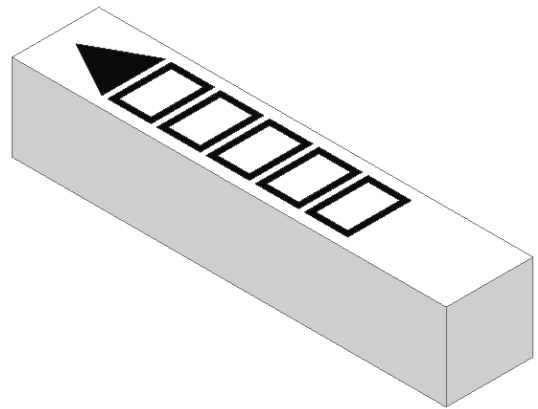


Document	Datasheet
Type	Dielectric Chip Antenna
Application	2.4 GHz
Part No.	AMAN1503030ST01
Revision	0

DATASHEET

Application

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



Features

PIFA structure
Size (15*3*3mm³)
Optimized for on-ground condition
SMT available under Pb-free condition
RoHS compliant

Automotive applications qualified (AEC-Q200)

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
	'23.10.10		Preliminary published	

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1. Specifications

1.1 Electrical Specifications

No	Item	Specification	Remark
1	Frequency Range [GHz]	2.4 ~ 2.485	
2	VSWR	Max 2 : 1	Non-GND
		Max 3 : 1	On-GND
3	Total Avg. Gain [dBi]	Typ. -1.20	
4	Efficiency [%]	Typ. 75	
5	Polarization	Linear	
6	Impedance [Ω]	Nominal 50	

✓ The results are measured on the 70 x 50mm² evaluation board(EVB).

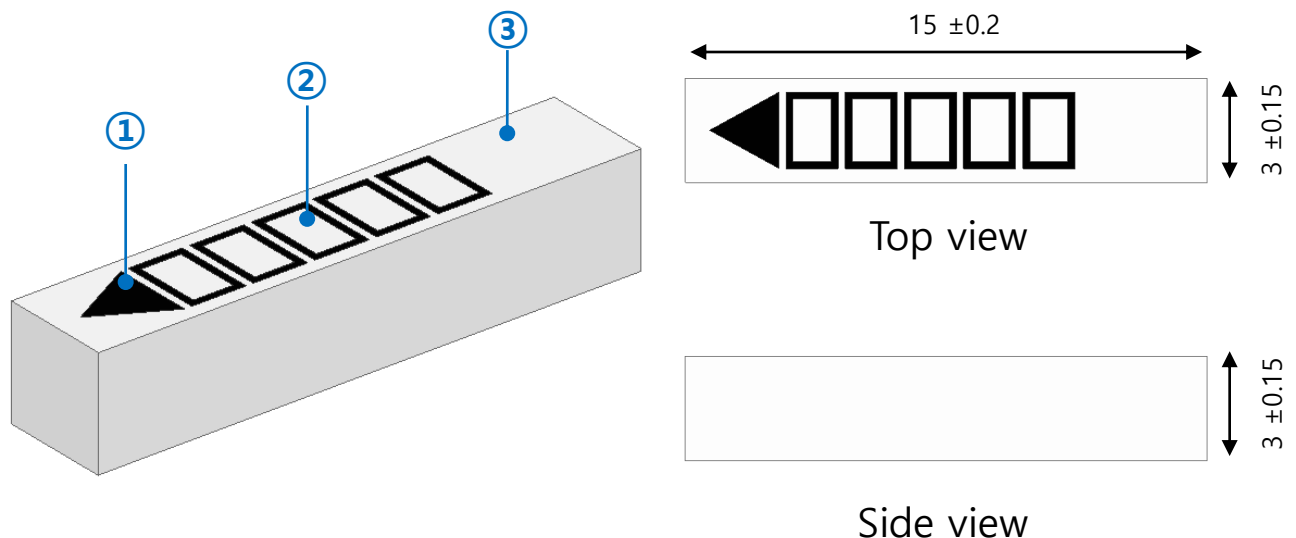
✓ See Page 6. for more detail gain parameter

