

Preliminary

SPECIFICATION

MULTILAYER CHIP ANTENNA

**Model No. : ALA931C2
ALA931C3
ALA931C4
ALA931C5**

WRITTEN	CHECKED	APPROVED

February 19, 2005

AMOTECH Co., LTD.

Notes

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

1. SPECIFICATIONS

1.1 Electrical Specifications

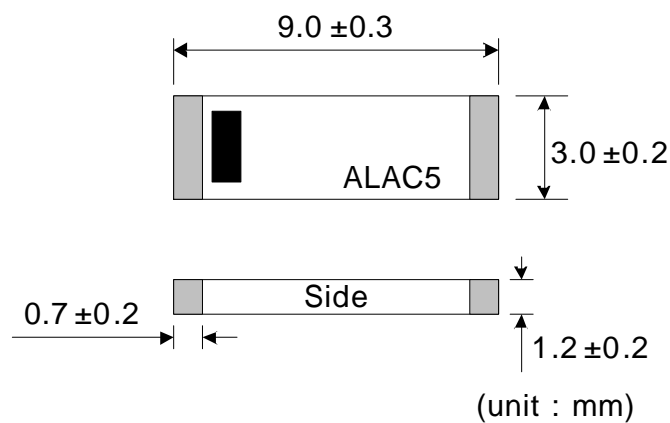
ITEM	SPEC.		Unit
Center Frequency	ALA931C2	2.89	GHz
	ALA931C3	3.25	
	ALA931C4	3.50	
	ALA931C5	3.73	
Gain	2 max.		dBi
VSWR	2 : 1 max.		
Polarization	Linear		
Azimuth Beam Pattern	Omni-directional		
Impedance	50		

These values are measured on the matched reference test board.

1.2 Mechanical Specifications

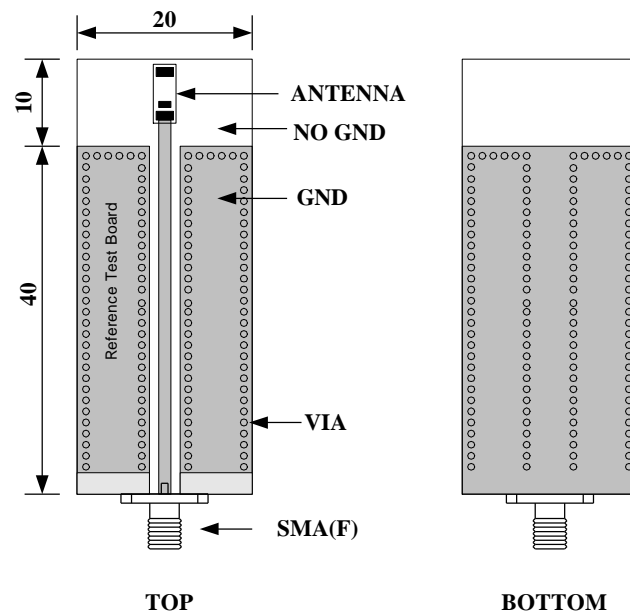
Internal Electrode	Ag	
External Electrode	Ag/Ni/Sn	
Dimensions (L x W x H)	9 x 3 x 1.2	mm
Unit Weight	97 ± 2	mg
Operating Temperature	-35 ~ +85	

