
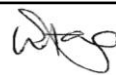



# SPECIFICATION OF ELECTRET CONDENSER MICROPHONE

[ TO:            ]



MODEL NO. : ASMO-C110T42-3P H/F  
 DIRECTIVITY : OMNI-DIRECTIONAL

<b>USER</b>		<b>Prepared</b>	<b>Checked</b>	<b>Approved</b>
	Name			
	Sign.			
<b>BSE</b>		<b>Prepared</b>	<b>Checked</b>	<b>Approved</b>
	Name	HJ Kim	SH Lee	CW Kim
	Sign.			

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※ All Parts are Halogen Free Material.

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## SPECIFICATION HISTORY

History Change	Date	Item	Contents	Grounds
ISSUE From BSE To	2015.	ASMO-C110T42-3P	1 <sup>st</sup> Submission of Microphone spec.	
ISSUE From BSE To				
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**1. INTRODUCTION**

This specification is for the SMD possible Electret Condenser Microphone(ECM) which has endurable reflow temperature of up to 250°C for under 30 seconds.

**2. MODEL NO.**

**ASMO-C110T42-3P H/F**

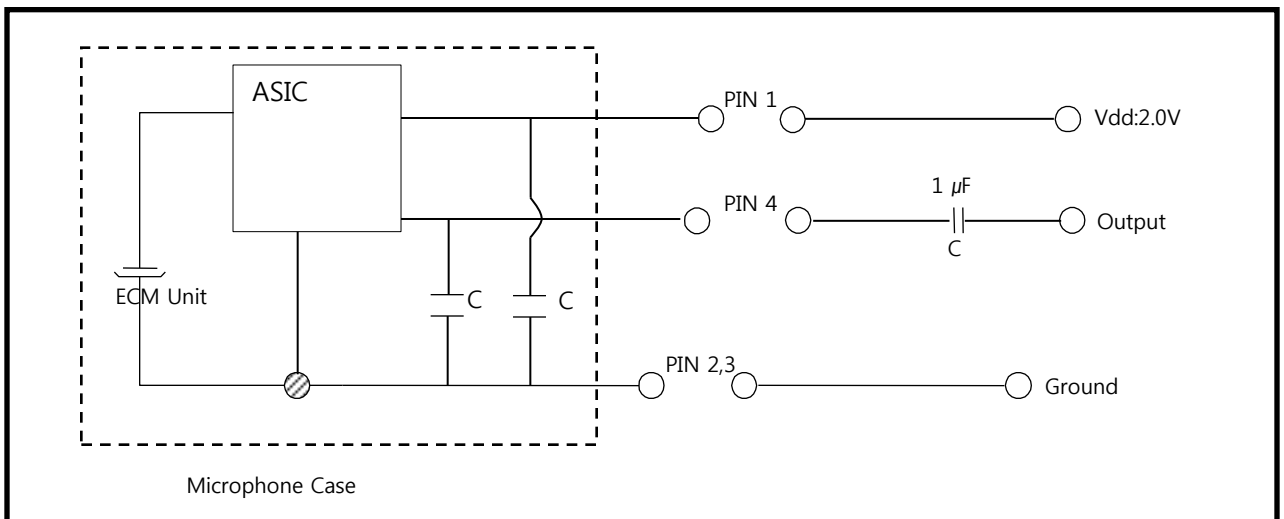
**3. ELECTRICAL CHARACTERISTICS**

Temp. = 23 ± 2 °C

Room Humidity = 65 ± 5 %

NO.	Parameter	Symbol	Condition	Limits			Unit
				Min.	Center	Max.	
1	Sensitivity	S	f=1kHz, S.P.L =1Pa, 0dB=1V/Pa	-45	-42	-39	dB
2	Current Consumption	I <sub>BSS</sub>	V <sub>CC</sub> =2.0V	-	70	110	μA
3	Signal to Noise Ratio	S/N	f=1kHz, S.P.L =1Pa (A-Weighted Curve)	58	62	-	dB
4	Decreasing Voltage	ΔS-VS	V <sub>CC</sub> =2.0V to 1.5V	-	-	-3	dB
5	Operating Voltage			1.6	2.0	3.6	V
6	Total Harmonic Distortion	THD	94dB SPL at 1kHz	-	-	1	%
			115dB SPL at 1kHz	-	-	1	%
7	Acoustic Overload Point	AOP	THD>10% at 1kHz	130	-	-	dB SPL

