SPECIFICATION OF
ELECTRET CONDENSER MICROPHONE
[업체명 : 동신전자]

MODEL NO. : UB-45L37-RC33

DIRECTIVITY : UNI-DIRECTIONAL

동신전자		Prepared	Checked	Approved
	Name			
	Sign.			
BSE		Prepared	Checked	Approved
	Name	K.H.Kim	J. M. Kim	C.D.Song
	Sign.			

AGENCY : DAE SHIN INNOBIZ CO.,LTD

NA-3412, CHUNGANG YUTONG COMPLEX 15
GYEONGIN-RO 53 GIL, GURO-GU,SEOUL. KOREA
TEL :(822) 6679-4500-2
FAX :(822) 6679-4503

※ All Parts are Halogen Free Material.

SPECIFICATION HISTORY

History Change	Date	Item	Contents	Grounds
ISSUE From BSE To	2010.02.24	UB-45L37-RC33	1st Submission of Microphone spec.	
ISSUE From To				
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CONTENTS

1. SCOPE

This specification shall be applied to electret condenser microphone (ECM)

2. MODEL NO.

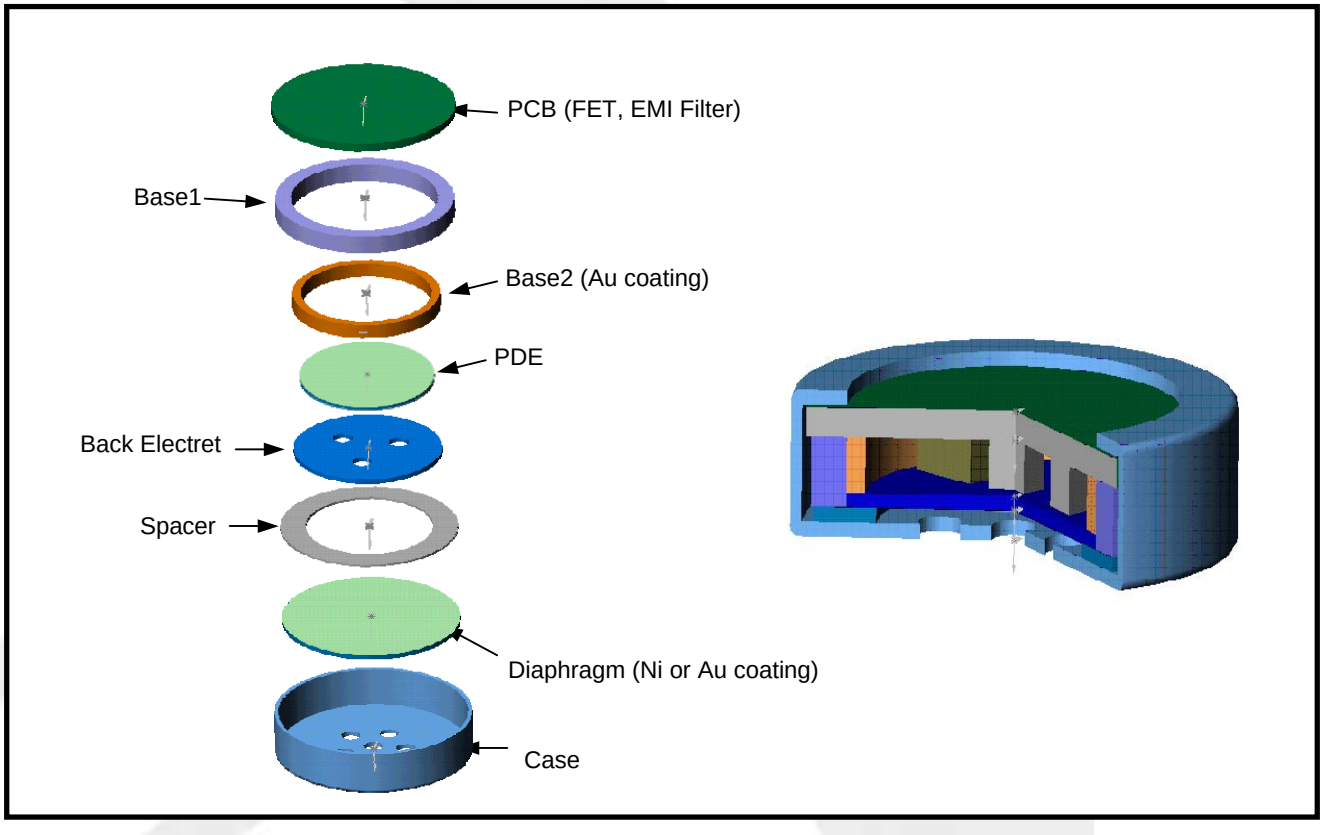
UB-45L37-RC33

3. ELECTRICAL CHARACTERISTICS

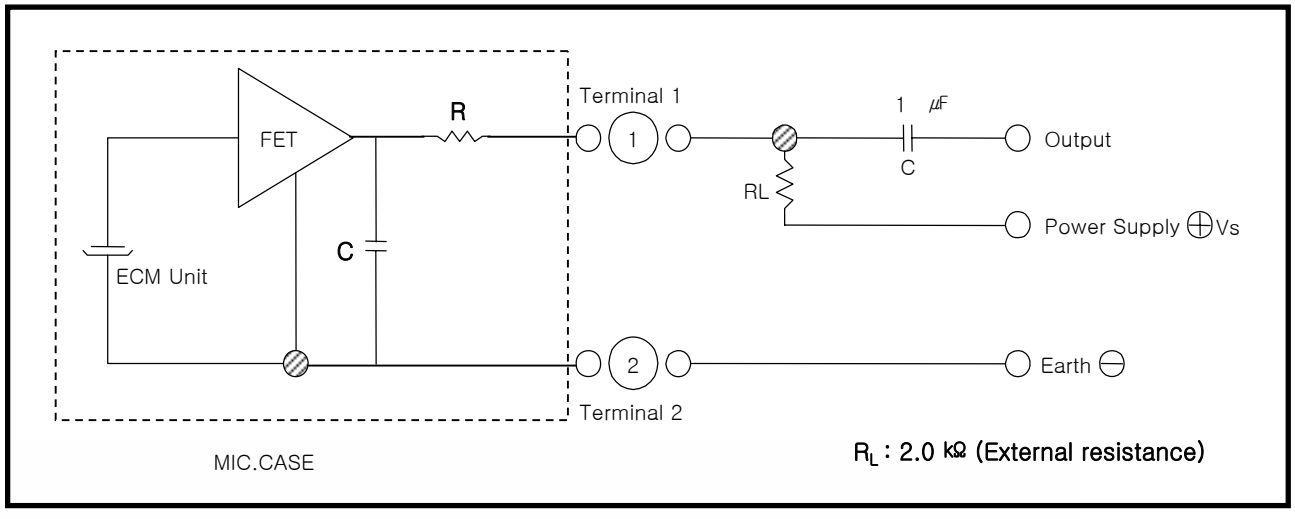
Temp. = 23 ± 2 ℃ Room Humidity = 65 ± 5 %

NO.	Parameter	Symbol	Condition	Limits			Unit
				Min.	Center	Max.	
1	Sensitivity	S	f=1㎑, S.P.L =1Pa, 0dB=1V/Pa	-40	-37	-34	dB
2	Output impedance	Z_{OUT}	f= 1㎑			2.0	kΩ
3	Current Consumption	I_{DSS}	V_{CC}=1.5V , R_L = 2.0kΩ			500	㎂
4	Signal to Noise Ratio	S/N	f=1㎑, S.P.L =1Pa (A-Weighted Curve)	70			dB
5	Decreasing Voltage	ΔS-VS	V_{CC}=1.5V to 1.0V			-3	dB
6	Operating Voltage			1		10	V
7	Maximum input S.P.L.					110	dB
8	Front to Rear Ratio	0°/180 °	f= 1㎑	15			dB

