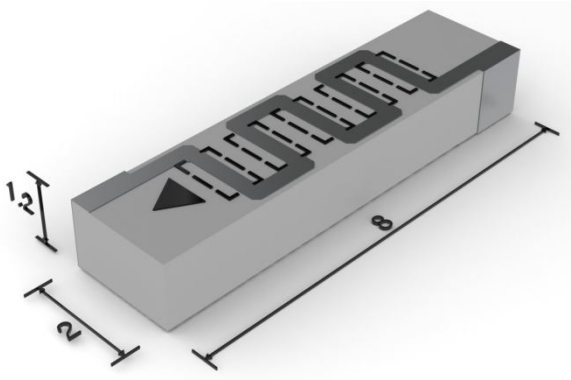
| Document | Datasheet |
|---|---|
| Type | Dielectric Chip Antenna |
| Application | 2.442 GHz |
| Part No. | AMAN802012MS02 |
| Revision | 0.0 |

# DATASHEET




## Application

Bluetooth ( 2.442 GHz )

## Features

PIFA structure
Size (8.0*2.0*1.2mm$^3$)
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 | 2012. 08. 16 | | New Published | |
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# 1. Specifications

## 1.1 Electrical Specifications

| No | Item | Spec. | Remark |
|---|---|---|---|
| 1 | Frequency Range [GHz] | 2.400 MHz ~2.485 MHz | |
| 2 | VSWR | Max 2.5:1 | |
| 3 | Avg. Gain [dBi] | typ. -2.19 | |
| 4 | Efficiency [%] | typ. 60.44 | |
| 5 | Polarization | Linear | |
| 6 | Impedance [Ω] | Nominal 50 | |

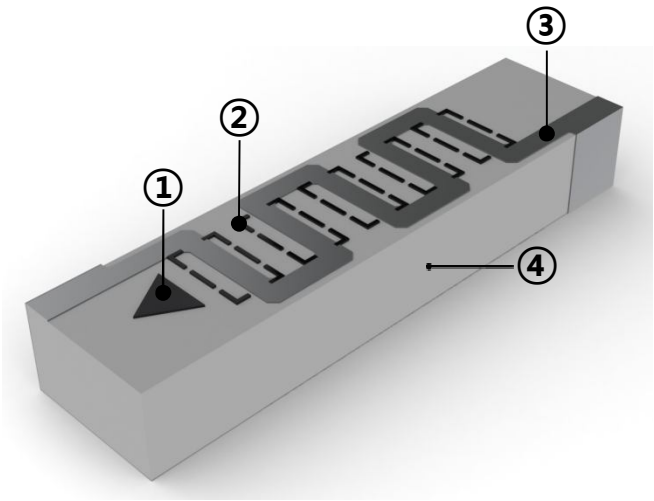
✓ The results are measured on the 100x50mm$^2$ evaluation board(EVB).
✓ See Page 6. for more detail gain parameter

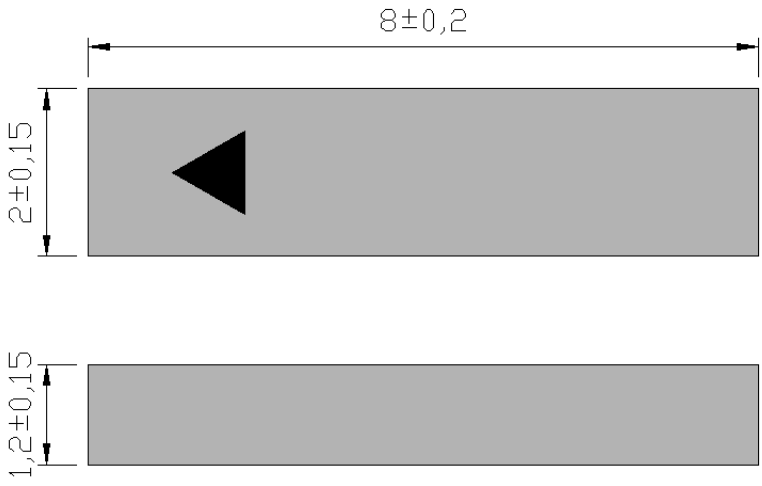
## 1.2 Mechanical Specifications

| No | Item | Spec. | Remark |
|---|---|---|---|
| 1 | Dimensions (LxWxH) | 8.0x2.0x1.2 mm$^3$ | |
| 2 | Unit Weight | typ. 63mg | |
| 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 |

