

SGP.25c

## Specification

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

## 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 45x45mm ground plane.

## 2. Specification

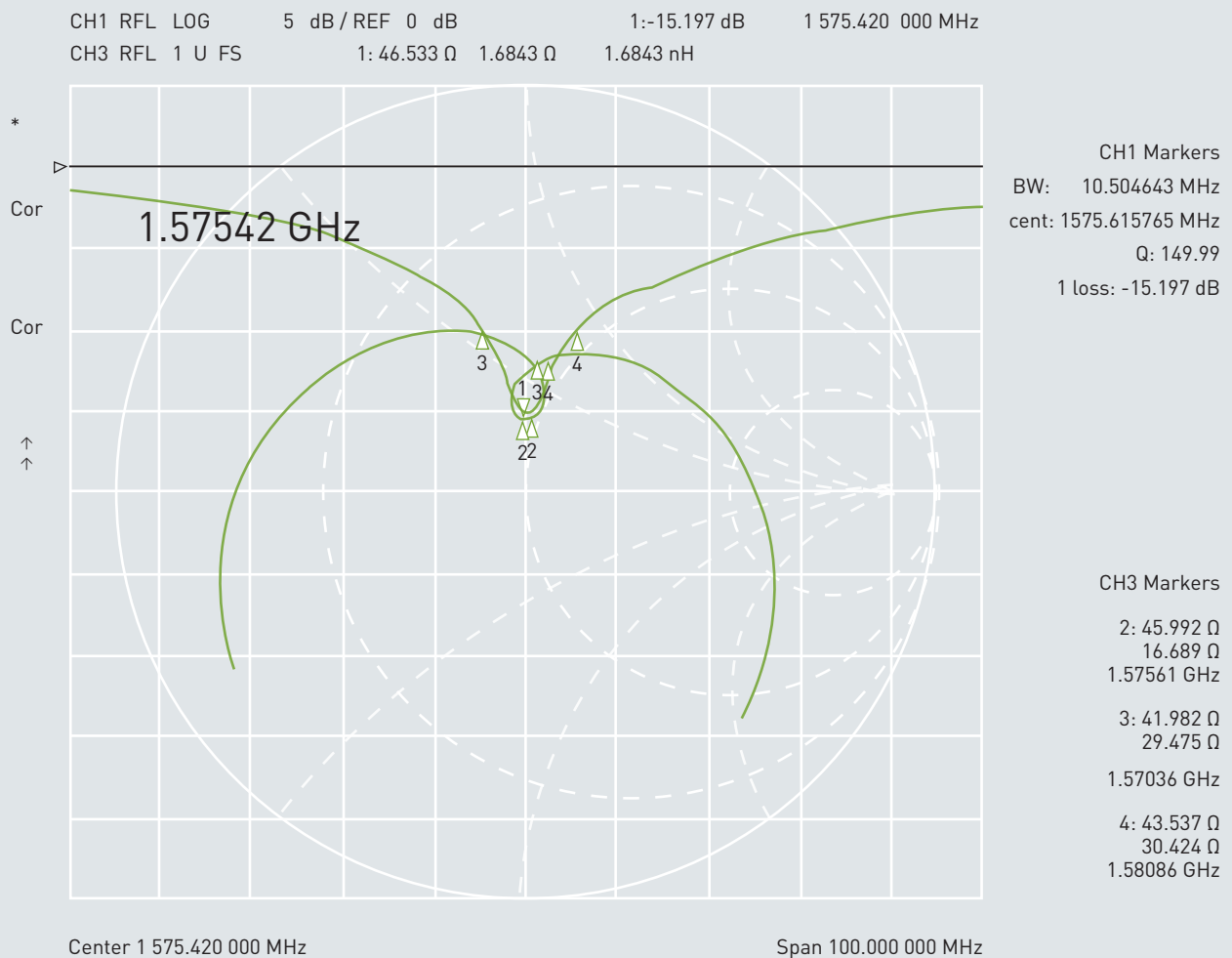
### Original Patch Specification tested on 45mm ground plane