4. STRUCTURE OF ELECTRET CONDENSER MICROPHONE



5. MEASUREMENT CIRCUIT



6. TYPICAL FREQUENCY RESPONSE CURVE (Far Field)

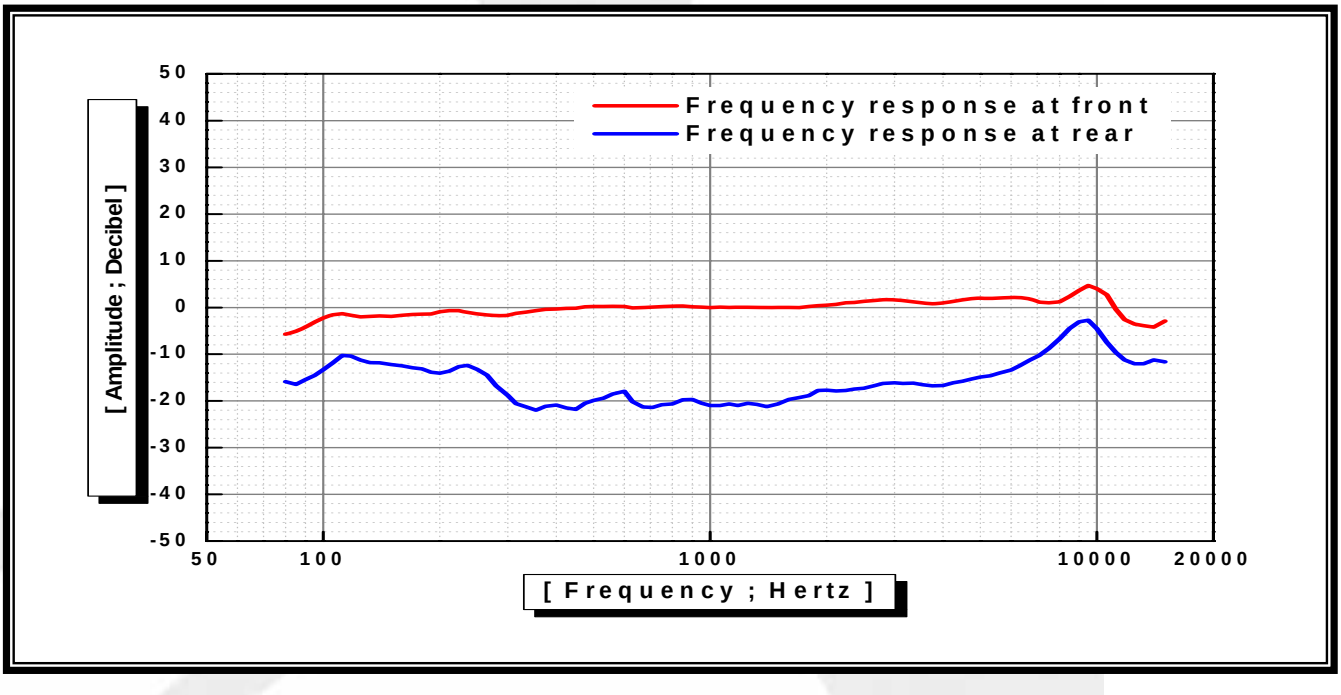
Far field Measurement Conditions.

Temperature : 23 ± 2 ℃

Bias Voltage : 1.5V (with 2.0kΩ series resistor)

Acoustic stimulus : 1Pa (94dB SPL at 1㎑) at 50 ㎝ from the loud-speaker.
The loud-speaker must be calibrated to make a flat frequency response input signal

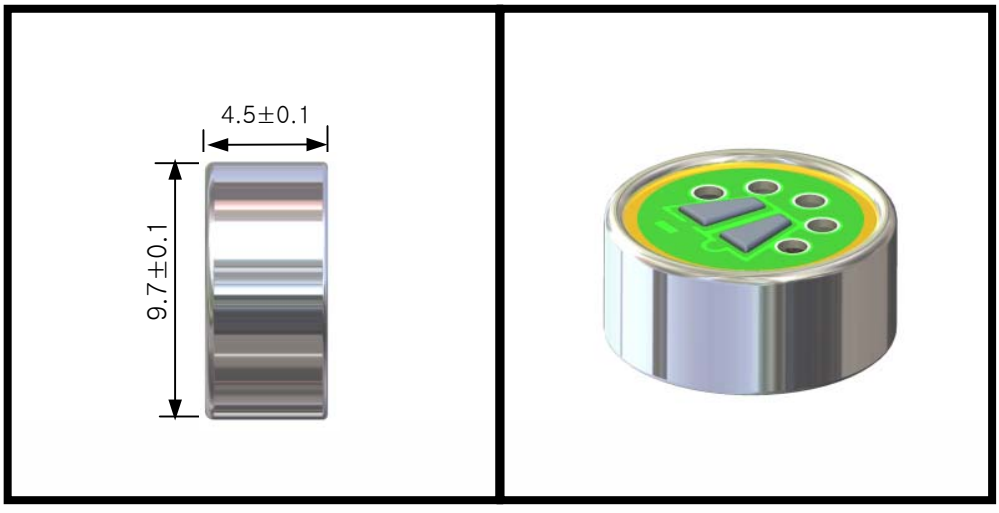
Position : The frequency response of microphone unit measured at 50㎝ from the loud-speaker



7. MECHANICAL CHARACTERISTICS

※ PCB design can be changed by model No..

