



# TAI-SAW TECHNOLOGY CO., LTD.

No. 3, Industrial 2nd Rd., Ping-Chen Industrial District,  
Taoyuan, 324, Taiwan, R.O.C.

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## Product Specifications Approval Sheet

Product Description: Print Chip Antenna 2450MHz BW 100MHz Size5.0x2.0mm  
TST Parts No.: TQ0090AA0000

Customer Parts No.: \_\_\_\_\_

Customer signature required
Company: _____
Division: _____
Approved by : _____
Date: _____

Checked by: \_\_\_\_\_ Nina Chen *Nina Chen*

Approved by: \_\_\_\_\_ Kazuma Lee *Kazuma Lee*

Date: \_\_\_\_\_ 2022/12/09

1. Customer signed back is required before TST can proceed with sample build and receive orders.
2. Orders received without customer signed back will be regarded as agreement on the specifications.
3. Any specifications changes must be approved upon by both parties and a new revision of specifications shall be released to reflect the changes.



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## Print Chip Antenna 2450MHz BW 100MHz Size5.0x2.0mm

MODEL NO.: TQ0090AA0000

REV. NO.:1.0

### A. Maximum Rating:

1. Operating Temperature: -40°C to +105°C
2. Storage Temperature: 0°C to +40°C
3. Moisture Sensitivity Level: Level 1 (MSL 1)

RoHS Compliant  
Lead free  
Lead-free soldering

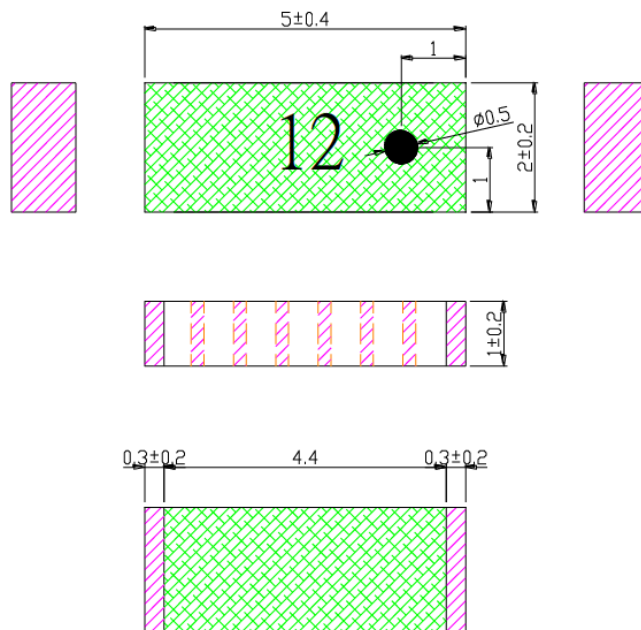
Electrostatic Sensitive Device (ESD)

### B. Electrical Characteristics:

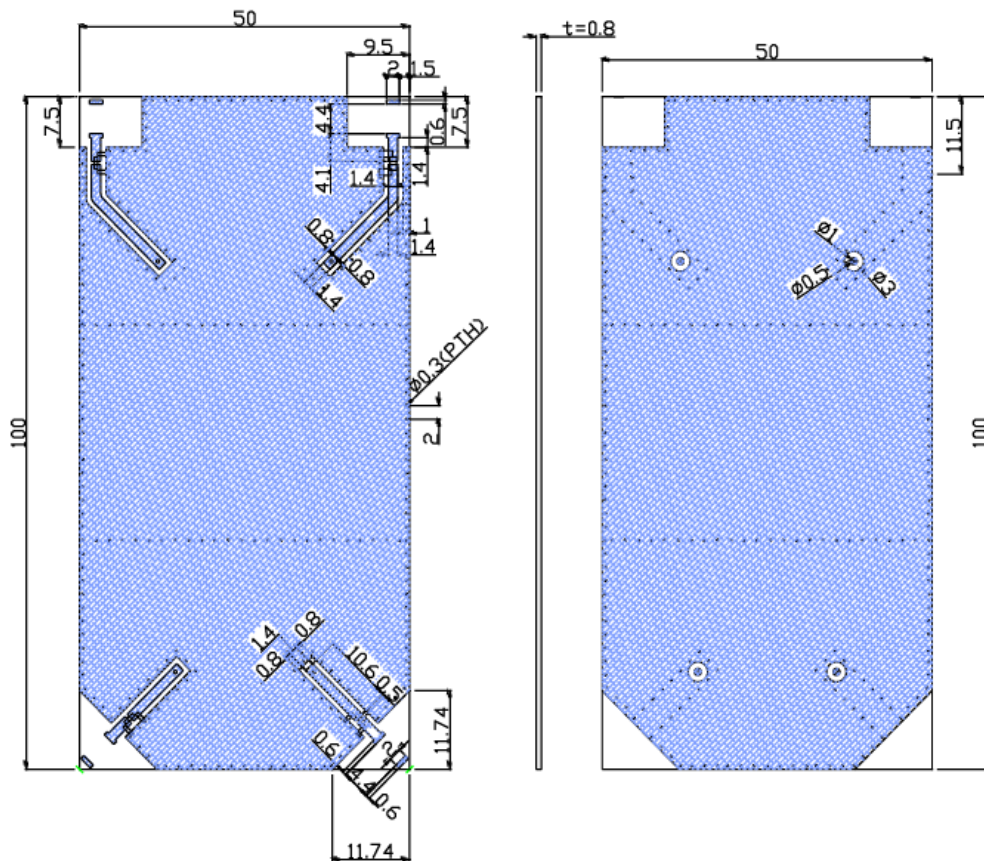
Item	Spec
Working Frequency	2400~2500 MHz
Return Loss	<-10dB
VSWR	2.0 max
Peak Gain	1.0dBi (Typ)
Polarization	Linear
Azimuth	Omni-directional

