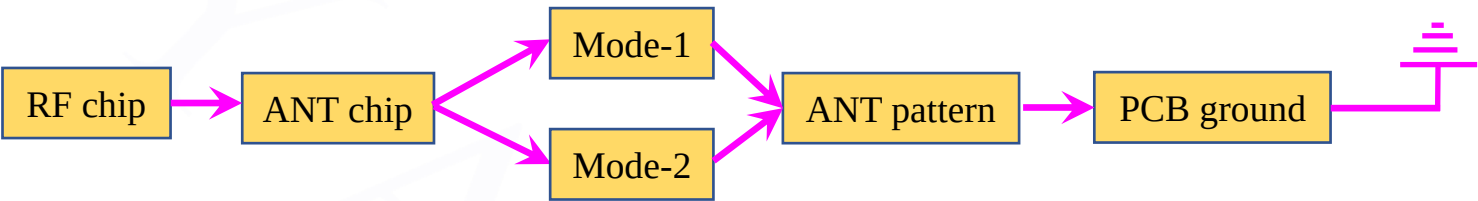




P/N: HY160808 SRF09

✓ **Features:**

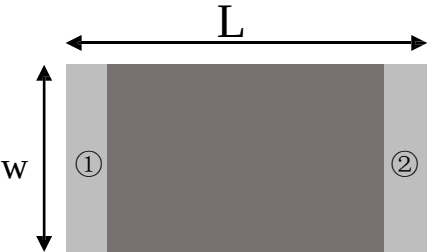
- 1. Surface mounted element with a small dimension of  $1.6 \times 0.8 \times 0.8$  mm meet future miniaturization trend.
- 2. Embedded and LTCC (low temperature co-fired ceramic) technology is able to integrate with system design as well as beatifying the housing of final product.
- 3. Miniaturization, wideband, high stability, low ESR, and low tolerance.
- 4. Dual-band resonances in the dominant and harmonic modes enables multiband operations.
- 5. Novel ground-radiation technique enables radiation from both the antenna and the ground plane.



✓ **Applications:**

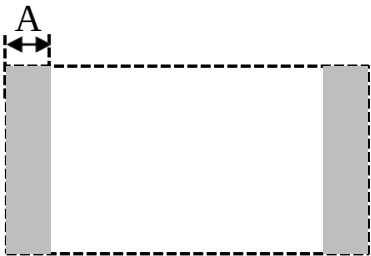
- 1. Bluetooth
- 2. Dual-band WLAN
- 3. ISM and UWB

✓ **Dimensions (Unit: mm)**

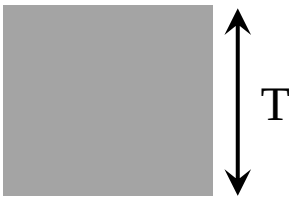


( Top View )

| Number | Terminal Name |
|--------|---------------|
| ①      | INPUT         |
| ②      | NC            |



( Bottom View )



( Side View )

| Symbols    | L               | W               | T               | A               |
|------------|-----------------|-----------------|-----------------|-----------------|
| Dimensions | $1.60 \pm 0.20$ | $0.80 \pm 0.20$ | $0.80 \pm 0.20$ | $0.30 \pm 0.10$ |