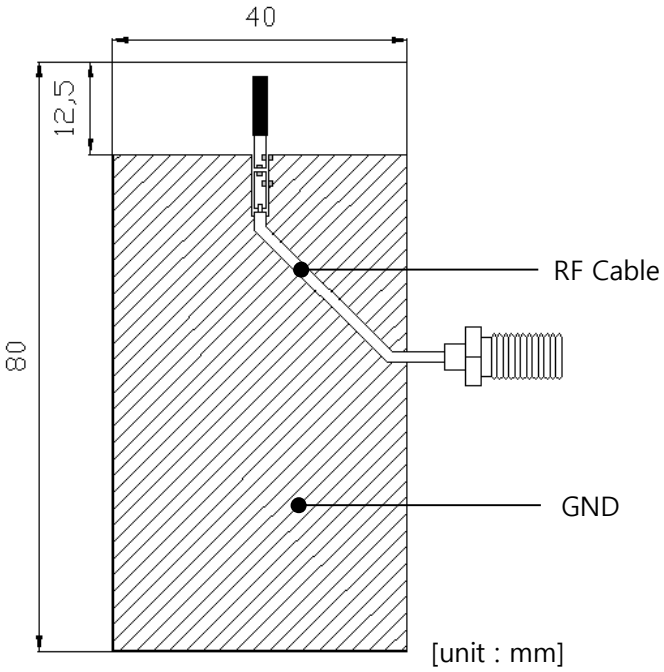



[unit : mm]

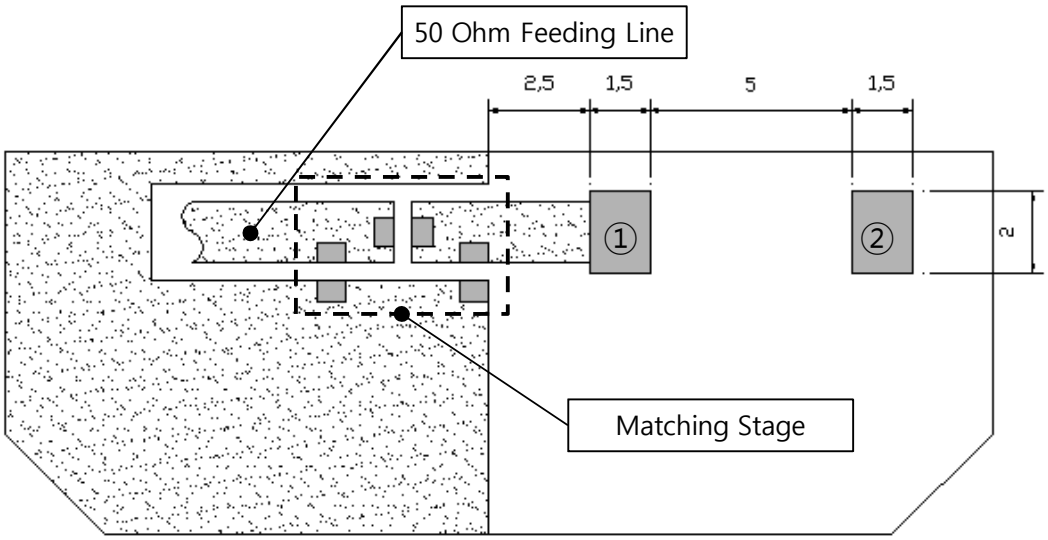
## 2. PCB Design for Test

### 2.1 Evaluation Board Dimension




✓ Evaluation board size ~ 40.0 x 80.0
✓ Fill Cut Area (GND Clearance) ~ 40.0 x 12.5

