

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

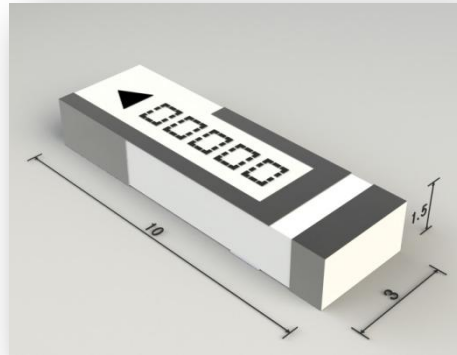
DATASHEET

Application

WLAN Dual-band(2.4GHz/5GHz)

Features

- PIFA structure
- Size (10.0*3.0*1.5mm³)
- Performance optimizing
with tuning the conductive pattern on the ceramic body
- 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
0.0	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 [Ω]	Nominal 50		

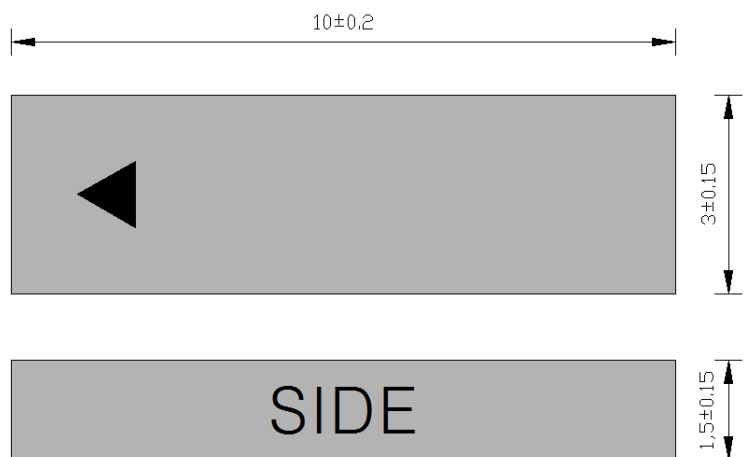
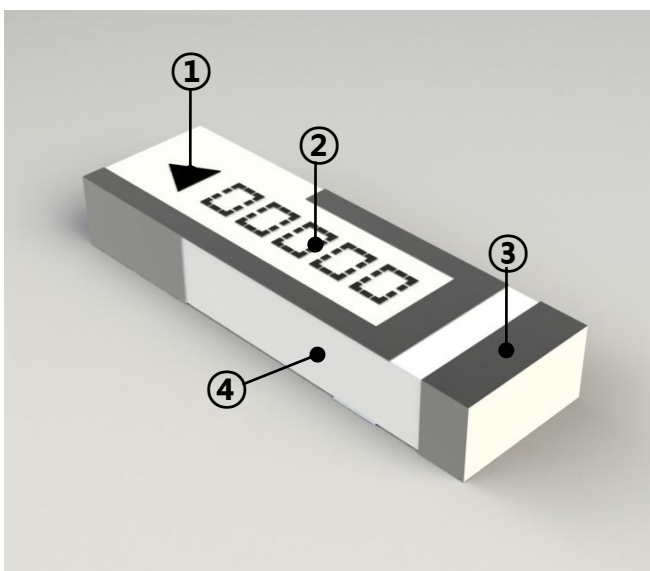
- ✓ The results are measured on the 100x50mm² evaluation board(EVB).
- ✓ See Page 6. for more detail gain parameter

