

SMD CERAMIC ANTENNA

Data Sheet

CS-2450-16-D

For 2400-2500MHz

1.6x0.8x0.8mm [EIA1608]

SHENZHEN CSCURVE TECHNOLOGY CO., LTD.

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
- WiFi 5/6/6E
- UWB



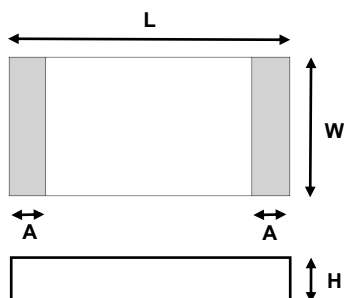
CS-2450-16-D

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

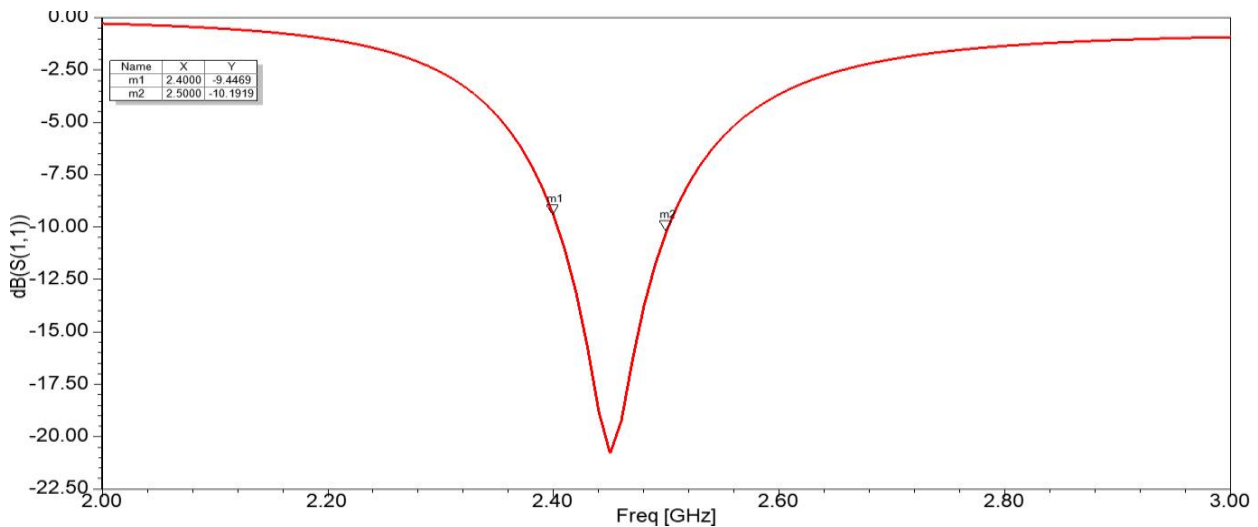


Units:mm

| L | W | A | H |
|-----------|-----------|-----------|-----------|
| 1.60±0.20 | 0.80±0.20 | 0.30±0.20 | 0.80±0.20 |

Typical Characteristics

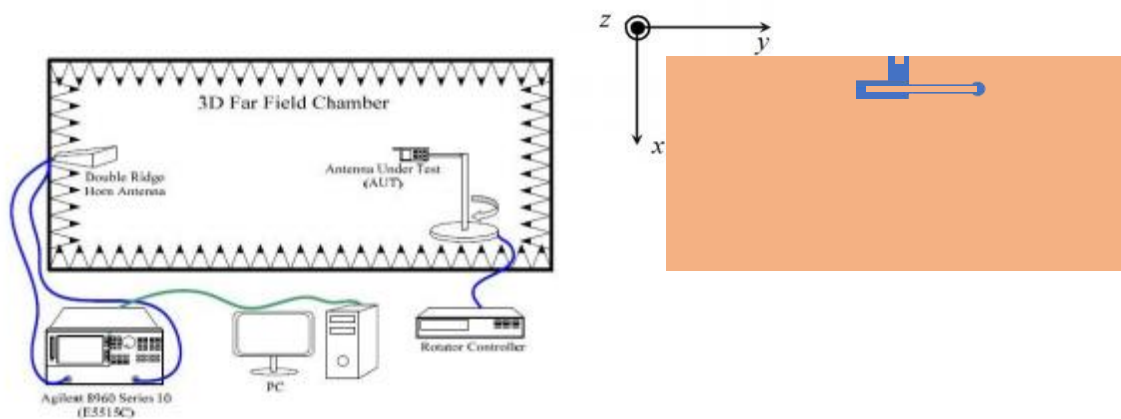
Fig. 1 Return Loss



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.