■ Lead Wire Type



8. RELIABILITY TEST

8.1 VIBRATION TEST

To be no interference in operation after vibrations. 10㎐ to 55㎐ for 1 minute full amplitude 1.52㎜ , for 2 hours at three axes

8.2 DROP TEST

To be no interference in operation after dropped to concrete floor three times from 1 meter height in state of packing

8.3 TEMPERATURE TEST

- After exposure at 70℃ for 200 hours, sensitivity to be within ±3㏈ from initial sensitivity.
  (The measurement to be done after 2 hours of conditioning at room temperature)
- After exposure at -25℃ for 200 hours, sensitivity to be within ±3㏈ from initial sensitivity.
  (The measurement to be done after 2 hours of conditioning at room temperature)

8.4 TEMPERATURE CYCLE TEST

After exposure at -25℃ for 30 minutes, at 20℃ for 10 minutes, at 70℃ for 30 minutes, at 20℃ for 10 minutes. 5 cycles, sensitivity to be within ±3㏈ from initial sensitivity
(The measurement to be done after 2 hours of conditioning at room temperature)

8.5 TEMPERATURE SHOCK

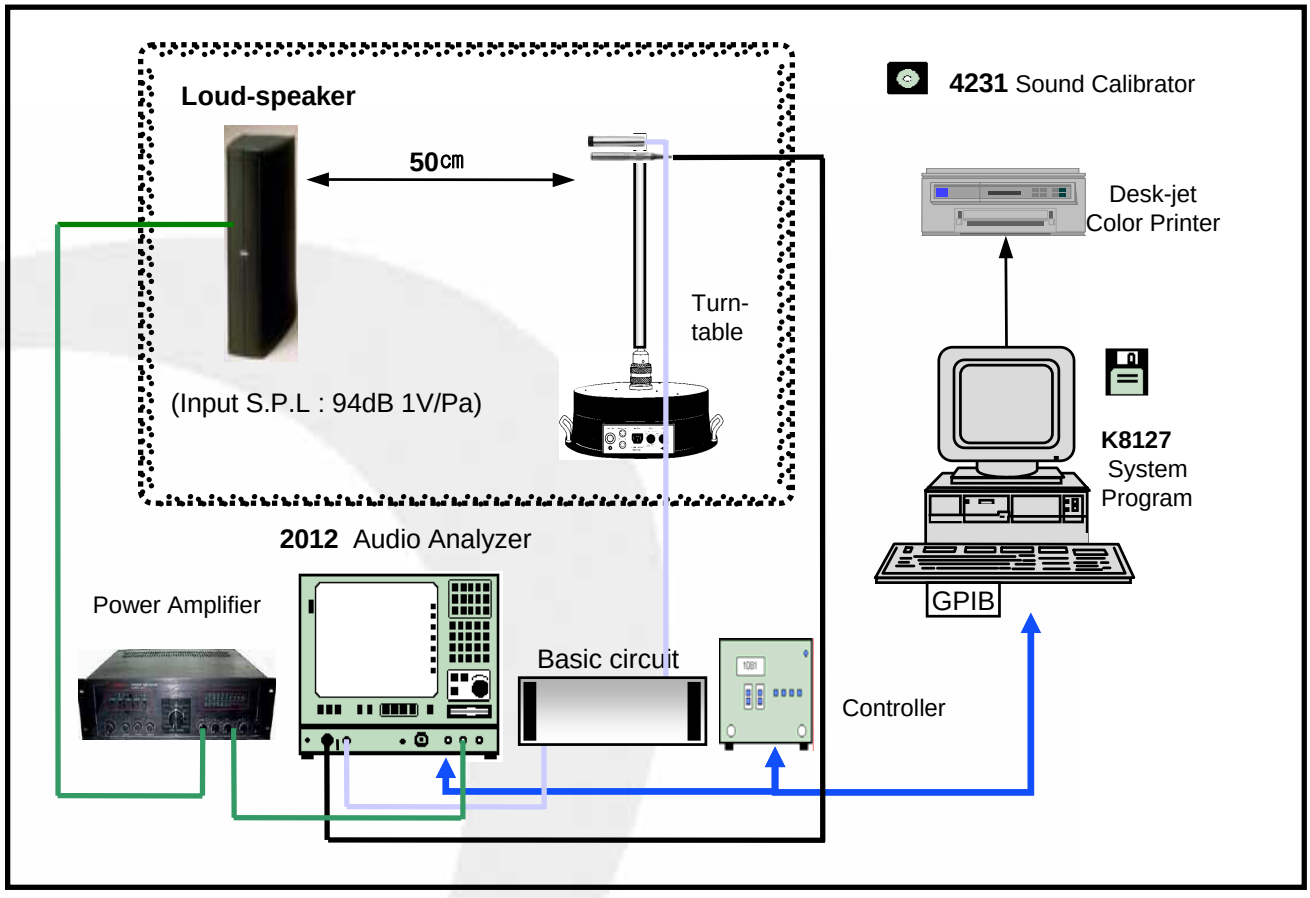
Temperature change from -40℃ to 85℃ for 30 minutes . (changing time : 20 sec.)
After 32 cycles, sensitivity to be within ±3㏈from initial sensitivity
(The measurement to be done after 2 hours of conditioning at room temperature)