### C. Dimension:

#### Antenna Dimension



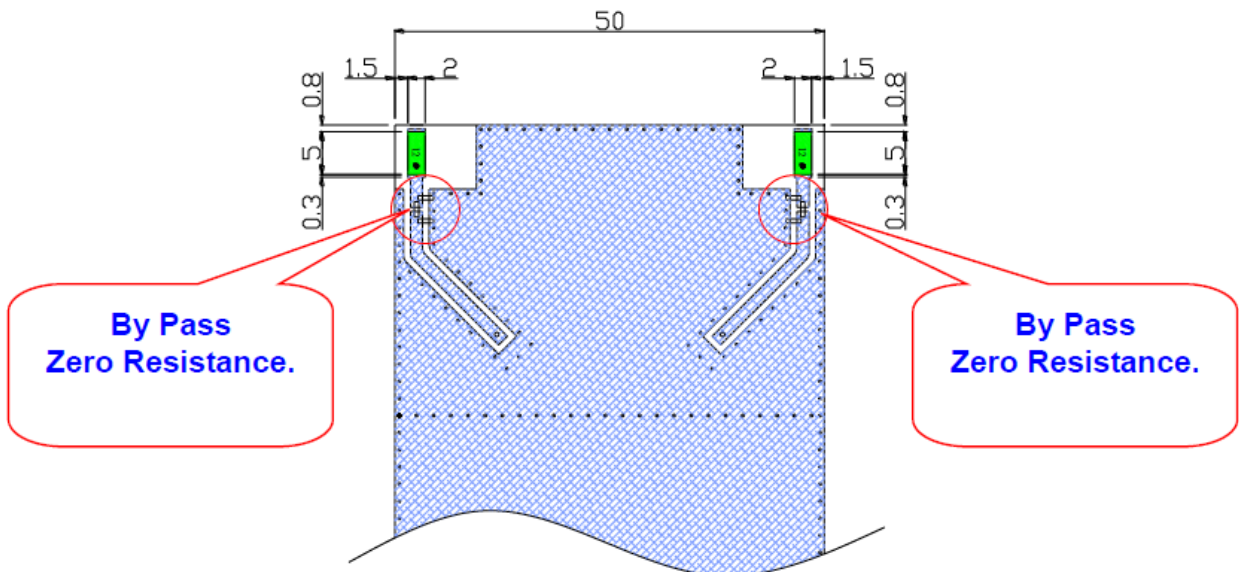
# Demo Board Dimension



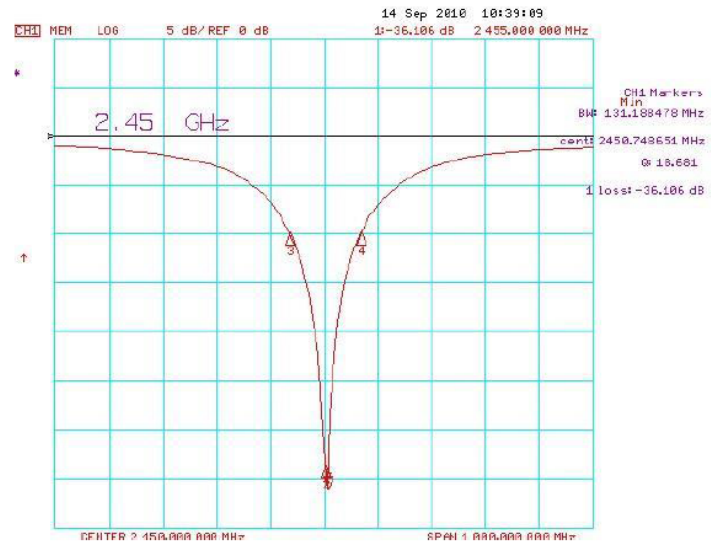
## D. Matching Circuit:

