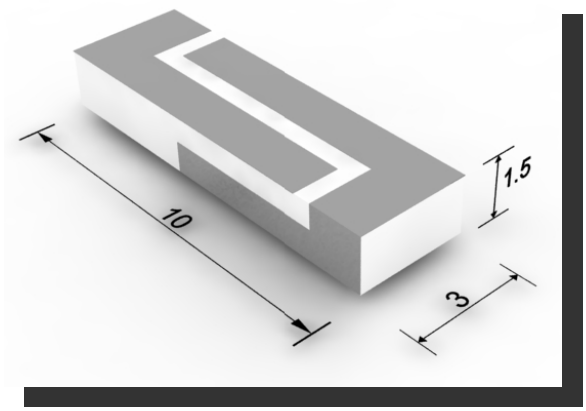
AMOTECH Co., Ltd.

| Document | Datasheet |
|---|---|
| Type | Dielectric Chip Antenna |
| Application | 1575.42 & 1592~1610MHz |
| Part No. | AMAN1003015ST03 |
| Revision | 0.0 |

# DATASHEET




## Application

GPS(1575.42 MHz) &
Glonass (1592~1610 MHz)

## Features

PIFA Structure
Size (10.0*3.0*1.5mm$^3$)
Performance Optimizing
with tuning the conductive pattern on the ceramic body
SMT Available under Pb-free Condition
RoHS Compliant

□ It needs tuning process for customer's device.

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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 | ’11.02.08 | | New Published | |
| | | | | |
| | | | | |
| | | | | |

## Table of Content

# 1. Specifications

## 1.1 Electrical Specifications

| No | Item | Spec. | | Remark |
|---|---|---|---|---|
| 1 | Frequency Range [MHz] | 1575.42 ± 1 | 1592 ~ 1610 | |
| 2 | VSWR | Max 3.0:1 | Max 3.0:1 | |
| 3 | Peak Gain [dBi] | typ. 2.8 | typ. 2.2 | |
| 3 | Total Avg. Gain [dBi] | typ. -0.7 | typ. -1.1 | |
| 4 | Efficiency [%] | typ. 85 | typ. 77 | |
| 5 | Polarization | Linear | | |
| 6 | Impedance [Ω] | Nominal 50 | | |

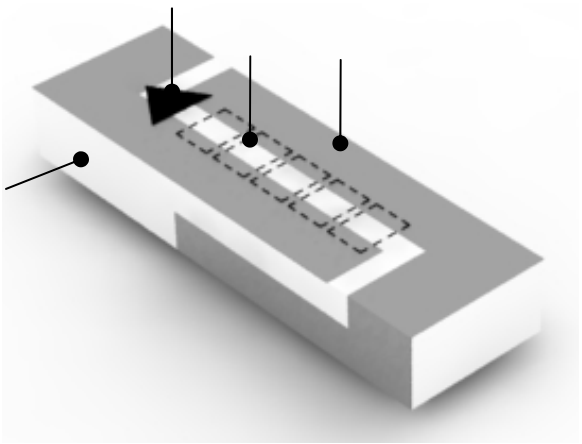
✓ The results are measured on the 80x40mm$^2$ evaluation board(EVB).
✓ See Page 6. for more detail gain parameter

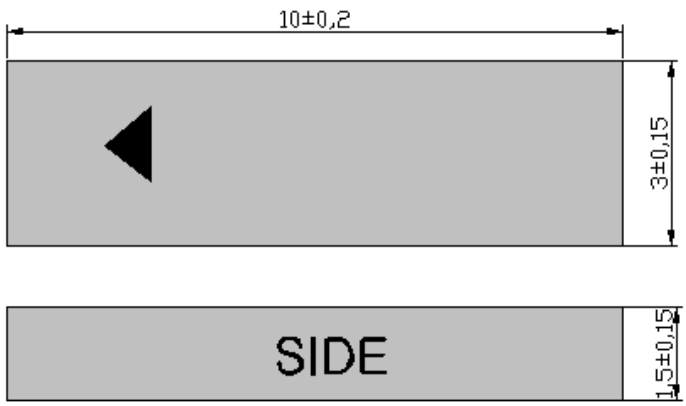
## 1.2 Mechanical Specifications

| No | Item | Spec. | Remark |
|---|---|---|---|
| 1 | Dimensions (LxWxH) | 10.0x3.0x1.5 mm$^3$ | |
| 2 | Unit Weight | typ. 110 mg | |
| 3 | Operating Temperature | -35 ~ +85 □ | |