9 . TEMPERATURE CONDITIONS

9.1 STORAGE TEMPERATURE : -25℃ ~ +70℃

9.2 OPERATING TEMPERATURE : -25℃ ~ +70℃

10. MEASUREMENT SYSTEM

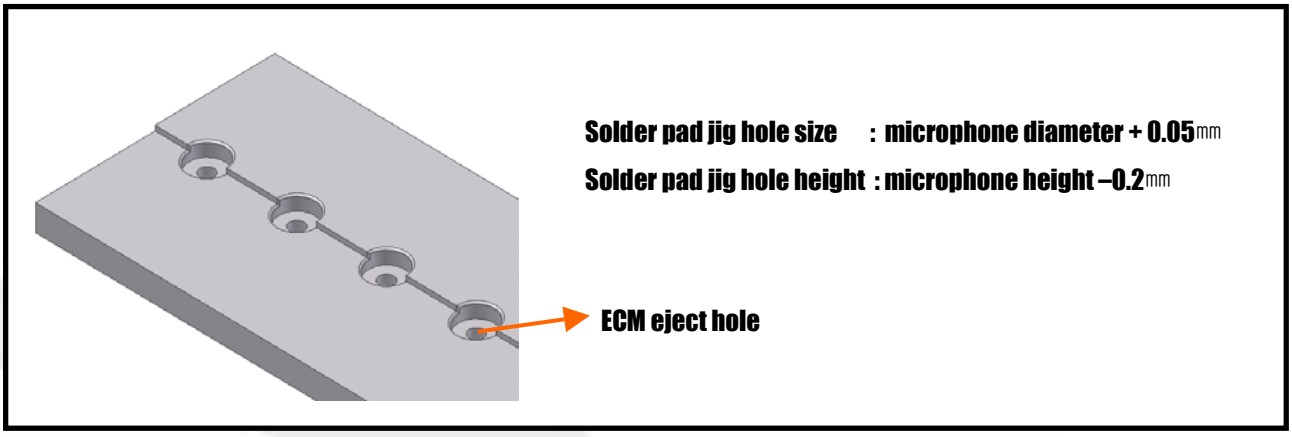


11. REGARDING THE SOLDERING OPERATION

Every ECM contains a FET with microphone body.

This FET is easy to damageable from excessive heat and electrical shock. Proper attention for the soldering work is required same as followings.

- Recommend to use high frequency soldering iron and apply 330±10℃ temperature range
- Soldering should be accomplished within 0.7±0.3 seconds at each terminal so as not to be overheated.
- Do not make a cavity at the surface of lead lump on the PCB. wiring board.
  (Opened cavity will influence to the sensitivity of ECM)
- Optimal design for heat sink pad is same as below.



