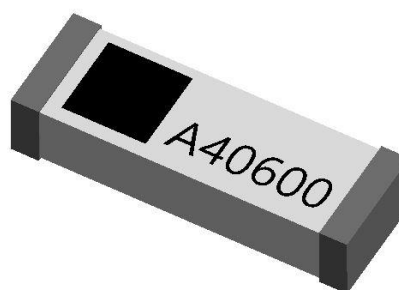


Document	Datasheet
Type	Multilayer Chip Antenna
Application	2.4 GHz
Part No.	ALA621C4
Revision	6.5

DATASHEET

Application

Bluetooth
Zigbee
WLAN (IEEE 802.11 b/g)
ISM 2.4GHz Wireless Devices



Features

Helical Structure
Size (6.0*2.0*1.2mm³)
Easy Optimizing
with external lumped matching components
SMT Available under Pb-free Condition
RoHS Compliant

AMOTECH

Notes

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

Revision History

Rev. No	Date	Title	Contents	Page
6	'10.01.19	Format	Changed document format	
6.1	2015.09.21		Changed Operating Temperature	3
6.2	2015.10.13		Added Marking Index Information	3
6.3	2015.12.10		Changed Peak Gain	3
6.4	2017.02.01	Data	Renewed Measurement Results	5, 6
6.5	2023.06.13		Changed Product Image	3

Table of Content

1. Specifications	3
1.1 Electrical Specifications	
1.2 Mechanical Specifications	
1.3 Appearance and Material	
2. PCB Design for Test	4
2.1 Evaluation Board Dimension	
2.2 PCB Design Guide	
3. Measurement Result	5
3.1 Typical Measurement Result (VSWR/RL, Smith-chart)	
3.2 Typical Measurement Result (Gain, Radiation Pattern)	
4. Reliability	7
5. Cautions (Recommendations)	7
6. Soldering Reflow Profile	7
7. Packing	8
7.1 Carrier Tape Dimension	
7.2 Packing Quantity	
7.3 Packing Label	

1. Specifications

1.1 Electrical Specifications

No	Item	Spec.	Remark
1	Frequency Range [MHz]	2400 ~ 2485	
2	VSWR	Max 2.5:1	
3	Peak Gain [dBi]	Max 2.8	
4	Total Avg. Gain [dBi]	typ. -1.2	
5	Efficiency [%]	typ. 77	
6	Polarization	Linear	
7	Impedance [Ω]	Nominal 50	

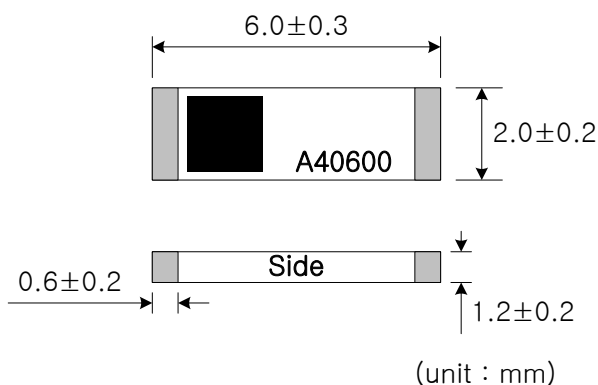
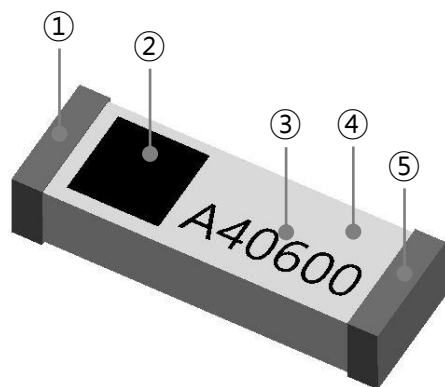
- ✓ The results are measured on the 10*43mm² evaluation board(EVB).
- ✓ See Page 6. for more detail gain parameter

1.2 Mechanical Specifications

No	Item	Spec.	Remark
1	Dimensions (L*W*H)	6.0 * 2.0 * 1.2 mm ³	
2	Unit Weight	typ. 46 mg	
3	Operating Temperature	-40 ~ +125 °C	

