

Preliminary

Specification For LTCC Chip Antenna

Model Name : RCA2450A2

Customer :

Title:

Name :

APPROVED

By Date : _____

Signature : _____

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Issued Date : _____

C.H. Seok

1. Description and Application

MODEL : RCA2450A2

Description

Surface mount, LTCC Chip Antenna

Features

- Multilayer LTCC(Low Temperature Cofired Ceramics) Technology
- SMD (Surface Mounted Device)
- Miniature Size
- High Stability in Temperature/Humidity Change
- Free Impedance Matching
- Suitable for 2450MHz Working Frequency Operation

Applications

- Bluetooth device (mobile Phone, headset, carkit, serial port, dongle, MP3)
- WLAN (Access Point, Notebook, PDA)
- DMB(receiver)
- HPi(High speed Portable internet)

2. Temperature Range

Operating temperature range : -35 to +85

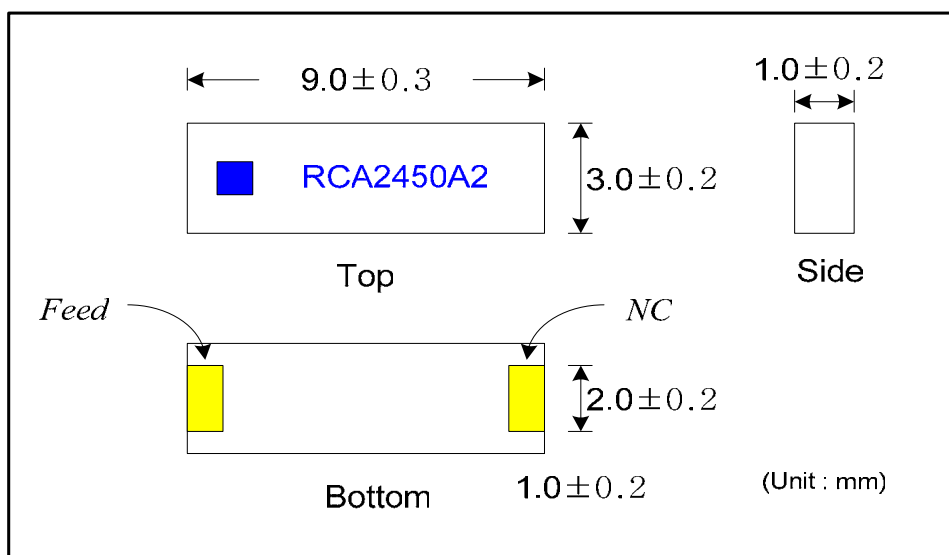
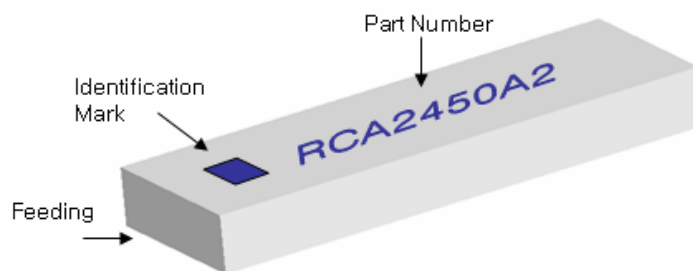
3. Properties

3.1 Electrical Specification :

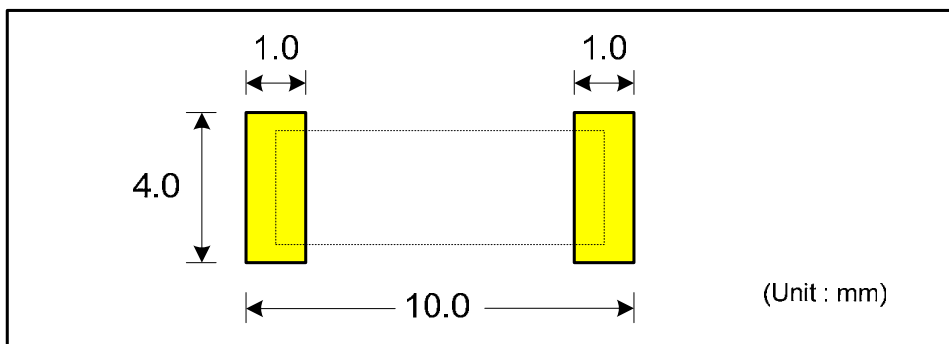
ITEM	Specification
Center frequency	2.45 GHz
Bandwidth	100 MHz min.
Gain	2 dBi Max
VSWR	2 Max
Polarization	Linear
Azimuth Beamwidth	Omni
Impedance	50 Ω