**4. MEASUREMENT CIRCUIT**



## 5. TYPICAL FREQUENCY RESPONSE CURVE ( FAR FIELD )

### Far Field Measurement Condition

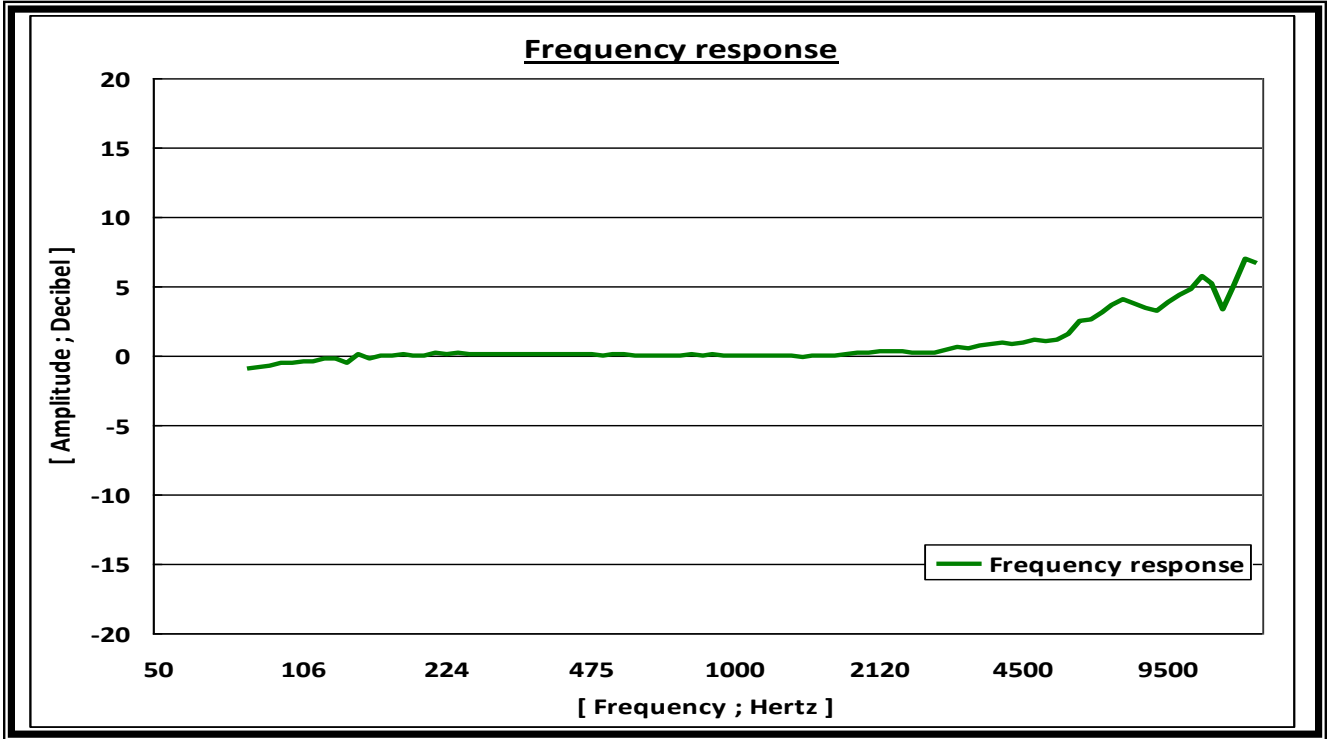
Temperature : 23 ± 2 °C

Bias Voltage : 2.0V ( with 2.2kΩ series resistor )

Acoustic stimulus : 1Pa ( 94dB SPL at 1kHz ) at 50 cm from the loud-speaker.

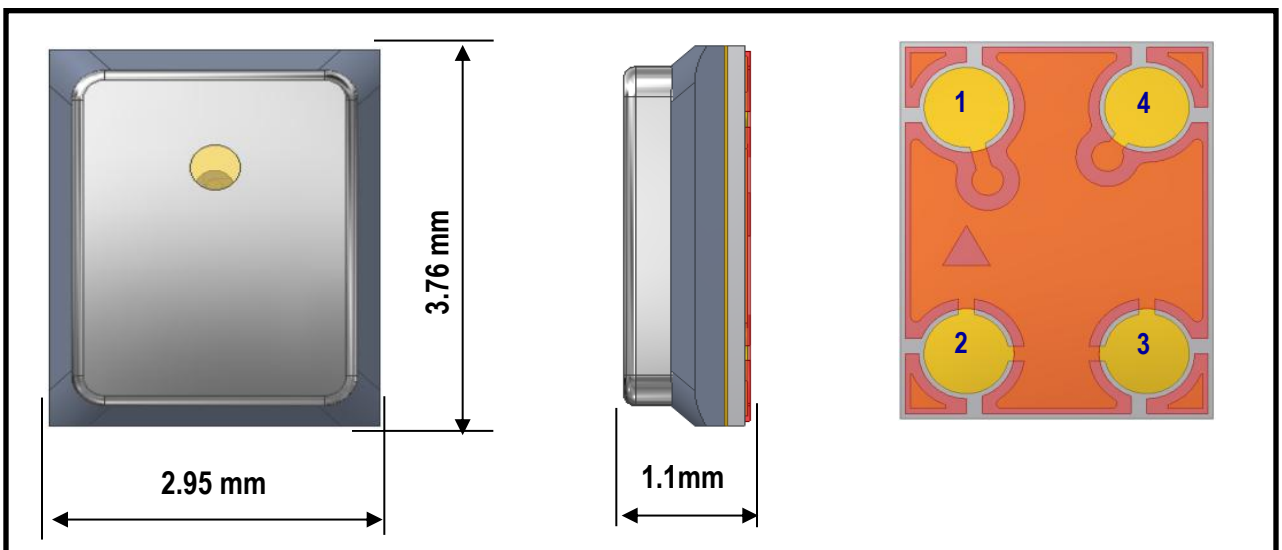
The loud-speaker must be calibrated to make a flat frequency response input signal

Position : The frequency response of microphone unit measured at 50cm from the loud-speaker

