



WING CHEONG ELECTRICAL COMPANY
WING CHEONG ELECTROACOUSTIC INDUSTRIAL LIMITED

CUSTOMER		
SPECIFICATIONS	WCB-0312OM09 (SMD MIC, PPS CONE)	
DIMENSIONAL	Ø3.0×1.2mm	
SENSITIVITY	-42±3dB (0dB=1V/Pa at 1 KHz) 2.0V 2.2KΩ	
CUSTOMER MODEL		
VENDOR		CUSTOMER
MADE BY	CHECKED BY	APPROVED BY
Revision level	Description of changes	Changed date



TYPE: WCB-0312OM09

1. BACK ELECTRICAL CHARACTERISTICS

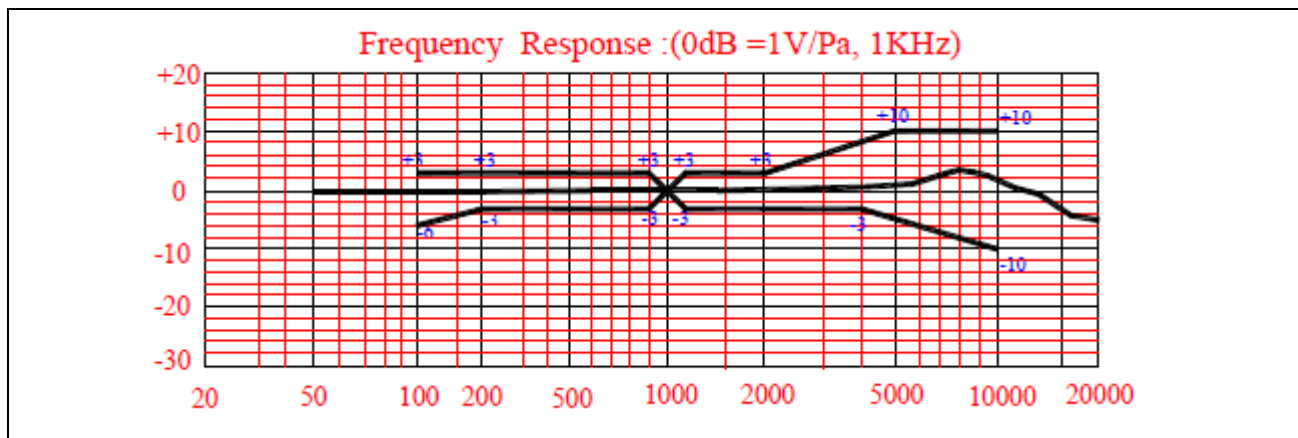
1.1 TEMP=20±2°C

Room Humidity=65±5%