### 2.2 PCB Design Guide

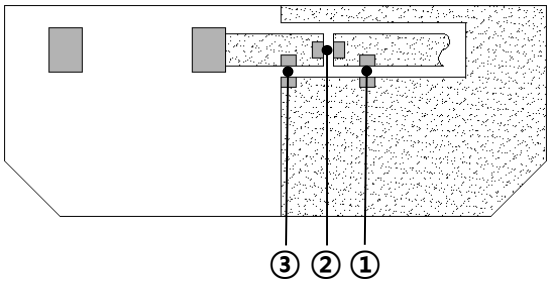



| No | Pin Assignment |
|---|---|
| ① | Feeding |
| ② | N/C |

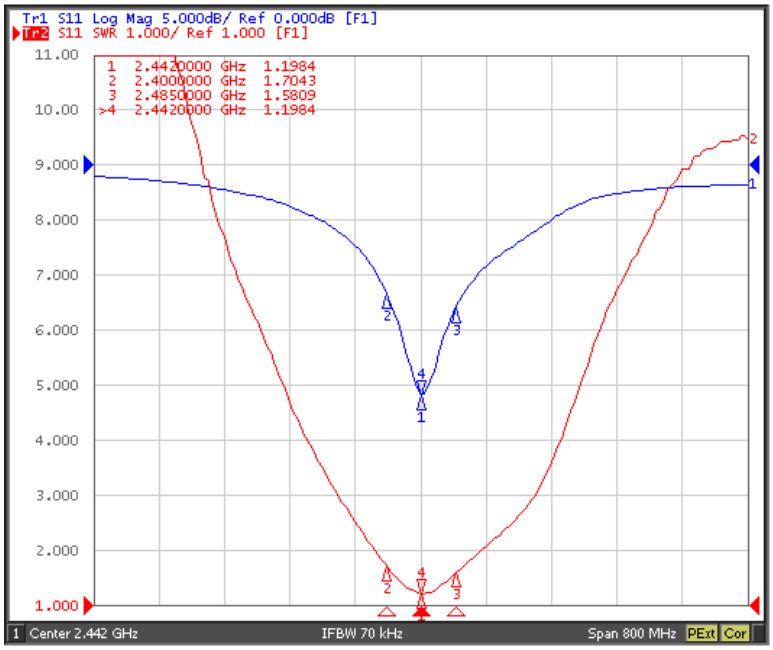
[unit : mm]

