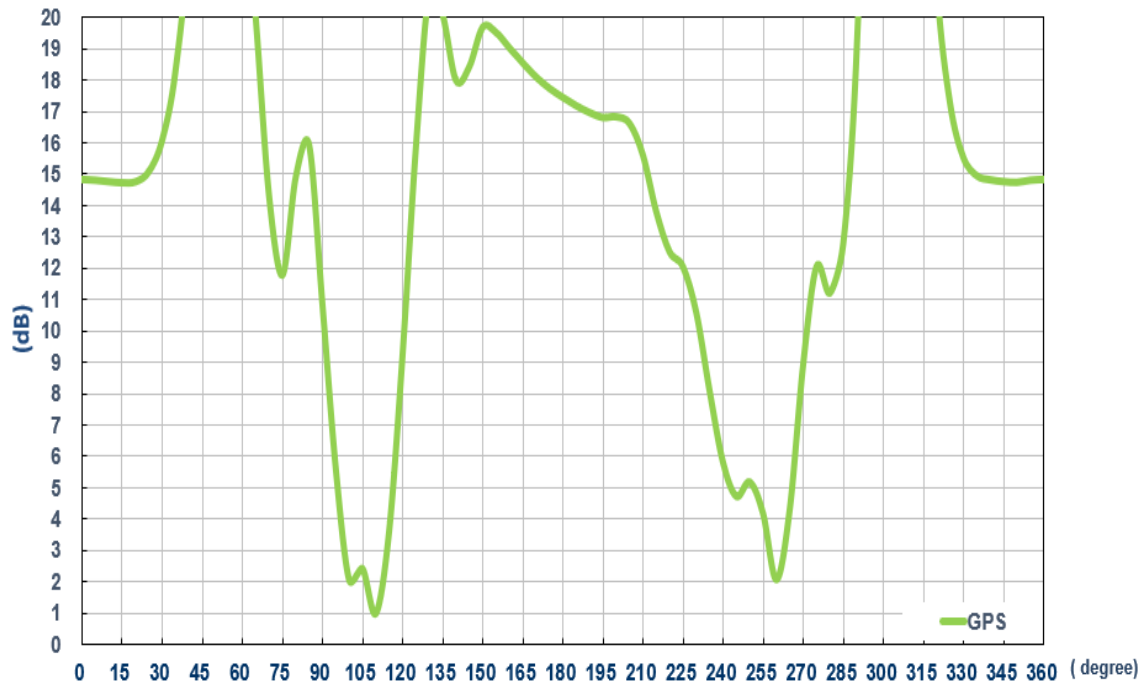


YZ Plane