1.2 Mechanical Specifications

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

1.3 Appearance & Material

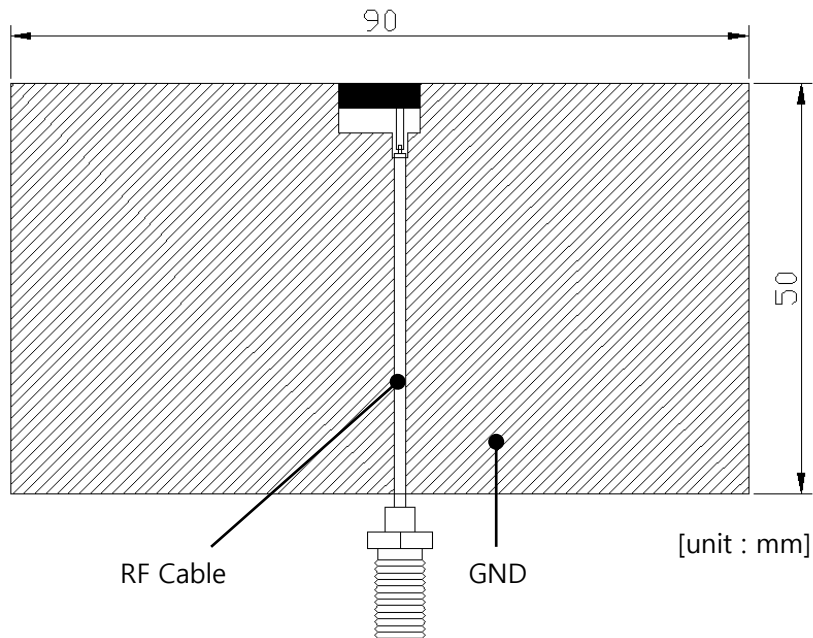
No	Item	Function	Material
①	Marking	Feeding Index	Ink
②	Marking	Week number	Ink
③	Electrode	Radiation Element	Ag
④	Ceramic Body	-	Ceramic



[unit : mm]

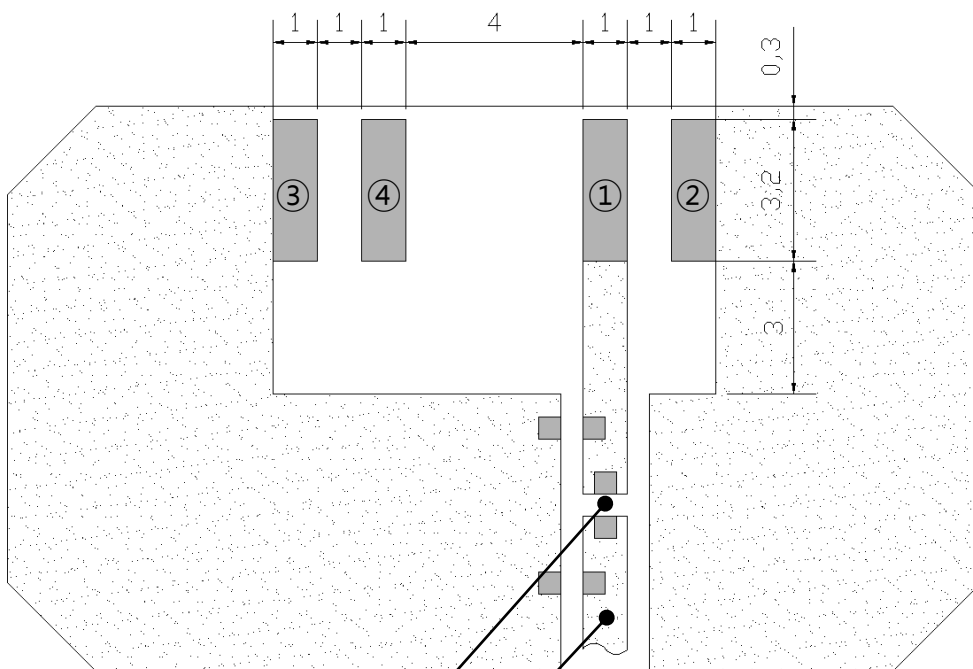
2. PCB Design for Test

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

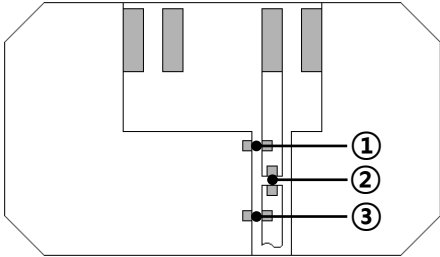
[unit : mm]

