

Document	Datasheet
Type	Dielectric Chip Antenna
Application	2.4GHz/5GHz
Part No.	SHDA10312442B
Revision	1.0

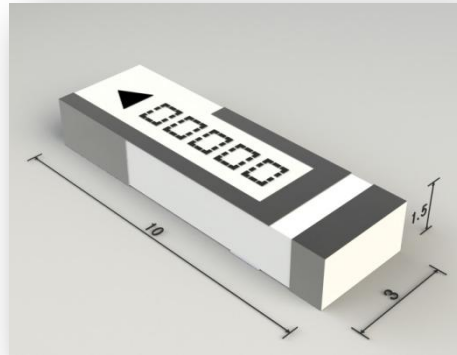
# DATASHEET

## Application

WLAN Dual-band(2.4GHz/5GHz)

## Features

- PIFA structure
- Size (10.0\*3.0\*1.5mm<sup>3</sup>)
- Performance optimizing  
with tuning the conductive pattern on the ceramic body
- 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
0.0	2013. 09. 23		New Published	
1.0	2013. 11. 18		Changed PCB Pin Number	4

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## 1. Specifications

### 1.1 Electrical Specifications

No	Item	Spec.		Remark
1	Frequency Range [GHz]	2.400 ~2.485 / 5.150~5.850		
2	VSWR	Max 3.0 : 1		
3	Avg. Gain [dBi]	2.442GHz	typ. -0.3	
		5.500GHz	typ. -1.0	
4	Efficiency [%]	2.442GHz	typ. 92	
		5.500GHz	typ. 79	
5	Polarization	Linear		
6	Impedance [ $\Omega$ ]	Nominal 50		

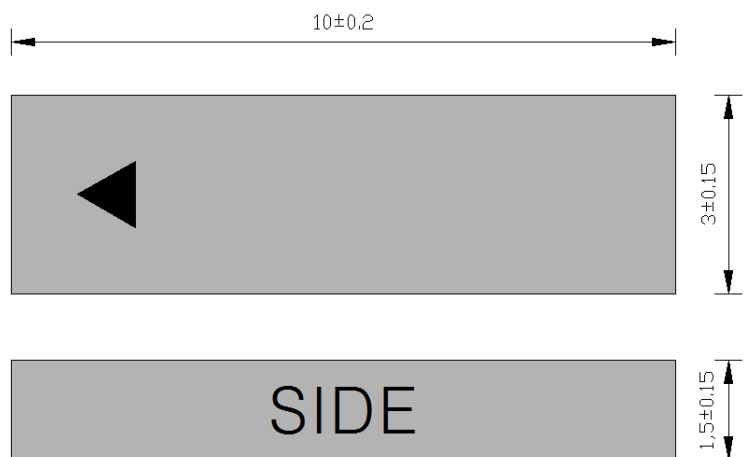
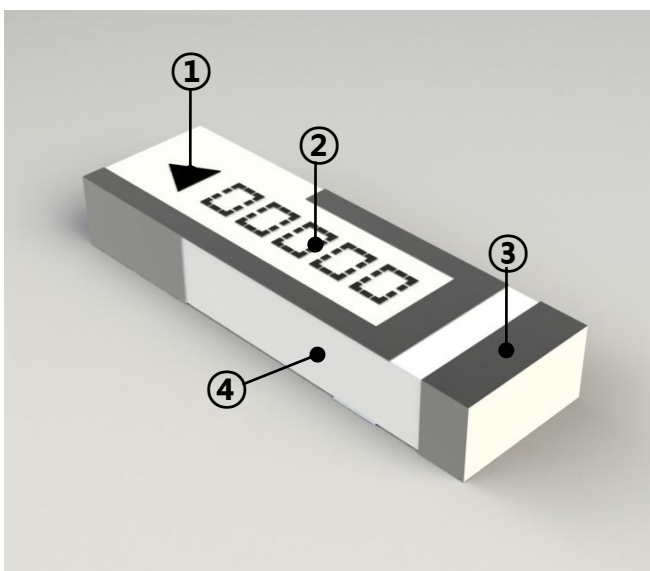
- ✓ The results are measured on the 100x50mm<sup>2</sup> evaluation board(EVB).
- ✓ See Page 6. for more detail gain parameter