1.3 Appearance and Dimensions

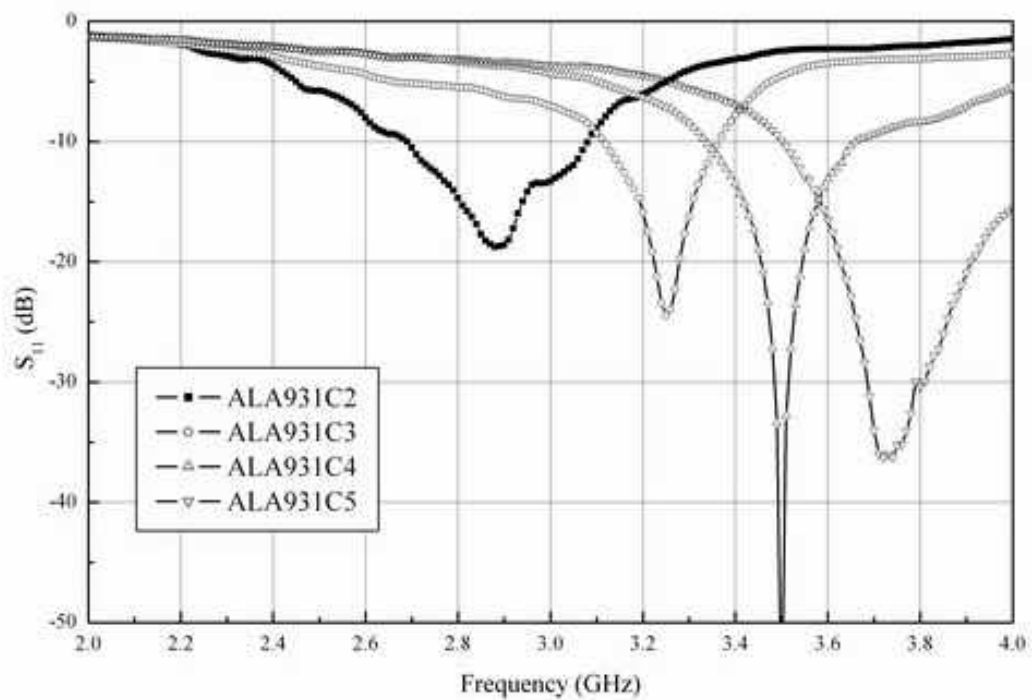


2. MEASUREMENT

2.1 Reference Test Board for Measurement



