

Approval Sheet

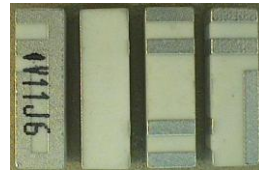
Type : Dielectric Chip Antenna

Part No. : AMAN1003030BB01

Application : Bluetooth

Customer Model : 1SC-MT

Bluebird Soft	Plan	Evaluation	Decision
Date			



AMOTECH	Written	Checked		Approval
Date	09/28	09/28	09/28	09/28

2012. 09. 28

AMOTECH Co., Ltd.

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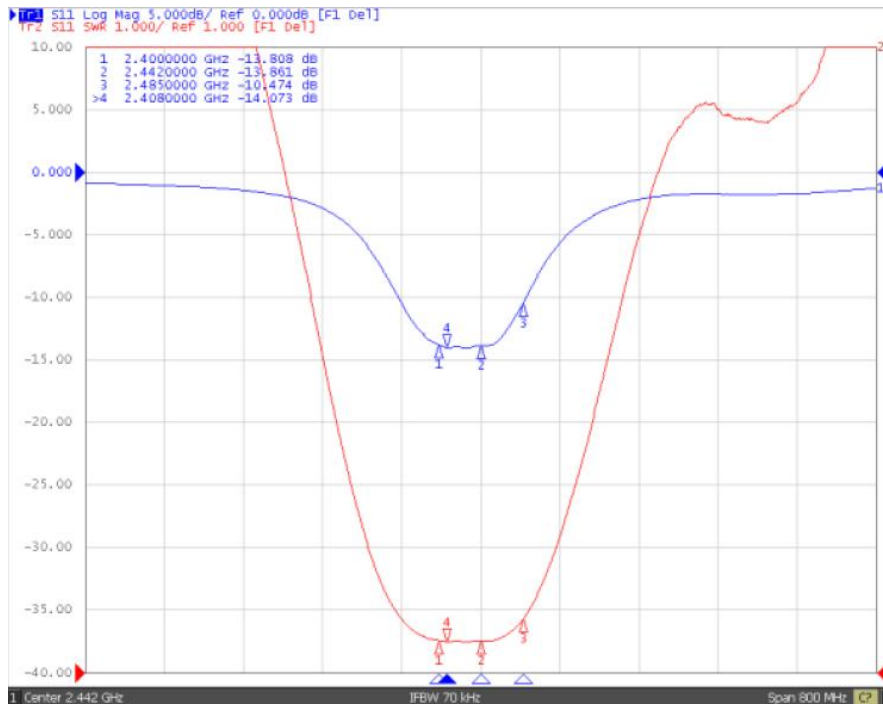
1. Revision