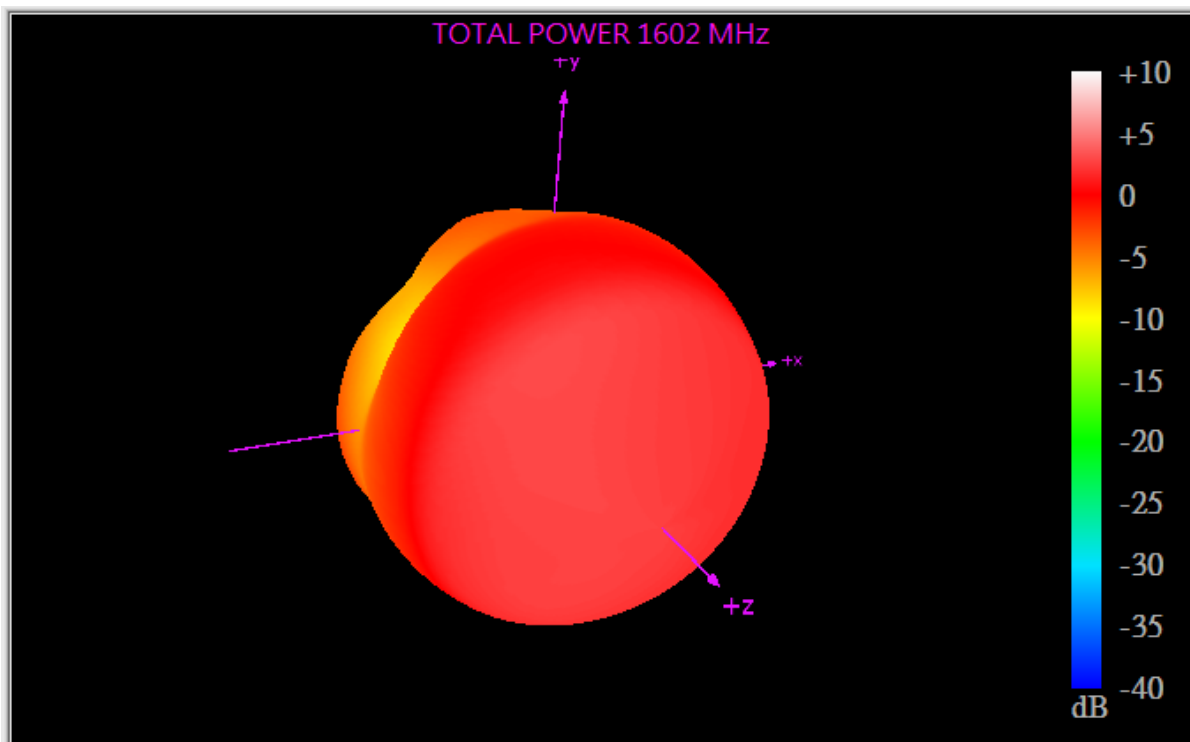
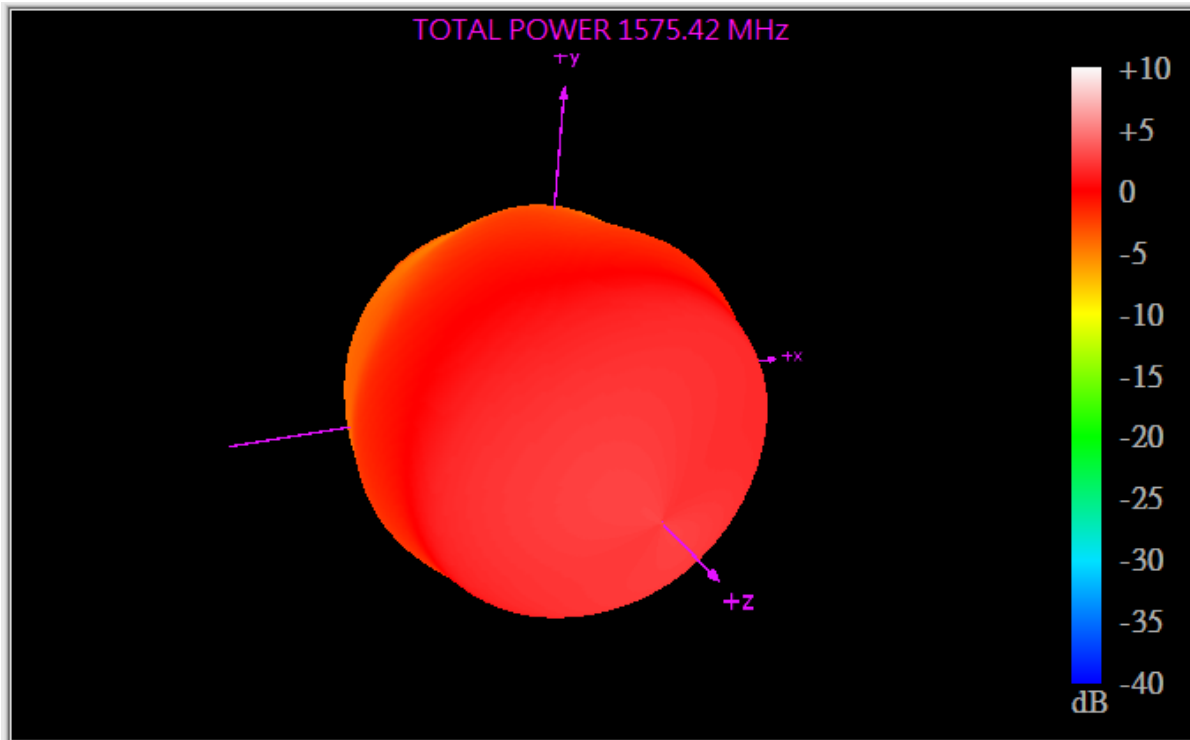