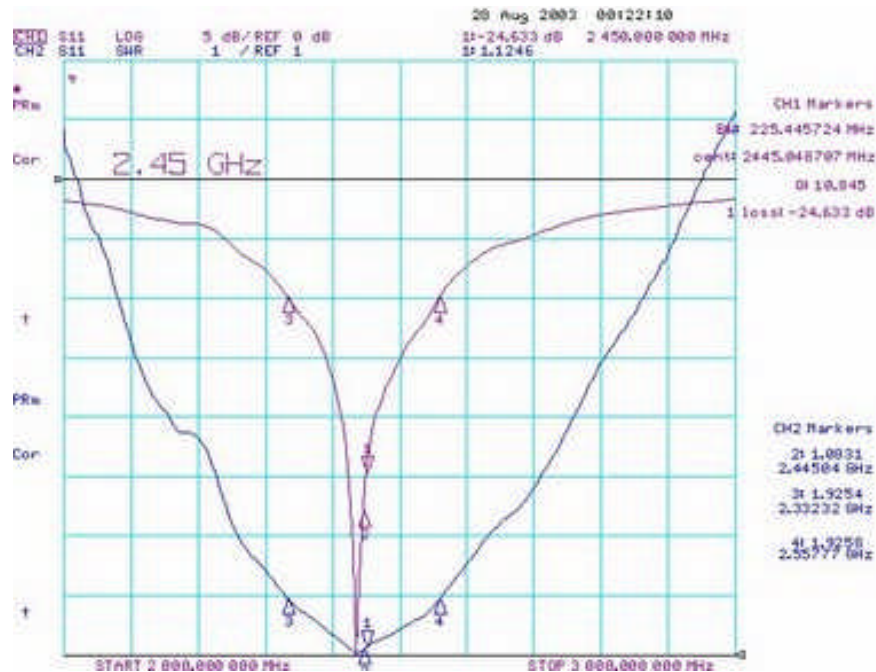
2.2 Electrical Characteristic



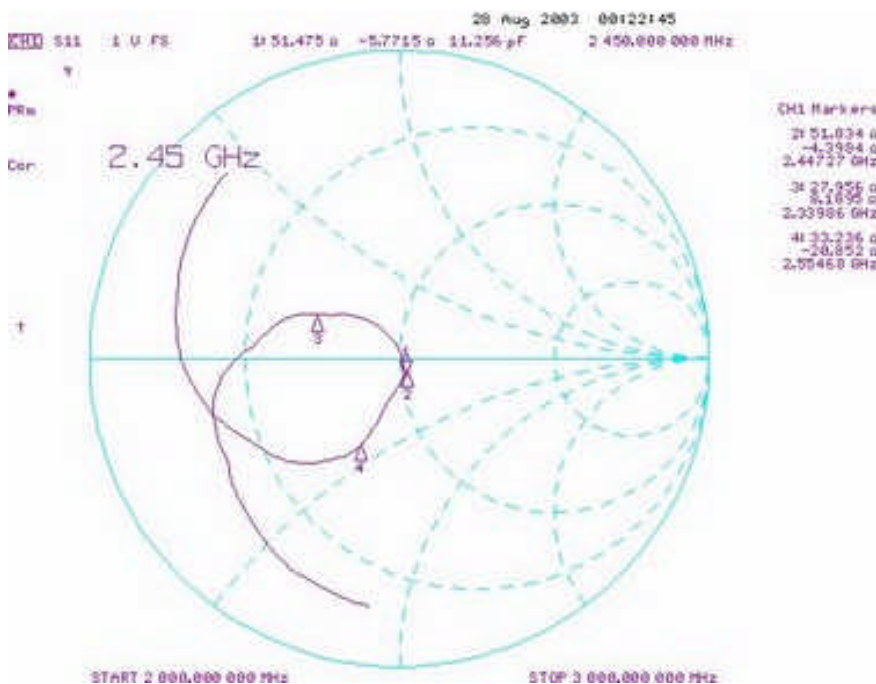
2.3 Electrical Characteristic (ALA931C2)