1.2 Mechanical Specifications

No	Item	Spec.	Remark
1	Dimensions [L * W * H]	15.0 * 3.0 * 3.0 mm ³	
2	Unit Weight	typ. 0.45 g	
3	Operating Temperature	-40 ~ +125 °C	

1.3 Appearance & Material

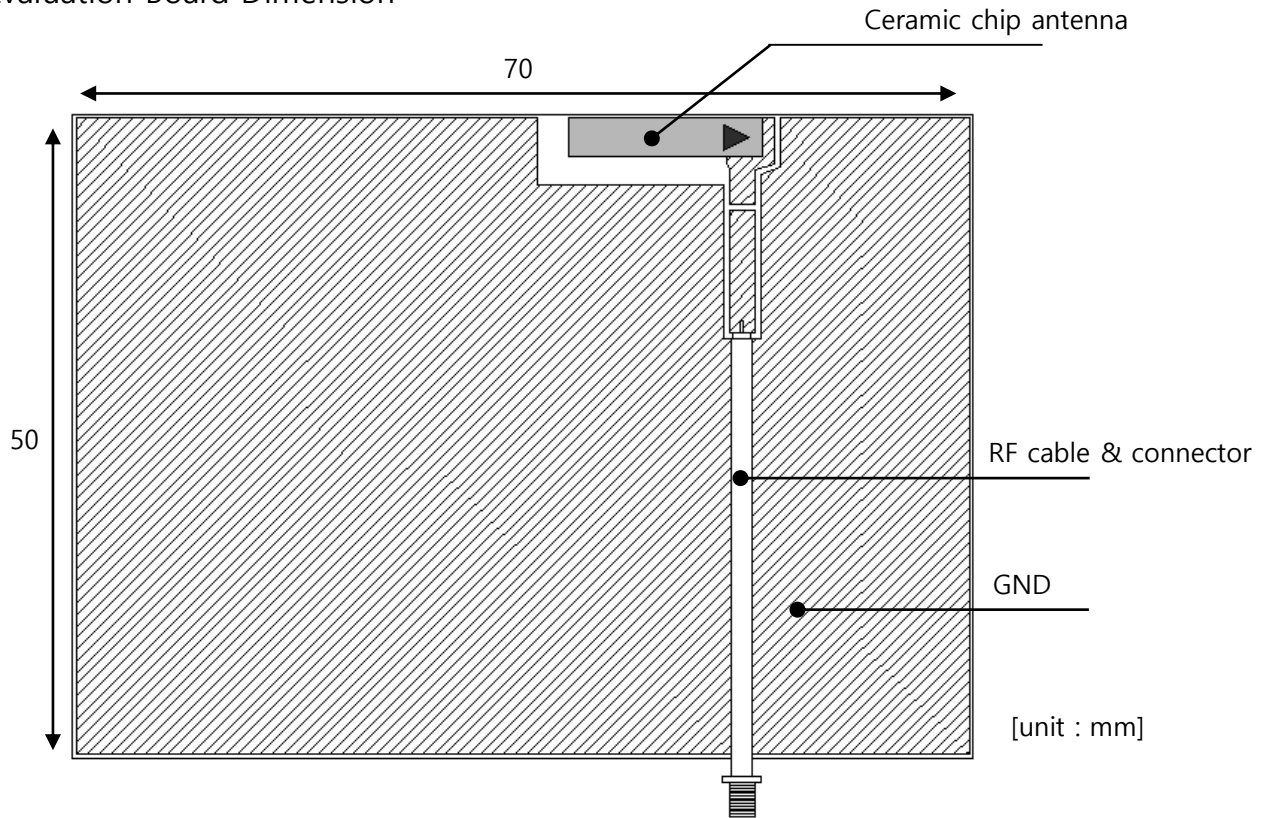
No	Item	Function	Material
①	Marking	Feeding Index	Ink
②	Marking	P/N & Week number	Ink
③	Ceramic Body	-	Ceramic



[unit : mm]