| Parameter                              | Specification      | Notes                     |
|--|--------------------|---------------------------|
| Range of Receiving Frequency           | 1575.42 ± 1.023MHz |                           |
| Center Frequency                       | 1575.42 ± 3MHz     | With 45*45mm ground plane |
| Bandwidth                              | 8MHz min           |                           |
| Return Loss                            | ≤-10 dB            |                           |
| VSWR                                   | 1.5 max            | Center Frequency          |
| Gain at Zenith                         | +2.0 dBic typ.     | Center Frequency          |
| Gain at 10°elevation                   | -1.0 dBic typ.     | Center Frequency          |
| Axial Ratio                            | 3.0 dB max         | Center Frequency          |
| Polarization                           | RHCP               | Center Frequency          |
| Impedance                              | 50 Ohms            | Center Frequency          |
| Frequency Temperature Coefficient (τf) | 0 ± 20ppm / °C     | -40°C to +85°C            |
| Operating Temperature                  | -40°C to +85°C     |                           |

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

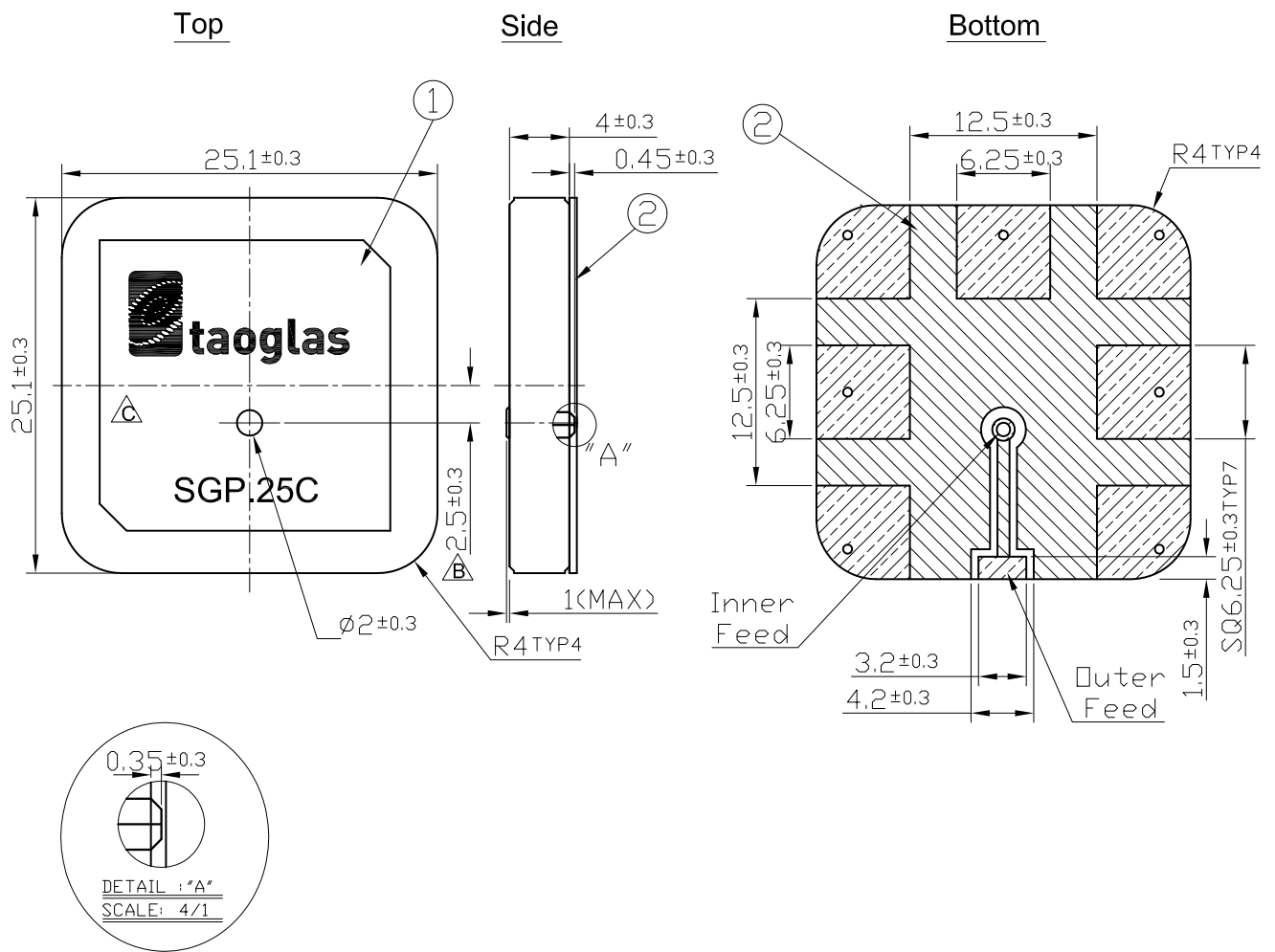
### 3. Electrical Specifications

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





## 4. Mechanical Specifications

### 4.1 Antenna Dimensions and Drawing



#### NOTE:

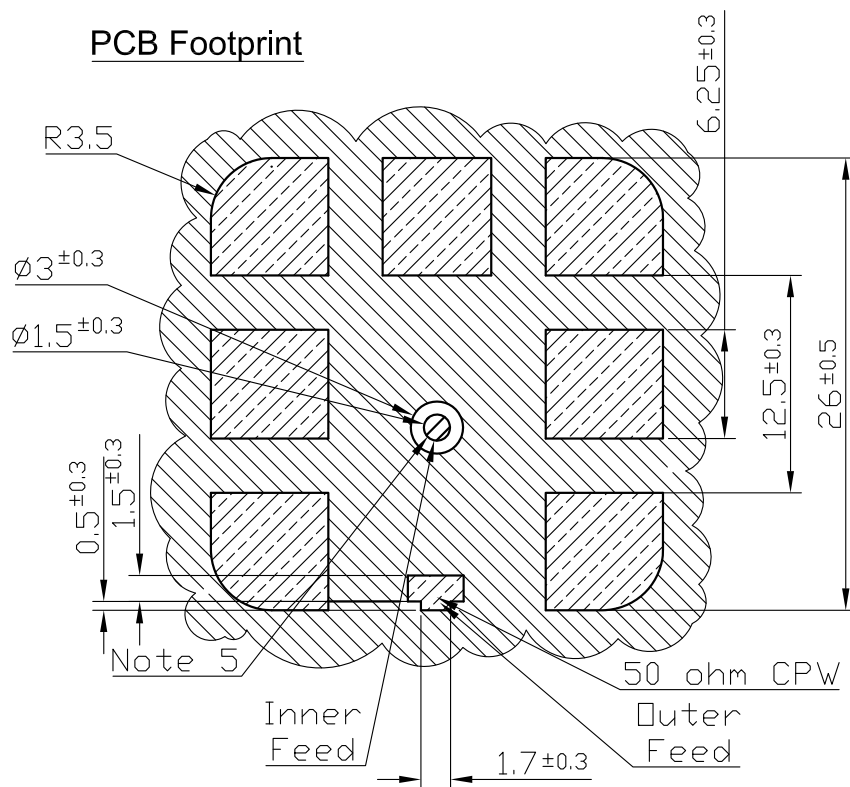
1. Solder mask. 
2. Area to be soldered. 
3. Dimension of 50 Ohm CPW dependent on individual board.
4. Matching circuit-capacitor and inductor values dependent on individual environment
5. Must be soldered to complete antenna feed connection

|   | Name                 | Part No. | Material | Finish | Quantity |
|---|----------------------|----------|----------|--------|----------|
| 1 | SGP.25 Patch 25x25x4 | SGP.25C  | Ceramic  | Clear  | 1        |
| 2 | SGP.25 PCB           |          | FR 0.5t  | Green  | 1        |

