



# SPECIFICATION

## Chip Antenna 5220 Size

2400-2500 MHz

P/N: HM5220ANT2450-HM5B

## 1. Frequency

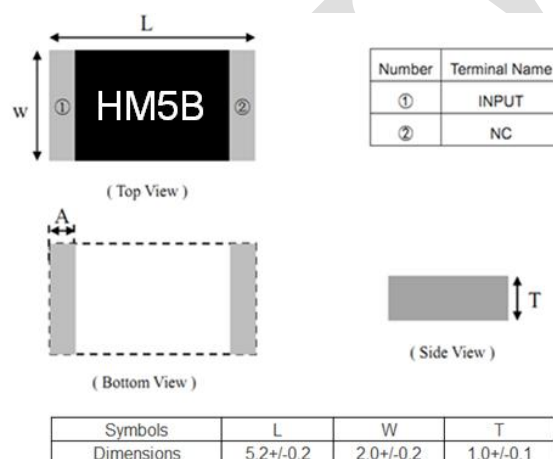
2400-2500 MHz

## 2. Applications

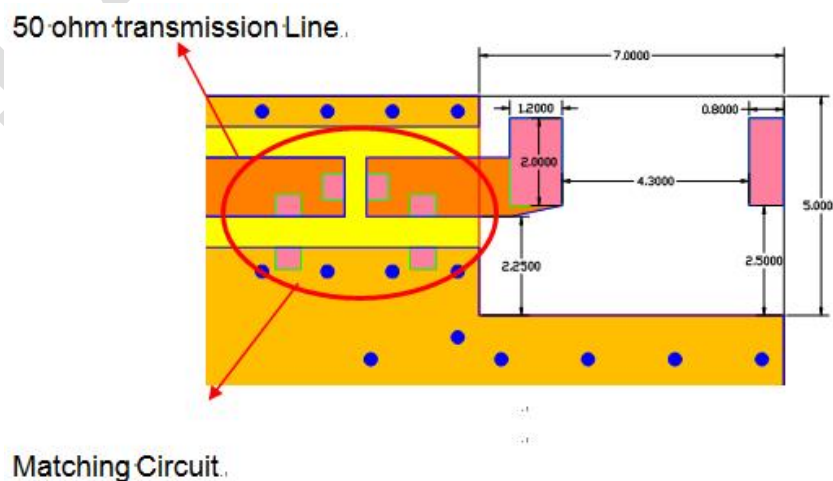
For Miniaturized Bluetooth System

## 3. Dimensions (Unit : mm)

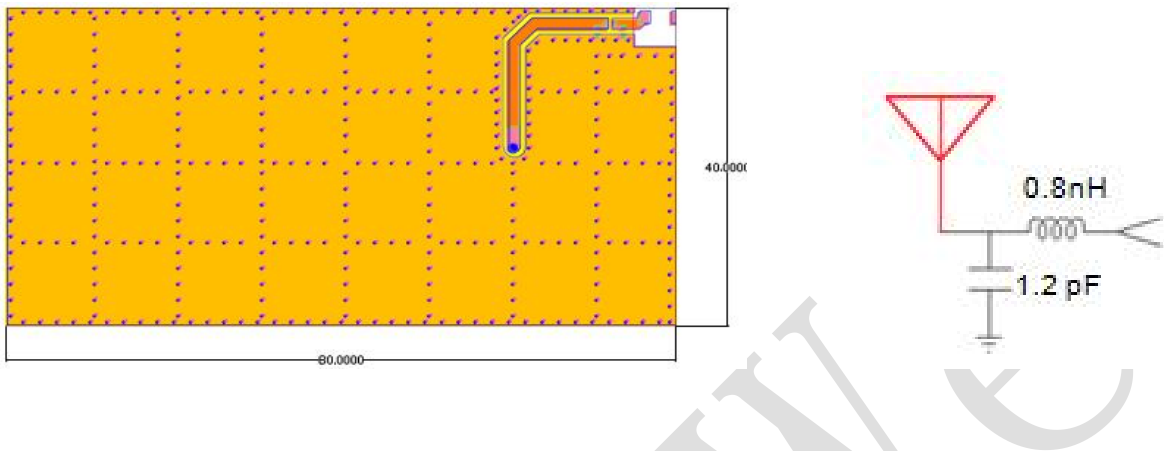
### 1). Over View :