1.3 Appearance & Material

No	Item	Function	Material
①	External Electrode	Soldering, Input Port	Ag/Ni/Sn
②	Direction index	Indication of	Ceramic
③	Model No. index	-	Ceramic
④	Ceramic Body	-	Ceramic
⑤	External Electrode	Soldering	Ag/Ni/Sn

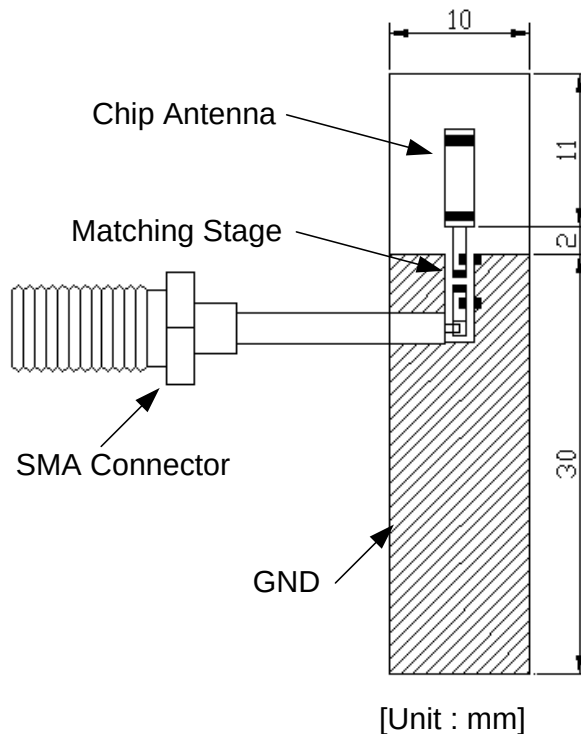


Marking Index

A4	Product Abbreviation
06	Manufacturing Year
00	Manufacturing Week

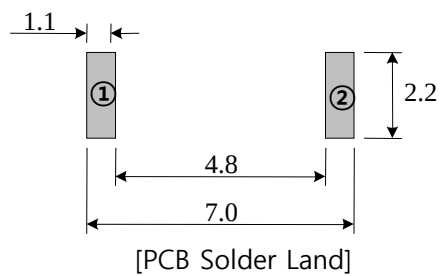
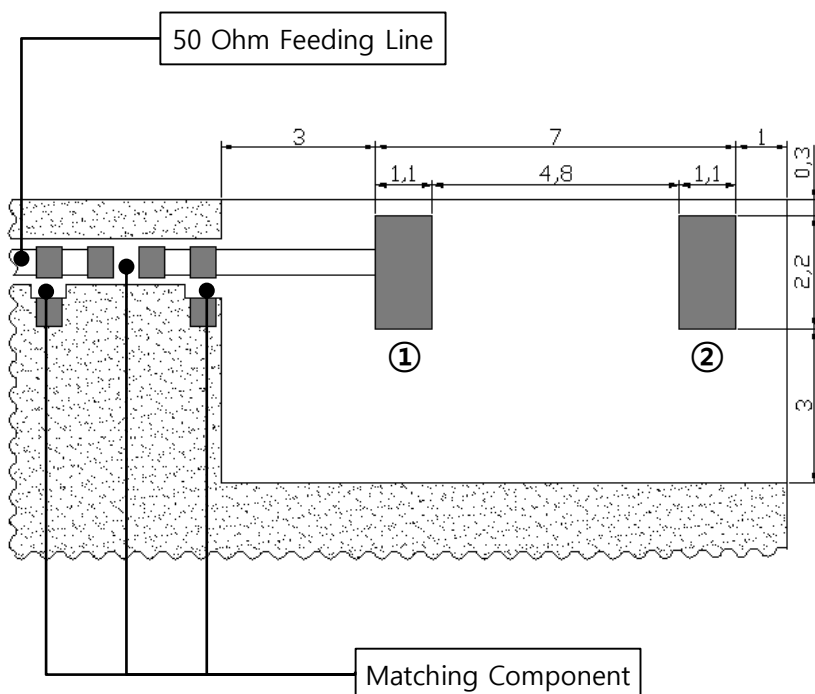
2. PCB Design for Test