### Layout 1 Measurement

#### Matching Circuit

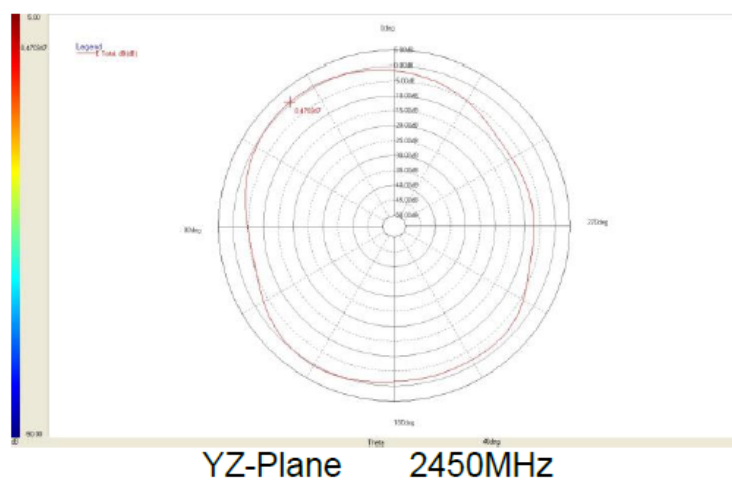
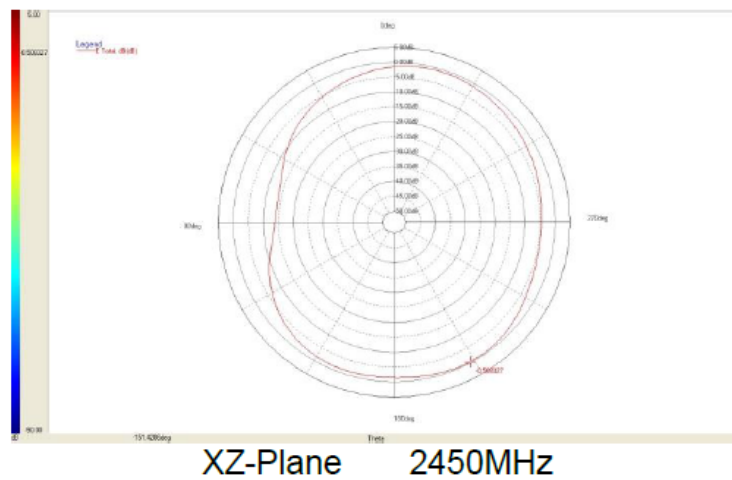


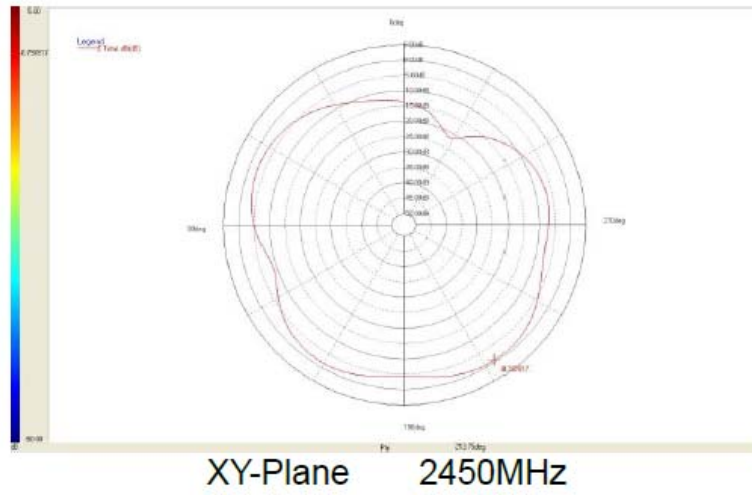
## S11 Response curve ( Work Frequency )