Date	Content	Page
2012.09.28	New	

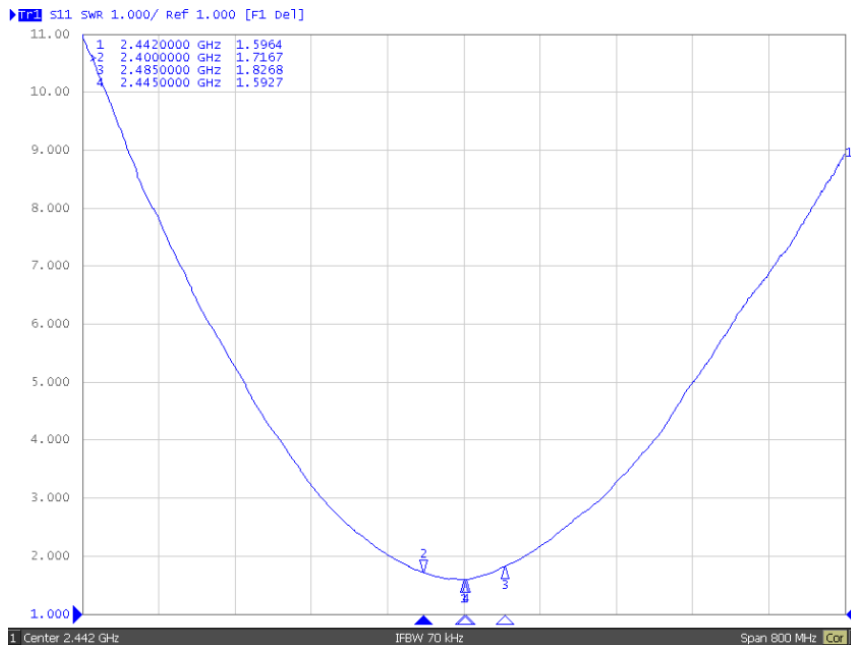
2. Specifications

2.1 Electrical Specification

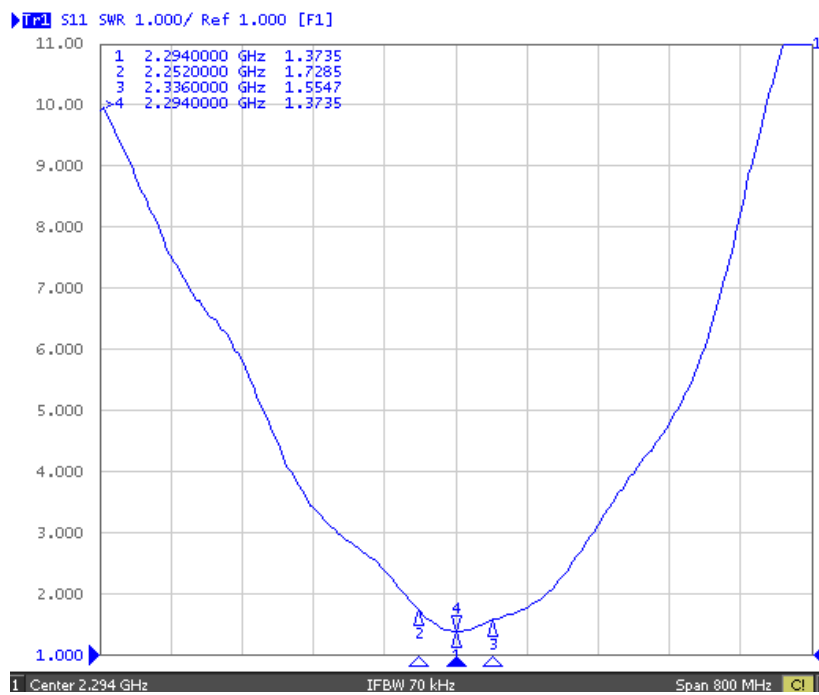
Division	Item		Specification	Remark	
1	VSWR	On The SET	Max 3.0:1 @ 2442 ± 42 MHz		
2		On the E.V.B	Max 3.0:1 @ 2442 ± 42 MHz		
3		Reference JIG	Max 2.5:1 @ 2294 ± 42 MHz		
4	Radiation Gain		Avg.	-3.5	- dBi - Measured on BIP1500 SET
			Peak	1.4	
5	Radiation Pattern		Omni-directional	-	
6	Impedance		Nominal 50	Ω	



(On the SET)

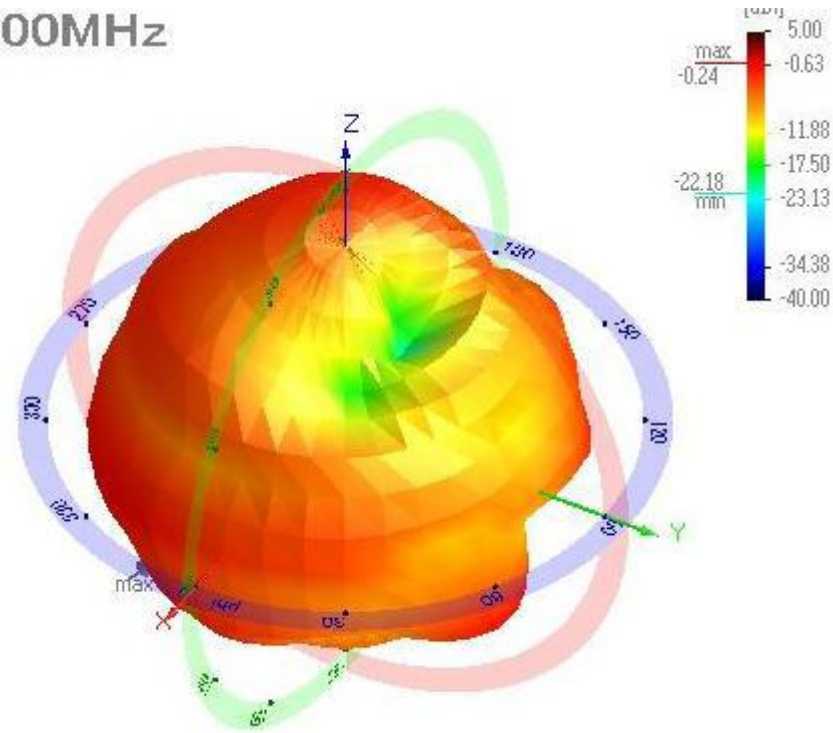


(On the E.V.B)