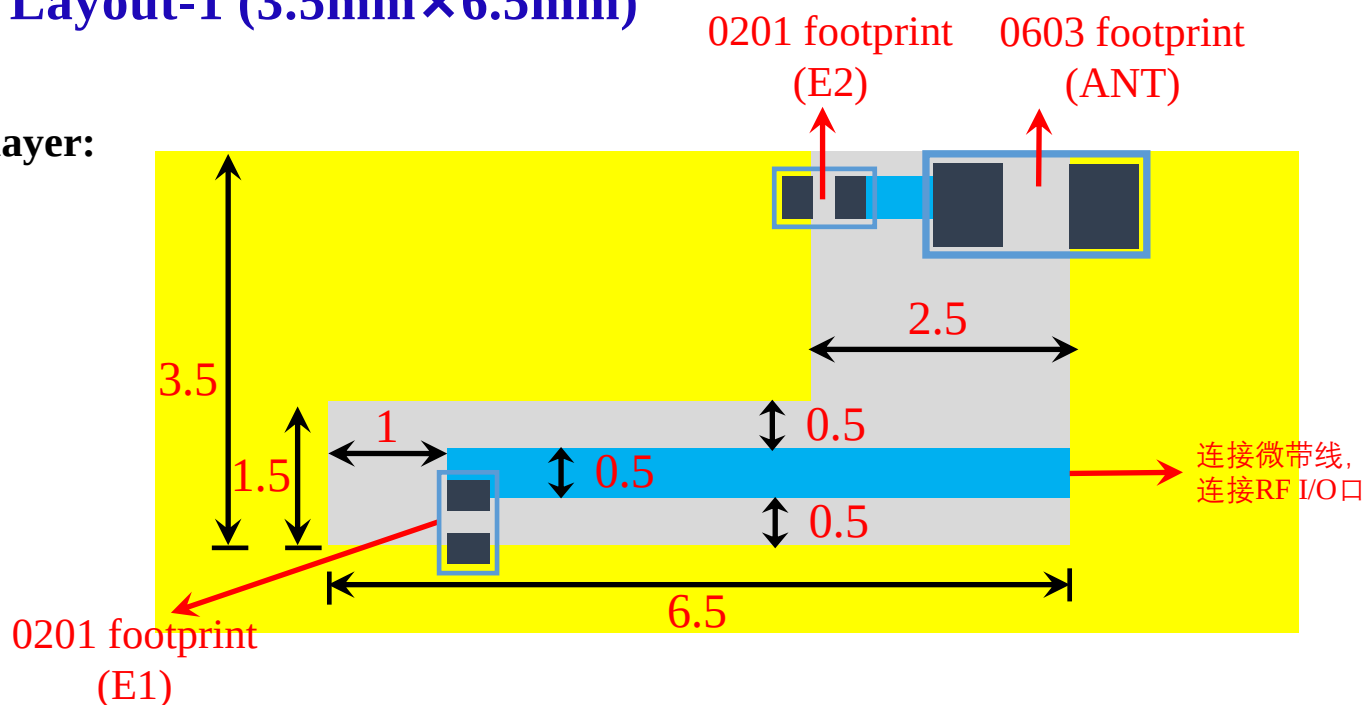
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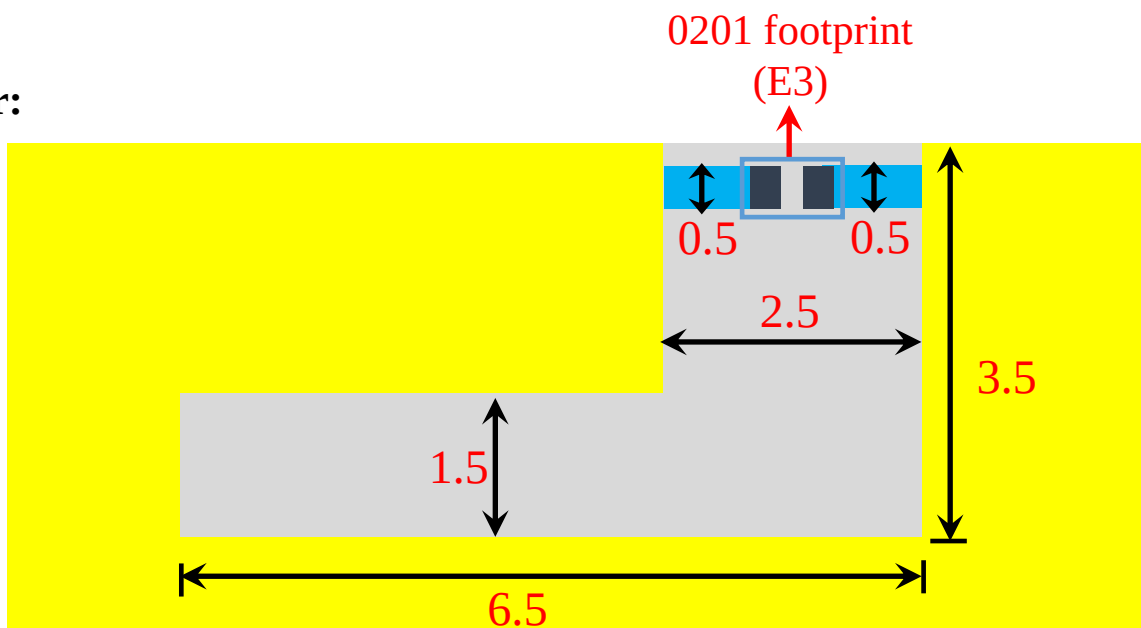
P/N: HY160808 SRF09

## ✓ Layout-1 (3.5mm×6.5mm)

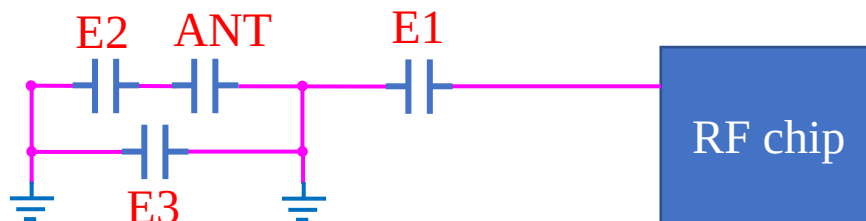
Top layer:



Bottom layer:



Equivalent circuit:

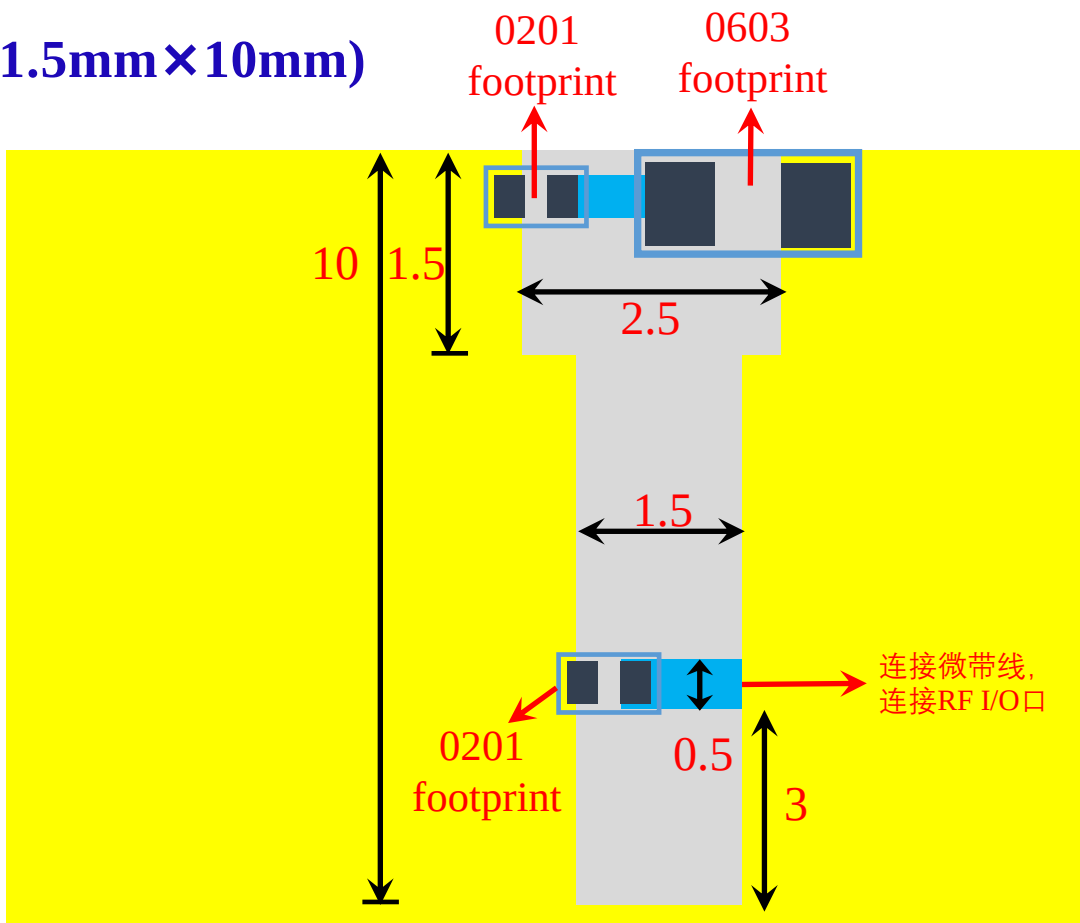




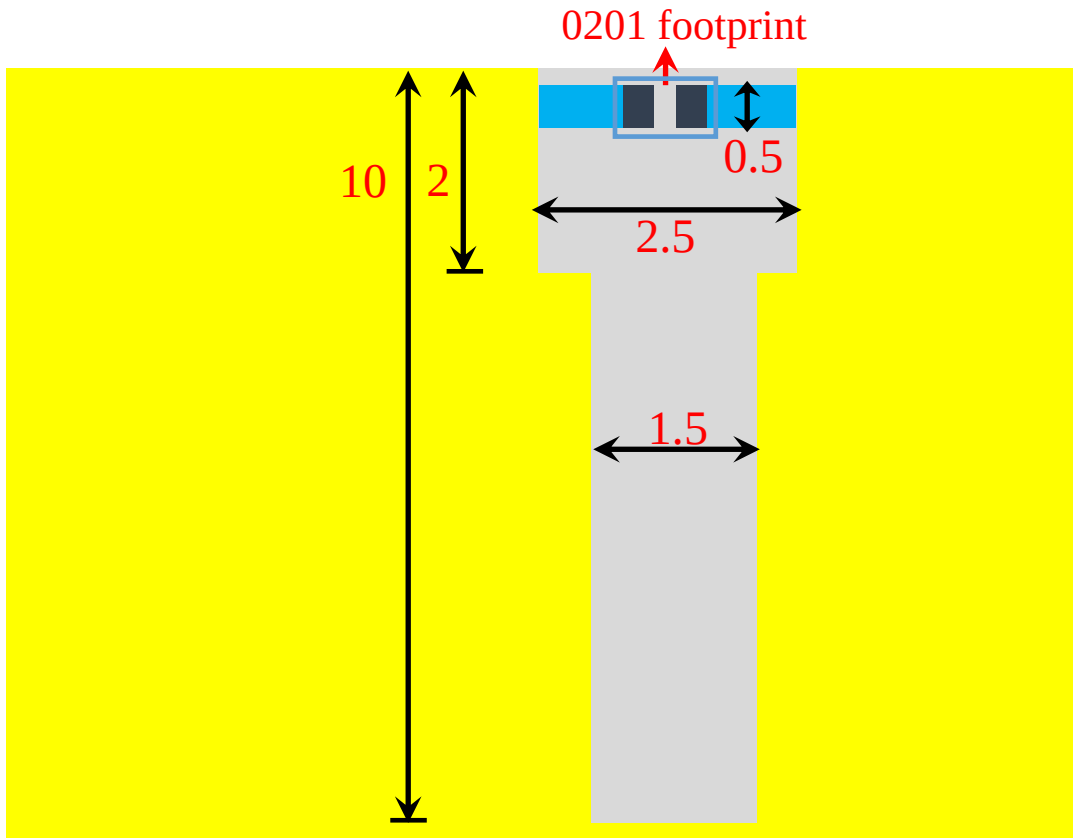
P/N: HY160808 SRF09

✓ Layout-2 (1.5mm×10mm)

Top layer:



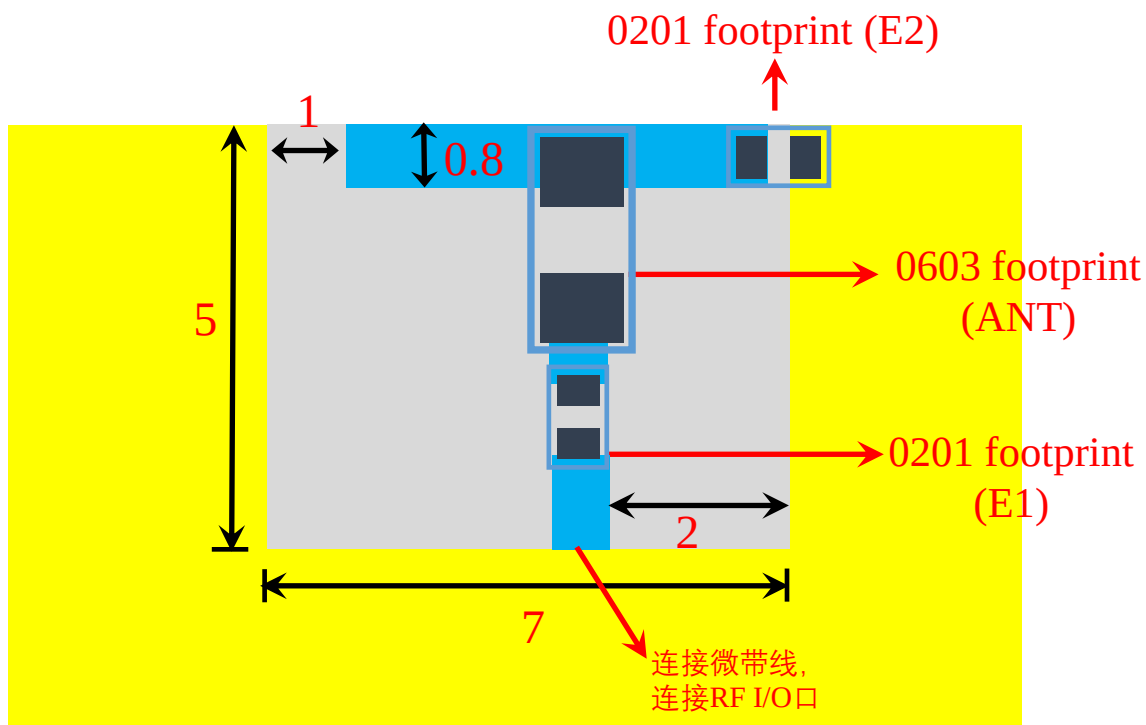
Bottom layer:



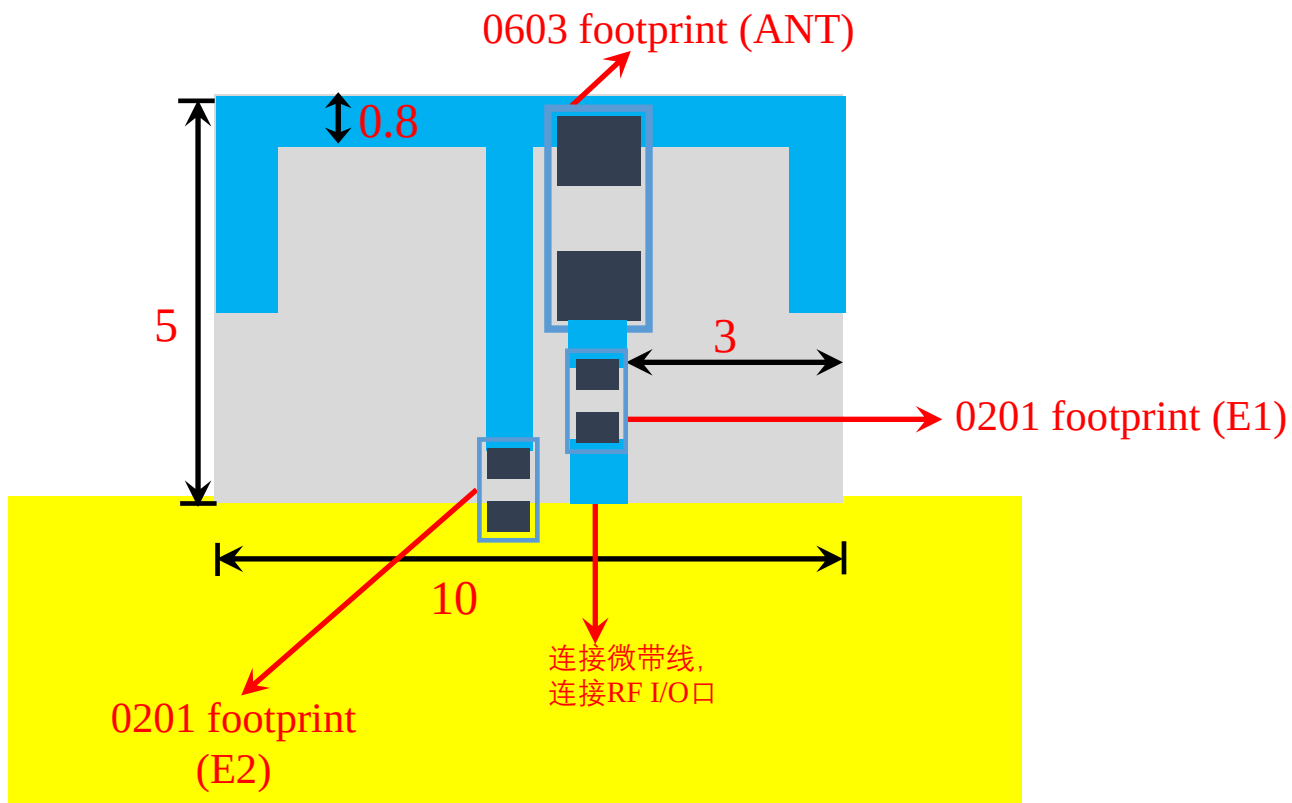


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### ✓ Layout-3 (5mm×7mm)