12. CAUTION WITH USING ECM (ELECTRET CONDENSER MICROPHONE)

12-1 X-RAY INSPECTION

-Don't do the X-ray inspection ECM after assembled on the main board

12-2 CLEANING PROCESS

- Don't do the cleaning process with any kind of volatile solvent (Acetone, TCE, alcohol, etc.,), water, or detergent
- Any dust or particle got into ECM can reduce the sensitivity of the microphone

12-3 ULTRASONIC WELDING

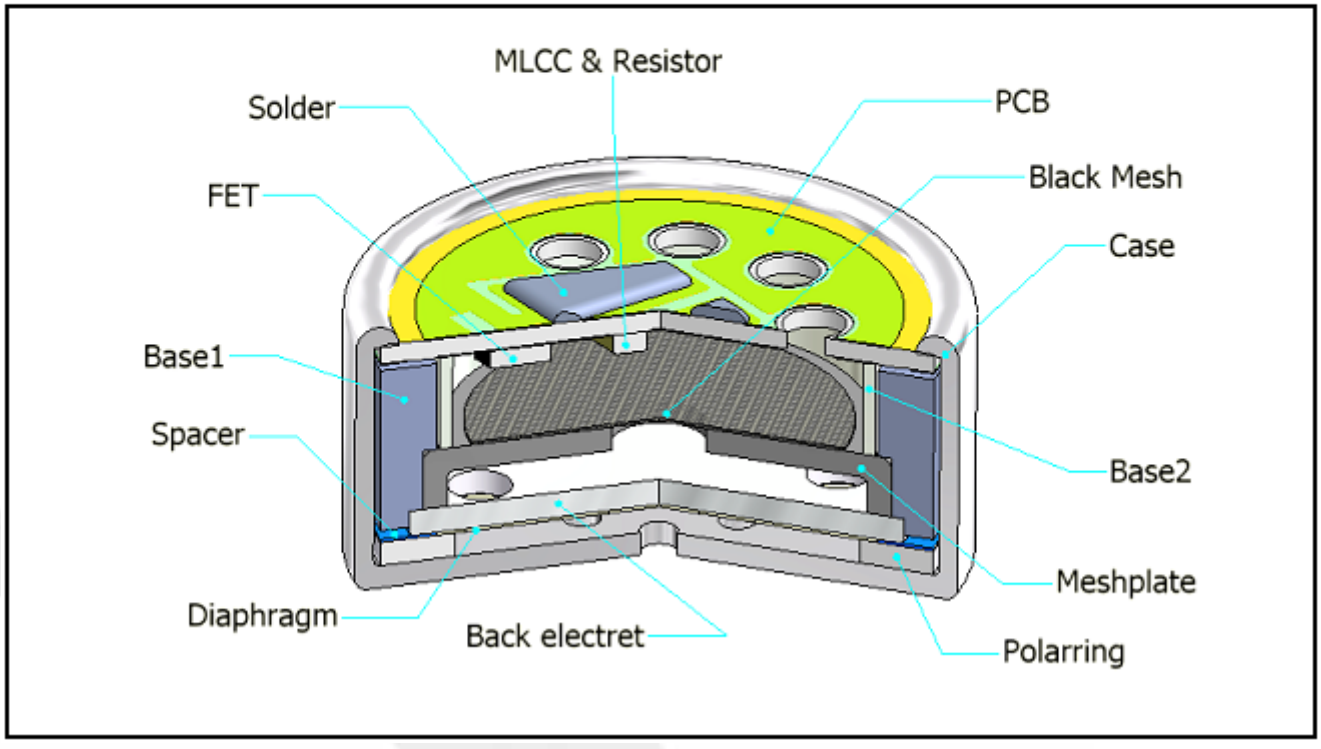
- It's possible to affect the acoustic properties depending on the process conditions.

12-4 SOLDERING

- It's possible to affect the acoustic properties depending on the wave soldering conditions.
  (this process applied for only pin type microphone)

MATERIAL LIST

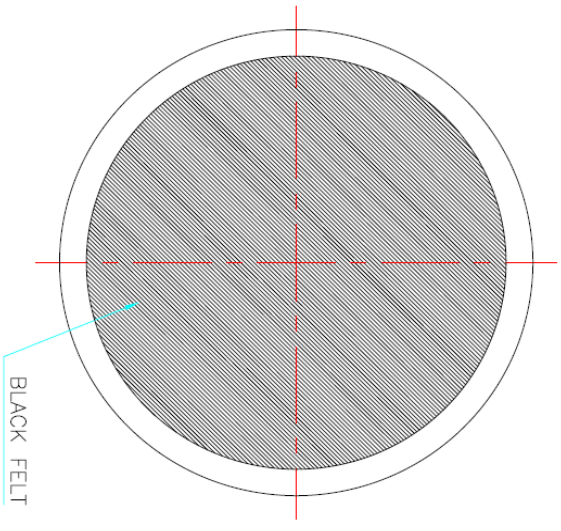
MODEL : UB-45L-RC33[HF]	Drawing Date : 2010. 01. 16