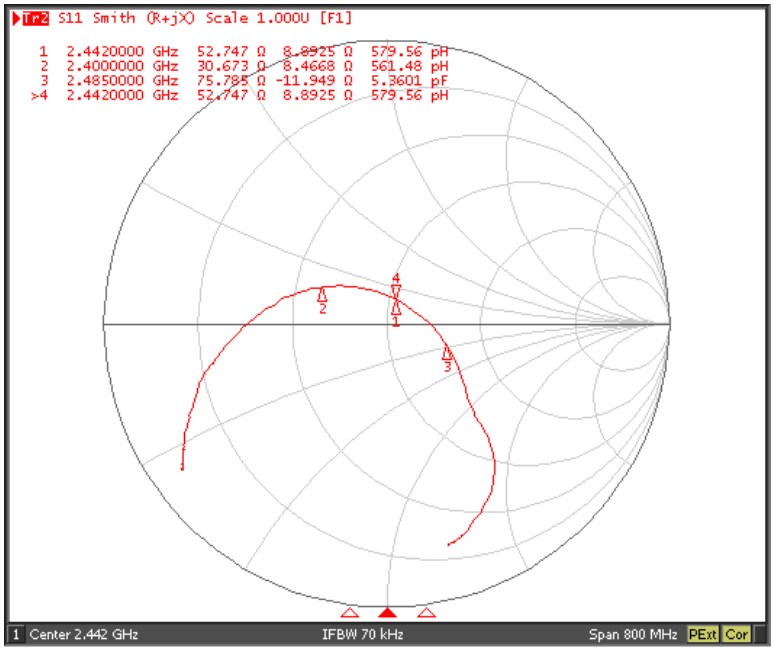
## 3. Measurement Result

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




| No | Matching Value |
|---|---|
| ① | 1.0 nH |
| ② | 2.2 nH |
| ③ | N/C |

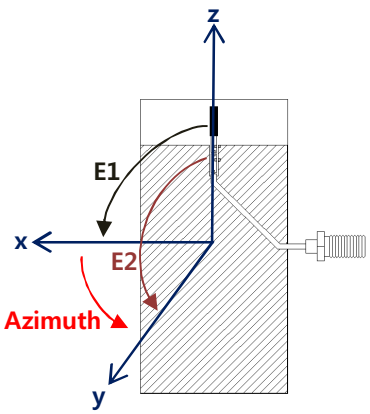


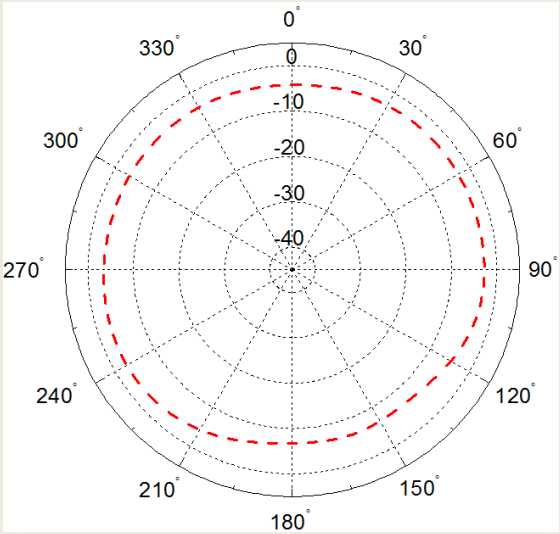




✓ The results are measured on the 100x50mm$^2$ evaluation board(EVB).

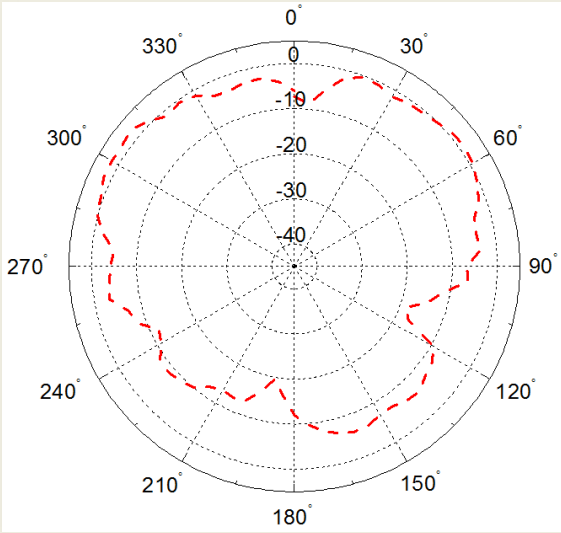
## 3.2 Typical Measurement Result (Gain, Radiation Pattern)

| | Peak Gain (dBi) | Avg. Gain (dBi) | Efficiency(%) |
|---|---|---|---|
| Azimuth | -2.68 | -3.89 | 60.44 |
| Elevation 1 | 2.23 | -3.29 | |
| Elevation 2 | 3.14 | -2.40 | |

