

# APPROVAL SHEET

## (RoHS)

**CUSTOMER** : \_\_\_\_\_

**CUSTOMER's PART NO.** : \_\_\_\_\_

**DESCRIPTION** : Ceramic Block Antenna

**PART NO.** : CBA-1204-2G4S2-A1

**DATE** : \_\_\_\_\_

**AUTHORIZED BY** : Yunwei Lin

	<b>FULLY APPROVED</b>	<b>PARTIALLY APPROVED</b>	<b>REJECTED</b>
<b>SIGN</b>			
<b>SUGGESTION</b>			

美磊科技股份有限公司

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## APPLICATION

WLAN, Home RF, Bluetooth, etc.

## FEATURES

### Compact Size

Miniaturized SMD packaged in low profile and lightweight.

### Wide Bandwidth

### High Soldering Heat Resistance

High quality termination allows both flow and re-flow soldering methods to be applied.

### Available in Tape and Reel Packaging for Automatic Mounting

### No Ground Clearance to Save Real Estate

## PRODUCT IDENTIFICATION

C B A - 1 2 0 4 - # # # x x - A 1  
①                   ②                   ③                   ④

① Product Code

② Dimension Code

③ Series Type (### represents center frequency and xx represents material type)

④ Design Code

## ELECTRICAL REQUIREMENTS

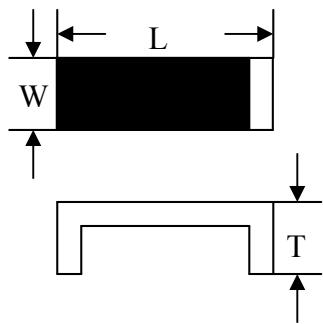
Part NO.	Frequency	Impedance	Bandwidth*	Gain*	VSWR	Polarization
CBA-1204-2G4S2-A1	2450 MHz	50 Ohms	~100 MHz	>1 dBi	2.0 max.	Linear

\*Depend on PCB layout.



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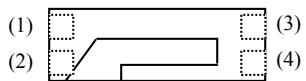
## ■ PRODUCT DIMENSION



L	W	T
$12.0 \pm 0.2$	$4.0 \pm 0.2$	$3.5 \pm 0.2$

NOTE : Dimensions in mm

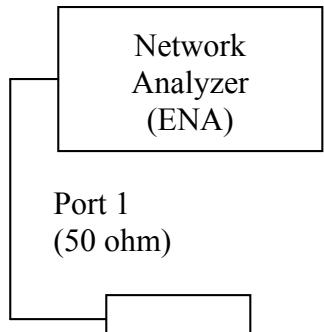
## ■ TERMINAL CONFIGURATION



- ① GND
- ② Feed Termination
- ③ N.C.
- ④ N.C.

\* Pin 1 and pin 2 can exchange by different customized suggestion layout from Mag.Layers.