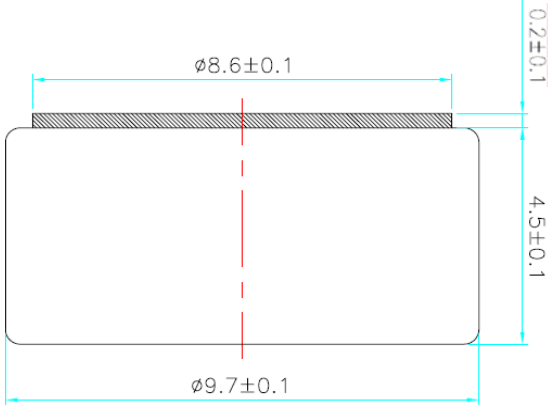


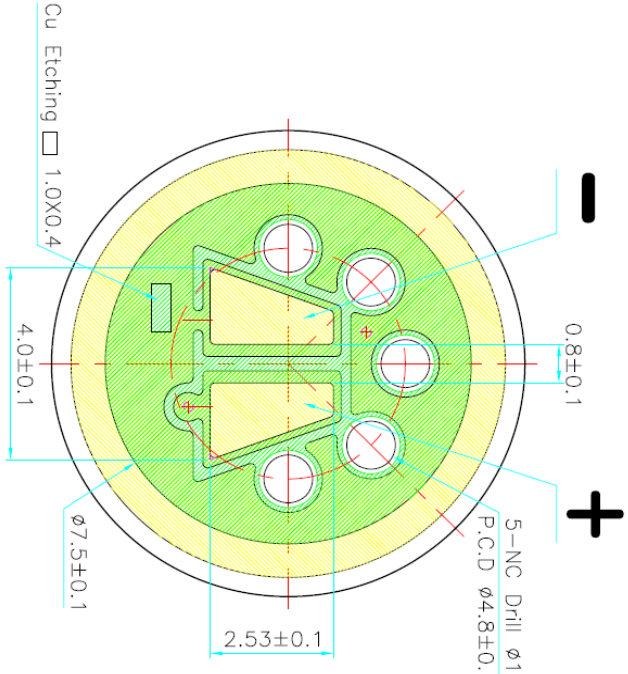
PART NAME	MATERIAL
CONVERTER (F.E.T)	RS905T
CASE	ALUMINUM
BASE1	PBT
BASE2	BRASS(Ni coating)
PCB	GLASS EPOXY 0.3t H/H oz
BACK ELECTRET	BACK PLATE
SPACER	THIN FILM
DIAPHRAGM	GOLD METALIZED FILM
MESH PLATE	SUS304
MESH(woven fabric)	POLY ESTER
MLCC	3.3㎋ (1005 TYPE)
RESISTOR	100Ω (1005 TYPE)

