

ACAR0301-SG3



3.05 x 1.6 x 0.55 mm  
 RoHS/RoHS II Compliant  
 MSL - N/A

## FEATURES

- Multiband 1561~1610 MHz ceramic chip
- Low VSWR
- Linear polarization

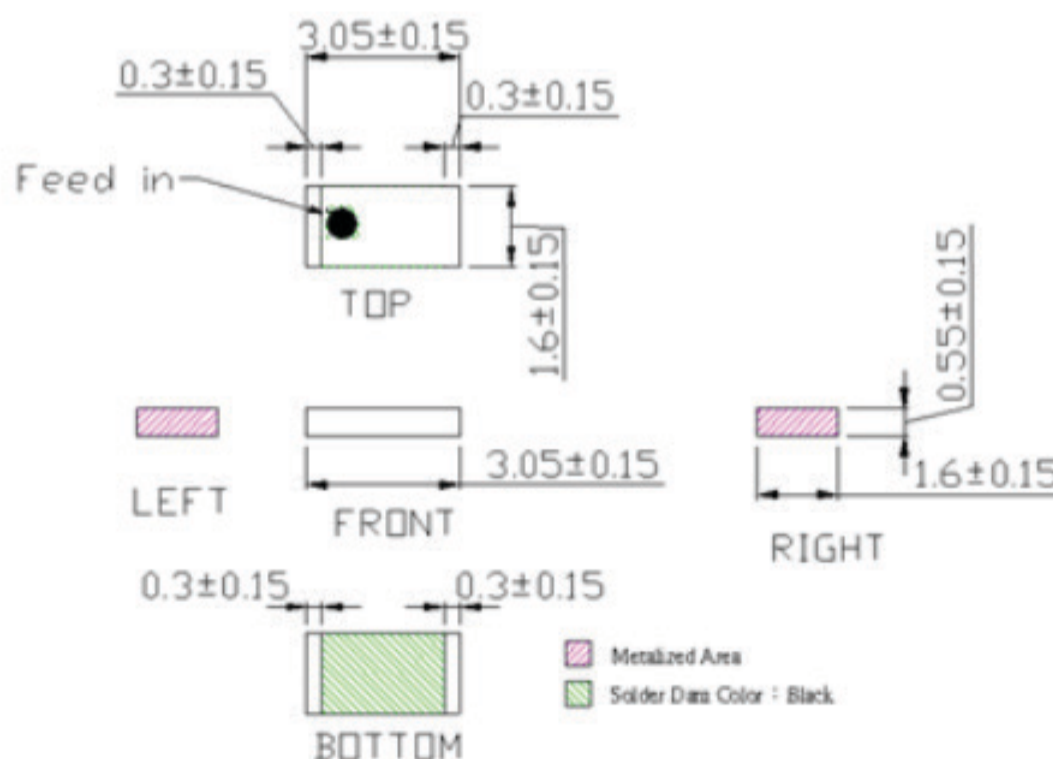
## APPLICATIONS

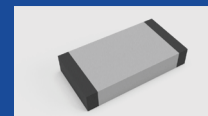
- Tracking, Geolocation
- IoT sensors
- Wearables

## Electrical Characteristics

Item	Spec
Center Frequency (After matching)	1561~1610 MHz
Bandwidth	49 MHz typ
VSWR	≤ 2.0
Impedance	50Ω
Peak Gain	1.69 dBi @ 1561 MHz
	-1.81 dBi @ 1575.42 MHz
	1.43 dBi @ 1602 MHz
Polarization	Linear

## Dimensions



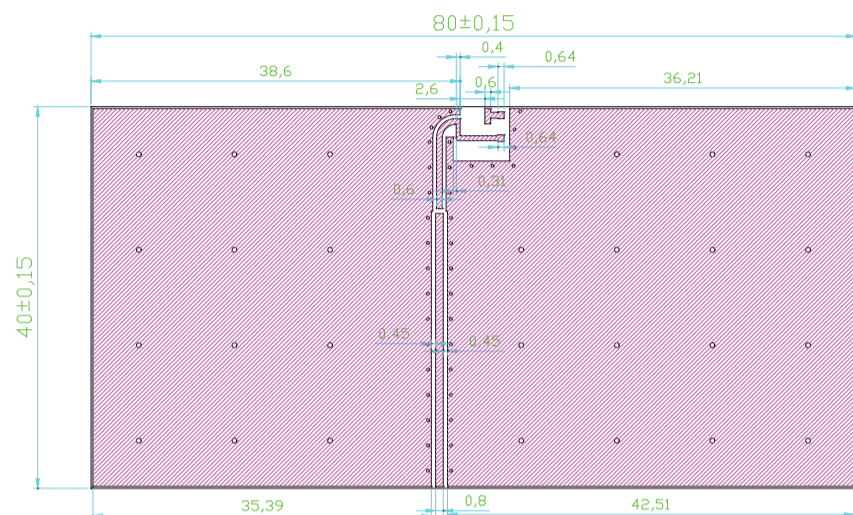


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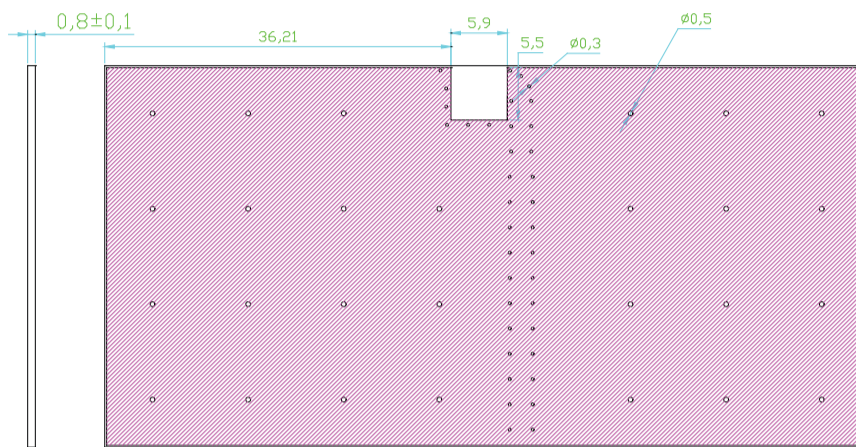