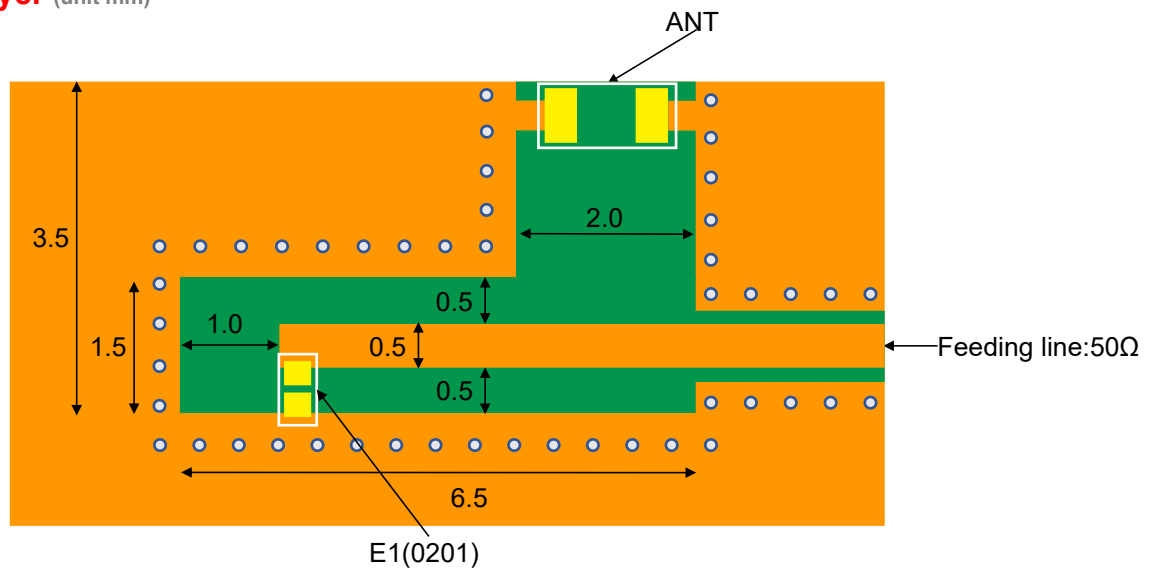
Fig.2 FAR-field Chamber



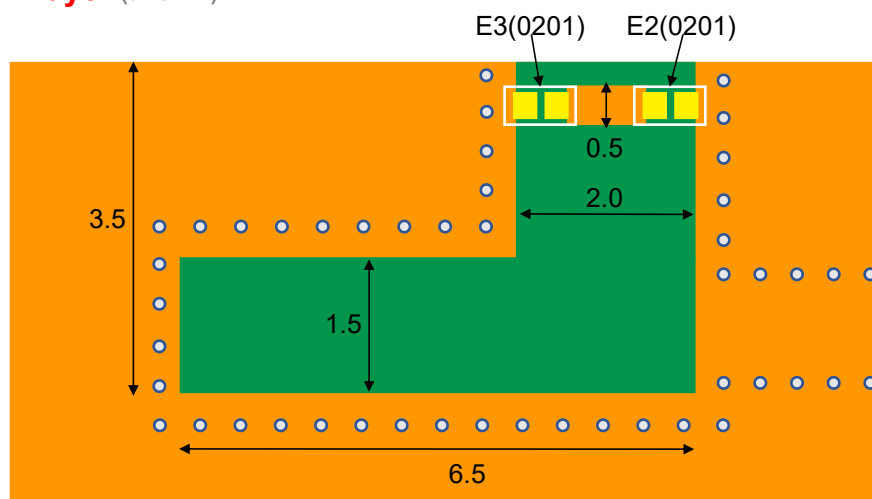
Recommend PCB Layout1

Test condition: Test board size 70*60 mm;