4.3. Axial Ratio

Zenith is at 0 degrees

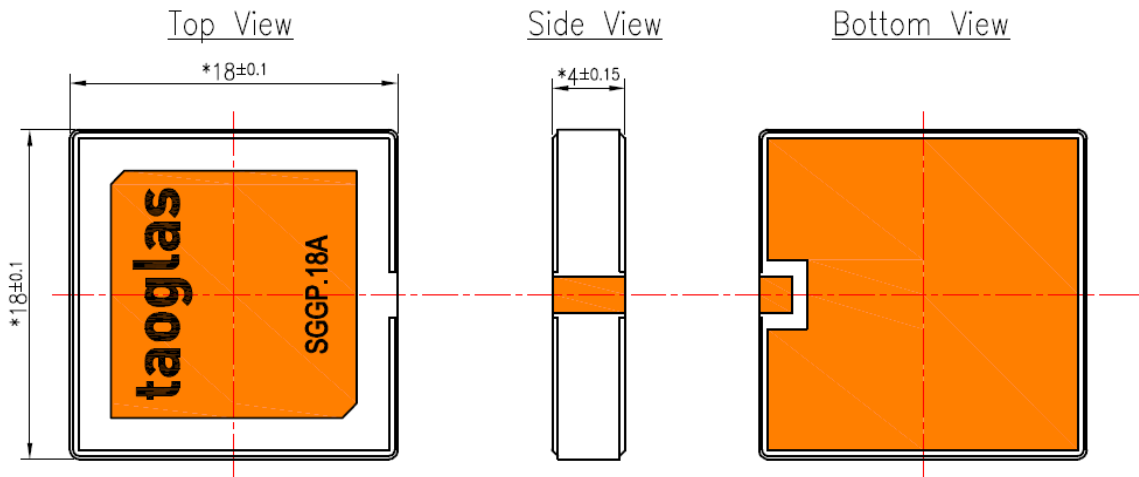


4.4 3D Radiation Pattern



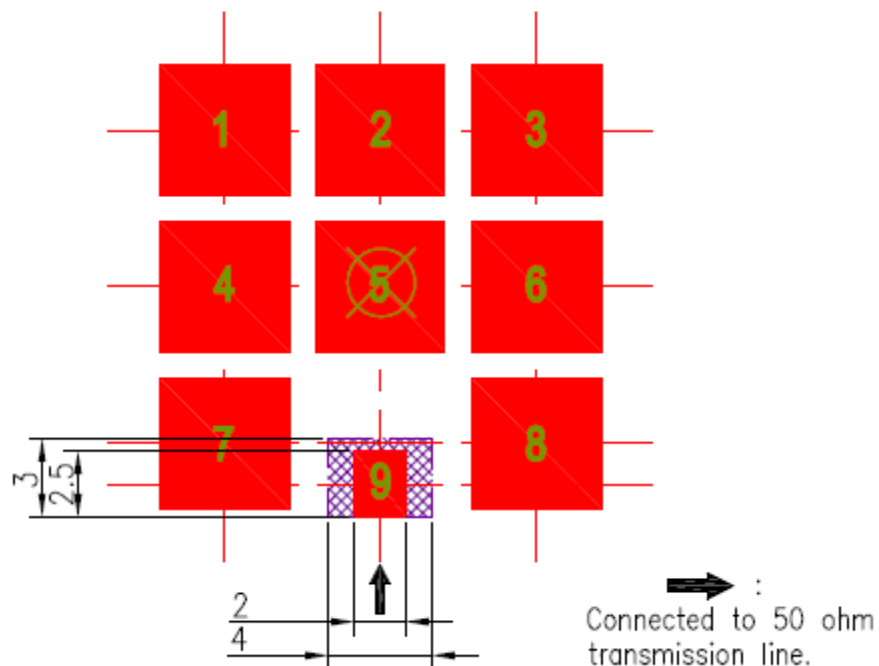
5. Mechanical Drawing (Units: mm)