Item	Frequency	Return Loss	Bandwidth
Value	2450 MHz	-25.40dB	124.9 MHz

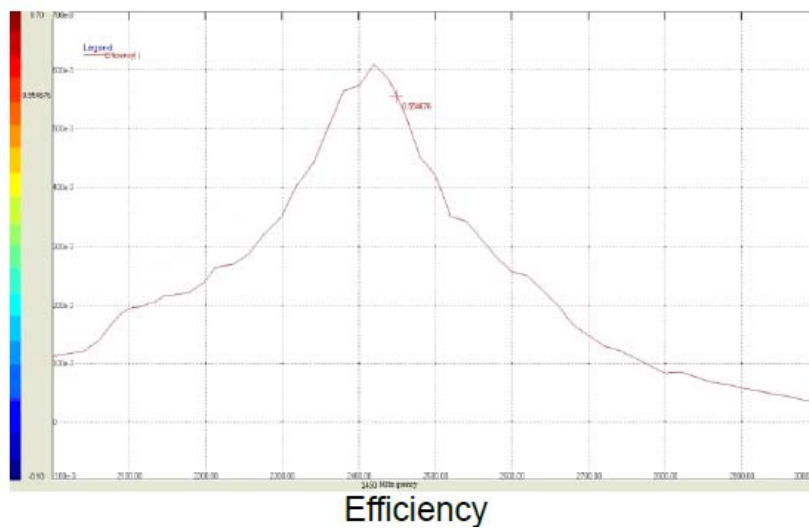
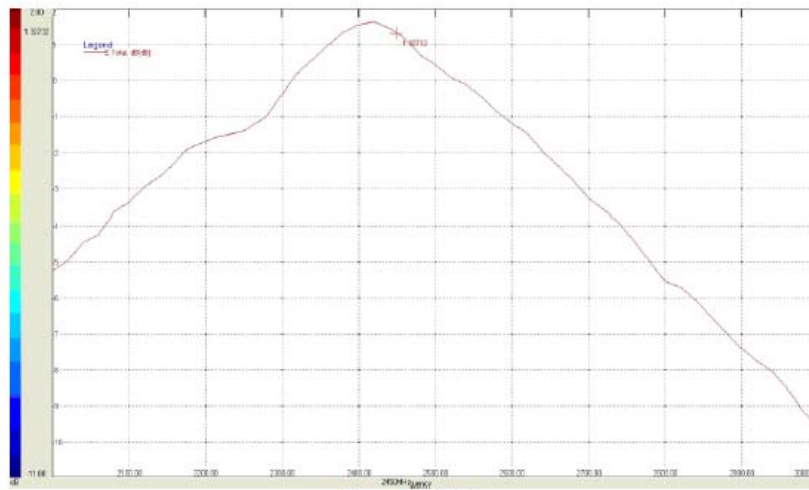
## Electrical performance

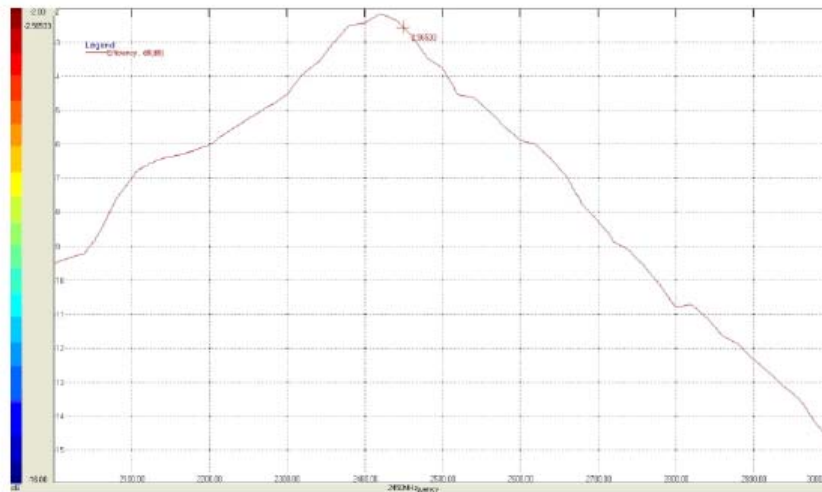




2450MHz	Peak Gain
XZ-Plane	-0.50
YZ-Plane	0.47
XY-Plane	-0.79

(Unit : dBi)