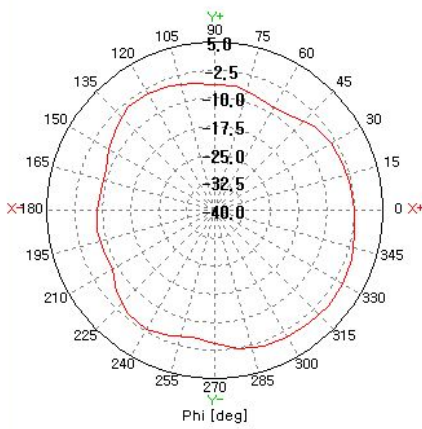


(On reference Jig)

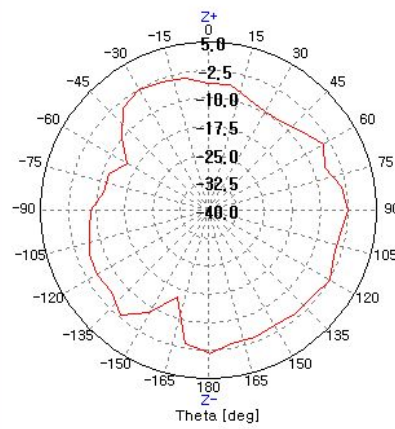
2442.00MHz



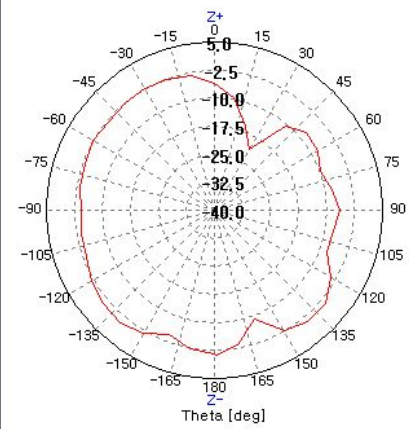
H-Cut ($\theta=90$)
Gain [dBi]



E1-Cut ($\phi=0$)
Gain [dBi]

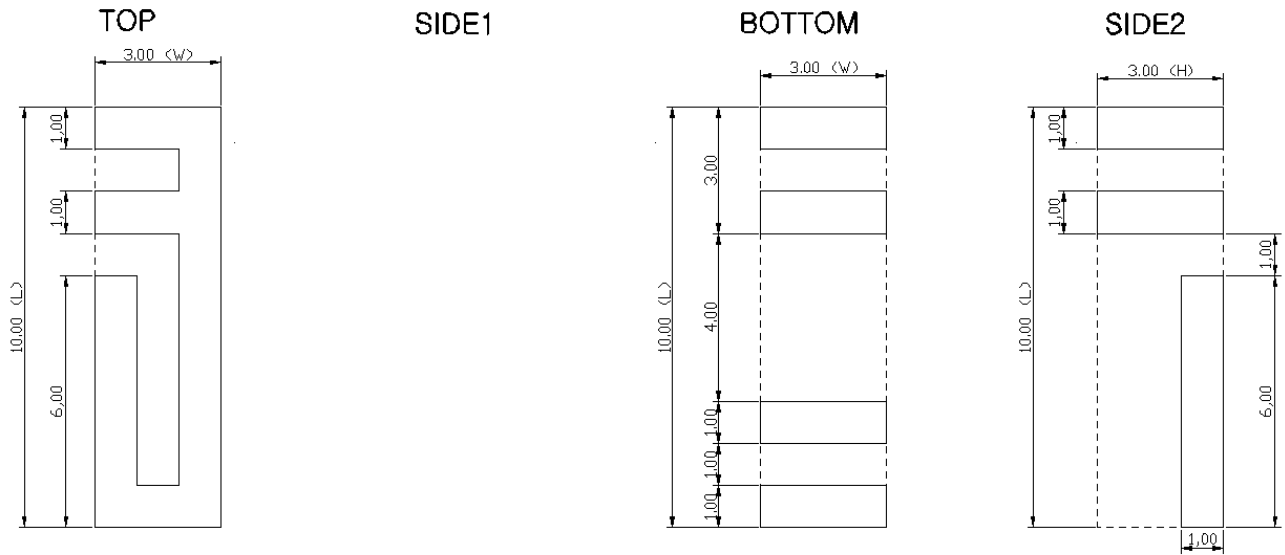


E2-Cut ($\phi=90$)
Gain [dBi]



[Radiation Pattern On The Set]

2.2 Mechanical Specifications



Item	dimension (mm)
L (Length)	10.0±0.15
W (Width)	3.0±0.1
H (Height)	3.0±0.1

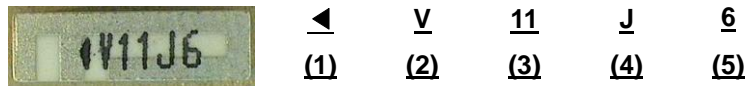
2.3 Part No. & Lot No.