3.2 Mechanical Specification

Mechanical Outline & Feeding

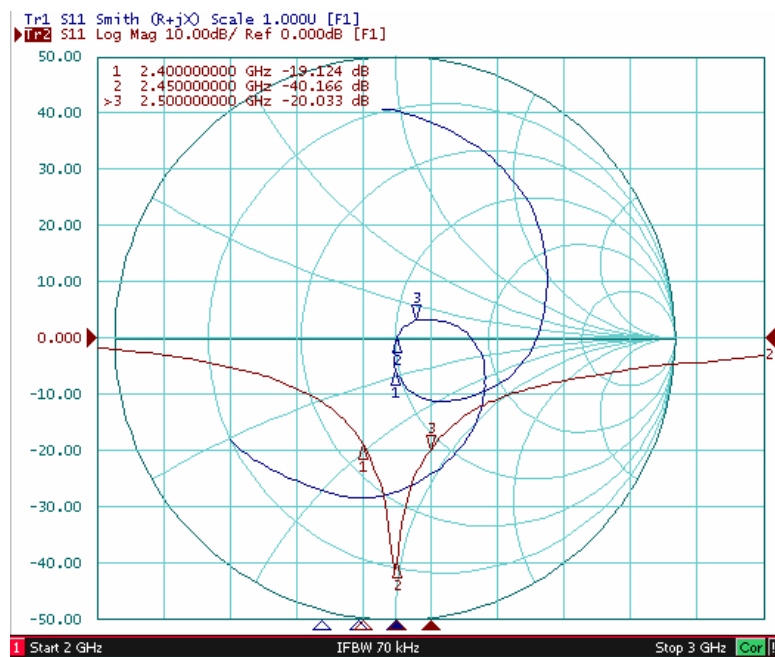


3.3 Land Layout

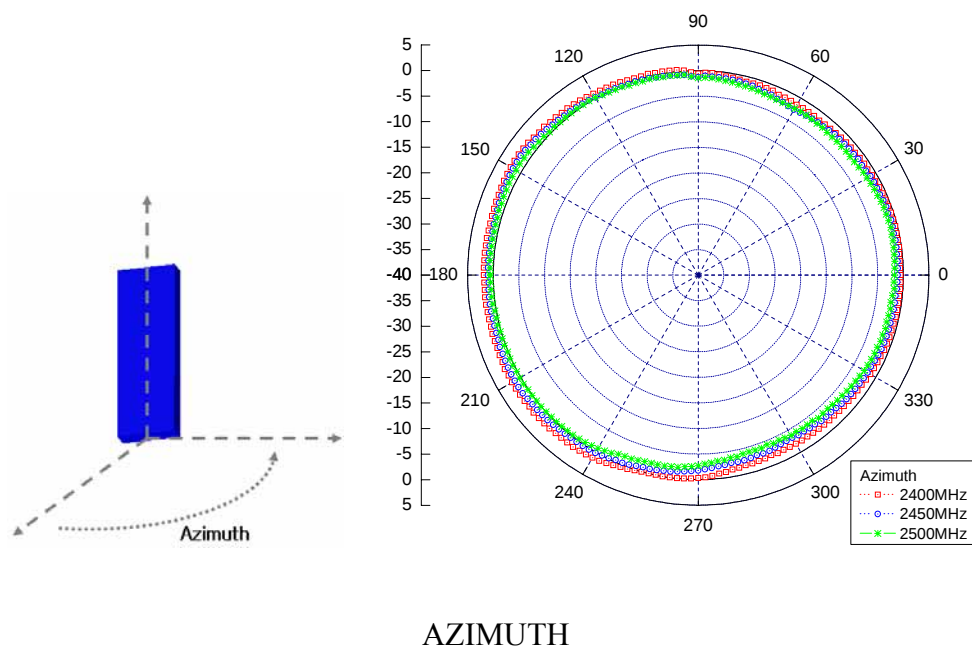


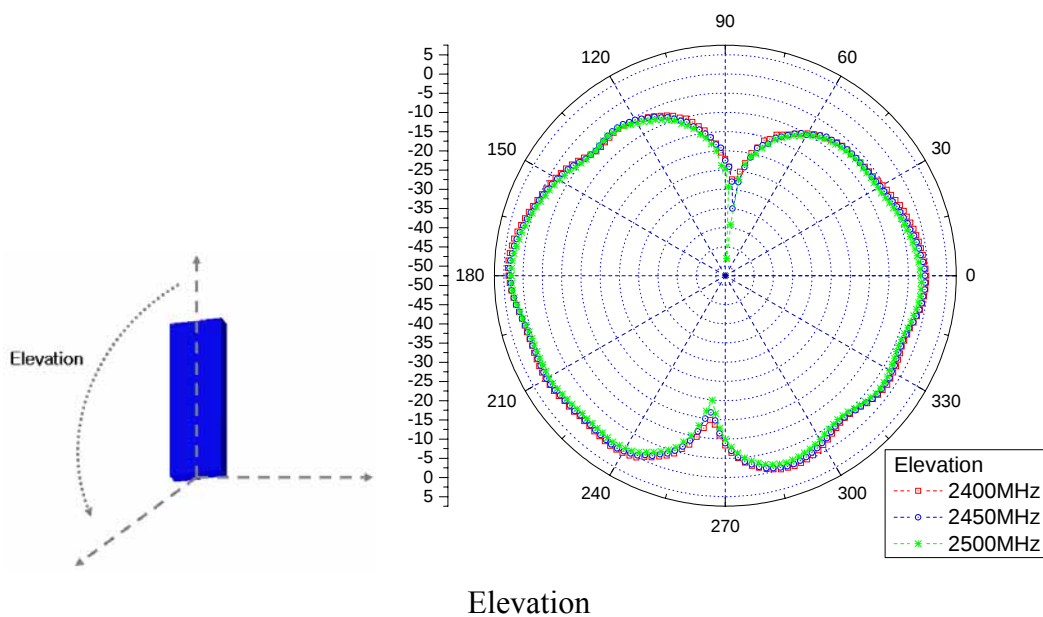
4. Electrical characteristics

4.1 Measurement Data (S11 & Smith chart)



4.2 Radiation pattern



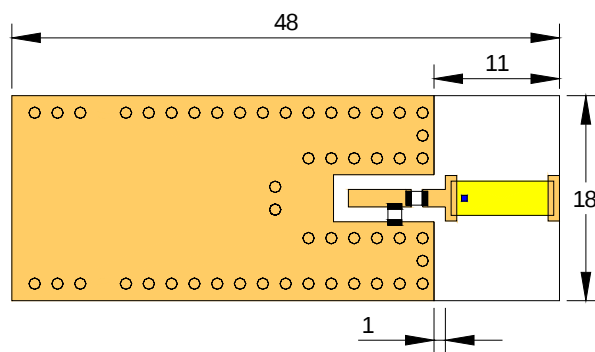


R.F. Anechoic Antenna Chamber (10.0m×6.0m×4.0m)

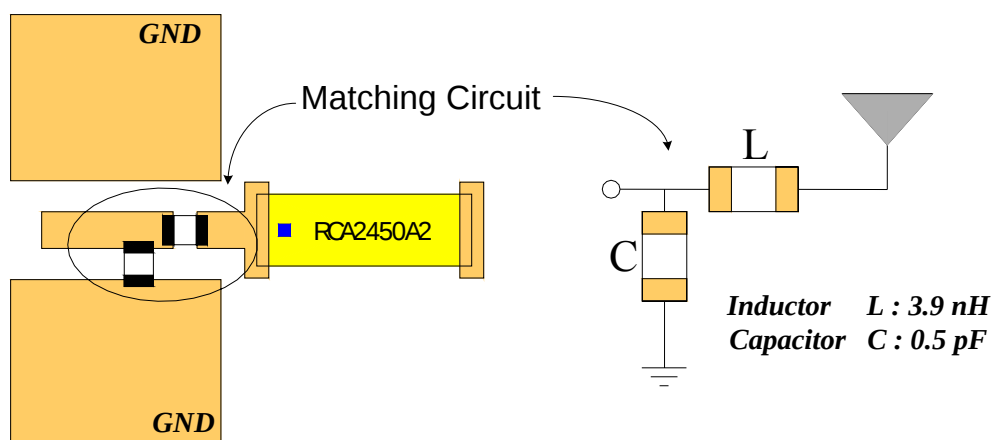
Units(dBi)	Frequency (MHz)	Gain		
		Average	Min	Max
Azimuth	2400	-0.67	-2.0	2.0
	2450	-0.7	-3.31	1.71
	2500	-1.35	-4.24	1.05
Elevation	2400	-4.34	-27.66	3.95
	2450	-4.78	-34.94	3.55
	2500	-5.65	-48.0	3.09

5. Test board and matching circuit for measurements

5.1 Test board



5.2 Matching Circuits for measurements



In such case of internal SMD antenna, the resonant frequency is dependent on the GND size or other nearby active/passive components, and therefore can be different from what is measured on our test board.