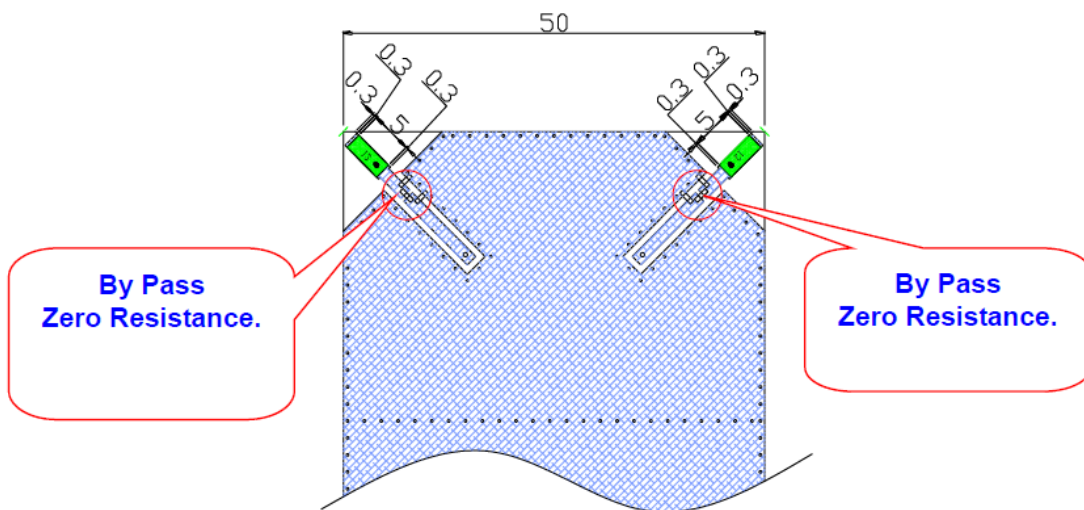


Average Gain

Item	Peak Gain	Efficiency	Average
Value	1.32 dBi	55%	-2.56 dBi

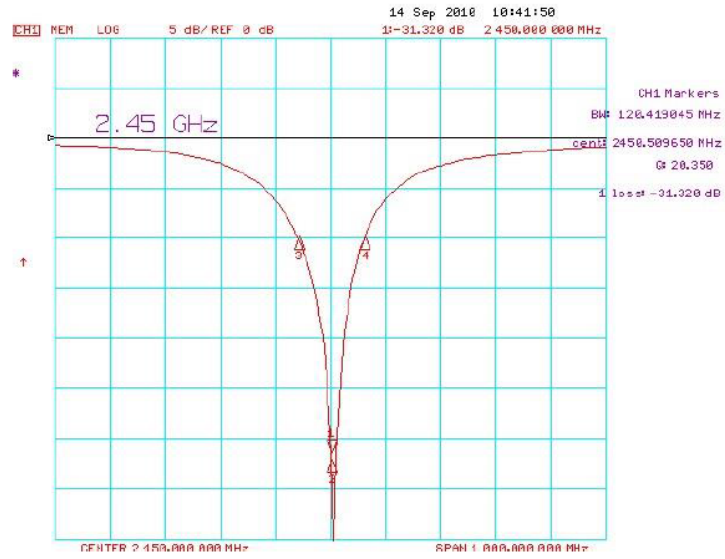
### Layout 2 Measurement

#### Matching Circuit



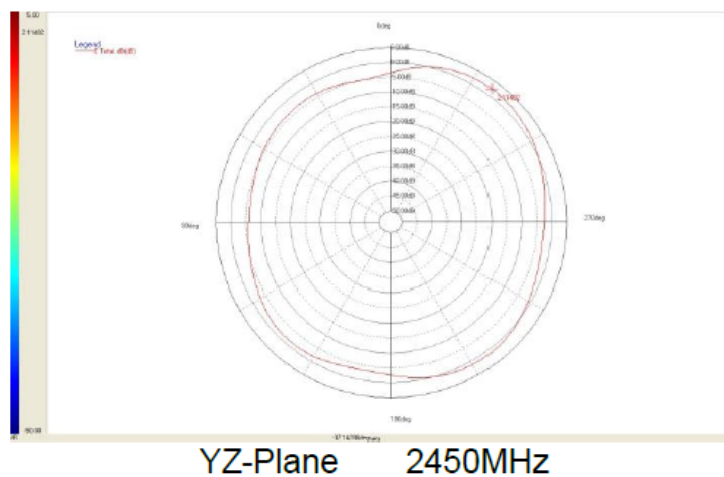
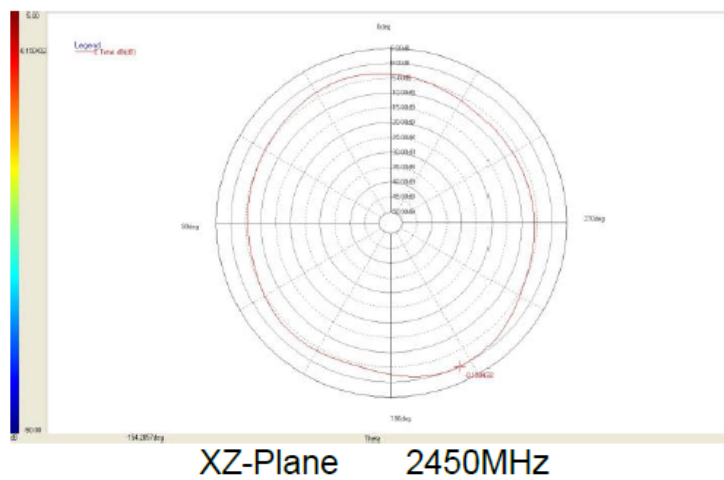


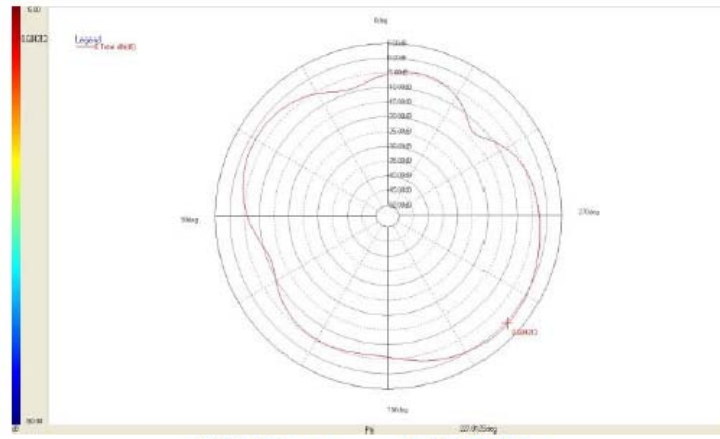
## S11 Response curve ( Work Frequency )