### 1.2 Mechanical Specifications

No	Item	Spec.	Remark
1	Dimensions (LxWxH)	10.0x3.0x1.5 mm <sup>3</sup>	
2	Unit Weight	typ. 110mg	
3	Operating Temperature	-40 ~ +85 °C	

### 1.3 Appearance & Material

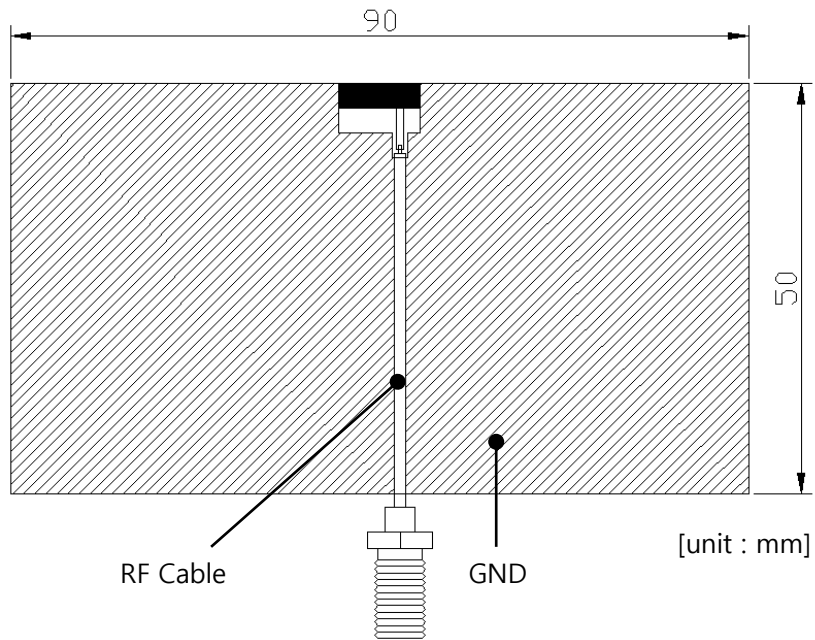
No	Item	Function	Material
①	Marking	Feeding Index	Ink
②	Marking	Week number	Ink
③	Electrode	Radiation Element	Ag
④	Ceramic Body	-	Ceramic



[unit : mm]

