

# SMD CERAMIC ANTENNA

## Data Sheet

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**HZ1608WA01**

**CS-2450-16-A**

For 2400-2500MHz

1.6x0.8x0.4mm [EIA1608]

**Shenzhen Haizhe Technology Co., Ltd.**

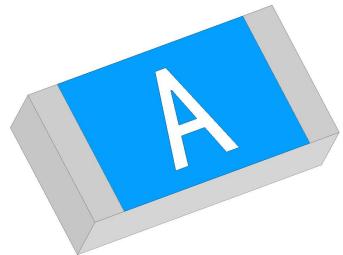
C3,buildingA1,RedBoxCreativeGarden,11HuanchengSouth Road, Ma'anTangcommunity,BantianStreet,LonggangDistrict, Shenzhen.

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## Feature

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



**CS-2450-16-A**

## Application

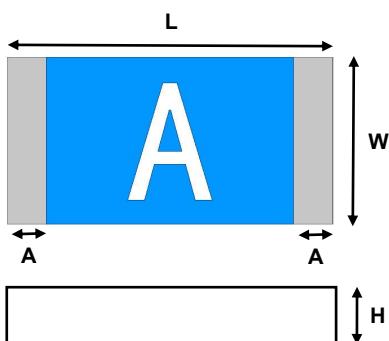
- Bluetooth
- WLAN 2.4
- WiFi 5/6/6E
- UWB

## Electrical Characteristics per line(TA=25°C)

Parameter	Specification	Units
Frequency Band	2400~2500	MHz
Polarization	Linear	
*Peak Gain	2.78	dBi
*Peak Efficiency	80.25	%
Impedance	50	Ω