## 1.3 Appearance & Material

| No | Item | Function | Material |
|---|---|---|---|
| 1 | Marking | Feeding Index | Ink |
| 2 | Marking | P/N, Year, Month, Day | Ink |
| 3 | Electrode | Radiation Element | Ag |
| 4 | Ceramic Body | - | Ceramic |

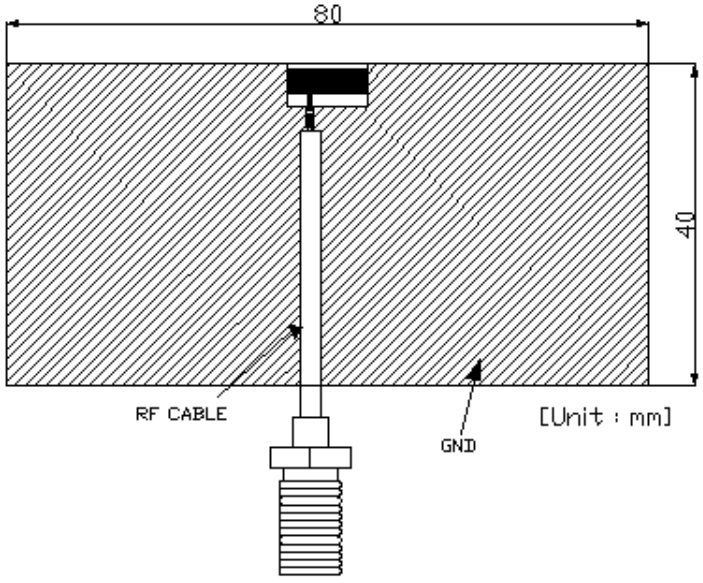





[unit : mm]