### 2). PCB Layout (Unit : mm) :



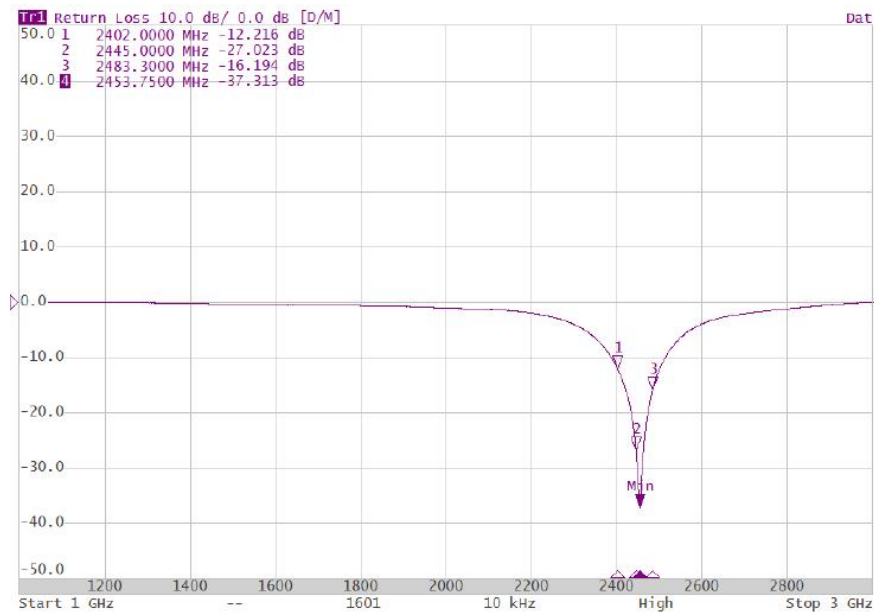
#### 4. Evaluation Board Size and Matching Circuits



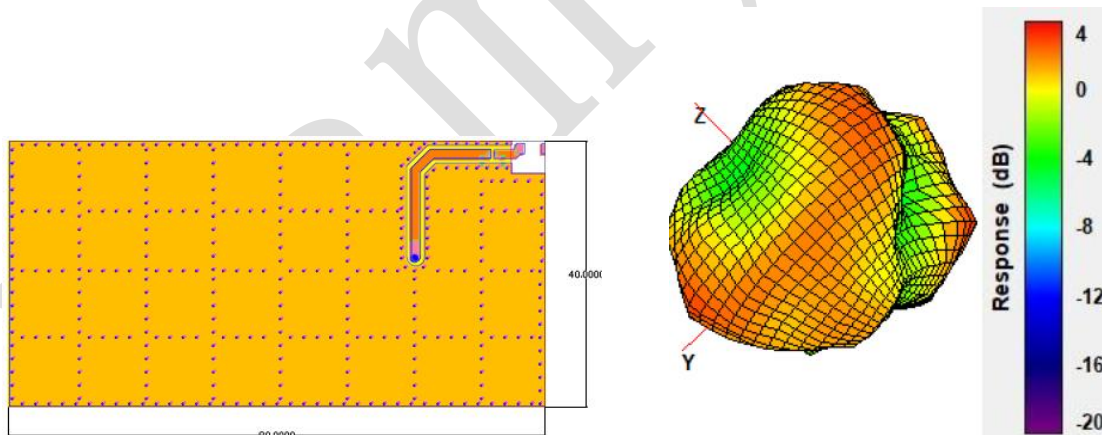
#### 5. Electrical Characteristics

|                   |                    |
|-------------------|--------------------|
| Part Number       | HM5220ANT2450-HM5B |
| Central Frequency | 2450 MHz           |
| Bandwidth         | 100(typ.) MHz      |
| V.S.W.R           | $\leq 2.0$         |
| Peak Gain         | 5.35 dBi           |
| Impedance         | 50 Ohm             |
| Polarization      | Linear             |
| Azimuth Beamwidth | Omni-directional   |