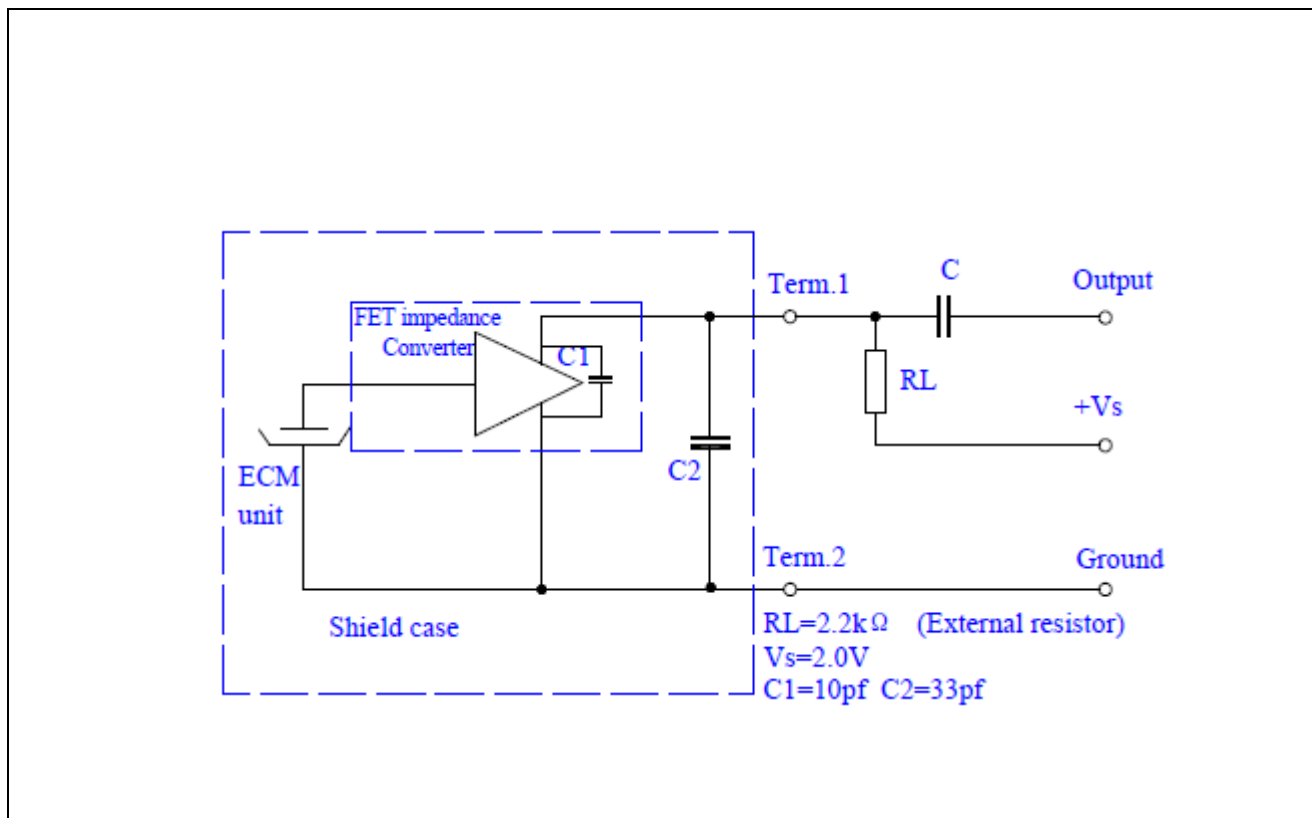
PARAMETER	SYMBOL	CONDITION	LIMITS			UNIT
			Min	Center	Max	
Sensitivity	S	F=1KHZ,S.P.L=1Pa 0dB=1V/Pa	-45	-42	-39	dB
Output impedance	Zout	F=1KHZ		2.2		KΩ
Current Consumption	IDss	VS=2.0V RL=2.2KΩ			500	A
Directivity	Omni-directional					
Signal to Noise Ratio	S/N	S:(f=1KHz,S.P.L=1Pa) N: (A-Weighted curve)		45		dB
Decreasing Voltage	ΔS-VS	Vs=2.0V to 1.5V			-3	dB
Operating voltage			1.0		5.0	V
Maximum input S.P.L		f=1KHZ , THD < 5%		100		dB