5.1. Antenna Dimensions and Drawing



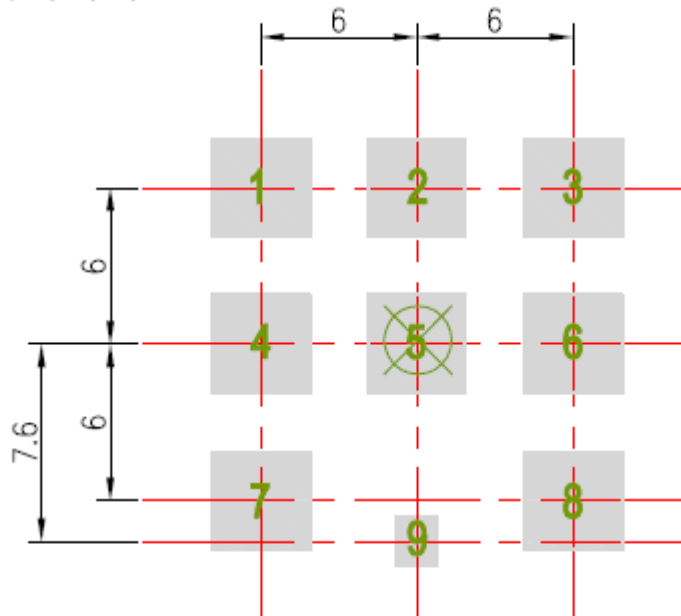
5.2. Top Copper and Copper Keepout

Pads 9 should be connected to a 50 ohm transmission line.
 Pads 1, 2, 3, 4, 5, 6, 7 and 8 should be connected to GND.



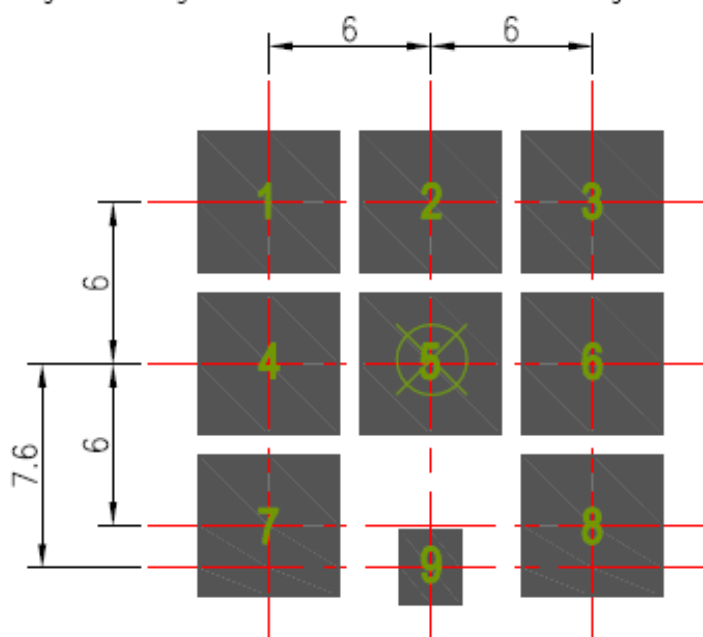
5.3. Solder Paste Area

Pads 1, 2, 3, 4, 5, 6, 7 and 8 are the same size.

