

ECM APPROVAL SHEET

编号:

| | | |
|-----------------------------|---|---------------------|
| 客 戶 CUSTOMER | | |
| 產品型號 SPECIFICATIONS | DW-4015BP17C1033Z3-HF | |
| 外型尺寸 DIMENSIONAL | Ø4.0×1.5mm | |
| 靈 敏 度 SENSITIVITY | -42±3dB (0dB=1V/Pa,at 1KHz) 2.0V 2.2KΩ | |
| 客戶料號 / 機種 CUSTOMER MODEL | | |
| VENDOR | | CUSTOMER |
| MADE BY | CHECKED BY | APPROVED BY |
| | | |
| Revision level | Description of changes | Changed date |
| | | |
| | | |

*** PLEASE SEND US A COPY, IF YOU APPROVE**

TYPE: DW-4015BP17C1033Z3-HF

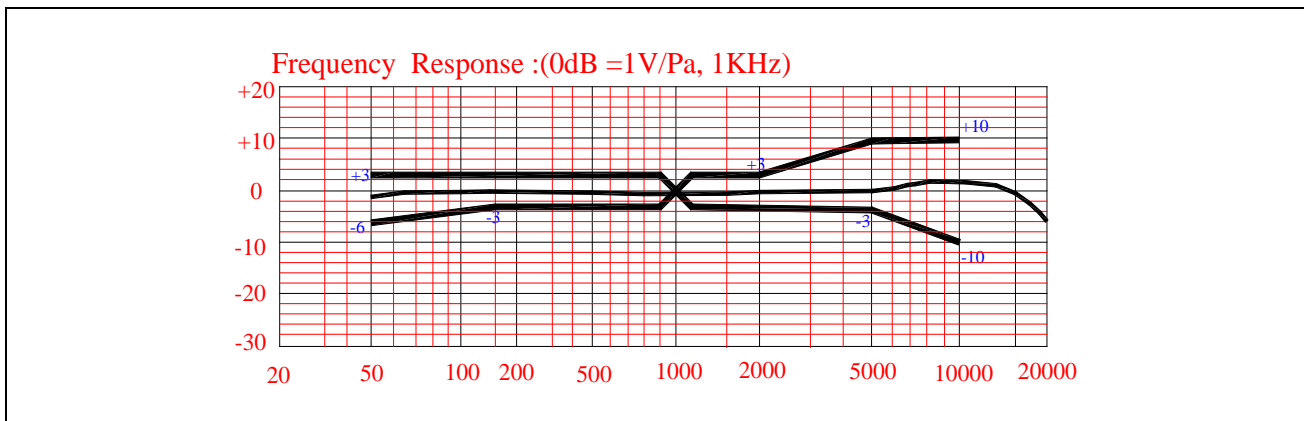
1. BACK ELECTRICAL CHARACTERISTICS

1.1 TEMP=20±2℃

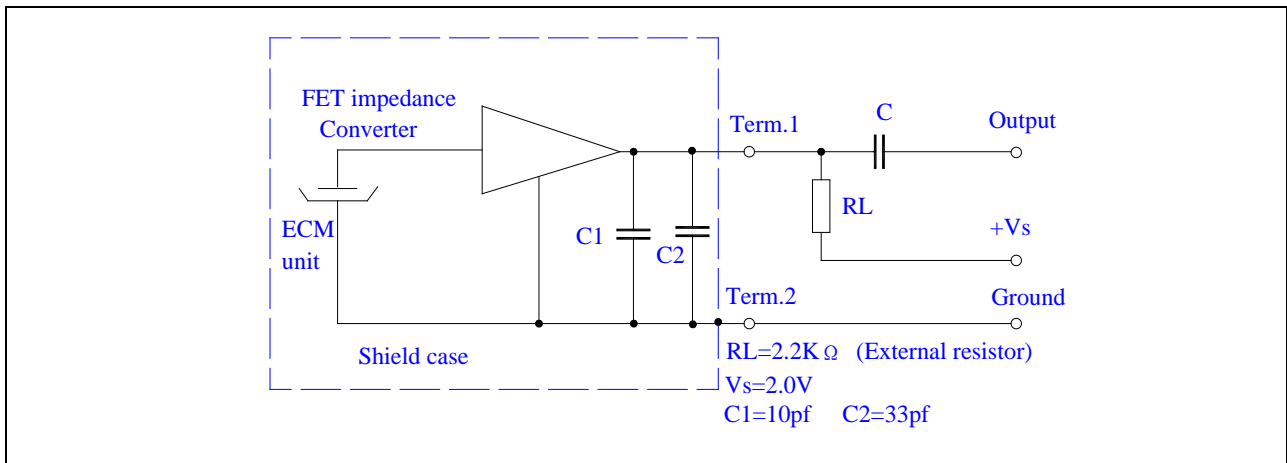
Room Humidity=65±5%

| 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 | μA |
| Directivity | Omni directional | | | | | |
| Signal to Noise Ratio | S/N | S:(f=1KHz,S.P.L=1Pa) N:(A-Weighted curve) | 58 | | | dB |
| Decreasing Voltage | ΔS-VS | Vs=2.0V to 1.5V | | | -3 | dB |
| Operating voltage | | | 1.0 | | 10 | V |
| Maximum input S.P.L | | f=1KHZ, THD<1% | | | 110 | dB |