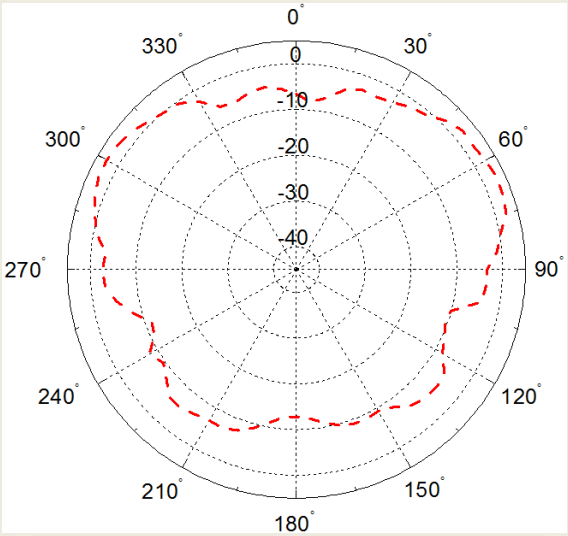


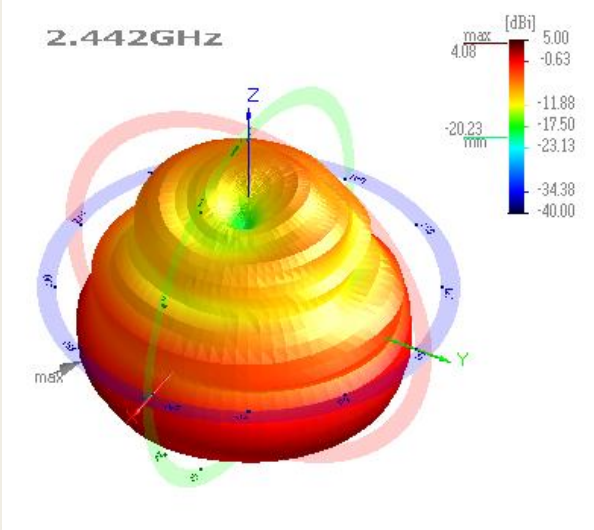

[Azimuth plane @2.442GHz ]




[Elevation1 plane @2.442GHz ]

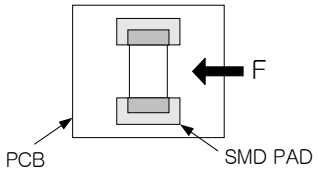



[Elevation2 plane @2.442GHz ]