1.2 TYPICAL FREQUENCY RESPONSE CURVE



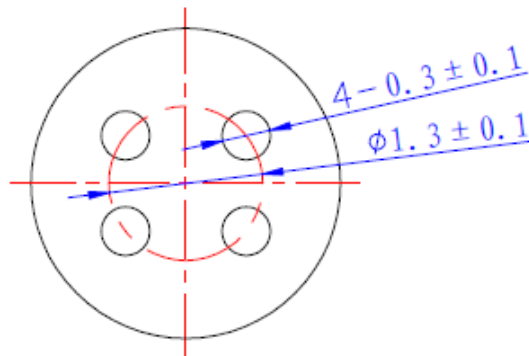
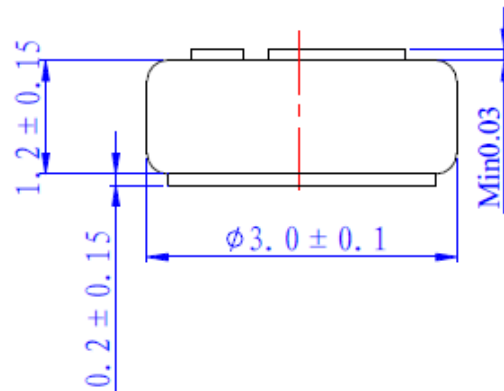
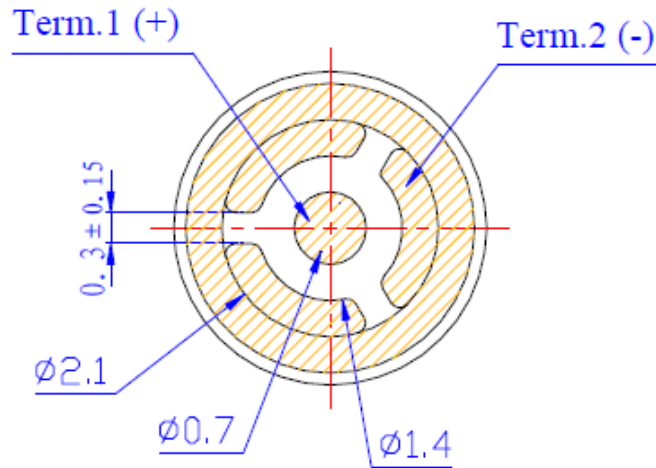
2. MEASUREMENT CIRCUIT





3. APPEARANCE & DIMENSIONS

Unit: mm

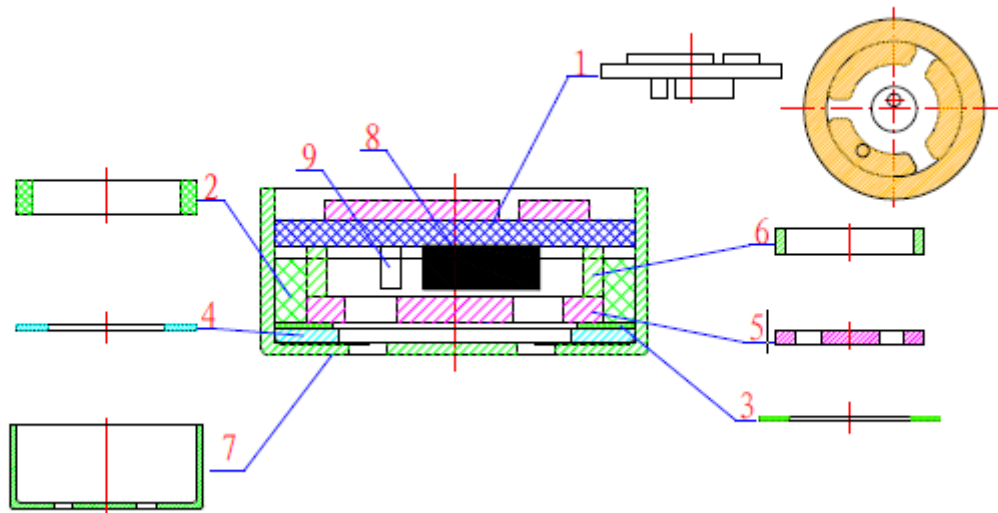


DIMENSIONS : $\phi 3.0 \times 1.2$ mm

ECM : WCB-0312OM09



4. MICROPHONE STRUCTURE



ITEM	PART NAME	MATERIAL	QTY	SUPPLIER
1	P.C.B	FR-4	1	LOCAL
2	CHAMBER	PA	1	LOCAL
3	SPACER	POLYESTER FILM	1	LOCAL
4	DIAPHRAGM	POLYSTER AND STAINLESS STEEL	1	LOCAL
5	PLATE	FEP AND METAL	1	LOCAL
6	BRASS	BRASS	1	LOCAL
7	CASE	BRASS WITH NICKEL COATED	1	LOCAL
8	FET		1	
9	CAPACITANCE		1	