## ■ MEASURING DIAGRAM

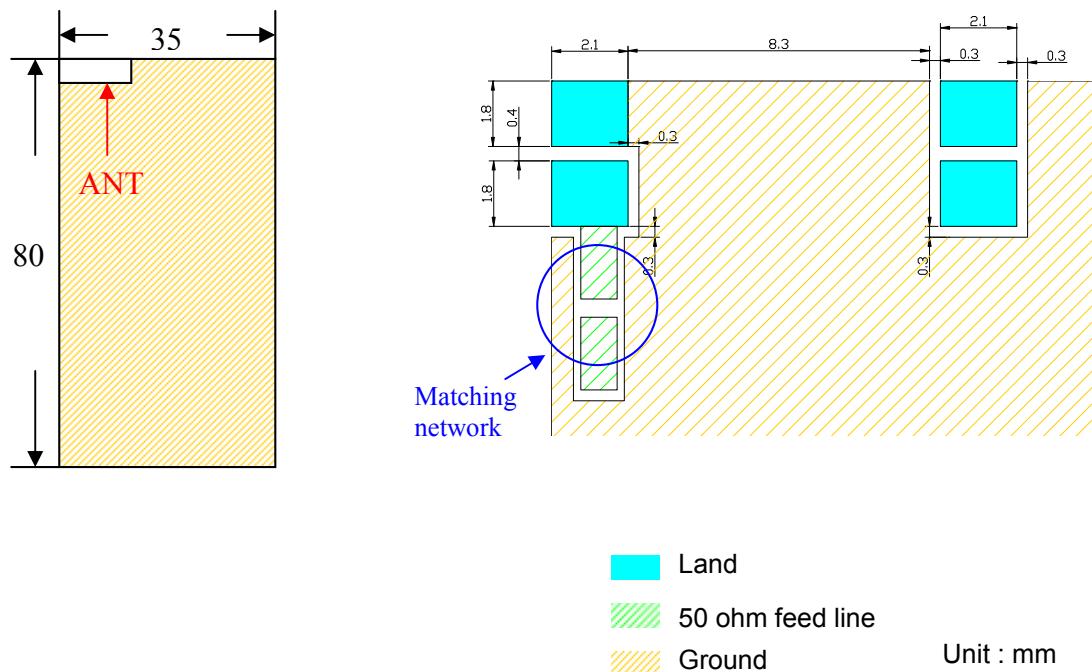


Test Instrument:  
Agilent E5071A Network Analyzer

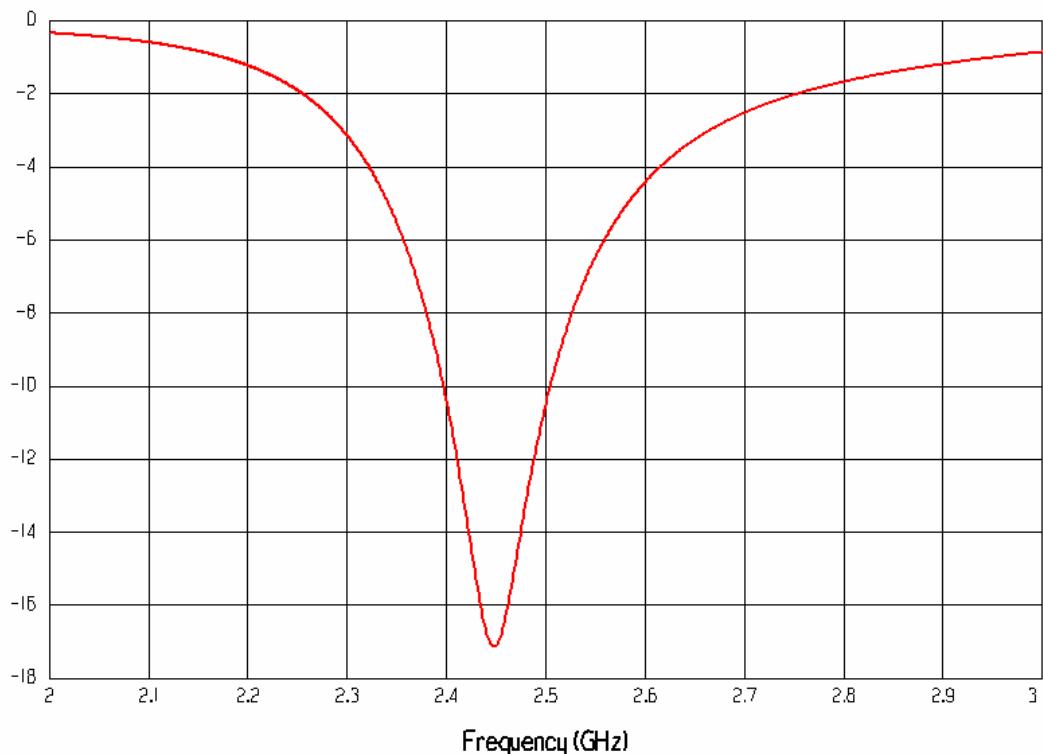


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## RECOMMENDED PCB LAYOUT



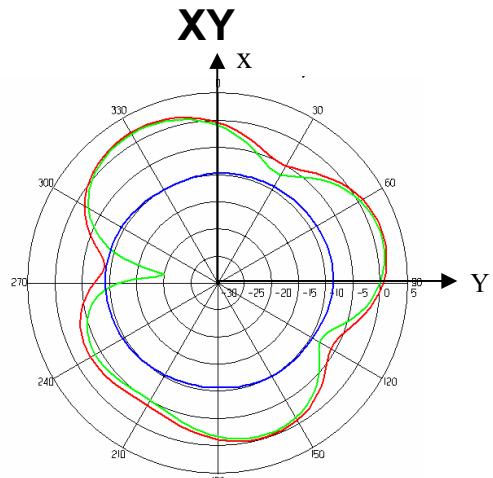
## ELECTRICAL CHARACTERISTICS ( T=25°C )