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

## Product Dimension



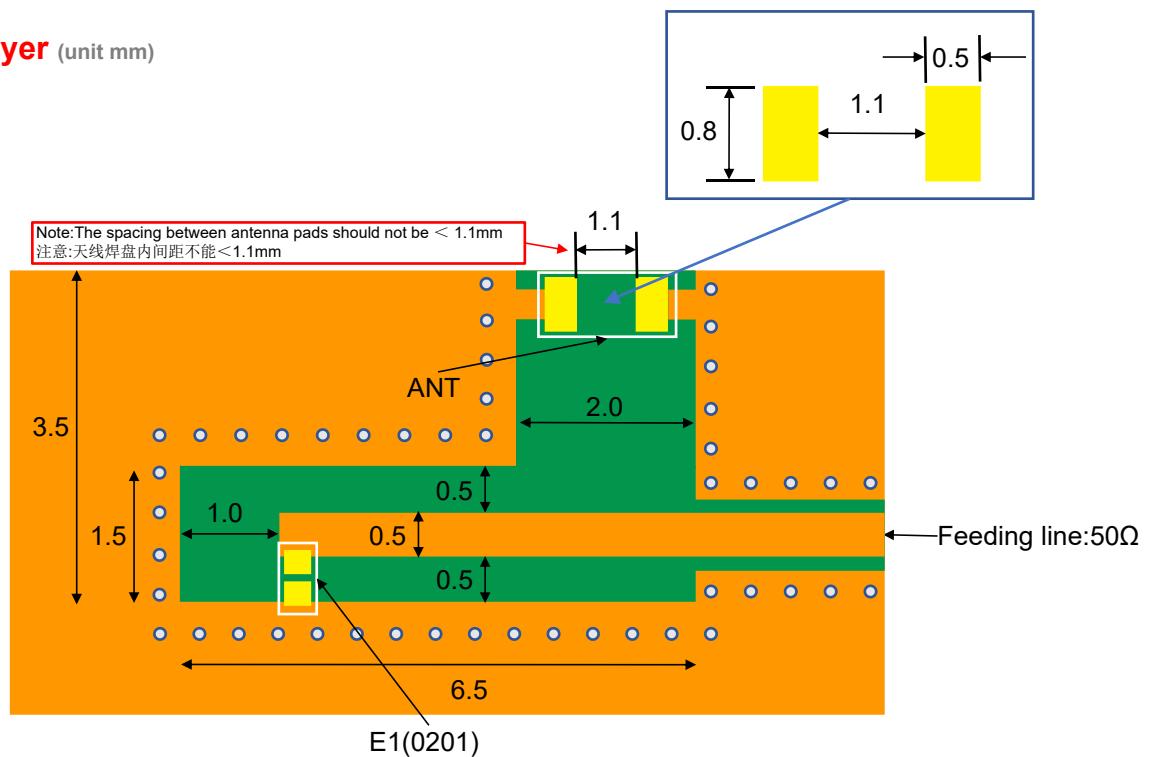
Units:mm

L	W	H	A
1.60±0.20	0.80±0.20	0.40±0.10	0.2±0.07

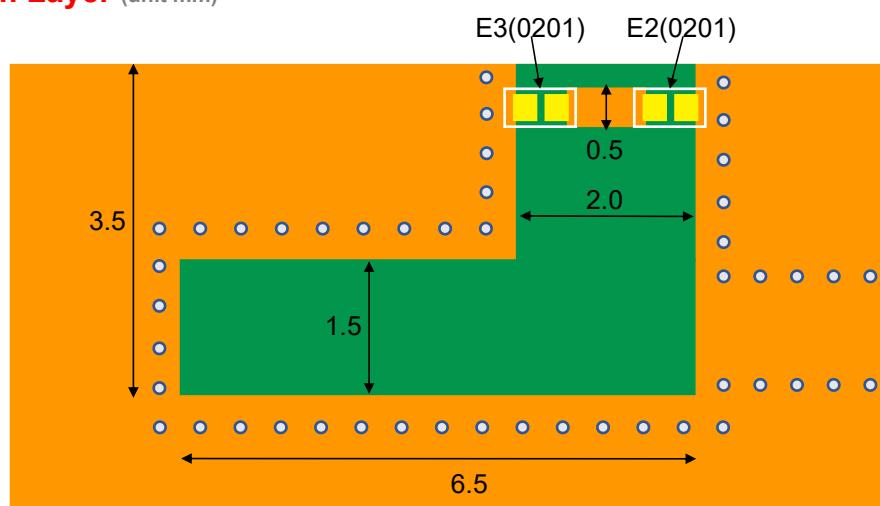
## Recommend PCB Layout1

Test condition: Test board size 70\*60 mm;

**Top Layer** (unit mm)



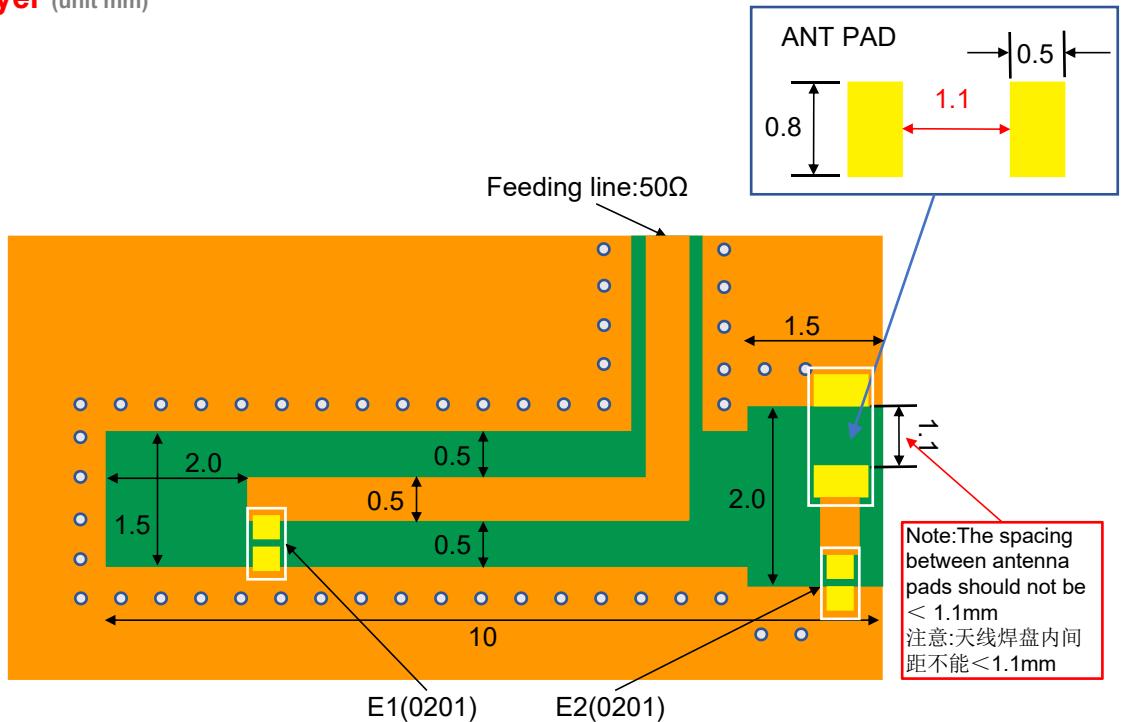
**Bottom Layer** (unit mm)



