

SMD CHIP ANTENNA

Data Sheet

KH-5020-52-SE-C

For 2400-2500MHz

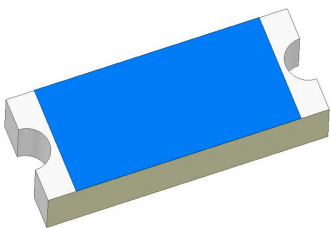
5.0x2.0x1.0mm

Feature

- Light weight, compact
- Wide bandwidth, low cost
- Built-in antenna with high gain
- Operating Temp. : -40°C~+85°C

Application

- Bluetooth
- WLAN 2.4
- Zigbee systems,etc...

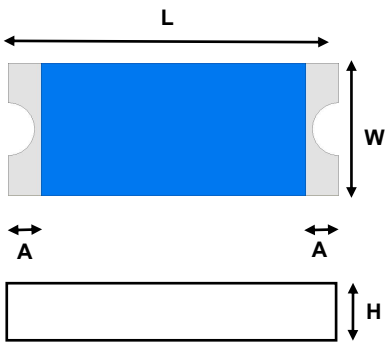


Electrical Characteristics per line(TA=25°C)

Parameter	Specification	Units
Frequency Band	2400~2500	MHz
Polarization	Linear	
*Peak Gain	0.99	dBi
*Peak Efficiency	50.34	%
Impedance	50	Ω

Test condition: Test board size 70*60 mm;
Matching circuit: Pi matching circuit will be required.