2.1 Evaluation Board Dimension



- ✓ Evaluation board size ~ 10x43
- ✓ Fill Cut Area (GND Clearance) ~ 10x13

2.2 PCB Design Guide

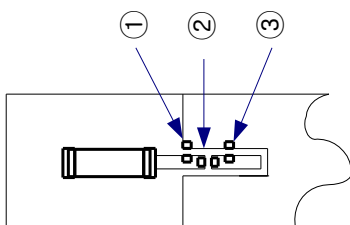


No	Pin Assignment
①	Feeding
②	N.C

[unit : mm]

3. Measurement Result

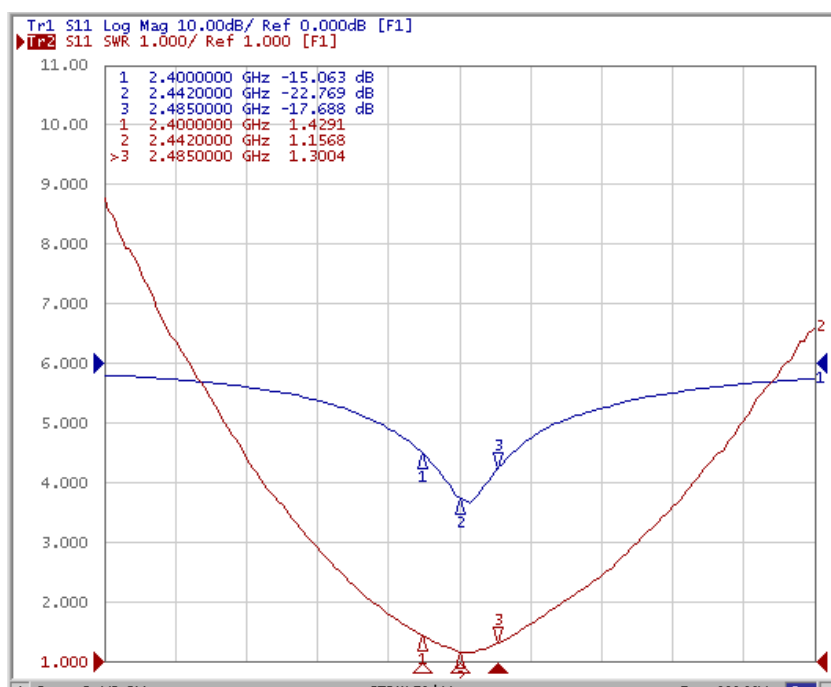
3.1 Typical Measurement Result (VSWR/RL, Smith chart)