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## Evaluation Board and Matching Circuits



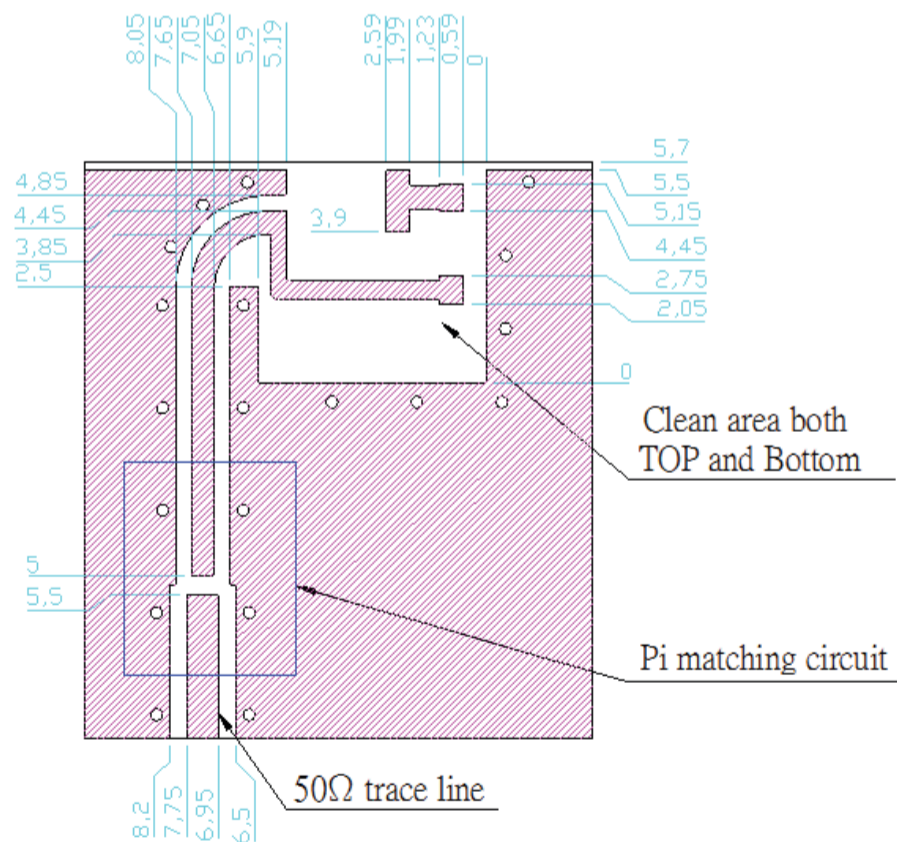
Top View



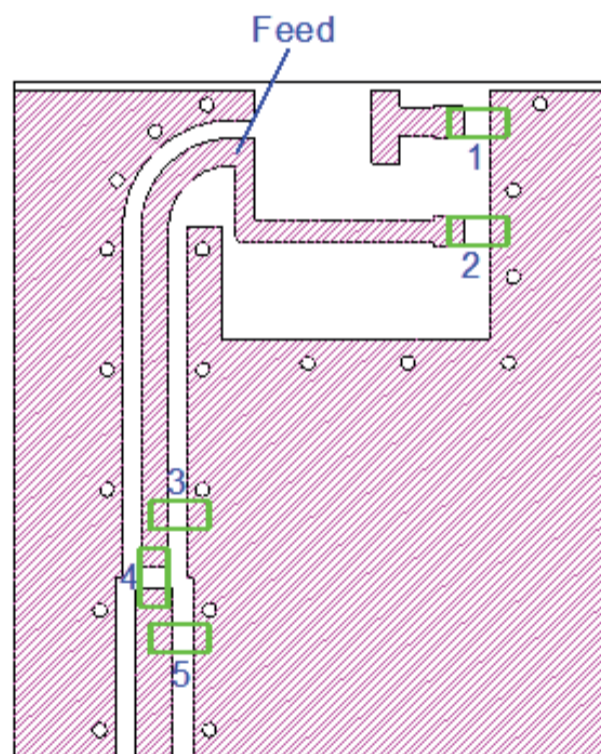
Bottom View

Unit: mm

### Recommended Layout

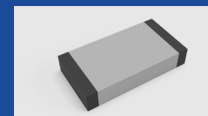


### Matching Circuit



Matching Circuit Component					
NO.	1	2	3	4	5
Description	2pF	1pF	3.3pF	0Ω	N.A

