

# OBO PRO.2 INC.

## 啓弘股份有限公司

No. 18, Yanwu Rd., Taoyuan City, Taiwan 330, R.O.C.  
 TEL: 886-3-346-8636 FAX: 886-3-346-8645~6  
 E-MAIL: sales@obopro2.com Website: www.obopro2.com

### Specification for Approval

NO.:

Part Name : Electret Condenser Microphone

Model No. : OBO-54FN-OB-001

Date : FEB.05,2004

Page	Cover Page	1	2	3	4	5	6	7	8	9	10	11	12	
Version	A	A	A	A	A									

### CHANGES

No.	Date	ECN. No.	Version	Description	Sign
--	FEB.05.'04	---	A	New Document	Sam Chen.

Please kindly make approval of our samples, And return this form by fax or airmail, Thanks for your kind attention and co-operation.

(請對我們公司樣品給予承認, 承認後加蓋承認章以傳真或郵寄方式回覆, 謝謝貴公司的支持與合作)

Customer Name : \_\_\_\_\_

Customer Part No. : \_\_\_\_\_

Designed By	Checked By	Approval By

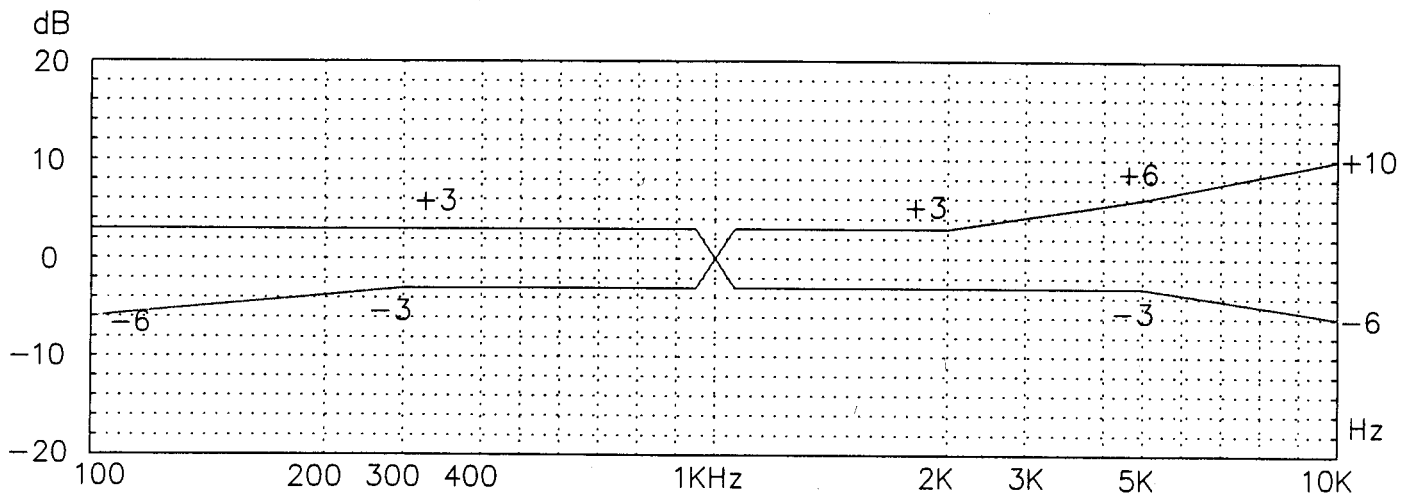
Model No. : OBO-54FN-0B-001

1.ELECTRICAL CHARACTERISTICS

Test Condition : (Vs=2.0V,RL=2.2KΩ,Ta=20±2°C,R.H.=65±5%)

Directivity : Omnidirectional							
No	Parameter	Symbol	Condition	Limit			Unit
				Min	Center	Max	
1.1	Sensitivity	S	F=1KHz,S.P.L.=1Pa 0dB=1V/Pa	-41	-38	-35	dB
1.2	Output Impedance	Zout	F=1KHz			2.2	KΩ
1.3	Current Consumption	I <sub>loss</sub>	VS=2.0V, RL=2.2KΩ			500	μA
1.4	Signal to Noise Ratio	S/N	S:(F=1KHz, S.P.L=1Pa) N:(A-Weighted Curve)	58			dB
1.5	Decreasing Voltage	Δ S-VS	VS=3.0V to 1.5V			-3	dB