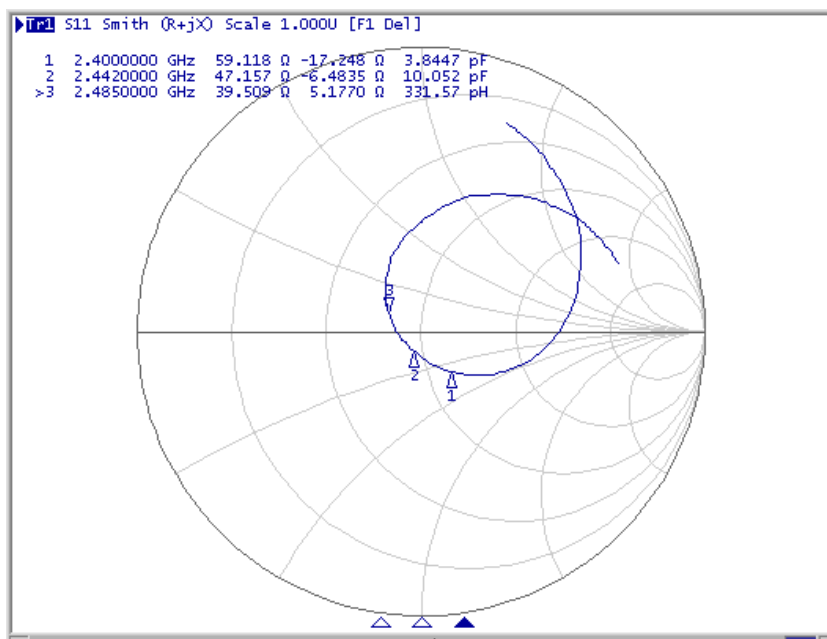
Matching information

No	Matching Value
①	N.C
②	5.6 nH
③	0.75 pF

Measured return-loss & VSWR



Measured smith-chart

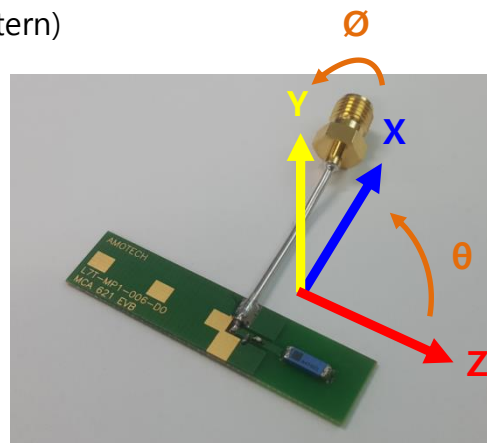


※ The results are measured on the 10*43mm² evaluation board(EVB).

3.2 Typical Measurement Result (Gain table, radiation pattern)

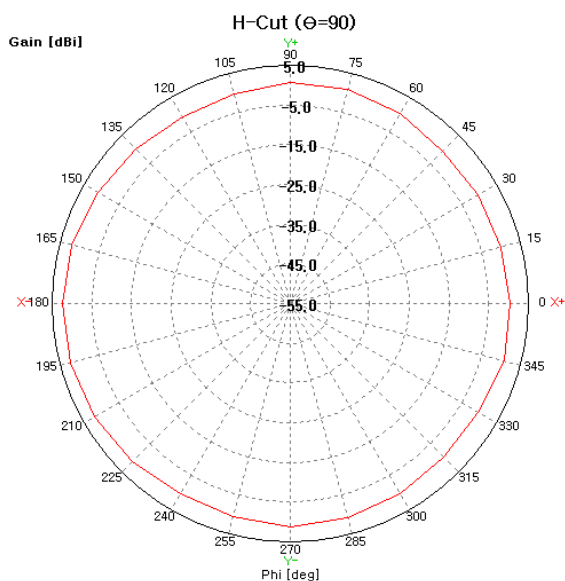
Antenna gain table

Frequency [MHz]	Efficiency [%]	Avg. Gain [dBi]	Peak Gain [dBi]
2400	81	-0.9	2.8
2442	77	-1.1	2.6
2485	75	-1.2	2.5