- Bluetooth matching on the reference test board

A. S_{11} (Return Loss)

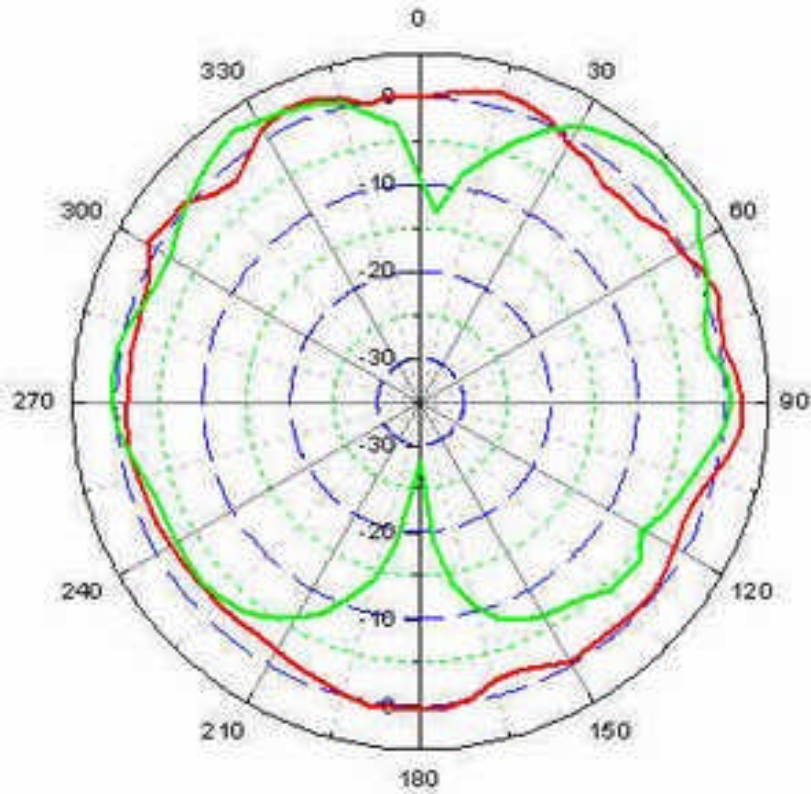


B. S_{11} (Smith chart)



2.4 Radiation Characteristic (ALA931C2)

- Bluetooth matching on the reference test board



- Measurement Setup

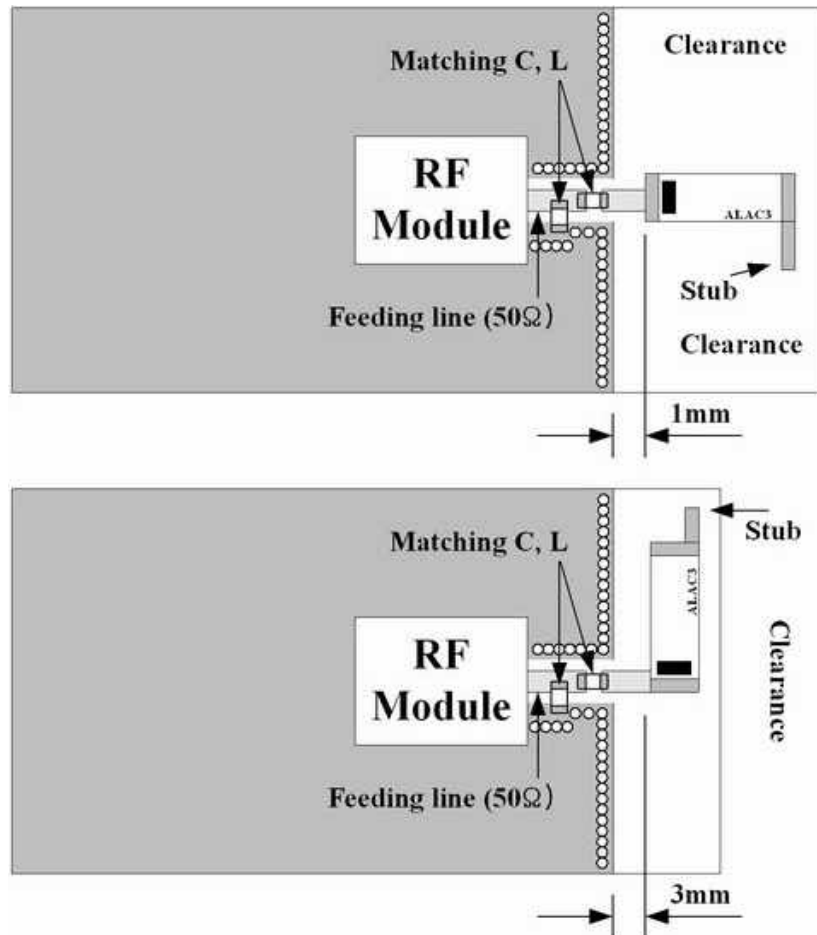
- 8x4x4 Anechoic Chamber
- Matching on the standard test board
- Temp. : 25 / Humidity : 50~55%

- Measurement Result (@2.45GHz)

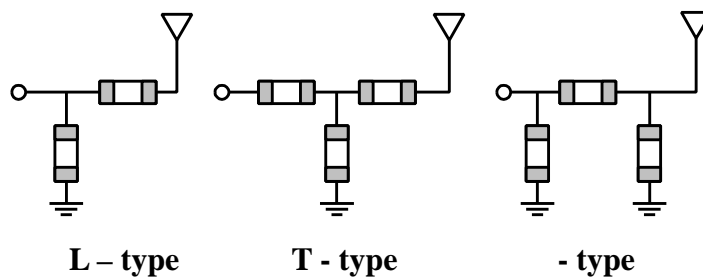
	Avg. (dBi)	Min. (dBi)	Max. (dBi)
Azimuth	-0.5	-2.5	2.0
Elevation	-3.6	-28.1	4.0

3. SUGGESTED LAYOUT & MATCHING CIRCUIT

3.1 Layout (recommended only)

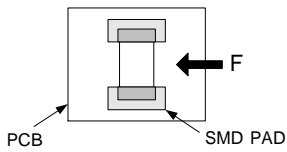
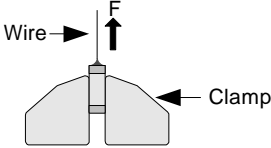