### ✓ Layout-4 (5mm×10mm)



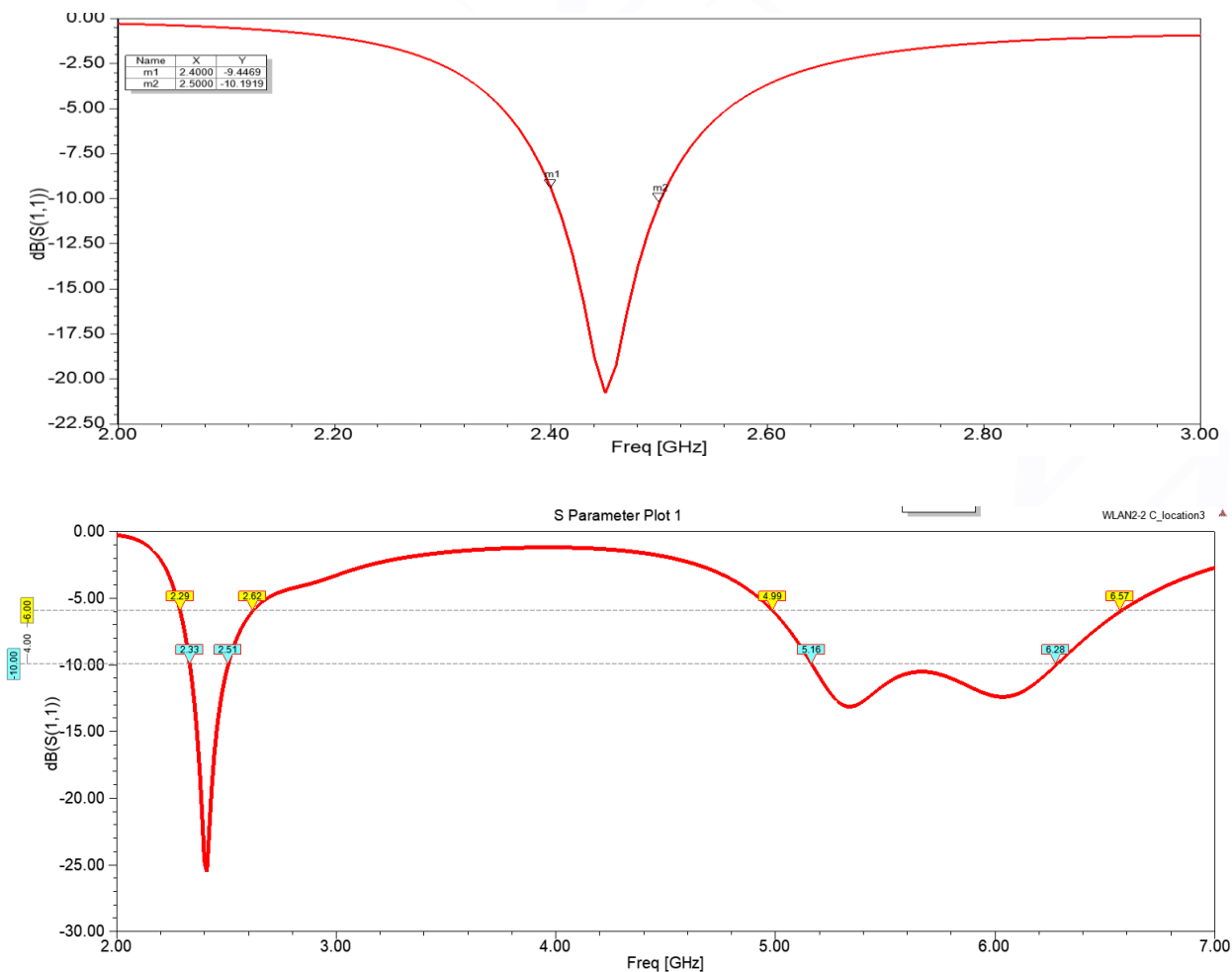


P/N: HY160808 SRF09

## ✓ Electrical Characteristics:

|   | Feature           | Specification   |
|---|-------------------|-----------------|
| 1 | Central frequency | 2.45GHz&5.5GHz  |
| 2 | Bandwidth         | >150MHz         |
| 3 | Peak gain         | 3dBi            |
| 4 | VSWR              | <2              |
| 5 | Polarization      | Linear          |
| 6 | Azimuth beamwidth | Omnidirectional |
| 7 | Impedance         | 50 $\Omega$     |

## ✓ Characteristic Curves:

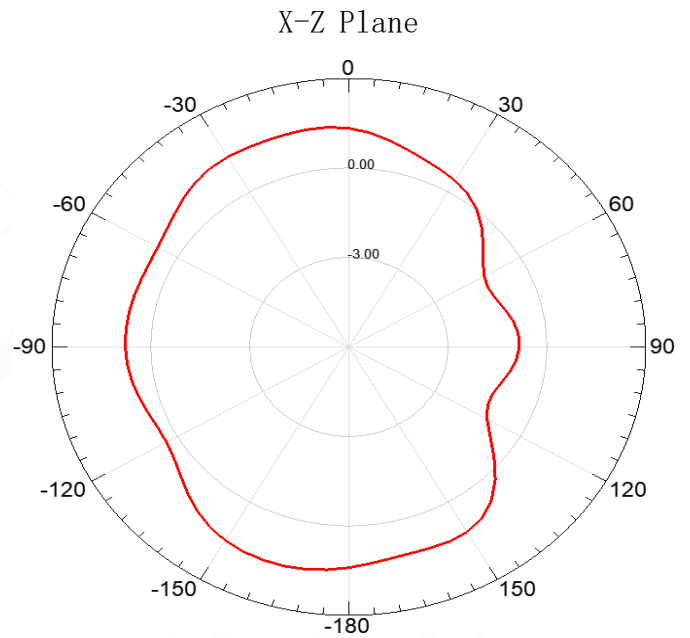
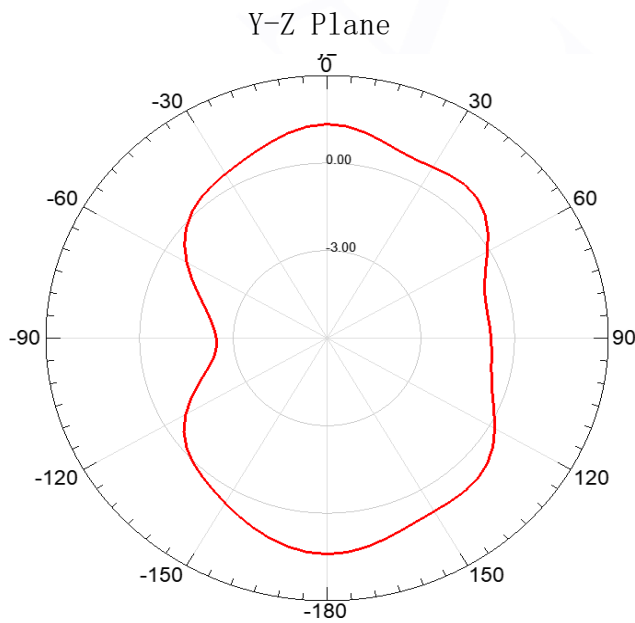
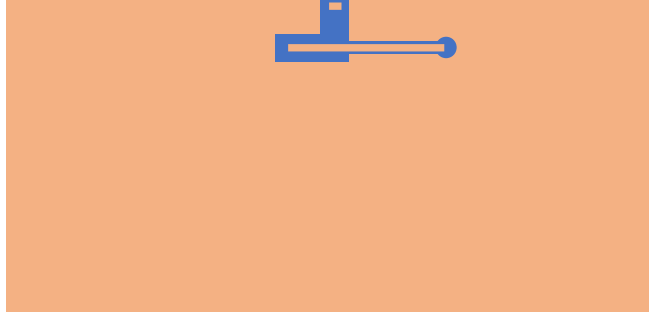
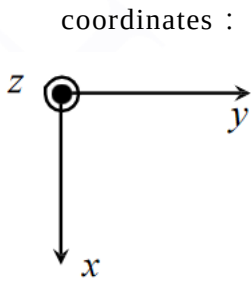