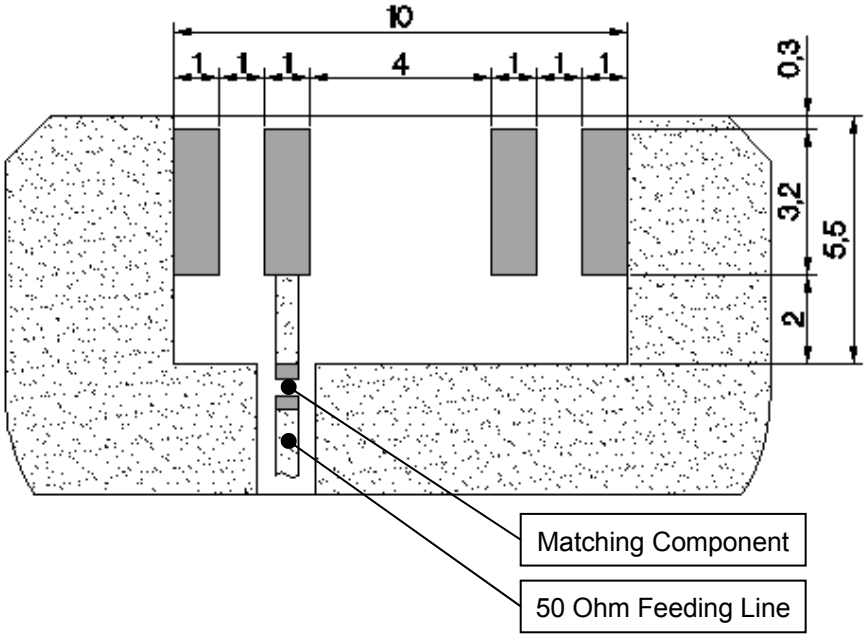
## 2. PCB Design for Test

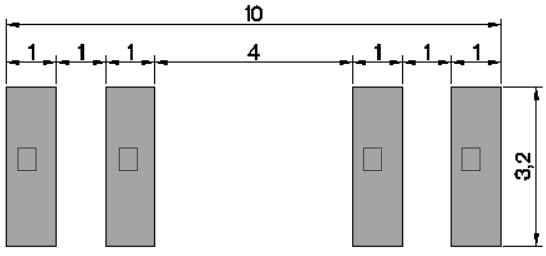
### 2.1 Evaluation Board Dimension




✓ Evaluation board size ~ 80x40
✓ Fill Cut Area (GND Clearance) ~ 10x5.5

### 2.2 PCB Design Guide



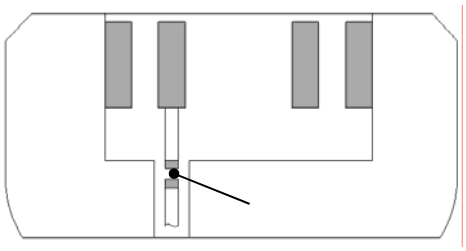

[PCB Solder Land]

| No | Pin Assignment |
|---|---|
| | Feeding |
| | GND |
| | Dummy |
| | GND |

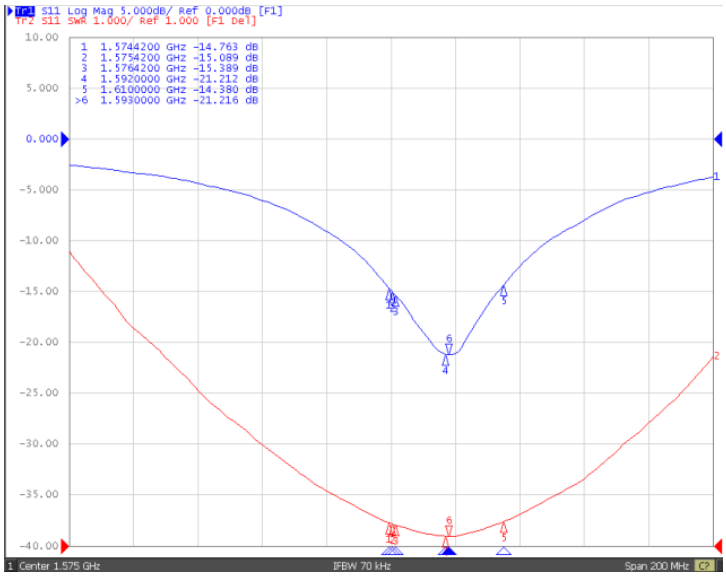
[unit : mm]