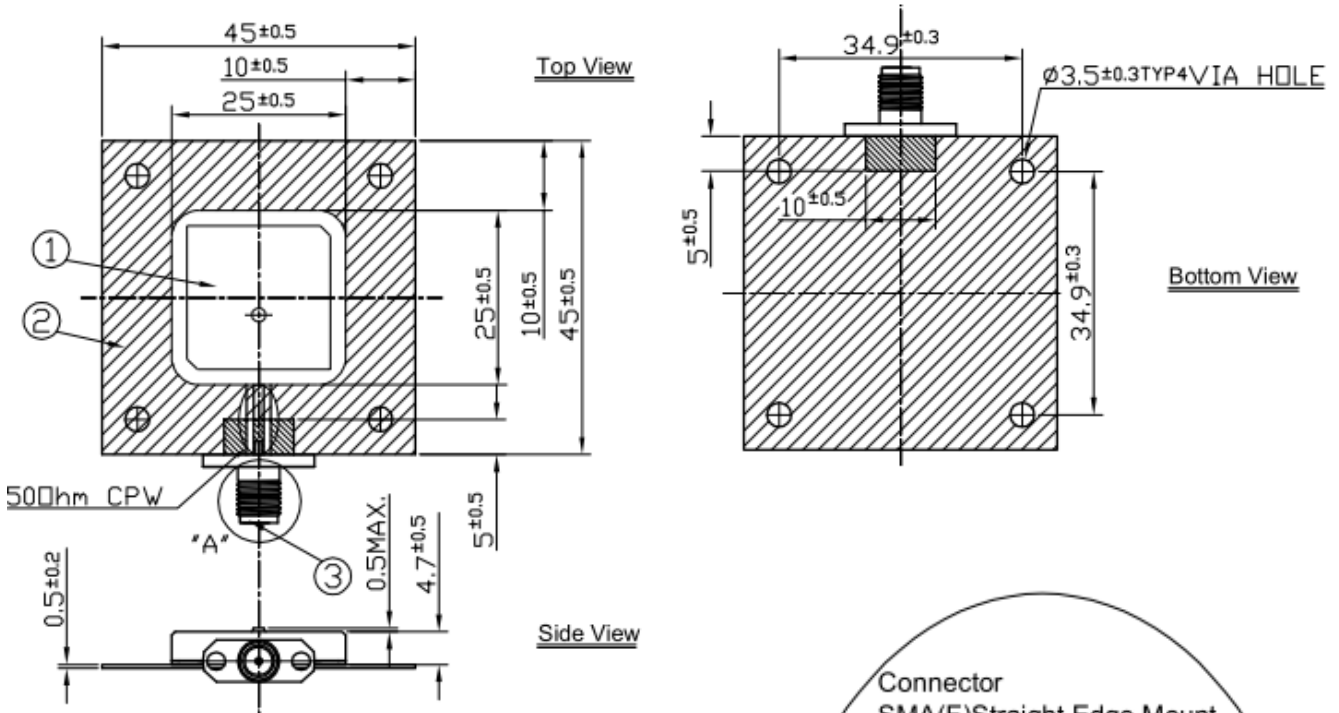
## 4.2 Antenna footprint (view from underneath)

### Please Note:

Solder mask has been added to all areas except gold solder areas (green highlighted areas), this will prevent feed points connecting to ground of main PCB.