Top Layer (unit mm)



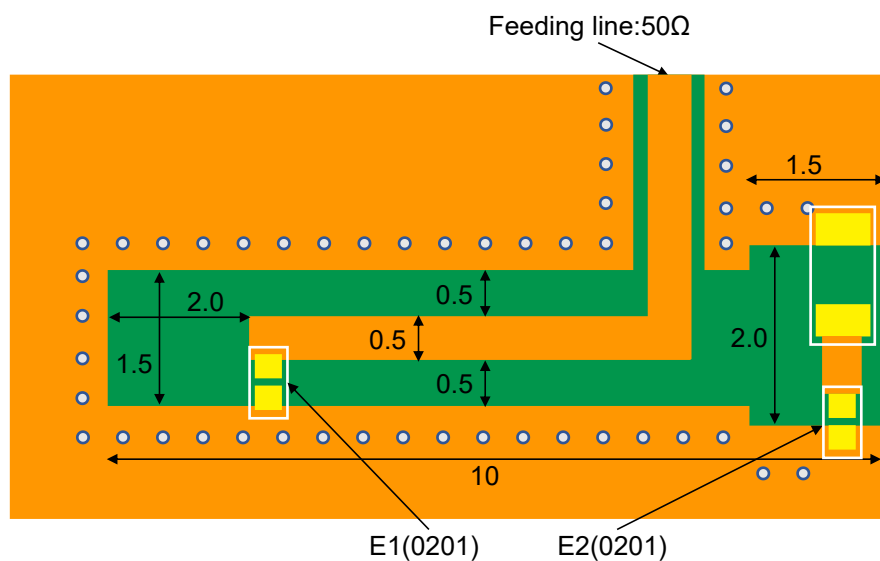
Bottom Layer (unit mm)



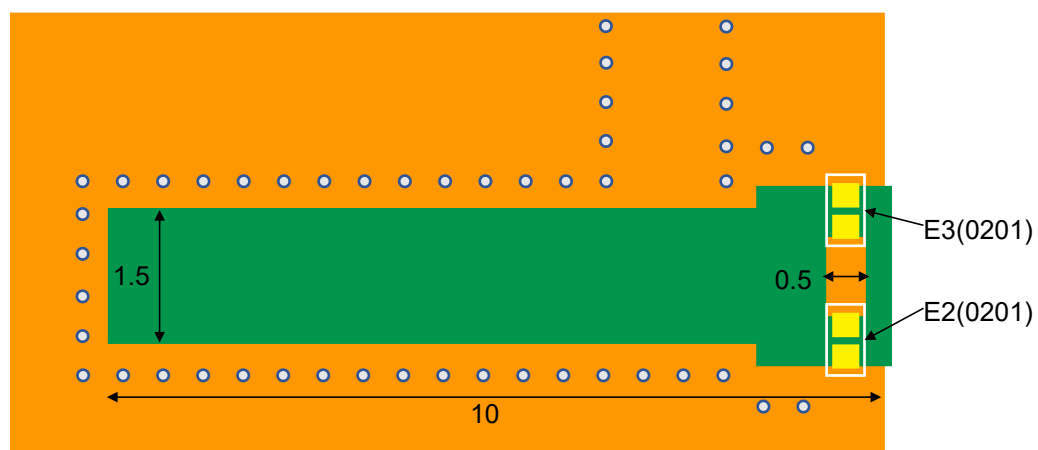
Recommend PCB Layout2

Test condition: Test board size 70*60 mm;

