

Document	Datasheet
Type	Dielectric Chip Antenna
Application	Dual WLAN
Part No.	AMOC42H12F7PA
Revision	1.1

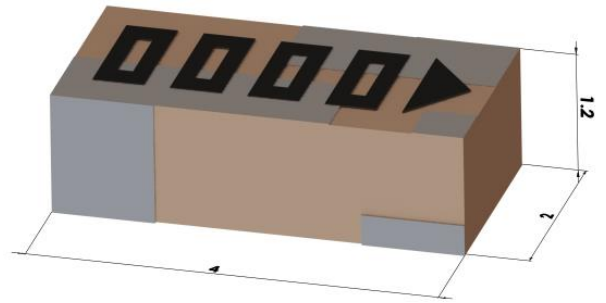
DATASHEET

Application

WLAN Dual-band(2.4GHz/5GHz)

Features

- PIFA Structure
- Small Size (4.0*2.0*1.2mm³)
- Easy Optimizing
with external matching circuit
- SMT Available under Pb-free Condition
- RoHS Compliant



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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
0	18.05.15		New Published	
1	21.09.13		Add mark for manufacturing	
1.1	21.11.11		Add bottom pattern dimension of antenna	3

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1. Specifications

1.1 Electrical Specifications

No	Item	Specification		Remark
1	Frequency Range [GHz]	2.400 ~2.485 / 5.150~5.875		
2	VSWR	Max 3.0 : 1		
3	Avg. Gain [dBi]	2.400GHz	-2.2	Measured Data (on the EVB)
		2.442GHz	-1.2	
		2.485GHz	-1.6	
		5.150GHz	-1.6	
		5.500GHz	-1.6	
		5.850GHz	-1.1	
4	Peak. Gain [dBi]	2.400GHz	0.7	
		2.442GHz	2.3	
		2.485GHz	1.7	
		5.150GHz	3.3	
		5.500GHz	3.2	
		5.850GHz	3.2	
5	Polarization	Linear		
6	Impedance [Ω]	Nominal 50		

✓ The results are measured on the 50 x 50 mm² evaluation board(EVB).

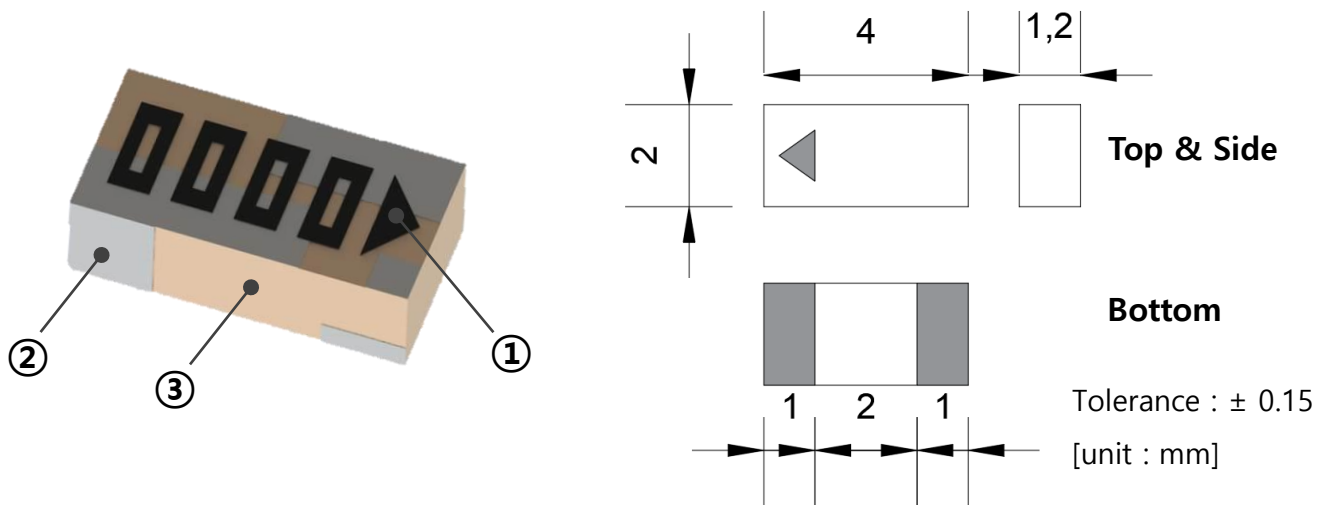
✓ See Page 6,7. for more detail gain parameter