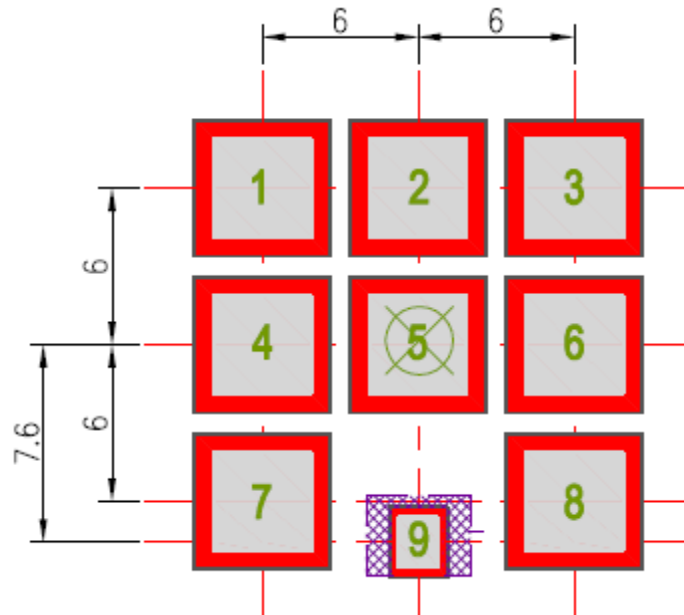


5.4. Solder Mask(Negative)

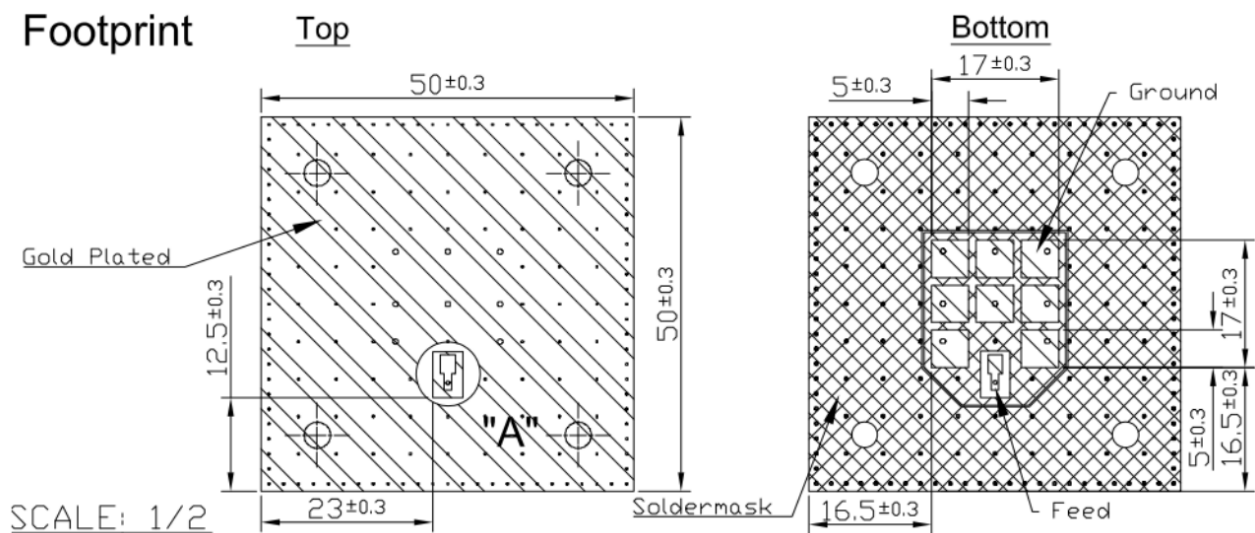
Pads 1, 2, 3, 4, 5, 6, 7 and 8 are the same size,
This drawing is a negative of solder mask. Black regions are anti-mask.