Product Dimension

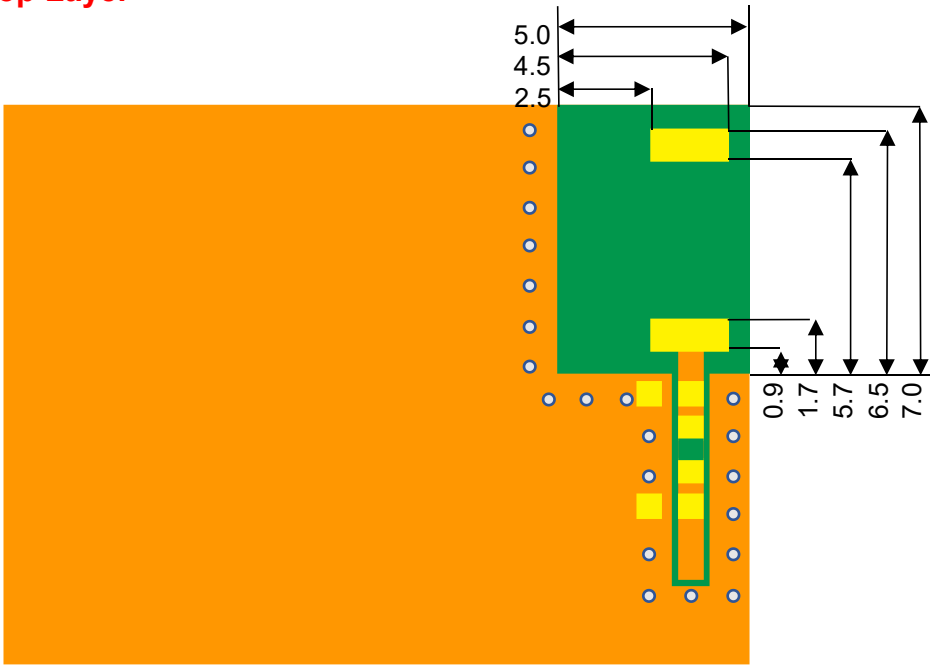


Units:mm			
L	W	H	A
5.00±0.10	2.00±0.10	1.00±0.10	0.5±0.10

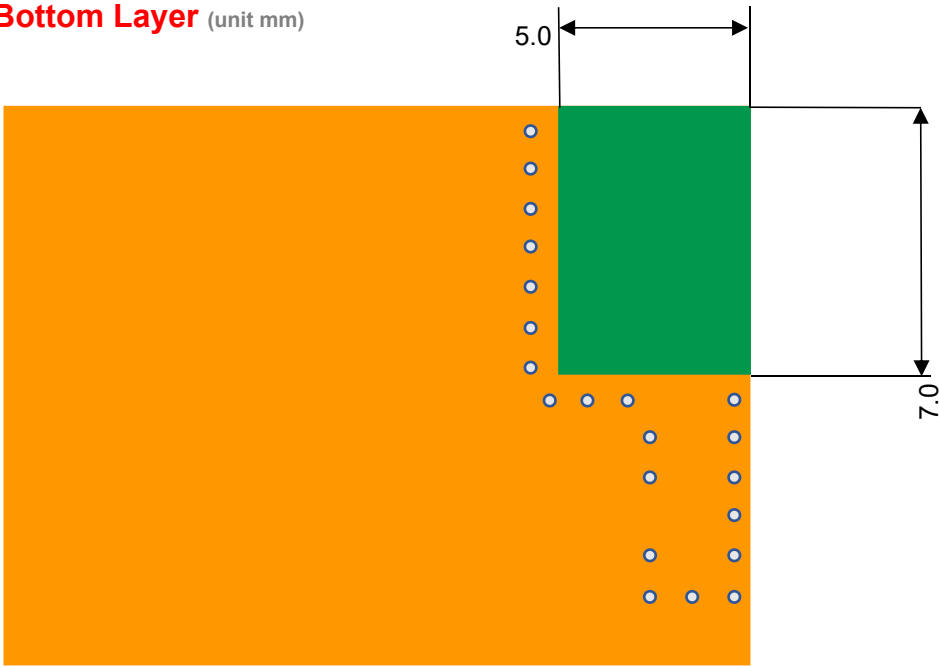
Recommend PCB Layout

Test condition: Test board size 70*60 mm;

Top Layer

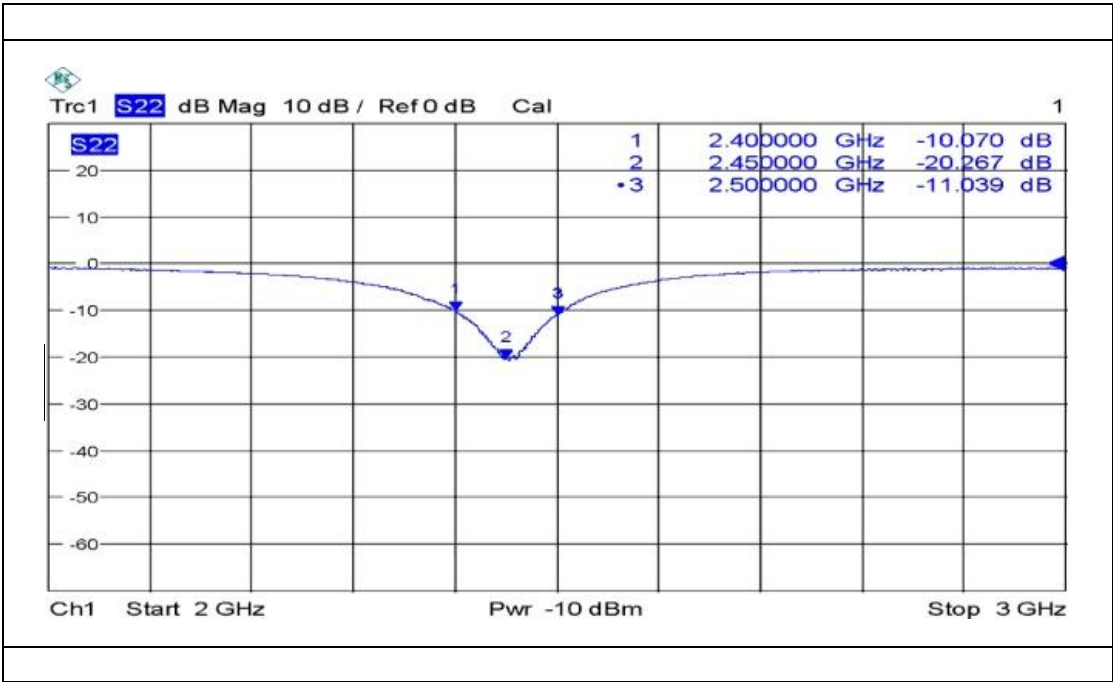


Bottom Layer (unit mm)