1.2 Mechanical Specifications

No	Item	Spec.	Remark
1	Dimensions (L x W x H)	4.0 x 2.0 x 1.2 mm ³	
2	Unit Weight	typ. 35 mg	
3	Operating Temperature	-40 ~ +125 °C	

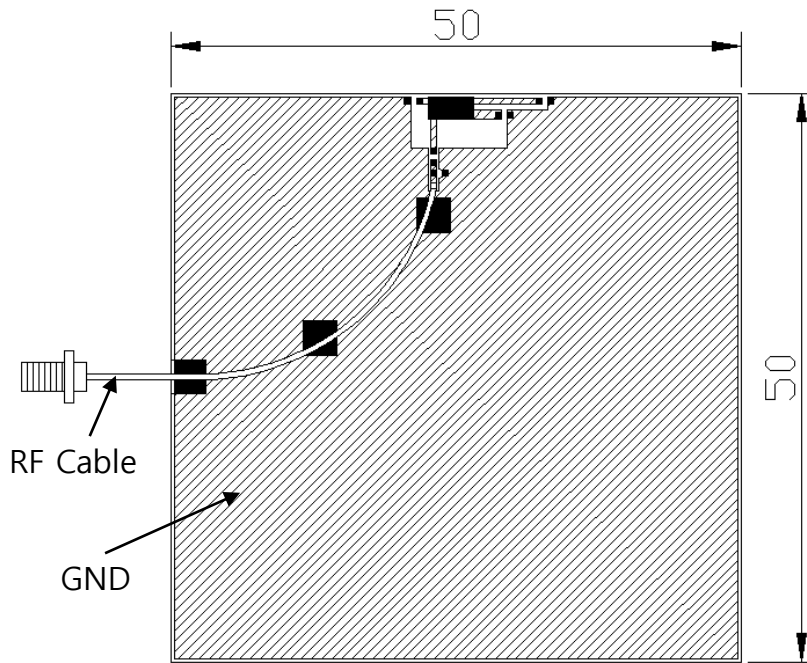
1.3 Appearance & Material

No	Item	Function	Material
①	Marking	Feeding Index	Ink
②	Electrode	Radiation Element	Ag
③	Ceramic Body	-	Ceramic