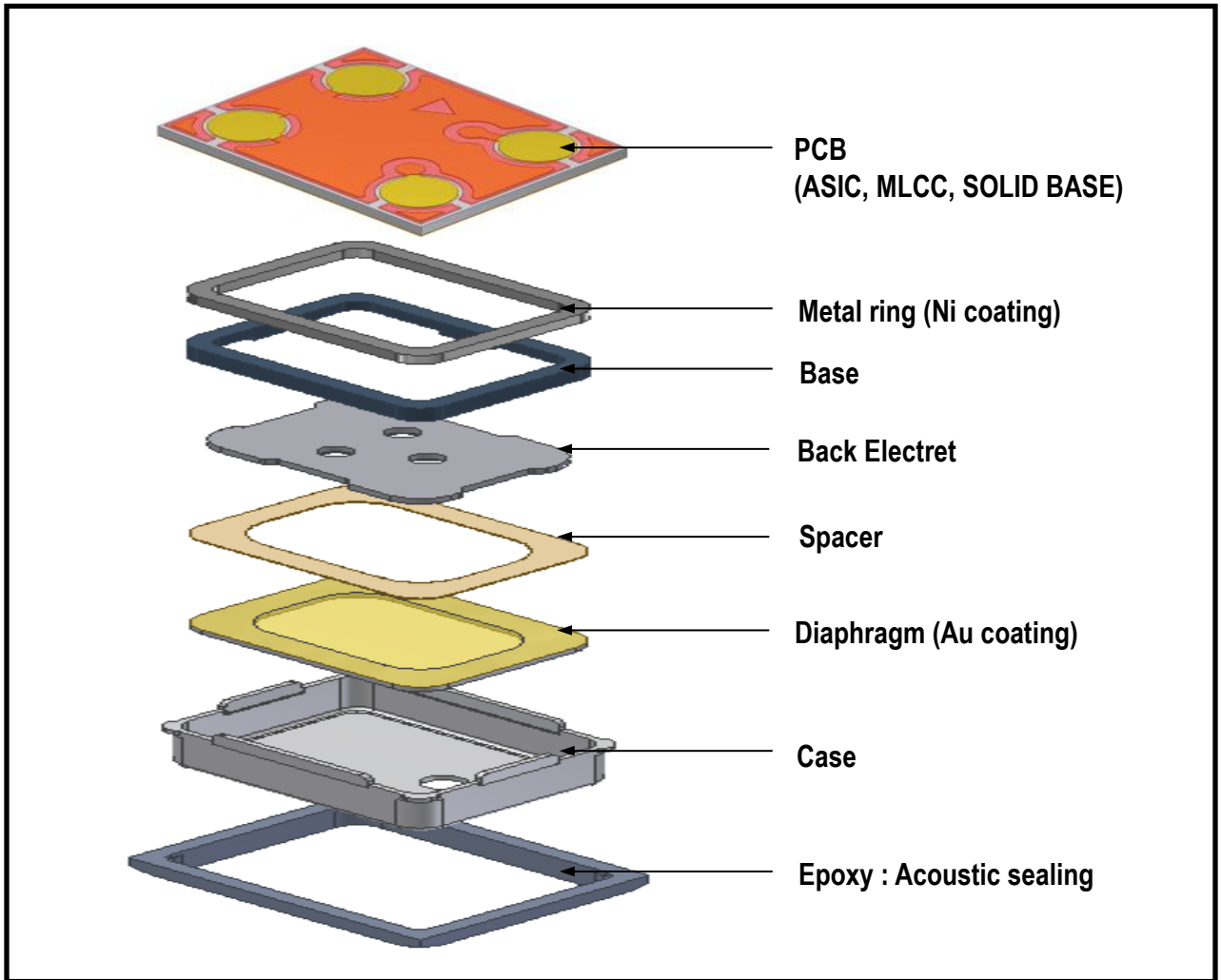


## 6. MECHANICAL CHARACTERISTICS

### 6-1. Dimension



## 6-2. Structure



## 7. RELIABILITY TEST

### 7.1 HIGH TEMPERATURE TEST

After exposure at  $+85\pm 2^{\circ}\text{C}$  for 72 hours, sensitivity should be within  $\pm 3\text{dB}$  from initial sensitivity.  
( The measurement is done after 2 hours of conditioning at room temperature )

### 7.2 LOW TEMPERATURE TEST

After exposure at  $-40\pm 2^{\circ}\text{C}$  for 72 hours, sensitivity should be within  $\pm 3\text{dB}$  from initial sensitivity.  
( The measurement is done after 2 hours of conditioning at room temperature)

### 7.3 TEMPERATURE & HUMIDITY TEST

After exposure at  $60\pm 2^{\circ}\text{C}$  and 95% relative humidity for 200 hours, sensitivity to should within  $\pm 3\text{dB}$  from initial sensitivity.  
( The measurement is done after 2 hours of conditioning at room temperature)

## 7.4 TEMPERATURE SHOCK

Temperature change from  $-40\pm 2^{\circ}\text{C}$  to  $+85\pm 2^{\circ}\text{C}$  for 1 hour .  
After 15 cycles, sensitivity should be within  $\pm 3\text{dB}$  from initial sensitivity  
( The measurement is done after 2 hours of conditioning at room temperature )

## 7.5 DROP TEST

After dropped to concrete floor each 6 times from 1 meter height at three directions,  
sensitivity should be within  $\pm 3\text{dB}$  from initial sensitivity