Matching Component

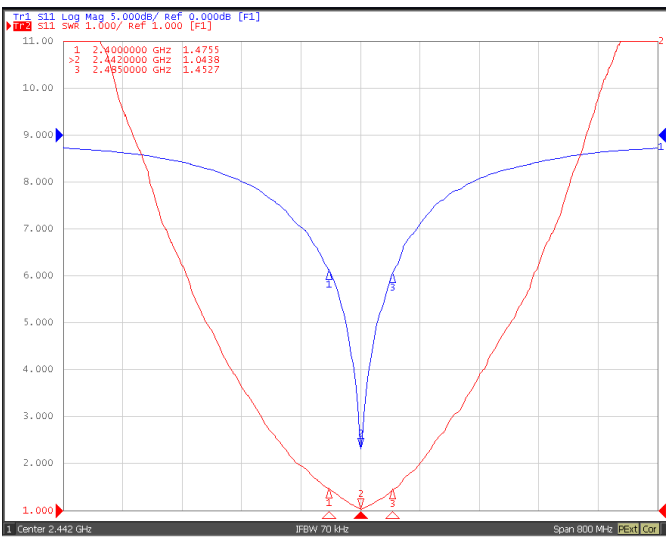
50 Ohm Feeding Line

3. Measurement Result

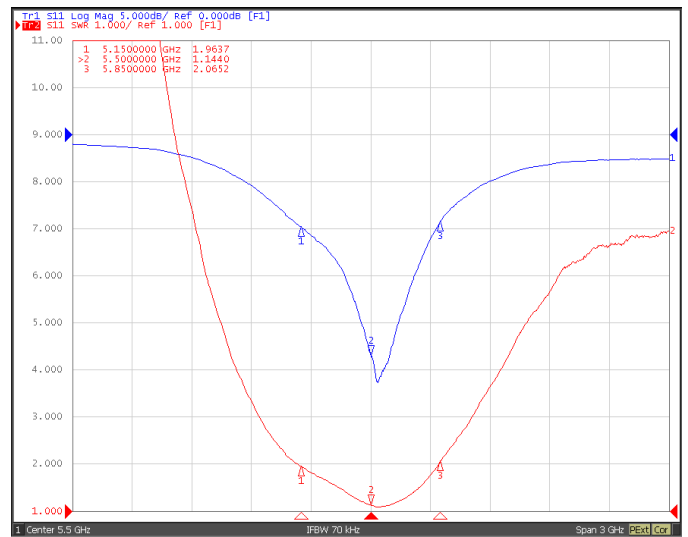
3.1 Typical Measurement Result (VSWR/RL, Smithchart)



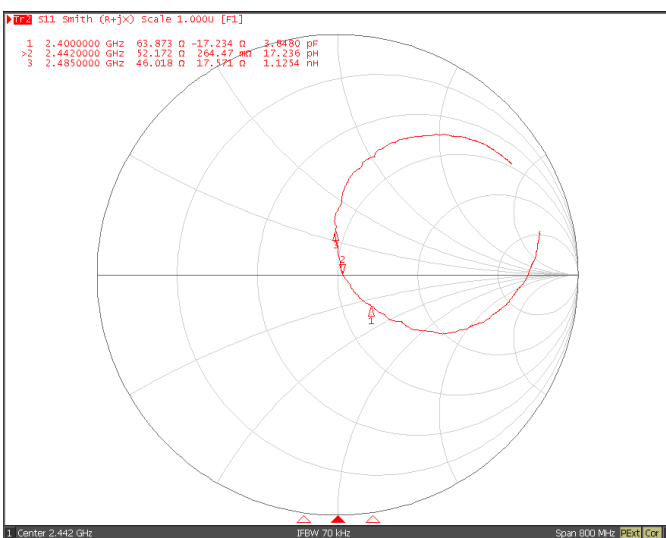
No	Matching Value
①	N/C
②	0Ω (100pF)
③	N/C



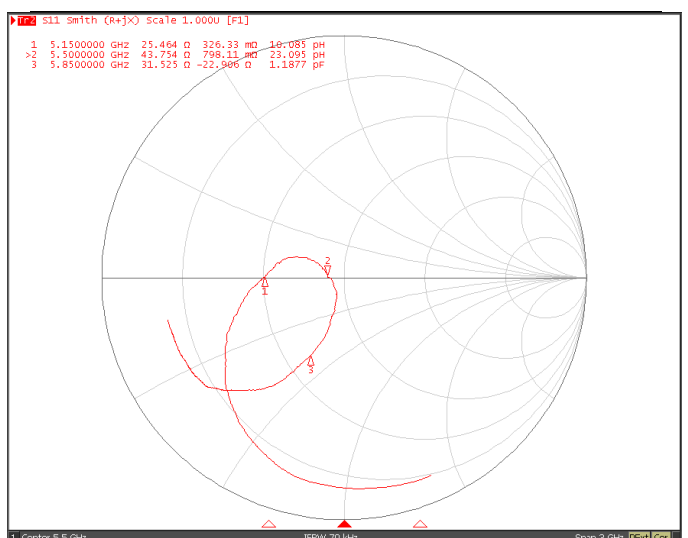
VSWR (2.442GHz)