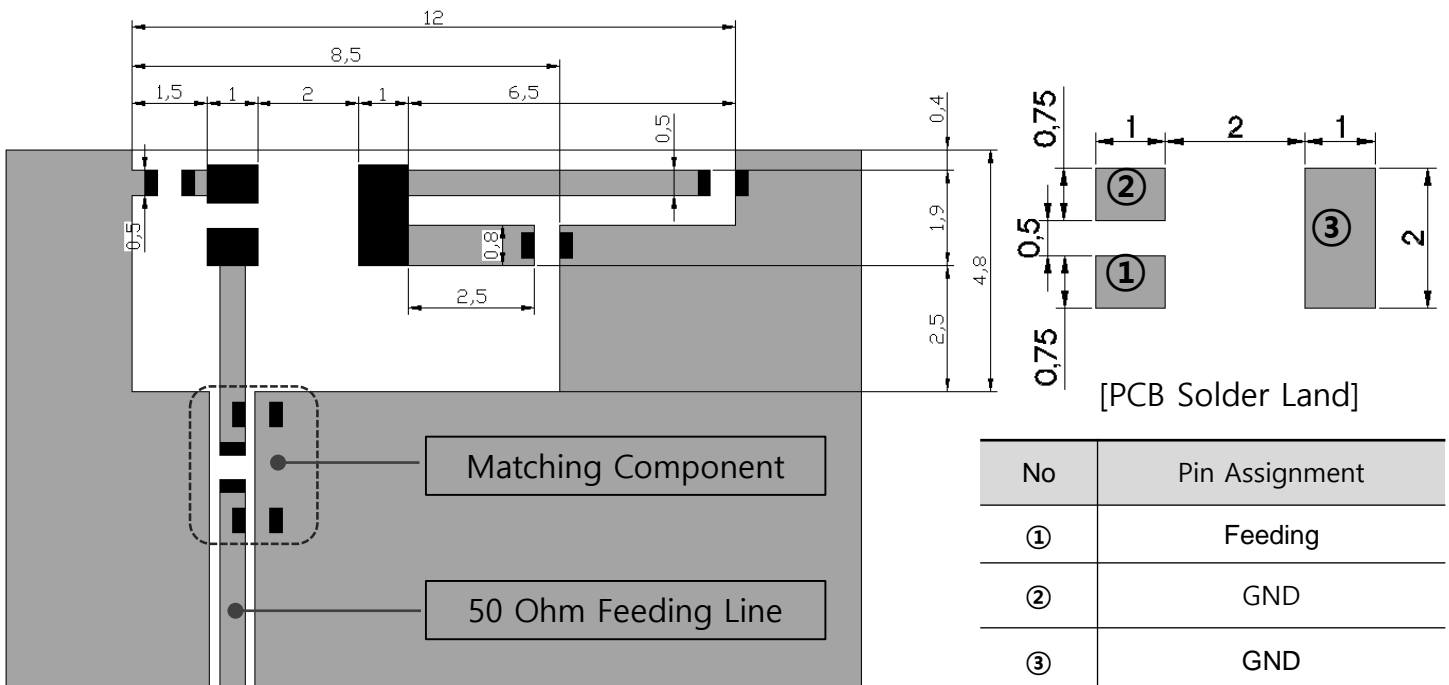
2. PCB Design for Test

2.1 Evaluation Board Dimension



- ✓ Evaluation board size ~ 50 x 50 mm
- ✓ Fill Cut Area (GND Clearance) ~ 12.0 x 4.8 mm