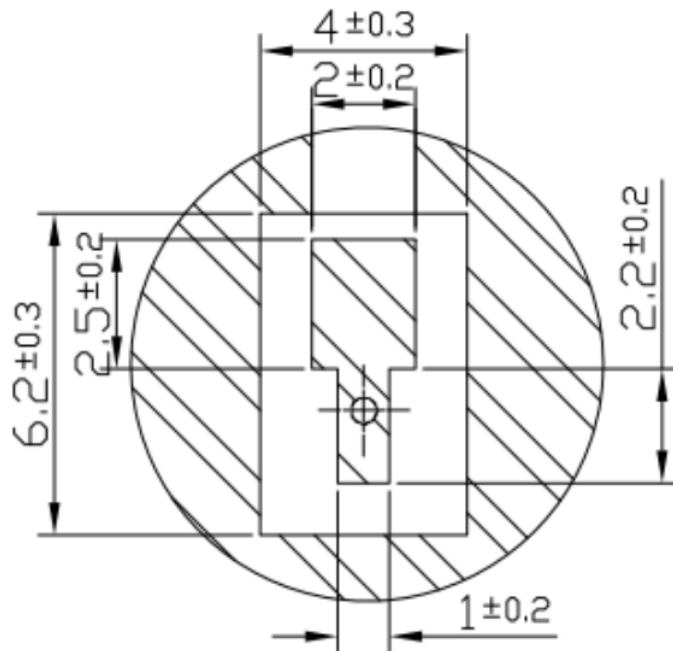
5.5. Footprint Composite



5.6 Evaluation Board

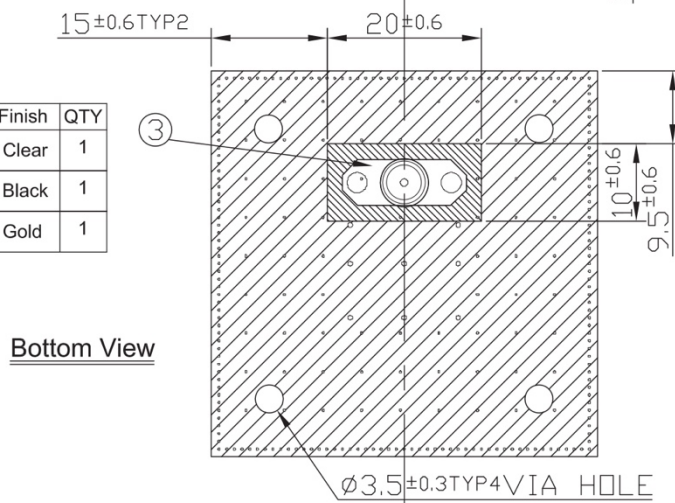
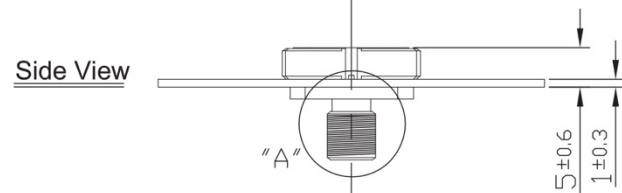
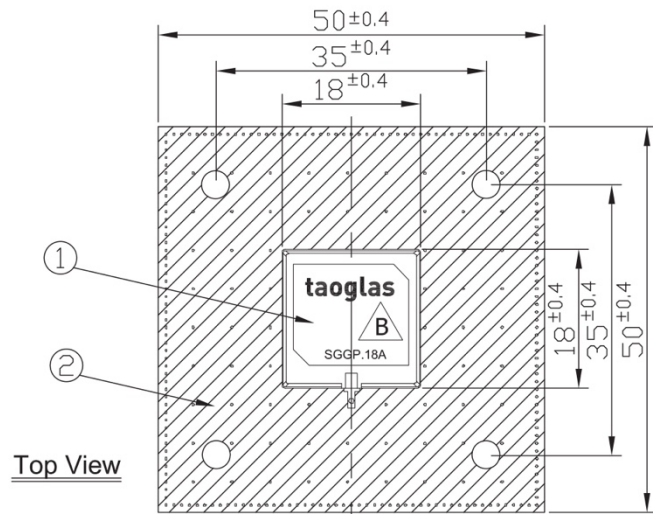
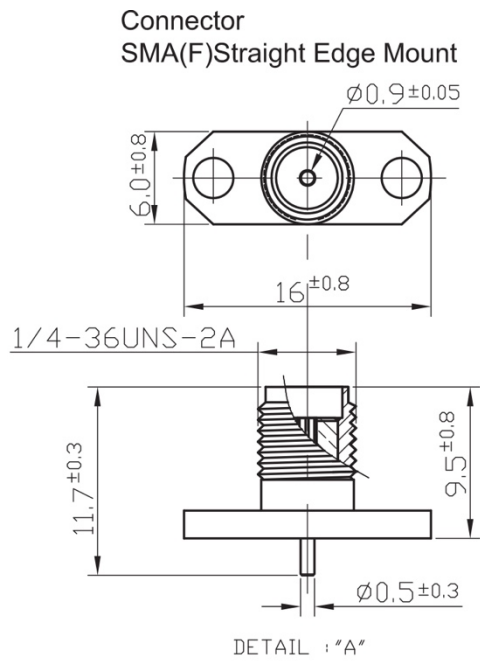


5.7 Feed



DETAIL : "A"
SCALE: 2/1

5.8 Evaluation Board - SGGPD.18.A



	Name	Material	Finish	QTY
1	SGGP.18A Patch18x18x4	Ceramic	Clear	1
2	FR4 PCB	FR4 1t	Black	1
3	SMA(F)Straight Edge Mount	Brass	Gold	1