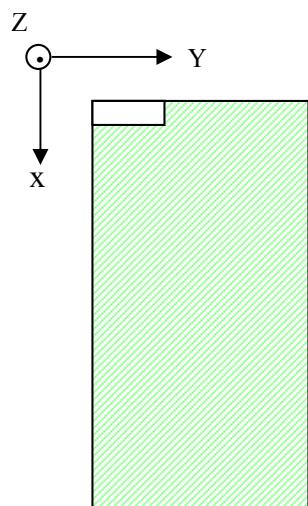
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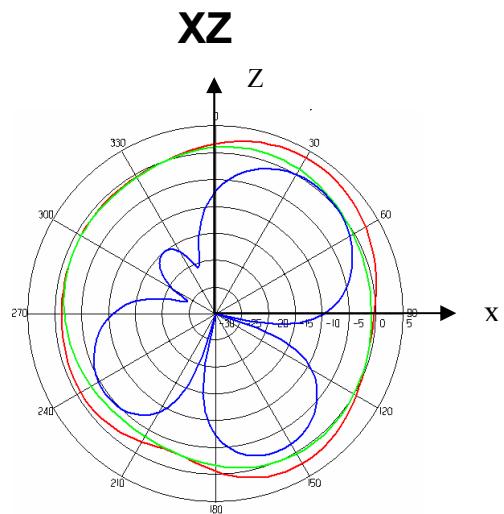
## RADIATION PATTERN



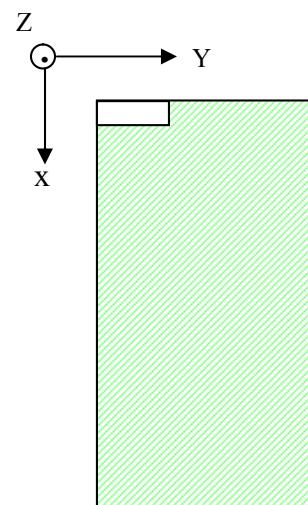
- Total
- Horizontal
- Vertical



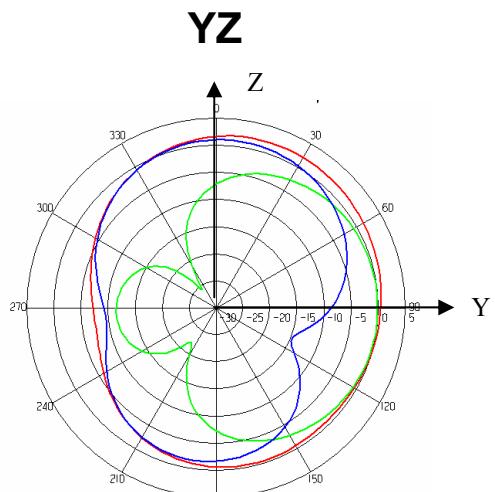
Peak Gain = 1.9881876 dBi



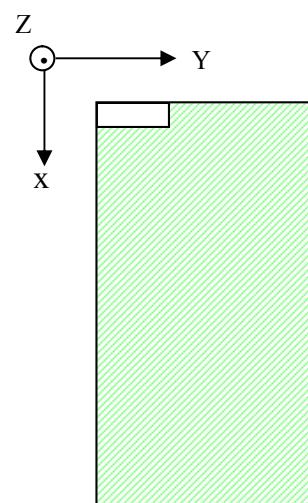
- Total
- Horizontal
- Vertical



Peak Gain = 3.5804697 dBi



- Total
- Horizontal
- Vertical



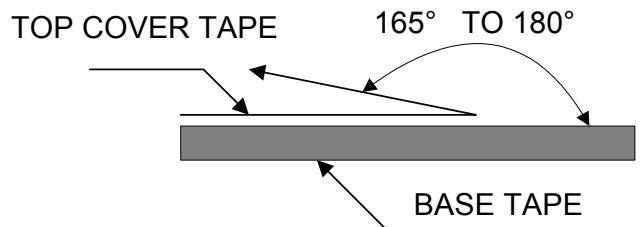
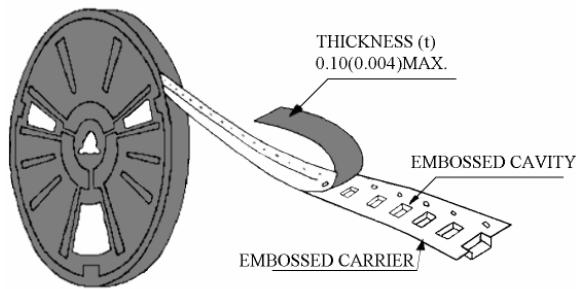
Peak Gain = 2.0663171 dBi



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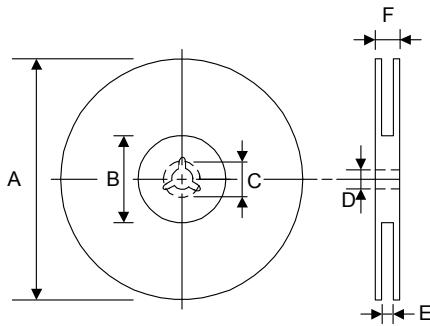
## PACKAGING FOR SMC

### Peel-off force



The force for peeling off cover tape is 10 grams in the arrow direction.