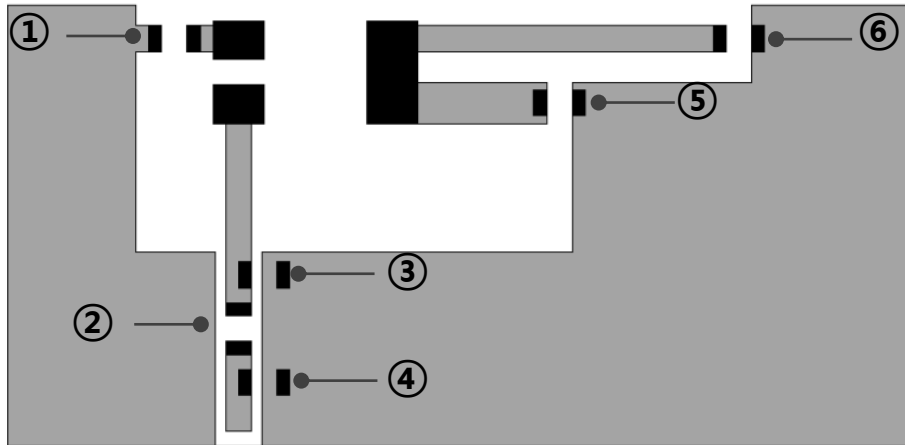
2.2 PCB Design Guide



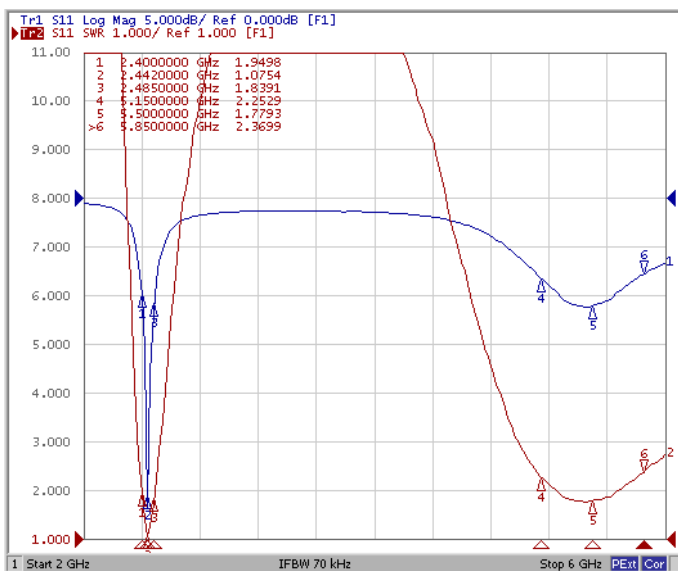
[unit : mm]

3. Measurement Result

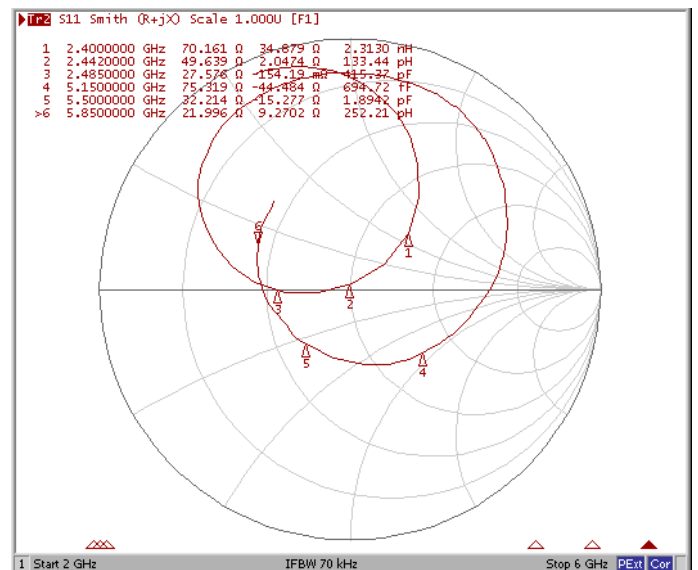
3.1 Typical Measurement Result (VSWR/RL, Smith chart)



No	Matching Value
①	6.8nH
②	100pF
③	N/C
④	1.5nH
⑤	5.6pF
⑥	1.5nH



Measured VSWR and Return-loss



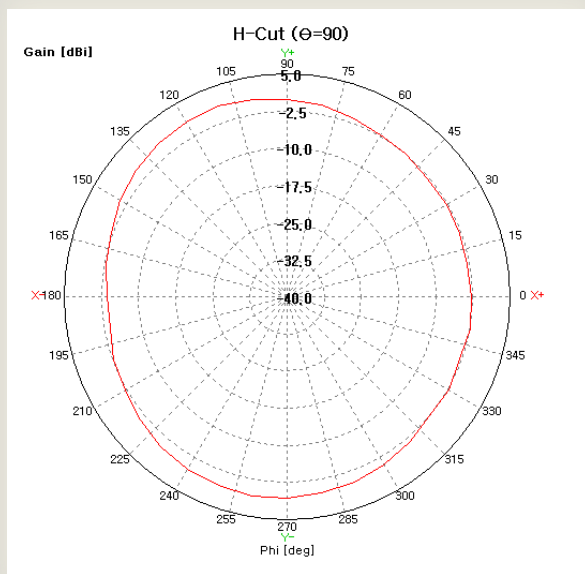
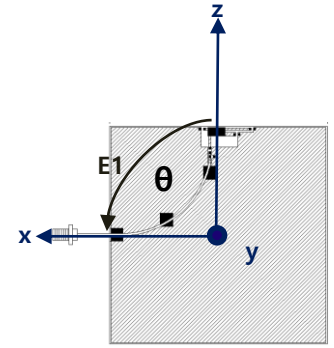
Measured Smith Chart

✓ The results are measured on the 50x50mm² evaluation board(EVB).