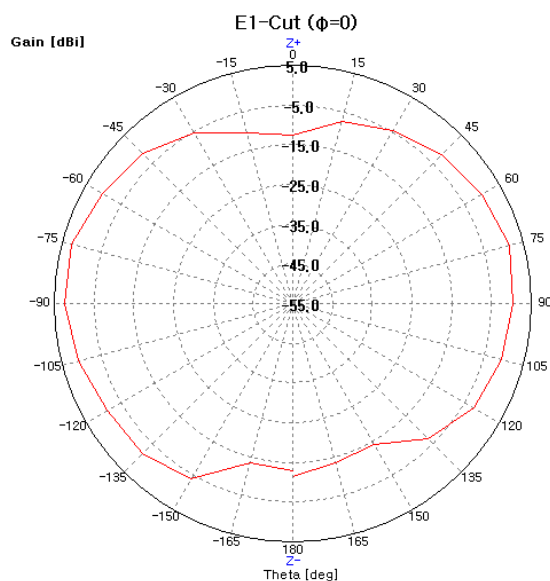


Axis information @3D-chamber

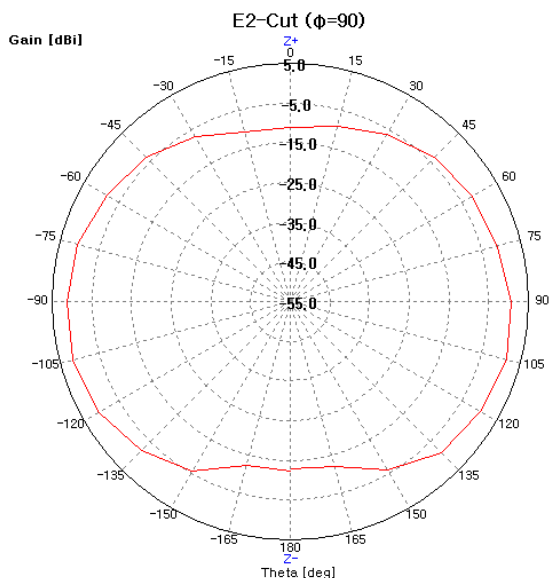
2D/3D radiation pattern



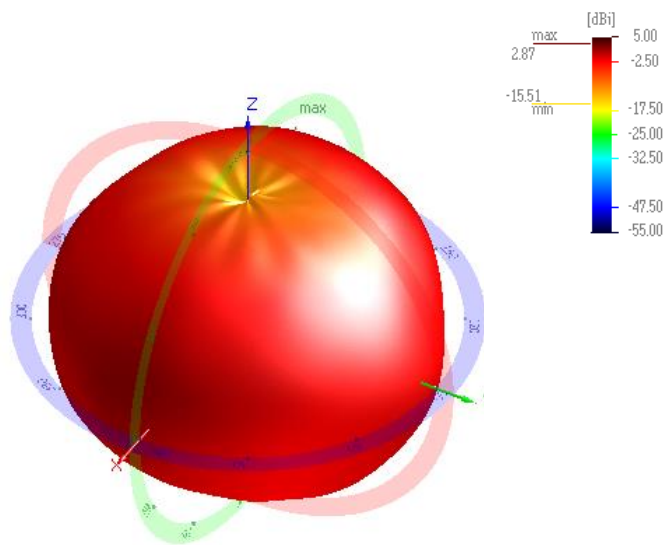
XY plane @2442MHz



XZ plane @2442MHz

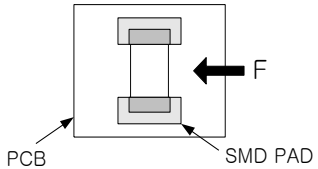


YZ plane @2442MHz



3D radiation pattern @2442MHz

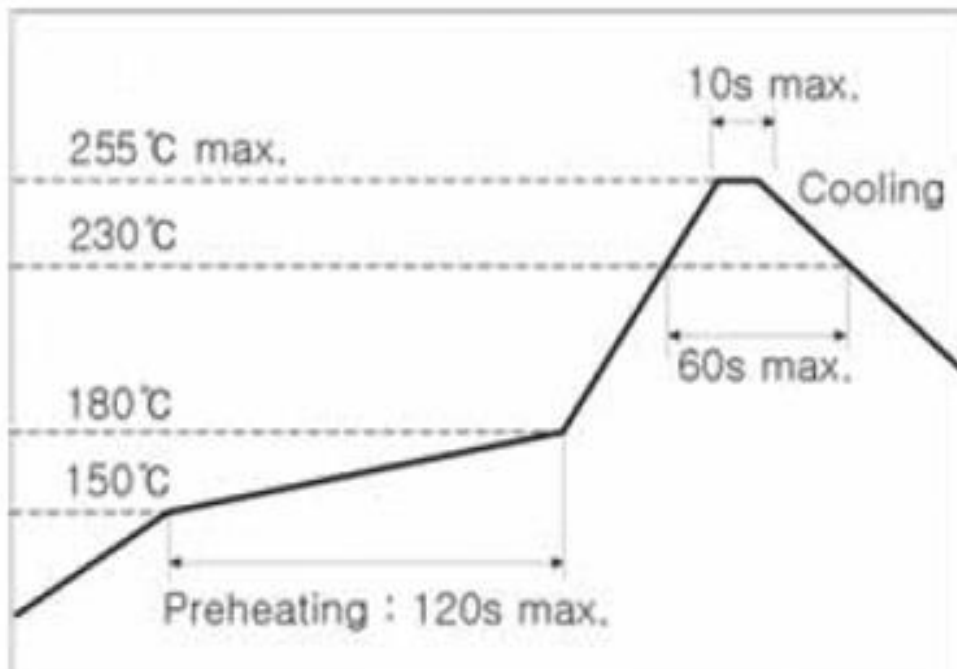
4. Reliability

No	Item	Test Condition	Test Requirements
1	Adhesive Strength of Termination	1. Applied force on SMT chip till detached point from PCB. 	1. No mechanical damage by applied force 2. Strength (F) > 5 kgf
2	Thermal Shock (Cycle)	1. Step 1 : $-40 \pm 3^{\circ}\text{C}$, 30 min Step 2 : $+125 \pm 3^{\circ}\text{C}$, 30 min 2. Number of cycle : 30	1. No visual damage 2. Within electric spec (VSWR)
3	High Temperature Resistance	1. Temperature : $+125 \pm 5^{\circ}\text{C}$ 2. Time : 1000 ± 24 hrs	1. No visual damage 2. Within electric spec (VSWR)
4	Low Temperature Resistance	1. Temperature : $-40 \pm 5^{\circ}\text{C}$ 2. Time : 1000 ± 24 hrs	1. No visual damage 2. Within electric spec (VSWR)