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**P/N: HY160808 SRF09**

## ✓ Radiation Pattern:



## ✓ Radiation Performance:

| Frequency  | 2450MHz | 5500MHz |
|------------|---------|---------|
| Avg. gain  | -0.85   | -1.30   |
| Peak gain  | 3.0     | 3.5     |
| Efficiency | 82%     | 78%     |



**P/N: HY160808 SRF09**

## ✓ Dependability Test

|                       |                |
|-----------------------|----------------|
| Test Temperature      | 25°C ± 5°C     |
| Operating Temperature | -25°C ~ +125°C |
| Temperature           | 5~40°C         |
| Relative Humidity     | 20~70%         |

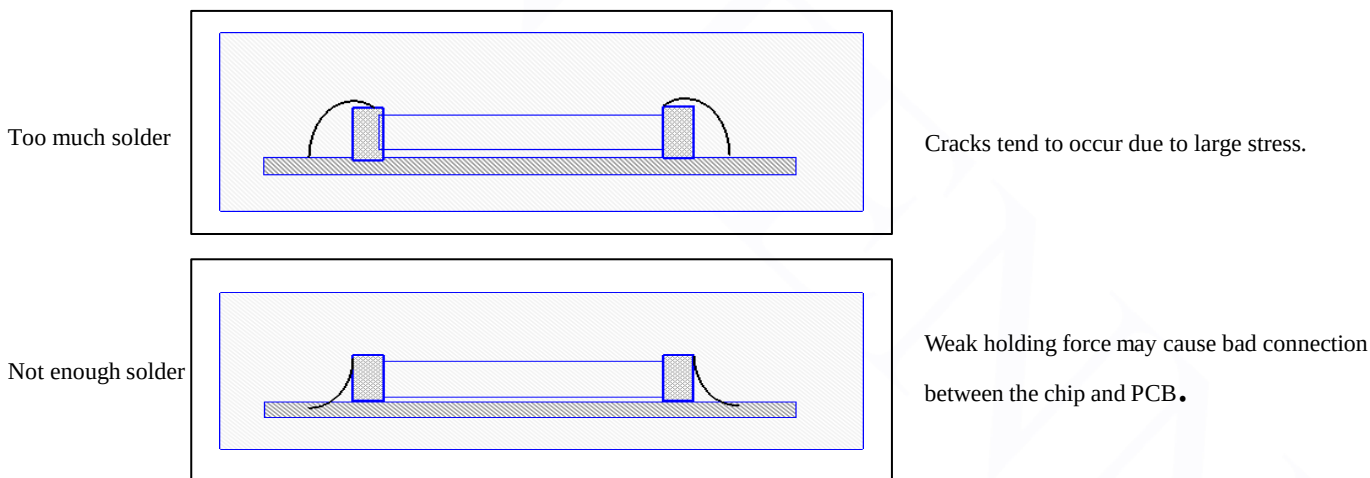
## ✓ Moisture Proof

Temperature: 40 ± 2°C Humidity: 90~95%RH  
Duration: 500h  
Recovery conditions: Room temperature Recovery Time: 24h (Class1) or 48h (Class2)

## ✓ Solderability

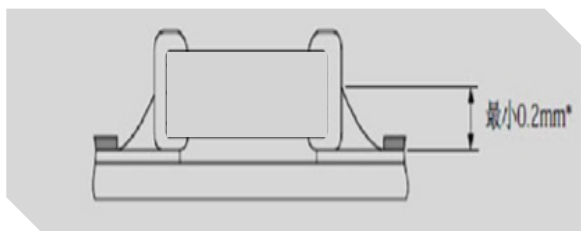
At least 95% of the terminal electrode is covered by new solder.  
Preheating conditions: 80 to 120°C; 10~30s.  
Solder Temperature: 235 ± 5°C Duration: 2 ± 0.5s, Solder Temperature: 245 ± 5°C Duration: 2 ± 0.5s