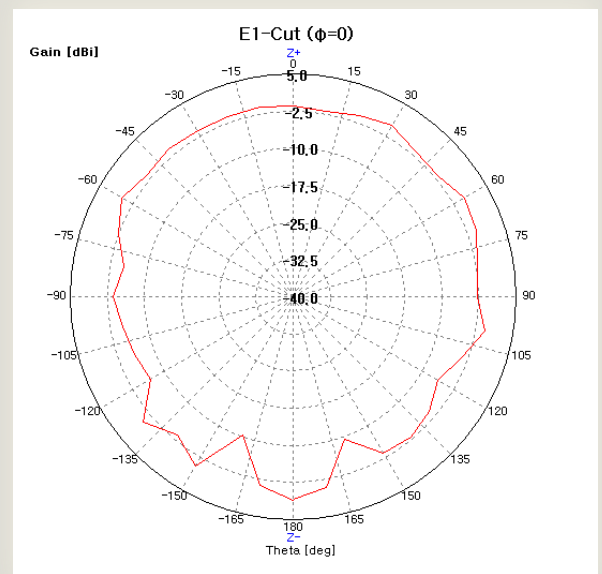
3.2 Typical Measurement Result (Gain, Radiation Pattern)

3.2.1 Band 2.4GHz

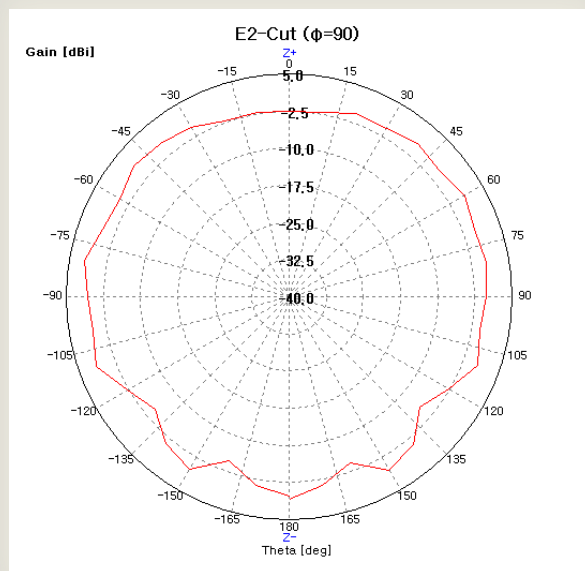
Freq. [MHz]	Peak Gain [dBi]	Avg. Gain [dBi]	Efficiency [%]
2400	0.69	-2.19	60.35
2442	2.28	-1.19	76.08
2485	1.71	-1.63	68.71



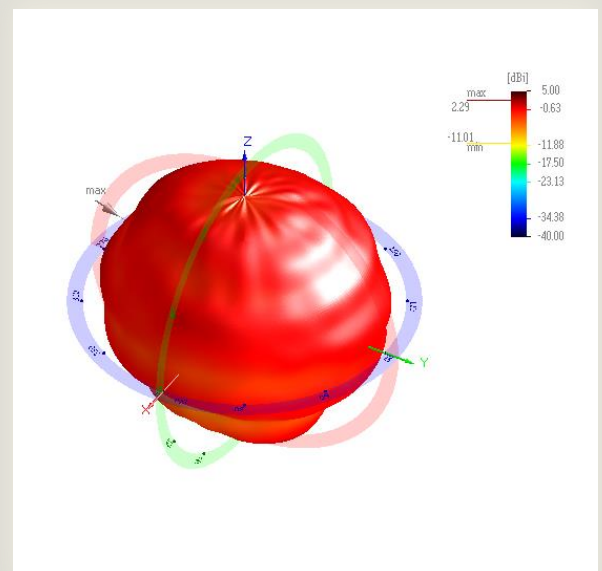
[Azimuth plane @2442MHz]