VSWR (5.500GHz)



Smith Chart (2.442GHz)

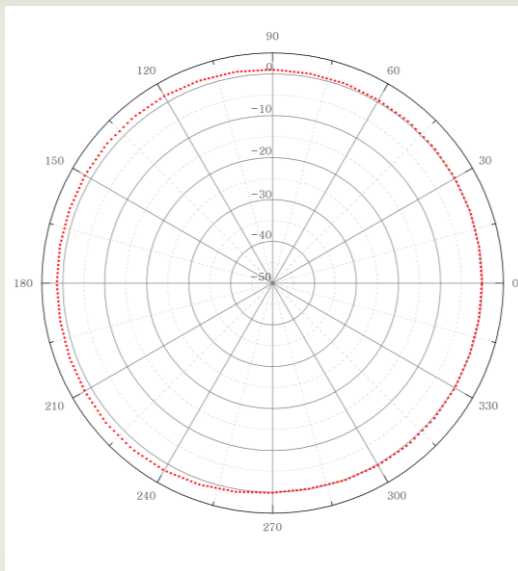
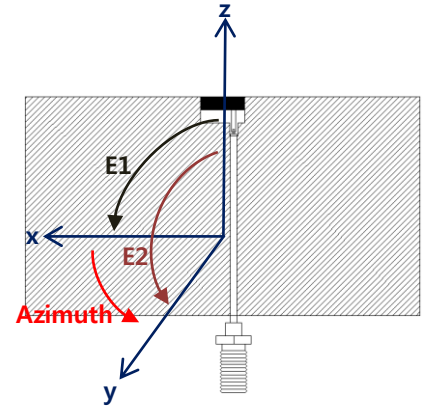


Smith Chart (5.500GHz)

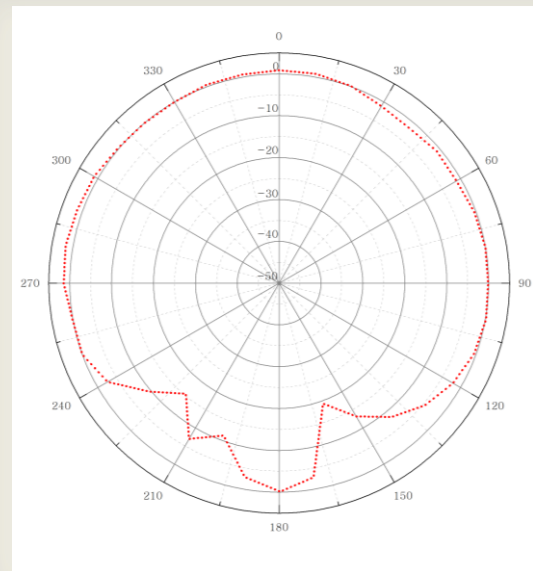
✓ The results are measured on the 90x50mm² evaluation board(EVB).

3.2 Typical Measurement Result (Gain, Radiation Pattern)

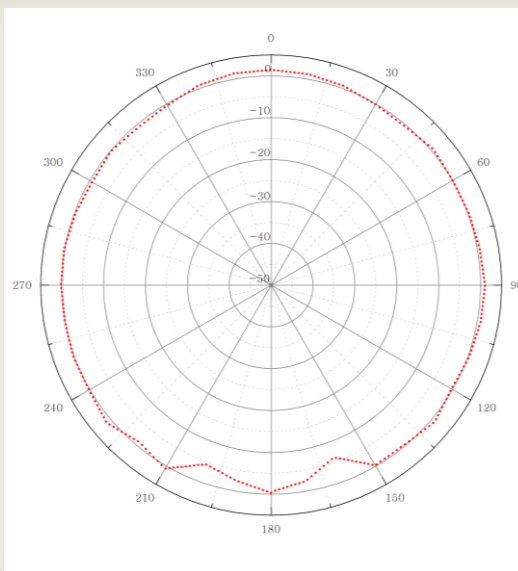
	Peak Gain (dBi)	Avg. Gain (dBi)	Efficiency(%)
Azimuth	1.88	0.9	92
Elevation 1	1.72	-1.08	
Elevation 2	1.39	-0.03	