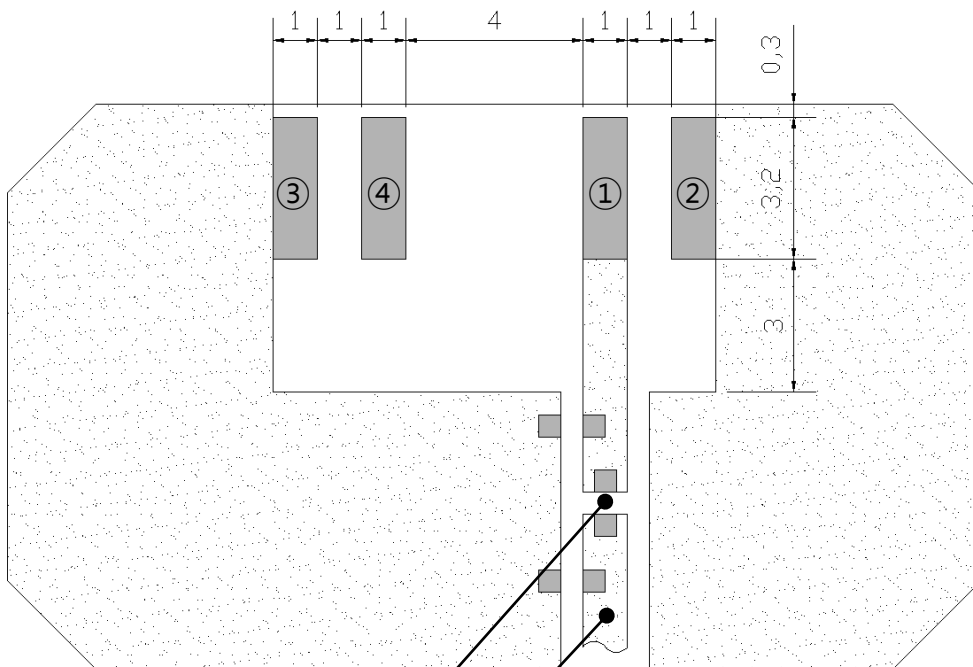
## 2. PCB Design for Test

### 2.1 Evaluation Board Dimension



- ✓ Evaluation board size ~ 90x50
- ✓ Fill Cut Area (GND Clearance) ~ 10.0x5.5

### 2.2 PCB Design Guide



No	Pin Assignment
①	Feeding
②	GND
③	GND
④	N/C

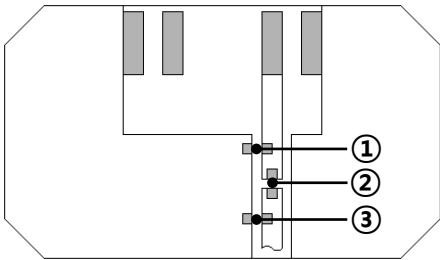
[unit : mm]

Matching Component

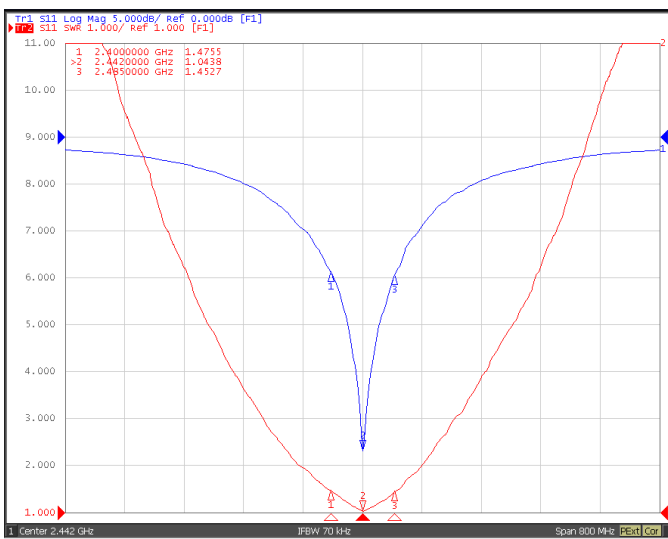
50 Ohm Feeding Line

### 3. Measurement Result

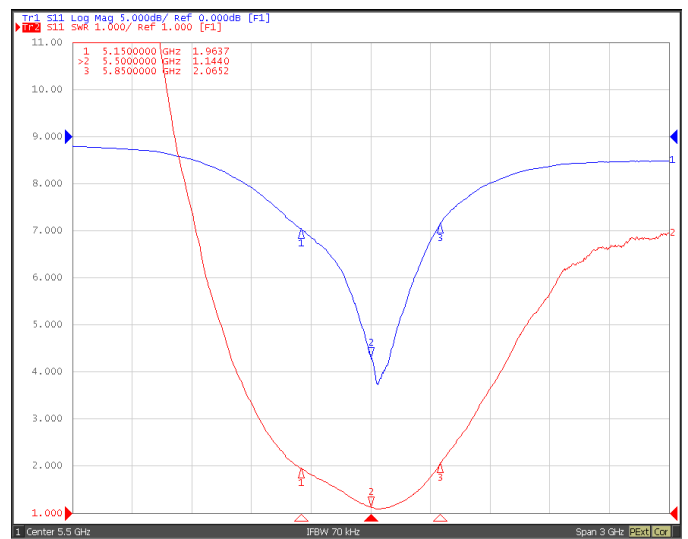
#### 3.1 Typical Measurement Result (VSWR/RL, Smithchart)