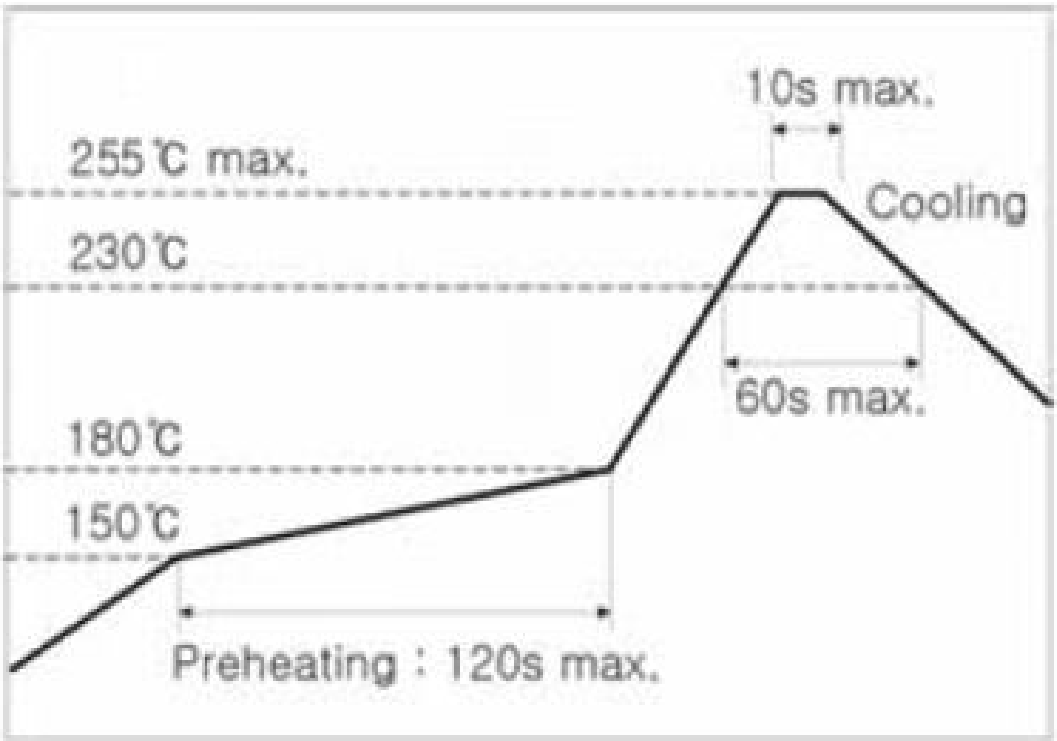



[3D Radiation Pattern]

## 4. Reliability

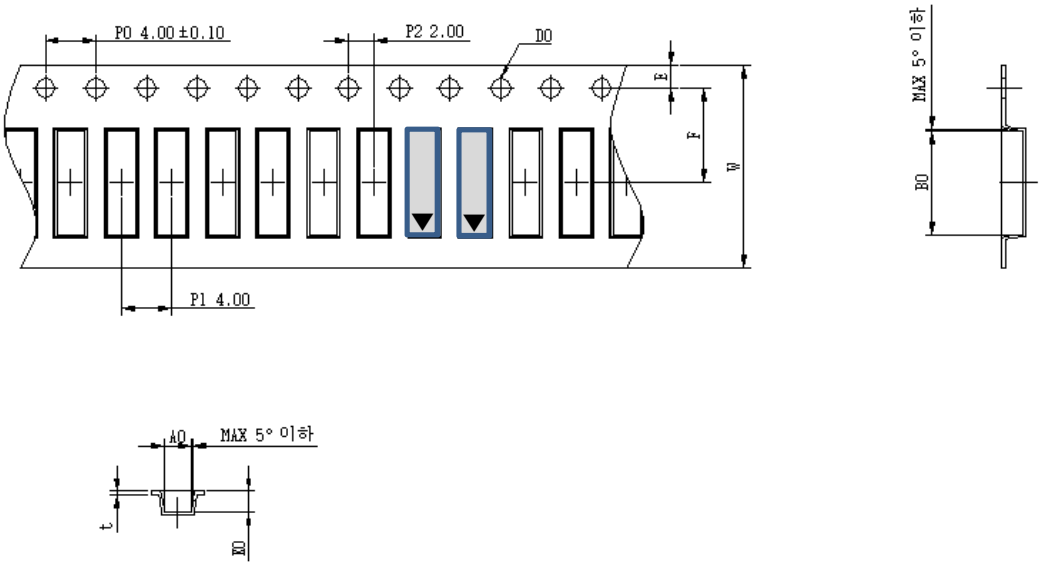
| No | Item | Test Condition | Test Requirements |
|---|---|---|---|
| 1 | Adhesive Strength of Termination | 1. Applied force on SMT chip till detached point from PCB.<br>  <br> | 1. No mechanical damage by applied force<br>2. Strength (F) > 5 kgf |
| 2 | Thermal Shock (Cycle) | 1. Step 1 : -40 ± 3℃, 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 | 2.20 ±0.10 | P0 | 4.00 ±0.10 | E | 1.75 ±0.10 |
| B0 | 8.20 ±0.10 | P1 | 4.00 ±0.10 | F | 7.50 ±0.10 |
| K0 | 1.65 ±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 | 2,000ea | Φ7" * 16mm |
| 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 : AMAN802012ST03

Lot No :

Quantity : 2,000 pcs  Date : 2012/08/16