1.6 Typical Frequency Response Curve Limit

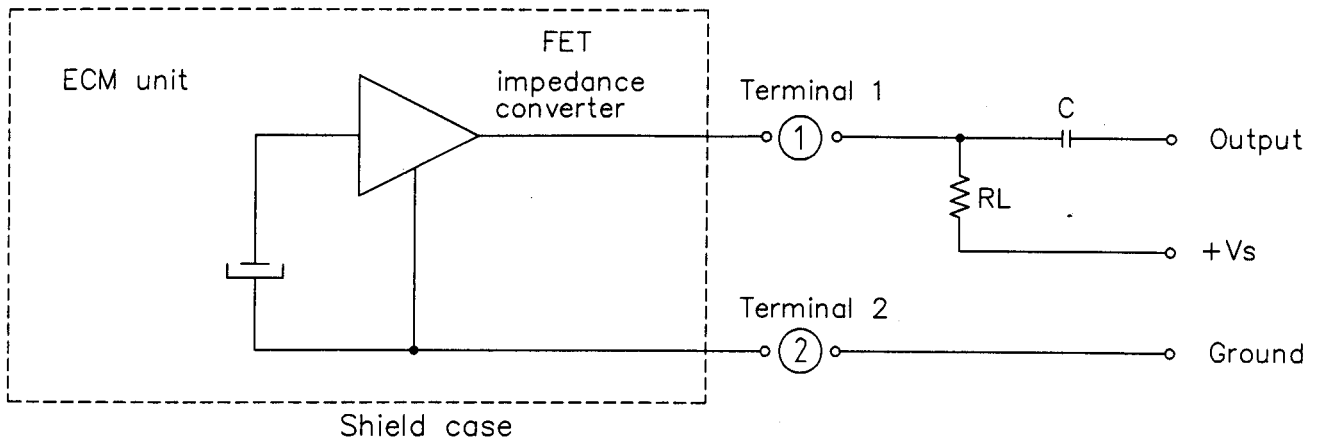


◎ Frequency : 50~16,000Hz

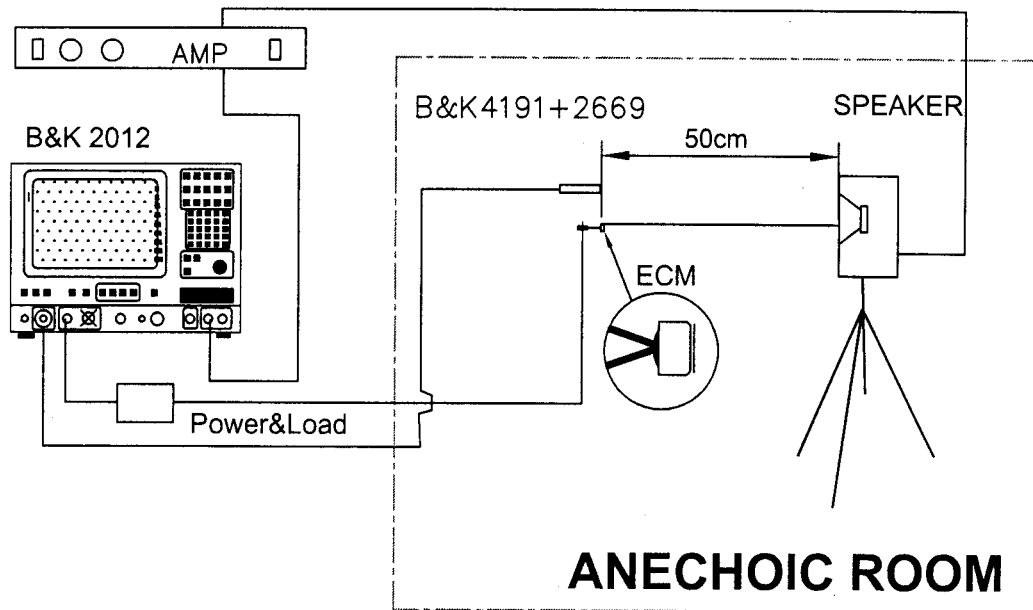
◎ Operating Voltage : 1V to 10V

Drawing by	Checked by	Approved by	Page No.	Model No.	Version	Date
Sām Chen FEB.05.2004	陳建合	陳建合	1	54FN-0B-001	A	FEB.05,2004