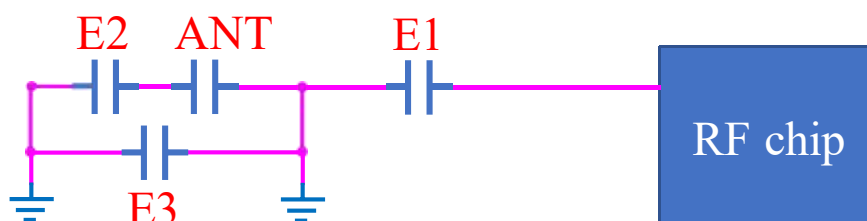
Top Layer (unit mm)



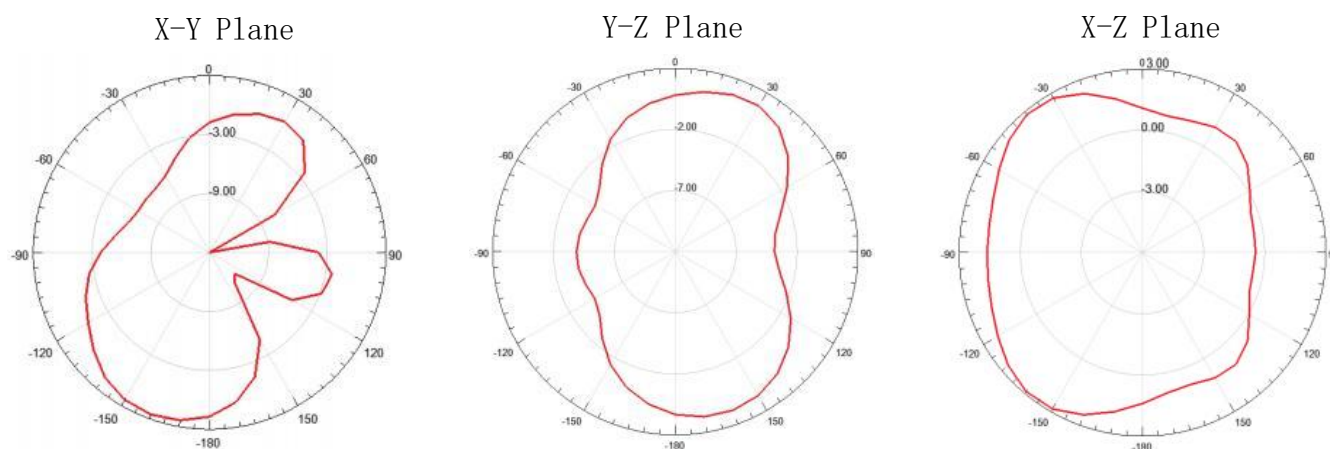
Bottom Layer (unit mm)



Equivalent circuit:



2D Gain Pattern



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 |

Dependability Test

| | |
|-----------------------|---|
| Test Temperature | $25^{\circ}\text{C} \pm 5^{\circ}\text{C}$ |
| Operating Temperature | $-25^{\circ}\text{C} \sim +125^{\circ}\text{C}$ |
| Temperature | $5 \sim 40^{\circ}\text{C}$ |
| Relative Humidity | 20~70% |

Moisture Proof

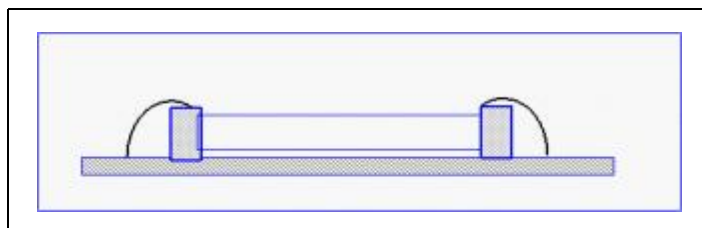
Temperature: $40 \pm 2^{\circ}\text{C}$ Humidity: 90~95%RH
 Duration: 500h
 Recovery conditions: Room temperature Recovery Time: 24h (Class1) or 48h (Class2)

Solderability

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

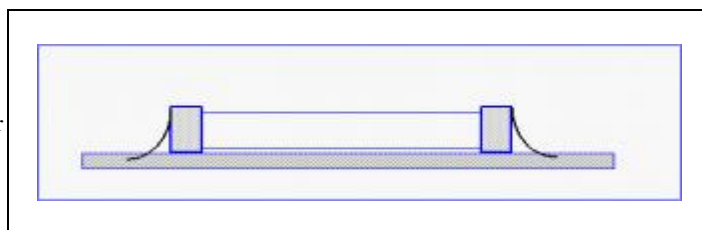
Optimum Solder Amount for Reflow Soldering

Too much solder



Cracks tend to occur due to large stress.