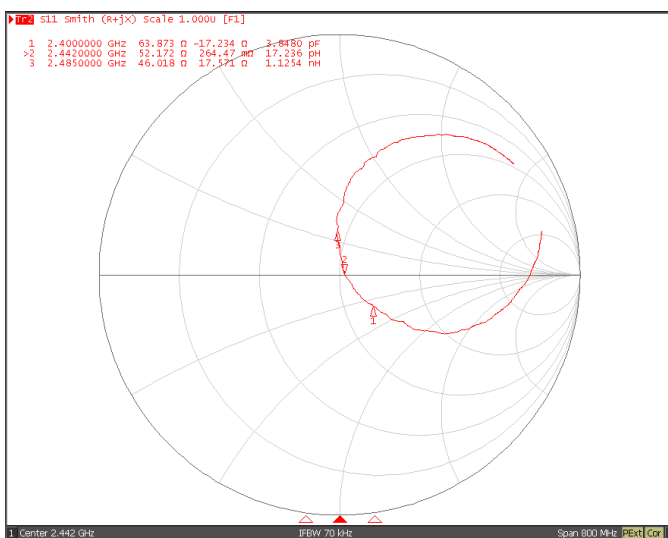
No	Matching Value
①	N/C
②	0Ω (100pF)
③	N/C



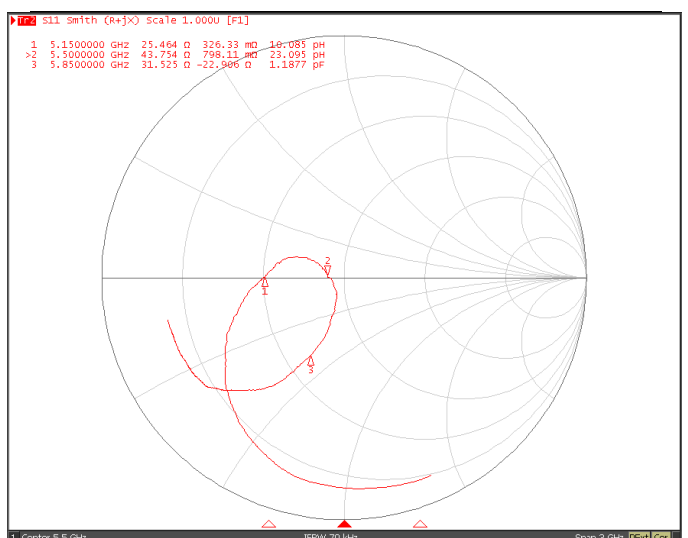
VSWR (2.442GHz)



VSWR (5.500GHz)



Smith Chart (2.442GHz)

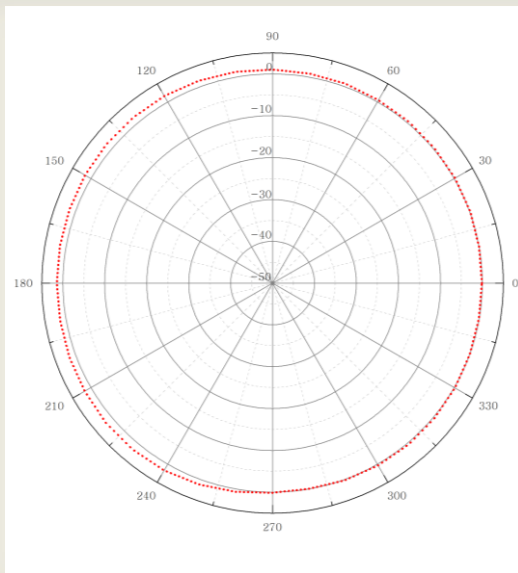
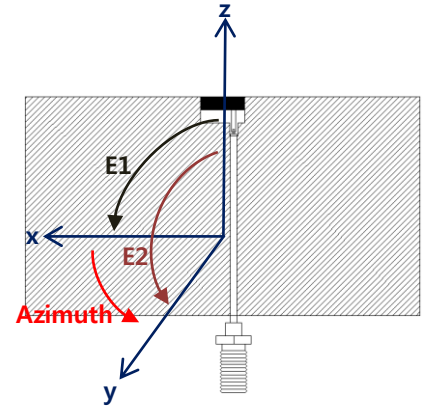