# GNSS/GPS/GLONASS/BEIDOU SMD Chip Antenna

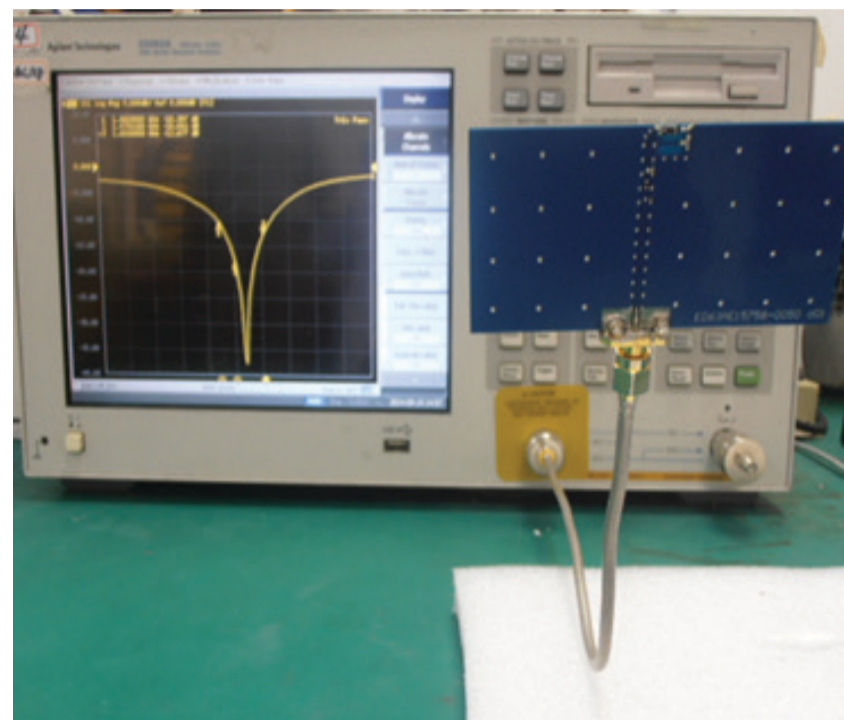
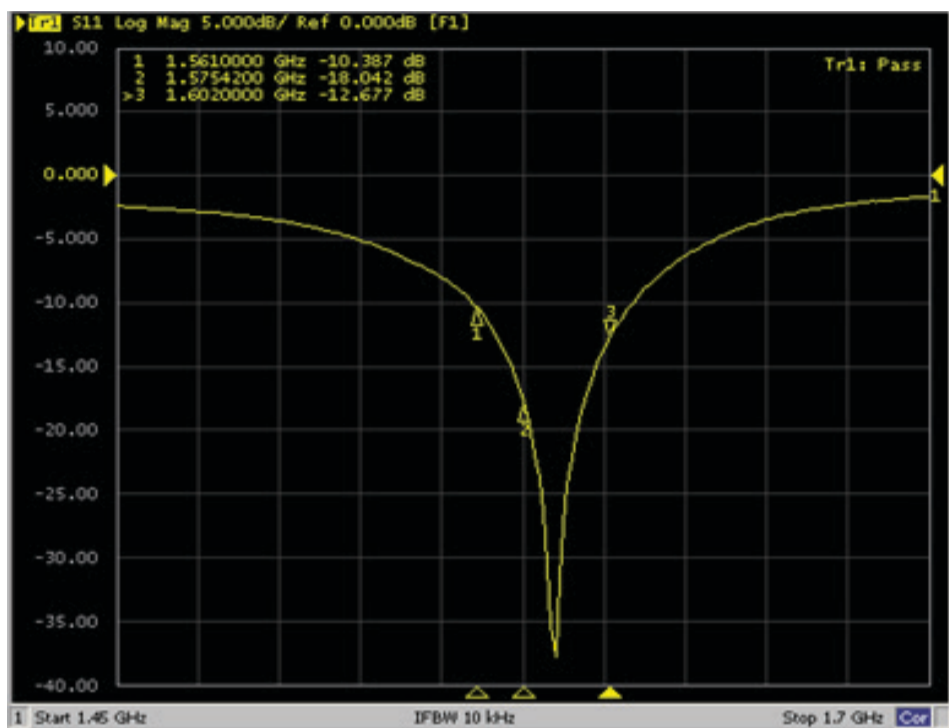


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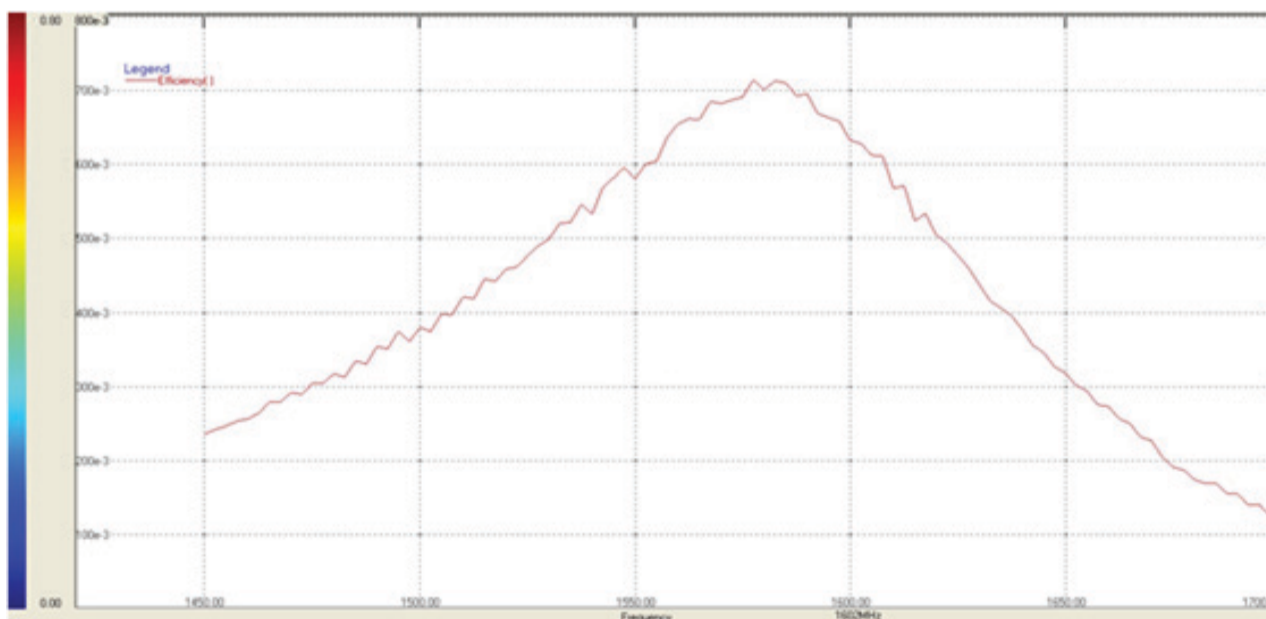
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## Antenna Response –Return Loss S11



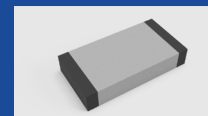
Frequency(MHz)	1561	1575.42	1602
S11(dB)	-10.38	-18.04	-12.67