Item	Frequency	Return Loss	Bandwidth
Value	2450 MHz	-25.74dB	125.63 MHz

## Electrical performance

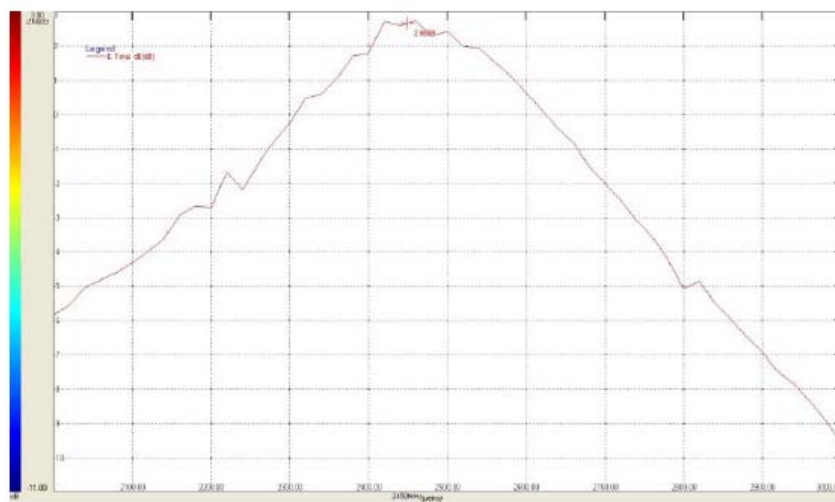




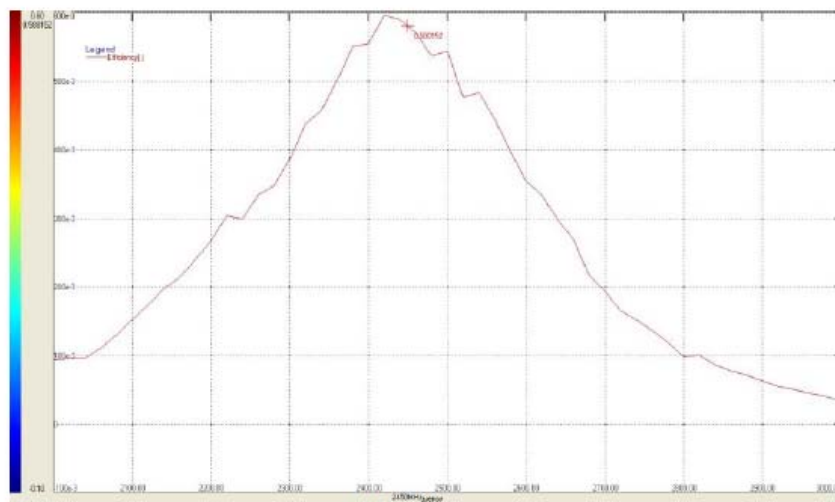
XY-Plane 2450MHz

2450MHz	Peak Gain
XZ-Plane	-0.15
YZ-Plane	2.11
XY-Plane	0.68

(Unit : dBi)