Smith Chart (5.500GHz)

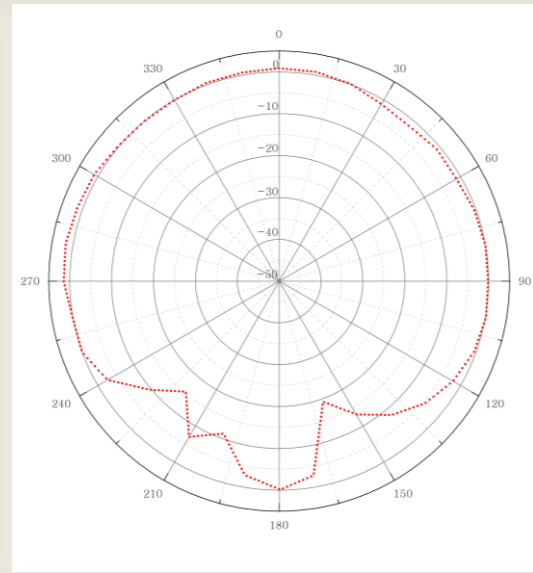
✓ The results are measured on the 90x50mm<sup>2</sup> evaluation board(EVB).

### 3.2 Typical Measurement Result (Gain, Radiation Pattern)

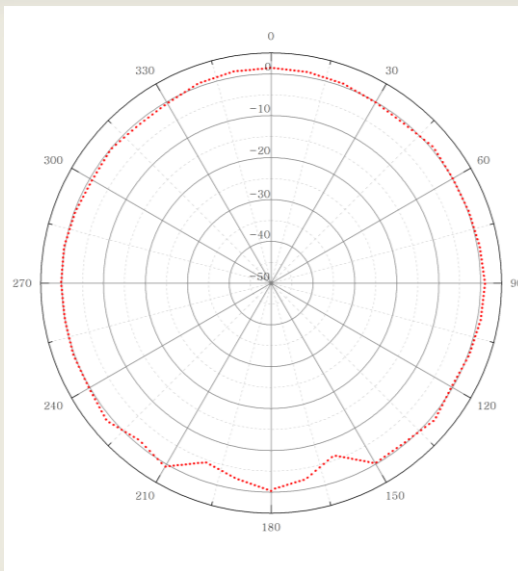
	Peak Gain (dBi)	Avg. Gain (dBi)	Efficiency(%)
Azimuth	1.88	0.9	92
Elevation 1	1.72	-1.08	
Elevation 2	1.39	-0.03	



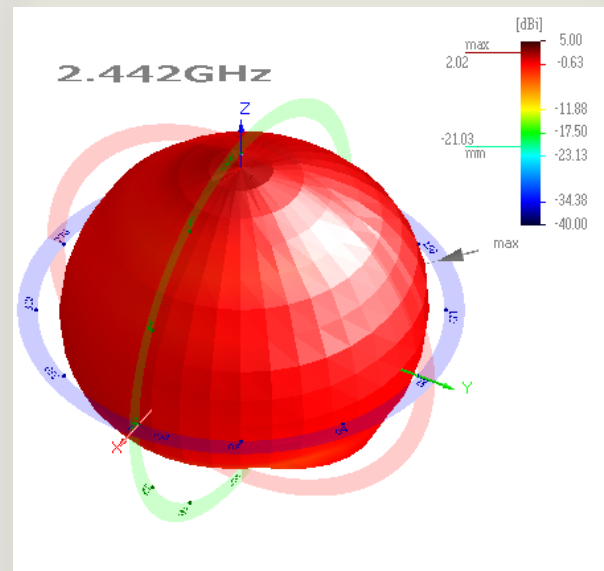
[Azimuth plane @2.442GHz ]



[Elevation1 plane @2.442GHz ]