1.2 TYPICAL FREQUENCY RESPONSE CURVE

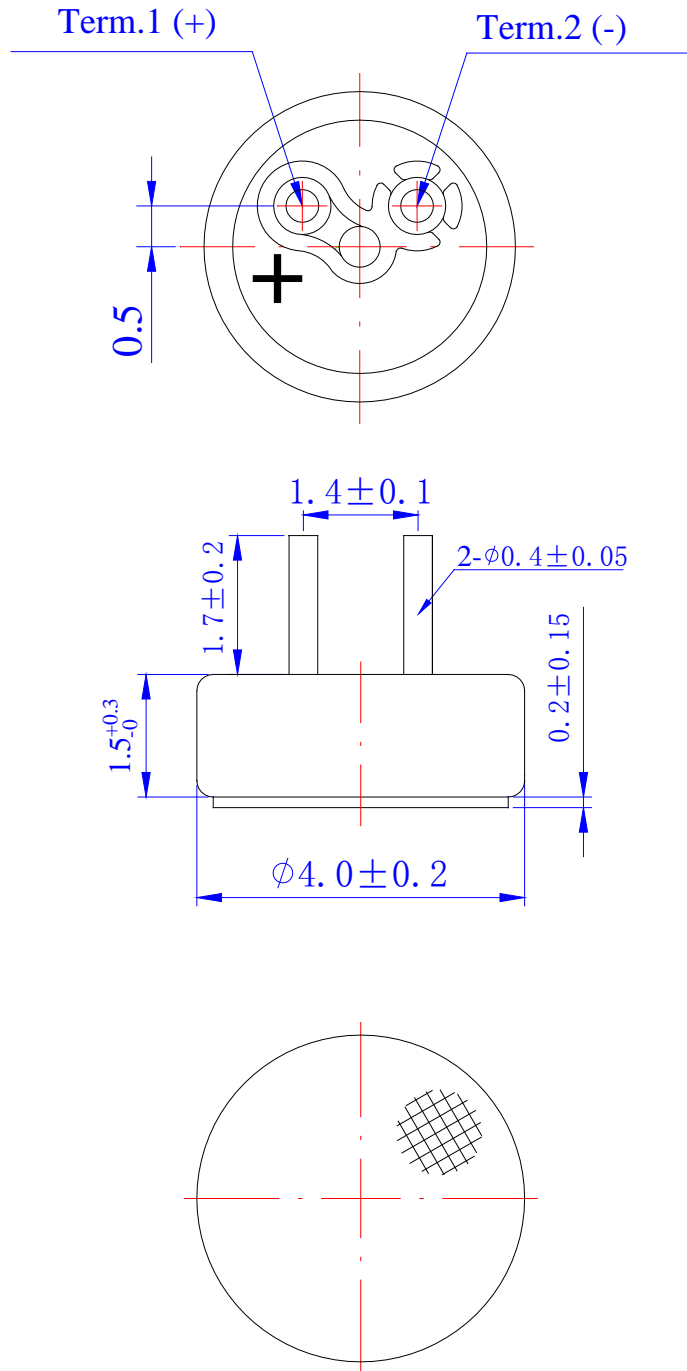


2. MEASUREMENT CIRCUIT



3. APPEARANCE & DIMENSIONS

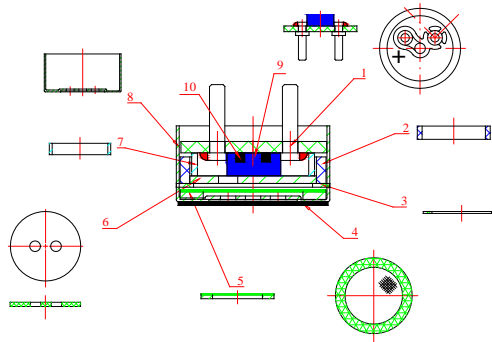
Unit: mm



DIMENSIONS: 4.0×1.5mm

ECM: DW-4015BP17C1033Z2-HF

4.STRUCTURE OF MICROPHONE



| ITEM | PART NAME | MATERIAL | QTY | SUPPLIER |
|------|-------------|-------------------------------|-----|----------|
| 1 | P.C.B | FR-4 | 1 | LOCAL |
| 2 | CHAMBER | POM | 1 | LOCAL |
| 3 | SPACER | POLYESTER | 1 | LOCAL |
| 4 | SCREEN | NON-FIBRECORD | 1 | LOCAL |
| 5 | DIAPHRAGM | POLYESTER AND STAINLESS STEEL | 1 | U.S.A |
| 6 | PLATE | FEP AND METAL | 1 | TAIWAN |
| 7 | RING | BRASS | 1 | LOCAL |
| 8 | CASE | ALUMINUM | 1 | LOCAL |
| 9 | FET | | 1 | |
| 10 | CAPACITANCE | | 2 | |

REMARK:

- 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. Color difference is caused by different purchase batches , which will not affect fuction, so it is not as acceptance criteria.
3. The percentage of assigned Sensitivity enter Adjacent range is less than 30% .

5. MECHANICAL CHARACTERISTICS

| | |
|------------------------------|---|
| Soldering Heat Shock | To be no interference in operation after soldering Heat shock, temperature $320^{\circ}\text{C}\pm 20^{\circ}\text{C}$ for 2 ± 1 seconds |
| Terminal Mechanical Strength | To be no interference in operation after pulled the terminal with 0.5 kg strength for 3 seconds. |

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 200 hours, the sensitivity to be within $\pm 3\text{dB}$ from the initial value. |
| | After exposure at -25°C for 200 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 200 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 sensitivity. |
| Vibration Test | To be no interference in operation after vibrations, 10Hz to 50Hz for 1 minute full amplitude 1.52mm, for 2 hours at 3 axes. |
| Drop Test | To be no interference in operation after dropped to concrete floor each one time from 1 meter height at three directions in state of packing. |

7. CONCEPT OF UNIT

The difference between concept of unit “Pascal” and the one of unit “ μbar ” can be explained as follows. In calibrating the sensitivity of ECMs,

The sensitivity is manifested differently according as the unit is “Pascal” or “ μbar ”.

That is, the sensitivity will be increased by 20 dB in the usage of unit “Pascal”.