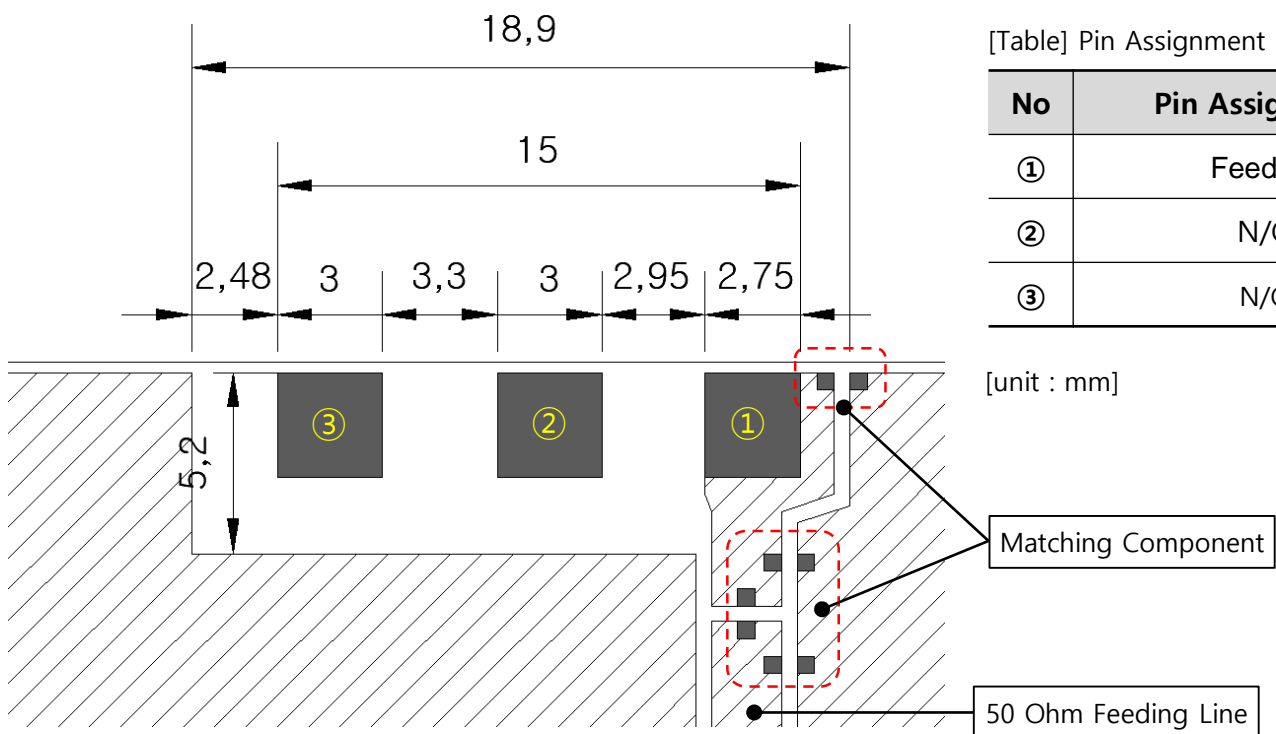
2. PCB Design for Test

2.1 Evaluation Board Dimension



✓ Evaluation board size ~ 70 x 50

2.2 PCB Design Guide



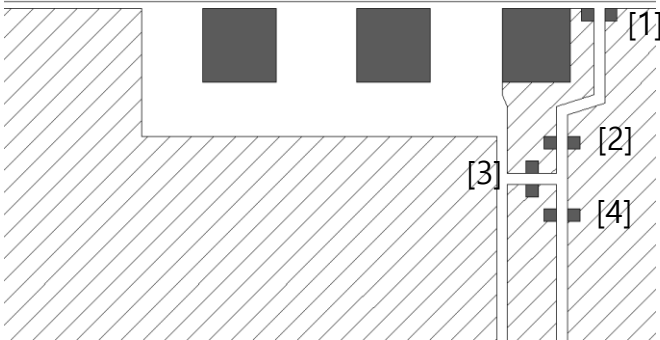
[Table] Pin Assignment

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

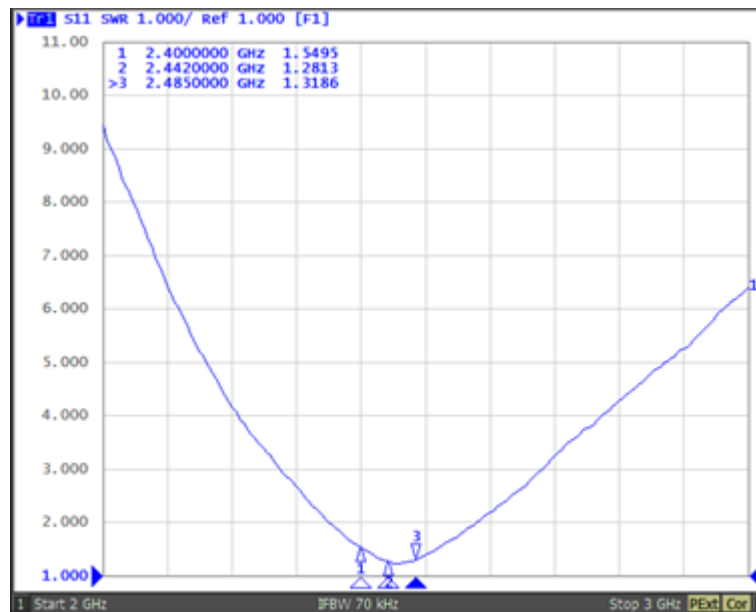
[unit : mm]