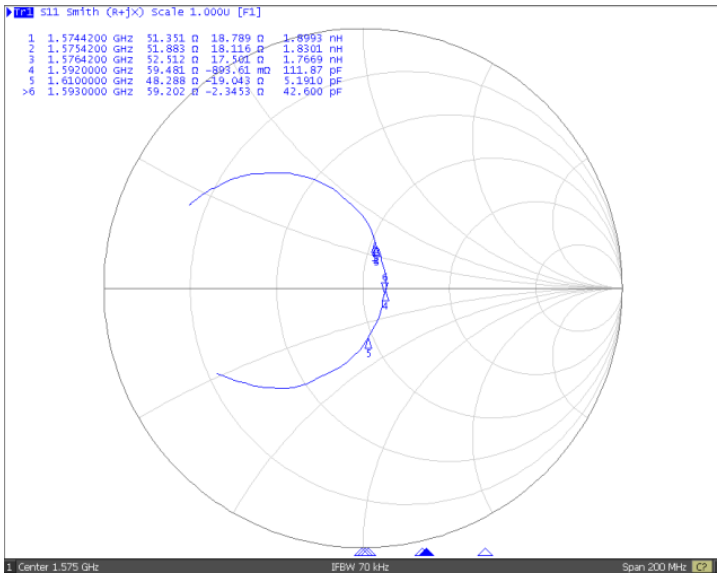
## 3. Measurement Result

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



| No | Matching Value |
|---|---|
| | 100 pF |

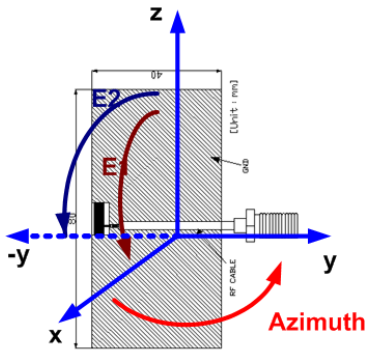


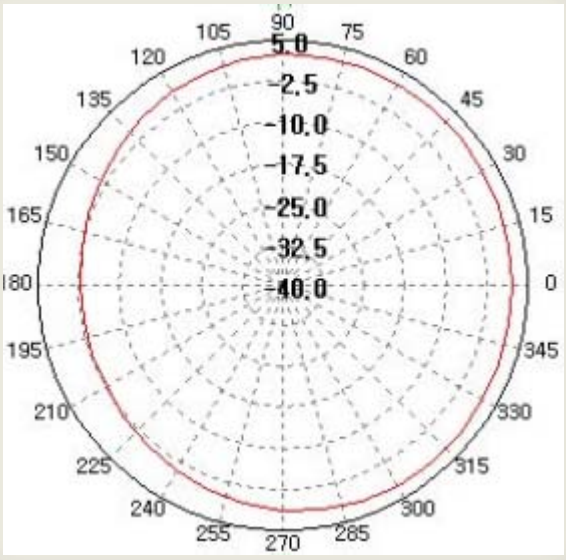




✓ The results are measured on the 80x40mm$^2$ evaluation board(EVB).

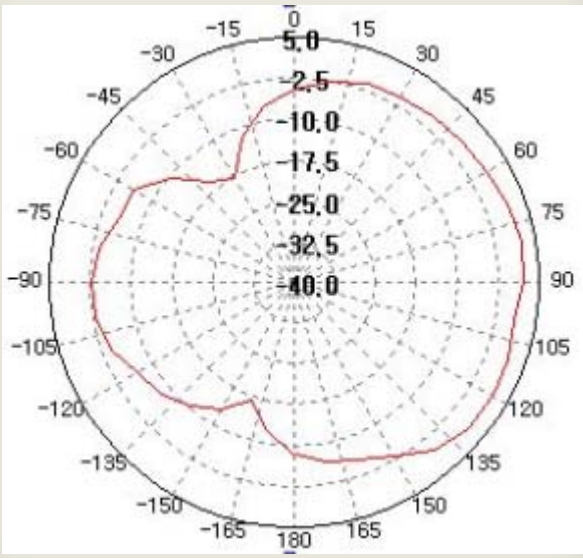
## 3.2 Typical Measurement Result (Gain, Radiation Pattern)

| | Peak Gain (dBi) | Avg. Gain (dBi) | Efficiency(%) |
|---|---|---|---|
| Azimuth | 2.55 | 1.11 | 85.1 |
| Elevation 1 | 2.47 | -2.13 | |
| Elevation 2 | 2.35 | -1.15 | |