## Efficiency



Frequency(MHz)	Efficiency (%)
1561.00	65.74
1575.42	70.06
1602.00	63.27





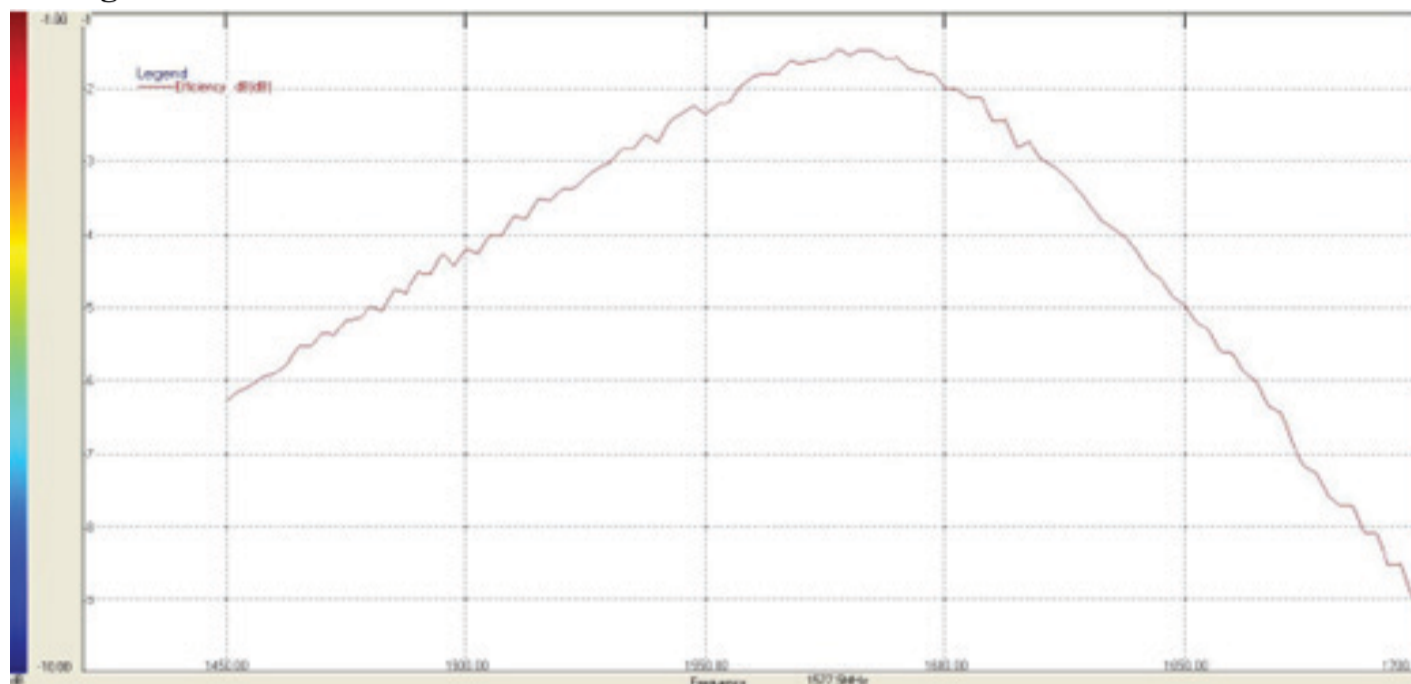
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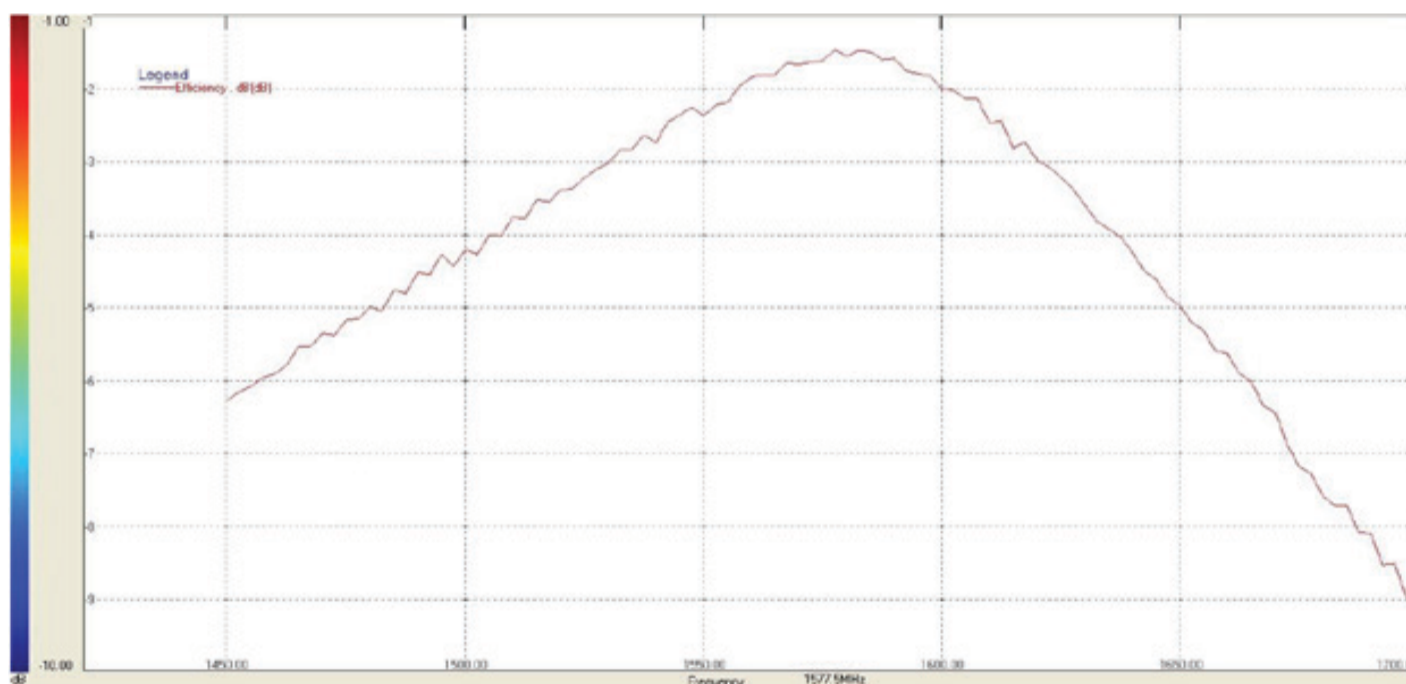
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## Gain