5	Humidity	1. Humidity : 85 % RH Temperature : $+85 \pm 3^{\circ}\text{C}$ 2. Time : 1000 ± 24 hrs	1. No visual damage 2. Within electric spec (VSWR)

5. Cautions (Recommendations)

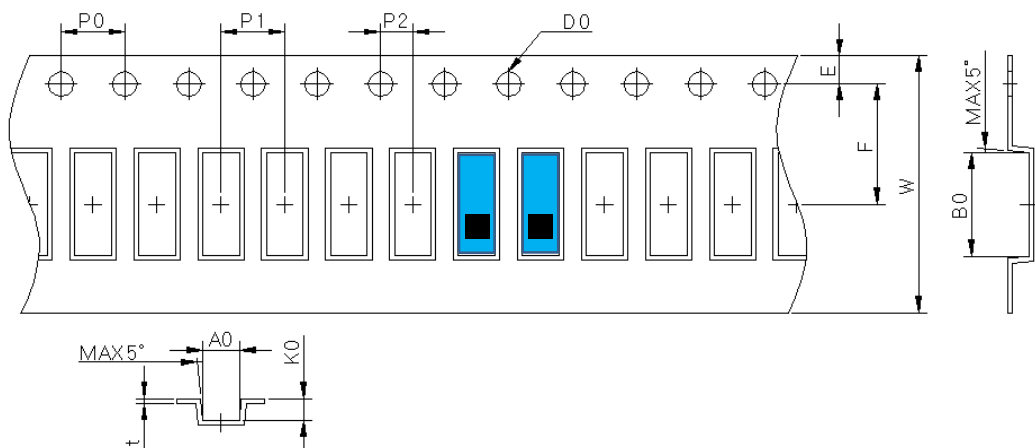
- ✓ Storage environment of parts must be at ambient temperatures of 5 to 40°C and maximum 60%RH humidity
- ✓ The parts should be used within 6 months from the time of delivery. If stored for over 6 months, check for solder ability before use.

6. Soldering Reflow Profile



7. Packaging

7.1 Carrier Tape Dimension



Item	Spec.	Item	Spec.	Item	Spec.
A0	2.30±0.10	P0	4.00 ±0.10	E	1.75±0.10
B0	6.40±0.10	P1	4.00 ±0.10	F	7.50±0.10
K0	1.35±0.10	P2	2.00 ±0.10	W	16.00±0.30
D0	1.55±0.05	-	-	t	0.30±0.05

7.2 Packaging Quantity

Item	Quantity	Dimension
Reel	2,000ea	Φ7" * 12mm
Inner Box	6,000ea (3 reel)	185 * 185 * 68 (mm ³)
Outer Box1	30,000ea (5 Inner Box)	375 * 200 * 205 (mm ³)
Outer Box2	60,000ea (10 Inner Box)	390 * 375 * 205 (mm ³)

7.3 Packaging Label

AMOTECH Co., Ltd.

5BL-1Lot, 617, Namchon-Dong, Namdong-Gu, Incheon, Korea

Multilayer Chip Antenna

P/N : ALA621C4

Lot No :

Quantity : 2,000 pcs Date : 2010/01/19