[Elevation1 plane @2442MHz]



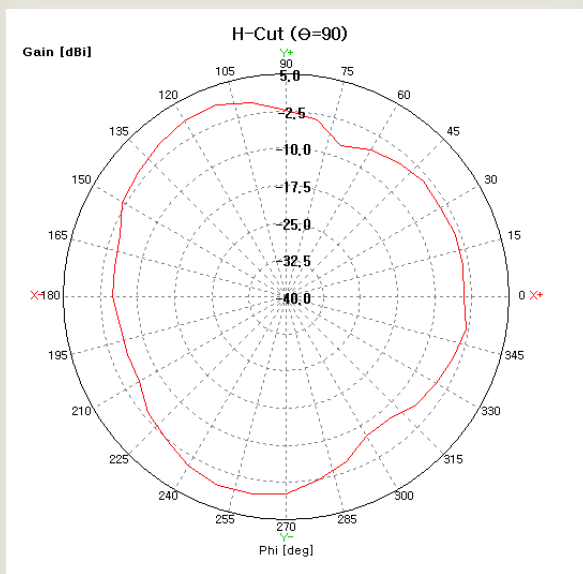
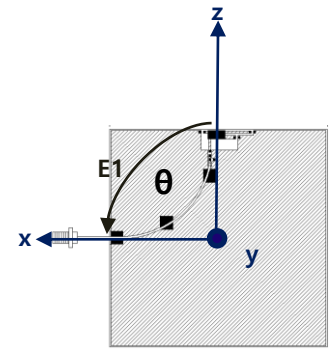
[Elevation2 plane @2442MHz]



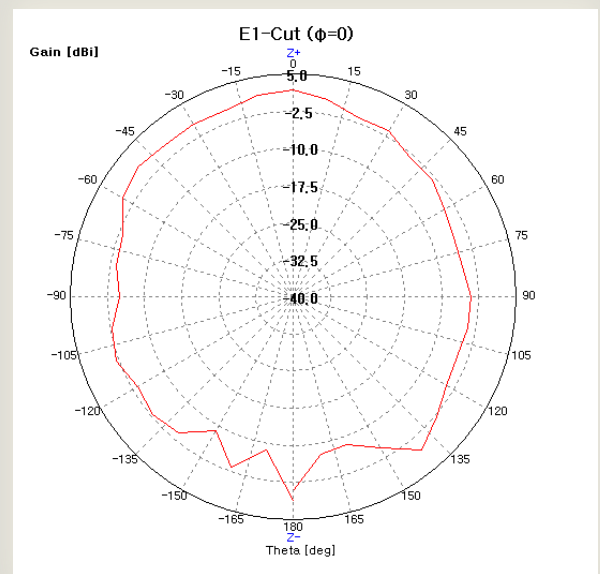
[3D Radiation Pattern]

3.2.2 Band 5.5GHz

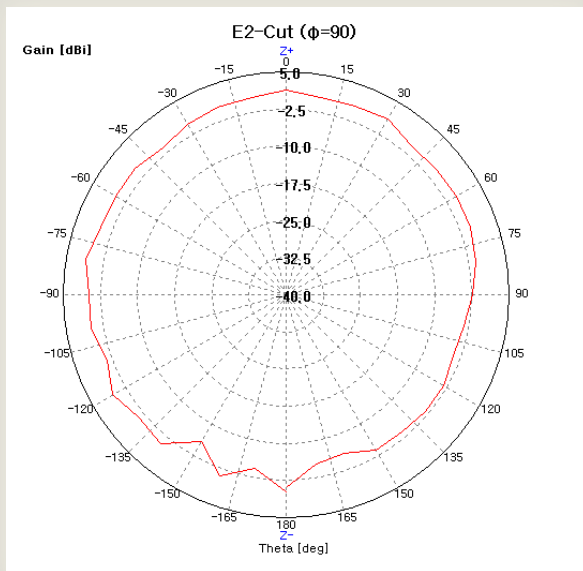
Freq. [MHz]	Peak Gain [dBi]	Avg. Gain [dBi]	Efficiency [%]
5150	3.34	-1.64	68.49
5500	3.21	-1.58	69.51
5850	3.15	-1.13	77.02