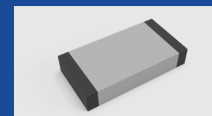
Average Gain



Peak Gain



Frequency(MHz)	Avg. Gain	Peak Gain
1561.00	-1.82	1.69
1575.42	-1.54	-1.81
1602.00	-1.98	1.43



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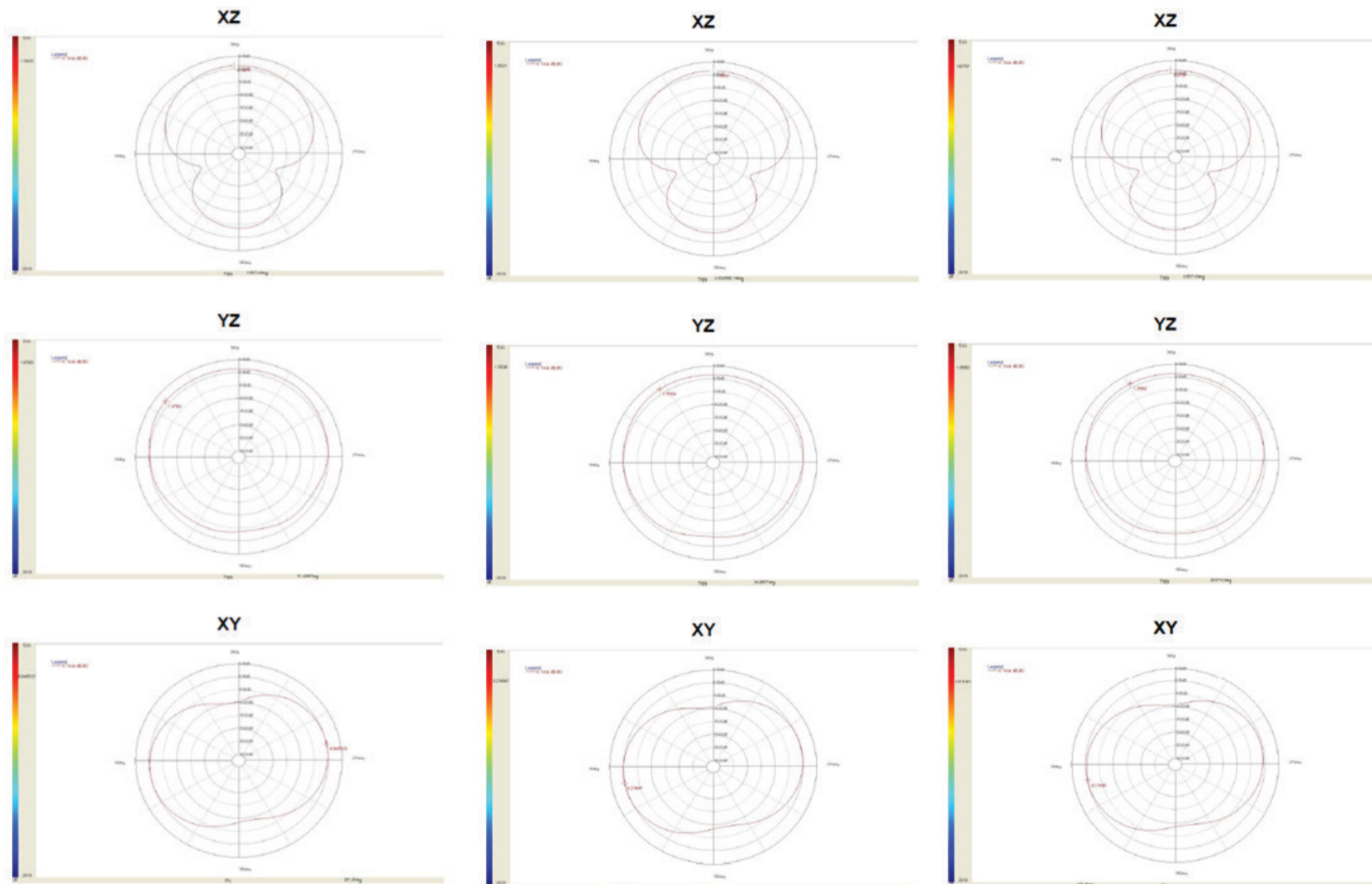
## Radiation Pattern