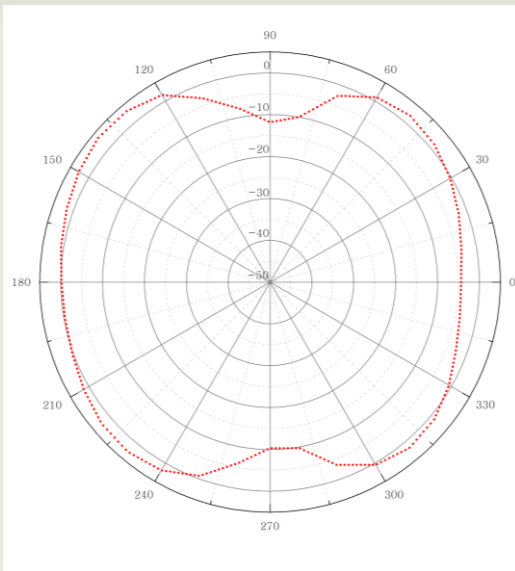
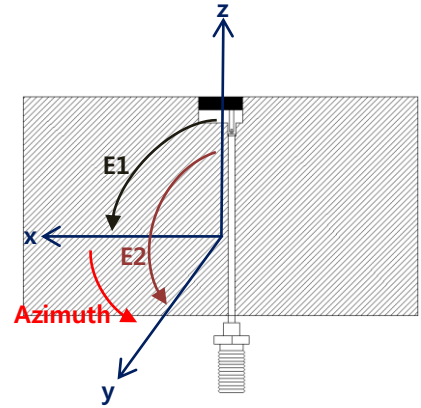
[Elevation2 plane @2.442GHz ]



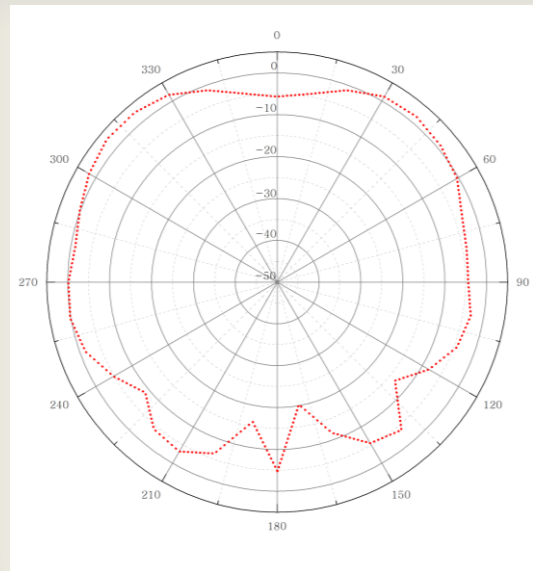
[3D Radiation Pattern]

### 3.2 Typical Measurement Result (Gain, Radiation Pattern)

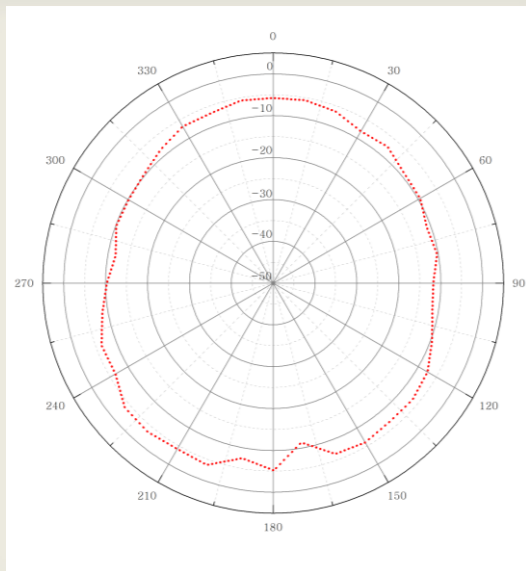
	Peak Gain (dBi)	Avg. Gain (dBi)	Efficiency(%)
Azimuth	3.60	-0.09	79
Elevation 1	3.08	-1.79	
Elevation 2	-3.52	-7.16	