Model : AMAN 1003030 BB 01
 (1) (2) (3) (4)

- (1) : AMOTECH ANTENNA
- (2) : Chip size
- (3) : BlueBird
- (4) : Version

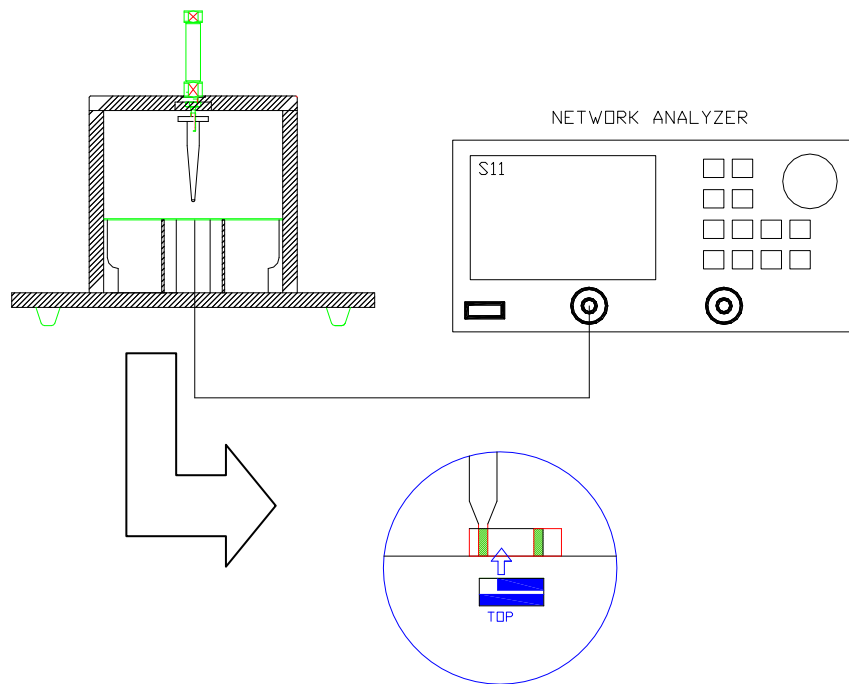
Lot: XX XX X X XX
 (1) (2) (3) (4) (5)

- (1) : Year of forming corpuscle
- (2) : small body molding,
- (3) : dielectric constant. For example) 1 : 9.5, 2 : 20.5
- (4) : A body SIZE.
For example) A : 542012, B : 542015, C: 903012, D : 903015, E:903040, F: 903045, G:542020
- (5) : TYPE of production times corpuscle stars



- (1) : Identifies the direction display
- (2) : Model display
- (3) : Manufacturing year display
- (4) : Display manufacture (for example: A-1, B-2)
- (5) : Manufacturing jobs (for example, 1~9-1 to 9, A to W-10~31)

3. Measurement Methods



3.1 VSWR

Product specification reference

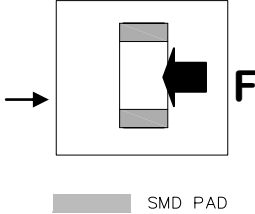
3.2 Measurement Methods

- A) RF Cable Calibration
 - Center frequency : Product specification reference
 - Span : 800MHz
 - Number of point : 801
- B) RF Cable, Jig SMA Connector Conect.
- C) Format = VSWR
- D) MARKER1, MARKER2, MARKER3 set the VSWR value.
- E) MARKER1,2,3 Make sure you meet the VSWR value SPEC.