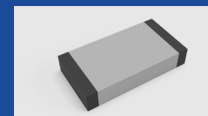
### 2D Radiation Patterns

1561 MHz

1575.42MHz

1602 MHz





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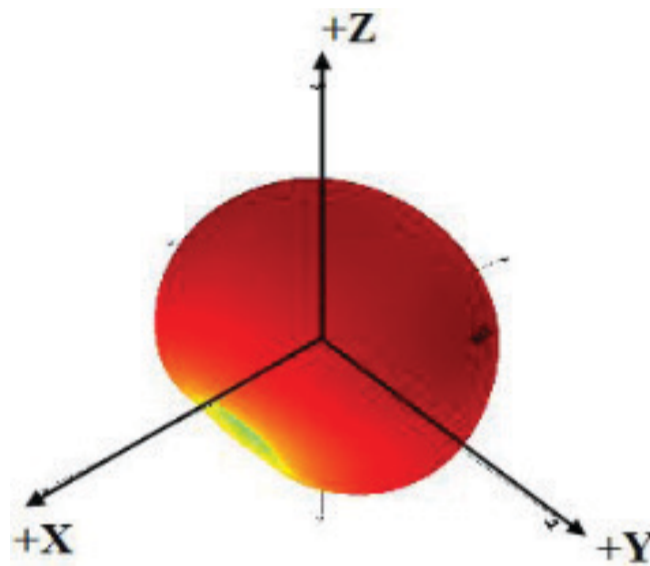
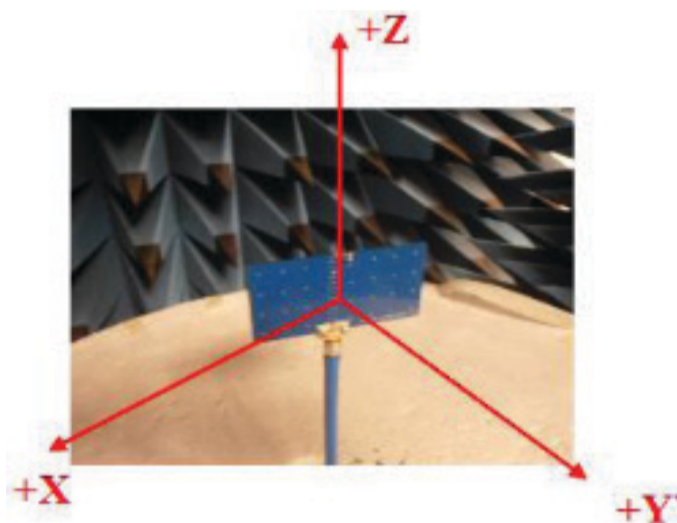


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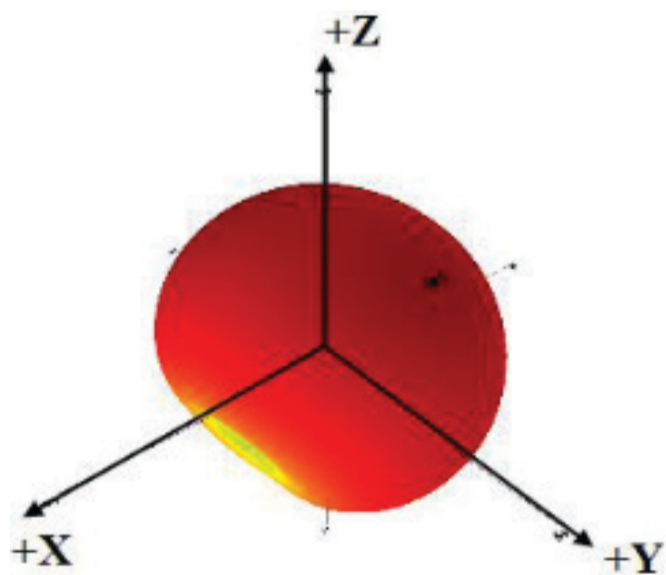
## Radiation Pattern