## ✓ Optimum Solder Amount for Reflow Soldering

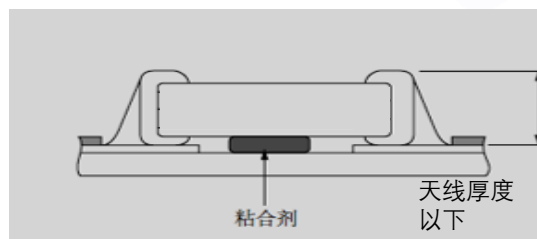


## ✓ Recommended Soldering Amounts

The optimal solder fillet amounts for re-flow soldering



The optimal solder fillet amounts for wave soldering



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**P/N: HY160808 SRF09**

## ✓ Temperature Cycle Test

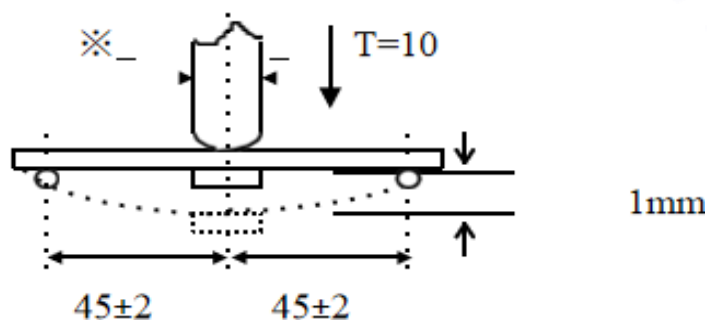
10±1S Applied Force: 5N Duration: 10±1S  
Preheating conditions: up-category temperature, 1h  
Recovery time: 24±1h  
Initial Measurement  
Cycling Times: 5 times, 1 cycle, 4 steps:

| 阶段    | 温度 (°C)                                                                                                    | 时间 (分钟) |
|-------|------------------------------------------------------------------------------------------------------------|---------|
| 第 1 步 | 下限温度( $\text{NPO}/\text{X7R}/\text{X7S}/\text{X6S}/\text{X5R}:-55$<br>$\text{Y5V}:-25 \text{ Z5U}:+10$ )   | 30      |
| 第 2 步 | 常温 (+20)                                                                                                   | 2~3     |
| 第 3 步 | 上限温度( $\text{NPO}/\text{X7R}/\text{X7S}:+125$<br>$\text{Y5V}/\text{Z5U}/\text{X5R}:-85 \text{ X6S}:+105$ ) | 30      |
| 第 4 步 | 常温 (+20)                                                                                                   | 2~3     |

## ✓ Resistance to Soldering Heat

Preheating 80 to 120°C; 10~30s. Solder Temperature: 235±5°C; Duration: 2±0.5s; Solder Temperature: 245±5°C  
Duration: 2±0.5s; Preheating 100 to 200°C; 10±2min.  
Solder Temperature: 265±5°C; Duration: 10±1s  
Clean the capacitor with solvent and examine it with a 10X(min.) microscope.  
Recovery Time: 24±2h  
Recovery condition: Room temperature

## ✓ Resistance to Flexure of Substrate



Test Board: Al<sub>2</sub>O<sub>3</sub> or PCB Warp: 1mm Speed: 0.5mm/sec.  
Unit: mm

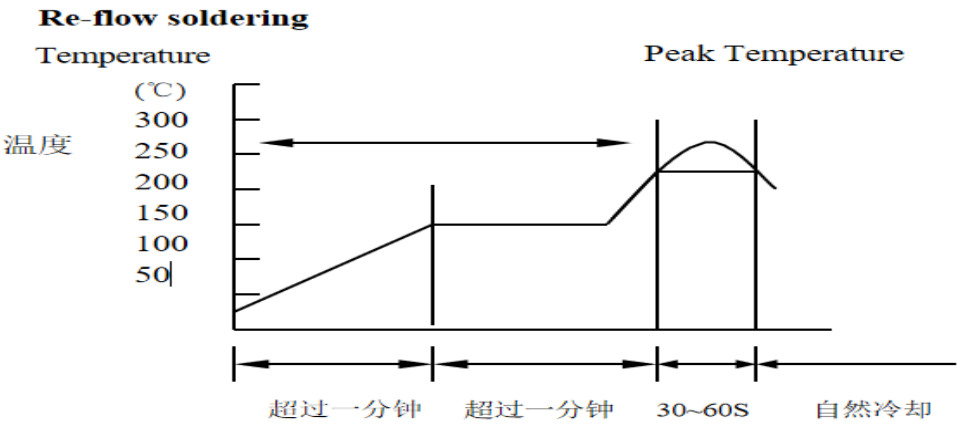
The measurement should be made with the board in the bending position.