## 7.6 VIBRATION TEST

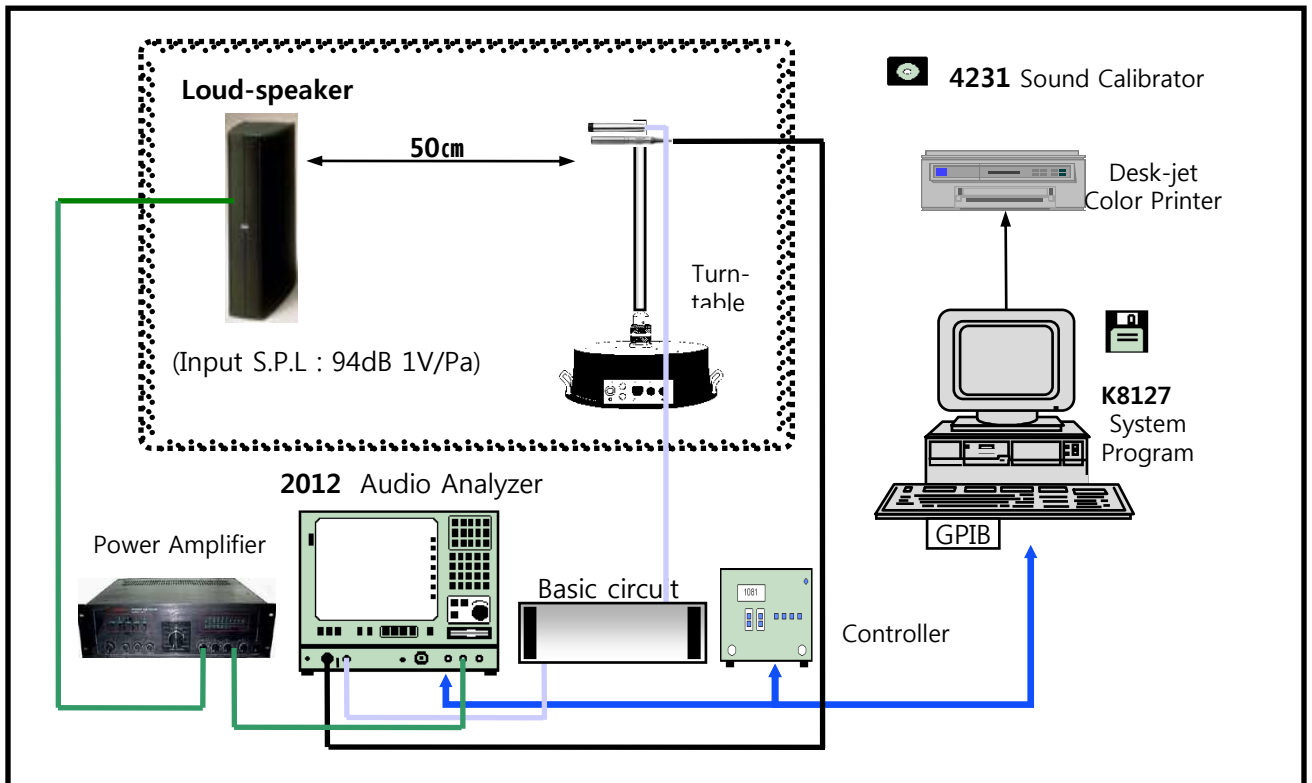
10Hz to 500Hz for 30 minutes & 3.1g at three axes (x, y, z)  
( Sensitivity should be within  $\pm 3\text{dB}$  from initial sensitivity )

## 8. TEMPERATURE CONDITIONS

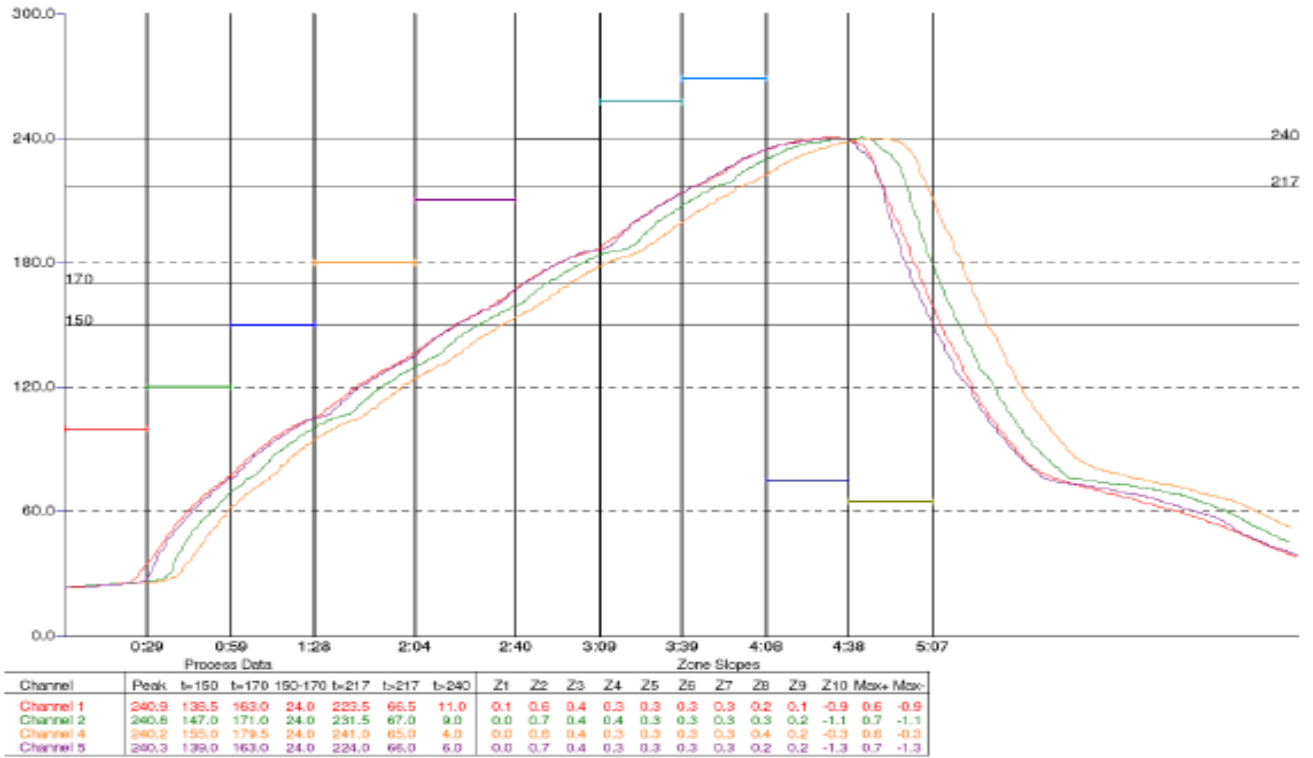
**8.1 STORAGE TEMPERATURE** :  $-40^{\circ}\text{C} \sim +85^{\circ}\text{C}$