6. Antenna Recommended Soldering Conditions

6.1. Flux, Solder

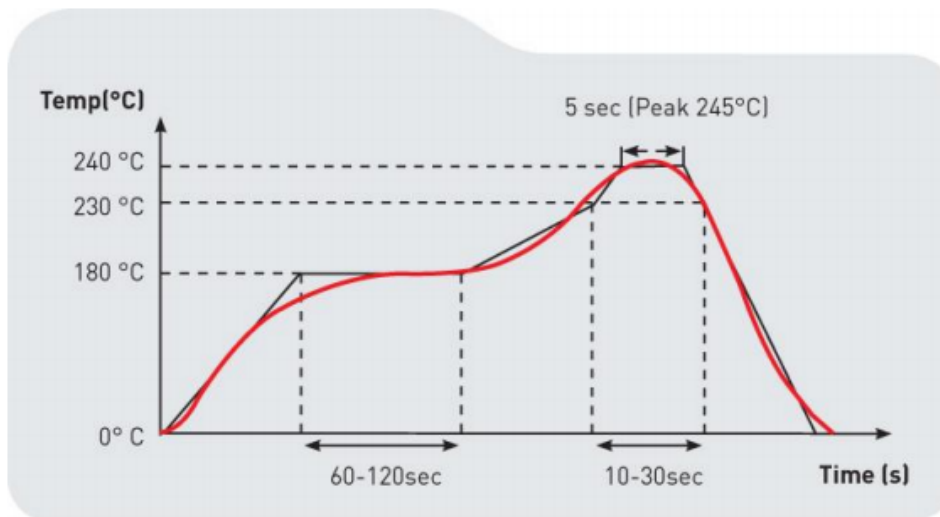
- Use rosin-based flux. Don't use highly acidic flux with halide content exceeding 0.2wt%(chlorine conversion value).
- Use Sn solder.

6.2. Reflow soldering conditions

- Pre-heating should be in such a way that the temperature difference between solder and product surface is limited to 150°C max. Cooling into solvent after soldering also

should be in such a way that temperature difference is limited to 100°C max.

Unwrought pre-heating may cause cracks on the product, resulting in the deterioration of products quality.