REMARKS :

1. To ensure leadership of the products, our company will upgrade components layout and color adjustments. After Technology update, we won't notice again, if you have any questions, please contact our marketing department.
2. The color difference is a result of different purchase batches, which will not affect function, so it is not considered as acceptance criteria.
3. The percentage of assigned Sensitivity entering adjacent range is less than 30%

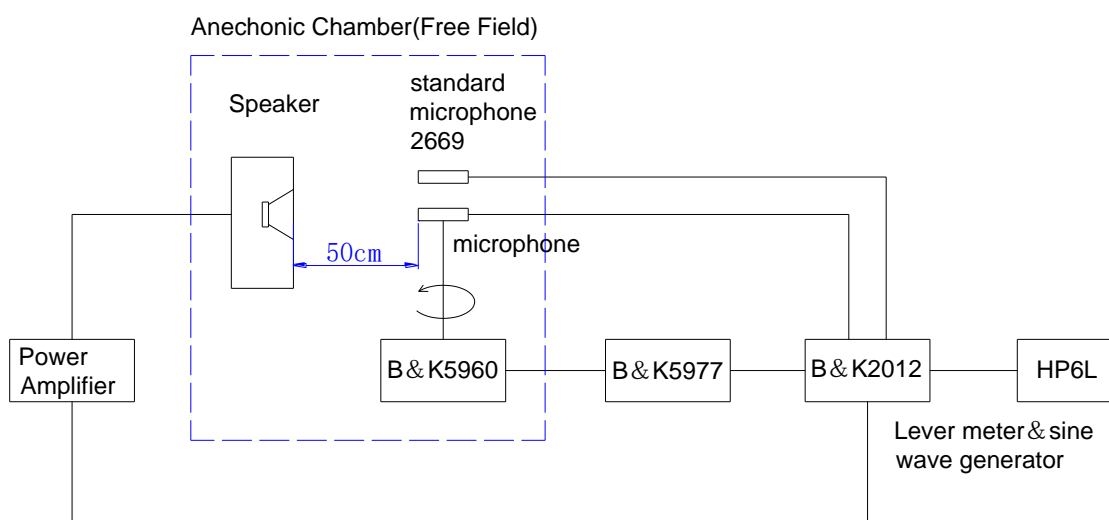
5.SENSITIVITY STANDARD TESTING

5.1 SENSITIVITY

5.2 REQUEST:

The tolerance of sensitivity is not over +/- 3dB to the standard microphone.

5.3 TESTING WAY:





5.3.1 Testing microphone with the standard operating condition.

5.3.2 Put the microphone and standard microphone to face the sound output place (speaker), the distance from sound output to microphone & standard microphone is 50cm. And keep the center distance 5cm between each other to ensure the sound pressure change should be keep in +/- 1dB.

5.3.3 Keep the output sound pressure in +/- 1dB from the speaker. (Tested by standard microphone)

5.3.4 The sensitivity of microphone is getting its output voltage when sound output keeps in 1000Hz & 1Pa.

5.4 Testing Condition

In Normal Weather

Environment Temperature : 5 ~ 35°C

Relative Humidity : 45 ~ 85%

Air Pressure : 86 ~ 106Kpa

In Arbitrate Weather

Environment Temperature : 20 +/- 2°C

Relative Humidity : 60 ~ 70%

Air Pressure : 86 ~ 106Kpa



6. RELIABILITY TEST

All tests are to be carried out on the same test batch in the order listed.

The sensitivity to be within $\pm 3\text{dB}$ of initial sensitivity after 3 hours of conditioning at 20°C .