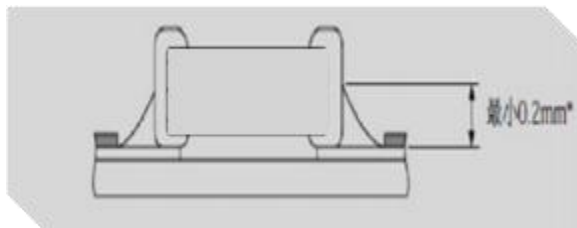
Not enough solder



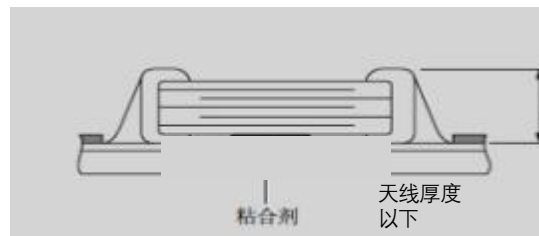
Weak holding force may cause bad connection between the chip and PCB.

Recommended Soldering Amounts

The optimal solder fillet amounts for re-flow soldering



The optimal solder fillet amounts for wave soldering



Temperature Cycle Test

$10 \pm 1S$ Applied Force: 5N Duration: $10 \pm 1S$

Preheating conditions: up-category temperature, 1h

Recovery time: $24 \pm 1h$

Initial Measurement

Cycling Times: 5 times, 1 cycle, 4 steps:

| Stage | Temperature(°C) | Time (minutes) |
|--------|---|----------------|
| Step 1 | Lower temperature limit ") | 30 |
| Step 2 | normal atmospheric temperature(+20) | 2-3 |
| Step 3 | Upper line temperature (NPO/X7R/X7S: +125 Y5V/Z5U/X5R: +85 X6S: +105) | 30 |
| Step 4 | normal atmospheric temperature(+20) | 2-3 |

Resistance to Soldering Heat

Preheating 80 to 120°C; 10~30s.SolderTemperature: $235 \pm 5^\circ C$; Duration: $2 \pm 0.5s$;

SolderTemperature: $245 \pm 5^\circ C$ Duration: $2 \pm 0.5s$; Preheating 100 to 200°C; $10 \pm 2min$.

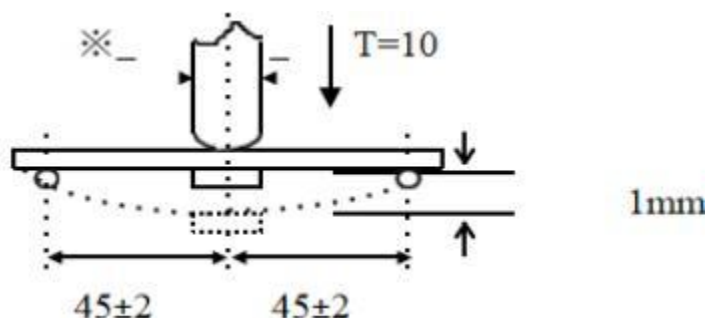
Solder Temperature: $265 \pm 5^\circ C$; Duration: $10 \pm 1s$

Clean the capacitor with solvent and examine it with a 10X(min.) microscope.