Typical Characteristics

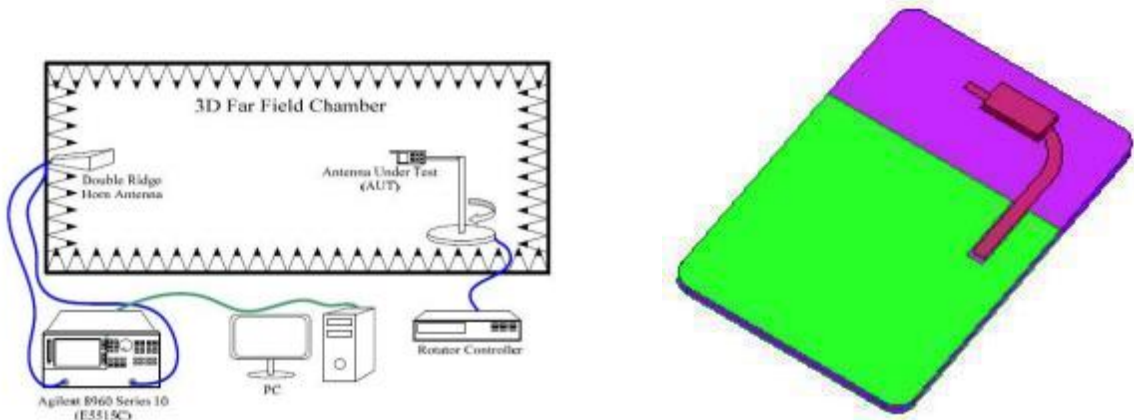
Fig. 1 Return Loss



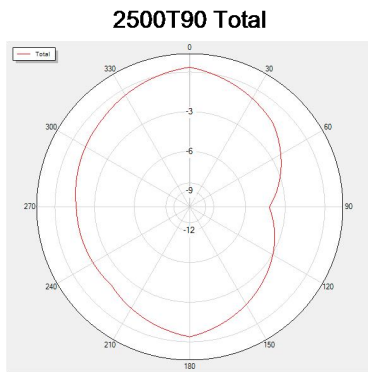
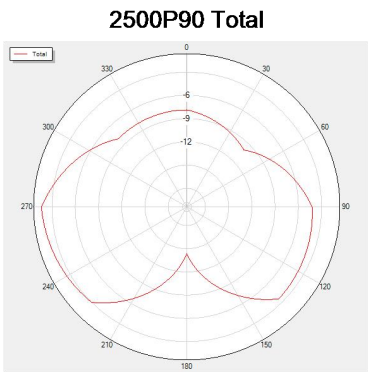
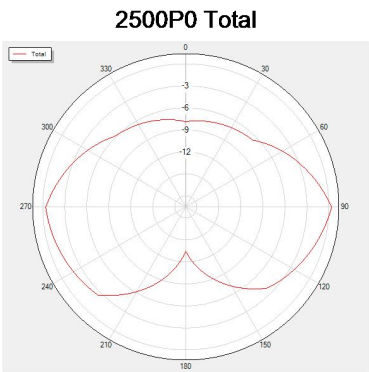
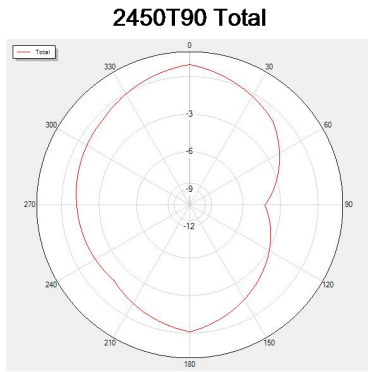
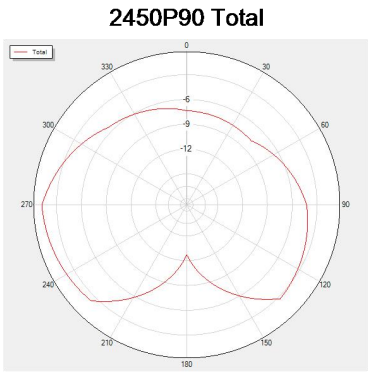
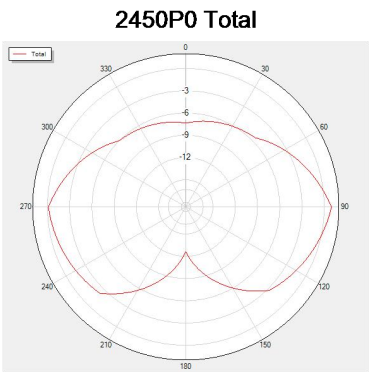
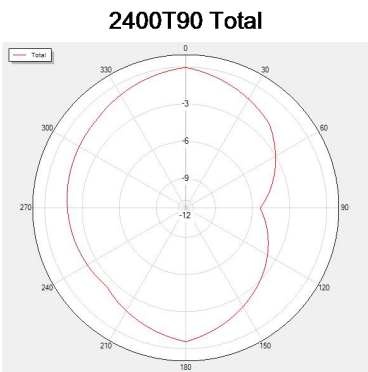
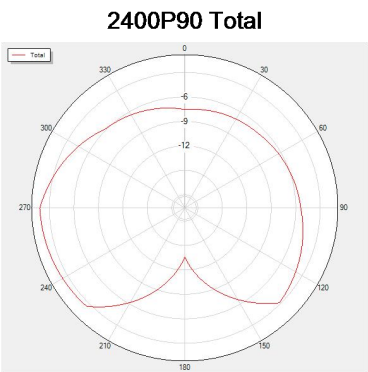
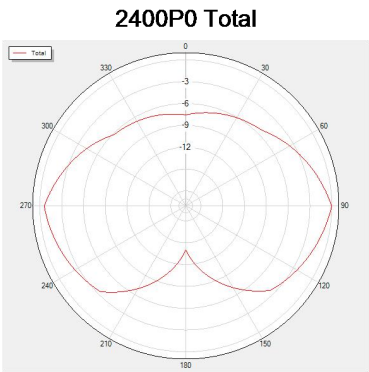
Radiation Pattern