양식 BSRD 03-03

REF.NO







REV.	NO	CONTENTS	BY	DATE	APPROVED
	△				
	△				

NO	NAME	Q'TY	DESCRIPTION	REMARKS

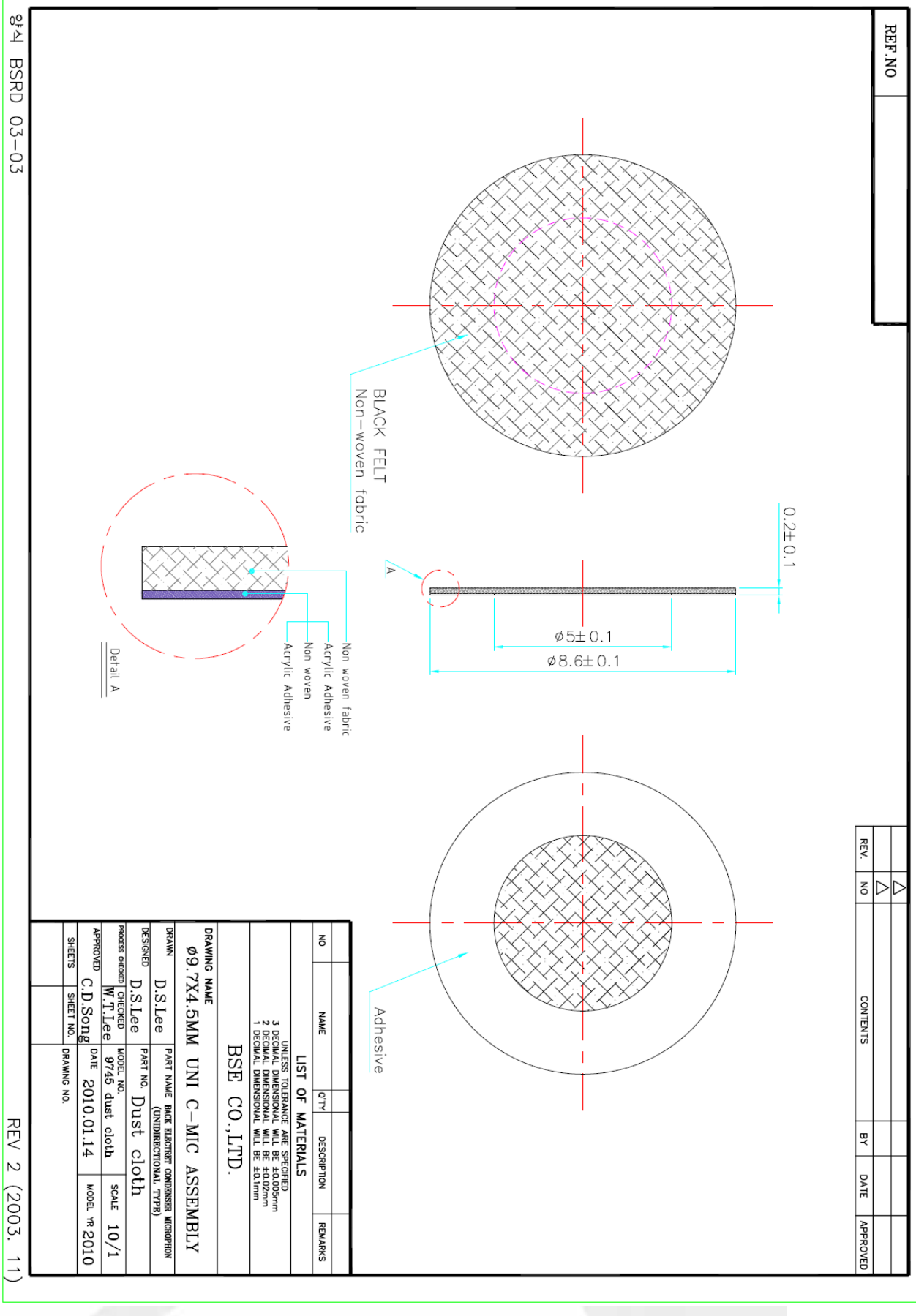
LIST OF MATERIALS

UNLESS TOLERANCE ARE SPECIFIED
3 DECIMAL DIMENSIONAL WILL BE ±0.005mm
2 DECIMAL DIMENSIONAL WILL BE ±0.02mm
1 DECIMAL DIMENSIONAL WILL BE ±0.1mm

BSE CO.,LTD.

DRAWING NAME	ø9.7X4.5MM UNI C-MIC ASSEMBLY
DRAWN	H.J.Kim
PART NAME	BACK ELECTRET CONDENSER MICROPHON (UNIDIRECTIONAL TYPE)
DESIGNED	H.J.Kim
PART NO.	BECM-9745U H/F
PROCESS CHECKED	W.T.Lee
CHECKED	W.T.Lee
MODEL NO.	UB-45L-RC33 H/F
SCALE	10/1
APPROVED	C.D.Song
DATE	2010.01.14
MODEL YR	2010
SHEETS	
SHEET NO.	
DRAWING NO.	

REV 2 (2003. 11)


REF.NO
BLACK FELT
Non-woven fabric
0.2± 0.1
ø5± 0.1
ø8.6± 0.1
A
Detail A
Non woven fabric
Acrylic Adhesive
Non woven
Acrylic Adhesive
Adhesive
REV.
NO
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NO
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BSE CO.,LTD.
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ø9.7X4.5MM UNI C-MIC ASSEMBLY
DRAWN
D.S.Lee
PART NAME BACK ELECTRET CONDENSER MICROPHON (UNIDIERECTIONAL TYPE)
DESIGNED
D.S.Lee
PART NO. Dust cloth
PROCESS CHECKED
CHECKED
W.T.Lee
MODEL NO.
9745 dust cloth
SCALE 10/1
APPROVED
C.D.Song
DATE 2010.01.14
MODEL YR 2010
SHEETS
SHEET NO.
DRAWING NO.
양식 BSRD 03-03
REV 2 (2003. 11)