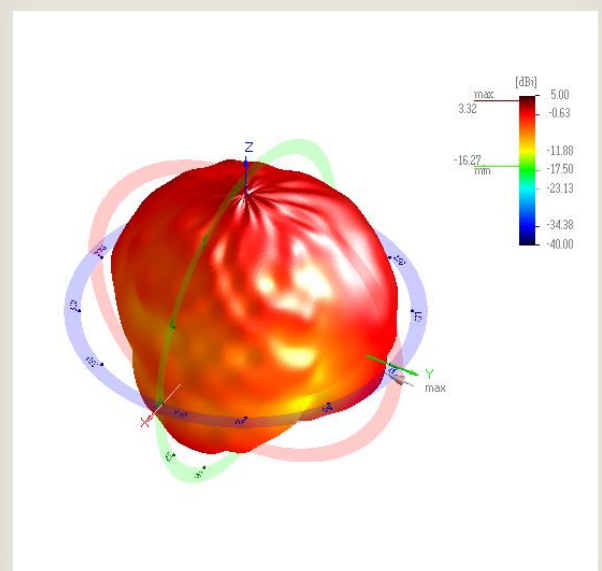
[Azimuth plane @5500MHz]



[Elevation1 plane @5500MHz]

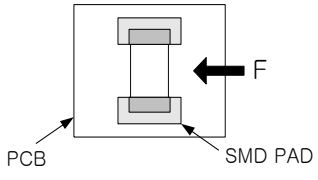


[Elevation2 plane @5500MHz]