4. Inspection data sheet

Product	Dielectric Chip Antenna		Test Items	VSWR, Length, Width, Height		
Model	AMAN1003030BB01		Condition			
LOT NO.			Date.	2012. 09. 27		
Test Items	VSWR @2306 – 42MHz (2264MHz)	VSWR @2306 +42MHz (2348MHz)	Length 10.0(mm)	Width 3.0(mm)	Height 3.0(mm)	Appearance
SPEC	2.5 : 1	2.5 : 1	10.0±0.15	3.0±0.10	3.0±0.10	OK
1	1.50	1.62	10.00	2.99	2.98	OK
2	1.61	1.35	10.00	2.97	2.99	OK
3	1.38	1.69	10.01	3.00	2.97	OK
4	1.77	1.79	10.02	3.00	3.00	OK
5	1.47	1.75	10.02	2.99	3.00	OK
6	1.55	1.77	10.02	3.01	2.99	OK
7	1.39	1.52	10.02	2.99	3.00	OK
8	1.70	1.63	10.01	3.00	3.00	OK
9	1.65	1.51	10.00	3.00	2.98	OK
10	1.51	1.43	10.03	3.00	3.01	OK
11	1.65	1.80	10.00	2.99	3.01	OK
12	1.36	1.63	10.02	2.98	3.00	OK
13	1.57	1.68	10.03	2.99	3.00	OK
14	1.57	1.77	9.99	2.98	3.02	OK
15	1.86	1.80	10.01	3.00	2.98	OK
16	1.52	1.71	10.00	2.97	3.00	OK
17	1.65	1.38	10.00	3.00	3.00	OK
18	1.82	1.67	10.01	3.00	3.00	OK
19	1.46	1.60	10.01	2.98	2.99	OK
20	1.74	1.41	10.02	2.99	2.99	OK
21	1.60	1.86	10.01	2.99	3.00	OK
22	1.53	1.54	10.00	3.00	3.01	OK
23	1.82	1.51	10.00	2.98	3.00	OK
24	1.85	1.70	10.01	3.00	3.00	OK
25	1.49	1.70	10.01	2.99	2.99	OK
26	1.61	1.49	10.00	3.00	3.00	OK
27	1.68	1.78	10.00	2.99	2.98	OK
28	1.54	1.37	10.00	3.00	3.01	OK
29	1.31	1.78	9.99	2.99	3.00	OK
30	1.34	1.59	10.02	2.98	2.99	OK
AVG	1.583	1.628	10.01	2.99	3.00	–
STDEV	0.153	0.147	0.011	0.010	0.011	–
Cpk	1.997	1.978	1.462	1.550	1.462	–
Judgment	OK	OK	OK	OK	OK	OK

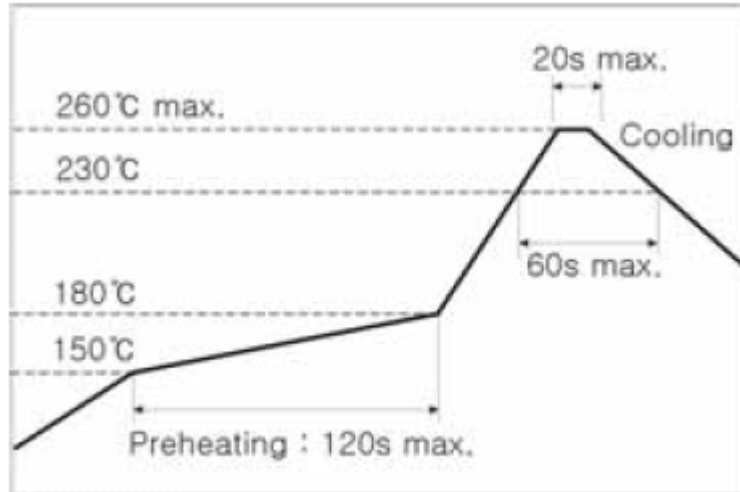
5. Reliability Test Condition

Division	Item	Test Condition	Requirements
1	Adhesion strength	1. SMT PCB in the sample fell, until the power Increase  SMD PAD	1. No mechanical damage by forces Applied on the right. 2. Strength (F) > 5kgf
2	Thermal shock	1. +80°C (30min) → 1~2mm → -40°C (30min) 2. Cycle Number : 10	1.No damage on appearance 2. Meet the specification (VSWR)
3	High temp. resistance	1. temperature: + 125 ± 5 °C 2. time: 1000 ± 24 hours 3. wait at least 24 hours at room temperature after the measurement ※ From the PCB test	1.No damage on appearance 2. Meet the specification (VSWR)
4	Low temp. resistance	1. temperature: : -40 ± 5°C 2. time : 1000 ± 24 hours 3. wait at least 48 hours at room temperature after the measurement ※ From the PCB test	1.No damage on appearance 2. Meet the specification (VSWR)
5	humidity	1. humidity : 85 % RH 2. temperature : +85 ± 3°C 3. time : 1000 ± 24 hour 4. temperature after the measurement ※ From the PCB test	1.No damage on appearance 2. Meet the specification (VSWR)
6	ESD	1. ESD Level : 8KV 2. Mode : Contact discharge 3. Test: Count : 100 회 ※ From the PCB test	1.No damage on appearance 2. Meet the specification (VSWR)