Recovery Time: $24 \pm 2h$

Recovery condition: Room temperature

Resistance to Flexure of Substrate



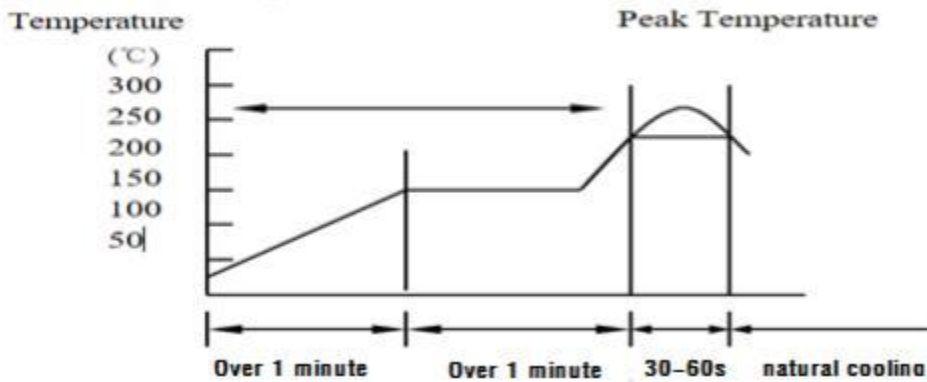
Test Board: Al_2O_3 or PCB Warp: 1mm Speed: 0.5mm/sec.

Unit: mm

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

The temperature profile for soldering

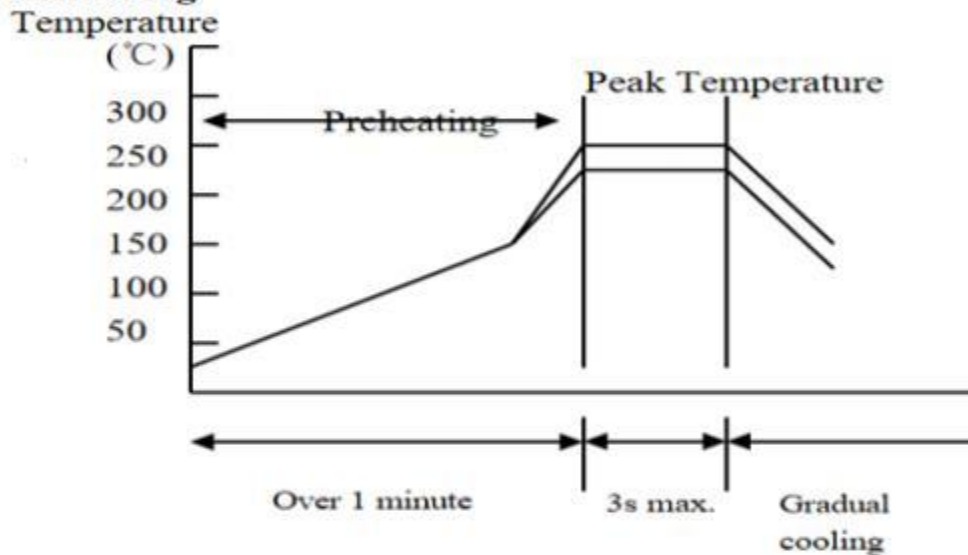
Re-flow soldering



| | Pb-Sn soldering | Lead-free soldering |
|------------------|-----------------|---------------------|
| Peak temperature | 230°C ~ 250°C | 240°C ~ 260°C |

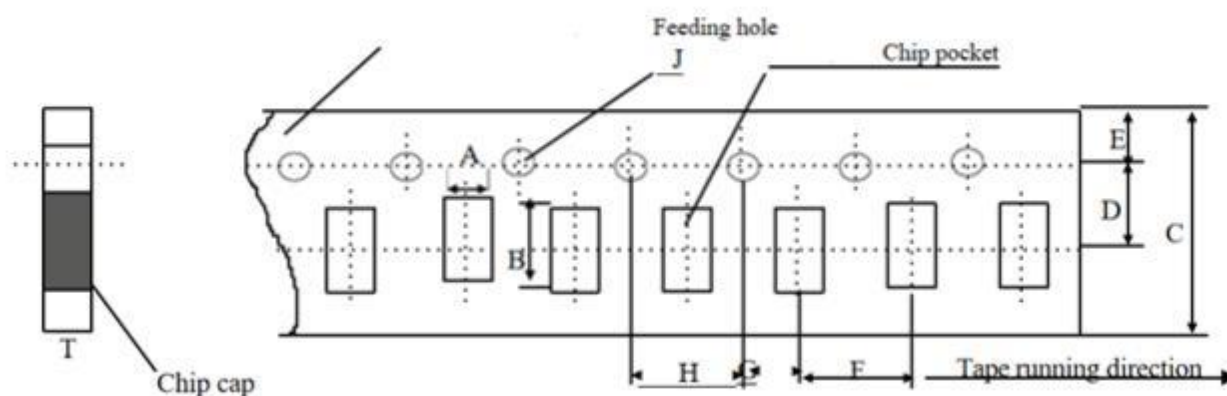
While in preheating, please keep the temperature difference between soldering temperature and surface temperature of chips as: $T \leq 150^{\circ}\text{C}$.