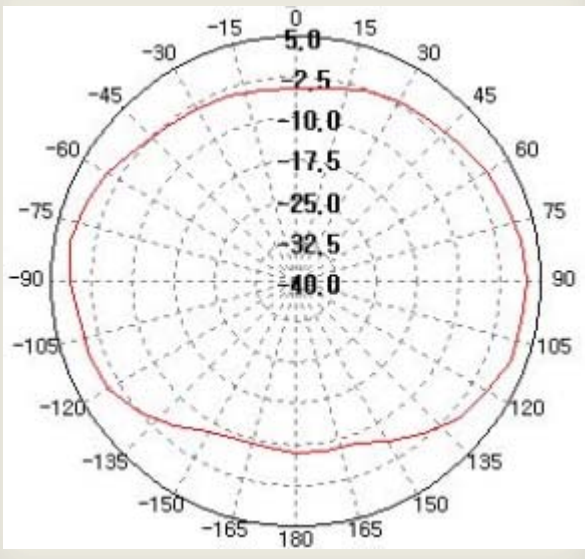


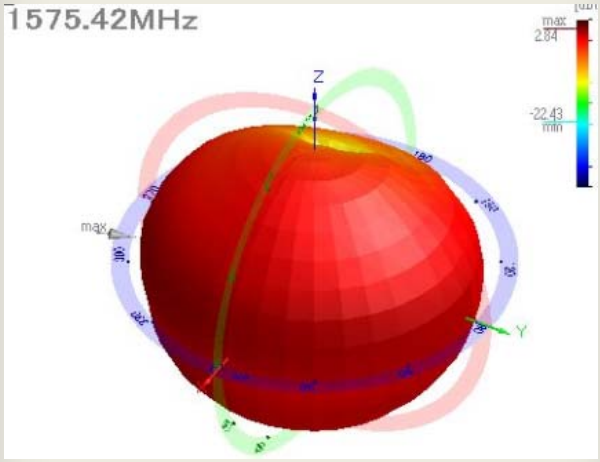

[Azimuth plane @1575.42 MHz ]




[Elevation1 plane @ 1575.42 MHz ]



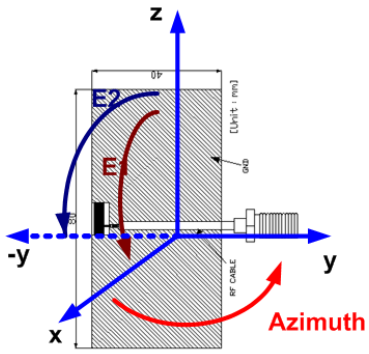

[Elevation2 plane @ 1575.42 MHz ]

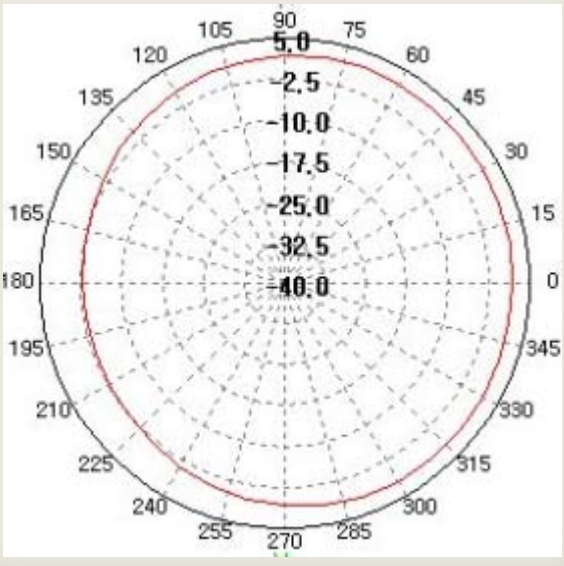



[3D Radiation Pattern]

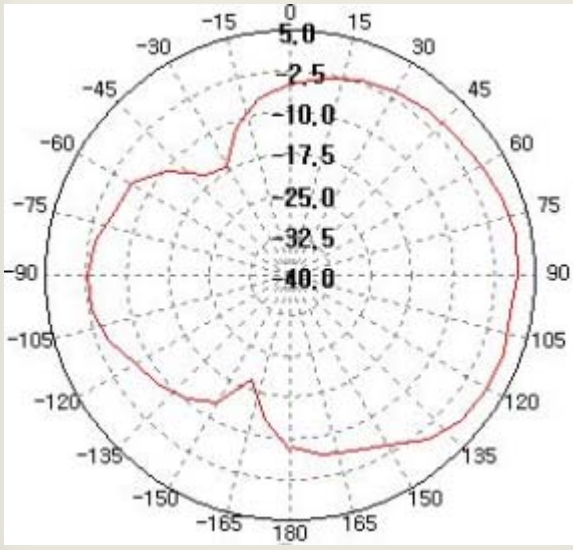
## 3.2 Typical Measurement Result (Gain, Radiation Pattern)

| | Peak Gain (dBi) | Avg. Gain (dBi) | Efficiency(%) |
|---|---|---|---|
| Azimuth | 2.05 | 0.70 | 77.8 |
| Elevation 1 | 1.99 | -2.51 | |
| Elevation 2 | 1.88 | -1.56 | |