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

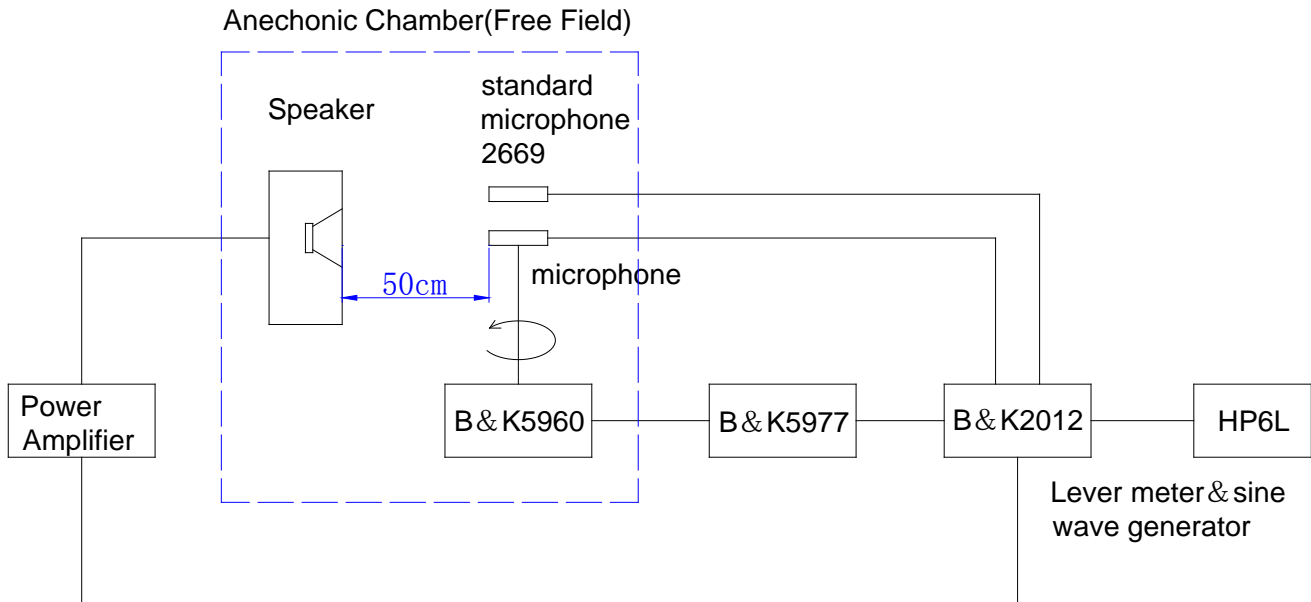
8.SENSITIVITY STANDARD TESTING

8.1 SENSITIVITY

8.2 REQUEST:

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

8.3 TESTING WAY:



8.3.1 Testing microphone with standard operating condition.

8.3.2 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.

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

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

THE STORAGE, TRANSPORTATION AND USING GUIDE OF CONDENSER MICROPHONE

8.4 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 |

9. REGARDING THE SOLDERING OPERATION

MIC is a kind of very sensitive components for temperature and static impacting because there is a FET and a vibrant diaphragm, and FET is destroyed by strong heat and static; Diaphragm is destroyed by strong heat. If the operation is unsuitable or protect bad during the soldering process, it will affect MIC function and even destroy, So pay attention the following request when soldering :

9.1.Solder temperature and time

9.1.1.Suggest Iron of constant temperature;

9.1.2.Suggest lead-free soldering temperature range $320^{\circ}\text{C} \pm 20^{\circ}\text{C}$ (external soldering temperature of Iron needle) ;

9.1.3.the tual temperature of the user is according to PCB layers and soldering way to adjust soldering temperature.

9.1.4.ldering skill: soldering time of single point is within 2 seconds; Don't continue soldering same mic (please repair soldering once badly after cooling it)

9.1.5.Belongs to normal phenomenon that the sensitivity of the microphone change 0.5dB to 1dB within stipulating soldering temperature and time range.

9.1.6.If soldering temperate of the mic increase and time prolong, Sensitivity will have a big change, and even destroy inner structure, performance.

9.2.Soldering Quality

The soldering point can't leave sand hole or empty hole after soldering. (sand hole or empty hole will affect sensitivity and performance) 、continuous soldering phenomena.

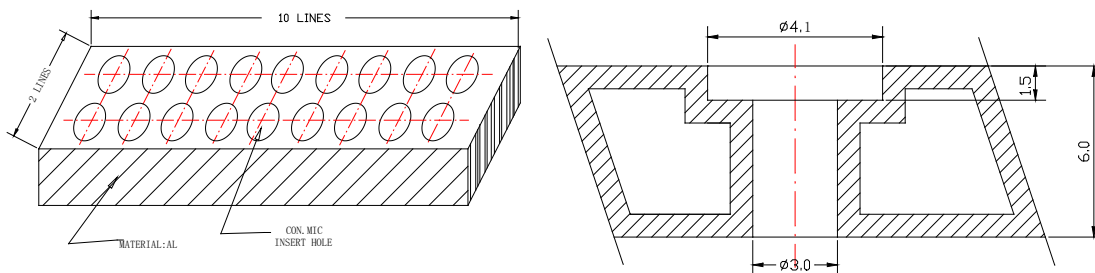
9.3.Static protecting

electric iron、test machine workstand、soldering tool must effectively connect earth.the operator must wear ring of resisting static.

9.4.heat scattered defending

9.4.1.Using heat scattered tool, Choose Al or Cooper, Please refer the following drawing

9.4.2.The heat scattered tool of user,whose shape need according to actual the position of soldering product and space to design or increase blow air tool for scattering heat.



A good package will help Mic. on using normal transportation. Pls pay more attention to prevent humid, shake, sunlight and heavy press.

10. TEMPERATURE CONDITONS

The full packed Mic. should be store at warehouse in $-20 \sim +70^{\circ}\text{C}$, 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: $-20^{\circ}\text{C} \sim +70^{\circ}\text{C}$

11 PACKAGING