6. Recommendations soldering conditions

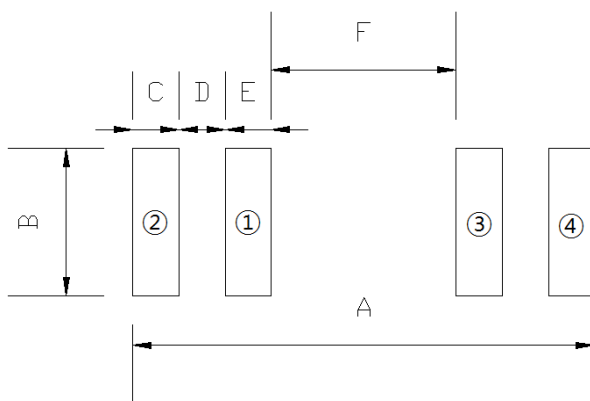
6.1 Unleaded soldering temperature conditions (Pb-free)

Solder paste : Ag/Sn/Cu:3.0/96.0/0.5



- Soldering temperature conditions
- This product is designed for reflow soldering only. Do not use flow (wave) soldering..
- Use non-activated flux (Cl content 0.2% max.)
- Reflow-cycle is max 3 times.

6.2 PCB Pattern design terms (Recommendations)

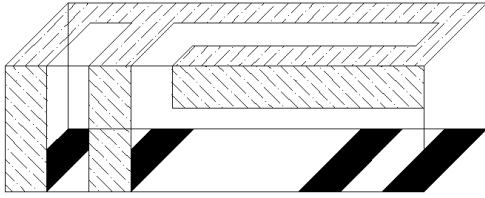





Item	Dimension [mm]
A	10.0
B	3.2
C	1.0
D	1.0
E	1.0
F	4.0

①	Feeding
②,③,④	GND

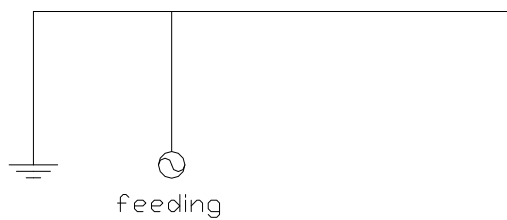
7. Structure and Material

7.1 Material



1	Corpusculum (Bulk)		Magnesium oxide series Ceramics
2	Electrode	 TOP	Ag
		 BOTTOM (Detachable Type)	
		 SIDE	

7.2 Equivalent Circuit



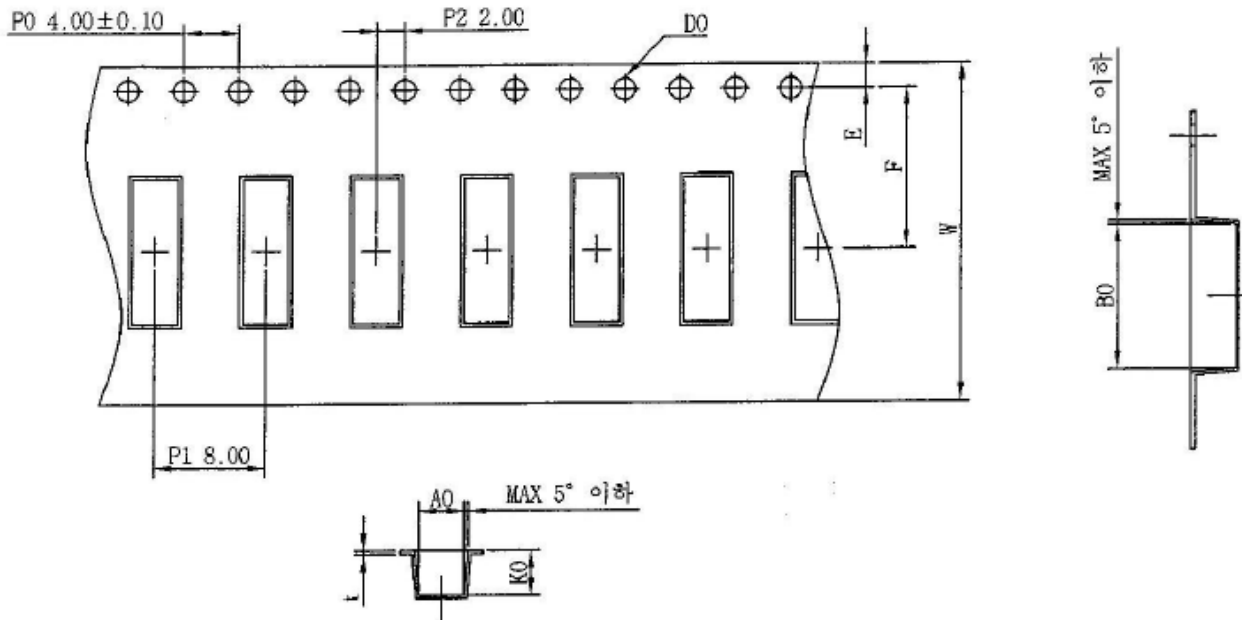
8. Notice

- ① Storage environment must be at ambient temperature of $-5\sim 40^{\circ}\text{C}$ and ambient humidity of 70% RH.
- ② Chip antenna can experience degradation of termination solderability when subjected to high temperature and humidity, or if exposed to sulfur or chlorine gases.
- ③ Avoid mechanical shock (ex. falling) to the chip antenna to prevent mechanical cracking inside of the ceramic dielectric due to its own weight.
- ④ Use chips within 6 months. If over 6 months, check solderability before use.