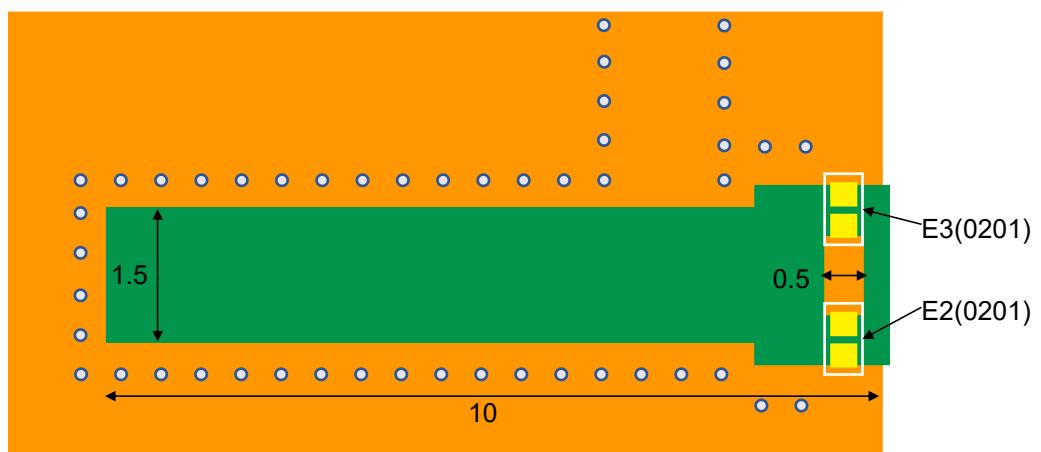
## Recommend PCB Layout2

Test condition: Test board size 70\*60 mm;