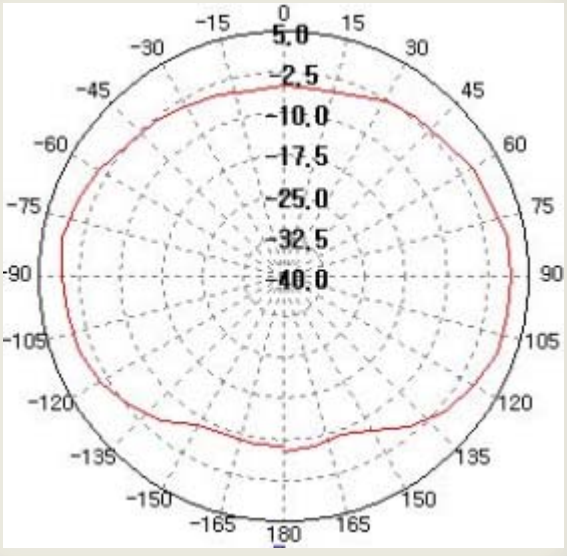


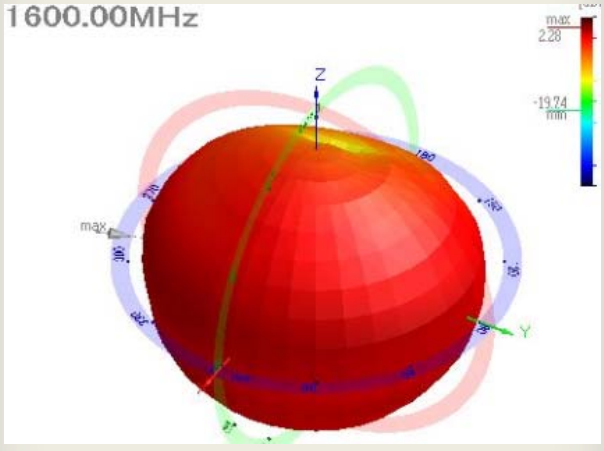

[Azimuth plane @1.600GHz ]




[Elevation1 plane @1.600GHz ]

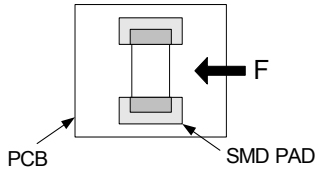



[Elevation2 plane @1.600GHz ]