**8.2 OPERATING TEMPERATURE** :  $-25^{\circ}\text{C} \sim +70^{\circ}\text{C}$

## 9. MEASUREMENT SYSTEM

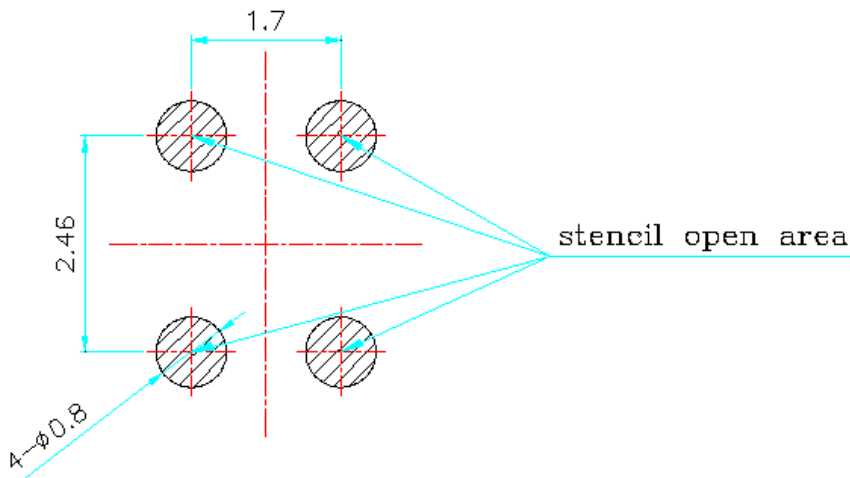


**10. REFLOW PROFILE (Guaranteed Maximum Reflow Condition)**



Parameter	Specification	Parameter	Specification
Average temp. gradient In preheating	2.5°C/s	Time above 240 °C	Max. 10 s
Soak time	2 ~ 3 minutes	Peak temp.	240 °C (-0/+10 °C)
Time above 217 °C	Max. 60 s	Temp. gradient in cooling	Max. -5 °C/s
Time above 230 °C	Max. 50 s		

**11. RECOMMENDED STENCIL PATTERN**



Thickness of metal mask : 0.1T



## **12. CAUTIONS WITH USING SMD MICROPHONE**

### **12-1 X-ray inspection**

- X-ray inspection is possible only under the setting conditions with Voltage : 60~80kV,  
Current : 60~100 $\mu$ A, Time : within 1min
- Don't do the REFLOW or REWORK process after X-ray inspection
- BUT, post-baking (at 105°C for 2hrs) after X-ray inspection is recommended for stabilizing SMD microphone

### **12-2 Cleaning process**

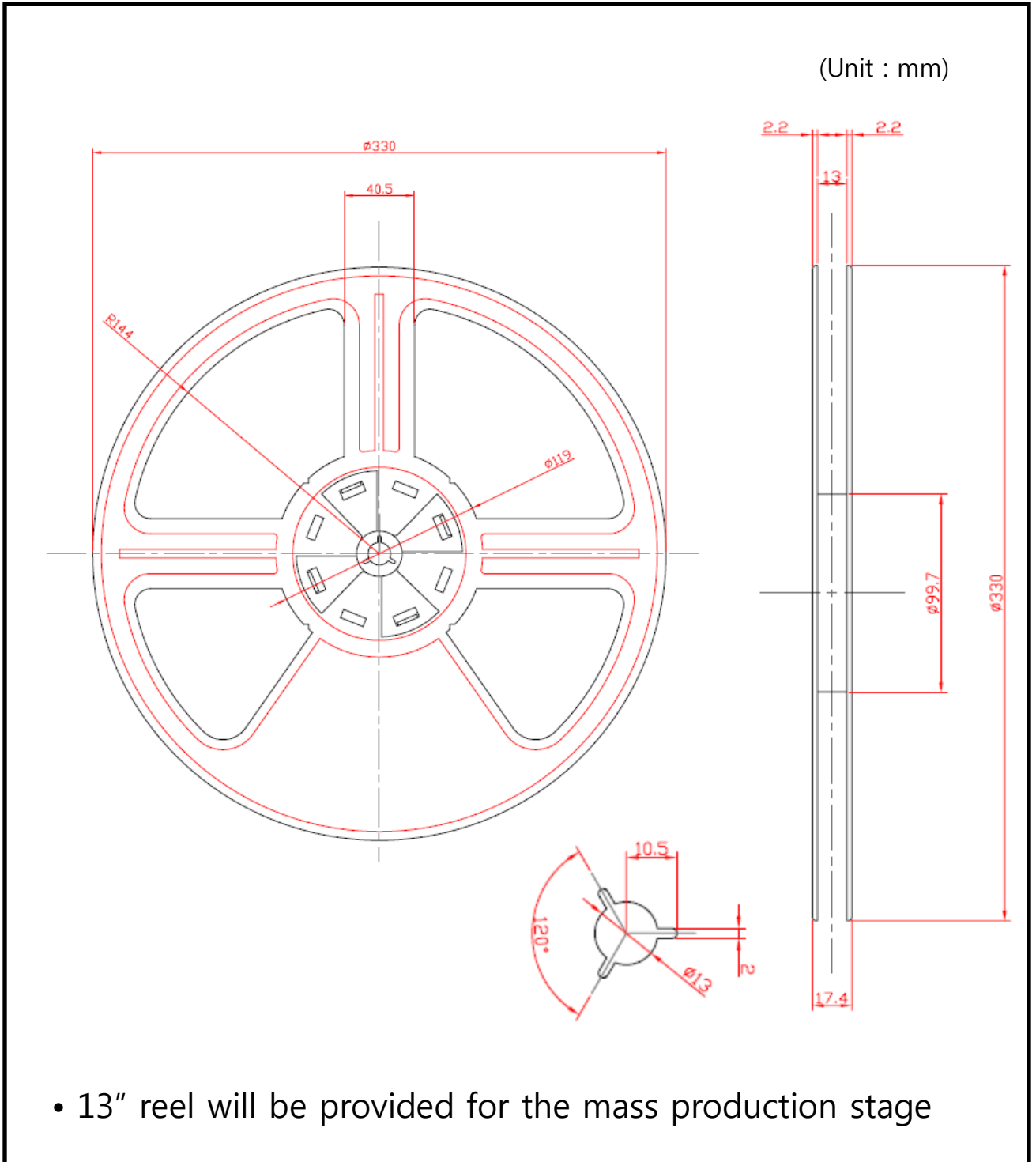
- Don't do the cleaning process with any kind of volatile solvent(Acetone, TCE, alcohol, etc.),  
water, or detergent
- Possible only for the purpose of removing any dust or particle only with tissue or cotton tip without direct contact to the microphone