## 6. Return Loss (S11)

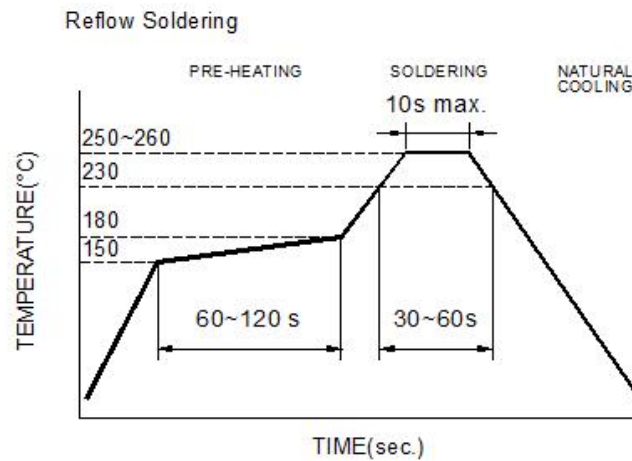


## 7. Radiation Pattern & Efficiency



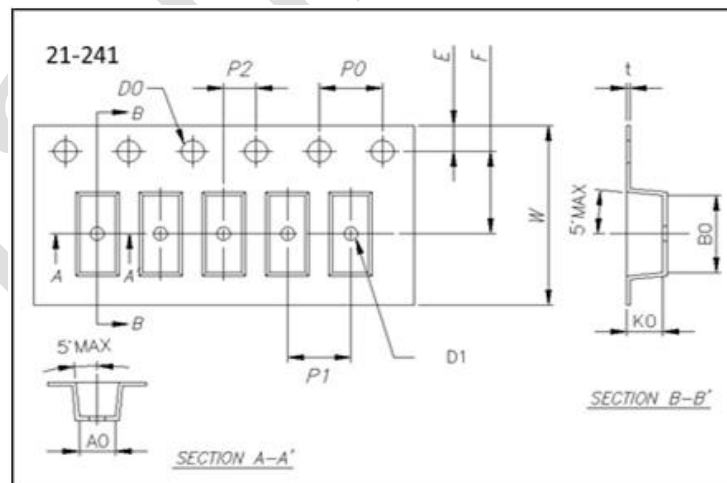
| Frequency (MHz) | 2400  | 2450  | 2500  |
|-----------------|-------|-------|-------|
| Efficiency (dB) | -1.49 | -1.37 | -1.61 |
| Efficiency (%)  | 71    | 73    | 69    |
| Gain (dBi)      | 4.76  | 5.35  | 5.01  |

## 8. Reflow Soldering Standard Condition



## 9. Packaging and Dimensions

- Plastic Tape

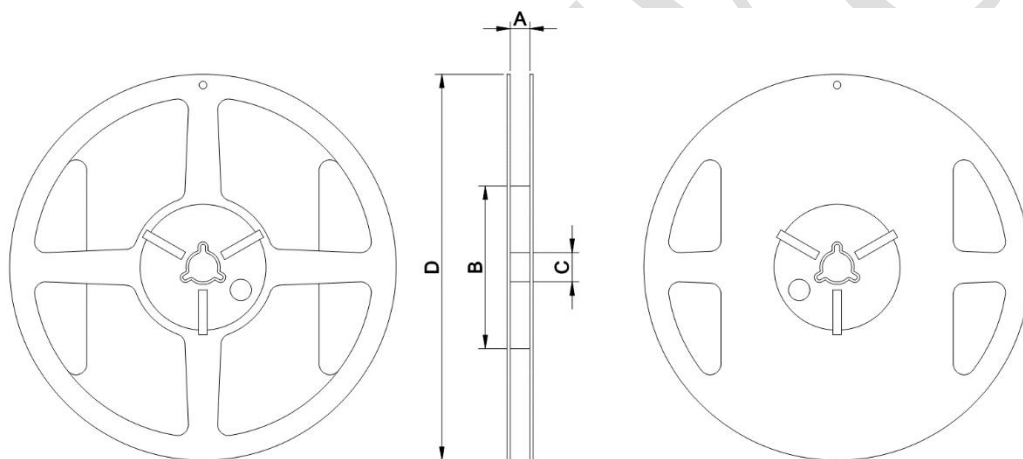


| W     | Ao    | Bo    | Ko    | P0    | F     | E     | D0        | D1    | Po    | P2    | t     |
|-------|-------|-------|-------|-------|-------|-------|-----------|-------|-------|-------|-------|
| 12.00 | 2.30  | 5.16  | 1.58  | 4.00  | 5.50  | 1.75  | 1.50      | 1.00  | 4.00  | 2.00  | 0.25  |
| ±0.20 | ±0.05 | ±0.10 | ±0.10 | ±0.10 | ±0.10 | ±0.10 | +0.10, -0 | ±0.10 | ±0.10 | ±0.05 | ±0.05 |

- **Remarks for Package**

Reserve a length of 150~200mm for the trailer of the carrier and 250~300 mm for the leader of the carrier and further 250mm of cover tape at the leading part of the carrier.

- **Reel (3000 pcs/Reel)**



| Tape Width(mm) | A(mm)    | B(mm) | C(mm)    | D(mm) | Chip/Reel(pcs) |
|----------------|----------|-------|----------|-------|----------------|
| 12             | 13.0±0.5 | 60±2  | 13.5±0.5 | 178±2 | 3000           |

- **Storage Period**

Oxidizable Material, 12 months in vacuum sealed bag, please repack within 168 hours by re-seal the package treatment after using.