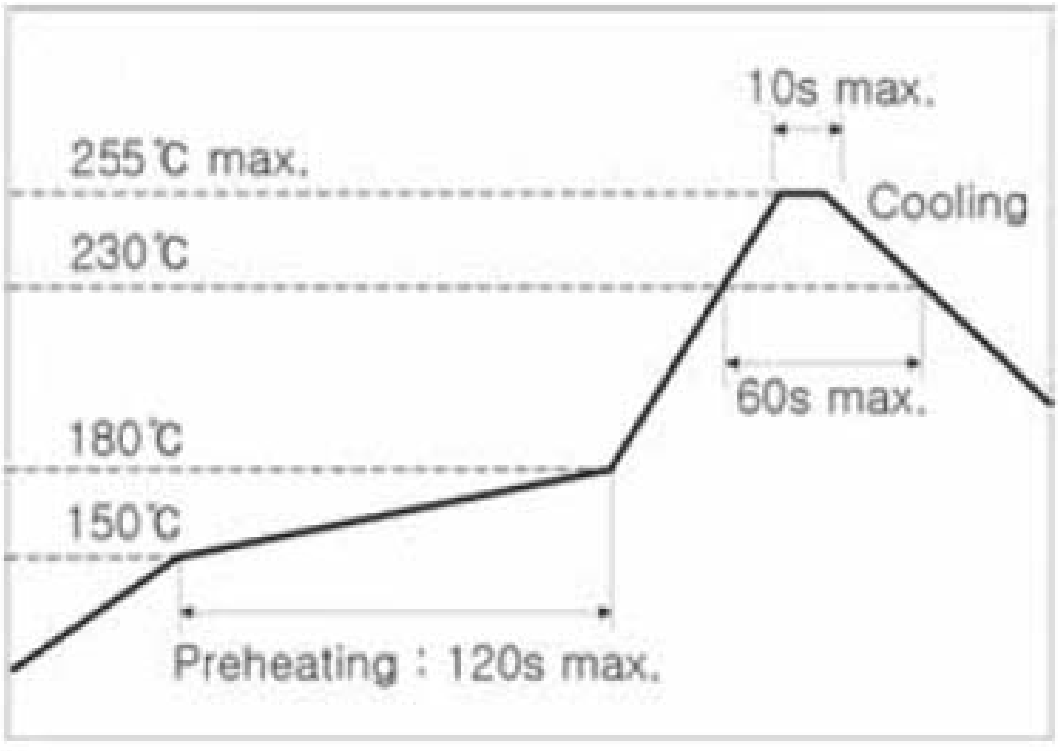



[3D Radiation Pattern]

## 4. Reliability

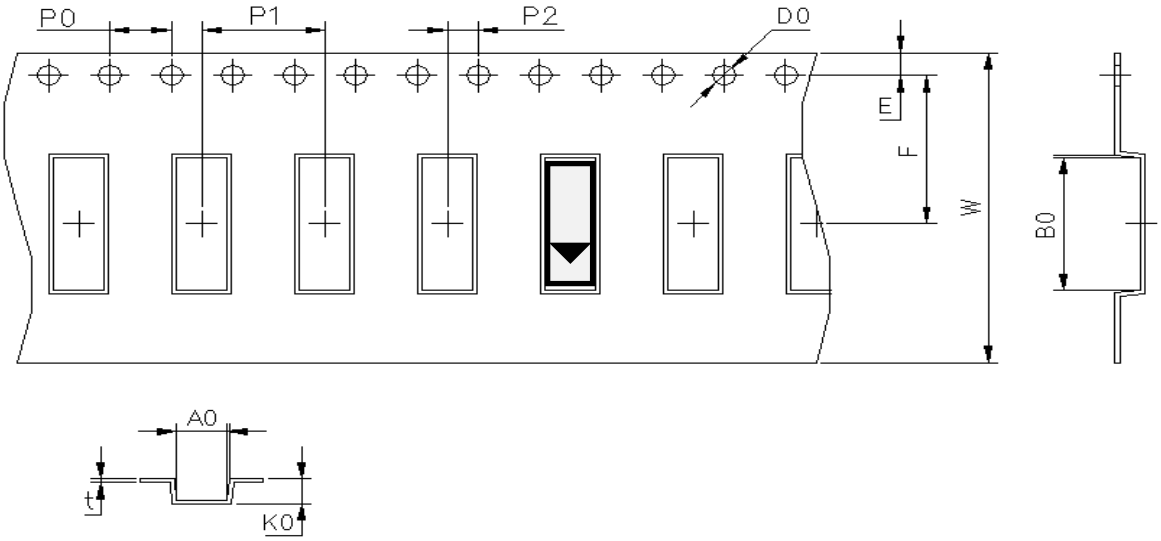
| No | Item | Test Condition | Test Requirements |
|---|---|---|---|
| 1 | Adhesive Strength of Termination | 1. Applied force on SMT chip till detached point from PCB.<br>  | 1. No mechanical damage by forces applied on the right.<br>2. Strength (F) > 7 kgf |
| 2 | Thermal Shock (Cycle) | 1. Step 1 : -40 ± 3□, 30 min<br>Step 2 : +125 ± 3□, 30 min<br>2. Number of cycle : 30 | 1. No visual damage<br>2. Within electric spec (VSWR) |
| 3 | High Temperature Resistance | 1. Temperature : +125 ± 5□<br>2. Time : 1000 ± 24 hrs | 1. No visual damage<br>2. Within electric spec (VSWR) |
| 4 | Low Temperature Resistance | 1. Temperature : -40 ± 5□<br>2. Time : 1000 ± 24 hrs | 1. No visual damage<br>2. Within electric spec (VSWR) |
| 5 | Humidity | 1. Humidity : 85 % RH<br>Temperature : +85 ± 3□<br>2. Time : 1000 ± 24 hrs | 1. No visual damage<br>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 : AMAN1003015ST03

Lot No :

Quantity : 4,000 pcs Date : 2011/02/08