3. Measurement Result

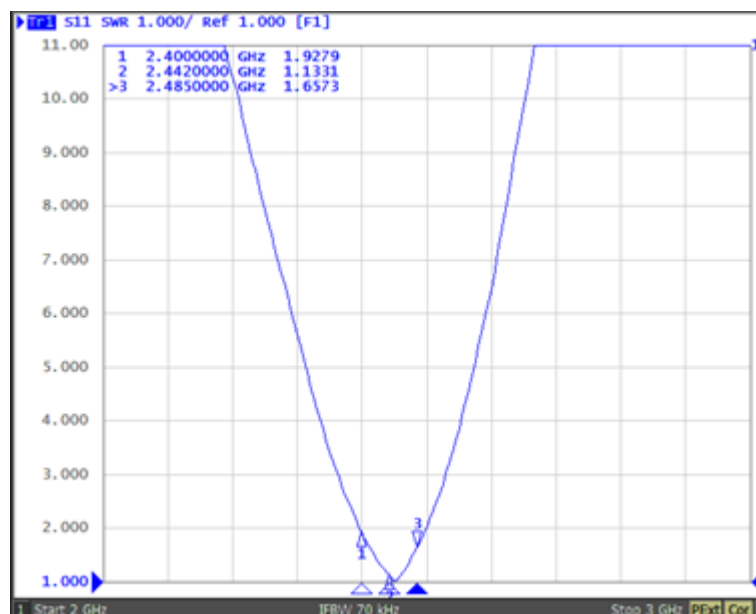
3.1 Typical Measurement Result (VSWR)



No	Matching Value	
	Non-GND	On-GND
[1]	0 ohm	0 ohm
[2]	N/C	N/C
[3]	100 pF	100 pF
[4]	N/C	1.5 pF



Measured VSWR with Non-GND condition

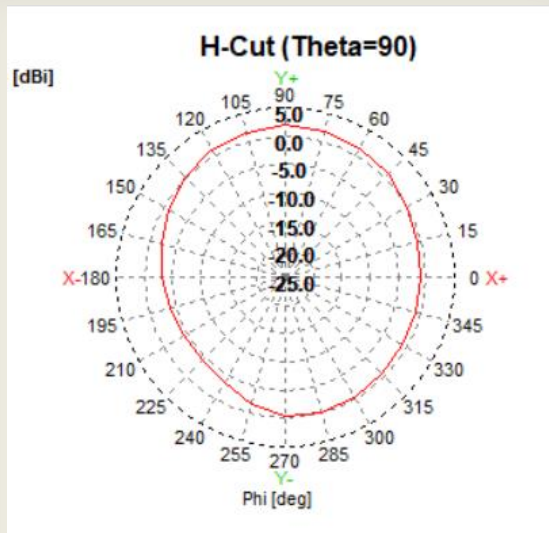
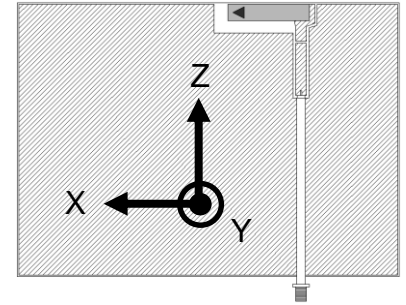