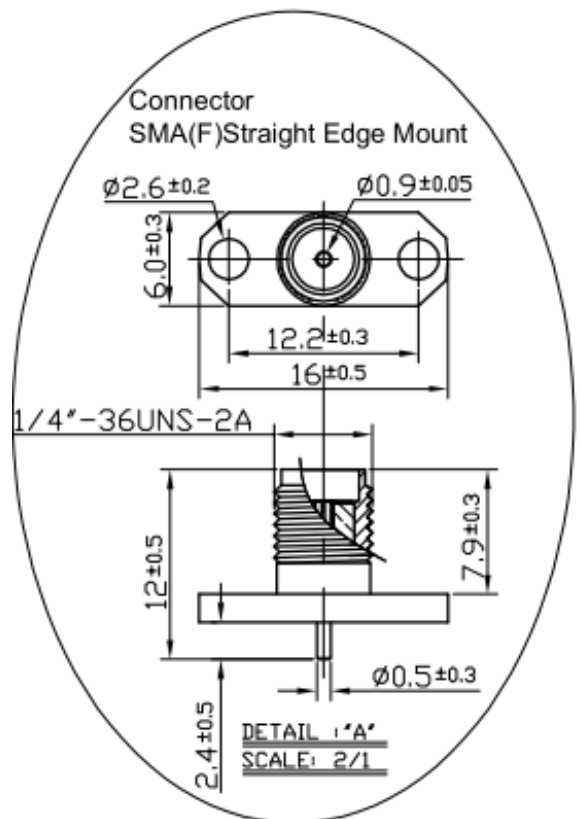


### 4.3 Test Jig and Dimension

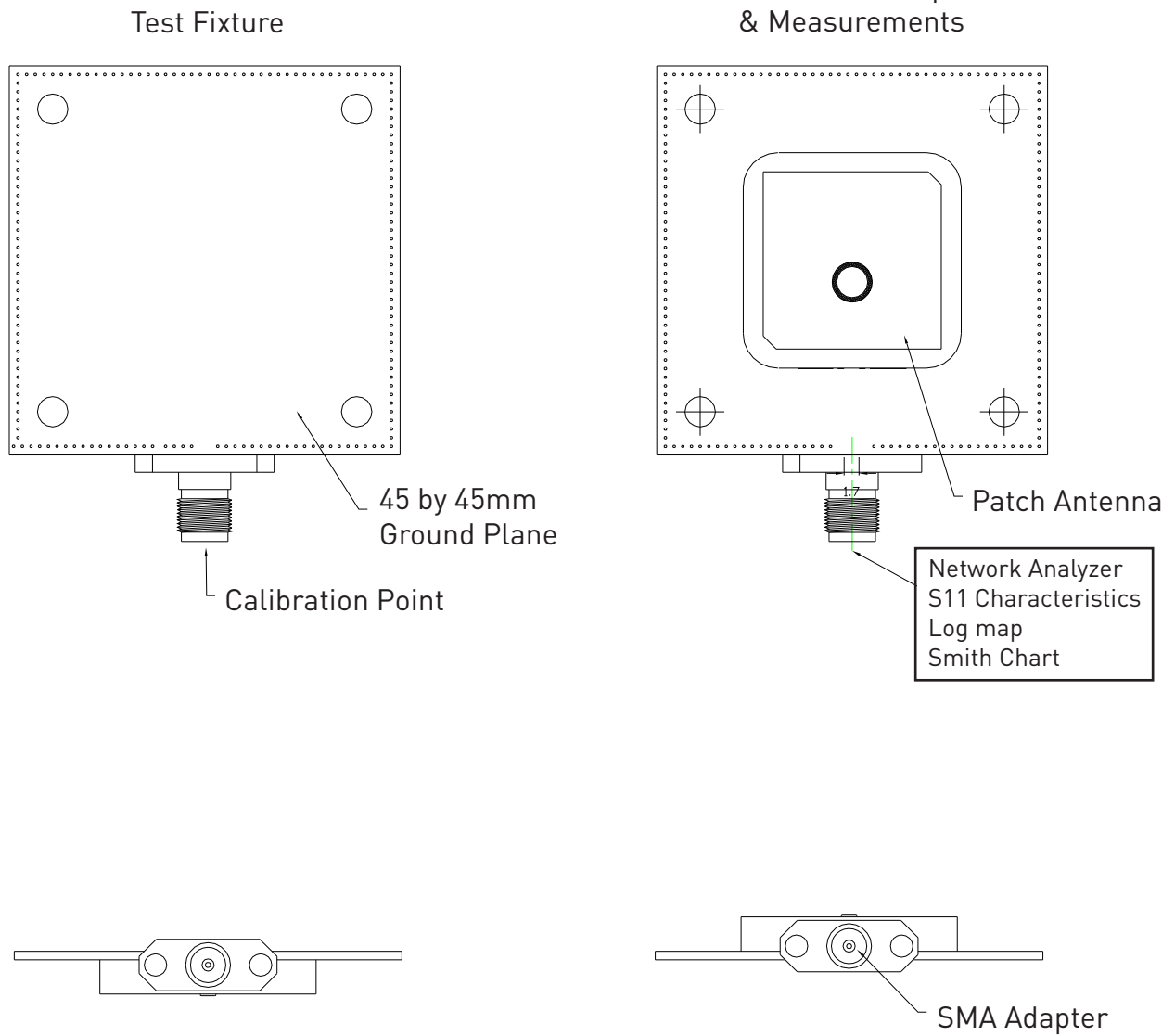


**NOTE:**

1. Solder Mask (Black) 