### 3D Radiation Patterns

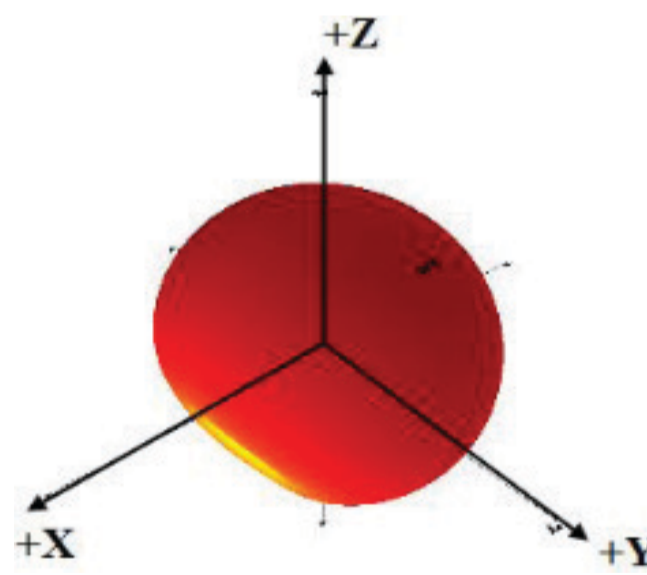
1561 MHz

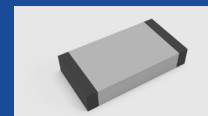


1575.42MHz



1602 MHz



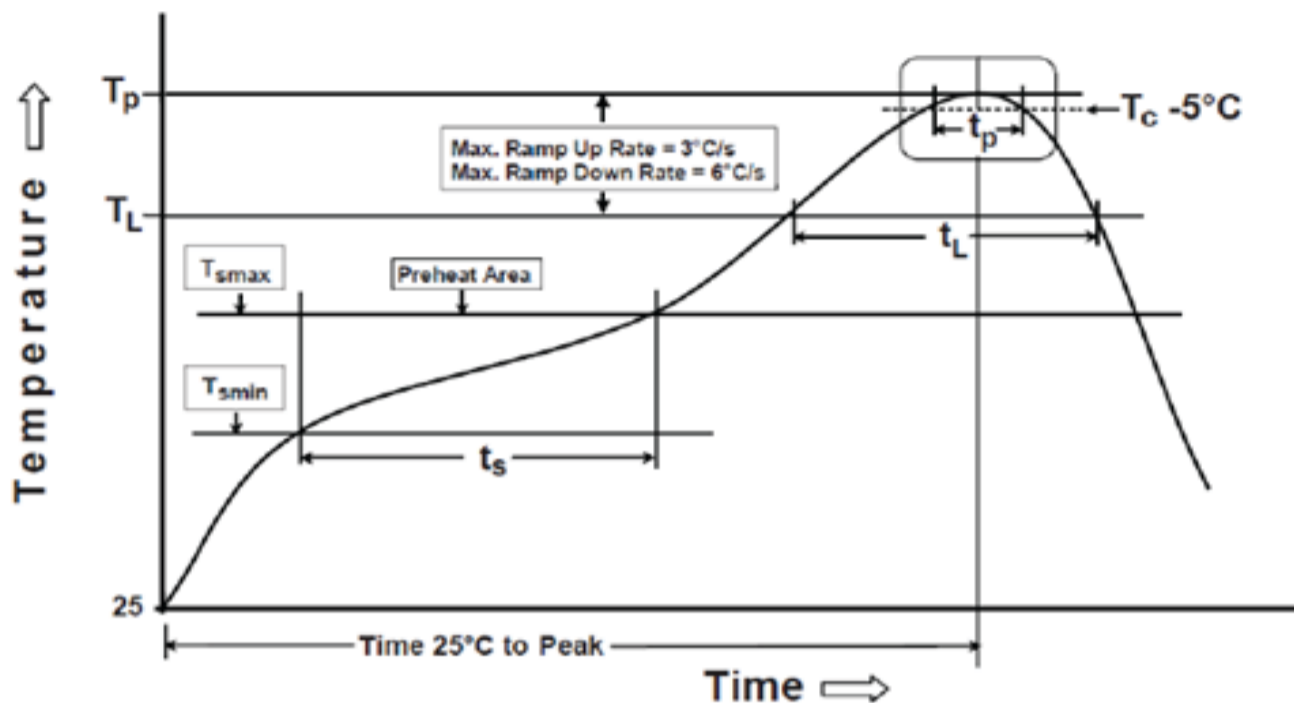


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**3.05 x 1.6 x 0.55 mm**  
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**Reflow Profile**



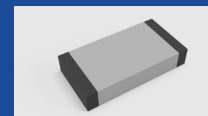
Phase	Profile Feature	Pb-Free Assembly (SnAgCu)
Preheat	-Temperature Min ( $T_{Smin}$ )	150°C
	-Temperature Max ( $T_{Smax}$ )	200°C
	-Time(ts) form ( $T_{Smin}$ to $T_{Smax}$ )	60-120 seconds
Ramp-Up	Avg. Ramp-up Rate ( $T_{Smax}$ to TP)	3°C/second(max)
Reflow	-Temperature (TL)	217°C
	-Total Time above TL (tL)	300-100 seconds
Peak	-Temperature(TP)	260°C
	-Time(tp)	5-10 seconds
Ramp-Down	Rate	6°C/second max.
Temperature at 25°C to Peak Temperature		8 minutes max.
Composition of Solder Paste		96.5Sn/3Ag/0.5Cu
Solder Paste Model		SHENMAO PF606-P26

**NOTE:**

If the temperature is over what is recommended, the component surface will peel or damage.

**SOLDERING CONDITION:**

Soldering iron temperature: 270±10 °C. Apply preheating at 120°C for 2-3 minutes. Finish soldering each terminal within 3 seconds. If the soldering iron is over 270±10 °C or 3 seconds, the component surface will peel or damage.



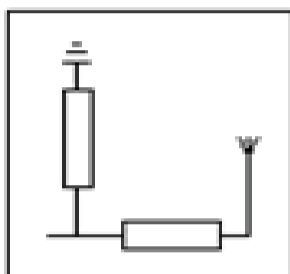
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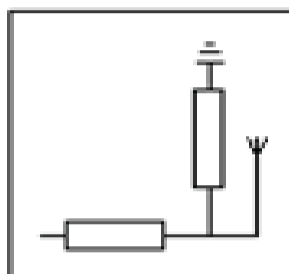
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Transmission Line and Matching

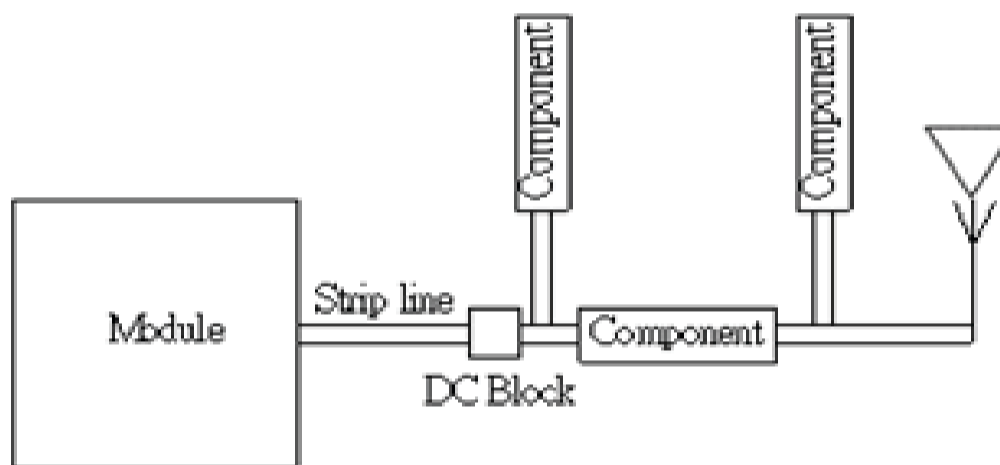
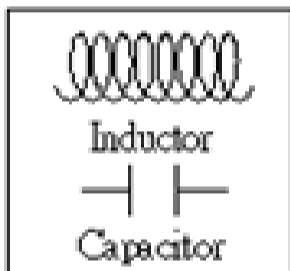
Typical config.1



Typical config.2

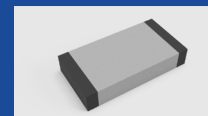


Component types



The matching network has to be individually designed using one,two or three components.