Storage Temperature Range : <30 degree C, Humidity : <60%RH

## 10. Dependability Test

| Test item                                                               | Test condition / Test method                                                                                                                                                                                                                                                         | Specification                                                                                                                                                                                                         |
|-------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Solderability<br>IEC 60068-2-58<br>GB/T2423.28                          | *Solder bath temperature : $240\pm 5^{\circ}\text{C}$<br>*Immersion time : $2\pm 0.5$ sec<br>Solder : Sn96.5Ag3.0Gu0.5 for lead-free.                                                                                                                                                | At least 95% of a surface of each terminal electrode must be covered by fresh solder.                                                                                                                                 |
| Leaching (Resistance to dissolution of metallization)<br>JIS C5101      | *Solder bath temperature : $260\pm 5^{\circ}\text{C}$<br>*Leaching immersion time : $10\pm 1$ sec<br>Solder : Sn96.5 Ag3.0 Gu0.5 for lead-free.                                                                                                                                      | Loss of metallization on the edges of each electrode shall not exceed 25%.                                                                                                                                            |
| Resistance to soldering heat<br>IEC 60068-2-58<br>GB/T2423.28           | *Preheating temperature : $120\sim 150^{\circ}\text{C}$ , 1 minute.<br>*Solder temperature : $260\pm 5^{\circ}\text{C}$<br>*Immersion time : $10\pm 1$ sec<br>Solder : Sn96.5Ag3.0Gu0.5 for lead-free<br>Measurement to be made after keeping at room temperature for $24\pm 2$ hrs. | No mechanical damage.<br>Electrical specification shall satisfy the descriptions in electrical characteristics at the room temperature.<br>Loss of metallization on the edges of each electrode shall not exceed 25%. |
| Drop Test<br>IEC 60068-2-32<br>GB/T2423.8<br>Customer' s specification. | *Height : 50 cm<br>*Test Surface: Rigid surface of concrete or steel.<br>*Times : 6 surfaces for each units ; 2 times for each side.                                                                                                                                                 | No mechanical damage.<br>Electrical specification shall satisfy the descriptions in electrical characteristics at the room temperature.                                                                               |
| Vibration<br>IEC 60068-2-6<br>GB/T 2423.10                              | *Frequency : $10\text{Hz}\sim 55\text{Hz}\sim 10\text{Hz}(1\text{min})$<br>*Total amplitude : 1.5mm<br>*Test times : 6hrs.(Two hrs each in three mutually perpendicular directions)                                                                                                  | No mechanical damage.<br>Electrical specification shall satisfy the descriptions in electrical characteristics at the room temperature.                                                                               |
| Adhesive Strength of Termination<br>IEC60068-2-21                       | *Pressurizing force :<br>$5\text{N}(\leq 0603)$ ; $10\text{N}(>0603)$<br>*Test time: $10\pm 1$ sec                                                                                                                                                                                   | No remarkable damage or removal of the termination.                                                                                                                                                                   |

|                                                             |                                                                                                                                                                                                                                                                                          |                                                                                                                                         |
|-------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|
| GB/T 2423.6                                                 |                                                                                                                                                                                                                                                                                          |                                                                                                                                         |
| Bending test<br>IEC 60068-2-21<br>GB/T 2423.29              | The middle part of substrate shall be pressurized by means of the pressurizing rod at a rate of about 1 mm/s per second until the deflection becomes 2mm and then pressure shall be maintained for 10±1 sec.<br>Measurement to be made after keeping at room temperature for 24±2 hours. | No mechanical damage.<br>Electrical specification shall satisfy the descriptions in electrical characteristics at the room temperature. |
| Temperature cycle<br>IEC60068-2-14<br>GB/T 2423.22          | 30 minutes at -40°C±2°C.<br>10~15 minutes at room temperature.<br>30minutes at +85°C±2°C.<br>10~15 minutes at room temperature.<br>Total 100 continuous cycles Measurement to be made after keeping at room temperature for 24±2 hrs.                                                    | No mechanical damage.<br>Electrical specification shall satisfy the descriptions in electrical characteristics at the room temperature. |
| High temperature<br>IEC 60068-2-2<br>GB/T2423.2             | *Temperature : 85±2°C.<br>*Test duration : 500+24/-0 hours.<br>Measurement to be made after keeping at room temperature for 24±2 hrs.                                                                                                                                                    | No mechanical damage.<br>Electrical specification shall satisfy the descriptions in electrical characteristics.                         |
| Humidity (steady conditions)<br>IEC60068-2-3<br>GB/T 2423.3 | *Humidity : 85±5%R.H.<br>*Temperature : 85±2°C.<br>*Time : 500+24/-0 hrs.<br>Measurement to be made after keeping at room temperature for 24±2 hrs<br>※ 200hrs measuring the first data then 300hrs data.                                                                                | No mechanical damage.<br>Electrical specification shall satisfy the descriptions in electrical characteristics at the room temperature. |
| Low temperature<br>IEC 60068-2-1<br>GB/T2423.1              | *Temperature : -40±2°C.<br>*Test duration : 500+24/-0 hours<br>Measurement to be made after keeping at room temperature for 24±2 hrs.                                                                                                                                                    | No mechanical damage.<br>Electrical specification shall satisfy the descriptions in electrical characteristics at the room temperature. |