**Top Layer** (unit mm)

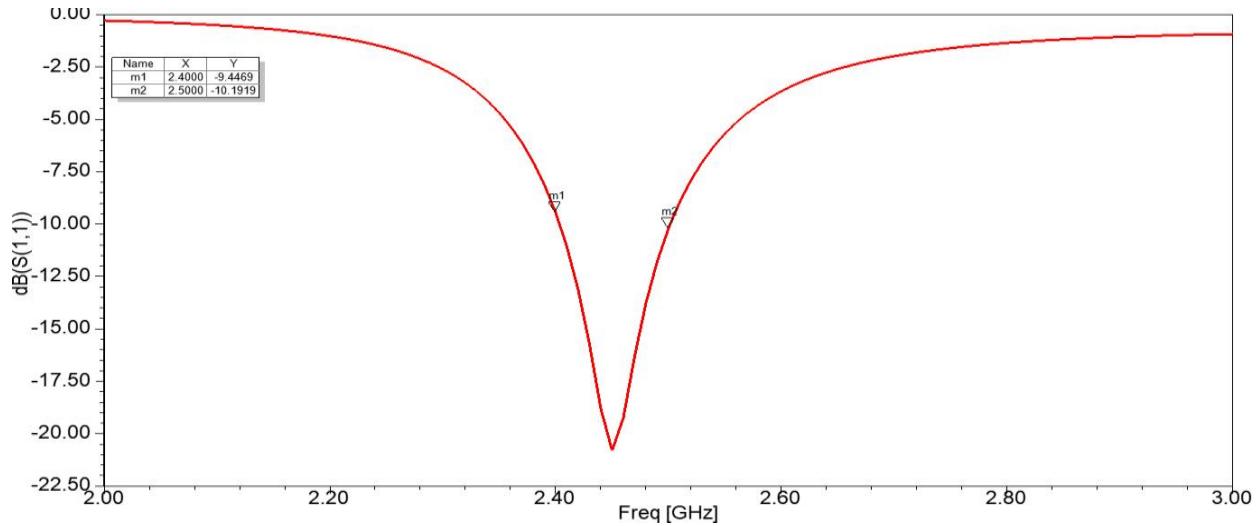


**Bottom Layer** (unit mm)



## Typical Characteristics

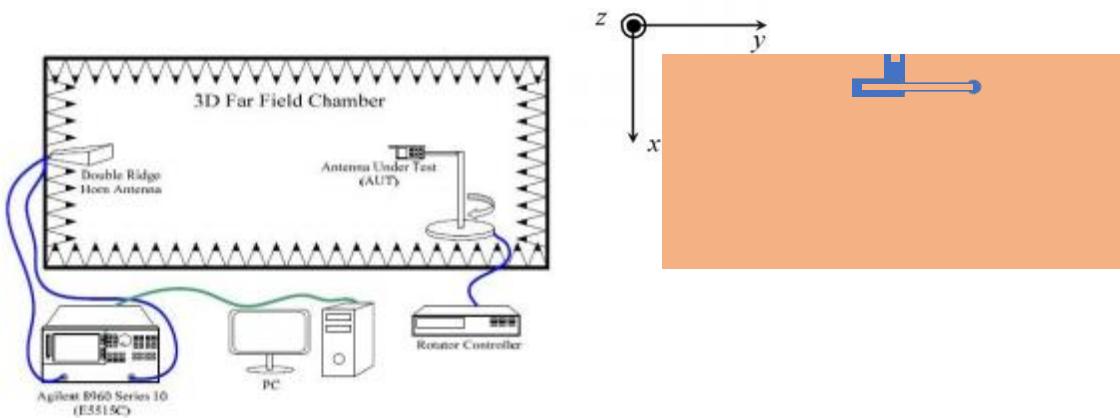
Fig. 1 Return Loss



## 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.

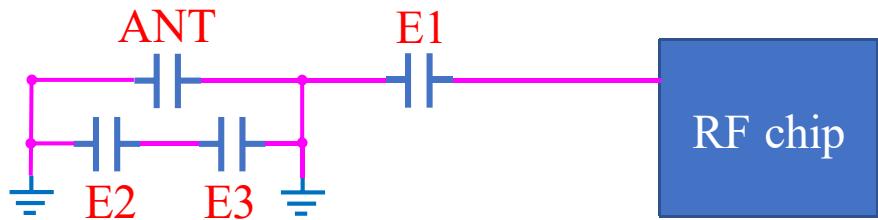
Fig.2 FAR-field Chamber



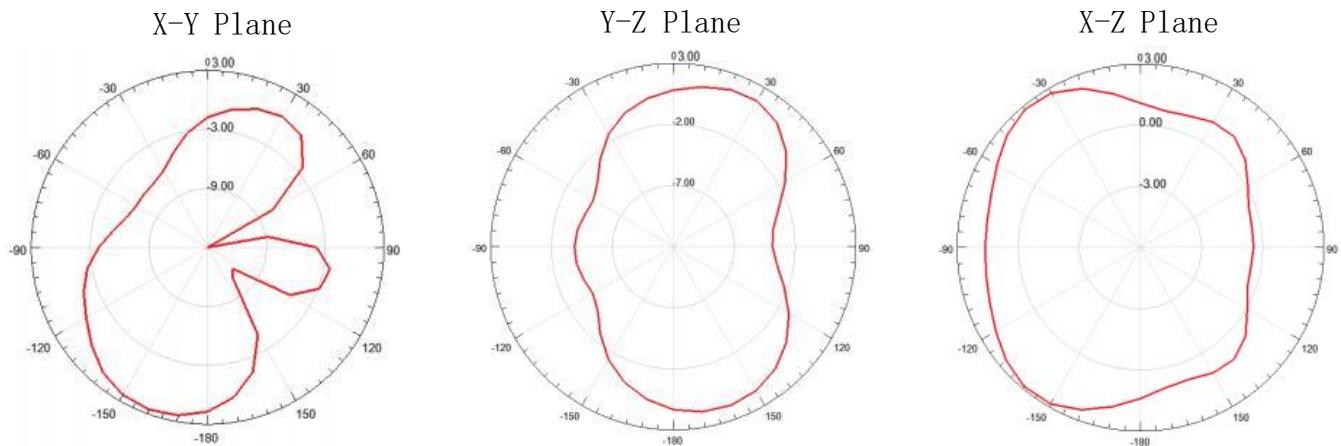
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### Equivalent circuit:



### 2D Gain Pattern



**2450MHz**

### Radiation Performance:

Frequency	2400MHz	2450MHz	2500MHz
Avg. gain	-1.92	-1.35	-1.56
Peak gain	1.79	2.78	2.66
Efficiency	74.55	80.25	76.98

Item	Condition	Specification
Thermal shock	1. $30\pm3$ minutes at $-40^{\circ}\text{C}\pm5^{\circ}\text{C}$ , 2. Convert to $+105^{\circ}\text{C}$ (5 minutes) 3. $30\pm3$ minutes at $+105^{\circ}\text{C}\pm5^{\circ}\text{C}$ , 4. Convert to $-40^{\circ}\text{C}$ (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: $85\pm5^{\circ}\text{C}$ 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: $150^{\circ}\text{C}\pm5^{\circ}\text{C}$ 2. Time: 1000 hours.
Low temperature resistance	1. Temperature: $-40^{\circ}\text{C}\pm5^{\circ}\text{C}$ 2. Time: 1000 hours.	No apparent damage Fulfill the electrical spec. after test.
Soldering heat resistance	1. Solder bath temperature : $260\pm5^{\circ}\text{C}$ 2. Bathing time: $10\pm1$ 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 $245\pm5^{\circ}\text{C}$ for $3\pm1$ seconds.	No apparent damage