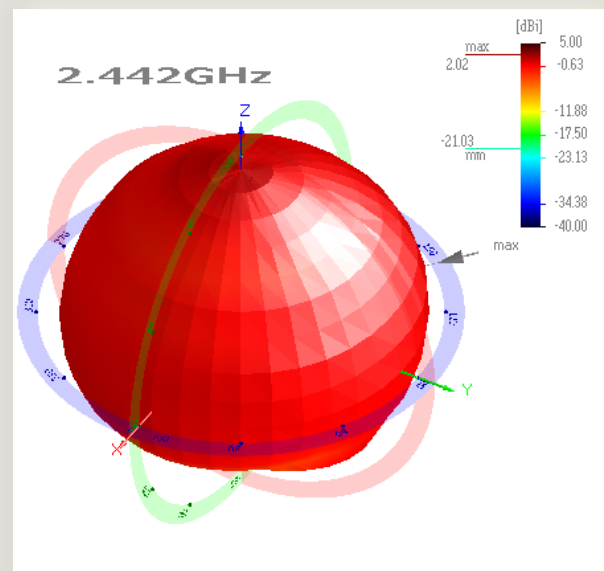
[Azimuth plane @2.442GHz]



[Elevation1 plane @2.442GHz]



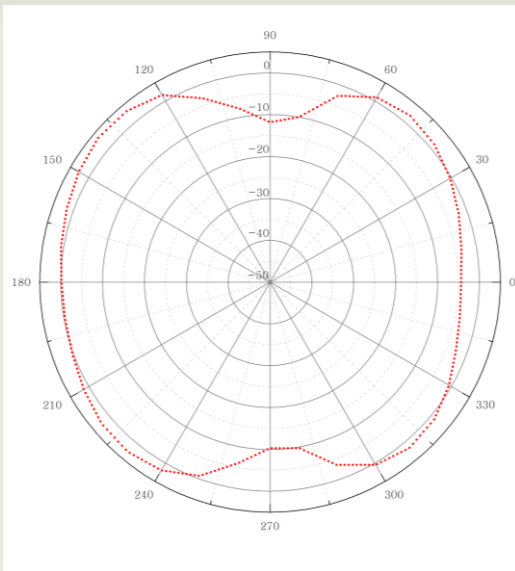
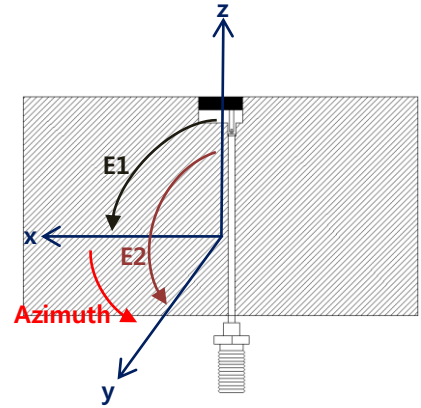
[Elevation2 plane @2.442GHz]



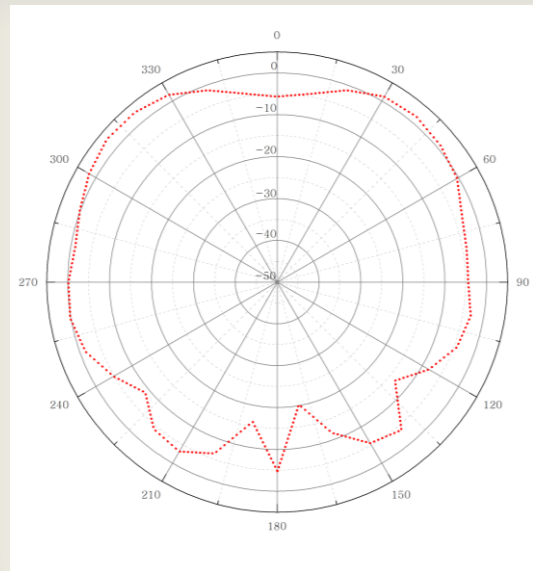
[3D Radiation Pattern]