Measured VSWR with On-GND condition

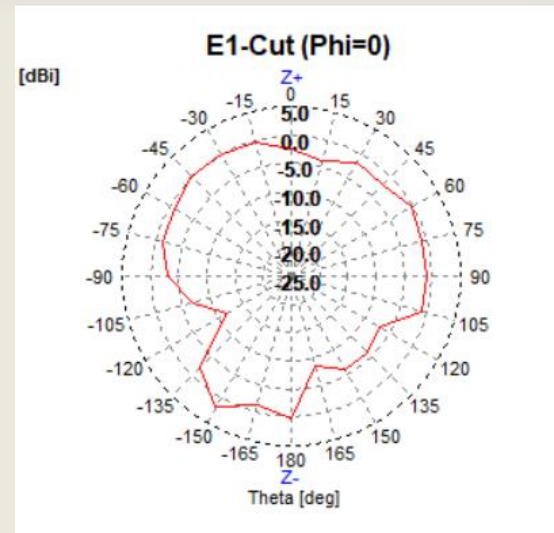
✓ The results are measured on the 70 x 50mm² evaluation board (EVB).

3.2 Typical Measurement Result of Non-GND type (Gain, Radiation Pattern)

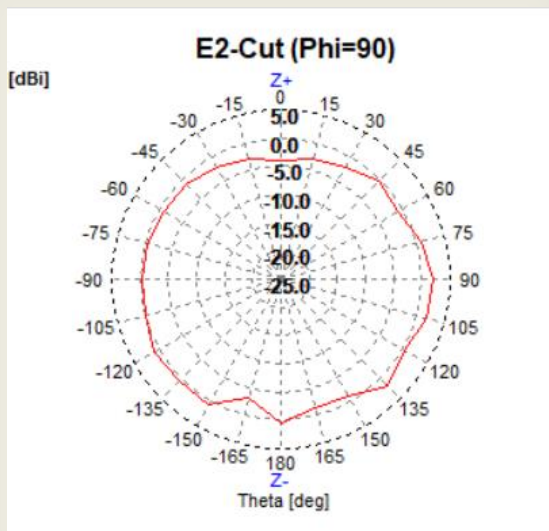
Frequency [MHz]	Peak Gain [dBi]	Avg. Gain [dBi]	Efficiency [%]
2400	73.74	-1.32	2.09
2442	80.73	-0.93	2.32
2485	75.48	-1.22	2.29



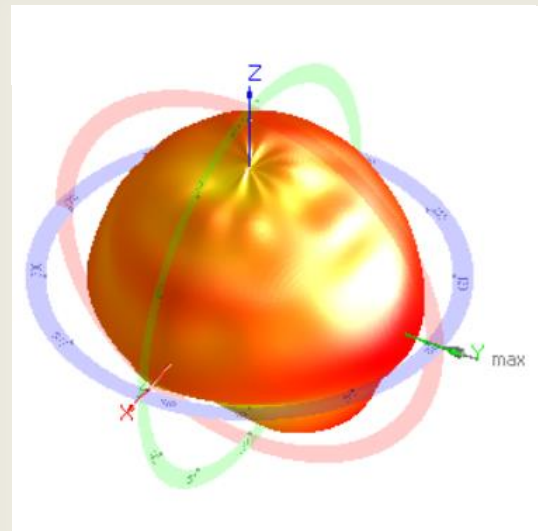
[Azimuth plane @2.442GHz]



[Elevation1 plane @2.442GHz]