## (2) Storage Condition

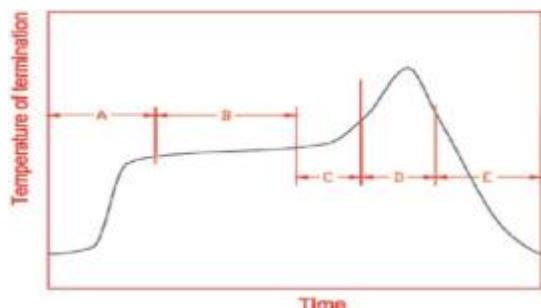
(a)At warehouse: The temperature should be within  $0 \sim 30^{\circ}\text{C}$  and humidity should be less than 60% RH.The product should be used within 1 year from the time of elivery.

(b)On board: The temperature should be within  $-40 \sim 85^{\circ}\text{C}$  and humidity should be less than 85% RH.

## (3) Operating Temperature Range

Operating temperature range :  $-40^{\circ}\text{C}$  to  $+85^{\circ}\text{C}$ .

## Recommended Reflow Solder curve



A	1 <sup>st</sup> rising temperature	The normal to Preheating temperature	30s to 60s
B	Preheating	$140^{\circ}\text{C}$ to $160^{\circ}\text{C}$	60s to 120s
C	2 <sup>nd</sup> rising temperature	Preheating to $200^{\circ}\text{C}$	20s to 40s
D	Main heating	# $220^{\circ}\text{C}$	50s~60s
		# $230^{\circ}\text{C}$	40s~50s
		# $240^{\circ}\text{C}$	30s~40s
		# $250^{\circ}\text{C}$	20s~40s
		# $260^{\circ}\text{C}$	20s~40s
E	Regular cooling	$200^{\circ}\text{C}$ to $100^{\circ}\text{C}$	$1^{\circ}\text{C/s} \sim 4^{\circ}\text{C/s}$

\*reference: J-STD-020C

## ( 1 ) Soldering Gun Procedure

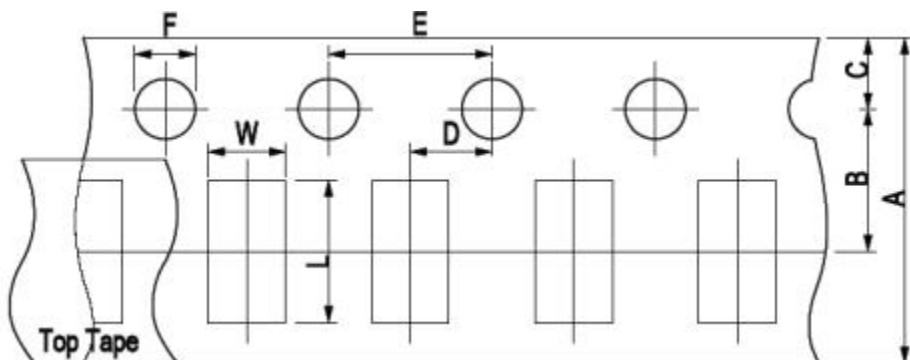
Note the follows, in case of using solder gun for replacement.

- (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.

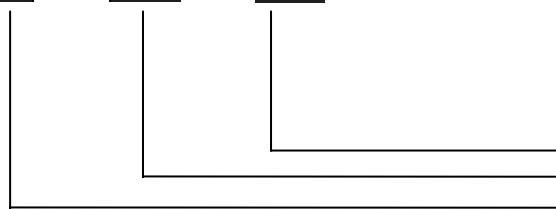
## Package Information



A	B	C	D	E	F	L	W
8.00±0.3	3.50± 0.05	1.75±0.1	2.00±0.05	4.00±0.1	1.50±0.1	1.87± 0.1	1.12± 0.1

## Part Number System

CS - 2450 - 16-A



External Dimensions L\*W (mm) 1.6\*0.8

Central Frequency 2450 MHz

Product Series: Chip Antenna

## Marking



## Order Information

Device	Package	Net Weight	Carrier	Quantity	HSF Status
CS-2450-16-A	1608	0.002g	Tape&Reel	5000pcs	RoHS compliant

## Revision history

Date	Revision	Description of changes
2023-01-03	1.0	First Version
2023-11-15	1.1	Add PCB Layout
2024-01-18	1.2	Modify PCB layout

The contents of this data sheet are subject to change without notice .  
Please confirm the specifications and delivery conditions when placing your order.