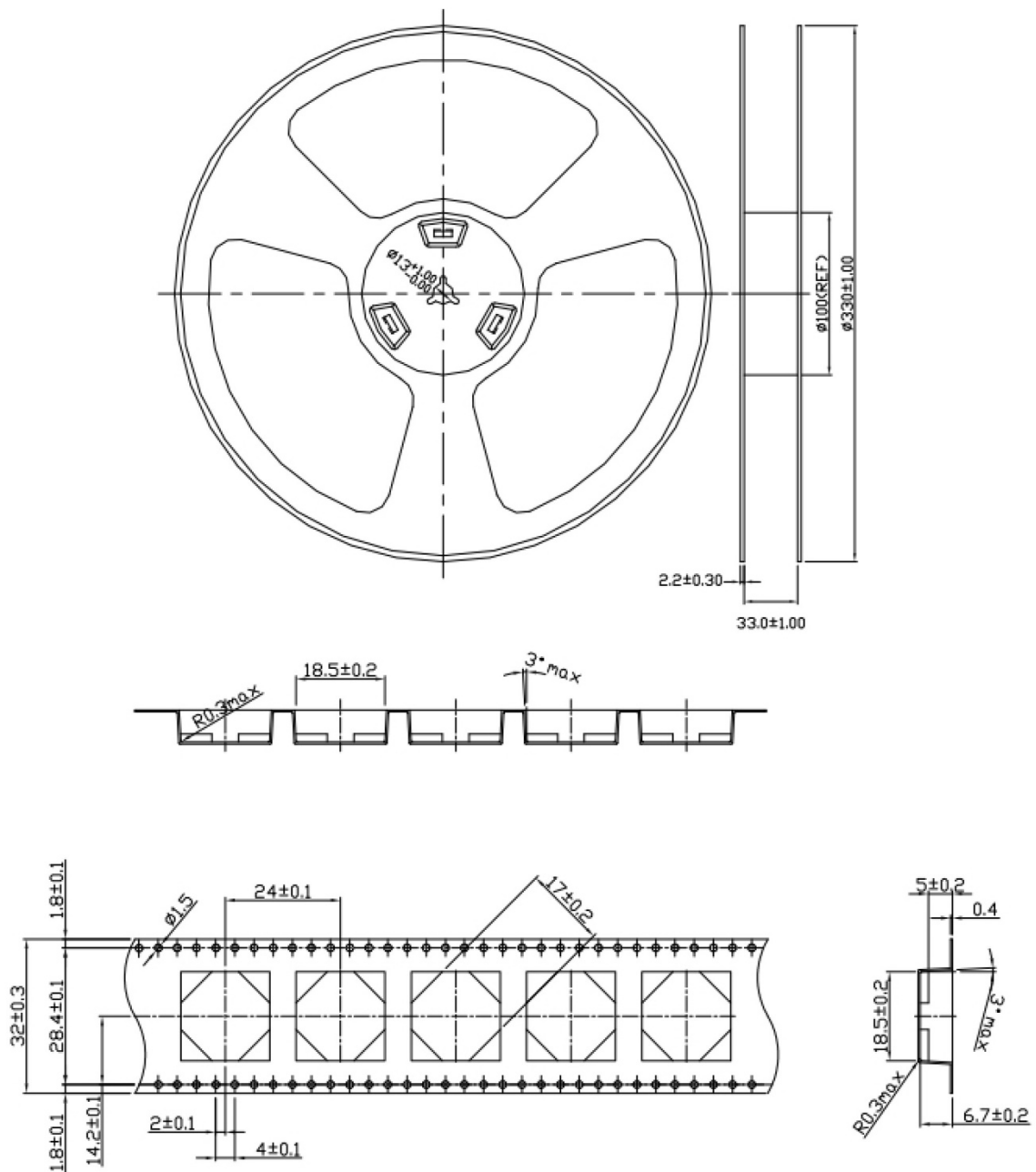
6.3. Reworking with soldering iron

- The following conditions must be strictly followed when using a soldering iron.

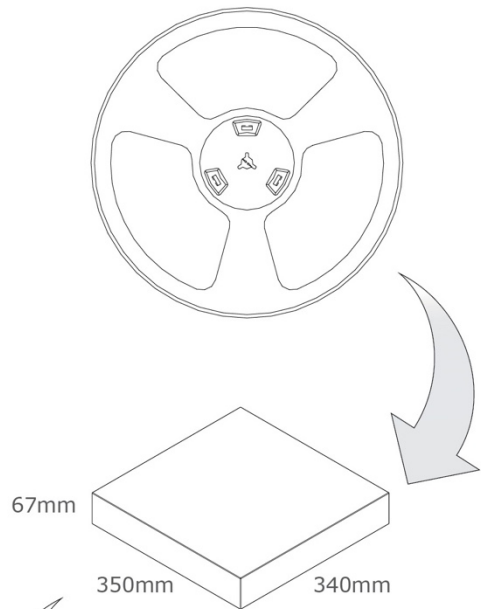
Pre-heating	150°C, 1 min
Tip temperature	290°C max
Soldering iron output	30w max
Soldering time	3 second max

7. Packaging

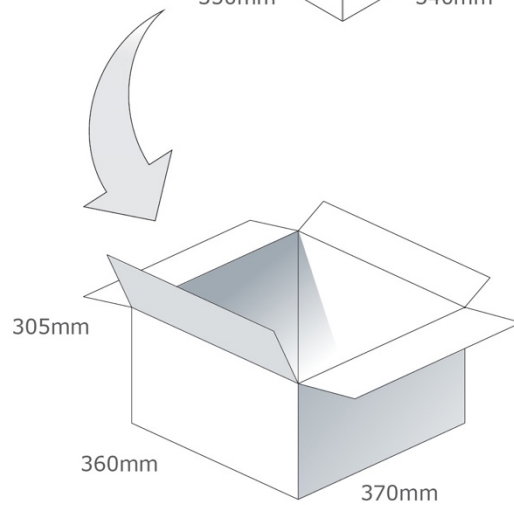
200 pc SGGP.18.4.A.08 per reel
 Dimensions - Ø330*33mm
 Weight - 2.125Kg



200 pc SGGP.18.4.A.08 per small box
Dimensions - 350*340*67mm
Weight - 2.125Kg



800 pcs SGGP.18.4.A.08 per carton
Dimensions - 370*360*305mm
Weight - 8.5Kg



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