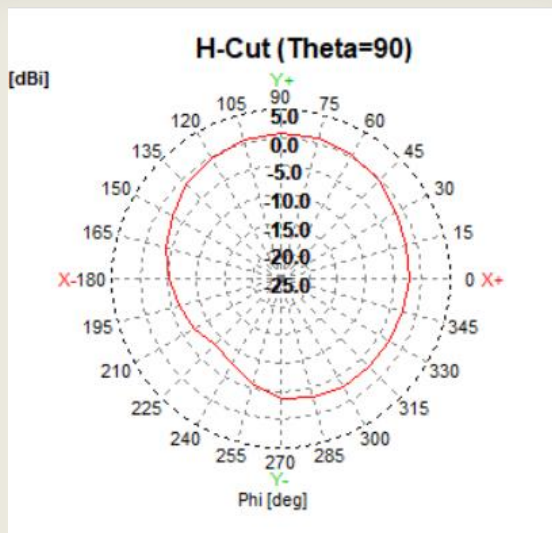
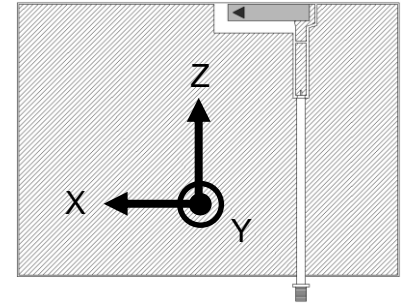
[Elevation2 plane @2.442GHz]



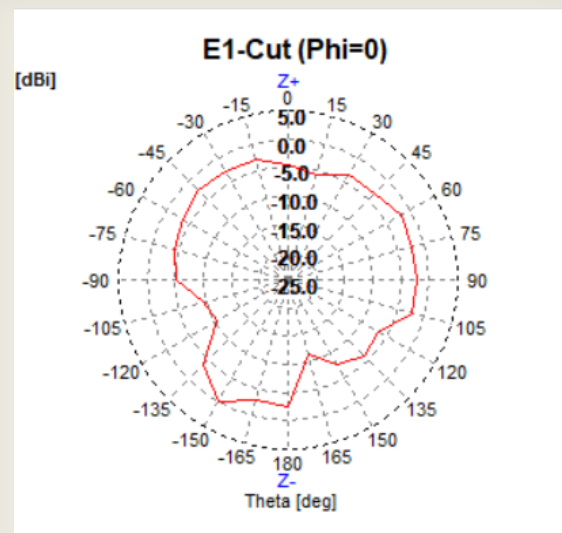
[3D Radiation Pattern]

3.3 Typical Measurement Result of On-GND type (Gain, Radiation Pattern)

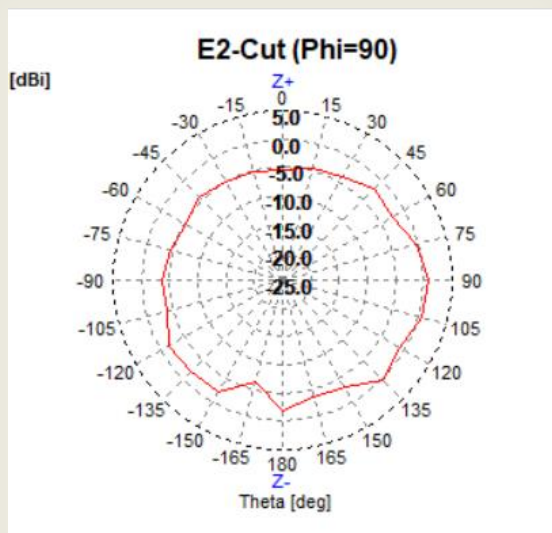
Frequency [MHz]	Peak Gain [dBi]	Avg. Gain [dBi]	Efficiency [%]
2400	55.43	-2.56	1.46
2442	69.58	-1.58	2.80
2485	58.58	-2.32	1.63