8. Packing

8.1 Carrier tape Specifications

8.1.1 Size



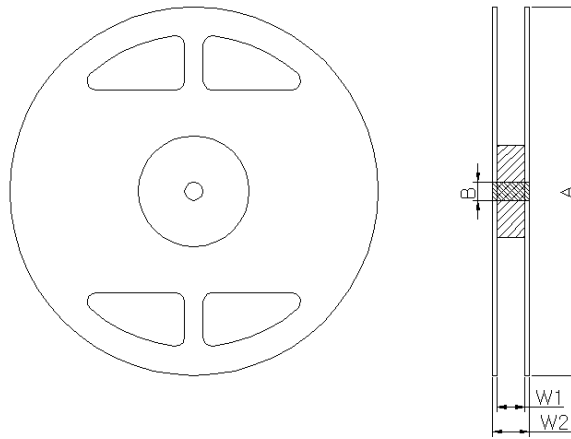
A0	3.30 ± 0.10	P0	4.00 ± 0.10	E	1.75 ± 0.10
B0	10.30 ± 0.10	P1	8.00 ± 0.10	F	11.50 ± 0.10
K0	3.25 ± 0.10	P2	2.00 ± 0.10	W	24.00 ± 0.30
D0	1.55 ± 0.05			t	0.30 ± 0.05

8.1.2 Material and surface resistance

- 1) Carrier tape: max 1000 Ω
- 2) Cover tape: max 1000 Ω
- 3) Reel: max 1000 Ω

8.2 Reel Specifications

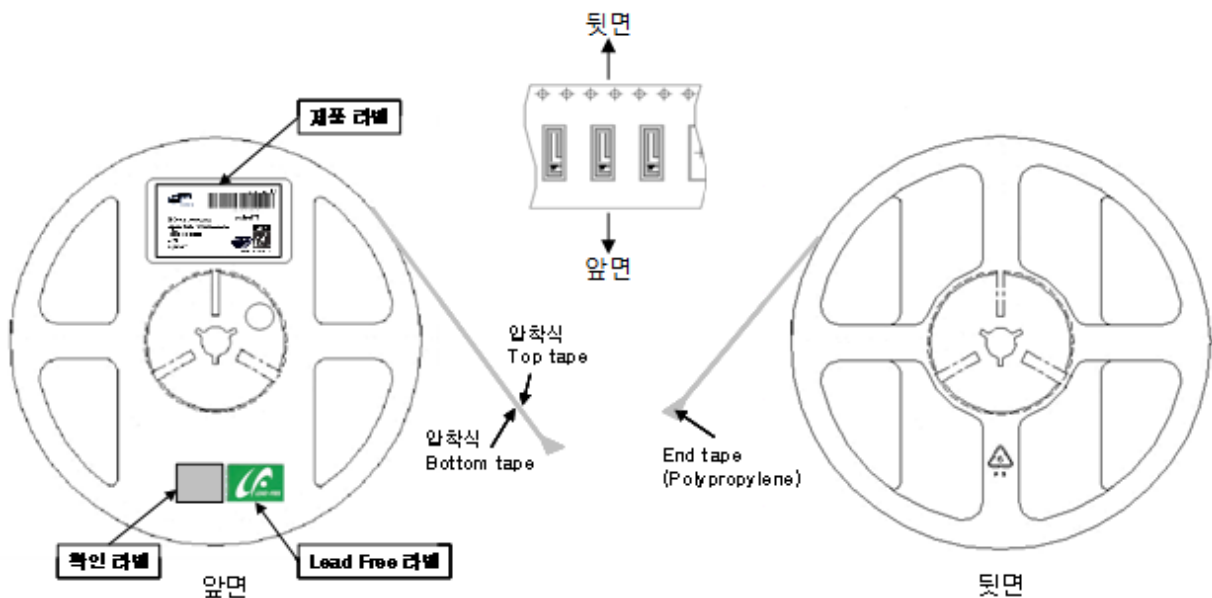
8.2.1 Size



A	$330 \pm 1\text{mm}$	W1	$25.5 \pm 1\text{mm}$
B	$13 \pm 0.2\text{mm}$	W2	$29.5 \pm 1\text{mm}$