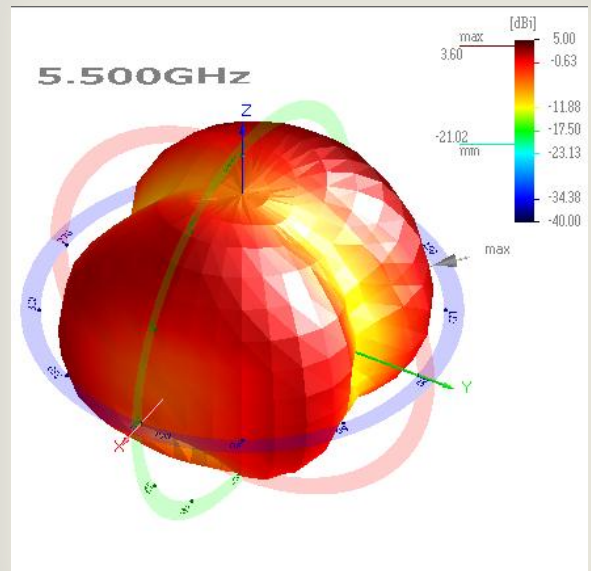
[Azimuth plane @5.5GHz ]



[Elevation1 plane @5.5GHz ]

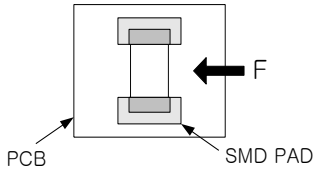


[Elevation2 plane @5.5GHz ]

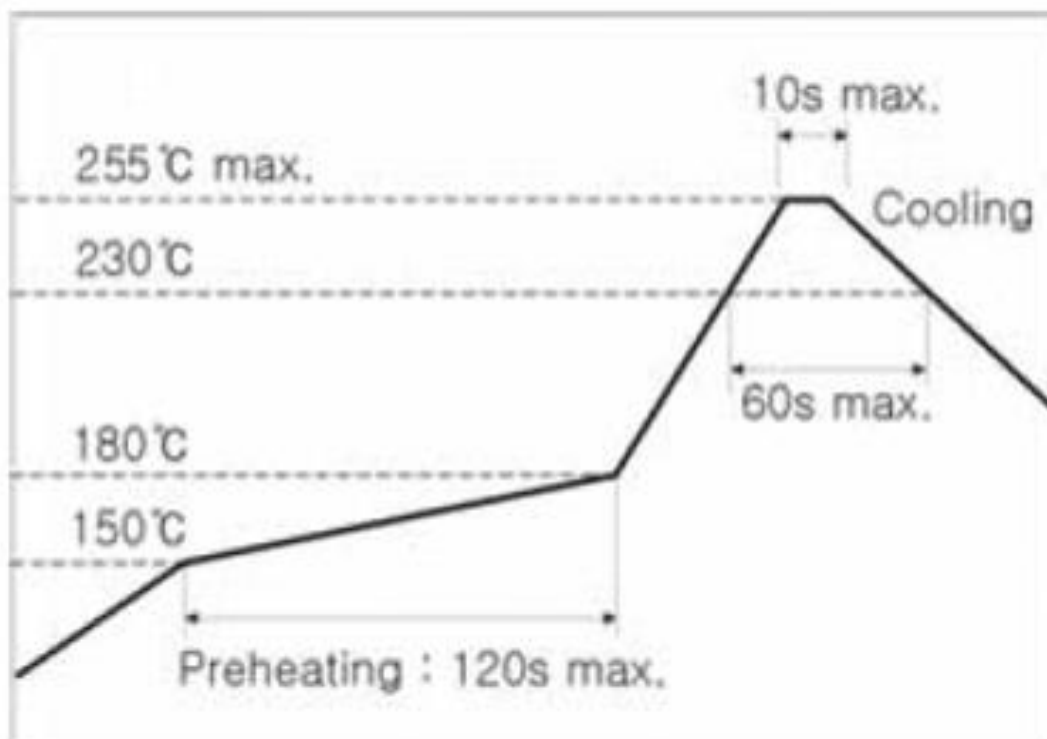


[3D Radiation Pattern]