2. Solder Area 



## 4.4 Test Fixture set up and measurements



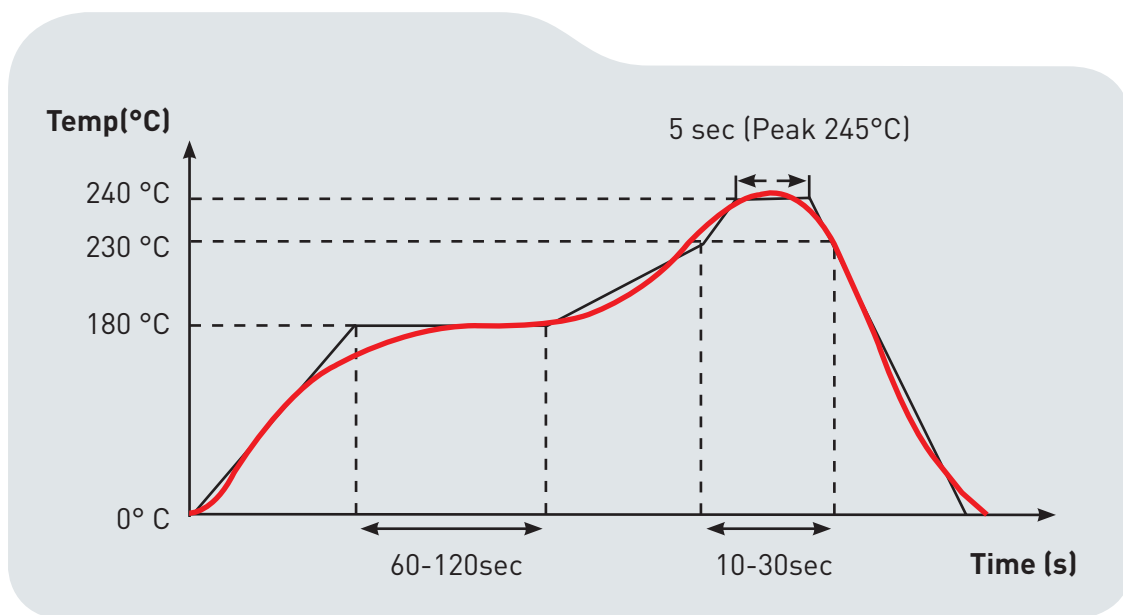
## 5. Antenna Recommended Soldering Conditions