### **12-3 Router process on Printed Circuit Board after reflow**

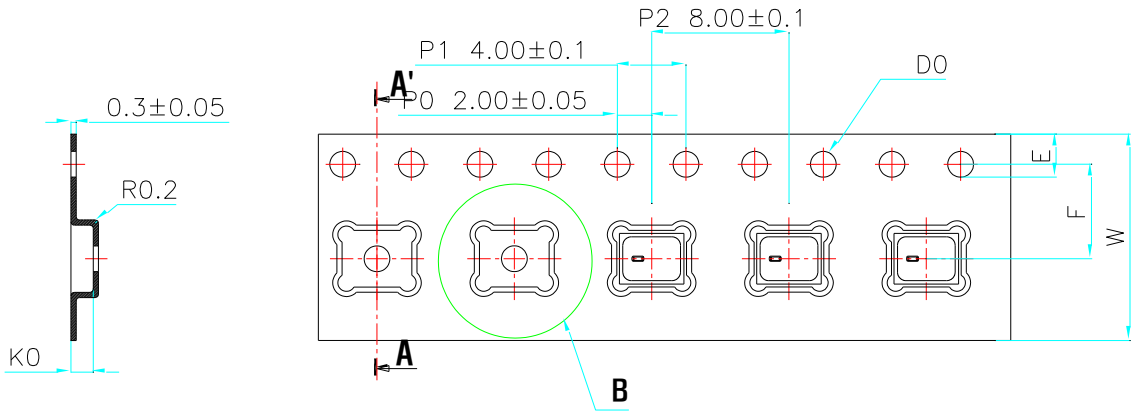
- It's possible to affect the acoustic properties of SMD microphone, when any particle gets into the SMD microphone inside through sound holes