Temperature Test	After exposure at 60°C for 96hours, the sensitivity to be within $\pm 3\text{dB}$ from the initial value.
	After exposure at -25°C for 96 hours the sensitivity to be within $\pm 3\text{dB}$ from the initial value.
Humidity Test	After exposure at 40°C and 90~95% relative humidity for 96 hours, the sensitivity to be within $\pm 3\text{dB}$ from the initial sensitivity.
Temperature Cycle Test	After exposure at -25°C for 30 minutes, at 20°C for 10 minutes, at $+60^\circ\text{C}$ for 30 minutes, at 20°C for 10 minutes, 5 cycles, the sensitivity to be within $\pm 3\text{dB}$ from the initial value.
Vibration Test	To ensure no effect on the use of vibrations, 50Hz at full amplitude of 1.52mm, for 2 hours at 1 anises test are carried out.
Drop Test	To ensure no effect on use after being dropped, the test microphone dropped on a concrete floor from a height of 1-meter.



7. TEMPERATURE CONDITONS

The full packed Mic. Should be store at warehouse in $-25 \sim +70^{\circ}\text{C}$ and the relative humidity not bigger than 90%. The warehouse must keep constant temperature, without acid or any other poisonous gas, and not caused any influence from strong magnetic field.

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

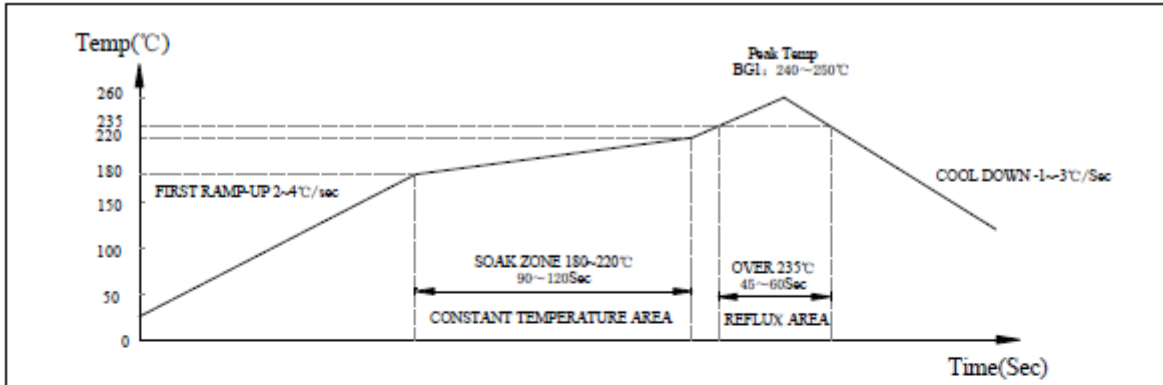
8. CONCEPT OF UNIT

The difference between the unit “Pascal” and the unit “ μbar ” can be explained as follows. In order to calibrate the sensitivity of ECMs the sensitivity is manifested differently according to the unit “Pascal” or “ μbar ”. That is, the sensitivity will be increased by 20 dB when using of the unit “Pascal”.

Example: $-60 \text{ dB} (0 \text{ dB} = 1 \text{ V} / \mu\text{bar}) = -40 \text{ dB} (0 \text{ dB} = 1 \text{ V} / \text{Pa})$



9. REFLOW PROFILE (GUARANTEED MAXIMUM REFLOW CONDITION)



NOTE:

- 1、 The maximum temperature rise in the slope of 2~4°C/sec
- 2、 The constant temperature is 180~220°C, Time: 90~120sec
- 3、 The reflux area temperature is above 235°C, Time: 45~60 sec
- 4、 The maximum temperature is 240~250°C, MAX 5sec.
- 5、 The maximum temperature drop in the slope of -1~3°C/sec

REFLOW SOLDERING PROFILE
(TBD)

Do not perform more than twice
After reflow soldering under following conditions in the first time, the sensitivity of the microphone shall be changed within 2 dB from initial value. Can not sure the sensitivity can be in the scope of 2 dB if reflow two times or more.

10. PAD LAND PATTERN RECOMMENDED DESIGN