### Dimension (Unit: mm)



TYPE	A	B	C	D	E	F
8 mm	178±1	60 $+0.5$ $-0$	-	13 ±0.2	9 ±0.5	12 ±0.5
12 mm	178±0.3	60 ±0.2	19.3 ±0.1	13.5 ±0.1	13.6 ±0.1	-

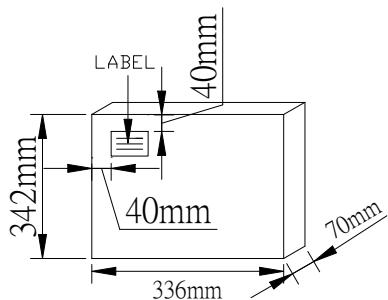
**Taping quantity**  
2000 pcs/reel



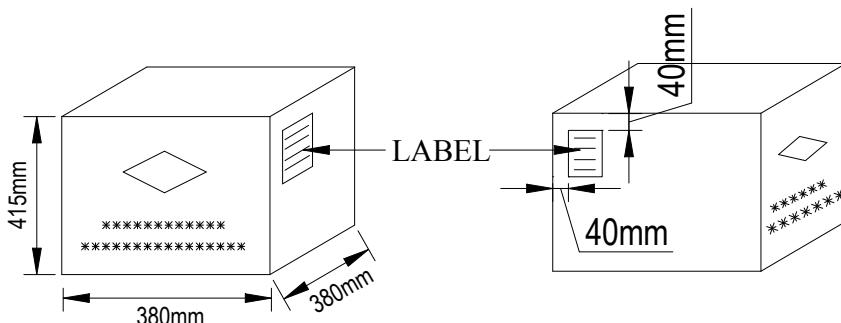
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## ■ TAPE PACKING CASE

- 2 reels/box



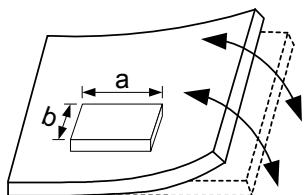
- 5 BOX / CARTON



Unit:cm

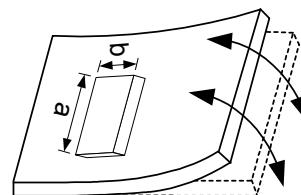
## ■ ATTENTION REGARDING PCB BENDING

(a) PCB shall be designed so that products are not subjected to the mechanical stress for board wrapage. Product shall be located in the sideway direction to the mechanical stress.



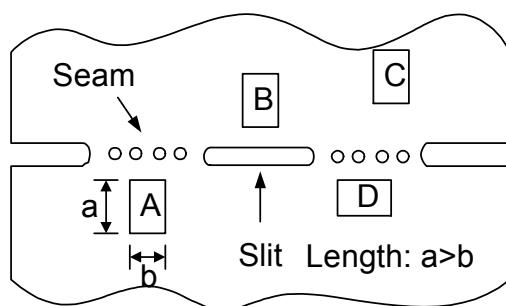
(Poor example)

Length:  $a > b$



(Good example)

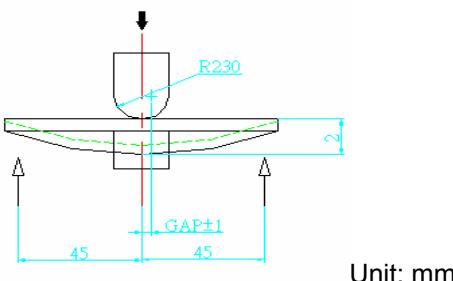
(b) Products (A,B,C,D) shall be located carefully so that products are not subjected to the mechanical stress due to warping the board. Because they may be subjected to the mechanical stress in order of  $A > C > B \approx D$ .