3.2 Typical Measurement Result (Gain, Radiation Pattern)

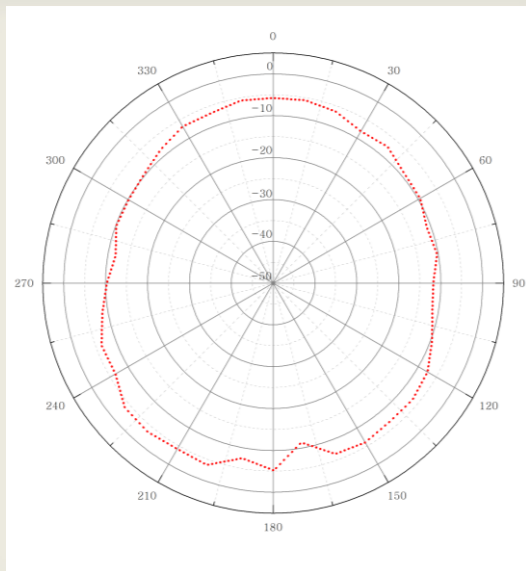
	Peak Gain (dBi)	Avg. Gain (dBi)	Efficiency(%)
Azimuth	3.60	-0.09	79
Elevation 1	3.08	-1.79	
Elevation 2	-3.52	-7.16	



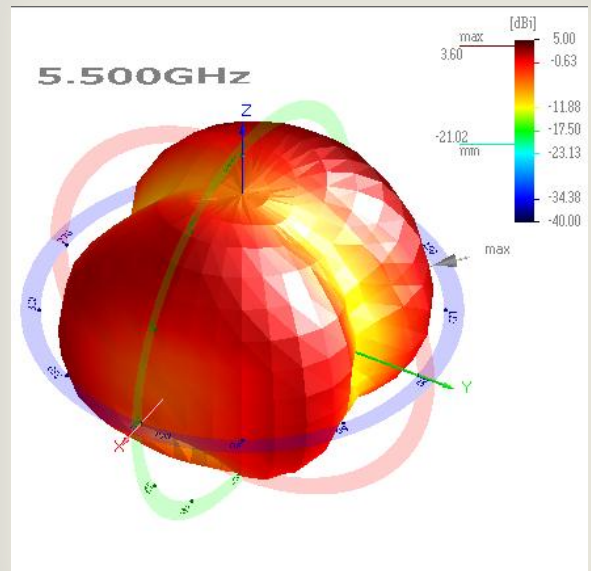
[Azimuth plane @5.5GHz]



[Elevation1 plane @5.5GHz]

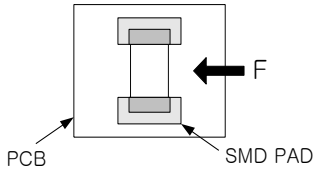


[Elevation2 plane @5.5GHz]