[Unit: mm]

8.2.2 Labeling and Winding way



9.2.3 Material

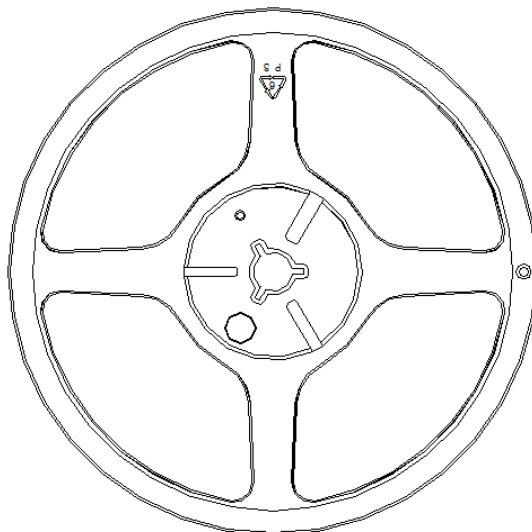
- 1) Plastic reel : GPPS (General Purpose Poly Styrene) resin

8.3 Box packaging specification

8.3.1 Reel

Size : Φ 13" x 24 (mm)

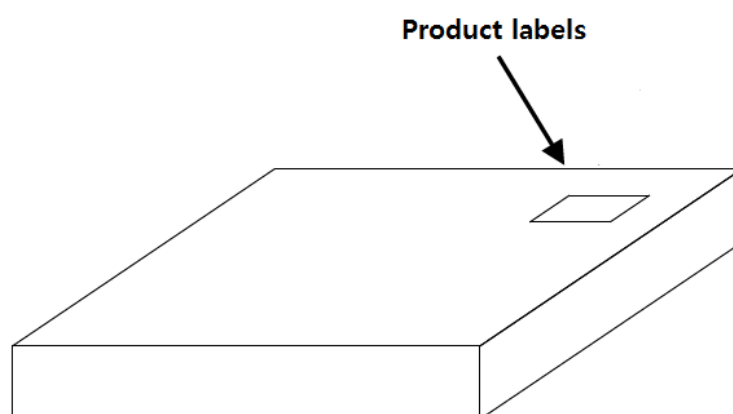
Quantity : 2,000 ea



8.3.2 Inner Box

Size : 350 (W) x 345 (D) x 55 (H) (mm)

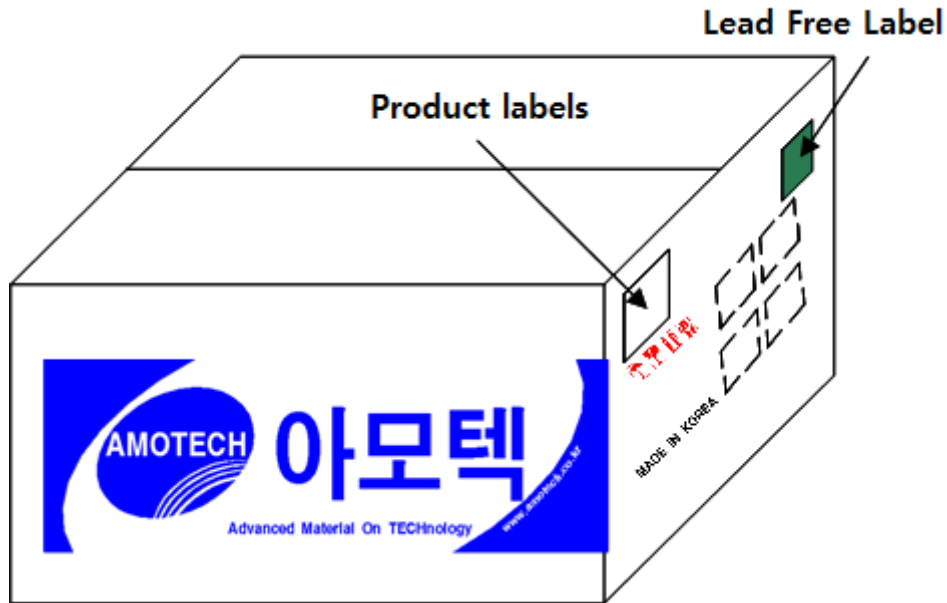
Quantity : 4,000 ea (2 Reel)



8.3.3 Outer Box

Size : 390 (W) x 390 (D) x 280 (H) (mm)

Quantity : 12,000 ea (3 InnerBox)



8.4 Packaging label specifications



9. Hazardous material report

*Appendix