#### 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) > 5 kgf
2	Thermal Shock (Cycle)	1. Step 1 : $-40 \pm 3^\circ\text{C}$ , 30 min Step 2 : $+85 \pm 3^\circ\text{C}$ , 30 min 2. Number of cycle : 900	1. No visual damage 2. Within electric spec (VSWR)
3	High Temperature Resistance	1. Temperature : $+125 \pm 5^\circ\text{C}$ 2. Time : $1000 \pm 24$ hrs	1. No visual damage 2. Within electric spec (VSWR)
4	Low Temperature Resistance	1. Temperature : $-40 \pm 5^\circ\text{C}$ 2. Time : $1000 \pm 24$ 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 : $1000 \pm 24$ hrs	1. No visual damage 2. Within electric spec (VSWR)

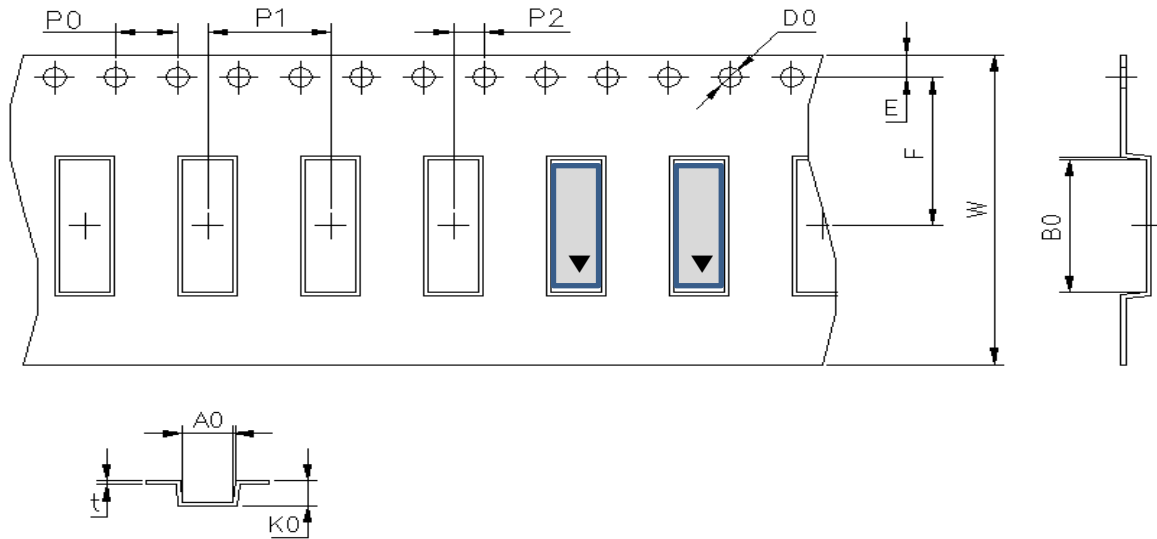
#### 5. Soldering Reflow Profile





## 6. Packaging

### 6.1 Carrier Tape Dimension



Item	Spec.	Item	Spec.	Item	Spec.
A0	3.30 ±0.10	P0	4.00 ±0.10	E	1.75 ±0.10
B0	10.30 ±0.10	P1	8.00 ±0.10	F	11.50 ±0.10
K0	1.65 ±0.10	P2	2.00 ±0.10	W	24.00 ±0.30
D0	1.55 ±0.05	-	-	t	0.30 ±0.05

### 6.2 Packaging Quantity

Item	Quantity	Dimension
Reel	4,000 ea	Φ13" * 24mm
Inner	8,000 ea (2 Reel)	350 * 350 * 90 (mm3)
Outer Box	24,000 ea (3 Inner Box)	390 * 390 * 280 (mm3)

### 6.3 Packaging Label

## AMOTECH Co., Ltd.

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

### Dielectric Chip Antenna

P/N : SHDA10312442B

Lot No :

Quantity : 4,000 pcs    Date : 2017/09/05