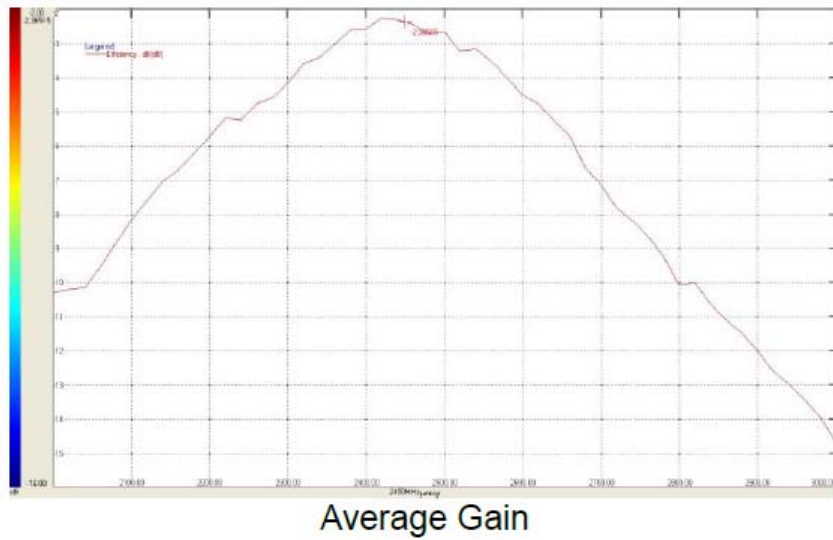


Peak Gain



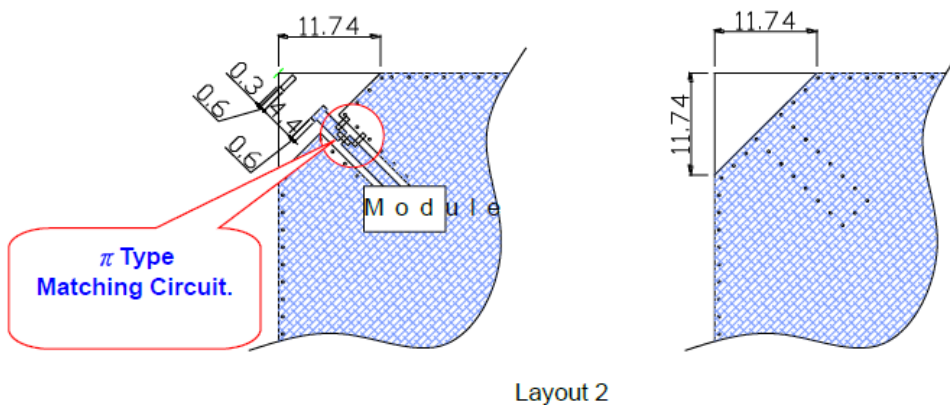
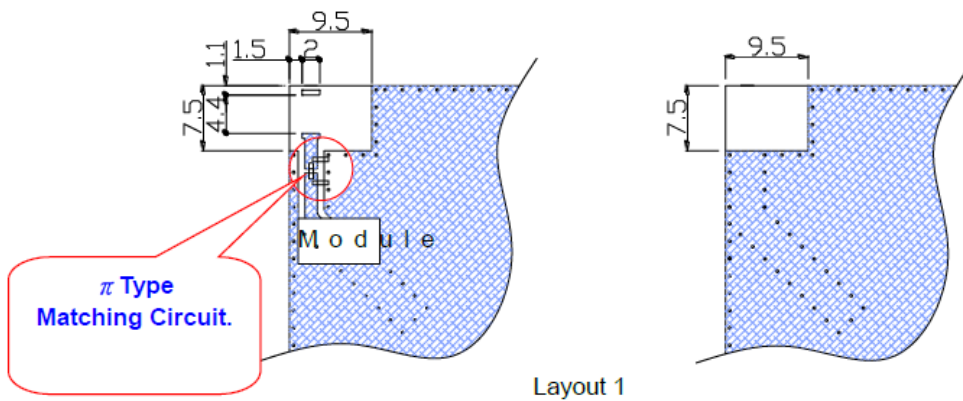
Efficiency





Item	Peak Gain	Efficiency	Average
Value	2.66 dBi	58.01%	-2.36 dBi

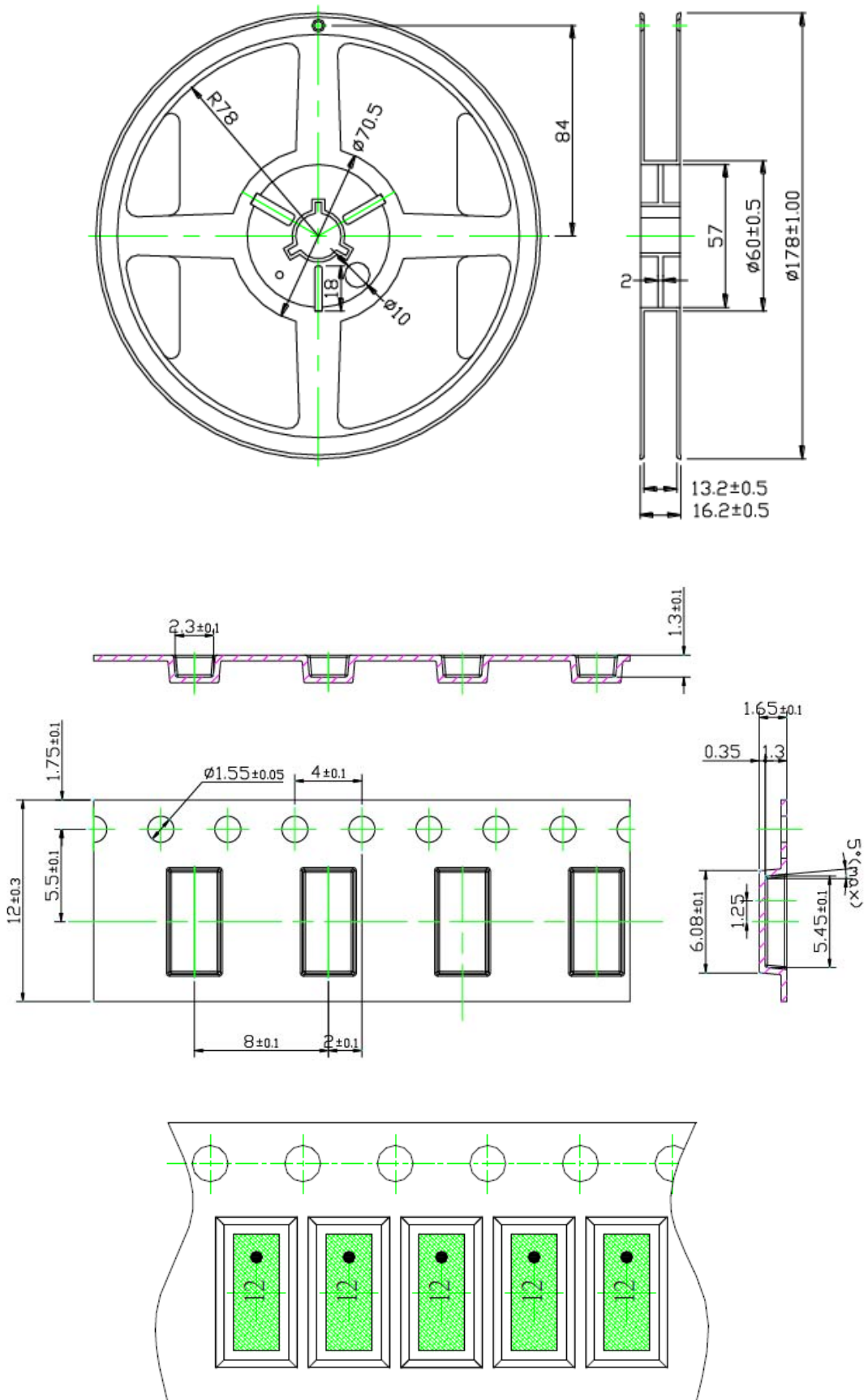
**Customer's Requirement Layout Dimension**