The Gain pattern is measured in FAR -field chamber. DUT is placed on the table of rotator , a standard horn antenna and Vector Network Analyzer is used to collect data.

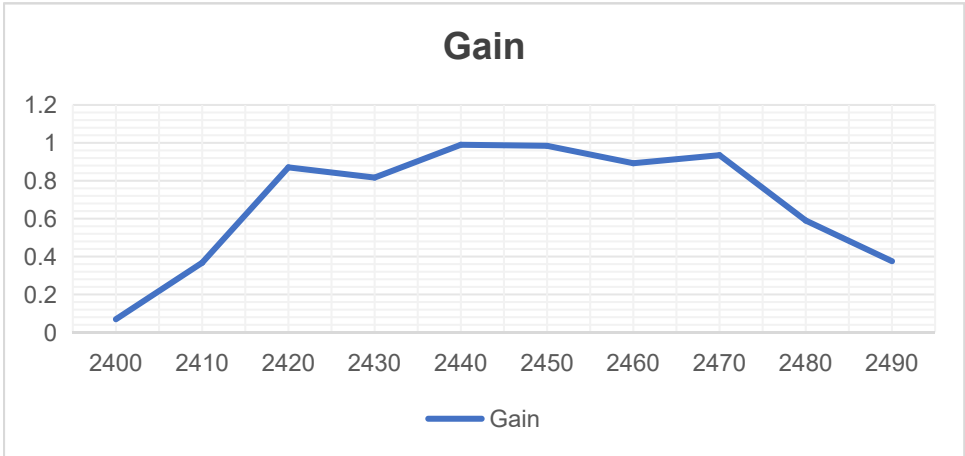
Fig.2 FAR-field Chamber



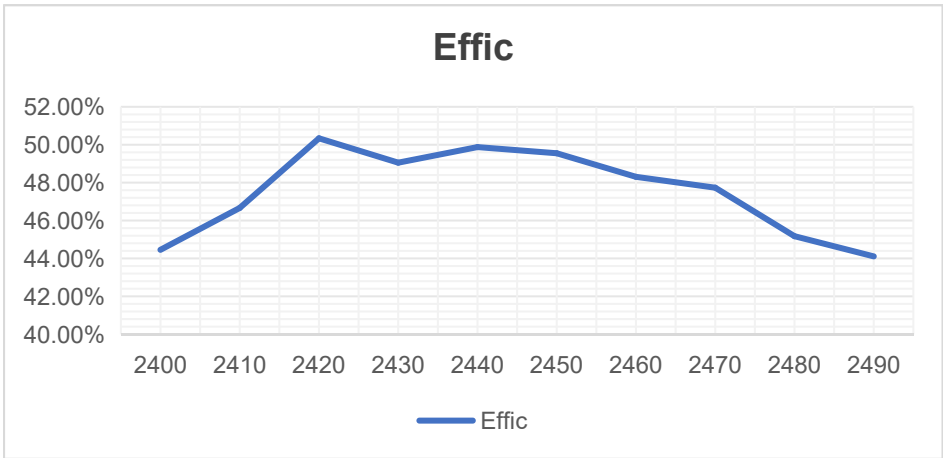
2D Gain Pattern



Gain



Efficiency



Radiation Performance:

Frequency	2400MHz	2450MHz	2500MHz
Peak gain(dBi)	0.01	0.99	0.37
Efficiency(%)	43.15	49.88	44.10