3.2 Matching Circuit (recommended only)



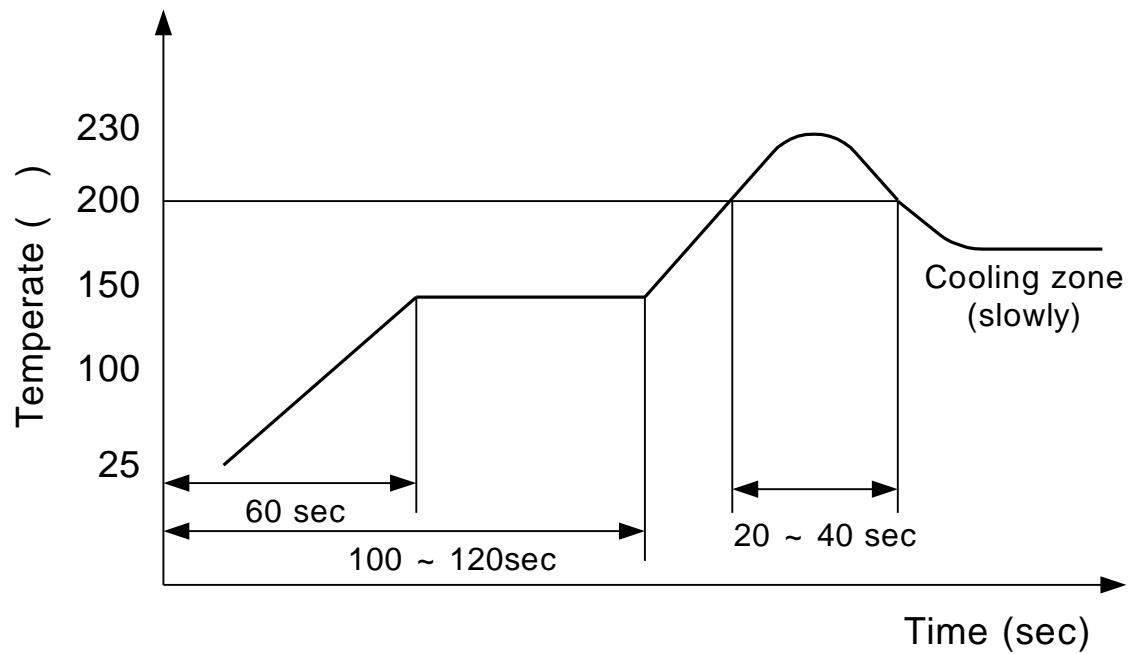
For usable matching, the **ground stability** must be guaranteed with **sufficient via holes** and the **case effects** should be considered. Finally, using one or more lumped chip elements and a tuning stub are recommended for better results.

4. RELIABILITY TEST

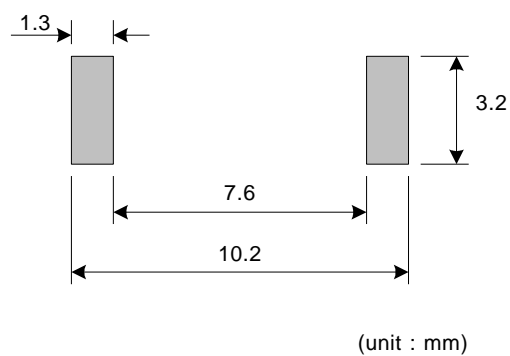
No	ITEM	TEST CONDITION	TEST REQUIREMENTS
1	Adhesive Strength of Termination	1. Applied force on SMD chip till detached point from PCB. 	1. No mechanical damage by forces applied on the right. 2. Strength (F) > 7 kgf
2	Tensile Strength	1. Wire : 0.6~0.8 tined Cu wire 	1. No mechanical damage by forces applied on the right. 2. Strength (F) > 4 kgf
3	Thermal Shock (Temperature Cycle)	1. 1 cycle / step 1 : -40 ± 3 , 30 min step 2 : $+125 \pm 3$, 30 min 2. Number of cycle : 30 3. Measure after left for 48 hrs min. at room temperature	1. No visual damage 2. $f_c < 1.5 \%$ ($f_c = f_{Ci} - f_{Cf} / f_{Ci}$) f_{Ci} : center frequency of initial condition (room temp) f_{Cf} : center frequency after being cycled
4	High Temperature Resistance	1. Temperature : $+125 \pm 5$ 2. Time : 1000 ± 24 hrs 3. Measure f_c after left for 24 hrs min. at room temperature	1. No visual damage 2. $f_c < 1.5 \%$
5	Low Temperature Resistance	1. Temperature : -40 ± 5 2. Time : 1000 ± 24 hrs 3. Measure f_c after left for 48 hrs min. at room temperature	1. No visual damage 2. $f_c < 1.5 \%$
6	Humidity (Steady Condition)	1. Humidity : 85 % RH 1. Temperature : $+85 \pm 3$ 2. Time : 1000 ± 24 hrs 3. Measure f_c after left for 48 hrs min. at room temperature	1. No visual damage 2. $f_c < 1.5 \%$