**F. Packing:**

**1 Blister tape to IEC 286-3 , polyester ◦**

**2 Pieces/tape : 1500**



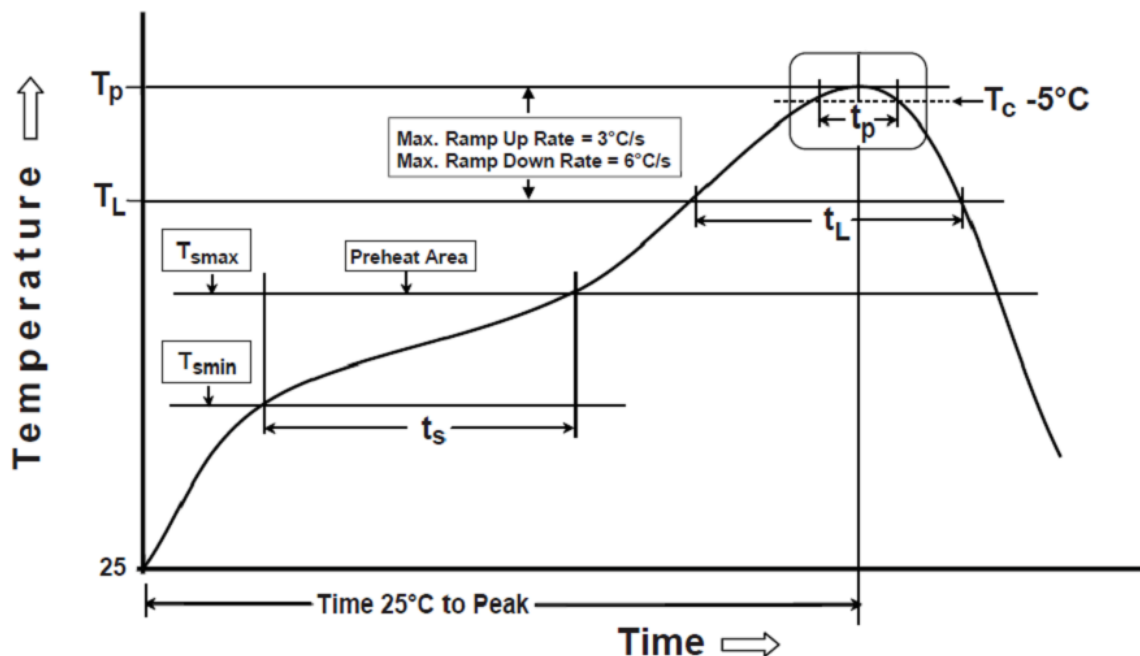
### G. Recommended Solder Profile:

Products 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( $T_{smin}$ ) -Temperature Max( $T_{smax}$ ) -Time( $t_s$ ) form ( $T_{smin}$ 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 5-10 second
RAMP-DOWN	Rate	6°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

**Note :** All the temperature measure point is on top surface of the component, if temperature over recommend, it will make component surface peeling or damage.

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



### Soldering With Iron:

Soldering condition : Soldering iron temperature  $270 \pm 10$  °C .

Apply preheating at 120°C for 2-3 minutes. Finish soldering for each terminal within 3 seconds, if soldering iron over temperature  $270 \pm 10$  °C or 3 seconds, it will make component surface peeling or damage. Soldering iron can not leakage of electricity.