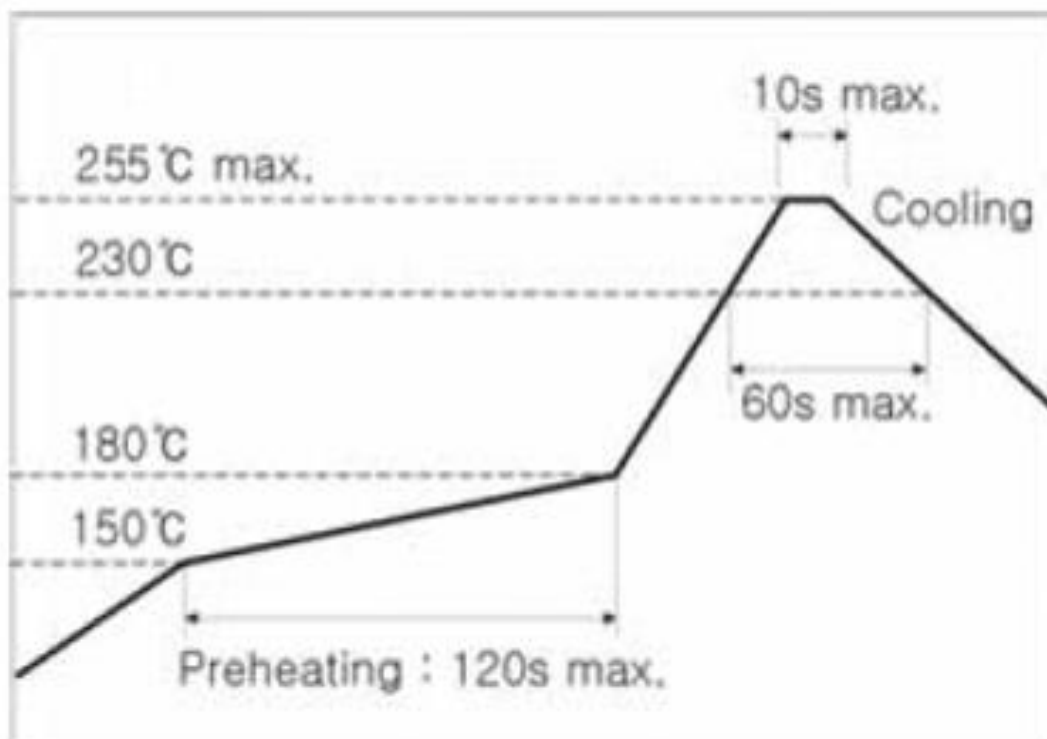


[3D Radiation Pattern]

4. Reliability

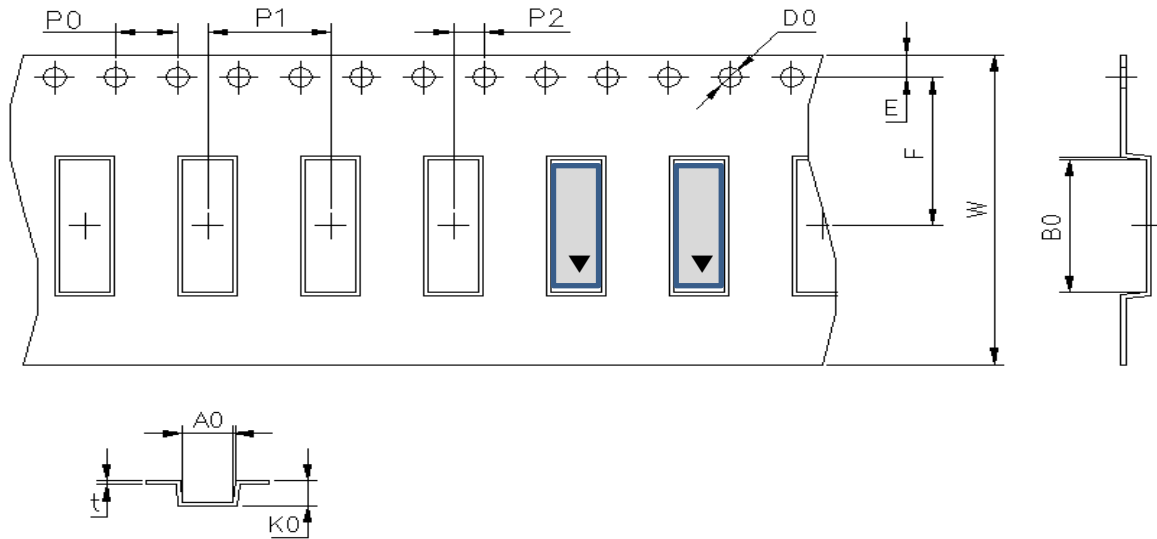
No	Item	Test Condition	Test Requirements
1	Adhesive Strength of Termination	1. Applied force on SMT chip till detached point from PCB. 	1. No mechanical damage by applied force 2. Strength (F) > 5 kgf
2	Thermal Shock (Cycle)	1. Step 1 : $-40 \pm 3^\circ\text{C}$, 30 min Step 2 : $+85 \pm 3^\circ\text{C}$, 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 ± 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	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