5. SOLDERING RECOMMENDATIONS

5.1 Reflow Soldering Profile

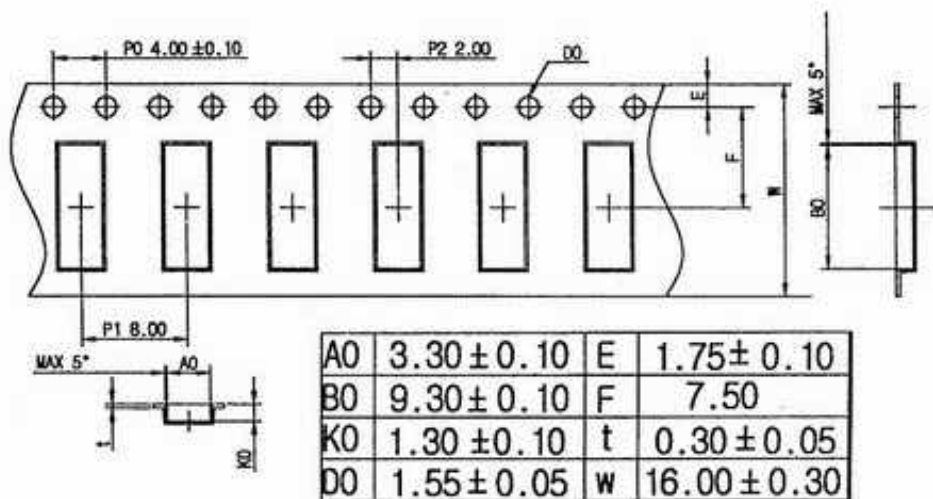


5.2 Soldering Land Pattern

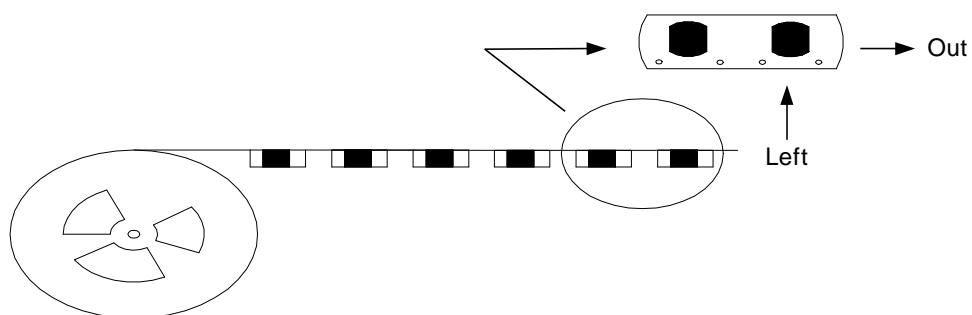


6. PACKING

6.1 Tape Dimension (unit : mm)



6.2 Taping style



6.3 Packing quantity

1,000 pcs /Reel