Wave soldering



| | Pb-Sn soldering | Lead-free soldering |
|------------------|-----------------|---------------------|
| Peak temperature | 230°C ~ 260°C | 240°C ~ 270°C |

Dimensions of paper taping

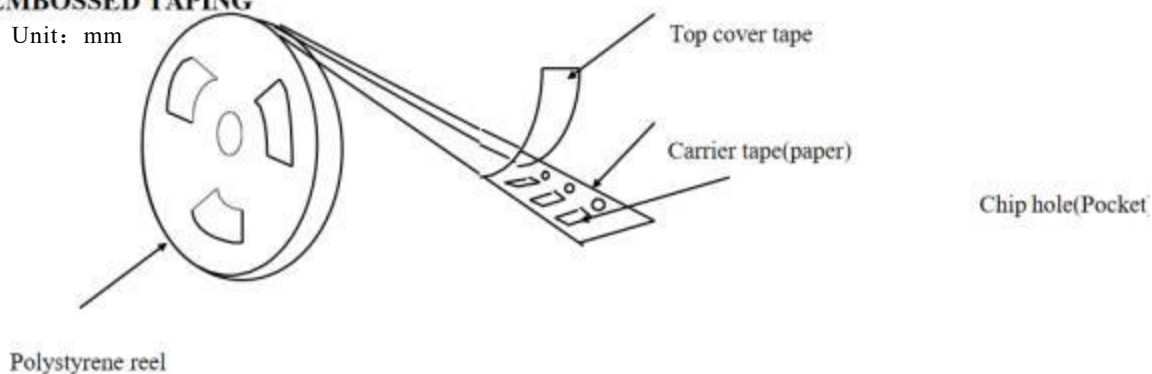


| Code | A | B | C | D* | E | F | G* | H | J | T |
|-----------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|------------------|-------------|
| papersize | | | | | | | | | | |
| Size | 1.10 ±0.10 | 1.90 ±0.10 | 8.00 ±0.10 | 3.50 ±0.05 | 1.75 ±0.10 | 4.00 ±0.10 | 2.00 ±0.10 | 4.00 ±0.10 | 1.50 -0/+0.10 | 1.10 Max |

Reel (4000 pcs/Reel)

EMBOSED TAPING

Unit: mm

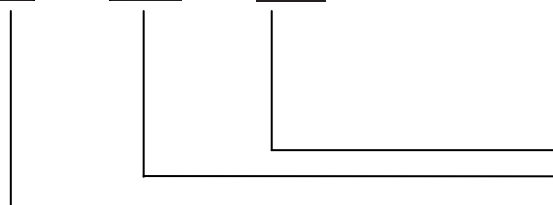


Storage Period

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

Part Number System

CS - 2450 - 16-D



External Dimensions L*W (mm) 1.6*0.8

Central Frequency 2450MHz

Product Series: Chip Antenna

订货信息 Order Information

| Device | Package | Carrier | Quantity | HSF Status |
|--------------|---------|-----------|----------|----------------|
| CS-2450-16-D | 1608 | Tape&Reel | 4000pcs | RoHS compliant |

Revision history

| Date | Revision | Description of changes |
|------------|----------|------------------------|
| 2023-11-15 | 1.0 | First Version |

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

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