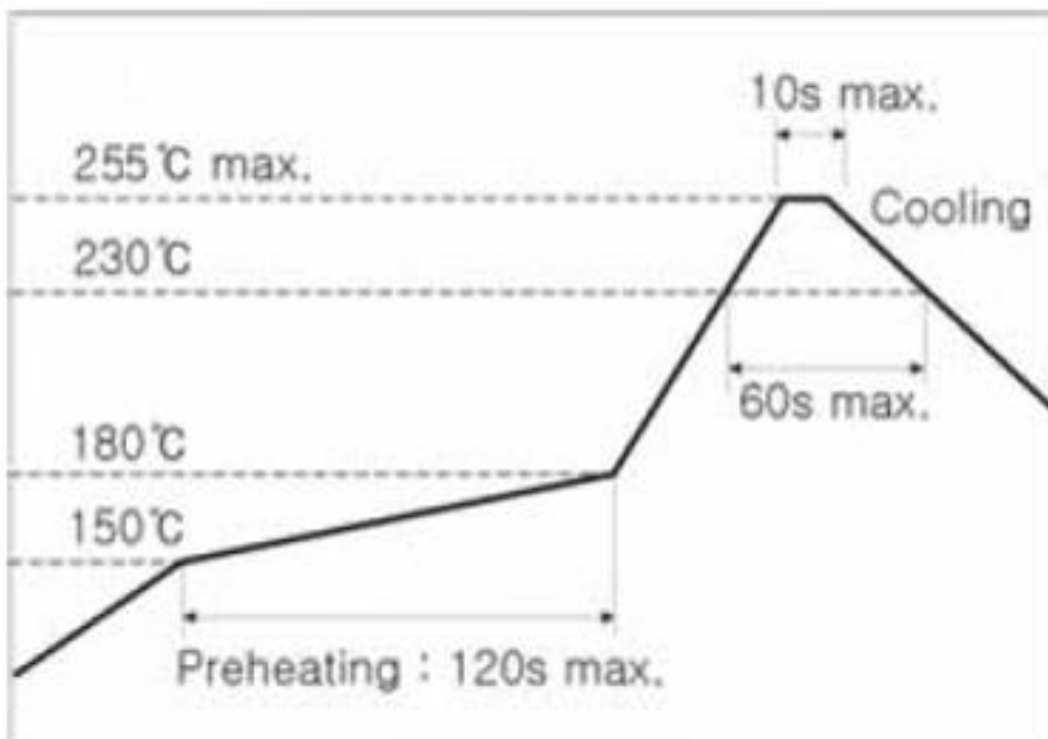


[3D Radiation Pattern]

4. Reliability

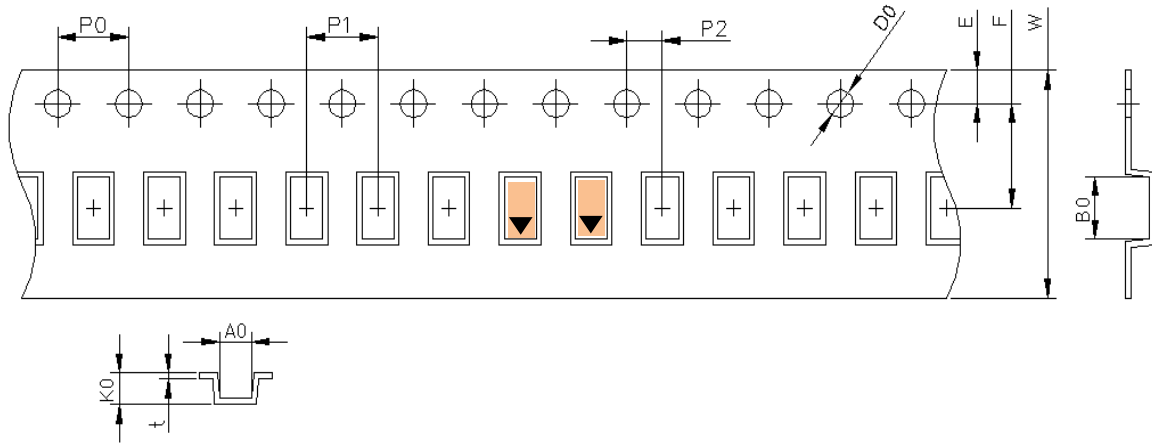
No	Item	Test Condition	Test Requirements
1	Adhesive Strength of Termination	1. Applied force on SMT chip till detached point from PCB. 	1. No mechanical damage by applied force 2. Strength (F) > 3 kgf
2	Thermal Shock (Cycle)	1. Step 1 : $-40 \pm 3^{\circ}\text{C}$, 30 min Step 2 : $+125 \pm 3^{\circ}\text{C}$, 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. Soldering Reflow Profile



6. Packaging

6.1 Carrier Tape Dimension



Item	Spec.	Item	Spec.	Item	Spec.
A0	2.20 ±0.10	P0	4.00 ±0.10	E	1.75 ±0.10
B0	4.30 ±0.10	P1	4.00 ±0.10	F	7.50 ±0.10
K0	1.60 ±0.10	P2	2.00 ±0.10	W	16.00 ±0.30
D0	1.55 ±0.05	-	-	t	0.30 ±0.05

6.2 Packaging Quantity

Item	Quantity	Dimension
Reel	2,000 ea	Φ7" * 16 mm
Inner Box	6,000 ea (3 reel)	183 * 70 * 185 (mm ³)
Outer Box1	30,000 ea (5 Inner Box)	375 * 200 * 205 (mm ³)
Outer Box2	60,000 ea (10 Inner Box)	390 * 375 * 205 (mm ³)

6.3 Packaging Label

AMOTECH Co., Ltd.

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

Dielectric Chip Antenna

P/N : AMOC42H12F7PA

Lot No :

Quantity : 2,000 pcs Date : 2018/05/15