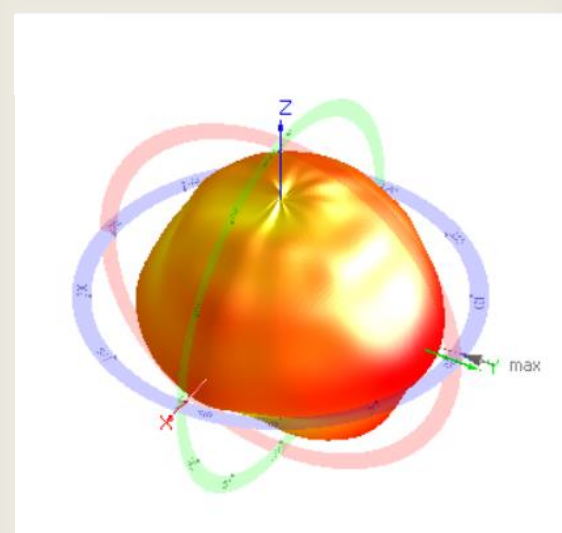
[Azimuth plane @2.442GHz]



[Elevation1 plane @2.442GHz]

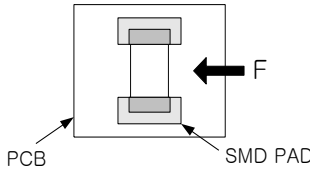


[Elevation2 plane @2.442GHz]



[3D Radiation Pattern]

4. Reliability

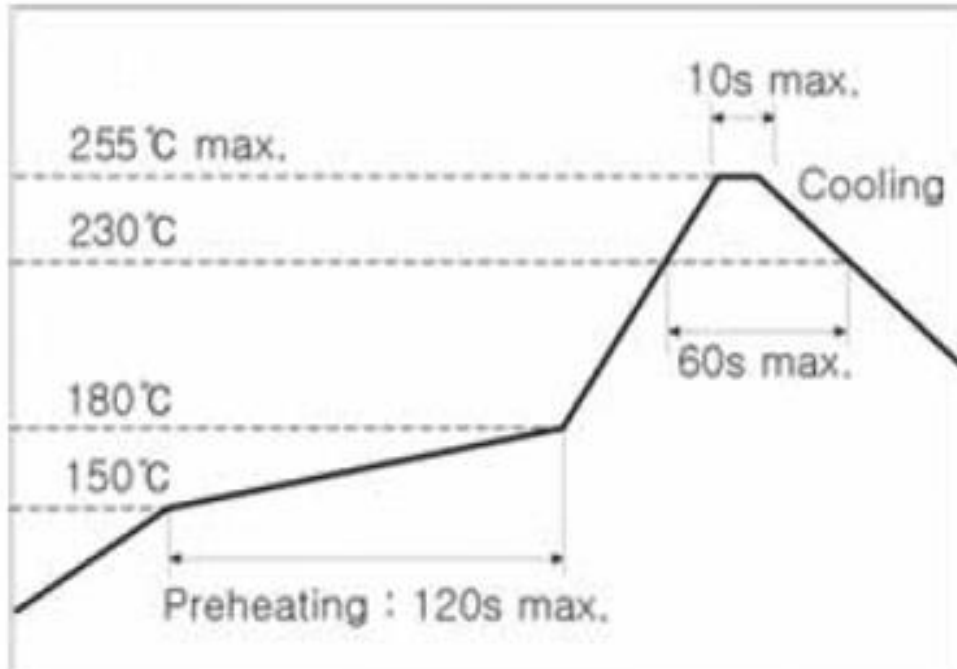
No	Item	Test Condition	Test Requirements
1	Adhesive Strength of Termination	1. Applied force on SMT chip till detached point from PCB. 	1. No mechanical damage by applied force 2. Strength (F) > 5 kgf
2	Temperature Cycling	1. Step 1 : $-40 \pm 3^{\circ}\text{C}$, 30 min Step 2 : $+125 \pm 3^{\circ}\text{C}$, 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	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	Vibration	1. 10-2000 Hz, Amp 1.5 mm, 5 g, 20 min 2. 12 cycles each of 3 orientations	1. No visual damage 2. Within electric spec (VSWR)
6	Resistance to Solvents	1. Dipping glass cleaner 2. 2 hrs	1. Cracks, peeling, and damage should not occur
7	Resistance to Soldering Heat	1. Reflow simulation 260°C 2. 10 sec	1. No visual damage 2. Within electric spec (VSWR)
8	Solderability	1. Dipping $245 \pm 5^{\circ}\text{C}$ 2. 5 sec	1. More than 95% lead on SMT area
9	Board Flex	1. 2mm, 60 sec	1. Cracks should not occur
10	ESD	1. 8 KV, Contact discharge 2. 100 times	1. No visual damage 2. Within electric spec (VSWR)
11	Mechanical Shock	1. 100 g, 6 ms 2. 3 times each of orientations	1. No visual damage 2. Within electric spec (VSWR)