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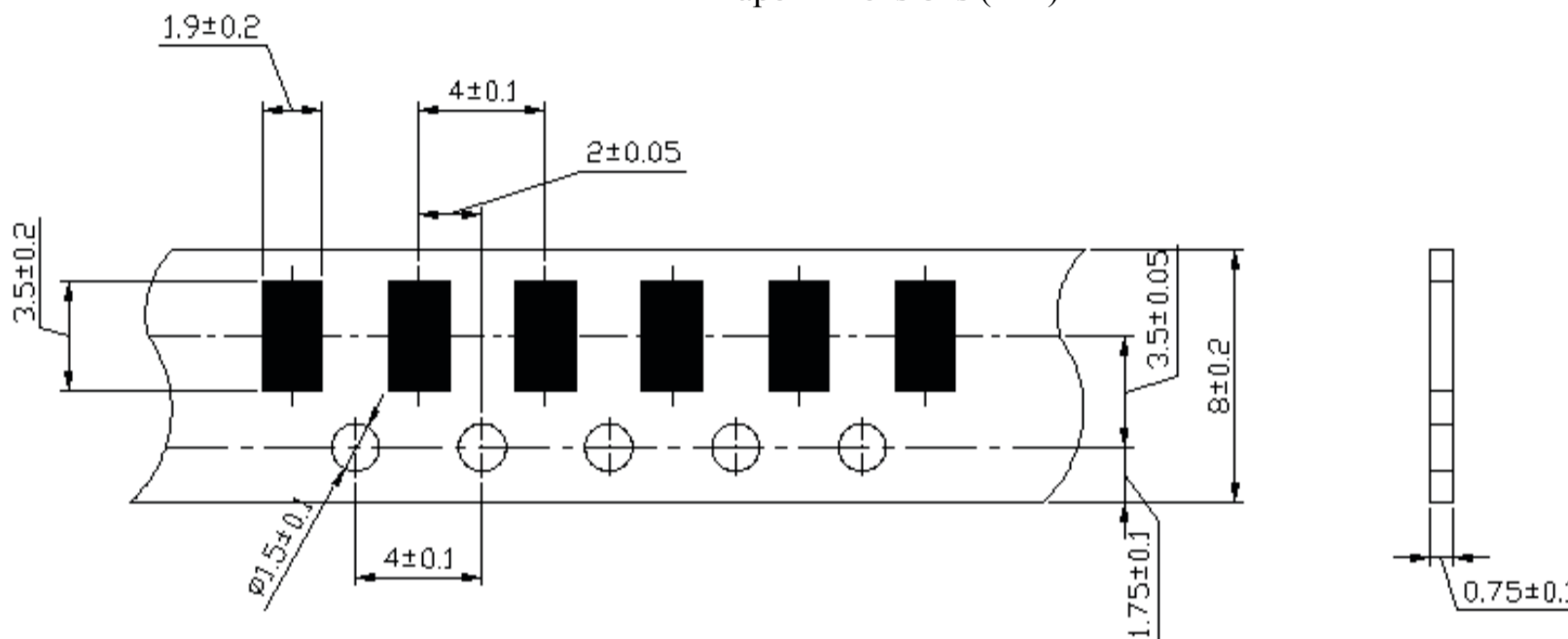


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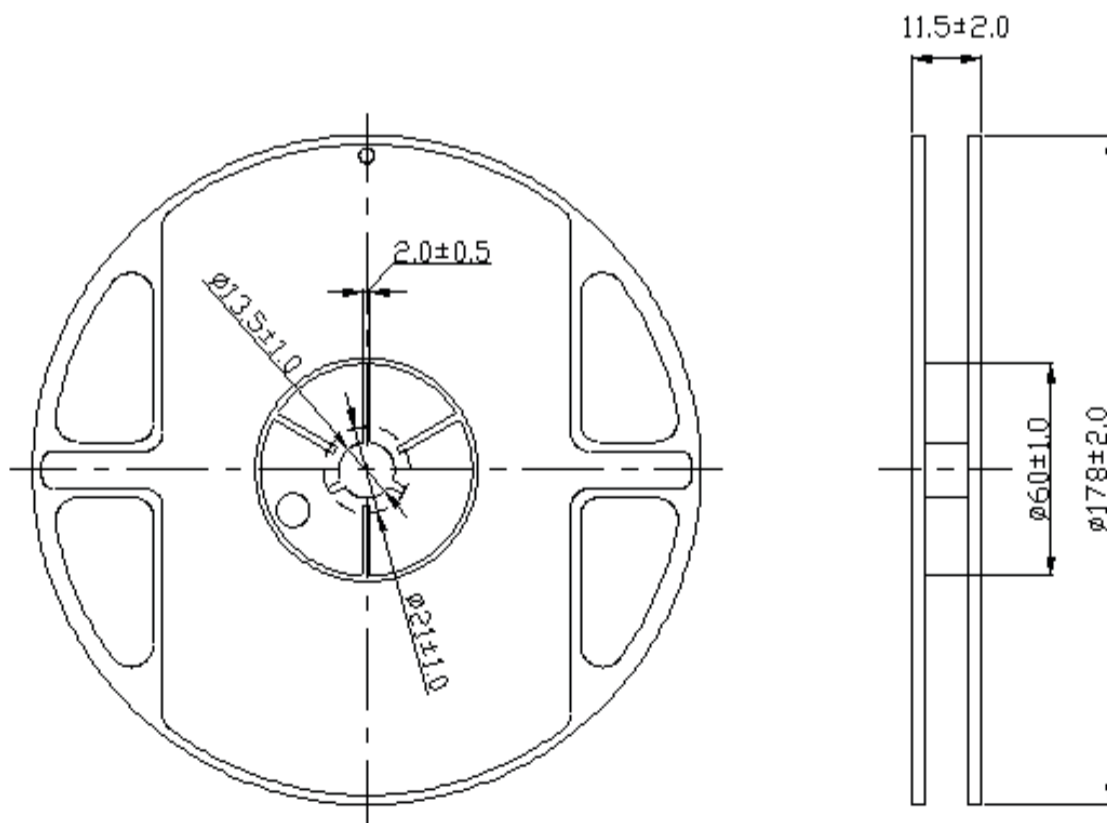
**Packaging**

1. Quantity per reel: 5,000pcs
2. Dimensions of inner box: 350\*350\*47mm
3. Quantity per outer carton: 140,000pcs
4. Weight of outer carton: 5.5 KG

Tape Dimensions (mm)



Reel Dimensions (mm)



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