Item	Condition	Specification
Thermal shock	1. 30±3 minutes at -40°C±5°C, 2. Convert to +105°C (5 minutes) 3. 30±3 minutes at +105°C±5°C, 4. Convert to -40°C (5 minutes) 5. Total 100 continuous cycles	No apparent damage Fulfill the electrical spec. after test.
Humidity resistance	1. Humidity: 85% R.H. 2. Temperature: 85±5°C 3. Time: 1000 hours.	No apparent damage Fulfill the electrical spec. after test.
High temperature resistance	No apparent damage Fulfill the electrical spec. after test.	1. Temperature: 150°C±5°C 2. Time: 1000 hours.
Low temperature resistance	1. Temperature: -40°C±5°C 2. Time: 1000 hours.	No apparent damage Fulfill the electrical spec. after test.
Soldering heat resistance	1. Solder bath temperature : 260±5°C 2. Bathing time: 10±1 seconds	No apparent damage
Solderability	The dipped surface of the terminal shall be at least 95% covered with solder after dipped in solder bath of 245±5°C for 3±1 seconds.	No apparent damage

(2) Storage Condition

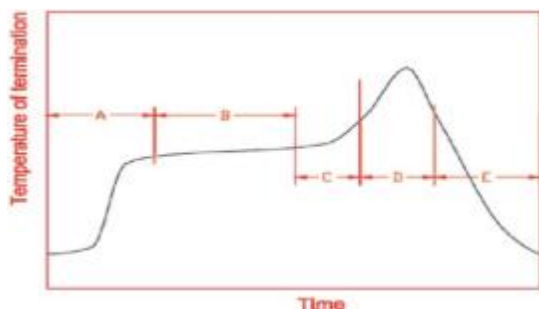
(a)At warehouse: The temperature should be within 0 ~ 30°C and humidity should be less than 60% RH.The product should be used within 1 year from the time of elivery.

(b)On board: The temperature should be within -40 ~ 85°C and humidity should be less than 85% RH.

(3) Operating Temperature Range

Operating temperature range : -40°C to +85°C.

Recommended Reflow Solder curve



A	1 st rising temperature	The normal to Preheating temperature	30s to 60s
B	Preheating	140°C to 160°C	60s to 120s
C	2 nd rising temperature	Preheating to 200°C	20s to 40s
D	Main heating	if 220°C	50s~60s
		if 230°C	40s~50s
		if 240°C	30s~40s
		if 250°C	20s~40s
E	Regular cooling	if 260°C	20s~40s
		200°C to 100°C	1°C/s ~ 4°C/s

*reference: J-STD-020C

(1) Soldering Gun Procedure

Note the follows, in case of using solder gun for replacement.

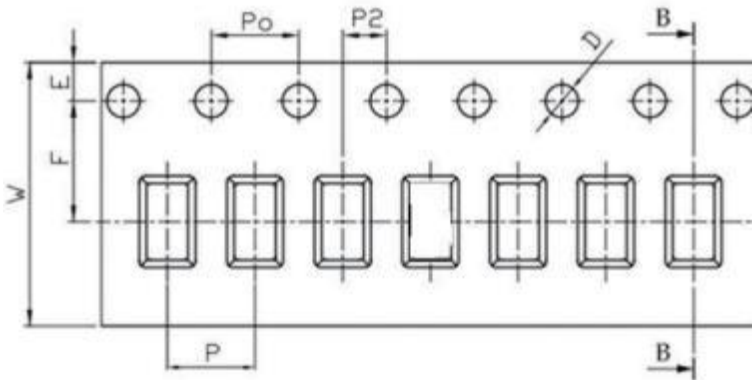
- (a) The tip temperature must be less than 350°C for the period within 3 seconds by using soldering gun under 30 W.
- (b) The soldering gun tip shall not touch this product directly.

(2) Soldering Volume

Note that excess of soldering volume will easily get crack the body of this product.

Package Information

5020 Typing Quantity: 2000 pieces per 13 reel



Feature	Specifications	Tolerances
W	12.00	±0.30
P	4.00	±0.10
E	1.75	±0.10
F	5.50	±0.10
P2	2.00	±0.10
D	1.50	±0.10
Po	4.00	±0.10
10Po	40.00	±0.20

订货信息 Order Information

Device	Package	Net Weight	Carrier	Quantity	HSF Status
KH-5020-52-SE-C	5020	0.026g	Tape&Reel	2000pcs	RoHS compliant

Revision history

Date	Revision	Description of changes
2024-10-09	1.0	First Version