※ Reliability test items and conditions are subject to change by customer request.

5. Cautions (Recommendations)

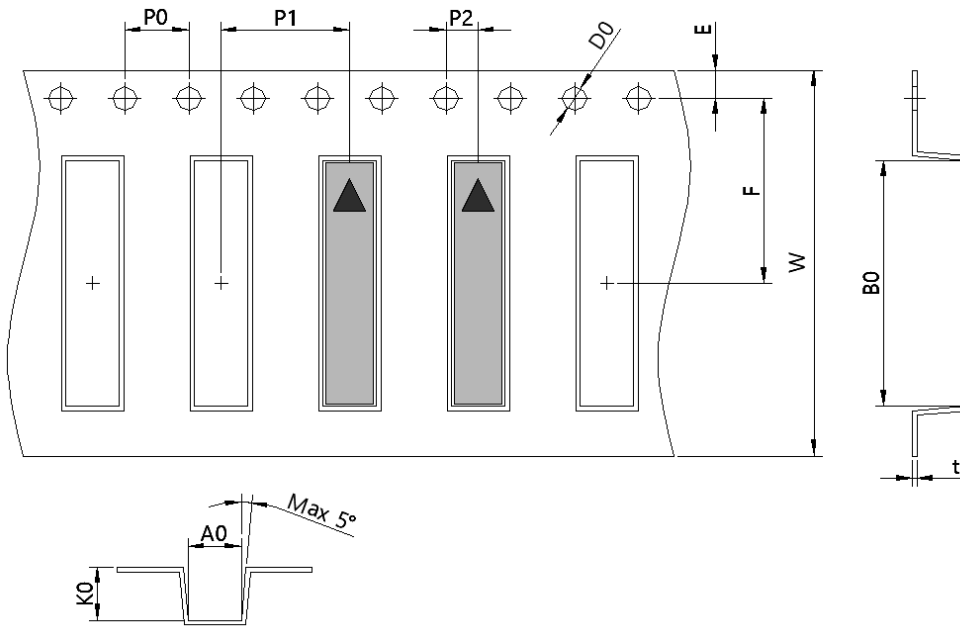
- ✓ Storage environment of parts must be at ambient temperatures of 5 to 40°C and maximum 60%RH humidity
- ✓ The parts should be used within 6 months from the time of delivery. If stored for over 6 months, check for solder ability before use.

6. Soldering Reflow Profile



7. Packaging

7.1 Carrier Tape Dimension



Item	Spec.	Item	Spec.	Item	Spec.
A0	3.30 ±0.10	P0	4.00 ±0.10	E	1.75 ±0.10
B0	15.30 ±0.10	P1	8.00 ±0.10	F	11.50 ±0.10
K0	3.30 ±0.10	P2	2.00 ±0.10	W	24.00 ±0.30
D0	1.50 -0.00 / +0.10	10*P0	10*P0 ±0.20	T	0.30 ±0.10

7.2 Packaging Quantity

Item	Quantity	Dimension
Reel	1,000 ea	Φ13" * 24mm
Inner	1,000 ea (1 Reel)	350 * 350 * 90 (mm3)
Outer Box	3,000 ea (3 Inner Box)	390 * 390 * 280 (mm3)

7.3 Packaging Label

AMOTECH Co., Ltd.

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

Dielectric Chip Antenna

P/N : AMAN1503030ST01

Lot No :

Quantity : 1,000 pcs Date : 2023/10/10