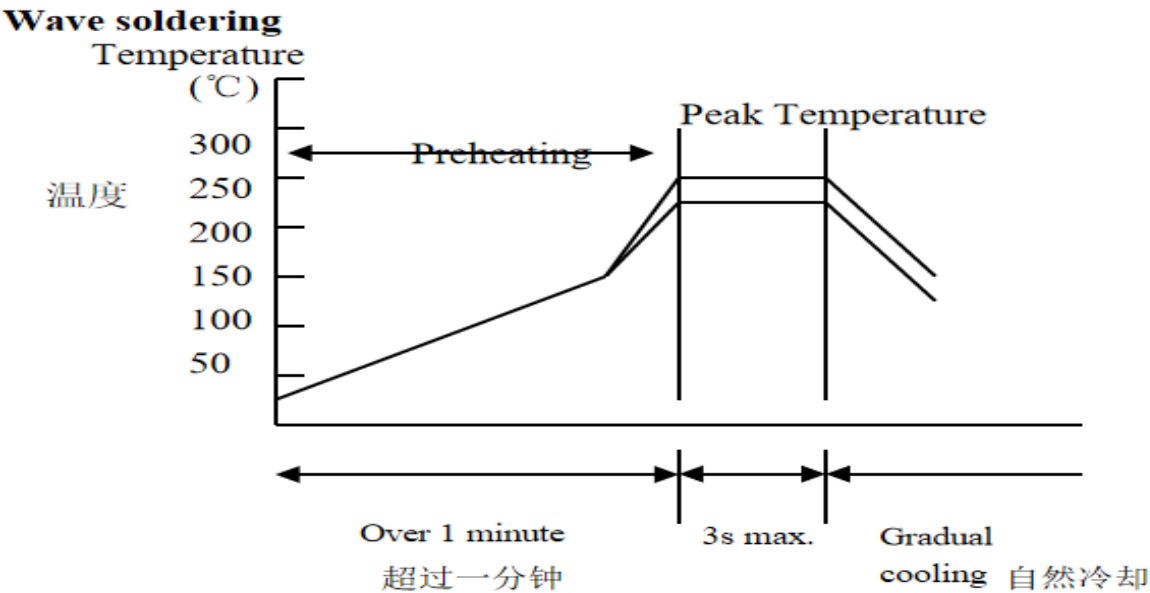
P/N: HY160808 SRF09

The temperature profile for soldering



|                          |                             |                             |
|--------------------------|-----------------------------|-----------------------------|
|                          | Pb-Sn 焊接<br>Pb-Sn soldering | 无铅焊接<br>Lead-free soldering |
| 尖峰温度<br>Peak temperature | 230℃~250℃                   | 240℃~260℃                   |

While in preheating, please keep the temperature difference between soldering temperature and surface temperature of chips as:  $T \leq 150^{\circ}\text{C}$ .

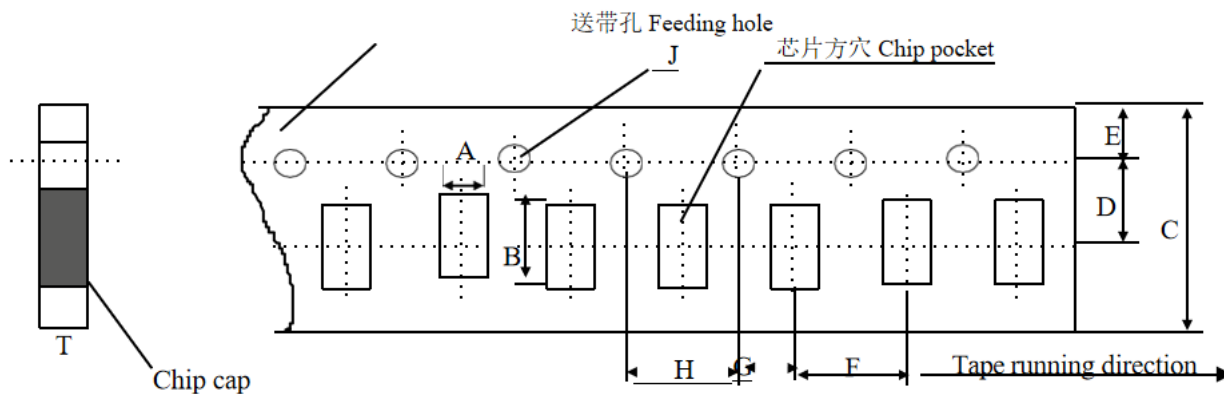


|                          |                             |                             |
|--------------------------|-----------------------------|-----------------------------|
|                          | Pb-Sn 焊接<br>Pb-Sn soldering | 无铅焊接<br>Lead-free soldering |
| 尖峰温度<br>Peak temperature | 230℃~260℃                   | 240℃~270℃                   |



P/N: HY160808 SRF09

## ✓ Dimensions of paper taping

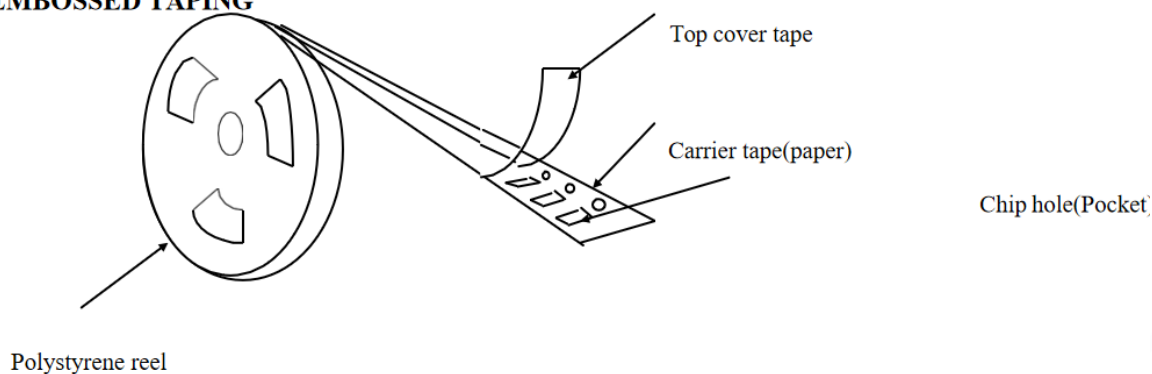


Unit: mm

| 代号Code<br>纸带规格<br>papersize | A             | B             | C             | D*            | E             | F             | G*            | H             | J                | T           |
|-----------------------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|------------------|-------------|
| 尺寸                          | 1.10<br>±0.10 | 1.90<br>±0.10 | 8.00<br>±0.10 | 3.50<br>±0.05 | 1.75<br>±0.10 | 4.00<br>±0.10 | 2.00<br>±0.10 | 4.00<br>±0.10 | 1.50<br>-0/+0.10 | 1.10<br>Max |

Reel (4000 pcs/Reel)

### EMBOSED TAPING



## ✓ Storage Period

The guaranteed period for solderability is 6 months (Under deliver package condition).  
Temperature:5~40°C /Relative Humidity:20~70%

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