## 2. MEASUREMENT CIRCUIT



## 3. MEASUREMENT METHOD

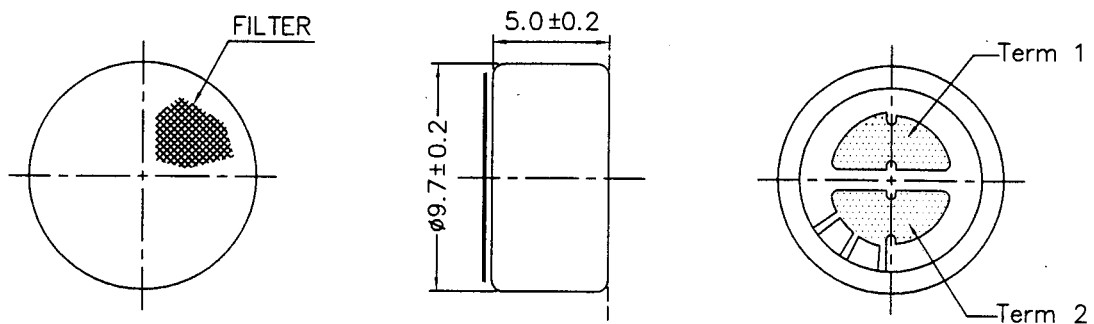


## 4. MECHANICAL CHARACTERISTICS

4.1 Soldering Standard :  $260 \pm 5^\circ\text{C}$  / Max. 2 seconds

4.2 Weight : Appr. 0.8g

4.3 Mechanical Layout and Dimensions :



Unit: mm

Drawing by	Checked by	Approved by	Page No.	Model No.	Version	Date
Sam Chen FEB.05.2004	陳建合 11/11	陳建合 11/11	2	54FN-0B-001	A	FEB.05,2004

## 5. TEMPERATURE CONDITIONS

5.1 Operating Temperature Range :  $-20^{\circ}\text{C} \sim +60^{\circ}\text{C}$

5.2 Storage Temperature Range :  $-25^{\circ}\text{C} \sim +70^{\circ}\text{C}$

## 6. RELIABILITY TEST

Vibration Test	To be no interference in operation after vibrations, 10Hz to 55Hz for full amplitude 1.5mm, for 2 hours at 3 axes.
Drop Test	The microphone unit without packaged must be subjected to each 3 drops at 3 axes, the height of 1 meter to 20 mm thick wooden board.
Temperature Test	(a) After exposure at $+70^{\circ}\text{C}$ for 72 hours, sensitivity to be within $\pm 3\text{dB}$ from initial sensitivity. (b) After exposure at $-25^{\circ}\text{C}$ for 72 hours, sensitivity to be within $\pm 3\text{dB}$ from initial sensitivity. (The measurement to be done after 6 hours of conditioning at $25^{\circ}\text{C}$ .)
Humidity Test	After exposure at $+60^{\circ}\text{C}$ and $90 \pm 5\%$ relative humidity for 240 hours. sensitivity to be within $\pm 3\text{dB}$ from initial sensitivity. (The measurement to be done after 6 hours of conditioning at $25^{\circ}\text{C}$ .)
Temperature Cycle Test	After exposure at $+70^{\circ}\text{C}$ for 1 hr, from $+70^{\circ}\text{C}$ to $+25^{\circ}\text{C}$ for 0.5hr, at $+25^{\circ}\text{C}$ for 1hr, from $+25^{\circ}\text{C}$ to $-20^{\circ}\text{C}$ for 0.5hr, at $-20^{\circ}\text{C}$ for 1hr, from $-20^{\circ}\text{C}$ to $+25^{\circ}\text{C}$ for 0.5hr, at $+25^{\circ}\text{C}$ for 1hr, after 10 cycles, the sensitivity to be within $\pm 3\text{dB}$ from initial sensitivity. (The measurement to be done after 6 hours of conditioning at $25^{\circ}\text{C}$ .)