### 5.1 Flux, Solder

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

### 5.2 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.



### 5.3 Reworking with Soldering Iron

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

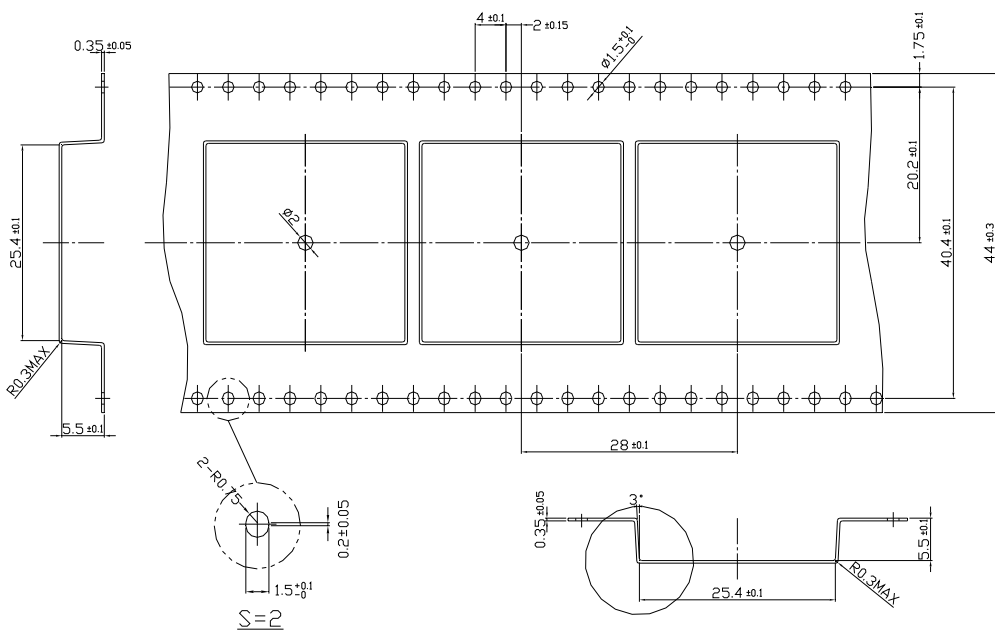
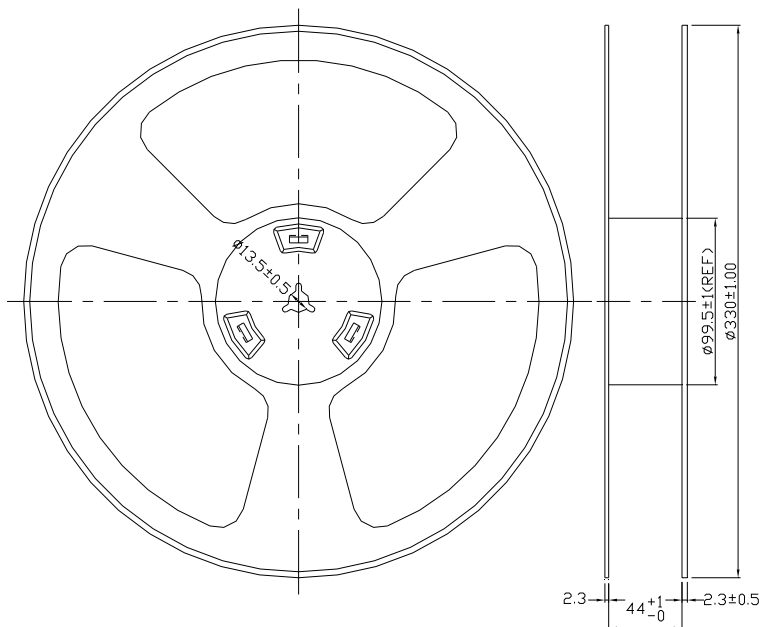
|                       |              |
|-----------------------|--------------|
| Pre-heating           | 150°, 1 min  |
| Tip temperature       | 290° max     |
| Soldering iron output | 30w max      |
| Soldering time        | 3 second max |



## 5. Packaging

200 pcs / reel / inner carton

4 reels in an outer carton (800)



Unit: mm

# Mouser Electronics

Authorized Distributor

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