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## RELIABILITY TEST

Item	Condition	Specification
<b>Thermal shock</b>	-40°C~+85°C for 100 cycles each cycle being 30 min	No apparent damage Fulfill the electrical spec. after test
<b>Humidity resistance</b>	85±2°C, 80~90% R.H. for 500 hours	No apparent damage Fulfill the electrical spec. after test
<b>High temperature resistance</b>	+85±2°C for 500 hours	No apparent damage Fulfill the electrical spec. after test
<b>Low temperature resistance</b>	-40±3°C for 500 hours	No apparent damage Fulfill the electrical spec. after test
<b>Vibration</b>	10 Hz/min~55 Hz/min~10 Hz/min vibration frequency with 1.5 mm amplitude for two hours in x, y, z directions	No apparent damage
<b>Drop shock</b>	Dropped onto printed circuit board from 100cm height three times in x, y, z directions. The terminals shall be protected.	No apparent damage
<b>Soldering heat resistance</b>	Preheating temperature : 150±10°C Preheating time : 1 to 2 minutes Solder bath temperature : 260±5°C Bathing time : 5±0.5 seconds	No apparent damage
<b>Bending test onto printed circuit board</b>	Solder specimen LTCC components on the test printed circuit board (L: 100 x W: 40 x T: 1.6mm) in appended recommended PCB pattern. Apply the load in direction of the arrow until bending reaches 2 mm.	 No apparent damage
<b>Solderability</b>	The dipped surface of the terminal shall be at least 75% covered with solder after dipped in solder bath of 240±5°C for 3±0.5 seconds.	No apparent damage

## OPERATION TEMPERATURE

-40°C~+85°C

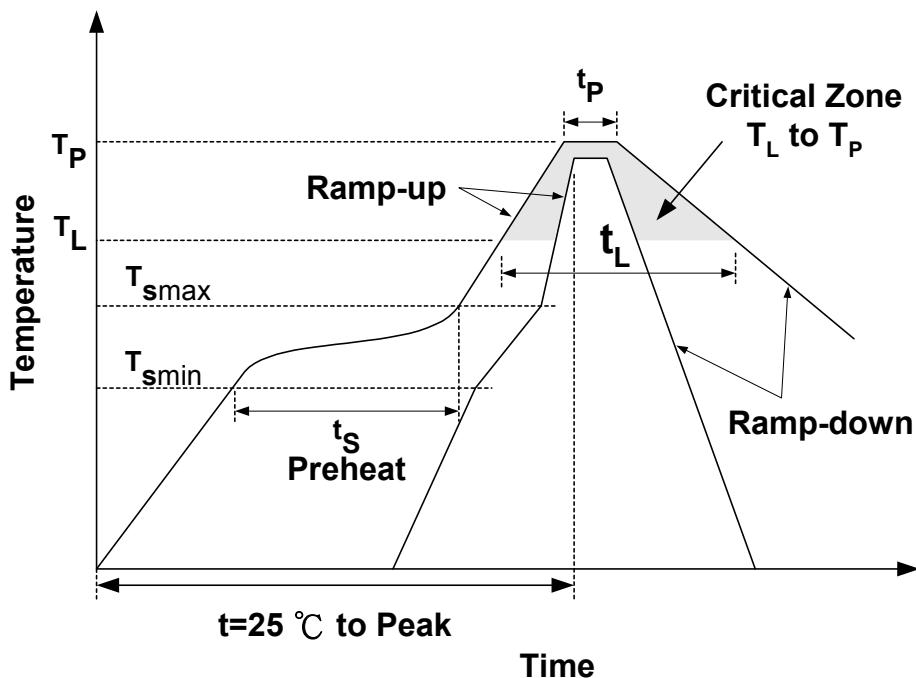
## STORAGE CONDITION

The temperature should be within -20 ~ 35°C and humidity should be less than 75% RH. The product should be used within 6 months from the time of delivery.



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## RECOMMENDED REFLOW SOLDERING PROFILE



Profile Feature		Sn-Pb	Pb-Free
Preheat	$t_s$	60~120 seconds	60~180 seconds
	$T_{smin}$	100°C	150°C
	$T_{smax}$	150°C	200°C
Average ramp-up rate ( $T_{smax}$ to $T_P$ )		3°C/second max.	3°C/second max.
Time main above	Temperature ( $T_L$ )	183°C	217°C
	Time ( $t_L$ )	60~150 seconds	60~150 seconds
Peak temperature ( $T_P$ )		230°C	250~260°C
Time within 5°C of actual peak temperature ( $t_P$ )		10 seconds	10 seconds
Ramp-down rate		6°C/sec max.	6°C/sec max.
Time 25°C to peak temperature		6 minutes max.	8 minutes max.

## NOTES

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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