## 7. CONCEPT OF UNIT

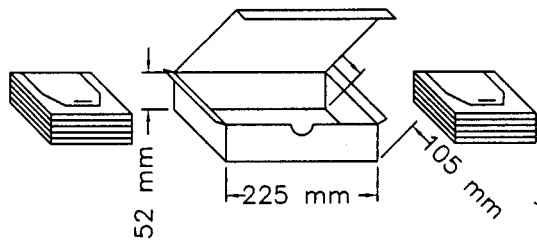
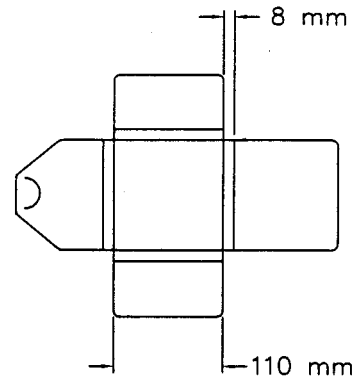
The difference between concept of unit "Pascal" and the one of unit " $\mu\text{bar}$ " can be explained as follows. in calibrating the sensitivity of ECMS. the sensitivity is manifested differently according as the units "Pascal" or " $\mu\text{bar}$ ". That is the sensitivity will be increased by 20dB in the usage of unit "Pascal". Example :  $-62\text{dB}(\text{OdB}=1\text{V}/\mu\text{bar}) = -42\text{dB}(\text{OdB}=1\text{V}/\text{Pa})$

Drawing by	Checked by	Approved by	Page No.	Model No.	Version	Date
Sam Chen 陳瑞宇 FEB.05.2004	陳建合 /11/04	陳建合 /11/04	3	54FN-0B-001	A	FEB.05,2004

8. PACKAGING

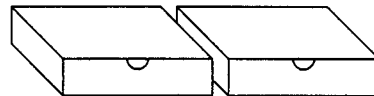


PUT INTO CARDBOX  
100 pcs / PER CARDBOX



10 CARDBOXES / PER  
SMALL BOX(1000 pcs)

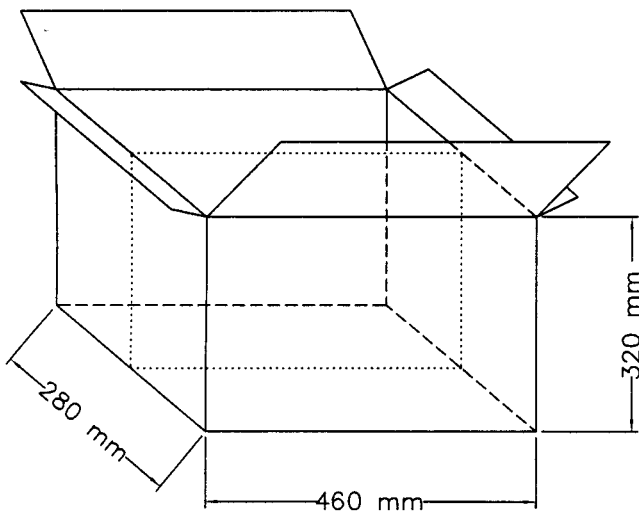
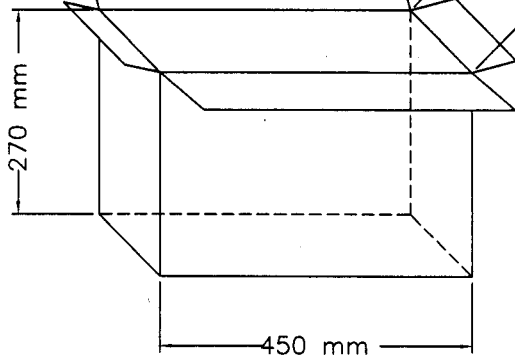
LOAD IN



LOAD IN

LOAD IN

125 mm



2 MIDDLE BOXES / PER  
CARTON (20000 pcs)  
(IMPORTED CARTON MATERIAL)

LOAD IN

10 SMALL BOXES / PER  
MIDDLE BOX(10000 pcs)  
(IMPORTED CARTON MATERIAL)

Drawing by	Checked by	Approved by	Page No.	Model No.	Version	Date
Sam Cheung 陳鴻宇 FEB.05.2004	陳建合	陳建合	4	54FN-0B-001	A	FEB.05.2004