**13. PACKAGE**

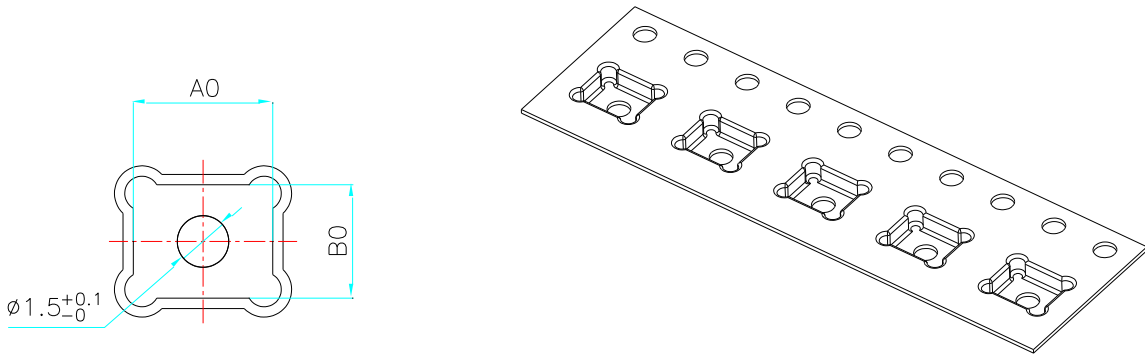
**13.1 REEL DIMENSION**



**13. 2 TAPING SPECIFICATION**



**SECTION A-A'**



**DETAIL B (2:1)**

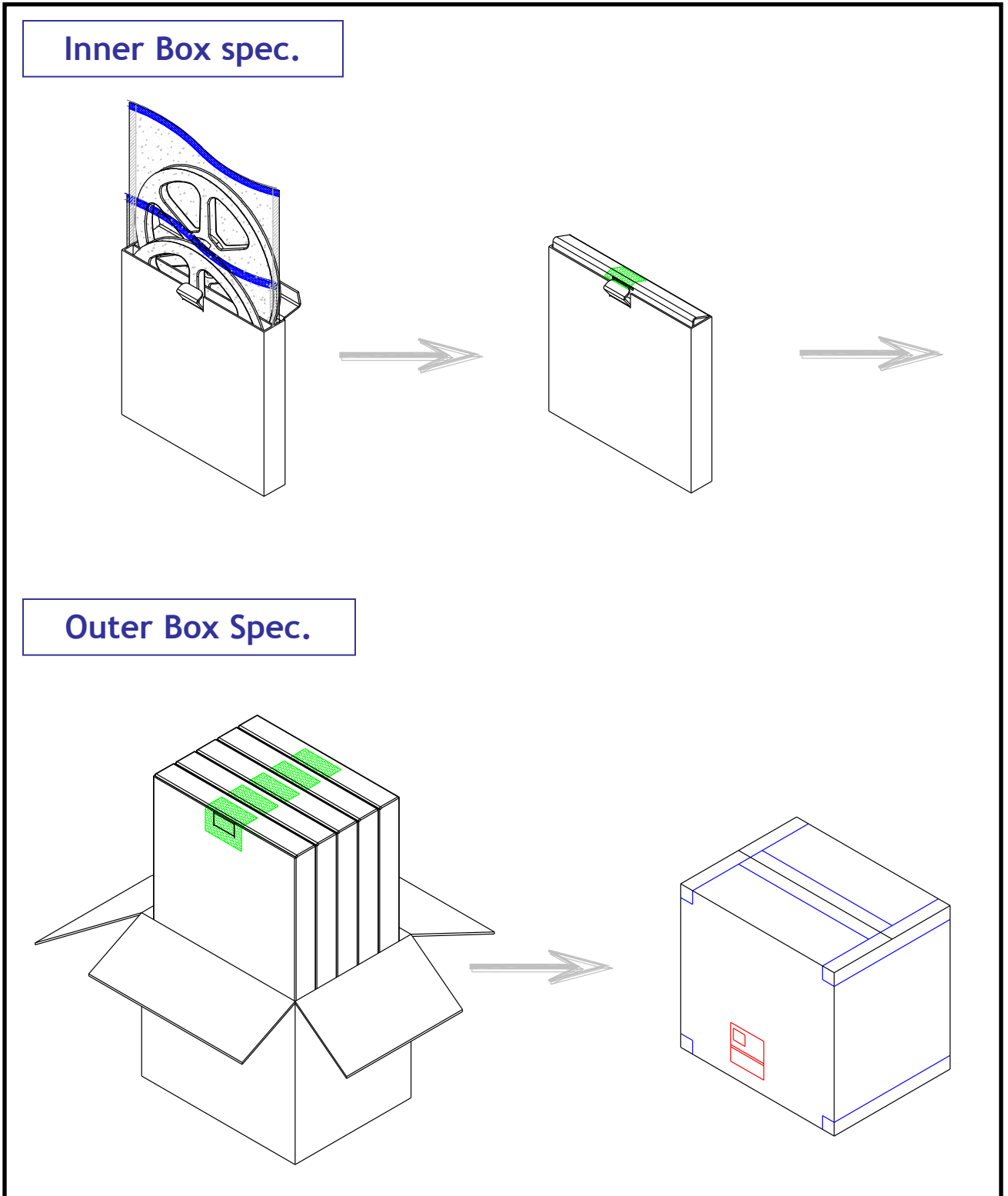
**[ Note ]**

1. Direction of parts : See above pictures
2. Microphone total quantity(13" Reel) : 5,700pcs
3. ESD : 10<sup>2</sup>~10 Ω
4. Thermo-compression method