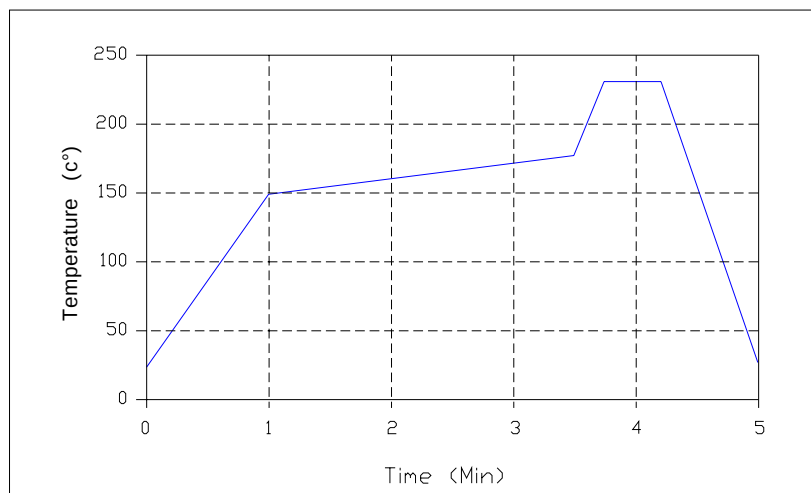
6. Soldering Conditions

6.1 Recommended Solder

- A Sn/Pb/Ag ratio of 62/36/2 is recommended to inhibit dissolution of silver coating into molten solder
- Do not allow the iron-tip to directly touch the ceramic element

6.2 Solder reflow Profile

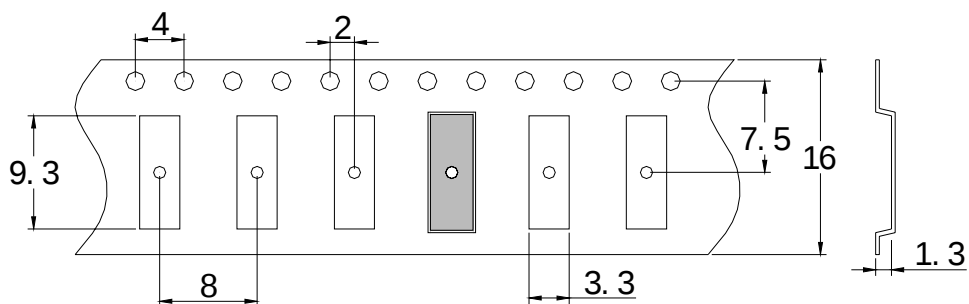
soaking condition: 230 , 20 sec. Max



7. Packaging

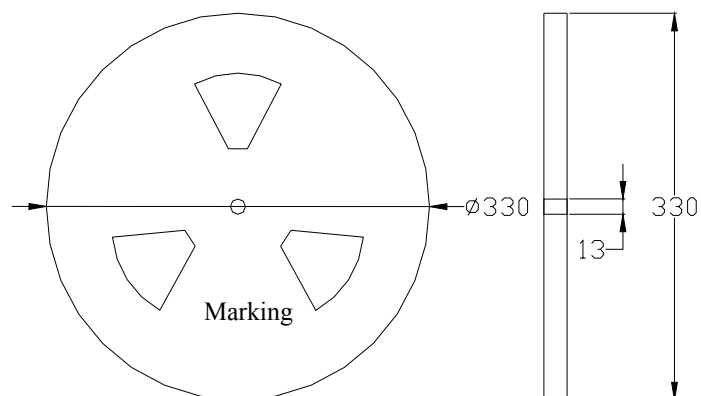
Dimension of the tape

(Unit : mm)



Dimension of the reel

(Unit : mm)



Quantity per reel : 4000 pcs

8. Environmental Specification.

ITEM	PROCEDURE	REQUIREMENTS / RESULT
Temperature Cycle (Thermal Shock)	1. One Cycle : Step1: $85 \pm 5^{\circ}\text{C}$ for 10min Step2: $-35 \pm 5^{\circ}\text{C}$ for 10min 2. Cycle time : 5min 3. Number of Cycles : 100 4. Normal Condition in 1 hour	1. Meet the electrical specification after test
Solderability	1. Solder : $230 \pm 5^{\circ}\text{C}$ for 5 ± 1 sec.	1. More than 85% of the electrode pad shall be covered with solder.
Heat Resistance	1. Temperature : $85 \pm 2^{\circ}\text{C}$ 2. Duration : 96 ± 2 hours	1. Meet the electrical specification after test
Low Temperature Resistance	1. Temperature : $-35 \pm 5^{\circ}\text{C}$ 2. Duration : 96 ± 2 hours	1. Meet the electrical specification after test
Vibration Resistance	1. Frequency: 10~ 55MHz 2. Acceleration : 10g 3. Sweep Time: 1.5 mm, 2hours/axis 4. Axis : X, Y and Z direction	1. No appearance damage 2. Meet the electrical specification after test
Humidity Resistance	1. One Cycle : Step1: Temperature 85°C for 500 hours with humidity 95% Step2: Decrease Temperature 85°C to 25°C 2. Maintain for 1~2 hour after decreasing temperature 25°C	1. Meet the electrical specification after test
Drop Shock	1. Dropped onto hard wood from height of 50 cm for 5 times; each x, y and z direction except I/O direction.	1. No appearance damage 2. Meet the electrical specification after test