Unit : mm

A0	4.06±0.10	E	2.5±0.10
B0	3.30±0.10	F	5.50±0.05
K0	1.30±0.10	T	0.30±0.05
D0	1.50±0.10	W	12.00±0.30

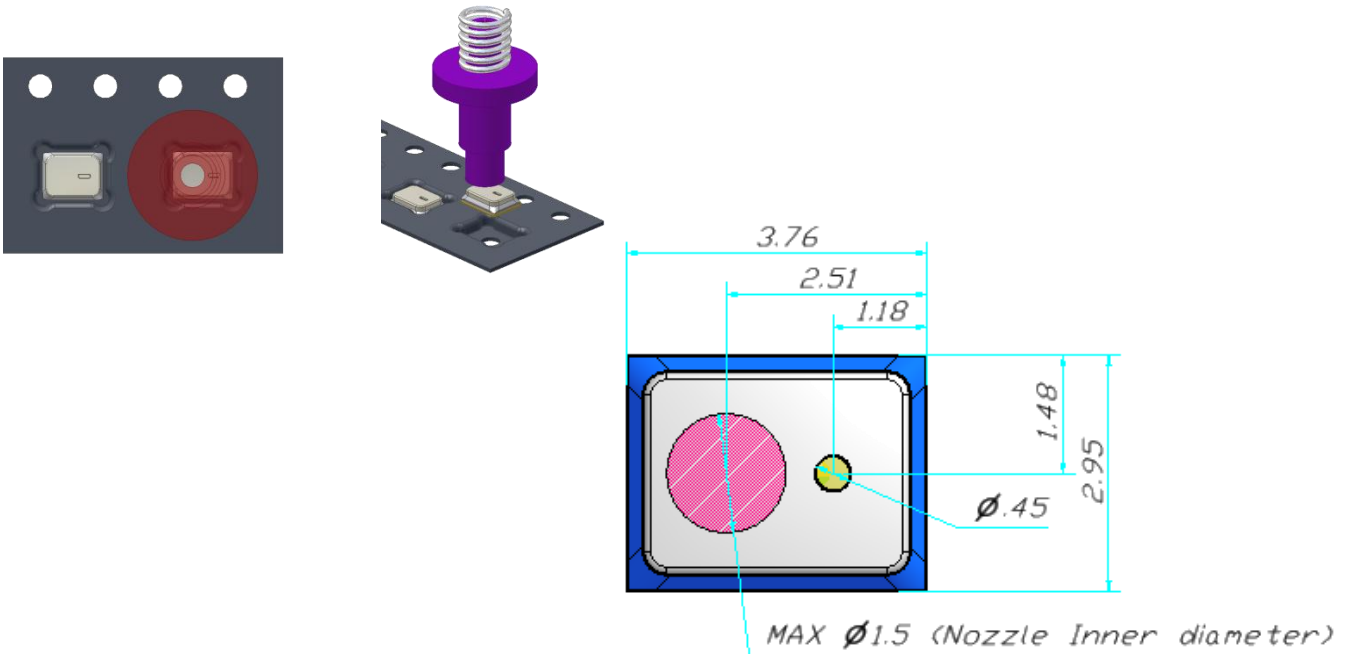
### 13. 3 INNER & OUTER BOX SPEC



## 14. Recommended Pick-up nozzle

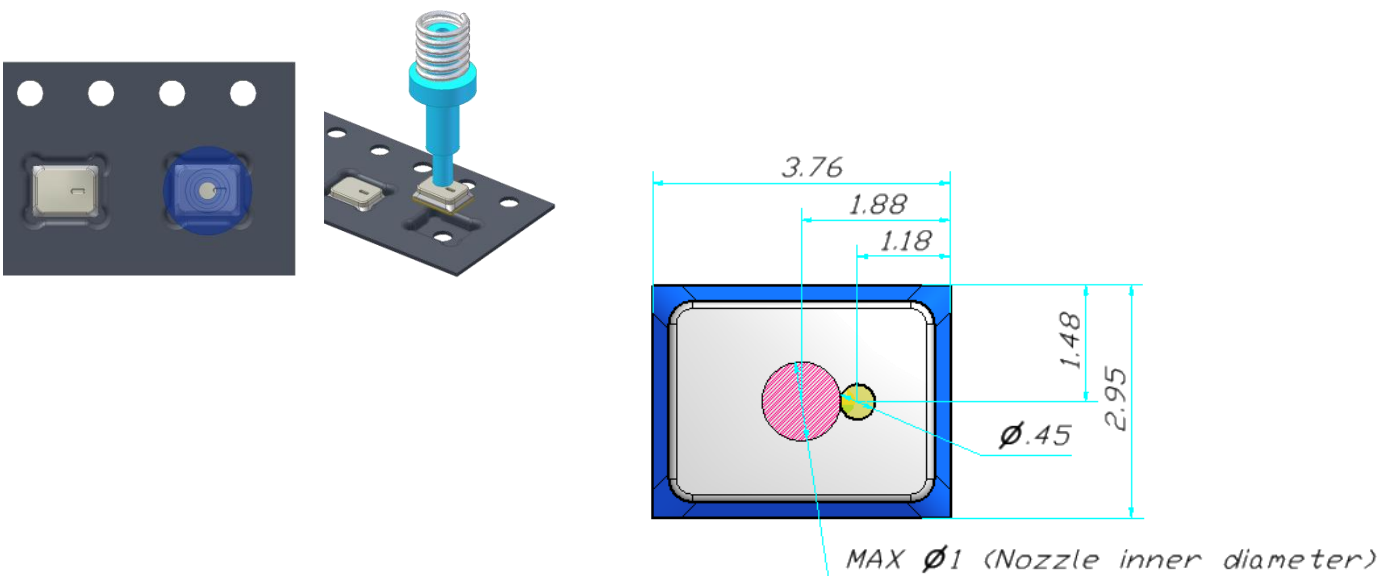
### 14.1 When a nozzle has no locate at the center of MIC.

- Nozzle material : Metal
- Nozzle position : 0.63mm from the center of MIC. (opposite sound port)
- Nozzle inner diameter : Max.  $\varnothing 1.5$



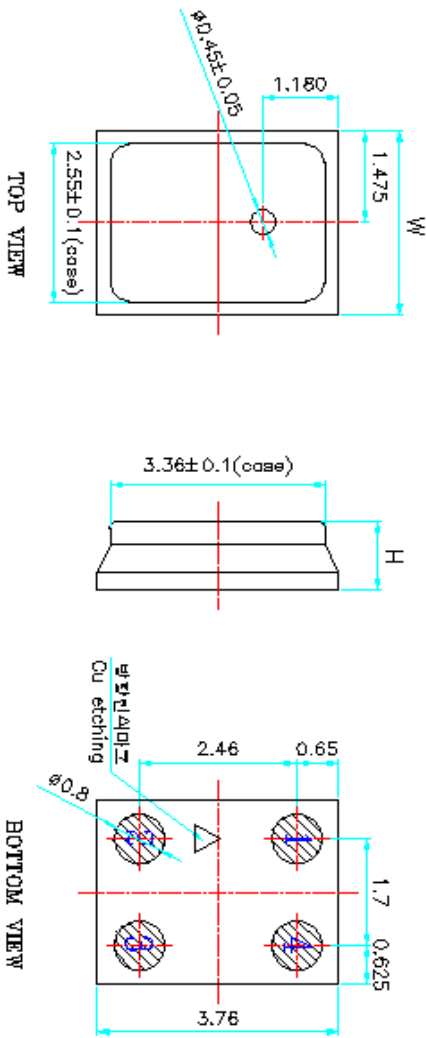
### 14.2 When a nozzle locate at the center of MIC.

- Nozzle material : Metal
- Nozzle inner diameter : Max.  $\varnothing 1.0$



REF. NO. ASMO-C110T-3P  
 THIS DRAWING MUST NOT BE REPRODUCED OR DISCLOSED TO THIRD PARTIES WITHOUT THE PRIOR CONSENT OF BSE CO., LTD.

REV.	NO.	CONTENTS	BY	DATE	APPROVED
	△				
	△				
	△				



Pin#	Function
1	POWER
2	GND
3	GND
4	OUTPUT

Item	Dimension	Tol. (+/-)	Units
Length	3.76	0.10	mm
Width	2.95	0.10	mm
Height	1.10	0.10	mm

**LIST OF MATERIALS**

NO	NAME	QTY	DESCRIPTION	REMARKS

UNLESS TOLERANCE ARE SPECIFIED  
 3 DECIMAL DIMENSIONAL WILL BE ±0.025mm  
 2 DECIMAL DIMENSIONAL WILL BE ±0.02mm  
 1 DECIMAL DIMENSIONAL WILL BE ±0.1mm

**BSE CO., LTD.**

DRAWING NAME  
 (NEW) □3.76X3.95X1.1MM C-MIC ASSEMBLY

DESIGNED	H.J.Kim	PART NAME	BECM-C110T-3P
CHECKED	S.H.Lee	FACE CHARACTER	CONDENSER MICROPHONE
APPROVED	C.W.Kim	MODEL NO.	ASMO-C110T-3P
SHEETS		DATE	2013.09.26
		SCALE	10/1
		MOD. YR	2013
		DRAWING NO.	